PTTEP



56-1 One Report

Annual Report

2022

PT

PTTEP t
Net Zero

Exploring for Lo

Our exploration
managed to transf
organization. Ne
on natural gas an
factored into the
process.



The road to strengthen the nation's energy security

TEP operates with consideration to create the right balance of business, social and environmental aspects for a sustainable future.

Save our world, save our future

akes part in solving global warming issues and therefore sets forth to achieve Greenhouse Gas Emissions by 2050 through our "EP Net Zero 2050" concept.

ower Carbon E&P Portfolio

and production portfolio is form PTTEP into a lower-carbon w projects with an emphasis d greenhouse gas intensity are investment decision-making

EP

NET ZERO

2050

Production and Planet in Balance

We pursue the development of technology to reduce GHG emissions, energy and production efficiency improvement, application of renewable energy in operations, as well as emissions offsetting through the planting of trees in forests and mangroves to increase the natural carbon sink.

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For cases where this Annual Report (Form 56-1 One Report) references information disclosed on the Company's website the disclosed information shall be deemed to be part of Form 56-1 One Report. The Board of Directors certifies the correctness and completeness of such disclosed information which is the same as information disclosed in Form 56-1 One Report.



Arthit Project

Social and Environmental Contribution Highlights

Social Support



62,000 million THB

Paid to Thai Government in form of income tax, royalties, production bonus and other remuneration

R&D funds

Student scholarships

School improvements

Increase local community income and charity

Innovation and technology development:

65 projects

Revised Human Rights Policy

in alignment with international human rights standards and due diligence

Increased community income

of focused communities participating in Aquatic Animal Hatchery Learning Center and Seafood Product Value Enhancement Project:

20.5%

100% of employees completed **CG&BE e-Learning**

Maintain **100%** **CG&BE acknowledgment** by employees



Environmental Support



Accumulated GHG emissions avoidance and reduction of approximately

8.9 million tonnes of CO_2 equivalent from 2013 (the base year 2012)

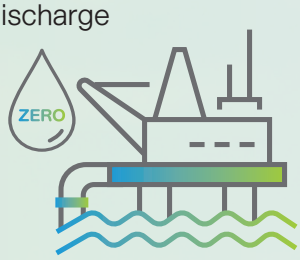
Waste diverted from disposal by **19.3%** of total waste





Zero hazardous waste and industrial waste to landfill*

Zero produced water discharge to environment*



Achieved net positive impact on ocean biodiversity and ecosystem services (BES) values in all offshore operations:

44.7%







EP Net Zero 2050 and Interim Targets

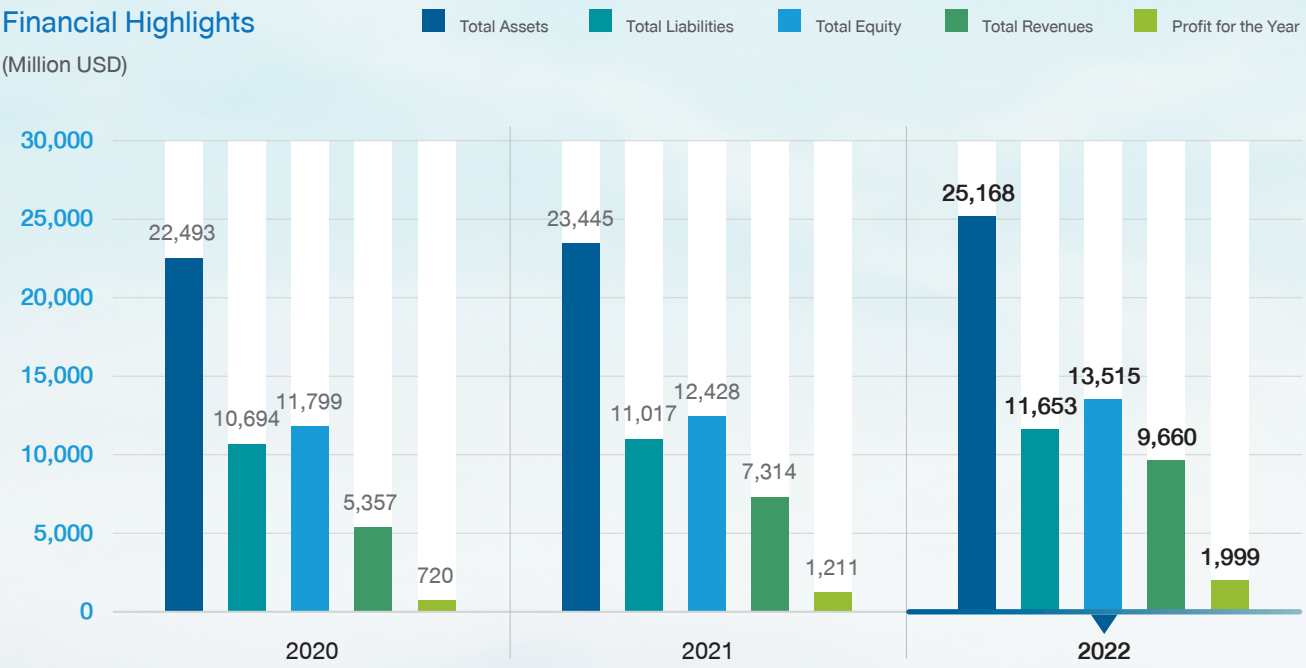


For operation in Thailand only

Financial Highlights

Financial Highlights

(Million USD)



Net cash flows provided by operating activities*

2020	2,799
2021	3,404
2022	**4,659**

Net cash flows used in investing activities

2020	(1,072)
2021	(3,854)
2022	**(1,680)**

Net cash flows used in financing activities

2020	(846)
2021	(695)
2022	**(1,999)**

Cash and cash equivalents at the beginning of the year**

2020	2,823
2021	3,704
2022	**2,559**

Cash and cash equivalents at the end of the year**

2020	3,704
2021	2,559
2022	**3,539**

(Million USD)

* Including the impact of exchange rate changes

** Excluding short-term investment

	2020	2021	2022
Dividend per Share (THB)	4.25	5.00	9.25*
Dividend Yield (%)**	4.33	4.24	5.24

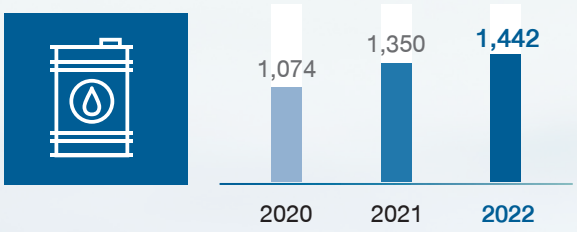
* Total dividend of 2022 at the rate of THB 9.25 per share includes the interim dividend at the rate of THB 4.25 per share and the second half-year dividend at the rate of THB 5.00 per share. Payments of the interim dividend and the second half-year dividend will be proposed in 2023 General Shareholder's Meeting on April 3, 2023 for acknowledgment and approval, respectively.

** Calculated from PTTEP's closing share price on the year-end date.

	2020	2021	2022
Financial Ratios			
EBITDA Margin (%)	68	73	75
Debt to Equity (times)	0.33	0.33	0.28
Return on Equity (%)	6	10	15
Return on Assets (%)	3	5	8
Return on Capital Employed (ROCE)	5.37	8.15	12.54

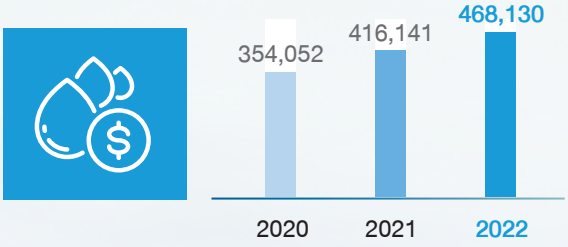
Petroleum Proved Reserves

(MMBOE)



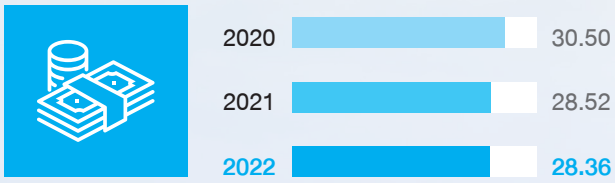
Petroleum and Natural Gas Sales Volume

(BOED)



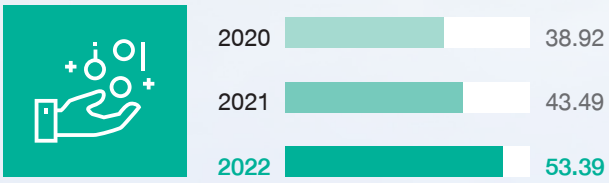
Unit Cost

(USD per BOE)

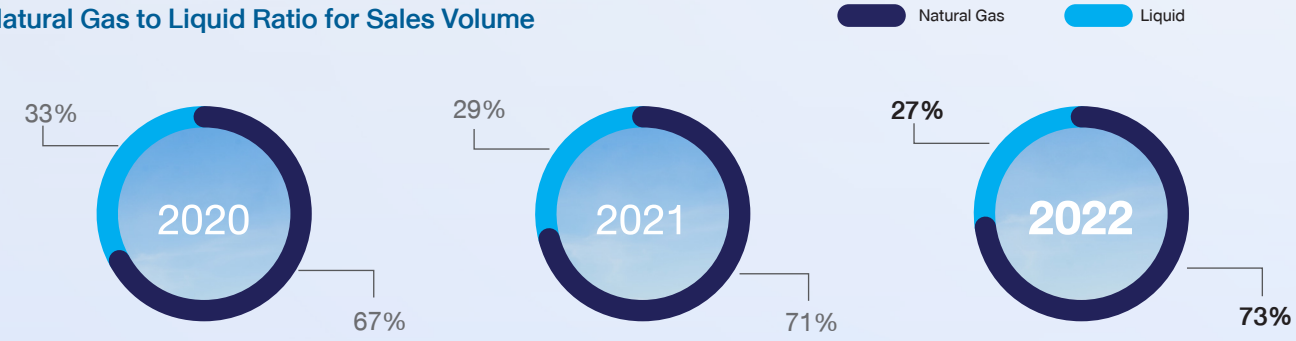


Average Selling Price

(USD per BOE)



Natural Gas to Liquid Ratio for Sales Volume



Message from
Chairman and Chief Executive Officer



Krairit Euchukanonchai
Chairman

Montri Rawanchaikul
Chief Executive Officer

Dear Shareholders,

2022 was another year of challenges, from the slowdown of the global economy and high inflation to upward adjustments in oil prices following the Russia-Ukraine conflict that affected world energy supply and the world economy, leading to significant cuts in growth forecasts. Meanwhile, the climate crisis intensified, pushing the world towards the energy transition to clean energy and greenhouse gas emissions reduction. Energy companies across the world were dealing with the need to balance energy supply for sustainable growth.

Amid these challenges, PTT Exploration and Production Public Company Limited (PTTEP) maintained its commitment to becoming a sustainable organization. Under the Sustainable Development Framework, where we emphasize High Performance Organization (HPO); Governance, Risk Management and Compliance (GRC); and Sustainable Value Creation (SVC).

With the framework in mind, PTTEP is on the path to building energy security and becoming a low-carbon organization. In 2022, we announced the Net Zero Greenhouse Gas Emission 2050 target and action plans at the 2022 Annual General Shareholder's Meeting. The "EP Net Zero 2050" concept will guide us on actions to avoid, offset, and mitigate greenhouse gas emissions from all our business activities.

E in the concept stands for **"Exploring for Lower Carbon E&P Portfolio"**. Our exploration and production portfolio is managed to transform PTTEP into a lower-carbon organization. New projects will emphasize natural gas and as part of the investment decision-making process, the intensity of greenhouse gas will be factored into the evaluation of new projects. P refers to **"Production and Planet in Balance"**. We pursue the development of technology to reduce greenhouse gas emissions, energy and production efficiency improvement, application of renewable energy in operations, as well as emissions offsetting through the planting of trees in forests and mangroves to increase the natural carbon sink.

In 2022, PTTEP established a strategic framework with 3 strategies for continued energy security and relevant resources preparedness for the future; (1) Drive Value by maximizing values of existing assets, as well as business expansion in core strategic areas; (2) Decarbonize in order to achieve "Net Zero Greenhouse Gas Emission" by the year 2050, and (3) Diversify to expand into the new businesses, with the target that the net income from those businesses will reach 20 percent of PTTEP's consolidated net income by 2030, with the following details:

1. Drive Value: Driving and enhancing the value of E&P business by maximizing the value of existing assets, as well as business expansion in core strategic areas. In focus are the regions of Southeast Asia where our experiences and expertise lie and the Middle East, a PTTEP strategic region.

Regarding projects in Thailand, PTTEP proceeds with its mission to ensure Thailand's energy security with several projects such as G1/61 (Erawan, Platong, Satun and Funan Fields), G2/61 (Bongkot Field), Arthit, Contract 4, and S1. We made significant progress on the G1/61 Project in 2022, following a delay of more than 2 years as PTTEP was previously not allowed to access the site to proceed with preparation work. After assuming operatorship in April 2022, PTTEP is accelerating production to ramp up capacity to 800 million cubic feet per day by 2024 to support domestic demand. In the meantime, PTTEP has raised production output of all its projects in the Gulf of Thailand; namely G2/61 Project, Arthit Project, and MTJDA Project to alleviate the impact of energy prices on Thai people.

In the Malaysia-Thailand Joint Development Area Project (MTJDA), PTTEP was granted a 10-year production period extension until 2039, as well as additional gas supply to Thailand of at least 30 million cubic feet per day (MMSCFD) until 2025.

Elsewhere in Southeast Asia, PTTEP has made several investments in Malaysia. In 2022, the PTTEP Malaysia Office was inaugurated, and the Company was awarded the exploration block "SB412", off the coast of Sabah. PTTEP is also accelerating the exploration and development of block "SK410B", after a significant gas discovery at Lang Lebah. In Myanmar, PTTEP took over the operatorship of Yadana Project. Currently, natural gas from Myanmar accounts for 17 percent of Thailand's gas demand.

In the Middle East, another strategic area, PTTEP opened offices in the United Arab Emirates (UAE) and Oman to support business expansion. Significant progress was witnessed in the UAE as PTTEP discovered significant gas

resources in the "Abu Dhabi Offshore 2" Project, with an estimated gas reservoir of 2.5-3.5 trillion cubic feet (TCF), and acquired a 25 percent interest in the "Sharjah Onshore Area A" Project in Sharjah Emirate.

In Oman, Oman's Block 61, an onshore gas block in which PTTEP holds an interest, is running at its daily production capacity of 1,500 million cubic feet.

Another milestone involved the Algeria Hassi Bir Rekaiz Project in Algeria, Africa, which started first oil production at 13,000 barrels per day and the first oil sales were realized in the last quarter of 2022.

2. Decarbonize: Emission reduction to achieve "Net Zero Greenhouse Gas Emission" with an emphasis on greenhouse gas management, in the past year PTTEP pursued studies on carbon emissions reduction technologies. An important project involved Carbon Capture and Storage (CCS), which was kicked off for the first time in Thailand in 2021. At Arthit Project in the Gulf of Thailand, PTTEP will leverage its accumulated expertise in petroleum exploration and production in CCS development. The project will inject carbon dioxide (CO2) into the specified saline aquifers and depleted reservoirs for permanent sequestration. CCS is an important jigsaw piece and a vital engine in driving PTTEP and Thailand towards emissions reduction goals.

PTTEP expects to execute CCS technology at Arthit Field in 2026. Thereby, carbon emissions are expected to be reduced by approximately 700,000-1,000,000 million tons per annum. Concurrently, PTTEP is conducting feasibility studies on CCS in other areas in Thailand as well as countries where the Company operates such as Malaysia.

Moreover, PTTEP is using technology to recover and utilize flare gas, as well as applying more renewable energy and new forms of clean energy at operating sites. For instance, solar energy at Arthit Project and S1 Project, along with wind turbines at Arthit Project. Besides, carbon offsetting programs will continue with reforestation activities that cover terrestrial and mangrove forests as well as other initiatives, particularly those designed to absorb carbon in coastal and marine ecosystems (Blue Carbon).

These efforts enabled PTTEP to reduce emissions by 166,352 tons of carbon dioxide equivalent in the past year.

3. Diversify: Expand into new businesses by exploring new business opportunities through the acceleration of AI & Robotics Ventures Company Limited and exploring CCS Initiatives, Carbon Capture and Utilization (CCU), and the commercialization of PTTEP's technology.

In addition, PTTEP and 5 multinational companies signed a Memorandum of Understanding (MoU) on a 'Green E-Methanol Value Chain Collaboration' which will explore the feasibility of establishing a green E-Methanol pilot plant. Green E-Methanol is considered as one of the candidates for alternate fuel to meet International Maritime Organization (IMO) 2030/2050 goals to significantly reduce greenhouse gas emissions.

PTTEP has also conducted numerous research on new energy like hydrogen, a clean energy that will be the energy of the future. In the past year, we collaborated with PTT Group to develop Thailand's hydrogen market and infrastructure and explored the possibility of hydrogen investments in the Middle East, with a focus on the UAE and Oman.

2022 Operating Results Achieved as Planned

Thanks to the successful results of activities under our strategies, PTTEP's 2022 operating results were achieved as planned. Regarding the Company's operating results, unit cost was maintained at USD 28.36 per barrel of oil equivalent (BOE). The average petroleum sales volume improved due to a 12 percent rise in production to 468,130 BOED, in comparison to 2021 when production was at 416,141 BOED. This significant increase was primarily from petroleum production in overseas projects including Oman Block 61 and Malaysia Block H, as well as from domestic project, G1/61. In addition, the average selling price was adjusted upward due to the global crude oil price escalation.

As a consequence, the Company generated total revenue of USD 9,660 million (equivalent to THB 339,902 million), a growth of 32 percent when compared to USD 7,314 million (equivalent to THB 234,631 million) reported in 2021. Net income in 2022 was recorded at USD 1,999 million (equivalent to THB 70,901 million). Meanwhile, in 2022, approximately THB 62,000 million was paid by PTTEP for the Company's income tax, royalties and other remuneration. This provides funds that strongly support national development in various areas such as community, education, and research and development (R&D) funds.

PTTEP has set a 2023 budget at USD 5,481 million (equivalent to THB 191,818 million) to support key business activities as

follows; maximizing production volume from existing assets including G1/61 Project, G2/61 Project, Arthit Project, Contract 4 Project, S1 Project and producing projects in Malaysia; accelerating key projects' activities which are under the development phase such as Malaysia SK410B Project and Mozambique Area 1 Project; and expediting exploration activities to support long-term growth in Thailand, Malaysia, and Oman. Apart from the aforementioned allocations, PTTEP has set aside provisional budget of approximately USD 4,800 million (equivalent to THB 166,052 million) for 2023-2027, aimed at diversifying into new businesses amid the new landscape of the energy transition.

Balance of Growth and Environmental, Social, and Governance (ESG)

PTTEP believes that with sustainable business growth, the Company will be able to create value for all stakeholders and ensure mutual growth. Our operations are thus geared towards both business growth and sustainability, covering the areas of environmental, social, and governance (ESG).

PTTEP has continually adhered to governance best practices and business ethics, and fights against fraud and corruption in any forms. The Company promoted the inclusion of corporate governance principles, risk management, and compliance with the goal to become a GRC role model for Thai listed companies by 2030.

On social and environmental fronts, PTTEP continues to move forward under the Ocean for Life Strategy, to ensure environmentally-friendly operations that seek to conserve and protect biodiversity and the abundance of the oceans and to increase the incomes of the communities in the 17 provinces along the Gulf of Thailand.

In 2022, the Ocean Data Platform was developed, in collaboration with partners, and an Ocean Current Mapper buoy was released to monitor ocean currents via a satellite system. The project will collect data on marine animals' lifecycles, ocean waste movement, and microplastic, which will aid efforts for ocean conservation. The first buoy was placed near the Arthit project in the Gulf of Thailand, and is the first offshore buoy in Thailand. PTTEP also launched a project to survey the abundance of coral ecosystems, which monitors coral bleaching around Ko Man Nai's Hin Toi Hoi area in Rayong Province and in Ko Pha-ngan, Surat Thani Province.

PTTEP inaugurated 4 aquatic hatchery learning centers in Phetchaburi, Prachuap Khiri Khan, Samut Songkhram and Rayong Provinces. In addition, PTTEP handed the refurbished the Sea Turtle Exhibition and Hatchery Building to the Royal Thai Navy Sea Turtle Conservation Center in Chonburi Province and the Sea Turtle Conservation Center, Base 2nd Naval Area Command, Songkhla Province. The aims are to raise public awareness about sea turtle conservation and promote the conservation of sea turtles in the marine ecosystem around Thailand.

Achievements in 2022

Thanks to our care for the environment and society, PTTEP in 2022 earned awards and recognitions from domestic and international organizations including seletion in the Stock Exchange of Thailand's Thailand Sustainability Investment (THSI) for the 7th consecutive year; Sustainability Awards of Honor and Best Innovative Company Awards from SET Awards 2022; Low Carbon and Sustainable Business Award 2022, at the outstanding or highest level from Thailand Greenhouse Gas Management Organization (TGO); the 4th NACC Integrity Awards from the National Anti-Corruption Commission; the Role Model Organization on Human Rights Award for the 4th consecutive year in the State Enterprise sector from Rights and Liberties Protection Department, Ministry of Justice; and 10 awards for diverse social activities.

These achievements reflect our commitment towards comprehensive capability development for sustainable growth.

On behalf of PTTEP's Board of Directors, the Management, and employees, I would like to thank our shareholders, suppliers, business partners, financial institutions, public and private organizations, and all stakeholders for their continuous trust and support to PTTEP. We vow to hold on to our commitment to operating with ESG in mind, for the energy security of Thailand and the countries we operate in and sustainable values for all stakeholders.



Structure and Business Operations

1. Structure and Business Operations

1.1 Policy and Business Operation Overview

1.1.1 Vision, Mission, and Strategy

PTTEP is a leading Thai E&P company committed to sustainably explore, develop, and produce energy supply to Thailand and other countries that we invest. We proactively prepare for the upcoming energy transition by focusing on an integrated natural gas business, while upholding the sustainability statement and framework. This includes reducing greenhouse gas emissions, investing in low carbon and future energy business, and creating sustainable values for stakeholders. Our vision, mission, and strategy are defined as follows.

Vision: Energy partner of choice through competitive performance and innovation for long-term value creation

Mission: PTTEP operates globally to provide reliable energy supply and sustainable value to all stakeholders

Strategy: PTTEP adheres to the sustainability global practices and UN principles. Operating under the concept of "From We to World" in order to become a "Sustainable Organization" that takes a conscious consideration of all stakeholders' interests. Delivering secure, affordable, and sustainable energy is a foundation of PTTEP's strategy, especially in an ongoing global energy crisis and energy transition. Therefore, PTTEP establishes a strategic framework consisting of 3 strategy pillars as follows.

1) <u>Drive Value</u>

- Strengthen E&P and ensure Thailand's energy security
  - Maximize production
  - Expedite development
  - Monetize discovery
- Enhance competitiveness of unit cost
- Expand gas-weighted portfolio and LNG in upstream and midstream business

Target

- Sustain 5 percent average production growth (CAGR)
- Maintain the reserves to production ratio (R/P) to be greater than 5 years
- Maintain competitive unit cost for E&P to be less than 25 USD/BOE
- Become a zero-incident organization

2) <u>Decarbonize</u>

- Manage E&P portfolio to avoid increasing GHG emissions
- Execute GHG emissions reduction plan
- Accelerate Carbon Capture and Storage (CCS) projects
- Maximize use of renewables and future energy in operation
- Pursue emission offsetting and Ocean for Life

Target

- Reach Net Zero Greenhouse Gas Emissions by 2050 (Scope 1 and Scope 2) of the exploration and production business under PTTEP's operational control and set interim targets to reduce greenhouse gas emissions intensity by at least 30 percent within 2030 and 50 percent within 2040 (with 2020 base year)

3) Diversify

- Scale up AI and Robotics Ventures (ARV)
- Capture Gas to Power and renewable energy opportunity
- Explore Carbon Capture, Utilization, and Storage (CCUS), hydrogen, and future energy
- Commercialize in-house technology

Target

- Achieve 20 percent contribution to net income from beyond E&P business in 2030

Procedure to Set the Company's Vision and Mission

PTTEP Board of Directors (Board) reviews and approves the vision and mission of the Company annually, being accompanied generally by the management, through a systematic planning process. The process is started by updating the current business environment, stakeholder inputs, and the E&P industry trend and their implications on the Company regarding opportunities and risks. In addition, the Company's investment portfolio is reviewed and assessed on returns and risks to identify the vision, mission, and short-term and long-term strategic directions. These allow the Company to achieve sustainable growth as well as be able to cope with business changes. The management will then develop the Company's work plan, budget, and Key Performance Indicators (KPIs), based on the given strategic directions and policies, to be presented to the Board for approval prior to implementation.

After the Board approves the vision, mission, and corporate strategy, the management will cascade down the approved strategic directions and corporate targets to promote a better understanding among all of the Company's employees. In principle, this will subsequently lead to sub-work plan development and implementation, which are in line with the corporate target, work plan, and core values to achieve the Company's goals at the end. However, the Board also regularly supervises and monitors management's implementation of stated strategic plans in accordance with business directions and strategies. The management is responsible for reporting its performance in comparison to the strategic plans to the Board for acknowledgment on a quarterly basis.

1.1.2 Development and Significant Changes in the Past 3 Years

Year 2020

On February 19, 2020, PTTEP MENA Limited (PTTEP MENA), a subsidiary of the PTTEP Group, and Total E&P Oman Block 12 B.V., a subsidiary of Total S.A., signed Exploration and Production Sharing Agreement (EPSA) with Oman's Ministry of Oil and Gas (MOG) for the exploration and production rights of Block 12, located onshore in the central part of Sultanate of Oman (Oman), with the participating interest for PTTEP MENA Limited at 20 percent and Total E&P Oman Block 12 B.V. as the Operator at 80 percent.

On March 13, 2020, PTTEP Australia Timor Sea Pty Ltd (PTTEP AT), a subsidiary of the PTTEP Group, requested to terminate and return 100 percent of AC/RL5 Project to the Government of the Commonwealth of Australia (Australia), after fulfillment of the requirements of the concession. The termination is effective from June 15, 2020.

On July 9, 2020, PTTEP South Asia Limited (PTTEP SA), a subsidiary of the PTTEP Group, submitted a request to terminate and return 77.5 percent of the exploration block of Myanmar MOGE 3 Project after fulfilling the obligations under the Product Sharing Contract. The official approval from the Government of the Republic of the Union of Myanmar (Myanmar) was already obtained in November 2021.

On July 21, 2020, AI and Robotics Ventures Company Limited (ARV), a subsidiary of the PTTEP Group, and Thai Advance Innovation Company Limited, a subsidiary of Thaicom Public Company Limited, set up a new joint venture company under the name of ATi Technologies Company Limited (ATi). in order to develop unmanned aerial vehicle (UAV) or drone solutions, both product and services, and develop smart farming technologies, including data analytics platform and end-to-end farm management solutions, to enhance the potential of the agricultural sector in Thailand.

In July 2020, the PTTEP Group and its partners signed senior debt financing agreements in Mozambique Area 1 Project (Project Finance), in the amount of USD 14.9 billion, to advance the first two-train LNG development, after the final investment decision was made in June 2019. The PTTEP Group has 8.5 percent of the participating interest in this project.

On October 14, 2020, PTTEP South Asia Limited (PTTEP SA), a subsidiary of the PTTEP Group, submitted a request to terminate and return 50 percent of the exploration block of Myanmar MD-7 Project after fulfilling the obligations under the Product Sharing Contract. The termination will be effective upon receiving official approval from the Government of Myanmar.

On October 27, 2020, AI and Robotics Ventures Company Limited (ARV), a subsidiary of the PTTEP Group, and Mermaid Subsea Services (Thailand) Company Limited, a subsidiary of Mermaid Maritime Public Company Limited, set up a new joint venture company under the name of ZeaQuest Company Limited (ZeaQuest). in order to develop AI and robotic technologies to provide underwater inspection, repair, and maintenance services to oil & gas and renewable energy corporates operating in offshore businesses in Asia and globally. The objective of the joint venture is to be an internationally renowned leader in inspection, repair, and maintenance services using AI and robotic technology.

On December 21, 2020, PTTEP MENA Limited (PTTEP MENA), a subsidiary of the PTTEP Group, and Eni Abu Dhabi B.V., a subsidiary of Eni S.p.A. were selected as the successful bidders from the 2019 Abu Dhabi's Block Bid Round for exploration and production rights of Offshore Block 3 which is located in the north-west of Abu Dhabi, United Arab Emirates (UAE). The consortium has signed a Concession Agreement with the Abu Dhabi National Oil Company (ADNOC), with the participating interest for PTTEP MENA Limited at 30 percent and Eni Abu Dhabi B.V. as the operator at 70 percent.

On December 30, 2020, the PTTEP Group received an exclusive right to develop the Integrated Domestic Gas to Power Project in Myanmar and signed the Notice to Proceed with the Ministry of Electricity and Energy (MOEE). It is an integrated energy project from Exploration and Production to a gas-fired power plant in Myanmar. At the initial stage, the PTTEP Group plans to feed the natural gas from Zawtika and Myanmar M3 projects to supply the new power plant with a capacity of 600 megawatts for domestic consumption. The generated power will be sold to the Electric Power Generation

Enterprise (EPGE), a state-owned enterprise under MOEE, over a 20-year term with 5-year extension, from the Commercial Operation Date (COD).

Year 2021

On February 6, 2021, PTTEP Sabah Oil Limited (PTTEP SBO), a subsidiary of the PTTEP Group, and its joint venture partners completed the first development phase of Malaysia Block H Project. Natural gas production, at depths greater than 1,100 meters from Rotan and Buluh deepwater fields, had commenced since then for delivering to PETRONAS Floating Liquefied Natural Gas-2 (PFLNG2) facility. The production target rate is 270 million standard cubic feet per day (MMSCFD).

On February 10, 2021, the PTTEP Group announced the appraisal drilling well result of Malaysia SK410B Project, located offshore Sarawak, Malaysia. The appraisal drilling at Lang Lebah-2 followed the gas discovery of the first exploration well in 2019. The appraisal well, Lang Lebah-2, was drilled in September 2020 to a total depth of 4,320 meters with proven over 600 meters of net gas pay discovered, indicating a larger reservoir than the initial estimate. The drilling result registers a new record for the PTTEP Group's largest gas discovery and will increase reserve and support the Company's long-term growth.

On February 24, 2021, the PTTEP Group announced the discovery of gas at the Dokong-1, the first exploration well of Malaysia SK417 Project, located in offshore of Sarawak, Malaysia. At a total depth of 3,810 meters, the well encountered 80 meters of net gas pay, indicating gas discovery. This high-quality gas discovery at Dokong-1 presents future synergy development and production opportunity as a cluster development with the previously discovered adjacent Malaysia SK410B Project.

On March 19, 2021, the trial judge of the Federal Court of Australia delivered the class action judgment on the Class Action lawsuit against PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA), a subsidiary of the PTTEP Group, brought by a group of Indonesian seaweed farmers, claiming damages to their seaweed crops caused by the 2009 Montara incident.

On March 23, 2021, the conditions precedent to Completion, as prescribed in the signed Sale and Purchase Agreement (SPA) to acquire 20 percent interest in Oman Block 61 Project, Oman from BP Exploration (Epsilon) Limited through PTTEP MENA Limited, a subsidiary of the PTTEP Group, were fulfilled. The acquisition was then completed and effective from such date. This transaction was contemplated by the SPA dated February 1, 2021 with a total transaction value of approximately USD 2,450 million. Oman Block 61 Project (PDO) is a producing onshore gas block situated in the central part of Oman.

On March 30, 2021, the PTTEP Group announced the discovery of gas at the Sirung-1, the first exploration well of Malaysia SK405B Project, located offshore of Sarawak, Malaysia. At a total depth of 2,538 meters, the well encountered 100 meters of significant oil and gas sandstone reservoirs. The appraisal well is scheduled to be drilled in 2022 to further affirm the petroleum potential of the field.

On April 26, 2021, the PTTEP Group announced the force majeure declaration, made by TotalEnergies (the operator), to suspend operations of the Mozambique Area 1 Project (LNG project) for safety reason. This was due to the security situation in the city of Palma, Mozambique, situated approximately 20 kilometers from the project and construction site. All projects' staff and contractors are safe from this situation. The Operator had evacuated all staff and contractors out of the area and handed the project site to be under the care of the Government of Mozambique.

On May 19, 2021, the PTTEP Group announced the discovery of gas at the Kulintang-1, the first exploration well of Malaysia SK438 Project, located offshore of Sarawak Malaysia. At a total depth of 2,238 meters, the well encountered gas reservoirs. The exploration well is scheduled to be drilled to further affirm the petroleum potential of the field.

On June 16, 2021, AI and Robotics Ventures Company Limited (ARV), a subsidiary of the PTTEP Group, in partnerships with Aerodyne Group (Aerodyne) from Malaysia and Digital Creation Co., Ltd. (DC) announced the launch of a joint venture company, AeroSky (Thailand) Company Limited (AeroSky), with 33 percent shareholding interest by ARV. AeroSky will provide state-of-the-art drone-based enterprise solutions across the Thai market, including clients in the telecoms, electricity, oil & gas, and other infrastructure-led industries. The establishment of this joint venture is in line with the Company's strategy of expanding investment into new businesses through the use of technology and innovation to enhance efficiency and create long-term sustainability.

On September 1, 2021, the PTTEP Group, with 24.5 percent participating interests and the operator of Algeria Hassi Bir Rekaiz Project in the People's Democratic Republic of Algeria (Algeria), received approval from the Government of Algeria to acquire the 24.5 percent shareholding interest in the project from partner CNOOC Limited (CNOOC), The shareholding interest of the PTTEP Group then increased to 49 percent from such date. SONATRACH, a national oil company of Algeria, is a partner in this project with 51 percent participating interest.

On September 3, 2021, Asia Power and Transportation SG Holding Pte. Ltd. (APT) was established, with 100 percent shareholding by EP-Tech Ventures Holding Company Limited (EP-Tech), a subsidiary of the PTTEP Group. This is to support future investments of the PTTEP Group.

On September 6, 2021, Delta Gas Transportation SG Holding Pte. Ltd. (DGH) was established, with 100 percent shareholding by Asia Power and Transportation SG Holding Pte. Ltd. (APT) , a subsidiary of the PTTEP Group. This is to support future investments of the PTTEP Group.

On September 17, 2021, Mitsui Oil Exploration Company Limited (MOECO), a partner in the Myanmar M3 Project, notified to withdraw its shareholding interest at 20 percent. The withdrawal was effective on October 31, 2021. As a result, PTTEP International Limited (PTTEPI), a subsidiary of the PTTEP Group, will have the shareholding interest at 100 percent in this project. However, the completion of the withdrawal is subject to the approval from the Government of Myanmar.

On September 21, 2021, AI and Robotics Ventures Company Limited (ARV), a subsidiary of the PTTEP Group, established 4 subsidiaries to support its business growth plans, namely Rovula (Thailand) Company Limited (Rovula), Skyller Solutions Company Limited (Skyller), Varuna (Thailand) Company Limited (Varuna), and Cariva (Thailand) Company Limited (Cariva). Rovula is focused on using advanced artificial intelligence (AI) and robotics to provide end-to-end subsea and marine inspection, repair, and maintenance in the oil and gas industry and beyond. Skyller provides integrated asset inspection and management services via its proprietary platform to industrial asset owners by leveraging multiple fleets from drones to robotics and AI platform-as-a-service (PAAS) into unique solutions. Varuna leverages AI, satellite technology, and unmanned aerial vehicles (UAV) to offer state-of-the-art smart-farming and smart-forestry solutions to farmers and agricultural businesses. Cariva is a health data network which leverages AI, IoT, and robotics to empower and generate health insights for users, both individuals and businesses.

On September 30, 2021, the PTTEP Group dissolved an inactive subsidiary, namely PTTEP Semai II Limited, in order to reduce administrative costs with no impact to the PTTEP Group's operations.

On October 20, 2021, the PTTEP Group dissolved an inactive subsidiary, namely Cove Energy Mozambique Rovuma Onshore Limited (CEMROL), in order to reduce administrative costs with no impact to the PTTEP Group's operations.

On October 26-27, 2021, the PTTEP Group established 3 subsidiaries to support its future investments, namely FutureTech Energy Ventures Company Limited (FTEV), FutureTech Solar (Thailand) Company Limited (FST), and Delta Gas Transportation Limited (DGT).

On October 29, 2021, the conditions precedent to completion, as prescribed in the signed Sale and Purchase Agreement (SPA) to sell 100 percent interest in Partex Brasil Ltda. and Partex Brasil Operações Petrolíferas Ltda. were fulfilled. The transaction was then completed and effective from such date. This transaction was contemplated by the SPA dated July 30, 2021, entered into by the sellers, Participations and Explorations Corporation, and Partex (Brazil) Corporation, subsidiaries of PTTEP Group. Partex Brasil Ltda. holds 50 percent participating interests in the Potiguar Project, an onshore oil field located in the northeast of Federative Republic of Brazil (Brazil).

On November 5, 2021, the PTTEP Group issued name-registered unsubordinated and unsecured digital debentures to the public for the total amount of THB 6,000 million carrying a step-up interest rate of 2.00-2.75 percent p.a., averaging to 2.25 percent p.a., with a tenor of 5 years. The debentures were Asia's first fully-digitalized corporate bond via Wallet.

On November 19, 2021, PTTEP Australasia (Ashmore Cartier) Pty Ltd submitted a request for the relinquishment of AC/L3 Project in Australia, which will be effective after the official approval from the Government of Australia.

On November 22, 2021, the Government of Myanmar approved the relinquishment of exploration blocks of Myanmar M11 Project, at 100 percent participating interest, after fulfillment of the requirements of the Production Sharing Contract, the relinquishment request was submitted in September 2019.

On November 24, 2021, the Government of Myanmar approved the relinquishment of exploration blocks of Myanmar MOGE 3 Project, at 77.5 percent participating interest, after fulfillment of the requirements of the Production Sharing Contract, that the relinquishment request was submitted in July 2020.

On November 30, 2021, the PTTEP Group announced successful gas discovery at the second exploration well, Nangka-1, offshore Malaysia SK417 Project, in Sarawak, Malaysia. This came after the gas discovery in Dokong Field was announced in early 2021. The appraisal well will be drilled to affirm the petroleum potential of the field.

On December 3, 2021, PTTEP MENA Limited (PTTEP MENA), a subsidiary of the PTTEP Group, signed a Farm-in/Farm-out Agreement to acquire 25 percent stake in the Concession Area C onshore in the Emirate of Sharjah from Eni Sharjah B.V. Area C is an onshore gas and condensate concession block in the exploration phase, situated in the central part of Sharjah, UAE. The acquisition will be completed after fulfilling all conditions in the said agreement and obtaining all necessary government approvals.

On December 13, 2021, PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA), a subsidiary of the PTTEP Group, exercised its right to appeal and filed a Notice of Appeal in the Federal Court of Australia, against the class action lawsuit brought by a group of Indonesian seaweed farmers, claiming damages to their seaweed crops caused by the 2009 Montara incident. On March 19, 2021 and October 25, 2021, the trial judge of the Federal Court of Australia delivered judgements in the class action and the Final Orders were delivered on November 15, 2021.

Year 2022

On January 21, 2022, PTTEP International Limited (PTTEPI), a wholly-owned subsidiary of PTTEP, has been notified by TotalEnergies EP Myanmar for its intention to withdraw, as both partner and operator, from Yadana Project and Moattama Gas Transportation Company (MGTC).

On March 1, 2022, the acquisition of 25 percent stake in the Sharjah Onshore Area C Project in UAE from Eni Sharjah B.V. through PTTEP MENA Limited, a subsidiary of PTTEP has been completed.

On March 14, 2022, the PTTEP Group announced the change in operatorship of Yadana Project and Moattama Gas Transportation Company (MGTC) to be PTTEP International Limited (PTTEPI), a wholly-owned subsidiary of PTTEP and a partner in the project, with an effective date of July 20, 2022.

On March 22, 2022, PTTEP HK Offshore Limited (PTTEP HKO), a wholly-owned subsidiary of PTTEP Group, and SapuraOMV Upstream (Sarawak) Inc. are awarded the exploration Block SB412, which is located offshore northwest of Sabah, from the Malaysia Bid Round 2021. The consortium has signed a Production Sharing Contract (PSC) with Petroliam Nasional Berhad (PETRONAS), with the participation interests for PTTEP HKO at 60 percent (the operator) and SapuraOMV at 40 percent.

On March 31, 2022, the PTTEP Group has dissolved an inactive subsidiary, namely PTTEP Sadang Limited, in order to reduce administrative costs with no impact to the PTTEP Group's operations.

On April 1, 2022, the PTTEP Group has dissolved an inactive subsidiary, namely Partex Services Portugal – Serviços para a Indústria Petrolífera, S.A. (PSP), in order to reduce administrative costs with no impact to the PTTEP Group's operations.

On April 5, 2022, PTTEP Treasury Center Company Limited (PTTEP TC), a wholly-owned subsidiary of the PTTEP Group, has successfully completed the issuance of senior guaranteed debentures with a bondholders' representative to institutional and high net-worth investors, for a total of THB 12,000 million. The debentures have 3 tranches consisting of 5-year tranche totaling THB 5,000 million, 7-year tranche totaling THB 1,000 million, and 10-year tranche totaling THB 6,000 million, carrying the coupon rates of 2.09 percent, 2.69 percent, and 3.05 percent per annum respectively, and are fully guaranteed by PTTEP.

On April 19, 2022, PTTEP Energy Development Company Limited (PTTEP ED), a wholly-owned subsidiary of PTTEP and an operator of G1/61 and G2/61 Project, together with the Department of Mineral Fuels as sellers, have entered into Gas Sale Agreement, Condensate Sale Agreement, and Crude Sale Agreement with PTT Public Company Limited. PTTEP ED has also reached an agreement with MP G2 (Thailand) Limited, a subsidiary of Mubadala Petroleum (Thailand) Holdings Limited (Mubadala), for PTTEP ED to be a sole investment operator and shall recognize all revenues and costs from the petroleum produced with effective date from December 1, 2021. This will assure continual petroleum production from G1/61 Project per development plan, as well as strengthen the country's energy security.

On April 24, 2022, PTTEP Energy Development Company Limited (PTTEP ED), a wholly-owned subsidiary of PTTEP, has become an operator under a Production Sharing Contract of G1/61 and G2/61 projects.

On April 29, 2022, PTTEP International Limited (PTTEPI) and PTTEP Offshore Investment Company Limited (PTTEPO), subsidiaries of PTTEP, have notified their decisions to withdraw from Yetagun Project and gas transportation company, Taninthayi Pipeline Company LLC (TPC), to all partners of Yetagun Project, with an effective date on May 31, 2022.

On May 17, 2022, PTTEP Business Center Company Limited (PTTEP BC), a subsidiary of PTTEP, has signed the sale and purchase agreement to divest its share in PTT Global LNG Company Limited (PTTGL) to Siam Management Holding Company Limited, a subsidiary of PTT Group.

On June 1, 2022, the Algeria Hassi Bir Rekaiz Project, in partnership with SONATRACH SPA, has successfully commenced the production with the oil production target at 13,000 barrels per day.

On July 15, 2022, PTTEP Group has dissolved an inactive subsidiary, namely PTTEP FLNG Holding Company Limited (PTTEP FH), in order to reduce administrative costs with no impact to the PTTEP Group's operations.

On August 1, 2022, the PTTEP Group announced successful gas discovery in a deeper zone, of the first exploration well XF-002 in Abu Dhabi Offshore 2 Project, located in the north-west of Abu Dhabi, UAE. The XF-002 exploration well discovered significant raw gas in place for both shallow and deep target, total approximately 2.5-3.5 trillion cubic feet (TCF). The project will continue drilling nearby prospect to further evaluate potential of the block.

On August 1, 2022, the PTTEP Group was informed by PTTEP International Limited (PTTEPI), Yangon Branch, a wholly-owned subsidiary of PTTEP, that there was a leakage at the Zawtika's onshore pipeline which resulted in the gas pressure drop and caused temporary natural gas supply suspension to Thailand. The preliminary investigation found no trace of explosion or fire.

On August 5, 2022, the PTTEP Group announced that on August 4, 2022, the Malaysia-Thailand Joint Authority (MTJA), an authority established under an Agreement between the Government of Malaysia and the Government of the Kingdom of Thailand, has concluded the annexation of Production Sharing Contract (PSC) of the Malaysia-Thailand Joint Development Area (MTJDA) with PTTEP International Limited (PTTEPI), a wholly-owned subsidiary of PTTEP, and PETRONAS Carigali (JDA) Limited (PC JDA), a subsidiary of PETRONAS Carigali Sdn Bhd. The annexation, which has been duly approved by the governments of Thailand and Malaysia, attains the rights to an additional area for exploration and production (Open Area) and a 10-year production period extension until 2039, as well as securing an additional gas volume of at least 30 MMSCFD until 2025 to satisfy Thailand's gas demand.

On August 15, 2022, the PTTEP Group announced that PTTEP International Limited (PTTEPI), Yangon Branch, a wholly-owned subsidiary of PTTEP, completed the onshore pipeline repair of the Zawtika Project and resumed the normal of gas delivery to Thailand on August 14, 2022.

On September 1, 2022, the PTTEP Group announced that on August 31, 2022, PTTEP Netherlands Holding Coöperatie U.A. (PTTEP NH) and PTTEP Brazil Investment B.V. (PTTEP BI), subsidiaries of PTTEP, have entered into a Sale and Purchase Agreement (SPA) to sell their investments in PTTEP Brazil Investments in Oil and Gas Exploration and Production

Limitada (PTTEP BL), which are registered in Brazil, altogether with all obligations to Ubuntu Engenharia e Serviços Ltda. PTTEP BL is holding 25 percent interest in the Barreirinhas AP1 Project and 20 percent interest in the Brazil BM-ES-23 Project. Completion of the sale is subject to the conditions prescribed in the SPA and this divestment marks the withdrawal of all PTTEP Group's investment in Brazil.

On October 25, 2022, the Government of Myanmar approved the relinquishment of exploration blocks of Myanmar MD-7 project, at a 50 percent participating interest, after fulfillment of the requirements of the Production Sharing Contract, the relinquishment request was submitted in October 2020.

On October 26, 2022, PTTEP MENA Limited (PTTEP MENA), a subsidiary of PTTEP, signed Farm-in/Farm-out Agreement to acquire 25 percent stake in the Sharjah Onshore Area A Project from Eni Sharjah B.V. (ENI). The completion was on December 23, 2022. After completion, the participation interest for this project will be as follows; ENI (Operator) 50 percent, SNOC 25 percent, and PTTEP MENA 25 percent.

On November 21, 2022, PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA) reported that it had participated in mediation process of the class action, as ordered by the Federal Court of Australia, and in line with the normal legal process under Australian Law. PTTEP AAA reached an in-principle agreement with the group of Indonesian seaweed farmers, that PTTEP AAA will pay AUD 192.5 Million (equivalent to approx. USD 129 Million) in full and final settlement of the class action (including PTTEP AAA's appeal). The in-principle settlement was made on a no admission of liability basis.

On November 22, 2022, the PTTEP Group established Xplor Ventures Company Limited (XPV) to support future investments.

On December 19, 2022, the PTTEP Group announced that on December 16, 2022, PTTEP (Angola) Corporation (PANG), a subsidiary of PTTEP, entered into a Sale and Purchase Agreement (SPA) to sell its entire 2.5 percent participation interest in Block 17/06 Project in Angola to SOMOIL BLOCO 17/06 (SU), S.A., a wholly-owned subsidiary of Sociedade Petrolifera Angolana, S.A (SOMOIL). Completion of the sale is expected by mid-2023 subject to the conditions prescribed in the SPA. This divestment marks the withdrawal of all PTTEP Group's investment in Angola.

On December 22, 2022, the PTTEP Group announced successful gas discovery at the second exploration well, Paprika-1, in Malaysia SK410B Project, located in offshore Malaysia. PTTEP Group will conduct further studies in order to evaluate future development plan.

On December 23, 2022, the PTTEP Group has dissolved an inactive subsidiary, namely Participations and Explorations Corporation (PEC), in order to reduce administrative costs with no impact to the PTTEP Group's operations.

On December 30, 2022, the PTTEP Group has dissolved an inactive subsidiary, namely PTTEP South Sageri Limited (PTTEP SS), in order to reduce administrative costs with no impact to the PTTEP Group's operations.

1.1.3 Use of Proceeds

As of December 31, 2022, the details of the use of proceeds are as follows:

Domestic Bonds

The funds derived from all baht bonds of PTTEP, PTTEP296A and PTTEP26NA, were utilized according to the objectives stated in the indenture and offering documents.

The funds derived from PTTEPT274A, PTTEPT294A, and PTTEPT324A of PTTEP TC (guaranteed by PTTEP), which were issued in April 2022, will be fully utilized according to the objectives stated in the indenture and offering documents within 2023.

Foreign Bonds

The funds derived from all USD bonds of PTTEP, PTTEP TC (guaranteed by PTTEP) and PTTEP CIF (guaranteed by PTTEP), 490 million USD Bond issued in 2012, 650 million USD Bond issued in 2019, 350 million USD Bond issued in 2020, and 500 million USD Bond issued in 2020, were utilized according to the objectives stated in the indenture and offering documents.

1.1.4 PTT's Obligations according to Bond Issuance

-None-

1.2 Nature of Business Operation

1.2.1 Revenue Structure

PTTEP and its subsidiaries' revenues are mainly from sales of petroleum products of which its price is pegged to the world fuel price in US Dollar. Thus, PTTEP and its subsidiaries' revenue structure of 2020-2022 was presented in US Dollar in order to reflect the Company's revenue structure for petroleum exploration and production projects in the production phase of PTTEP and its subsidiaries as of December 31, 2022, as the following projects: Bongkot, Contract 4, Arthit, S1, MTJDA, B8/32 & 9A, Contract 3, Sinphuhorm, L53/43 & L54/43, G4/43, E5, PTTEP1, G4/48, L22/43, Zawtika, Yadana, Vietnam 16-1, Natuna Sea A, Yetagun, Algeria 433a & 416b, Algeria Hassi Bir Rekaiz, Vietnam 9-2, Malaysia, Oman Block 61 (PDO), Oman Block 53, Dunga, G1/61, and G2/61.

In addition, PTTEP and its subsidiaries recorded revenues proportionately from gas pipeline transportation which are Moattama Gas Transportation Company (MGTC), Taninthayi Pipeline Company LLC (TPC), and Andaman Transportation Limited (ATL).

Revenue Structure of PTTEP and Our Subsidiaries during 2020-2022

Product	Operated by	% of shares held by the Company	2020		2021		2022	
			Revenue (Million US Dollar)	%	Revenue (Million US Dollar)	%	Revenue (Million US Dollar)	%
Revenue from sales								
Crude oil	PTTEP	-	118.59	2.20	167.25	2.28	290.46	3.00
	PTTEPI	100	31.62	0.59	37.60	0.51	54.34	0.56
	PTTEPS	100	314.93	5.83	458.91	6.26	635.63	6.57
	PTTEP ED [1]	100	-	-	-	-	88.52	0.91
	Orange	53.9496	47.86	0.89	61.10	0.83	65.08	0.67
	B8/32 Partners	25.0009	22.18	0.41	28.31	0.39	30.16	0.31
	PTTEP HV	100	15.92	0.29	22.75	0.31	28.66	0.30
	PTTEP HL	100	58.23	1.08	89.50	1.22	130.64	1.35
	Natuna	50	2.84	0.05	3.36	0.05	2.47	0.03
	PTTEP AG	100	43.28	0.80	57.69	0.79	86.31	0.89
	PTTEP SBO	100	203.90	3.78	316.58	4.32	403.97	4.17
	PTTEP SKO	100	128.96	2.39	103.01	1.41	216.64	2.24
	POC	100	199.27	3.69	321.27	4.38	468.00	4.83
	PKC	100	26.04	0.48	47.19	0.64	49.92	0.52
	PBL [2]	-	1.38	0.03	2.12	0.03	-	-

[1] On April 19, 2022, PTTEP Energy Development Company Limited (PTTEP ED), a subsidiary of the PTTEP Group, entered into an agreement with MP G2 (Thailand) Limited. As a result, PTTEP ED is a sole investment operator who has control over the operation and entitlement to net assets related to G1/61 Project including all revenue, costs, and petroleum operating expenses related to the project since then.

[2] On July 30, 2021, Participations and Explorations Corporation (PEC) and Partex (Brazil) Corporation (PBC), subsidiaries of the PTTEP Group, entered into a Sale and Purchase Agreement (SPA) to sell all shares of Partex Brasil Ltda. (PBL) which is registered in Brazil to Ubuntu Engenharia e Serviços Ltda. (Ubuntu). The sale was completed on October 29, 2021.

Product	Operated by	% of shares held by the Company	2020		2021		2022	
			Revenue (Million US Dollar)	%	Revenue (Million US Dollar)	%	Revenue (Million US Dollar)	%
Revenue from sales (continued)								
Natural gas	PTTEP	-	2,039.58	37.78	2,164.90	29.54	2,281.46	23.57
	PTTEPI	100	876.10	16.23	822.23	11.22	1,078.50	11.14
	PTTEPS	100	31.53	0.58	38.50	0.53	51.77	0.53
	PTTEP ED [1]	100	-	-	-	-	278.63	2.88
	Orange	53.9496	12.89	0.24	11.98	0.16	18.85	0.19
	B8/32 Partners	25.0009	5.98	0.11	5.54	0.08	8.74	0.09
	PTTEP HV	100	1.78	0.03	1.66	0.02	1.60	0.02
	PTTEP HL	100	1.22	0.02	0.99	0.01	0.71	0.01
	Natuna	50	45.38	0.84	67.71	0.92	72.70	0.75
	PTTEP SP	100	154.94	2.87	175.13	2.39	194.74	2.01
	PTTEP SBO	100	0.19	0.00	121.95	1.66	201.31	2.08
	PTTEP SKO	100	83.01	1.54	71.97	0.98	149.04	1.54
	PTTEP MENA	100	-	-	218.78	2.98	326.04	3.37
	PKC	100	-	-	0.01	0.00	0.01	0.00
LPG	PTTEP	-	8.95	0.17	7.69	0.10	7.41	0.08
	PTTEPS	100	26.85	0.50	23.07	0.31	22.24	0.23
	PGC	100	22.59	0.42	42.24	0.58	47.92	0.50

[1] On April 19, 2022, PTTEP Energy Development Company Limited (PTTEP ED), a subsidiary of the PTTEP Group, entered into an agreement with MP G2 (Thailand) Limited. As a result, PTTEP ED is a sole investment operator who has control over the operation and entitlement to net assets related to G1/61 Project including all revenue, costs, and petroleum operating expenses related to the project since then.

Product	Operated by	% of shares held by the Company	2020		2021		2022	
			Revenue (Million US Dollar)	%	Revenue (Million US Dollar)	%	Revenue (Million US Dollar)	%
Revenue from sales (continued)								
Condensate	PTTEP	-	429.53	7.96	782.61	10.68	1,119.38	11.56
	PTTEPI	100	41.04	0.76	80.33	1.10	126.72	1.31
	PTTEPS	100	0.59	0.01	0.98	0.01	1.29	0.01
	PTTEP ED [1]	100	-	-	-	-	162.57	1.68
	PTTEP SP	100	31.04	0.57	59.11	0.81	81.29	0.84
	PTTEP SBO	100	-	-	-	-	4.09	0.04
	PTTEP SKO	100	5.79	0.11	7.62	0.11	13.48	0.15
	PTTEP MENA	100	-	-	163.89	2.24	298.47	3.08
Naphtha	PGC	100	9.19	0.17	20.45	0.28	22.37	0.23
Deemed income for tax payment by Oman government	PTTEP MENA	100	-	-	124.88	1.70	148.43	1.53
Total revenue from sales			**5,043.17**	**93.42**	**6,730.86**	**91.83**	**9,270.56**	**95.77**
Revenue from pipeline transportation								
Pipeline transportation	MGTC	25.5	52.33	0.97	55.60	0.76	99.60	1.03
	TPC	19.3178	2.38	0.04	0.61	0.01	0.21	0.00
	ATL	80	37.64	0.70	36.94	0.50	51.11	0.53
Total revenue from pipeline transportation			**92.35**	**1.71**	**93.15**	**1.27**	**150.92**	**1.56**

[1] On April 19, 2022, PTTEP Energy Development Company Limited (PTTEP ED), a subsidiary of the PTTEP Group, entered into an agreement with MP G2 (Thailand) Limited. As a result, PTTEP ED is a sole investment operator who has control over the operation and entitlement to net assets related to G1/61 Project including all revenue, costs, and petroleum operating expenses related to the project since then.

Product	Operated by	% of shares held by the Company	2020		2021		2022	
			Revenue (Million US Dollar)	%	Revenue (Million US Dollar)	%	Revenue (Million US Dollar)	%
Other income								
Gain on foreign exchange rates			26.06	0.48	-	-	-	-
Gain on remeasuring of financial instruments			99.33	1.84	-	-	-	-
Gain on debt modification			22.31	0.41	-	-	-	-
Gain from a bargain purchase			-	-	341.87	4.66	-	-
Interest income			36.73	0.68	16.75	0.23	44.03	0.45
Other income			37.01	0.69	131.60	1.80	195.14	2.02
Total other income			221.44	4.10	490.22	6.69	239.17	2.47
Total revenues			5,356.96	99.23	7,314.23	99.79	9,660.65	99.80
Share of profit of associates and joint ventures			41.64	0.77	15.17	0.21	19.56	0.20
Grand total after inclusion of share of profit of associates and joint ventures			5,398.60	100.00	7,329.40	100.00	9,680.21	100.00

In 2022, total revenues for PTTEP and its subsidiaries were USD 9,660 million (equivalent to THB 339,902 million), an increase of USD 2,346 million or 32 percent when compared with 2021 at USD 7,314 million (equivalent to THB 234,631 million) which was mainly from USD 2,539 million growth of revenue from sales, according to increases in average sales volume per day and average selling price. Higher average sales volume per day was primarily from the first production of G1/61 Project in April 2022, the full-year production of Oman Block 61 Project, as well as Arthit Project due to higher gas nomination from buyer.

1.2.2 Products and Services

(1) Exploration and Production

Petroleum

Petroleum is defined as a naturally occurring hydrocarbon mixture, including crude oil, natural gas, condensate, related products, and other hydrocarbon products which are free in nature.

Crude Oil is the portion of petroleum that remains in liquid atmospheric pressure and temperature and obtained from oil wells and separation process, yet to be refined or purified.

Natural Gas is hydrocarbon in gas or vapor phase at atmospheric temperature and pressure, commonly having methane as its major constituent.

Condensate is a low-density liquid hydrocarbon. It is condensed from hydrocarbon gas. Condensation occurs when gas is produced at the surface where temperature and pressure are lower than those in the reservoir.

Natural Gas Liquids (NGL) are components of natural gas that are separated from the gas state in the form of liquids. This separation occurs in a field facility or a gas processing plant. There are several types of natural gas liquids including Liquefied Petroleum Gas (LPG), which is obtained from crude oil refinery or natural gas separation process, and primarily consists of Butane and Propane.

Crude oil, Condensate, and NGL are measured in barrel, while natural gas is measured in cubic foot at the standard conditions (One atmosphere or atm at 60 degrees Fahrenheit). All petroleum products can be converted to barrel of oil equivalent (BOE) based on their heat contents. One cubic foot of natural gas has a heating value of approximately 1,000 BTU, whereas one barrel of crude oil has a heating value of approximately 6,000,000 BTU.

Business Overview

The PTTEP Group's core business is the exploration and production of petroleum in Thailand and foreign countries. As of December 31, 2022, the PTTEP Group had petroleum exploration and production projects in 15 countries with the details as follows:

No.	Project Name	Phase	Location	Participation Interest	Operator
Thailand					
1	Bongkot Project	Production	Gulf of Thailand	66.6667%	PTTEP Group
2	S1 Project	Production	Upper Central	100%	PTTEP Group
3	PTTEP 1 Project	Production	Central	100%	PTTEP Group
4	B6/27 Project	Production	Gulf of Thailand	100%	PTTEP Group
5	Arthit Project	Production	Gulf of Thailand	80%	PTTEP Group
6	L22/43 Project	Production	Upper Central	100%	PTTEP Group
7	L53/43 & L54/43 Project	Production	Central	100%	PTTEP Group
8	E5 Project	Production	North East	20%	ExxonMobil
9	Contract 3 Project[1]	Production	Gulf of Thailand	5%	Chevron
10	Contract 4 Project	Production	Gulf of Thailand	60%	Chevron
11	G4/43 Project	Production	Gulf of Thailand	21.375%	Chevron
12	Sinphuhorm Project	Production	North East	80.48%	PTTEP Group
13	B8/32 & 9A Project	Production	Gulf of Thailand	25.001%	Chevron
14	G4/48 Project	Production	Gulf of Thailand	5%	Chevron
15	G1/61 Project	Production	Gulf of Thailand	60%	PTTEP Group
16	G2/61 Project	Production	Gulf of Thailand	100%	PTTEP Group
Overlapping Area					
1	MTJDA Project	Production	Thailand-Malaysia	50%	CPOC
2	G9/43 Project	Exploration	Thailand-Cambodia	100%	PTTEP Group
Overseas					
Republic of the Union of Myanmar (Myanmar)[2, 3]					
1	Zawtika Project	Production	Gulf of Moattama	80%	PTTEP Group

[1] The concession of Contract 3 Project ended on April 23, 2022, with the PTTEP Group's participating interest at 5 percent. The operator had submitted the block relinquishment. However, all partners in the project remain obliged to decommissioning as prescribed by laws.

[2] The PTTEP Group has notified their decisions to withdraw from Yetagun Project and gas transportation company, Taninthayi Pipeline Company LLC (TPC), to all partners of the project, with effect from May 31, 2022.

[3] The PTTEP Group submitted relinquishment of exploration blocks of Myanmar MD-7 Project after fulfilling the obligations under the Product Sharing Contract. The relinquishment was effective from October 25, 2022.

No.	Project Name	Phase	Location	Participation Interest	Operator
2	Yadana Project[4]	Production	Gulf of Moattama	37.1%	PTTEP Group
3	Myanmar M3 Project	Exploration	Gulf of Moattama	100%	PTTEP Group
Malaysia					
1	Malaysia Project[5, 6]	Exploration/ Development/ Production	Offshore	7.2-80%	PTTEP Group
Socialist Republic of Vietnam (Vietnam)					
1	Vietnam 9-2 Project	Production	Offshore	25%	HV JOC
2	Vietnam 16-1 Project	Production	Offshore	28.5%	HL JOC
3	Vietnam B & 48/95 Project	Exploration	Offshore	8.5%	Vietnam Oil and Gas Group
4	Vietnam 52/97 Project	Exploration	Offshore	7%	Vietnam Oil and Gas Group
Republic of Indonesia (Indonesia)					
1	Natuna Sea A Project	Production	Offshore	11.5%	Harbour Energy
Republic of Kazakhstan (Kazakhstan)					
1	Dunga Project	Production	Onshore	20%	TotalEnergies
Sultanate of Oman (Oman)					
1	Oman Block 61 Project	Production	Onshore	20%	BP
2	Oman Block 6 Project (PDO)	Production	Onshore	2%	Petroleum Development Oman
3	Oman Block 53 Project	Production	Onshore	1%	Occidental
4	Oman Onshore Block 12 Project	Exploration	Onshore	20%	TotalEnergies
United Arab Emirates (UAE)					
1	Abu Dhabi Offshore 1 Project	Exploration	Offshore	30%	Eni
2	Abu Dhabi Offshore 2 Project	Exploration	Offshore	30%	Eni
3	Abu Dhabi Offshore 3 Project	Exploration	Offshore	30%	Eni

[4] On March 14, 2022, PTTEP International Limited (PTTEPI), a wholly-owned subsidiary of PTTEP Group and a partner in the project, has assumed the operatorship of Yadana Project and Moattama Gas Transportation Company (MGTC), with effect from July 20, 2022.

[5] The PTTEP Group has named investments of all projects in Malaysia under “Malaysia Project”, which comprises several petroleum blocks where the PTTEP Group is the Operator. The participating interests vary from 42-80 percent, except for one area named Gumusut-Kakap (GK) in Block K where PTTEP is a joint venture partner with participating interest of 7.2 percent, and Shell is the Operator.

[6] In March 2022, PTTEP Group and SapuraOMV Upstream (Sarawak) Inc. were awarded the exploration Block SB412, which is located offshore northwest of Sabah, Malaysia.

No.	Project Name	Phase	Location	Participation Interest	Operator
4	Sharjah Onshore Area C Project[7]	Exploration	Onshore	25%	Eni
5	Sharjah Onshore Area A Project[8]	Exploration	Onshore	25%	Eni
People's Democratic Republic of Algeria (Algeria)					
1	Algeria 433a & 416b Project	Production	Onshore	35%	GBRS
2	Algeria Hassi Bir Rekaiz Project	Production	Onshore	49%	GHBR
Republic of Mozambique (Mozambique)					
1	Mozambique Area 1 Project	Development	Offshore	8.5%	TotalEnergies
Republic of Angola (Angola)					
1	Block 17/06 Project[9]	Development	Offshore	2.5%	TotalEnergies
Commonwealth of Australia (Australia)					
1	PTTEP Australasia Project[10]	Exploration	Offshore	90-100%	PTTEP Group
Canada					
1	Mariana Oil Sands Project	Exploration	Onshore	100%	PTTEP Group
Federative Republic of Brazil (Brazil)[11]					
1	Barreirinhas AP1 Project	Exploration	Offshore	25%	Shell
2	Brazil BM-ES-23 Project	Exploration	Offshore	20%	Petrobras
United Mexican States (Mexico)					
1	Mexico Block 12 (2.4) Project	Exploration	Offshore	20%	Petronas
2	Mexico Block 29 (2.4) Project	Exploration	Offshore	16.67%	Repsol

[7] On March 1, 2022, the acquisition of 25 percent stake in the Sharjah Onshore Area C Project in United Arab Emirates from Eni Sharjah B.V. has been completed.

[8] On October 26, 2022, the PTTEP Group signed Farm-in/Farm-out Agreement to acquire 25 percent stake in the Sharjah Onshore Area A Project from Eni Sharjah B.V. (Eni) The acquisition was completed on December 23, 2022.

[9] On December 16, 2022, the PTTEP Group has entered into a Sale and Purchase Agreement (SPA) to sell its entire 2.5 percent participati interest in Block 17/06 Project in Angola

[10] PTTEP Australasia Project consists of several concession blocks in Australia, with participating interests of 90-100 percent. On November 19, 2021, the PTTEP Group submitted a request to return the exploration block of AC/L3 and received the approval from the Government of Australia on August 2, 2022. The PTTEP Group also submitted a request to return the exploration license of AC/P54 on December 19, 2022, and decided not to submit a renewal application of Audacious Field (AC/RL6) on December 20, 2022. All of which will be effective after the Government of Australia's approval.

[11] On August 31, 2022, the PTTEP Group has entered into a Sale and Purchase Agreement (SPA) to sell PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada, which holds 25 percent interest in the Barreirinhas AP1 Project and 20 percent interest in the Brazil BM-ES-23 Project. The completion will be subject to conditions as prescribed in the SPA.

Principal Projects in Operation

The following is a summary of project activities undertaken during 2022. Production and sales figures described hereunder are total production and sales figures for the respective projects.

1) **Project Activity Highlights in Thailand** : Most PTTEP Group's projects in Thailand are in the Production Phase, located both in the Gulf of Thailand and onshore. The following are the highlights of key project activities in Thailand during 2022.

Bongkot Project

The Bongkot Project is located in the southern part of the Gulf of Thailand, consisting of Bongkot North and Bongkot South fields (Blocks B15, B16, and B17). The PTTEP Group held 66.6667 percent interest after the completion of the additional stake of 22.2222 percent in Blocks B15, B16, and B17 from Shell and Block G12/48 from a subsidiary of Shell since June 2018 and was the operator. The project has been produced since 1993. All of natural gas and condensate produced from the Bongkot Project is sold to PTT, under a Take-or-Pay basis pursuant to long-term Gas Sales Agreements (GSA).

On April 23, 2022, Bongkot Block B15 concession expired and the operatorship has been transferred to PTTEP Energy Development Company Limited (PTTEP ED), under G2/61 Production Sharing Contract (PSC). For Bongkot Block B16 and Block B17, production will be continued until the end of concessions on March 7, 2023, and will transfer to PTTEP ED, under G2/61 Project.

In 2022, the infill wells were drilled to maintain production volume, which the PTTEP Group will be a sole operator, where the Company shall recognize all revenues and costs from the produced petroleum. The average sales volume in 2022 was 676 million standard cubic feet per day (MMSCFD) for natural gas [equivalent to approximately 108,700 barrels of oil equivalent per day (BOED)] and approximately 18,500 barrels per day (BPD) of condensates. The decreasing in sales volume is in line with what has been agreed upon Bongkot gas sale agreement after Bongkot Block B15 concession ended on April 23, 2022.

The Block G12/48, located adjacent to the east of Bongkot South Field, is held and operated by the PTTEP Group with 66.6667 percent working interest. The production area and development plan were approved by the Department of Mineral Fuels in March 2015, with production commencing on October 20, 2018, through Bongkot South Field's Central Processing platform. The natural gas sales volume of Block G12/48 is under Bongkot South gas sale agreement.

S1 Project

The S1 Project is the largest onshore oil field in Thailand, with the production area covering parts of Kamphaeng Phet, Sukhothai, and Phitsanulok provinces. The PTTEP Group is the operator with 100 percent interest. The project was officially approved the extension of petroleum production period for another 10 years, from March 15, 2021, to March 14, 2031.

The product from the S1 Project consists of crude oil, natural gas, and liquefied petroleum gas (LPG). Crude oil produced at S1 is sold to PTT and is transported via truck and rail to the refineries of Thai Oil Public Company Limited, Bangchak Corporation Public Company Limited (Bangchak) refineries, PTT Global Chemical Public Company Limited, and

IRPC Public Company Limited. The produced gas from the project is sold to PTT, UAC Global Public Company Limited, and Thai Housewives Product for Climate Change Protection Cooperative Limited (TCCT), and the other part that undergoes LPG separation will be sold to PTT.

During 2022, the project continuously drilled exploration and production wells to maintain its production level. Environmental impact assessments were also undertaken in both existing and new production areas. The project's average sales volume of crude oil was approximately 25,800 BPD, while the natural gas sales averaged at 8 MMSCFD (approximately 1,500 BOED), and the average LPG sales volume was 180 metric tons per day (approximately 1,500 BOED).

PTTEP 1 Project

The PTTEP 1 Project is located in Suphan Buri and Nakhon Pathom provinces. The PTTEP Group is the sole owner and operator. Crude oil produced at the project is sold to PTT and is transported via truck to the Bangchak refinery. In 2022, the project's average sales volume of crude oil was approximately 215 BPD.

B6/27 Project

The B6/27 Project is located in the Gulf of Thailand, off the coast of Chumphon Province. The PTTEP Group is the sole owner and operator. The concession contract will end in February 2023. Currently, the project is waiting for approval, from Department of Mineral Fuels, on the Final Decommissioning Plan (FDP).

Arthit Project

The Arthit Project is located in the southern part of the Gulf of Thailand. The PTTEP Group has 80 percent participating interest in the project and is the operator. The project entered into long-term natural gas and condensate agreement with PTT on a take-or-pay basis.

During 2022, the project has successfully increased gas sales volume under the new GSA at CDC 294 MMSCFD. In addition, the project has successfully started first gas from its main wellhead platform at Arthit South area, alongside with production wells drilling in order to maintain production levels. The average natural gas sales volume for the project was approximately 294 MMSCFD (approximately 48,000 BOED), and the average condensate sales volume was approximately 16,000 BPD.

Block G8/50, located adjacent to the north of Arthit Project and held and operated by the PTTEP Group with 80 percent working interest, produced through Arthit Project's central processing platform with the natural gas being sold to PTT under Arthit Project's sales contract. Since March 2019, G8/50 has ceased its production. However, this does not affect the total sales volume of the Arthit Project.

L22/43 Project

The L22/43 Project is located in Phitsanulok and Phichit provinces. The PTTEP Group is the sole owner and operator. The project has been under production suspension since 2018 and completely revisited the field potential.

In 2022, the project drilled 2 development wells. However, the preliminary result shows sub-commercial hydrocarbon potential. Further studies on the field potential is ongoing, in order to consider potential resumption in the future.

L53/43 and L54/43 projects

The L53/43 and L54/43 projects are located in Suphan Buri, Kanchanaburi, Phra Nakhon Si Ayutthaya, and Ang Thong provinces. The PTTEP Group is the sole owner and operator. Crude oil produced from the project is sold to PTT and is transported via truck to the Bangchak refinery.

In 2022, the L54/43 Project drilled development wells to maximize petroleum potential and production capacity. The average crude oil sales volume was approximately 780 BPD. Meanwhile, the L53/43 Project has ceased production since 2019.

E5 Project

The E5 Project is located in Khon Kaen Province. The PTTEP Group holds 20 percent participating interest in the project with ExxonMobil as the operator with 80 percent participating interest. All of the natural gas produced by the E5 Project is sold to PTT as per a long-term GSA until the end of concession. The natural gas is supplied through pipelines to EGAT's Nam Phong Power Plant.

In 2022, the project's average sales volume of natural gas sales was 7.1 MMSCFD (approximately 1,100 BOED).

Contract 4 Project

The Contract 4 Project and Block G7/50 are located in the Gulf of Thailand. The PTTEP Group holds a 60 percent interest in the project, with Chevron as the operator. All of the natural gas and condensate produced from the project is sold to PTT under long-term gas and condensate sales agreements.

In 2022, the project sold natural gas at an average rate of approximately 400 MMSCFD (approximately 65,700 BOED) and condensates at an average rate of approximately 15,700 BPD. The project continued to drill additional development wells aiming to maintain the production plateau.

G4/43 Project

The G4/43 Project is located in the Gulf of Thailand. The PTTEP Group holds a 21.375 percent interest in the project with Chevron as the operator. The project has mutual long-term GSA and crude oil sale agreements with the B8/32 & 9A Project.

In 2022, the project's sales volume of crude oil and natural gas averaged approximately 2,150 BPD and 1.6 MMSCFD (equivalent to approximately 260 BOED), respectively.

Sinphuhorm Project

The Sinphuhorm Project is located in Udon Thani and Khon Kaen provinces. The PTTEP Group is the operator with 80.48 percent direct and indirect participating interests, after the acquisition in APICO. The natural gas is supplied through the pipeline to EGAT's Nam Phong Power Plant. The investment plan fulfilled the development and work plan's activities to maintain the sales volume as per the new GSA's commitment and obligation.

In 2022, the project's average sales volume of natural gas sales was 97 MMSCFD (approximately 15,900 BOED) and approximately 262 BPD for condensates.

B8/32 & 9A Project

The B8/32 & 9A Project is located in the Gulf of Thailand, off the coast of Chumphon Province. The PTTEP Group holds a 25.001 percent interest in the project with Chevron as the operator. The project currently has long-term GSAs with PTT and annual crude sales agreement with other purchasers for spot cargos.

During 2022, the project continued to carry out development drilling and waterflood operations in order to maintain the crude oil production levels. Sales volume averaged at approximately 10,600 BPD for crude oil and approximately 48 MMSCFD for natural gas (approximately 8,200 BOED).

G4/48 Project

The G4/48 Project is located in the Gulf of Thailand, off the coast of Surat Thani Province. The PTTEP Group holds a 5 percent interest in the project with Chevron as the operator. The project has mutual long-term gas sales agreements and crude oil sale agreements for spot cargo with the Contract 3 Project.

In 2022, sales volume from the project averaged 1 MMSCFD for natural gas (equivalent to approximately 130 BOED) and approximately 45 BPD for crude oil.

G1/61 Project

The G1/61 Project is natural gas, condensate, and crude oil producing project located in the Gulf of Thailand. PTTEP ED has become an operator for the project under Production Sharing Contract (PSC) since April 24, 2022.

In 2022, gas producing gas rate was at 210 MMSCFD to meet pre-committed volume. In addition, 8 new wellhead platforms have been completely installed as planned. The project is continuously drilling additional infill wells, in order to ramp up gas production according to work plan.

G2/61 Project

The G2/61 Project is natural gas and condensate producing project located in the Gulf of Thailand. PTTEP ED has become an operator in Block G2/61 under Production Sharing Contract (PSC) since April 24, 2022.

In 2022, the project has been producing natural gas and condensate with the minimum volume stated in the PSC of 200 MMSCFD. The project continued transition work plan, including construction and installation of new platforms, and drilling development wells to prepare for the transition from existing concession Block B16 and B17 (Bongkot Project) and ensure gas production at 700 MMSCFD in 2023.

Projects Located in Overlapping Areas

MTJDA Project

The PTTEP Group has a 50 percent participating interest in the MTJDA Project with CPOC as the operator. The PTTEP Group, Petronas (Malaysia's natural oil company) and the Malaysia-Thailand Joint Authority (MTJA) executed a GSA for the sales of the natural gas from the MTJDA Project to PTT and Petronas, whilst crude oil and condensates produced from the project were sold through auction.

During 2022, the project was granted a 10-year extension of the production period until 2039, as well as securing gas supply to Thailand at least 30 MMSCFD until 2025 to support domestic gas demand. In addition, the project continuously drilled production and infill wells to maintain the production level, and exploration and development wells to develop new phases. The project has an average sales volume of approximately 285 MMSCFD (approximately 46,100 BOED) for natural gas and approximately 9,000 BPD for condensates.

G9/43 Project

The G9/43 Project is located in the Gulf of Thailand with the PTTEP Group as the sole owner and operator. At present, all activities for this project were suspended, pending the resolution of the boundary dispute between the governments of Thailand and Cambodia.

2) **International Projects:** The PTTEP Group has overseas projects separated into the following regions.

2.1) **Project Activity Highlights in Other Southeast Asia Countries**

The PTTEP Group has projects in this region which are located in Myanmar, Malaysia, Vietnam, and Indonesia. The following section highlights the project activities.

Zawtika Project

The Zawtika Project is a gas project located in the Gulf of Moattama, Myanmar. The PTTEP Group holds 80 percent participating interest and is the operator, with Myanma Oil and Gas Enterprise (MOGE) holding the remaining 20 percent interest. The gas produced from this project is sold to PTT, supplying Thai market under long-term GSA on a take-or-pay basis and partially sold to MOGE for domestic consumption in Myanmar under the long-term sales contract. To transport natural gas from Zawtika Project to Thailand, the PTTEP Group and the joint venture partners established a gas transportation company called Andaman Transportation Limited (ATL) to construct and operate an offshore and onshore pipeline from the project to the Thai border.

In 2022, despite the COVID-19 situation and local unrest in Myanmar, the project could still deliver gas as per commitment and obligation under GSAs and monitor the situation closely, identify potential risk, and prepare asset readiness following the Business Continuity Management (BCM) plan to ensure uninterrupted supply of petroleum, including close coordination with PTT, the Department of Mineral Fuels, the Ministry of Energy, and Ministry of Foreign Affairs, on a regular basis.

Moreover, to maintain gas production in accordance with existing obligations, the project has been developing Phase 1D as per the Field Development Plan. Currently, the production platform construction work is as planned. In addition, the project has a drilling campaign for 13 appraisal wells, of which, 4 wells were completed in 2022. The average sales volume of natural gas for the project in 2022 was 320 MMSCFD (approximately 50,100 BOED).

Yadana Project

The Yadana Project is a large gas project located in the Gulf of Moattama, Myanmar. After the withdrawal of TotalEnergies, as the operator and the partner of the project and Moattama Gas Transportation Company (MGTC), PTTEP International Limited (PTTEPI), a wholly-owned subsidiary of PTTEP, has been appointed to be an operator, with approval

from partners, in order to ensure gas supply continuity to support energy consumption and long-term energy security for Thailand and Myanmar.

Following the withdrawal of TotalEnergies, participating interest of the PTTEP Group in Yadana Project and MGTC changed from 25.50 percent to 37.0842 percent starting from July 20, 2022. The transition works were completed, and operations were continued smoothly. This change has no impact to buyers. Natural gas produced from the project is continuously sold to PTT on a take-or-pay basis pursuant to long-term GSA, and a certain portion is sold to MOGE for domestic use in Myanmar.

In 2022, major activities per work program completed as planned. The average gas sales volume was 720 MMSCFD (approximately 89,300 BOED).

Myanmar M3 Project

The Myanmar M3 Project is located offshore, in the Gulf of Moattama, Myanmar. The PTTEP Group is the operator. The Field Development Plan was approved in April 2021. The PTTEP Group is now waiting for the approval of PSC Supplementary from the Government of Myanmar to proceed with the next development stage.

As for the withdrawal of Mitsui Oil Exploration Company Limited (MOECO), a joint partner of Myanmar M3 Project with its shareholding interest at 20 percent, the Myanmar Government had already approved the withdrawal in November 2022, resulting in PTTEP Group holding 100 percent shareholding interest in this project.

The Domestic Gas to Power project is an integrated energy project covering the entire supply chain from exploration and production, gas transportation, and a gas-fired power plant in Myanmar. At the initial stage, the PTTEP Group plans to feed natural gas from Zawtika and Myanmar M3 Projects to supply a new power plant with a capacity of 600 megawatts for domestic consumption. After the approval of Notice to Proceed from the Government of Myanmar back in December 2020, the project has been facing delay including the Final Investment Decision (FID) as a result of the local political situation and COVID-19. The PTTEP Group is still closely monitoring the situations to assess risks as well as to prepare for an appropriate action plan.

The Malaysia Project

On March 21, 2019, the PTTEP Group acquired 100 percent of Murphy Oil Corporation's (Murphy) business in Malaysia. The agreement was completed in July 2019. Subsequently, the PTTEP Group has named investments of all projects in Malaysia under the Malaysia Project. The details are as follows:

Malaysia Block K Project consists of Kikeh, Siakap North-Petai (SNP), and Gumusut-Kakap (GK) fields which are producing oil fields located offshore Sabah, Malaysia. The PTTEP Group holds participating interest of 56 percent and 22.4 percent in the Kikeh and SNP fields respectively and is the operator. Shell is the operator of GK, with PTTEP's participating interest at 7.2 percent

In 2022, the project had an average production volume for crude oil of approximately 26,100 BPD and 30 MMSCFD for natural gas. In addition, during the year, the project continued to drill in GK field for increased production as per the work plan.

Malaysia SK309 and SK311 Project are oil and gas producing fields in the shallow water offshore Sarawak, Malaysia. The PTTEP Group holds a participating interest of 59.5 percent in all fields except the East Patricia oil field, where the Company has a 42 percent participating interest and operates all fields in the blocks.

In 2022, the projects had a total average crude and condensate production rate of approximately 17,300 BPD and an average gas rate of approximately 210 MMSCFD the production contributed from infill wells drilling.

Malaysia Block H Project is a natural gas field located in the deep water offshore Sabah, Malaysia. The PTTEP Group holds 56 percent interest in Rotan Field and 42 percent interest in the remaining areas.

The project had started the natural gas production since early February 2021 and was able to reach full production capacity of 270 MMSCFD. In 2022, the average production is 270 MMSCFD and plan for drilling the exploration wells expected to drill in 2023.

Malaysia SK410B Project is located offshore Sarawak, Malaysia. The PTTEP Group holds participating interest of 42.5 percent in the project and is the operator. In 2022, the development project was approved by Petronas Milestone Review Gate 4 in March 2022, consequently the Front-End Engineering Design (FEED) started in July 2022 with the target to complete by Q3/2023. In parallel to the commercial negotiation with all necessary government had been started to support the upcoming Final Investment Decision.

Moreover, the project successfully made new gas discovery at the Paprika-1 which is the 2nd exploration well of the project where it encountered reasonable gas pay in clastic reservoir. The project will conduct further studies in order to evaluate future development plan.

Malaysia SK314A Project is located in the shallow water offshore Sarawak, Malaysia. The PTTEP Group holds participating interest of 59.5 percent in the project and is the operator. In 2022, 2 exploration wells have been drilled according to a commitment under the PSC.

Malaysia SK417 Project is located in the shallow water offshore Sarawak, Malaysia. The PTTEP Group holds participating interest of 80 percent in the project and is the operator. The project has completed exploration wells, Dokong-1 and Nangka-1, in 2021. In addition, the remaining 1 appraisal well is planned as per exploration commitment. The exploration well preparation is ongoing, with focus on surface location verification to be ready to drill in 2023.

Malaysia SK438 Project is located in the shallow water offshore Sarawak, Malaysia. The PTTEP Group holds participating interest of 80 percent in the project and is the operator. The project is preparing for the drilling of an exploration well as per 2023 plan.

Malaysia SK405B Project is located in the shallow water offshore Sarawak, Malaysia. The PTTEP Group holds participating interest of 59.5 percent in the project and is the operator. After the discovery of crude oil and natural gas reservoir by Sirung-1 well in March 2021, the project is currently studying on upside petroleum potential in this area for future exploration campaigns. The project's development plan was approved by Petronas in December 2022. Currently, the project is preparing for the drilling campaign in 2023.

Malaysia PM407 Project is located in the shallow water offshore Peninsular, Malaysia. The PTTEP Group holds participating interest of 55 percent and is the operator. In 2022, the project has completed geological and geophysical studies to evaluate petroleum potential. Currently, the project is preparing to drill an exploration well in Q1/2023.

Malaysia PM415 Project is located in the shallow water offshore Peninsular, Malaysia. The PTTEP Group holds participating interest of 70 percent and is the operator. In 2022, the project was in the process of post-drilling evaluation, after drilling 2 exploration wells in 2020, together with the remaining petroleum potential evaluation, which will result in the upcoming exploration strategy of the block in the near future.

Malaysia SB412 Project is located in the shallow-deep water offshore Sabah. The PTTEP Group holds participating interest of 60 percent and is the operator. In 2022, the project has performed geological and geophysical studies to evaluate petroleum potential of the block.

Vietnam 9-2 Project

The Vietnam 9-2 Project is producing natural gas and crude oil located offshore southeast of Vietnam. The PTTEP Group has a 25 percent interest in the project with HV JOC as the operator. The crude oil produced from the project is sold to domestic refineries while the produced natural gas is sold to Vietnam Oil and Gas Group, a state-owned enterprise, for domestic consumption.

In 2022, the project drilled 1 development well and is expected to complete by Q1/2023. The project had an average sales volume for natural gas of 12 MMSCFD (approximately 2,500 BOED) and for crude oil of approximately 3,200 BPD.

Vietnam 16-1 Project

The Vietnam 16-1 Project is producing natural gas and crude oil located offshore southeast Vietnam. The PTTEP Group has a 28.5 percent interest in the project, with HL JOC as the operator. The crude oil production of the project is sold to domestic refineries and exported to international market through an auction. Natural gas is sold to the Vietnam Oil and Gas Group, a state-owned enterprise, for domestic consumption.

In 2022, the project completed drilling campaign of 2 development wells in Q4/2022. The average sales volume was approximately 4 MMSCFD of natural gas (approximately 970 BOED) and 11,900 BPD of crude oil.

Vietnam B & 48/95 Project

The Vietnam B & 48/95 Project is located offshore Vietnam. The PTTEP Group holds 8.5 percent of participating interest in the project with Vietnam Oil and Gas Group as the operator. The project was granted approval for the Field Development Plan and is currently in the negotiation process on commercial terms in order to push forward with the Final Investment Decision (FID) with targeted first production by the end of 2026, and gradual ramp up to 490 MMSCFD, including the production from Vietnam 52/97 Project.

Vietnam 52/97 Project

The Vietnam 52/97 Project is located offshore Vietnam. The PTTEP Group holds 7 percent of participating interest in the project with Vietnam Oil and Gas Group as the operator. The project was granted approval for the Field Development Plan and is currently in the negotiation process on commercial terms in order to push forward with the Final Investment Decision (FID) with targeted first production by the end of 2026 and gradual ramp up to 490 MMSCFD, including the production from Vietnam B & 48/95 Project.

Natuna Sea A Project

The Natuna Sea A Project is located to the west of the Natuna Sea in Indonesia. In 2013, the PTTEP Group jointly signed a share purchase agreement with Pertamina, on a 50:50 basis, to acquire subsidiaries of Hess Corporation holding 23 percent interest in the Natuna Sea A Project. As a result, PTTEP holds an 11.5 percent interest in the project, with Premier Oil (which later on changed the name to Harbour Energy) as the operator. The crude oil and condensate produced are sold through the National Oil Company (Pertamina), while natural gas produced is sold in Singapore for domestic consumption.

In 2022, the project had an average sales volume for natural gas and oil at approximately 170 MMSCFD and 1,300 BPD respectively and drilled 2 development wells, in order to maintain gas potential and gas production rate.

2.2) Project Activity Highlights in Central Asia

The PTTEP Group's project in this region is located in Kazakhstan, with the key project highlights as follows:

Dunga Project

The Dunga Project is a producing oil field located onshore in the west of Kazakhstan. The PTTEP Group holds a 20 percent interest, with TotalEnergies as the operator. In 2022, the project had an average sales volume for crude oil of approximately 12,000 BPD and natural gas of 2 MMSCFD (approximately 360 BOED). The project is conducting the development of Dunga Phase 3 which will increase the production capacity to 18,000 BPD in 2024.

2.3) Project Activity Highlights in the Middle East

The PTTEP Group's projects in this region are located in Oman and UAE, with the key project highlights as follows:

Oman Block 61 Project

The Oman Block 61 Project is a producing onshore gas block situated in the central part of Oman. The PTTEP Group has signed a Sale and Purchase Agreement (SPA) to acquire 20 percent of interest from BP, who is the operator, and the acquisition was effective from March 23, 2021. The project currently has a full production capacity of natural gas and condensate according to the Sales and Purchase Agreement at 1,500 MMSCFD and 59,000 barrels per day (BPD), respectively.

Oman Block 6 Project (PDO)

The Oman Block 6 Project (PDO) is the largest producing oil asset in central Oman, covering an area of approximately one-third of the country. The PTTEP Group holds a 2 percent participating interest in this project, with Petroleum

Development Oman (PDO) as the operator (Operating Consortium). In 2022, the project had an average sales volume of approximately 650,000 BPD.

Oman Block 53 Project

The Oman Block 53 Project is a large producing onshore oil field located in Southern Oman. The PTTEP Group holds a 1 percent participating interest in this project, with Occidental as the operator. In 2022, the project had an average sales volume for crude oil of approximately 94,000 BPD.

Oman Onshore Block 12 Project

The Oman Onshore Block 12 Project is a large onshore exploration block with an acreage of around 10,000 square kilometers, located in central Oman. The PTTEP Group holds a 20 percent participating interest in the project, with TotalEnergies as the operator. The project will continue geological and geophysical studies throughout the year 2023 and plan to drill 2 exploration wells in 2023-2024.

Abu Dhabi Offshore 1 Project

The Abu Dhabi Offshore 1 Project is located in the offshore northwest of UAE. The PTTEP Group holds a 30 percent participating interest in the project, with Eni as the operator. Currently, the project is in the subsurface evaluation of the petroleum potential for future exploration, including the preparation of geological and geophysical study reports.

Abu Dhabi Offshore 2 Project

The Abu Dhabi Offshore 2 Project is located in the offshore northwest of UAE. The PTTEP Group holds a 30 percent participating interest in the project, with Eni as the operator.

The project successfully drilled XF-002 exploration well and discovered significant raw gas in place for both shallow and deep targets, total approximately 2.5-3.5 trillion cubic feet (TCF) in August 2022. Currently, the project is in progress of an appraisal well drilling, including further evaluation of petroleum potential for drilling another exploration well.

Abu Dhabi Offshore 3 Project

The Abu Dhabi Offshore 3 Project is located in the offshore northwest of UAE. The PTTEP Group holds a 30 percent participating interest in the project, with Eni as the operator. Currently, the project is in progress of petroleum potential evaluation for the preparation of appraisal well and exploration well which is to be drilled in 2024-2026.

Sharjah Onshore Area C Project

The Sharjah Onshore Area C Project is located in the central part of Sharjah, UAE. The PTTEP Group has signed a Farm-in/Farm-out Agreement, which was completed on March 1, 2022. The PTTEP Group holds a 25 percent participating interest of the project, Eni as the operator holds 50 percent, and SNOC, which is the state energy company of Sharjah, holds 25 percent. The 3D seismic survey has been carried out in 2022 and is currently in progress of 3D seismic processing in order to evaluate petroleum potential.

Sharjah Onshore Area A Project

The Sharjah Onshore Area A Project is located in the central part of Sharjah, UAE. The PTTEP Group has signed a Farm-in/Farm-out Agreement, which was completed on December 23, 2022. The PTTEP Group holds a 25 percent participating interest of the project, Eni as the operator holds 50 percent, and SNOC, which is the state-owned energy company of Sharjah, holds 25 percent. The project is in the progress of 3D seismic processing.

2.4) Project Activity Highlights in Africa

The PTTEP Group's projects in this region are located in Algeria, Mozambique, and Angola, with the key project highlights as follows:

Algeria 433a & 416b Project

The Algeria 433a & 416b Project is producing crude oil located in onshore eastern part of Algeria. The PTTEP Group holds a 35 percent participating interest in the project, with Groupement Bir Seba (GBRS – Joint Operating Company) as the operator. In 2022, OPEC+ continued partial production quota cut in some months due to world economic volatility. Consequently, the project's average production for crude oil in 2022 was at approximately 16,300 BPD.

Algeria Hassi Bir Rekaiz Project

The Algeria Hassi Bir Rekaiz Project is located in onshore eastern part of Algeria. The operator is Groupement Hassi Bir Rekaiz (GHBR – Joint Operating Company), which was effective on October 1, 2022. The PTTEP Group holds a 49 percent participating interest and SONATRACH, Algeria's national oil company, holds a 51 percent participating interest. In 2022, the project has commenced first crude oil production on June 1, 2022, with production capacity of approximately 13,000 BPD. The project has also planned to ramp up its production capacity to around 50,000-60,000 BPD in late 2027.

Mozambique Area 1 Project

The Mozambique Area 1 Project, which is a large LNG project located in offshore Mozambique, is currently in the Development Phase. The PTTEP Group holds a 8.5 percent participating interest in the project, with TotalEnergies as the operator.

In 2021, the project commenced foundation work for onshore LNG facilities, temporary Beach Landing, subsea pipeline dredging, and construction of security infrastructures. The project finance had closed, and the first debt drawdown was achieved. However, due to the Palma security situation since March 2021, which is close to the project construction site, in April 2021, force majeure was then declared, to suspend all construction works at the site, for the safety reason of all employees and stakeholders. After which South African Development Committee (SADC) and the Rwanda Defense Force (RDF) has deployed military to support Mozambique to deal with the situation. The troops can secure the area in the vicinity of LNG site.

In 2022, the operator was closely monitoring the situation with the government and is studying the resumption plan in detail.

2.5) Project Activity Highlights in Australasia

The PTTEP Group has a project in this region which is located in the Timor Sea, Australia comprising 6 concession permits with the following as key highlights:

PTTEP Australasia Project

The PTTEP Australasia Project is located in Australia and has 6 concession permits, which are Cash-Maple Field (AC/RL7), Oliver Field (AC/RL12), Tenacious Field (AC/RL4) and Katandra Field (AC/RL10), currently in progress to define the proper direction of the project. In 2022, the project received the approval for Challis Field (AC/L3) relinquishment, submitted a request to return Orchid Field (AC/P54), and decided not to submit a renewal application of Audacious Field (AC/RL6).

With regards to a class action lawsuit made against PTTEP Group in the Federal Court of Australia, by a group of Indonesian seaweed farmers for compensation relating to the Montara oil spill incident in 2009, on November 21, 2022, PTTEP group participated in mediation process and reached an in-principle agreement with the group of Indonesian seaweed farmers, that PTTEP Group will pay 192.5 Million Australian Dollars (equivalent to 129 Million US Dollars) in full and final settlement of the class action (including the appeal).

2.6) Project Activity Highlights in North and South America

The PTTEP Group's projects in this region are located in Canada and Mexico. The following are significant activities in this region:

Mariana Oil Sands Project

The Mariana Oil Sands Project is located in Alberta, Canada. The PTTEP Group holds a 100 percent participating interest and is the operator of the Thornbury, Hangingstone, and South Leismer fields. Since 2021, well abandonment campaign and reclamation activities has been conducted, prior to the surrender of all leases according to the relevant regulations.

Mexico Block 12 (2.4) Project

Mexico Block 12 (2.4) Project is located in the Mexican Ridges, the western part of Gulf of Mexico. The PTTEP Group holds a 20 percent participating interest in the project with Petronas as the operator. The exploration well drilling was completed according to work commitment under the concession, with no petroleum potential confirmed.

Mexico Block 29 (2.4) Project

The Mexico Block 29 (2.4) Project is located in the Campeche Basin, the southern part of Gulf of Mexico. The PTTEP Group holds a 16.67 percent participating interest in the project with Repsol as the operator. The project is currently undergoing a pre-development study and evaluation of future petroleum potential.

Projects Ended Concession Divestment and Relinquishment in 2022

Contract 3 Project

The Contract 3 Project is located in the Gulf of Thailand, off the coast of Surat Thani Province. The PTTEP Group holds a 5 percent interest in the project with Chevron as the operator. All of the natural gas and condensate

produced from the project is sold to PTT according to long-term gas and condensate sales agreements, whilst the produced crude oil is under an annual sales agreement and spot cargo with other purchasers.

The end of the Contract 3 Project concession was on April 23, 2022. In 2022, average sales volume of the project was approximately 64 MMSCFD (approximately 10,400 BOED) for natural gas, approximately 2,600 BPD for crude oil and approximately 2,100 BPD for condensates.

Myanmar MD-7 Project

The MD-7 Project is located in the deep water of the Gulf of Moattama, Myanmar. The PTTEP Group has a 50 percent participating interest in the project and is the operator. TotalEnergies joined the consortium with 50 percent participating interest in 2017.

The project completed the drilling of an exploration well in March 2020 with no confirmed commercial reserves. The project submitted the block relinquishment notification letter in October 2020 after the fulfillment of the requirements under the Product Sharing Contract. The relinquishment approval by the Government of Myanmar was delivered on October 25, 2022.

Yetagun Project

The Yetagun Project is a natural gas and condensates producing project, located in the Gulf of Moattama, Myanmar. The PTTEP Group holds a 19.31784 percent interest in the project with PC Myanmar (Hong Kong) Limited as the operator. All of the natural gas from the Yetagun Project is sold to PTT on a take-or-pay basis pursuant to long-term GSA. To transport natural gas from Yetagun Project to Thailand, the PTTEP Group and the joint venture partners established a gas transportation company called Taninthayi Pipeline Company (TPC) to construct and operate an offshore pipeline and an onshore pipeline (parallel to the Yadana pipeline) from the project to the Thai border.

During 2022, the project suspended the production due to insufficient natural gas for minimum production and the machine has high temperature problem during Q2/2022. The project's total sales volume averaged 12 MMSCFD (approximately 1,900 BOED) for natural gas and approximately 600 BPD for condensates. The PTTEP Group had notified their decision to withdraw from Yetagun Project and TPC, with an effective date from May 31, 2022.

Block 17/06 Project

The Block 17/06 Project is located in the offshore west coast of Angola. On December 16, 2022, PTTEP Group has entered into a Sale and Purchase Agreement (SPA) to sell its entire 2.5 percent participation interest in Block 17/06 Project in Angola to SOMOIL BLOCO 17/06 (SU), S.A., a wholly-owned subsidiary of Sociedade Petrolifera Angolana, S.A (SOMOIL). Completion of the sale is expected by mid-2023 subject to the conditions prescribed in the SPA. This divestment marks the withdrawal of all PTTEP Group's investment in Angola.

Barreirinhas AP1 Project

The Barreirinhas AP1 Project is located in the Barreirinhas Basin, offshore east of Brazil. On August 31, 2022, the PTTEP Group has entered into a Sale and Purchase Agreement (SPA) to sell its investment in PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL), which are registered in Brazil, altogether

with all obligations to Ubuntu Engenharia e Serviços Ltda. PTTEP BL is holding a 25 percent interest in the Barreirinhas AP1 Project. Completion of the sale is subject to the conditions prescribed in the SPA.

Brazil BM-ES-23 Project

The Brazil BM-ES-23 Project is located in the Espirito Santo Basin, offshore east of Brazil. On August 31, 2022, the PTTEP Group has entered into a Sale and Purchase Agreement (SPA) to sell its investment in PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL), which are registered in Brazil, altogether with all obligations to Ubuntu Engenharia e Serviços Ltda. PTTEP BL is holding a 20 percent interest in the Brazil BM-ES-23 Project. Completion of the sale is subject to the conditions prescribed in the SPA.

PTTEP Australasia Project

- *Challis Field (AC/L3):* On November 19, 2021, PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA) submitted a request to terminate and return the exploration block of AC/L3 and received the approval from the Government of Australia on August 2, 2022.
- *Orchid Field (AC/P54):* On December 19, 2022, PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA) submitted a request to terminate and return the exploration license of AC/P54. The termination will be effective after receiving the official approval from the Government of Australia.
- *Audacious Field (AC/RL6):* On December 20, 2022, PTTEP Australasia Timor Sea Pty Ltd (PTTEP AT) decided not to submit a renewal application for AC/RL6. The termination will be effective after receiving the official approval from the Government of Australia.

(2) Midstream

Oman LNG (OLNG)

PTTEP by PTTEP Oman E&P Corporation (POC) formerly Partex Oman Corporation has a 2 percent stake in Oman LNG LLC (OLNG) which owns two 3.4 million tons per annum capacity liquefaction trains located near Sur, Oman. A third liquefaction train by a separate company, Qalhat LNG (QLNG) in which OLNG is a joint investor, has an additional capacity of 3.6 million tons per annum. The three trains have a combined nameplate capacity of 10.4 million tons per annum. The LNG produced is sold into South Korea and Japan markets by existing long-term contracts (SPAs), due to be expired by end of 2024.

The partners in OLNG are the Government of Oman 51 percent, Shell 30 percent, Total 5.5 percent, Mitsubishi Corporation 2.8 percent, Mitsui & Co 2.8 percent, POC 2 percent, Korea Gas Corporation (KOGAS) 1.2 percent, Samsung 1 percent, Hyundai 1 percent, Daewoo International 1 percent, Itochu 0.9 percent, and SK Innovation 0.8 percent.

For QLNG, the partners are the Government of Oman 46.8 percent, Union Fenosa Gas 7.4 percent, Mitsubishi Corporation 3 percent, Itochu 3 percent, Osaka Gas 3 percent, and OLNG at 36.8 percent which makes POC indirectly holds 0.736 percent in QLNG.

ADNOC Gas Processing (AGP)

PTTEP by PTTEP Gas Corporation (PGC) formerly Partex Gas Corporation owns a 2 percent of ADNOC Gas Processing (AGP) with ADNOC, the national oil company of the United Arab Emirates, owning a 68 percent stake and Shell and Total each holding 15 percent.

AGP, formerly known as GASCO prior to 2017, is an operating company engaged in processing associated and non-associated natural gas from UAE's onshore and offshore fields. Gas is supplied to AGP via pipelines from ADNOC's upstream entities; ADNOC Onshore (formerly ADCO), ADNOC Offshore (formerly ADMA), and other non-associated gas fields.

Associated gas supplied from ADNOC Onshore's oil fields is processed in Asab 0/3, Bab and Bu Hasa gas processing facilities. The AGP Joint Venture partners are entitled to the respective share of C3+, i.e. LPG (Propane and Butane) and Paraffinic Naphtha production from this associated gas until the concession ends in 2028.

(3) Gas Transportation Pipeline

PTTEP Offshore Investment Company Limited (PTTEPO), a wholly-owned subsidiary of PTTEP, has major investments in other companies, such as an 80 percent holding in Andaman Transportation Limited (ATL) and 37.1 percent in Moattama Gas Transportation Company (MGTC). The objective of the Company is to invest in gas pipeline transportation of Zawtika and Yadana projects connected at the border between Myanmar and Thailand.

(4) Jetty and Warehouse

Petroleum Development Support Base was established to provide jetty and warehouse services to support PTTEP Group's offshore exploration and production activities both in Thailand and abroad. The Support Base mainly accommodates the Company's own offshore operating projects in Thailand such as Bongkot Project, Arthit Project, G1/61 Project, G2/61 Project as well as those projects of other offshore oil and gas operating companies, such as PTT, Chevron Thailand Exploration and Production Limited, Carigali-PTTEPI Operating Company Sdn. Bhd. Moreover, the Support Base can also support affiliated offshore operating projects, such as Myanmar M3 Project and Zawtika Project which are located in the Republic of the Union of Myanmar. Currently, our Support Base operates at 2 branches in the provinces of Songkhla and Ranong.

1) *Petroleum Development Support Base (Songkhla Branch)* (Total area 121 rais) solely provides marine jetty berthing and warehousing services. It is owned and operated by PTTEP International Limited (PTTEPI), a subsidiary of PTTEP. The jetty is equipped with 380 meters of wharf which is capable of simultaneously berthing 6 supply vessels with a size of more than 500 gross tons. The jetty is also equipped with storage facilities and operated with a high standard of material-handling equipment. The Support Base also operates under an international management system which focuses on safety and security while taking into account the issues of occupational health and the environment. It strictly follows the International Ship and Port Facilities Security Code (ISPS Code) which has been approved by the Marine Safety and Environment Bureau of the Royal Thai Marine Department. The jetty is therefore recognized as one of the country's leading shore-based facilities for petroleum exploration and production activities. Warehousing service facility is divided into 4 sections, namely the open yard; storage warehouse; free zone yard; and free zone storage warehouse for optimal storage of materials and equipment. This facility is also used for certain goods that have been granted tax and duty benefits in its duty-free areas.

2) *Petroleum Development Support Base (Ranong Branch)* provides marine jetty berthing and warehousing services. It is also owned and operated by PTTEPI though the jetty service, which is operated through Ranong's

multi-purpose port, is owned by the Port Authority of Thailand. The jetty has a 150-meter wharf that is capable of simultaneously berthing 2 supply vessels with a size of more than 500 gross tons each. The Support Base is also fully equipped with storage facilities and standard material-handling equipment. The 25-rai warehousing service facility is divided into the same four sections as the Songkhla Branch.

To ensure that the services of both Support Base branches meet international standards and top safety levels, performance audits are continually conducted at both sites, emphasizing safety, security, occupational health and the environment. Both are also operated by and equipped with high security systems, such as parameter and high mast lights, barbed-wire fencing, a CCTV system, and 24-hour security guards. PTTEP is also aware of its responsibilities to society and the environment, especially the local communities surrounding the Support bases. The Company's efforts in this regard have resulted in several international accreditations including the International Environment Control Program (ISO 14001 certification), and the Occupational Health and Safety Management System (ISO 45001 certification). The Company has also prepared an Emergency Response Plan under the ISO 22301 standard to handle unexpected and emergency cases as well as to rehearse and exercise our response plans. This ensures that our Support bases are capable of responding to emergency situations with the latest technologies and methods for continuity of the operation.

(5) Information Technology and Communication Services

In accordance with the resolution of PTTEP's Board of Directors Meeting No. 10/2549/254 dated September 29, 2006 and in alignment with the PTT Group's ICT Policy Strategy for driving and increasing group synergy, PTTEP signed an agreement with PTT ICT Solutions Company Limited (PTT ICT), an affiliate 20 percent of whose shares are owned by the Company, to provide the Company with all information technology and communication services. The agreement covers infrastructure design and implementation, consultancy, procurement, and outsourcing services.

PTT ICT re-registered its name with the Department of Business Development, Ministry of Commerce, as "PTT Digital Solutions Company Limited" on June 22, 2017. The current service agreement is valid for 5 years, starting from January 1, 2021.

(6) Property Leasing

PTT and PTTEP have jointly established, constructed, and managed the Energy Complex Investment Project under Energy Complex Company Limited (Energy Complex). The complex is considered to be the energy business center of the country, also comprising the Ministry of Energy, subsidiaries and associated companies of the PTT Group.

(7) Manpower Services

PTTEP Services Limited (PTTEP Services) was established in accordance with the resolution of PTTEP Board of Directors Meeting No. 12/2546/216. With its primary business objective to supply manpower to support the PTTEP Group's operational activities, the Company ensures that PTTEP is sufficiently staffed for both domestic and international expansion.

To fulfill this objective, PTTEP Services has recruited and hired various types of staff, such as specialists, engineers, operators, and technicians, etc., both Thais and non-Thais, to serve PTTEP since July 1, 2004. The Company has continuously developed and improved its compensation, welfare, and benefits to ensure its staff are provided with fair

compensation and good welfare and benefit programs that make them feel motivated. This has also helped to improve the Company's competitiveness in the market.

To enhance staff's capability to effectively support PTTEP operations, PTTEP Services has provided several training and development programs based on PTTEP's business requirements. The programs focus on compulsory Safety, Security, Health and Environment (SSHE) training, Functional Training as well as Soft Skill Training in areas of innovation and interpersonal skills. In addition, the Company has provided basic training, including English, digital, and information technology courses to help the staff perform their job effectively.

PTTEP Services' business has continuously grown and expanded. Apart from supplying manpower for PTTEP, the Company has also provided manpower for Carigali-PTTEPI Operating Company Sdn. Bhd. (CPOC), a PTTEP joint venture company in Malaysia.

(8) AI and Robotics Technology

PTTEP established AI and Robotics Ventures Co., Ltd. (ARV) on the 21st of September 2018 as a wholly-owned subsidiary with the vision of becoming a "Deep Tech Venture Builder" focusing on the development of artificial intelligence ("AI") and robotics technologies in order to search for alternative business opportunities beyond the energy sector. Presently, there are 4 subsidiaries under the supervision of ARV, which are providing various technology products and services to cover the needs of various industries nationally and internationally, namely Rovula (Thailand) Co., Ltd., Skyller Solutions Co., Ltd., Varuna (Thailand) Co., Ltd., and Cariva (Thailand) Co., Ltd.

One of the significant milestones achieved by ARV in 2022 includes "**The winner of the National Innovation Awards**" among private medium-sized companies from the National Innovation Agency (NIA), Thailand, which illustrates our success in multiples domains such as:

Technology and Innovation Development – Successful development of the Nautilus for the inspection and maintenance of subsea petroleum pipelines which has already undergone practical use cases and is now the first commercially-available solution of its kind in the world. The Nautilus has received "The Spotlight on New Technology" award from OTC Asia 2022 in Kuala Lumpur, Malaysia. Another successful innovation is the National Digital Corporate Identity (NCID) which is a system that enables identity verification digitally via the use of blockchain. This has become one of the leading innovations in ASEAN and ARV is in the process of securing intellectual property (IP) ownership rights for NCID before commercialization.

Business Development and Expansion – ARV has seen continuous growth in its business performance which can be attributed to the development of advanced technologies, business mindset, and other innovations in different areas which have helped us expand our solutions to a wide array of applications.

People – ARV has placed heavy emphasis on managing human resources, from Recruitment to Employee Retention, and has embedded its core values that encourage knowledge integration to effectively bring out new technological innovations.

Process – ARV has an effective systematic process in monitoring and managing workflows, covering areas such as investments, human resources, accounting & finance, and procurement.

Aside from success in the aforementioned domains, ARV also places importance on sustainable growth by considering factors relating to environmental, social, and governance (ESG) as seen from its DeepTech solutions such as the "VARUNA Analytic" platform which helps with planning and cultivation of green spaces in Bang Kachao, Samut Prakan Province. The platform also utilizes AI to monitor the growth of these green spaces and aims to create an example of sustainable development for locals to follow and adopt.

Going forward as a Venture Builder, ARV's strategy is to position ourselves and monetize as a "Data & Core-Technology Platform" through the use of advanced blockchain and Geospatial Big Data. ARV is confident that this strategic direction will help augment the growth of ARV subsidiaries and unlock new business opportunities for long-term value creation to our stakeholders.

1.2.3 Research, Technology Development, and Innovation

PTTEP researches and develops technologies and innovations to support the Company's goals in sustainable development, aiming to be a high-performance organization and to create long-term value for stakeholders, whereby PTTEP applies the technology available in the market to maximize benefits and carries out research & development in new technologies. PTTEP has 3 main objectives in technology development:

1) To drive value and enhance competitiveness in E&P business;
2) To reduce greenhouse gas emissions to become a low-carbon organization;
3) To support the energy transition and new businesses.

Driving Value and Enhancing Competitiveness in E&P Business Technology

Petroleum exploration and production business is a core business that is an important mission of PTTEP in ensuring energy security for the country. PTTEP applies technologies in petroleum exploration and production to enhance petroleum production efficiency, reduce production costs, and minimize environmental impact. The technology that has been researched and developed can be divided into 4 groups as follows:

1) Enhancing Petroleum Production Technology

There are several processes and operational activities in petroleum production. Improving efficiency and resolving issues in the production process is crucial to increase production and lowering unit costs. PTTEP has been developing technologies to enhance production in various fields as follows:

- **Condensate treatment**: Various condensate treatment technologies have been developed to increase efficiency and reduce costs, such as the chemical demulsifier to help accelerate the separation of unwanted components in the form of particles, the adsorbent and filter, the improvement of unwanted component measurement, etc. In 2022, the Company successfully developed and implemented condensate treatment technologies in the Bongkot and Arthit fields and was able to achieve target to eliminate over 70 percent of the unwanted components. The Company is extending the technology implementation to other production fields and continually develops them to increase its performance.

- **CO_2 removal**: PTTEP has developed technologies to increase the efficiency of Carbon Dioxide separation and reduce the loss of saleable gas, such as the development of CO_2 removal membrane technology,

the development of Metal-Organic Framework (MOF) Adsorbents, and the development of low heating value (BTU) flare tip that reduces the loss of natural gas used to assist the combustion, etc. In 2022, the Company is in the process of engineering design for low heating value flare tip that is planned to implement in the Bongkot South Field in 2024 and is in the process of developing other technologies in the lab-scale phase.

2) Operational Efficiency Improvement Technology

Operations in the petroleum production process in an efficient way are beneficial in terms of increasing production, reducing costs, and increasing work safety. PTTEP has developed technologies to improve operations in many areas such as production operations, petroleum well operations, inspection, and maintenance of facilities and equipment in the production process, etc. In 2022, there are progressive projects such as the development of autonomous robots to perform field operation activities and the detection of equipment abnormalities on petroleum production platforms. The first prototype of the robot was successfully tested in the production platform at Bongkot South Field and is currently undergoing further development. The adaptive speed control equipment that can adjust the speed of intelligent pipeline inspection gauge (Intelligent PIG) to be able to measure the condition of the pipeline more accurately which is in the process of developing and testing the equipment in the prototype phase, and a diamond-like carbon coating to protect process equipment from corrosion and erosion which is in the process of developing a prototype machine for coating, etc.

3) Offshore Facility Decommissioning Technology

Subsea pipeline is a device used for transporting petroleum products between offshore platforms. Subsea pipelines that are no longer in use because production has depleted will require decommissioning operations. There are 2 main methods of decommissioning a subsea pipeline: totally remove and leave in place. Based on the Decommissioning Environmental Assessment (DEA) and Best Practicable Environmental Option (BPEO) considerations, it was found that the leave-in-place approach would have less impact on the environment and scores higher in considering decommissioning options. However, the pipeline must be cleaned to reduce the contaminant to a value that does not affect the environment first and must be approved in the method of decommissioning by the government agency. Therefore, technologies have been developed by PTTEP to support petroleum pipeline decommissioning activities such as the development of chemicals for the removal of contaminants in petroleum pipelines, the development of an intelligent sampling device to take internal surface samples of petroleum pipelines, and the development of portable contaminant analyzers for onsite analysis without having to send them to an onshore laboratory.

During Q4/2021 to Q1/2022, the aforementioned technology was tested in the Bongkot North Project and the results were satisfactory. Currently, the development team is in the process of improving the device to increase its efficiency and accuracy and will use these technologies for the petroleum pipelines decommissioning that will occur in the future.

In addition, Well Plug & Abandonment Technologies have been developed using thermite reaction techniques, which will reduce costs and reduce environmental impact. This project is currently in the prototype testing phase.

4) Waste Management Using Circular Model for E&P Concept Technology

For waste management by applying the concept of the circular economy, PTTEP has researched and developed technologies to turn waste from petroleum production into valuable products such as the conversion of produced sand in the Zawtika Project to Zeolite product that can be used in various industries. This project also supports the Company's goal to achieve zero waste to landfill by 2030 target. In 2022, the project team carried out the feasibility study to construct the prototype unit and evaluate its economic viability. The conversion of crude oil sludge to Graphene by flash sparking method by which the project has successfully tested the production process in the prototype phase and is in the process of improving production methods to be more efficient, etc.

Technology for Reducing Greenhouse Gas Emissions to Become a Low-carbon Organization

The development and application of new technology is part of supporting the Company's goal to achieve Net Zero Greenhouse Gas Emissions by 2050. The research and development of various technologies have been carried out including Carbon Capture, Utilization and Storage (CCUS), flare tip to reduce greenhouse gas emissions, renewable energy, and offsetting technology such as capturing carbon dioxide from the air (Direct Air Capture), etc. In 2022, there are progress of key projects including the flare gas conversion to Carbon Nanotubes Project which is in the process of designing the production unit in the pilot phase, the CO_2 conversion to Cyclic Carbonate Project which is in the process of testing the production unit in the prototype phase, the wind turbines for electricity generation on the wellhead platform which is in the process of implementing on new wellhead platforms and the low heating value flare tip that helps reduce greenhouse gas emissions which is in the process of engineering design for pilot implementation in the Bongkot South Field in 2024. If these projects are successful in their development and implementation, they will be a part of reducing greenhouse gas emissions and can expand the successful technology into new businesses as well.

Technology for Supporting Energy Transition and New Business

Energy transition or the transition from fossil fuels to renewable energy or alternative energy that reduces Carbon Dioxide emissions is a change that directly affects PTTEP's business operations. As for technology development, PTTEP has prepared to support the Company's business to be ready for such changes by studying and developing alternative energy technologies such as solar energy, wind energy, ocean wave energy, future energy, and technologies for separating and utilizing Carbon Dioxide to produce other forms of energy such as Hydrogen, Methanol, etc. In addition, the Company also established the Green Energy Technology Playground in the area of PTTEP Technology and Innovation Research Center (PTIC) as an area for clean energy technology development and testing to extend the implementation of clean energy technology to real applications.

Technology Development Management

PTTEP has a technology management division specifically taking care of the management of the Company's technology development. Technology Development Process (TDP) is a framework for managing technology development for maximum efficiency. The process is divided into 5 phases of technology development which are preliminary study, lab-scale testing, prototype development, pilot testing, and deployment or commercialization phase, which is aligned with the technology development at the international level, known as the Technology Readiness Level (TRL). The Technology Development Process is also a tool to assist in the selection and approval of projects, as well as to support the technology development project until

it is successful and can be implemented or commercialized. The technology development is under supervision and advisory on overall management in accordance with the Company's direction and policy from the Technology Development Committee. In 2022, there are 14 cumulative projects that have been implemented and the technology development process has been improved to make technology development management more efficient.

In addition, the Company has an Intellectual Property Management Process as a framework for systematic management and expert personnel to manage intellectual property works resulting from PTTEP's technological and innovation developments. Since PTTEP began to develop technology in 2022, PTTEP has had more than 156 invention patent applications filed in 20 countries around the world from the development of more than 78 technologies and innovations.

Infrastructure to Support Technology Development and Innovation

PTTEP has established PTTEP Technology and Innovation Center (PTIC) in the Eastern Economic Corridor of Innovation (EECi) at Wangchan Valley, Rayong Province. In the area of PTIC, it currently consists of a pilot area building, unmanned aerial vehicle (UAV) test field, including equipment and laboratories for technology and innovation research and development. PTIC will play a key role in enhancing PTTEP's competitiveness by driving and accelerating the success of technology development and innovation towards faster industrial application. PTIC also plays an important role in the development of technology personnel of the nation. It is an area for exchanging knowledge of researchers and experts and building a research network internationally to help extend and drive sustainable technology development.

1.2.4 Permission to Operate, Concession, or Business Promotion

PTTEP operates petroleum exploration and production business in the Kingdom of Thailand and abroad. The Company's investments in foreign countries must comply with all applicable laws and regulations of those invested countries, such as (1) Production Sharing Contract, (2) Concession, or (3) Services Agreement. Within the Kingdom of Thailand, the Company must comply with the Petroleum Act B.E. 2514 and its amendments which set out the rights to explore, exploit, and produce petroleum under concession regime, production sharing contract regime, and services agreement regime. Key points in the petroleum business are as follows:

(1) Demarcation of Petroleum Exploration and Production Areas

The Department of Mineral Fuels, the Ministry of Energy, as the government authority under petroleum law, is responsible for demarcating each petroleum exploration and production area (Block) and inviting oil companies to submit their applications requesting for awarding concession, production sharing contract, or services agreement. In considering any awards, the Petroleum Committee has duty to render consultation to the Minister. The Minister with the approval of the Cabinet has the authority to sign the concession, production sharing contract, or services agreement to award the right to explore, exploit, and produce petroleum. Qualification of each applicant will be considered by the State to award the right to explore, exploit, and produce petroleum which includes without limitation to adequacy of the investment funds to be brought in and used in the exploration activities, transfer of knowledge and technology, employment of the Thai nationals, and the utmost benefits of the State.

(2) Characteristic of Joint Venturer

A petroleum concession, a production sharing contract or a services contract may be awarded to a single concessionaire/contractor or multiple concessionaires/contractors. Since the risk of the petroleum exploration and production business is relatively high in its nature, it is common for concessionaires or contractors to form a joint venture in order to diversify such business risk. In a joint venture, a company will be designated as the "operator" to conduct the exploration and production operations on behalf of its partner(s) and commonly under the supervision of a management committee or an operating committee which is composed of representatives of all parties. Other non-operator companies will participate in making operational decisions including technical, work program, and budget. The operator will request for cash advance (Cash Call) from all parties to spend for the project. Generally, whether any particular oil company will become a project operator depends largely on its investment conditions, readiness, and business strategy in that project.

(3) Nature of Operations and Investment Decisions

Before an oil company decides to invest in petroleum exploration in the Kingdom of Thailand or abroad, it must consider the chance of having a successful exploration as well as other investment risk factors. A thorough study on the information available is conducted to determine whether the area has high petroleum potential and whether the project is commercially feasible. The success ratio of exploration wells in neighboring areas as well as other risk factors in the invested countries must also be considered. If the project is commercially feasible, the company will apply for a right to explore, exploit, and produce petroleum or, if such right is already awarded, "farm-in" to the existing petroleum concession.

After the oil company is awarded a right to explore, exploit, and produce petroleum, an exploration program will be conducted, normally taking 2-3 years. If the petroleum reserves are found in any exploration area, the oil company will determine the amount of investment funds required for the development phase and the expected sales value of the petroleum based on the petroleum reserves to be produced from the exploration area. If the result indicates that it is worth to invest, such exploration area is considered commerciality. The operator shall then apply for an approval of petroleum production area and simultaneously may start its production activity. The operator is still able to explore the remaining exploration areas if it is within the time frame of the exploration period as mentioned in the concession, the production sharing contract, or the services contract. At this stage, the operator must have a certain degree of confidence about the investment. However, as the investment expenditure required for such development phase is very high; the operator must normally be able to identify buyers of the petroleum in advance, whereas a long-term sales agreement for the petroleum to be produced shall be signed. Currently, PTT Public Company Limited (PTT) is the biggest petroleum buyer in Thailand. The principal elements of the sales agreement for petroleum generally include the determination method of the sales price and quantity of the petroleum to be delivered. Sales of natural gas from domestic areas are made at the delivery point specified in the contract, while sales of natural gas from foreign areas are made at the Thai borders. PTT is currently responsible for installation of most of the gas pipelines for the production amount as specified in the gas sales agreement. Sales of crude oil are made at the delivery point specified in the contract. Sales of condensate are made at the delivery point specified in the contract as well.

(4) Description of Laws Relating to the Business

Operation of petroleum business in Thailand is governed by two major enactments, namely the Petroleum Act B.E. 2514 and the Petroleum Income Tax Act B.E. 2514 and its amendments. The concessionaire and

contractor must be a limited company or a juristic person which has the same status as a limited company, established under the laws of Thailand or foreign laws. Several major features of these laws are as follows:

1) Concession

1.1) The concessionaire(s) and the co-venturer(s) shall pay the royalty which is normally in cash. The Minister may demand such royalty payment in kind of petroleum with the prior notice of not less than 6 months. The royalty can be used as credit against income tax (THAILAND I) or deducted as expenses (THAILAND III).

1.2) Petroleum income tax is prescribed at a rate not lower than 50 percent and not higher than 60 percent of the net profit from the petroleum operation.

1.3) Interest paid cannot be deducted as expenses for income tax purposes.

1.4) Each concessionaire could be awarded concessions with no limitation in terms of number of blocks.

THAILAND I for the petroleum concessions awarded by the Ministry of Industry[1] from B.E. 2514 to B.E. 2532 and those onshore petroleum concessions issued before B.E. 2525

THAILAND II[2] for the onshore petroleum concessions awarded by the Ministry of Industry from B.E. 2525 to B.E. 2532

THAILAND III for the petroleum concessions awarded by the Ministry of Industry from B.E. 2533

Details of the Terms: THAILAND I, II, and III

Term	THAILAND I	THAILAND II	THAILAND III
Royalty Rates	12.5 percent of income from sales or disposal of petroleum which may be treated as tax credit	12.5 percent of income from sales or disposal of petroleum which may be treated as tax credit	progressive rate at sliding scale of 5-15 percent, deemed to be expenses which could be deducted in tax calculation
Petroleum Income Tax	50 percent of net profit from petroleum business operation	50 percent of net profit from petroleum business operation	50 percent of net profit from petroleum business operation
Special Benefits	-	annual benefits and annual production bonus	special remunerator benefit which could be deducted in tax calculation
Exploration Period	8 years with 4-year extension	8 years with 4-year extension	6 years with 3-year extension
Production Period	not exceeding 30 years from exploration's expiration date, with extension not exceeding 10 years	not exceeding 30 years from exploration's expiration date, with extension not exceeding 10 years	not exceeding 20 years from exploration's expiration date, with extension not exceeding 10 years
Concession Areas	not exceeding 10,000 sq. km. per exploration block, up to 5 exploration blocks	not exceeding 10,000 sq. km. per exploration block, up to 5 exploration blocks	not exceeding 4,000 sq. km. per exploration block, up to 5 exploration blocks[3]

[1] Currently, the Ministry of Energy

[2] Under Section 36 of the Petroleum Act (No. 4) B.E. 2532, all petroleum concessionaires under THAILAND II have applied to be subject to the criteria under THAILAND III.

[3] Under Section 28 of the Petroleum Act (No. 6) B.E. 2550, effective on October 18, 2007, there is currently no limitation in terms of number of blocks.

2) Production Sharing Contract

2.1) All petroleum operation expenditure shall be responsible by the contractor whereas the contractor shall be recovered such expenditure by deducting it from the production. The expenditure that can be deducted shall be the actual expenditure according to the work program and budget approved by the Director General of the Department of Mineral Fuels, the Ministry of Energy, but shall not exceed 50 percent of the overall petroleum production.

2.2) The contractor shall pay the royalty to the State at the rate of 10 percent of the overall petroleum production.

2.3) The remaining petroleum production after deducting the royalty and the recoverable expenditure shall be shared to the contractor, but not exceeding 50 percent.

2.4) Petroleum income tax is prescribed at a rate not lower than 20 percent of the net profit from petroleum operation.

3) Services Contract

3.1) Services contract can be either the hiring for exploration and production contract, the hiring for exploration contract, or the hiring for production contract.

3.2) The contractor shall be paid by the State according to the terms and conditions of each services contract.

3.3) All petroleum operation expenditure shall be responsible by the contractor.

3.4) Payment shall be made to the contractor after deducting the royalty.

At present, PTTEP has obtained the rights to explore, exploit, and produce petroleum in Thailand under concession and production sharing contract regime.

1.2.5 Market and Competition

PTTEP has invested in both domestic and overseas projects, including Myanmar, Vietnam, Malaysia, Indonesia, Australia, Canada, Mexico, Brazil, Algeria, Mozambique, Angola, Kazakhstan, UAE, and Oman. The target markets are both domestic and overseas where we have invested in. The Company's petroleum products include natural gas, crude oil, condensate, naphtha, and LPG.

In 2022, total sales by the Company and our subsidiaries averaged 468,130 barrels of oil equivalent per day (BOED). The total sales ratio of natural gas to liquid and other petroleum products (Crude oil, Condensate, Naphtha, and LPG) was 73 percent: 27 percent by volume and 51 percent: 49 percent by value, as shown below.

Product	Volume	Value (million USD)
Natural Gas	758,756 MMSCF or 123.89 MMBOE	4,664.10
Condensate	19.31 MMBBL	1,807.29
Naphtha	99,066 metric tons or 0.84 MMBOE	70.30
Crude Oil	26.29 MMBBL	2,550.80
LPG	64,694 metric tons or 0.54 MMBOE	29.65

(1) Marketing Characteristics

PTTEP sells our outputs from domestic and regional projects, i.e. Myanmar and the Malaysia-Thailand Joint Authority (MTJA) primarily to the Thai market through PTT Plc. (PTT), the major buyer and processor of all the products. PTT then turns the processed products into the country's power sector, petrochemical industry sector, transportation sector, industry sector, and household sector.

The marketing of petroleum products varies with their characteristics and field location, which in turn differentiate the market and sales price structures.

1) Natural Gas

Due to capital-intensive investment in developing oil and gas exploration business, Gas Sales Agreements (GSAs) must be agreed or signed between buyer and seller before any major investment is made. GSAs are typically long-term contracts, ranging from 15 to 30 years. Prices, volumes, and points of sale are stipulated for each of the contracts. Currently, the designated transfer points for all domestically sold gas are at the Central Processing Platforms (CPPs), from which the buyer will invest in the transmission system to the CPPs. The delivery point of the gas sold from the Republic of the Union of Myanmar to Thailand is however at the Myanmar-Thai border. In this case, the seller is responsible for investment in the transmission pipelines from the CPPs to the border. Gas prices are usually linked to fuel oil prices and several key economic indices to reflect costs and be competitive compared with fuel oil, which was considered as alternative fuel for power generation at the time those GSAs were negotiated, for the GSA period.

Sales volumes are based on the assessed reserves on the negotiation date. GSAs stipulate obligations between buyer and seller for a committed volume. If the buyer does not take the volume of gas as committed to in the GSA, it must pay for the committed volume whether the gas is taken or not (Take-or-Pay). As a consequence, the buyer is entitled to take delivery free of charge in subsequent years (Make-Up Gas). On the other hand, should the seller fail to deliver as nominated by the buyer, the buyer is entitled to the agreed discount price of the undelivered volumes as stipulated in the agreement (Shortfall).

2) Condensate and Crude Oil

Condensate and crude oil prices are determined by their properties and benchmarked with crude oil prices of those predominantly sold in the region. Contracts are either short-term or long-term, and some are sold in spot markets.

3) Naphtha

Naphtha produced from ADNOC Gas Processing Project (AGP), the largest gas processing complex located onshore of Abu Dhabi, UAE, is sold by Abu Dhabi National Oil Company (ADNOC) which represents as Marketing Agent. Selling price followed official selling price in the region and naphtha is sold under short-term contract.

4) LPG

LPG produced from S1 Project is sold to PTT under a long-term contract with the price in line with the government's policy and announcements by the Joint Committee on Energy Policy Administration. Moreover, LPG produced from ADNOC Gas Processing Project (AGP), the largest gas processing complex located onshore of Abu Dhabi, UAE, is sold under a short-term contract the selling price of which refers to official selling price in the region.

Sales of petroleum products from PTTEP's international fields vary from country to country as follows:

- Zawtika, Yadana, and Yetagun projects in Myanmar: Approximately 79 percent of the produced natural gas from Zawtika and Yadana projects is primarily sold to Thailand through PTT, while the remaining 21 percent is sold

to Myanmar which mainly used for its domestic power generation and small volume to industrial sector. Until late April 2022 when PTTEP has withdrawn from Yetagun Project. All the gas output from Yetagun Project is sold to PTT for the consumption in Thailand, and all of the condensate from Yetagun Project in 2022 is sold in the regional spot market due to the revamping of domestic refinery.

- Vietnam 9-2 and Vietnam 16-1 projects in Vietnam: All of the oil output produced from both Vietnam 9-2 and Vietnam 16-1 projects are sold through auction in the regional short term and spot markets which major buyers are Binh Son Refining and Petrochemical Company Limited (BSR), a refinery in Vietnam, for the consumption in Vietnam and Trading Company. While the produced gas from both projects is sold to Vietnam Oil and Gas Group, a state enterprise, for the consumption in Vietnam.

- Algeria 433a & 416b and Hassi Bir Rekaiz projects in Algeria: The Bir Seba Field and Hassi Bir Rekaiz Field have been commercialized their producing crude oil through auction under a short-term contract which major buyer is the European's refineries.

- Oman Block 6 (PDO), Oman Block 53, and Oman Block 61 projects in Oman: Crude oil from these 3 blocks is sold under short-term and medium-term contracts while natural gas produced from Block 61 is sold under long-term contract to the Government of the Sultanate of Oman (GOSO). Natural gas produced in Block 6 and Block 53 is entitled to GOSO.

- Dunga Project in Kazakhstan: A producing oil field located onshore west of Kazakhstan is operated and sold by Total. The crude oil is sold under a short-term contract to both domestic and export markets.

- Malaysia Block K, Malaysia Block H, and Malaysia SK309 and SK311 projects in Malaysia: Crude oil from Malaysia SK309 and SK311 Project, together with Kikeh, Siakap North-Petai (SNP), and Gumusut-Kakap (GK) fields from Malaysia Block K Project, and Malaysia Block H Project are sold under short-term contracts in Malaysia and in spot markets. Natural gas produced from the Malaysia SK309 and SK311 and Malaysia Block H projects are sold under long-term contract to Petroliam Nasional Berhad (PETRONAS), the Malaysia national oil company, and used as gas supply to the Petronas LNG Complex in Bintulu.

For MTJDA Project in Malaysia-Thailand Joint Development Area, the produced natural gas is sold to PTT for the consumption in Thailand. Starting from April 2015, the gas has been sold to Malaysia according to the Gas Balancing Agreement between PTT and PETRONAS. The condensate output meanwhile has been marketed and sold by a Co-Marketing Agent of PTT and PETRONAS Trading Corporation Sdn. Bhd. (PETCO) through auction in the spot markets.

(2) Competition

Thailand's E&P industry is oligopolistic due to high demand compared to domestic supplies as well as the business' relatively high investment and advanced technology required. So, the sales contracts, especially GSAs, are predominantly long-term contracts coupled with Take-or-Pay clauses in order to mitigate investment risk to attract new investment.

As a part of the Thai government policy to liberalize the natural gas market, Energy Regulatory Commission (ERC) approved the quota to import LNG 4.5 million tons in 2022 for new Shippers and PTT, on top of current long-term contracts in order to support country stability in case domestic gas fields produce less than expected. However, there is only EGAT that imported LNG at 0.13 million tons due to very high LNG price in this year. Therefore, to ensure sufficient gas supplies to gas-fired power plants, the Government assigned PTT to import LNG to fulfill the power plant demand. The additional quota for LNG

imports will not affect PTTEP's gas sales because this quota allows only LNG import for additional volume over the committed gas sales in current GSAs, and current GSAs with PTT also have Take-or-Pay obligation as mentioned above.

Regarding the approximate domestic production in 2022, PTTEP's petroleum production accounts for 62 percent of the total domestic production in 2022, making the Company the leader among the domestic producers.

Producers	% Domestic Production Volume
PTTEP	62
PETRONAS	10
Chevron	9
Total	6
MOECO	2
Others	11

Source: Department of Mineral Fuels, Ministry of Energy (as of November 2022)

1.2.6 Production

(1) Exploration and Production Stages and Technology

Petroleum exploration and production can generally be divided into 4 major stages as follows:

1) Exploration Stage: This is the first step to identify the areas with reservoir potential. The main activities conducted in this stage include:

- Primary geological and geophysical surveys
- Seismic acquisition, processing, and interpretation
- Exploration well drilling and testing

2) Appraisal/Delineation Stage: This stage mainly involves additional study to increase the certainty of estimated size and properties of the reservoirs. The main activities conducted in this stage include:

- Detailed study of petroleum geology and additional seismic survey (if any)
- Reservoir formation evaluation and conceptual development design
- Appraisal/Delineation well drilling and testing

3) Development Stage: This is the last stage prior to the production. The main activities conducted in this stage include:

- Field development plan design and optimization
- Production facilities design, construction, and installation
- Development well drilling and completion

4) Production Stage: This is the stage where petroleum and associated products flow through the pressure-controlled equipment (wellhead) and processing facilities, including measuring equipment, to obtain the production rates of all the productions. The main activities conducted during this stage include:

- Monitoring of production rate, proportion between produced gas, crude oil or condensate, and water, as well as pressure decline rate
- Forecasting of the future reservoir performance
- Well intervention work-over and facilities maintenance

PTTEP has been well equipped in terms of manpower, technology, and equipment to operate the business efficiently according to the Company's target.

(2) Petroleum Reserves

Petroleum reserves can be divided into 2 categories, namely Proved Reserves and Unproved Reserves, according to the level of certainty.

1) Proved Reserves are those quantities of petroleum which, by analysis of geological and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under current economic conditions, operating methods, and government regulations.

Practically, Proved Reserves mean the petroleum in reservoirs that can be commercially produced based on supporting data gathered during the well testing process. In some cases, reserves may be classified as Proved Reserves essentially when the results from well logging and/or analyzing of the core and fluid samples can prove that the reservoirs and petroleum in the reservoirs are similar or comparable to those of the neighboring areas which have already been commercially produced or with the potential to be produced according to their well testing results. In addition, Proved Reserves must be able to be produced by using the existing production equipment or with the production equipment that has a firm plan to install in the future.

2) Unproved Reserves are defined based on geoscience and/or engineering data similar to that used in the estimation of Proved Reserves but with technical or other uncertainties which preclude such reserves from being categorized as Proved. Unproved Reserves can be further categorized into Probable Reserves and Possible Reserves as follows:

- Probable Reserves are those additional quantities of petroleum obtained from an analysis of geoscience and/or engineering data similar to that used in the estimation of Proved Reserves but with less production possibility.
- Possible Reserves are those additional quantities of petroleum obtained from an analysis of geoscience and/or engineering data similar to that used in the estimation of Probable Reserves but with less production possibility than both Proved Reserves and Probable Reserves.

The Company's Proved Reserves are composed and reviewed annually by our earth scientists and reservoir engineers to ensure the industry's rigorous professional standards.

The Proved Reserves are reported on a gross basis which includes the Company's net working interest and related host country's interest. As of December 31, 2022, the total amount of Proved Reserves of PTTEP Group's projects[1] was 365 million stock-tank barrels (MMSTB) of crude oil and condensate[2] and 6,523 billion standard cubic feet (BSCF) of natural gas or 1,077 million barrels of oil equivalent (MMBOE). The total amount of Proved Reserves in terms of oil equivalent was therefore 1,442 MMBOE. Details of the Company's Proved Reserves are shown in the following table.

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[1] Include APICO Joint Venture project

[2] Include NGL

PTT Exploration and Production Public Company Limited

Crude, Condensate, and Natural Gas Proved Reserves[1]

As of December 31, 2022

	Crude and Condensate[2] (Million Barrels)			Natural Gas (Billion Cubic Feet)			Barrel of Oil Equivalent (Million Barrels)		
	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total
The Company's share of reserves of consolidated companies									
Proved Reserves as of Dec 31, 2021	115	242	357	2,944	2,969	5,913	595	745	1,340
1) Revision of previous estimates	13	6	19	173	208	381	41	33	74
2) Improved recovery	1	0	1	1	-	1	1	0	1
3) Extensions and discoveries	32	9	41	859	171	1,030	174	37	211
4) Purchases/Sales of petroleum in place	3	(0)	3	80	35	115	16	4	20
5) Production	(31)	(25)	(56)	(566)	(402)	(968)	(123)	(89)	(212)
Proved Reserves as of Dec 31, 2022	133	232	365	3,491	2,981	6,472	704	730	1,434
The Company's share of reserves of equity companies									
Proved Reserves as of Dec 31, 2021	0	-	0	60	-	60	10	-	10
1) Revision of previous estimates	-	-	-	-	-	-	0	-	0
2) Improved recovery	-	-	-	-	-	-	-	-	-
3) Extensions and discoveries	-	-	-	-	-	-	-	-	-
4) Purchases/Sales of petroleum in place	-	-	-	-	-	-	-	-	-
5) Production	(0)	-	(0)	(9)	-	(9)	(2)	-	(2)
Proved Reserves as of Dec 31, 2022	0	-	0	51	-	51	8	-	8
Total Proved Reserves as of Dec 31, 2022	133	232	365	3,542	2,981	6,523	712	730	1,442

[1] The Proved Reserves are reported on a gross basis which includes the Company's net working interest and the related host country's interest.

[2] Natural Gas Liquids (NGL) included.

Furthermore, in order to improve efficiency, check and balance of the reserves estimation, reporting and disclosure, the Company maintains a Reserves Committee which has the following roles and responsibilities:

- Review and endorse the Company's Annual Reserves
- Review and approve Major Changes of Reserves and Reserves for a Newly-Acquired Project
- Ensure that all activities that related to reserves estimation and disclosure of reserves information conform to regulatory and legal requirements as well as to corporate and international standards
- Approve Annual Reserves Audit Plan, appoint Reserves Auditor, as well as approve Reserves Audit Report to ensure compliance with the Company's framework and continual process improvement.

(3) Petroleum Production

In 2022, the total production of PTTEP Group[1] was 214 MMBOE, consisting of 56 MMSTB of crude oil and condensate[2] and 977 BSCF (158 MMBOE) of natural gas. This was equivalent to the average production rate of 585,244 barrels of oil equivalent per day (BOED) which was approximately 90,367 BOED or 18 percent increase from the previous year. The increase in production mainly comes from G1/61, G2/61 and Algeria Hassi Bir Rekaiz projects first production in April and July 2022, respectively. In addition, the PTTEP Group has signed side deed to perform sole risk in G1/61 Project and obtained participating interest increase from 25.5 percent to 37.0842 percent in Yadana Project due to TotalEnergies withdrawal with effective date on July 20, 2022

1.2.7 PTTEP and Our Subsidiaries' Assets

(1) Property, Plant, and Equipment

Oil and Gas Properties

PTTEP and our subsidiaries' properties are mainly jointly controlled oil and gas properties in each project. These properties comprise land, buildings, construction, equipment and facilities, transportation pipeline, capitalized exploratory and production drilling costs, decommissioning costs, which are estimated by PTTEP Group's engineers and management's judgment, and acquisition costs of petroleum rights or acquisition costs of the portion of properties.

As of December 31, 2022, PTTEP and our subsidiaries' oil and gas properties are represented as share of the investments in individual assets for each project. The details of share of the investments in the project are disclosed in Part 3 Financial Report in Notes to the Consolidated and Separate Financial Statements No. 16 Investments in subsidiaries, associates, joint ventures, and joint operations.

[1] Include APICO Joint Venture project

[2] Include NGL

As of December 31, 2022, details of properties' net book value are as follows:

Unit: Million US Dollar

Details of properties	Historical cost	Accumulated depreciation	Allowance for impairment of assets	Net book value
Oil and Gas Properties	31,644	(23,648)	(279)	7,717
Exploration and Evaluation Assets	4,312	-	(1,240)	3,072
Right-of-use Assets	1,295	(320)	-	975
Goodwill	2,014	-	(465)	1,549
Pipeline and Others	1,298	(583)	-	715
Assets under Construction	3,580	-	-	3,580
Total	**44,143**	**(24,551)**	**(1,984)**	**17,608**

(2) Investments

Details of PTTEP's subsidiaries, associates, joint ventures, and joint operations are disclosed in Part 3 Financial Report in Notes to the Consolidated and Separate Financial Statements No. 16 Investments in subsidiaries, associates, joint ventures, and joint operations.

(3) Net Book Value

As of December 31, 2022, PTTEP's net book value amounted to USD 13,515 million (equivalent to THB 467,121 million) or USD 3.40 per share (equivalent to THB 117.66 per share).

1.2.8 Backlogs

-None-

1.3 Shareholding Structure of PTTEP Group

(1) Operational Policy of PTTEP Group

PTTEP has continuously expanded our E&P business, including in related businesses and Non-E&P, domestically and internationally. The establishment of subsidiaries and/or associated companies in various regions is necessary for investment purposes, improving our operational efficiency, competing with other international oil companies, operational flexibility, and adjusting to global economic changes. Several factors, such as laws and regulations, financial structures, tax regimes, business and investment conditions, and risk management, should be taken into consideration in any decision to set up a subsidiary or an associated company.

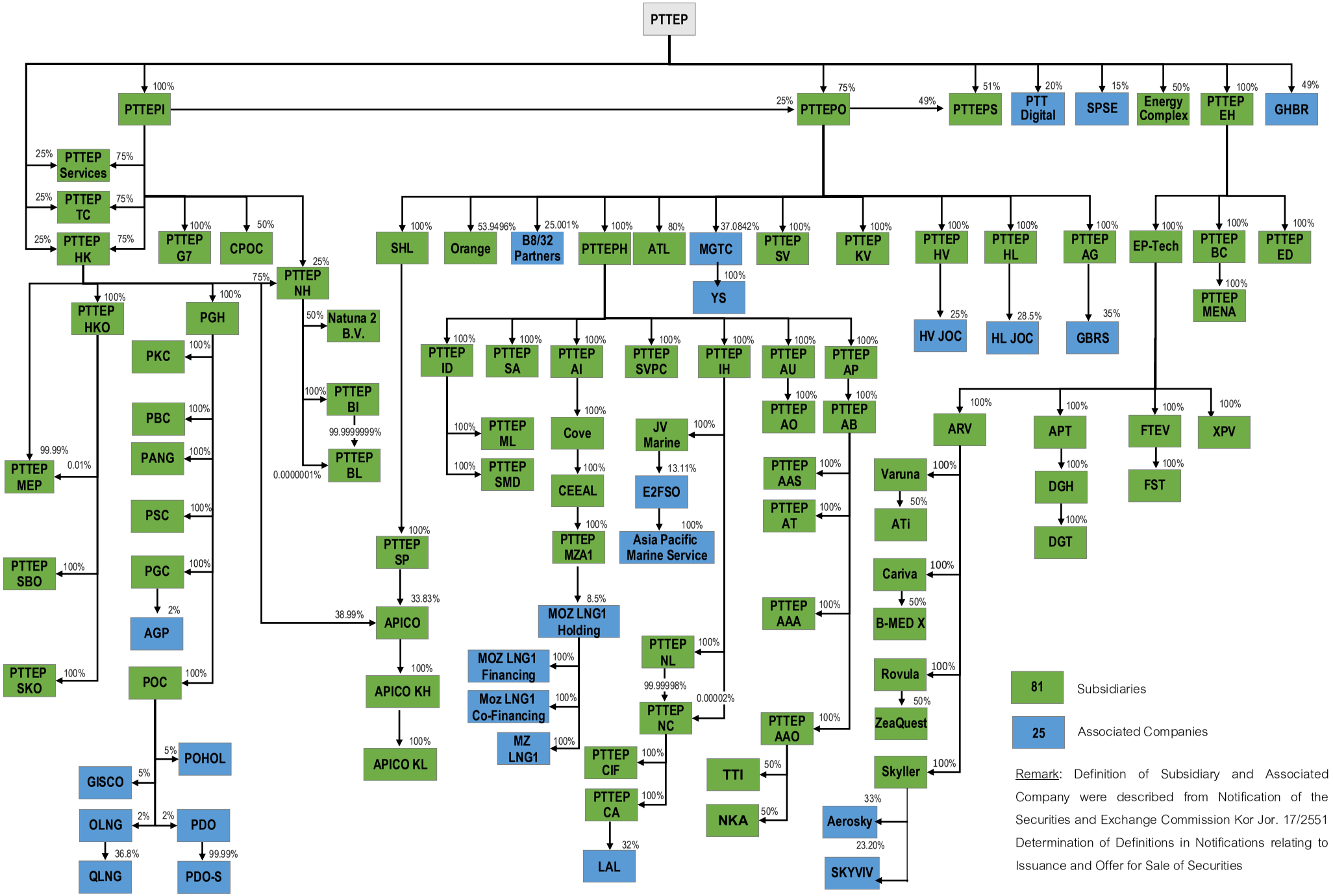
It is our policy to manage PTTEP's subsidiaries in line with PTTEP's business direction and strategy. We designate PTTEP executives and staff to second into key positions of PTTEP's subsidiaries. The strategic direction and financial investment of PTTEP's subsidiaries are overseen by the Company. The Boards of Directors of the subsidiaries, especially the Non-E&P business, e.g. ARV, have the business management decision authority on the paths to achieve the set targets and strategy. As for the associated companies, we nominate PTTEP representatives to serve as shareholders and/or members of the Board of Directors in accordance with the terms of investment, in order to take part in the decision-making of the overall business strategy and policy of these companies. To manage both the subsidiaries and associated companies, we adhere to

the Good Corporate Governance and Business Ethics of the PTTEP Group, in order to ensure effectiveness, transparency, fairness, and the attainment of our business goals.

With respect to the selection of directors of the Company's subsidiaries and associated companies, we designate PTTEP executives responsible for projects under each relevant subsidiary and associated company as directors of these entities to ensure that they are managed in line with the Company's business direction and strategy. We may also appoint a local director, if required by domestic laws and regulations or investment conditions. The subsidiaries and associated companies meanwhile are obligated to report their performance to the Company on a quarterly basis in order to ensure their performance and effectiveness.

(2) Shareholding Structure of PTTEP Group

As of December 31, 2022, PTTEP invested in 106 legal entities, comprising 81 subsidiaries and 25 associated companies. The PTTEP Group Shareholding Structure is illustrated as below:



Remark: Definition of Subsidiary and Associated Company were described from Notification of the Securities and Exchange Commission Kor Jor. 17/2551 Determination of Definitions in Notifications relating to Issuance and Offer for Sale of Securities

(3) Information of PTTEP

Company Name	PTT Exploration and Production Public Company Limited or PTTEP
Headquarters Address	555/1 Energy Complex Building A, 6th and 19th-36th Floor, Vibhavadi Rangsit Road, Chatuchak, Chatuchak, Bangkok 10900, Thailand
Type of Business	Exploration and production of petroleum and investments in related businesses
Registration Number	0107535000206
Telephone	+66-2537-4000
Facsimile	+66-2537-4444
Website	www.pttep.com
E-mail	Independent Directors: independentdirector@pttep.com Investor Relations: ir@pttep.com Corporate Secretary: corporatesecretary@pttep.com
Registered Capital	3,969,985,400 ordinary shares with THB 1 per share (THB 3,969,985,400)
Paid-Up Capital	3,969,985,400 ordinary shares with THB 1 per share (THB 3,969,985,400) as of December 31, 2022

(4) Subsidiaries and Associated Companies Information

- **Subsidiaries Information**[1]

As of December 31, 2022, there were 81 subsidiaries that have the same contact address, telephone, and facsimile numbers as PTTEP as in 1.3 (3) Details of the directors designated by the PTTEP Group for each subsidiary are disclosed in Attachment 2 as follows:

No.	Abbreviation	Company Name	Number of Shares Sold		Total Direct/Indirect Holding	
E&P						
1	APICO	APICO LLC	338,278 389,937	Ordinary Share	PTTEP SP PTTEP HK	33.83% 38.99%
2	APICO KH	APICO Khorat (Holdings) LLC	-	-	APICO	100%
3	APICO KL	APICO (Khorat) Limited	5,885,168	Ordinary Share	APICO KH	100%
4	CEEAL	Cove Energy East Africa Limited	5,000	Ordinary Share	Cove	100%
5	Cove	Cove Energy Limited	509,240,963	Ordinary Share	PTTEP AI	100%
6	CPOC	Carigali-PTTEPI Operating Company Sdn. Bhd.	350,000	Ordinary Share	PTTEPI	50%
7	EP-Tech	EP-Tech Ventures Holding Company Limited	38,171,550	Ordinary Share	PTTEP EH	100%
8	JV Marine	JV Marine Limited	50,000	Ordinary Share	PTTEP IH	100%
9	Natuna	Natuna 2 B.V.	90,000	Ordinary Share	PTTEP NH	50%
10	Orange	Orange Energy Limited	1,000,000	Ordinary Share	PTTEPO	53.9496%
11	PANG	PTTEP (Angola) Corporation	50,000	Ordinary Share	PGH	100%
12	PBC	Partex (Brazil) Corporation	50,000	Ordinary Share	PGH	100%
13	PGC	PTTEP Gas Corporation	2,000,000	Ordinary Share	PGH	100%
14	PGH	PTTEP Group Holding B.V.	100,000	Ordinary Share	PTTEP HK	100%
15	PKC	PTTEP (Kazakhstan) Corporation	500	Ordinary Share	PGH	100%
16	POC	PTTEP Oman E&P Corporation	2,500	Ordinary Share	PGH	100%
17	PSC	Partex Services Corporation	3,000	Ordinary Share	PGH	100%
18	PTTEP AAA	PTTEP Australasia (Ashmore Cartier) Pty Ltd	1,700,000	Ordinary Share	PTTEP AB	100%

[1] Notification of the Securities and Exchange Commission No. Kor Jor. 17/2551 Re: Determination of Definitions in Notifications relating to Issuance and Offer for Sale of Securities

No.	Abbreviation	Company Name	Number of Shares Sold		Total Direct/Indirect Holding	
19	PTTEP AAO	PTTEP Australasia (Operations) Pty Ltd	106,686,517	Ordinary Share	PTTEP AB	100%
20	PTTEP AAS	PTTEP Australasia (Staff) Pty Ltd	10	Ordinary Share	PTTEP AB	100%
21	PTTEP AB	PTTEP Australia Browse Basin Pty Ltd	50,000	Ordinary Share	PTTEP AP	100%
22	PTTEP AG	PTTEP Algeria Company Limited	50,000	Ordinary Share	PTTEPO	100%
23	PTTEP AI	PTTEP Africa Investment Limited	50,000	Ordinary Share	PTTEPH	100%
24	PTTEP AO	PTTEP Australia Offshore Pty Ltd	50,000	Ordinary Share	PTTEP AU	100%
25	PTTEP AP	PTTEP Australia Perth Pty Ltd	50,000	Ordinary Share	PTTEPH	100%
26	PTTEP AT	PTTEP Australia Timor Sea Pty Ltd	50	Ordinary Share	PTTEP AB	100%
27	PTTEP AU	PTTEP Australia Pty Ltd	50,000	Ordinary Share	PTTEPH	100%
28	PTTEP BI	PTTEP Brazil Investment B.V.	50,000	Ordinary Share	PTTEP NH	100%
29	PTTEP BL	PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada	790,293,700	Ordinary Share	PTTEP BI PTTEP NH	99.9999999% 0.0000001%
30	PTTEP CA	PTTEP Canada Limited	3,144,348,190	Ordinary Share	PTTEP NC	100%
31	PTTEP ED	PTTEP Energy Development Company Limited	421,019,233	Ordinary Share	PTTEP EH	100%
32	PTTEP EH	PTTEP Energy Holding (Thailand) Company Limited	699,541,855	Ordinary Share	PTTEP	100%
33	PTTEP G7	PTTEP G7 Limited	8,030,741	Ordinary Share	PTTEPI	100%
34	PTTEP HK	PTTEP HK Holding Limited	10,000	Ordinary Share	PTTEP PTTEPI	25% 75%
35	PTTEP HKO	PTTEP HK Offshore Limited	10,000	Ordinary Share	PTTEP HK	100%
36	PTTEP HL	PTTEP Hoang-Long Company Limited	50,000	Ordinary Share	PTTEPO	100%
37	PTTEP HV	PTTEP Hoan-Vu Company Limited	50,000	Ordinary Share	PTTEPO	100%
38	PTTEP ID	PTTEP Indonesia Company Limited	50,000	Ordinary Share	PTTEPH	100%
39	PTTEP IH	PTTEP International Holding Company Limited	50,000	Ordinary Share	PTTEPH	100%
40	PTTEP KV	PTTEP Kim Long Vietnam Company Limited	50,000	Ordinary Share	PTTEPO	100%
41	PTTEP MENA	PTTEP MENA Limited	500	Ordinary Share	PTTEP BC	100%

No.	Abbreviation	Company Name	Number of Shares Sold		Total Direct/Indirect Holding	
42	PTTEP MEP	PTTEP Mexico E&P Limited, S. de R.L. de C.V.	3,000	Ordinary Share	PTTEP HK PTTEP HKO	99.99% 0.01%
43	PTTEP ML	PTTEP Malunda Limited	50,000	Ordinary Share	PTTEP ID	100%
44	PTTEP MZA1	PTTEP Mozambique Area 1 Limited	5,000	Ordinary Share	CEEAL	100%
45	PTTEP NC	PTTEP Netherlands Coöperatie U.A.	-	-	PTTEP IH PTTEP NL	0.00002% 99.99998%
46	PTTEP NH	PTTEP Netherlands Holding Coöperatie U.A.	-	-	PTTEP HK PTTEPI	75% 25%
47	PTTEP NL	PTTEP Netherland Holding Limited	50,000	Ordinary Share	PTTEP IH	100%
48	PTTEP SA	PTTEP South Asia Limited	50,000	Ordinary Share	PTTEPH	100%
49	PTTEP SBO	PTTEP Sabah Oil Limited	10,000	Ordinary Share	PTTEP HKO	100%
50	PTTEP SKO	PTTEP Sarawak Oil Limited	10,000	Ordinary Share	PTTEP HKO	100%
51	PTTEP SMD	PTTEP South Mandar Limited	50,000	Ordinary Share	PTTEP ID	100%
52	PTTEP SP	PTTEP SP Limited	61,279,587	Ordinary Share	SHL	100%
53	PTTEP SV	PTTEP Southwest Vietnam Company Limited	50,000	Ordinary Share	PTTEPO	100%
54	PTTEPH	PTTEP Holding Company Limited	50,000	Ordinary Share	PTTEPO	100%
55	PTTEPI	PTTEP International Limited	2,000,000,000	Ordinary Share	PTTEP	100%
56	PTTEPO	PTTEP Offshore Investment Company Limited	6,667	Ordinary Share	PTTEP PTTEPI	75% 25%
57	PTTEPS	PTTEP Siam Limited	1,000,000	Ordinary Share	PTTEP PTTEPO	51% 49%
58	SHL	Sinphuhorm Holdings Limited	100	Ordinary Share	PTTEPO	100%
E&P Related						
59	APT	Asia Power and Transportation SG Holding Pte. Ltd. (Investments in power and gas pipeline projects for overseas projects)	5,450,000	Ordinary Share	EP-Tech	100%
60	ATL	Andaman Transportation Limited (Investments in gas pipeline projects for overseas projects)	62,500	Ordinary Share	PTTEPO	80%

No.	Abbreviation	Company Name	Number of Shares Sold		Total Direct/Indirect Holding	
61	DGH	Delta Gas Transportation SG Holding Pte. Ltd. (Investments in gas pipeline projects for overseas projects)	5,400,000	Ordinary Share	APT	100%
62	DGT	Delta Gas Transportation Limited (Investments in gas pipeline projects for overseas projects)	50,000	Ordinary Share	DGH	100%
63	PTTEP BC	PTTEP Business Center Company Limited (Business center for PTTEP and subsidiaries)	2,249,178,269	Ordinary Share	PTTEP EH	100%
64	PTTEP CIF	PTTEP Canada International Finance Limited (Raise fund for PTTEP business)	62,202,800	Ordinary Share	PTTEP NC	100%
65	PTTEP Services	PTTEP Services Limited (Personnel services support)	1,000,000	Ordinary Share	PTTEP PTTEPI	25% 75%
66	PTTEP SVPC	PTTEP Southwest Vietnam Pipeline Company Limited (Investments in gas pipeline projects for overseas projects)	50,000	Ordinary Share	PTTEPH	100%
67	PTTEP TC	PTTEP Treasury Center Company Limited (Treasury center for PTTEP and subsidiaries)	10,000,000	Ordinary Share	PTTEP PTTEPI	25% 75%
Other Businesses						
68	ARV	AI and Robotics Ventures Company Limited (Research and development and providing service for AI and robotics)	35,006,250	Ordinary Share	EP-Tech	100%
69	ATi	ATI Technologies Company Limited (Development and provision of technologies for the agricultural sector)	4,000,000	Ordinary Share	Varuna	50%
70	B-MED X	B-MED X Company Limited (Services for health care digital platforms)	200,000	Ordinary Share	Cariva	50%
71	Cariva	Cariva (Thailand) Company Limited (Development and provision of AI and robotic technologies for personal health, safety, and exercise)	19,352,560	Ordinary Share	ARV	100%
72	Energy Complex	Energy Complex Company Limited (Property Leasing)	180,000,000	Ordinary Share	PTTEP	50%

No.	Abbreviation	Company Name	Number of Shares Sold		Total Direct/Indirect Holding	
73	FST	FutureTech Solar (Thailand) Company Limited (Renewable energy business and electric power)	1,080,000	Ordinary Share	FTEV	100%
74	FTEV	FutureTech Energy Ventures Company Limited (Renewable energy business and various forms of power)	1,140,000	Ordinary Share	EP-Tech	100%
75	NKA	North Kimberley Airport Pty Ltd (Air base operations)	600	Ordinary Share	PTTEP AAO	50%
76	Rovula	Rovula (Thailand) Company Limited (Development and provision of AI and robotic technologies for subsea engineering)	94,091,290	Ordinary Share	ARV	100%
77	Skyller	Skyller Solutions Company Limited (Development and provision of drone services, AI and robotic technologies for air logistics)	36,412,270	Ordinary Share	ARV	100%
78	TTI	Troughton Island Pty Ltd [Air base (Secondary)]	100	Ordinary Share	PTTEP AAO	50%
79	Varuna	Varuna (Thailand) Company Limited (Development and provision of drone services, AI and robotic technologies for agriculture, and forestry)	38,262,010	Ordinary Share	ARV	100%
80	XPV	Xplor Ventures Company Limited (Venture capital in technologies and innovation business or mutual fund in energy and technologies business or digital asset)	186,825	Ordinary Share	EP-Tech	100%
81	ZeaQuest	ZeaQuest Company Limited (Development and provision of AI and robotic technologies for subsea engineering)	1,550,000	Ordinary Share	Rovula	50%

- Associated Companies Information[1]

As of December 31, 2022, PTTEP had 25 associated companies as follows:

No.	Abbreviation	Company Name	Type of Business	Number of Shares Sold		Total Direct/ Indirect Holding
1	Aerosky	Aerosky Solutions Co., Ltd. **Head Office:** 3/24 Phahon Yothin 13 Alley, Phaya Thai, Phaya Thai, Bangkok 10400, Thailand **Telephone:** +66-2618-2266 **Facsimile:** -	Drone Solutions for Infrastructure and Equipment Inspection	300,000	Ordinary Share	Skyller 33%
2	AGP	Abu Dhabi Gas Industries Limited **Head Office:** P.O. Box 665, Abu Dhabi, United Arab Emirates **Telephone:** +971-2707-0000 **Facsimile:** +971-2602-3389	Gas Processing Facility	8,000	Ordinary Share	PGC 2%
3	Asia Pacific Marine Services	Asia Pacific Marine Services (EF) B.V. **Head Office:** Naritaweg 165, Telestone 8, 1043 BW Amsterdam, The Netherlands **Telephone:** - **Facsimile:** -	Lease of FSO (Vessel)	18,000	Ordinary Share	E2FSO 100%
4	B8/32 Partners	B8/32 Partners Limited **Head Office:** 19 Siam Commercial Bank Park Plaza, East 3rd Building 5th Floor, Ratchadaphisek Road, Chatuchak, Bangkok 10900, Thailand **Telephone:** +66-2545-5555 **Facsimile:** -	Petroleum Exploration and Production	110,000	Ordinary Share	PTTEPO 25.001%

[1] Notification of the Securities and Exchange Commission No. Kor Jor. 17/2551 Re: Determination of Definitions in Notifications relating to Issuance and Offer for Sale of Securities

No.	Abbreviation	Company Name	Type of Business	Number of Shares Sold		Total Direct/ Indirect Holding
5	E2FSO	Erawan 2 FSO Pte. Ltd. **Head Office:** 3 Fraser Street #12-28 Duo Tower, Singapore **Telephone:** - **Facsimile:** -	Lease of FSO (Vessel)	100	Ordinary Share	JV Marine 13.11%
6	GBRS	Groupement Bir Seba **Head Office:** Zone d'activité Route Nationale N°3 BP 256 EURO JAPAN Hassi Messaoud, Ouargla, Algeria **Telephone:** +213-29-79-71-66 **Facsimile:** +213-29-79-09-15	Petroleum Exploration and Production	-[2]	-	PTTEP AG 35%
7	GHBR	Groupement Hassi Bir Rekaiz **Head Office:** 03 Rue Doudou Mokhtar, Coopérative Mustapha Djouab, Lot N°17 Ben Aknoun, 16306 Alger, Algérie **Telephone:** +213-23-23-85-45 **Facsimile:** +213-23-23-85-44	Petroleum Exploration and Production	-[3]	-	PTTEP 49%
8	GISCO	Gas Investments and Services Company Limited **Head Office:** 3rd Floor, The Continental Building, 25 Church Street, Hamilton HM 12, Bermuda **Telephone:** - **Facsimile:** -	Financial Investment and Petroleum Technical Service in Overseas Project	12,000	Ordinary Share	POC 5%

[2] No share was issued. Percentage of shareholding is subject to participation interest in the concession.

[3] No share was issued. Percentage of shareholding is subject to participation interest in the concession.

No.	Abbreviation	Company Name	Type of Business	Number of Shares Sold		Total Direct/ Indirect Holding
9	HL JOC	Hoang Long Joint Operating Company **Head Office:** Suite 2001, Me Linh Point Tower, 2 Ngo Duc Ke Street, District 1, Ho Chi Minh City, S.R. Vietnam **Telephone:** +84-8-3829-9359 **Facsimile:** +84-8-3822-6106	Petroleum Exploration and Production	-[4]	-	PTTEP HL 28.5%
10	HV JOC	Hoan-Vu Joint Operating Company **Head Office:** Suite 2006, Me Linh Point Tower, 2 Ngo Duc Ke Street, District 1, Ho Chi Minh City, S.R. Vietnam **Telephone:** +84-8-3823-9525 **Facsimile:** +84-8-3823-9526	Petroleum Exploration and Production	-[5]	-	PTTEP HV 25%
11	LAL	Leismer Aerodrome Limited **Head Office:** 1200, 215 – 9th Avenue SW Calgary, AB T2P 1K3, Canada **Telephone:** +1-403-237-8227 **Facsimile:** +1-403-264-4640	Air Base Operations	200	Ordinary Share	PTTEP CA 32%
12	MGTC	Moattama Gas Transportation Company **Head Office:** No. 5 Sacred Tooth Relic, Lake Avenue, Punn Pin Gone Quarter No. 5, Mayangon Township, Yangon, Myanmar **Telephone:** +95-1-8650-977, 8660-466 **Facsimile:** +95-1-8650-478, 8650-479	Gas Pipeline in Overseas Project	1,000,000	Ordinary Share	PTTEPO 37.0842%

[4] No share was issued. Percentage of shareholding is subject to participation interest in the concession.

[5] No share was issued. Percentage of shareholding is subject to participation interest in the concession.

No.	Abbreviation	Company Name	Type of Business	Number of Shares Sold		Total Direct/ Indirect Holding
13	Moz LNG1 Co-Financing	MOZ LNG1 Co-Financing Company, LDA **Head Office**: Moçambique, Cidade de Maputo, DISTRITO KAMPFUMO, Bairro de Sommerschield, Avenida Julius Nyerere, n.º 3412 **Telephone**: - **Facsimile**: -	Financial Investment in Overseas Project	1,000,000	Ordinary Share	MOZ LNG1 Holding 100%
14	MOZ LNG1 Financing	MOZ LNG1 Financing Company Ltd. **Head Office**: 3510, 35th Floor, Al Maqam Tower, ADGM Square, Al Maryah Island, Abu Dhabi, United Arab Emirates **Telephone**: - **Facsimile**: -	Financial Investment in Overseas Project	140,000,000	Ordinary Share	MOZ LNG1 Holding 100%
15	MOZ LNG1 Holding	MOZ LNG1 Holding Company Ltd. **Head Office**: 3412 ResCo-work08, 34 Al Maqam Tower, ADGM Square, Al Maryah Island, Abu Dhabi, United Arab Emirates **Telephone**: - **Facsimile**: -	Petroleum Exploration and Production	1,000,000	Ordinary Share	PTTEP MZA1 8.5%
16	MZ LNG1	Mozambique LNG 1 Company Pte. Ltd. **Head Office**: 50 Raffles Place #06-00 Singapore Land Tower, Singapore 048623 **Telephone**: - **Facsimile**: -	Petroleum Exploration and Production	2,500	Ordinary Share	MOZ LNG1 Holding 100%

No.	Abbreviation	Company Name	Type of Business	Number of Shares Sold		Total Direct/ Indirect Holding
17	OLNG	Oman LNG LLC **Head Office:** Ghala, P.O. Box 560, C.P.O, P.C. 116, The Sultanate of Oman **Telephone:** +968-2460-9999 **Facsimile:** +968-2462-5406	LNG Liquefaction Plant	1,209,877	Ordinary Share	POC 2%
18	PDO	Petroleum Development Oman LLC **Head Office:** Mina A1 Fahal, Muscat, The Sultanate of Oman **Telephone:** +968-2467-8111 **Facsimile:** 5212, Petro ON Cable: Petro Muscat	Petroleum Exploration and Production	1,720	Ordinary Share	POC 2%
19	PDO-S	Petroleum Development Oman Services LLC **Head Office:** Al Qurm, Bousher, Muscat Governorate P.O. Box 81, Oman, Postal Code 100 **Telephone:** +968-9274-4696 **Facsimile:** -	Petroleum Technical Service	500,000	Ordinary Share	PDO 99.99 %
20	POHOL	Private Oil Holdings Oman Limited **Head Office:** 8 York Road, London, England, SE1 7NA, UK **Telephone:** - **Facsimile:** -	Holding of Participating Interests in Oil and Gas	649,152	Ordinary Share	POC 5%
21	PTT Digital	PTT Digital Solutions Company Limited **Head Office:** 555/1 Energy Complex Building A, 4th-5th Floor, Vibhavadi Rangsit Road, Chatuchak, Chatuchak, Bangkok 10900, Thailand **Telephone:** +66-2537-3456 **Facsimile:** +66-2537-2935	Information Technology and Communication Services	15,000,000	Ordinary Share	PTTEP 20%

No.	Abbreviation	Company Name	Type of Business	Number of Shares Sold		Total Direct/ Indirect Holding
22	QLNG	QALHAT LNG SAOC **Head Office:** Al Arfan Street. Gala Industrial Area – P.O. Box:3395, P.C.: 111 99 Street, Airport Heights, Ghala, Baushar, The Sultanate of Oman **Telephone:** +968-2462-5400 **Facsimile:** +968-2462-5406	LNG Liquefaction Plant	1,795,000	Ordinary Share	OLNG 36.8%
23	SKYVIV	SkyVIV Company Limited **Head Office:** 102/99 Na Ranong Road, Khlong Toei, Khlong Toei, Bangkok, Thailand **Telephone:** +66-2348-8532 **Facsimile:** -	Distribution and Service for Engineering and Integrated Agriculture Drone	403,648	Ordinary Share	Skyller 23.20%
24	SPSE	Sarn Palung Social Enterprise Company Limited **Head Office:** 555/1 Energy Complex Building A, 10th Floor, Vibhavadi Rangsit Road, Chatuchak, Chatuchak, Bangkok 10900, Thailand **Telephone:** +66-2537-2971 **Facsimile:** -	Social Enterprise	1,000,000	Ordinary Share	PTTEP 15%
25	YS	Yadana Suboo Company Limited **Head Office:** No. 5 Sacred Tooth Relic, Lake Avenue, Punn Pin Gone Quarter No. 5, Mayangon Township, Yangon, Myanmar **Telephone:** +95-1-8650-977, 8660-466 **Facsimile:** +95-1-8650-478, 8650-479	Micro Finance	5,360	Ordinary Share	MGTC 100%

1.3.2 Parties with potential conflicts

-None-

1.3.3 Relationship with the Major Shareholder

The Company's petroleum exploration and production business is part of the business group of PTT Public Company Limited (PTT), our major shareholder, the national energy company which engages in fully integrated petroleum and petrochemical businesses by strategically investing directly and indirectly through its group of companies, both in the upstream and downstream businesses.

Currently, PTT holds (both directly and indirectly) approximately 65.29 percent of PTTEP's registered and paid-up capital with PTTEP's petroleum exploration and production business, effectively making the PTT Group the only full-scale natural gas business operator in Thailand. As the major buyer of the Company's petroleum products, PTT, in turn, refines and processes the products and supplies them as energy and raw materials for the power, petrochemical, transportation sectors as well as other industries and households.

In 2022, PTTEP supplied crude oil, natural gas, LPG, and condensate to PTT. Conditions and price settings of all transactions between PTTEP and PTT follow the normal business practices at the arm's length basis conditions for non-related persons or operations. Details of connected transactions between PTTEP and PTT are disclosed in the "Connected Transactions" topic.

1.3.4 Shareholders

(1) Major Shareholders*

As of February 15, 2023, top 10 shareholders of PTTEP were as follows:

Rank	List of Major Shareholders	Number of	% of Total
1	PTT PUBLIC COMPANY LIMITED[1]	2,532,340,489	63.79
2	THAI NVDR COMPANY LIMITED	364,747,591	9.19
3	STATE STREET EUROPE LIMITED	126,750,443	3.19
4	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	76,670,124	1.93
5	SIAM MANAGEMENT HOLDING COMPANY LIMITED[2]	59,520,000	1.50
6	BNY MELLON NOMINEES LIMITED	46,118,288	1.16
7	CITIBANK NOMINEES SINGAPORE PTE LTD-A/C GIC C	36,795,452	0.93
8	SOCIAL SECURITY OFFICE	31,264,085	0.79
9	STATE STREET BANK AND TRUST COMPANY	19,649,966	0.49
10	HSBC BANK PLC - SAUDI CENTRAL BANK SECURITIES ACCOUNT A	17,866,494	0.45
	Total number of shares held by major shareholders	**3,311,722,932**	**83.42**
	Total fully-paid capital as of February 15, 2023	**3,969,985,400**	**100**

Remark: [1] The Ministry of Finance, Thailand, is the major shareholder of PTT Public Company Limited (PTT).

[2] A wholly-owned subsidiary of PTT

(2) NVDR Holders**

Rank	NVDR holders, as of February 15, 2023 (Top 3)	Number of NVDR issues	% of total outstanding shares
1	STATE STREET EUROPE LIMITED	59,510,106	1.50
2	STATE STREET BANK AND TRUST COMPANY	45,472,281	1.15
3	SOUTH EAST ASIA UK (TYPE A) NOMINEES LIMITED	25,476,847	0.64
	Total shares	**130,459,234**	**3.29**

Remark: Source: https://www.set.or.th/en/market/product/stock/quote/pttep/major-shareholders

(3) Major Shareholder with Significant Influence over PTTEP's Policies or Operations

PTT, a major shareholder of PTTEP, takes part in determining PTTEP's policy and operations under the Board's approval. As of December 31, 2022, 2 out of the Company's 14 directors were either directors or executives from PTT.

(4) The Company Enters into Shareholders' Agreement with Effect to Security Offering and Issuance or Management Power of the Company

- None -

1.4 Registered and Paid-up Capital

As of December 31, 2022, PTTEP's capital structure consisted of USD 3,833 million in interest-bearing debt and USD 13,515 million in shareholders' equity, amounting to debt to equity ratio of 0.28. Details of the capital structure are as follows:

1.4.1 Ordinary Shares

As of December 31, 2022, PTTEP's registered and paid-up capital was THB 3,969,985,400, consisting of 3,969,985,400 ordinary shares at a par value of THB 1 per share.

1.4.2 Others Shares with Different Terms or Rights from Common Shares

-None-

1.4.3 Number of Shares and the Effects of NVDR Issuance on Shareholders' Voting Rights

An NVDR or Non-Voting Depository Receipt is a trading instrument issued by the Thai NVDR Company Limited, a wholly-owned subsidiary of the Stock Exchange of Thailand (SET). NVDRs are treated as listed securities (Automatic Listing) on the SET. The objective of NVDRs is to promote trading activities in the Thai Stock Market by removing obstacles such as foreign investment limits and other impediments faced by international institutional investors investing in listed securities on the SET. NVDR investors are entitled to receive all financial benefits, such as dividends, right issues, and warrants,

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* Update information can be accessed through PTTEP website at https://www.pttep.com/en/Investorrelations/Shareholderinformation/Top10shareholders.aspx

** Since January 18, 2010, Thai NVDR Co., Ltd. has changed its rule to require a disclosure of names of NVDR holders having over 0.50% of paid-up capital of the underlying securities.

as if they invest in common shares. The major difference between investing in NVDRs and ordinary shares is the lack of voting rights of the former. NVDR holders generally are not allowed to participate and vote in shareholders' meetings except only in the case where the company wishes to delist itself from the SET. In addition, although NVDRs are designed mainly to ease foreign investment barriers; the SET does not prohibit Thai investors from investing in the instrument. Detail of the total PTTEP share, hold by NVDRs, is disclosed in the "Shareholders" topic.

1.5 Issuance of Other Securities

1.5.1 Convertible Securities

-None-

1.5.2 Debt Securities

Debentures

PTTEP has investment-grade credit ratings of Baa1, BBB+, and BBB+ from reputable international credit-rating agencies, namely, Moody's Investors Service (Moody's), Standard & Poor's Ratings Services (Standard & Poor's), and Fitch Ratings (Fitch) respectively. In addition, the Company has also been given a rating of AAA, the highest credit rating, by TRIS Rating Co., Ltd. (TRIS) which is a credit-rating agency in Thailand.

On April 5, 2022, PTTEP Treasury Center Company Limited (PTTEP TC), a wholly-owned subsidiary of the PTTEP Group has successfully completed the issuance of senior guaranteed debentures with bondholder's representative amount of THB 12,000 million. The debentures have 3 tranches consisting of 5, 7, and 10 years, carrying the coupon rates of 2.09 percent, 2.69 percent, and 3.05 percent per annum, respectively, and are fully guaranteed by PTTEP. The Company entered into Cross Currency Swap contracts to swap the debentures of THB 11,720 million to USD 348.66 million at the exchange rate of THB 33.50-33.75 per USD and interest rate of 3.07-4.11 percent per annum.

On June 15, 2022, PTTEP exercised right to early redeem its subordinated perpetual capital debentures for the full amount of THB 5,000 million.

On June 20, 2022, PTTEP TC redeemed its senior guaranteed debentures with bondholders' representative amount of THB 15,000 million at maturity.

As of December 31, 2022, PTTEP had the following outstanding debentures:

1) Details of THB debentures (total outstanding amount: THB 29,400 million)

Debt Security	Issued Date	Maturity Date	Tenor	Outstanding (Unit: THB Million)	Rate per annum	Credit Rating[1]
						TRIS
THB senior debentures	June 6, 2014	June 6, 2029	15 years	11,400[2]	Fixed 4.82%, coupon payment: semi-annually	AAA
	November 5, 2021	November 5, 2026	5 years	6,000[3]	A step-up fixed interest rate of 2.00%-2.75% per annum, averaging to 2.25% per annum. coupon payment: semi-annually	AAA
	April 5, 2022	April 5, 2027	5 years	5,000[4]	Fixed 2.09%, coupon payment: semi-annually	AAA
	April 5, 2022	April 5, 2029	7 years	1,000[5]	Fixed 2.69%, coupon payment: semi-annually	AAA
	April 5, 2022	April 5, 2032	10 years	6,000[6]	Fixed 3.05%, coupon payment: semi-annually	AAA

[1] The debentures, issued on 2014, 2019 and 2022, were last rated by TRIS on March 14, 2022 on PTTEP and PTTEP TC.

[2] Issued by PTTEP; and in 2014, PTTEP entered into a CCS to swap THB 11,400 million for USD 349.05 million with an interest rate of 4.989% per annum.

[3] Issued by PTTEP; and in 2021, PTTEP entered into a CCS to swap THB 6,000 million for USD 181.82 million with an interest rate of 2.53% per annum.

[4] Issued by PTTEP TC, and fully guaranteed by PTTEP; and in 2022 PTTEP TC entered into a CCS to swap THB 5,000 million for USD 148.15 million with an interest rate of 2.88 - 3.26% per annum.

[5] Issued by PTTEP TC, and fully guaranteed by PTTEP; and in 2022 PTTEP TC entered into a CCS to swap THB 1,000 million for USD 29.75 million with an interest rate of 3.68% per annum.

[6] Issued by PTTEP TC, and fully guaranteed by PTTEP; and in 2022 PTTEP TC entered into a CCS to swap THB 5,720 million for USD 170.75 million with an interest rate of 4.05 - 4.16% per annum.

2) Details of USD debentures (total outstanding amount: USD 1,990 million)

Debt Security	Issued Date	Maturity Date	Tenor	Outstanding (Unit: USD Million)	Rate per annum	Credit Rating[1]		
						Moody's	Standard & Poor's	Fitch
USD debentures, unsecured, unsubordinated	June 12, 2012	June 12, 2042	30 years	490[2]	Fixed 6.350%, coupon payment: semi-annually	Baa1	BBB+	BBB+
	December 6, 2019	December 6, 2059	40 years	650[3]	Fixed 3.903%, coupon payment: semi-annually	Baa1	NA	BBB+
	January 15, 2020	January 15, 2030	10 years	350[3]	Fixed 2.993%, coupon payment: semi-annually	Baa1	NA	BBB+
	June 10, 2020	June 10, 2027	7 years	500[3]	Fixed 2.587%, coupon payment: semi-annually	Baa1	NA	BBB+

[1] The latest credit ratings were issued by Moody's on April 20, 2022, Standard & Poor's on June 13, 2022, and Fitch on June 15, 2022.

[2] Issued by PTTEP CIF, and fully guaranteed by PTTEP; and in 2013 repurchased in the amount of USD 10 million. As a result, the outstanding principal amount has been decreased from USD 500 million to USD 490 million.

[3] Issued by PTTEP TC, and fully guaranteed by PTTEP.

1.6 Dividend Payment Policy

Under normal circumstances, according to the Company's policy, PTTEP's Board of Directors generally recommends to the shareholders an annual dividend payment of not less than 30 percent of the net income after tax. The Board of Directors, as appropriate, may also resolve to pay interim dividends and subsequently inform the shareholders accordingly in the next shareholders' meeting. For the Company's subsidiaries, the dividend policy is subject to cash flow, future investment plans, and other factors necessary for the continuity of their operations, and must be in compliance with related laws and regulations.

Five-year dividend payment history of PTTEP is as follows:

Year	2018	2019	2020	2021	2022
Earnings per Share (THB)	8.69	11.72	5.65	9.70	17.94
Dividend per Share (THB)	5.00	6.00	4.25	5.00	9.25
Dividend Payout Ratio	55%	49%	77%	50%	53%

2. Risk Management

PTTEP is committed to conducting its petroleum exploration and production business along with the development of various projects to reduce carbon dioxide emissions together with moving forward to invest in new businesses supporting the global energy transition in order to create sustainable growth. Nowadays, business operations are inevitably experiencing changes in the business environment, and new risk factors are increasingly promising, such as oil price volatility caused by the Russia-Ukraine war, political unrest in investment countries, i.e. the Republic of the Union of Myanmar (Myanmar) and the Republic of Mozambique (Mozambique), the growth of global warming and climate change becoming more critical issues and driving the world transition towards a "Low Carbon Future" and reduce greenhouse gas emissions to "Net Zero", and finally the COVID-19 pandemic that continually impacts the global economy, cybersecurity risks, and disruptive technology. Therefore, it is a great challenge that makes PTTEP place great importance on risk management and business continuity management to enhance the organization's capability to rapidly respond to dynamic changes and manage all aspects of risks prudently which enables us to achieve the organization's objectives and goals in order to maximize benefits for PTTEP and all stakeholders in both the short term and long term along with sustainable growth.

2.1 Risk Management Policy and Plan

Risk Governance

The Board of Directors (Board) and the management are committed to effective risk management in PTTEP. As the changes in the business environment are uncontrollable and may affect business operations, The Board approves a Risk Governance Framework to define the oversight responsibilities and authorities on risk management that demonstrate strong coordination, collaboration, and communication in managing risks effectively among the board, the management, and business unit level. In addition, The Board also approves a Risk Appetite Statement to be used as a framework for all PTTEP business operations and seeking business opportunities with acceptable risks.

The Board appoints and delegates risk oversight authorities to a Risk Management Committee. The Risk Management Committee approves the Enterprise Risk Management Policy and Framework as well as the Risk Metrics & Limits to define the boundary for PTTEP business activities to be operated and managed in accordance with Risk Appetite. The risk management unit has been established to implement Enterprise Risk Management Policy and Framework company-wide and embed risk awareness and culture among PTTEP personnel in all business units in order to achieve effective risk management. Key risks, especially high impact to corporate level risks (Corporate Risk) and emerging risks, shall be periodically reported to the management, the Management Committee, the Risk Management Committee as well as the Board of Directors in a timely manner to ensure that key risks are well managed and to prevent the arising of negative surprises, reduce potential losses, and minimize recurrence risks.

PTTEP establishes Risk Management Structure in accordance with the Three Lines Model provided by the Institute of Internal Auditors (IIA) that promotes strong risk governance and effective risk management. The First Line Roles are all business units with a duty to operate business activities together with managing risks (Risk Owner). The risk owners work in conjunction with the Second Line Roles, which are risk management units and other supporting functions (Subject Matter Experts or SMEs),

e.g. compliance unit and Safety, Security, Health, and Environment (SSHE) unit, on consultation for complementary expertise and assistance with managing risks. And last, the internal audit unit as the Third Line Roles performs an independent audit to ensure risk management implementing effectively and efficiently and provides recommendations for continuous improvement.

In 2022, PTTEP focused on strategic risk management in order to respond to changes in internal and external environmental factors and to ensure that the Company would be able to operate according to its strategic growth plan in Drive Value, Decarbonize, and Diversify to support the expansion of investment in new energy businesses that are environmentally friendly for sustainable growth.

Risk Management Policy and Plan

The Risk Management Committee approves Enterprise Risk Management Policy and Framework which emphasize proactive risk management practices and strong risk management culture and provide a systematic risk management process that is aligned with international standard ISO 31000:2018. In addition, the frameworks of the Committee of Sponsoring Organizations of the Treadway Commission (COSO), Enterprise Risk Management – Integrating with Strategy and Performance (COSO ERM 2017) and COSO Enterprise Risk Management – Applying Enterprise Risk Management to Environmental, Social and Governance-related Risks (COSO ESG 2018) have been applied to enhance the integration of enterprise risk management, strategic planning, and ESG-related risk management. The committees, the management, and employees at all levels have the responsibility to manage risks and promote comprehensive risk management to contractors, suppliers, and business partners to assure the achievement of our vision, mission, strategy, and business objectives.

In accordance with Enterprise Risk Management Policy and Framework, the risk management unit is responsible for overseeing the overall risk management and supporting the company-wide risk management both at the corporate level and operational level. The risk management strategy and plans have been formulated, aiming to integrate risk management into business activities and decision-making which cover core business activities in PTTEP, such as strategic planning management, investment and divestment decision-making, capital project management, operations and business process management, including business continuity management and ESG management. In addition, the necessary resources for managing risks are allocated in proportion to the level of risk and cost-benefit consideration, and the progress of risk mitigation plans is monitored together with the key risk indicators (KRIs) as an early warning tool in order to set up additional mitigation measures in a timely manner. Furthermore, the risk management unit shall escalate key risks with high impact to the corporate level (Corporate Risk) and consolidate with emerging risks to formulate a Corporate Risk Profile (CRP) in order to report to the management, the Management Committee, and the Risk Management Committee on a regular basis with promptly alert related committees if there is any significant change to managing risks in a timely manner.

PTTEP improved enterprise risk management by integrating strategic risk management with the strategic planning process and execution. The assumptions used in the strategy formulation will be regularly monitored to be able to adjust or exit the strategies in a timely manner. The ESG-related risk management has been incorporated into Risk Management Guideline for implementing throughout the organization.

PTTEP has successfully implemented and benefited from the web-based Risk Register System (RR System). The system enables risk owners to quickly identify and analyze risks and enhance risk information communication throughout

the organization. It also helps the Company to easily consolidate and escalate key risks to Corporate Risks and allows all relevant parties to monitor the risk management anywhere and anytime promptly and conveniently. In this year, PTTEP was able to manage key risks effectively with no surprise problem due to non-registered risks. Moreover, PTTEP continues to strive for more efficient and faster risk management by developing Chatbot to enhance risk identification capability and launched it on November 11, 2022. The risk database of RR System is utilized for Chatbot in order to suggest risks for users.

PTTEP has developed a business continuity management system which is a part of enterprise risk management. The business continuity management framework has been established in accordance with the international standard for business continuity management ISO 22301:2019 to build the organization's capability to be resilient and to develop a Business Continuity Plan (BCP) to prepare the Company's ability to operate under emergency or crisis situations by giving importance to the protection of people, environment, asset, and reputation of the organization. The Business Continuity Plan (BCP) is regularly reviewed and exercised to improve the recovery plans and maintain the standards of efficient BCP as well as to ensure that PTTEP will be able to perform effective business continuity management in times of emergency and crisis.

Risk Culture

As PTTEP focuses on building a strong risk culture to strengthen risk management in the organization sustainably, risk awareness is built up in all PTTEP personnel mindsets together with competency development via training and promoting activities. The management at all levels commit and serve as leaders and role models, as well as promote the implementation of risk management as a corporate culture. In addition, the management also supports employees on regular review and improvement of risk management by applying lessons learned and knowledge management for continual improvement. The risk coordinators are assigned for each business unit and project to work in coordination between risk owners and risk management units to drive the implementation of risk assessment and management throughout the organization. In addition, risk management results are also monitored and evaluated with key performance indicators for unidentified risk (Unidentified Risk KPI) for the management who performs as a risk owner including the risk management unit which is responsible for overall enterprise risk management.

In 2022, PTTEP continued communication campaigns to build an understanding of risk management for all employees in the organization through various online media channels throughout the year such as the series of podcast "Low Risk High Return", live broadcast channels to share information about oil price situation, economic evaluation, and cybersecurity to increase employees' awareness of the up-to-date important global issues that may cause risks to the Company. In addition, there were awareness-raising activities and competency development programs in business continuity management regularly, such as training from experts, BCM E-Learning, and online media communication, e.g. BCM VDO (COVID-19), BCM Poster, BCM Podcast, etc., so that employees can gain knowledge and understanding and be able to perform business continuity in times of emergency and crisis.

2.2 Risk Factors for Business Operation

2.2.1 Current and Emerging Risks Facing Businesses of PTTEP and the PTTEP Group

(1) Strategic & Portfolio Risks

1) New Investment Risks

PTTEP drives value of E&P business by maximizing the values of existing assets, as well as business expansion in core strategic areas with the potential petroleum resources to maintain the reserves to production ratio by seeking new opportunities with world-class strategic partners. The Company's core areas consist of Southeast Asia and the Middle East where the Company has a full range of expertise, coupled with being the regions that have acceptable geopolitical risks and relatively low costs of development and production. PTTEP has established a risk management process for the assessment of each investment in various aspects, ranging from petroleum potential, size and project characteristics, acquisition procedures, additional reserves, operator's capability and performance, the attractiveness of the fiscal regime, geographical conditions, related laws and regulations, political stability, issues concerning international relations, economic conditions, and financial stability. Moreover, the Company also seeks advice from consultants who have expertise in the invested country. The risks and mitigation are then considered and integrated into a return-on-investment analysis or a sales and purchase agreement/ joint venture agreement.

Along with Drive Value, PTTEP decarbonizes to achieve Net Zero Greenhouse Gas Emissions by 2050. This goal covers both Scope 1 and Scope 2 of the exploration and production business under PTTEP's operational control. PTTEP has also set interim targets to reduce greenhouse gas emissions intensity by at least 30 percent within 2030 and 50 percent within 2040 (from the 2020 base year). PTTEP has included GHG emissions as one of the criteria in an investment guideline, while reducing GHG emissions intensity from existing projects such as CCS implementation for the Arthit and Lang Lebah projects. PTTEP also regularly assesses and analyzes risks associated with climate change in relation to the business, such as the collection of carbon taxes in various countries that we operate in and physical damage to our assets and construction structures caused by the rise in global temperature.

In addition to E&P, PTTEP diversifies investment opportunities into environmentally friendly energy through new technology and processes along with concerns in the environment, society, and corporate governance (ESG) for stable and sustainable growth. The examples are lower carbon energy, hydrogen, and Carbon Capture Utilization and Storage (CCUS) to support low carbon future. The Company has drawn up plans to mitigate those risks which may potentially affect our operations and investment growth, such as adopting strict due diligence within the Company's investment risk limit, monitoring and analyzing situation changes for strategy review and adjustment in a timely manner, considering regulatory requirements and economic feasibility as well as counterparty risk in order to develop clear mitigation plans in advance to reduce impact and likelihood of the risk.

Investment in new projects, including farm-in and farm-out joint ventures, mergers and acquisitions, as well as withdrawal or divestment from any given project, must be intensively screened by the Investment Committee and the Management Committee. Their responsibilities are to assess and ensure that each project adheres to the Company's

investment direction and strategy, before proposing it to the Risk Management Committee prior to the final approval of the Board of Directors.

2) Organizational Capability Risks

Organizational capability is a key factor in the achievement of the Company's targets. Thus, business processes and human resources are, inevitably, of great importance. Potential risks include the risk of a lack of expertise and knowledge and the risk of business process ineffectiveness and inefficiency. In this regard, PTTEP has taken the following actions to enhance our knowledge management, technology, business processes, and organizational capability to support the Company's operations and expansion to new opportunities.

Knowledge management is the Company's strategic tool to create, share, and apply the valued knowledge to our operation that supports innovation and the Company's sustainable growth and improves our staff competency to prepare for the energy transition and achieve Net Zero Greenhouse Gas Emissions by 2050. A Knowledge Management Roadmap and Plan have been developed with the objective to become an Innovative and High-Performance Learning Organization. The Company plans and executes activities to drive the shared knowledge both from our staff within the Company, Stakeholders, and External Experts. The Company benchmarked with American Productivity & Quality Center (APQC) and Global Most Innovative Knowledge Enterprise Award (Global MIKE Award) to compare and learn with international best practices organizations in Knowledge Management. In addition, the research and development of new technologies and innovation are carried out and the Capability and Technology Development Roadmap has been developed to be in line with the Company's growth strategy and to prepare for the energy transition.

PTTEP has developed the information technology system to be an IT Global Platform, while maintaining system stability and control of confidential information, such as the use of cloud platforms. The Company also develops staff competency to align with our strategy and plans, e.g. arranging in-house training called Digital Academy training for staff to improve staff understanding for adaptation to agile work and establishing DCOE (Digital Center of Excellence) to be the center for the development of technology capability for our staff, such as data scientists and data engineers.

Regarding organizational structure and work process, the organizational structure, systems, and procedures are improved and developed in line with PTTEP's growth strategy in both E&P and Beyond E&P Business. These include the development of new Delegation of Authority and Signatures (DAS) concept to increase organizational agility while maintaining sufficient control, implementation of the "Hybrid Workplace" to allow PTTEP staff to effectively work from anywhere, gathering and analyzing PTTEP processes to improve the efficiency of End-to-End process, and effectively managing the workforce by enhancing people skills in the form of multi-skills. Lastly, PTTEP also adopts digital technology in the working process to maximize the work effectiveness in the organization.

For Human Resources, to prepare for our investments in our core business and new business opportunities, the Company has initiated Human Resources Development plans to recruit qualified staff members to support the operations in targeted countries. The plans focus on developing staff capabilities and leadership skills through Blended Learning approach, in practice of using various learning methods, and Online Learning approach, which support self-learning anywhere and anytime via digital learning tools. Leveraging these technologies to offer training to employees helps save time and cost and

increases the effectiveness of learning, recruiting external personnel for key positions that have not yet been developed in time, together with retention and enhancing our employee engagement. PTTEP conducts its Employee Engagement Survey every 2 years. The recent results in 2022 indicated that our staff engagement score is 74 percent which is higher than benchmarks including Thailand Market Average, Oil, Gas, Exploration, and Production companies in Thailand, APAC – Oil, Gas, and Consumable Fuels companies, and Fortune 500 companies. Referring to employee engagement survey results, PTTEP has initiated an improvement plan for 2023-2024 in order to continuously improve our Employee Engagement level. To support the achievement of PTTEP's vision, mission, and strategies, PTTEP also instilled our values and culture cultivation (Core Values: *EP* SPIRIT) in Thailand and all companies in overseas. PTTEP is proceeding to further promote desirable *EP* SPIRIT behaviors for executives and employees through various activities and communications to ensure that all staff understand the *EP* SPIRIT in our core values. Furthermore, PTTEP has revisited the Core Values: *EP* SPIRIT plan to support our investments in our core business and new business opportunities to deploy *EP* SPIRIT expected behaviors to our staff, so they can work with the same standard of expected behaviors which are fundamental for the development and growth of the Company with sustainable goals.

(2) Financial & Market Risks

1) Financial Risks

PTTEP determines an effective financial risk management policy under an acceptable financial risk limit defined and regularly reviewed by the Risk Management Committee. The financial risk limit is also considered in funding and liquidity management activities to ensure a robust capital structure and financial health to suit the current market environment and to support the Company's investment plans and execution in both the short and long term.

Major financial risks consist of counterparty risks and liquidity risks. For counterparty risk, it is the PTTEP Group's policy that we conduct business transactions only with reputable, trusted, and creditworthy counterparties. The financial stability and credibility of each counterparty must be analyzed and reviewed regularly. Currently, the majority of the PTTEP Group's products are sold to PTT Public Company Limited (PTT). For liquidity risks arising from the inability to maintain adequate working capital necessary for the operations, the PTTEP Group has the policy to manage such risks by preparing appropriate cash flow forecasts and maintaining both committed and uncommitted credit facilities with financial institutions to support its working capital requirements.

2) Marketing and Distribution Risks

Revenue mainly comes from domestic gas sales which PTT is the major customer. PTTEP has entered long-term gas sales agreements (GSAs) with PTT and the terms of the GSAs generally last 15-30 years. If later on, a project has potential reserves beyond the volume specified in its GSA, PTTEP will analyze and negotiate the GSA for this additional volume, either for additional gas sales or period extension. Moreover, to mitigate market risks that can result in refusals from buyers to purchase contracted volumes of natural gas, GSAs stipulate obligations for the buyer and the seller to commit to the annual minimum volumes. Buyers must pay for the committed volumes of gas, whether or not the full amount is taken (Take-or-Pay).

In 2022, National Energy Policy Council (NEPC) approved the quota for PTT to import liquefied natural gas (LNG) to feed its existing natural gas power plants. This quota will not affect PTTEP's gas sales because it allows only LNG import for additional volume over the committed gas sales in current GSAs, and the current GSAs with PTT also have Take-or-Pay

obligation as mentioned above. Moreover, PTTEP closely monitors the economic outlook and Thailand's energy demand by coordinating with PTT and related government agencies to collectively outline an optimized supply plan as well as prepare project development plans to ensure that the development master plan is able to optimize reserves and resources of existing assets to be in line with the country's energy demand that might change according to economic conditions, both in the short and long term.

3) Risks from Major Client Dependency

The petroleum exploration and production business requires substantial investments for exploration, drilling, production facilities, and platform construction before receiving revenue from selling petroleum products and earning required return. Therefore, executing long-term sales contracts with clients possessing acceptable financial capability is essential in order to secure financial stability over contract lifespan. Especially for natural gas which has a constraint in transportation and marketing compared to crude oil, there are only few numbers of potential buyers who fit with long-term sales contracts. Most of them are national oil companies or companies that have gas separation plants or gas supply chain businesses with stable financial status and ability to add value to natural gas in long term. For crude oil and liquefied petroleum gas (LPG) which do not have a constraint in transportation or product quality, PTTEP conducts a competitive bidding process for short-term contracts. There are various bidders internationally including trading companies and regional refineries. The bidding prices are usually referenced to major crude in the global market.

For Thailand, PTTEP's major and most important client is PTT who purchases most of PTTEP's petroleum products from domestic projects not only natural gas but also crude oil and condensate. Revenue from PTT is considered the major income for PTTEP. Currently, PTT is the sole buyer who buys natural gas from all producers in the Gulf of Thailand where the gas will be transported through subsea pipelines to gas separation plants before delivery to PTT's customers. PTTEP has entered long-term gas sales agreements (GSAs) with PTT and the terms of the GSAs generally last 15-30 years. In addition, the GSAs stipulate annual minimum gas volume to be purchased known as Take-or-Pay obligation where buyers must pay for the committed volumes of gas, whether or not the full amount is taken. The Take-or-Pay obligation is the mechanism to secure revenue for sellers and therefore mitigate investment risks. Moreover, to ensure that the return is justified to both seller and buyer and also worth for the investment which could cover the risk that might happen during the project life, the gas prices shall require approval by the Petroleum Committee with consent from the Energy Minister according to the Petroleum Act, to ensure reasonable benefits for all stakeholders – government, investors, and people.

Considering the trends of Thailand's gas demand-supply where the demand grows while the supply decreases gradually, having PTT as the major client is considered as low risk in client dependency. Moreover, PTTEP has other international customers and also follows our strategy to expand investment in other countries, especially in Southeast Asia and the Middle East regions for enhancing petroleum production and sales including enlarging our client base.

4) Petroleum and Oil Price Risks

PTTEP product prices depends on the world's crude oil prices, which are subject to multiple factors beyond control. On the demand side, world economic outlook and central banks' measures to tackle high inflation using aggressive interest rate hike as well as the persistence of the COVID-19 outbreak and harsh control measures particularly in China directly

affect world oil demand. On the supply side, risks come from the Russian oil embargo by the EU and G7, slow production growth in the U.S., as well as OPEC+'s production cut policy. In addition, there are also many other risk factors impacting prices such as the Russia-Ukraine war, extreme weather, Strategic Petroleum Reserve (SPR) drawdown policy, geopolitical risks in big oil producers or consumers, Emerging Infectious Diseases, etc.

Fluctuations in the world's oil prices shall immediately affect the prices of the PTTEP Group's crude oil and condensate. Yet, while natural gas prices tend to follow oil prices, most of the PTTEP Group's contractual natural gas prices are adjusted every 3, 6, or 12 months, depending on the gas sales agreement of each project. As a result, natural gas prices are more stable than those of crude oil and condensate.

To reduce impacts from oil price volatility, the PTTEP Group closely monitors oil prices and implemented an oil price hedging program with the objective of minimizing negative impacts on the Company's cash flow and operating performance.

5) **Exchange Rate Risks**

The PTTEP Group adopts the US Dollar (USD) as its functional currency in accordance with the Thai Financial Reporting Standards (TFRS) since prices of the PTTEP Group's major petroleum products, such as crude oil and natural gas, are mostly referenced in USD. The PTTEP Group's cash flows are, however, still exposed to USD/THB rate movement due to the settlement of USD-linked revenues being in THB. This is because a majority of the PTTEP Group's trade customers are Thai entities, hence, revenue from USD-linked petroleum products is restricted to be paid in THB equivalent to USD only, while the Company's main cash outflows for investments and operating expenditures are mostly in USD. The currency mismatch and discrepancies between payables' and receivables' settlement periods as well as the USD/THB volatility therefore inevitably impose foreign exchange risk on our cash flows. Under this circumstance, the PTTEP Group has minimized the foreign exchange risks by matching revenues and expenses cash flow in THB (Natural Hedge) and employing applicable financial derivative instruments, such as forward and option contracts, to hedge the foreign-exchange exposure with reference to exchange rates in the sales agreements.

With USD as the functional currency, the PTTEP Group is also exposed to the foreign-exchange translation risk arising from the translation of non-USD assets and liabilities at the end of every accounting period. To minimize such translation risk, the PTTEP Group has consistently put in great efforts to maintain a proper balance between our non-USD assets and liabilities, mainly in THB. The Company also entered into Cross Currency Swaps on non-USD-denominated obligations by converting interest and principal payments to USD to reduce the impacts of exchange rate volatility.

6) **Interest Rate Risks**

The PTTEP Group is exposed to interest rate risk as the risk affects future cash flows and fair values of the financial instruments employed. The PTTEP Group eliminates and minimizes the risk by maintaining an appropriate debt portfolio optimization or ratio of fixed-rate liabilities and floating-rate liabilities and using financial derivatives. Interest rate risk management is conducted dynamically, appropriately, and correspondingly to the nature of the business, the market conditions, relevant costs, and the Company's acceptable risk limits.

(3) Political and Legal/Regulatory Risks

1) Political Risks in Investment Countries

Based on PTTEP's investment strategies, we aim to invest in focused areas of strategic significance in order to accommodate long-term growth. It is possible that such areas may be prone to geopolitical risks. Given this circumstance, PTTEP not only sets a certain level of risk limit for countries in which such limit is derived from the political situation, economy, business and investment environment, laws, and regulations, but we also appoint a geopolitical risk team to closely monitor the situations in countries and territories where PTTEP operates from international sources.

In this year, PTTEP periodically conducted an analysis of the situation developments and changes regarding political stability, macroeconomic conditions, legal and regulatory aspects, and security across a range of investment countries. Thus far, two areas, i.e. the Middle East and North Africa, have been identified as areas with significant geopolitical/country risks. Nevertheless, all projects in which PTTEP currently invests have not experienced any direct negative impacts. For the case of the political issues in Myanmar, PTTEP already completed all aspects of risk assessment and mitigation plan. In addition, PTTEP closely monitored the situation development and worked with related authorities to promptly prepare additional mitigation and business continuity in case any significant changes arised in order that PTTEP's operation is ongoing smoothly. PTTEP also monitored the security situation in Mozambique to evaluate impact on the project and identify remedial steps. Currently, onshore activities have been temporarily suspended. PTTEP and project partners are working with Mozambican officials to assess the situation and plan for work resumption.

In addition, PTTEP incorporates both the assessment of geopolitical risks and country risks into an investment process and project management for further decision-making and preparation of contingency plans for management and related departments.

Results from the geopolitical risk and country risk analysis in our investment areas are used to formulate Geopolitical Risk Rating Scores which will be considered as part of the assessment process before making decisions on whether to invest in new projects. In addition, PTTEP liaises closely with the Ministry of Foreign Affairs and Royal Thai Embassies in countries we invest to ensure that the Company's business operations are well-supported by relevant government agencies and that the projects are aligned with the respective national energy policies.

2) Compliance Risks

Generally, these risks may arise from a variety of factors, such as the complexity of specific laws, the enactment of new laws, and changes made to existing laws and regulations. These can potentially lead to misinterpretation of laws and non-compliance with applicable laws which may then lead to pecuniary forms of punishment and operational difficulties such as fines, potential revocation, suspension of licenses, and possible damage to the PTTEP Group's reputation and image. To minimize these risks, the Governance, Compliance, Internal Control, and Subsidiary Management Department is responsible for assuring that all the business units of the PTTEP Group strictly comply with their relevant laws, thereby building confidence among the Company's shareholders, Board of Directors, the management, and employees that we are in full compliance with laws relating to our business operations. As such, this department closely and regularly monitors the cabinet resolution, bills of laws,

and relevant applicable laws which may affect PTTEP's operations. Details are disclosed in the "Corporate Governance" section, under the "Laws" topic.

In addition, PTTEP continued to focus on anti-corruption risks and monitoring programs. Details are disclosed in the "Corporate Governance Milestones" section, under the "Anti-Corruption" topic.

(4) Operational Risks

1) Exploration Risks

Exploring new petroleum resources is essential to the E&P business. In addition to finding petroleum reserves to replace those already produced, it is also looking for new reserves to generate revenue growth for PTTEP according to its corporate strategy. This is to support the growth of petroleum production according to the corporate goals in the future.

The objective of exploration is to search for sizable petroleum resources that can be commercialized. The risks associated with exploration activities are Geological Risks and Resources Volume Uncertainty.

Managing key exploration risks thus depends on the evaluation of exploration areas with good chances of finding sizable petroleum resources that allow for commercial development and production within an appropriate timeline and cost. The key factors that affect investment decisions on petroleum exploration include Chance of Success, Resources Estimation, Exploration and Production Period, Planned Expenditures, including Development, Operating and Decommissioning Cost, and Terms of Contracts. Various activities are normally performed to understand and mitigate risks in exploration, i.e. Geological Studies, Seismic Acquisition, and Interpretation.

PTTEP establishes clear processes and criteria in project evaluation at each stage of E&P life cycle, starting from Potential Petroleum Basin evaluation and selection, in-depth Subsurface Studies of targeted blocks, and above-ground investment risks. The Geosciences, Subsurface, and Exploration Group of PTTEP is tasked with formulating the exploration strategy and managing the exploration portfolio, allocating and prioritizing the exploration budget to high-potential opportunities. This process is reviewed and revised annually to ensure that the exploration strategies are updated and aligned with the corporate targets.

In addition, the Company also stipulates that exploration studies need to be reviewed by the Technical Assurance Committee to ensure that all key technical aspects and uncertainties are covered. The assessment must also be in line with PTTEP's standards as well as PTTEP's guidelines to ensure investment decisions with confidence and that the results of the exploration are in accordance with PTTEP's goals.

To align with the Company's strategy, PTTEP has a policy to diversify exploration investment by distributing the investment proportion in many areas around the world and sharing risks and rewards with strategic partners who have exploration expertise to extend the Company's exploration success.

2) Project Development Risks

PTTEP applies skills and expertise in project planning and management to develop commercially viable resources to be able to carry out construction and commencement of production within the schedule and optimum budget. However, the construction and development projects are under various constraints which can affect the performance of

development projects such as reservoir performance, commercial negotiation with partners and government, political issues in both domestic and foreign factors, the situation of war and fluctuations in oil prices, contractor and service providers performance, cost overruns, and unforeseen technical difficulties. In addition to consistently implementing value assurance systems in project management to enhance the Company's capability to manage those factors with preventive measures and risk assessment, PTTEP has placed great importance on continuously improving the abilities and personnel competency to achieve milestones and be able to carry out various projects in the most efficient. The details are as follows:

Project management: To achieve project completion and optimum investment, the Company focuses on policy establishment and value assurance measures in critical stages of projects, including project organization, project planning and proper engineering system designs, procurement contracts and contracts management, and construction monitoring.

Personnel and process: the Company focuses on the skills and capability in project planning and management of personnel for both operating and non-operating projects, including the recruitment process for acquiring knowledgeable and experienced personnel in the competitive employment market. Information and experience from previous projects are gathered and formulated as an in-house database to improve the accuracy of evaluation process for the new development project. Ultimately, the overall evaluation process of all new projects will assure under the Company's Project Realization Process (PREP) to ensure the success of projects in all aspects, including safety, quality, timely manner, and optimum budget.

Commercial contracts: To ensure efficiency in minimizing the risks associated with non-compliance in contracts and disputes while working with contractors, the Company focuses on contract definitions of terms and conditions and contract administration. These risks can, however, be controlled by negotiations based on comprehensive competency, knowledge, and concerted efforts from various departments, such as those of construction, engineering, procurement, finance, accounting, and legal aspects. Prudent contract management also lessens the risks and helps mitigate possible damage which could result from delays, potentially causing adverse effects on a given project and the Company's performance at large.

3) **Production Risks**

In every production process, PTTEP has to face various potential risks, starting from the production process at the bottom of the well until the point of sale. These risks include risk of well potential, production design flaws, damaged equipment, aging facilities, operation errors, and product quality, including those related to external factors such as site access constraint in the expiring concession, the COVID-19 pandemic, and political unrest causing delays in production and other development activities for international projects, all of which can directly impact the corporate goals, production and sales targets.

Mitigation of production risks focuses on the areas of process planning and platform design, production control systems, and preventive maintenance. Operational Excellence Management System – Reliability & Asset Integrity (RAI), which is a part of the Operational Excellence Project, has been adopted and continuously improved to ensure the highest standards of production in terms of integrity and safety. The RAI has been designed specifically to minimize production losses due to worn-out equipment and also to improve equipment efficiency through preventive maintenance and inspection, with the

goal of achieving zero unplanned shutdowns. Meanwhile, work procedures, operation manuals, and extensive training programs have been improved, developed, and adopted to instill greater understanding and efficiency among the Company's operating personnel. Plans have also been put in place to minimize the impact of the new project site access problem, including finalization of manpower recruitment, sales agreements, equipment procurement, and other preparation activities for the new Production Sharing Contracts (PSCs) ahead of time, to minimize the remaining work once the site can finally be accessed. In addition, PTTEP has a Crisis Management Plan, as well as a Business Continuity Plan (BCP) to mitigate the impacts of the COVID-19 pandemic and political unrest to ensure uninterrupted petroleum supply including close coordination with concerned parties such as government agencies, clients, and stakeholders, on a regular basis for immediate mitigation plans. During security situations, force majeure has been declared at some project sites for the safety of employees and contractors, and a special taskforce was set up to evaluate the impact on the project and identify remedial steps.

PTTEP places great importance on business continuity management by applying ISO 22301 Business Continuity Management System (BCMS), the international standard from the British Standards Institution (BSI) and receiving the ISO 22301 certification. In 2022, The Malaysia Asset, Production Operations and Support Functions in Offshore and Onshore Production and the Main Office, received the certification from the BSI in addition to PTTEP Headquarters, Petroleum Development Support Base (Songkhla Branch), Zawtika Production Operations and Business Support (Myanmar), and S1 Project.

4) Safety, Security, Health, and Environmental Risks

PTTEP has continued to analyze Safety, Security, Health, and Environment (SSHE) risks to reduce the likelihood and impacts of unexpected events. The analysis comprises the identification of internal and external factors. This helps to prevent major accidents as well as to reduce the risks that would affect the PTTEP Group's employees, assets, environment, and social communities to become a Zero Incident Organization as per PTTEP's Vision and Mission. This will also assure safe and effective business continuity with full compliance to international and local regulations where PTTEP operates.

PTTEP has managed SSHE risks through the Company's SSHE Management System by setting the SSHE policies, standards, guidelines, and procedures for employees and contractors, so that they have safety in mind at all times. This is in addition to fostering SSHE awareness and SSHE culture by encouraging and promoting various SSHE campaign activities. Furthermore, there are process verification and risk re-assessment at worksite to improve performance as well as to keep process safety risks to the As Low As Reasonably Practicable (ALARP).

PTTEP has monitored SSHE Risk Management through the Company's Risk Management Committee at various levels and with a variety of key risk indicators and trackers, for example, Total Recordable Injury Rate (TRIR), audit findings and close-out status, natural disasters, security status, pandemic, and health infection in high-risk countries, to ensure that all situations are being monitored to determine the suitable mitigation plans for prevention, correction, and improvement towards achieving even higher social and business sustainability.

5) Social and Community Risks

PTTEP commits to being a good corporate citizen and responsible to society and communities, places importance on human rights, and takes into account risks and impacts in everywhere that PTTEP operates, both in domestic and international exploration and production areas including new business. Therefore, in compliance with Community Relations and

international exploration and production areas including new business. Therefore, in compliance with Community Relations and Management Policy and Corporate Social Responsibility Policy, PTTEP emphasizes social development, local environment and living standard improvement, natural resources, and environment conservation, as well as value creation for our stakeholders along with the sustainable growth of PTTEP that consequently gain trust, acceptance and also support undertakings that will bring benefits to the Company and society as a whole.

All stakeholders, including government agencies, are regularly engaged and communicated. PTTEP's social strategy is designed as a two-level strategy: the macro-level strategy focusing on the restoration of marine abundance and promoting activities that reduce marine debris and the micro-level strategy focusing on the promotion and development of social development projects in PTTEP operating areas, which is in line with the United Nations Sustainable Development Goals (UN SDGs). In addition, PTTEP developed the Issue and Stakeholder Management System (ISMS) to assess social impact and issues that may be a cause of concern for the community. The community relations officers of each operating asset shall revise and update the ISMS Report through its online system annually in order to deliver the information for monitoring and selecting suitable and appropriate social development projects for each operating area. In dealing with complaints, PTTEP has a standard approach and regular monitoring set by Grievance Handling Guidelines. The benefits from PTTEP social development projects delivered to stakeholders are evaluated and the stakeholder perception and commitment survey is conducted to provide great value to the Company to make the social development projects best serve the needs of stakeholders further.

In respect of human rights, PTTEP manages salient human rights issues from its direct operations covering workplace; safety, security, health, and environment; supply chain; and community and vulnerable groups. PTTEP human rights risk assessment is conducted annually as part of enterprise risk assessment covering all operating assets to assess risks caused by the Company's operations and to determine mitigation measures. In 2022, the Company's human rights risks at the medium level involved 3 salient issues: (1) personnel and contractors' health, safety, and welfare; (2) impacts from light, noise, dust, and other environmental pollution in operational areas and (3) health, safety, and quality of life of the local community. For more details about human rights management system and risk assessment, please visit PTTEP website, Sustainability topic, at https://www.pttep.com/en/Sustainability.aspx, subtopic: "Human Rights".

6) **Cybersecurity Risks**

Cyber threats occur and spread across multiple business sectors through various channels which can potentially lead to business disruption. PTTEP recognizes the importance of safeguarding against cyber threats and includes the risk of digital security threats in the Company's Corporate Risk Profile to closely monitor the development as well as to implement necessary measures. These measures include raising cybersecurity awareness, phishing simulation for the Company's staff, establishing a Cyber Security Operation Center (CSOC) responsible for monitoring cybersecurity incidents, Security Information and Event Management (SIEM) responsible for collecting and providing real-time analysis of security alerts, conducting Cyber Security Response Drills, regularly performing Data Backup and reviewing the Disaster Recovery Plan. The results are subsequently reported to the Risk Management Committee and the Board of Directors respectively to ensure prompt responses to disruptive and emergency situations.

PTTEP currently refers to the National Institute of Standards and Technology (NIST) as a standard framework for managing cybersecurity. Risk assessment has been carried out based on the ISO 27001:2013 standard for

the electronic-mail system and data center facility since 2014 and has a risk assessment plan based on the ISO 27001:2013 standard for every system. PTTEP is confident of the readiness to participate in the test and report significant cyber threats to government agencies as required by law.

To reduce cybersecurity risks, PTTEP implemented Multi-factor Authentication (MFA) to enhance the identity verification of the staff other than conventional username and password to support the Company's data and system access from anywhere and anytime as per PTTEP's direction of New Way of Working to promote Work-Life Balance of its employee. Furthermore, PTTEP also implemented Data Classification and Labeling with Microsoft Azure Information Protection (AIP) to support permission and sharing management of document confidentiality.

PTTEP has also invested in technology and used services from PTT Digital to prevent and respond to continuously reducing cybersecurity risks. PTTEP established Security Operations Center (SOC) that completely connected Security Information and Event Management (SIEM) with the Network Firewalls across all petroleum development bases to ensure cybersecurity protection in the Company's operation. In 2022, PTTEP received from the British Standards Institution (BSI) an ISO/IEC 27001:2013 certificate for the Company's management of information security relating to its data centers and supporting facilities. This certification underlines PTTEP's commitment to the security of information of its stakeholders.

7) Risks Arising from COVID-19 that Adversely Impact the Business Operation

Since the spread of COVID-19 in 2020, PTTEP has been at risk of operating its business due to the infection of employees who work in the office and employees who travel to different working areas, including the risk of infection by contractors working in all areas of the Company's operations. Therefore, PTTEP has a management approach to mitigate such risks by establishing the COVID-19 Taskforce team to closely monitor the pandemic situation and take preventive measures to respond to the situation in a timely manner, together with providing knowledge and understanding to employees on how to behave to reduce the risk of infection by the Company's medical team. There are measures for employees to work from home to reduce the chance of infection from traveling to work and reduce congestion in the office. This is in line with the government's lockdown measures. PTTEP has also managed the risk of IT security (Cybersecurity) to reduce the risk of working through the internet and networking from home, such as raising Awareness of Cybersecurity for Employees, Cyber Security Response Drill, Data Backup, and Disaster Recovery Plan (DRP), etc. Before entering the operation's working areas, employees and contractors are required to take a quarantine period and health screening to ensure that they are safe from the COVID-19 infection. In addition, PTTEP has provided COVID-19 vaccines to employees and their families including related contractors. This is to build herd immunity in our working people.

PTTEP has established a Business Continuity Plan (BCP) for all units which have been assessed that there are key activities requirement of priority recovery in order to prevent business disruption. Backup persons are being prepared and can replace key staff, who might be unable to work due to the COVID-19 infection. The BCP also covers the Emergency Response Plan to critical incidents or the potential impact of a lack of other essential resources such as Building, Equipment, Technology, Human Resources, and third parties (BETH3) including suppliers/contractors, etc.

However, in 2022, the government revised measures to control the spread of COVID-19 and announced that it is only an Endemic. PTTEP has also adjusted various measures aligned with the announcement to be more flexible to work efficiently but still maintain vigilance and monitor the situation and risks of disease.

(5) Emerging Risks

With the current situations, such as changes in business environment and advanced technology as well as the rising of stakeholder expectations on the Company's regulations compliance and more intensive environmental impact mitigation measures, PTTEP, therefore, keeps monitoring situations and assessing emerging risks that may affect the Company's business operations in the future and report to the management and relevant committees in order to follow up and update risk mitigation plans as well as to adjust corporate strategy efficiently. These would also enhance our competitiveness and create an opportunity to continue our business with sustainable growth. Currently, PTTEP has identified and keeps monitoring 2 emerging risks as follows.

1) Climate Change Risks

In view of extreme weather events and natural disasters posing more severe, coupled with the greenhouse effect, PTTEP, an exploration and production company, is well aware of risks from climate change and its possible impacts on our business operations in various aspects, namely (1) Physical risk refers to the risks arising from the physical impact of climate change, such as heat waves, heavy precipitation, tropical cyclone, drought, and water-related risks and (2) Transition risk or risks arising from changes in policy, law, technology, or market shift to green energy. At the 2015 United Nations Climate Change Conference (COP21) held in Paris, France, heads of state and governments around the world signed an agreement with the aim of reducing greenhouse gas emissions and substituting low-carbon fuels for typical fossil fuels. To reduce the worst impact of climate change and accelerate each country's climate actions, the 26th United Nations Climate Change Conferences of the Parties (COP26) was recently held in Glasgow, Scotland, in November 2021, with the world leader promising on speeding up towards net zero greenhouse gas emissions (Net Zero) and energy transition towards low carbon society. Thailand has also committed to reaching net zero emissions within 2065, which energy sector is one of the key sectors playing an important role in the achievement of this commitment.

PTTEP realizes the significance of climate change management and conducted the climate-related risk assessment for both existing projects and acquiring projects. The assessment covered short-term risk (2020-2025), medium-term risk (2025-2035), and long-term risk (2035-2050) under various scenarios according to the Representative Concentration Pathway (RCP), Stated Policies Scenarios, Sustainable Development Scenario (SDS), and IPCC 1.5°C Scenario. The physical and transition risk assessment results have revealed that PTTEP was ranked in low-to-medium risk level for all scenarios and timeframes, which confirmed appropriate management corresponding with the climate change risk. With prompt response to global and national climate change actions, the Company closely monitors and tracks climate change that may affect the corporate risk level in order to manage risks with the balancing of the risk appetite and corporate sustainable development.

PTTEP has reviewed and updated climate change risk assessment and greenhouse gas reduction plans in alignment with the global commitment to control the temperature well below 1.5-2 degrees Celsius. We are reviewing the Company's long-term target and strategy towards Net Zero according to Thailand's commitment and long-term plan from

COP26 by focusing on the Company's investment strategy and actions at operating assets. For the Company's greenhouse gas management plan of operating assets, it covers improving work processes to maximize energy efficiency. PTTEP aims to reduce the intensity of GHG emissions by 30 percent within 2030 and 50 percent within 2040 from the 2020 base year. So far, PTTEP has achieved the previous target of 25 percent GHG intensity reduction in Q1/2022 from the 2012 base year which is eight years ahead of the set target in 2030. Moreover, the Company has conducted studies on potential CO_2 sequestration under PTTEP reforestation projects as well as carbon offsetting through various mechanisms. Correspondingly, PTTEP has also engaged with the Thailand Greenhouse Gas Management Organization (Public Organization) (TGO) to develop a set of activities, measures, and policies to reduce greenhouse gases under the Thailand Voluntary Emission Reduction Program (T-VER).

PTTEP's strategy on the new business opportunities emphasizes the gas value chain businesses, including the Gas to Power project and Liquefied Natural Gas (LNG) project, as well as renewable energy opportunities which will also support the transition to a low-carbon society.

2) Risks Arising from Disruptive Technology that Adversely Impact the Oil and Gas Industry

Technological advancement and growth in renewable energy are playing an increasingly crucial role in the energy industry. They come in all forms, such as more reliable and efficient energy storage, electric vehicles, as well as other renewables and EV businesses whose production costs have plummeted over the years making consumers easier to access products compared to recent years. The disruption is echoed by the government's policy regarding environmental issues with the intention of reducing greenhouse gas (GHG) emissions following Nationally Determined Contributions (NDC) to reduce GHG emissions by 30 percent and 50 percent in 2030 and 2040 respectively and Net Zero GHG emissions within 2050 by promoting renewable energy investment such as sourcing 50 percent of country's power generation from renewable sources and promoting electric vehicle usage to 30 percent in 2030. Those policies can cause tremendous damage to the petroleum industry. Oil demand will consequently be affected; many believe that days of the oil era are now numbered. This situation will be PTTEP's primary strategic risk as it directly impacts our revenues from crude oil and condensate that made up to 49 percent of total revenue. Additional risks include the loss of production cost advantages due to accelerated technology development by competitors

New technology is a key factor in the volatile energy business. PTTEP's vision for technology development is to become an energy technology partner, enhancing E&P business competitiveness and readiness for future energy transitions to ensure the Company's sustainable growth. PTTEP develops technology through partnerships with both Thai and international parties and institutions. Moreover, knowledge sharing is crucial, both within PTTEP and with partners across sectors. By encouraging collaboration, the Company brings together various expertise inside and outside the energy sectors to jointly develop technologies and innovation to enhance capabilities and achieve sustainable business objectives.

The petroleum exploration and production business will continue to face a number of existing challenges in the next few years, especially those brought by disruptive technology. In this time of sudden and rapid change, adaptability and an ability to transform will determine how a business can maintain its competitiveness. PTTEP has adjusted our business strategy to anticipate advancing technologies and drive transformation. The first one is Digital Transformation to enhance competitiveness through technology, such as Artificial Intelligence (AI), Machine Learning, and the Internet of Things (IoT).

This will enable effective and quick-informed decisions, increase exploration successes, and enhance the potential development capacity and production of more petroleum resources.

Another area is “Organization and New Normal Transformation” that will allow us to adopt a more streamlined structure and management process, empower the capabilities of our people, and strengthen our corporate mindset and culture. Therefore, PTTEP becomes an ever more agile organization with accelerated decision-making and responsiveness, to ensure continued reductions in costs and natural resources required for operations.

In addition to transformation, PTTEP is also exploring new business opportunities alongside our core business to create future growth focusing on 4 new businesses in the natural gas value chain, such as Gas to Power business, LNG-related businesses, Carbon Capture, Utilization, and Storage (CCUS) and commercialization of technological innovation projects developed within PTTEP. The Company evaluates new business opportunities in the Gas to Power value chain where it can add value to its existing natural gas fields as well as Gas/LNG to Power in other countries while seeking investment opportunities in renewable energy and a new form of energy. Additionally, PTTEP aims to scale up the AI and Robotics Ventures Co., Ltd. (ARV) in 4 core sectors; subsea inspection, repair, and maintenance, integrated asset inspection and management service to various industries, and smart farming and smart forestry solution, and health data network. Our specialized E&P technologies in ARV solutions are instrumental in enhancing PTTEP’s competitive capability and can also support other industries to boost their efficiency and business value.

2.2.2 Risk of investors in the Company’s Securities

(1) Risk from the Control of Major Shareholder

As of February 15, 2023, PTT Public Company Limited or PTT is the major shareholder of the Company with 65.29 percent of shareholding (both direct and indirect) in the paid-up capital. PTT, therefore, is able to control the resolutions of the Shareholders’ Meeting including the Director’s appointment, approval on other matters that require a majority vote from the Shareholders’ Meeting and agendas, but not applicable for agendas by laws or by the Articles of Association of the Company, which require 3 out of 4 votes of the Shareholder’s Meeting.

However, PTTEP values compliance with the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET) rules and criteria while taking seriously the perennial stewardship of minor shareholders’ rights. The Company has also set a clear organizational structure to manage its business. There were 10 independent directors from a total of 15 directors who provided opinions and beneficial recommendations with prudence and independence. The Company has also appointed Audit Committees consisting of 4 independent directors, which have no interest in the Company in order to monitor and review the Company’s operations and protect the interests of minority shareholders resulting in appropriate check and balance and verifiable system to achieve business transparency and good corporate governance.

2.2.3 Risks Facing Investing in Foreign Securities (If the Issuer is a Foreign Company)

-None-

3. Driving Business for Sustainability

3.1 Sustainability Management Policy and Target

PTTEP Sustainability Management Overview

Guided by PTTEP's Sustainability Statement and Framework including our vision "Energy Partner of Choice", PTTEP is committed to conducting our business with responsibility and resilience in response to energy transition while aiming to create sustainable values for all stakeholders and achieving Net Zero Greenhouse Gas Emissions within 2050. All are driven by our Sustainability Framework comprising 3 key components: High Performance Organization (HPO), Governance, Risk Management, and Compliance (GRC), and Sustainable Value Creation (SVC). PTTEP pursues to continuously grow our business through the gas value chain and diversify beyond E&P with a focus on technology and innovation, decarbonization, and future energy. In addition, we are constantly enhancing our competitiveness through robust operations and efficiency improvement while striving to become a GRC role model and zero incident organization. At PTTEP, we operate responsibly to ensure business sustainability with due care for the community, society, and environment.

In addition, PTTEP has adopted His Majesty King Bhumibol Adulyadej The Great's (Rama IX) Sufficiency Economy Philosophy (SEP) as a guideline for our business operations and has aligned our sustainability management with the United Nations Sustainable Development Goals (UN SDGs), focusing on Goals 7, 8, 12, 13, 14, and 16 related to our material sustainability issues while continuing our support for the remaining UN SDGs in our business operations. Besides, PTTEP strives to meet stakeholder expectations and respond to the oil and gas industry's global outlook in dealing with climate change as well as Thailand's target committed at COP26. In responding to these directions and trends, PTTEP announced our Net Zero Greenhouse Gas Emissions target by 2050 with the EP Net Zero 2050 concept at the 2022 Annual General Shareholders' Meeting (AGM) in Quarter 1. PTTEP set forth plans to achieve the said target such as the E&P Portfolio Management where new projects will emphasize natural gas and greenhouse gas intensity will be factored into the investment decision-making process. We also pursue the development of technology to reduce greenhouse gas emissions from the production process, in particular Carbon Capture and Storage (CCS). Aside, PTTEP is studying technology for Carbon Capture and Utilization (CCU), to turn CO_2 into value-added products or future materials. The Company is also moving forward with the Zero Routine Flare initiative for new projects, by using technology to recover and utilize flare gas along with CCS. We also aim to adopt methane reduction technology and maximize the use of renewable energy, i.e. solar and wind power, while exploring new forms of future energy such as hydrogen for use at our operating sites. The Company is committed to implementing circular economy principles in order to reduce greenhouse gas emissions. Furthermore, PTTEP focuses on emissions offsetting through land and mangrove forestation including the implementation of a carbon removal project, an advanced technology to maximize CO_2 absorption from the atmosphere. Under the Ocean for Life strategy, PTTEP has continuously conducted various corporate social responsibility projects to improve biodiversity abundance and marine ecosystems as healthy oceans and coastal ecosystems are efficient sources of carbon sink.

Sustainability Statement and Framework

In 2022, PTTEP reviewed the Sustainability Statement and Framework which were endorsed by the Board of Directors in Quarter 3 to reflect the Company's commitment following our EP Net Zero 2050 announcement, aligning with PTTEP's strategic directions and expanding the sustainability scope from stakeholder focus to cover business operations. The statement and framework will drive the way PTTEP employees work and build a strong and sustainable business foundation for the organization. The Sustainability Framework focuses on striking a balance between High Performance Organization (HPO), Governance, Risk Management, and Compliance (GRC), and Sustainable Value Creation (SVC).



For more details about Sustainability Statement and Framework, please see PTTEP Sustainability Report 2022 and visit PTTEP website at https://www.pttep.com/en/Sustainability.aspx.

Materiality Assessment

PTTEP has reviewed and assessed key material issues on sustainability covering Environmental, Social, and Governance (ESG) as well as business dimensions in 2 areas: Significance to PTTEP and Significance to Stakeholders (Internal and External). This is in accordance with international standards, such as the Global Reporting Initiative Standards: GRI Standards (2021) and AA1000 AccountAbility Principles: AA1000AP (2018). To identify material sustainability issues of the Company, the concerns and expectations of our stakeholders have been gathered against global sustainability trends and directions of the UN SDGs and the SASB Materiality Map™ of Sustainability Accounting Standards Board (SASB) in the oil and gas exploration and production industry in order to systematically prioritize the materiality issues in 2 dimensions prior to presenting to Management Committee and the Board of Directors for approval.

The validated materiality issues are used as key inputs for the development of PTTEP Sustainability Strategy and long-term targets and are publicly disclosed in our sustainability Report. In 2022, 12 materiality sustainability issues are as listed below:

1. Energy Transition towards Net Zero
2. Technology and Innovations
3. Governance, Risk Management, and Compliance
4. Safety, Security, Health, and Environment
5. Contribution to Communities and Society
6. Human Resource Preparation
7. Circular Economy

8. Biodiversity Impact Management
9. Supply Chain Management
10. Cybersecurity
11. Human Rights
12. Stakeholder Management

For more details about Materiality Issues, please see PTTEP Sustainability Report 2022 and visit PTTEP website at https://www.pttep.com/en/Sustainability.aspx.

Sustainability Performance and Reporting

PTTEP has implemented our strategies derived from the Company's material sustainability issues. The Company's annual performance under 3 main strategy pillars as well as other strategies along with business operations to strengthen our sustainability covering Environment, Social, and Governance (ESG) can be summarized below:

- 3 main strategy pillars: Drive Value, Decarbonize, and Diversify. For more details about our 3 main strategy pillars and long-term targets (2030), please see "Structure and Business Operations" section.
- Smart Assurance and Mindful GRC Strategies with an aim to reflect transparent and efficient operations for the organization's stability and sustainability through governance, appropriate risk management, and internal control as well as strict compliance with relevant laws and regulations. It focuses on integrating GRC processes to ensure effectiveness through GRC One Digital System, a GRC reporting hub to support the work of management and employees, a chatbot to support risk management, the implementation of GRC process in Malaysia Asset, and GRC culture building to promote employees' understanding and awareness in order to integrate GRC into their daily work and important decision-making process. PTTEP also aims to further replicate the GRC practices in the community and society. The 2 long-term targets (2030) are shown below:
    - Increase GRC maturity level to the highest level
    - Become GRC role model among Thai listed companies
- Circular Model for E&P Strategy with an aim to design the work processes to optimize resource utilization and reuse with safety awareness and efficient conditions. Its 2 long-term targets (2030) are shown below:
    - At least 50 percent of main structures must be reused with safety awareness and efficient conditions
    - Zero waste to landfill

  Under this strategy, it could be divided into 2 workstreams, namely (1) Main Structure Reuse, with emphasis on reusing the wellhead platform topside and (2) Upcycling High Volume Waste, by increasing the value of waste from the petroleum production process, which can be reflected through important initiatives such as Carbon Capture and Utilization (CCU), CO_2 Conversion to Carbon-Based Product (CCC), CO_2 Curing, and Sand to Zeolite. In addition, the Company is studying the process of reusing

the Wellhead Platform (WHP) jacket and the study's findings will be taken into consideration for standardizing our future operations.

- Ocean for Life Strategy with an aim to support economic growth, increase ocean biodiversity and support the livelihood of coastal communities as most of PTTEP's operations are offshore, consisting of 2 targets:
    - Achieve net positive impact of Ocean Biodiversity & Ecosystem Services (BES) Value in all offshore operations by 2030, compared to the 2019 base year
    - Increase 50 percent of income of focused communities and establish 16,000 conservation networks by 2030, compared to the baseline data before PTTEP project implementation.

  Under this strategy, it could be divided into 3 workstreams, namely (1) Clean & Friendly Operation, which focuses on safety and environmental impact minimization in the areas where we have operations, (2) Ocean Health & Biodiversity Monitoring using our strengths in offshore operational locations and technology capabilities to drive our goal of becoming a marine database in the Gulf of Thailand for researchers, scientists, and other interested parties, both domestic and international, and (3) Ramp Up CSR around Ocean through implementing corporate social responsibility projects with stakeholders around our operational areas covering 17 provinces around the Gulf of Thailand. Moreover, the Company has developed PTTEP Ocean Data Platform to disclose marine science data collected by PTTEP as well as our ocean-related initiatives to the public on an online platform, allowing a wide range of further applications. PTTEP has driven the Ocean for Life Strategy implementation through a collaboration with many sectors such as the Department of Marine and Coastal Resources (DMCR), Royal Thai Navy, Hydro-Informatics Institute (HII), Kasetsart University, Rajamangala University of Technology Srivijaya, and Chulalongkorn University. For more details, please visit PTTEP Ocean Data Platform website: oceandata.pttep.com.

PTTEP sustainability performance reporting is in line with the Global Reporting Initiative Standards 2021 (GRI Standards 2021) in the core level and according to sector-specific guidelines of the GRI 11: Oil and Gas Sector 2021 covering sustainability reporting and management frameworks such as Oil and Gas Industry Guidance on Voluntary Sustainability of International Petroleum Industry Environmental Conservation Association (IPIECA), as well as reflecting UN SDGs and the 10 principles of the United Nations Global Compact Communication on Progress (UNGC Communication on Progress).

PTTEP has disclosed sustainability performance covering Environmental, Social, and Governance (ESG) as well as business dimensions, both descriptively and numerically, in accordance with stakeholders' expectations. In addition, PTTEP sustainability performance, which is publicly reported, has been verified by an independent third party since 2012, according to the Global Report Initiative (GRI) for the 10th consecutive year, to assure data accuracy, transparency, and validity. Currently, the Company has disclosed sustainability performance on PTTEP website, Sustainability Report, and Annual Report (56-1 One Report).

For more details about Sustainability, please see PTTEP Sustainability Report 2022 and visit PTTEP website at https://www.pttep.com/en/Sustainability.aspx.

3.2 Stakeholder Impacts Management in the Business Value Chain

3.2.1 Business Value Chain

To achieve our vision of "Energy Partner of Choice", in 2022, PTTEP created and delivered sustainable values to all stakeholders through the resource allocation in 6 areas: Financial Capital, Production Capital, Human Capital, Intellectual Capital, Social and Relationship Capital, and Natural Capital managed through the work processes designed to support the Company's vision and strategies. For more details, please see PTTEP Sustainability Report 2022 under "Stakeholder Value Creation" topic.

3.2.2 Stakeholder Analysis in the Business Value Chain

PTTEP has engaged with all key stakeholders which can be divided into 9 groups: (1) Government Agencies and Regulators, (2) Vendors, Suppliers/Contractors, (3) Customers, (4) Employees, (5) Shareholders, Investment & Financial Institutions, and Creditors, (6) Business Partners, Consortium, and Joint Ventures, (7) Communities, (8) Independent/Public Organizations, NGOs, and Academics, and (9) Press and Media. The objectives of stakeholder engagement are to solicit their feedback and expectations and discuss and communicate with them to exchange viewpoints. PTTEP uses issues raised by the stakeholders as inputs to improve the efficiency of our business operations.

For more details about stakeholder engagement and expectations, please visit PTTEP website, Sustainability topic, at https://www.pttep.com/en/Sustainability.aspx, subtopic: "Stakeholder Management".

3.3 Sustainability Management in Environmental Dimension

3.3.1 Environmental Policy and Practice

Realizing the importance of operating our business in compliance with related standards and regulations, PTTEP implemented Safety, Security, Health, and Environmental Management System (SSHE MS), requiring all operating assets to comply with the ISO 14001:2015. This is to ensure that our operations will contribute to as less as possible direct and indirect environmental impacts (covering various topics, i.e. Climate Change, Spill, Biodiversity, Waste, Air Pollution, and Water Resources) and PTTEP, in return, gains trust and credibility from our stakeholders. In addition, the Company promotes responsible use of natural resources, environmental protection as well as sustainable conservation and management in PTTEP's operational areas.

In 2022, the Company achieved the group-wide coverage of environmental performance reporting for all assets and petroleum support bases under our operational control at 100 percent or more than 75 percent of the total revenue. The Company has continuously collected and reported the environmental performance via the web-based Environmental Performance System (EPS).

PTTEP sets major environmental targets in line with our sustainability strategy as follows:

1) Achieve Net Zero Greenhouse Gas Emissions by 2050 (Scope 1 and Scope 2) of the exploration and production business under PTTEP's operational control with interim targets to reduce greenhouse gas emissions intensity by at least 30 percent within 2030 and 50 percent within 2040 (from the 2020 base year)

2) Achieve zero waste to landfill by 2030

3) Achieve zero oil and chemical spill

4) Avoid operating in areas at risk from water scarcity and ensure no impact on the community and water users

5) Avoid operating in World Heritage sites as defined by UNESCO and achieve No-Net Loss of biodiversity in protected areas as defined by the International Union for Conservation of Nature (IUCN) by 2024

6) Achieve Net Positive Impact of Ocean Biodiversity & Ecosystem Services (BES) Value in domestic offshore operations by 2025 and all offshore operations by 2030, compared to the 2019 base year

7) No Gross Deforestation for E&P

For more details about Environmental Management and Environmental Performance Data (verified by third party), please visit PTTEP website, Sustainability topic, at https://www.pttep.com/en/Sustainability.aspx, subtopic: "Environmental Management" and "Assurance Statement".

3.3.2 Environmental Performance

Environmental Management

PTTEP commits to operating business conscientiously and responsibly towards society and the environment by adhering to the Safety, Security, Health, and Environmental (SSHE) Policy which includes a commitment to environmental protection by following Safety, Security, Health, and Environment Management System (SSHE MS), standards, procedures, guidelines, and work instructions. In alignment with the policy, the Environmental Management Strategic Roadmap is established to demonstrate PTTEP's commitment to achieving cleaner petroleum exploration and production with environmental stewardship. The roadmap also supports the Company's sustainability long-term strategy/target and the Company's environmental management requirement to achieve SSHE Target Zero. The roadmap defines the long-term environmental management plan to reduce environmental impacts, promote the circular economy concept, and create positive environmental value. The Company has set the target to achieve Net Zero GHG Emissions by 2050 for E&P business covering Scopes 1 and 2 under PTTEP's operational control. PTTEP also sets the targets of reduction of greenhouse gas emissions intensity by 30 percent in 2030 and 50 percent in 2040 from the 2020 base year.

PTTEP's environmental management is integral to the Safety, Security, Health, and Environment Management System (SSHE MS). It is aligned with the ISO 14001 international standard. PTTEP requires all operating assets to implement and certify for the ISO 14001 standard. PTTEP's operating assets in Thailand, Zawtika Project in Myanmar, and Malaysia Projects have achieved ISO 14001:2015 certification from SOCOTEC Certification (Thailand) Co., Ltd. (under the United Kingdom Accreditation Service – UKAS) as per the requirement and commitment.

PTTEP assesses each project's environmental activities against regulatory requirements, the Company's, and/or international standards. The environmental assessment covers all phases of E&P activities, including exploration, development, production, and decommissioning. Environmental assessment is a tool to identify and evaluate environmental issues and impacts. Mitigation and monitoring measures are then set up and implemented to minimize the environmental impacts of project activities. PTTEP also submits environmental compliance and monitoring reports to authorities to ensure our environmental performances follow mitigation and monitoring measures stated in the environmental assessment. It is noted that all environmental operations are regulated by the country authorities where PTTEP operates.

The Company's environmental performance is disclosed in PTTEP Sustainability Report 2022 and PTTEP website at https://www.pttep.com/en/Sustainability.aspx, subtopic: "Environmental Management".

Performance over the Past 3 Years

During 2020-2022, PTTEP strictly complied with Thai and International legislations and other regulations and requirements concerning the area of Safety, Security, Health, and Environment (SSHE). For example, conducting the Environmental Impact Assessment according to the requirements and regulations of the countries where we operate. Submitting Safety, Security, Health, and Environment performance reports to the Department of Mineral Fuels monthly and annually. Those included the annual SSHE audits at operating sites by the Department of Mineral Fuels. The achievements of our environmental performance were represented by the following national and international awards and recognitions:

1) PTTEP has achieved the international standard ISO 14001 certification since 1997 and continuously maintained ISO 14001:2015 recertified by SOCOTEC Certification (Thailand) Co., Ltd. Under the accreditation of the United Kingdom Accreditation Service (UKAS). The certificate has been implemented with One Common System for ISO 14001 to enhance the effectiveness of environmental management and promote continuous improvement aligned with SSHE MS.

2) PTTEP has received the Green Office Award at the Excellence (G-Gold) Level for all the Company's offices for the 6th consecutive year (2017-2022). The event is held by the Department of Environmental Quality Promotion. In 2022, the Company received the Green Office Award at the Excellence (G-Gold) Level for the Sinphuhorm Project.

3) PTTEP has received the LESS (Low Emissions Support Scheme) Award Letter of Recognition from Thailand Greenhouse Gas Management Organization (TGO) for the 6th consecutive year. In 2021, the Company also received this award in energy efficiency and waste recycling projects for PSB (Songkhla). The total amount of greenhouse gas emissions reduction is 309 tonnes of carbon dioxide equivalent.

4) PTTEP has received the certificate from Thailand Greenhouse Gas Management Organization (TGO) for implementing the Carbon Neutral Event from the 2022 PTTEP Annual General Shareholders' Meeting. The Company has provided carbon credit to compensate for greenhouse gas emissions from this event.

5) PTTEP has disclosed our environmental management to the Carbon Disclosure Project (CDP) since 2007. We have been rated for Climate Change in "Leadership Level" for the 7th consecutive year since 2014 and "Management Level" since 2021, as well as placed for Water Management in "Leadership Level" in 2017 and "Management Level" since 2018. This is to recognize our outstanding achievement in sustainable climate change and water management practices.

6) PTTEP has received EIA Monitoring Awards 2021 in Mine and Petroleum Development Category from the Office of Natural Resources and Environmental Policy and Planning (ONEP). These awards are given to 3 onshore petroleum production projects with "Outstanding Level" for strictly complying with the requirements of the Environmental Impact Assessment (EIA), namely (1) S1 Project at Sirikit Field and Central Sirikit Field, Kamphaeng Phet, Phitsanulok, and Sukhothai provinces, (2) PTTEP1 Project at Kamphaeng Saen Field, Nakhon Pathom Province, and (3) Sinphuhorm Project at E5N and EU-1 at Sinphuhorm Field, Udon Thani and Khon Kaen provinces. These achievements reflected PTTEP's commitment to align its business with the EIA for sustainable development.

Safety, Security, Health, and Environment Management

PTTEP develops, implements, and continuously improves our Safety, Security, Health, and Environment (SSHE) Culture following the SSHE roadmap to achieve our ultimate goal. In 2022, PTTEP's SSHE strategy focused on continuously improving the Company's SSHE Management System (SSHE MS) in operational and process safety and strengthening our SSHE culture. Throughout the Human Factor Clinic campaign, we seek to reach the highest level of our SSHE Culture Maturity Model to prevent human errors that can result in injuries or fatalities by promoting SSHE leadership and strengthening SSHE culture among our employees and contractors at all levels. Furthermore, the online barrier program is systematically implemented to manage potential risks associated with the loss of primary containment, which can lead to a Major Accident Event (MAE). In terms of protection of environmental impact, the spill response readiness and enhancement program is thoroughly organized.

In 2022, with a significant increase in the man-hours worked, PTTEP SSHE performance for Lost Time Injury Frequency (LTIF) and Loss of Primary Containment Rate (LOPCR) decreased while the Total Recordable Injury Rate (TRIR) and Spill Rate increased compared to the previous year. However, the overall PTTEP SSHE performance was forecast to be better than the average performance of the industry peers reported to the International Association of Oil & Gas Producers (IOGP). This is a direct result of our SSHE risk management and control to be as low as reasonably practicable (ALARP) and our enduring incident prevention campaigns.

PTTEP emphasizes and commits to continuously improving SSHE implementation so as to achieve our ultimate goal of being a "Zero Incident Organization" where employees and contractors can come to work and return home safely every day.

3.3.3 Impact of Business Operation on the Environment

Details are disclosed in the "General Information and Other Significant Information" section, "Legal Dispute" topic.

3.4 Sustainability Management in Social Dimension

3.4.1 Social Policy and Practice

PTTEP values social development as well as the conservation of natural resources and the environment. All our stakeholders, including government agencies, are regularly engaged and communicated through meetings, activities, and projects implemented across our operational areas. To ensure continuous and sustainable development, a long-term strategy for corporate social development projects is in place to support organizational growth, create sustainable values for the community and society, build trust and acceptance from relevant stakeholders in line with the Community Relations Management and Corporate Social Responsibility Policy and 17 UN SDGs adopted as a framework for social development project implementation.

In addition, PTTEP has established a universal understanding of the Company's approach to material issues on sustainability to ensure consistency of the Company's policies and guidelines across the organization, for example, the Corporate Social Responsibility Policy which is in line with ISO 26000:2010, Safety, Security, Health, and Environment (SSHE) Policy of the International Association of Oil & Gas Producers (IOGP), International Petroleum Industry Environmental Conservation Association (IPIECA) and in accordance with applicable international standards such as ISO 45001:2018

Occupational Health and Safety Management System, which are audited and certified by third party covering all PTTEP operational activities. Moreover, PTTEP respects human rights wherever it operates and commits to fundamental human rights by honoring local laws, cultures, traditions, and values in treating employees and stakeholders as well as avoiding human rights violations. PTTEP developed the Human Rights Policy and Management System covering human rights issues in the area of workplace, safety, security, health, and environment, supply chain, community including vulnerable groups. The Company also encourages suppliers, contractors, and business partners to commit to the same values and principles with a human rights risk assessment conducted on an annual basis.

3.4.2 Social Performance

In 2022, the Company reported social performance covering all assets and petroleum support bases under our operational control at 100 percent or more than 75 percent of the total revenue. Our major social targets which are in line with our sustainability strategy are shown below:

1) Zero Incident Organization
2) Employee engagement survey on a 2-year basis, with an aim to continuously increase PTTEP's engagement score. The next survey will be conducted in 2024
3) Human rights risk assessment covering 100 percent of its operating assets to assess and mitigate human rights risks from PTTEP business operations

For more details about Sustainability Management and Health and Safety Performance Data (verified by third party), please visit PTTEP website, Sustainability topic, at https://www.pttep.com/en/Sustainability.aspx, subtopic: "Stakeholder Management", "Social Development", "Safety, Security, Health, and Environment", "Human Resource Management", "Human Rights", and "Assurance Statement".

3.4.3 Impact of Business Operation on Social Responsibility and Human Rights

Details are disclosed in the "General Information and Other Significant Information" section, "Legal Dispute" topic.

3.5 Overall Sustainability Performance

In 2022, with our commitment to sustainability encompassing Environmental, Social, and Governance (ESG) dimensions, PTTEP received the following domestic and international awards and recognition:

1) Sustainability Awards of Honor from the Stock Exchange of Thailand (SET), thanks to having received Best Sustainability Awards for the 3rd consecutive year. PTTEP was also honored to be listed in Thailand Sustainability Investment (THSI) for the 7th time.

2) PTTEP received an outstanding award plaque, the highest rank, under Low Carbon and Sustainable Business (LCSB) of 2022 from the Thailand Greenhouse Gas Management Organization (TGO).

3) PTTEP was selected as a constituent member of the FTSE4Good Index Series for the 7th consecutive year by FTSE Russell.

4) PTTEP's ranking was advanced to AA (ESG Leader) from A in the integrated oil & gas exploration & production sector by Morgan Stanley Capital International (MSCI) ESG Research.

4. Management Discussion and Analysis of Operating Results

4.1 Overall Performance of PTTEP

Executive Summary

In 2022, average Dubai price stood at 96.4 USD/barrel, increased significantly from 2021 when the average Dubai price was at 69.4 USD/barrel, as a result of tight crude oil supply situation amid the war between Russia and Ukraine. Despite concerns about the global recession, caused by surging inflation and interest rates hikes by the Central Banks of several countries, the oil demand was still on the rise from improved COVID-19 situations. Dubai price reached its peak at 127.8 USD/barrel in March 2022, on the back of the Russia-Ukraine war outbreak, and remained at this high level onto the 2nd quarter from the unrest in Libya and Ecuador. However, the oil release from Strategic Petroleum Reserves by several countries, global recession concerns, and China lockdown to cope with the new wave of COVID-19 caused Dubai price in the 3rd quarter to slightly decline. Continuing onto the 4th quarter, though OPEC+ had agreed to curb production at 2 million barrels per day effective from November 2022, Dubai price continued its downward trend. The supply and demand imbalance is expected to continue in 2023, with Dubai price moving in 75-90 USD/barrel range. Key factors that will affect 2023 oil price are global economy, China's COVID-19 measures, Russia-Ukraine war, and the oil release from Strategic Petroleum Reserves.

Several progresses in E&P operations were achieved in 2022. First, the production start-up of G1/61 Project (Erawan) in April 2022, where PTTEP is the operator with safe and smooth transition. In July 2022, PTTEP assumed the operatorship of Yadana Project in Myanmar after the previous operator had withdrawn from the project. The Malaysia-Thailand Joint Development Area Project (MTJDA) was granted 10-year production period extension until 2039, as well as additional gas supply to Thailand at least 30 MMSCFD until 2025. Moreover, in September 2022, PTTEP participated in the 24th Gulf of Thailand Bid Round with an award announcement in February 2023. Lastly, Algeria Hassi Bir Rekaiz commenced the first phase of oil production at 13,000 barrels per day and the first oil sales were realized in Q4/2022. On the exploration front, PTTEP has made successful gas discovery at the 2nd exploration well of Malaysia SK410B Project and exploration well of Abu Dhabi Offshore 2 Project, located in the United Arab Emirates, with the estimated gas reservoir of 2.5-3.5 trillion cubic feet (TCF).

For the Business Beyond E&P in 2022, AI and Robotics Ventures Company Limited (ARV), a subsidiary of PTTEP, won The National Innovation Awards from Thailand's National Innovation Agency. The Rovula business unit pushed forward its Nautilus, the world's first operational subsea flow line control and repair robot, for commercial operations while ZeaQuest, a joint venture company, has generated continuous year-on-year revenue growth as well as secured and delivered subsea pipeline inspection and maintenance projects in the Gulf of Thailand and Gulf of Moattama. During 2022, ARV also set up additional business units such as Bedrock which provided Geospatial Location Intelligence Platform by AI & machine learning, including advanced location insights, while BIND provided security, privacy, and seamless access to Digital Identity and Personal/Enterprise data by Web 3.0 technology. Both business units are in the process of establishing the company. It is expected to be completed by the Q1/2023.

PTTEP continues adhering to sustainable value creation for wider society (From We to World), in line with the global practices and UN principles, that takes conscious consideration of all stakeholders' interests, as well as maintains energy security for the nation. Together with relevant resources preparedness, PTTEP has established a strategic framework with 3 strategies; (1) Drive Value by maximizing values of existing assets, as well as business expansion in core strategic areas;

(2) Decarbonize in order to achieve “Net Zero Greenhouse Gas Emissions” by the year 2050, or “EP Net Zero 2050” target; and (3) Diversify to expand into the new businesses, with the target that net income from those businesses will reach 20 percent of PTTEP’s consolidated net income by 2030.

From the above-mentioned operating performance, in 2022, PTTEP reported 12 percent higher sales volume at 468,130 BOED, from the operatorship transfer and production start-up of G1/61 Project (Erawan), as well as sales volume growth from overseas projects. Moreover, the oil price spike in 2022 caused the average selling price to increase from the previous year to stand at 53.39 USD/BOE, while unit cost slightly declined to 28.36 USD/BOE. In 2022, PTTEP also recognized impairment losses of USD 300 million, mainly from Mozambique Area 1 Project. Other items included oil price hedging loss, reported at USD 186 million and expense for the mediation agreement made under Class Action lawsuit brought by Indonesian seaweed farmers, recorded at USD 129 million. As at the end of 2022, PTTEP had total assets of USD 25,168 million, of which USD 3,539 million was cash on hand, while total liabilities were reported at USD 11,653 million, of which USD 3,833 million was interest-bearing debt. Total shareholders’ equity stood at USD 13,515 million with debt-to-equity ratio at 0.28 reflecting healthy financial structure and robust financial position.

Table of Key Financial Results

(Unit: MMUSD)	2022	2021	Inc. (Dec.) YTD	Q3 2022	Q4 2022	Q4 2021	Inc. (Dec.) QoQ	Inc. (Dec.) YoY
Total revenue	9,660	7,314	2,346	2,617	2,697	1,989	80	708
Sales revenue*	9,270	6,731	2,539	2,388	2,469	1,867	81	602
EBITDA**	7,103	4,996	2,107	1,838	1,847	1,330	9	517
Profit (Loss) for the period	1,999	1,211	788	664	417	321	(247)	96
Basic earnings (Loss) per share (Unit: US Dollar)	0.51	0.30	0.21	0.17	0.11	0.08	(0.06)	0.03
Profit (Loss) from normal operation	2,647	1,479	1,168	706	723	513	17	210
Profit (Loss) from non-recurring items	(648)	(268)	(380)	(42)	(306)	(192)	(264)	(114)

* Included deemed income for the tax payment by Oman government but excluded in the average sales volume and selling price calculation.

** Excluded gain from a bargain purchase of Oman Block 61 Project, asset write-offs in Brazil, a provision for the Class Action settlement from the Montara incident and impairment loss on assets and goodwill which were recognized during the period.

Strategies and Business Management

Strategies

PTTEP adheres to the sustainability global practices and UN principles. Operating under the concept of From We to World in order to become a Sustainable Organization takes a conscious consideration of all stakeholders’ interests. Delivering secure, affordable, and sustainable energy is a foundation of PTTEP’s strategy, especially in an on-going global energy crisis and energy transition. Therefore, PTTEP establishes a strategic framework consisting of three strategy pillars as follows:

1) Drive Value

- Strengthen E&P and ensure Thailand's energy security
  - Maximize production
  - Expedite development
  - Monetize discovery
- Enhance the competitiveness of unit cost
- Expand gas-weighted portfolio and LNG in upstream and midstream business

2) Decarbonize

- Manage E&P for lower carbon portfolio to reach Net Zero Greenhouse Gas Emissions by 2050. This goal covers both Scope 1 and Scope 2 of the exploration and production business under PTTEP's operational control. PTTEP has also set interim targets to reduce greenhouse gas emissions intensity by at least 30 percent within 2030 and 50 percent within 2040 (with the 2020 base year).
- Execute GHG emissions reduction plan
- Accelerate Carbon Capture and Storage (CCS) projects
- Maximize the use of renewables and future energy in operation
- Pursue emission offsetting and Ocean for Life

3) Diversify

- Scale up AI and Robotics Ventures (ARV)
- Capture Gas to Power and renewable energy opportunity
- Explore Carbon Capture, Utilization, and Storage (CCUS), hydrogen, and future energy
- Commercialize in-house technology

Business Management and Company Activity

PTTEP aims to build sustainable growth encompassing Environmental, Social, and Governance (ESG) dimensions in addition to the 3 main strategy pillars above, which is in line with the Company's key material issues on sustainability following the expectations of the stakeholders and business directions. The implementation and progress can be summarized as follows:

1) Good Corporate Governance Principles

PTTEP is committed to conducting its business with transparency and effectiveness by adhering to good corporate governance principles, maintaining robust risk management and internal control system as well as strictly conforming to applicable laws and regulations. The main progress of works within 2022 is highlighted as follows:

- Implemented GRC according to GRC Strategies – Smart Assurance and Mindful GRC, which aims to effectively integrate assurance processes, cultivate GRC in employee mindset to be aware, accept, and implement GRC, as well as prepare for becoming a GRC role model among Thai Listed Companies.

- Implemented GRC-related activities as per GRC roadmap to embed GRC culture and enhance the understanding in Malaysia Asset including monitoring and reporting to prepare for the company-wide GRC Maturity Level assessment program in 2023.

- Enhanced Risk Management System by implementing Chatbot to cover suggesting risk and searching risk information with an aim of no improperly managed high-impact risks (No Surprise Problem). The Chatbot has been successfully launched in full service in November 2022.

- Developed GRC One Digital System which covers various reporting related to GRC, i.e. Whistleblower Reporting, Risk Management, Business Continuity Management, Internal Control Assessment, and Compliance Reporting to assist management and relevant parties to obtain immediate GRC information for efficient decision-making.

- Continued building GRC culture through several communication campaigns focusing on employees' understanding on GRC principles and company operations such as GRC Strategy & Roadmap, GRC Targets, GRC Management System and communicate GRC Lessons Learnt to employees in order to ensure GRC implementation as part of their works including promoting good practices on GRC to external communities, such as communicating to shareholders through the Explorer's Journal and Facebook: PTTEP Shareholders Society.

PTTEP has established its Human Rights Policy and Management System in line with the international best practices to ensure concrete implementation and prevention of Human Rights violations from our business operations. The Company also strictly conducts a human rights risk assessment on an annual basis. In 2022, the risk assessment covered 100 percent of its operating assets, non-operated joint ventures, and Tier-1 suppliers. Moreover, PTTEP continued our efforts to enhance staff's understanding and shared responsibility on human rights through an e-learning course and various promotional materials.

Furthermore, PTTEP had Safety, Security, Health, and Environment Management System (SSHE MS) to minimize risks and impacts from its operations. In Q4/2022, PTTEP Lost Time Injury Frequency (LTIF) was 0.15, while the Total Recordable Incident Rate (TRIR) was 0.85. The LTIF and TRIR were in the average safety performance of the International Association of Oil & Gas Producers (IOGP).

2) Natural Resource Conservation, Environmental Restoration, and Community and Social Development

The highlighted implementation to create long-term value for stakeholders can be summarized as follows:

- Circular Model for E&P: PTTEP's work processes are designed to ensure optimum resource efficiency. It is encouraged that all unused materials are reused and recycled whilst appropriate, safe, and only when they are in an efficient condition to achieve our targets of at least 50 percent of main structures being reused with safety awareness, and efficient conditions; and zero waste to landfill by 2030. The performance is divided into 2 workstreams as follows:

1) Main Structure Reuse, with emphasis on reusing the wellhead platform topside. The Company is studying the process of reusing the Wellhead Platform (WHP) jacket and the study's results will be taken into consideration for standardizing our future operations.

2) Upcycling High Volume Waste, by increasing the value of waste from the petroleum production process, which can be reflected through important initiatives such as Carbon Capture and Utilization (CCU), CO_2 Conversion to Carbon-Based Product (CCC), CO_2 Curing, and Sand to Zeolite.

- Ocean for Life: As most of PTTEP's operations are offshore, PTTEP gives the highest priority to conserve, restore, and monitor natural resources and marine ecosystems to support economic growth and the quality of life for nearshore

communities to reflect the Company's targets of achieving net positive impact of ocean biodiversity and ecosystem services (BES) value in all offshore operations and increasing 50 percent of focused communities' income by 2030. The performance is divided into 3 workstreams as follows:

1) Clean & Friendly Operation, focusing on safety and minimizing environmental impacts in the areas where PTTEP has operations. In Q4/2022, PTTEP, Department of Fisheries, Prince of Songkla University, Kasetsart University, and Southeast Asian Fisheries Development Center (SEAFDEC) signed a Memorandum of Agreement (MOA) for the implementation of a project on the use of petroleum platform jackets as artificial habitat (reefs) for sustainable fisheries in the Gulf of Thailand to support the restoration and development of marine habitats, as well as promoting public and private sectors to develop the knowledge of aquatic animal resource management to align with the sustainable marine ecosystem guidelines.

2) Ocean Health & Biodiversity Monitoring, using our strengths in offshore operational locations and technology capabilities to drive our goal in becoming a marine database in the Gulf of Thailand for both domestic and international researchers, scientists, and other interested parties. In 2022, PTTEP developed PTTEP Ocean Data Platform to disclose marine science data collected by PTTEP and our ocean-related initiatives to the public on an online platform, allowing a wide range of further applications. The implementation is driven through a collaboration with many sectors such as Department of Marine and Coastal Resources (DMCR), Royal Thai Navy, Hydro-Informatics Institute (HII), Kasetsart University, Rajamangala University of Technology Srivijaya, and Chulalongkorn University. For more information, please visit PTTEP Ocean Data Platform website at https://oceandata.pttep.com/

3) Ramp Up CSR Around Ocean through implementing corporate social responsibility projects with stakeholders around our operational areas covering 17 provinces around the Gulf of Thailand. In 2022, PTTEP established 4 aquatic animal hatchery learning centers in Phetchaburi, Prachuap Khiri Khan, Samut Songkhram, and Rayong provinces. PTTEP also handed over the sea turtle conservation exhibition building and sea turtle hatchery building to the Royal Thai Navy Sea Turtle Conservation Center in Chonburi Province and the Sea Turtle Conservation Center, Base 2nd Naval Area Command, Songkhla Province. The aims are to raise public awareness about sea turtle conservation and promote the conservation of sea turtles in the marine ecosystem around Thailand.

3) Finance

PTTEP places great importance on effective financial management by focusing on building financial discipline and maintaining a robust capital structure. As at the end of 2022, the Company maintained its strong liquidity position with cash on hand of approximately USD 3,539 million. The debt-to-equity ratio is 0.28 which is in line with the Company's financial policy.

On October 20, 2022, PTTEP Treasury Center Company Limited (PTTEP TC), which is a subsidiary of PTTEP, prepaid unsecured and unsubordinated banks loan in full amount of USD 600 million. After the loan prepayment, PTTEP still has sufficient liquidity for operation and investment, as well as maintains its solid financial position to withstand such oil price and global economic fluctuation.

4) Research and Development of Technology

PTTEP encourages the development of technology and innovation as well as technological applications by carrying out research and development under 3 objectives, which consist of:

1) To drive value and enhance competitiveness in E&P business;

2) To reduce greenhouse gas emissions to become a low-carbon organization;

3) To support the energy transition and new businesses.

As of Q4/2022, there are 65 projects under research and development and the progress of highlighted projects are as follows;

- The technologies for condensate treatment were successful in field trial tests which consist of the chemical demulsifier injection for particulate contaminants separation, adsorbent, and filtration technology. The technologies have been implemented in both the domestic and international production fields resulting in the condensate treatment efficiency improvement and reducing production cost.
- The contaminant removal technology for supporting pipeline decommissioning activities such as the decontamination chemicals for pipeline cleaning and intelligent sampling PIG have been completed field trial in Bongkot Field in Q1/2022, and the performance is satisfactory. The development team is carrying out the technology performance improvement as well as expanding its use to support future petroleum pipeline decommissioning activities.
- The wellhead operator robot project is in progress of developing a prototype robot which has capability to detect equipment abnormalities and to autonomously manipulate the process equipment in the production platform. The prototype testing in offshore production platform was performed during Q1 to Q2 of 2022. The test result is satisfactory, and the development is going to be continued to the next phase as well as expanding the development scope to cover other production fields.
- The flare gas conversion to Carbon Nanotube for greenhouse gas emissions reduction project is in progress to carry out the front-end engineering design (FEED) for the pilot production unit that is expected to complete in 2024. The Carbon Nanotubes application development projects are also carried out in various applications such as battery, energy storage, composite material, etc.
- The Carbon Dioxide (CO_2) conversion to Propylene Carbonate for greenhouse gas emissions reduction project is in progress to carry out the prototype process development and testing.

PTTEP's strong commitment and concrete performance have made PTTEP recognized by both domestic and international institutions, which can be seen from the awards received such as;

- Received the top-level Gold of Most Innovative Knowledge Enterprise Award in Southeast Asia (SEA MIKE Award 2022), 2022 Gulf Sustainability Awards for Best Community Development category from PTTEP's corporate social responsibility projects for healthcare development, CSR World Leader 2022 Award from the Green Organization, which is an international, independent, environmental group, and Innovative Medium Organization Award granted to AI and Robotics Ventures Company Limited (ARV), a subsidiary of PTTEP, at the National Innovation Agency (NIA) Ceremony.
- Received awards at 12th Asian Excellence Award 2022 by Corporate Governance Asia Magazine, which is a financial magazine that promotes corporate governance in Hong Kong and Asia. The awards included Asia's Best CEO for the 5th consecutive year, Asia's Best CFO for the 9th consecutive year, Asia's Best CSR for the 3rd consecutive year, Best Investor Relations Company (Thailand) for the 10th consecutive year, and Best Investor Relations Professional for the 2nd consecutive year.

- Received awards at SET Awards 2022 by the Stock Exchange of Thailand (SET). The awards were Sustainability Awards of Honor which is granted to companies that receive Best Sustainability Awards for at least three consecutive years and Best Investor Relations for the 2nd consecutive year. In the innovation front, PTTEP also received Best Innovative Company Awards for Intelligence Pipeline Internal Sampling PIG technology. In addition, PTTEP was honored to be listed in Thailand Sustainability Investment (THSI) for the 7th consecutive year.
- Received awards at the IR Magazine Awards – South East Asia 2022 held by IR Magazine – the United Kingdom's leading investor relations magazine. The awards were Best Overall Investor Relations (large cap), Best Investor Relations Officer (large cap), and the Best in Energy Sector.
- Received awards at Alpha South East Asia's 12th institutional investor corporate awards 2022 held by Alpha South East Asia Magazine, the leading investment magazine in Southeast Asia. The awards consist of Strongest Adherence to Corporate Governance, Most Consistent Dividend Policy, and Best Annual Report in Thailand

Such recognitions are our pride, and they will motivate PTTEP to carry out its business with efficiency, transparency, accountability as well as conscious care for all stakeholders to achieve our vision of becoming the Energy Partner of Choice.

Economic Overview in 2022

1) Crude Oil Prices

Crude price is one of the major factors affecting the Company's performance. In 2022, average Dubai crude price increased to 96.4 USD/barrel, from 2021 average price of 69.4 USD/barrel. This was mainly due to tight supplies amid the war in Ukraine, a rebound in global petroleum demand as a result of improving the COVID-19 situation, while inflation and interest rate hikes by many central banks around the world led to economic contraction.

During Q1/2022, apart from supply disruption in Kazakhstan, Libya, and Nigeria in January, Russia-Ukraine tension kept Dubai crude price elevated especially in February 2022 when Russia launched a full invasion of Ukraine. As a result, the U.S. and its allies announced series of harsh sanctions against Russia including banning or phasing-out of Russian energy causing Dubai crude price to hit a multi-year record high of 127.8 USD/barrel in March 2022.

The prolonged Russia-Ukraine war, as well as the instability in oil-producing countries such as Libya and Ecuador, have raised concerns about crude supply shortage in Q2/2022. Oil price received some support from the demand side as most international borders were finally reopened. However, member states of the IEA including the U.S. helped suppress price gains by announcing 180 million barrels of crude release from strategic reserves from May to October 2022. Dubai crude price in Q2/2022 hence increased to an average of 108.2 USD/barrel, higher than Q1/2022 average price of 96.2 USD/barrel.

Dubai crude price in Q3/2022 dropped to an average of 96.7 USD/barrel largely due to recessionary concerns from interest rate hikes across the world at unprecedented level, strengthened U.S. Dollar to a 20-year high, as well as China's COVID-19 lockdowns resumption from the new wave of the pandemic, prompting downward revision of the global oil demand while Russian oil production and exports have proved to be more resilient, due to orders from China and India.

During Q4/2022, even with OPEC+ agreed upon steep oil production quota cuts of 2 million barrels per day (MMBPD), starting from November 2022, Dubai crude price slumped to 1-year low at the back of rising fears of global recession and little impact on crude availability as price cap set at a moderate level on Russia's exports took effect on early of December 2022. In addition, the relaxation of China's zero-COVID policies not only triggered a surge in COVID infections across China,

but also hurt its economy as demand for goods and services shrank at a sharper pace, thus weakening oil demand. Consequently, Dubai crude price in Q4/2022 averaged 84.8 USD/barrel.

2) Liquefied Natural Gas (LNG) Price

In 2022, the average Asian Spot LNG price increased to approximately 34 USD/MMBTU. During the year, LNG price was quite volatile with the lowest price around 19 USD/MMBTU in January as sentiment weakened on Chinese sell tenders. Then, the price increased significantly to the year's highest level in early March at 85 USD/MMBTU, driven by the conflicts between Russia and Ukraine. In Q2/2022, LNG price decreased due to low spot demand from Northeast Asia buyers. However, Asian Spot LNG price hit 70 USD/MMBTU level again in Q3/2022, mainly from the Russian gas supply to Europe which has been drastically reduced by the technical problems at Nord Stream 1 Pipeline, the largest pipeline from Russia to Europe. In addition, demand for LNG was driven upward by the need for various countries to increase their gas reserves in preparation for winter season. For the global LNG market in 2022, total capacity was at 421 million tons per annum (MTPA) (2021: 395 MTPA), while LNG demand remained at approximately 391 MTPA (2021: 380 MTPA). (Source: FGE as of January 2023)

3) Thailand's Energy Demand

According to the Energy Policy and Planning Office (EPPO), Ministry of Energy, domestic energy demand from January to October 2022 was approximately 2 MMBOED, 3.36 percent increase compared to the same period in 2021, driven by increased energy consumption in the form of petroleum consumption for transportation and electricity usage from coal, hydro, and imported powers. This reflects higher economic activities in Thailand compared to 2021.

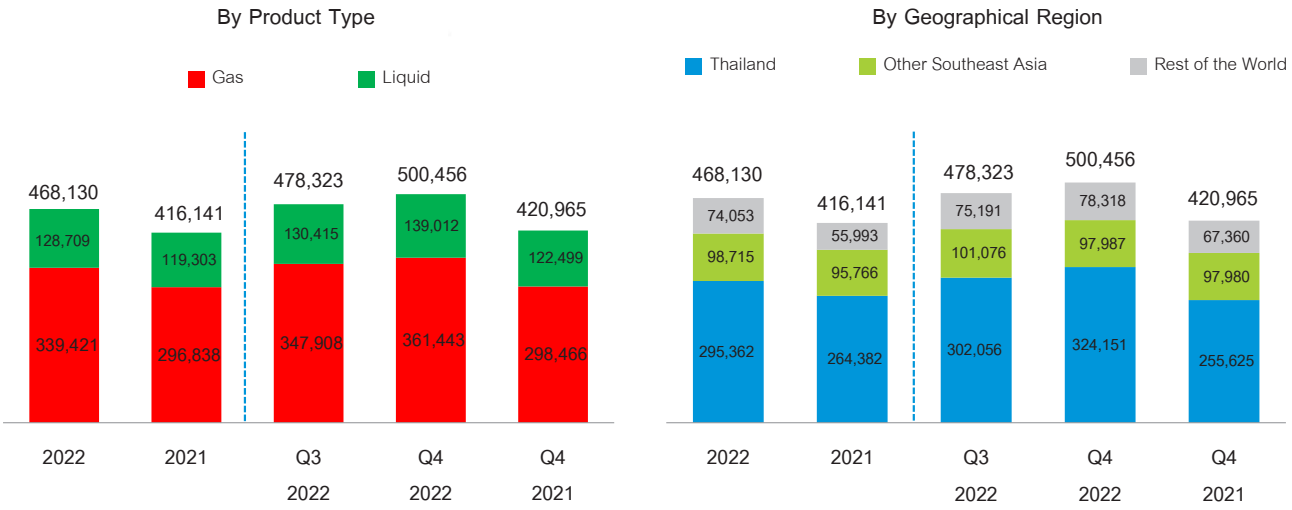
4) Exchange Rates (Thai Baht against US Dollar)

The Baht depreciated against US Dollar from 33.31 at beginning of 2022 to 34.56 by year end. The Baht experienced high volatility from key economic factors such as Thailand's weak tourism recovery, Thailand's current account deficits, economic uncertainty from the Russia-Ukraine war, and Federal Reserve's rate hikes, totaling 4.25 percent in 2022, to combat persistent and high inflation. In 2022, the policy interest rate in Thailand was 1.25 percent. However, late 2022 saw some Baht appreciation due to Thailand's current account, which turned positive in September and declining U.S. inflation which suggested a slowed down Fed rate hike schedule.

Financial Performance

Average Sales Volume and Selling Price

Unit: Barrels of Oil Equivalent Per Day



Average selling price and Dubai crude oil price (Unit: USD)	2022	2021	Inc. (Dec.) YTD	Q3 2022	Q4 2022	Q4 2021	Inc. (Dec.) QoQ	Inc. (Dec.) YoY
Average selling price (/BOE)	53.39	43.49	9.90	53.68	52.76	46.87	(0.92)	5.89
Liquid price (/BOE)	94.89	66.70	28.19	97.94	85.40	76.17	(12.54)	9.23
Gas price (/MMBTU)	6.27	5.69	0.58	6.18	6.70	5.81	0.52	0.89
Average Dubai crude oil price (/BBL)	96.38	69.39	26.99	96.68	84.77	78.27	(11.91)	6.50

Remark: The average sales volume and selling price were excluded deemed income for tax payment by Oman Government

For 2022 Compared with 2021

In 2022, the average sales volume of PTTEP and its subsidiaries (the PTTEP Group) increased to 468,130 barrels of oil equivalent per day (BOED) or 12 percent when compared with 2021 of 416,141 BOED, primarily from the first production of G1/61 Project since the end of April 2022, full-year production of Oman Block 61 Project, as well as Arthit Project due to higher gas nomination from the buyer. Additionally, the average selling price increased by 23 percent to 53.39 USD/BOE in 2022 (2021: 43.49 USD/BOE).

For Q4/2022 Compared with Q3/2022

In Q4/2022, the average sales volume of the PTTEP Group increased to 500,456 BOED or 5 percent when compared with Q3/2022 of 478,323 BOED, primarily from the first crude oil sales of Algeria Hassi Bir Rekaiz Project in October 2022, together with Bongkot Project, Zawtika Project, and Arthit Project due to higher gas sales volume, offset with Oman Block 61 Project due to lower gas sales volume and Malaysia Project from lower crude oil sales volume. However, the average selling price decreased by 2 percent to 52.76 USD/BOE (Q3/2022: 53.68 USD/BOE).

For Q4/2022 Compared with Q4/2021

When comparing the average sales volume for Q4/2022 to Q4/2021 of 420,965 BOED, the average sales volume increased 19 percent, primarily from the first production of G1/61 Project and G2/61 Project since the end of April 2022, together with Arthit Project due to higher gas nomination from the buyer and the first crude oil sales of Algeria Hassi Bir Rekaiz Project in October 2022. In addition, the average selling price increased by 13 percent to 52.76 USD/BOE (Q4/2021: 46.87 USD/BOE).

Overall Operating Results

For 2022 Compared with 2021

In 2022, the PTTEP Group had a net profit of USD 1,999 million, an increase of USD 788 million or 65 percent from a net profit in 2021 of USD 1,211 million, which was primarily from higher revenue from sales. However, there was an increase in impairment loss on assets, and a provision for the Class Action settlement from the Montara incident was recognized in 2022. The net profit for 2022 of USD 1,999 million can be separated as follows.

The profit from normal operation in 2022 was USD 2,647 million, an increase of USD 1,168 million when compared with a profit in 2021 of USD 1,479 million, which was primarily from an increase in revenue from sales of USD 2,539 million from higher average sales volume and average selling price. However, operating expenses increased by USD 249 million primarily from the first production of G1/61 Project and G2/61 Project, together with Malaysia Project due to higher sales volume and more maintenance activities. Depreciation, depletion, and amortization increased by USD 161 million primarily from the first production of G1/61 Project and Malaysia Project which had higher sales volume, offset with Bongkot Project. In addition, petroleum royalties increased by USD 158 million, primarily from higher revenue from sales in Thailand and Malaysia. Income taxes also increased by USD 769 million mainly from projects in Thailand and Oman from higher earnings before tax.

Loss from non-operating items in 2022 was USD 648 million, an increase of USD 380 million when compared with a loss in 2021 of USD 268 million, which was primarily from an increase in administrative expenses since the provision of USD 129 million for the Class Action settlement from the Montara incident was recognized (2021: no recognition). Additionally, impairment loss on assets increased by USD 117 million as the PTTEP Group recognized loss on Mozambique Area 1 Project, together with loss after reclassifying net assets of PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL) and Block 17/06 Project to assets held-for-sale in 2022 (2021: recognized loss on Mozambique Area 1 Project and Yetagun Project). However, other income increased from an adjustment of contingent liabilities of Oman Block 61 Project amounting to USD 71 million (2021: no recognition). Meanwhile in 2021, the PTTEP Group had recognized gain from a bargain purchase of Oman Block 61 Project amounting to USD 342 million, offset with a partial write-off of exploration and evaluation assets of the exploration project in Brazil of USD 145 million while there was no such transaction in 2022.

For Q4/2022 Compared with Q3/2022

In Q4/2022, the PTTEP Group had a net profit of USD 417 million, a decrease of USD 247 million or 37 percent from a net profit in Q3/2022 of USD 664 million. Despite of an increase in revenue from sales, net profit decreased from higher impairment loss on assets, along with the provision for the Class Action settlement from the Montara incident and loss from oil price hedging instruments (Q3/2022: recognized gain). The net profit for Q4/2022 of USD 417 million can be separated as follows.

The profit from normal operations in Q4/2022 was USD 723 million, an increase of USD 17 million when compared with a profit in Q3/2022 of USD 706 million, which was primarily from an increase in revenue from sales of USD 81 million from higher average sales volume while the average selling price decreased. In addition, exploration expenses decreased by USD 34 million primarily from write-off of assets of PTTEP Australasia Project in Q3/2022. However, administrative expenses increased by USD 84 million mainly from consulting fees and IT services. Income taxes increased by USD 44 million mainly from projects in Myanmar and Thailand from higher earnings before tax, along with Malaysia Project due to lower tax benefit on investment when compared with Q3/2022 while projects in Oman had lower income tax from lower earnings before tax.

The loss from non-operating items in Q4/2022 was USD 306 million, an increase of USD 264 million when compared with a loss in Q3/2022 of USD 42 million, which was primarily from an increase in administrative expenses since the provision of USD 129 million for the Class Action settlement from the Montara incident was recognized (Q3/2022: no recognition). In addition, impairment loss on assets increased by USD 110 million as the PTTEP Group recognized loss on Mozambique Area 1 Project and loss after reclassifying net assets of Block 17/06 Project to assets held-for-sale (Q3/2022: recognized loss after reclassifying net assets of PTTEP BL to assets held-for-sale). Net amount of changes in loss on financial instruments and gain on foreign exchange rate was mainly from loss from oil price hedging instruments of USD 2 million (included unrealized loss from mark-to-market of USD 1 million) due to an upward trend of forward oil price, while the PTTEP Group recognized a gain of USD 94 million in Q3/2022 (included unrealized loss from mark-to-market of USD 64 million) from a downward trend of forward oil price. Meanwhile, other income increased from the adjustment of contingent liabilities of Oman Block 61 Project amounting to USD 71 million (Q3/2022: no recognition).

For Q4/2022 Compared with Q4/2021

In Q4/2022, the PTTEP Group had a net profit of USD 417 million, an increase of USD 96 million or 30 percent from a net profit in Q4/2021 of USD 321 million, which was primarily from an increase in revenue from sales. However, there was an increase in impairment loss on assets and the provision for the Class Action settlement from the Montara incident was recognized in Q4/2022. The net profit for Q4/2022 of USD 417 million can be separated as follows.

The profit from normal operations in Q4/2022 was USD 723 million, an increase of USD 210 million when compared with a profit in Q4/2021 of USD 513 million, which was primarily from an increase in revenue from sales of USD 602 million from higher average sales volume and average selling price. However, depreciation, depletion, and amortization increased by USD 230 million primarily from Bongkot Project and the first production of G1/61 Project. Additionally, other income decreased by USD 51 million mainly from an increase in participating interests of Malaysia Block K Project in Q4/2021. Moreover, Operation expenses increased by USD 46 million mainly from the first production of G1/61 Project and G2/61 Project and income taxes increased by USD 50 million mainly from projects in Myanmar and Thailand due to higher profits.

The loss from non-operating items in Q4/2022 was USD 306 million, an increase of USD 114 million when compared with a loss in Q4/2021 of USD 192 million, which was primarily from an increase in administrative expenses since the provision of USD 129 million for the Class Action settlement from the Montara incident was recognized (Q4/2021: no recognition). Additionally, loss on financial instruments increased mainly due to higher loss from foreign exchange forward contracts of USD 84 million, offset with higher gain on foreign exchange rate of USD 40 million according to more appreciation of Baht against USD in this quarter compared to Q4/2021. However, other income increased from the adjustment of contingent

liabilities of Oman Block 61 Project amounting to USD 71 million (Q4/2021: no recognition). Also, impairment loss on assets increased by USD 22 million as the PTTEP Group recognized loss on Mozambique Area 1 Project and loss after reclassifying net assets of Block 17/06 Project to assets held-for-sale in Q4/2022 (Q4/2021: recognized loss from Mozambique Area 1 Project and Yetagun Project).

Operating Results by Segments

Net Profit (Loss) (Unit: MMUSD)	2022	2021	Inc. (Dec.) YTD	Q3 2022	Q4 2022	Q4 2021	Inc. (Dec.) QoQ	% INC (DEC) YoY
Exploration and Production	2,489	1,698	791	610	567	401	(43)	166
Southeast Asia	2,626	1,576	1,050	682	729	546	47	183
- Thailand	1,843	1,220	623	421	524	372	103	152
- Other Southeast Asia	783	356	427	261	205	174	(56)	31
Middle East	292	426	(134)	64	118	37	54	81
Australia	(164)	5	(169)	(31)	(131)	7	(100)	(138)
America	(110)	(175)	65	(96)	(3)	(23)	93	20
Africa	(167)	(147)	(20)	(10)	(148)	(169)	(138)	21
Others	12	13	(1)	1	2	3	1	(1)
Head Office and others	(490)	(487)	(3)	54	(150)	(80)	(204)	(70)
Total	**1,999**	**1,211**	**788**	**664**	**417**	**321**	**(247)**	**96**

For 2022 Compared with 2021

For 2022, the PTTEP Group reported a net profit of USD 1,999 million, an increase of USD 788 million when compared with a net profit of USD 1,211 million in 2021, which was primarily from an increase in Exploration and Production segment in Southeast Asia (Thailand increased by USD 623 million and Other Southeast Asia increased by USD 427 million), while there was a decrease in Australia of USD 169 million and Middle East of USD 134 million.

1) Exploration and Production Segment

1.1) Southeast Asia

- Thailand

In 2022, Thailand reported a net profit of USD 1,843 million, an increase of USD 623 million when compared with a net profit of USD 1,220 million in 2021, which was primarily from an increase in revenue from sales due to higher sales volume which included the first production of G1/61 Project since the end of April 2022, as well as higher average selling price. Meanwhile, income tax increased according to higher profit and operating expenses increased in line with higher sales volume.

- **Other Southeast Asia**

In 2022, Other Southeast Asia reported a net profit of USD 783 million, an increase of USD 427 million when compared with a net profit of USD 356 million in 2021, which was primarily from an increase in revenue from sales due to higher average selling price, together with a decrease in exploration expenses from exploration wells write-off last year while there was no such transaction in 2022.

1.2) Australia

In 2022, Australia reported a net loss of USD 164 million, a change of USD 169 million when compared with a net profit of USD 5 million in 2021, which was primarily from an increase in administrative expenses from the recognition of a provision for the Class Action settlement from the Montara incident, together with the write-off assets of PTTEP Australasia Project from permit relinquishment.

1.3) Middle East

In 2022, Middle East reported a net profit of USD 292 million, a decrease of USD 134 million when compared with a net profit of USD 426 million in 2021. Despite an increase in revenue from sales due to higher average selling price and higher sales volume from Oman Block 61 Project, there was a decrease in net profit from the recognition of gain from a bargain purchase of Oman Block 61 Project in 2021.

For the Q4/2022 Compared with Q3/2022

For Q4/2022, the PTTEP Group reported a net profit of USD 417 million, a decrease of USD 247 million when compared with a net profit of USD 664 million in Q3/2022, which was primarily from a decrease in Head Office and Others segment of USD 204 million and a decrease in Exploration and Production segment in Africa of USD 138 million while there was an increase in Southeast Asia (Thailand increased by USD 103 million).

1) Head Office and Others Segment

In Q4/2022, Head Office and Others segment reported a net loss of USD 150 million, a decrease of USD 204 million when compared with a net profit of USD 54 million in Q3/2022, which was primarily from an increase in loss on financial instruments mainly from oil price hedging instruments due to an upward trend of forward oil price, while in Q3/2022 recognized gain due to a downward trend of forward oil price, together with an increase in loss on foreign exchange forward contracts from an appreciation of Baht against USD in this quarter while it was depreciation in Q3/2022.

2) Exploration and Production Segment

2.1) Africa

In Q4/2022, Africa reported a net loss of USD 148 million, an increase of USD 138 million when compared with a net loss of USD 10 million in Q3/2022, which was primarily from the impairment loss on assets of Mozambique Area 1 Project, together with the recognition of loss after reclassifying net assets of Block 17/06 Project to assets held-for-sale.

2.2) Southeast Asia

- Thailand

In Q4/2022, Thailand reported a net profit of USD 524 million, an increase of USD 103 million when compared with a net profit of USD 421 million in Q3/2022, which was primarily from an increase in revenue from sales due to higher sales volume while income taxes increased in line with higher profit.

For the Q4/2022 Compared with Q4/2021

For Q4/2022, the PTTEP Group reported a net profit of USD 417 million, an increase of USD 96 million when compared with a net profit of USD 321 million in Q4/2021, which was primarily from an increase in Exploration and Production segment in Southeast Asia (Thailand increased by USD 152 million) and Middle East of USD 81 million, offset with a decrease in Australia of USD 138 million.

1) Exploration and Production Segment

1.1) Southeast Asia

- Thailand

In Q4/2022, Thailand reported a net profit of USD 524 million, an increase of USD 152 million when compared with a net profit of USD 372 million in Q4/2021, which was primarily from an increase in revenue from sales due to higher sales volume which included the first production of G1/61 Project since the end of April 2022, as well as higher average selling price while income tax increased in line with higher profit.

1.2) Middle East

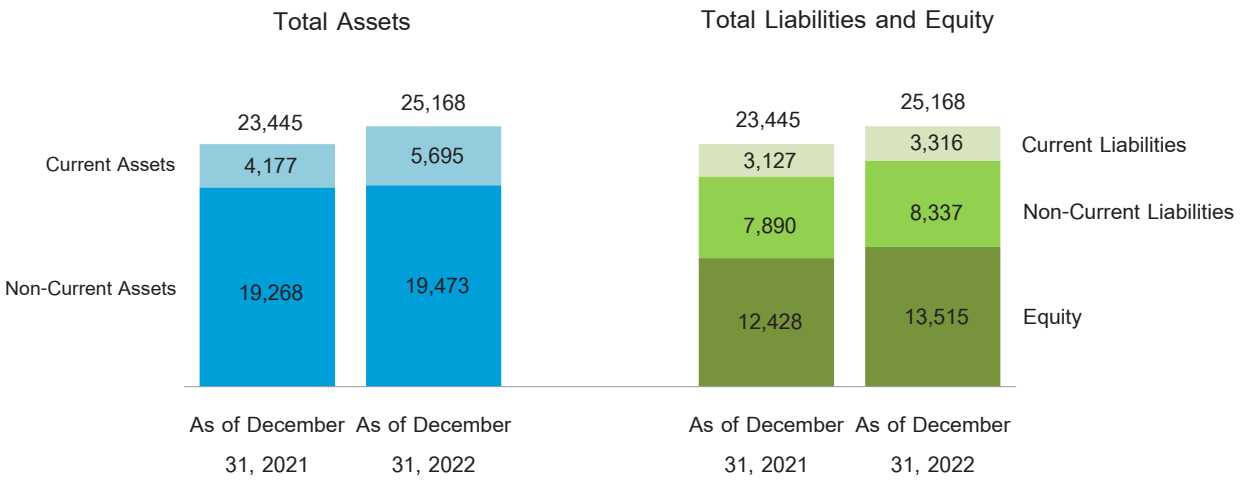
In Q4/2022, Middle East reported a net profit of USD 118 million, an increase of USD 81 million when compared with a net profit of USD 37 million in Q4/2021, which was primarily from other income increased from the adjustment of contingent liabilities of Oman Block 61 Project. Meanwhile, there was no such transaction in 2021.

1.3) Australia

In Q4/2022, Australia reported a net loss of USD 131 million, a change of USD 138 million when compared with a net profit of USD 7 million in Q4/2021, which was primarily from an increase in administration expenses from the provision for the Class Action settlement from the Montara incident.

Financial Position

Unit: Million US Dollar



1) Assets

As at December 31, 2022, the PTTEP Group had total assets of USD 25,168 million, an increase of USD 1,723 million from total assets as of December 31, 2021 of USD 23,445 million was primarily due to;

1.1) Current assets, which were primarily comprised of cash and cash equivalents, trade and other receivables and inventories, increased by USD 1,518 million mainly from higher cash and cash equivalents of USD 980 million, as well as higher trade and other receivables of USD 220 million. In addition, other current assets increased by USD 180 million, primarily from prepayment upon Asset Transfer Agreement of Bongkot Project.

1.2) Non-current assets, which were primarily comprised of exploration and production assets in joint venture projects being recognized as part of the property, plant and equipment, exploration and evaluation assets, goodwill, right-of-use assets, and deferred tax assets, increased by USD 205 million mainly due to higher property, plant, and equipment, together with higher right-of-use assets of USD 501 million and USD 455 million, respectively which were mainly from G1/61 Project and G2/61 Project. However, deferred tax assets decreased by USD 389 million from Bongkot Project and Oman Block 61 Project. Goodwill also decreased by USD 192 million from recognizing impairment loss on Mozambique Area 1 Project and Block 17/06 Project. In addition, investments in associates decreased by USD 106 million mainly from selling shares of PTT Global LNG Company Limited.

2) Liabilities

As of December 31, 2022, the PTTEP Group had total liabilities of USD 11,653 million, an increase of USD 636 million from total liabilities as of December 31, 2021 of USD 11,017 million was primarily due to;

2.1) Current liabilities, which were primarily comprised of trade and other payables, income tax payable, and short-term provisions, increased by USD 189 million mainly due to higher trade and other payables of USD 435 million primarily from G1/61 Project and G2/61 Project. Short-term provisions increased by USD 107 million mainly from the provision

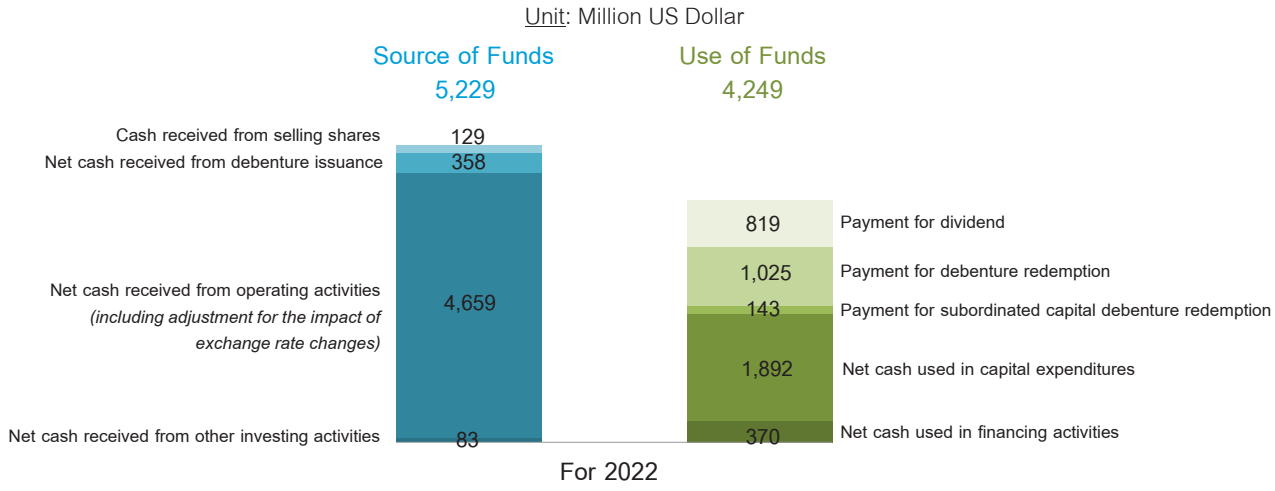
for the Class Action settlement from the Montara incident, offset with a decrease in current portion of long-term liabilities from the redemption of senior guaranteed debentures of THB 15,000 million (equivalent to USD 449 million) in June 2022.

2.2) Non-current liabilities, which were primarily comprised of debentures, provision for decommissioning costs, and deferred tax liabilities, increased by USD 447 million mainly due to higher provision for decommissioning costs of USD 341 million, together with higher debentures from the issuance of senior guaranteed debentures of THB 12,000 million (equivalent to USD 359 million) in April 2022. In addition, lease liabilities increased by USD 332 million mainly from G1/61 Project and G2/61 Project, offset with a decrease in long-term loans from early repayment of unsecured and unsubordinated loan of USD 600 million from PTTEP Treasury Center Company Limited in October 2022.

3) Equity

As of December 31, 2022, the PTTEP Group had equity of USD 13,515 million, an increase of USD 1,087 million from equity as of December 31, 2021 of USD 12,428 million, primarily due to the net profit for the year, offset with the dividend payments in April and August 2022, and the redemption of subordinated capital debentures of THB 5,000 million (equivalent to USD 157 million) in June 2022.

Cash Flows



As of December 31, 2022, the Group had cash and cash equivalents of USD 3,539 million, an increase of USD 980 million when compared with December 31, 2021 of USD 2,559 million.

Source of funds amount to USD 5,229 million primarily came from **Net cash received from operating activities** as a result of the positive net cash flow from revenue from sales, offset with cash payments for expenses and income taxes, **Net cash received from financing activities** from the issuance of senior guaranteed debentures of THB 12,000 million (equivalent to USD 358 million) and **Net cash received from investing activities** from selling shares of PTT Global LNG Company Limited.

Uses of funds amount to USD 4,249 million primarily from the **Net cash used for additional capital expenditures** in exploration and production assets mainly from G1/61 Project, G2/61 Project, Zawtika Project, Bongkot Project, and S1 Project, as well as **Net cash used in financing activities** primarily from the early repayment of unsecured and unsubordinated loan of USD 600 million from PTTEP Treasury Center Company Limited, together with the redemption of senior guaranteed debentures of THB 15,000 million (equivalent to USD 425 million) and subordinated capital debentures of THB 5,000 million (equivalent to USD 143 million). In addition, there were dividend payments for the second half of 2021 period and the first half of 2022 period.

Key Financial Ratios

	2022	2021	Q3 2022	Q4 2022	Q4 2021
Profitability Ratios (%)					
EBITDA* margin	75.39	73.21	75.61	73.48	70.27
Return on equity	15.41	9.99	15.14	15.41	9.99
Net profit margin	20.69	16.55	20.78	20.69	16.55
Leverage Ratios (Times)					
Debt to equity	0.28	0.33	0.33	0.28	0.33
Debt to EBITDA*	0.56	0.80	0.62	0.56	0.80

* EBITDA excluded gain from a bargain purchase of Oman Block 61 Project, asset write-offs in Brazil, a provision for the Class Action settlement from the Montara incident and impairment loss on assets and goodwill which were recognized during the period.

Remarks:

EBITDA margin	=	Profit before deduction of interest, tax, and depreciation to revenue from sales (included deemed income for tax payment by Oman government) and revenue from pipeline transportation
Return on equity	=	Net profit for the past 12 months to average equity
Net profit margin	=	Net profit to total revenue (for the past 12 months)
Debt to equity	=	Interest Bearing Debt to equity
Debt to EBITDA	=	Average Interest-Bearing Debt to profit before deduction of interest, tax, and depreciation for the past 12 months

4.2 Factors That May Impact Future Operations

Operational Highlights

1) Drive Value

At the end of 2022, PTTEP Group has over 50 projects with domestic and international operations in 15 countries. The following are key project highlights. The key project highlights are disclosed in the “Structure and Business Operations” section, “Products and Services” topic, “Principal Projects in Operation” subtopic.

2) Decarbonize

For our decarbonization efforts, we have made progress as follows:

- PTTEP achieved GHG emissions reduction in accumulation from January to December 2022 by 166,352 tons of CO_2 equivalent. PTTEP has also initiated Thailand’s first Carbon Capture and Storage (CCS) project at the Arthit offshore gas field with expectation to reduce carbon dioxide emissions by approximately 700,000-1,000,000 tons per annum and expects to commence the CCS operations by 2026. Additionally, the Company has initiated CCS feasibility studies in other operational areas to support the EP Net Zero 2050 target.

- PTTEP foresees an opportunity to support greenhouse gas offsetting to absorb carbon dioxide from the atmosphere under blue carbon initiatives, such as mangrove reforestation. PTTEP aims for 45,000 rais mangrove reforestation by 2030. In 2022, PTTEP obtained an approval of mangrove areas totaling 4,007.15 rais from the Department of Marine and Coastal Resources (DMCR). In December 2022, PTTEP, Mae Fah Luang Foundation under Royal Patronage, and AI and Robotics Ventures Company Limited (ARV), a subsidiary of PTTEP, jointly signed a Memorandum of Understanding (MOU) to collaborate on preserving and restoring natural resources to increase forest density and increase carbon dioxide absorption rate of community forests. Under the MOU, the involved parties will support community engagement in preserving and restoring forest areas, while using satellite imaging and unmanned aerial vehicles (Drone) technology to process and analyze data through machine learning to collect data for forestation carbon credit assessment.

3) Diversify

3.1) **AI and Robotics Ventures Company Limited (ARV)** is a Ventures Builder with two key groups of operations: (1) ARV-Core is the headquarter engaging in research and development, and provision of solutions using AI and Robotics technologies, as well as ventures ideation, incubation, development, and commercialization; and (2) Start-ups which ARV has spun-off into separate legal entities focused on further commercialization and development of their respective deep-tech domains. Key business highlights during 2022 are as follows:

- AI and Robotics Ventures (ARV)
  - In 2022, ARV was the winner of “The National Innovation Awards” in the private-sector, medium-sized companies, awarded by Thailand’s National Innovation Agency (NIA).
  - ARV, PTT Public Company Limited, and Aeronautical Radio of Thailand LTD. (AEROTHAI) signed a MOU on July 27, 2022, to develop and test data connectivity between ARV’s UAS (unmanned aircraft systems) flight-operations and fleet-management systems and AEROTHAI’s UAS traffic management system (UTM). Wangchan Valley was designated as the pilot area for development and testing. The parties expect to deploy the technology to other domestic and international locations. These developments are intended to support Thailand’s New S-Curve initiatives and bring sustainable improvements to Thailand’s economy.
  - ARV is pioneering the development of the next-generation aerial and ground-based automated robotic systems which are being deployed to support critical operations of oil and gas projects including asset integrity inspection, security surveillance operations, and cargo delivery. These automated robotic technologies are also targeted to support a broader client in different industries and verticals.
- ARV’s Start-ups

  Rovula: Specializing in intelligent underwater inspection, maintenance, and repair
  - Rovula was certified under the ISO 9001:2015 Quality Management System standards on November 21, 2022, to demonstrate its dedication to its stakeholders to provide and maintain quality management system which meets international standards, promotes business operation process efficiency and ensures customer satisfaction.

- ZeaQuest, a 50:50 joint venture between Rovula and Mermaid Subsea Services Limited (Thailand), has generated continuous year-on-year growth from 2021 reaching double-digit revenues in 2022. During the past year, ZeaQuest secured and delivered subsea pipeline maintenance and exploration projects in the Gulf of Thailand and the Gulf of Moattama.

- Rovula has successfully developed and tested the XPLORER version 1.5 Autonomous Underwater Vehicle (AUV), an untethered intelligent underwater inspection robot. The start-up also completed a technology readiness level-7 test of its intelligent horizontal subsea pipeline maintenance robot named Nautilus, which is now ready for commercial operations. In addition, XPLORER Version 1.5 has completed a challenging proof-of-concept (POC) exercise with the Electricity Generating Authority of Thailand (EGAT) under the EGAT Floating Solar Farm project on May 8-14, 2022, to explore locations inaccessible by human-divers and boats. The successful POC is a testament to Rovula and ARV's ability to bring in new and advanced technologies to increase capabilities and overcome complex obstacles to support the efficient operation of business partners.

- The Nautilus technology, which is the world's first operational subsea flow line control and repair robot for horizontal pipelines is ready for commercial services and was awarded "The Spotlight on New Technology" award from OTC Asia 2022 in Kuala Lumpur, Malaysia. Additionally, Rovula and its European partner Kongsberg Ferrotech will joint venture in a company called S2 Robotics Company Limited to further develop and commercialize the Nautilus technology.

Skyller: Specializing in the inspection of critical infrastructures through robotics and artificial intelligence

- Skyller and Nam Thuan Energy Investment Joint Stock Company, a subsidiary of Super Energy Corporation Public Co., Ltd., jointly signed a MOU for the "Eyes from the Sky" project on June 2, 2022, to cooperate on technology, deployment of intelligent drone solutions, and giving Vietnam's renewable sector a new technological a new dimension.

- In April 2022, Skyller signed a long-term agreement with HMC Polymers Ltd. worth more than THB 20 million, for the inspection of flares and confined spaces (silo) for plastic pellets, using UAV technology and digital platforms, including the creation and development of Digital Twin technology, which is used to control industrial operating systems.

- In May 2022, Skyller signed a MOU with thyssenkrupp Uhde, a leading German industrial solution firm, to expand both firms' market, expertise, and technologies and effectively promote the engineering and industrial markets in Thailand, Germany, and Southeast Asia.

- In 2022, Skyller continued its development of digital and artificial intelligence platforms for infrastructure inspection in the energy exploration and production industry. The platform enhances data management by implementing AI technology to improve the efficiency of analyzing defects such as cracks, rust, and corrosion on structures and equipment, and to generate reports for users allowing clients, asset owners, and operators to visualize and prepare maintenance plan.

Varuna: Focusing on Smart Agriculture, Forestry, and Nature-based Carbontech

- Varuna is committed to developing technologies for the agricultural and forestry industries that promote efficiency, sustainability, and environmental protection. Varuna offers a wide range of technologies and services, such as agricultural drones, digital and geospatial farm management systems, comprehensive mobile applications for the agricultural sector with features related to cultivation, land monitoring, plantation suitability analysis, weather forecasting, and carbon credit projects. In addition, Varuna's products and solutions are also capable of analyzing forest fertility and carbon sequestration using remote sensing technologies.

- In 2022, Varuna 's joint venture company, ATi Technologies Co., Ltd., generated increasing sales of agricultural drones, helping promote Varuna's ecosystem of digital products and solutions, and making valuable technologies more accessible to farmers. In addition, Varuna has partnered with a start-up company Gaorai Co., Ltd. to provide agricultural spraying services using the Company's agricultural drones as well.

- Varuna continues to cooperate with PTT Public Company Limited in the research and development of carbon stock assessment technologies for the forestry sector, with a plan to collect data and create an artificial intelligence model for all forest-types planted and monitored by PTT Group. Varuna aims to collect 1 million tons of carbon credits by 2030.

- Varuna also cooperates with PTT Public Company Limited and more than 30 other partners, to employ DeepTech for restoration initiatives in the green area at Khung Bang Krachao under "OUR Khung BangKachao" Project. Varuna's analysis platform "Varuna Analytics" ingests collected data in the area from survey drones and satellites and applies proprietary artificial intelligence (AI) models to analyze and monitor 6,000 rais of green space. The project aims to be a model for "Social Collaboration with Collective Impact" to restore the environment sustainably within 5 years.

Cariva: Dedicating to personalized digital health solutions leveraging data, networks, and DeepTech

- In 2022, Cariva launched 3 mobile applications, namely ARVIC (a personal health data platform, which includes health risk assessment and health monitoring), NextCercise (a health promotion platform that incentivizes people to engage in physical activities), BEAUT (a platform for beauty and wellness).

- Cariva, together with BJC Healthcare established a 50:50 joint venture called B-Med X on April 21, 2022, to co-develop a healthcare platform to make it easier for Thai people to get medical services. B-Med X's services include a platform for promoting health education, which also helps assess/diagnose users' initial symptoms (Basic Screening technologies) in a manner which corresponds to modern lifestyles wherein users prefer to self-assess and select treatments according to their own needs.

- Cariva signed a MOU with Dhipaya Insurance on September 6, 2022, to jointly develop a health data-platform with features such as AI Symptom Checker, Telemedicine, as well as insurance premium calculation. Furthermore, the parties agreed to collaborate to test health kiosk solutions, home-care solutions, and metaverse technologies for mental health insurance. The objective is to provide customers with an end-to-end digital solution connecting health insurance products to a healthy lifestyle.
- Cariva also signed a MOU with Thammasat University Hospital on August 26, 2022, to provide Cariva's digital health screening tools and digital data collection solution for the Area 4 Health region which covers 8 provinces, namely Saraburi, Nonthaburi, Lop Buri, Ang Thong, Nakhon Nayok, Sing Buri, Phra Nakhon Si Ayutthaya, and Pathum Thani.

Bedrock: Specializing in Location Intelligence

- Bedrock has collected, processed, and analyzed data, such as city infrastructure data, demographic data, street data, building data, etc. Bedrock develops various Location Intelligence products and solutions for consultancy projects.
- Bedrock has completed the development of its City Digital Data Platform (CDDP), a digital tool that enables intelligent spatial data analysis which is used for commercial purposes, such as the signboard tax collection, land and building tax management, construction-permit and property management systems, etc. In 2022, the CDDP platform has been deployed in more than 130 locations and is expected to expand to more than 5,000 areas by 2025.
- Bedrock has formed alliances and signed MOUs with more than 10 agencies, such as the Municipal League of Thailand, Digital Economy Promotion Agency (DEPA), Promotion of Local Administration Foundation, Chiang Mai University, Khon Kaen University, Khon Kaen City Development Co., Ltd. etc. These alliances will significantly accelerate the development and dissemination of CDDP and lead to integration of city data analytics into the forecasting, planning, monitoring, and problem solving of the cities, and enable efficient expansion of urban development surrounding municipalities.

BIND: Focusing on bringing Digital Identity for Corporations and juristic entities

- BIND has successfully developed and deployed its National Digital Corporate Identity (NCID) solution, which leverages innovations in Digital-ID and e-documents to allow juristic persons and organizations to fully achieve complete end-to-end Digital Transformation process. BIND has developed propriety to combine e-KYC, e-Signature, and e-POA (electronic power of attorney) into a seamless, scalable, and efficient user-journey by applying Web 3.0 principles of Self-Sovereign Identity (SSI), Blockchain, and Cryptography. One of NCID's main functions is to facilitate enterprises and commercial banks to perform Know Your Customer (KYC) processes and transactions involving large volumes of signed documents through a fully digital process which helps businesses to be more efficient and faster without losing business opportunities.

- BIND signed a MOU with several commercial banks, including Krung Thai Bank, Siam Commercial Bank, Bank of America Corporation, Standard Chartered Bank, Overseas-Chinese Banking Corporation, and other commercial banks to test NCID system in its SaaS (software-as-a-service) model, wherein Krung Thai Bank has piloted and conducted numerous real banking transactions with the PTT Group through the NCID system, which is operating under the Digital Service Sandbox, under the supervision of the Electronic Transactions Development Agency (ETDA).

3.2) Other Updates on Beyond E&P Businesses

- Gas to Power Project

An exclusive right to develop the integrated Domestic Gas to Power Project has been received from Myanmar Government since the end of 2020. The project is currently in the preparation process.

- Green e-methanol Project

PTTEP and 5 leading multinational companies have signed a MOU on a Green Methanol Value Chain Collaboration which will explore the feasibility of establishing a green e-ethanol pilot plant. Green e-methanol is being considered as one of the candidates for alternate fuel to meet International Maritime Organization or IMO 2030/2050 goals, which can significantly reduce greenhouse gas emissions.

- Carbon Capture and Storage (CCS) Project
  - PTTEP and PTT Group companies have signed a MOU to conduct a feasibility study on the application of Carbon Capture and Storage (CCS) as a prototype technology towards carbon neutrality and Net Zero Greenhouse Gas Emissions under the concept of CCS Hub Model.
  - PTTEP, INPEX Corporation (INPEX), and JGC Holdings Corporation (JGC), Japanese alliances, have initiated a collaboration to explore the potential development of a CCS project in Thailand that will help reduce greenhouse gas emissions and accelerate the decarbonization of Thai industries and the country as a whole.

Business Outlook

1) Energy Outlook

The breakout of the Russia-Ukraine war leads to the global energy crisis. The price of energy, including electricity, has reached a historic high, resulting in inflation. In the short term, it is expected that global economy will slow down, if not a full recession. Consequently, global demand for all forms of energy is expected to stall. After that, global energy demand is expected to recover in a medium term but risk of supply shortage from less reliance on Russia and high electrification costs still exists. Besides, net zero commitment will be a predominant policy objective and goal as many countries are accelerating their investment in new energy.

For the Southeast Asia (SEA) region, the fast rate of economic growth put strong pressure on increasing energy demand. The increase in energy supply will have to meet net zero commitments of multiple countries such as Thailand, Malaysia, Singapore, Vietnam, and Indonesia. Replacing coal with natural gas is the primary step of regional energy security and decarbonization. Based on Wood Mackenzie, the SEA demand of natural gas is expected to increase from around 13 billion standard cubic feet per day (BSCFD) in 2022 to around 17 BSCFD and 25 BSCFD in 2035 and 2050, respectively.

This is a great challenge as SEA pipeline gas supply is expected to decrease from around 10 BSCFD in 2022 to around 8 BSCFD and 2 BSCFD in 2035 and 2050, respectively. Imported LNG from both regional and distant supplies will, therefore, play a crucial role in stabilizing SEA energy supply.

2) Oil Price Outlook

According to global high inflation, many central banks are still planning to increase the interest rate, for example, US Fed has signaled potential rates for 2023 between 4.75 percent and 5.75 percent looming the economic recession concerns. This will subsequently hinder economic growth as well as oil consumption in some regions. However, China has shown some easing of zero-COVID measures and hopes that China reopening in 2023 is within reach. Subject to the above key factors, 2023 Global oil demand growth is projected to be around 1.7 to 2.3 MMBPD.

Following EU oil embargo and price cap on Russian crude export since December 5, 2022, Russian crude production is expected to be slightly reduced from an average of 10.6 to 9.6 MMBPD in 2023. However, Russia's retaliations are being prepared and could risk cutting crude export in response. Meanwhile, U.S. production is expected to grow by 1 MMBPD in 2023 based on structural strength of activities in the Permian basin while OPEC+ will continue to maintain their production cut around 1-2 MMBPD to stabilize the market and support high oil price level. Therefore, global oil supply growth in 2023 could be seen between 1.4 to 1.8 MMBPD.

In conclusion, PTTEP expects that the oil market balance will continue to be tight in 2023 while economic concerns are playing a big part, leading Dubai price forecast around 75-90 USD/barrel in 2023. However, many uncertainties exist such as China's COVID-19 policy, economic conditions, Russia-Ukraine war situation, and further strategic petroleum reserves plan.

3) LNG Market Outlook

The oversupply situation of Global LNG market is expected to prolong throughout 2023, with total production capacity of existing and upcoming LNG projects growing by 12 MTPA from 2022 to 433 MTPA (approximately 3 percent growth), with additional supply coming mainly from Indonesia, the United States, and Russia, while demand for LNG is expected to be around 415 MTPA (Source: FGE as of January 2023). LNG demand tends to increase as a result of LNG market liberalization in several Asian countries. Moreover, a decline in domestic gas production in many countries would cause more demand for LNG import. In addition, rising interest rates by central banks to control inflation will directly impact world economic growth| and energy demand. Factors to watch for in the near term include China's pace of recovery as it lifts its restrictive COVID-19 measures and the impact of sanctions on Russian LNG supply to Asia. The average 2023 Asian Spot LNG price is expected to be around 28-33 USD/MMBTU (Source: Platts as of November 2022 and FGE as of January 2023).

4) Environmental, Social, and Governance (ESG)

PTTEP operates its business as guided by the Sustainability Statement and Framework and put importance of ESG aspects covering on Environment, Social, and Governance to cope with challenging issues, including energy transition, and to achieve Net Zero greenhouse gas emissions in 2050. PTTEP also supports the United Nations Sustainable Development Goals (UN SDGs), which focus on SDGs 7, 8, 12, 13, 14, and 16, and align with our material sustainability issues. The Sustainability Framework focuses on striking a balance between High Performance Organization (HPO), Governance, Risk Management, and Compliance (GRC), and Sustainable Value Creation (SVC).

PTTEP has reviewed and assessed key material issues on sustainability covering Environmental, Social, and Governance (ESG) as well as business in both PTTEP's and stakeholders' perspectives (Internal and External), which consists of 12 materiality issues in 2022, including (1) Energy Transition towards Net Zero (2) Technology and Innovations (3) Governance, Risk Management, and Compliance (4) Safety, Security, Health, and Environment (5) Contribution to Communities and Society (6) Human Resource Preparation (7) Circular Economy (8) Biodiversity Impact Management (9) Supply Chain Management (10) Cybersecurity (11) Human Rights, and (12) Stakeholder Management. PTTEP has developed a sustainability strategy to address these issues under PTTEP's Sustainability framework. Details are disclosed in the "Strategies" and "Business Management and Company Activity" topics.

5) Thai Economy and Foreign Exchange Outlook

The Bank of Thailand expects the economy to expand at 3.7 percent in 2023, supported by Thailand's tourism recovery and private consumption. However, slower-than-expected global growth, especially in China, is a downside risk to Thailand's growth. In terms of monetary policy, the Bank of Thailand sees gradual monetary policy normalization as suitable to ensure stable economic growth in the long run.

In 2023, the Thai Baht is expected to appreciate due to tourism recovery, particularly from China's reopening. The Baht will also find support from US Federal Reserve's monetary policy which saw a slowdown in rate hikes in late 2022 due to declining US inflation. However, the Baht is expected to experience a degree of volatility due to uncertainty factors such as the Russia-Ukraine war and the potential of slower-than-expected global growth.

PTTEP has adopted the natural hedge method to manage FX risks of revenues from petroleum products and major expenses which are in the same currency. Remaining FX risk exposures from non-USD revenues and expenses are managed by utilizing financial hedging instruments such as forwards and swaps. Moreover, interest rate volatility does not materially impact the Company's financial performance as the entirety of interest-bearing debt is a fixed rate.

6) PTTEP's Performance Outlook for the Year 2023

PTTEP's performance depends on 3 major factors including Sales volumes, Gas price, and Unit cost with guidance as follows.

Sales Volume (Thousand BOED)		Gas Price (USD/MMBTU)		Unit Cost (USD/BOE)	EBITDA Margin (% of sales revenue)
Q1 2023	FY2023	Q1 2023	FY2023	Q1 2023 and FY2023	Q1 2023 and FY2023
~472	~470	~6.7	~6.1	~27-28	~70-75%

Note: 1. The sales volume includes the sales volume from ADNOC Gas Processing (AGP).

2. The assumption is based on average Dubai price in 2023 of 88 USD/Barrel.

3. Including increased sales volume from G1/61 sole investment

4. EBITDA margin: A percentage of Earnings before interest, taxes, depreciation, and amortization to the Sales Revenues and Revenue from pipeline transportation

Sales Volume:

PTTEP expects the average sales volume for Q1/2023 and full year 2023 to be approximately 472,000 and 470,000 BOED, respectively. Sales volume will increase slightly in 2023, compared to the previous year, on the back of the production ramp up of G1/61 Project according to workplan.

Sales Price:

- PTTEP's liquid prices will fluctuate according to global crude prices.
- PTTEP's gas price formulas are partially linked to oil prices with reference to average historical prices ranging from the past 6 to 24 months. The average gas price for Q1/2023 and full year 2023 is estimated at approximately 6.7 and 6.1 USD/MMBTU, respectively, lower than the previous year, reflecting lower Dubai price assumption and more sales volume contribution from G1/61 Project and G2/61 Project under Petroleum Sharing Contracts, which the gas price will be lower, compared to the concession regime.
- The Company has entered into oil price hedging contracts, where the outstanding volume as at the end of 2022 was 3.3 million barrels. The Company has consistently monitored crude oil price movements and has the flexibility to adjust its hedging plan as appropriate.

Unit Cost:

For Q1/2023 and full year 2023, PTTEP expects to be able to maintain unit cost in the range of 27-28 USD/BOE, lower than the reported unit cost of 2022, mainly from lower royalty expense per unit following a decline in average selling price, as well as a drop in depreciation expense per unit.

4.3 Significant Financial Information

The financial statements of PTT Exploration and Production Public Company Limited and subsidiaries have been prepared in accordance with Thai Financial Reporting Standards (TFRS) as well as the financial reporting requirements of the Securities and Exchange Commission under the Securities and Exchange Act. For more details, please see in Part 3 Financial Report.

Statement of Financial Position

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENT OF FINANCIAL POSITION

	As at December 31, 2020 *		As at December 31, 2021		As at December 31, 2022	
	Thousand (USD)	%	Thousand (USD)	%	Thousand (USD)	%
Assets						
Current assets						
Cash and cash equivalents	3,704,003	16.5	2,559,189	10.9	3,539,220	14.1
Short-term investments	100,000	0.4	-	-	-	-
Trade and other receivables	790,763	3.5	1,000,303	4.3	1,219,995	4.8
Short-term loans to a related party	-	-	-	-	1,317	0.0
Inventories	338,105	1.6	420,969	1.8	553,046	2.2
Current tax assets	56,168	0.2	59,366	0.2	53,878	0.2
Derivative assets	4,362	0.0	16,427	0.1	16,254	0.1
Other current financial assets	-	-	-	-	667	0.0
Other current assets	90,847	0.4	120,414	0.5	300,171	1.2
Assets held-for-sale	-	-	-	-	10,730	0.0
Total current assets	**5,084,248**	**22.6**	**4,176,668**	**17.8**	**5,695,278**	**22.6**
Non-current assets						
Investments in associates	216,866	1.0	220,880	1.0	115,345	0.5
Investments in joint ventures	233,344	1.0	210,235	0.9	162,230	0.6
Long-term loans to related parties	74,945	0.3	41,500	0.2	434	0.0
Property, plant and equipment	9,837,537	43.7	11,379,664	48.5	11,880,375	47.2
Right-of-use assets	482,778	2.1	519,711	2.2	974,706	3.9
Goodwill	1,903,803	8.5	1,740,803	7.4	1,548,622	6.1
Intangible assets	130,453	0.6	135,719	0.6	132,703	0.5
Exploration and evaluation assets	2,886,220	12.8	3,121,294	13.3	3,071,577	12.2
Deferred tax assets	1,098,682	5.0	1,317,826	5.6	929,484	3.7
Rights to receive reimbursement from decommissioning funds	265,789	1.2	290,546	1.2	317,176	1.3
Derivative assets	49,051	0.2	825	0.0	26,521	0.1
Other non-current financial assets	49,636	0.0	109,824	0.5	139,655	0.6
Other non-current assets	180,094	1.0	179,692	0.8	173,848	0.7
Total non-current assets	**17,409,198**	**77.4**	**19,268,519**	**82.2**	**19,472,676**	**77.4**
Total assets	**22,493,446**	**100.0**	**23,445,187**	**100.0**	**25,167,954**	**100.0**

* Reclassified to be comparable with 2021 financial statements.

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENT OF FINANCIAL POSITION (cont'd)

	As at December 31, 2020 *		As at December 31, 2021		As at December 31, 2022	
	Thousand (USD)	%	Thousand (USD)	%	Thousand (USD)	%
Liabilities and equity						
Current liabilities						
Trade and other payables	893,694	4.0	1,096,946	4.7	1,531,737	6.1
Current portion of long-term liabilities	135,475	0.6	633,346	2.7	303,193	1.2
Income tax payable	504,785	2.2	782,837	3.3	800,166	3.2
Short-term provisions	150,218	0.7	381,144	1.6	488,591	1.9
Derivative liabilities	29,675	0.1	49,209	0.2	53,027	0.2
Other current liabilities	159,074	0.7	183,466	0.8	137,787	0.6
Liabilities held-for-sale	-	-	-	-	1,704	0.0
Total current liabilities	**1,872,921**	**8.3**	**3,126,948**	**13.3**	**3,316,205**	**13.2**
Non-current liabilities						
Debentures	2,830,375	12.6	2,475,802	10.6	2,809,260	11.2
Long-term loans	594,659	2.6	596,057	2.5	-	-
Lease liabilities	371,552	1.6	388,510	1.7	720,569	2.9
Deferred tax liabilities	1,445,792	6.4	1,504,258	6.4	1,575,376	6.2
Provision for employee benefits	265,511	1.2	205,381	0.9	190,800	0.7
Provision for decommissioning costs	3,140,385	14.0	2,458,593	10.5	2,799,503	11.1
Provision for remuneration for production bonus and the renewal of petroleum production	103,243	0.5	120,727	0.5	193,533	0.8
Derivative liabilities	674	0.0	8,413	0.0	-	-
Other non-current liabilities	69,216	0.3	132,279	0.6	47,417	0.2
Total non-current liabilities	**8,821,407**	**39.2**	**7,890,020**	**33.7**	**8,336,458**	**33.1**
Total liabilities	**10,694,328**	**47.5**	**11,016,968**	**47.0**	**11,652,663**	**46.3**
Equity						
Share capital						
Issued and paid-up share capital	150,684	0.7	150,684	0.6	150,684	0.6
Share premium	3,439,037	15.3	3,439,037	14.7	3,439,037	13.7
Subordinated capital debentures	156,570	0.7	156,570	0.7	-	-
Retained earnings						
Appropriated						
Legal reserve	15,048	0.1	15,048	0.1	15,048	0.0
Reserve for expansion	431,231	1.9	431,231	1.8	431,231	1.7
Unappropriated	7,672,902	34.1	8,306,161	35.4	9,481,343	37.7
Other components of equity	(66,354)	(0.3)	(70,512)	(0.3)	(2,052)	(0.0)
Total equity	**11,799,118**	**52.5**	**12,428,219**	**53.0**	**13,515,291**	**53.7**
Total liabilities and equity	**22,493,446**	**100.0**	**23,445,187**	**100.0**	**25,167,954**	**100.0**
Book value per share (USD)	2.97		3.13		3.40	
Issued and fully paid-up capital at the end of year (thousand share)	3,969,985		3,969,985		3,969,985	

* Reclassified to be comparable with 2021 financial statements.

Statement of Income

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENT OF INCOME

FOR THE YEARS ENDED DECEMBER 31,

	2020		2021		2022	
	Thousand (USD)	%	Thousand (USD)	%	Thousand (USD)	%
Revenues						
Revenue from sales	5,043,170	94.1	6,730,860	92.0	9,270,564	96.0
Revenue from pipeline transportation	92,350	1.7	93,147	1.3	150,923	1.6
Gain on foreign exchange rates	26,062	0.5	-	-	-	-
Gain on remeasuring of financial instruments	99,331	1.9	-	-	-	-
Gain on debt modification	22,307	0.4	-	-	-	-
Gain from a bargain purchase	-	-	341,874	4.7	-	-
Interest income	36,729	0.7	16,750	0.2	44,031	0.4
Other income	37,012	0.7	131,594	1.8	195,134	2.0
Total Revenues	**5,356,961**	**100.0**	**7,314,225**	**100.0**	**9,660,652**	**100.0**
Expenses						
Operating expenses	795,112	14.8	861,495	11.8	1,110,010	11.5
Exploration expenses	104,314	1.9	226,252	3.1	71,683	0.7
Administrative expenses	314,117	5.9	355,039	4.9	578,363	6.0
Petroleum royalties	410,154	7.7	530,215	7.2	687,723	7.1
Depreciation, depletion and amortisation	2,086,083	38.9	2,202,064	30.1	2,363,135	24.5
Loss on foreign exchange rates	-	-	37,592	0.5	91,064	1.0
Loss on remeasuring of financial instruments	-	-	234,290	3.2	184,486	1.9
Impairment loss on assets and goodwill	91,576	1.7	183,000	2.5	300,080	3.1
Other expenses	20,341	0.4	-	-	-	-
Finance costs	254,476	4.8	202,226	2.8	233,583	2.4
Total Expenses	**4,076,173**	**76.1**	**4,832,173**	**66.1**	**5,620,127**	**58.2**
Share of profit of associates and joint ventures	41,636	0.8	15,174	0.2	19,556	0.2
Profit before income taxes	**1,322,424**	**24.7**	**2,497,226**	**34.1**	**4,060,081**	**42.0**
Income taxes	(602,880)	(11.3)	(1,286,688)	(17.6)	(2,061,501)	(21.3)
Profit for the year	**719,544**	**13.4**	**1,210,538**	**16.5**	**1,998,580**	**20.7**
Basic earnings per share (USD)	0.18		0.30		0.51	

Statement of Cash Flows

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES
STATEMENT OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31,

	2020	2021	2022
	Thousand (USD)	Thousand (USD)	Thousand (USD)
Cash flows from operating activities			
Profit before income taxes	1,322,424	2,497,226	4,060,081
Adjustments for:			
Share of profit of associates and joint ventures	(41,636)	(15,174)	(19,556)
Depreciation, depletion and amortisation	2,086,083	2,202,064	2,363,135
Impairment loss on assets and goodwill	91,576	183,000	300,080
Allowance (reversal) for decrease in value of inventories to net realisable value	474	(882)	-
Write-off of exploration expenses	62,140	214,928	32,634
Other amortised expenses	10,208	10,976	12,426
Loss on disposal of assets	24,215	2,256	17,704
Income recognised from deferred income	(2,550)	(3,104)	(7,333)
(Gain) loss on remeasuring financial instruments	43,649	(15,718)	95,993
(Gain) loss on foreign exchange rates	(10,229)	9,132	8,142
Interest income lower than interest expenses	212,035	177,752	179,256
Gain from a bargain purchase	-	(341,874)	-
Gain on debt modification	(22,307)	-	-
Other income	-	(81,276)	(73,041)
Other expenses	37,371	19,176	147,840
	3,813,453	4,858,482	7,117,361
Changes in working capital	(1,041,953)	(1,430,174)	(2,445,159)
Net cash flows provided by operating activities	**2,771,500**	**3,428,308**	**4,672,202**
Cash flows from investing activities			
Cash paid for short-term investments	(100,000)	-	-
Cash received from investing in short-term investments	200,000	100,000	-
Increase in short-term loans to related party	-	-	(1,250)
Cash received from long-term loans to related parties	11,086	33,170	41,500
Cash paid for long-term loans to a related party	-	-	(428)
Dividend received from related parties	26,807	40,746	60,979
Net cash paid for business acquisition	-	(2,299,492)	-
Net cash received from asset acquisition	-	11,968	-
Cash paid for contingent considerations from business acquisition and participating interest in a joint venture	-	(54,670)	(955)
Cash received from investment in joint venture	393	-	-
Cash received from disposal of investment in an associate	-	-	128,841
Cash paid for investment in associate and joint ventures	(3,138)	(15,506)	(17,642)
Cash received from lease receivables	378	374	234
Interest received from short-term investments	5,842	1,850	-
Interest received from long-term loans to related parties	2,277	1,010	772
Increase in property, plant and equipment	(1,093,140)	(1,512,174)	(1,765,221)
Increase in intangible assets	(28,466)	(29,067)	(31,077)
Increase in exploration and evaluation assets	(93,651)	(131,574)	(95,357)
Net cash flows used in investing activities	**(1,071,612)**	**(3,853,365)**	**(1,679,604)**

PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY LIMITED AND SUBSIDIARIES

STATEMENTS OF CASH FLOWS (cont'd)

FOR THE YEARS ENDED DECEMBER 31,

	2020	2021	2022
	Thousand (USD)	Thousand (USD)	Thousand (USD)
Cash flows from financing activities			
Cash received from short-term loans	-	200,000	-
Cash paid for repayment of short-term loans	-	(200,000)	-
Cash paid for repayment of debentures and long-term loans	(730,443)	-	(1,025,126)
Cash received from issuance of debentures	850,000	179,960	358,644
Cash paid for finance cost from issuance of debentures	(9,945)	(270)	(563)
Cash paid for lease liabilities	(96,362)	(128,482)	(177,008)
Interest paid	(147,594)	(133,914)	(144,365)
Cash paid for redemption of subordinated capital debentures	(30,852)	-	(142,590)
Interest paid for subordinated capital debentures	(10,126)	(9,138)	(4,256)
Net cash received (paid) from financial derivative contracts	-	1,826	(44,924)
Dividends paid	(671,000)	(605,341)	(819,492)
Net cash flows used in financing activities	**(846,322)**	**(695,359)**	**(1,999,680)**
Net increase (decrease) in cash and cash equivalents	853,566	(1,120,416)	992,918
Cash and cash equivalents at the beginning of the year	**2,822,897**	**3,704,003**	**2,559,189**
	3,676,463	2,583,587	3,552,107
Adjustment for the impact of exchange rate changes	27,540	(24,398)	(12,887)
Cash and cash equivalents at the end of the year	**3,704,003**	**2,559,189**	**3,539,220**

Significant Financial Ratio Summary Table

		2020	2021	2022
Liquidity ratio				
Current Ratio	Times	2.71	1.34	1.72
Quick Ratio	Times	2.45	1.07	1.37
Cash Flow from Operations to Current Liabilities Ratio	Times	1.41	1.37	1.45
Account Receivable Turnover	Times	7.52	9.97	10.51
Account Payable Turnover	Times	6.70	5.89	6.51
Collection Period *	Days	49	37	35
Day Payable *	Days	55	62	56
Profitability Ratio				
Net Profit Margin	%	13.43	16.55	20.69
Return on Equity	%	6.09	9.99	15.41
Efficiency Ratio				
Return on Assets	%	3.21	5.27	8.22
Return on Fixed Assets	%	20.77	23.95	27.95
Assets Turnover	Times	0.24	0.32	0.40
Financial Policy Ratio				
Debt to Equity Ratio	Times	0.33	0.33	0.28
Net Debt to Equity Ratio	Times	0.01	0.12	0.02
Times Interest Earned	Times	13.80	24.71	30.41
Dividend Ratio	%	77	50	53
Data per Share				
Book Value per Share	USD	2.97	3.13	3.40
Net Profit per Share	USD	0.18	0.30	0.51
Dividend per Share	THB	4.25	5.00	9.25
Growth Rate				
Total Asset	%	0.93	4.23	7.35
Total Liabilities	%	2.40	3.02	5.77
Sales	%	(16.67)	32.88	38.06
Net Profit	%	(54.14)	68.24	65.10

* Collection Period and Day Payable are in range of credit term of PTTEP's Group

5. General Information and Other Significant Information

5.1 References

(1) Share Registrar

1.1) **Name** Thailand Securities Depository Company Limited
Address 93, Ratchadaphisek Road, Din Daeng, Bangkok 10400, Thailand
Telephone SET Contact Center: +66-2009-9999
Website http://www.set.or.th/tsd

(2) Registrar and Paying Agent

2.1) Registrar and paying agent for THB 11,400 million debentures issued in June 2014.
Name Siam Commercial Bank Public Company Limited
Address 15th Floor, North Wing, G Tower Grand Rama 9, Rama 9 Road, Huai Khwang, Huai Khwang, Bangkok 10310, Thailand
Telephone +66-2128-2323-4, +66-2128-2326-9, +66-2128-3540
Facsimile +66-2128-4625

2.2) Registrar and paying agent for THB 6,000 million debentures issued in November 2021.
Name Krungthai Bank Public Company Limited
Address 977/2 SM Tower, 3rd floor, Phahon Yothin Road, Samsen Nai, Phaya Thai, Bangkok 10400, Thailand
Telephone +66-2298-0830-31
Facsimile -

2.3) Registrar and paying agent for THB 5,000 million, THB 1,000 million, and THB 6,000 million debentures issued in April 2022.
Name KASIKORNBANK Public Company Limited
Address 1 Soi Rat Burana 27/1, Rat Burana Road, Rat Burana, Rat Burana, Bangkok 10140, Thailand
Telephone +66-2470-5978, +66-2470-1042
Facsimile -

(3) Debenture Holders' Representative

3.1) Debenture holders' representative for THB 6,000 million debentures issued in November 2021.
Name Krungthai Bank Public Company Limited
Address 977/2 SM Tower, 3rd floor, Phahon Yothin Road, Samsen Nai, Phaya Thai, Bangkok 10400, Thailand
Telephone +66-2298-0830-31
Facsimile -

3.2) Debenture holders' representative for THB 5,000 million, THB 1,000 million, and THB 6,000 million debentures issued in April 2022.

Name KASIKORNBANK Public Company Limited

Address 1 Soi Rat Burana 27/1, Rat Burana Road,
Rat Burana, Rat Burana, Bangkok 10140, Thailand

Telephone +66-2470-5978, +66-2470-1042

Facsimile -

(4) Trustee

4.1) Trustee for outstanding USD 490 million debentures issued in June 2012.

Name CITICORP INTERNATIONAL LIMITED

Address 20th Floor, Citi Tower, One Bay East, 83 Hoi Bun Road, Kwun Tong, Hong Kong

Telephone +852-2868-7964, +852-2868-7982

Facsimile +852-2323-0279

4.2) Trustee for outstanding USD 650 million debentures issued in December 2019, outstanding USD 350 million debentures issued in January 2020, and outstanding USD 500 million debentures issued in June 2020.

Name BNY Mellon Corporate Trust

Address #03-01 Millenia Tower, 1 Temasek Avenue, Singapore 039192

Telephone +65-6432-0351, +65-6432-4147

Facsimile +65-6883-0338

(5) Process Agent

5.1) Process agent for USD 200 million Committed Revolving Credit Facilities dated in September 2020 and USD 200 million Committed Revolving Credit Facilities dated in October 2020.

Name Law Debenture Corporate Services Limited

Address 8th Floor, 100 Bishopsgate, London, EC2N 4AG, United Kingdom

Telephone +44-20-7606-5451

Facsimile +44-20-7606-0643

5.2) Process Agent for Common Shares

Name CT Corporation System

Address 28 Liberty Street, New York, New York 10005, United States of America

Telephone +1-212-894-8800

Facsimile -

(6) Cross Currency Swap Counterparties

6.1) Name Siam Commercial Bank Public Company Limited
Division Financial Market Division
Address 12th Floor, Zone B, 9 Ratchadaphisek Road, Chatuchak, Bangkok 10900, Thailand
Telephone +66-2544-5741-9
Facsimile +66-2937-7968

6.2) Name Krung Thai Bank Public Company Limited
Division Markets Solutions and Innovation Team, Global Markets Group
Address Building 1 (Nana Nuea), 8th Floor, 35 Sukhumvit Road,
Khlong Toei Nuea, Watthana, Bangkok 10110, Thailand
Telephone +66-2208-4699
Facsimile +66-2256-8398

6.3) Name Bangkok Bank Public Company Limited
Division Treasury Division
Address 333 Silom Road, Silom, Bang Rak,
Bangkok 10500, Thailand
Telephone +66-2021-1111
Facsimile +66-2636-4633

(7) FX Contracts Counterparties

7.1) Name KASIKORNBANK Public Company Limited
Division Capital Markets Business Division
Address 400/22 Phahon Yothin Avenue, Samsen Nai, Phaya Thai,
Bangkok 10400, Thailand
Telephone +66-2470-3006
Facsimile +66-2271-4486

7.2) Name Krung Thai Bank Public Company Limited
Division Markets Solutions and Innovation Team, Global Markets Group
Address Building 1 (Nana Nuea), 8th Floor, 35 Sukhumvit Road,
Khlong Toei Nuea, Watthana, Bangkok 10110, Thailand
Telephone +66-2208-4699
Facsimile +66-2256-8398

7.3) Name Siam Commercial Bank Public Company Limited
Division Financial Market Division
Address 12th Floor, Zone B, 9 Ratchadaphisek Road,
Chatuchak, Bangkok 10900, Thailand
Telephone +66-2544-5741-9
Facsimile +66-2937-7968

7.4)	**Name**	Bank of America, N.A., Bangkok Branch
	Division	Fixed Income Currencies and Commodities (FICC) Sales
	Address	87/2 All Seasons Place, CRC Tower, 33rd Floor,
		Wireless Road, Lumphini, Pathum Wan, Bangkok 10330, Thailand
	Telephone	+66-2305-2986-89
	Facsimile	+66-2685-3224
7.5)	**Name**	Citibank N.A., Bangkok Branch
	Division	Global Markets
	Address	Interchange 21 Building, 399 Sukhumvit Road,
		Khlong Toei Nuea, Watthana, Bangkok 10110, Thailand
	Telephone	+66-2079-2222
	Facsimile	+66-2079-4342
7.6)	**Name**	CIMB Thai Bank Public Company Limited
	Division	Treasury Sales, Treasury & Markets
	Address	44 Langsuan Road, Lumphini, Pathum Wan,
		Bangkok 10330, Thailand
	Telephone	+66-2670-4623
	Facsimile	+66-2657-3280
7.7)	**Name**	Bank of Ayudhya Public Company Limited
	Division	Global Corporate Banking Division
	Address	550 Phloen Chit Road, Lumphini, Pathum Wan, Bangkok 10330, Thailand
	Telephone	+66-2296-2000
	Facsimile	+66-2296-6921
7.8)	**Name**	Bangkok Bank Public Company Limited
	Division	Treasury Division
	Address	333 Silom Road, Silom, Bang Rak,
		Bangkok 10500, Thailand
	Telephone	+66-2021-1111
	Facsimile	+66-2636-4633
7.9)	**Name**	TMB Thanachart Bank Public Company Limited
	Division	Global Markets
	Address	3000 Phahon Yothin Road, Chom Phon, Chatuchak, Bangkok 10900, Thailand
	Telephone	+66-2676-8008
	Facsimile	+66-2292-4690-2

7.10)	**Name**	Deutsche Bank AG, Filiale Bangkok
	Division	Risk Management Solutions
	Address	Athenee Tower, 63 Wireless Road, Lumphini,
		Pathum Wan, Bangkok 10330, Thailand
	Telephone	+66-2646-5138
	Facsimile	+66-2651-5892
7.11)	**Name**	BNP Paribas Bangkok Branch
	Division	Global Markets & ALM Treasury
	Address	990 Abdulrahim Place, 29th Floor, Rama IV Road, Silom, Bang Rak,
		Bangkok 10500, Thailand
	Telephone	+66-2659-8990-1, +66-2659-8998
	Facsimile	-
7.12)	**Name**	United Overseas Bank (Thai) Public Company Limited
	Division	Global Markets
	Address	UOB Plaza Bangkok, 690 Sukhumvit Road, Khlong Tan, Khlong Toei,
		Bangkok 10110, Thailand
	Telephone	+66-2343-4381-4
	Facsimile	+66-2285-1365
7.13)	**Name**	J.P. Morgan Chase Bank N.A.
	Division	Currencies and Emerging Markets
	Address	20 Bubhajit Building, 2nd Floor, North Sathon Road, Silom, Bang Rak,
		Bangkok 10500, Thailand
	Telephone	+66-2684-2257
	Facsimile	+66-2684-2260
7.14)	**Name**	The Hongkong and Shanghai Banking Corporation Limited, Bangkok Branch
	Division	Global Markets
	Address	HSBC Building, 968 Rama IV Road, Silom, Bang Rak, Bangkok 10500, Thailand
	Telephone	+66-2614-4847
	Facsimile	+66-2353-7333
7.15)	**Name**	Sumitomo Mitsui Banking Corporation
	Division	Treasury Department
	Address	8th-10th Floor, Q.House Lumphini Building
		1 South Sathon Road, Thung Maha Mek, Sathon, Bangkok 10120, Thailand
	Telephone	+66-2353-8196, +66-2353-8197
	Facsimile	+66-2343-8815, +66-2343-8816

(8) Auditor

Name	Ms. Amornrat Pearmpoonvatanasuk
	Certified Public Accountant No. 4599
	PricewaterhouseCoopers ABAS Ltd.
Address	15th Floor, Bangkok City Tower,
	179/74-80 South Sathon Road, Thung Maha Mek, Sathon, Bangkok 10120, Thailand
Telephone	+66-2844-1000
Facsimile	+66-2286-5050

(9) Legal Advisors

9.1)

Name	Baker & McKenzie Ltd.
Address	Abdulrahim Place, 25th Floor
	990 Rama IV Road, Silom, Bang Rak, Bangkok 10500, Thailand
Telephone	+66-2666-2824
Facsimile	+66-2666-2924

9.2)

Name	Rouse & Co International (Thailand) Co., Ltd.
Address	Two Pacific Place, 14th Floor, Unit 1401-3 and 1408
	142 Sukhumvit Road, Khlong Toei, Khlong Toei, Bangkok 10110, Thailand
Telephone	+66-2653-2730
Facsimile	+66-2653-2734

9.3)

Name	Linklaters (Thailand) Ltd.
Address	Capital Tower, All Seasons Place, 20th Floor
	87/1 Wireless Road, Bangkok 10330, Thailand
Telephone	+66-2305-8000
Facsimile	+66-2305-8010

9.4)

Name	Weerawong, Chinnavat & Partners Ltd.
Address	Mercury Tower, 22nd Floor
	540 Phloen Chit Road, Lumpini, Pathum Wan, Bangkok 10330, Thailand
Telephone	+66-2264-8000
Facsimile	+66-2657-2222

9.5)

Name	Siam Premier International Law Office Limited
Address	The Offices of Central World, 26th Floor
	999/9 Rama I Road, Pathum Wan, Bangkok 10330, Thailand
Telephone	+66-2646-1888
Facsimile	+66-2646-1919

9.6)	**Name**	Atthaworadej & Associates Co., Ltd.
	Address	Srijulsup Tower, 12th Floor
		44 Rama 1 Road, Pathum Wan, Bangkok 10330, Thailand
	Telephone	+66-2613-9449
	Facsimile	-
9.7)	**Name**	Allen & Overy (Thailand) Co., Ltd.
	Address	Sindhorn Building Tower 3, 23rd Floor
		130-132 Wireless Road, Lumpini, Pathum Wan District, Bangkok 10330, Thailand
	Telephone	+66-2263-7600
	Facsimile	+66-2263-7699
9.8)	**Name**	Intellectual Design Group (IDG) Co., Ltd.
	Address	194,196 Nonthaburi Road, Bang Kraso,
		Mueang Nonthaburi, Nonthaburi 11000, Thailand
	Telephone	+66-2011-7161-6
	Facsimile	-
9.9)	**Name**	Ali Budiardjo, Nugroho, Reksodiputro
	Address	Jl. Jenderal Sudirman Kav. 58
		Jakarta 12190, Indonesia
	Telephone	+62 21 250 5125/5136
	Facsimile	+62 21 250 5001/5121/5122/5392
9.10)	**Name**	Ariff Rozhan & Co.
	Address	L-6-1, No. 2, Jalan Solaris, Solaris Mont Kiara, 50480
		Kuala Lumpur, Malaysia
	Telephone	+603-6411-4001
	Facsimile	+603-6419-0987
9.11)	**Name**	Ashurst Australia
	Address	Level 10, Brookfield Place Tower 2, 123 St Georges Terrace,
		Perth WA 6000, Australia
	Telephone	+61-8-9366-8000
	Facsimile	+61-8-9366-8111
9.12)	**Name**	Azman Davidson & Associates
	Address	14th Floor, Menara Keck Seng, 203 Jalan Bukit Bintang, 55100
		Kuala Lumpur, Malaysia
	Telephone	+603-2118-5121
	Facsimile	+603-2118-5111

9.13)	**Name**	Baker & McKenzie Abogados, S.C.
	Address	Edificio Virreyes, Pedregal 24, 12th Floor Lomas Virreyes / Col. Molino del Rey, 11040 Mexico City, Mexico
	Telephone	+52-55-5279-2900
	Facsimile	+52-55-5279-2999
9.14)	**Name**	Bennett Jones LLP
	Address	4500 Bankers Hall East 855 – 2nd Street SW, Calgary, Alberta, T2P 4K7 Canada
	Telephone	+403-298-3100
	Facsimile	+403-265-7219
9.15)	**Name**	Clifford Chance Pte. Ltd.
	Address	Marina Bay Financial Centre 25th Floor, Tower 3 12 Marina Boulevard, Singapore 018982
	Telephone	+65-6410-2254
	Facsimile	+65-6410-2288
9.16)	**Name**	Henrique Abecasis, Andresen Guimarães & Associados - Socuedade de Advigadis, SP, RL (HAAG)
	Address	Av. Miquel Bombarda. 35, 1050.161 Lisboa, Portugal
	Telephone	+351-213-169-500
	Facsimile	+351-213-153-463
9.17)	**Name**	Herbert Smith Freehills
	Address	23rd Floor, Gloucester Tower, 15 Queen's Road Central, Hong Kong
	Telephone	+852-2845-6639
	Facsimile	-
9.18)	**Name**	Herbert Smith Freehills LLP
	Address	50 Raffle Place, #24-01 Singapore Land Tower, Singapore 048623
	Telephone	+65-6868-8000
	Facsimile	+65-6868-8001
9.19)	**Name**	Jones Day
	Address	138 Market Street, Level 28 Capita Green, Singapore 048946
	Telephone	+65-6538-3939
	Facsimile	-
9.20)	**Name**	José Carlos de Oliveira & Associados - Sociedade de Advogados, RL
	Address	Av. João XXI, n.º 16 - 1º Dto., 1000-302 Lisboa, Portugal
	Telephone	+351-218-498-813
	Facsimile	+351-218-473-153

9.21)	**Name**	Latham & Watkins LLP
	Address	9 Raffles Place, #42-02 Republic Plaza, Singapore 048619
	Telephone	+65-6536-1161
	Facsimile	+65-6536-1171
9.22)	**Name**	Lau, Horton & Wise LLP in Association with CMS Hasche Sigle, Hong Kong LLP
	Address	8th Floor, Nexxus Building, 41 Connaught Road Central, Hong Kong
	Telephone	+852-2533-7878
	Facsimile	+852-2533-7887
9.23)	**Name**	Myanmar Legal Services Limited
	Address	No. 138/D, New University Avenue Road No. 5-C 5th Floor, Park Lane Condominium Bahan Township, Yangon, Myanmar
	Telephone	+951-652-139, +951-650-740
	Facsimile	+951-650-466
9.24)	**Name**	Norton Rose Fulbright (Asia) LLP
	Address	9 Straits View Marina One West Tower, #09-09 Singapore 018937
	Telephone	+65-6223-7311
	Facsimile	+65-6224-5758
9.25)	**Name**	PLMJ Advogados, SP, RL
	Address	Av. Fontes Pereira de Melo, 43, 1050-119 Lisboa, Portugal
	Telephone	+351-213-197-300
	Facsimile	+351-213-197-400
9.26)	**Name**	Shearman & Sterling LLP
	Address	6 Battery Road, #25-03, Singapore 049909
	Telephone	+65-6230-3800
	Facsimile	-
9.27)	**Name**	Skrine Advocates & Solicitors
	Address	Level 8, Wisma UOA Damansara, 50 Jalan Dungun Damansara Heights, 50490 Kuala Lumpur, Malaysia
	Telephone	+603-2081-3999
	Facsimile	+603-2094-3211

9.28)	**Name**	Slaughter and May
	Address	One Bunhill Row, London EC1Y8YY, UK
	Telephone	+4420-7600-1200
	Facsimile	+4420-7090-5000
9.29)	**Name**	Steptoe & Johnson LLP
	Address	1114 Avenue of the Americas New York, NY 10036, United States of America
	Telephone	+1-212-506-3900
	Facsimile	-
9.30)	**Name**	Tilleke & Gibbins Myanmar Ltd.
	Address	No.168, 16th Floor, Sakura Tower, 339 Bogyoke Aung San Road, Kyauktada Township 11182, Yangon, Myanmar
	Telephone	+95-1-8255-208
	Facsimile	+95-1-8255-207
9.31)	**Name**	VDB Loi Myanmar
	Address	Yangon Office: Level 10, Unit 01-05, Junction City Office Tower, Corner of Bogyoke Aung San Road and 27th Street, Pabedan Township, Yangon, Myanmar Nay Pyi Taw Office: ParkRoyal Hotel Nay Pyi Taw, Jade Villa No. 13/14, Hotel Zone, Dekhina Thiri Township, Nay Pyi Taw, Myanmar
	Telephone	+95-1-9253-752-6 (Yangon Office) / +95-678-106-089 (Nay Pyi Taw Office)
	Facsimile	+95-1-9253-758 (Yangon Office) / +95-678-106-089 (Nay Pyi Taw Office)

(10) Advisor to the Board of Directors

-None-

5.2 Other Significant Information

Other information that has a significant impact on Investors' Decision

-None-

Restrictions on Foreign Shareholders

-None-

5.3 Legal Dispute

As of December 31, 2022, the outstanding legal dispute which PTTEP or one of the Company's subsidiaries is a party involved as well as which can significantly affect our operation or the subsidiary's, excluding dispute from the normal operation and circumstance, is as follows:

PTTEP Australasia (Ashmore Cartier) Pty Ltd. (PTTEP AAA) was sued for damages at the Federal Court of Australia by a group of Indonesian seaweed farmers.

On August 3, 2016, a group of Indonesian seaweed farmers filed a lawsuit against PTTEP AAA at the Federal Court of Australia, claiming for the damages caused by the 2009 Montara incident in Australia. The lawsuit was filed after

the lapse of the period of prescription for claims and did not state the amount of claim. However, the Federal Court of Australia has granted an extension of the limitation period due to certain legal exceptions on November 15, 2017.

On March 19, 2021 and October 25, 2021, the trial judge of the Federal Court of Australia delivered judgements in the class action. Final orders were made by the trial judge on November 15, 2021. The court determined the damages caused only to the lead plaintiff of the class action of approximately IDR 253 million or equivalent to USD 0.02 million (approximately THB 0.54 million). Claims of all the class members are presently statute barred and must be determined separately. On December 13, 2021, PTTEP AAA has exercised its right to file a Notice of Appeal in the Federal Court of Australia. PTTEP AAA participated in mediation in the class action, as ordered by the Federal Court of Australia. Such mediation requirement was in line with the normal legal process under Australian Law for class actions. During such mediation, PTTEP AAA reached an in-principle agreement with the group of Indonesian seaweed farmers, that PTTEP AAA will pay AUD 192.5 million (As of December 31, 2022, approximately equivalent to USD 130.42 million or THB 4,507.58 million) in full and final settlement of the class action (including PTTEP AAA's appeal). The in-principle settlement was made on a no admission of liability basis and is pending the court approval as of December 31, 2022.

5.4 Secondary Market in Case of Listing on the Stock Exchange of Other Countries

-None-



Corporate Governance

6. Corporate Governance

6.1 Good Corporate Governance Policy

PTTEP's Board of Directors (Board) places importance on PTTEP's and its subsidiaries' (PTTEP Group) operations to comply with the Good Corporate Governance and Business Ethics of PTTEP Group (CG&BE) in order to grow sustainably and enhance the confidence of all of our shareholders and other stakeholders. To demonstrate our commitment on emphasizing the operations in the right balance of social and environment, PTTEP conducts the framework to achieve Net Zero Greenhouse Gas Emission for E&P business through EP Net Zero 2050. Furthermore, the Board has assigned the Corporate Governance and Sustainable Development Committee (CG&SD Committee) to oversee and assure that the Company's operations are in line with the CG&BE Principles and that good corporate governance is always maintained at the level of international standards. The CG&SD Committee also regularly monitors and assesses the implementation of CG&BE and ensures its integration into everyone's work. In 2022, the Board of Directors paid attention to the development plan and targets of Sustainable Development Framework by committing to conduct the business with transparency and effectiveness by adhering to good corporate governance principles, maintaining robust risk management and internal control system as well as strictly conforming to applicable laws and regulations (Governance, Risk Management and Compliance - GRC), as the key component of the Framework, to respond to current situations, global trends, technology development and be ready for future challenges, e.g. the revision PTTEP Group's CG&BE to refine the standards of the operations in changing social norms, the development of GRC One Digital System to assist management to obtain immediate GRC information for efficient decision making. With its commitment to the ongoing development of good corporate governance, the Company earned various recognitions for our good corporate governance, domestically and internationally. Details are disclosed in the "Awards and Recognitions for Good Corporate Governance" topic.

The Board has reviewed the implementation of the Corporate Governance Code 2017 (CG Code), which was established by the Securities and Exchange Commission through means that are suitable to the Company's business. The Board assigned the Corporate Governance and Sustainable Development Committee to ensure CG Code compliance and its appropriate implementation, so as to maximize value in regard to the Company's future and sustainable growth. PTTEP has continued to develop and apply the CG Code principles together with internationally recognized best practices as follows:

6.1.1 Policy on Treatment to the Board

The details are disclosed in "Governance Structure and Key Data on the Board of Directors, Specific Committees, Management, Employees and Others" and "Corporate Governance Milestones" sections.

6.1.2 Policy on Treatment to Shareholders and Stakeholders

The Board has approved PTTEP's mission which puts an emphasis on the right and value creation for all stakeholders. The Company's mission is to operate globally to provide a reliable energy supply and sustainable value to all stakeholders. In practice, the Company cares for the rights of all stakeholders, including but not limited to, shareholders, customers, employees, governments, joint venture partners, communities, suppliers, creditors, competitors, and also concerns about the environment, custom and tradition, and human rights. The importance of the Company's stakeholders is clearly written in the PTTEP Group's CG&BE in which practical guidelines with respect to business ethics are established with an effort to balance duties and responsibilities between the Company and our stakeholders. Details of the CG&BE, contact details, whistleblowing channels are disclosed on the Company's website. The details of the policy on treatment to stakeholders are as follows:

(1) Shareholders

PTTEP recognizes and values the importance of the shareholders' rights and equal treatment thus we have specified the Company's Good Corporate Governance as one of our principles to ensure that our shareholders' basic rights are protected and honored. This includes the right to trade and transfer shares, declaration of share ownership, and the right to attend shareholders' meetings in person or through their proxies alongside the right to participate in and vote on significant issues presented by the Board at the Company's shareholder meetings, such as the election of new members of the Board to replace those due to retirement by rotation, determination of the Board's remuneration of any kinds, appointment and approval of external auditors and the auditor's fees, approval of connected transactions, acquisition or disposition of material assets as required by the laws, and other issues which are of significance to the Company. The Shareholders are also entitled to receive profit sharing in the form of dividends as well as to obtain equal and adequate information from the Company in a timely manner. The Company has only one class of ordinary shares on which one share has one vote equally. Our efforts to ensure and enhance the Shareholders' rights also include the following:

1.1) Annual General Meeting of Shareholders

PTTEP respected and promoted shareholders' rights in its Annual General Meeting of Shareholders (hereafter referred to as AGM or the Meeting) in 2022, through the following actions:

Before the Meeting

1) Shareholders were invited to propose agenda items and nominate qualified candidates for the election of PTTEP directors prior to the AGM from September 1 to November 30, 2021. The criteria were announced publicly through the Stock Exchange of Thailand (SET) and the Company's website. The Shareholders' proposals were considered based on the Company's established criteria to ensure that the proposed agenda items were relevant and truly beneficial to the business of the PTTEP Group. The Nominating and Remuneration Committee was responsible for screening and short-listing the nominated candidates for the Board's consideration. Thereafter, the Board informed the Shareholders of the resolution together with the rationale for each of the proposals at the AGM. In 2022, no such agenda or any director candidates were proposed by the shareholders.

2) PTTEP announced the date for the 2022 AGM approximately 2 months prior to the date of the Meeting as soon as the Board resolved on January 27, 2022 and approved the date for the AGM on Monday, March 28, 2022 and the date on which the Shareholders would have the right to attend the Meeting as well as to receive dividends which was on February 11, 2022, through the SET and the Company's website.

3) The AGM invitation letter and supplementary documents, in both Thai and English, were published on the Company's website on February 25, 2022, which was 34 days prior to the Meeting. The Invitation Letter had the necessary details of each agenda, which clearly stated the types of agenda items whether for acknowledgment or approval. The Board's opinions on each agenda item were clearly stated along with other rules and regulations related to the Meeting. A proxy form (to preserve their rights to attend the Meeting) as stipulated by the Ministry of Commerce, was enclosed in the invitation letter along with the list of required documents that the Shareholders needed to bring to the Meeting, instructions of the Meeting, and a map of the venue. The AGM invitation letter and supplementary documents were distributed to the Shareholders by postal service 21 days prior to the Meeting.

4) PTTEP provided the names of three independent directors in the proxy form to provide the Shareholders an option to appoint one of them as their proxy. The Company also informed the Shareholders about the stake of the independent directors on each of the agenda items, for instance, to elect new directors replacing those due to retirement by rotation, an independent director whose term was completed but re-nominated for another term would be considered as having vested interests (but not be considered a special interest) or on the agenda item to approve the remuneration of the Board. The directors who would be considered as having a special interest were excluded from the voting regardless of their shareholding. The Company also recommended that the Shareholders use the proxy form, through which they could specify their votes on each agenda item.

5) The Company also invited the Shareholders to submit questions related to the agenda items of the Meeting or other information relevant to the Company prior to the Meeting. This action helped to make the Meeting more efficient and beneficial to the Shareholders. Such questions were consolidated and answered at the AGM as well as recorded in the Minutes of the Meeting.

At the Meeting

1) The Meeting was held on Monday, March 28, 2022, at 14.30 hrs. at The Synergy Hall, 6th Floor, Energy Complex Building C, 555/3 VibhavadiRangsit Road, Chatuchak Sub-district, Chatuchak District, Bangkok 10900. The Meeting date, time, and venue were determined in consideration of all shareholders' convenience and the situation of the COVID-19 pandemic. Technology and barcode systems were used at the Meeting for registration, vote counting, compilation, and display of resolutions to ensure that the Meeting was carried out with full efficiency and accuracy. Supporting persons were adequately arranged to facilitate the Meeting. To accelerate the registration process, the registration was opened to the Shareholders 2 hours prior to the Meeting. The Company also prepared and provided duty stamps to the Shareholders who intended to vote through proxies.

2) All 15 PTTEP directors attended the Meeting. The Company's Chairman of the Board of Directors assigned a director to preside over the Meeting as the Chairman while The Chairman of the Board of Directors attended the meeting online, additionally the sub-committee chairmen, the President and the Chief Executive Officer, senior executives from the Finance and Accounting Group, and other functional groups also participated in responding and providing clarifications on the inquiries brought by the Shareholders. The external auditor, external legal advisors from Weerawong, Chinnavat & Partners Ltd., shareholders' right protection volunteers from the Thai Investors Association and volunteers from shareholders to witness vote counting, also participated in the Meeting. The Chairman of the Meeting ensured that the Meeting was carried out in accordance with the Company's Articles of Association and the agenda items as per sequence stated in the invitation letter, without adding any other agenda item. The Chairman efficiently allocated time to each agenda item and provided adequate time and opportunities for Shareholders to share their views and make in-depth inquiries in regard to those subjects relating to the Meeting's agenda items and the Company's operations prior to vote casting and passing resolution.

3) PTTEP clearly provided useful information before the commencement as stipulated in the Articles of Association of PTTEP such as the number and ratio of the Shareholders who attended the Meeting both in person and by proxies, including the Meeting procedures, vote casting, vote counting. The Shareholders and proxies were required to use voting ballots to vote on each agenda item that was scheduled for discussion at the Meeting whether to agree, disagree, or abstain through a barcode system to ensure accuracy and efficiency. Each resolution was clearly reported and displayed

in the Meeting as required by relevant laws and the Company's Articles of Association, and volunteers who were selected from the Shareholders and independent inspectors were appointed to witness and inspect the Vote counting. The Company also kept all the Voting ballots collected, counted, and signed by the witnesses for internal reviews and reference.

The Company permitted shareholders who reached the Meeting late to cast their votes on the agenda items that were in the consideration process or had not been considered or voted on at the time of their arrival. These shareholders were also counted as participants in the Meeting, starting from the agenda item when they registered and attended the Meeting.

4) All information presented at the Meeting was available in both Thai and English, while a translator from Thai to English for foreign shareholders who attended the Meeting was also provided to ensure fairness and equality among all Shareholders.

5) External independent legal advisors, acting as inspectors as well as witnesses, were engaged to oversee the Meeting to ensure the Meeting's transparency and that it was conducted lawfully and in accordance with the Articles of Association of PTTEP including but not limited to meeting procedures as informed by the Chairman of the Meeting, verifying the documents and the proxy examination process, ensuring a quorum as well as assuring the Meeting that none of the shareholders with potential conflicts of interest cast votes on such agenda items, and making sure that the voting procedures, vote counting, ballot collection from the attending shareholders, and auditing of the resolution and result of the vote counting were done correctly.

After the Meeting

1) PTTEP disclosed the Minutes of the Meeting together with the vote counting results for each agenda item to the SET and also on the Company's website immediately after the Meeting.

2) Minutes of the Meeting, in both Thai and English, were accurately and completely recorded. They covered explanations of the Meeting's voting and vote counting procedures, details of agenda items, questions/ answers, explanations and opinions related to PTTEP's business operations, and the Meeting's agenda. The Company also kept in record the resolution on each agenda item, categorized them as agreed, disagreed, abstained, and voided (if any) as well as the names and positions of the directors and executives who attended the Meeting. Furthermore, the final version of the Minutes of the Meeting was delivered to the Ministry of Commerce, the SET, and the Office of the Securities and Exchange Commission (SEC) within 14 days after the Meeting. The Minutes of the Meeting were also delivered to the Company's shareholders for their reference and consideration, and for verifying that any shareholders who wished to make objections did so within the timeframe enforced by relevant laws. The approved Minutes, video, and audio clips of the Meeting were also published in both Thai and English on the Company's website. In 2022, the Company did not receive any objections or inquiries from the Shareholders in regard to vote counting results and the Minutes of the Meeting.

1.2) Disclosure of Significant Material Information

PTTEP ensures that information will be communicated to the Shareholders accurately and in a timely manner, not only for the information that is required by related regulations but also for other information which the Company considers as necessary for the Shareholders to have. These disclosures are publicized through various channels, such as the SET and the Company's website, and media or printed media.

Furthermore, the Company clearly discloses the shareholding structures in our subsidiaries and associated companies as well as with the controlling shareholder, namely PTT, to ensure the Shareholders that our organization's structure is transparent, verifiable, and does not comprise any form of cross or pyramidal shareholding structures.

1.3) Fostering Understanding of Business Operations and Long-Term Engagement with Shareholders

PTTEP continuously organizes various activities for the benefit of shareholders and society. The main objectives of such activities are, for shareholders and other persons interested in PTTEP, to enhance the knowledge and understanding of exploration and production of petroleum business which is distinct from other business as well as participate in our CSR program. In addition, we aim to foster a high level of confidence to investors to maintain long-term investment with PTTEP. These activities include the shareholders' visit to our operation sites and CSR projects which are organized annually. However, due to the COVID-19 pandemic, the Company decided to put on hold these activities this year.

PTTEP prepares and publishes a quarterly newsletter, the Explorer's Journal, as an additional channel to communicate PTTEP's news. This includes the Company's performance, the progress of key projects, Technology, Corporate Social Responsibility (CSR) activities, and corporate governance activities, and other useful information; for example, How is GRC driven in PTTEP?, PTTEP is the host of event "PTT Group CG Day", Net Zero Greenhouse Gas Emissions, Carbon Capture and Storage (CCS), The Seafood Product Value Enhancement Project, PTTEP's Technology Research and Development, Technology Development for Minimizing Environmental Impact, How Important is Carbon Footprint?, etc. From the 2nd quarter of 2022 onward, there is a fun game in the newsletter for shareholders to play and win special prizes. The quarterly newsletter was publicized on the Company's website as well as sent hard copies and E-Newsletter to the Shareholders upon request.

1.4) Equal Treatment to Shareholders

PTTEP provides a direct communication channel to all our shareholders via our independent directors' e-mail at IndependentDirector@pttep.com for various issues, such as activities of the directors, good corporate governance, and audit-related issues. In addition, the Shareholders can directly contact the Company Secretary at CorporateSecretary@pttep.com or Investor Relations Unit at IR@pttep.com for additional information. The Company operates businesses with optimal efficiency, with a commitment to business ethics for sustainable growth of the Organization, appropriate and consistent returns to the Shareholders, and all stakeholders are properly and sustainably managed by using modern and well-accepted management and monitoring tools.

1.5) Prevention of Insider Trading

PTTEP puts a great emphasis on controlling the use of our internal information by including this matter in the PTTEP Good Corporate Governance and Business Ethics. In line with securities laws, policies relating to the use of internal information are regularly reviewed to preserve integrity and equality among all of the Company's stakeholders. Key measures are as follows:

1) The Board of Directors has assigned the Governance, Compliance, Internal Control, and Subsidiary Management Department as the center for monitoring the insider trading prevention program and preparing a list of personnel who bear material and/or internal information (Insider List) which includes directors, management, and employees.

2) The directors, management, and employees are always informed of PTTEP's regulations and policies in regard to insider trading prevention through various communications as well as provide training to ensure that they understand and strictly comply with to prevent misuse of information which may directly or indirectly conflict with his or her personal interests. Disciplinary actions are clearly specified, while the supervisors, who act as the CG Leader, are responsible for advising and encouraging their subordinates to follow. In 2022, there was no report of any misuse of internal information.

In 2022, PTTEP employees attended a training regarding Good Corporate Governance and Business Ethics (CG&BE) or CG&BE e-Learning which covers measures to prevent the use of insider trading with 100 percent of the employees completed the course.

3) Prohibition on trading of PTTEP's securities during the blackout periods, such as when material information is being disclosed, which may affect the securities price. All the Company directors, management holding position of Senior Vice Presidents (SVPs) and above, Vice Presidents (VPs) of the Finance and Accounting Group (FNA) as well as other management and employees having material internal information will be informed of such blackout period in order to abstain from trading of PTTEP's securities whether direct or indirect. This prohibition also applies to their spouses and minor children. Violation of this prohibition is considered a disciplinary offense.

PTTEP also requires all of the Company's directors, management holding positions of SVPs and above, VPs of FNA as well as their spouses and minor children to refrain from directly and indirectly trading securities of PTTEP at all times and inform the Governance, Compliance, Internal Control, and Subsidiary Management Department 2 days in advance if necessary.

4) The Company directors, management holding positions of SVPs and above, and VPs of FNA must disclose complete information in regard to their securities possession as well as related trading activities to the Governance, Compliance, Internal Control, and Subsidiary Management Department in addition to the disclosing obligation to the SEC. These pieces of information will be disclosed to the Board on a monthly basis for CG&BE compliance monitoring purpose. Shareholdings by the Company directors, management holding position of Senior Vice Presidents (SVPs) and above, Vice Presidents (VPs) of FNA is disclosed in the annual report (56-1 One Report) as required by the SEC.

(2) Employees

1) PTTEP complies with the UN principles by not employing illegal workforce and child labor in every area in which we operate. The following guidelines are described in the Company's CG&BE.

1.1) To understand and comply with all laws applicable to the PTTEP Group's operations in the locations where we conduct our business.

1.2) To understand the local customs, cultures, and traditions of the locality in which we operate.

1.3) To respect the local traditions, cultures, and cultural differences, and not to behave in anyways which contradicts them.

1.4) Not to discriminate against any individuals based on our personal relationship with that individual, his or her ethnicity, nationality, gender (including pregnancy, and sexual preference), age, religion, personal views, disability, or any other conditions or characteristics which are not concerned with work.

In 2022, PTTEP supported 20 people with disabilities on The Occupational Income Promotion project under Section 35 of Empowerment of Persons with Disabilities Act, B.E. 2550 (2007) through the Disabled Personnel Assistance Coordination Center to enable people with disabilities or their caregivers can pursue a career in their own hometowns which PTTEP made full payments directly to persons with disabilities within the period specified by law.

PTTEP strictly complies with labor laws enforced by each and every country we operate in. In Thailand, a Welfare Committee is established, comprising 8 employer representatives and 22 employee representatives from Thailand and overseas work sites which represented 100% of total employees. Welfare Committee meets every 2 months to discuss labor-related issues that cover compensation, welfare, human resource management, and labor rights. In 2022, the Welfare Committee convened 6 meetings where 18 issues were discussed covering compensation, welfare, benefits, and opportunities for career advancement.

2) PTTEP recruits, selects, and employs employees based on their qualifications, experience, and capability to work in the target positions. According to the Good Corporate Governance and Business Ethics of the PTTEP Group, both internal and external candidates are treated fairly under transparent recruitment process. In addition, our employees are given opportunities to develop and grow in their professional career based on potential as well as to join external activities under the Company's policy.

3) PTTEP sets up and regularly reviews compensation and benefits packages to ensure fairness for both the Company and the employees according to our short-term and long-term business performance, pay positioning among leading energy companies in Thailand and the region, types of work, required skills and expertise, difficulties of work, responsibility and accountability of each position, and the individual employees' performance results in order to attract and retain competent and capable employees.

4) PTTEP provides and regularly reviews welfare and benefits packages to ensure fairness to both the Company and the employees according to our ability to pay at the present and in the long run, focusing on the welfare and benefits which help to enhance the quality of life of the employees and their families. These are, for example, healthcare benefits for employees and their families which are comparable to those provided by other leading energy companies in Thailand and/or in the region. The Company regularly reviews welfare and benefits program to suit the changing social, economic, and other obligatory conditions of the business. In addition, the Company also provides psychological and legal consultation services through our "Sabaijaidee" program to Thai employees, national employees from overseas work sites, their spouses, and children to help them guard against anxiety from their families, private life, and work concerns. The services are provided by psychologists and professionals from one of our consulting companies. In 2022, The Sabaijaidee Live project has been organized on a monthly basis by inviting external speakers to provide professional knowledge, advice on mental health care and stress management. We also issue monthly articles about mental health care for employees. Psychology and stress tests have additionally been added to the WeConnect system so employees can assess their stress at any time on their own.

The Company establishes a provident fund program for our employees to ensure their financial security after resignation and retirement. The fund consists of contributions from both the Company and the employees. The Company makes a monthly contribution at a rate of 15 percent of our employees' basic monthly salary, while the employees contribute 2 to 15 percent of their basic monthly salary. Criteria and policy regarding this fund are subjected to the Company's regulations. Effective from 1 October 2022, employees can adjust provident fund contribution rate from 2 times per year to 4 times per year for more flexibility in fund management in response to economic fluctuation. Currently, 97% of total eligible employees have joined the Provident Fund.

In addition, to celebrate and commemorate the long-term commitment and loyalty of our employees, PTTEP establishes the Long Service Awards Program to recognize staff who have reached significant milestone years of service, which are 5, 10, 15, 20, 25, 30, 35 and 40 years employment anniversary with the Company. The purpose of the program is to strengthen our corporate employee engagement through recognizing and honoring the commitment and dedication of long-term employees, while promoting careers aspiration within the Company as well.

5) PTTEP gives priority to human resources development to increase the organization's capability to drive the business performance as the Company always believes that human resources hold a key to our success. The Company provides opportunities for the employees to develop and enhance their knowledge, skills, and experience through both short-term and long-term training and development programs. Apart from professional capability and necessary skills building, the Company also embeds the corporate core values (*EP* SPIRIT) to all employees in domestic and international assets, so they can perform the expected behavior together based on the same corporate culture to attain the Company's vision and mission. In 2022, PTTEP has revisited its core value for expected behavior to align with new strategy for energy transition. The adjusted value is designed to support on efficiency improvement for E&P business including readiness to shift to Beyond E&P. In addition, our employees attended training and development programs at an average of 57 hours per person per year. Programs for technical skills, Safety Security Health and Environmental (SSHE) were provided to employees such as water management, oil spill response, and environmental management course. In addition, the Company extend the development areas to digital literacy, managerial skills, and leadership skills such as outward mindset, self-leadership, blockchain, smart contract, and power platform course.

6) PTTEP realizes the value and importance of regular consultation between the Company's employees and their supervisors or between employees to solve the problems incurred in the day-to-day operation as fast as possible and to maintain a good working relationship between them. Should any conflicts arise between the employees or between the employees and their supervisors, the employees may file a complaint through one of the communication channels provided. The employees, including relevant witnesses, who comply with the provided measures and procedures and act in good faith shall be protected, without facing a penalty, termination, or any other negative consequences. Hence, PTTEP introduced various channels for Grievance Handling issues such as the Whistleblowing System which, during this year, we received a total of 9 cases and 4 of those considered valid complaints by following Reporting and Whistleblowing Regulation and have been successfully executed. There is another grievance channel according to the human resource management policy which in 2022, there were 4 complaints received from this channel and all were considered as valid complaints. There are 2 cases that have been completed and there are the remaining 2 cases which are under investigation and expect to be completed by the Q1/2023. Moreover, we also included the result of each complaint case and related penalties (if any) in the annual report (56-1 One Report) and sustainability report. Nonetheless, PTTEP also communicates lesson learned from each case to employees without disclosing personal information in order to prevent recurrence. In this regard, PTTEP has a certain process to verify facts confidentially. It is recognized only by those involved to protect the employees and the whistleblower will not be affected by the complaint.

7) PTTEP conducts the Employee Engagement Survey every 2 years. The recent results in 2022 indicated that the staff engagement is score is 74% which is higher than benchmarks including Thailand Market Average, Thailand's Oil, Gas, Exploration and Production companies, APAC's Oil, Gas and Consumable Fuels companies and Fortune 500 companies. Referring to employee engagement survey results, PTTEP has an initiate improvement plan for achievement goal during 2023-2024.

(3) Clients

PTTEP is committed to our mission to be a leading producer and supplier of crude oil, natural gas, condensate, naphtha, and LPG at fair and competitive prices. The Company sells the products under short-term to long-term contracts as well as in the spot markets. The Company assesses clients' suitability by the following four criteria, namely, economic return of the product prices, financial stability, safety standards, and compliance with local laws and regulations of each client. The Company treats all clients equally for the optimal benefit of all and is also committed to strictly comply with the contracts as well as maintaining clients' confidential information in compliance with Personal Data Protection Act B.E. 2562 (2019) as disclosed in the "Policy and Statement of Personal Data Protection" topic. In addition, the Company holds regular meetings with our clients to exchange production plans and demand forecasts to ensure that we can produce and deliver products that meet the quality, quantity, and delivery time specified in the contracts. The Company also conducts satisfaction surveys with clients to improve our product and service quality.

(4) Governments

PTTEP conducts the business by adhering to the Good Corporate Governance and Business Ethics and dedicates itself to exploring and supplying petroleum domestically and internationally. The Company strictly complies with the laws applicable to our operations in all locations where we operate.

(5) Joint Venture Partners

Joint venture projects between PTTEP and the Company's domestic and foreign joint venture partners operate under mutual working agreements according to international standards including corporate governance. These agreements include details in regard to the rights and duties of joint venture partners such as the right to become a member of a project's management committee. The committee is responsible for establishment of guidelines on the procurement of products and services as well as for development of the strategic planning and annual budgeting with a clear scope and approach. The partners also have the right to audit annual financial and accounting records, also to set appropriate and clear measures, for example, penalty imposed on partners for failures to honor an agreement. The Company meanwhile remains focused on the distribution of information to joint venture partners and external parties with transparency.

(6) Communities and Societies

PTTEP Corporate Social Responsibility Policy emphasizes sustainable social development and stakeholder engagement at all levels. Social responsibility has been integrated with each business decision-making and execution process. This Corporate Social Responsibility Policy is adopted in all PTTEP operations areas.

In this regard, PTTEP uses the Issue and Stakeholder Management System (ISMS) as a tool to analyze social risks and mitigate impact as well as to promote good relationships with communities in every operating area. ISMS has been set as a KPI for the relevant managers and Public Affairs staff to ensure effective implementation. ISMS workshop is organized for the executives and staff of all domestic and international assets on a regular basis. Public Affairs staff revisit ISMS through ISMS Report Online System to update the information every year.

(7) Environment

With a commitment to operate business conscientiously and responsibly towards society and the environment, the SSHE Policy includes a commitment to environmental protection, the Company personnel, business partners, and contractors working for or on behalf of the Company must abide by the SSHE Policy.

PTTEP realizes that our activities can cause environmental impacts and affect the stakeholders. The Company engages with relevant stakeholders to ensure their concerns and recommendations are addressed. These concerns and recommendations can be applied to mitigation and monitoring measures in environmental impact assessment reports. Furthermore, PTTEP promotes a good relationship with communities through regular engagement and having assigned external relations staff to meet with local communities in case any environmental concerns or complaints are raised.

PTTEP transparently discloses environmental performance to the public in various channels. The disclosure is implemented in compliance with regulatory requirements, the Company requirements, and international practices.

(8) Vendors

According to the Procurement Regulation and the Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE), vendors play a crucial part in the sustainability of our business. We therefore employ a policy which aims to treat our vendors as equal business partners. PTTEP's procurement system is based on fair competition, compliance with the laws and regulations as well as other legal obligations, and taking into account the Safety, Security, Health, and Environment (SSHE). The vendors must follow the Company's work safety standards. Their employees, meanwhile, are also required to have good business ethics and respect for human rights. In addition, under the Company's vision, PTTEP leverages Energy Partner of Choice through competitive performance and innovation for long-term value creation.

PTTEP Vendor Guide

PTTEP developed the Vendor Guide to provide our vendors with the necessary information for contacting and conducting business with PTTEP. The information contained includes CG&BE, procurement process, contract management, and PTTEP Vendor Sustainable Code of Conduct and compliance, as well as several vendor communications channels for enquiries and complaints. Details of the PTTEP Vendor Guide are available on our website at www.pttep.com > E-Service > Procurement and Contract > PTTEP Vendor Guide.

Vendor Registration

PTTEP is deeply committed to free and fair business competition without trade barriers. There are 3 channels for interested vendors to register with the Company.

1) PTTEP website: Vendors can register their profiles through our website at www.pttep.com > E-Service > Procurement and Contract > New Vendor Registration.

2) The Category & Vendor Management section: Vendors can contact the Category & Vendor Management officers or Procurement & Contract officers during business hours to register their profiles.

3) PTTEP Users: Vendors can directly register their profiles with PTTEP users who may, in turn, provide the vendors' names to the Category & Vendor Management section for preliminary review of their qualifications.

Additionally, PTTEP also published Privacy Notice and Guidelines on the Protection of Personal Data for the Procurement Process of the PTTEP Group on Procurement Website and the Vendor e-Registration system to comply with the new Personal Data Protection Act B.E. 2562 which is in effect in 2022.

New Vendor Pre-qualifications

PTTEP pre-qualifies suppliers by screening and evaluating vendors according to their product and service categories, independently, with equality and transparency, each function of the committee has the authority to consider and evaluate the vendors to ensure that they possess the qualifications to deliver the products or provide the services needed.

The evaluation process is performed by a special procurement committee and comprised of three functional areas:

1) Technical and QA&QC
2) Safety, Security, Health and Environment (SSHE)
3) Commercial, Legal and Social

In 2022, PTTEP also set financial re-evaluation measure to revisit bidders' financial status for high value project in order to mitigate risk during the economic crisis in 2022.

Vendor SSHE Contractor Management Procedure and Plan

PTTEP introduced new measures to monitor and improve the management of vendors regarding SSHE which is one of our core values. The SSHE Contractor Management Procedure and Plan were issued to ensure a better understanding as well as to encourage appropriate operational planning.

Public Procurement and Supplies Administration Act, B.E. 2560 (2017)

As a state enterprise, PTTEP must comply with the Public Procurement and Supplies Administration Act, B.E. 2560. PTTEP has communicated to all vendors to be prepared for the new process should they wish to submit a supply proposal to PTTEP. The communication draws their attention to, for example, study the procurement process under the Act. This is to ensure that our procurement procedure conforms to the objectives of the Act, namely value for money, transparency, efficiency and effectiveness, and verifiability. All information related to procurement process is provided in the vendor guide and also published on the Company's website for public notification.

In addition, PTTEP also supports SME entrepreneurs and made in Thailand products as per e-GP regulation, e.g., considering SMEs as the priority for sourcing opportunity, setting the scope of work to suit Made in Thailand products, setting conditions/vendor qualification and evaluation criteria to support SMEs and Made in Thailand products, support Thai entrepreneurs or companies registered in Thailand, etc.

Procurement Sourcing Strategy

PTTEP developed Annual Procurement Plan (APP) in accordance with Company 5-year roadmap. As such, the Company is able to leverage sourcing strategy and set contractual period as appropriate for market situation for both domestic and international assets including new business projects, i.e., Domestics Gas to Power Project. The APP shall be endorsed by authorized person as per Delegation of Authority and Signature document. After the APP is endorsed, PTTEP will apply sourcing strategy based on scope of service, essential contract terms and conditions, vendors, market condition, estimated contract value, duration, Category Management Process as well as risk management in order to efficiently proceed with procurement plan.

In 2022, the Company developed Category Management Framework to manage categories differently to suit characteristics of each category in terms of strategy, contract management, and supplier relationship management (SRM). As a result, it will enable procurement and supply chain organization to obtain cost saving and increase value to Company.

Additionally, PTTEP continuously seek for sourcing opportunity from a low cost country by finding new potential bidders for categories which have limited source of supply or those which aim to achieve further cost saving target. The new potential bidders will be assessed for quality as per Company's standards in order to be approved as an approved vendor list. As for internal procurement sourcing approval process, the procurement strategy and contract, including a list of bidders must be internally approved by the three functions, namely, operations, assets, and procurement, in order to ensure checks and balances as well as verifiability. This information will then be submitted to the Procurement Committee (PC) and joint venture partners (if any) for approval prior to proceeding with the bidding.

For procurement process under the Production Sharing Contract (PSC), PTTEP is required to submit Annual Master Procurement Plan (AMPP) in order to obtain endorsement from the Department of Mineral Fuels (DMF) for procurement valued above THB 10 million prior to sourcing process. For any procurement transactions that fall under DMF criteria for submitting Procurement Strategy, the Procurement Strategy Sheet shall submit for DMF's endorsement 30 days in advance of procurement process.

Vendor Selection

PTTEP focuses on strategic sourcing where the Company will conduct a bid clarification meeting with high value contract bidders prior to tendering process. In the process of vendor selection for high-value and high-risk procurement, the technical proposal will be evaluated first prior to consideration of the commercial proposal. Subsequently, the result of the bidding process will be submitted to the Procurement Committee (PC), joint venture partners (if any), and the Board (for high-value procurement) for endorsement prior to the stage of contract drafting with the selected vendor. Furthermore, PTTEP is required to inform the bid result to DMF, and in the event that awarded contract value is 10% higher or lower than Procurement Strategy, DMF's endorsement is required prior to awarding the contract. The Company only selects vendors with the required technical and SSHE qualifications, and which offer the lowest price or on the basis of the best interest of the PTTEP Group.

Moreover, PTTEP has adopted a weighted technical and price score method together with Green Procurement criteria in the vendor selection process in order to align with the Company's sustainable development policy.

Contract Management and Assessment

Contract Management and Supplier Relationship Management (SRM) is an important component for the petroleum exploration and production business. A contract holder coordinates between vendors and all relevant parties, to ensure that they fully understand and comply with PTTEP's work plan, contract objectives, SSHE standards, and risk mitigation plan, as well as critical key performance indicators (KPIs). The contract holder also needs to assess and follows up periodically on the performance to ensure that the vendors operate according to the contractual terms. At the end of the contract, the contract holder also must complete the Contract Closed-out Report to identify areas of improvement regarding the operations and long-term sustainable relationship with the vendor. In 2022, PTTEP improved and set standard supplier performance evaluation criteria to suit characteristics of each category and set corrective action plan for those vendors who fail the evaluation. Evaluation result will also be used in vendor pre-qualification evaluation in the future.

Additionally, PTTEP enhanced contract management process to increase process efficiency by revising Procurement & Contract Procedure and Procurement & Contract Training Toolkit as well as PTTEP Delegation of Authority & Signature (PTTEP DAS) to be more prudent, align with current process, and communicate the new procedure to all stakeholders via Contract Holder Certification Program workshop to build understanding and awareness.

Vendor Collaboration Initiatives

In 2022, PTTEP continued to develop an effective supply chain management and supported vendor collaboration initiatives to maintain a good relationship with the vendors, and develop Supplier Relationship Management Plan, e.g., organized pre-bid meeting with vendors under critical work categories, communicated strategic direction and business opportunities to vendors for advance tender preparation, conducted offshore drilling contractor performance monthly meeting, organized annual meetings with major vendors. As a result of good collaboration with vendors, PTTEP has successfully established 27 Master Service Agreements with vendors and plans to develop additional 28 agreements in 2023 for the repetitive sourcing items to reduce procurement process and time. In addition, in 2022 Company has completed 11 Frame Agreements with vendors in Geophysical Site Investigation Survey and Geotechnical Testing & Investigation Survey and plan to enter into another 6 agreements in the line pipe work category in 2023 to reduce lead time and increase procurement efficiency.

In addition, PTTEP organized the 2022 PTTEP SSHE Forum with the key objective of demonstrating PTTEP's strong commitment to continuously improving Safety, Health, and Environment in our operations. During the year, SSHE related activities, such as Annual Contractor Audit, S1 SSHE Talk Monthly Meeting, and SSHE Culture Survey was also held to build awareness and enhance efficiency in Safety, Security, Hygiene, and Environmental aspects to all stakeholders.

Local Content

To enhance the capability of domestic vendors to compete internationally, PTTEP supports sourcing of local products and services. Not only does it promote domestic employment and income distribution, but it also reduces the outflow of capital to other countries. As a result of our commitment to building a long-term relationship with the communities where we operate, the Company has been entrusted by the respective communities with licenses to operate. Meanwhile, the Company also encourages our vendors to operate with care and responsibility wherever they are, and to increase their local sourcing to save on costs as well as to support the local communities.

Vendor Sustainability Management

PTTEP is committed to operating our business to achieve sustainable growth and adhering to good corporate governance for the community, society, and environment. To achieve these goals, we give priority to the supply chain management and the monitoring of our vendors.

"PTTEP Vendor Sustainable Code of Conduct" was drafted with its contents and scope adhering to the relevant rules, regulations, and laws. The vendors are encouraged, in all of their activities, to be ethical, respect human rights, comply with the SSHE standard, and prioritize environmental management. An example of PTTEP's environmental management plan is the "Green Procurement Roadmap" that we have collaborated with the Thailand Environment Institute to develop "Green Procurement Criteria" since 2017. In 2022, PTTEP successfully developed green procurement criteria for 27 work categories and implemented in

technical bid evaluation in conjunction with commercial evaluation to award bidder. The successful bidder shall get at least 30% score to pass PTTEP green procurement criteria.

Vendors' Environmental, Social, and Governance (ESG) Assessment

For more effective supply chain management in vendor management, in 2022, PTTEP and the PTT Group of companies conducted a Supplier On-site Audit via Microsoft Teams Meeting by External Party and 1 key vendor in Drilling Services passed this audit. In addition, there is a collaboration among PTT Group to develop internal ESG auditor instead of external party in the future. Consistent with our policy and that of PTT Group of Companies, a workshop held by an external party was organized to promote better understanding among our vendors about the sustainability assessment criteria and to encourage improvement in the sustainability capability in their respective organizations.

Whistleblowing

To give confidence and protection to vendors and related parties from possible retaliation as a result of reporting in good faith of suspicious misconduct or wrongdoing of the directors, management, employees, or persons acting on behalf of the Company which might be in violation of the law, CG&BE, or other regulations of the PTTEP Group, the Company establishes the CG Hotline to handle the matters. Vendors can email cghotline@pttep.com or report through PTTEP Whistleblowing System at www.pttep.com.

Additionally, PTTEP has also proposed 3 high-value sourcing projects to Anti-Corruption Cooperation Committee to participate in the Integrity Pact Project to verify transparency throughout the procurement process. In 2022, the projects are under assessment process.

Digital Transformation in Vendor Management

PTTEP leverages digital technology in managing our vendors to enhance the efficiency and effectiveness in managing risks by developing the new procurement platform (GEP Smart) to replace legacy systems to digitalize end-to-end procurement process and have fully implemented the platform from the process of vendor registration, bidding, and contract management to supplier performance evaluation in 2022.

In 2022, PTTEP focused on the system and process integration throughout the supply chain management by integrating supply chain and supplier data analysis with the external source of data into the Company's system. Additionally, PTTEP integrated annual procurement planning process, sourcing, logistics, and payment process to make the entire process agile and support electronic procurement process.

(9) Creditors

PTTEP recognizes the importance of the Company's internal and external stakeholders including creditors. This is based on our policy of equitable treatment for all stakeholders, and an integral part of the CG&BE.

Emphasis is placed on accurate, complete, timely, and transparent information disclosure to all of the stakeholders. Information disclosed by the Company consists of financial and non-financial information. Financial information particularly the financial statements is reviewed and audited by an independent auditor in compliance with the generally accepted accounting principles. The information is also endorsed by our Audit Committee as well as the Board of Directors prior to public disclosure.

Regarding creditors, PTTEP's debentures issuance and all relevant processes are in compliance with the laws, policies and regulations stipulated by the SEC as well as the policies, purposes, and resolutions set forth at the Company's shareholders' meeting. The Company agrees to fulfill the obligations stated in the terms and conditions of the debenture and loan agreements and to ensure that the information is accurately and adequately disclosed to all stakeholders. The Company also maintains all of the necessary measures to remedy incidents or other types of impairments which may arise as a result of non-compliance.

(10) Competitors

PTTEP treats our competitors with professionalism, equality, and transparency. The Company, in our greatest effort, tries to avoid all unethical manners and ill-intentions to defame the reputation of our competitors through false, unfair statements, or acts. It is also committed to complying with local laws and regulations regarding trade competition. Details of the Trade Competition Policy are disclosed in the CG&BE.

(11) Customs and Traditions

PTTEP adheres to local customs and traditions. Orientation is provided, with inputs from leading consulting firms that provide insights into local life and customs, to the employees who receive international assignments to help them understand and be able to act properly and appropriately. The Company also supports and encourages employees to learn the local language to strengthen the relationship of working together with the local people. The Company also supports and provides information through the intranet system to facilitate employees to access the information anywhere anytime.

(12) Human Rights

PTTEP has a human rights policy where the Company is committed to respecting fundamental human rights, as guided by its corporate good governance and business ethics, by complying with all applicable legal requirements, cultures, customs, and values in dealing with all of our stakeholders, avoiding complicity in human rights abuses and treating all employees with dignity, respect, and fairness as well as strictly prohibiting ourselves from direct and indirect employment of child and forced labor. The Company's Human Rights Policy fully complies with the UN Universal Declaration of Human Rights and the UN Guiding Principles on Business and Human Rights and its corresponding covenants, the international principles relating to labor practices and the United Nations Declaration on the Rights of Indigenous Peoples including the United Nations Global Compact (UNGC) that we commit to the 10 principles of UNGC, In 2022, PTTEP, as one of more than 850 companies from over 80 countries, participated in the Early Adopter Programme to test the new UNGC Communication on Progress platform for further improvement. Additionally, PTTEP received the winning award for the state enterprise sector as the 2022 Role Model Organization on Human Rights from the Department of Rights and Liberties Protection, Ministry of Justice for the 4th consecutive year.

Currently, PTTEP is a member, in fact, one of the founding members since 2016, of the Global Compact Network Thailand together with 14 other Thai organizations who have placed high priority on sustainable development. The objective of the network is to encourage Thai business sector to recognize the importance of conducting their business under the UN Global Compact principles.

The Company is also committed to providing fair employment while ensuring that the employees have a safe and hygienic working environment. The Company ensures that no threats exist to employees or those related to the Company's operations. The Company also provides the interaction between the executives and employees by allowing the latter to have their representatives

in the welfare committee while exchanges of views and suggestions are encouraged for improvements of welfare and other benefits to improve our employees' well-being.

For more details, please visit the PTTEP website, Sustainability topic, at

https://www.pttep.com/en/Sustainability.aspx, subtopic: "Human Rights"

(13) Laws

PTTEP respects laws everywhere in which we operate. The Board sets the matters relating to the compliance with applicable laws, regulations, and policies in the Business Ethics of the PTTEP Group. The Company directors, management, and employees are required to understand as well as strictly abide by all the applicable laws relating to the Company's operations in all areas ensuring that all the PTTEP Group's operations are in full compliance and efficient.

PTTEP has a centralized compliance unit namely, the Governance, Compliance, Internal Control, and Subsidiary Management Department to oversee and monitor the compliance performance of the PTTEP Group. The Department has a direct reporting line to the Senior Vice President of the Corporate Secretary, the Executive Vice President of the Human Resources, Corporate Affairs, and Assurance Group, and the Chief Executive Officer, respectively. In 2013, the Company announced the Compliance Policy to express our commitment to full legal compliance as well as to define roles of all managers and employees in promoting compliance in all operations. The Compliance Program has been developed to enhance awareness of the importance of compliance among employees. The Company also developed the Compliance Manual as a guidebook of reference in ensuring a consistent and effective approach to operating/working for all operations with regard to the applicable laws, the Company's regulations, and contractual obligations with the purpose to enhance employee awareness on both internal and external compliances.

6.1.3 Information Disclosure and Transparency

Disclosure of Financial and Non-Financial Information

Information disclosure is a key aspect of good corporate governance. PTTEP gives importance to the information disclosed to the Stock Exchange of Thailand (SET) as well as to the shareholders, and the information must be accurate, sufficient, timely, and equally available to all parties. The information is prepared according to the Company's Business Ethics Guidelines. The departments which are responsible for providing information and replying to external queries from the SET and the public are the Investor Relations (IR) section and the Communications Department.

The information disclosure consists of financial information and non-financial information. Financial information is disclosed through financial statements which are reviewed or audited by the external auditor to confirm that they are presented accurately, in all material respects, according to the Thai Financial Reporting Standards. The financial statements are subsequently approved by the Audit Committee or the Board prior to being disclosed to the public. The Board reports their responsibilities with respect to the financial statements in the annual report (56-1 One Report). In addition to the SET's requirements, the Company also releases unaudited annual financial statements in advance to allow timely access to the financial information for the shareholders and investors. Unless stated otherwise, the information before and after the audit usually and generally does not contain any significant changes. The Company also discloses non-financial information, such as acquisition and disposal of assets, related party transactions, dividend payments, the management discussion and analysis, risk management, invitation letter for the shareholders' meetings, minutes of meetings, as well as other information which is important for investment decisions according to the SET's and the Securities and Exchange Commission (SEC)'s requirements. The Company also disclosed the annual corporate governance report in the annual report (56-1 One Report).

Information that PTTEP discloses to SET, the Company's shareholders, investors, and the general public is disseminated in both Thai and English on the Company's website which also features other up-to-date information considered to be of interest to the aforementioned parties. Key information available on the website comprises petroleum exploration and production projects, investment projects, quarterly and annual analyst meeting presentations, webcasts, roadshow presentations, historical and latest stock performance, analyst coverage, and news releases. The Company also reports our safety, security, health and environment (SSHE) performance which is included in the annual Sustainability Report. In addition, the Company makes videos and infographics presenting the financial information and operating results available on its website for those interested.

The Company also publishes a quarterly investor newsletter, the Explorer's Journal, which includes information that may be beneficial to our shareholders and investors, such as quarterly performance highlights, project updates, good corporate governance practices, topics on sustainable development, and knowledge sharing on the fundamentals of the exploration and production business. The newsletter is prepared in Thai and English, and is available in both hard copy and electronic formats. The latter can also be downloaded from the Company's website and/or received by electronic subscription. Moreover, the Company has also launched PTTEP Investor Relations Mobile Application and Chatbot, effectively serving as an additional communication channel between the Company and shareholders for news and updates.

In 2022, PTTEP disclosed a total of 40 articles through the SET portal and organized the following activities for the shareholders and analysts.

Activities	Amount (Times)
• Roadshows/conferences	21
• Analyst meetings	4
• Opportunity Day and SET Digital Roadshow (arranged by SET)	7
• Knowledge Sharing events for investors	1
• Company visits and conference calls	35

Due to the improvement of COVID-19 situation, the activities in 2022 were arranged in the forms of virtual conferences or online meetings, or through telephone correspondences, and physical meetings both domestic and overseas. The IR team also sets up a booth at the Company's AGMs so as to readily provides information and answers to questions raised by the shareholders.

The Company realized that disclosure of information, which is accurate, complete, timely, and transparent is a key to the CG&BE and therefore is committed to performing its best in this area.

Investor Relations

The Investor Relations (IR) section is responsible for the communication of relevant information and news which reflects PTTEP's fair value to analysts, shareholders, and general investors according to the SET's and SEC's requirements to foster confidence within the analysts and investment community. IR is also entrusted with upholding the corporate image and perception among analysts and investors and advising IR related issues to the Company's executives.

PTTEP's IR can be contacted through the following channels.

1) **Head of Investor Relations:**

Thanat Thamrongsaksuvit Telephone: +66-2537-4259

2) **Investor Relations Section;**

Telephone: +66-2537-7641, +66-2537-4217 and +66.2537.5522

E-mail: ir@pttep.com Fax; +66-2537-4444

6.1.4 Policy and Statement of Personal Data Protection

PTTEP recognizes the importance of personal data protection and governance of personal data in accordance with the Personal Data Protection Act B.E. 2562 (PDPA) and associated secondary laws. The following actions have been taken to ensure full legal compliance:

1) Carry out PDPA Gaps Analysis and Recommendations to study and analyze legal requirements and internal processes in accordance with PDPA and communicate the recommendations to relevant parties for implementation, for example, privacy notice, personal data consent, and cookies consent, etc.

2) Establish a PDPA Implementation Plan and consult with relevant parties to put the plan into action, follow up on the implementation, and examine related documents.

3) Establish and announce the Personal Data Protection Policy on PTTEP's website to announce the Company's intention to protect personal data and explain how the Company treats personal data.

4) Provide Personal Data Protection Notice for External Parties to inform the owner of personal data and understand the purpose and method of collection, use, disclosure and/or transfer of personal data abroad, including rights as the owner of personal data, etc. The information is published at the Personal Information Protection Center on the website of PTTEP.

5) Establish and announce the Personal Data Protection Standard for Employees to ensure that employees know how to treat their personal data and how to comply with the law.

6) Organize training about PDPA for employees and communicate PDPA knowledge via e-mail throughout the year 2021-2022.

6.1.5 IT Security Policies and Practices

Since 2019, the Board has delegated cybersecurity oversight to the Risk Management Committee. Within the Risk Management Committee, Lieutenant General Nimit Suwannarat, an independent director, was tasked with overseeing the Company's cybersecurity strategy and review process.

Furthermore, in 2022, PTTEP appointed the Digital Steering Committee, with the Executive Vice President of the Operations Support Group (OPS) as its chairman, to take on the following responsibilities:

- Define PTTEP digital directions, policies, and strategies.
- Review new digital technologies and innovative ideas in accordance with digital strategies.
- Define PTTEP Digital Master plan and Roadmap to align with PTTEP and PTT Group's direction and business strategy.
- Provide advice and define solutions related to digital operations and processes.

- Govern and monitor digital risk management to ensure risks are within tolerant level under the Enterprise Risk Management Framework.

Reporting to the Digital Steering Committee, the Vice President of the Information Management Department performs the role equivalent to that of the Chief Information Security Officer. He and his team are responsible for developing the direction, targets, strategy, policies, and standards for information technology security. Their tasks also include supervising the IT risk management as well as the IT security master plan and roadmap, with a view to keeping cyber risks in line with the Company's risk appetite. Indeed, cybersecurity risks have been incorporated into the corporate risk profile, which is closely overseen by the Digital Steering Committee, the Risk Management Committee, and the Board of Directors to ensure that PTTEP can respond promptly to any cyber threats. Furthermore, to strengthen PTTEP's response to cybersecurity incidents, the Company will formally appoint the Chief Information Security Officer and establish the Cybersecurity Incident Response Task Force by the first quarter of 2023.

PTTEP issued three policies related to information security/cybersecurity, namely Digital Security, Information Security Management System and Cybersecurity. All these policies were announced across the organization in keeping with good corporate governance and are available to all the management and the employees through the PTTEP intranet. All the employees acknowledged these policies and received relevant training through the cybersecurity and IT security training program, which was carried out to foster their awareness and understanding of the relevant corporate policies and regulations, as well as Thailand's Computer Crime Act B.E. 2550 and Personal Data Protection Act B.E. 2562. All policies and training programs are reviewed regularly so that they remain relevant.

6.2 Business Ethics

PTTEP is committed to operating ethically primarily because the Company’s Business Ethics is regarded as the crucial behavioral framework and good business guidance for all directors, management, and employees to perform effectively, and ethically, as well as to treat every group of stakeholders equally, fairly, and transparently. These practices shall build confidence and acceptance on the efficiency and transparency of the Company’s business operations, creating a long-term sustainable value for all stakeholders and fairness for everyone concerned.

Business Ethics of the PTTEP Group is part of the “Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE)”. The Board first established its written Business Ethics in 1989, and it is constantly reviewed annually. The current version of the CG&BE was approved by the Board on July 29, 2022, and it was regarded as the highest regulation for business operations of the PTTEP Group. More details of the CG&BE are disclosed in Attachment 5.

PTTEP’s Business Ethics consists of principles, guidelines for good practice, samples of questions and answers, information for further study, and a list of the departments responsible for each of the principles. There are 10 ethical issues which reflect our organizational values of the PTTEP Group to which directors, management, and employees must adhere as the following:

1) Compliance with Laws, Regulations and Rules, and Respect for Different Customs and Cultures
2) Political Neutrality
3) Human Resources
    - Workplace Environment
    - Privacy, Equal Treatment, and Anti-Harassment
    - Illegal Drugs, Substance Abuse, and Alcohol
    - Outside Employment, and Management and Employees’ Participation in Outside Activities

4) Use and Protection of Information and Assets
   - Record Keeping, Using, Disclosing, and Safeguarding Information
   - Use and Storage of Electronic Data and Information Technology Resources
   - Use and Protection of Intellectual Property
   - Insider Trading and Use of Inside Information
5) Conflicts of Interest
6) Procurement and Contracts
7) Anti-Fraud and Corruption
8) Trade Competition
9) Anti-Money Laundering
10) Safety, Security, Health, and Environment

PTTEP has distributed its PTTEP Group's CG&BE booklets to all directors, management, and employees for their reference and adherence. Everyone is also required to sign their names, thus committing themselves to apply the PTTEP Group's CG&BE to the highest working standards. In addition, the booklets are sent to the Company's business partners, regulators, parties with regular business relationships with the Company, and other interested parties. For the convenience of the Company's shareholders, investors, and interested parties, the contents of the PTTEP Group's CG&BE booklets can also be found at the Company's website under the Corporate Governance section.

PTTEP continuously enhances and promotes the awareness and understanding of the PTTEP Group's CG&BE among the Company directors and personnel. The Board governs the ways in which the CG&BE is communicated to the directors and personnel to ensure that they are able to uphold and comply with such policy accordingly. Communications also extend to external parties, for example, employees, consultants, business partners, subsidiary companies, agents, nominees or any person acting on behalf of PTTEP Group in order to promote good ethical cultures throughout the business chain and society in general. Details are explained in the "Continuing to Provide Communication, Knowledge and Training" sub-topic under the "Anti-Corruption" topic.

The Board monitors and evaluates the performance of the CG&BE activities quarterly. The Corporate Secretary Division is in charge of reporting them to the Corporate Governance and Sustainable Development Committee and the Board on a quarterly basis to ensure that CG&BE activities achieve the targeted performance. Furthermore, the Corporate Governance and Sustainable Development Committee has reviewed the work plan by taking into account the evaluation results on CG&BE and anti-corruption measures to ensure continuity and efficiency for the development of the work plan.

6.3 Major Changes and Developments of Policy, Practices, and Corporate Governance System in the Past Year

6.3.1 Significant Changes and Developments of the Corporate Governance Policy, Guideline, and Governance System

PTTEP realizes the importance of good corporate governance that it will promote effectiveness and sustainable growth of the Company's operations leading to the best interest of all stakeholders. PTTEP, therefore, regularly reviews and improves the policy, regulation, and relevant guidelines to ensure the effectiveness of implementation. The significant changes and developments of the Company in 2022 are as follows:

1) The Revision of the Good Corporate Governance and Business Ethics Regulation (CG&BE)

The CG&BE regulation is regularly reviewed and updated every year to ensure continued relevance in the changing laws and alignment with international standard. The following were the significant changes in 2022: rewriting passage in a part of Good Corporate Governance (CG) under the topics of information disclosure and transparency, editing the content in a part

of Business Ethics (BE) to be clearer and easier to understand with clear examples in various topics, for example, Human Resources, Use and Protection of Information and Assets, Conflicts of Interest, Anti-Money Laundering, Safety, Security, Health and Environment. Moreover, the definitions of terms, for example, fraud, corruption, and confidential information, were also revised to be clearer and to cover behaviors that may be considered fraudulent more inclusively.

2) The Revision of the Standard of Practices for Anti-Corruption

PTTEP amended the Standard of Practices for Anti-Corruption, which is deemed to be a part of the PTTEP Group CG&BE, to be more precise and appropriate, align with applicable laws and be clearer and more practical for implementation.

3) Laid the foundation and expanded operations in terms of CG&BE to cover new transition projects, for example, Malaysia Asset and Yadana Project. The following were examples of activities: providing CG&BE and anti-corruption training to new employees, expanding coverage of CG&BE e-Learning to overseas staff in order to review their understanding of CG&BE, implementing CG&BE Report System in overseas assets, which includes commitment form signing and conflicts of interest reporting. Additionally, GRC Roadmap for Malaysia Assets was well established including monitoring and reporting process together with GRC culture building through the proper channels.

6.3.2 Other Good Corporate Governance Practices

PTTEP values and strictly abides by the PTTEP Group CG&BE and international best practices, which are applied with due regard for our circumstances, business, and the best interests of the Company, shareholders, and stakeholders as a whole. Below is PTTEP's additional implementation pursuant to best practices:

1) Since PTT holds (both directly and indirectly) 65.29 percent shares in PTTEP, the free-float proportion of shares is less than 40% of the total paid-up shares. Yet, the current free-float proportion is enough for minor shareholders to exercise their rights to veto significant transactions. PTTEP values full compliance with the SEC and SET rules and regulations while taking seriously the perennial stewardship of minor shareholders' rights. Our assorted activities are regularly organized to convey useful information to these shareholders, winning acceptance from relevant external agencies.

2) PTTEP recognizes the importance of advanced delivery of the Shareholders' meeting notices to shareholders to allow them enough time to duly examine the information. The shareholders' meeting date is scheduled in March-the beginning of April every year for shareholders' convenience and to not coincide with other listed companies. This schedule also provides shareholders with early receipt of rights and benefits, including dividends. As PTTEP operates its businesses in many countries, it takes more time to carefully audit our financial statements, which are in the interests of shareholders, and to plan various report preparation well. Recently, the Company was able to send meeting invitations to shareholders by post 21 days in advance before the Meeting. In addition, PTTEP also publicized the meeting invitations on our website no less than 30 days in advance before the Meeting to give shareholders enough time to examine the meeting data.

3) Under PTTEP's Articles of Association, director election is done by a majority vote, with one share carrying votes equal to the number of shares held by oneself, and shareholders can vote for individual directors. Directors receiving the highest votes are elected along with those receiving ranked votes, and so on until the number of available director positions are filled. PTTEP, therefore, does not rely on the cumulative voting method. PTTEP has defined other methods of looking after the interests of minority shareholders, including allowing them to nominate director candidates for election in advance.

4) Detailed and thorough verification of the rights of attending shareholders ensures that multiple proxies are properly done without affecting the rights of other attending shareholders.

5) Directors automatically retire at the age of 70; their qualifications become void when they reach this age.

6) PTTEP specifies a maximum of 9 years for consecutive service by directors and independent directors. Those who completed consecutive terms totaling 9 years are no longer eligible for director re-election. PTTEP also considers and values the possibility of shortening consecutive periods for independent directors, such as not more than 6 years, when the time is right; the primary consideration is for suitably qualified directors for the exploration and production business in the best interests of PTTEP and its stakeholders.

7) PTTEP requires that the number of independent directors should be no less than half of the Board of Directors.

8) PTTEP values the independence of the Chairman of the Board; therefore, we give a top priority to choose the Chairman from the list of independent directors, except for other justification or suitability in other aspects, e.g., business expertise, work experience, and good leadership in order to find the suitable person. PTTEP has adopted specific processes for this position, including Chairman assessment by the entire Board of Directors to ensure his genuine independence. Details are disclosed in the "Governance Structure and Key Data on the Board of Directors, Specific Committees, Management, Employees, and Others" section, "Independence of the Chairman" topic. The present Chairman is an independent director.

9) The PTTEP Board of Directors annually revisits the suitability of the Skill Mix by explicitly defining each skill aspect or proficiency and setting the annual target for the Skill Mix in line with prevailing business circumstances and changing the business environment for director recruitment and capability development. The Board also values the Board's diversity by not discriminating against gender, nationality, ethnic group, race, country of origin, or cultural background.

10) PTTEP applies best practices on requiring a minimum quorum for the meeting voting of no less than two-thirds of the entire Board's directors (excluding those with vested interests). Furthermore, PTTEP's corporate governance requires that directors absent without good reasons from the Board meetings on more than three consecutive occasions should automatically lose their qualifications as the director. PTTEP also sets meeting attendance as an indicator of the Board Performance Target. PTTEP's practice is to determine and schedule Board and sub-committee meetings during the Year in advance for the benefit of efficient planning by the directors. In 2022, more than two-thirds of the Board attended every Board meeting. Finally, before any voting, the Chairman gives all directors opportunities to ask questions and extensively discuss issues for a unanimous decision

11) Assessment of the Board of Directors and sub-committees is done through scoring on performance assessment forms for both self-assessment and cross-assessment, Chairman assessment, and entire-Board assessment together with evaluation against Board performance target covering all aspects of both business performance and good corporate governance. Assessment results are discussed by applicable sub-committees in order to improve their performances. In addition, the Board of Directors undergoes appraisal by neutral external agencies, including the Corporate Governance Report of Thai Listed Companies (CGR) Project carried out by the Thai Institute of Directors (IOD), and the ASEAN CG Scorecard assessment. Survey findings are used for the Board's performance improvement.

12) This year PTTEP held 3 independent directors' meetings and 1 non-executive meeting for consultation and exchange of views on crucial, useful matters of the Company, and major and minority shareholders and upgraded our corporate governance practices. The CEO was subsequently informed of the outcomes of these meetings.

13) PTTEP specifies a policy on CEO and senior management compensation in line with their short-term and long-term performance, as well as tied to PTTEP's performance. The Company disclosed the ratio of the CEO's compensation to the average compensation of the Company's executives, as well as to the average of all employees.

14) PTTEP does not have a scheme to give the management the right to buy PTTEP shares, but the Company instead applies an appropriate compensation structure suitable for business, which is competitive and screened by the Nominating and Remuneration Committee and the Board of Directors.

6.3.3 Awards and Recognitions for Good Corporate Governance

1) Being a recipient of the NACC Integrity Awards granted by the National Anti-Corruption Commission (NACC) at the 10th NACC Integrity Awards, the Company was deeply honored to have received this prestigious award for the 4th time. This Integrity Award is given to organizations that stand out as a role model in operating its businesses with integrity, transparency, fraud prevention, and social responsibility which is in line with good corporate governance principles and international ethical practices.

2) Being awarded the 2022 Role Model Organization on Human Rights in State Enterprise sector by the Department of Rights and Liberties Protection, Ministry of Justice, PTTEP was honored to have won this prestigious award for the 4th consecutive year. This recognition is a testament of our operation strictly adhered to principles of good corporate governance, corporate social responsibility, respecting diversity, and fundamental human rights in all operating areas. The Company has passed the evaluation criteria which are in line with the United Nations Guiding Principles on Business and Human Rights (UNGPs) and established guidelines for preventing human rights violations, built awareness and responsibility for human rights among personnel. PTTEP also has systems in place to oversee every function within the Company and whistleblowing channels for stakeholders to voice their grievances.

3) Being certified by Thai Private Sector Collective Action Against Corruption (CAC) as a member for the 3rd consecutive term, reflects PTTEP's commitment and compliance to anti-corruption policy and adherence to principles of good corporate governance and business ethics.

4) Being rated "Excellent" and receiving five of the National Corporate Governance Committee's symbols, the highest level, based on the Corporate Governance Report of Thai Listed Companies (CGR) 2022 of the Thai Institute of Directors Association (IOD). PTTEP has continuously been rated and placed at this highest level since the first assessment in 2001.

5) Being rated to be in the ASEAN Top 20 PLCs and ASEAN Asset Class PLCs at the 2021 ASEAN CG Scorecard was a great recognition of the Company's efforts. The ASEAN Capital Markets Forum (ACMF) and the Asian Development Bank (ADB) have conducted the ASEAN CG Scorecard to honor ASEAN's listed companies that have demonstrated outstanding corporate governance practices.

6) Being recognized as an exemplary corporation in organizing the Annual General Meeting of Shareholders (AGM) for the year 2022 by successfully scoring 98 percent in the AGM checklist assessment conducted by the Thai Investors Association.

7) PTTEP's ranking was advanced to AA (ESG Leader) from A level in the integrated oil and gas sector by Morgan Stanley Capital International (MSCI) ESG Research, a rater with expertise and credibility of ESG indices. The assessment assures investors that a Company has a good Environment, Social and Governance (ESG) performance.

8) Being selected as a constituent member of the FTSE4Good Index Series for the 7th consecutive year by FTSE Russell who prepared such an index and endorsed that PTTEP has satisfied the requirements to become a constituent of the FTSE4Good Index Series. The FTSE4Good Index Series is designed to identify companies that demonstrate strong Environmental, Social and Governance (ESG) practices measured against international standards. The FTSE4Good indices are used by a wide variety of market participants to create and assess responsible investment funds and other products.

9) Being awarded 3 SET Awards 2022 which are Sustainability Awards of Honour, thanks to having received Best Sustainability Awards for the 3rd consecutive year, Best Investor Relations Awards among listed companies for the 2nd consecutive year whose market capitalization values exceed THB 100 billion and Best Innovative Company Awards for Intelligence Pipeline Internal Sampling PIG technology. PTTEP was also honored to be listed in Thailand Sustainability Investment (THSI) for the 7th time. The awards were presented by the Stock Exchange of Thailand (SET) and Money & Banking Magazine. The SET Awards aim to recognize and present the awards to listed companies with outstanding performance while embracing ESG (Environmental, Social and Governance) in their operation.

10) Being selected to receive the APAC NOC of the Year 2022 Award organized by the Energy Council in Singapore, the world's leading network of energy organizations. The awards were given to organizations that have demonstrated operational excellence, can create business value efficiently, have strong financial performance and generate high returns.

11) PTTEP received an outstanding award plaque, the highest rank, under Low Carbon and Sustainable Business (LCSB) of 2022 from the Thailand Greenhouse Gas Management Organization (Public Organization) or TGO. This award recognizes organizations for the management and reduction of GHG emissions and sustainable business practices.

12) Being selected to receive CSR awards in Concern for Health from the Global CSR Excellence & Leadership, The Republic of India. PTTEP Indonesia Company Limited, a subsidiary of PTTEP operating in the Republic of Indonesia, has implemented a Stunting Prevention Program for children in corporation with related agencies in East Nusa Tenggara (NTT). The program sets to upgrade people's quality of life as well as support the national agenda on children stunting prevention. Since 2020, the program has benefited 2,668 persons.

13) Being selected to receive the winning award of Golden Peacock Global Award in recognition of its Corporate Social Responsibility (CSR) for the 3rd consecutive year. The awards ceremony was organized by The Institute of Directors (IOD), The Republic of India. This award is given to organizations that commit to conducting their businesses with good corporate governance principle and driving economic development as well as improving the quality of life for local community and society.

14) Being selected to receive the Gold award in the Best Community Development category from the International CSR Excellence Award, the United Kingdom, for H.T.M.S. Underwater Learning Sites Project. This project aims to protect natural coral reefs by transforming former battleships to be artificial coral reefs and underwater tourist attractions since 2011. The project is a collaborative effort among various agencies and the local communities. The man-made dive sites are built to be a new home for corals and marine animals as well as to reduce impacts on the natural coral reefs that are recovering from coral bleaching. They have been considered as one of the popular dive sites to study marine biodiversity as well as help promote tourism and generate income for local communities.

15) Being selected to receive Best Corporate Social Responsibility Practice from Asia's Best CSR Practices Awards, The United Arab Emirates, for the implementation of Skill Development project to support the production and development of skilled workers with specific expertise and international standards into the labor market. These awards reflected PTTEP's efforts in supporting community and society.

16) Being selected to receive Gold Award in Best Community Development category from the Gulf Sustainability Awards 2022, The United Arab Emirates, for the implementation of several CSR projects for community health development including Community Nurses Project, Lan Krabue Hospital, and Songkhla Hospital Capacity Development Project and Mobile Healthcare Project. The Company has also continually provided medical equipment and supplies to hospitals for the fight against COVID-19 both in Thailand and oversea. The award reflected PTTEP's efforts in supporting community and society where we operate.

17) Being selected to receive 2 awards for the Company with market capital higher than USD 1,000 million from the 14th Annual Global CSR Virtual Summit and Awards 2022, Socialist Republic of Vietnam. The first award is in the category of Best Country Award for overall CSR excellence in Thailand. The second is in the category of Best Environmental Excellence for the PTTEP Reforestation Project, covering an area of 105,000 rai in 27 provinces across Thailand.

18) Being selected to be CSR World Leader in 2022, the United Kingdom. The award has recognized the Company for its implementation of H.T.M.S. Underwater Learning Sites Project to promote environmental corporate social responsibility. PTTEP was selected to be one of 19 organizations from more than 500 projects submitted to the award this year.

19) Being selected to receive an award from Global Corporate Sustainability Awards (GCSA) in the category of Best Practice Awards from The Taiwan Institute for Sustainable Energy. The award was given for the implementation of Skill Development project in Songkhla province, Thailand, to create skilled workers with specific expertise such as underwater metal arc cutting and welding training.

20) Being selected to receive the Bronze Award in the category of Succession Planning Strategy from the Employee Experience Awards 2022, the Republic of Singapore, for its transformation of Succession Planning Strategy for the efficient management of human resources. This award organized by Human Resources Online represents international recognition for PTTEP's strong commitment and continuous development of human resources readiness to support sustainable business operations.

21) Being selected to receive the Excellence in Knowledge Management Award from American Productivity Quality Center (APQC) and the Southeast Asia Most Innovative Knowledge Enterprise Award 2022 (SEA MIKE Award) and Global Most Innovative Knowledge Enterprise Award 2022 (Global MIKE Award). In addition, the Company was granted the title of The Most Outstanding Winners of the Global MIKE Award 2022. The awards recognize PTTEP as a world-class organization in innovation and knowledge management. PTTEP continuously promotes innovation and knowledge management both within the Company and through partnerships to embrace learning and innovative culture as an integral part of day-to-day operations towards sustainable growth.

22) Being selected to receive 5 awards at the 12th Asian Excellence Awards 2022 namely Asia's Best CEO for the 5th consecutive year, Asia's Best CFO for the 9th consecutive year, Asia's Best CSR for the 3rd consecutive year, Best Investor Relations Company (Thailand) for the 10th consecutive year and Best Investor Relations Professional for the 2nd consecutive year. The event was held by Corporate Governance Asia Magazine which is a financial magazine that promotes corporate governance in Hong Kong and Asia. The awards reflect the achievement of PTTEP in terms of excellence in organization management, financial management, IR personnel, and Social Responsibility activities.

23) Being selected to receive 3 awards at the IR Magazine Awards – Southeast Asia 2022. The awards are Best Overall Investor Relations (Large Cap), Best Investor Relations Officer (Large Cap), and Best in Energy sector. The event was held by IR Magazine, the United Kingdom's leading investor relations magazine.

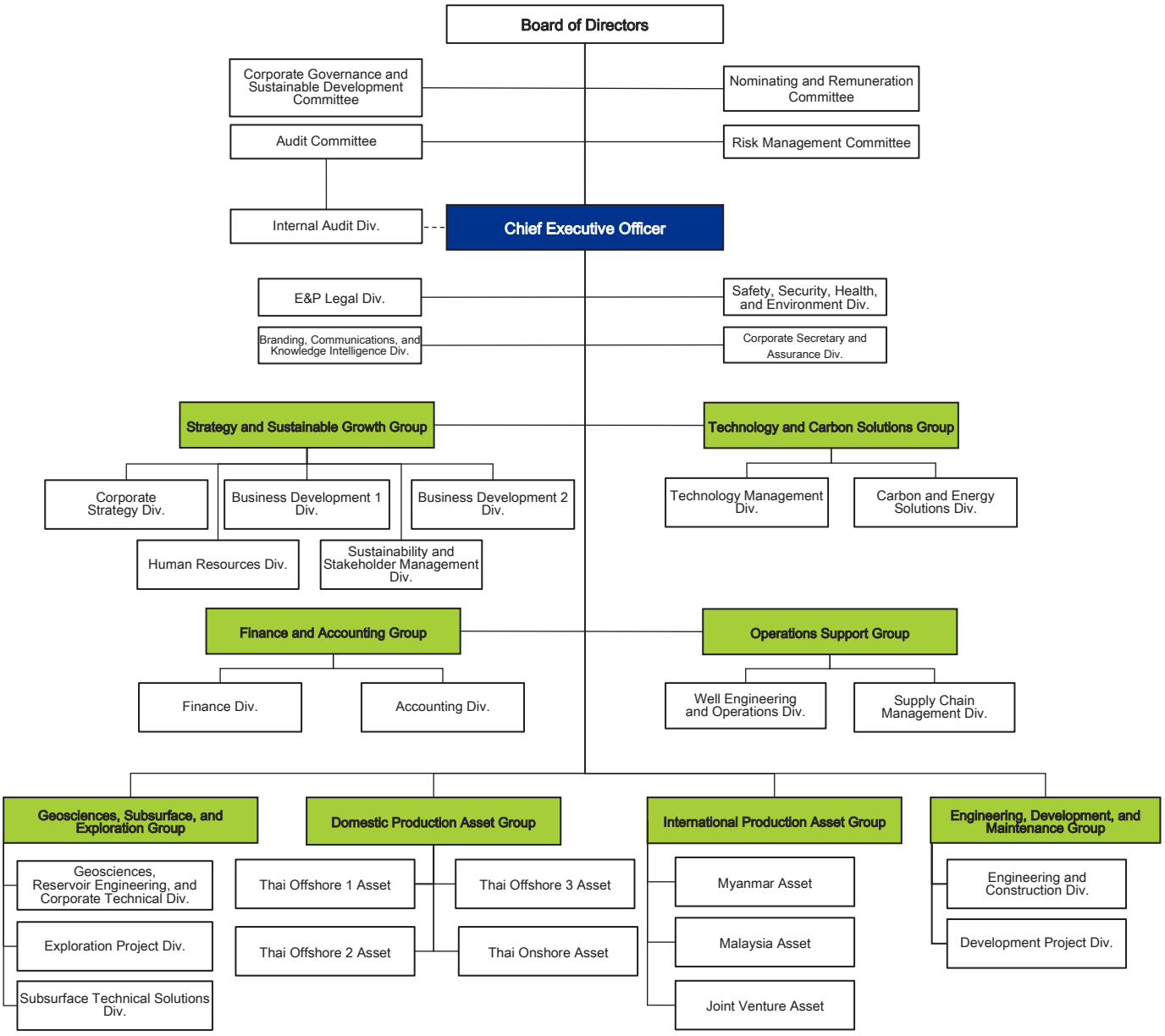
24) Being selected to receive 3 awards at Alpha Southeast Asia's 12th institutional investor corporate awards 2022. The awards are Strongest Adherence to corporate governance, Most Consistent Dividend Policy, and Best Annual Report in Thailand. The event was held by Alpha Southeast Asia Magazine, the leading investment magazine in Southeast Asia.

25) Being selected to receive the Thailand Brand Experience of the Year – Oil & Gas award at the recently held "Asian Experience Awards 2022" which recognizes the ingenious initiatives of creative companies delivering meaningful brand experiences to their stakeholders. The award reflects PTTEP's commitment and dedication to increasing its brand visibility in the Middle East, which is the strategic focused area, proven by various brand-building efforts such as participating in Thailand Pavilion at World Expo 2020 Dubai, participating in Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) to showcase its advanced technologies and innovations, which successfully grabbed media attention and were well accepted among leading media in the region. Asian Experience Awards 2022 was organized by The Asian Business Review, a regional business magazine from the Republic of Singapore serving Asia's dynamic business community, to recognize the most outstanding experience initiatives in Asia.

7. Governance Structure and Key Data on the Board of Directors, Specific Committees, Management, Employees, and Others

7.1 Governance Structure

As of January 1, 2023



7.2 The Board of Directors

7.2.1 Composition of the Board

PTTEP's Board of Directors (Board) consists of qualified directors who possess versatile skill set (Skill Mix) including necessary expertise relevant to the Company's line of work. In 2022, PTTEP reviewed the Board's Skill Mix to reflect the Company's strategic direction by classifying it into 12 subject areas under 2 categories as follows:

1) Core Skills: basic expertise which is necessary for directors to govern the Company, namely Business Judgment, Management Skills & Corporate Governance, and Business Strategy.

2) Specific Skills: specific expertise or experience which is useful for directors to supervise and govern the Company, namely Industry Knowledge, Accounting, Legal, International Market and Collaborations, Risk & Crisis Management, Economics & Finance, SSHE (Safety, Security, Health and Environment), Technology and Organization Change & Development.

The candidates proposed for election to assume the role of PTTEP's directors shall possess all Core Skills identified above so that they can properly govern PTTEP business and conduct necessary strategic planning. The candidates shall also possess Specific Skills that are useful for PTTEP business. Currently, PTTEP's Board of Directors consists of qualified directors with versatile skills in both groups of Core and Specific Skills that complete the requirements of PTTEP's Board Skill Mix.

In addition, directors must not be over 70 years old and shall possess the qualifications according to the Good Corporate Governance and Business Ethics of PTTEP Group (CG&BE), Public Limited Companies Act, and Securities and Exchange Act as well as rules and regulations of the Securities Exchange Commission (SEC), the Capital Market Supervisory Board (CMSB), the Stock Exchange of Thailand (SET), and relevant resolutions of the Cabinet. Directors shall also commit and dedicate their time to fully perform their duties and responsibilities. Directors, for example, would be regarded as unqualified if they failed to attend Board meetings more than three consecutive times without any reasonable justifications.

The Board structure consists of 15 directors, considered to be appropriate for the Company's operational size. The Board consists of non-executive and executive directors. In addition, the Board shall have independent directors, comprising a number not less than half of the incumbent members. As of December 31, 2022, the Board consisted of 14 directors including:

- 13 non-executive directors (92.86% of total members)
- 1 executive director: the Chief Executive Officer (CEO)
- 10 independent directors (71.43% of total members), a ratio which is not less than half of the incumbent members as required by the Company's CG&BE, and more than the number required by law
- 2 female directors (14.29% of total members)

PTT is the only major shareholder of PTTEP, while the minor shareholders are highly varied. The afore-mentioned Board's component and proportion are therefore considered appropriate to maintain the balance within the Board for the best interests of the Company's shareholders.

The names, biographies, qualifications, experiences, and numbers of shares of the non-executive directors, executive directors, independent directors, and directors from PTT are disclosed in the attachment 1 "Information of the Board of Directors, Management, Controlling Persons and Company Secretary" as well as in PTTEP's website.

7.2.2 The Current Board of Directors

The name list of the Board of Directors as of December 31, 2022, are as follows:

Name of Directors	Position	Starting Date
1. Mr. Krairit Euchukanonchai	Chairman and Chairman of the Independent Directors Committee	February 1, 2021
2. Admiral Tanarat Ubol	Vice Chairman of the Independent Directors Committee and Chairman of the Nominating and Remuneration Committee	September 1, 2014
3. Lieutenant General Nimit Suwannarat	Independent Director and Member of the Risk Management Committee	September 1, 2014
4. Mr. Pitipan Tepartimargorn	Independent Director, Chairman of the Risk Management Committee, and Member of the Nominating and Remuneration Committee	November 1, 2015
5. Mr. Bundhit Eua-arporn	Independent Director, Chairman of the Corporate Governance and Sustainable Development Committee, and Member of the Risk Management Committee	August 1, 2017
6. Ms. Penchun Jarikasem	Independent Director and Chairman of the Audit Committee	February 1, 2018
7. Mr. Patchara Anuntasilpa	Director and Member of the Nominating and Remuneration Committee	November 1, 2018
8. Mr. Dechapiwat Na Songkhla	Independent Director and Member of the Audit Committee	January 16, 2019
9. Mrs. Angkarat Priebjrivat	Independent Director, Member of the Audit Committee, and Member of the Corporate Governance and Sustainable Development Committee	October 1, 2019
10. Mr. Auttapol Rerkpiboon	Director	August 1, 2020
11. Mr. Veerathai Santiprabhob	Independent Director, Member of the Risk Management Committee, and Member of the Corporate Governance and Sustainable Development Committee	October 15, 2020
12. Mr. Wattanapong Kurovat	Director and Member of the Corporate Governance and Sustainable Development Committee	May 1, 2021
13. Mr. Teerapong Wongsiwawilas	Independent Director, Member of the Audit Committee, and Member of the Nominating and Remuneration Committee	Jan 1, 2022
14. Mr. Montri Rawanchaiku	Director and Chief Executive Officer	October 1, 2021

7.2.3 Authorities and Responsibilities of the Board

Roles and Responsibilities of the Board

According to the principles of accountability, duty of care, and duty of loyalty, the Board has been clearly defined their roles and responsibilities and required to perform them strictly in line with those stipulated by laws, objectives, Articles of Association of PTTEP, and resolutions of the shareholders and Board meetings. The scopes of the authority and responsibilities of the Board are as follows:

1) To govern PTTEP's operations in compliance with the Company's CG&BE as well as to be a leader and a role model in adopting, advising, communicating, and promoting the CG&BE among the employees and other organizations.

2) To consider and approve the statement of vision, mission, and corporate values of the PTTEP Group to ensure that they are effectively applicable and practical.

3) To consider and approve the PTTEP Group's strategic plan, business direction, targets, workforce structure, and other significant operations, including regularly monitoring and reviewing operation results, to ensure that they are in line with the Company's strategy, operational direction, targets, and policies as planned with an emphasis on mobility and applicability to allow the management to effectively and efficiently manage the business, whilst considering the impacts on safety, security, health, environment, innovation and technology, as well as responsibility for society.

4) To establish efficient and adequate internal control systems through a clear set of regulations and work processes as well as having a standardized and reliable accounting system and financial reporting, appropriate and adequate risk management, effective compliance program, and monitoring system.

5) To consider and approve significant matters as prescribed by laws or in the Company's affidavits, policies, or regulations, as well as matters that may result in corporate obligations.

6) To consider the cases which are related to conflicts of interest in a prudent and transparent manner. In such case, reports of vested interests of oneself and/or those of related parties must be filed, including potential misuse of the Company's properties and execution of transactions with the Company's connected persons in an inappropriate way.

7) To ensure that the Company has clear and proper regulations, standardized and reliable financial reporting, an efficient internal control system, and proper risk management.

8) To ensure that audits are performed effectively by internal and external auditors.

9) To ensure that communication and disclosure of information to the Company's stakeholders are performed in an accurate, complete, appropriate, and timely manner.

10) To ensure that the Company's stakeholders are treated fairly and equitably.

11) To consider, approve, and appoint specialists from different professional fields to provide the Company with insightful information as well as to act on the Company's behalf on matters which can significantly affect the financial position and reputation of the PTTEP Group.

12) To consider and approve the Board Performance Target as well as to evaluate the performance of the Board, Chairman of the Board, and sub-committees.

13) To consider and approve the Performance Agreement of the Chief Executive Officer (CEO), as well as to evaluate performance and determine his or her remuneration. The Board is also responsible for ensuring that the Company has an effective performance evaluation process for executives.

14) To consider and delegate appropriate authority to the CEO to manage the Company's operations according to the strategic plan, business direction, targets, and policies of the organization, as well as to ensure that there is appropriate oversight and efficient monitoring and evaluation.

The Board is permitted to request information and seek advice and services in regard to the Company's business operation from the management. In addition, if deemed necessary and appropriate, directors may seek advice from external and independent advisors at the Company's expense.

Responsibilities of the Board

The following are the major responsibilities of the Board. Details are disclosed in the "Duties and Responsibilities of the Board" topic.

1) Policy-Making and Operational Direction

The Board is responsible for making decisions in regard to the PTTEP's operational policies and determination of the corporate vision, mission, and values. The Board is also assigned to be directly involved in the Company's budgetary and planning, and organizational development strategy to accommodate continuous changes in the business environment, as well as to provide the management with pieces of advice to lead the Company towards our five ultimate goals, being "Growth, Prosperity, Stability, Sustainability, and Dignity".

2) Good Corporate Governance and Business Ethics

The Board is responsible for the establishment of the PTTEP Group's CG&BE for all of the directors, management, and employees to adhere to while operating businesses for the PTTEP Group. This is to ensure that our businesses are operated under good standards and ethical practices with transparency and efficiency. In addition, the rights of the Company's stakeholders are preserved proportionately to their fair share to maintain the general confidence and acceptance in the Company. The Corporate Governance Unit meanwhile has been established to be responsible for matters regarding the CG&BE.

3) Internal Control and Auditing

The Board is responsible for assuring that the PTTEP Group is equipped with an effective internal control system which is comparable to the acceptable risk levels. The Audit Committee and the Internal Audit Division are assigned to regularly audit and follow up on the results of internal controls as well as to submit the results directly to the Audit Committee to ensure that they are in line with the operational objectives of the PTTEP Group, in compliance with relevant laws and regulations, and trust of the management, investors, and other stakeholders. The Company's internal control system is comparable to those accepted by the international standards, considering the control environment, risk assessment relative to objectives, effective control plans, internal and external provisions of adequate and reliable information and communications, as well as routine monitoring and evaluation procedures.

4) Risk Management

The Board is responsible for regulating and overseeing management of the risks that may hinder the achievement of PTTEP's strategic goals. The Board appoints the Risk Management Committee, to establish policies and a framework for risk management, overseeing, and supporting the PTTEP Group's risk management. The Committee also reviews significant risks at both corporate and project levels, sets and monitors operational plans, oversees the implementation and revises

the risk mitigation to allow for a continuous evaluation of risks to ensure that the risks are at acceptable levels, as well as to report the results to the Board on a regular basis.

5) Prevention of Conflicts of Interest

The Board establishes various management tools to ensure that business management is efficiently and transparently carried out in the best interest of the PTTEP Group, by assuring that the Company and our management are without any conflicts of interest. Shall anyone of the Company's directors, management, or employees have a stake potentially leading to a conflict of interest, he or she must withdraw from participation or be abstained from voting, and subsequently inform the authority of the stake, in the given issue according to the Business Ethics, which directors, management, and employees can use as ethical guidelines in doing business.

6) Compliance

The Board values the importance of full legal compliance with all applicable rules and regulations in all jurisdictions where the PTTEP Group operates. The Board also provides the Group with the support required to conform to the applicable laws as well as to properly manage compliance risks. Compliance is considered one of the keys which allow the Group to function discretely as well as to be able to operate according to our strategy towards the business goals. The Compliance Unit is assigned by the Board to be responsible for this matter.

Authorities of the Chief Executive Officer

1) Authority under Resolutions from the Shareholder Meetings

The Chief Executive Officer is the authorized signatory to bind PTTEP with external parties (Clause 9, Paragraph 6, of the Company's Articles of Association registered with the Ministry of Commerce).

2) Authority under Resolutions from the Board's Meetings of PTTEP

The Board authorizes the Chief Executive Officer to act and conduct, on the Company's behalf, a normal course of business operations under the stated objectives in our Memorandum of Association, petroleum concessions, and other agreements, including other businesses in which the Company has interests. In addition, the Chief Executive Officer is also authorized to be the acting body, conducting the business under PTTEP regulations and assigned to act as Secretary to the Board of Directors, by applying of the practices comparable to those of other private companies in the E&P business as well as in the best interests of the Company. The Chief Executive Officer's delegation of authority is permitted unless the concerned attorney or the delegated person has a direct or indirect conflict of interest with the Company or our subsidiaries in exercising the authority.

Segregation of Duties between the Board of Directors and Management

The Board of Directors and Management have different important roles. The PTTEP Board of Directors oversees and appoints high-level Management to manage the operations of the PTTEP Group, follows up on and evaluates the performance of Management to ensure the highest benefits for the PTTEP Group, and ensures that operations are carried out to achieve the stated goals. The Board's key role is an oversight but not to become involved with day-to-day operations, which are the Management's responsibility. In this manner, there is a balance between the role of oversight and the role of carrying out day-to-day operations.

Management is responsible for managing operations in line with the direction set or assigned by the Board. Management must also report the results of operations to the Board regularly.

Directors' Serving Terms and Their Directorship in Other Companies

PTTEP's Articles of Association prescribes that one-third of the Company's directors shall be retired by rotation in each AGM and that the Board shall consist of no more than 15 members. The Board, meanwhile, determines to allow each of the directors or independent directors to serve on the Board for no more than 9th consecutive years, while a director who has served on the Board for 9 years will not be considered for another term. This essentially allows our competent and qualified directors at the time to continuously and effectively perform their duties. PTTEP recognizes the value of knowledge and experience which our directors have earned over the years in the position. PTTEP, therefore, does not have a rigid limit for the director's term (not more than a six-year term, for example). This is so that the Nominating and Remuneration Committee could best select the replacements for the optimal benefits of the Company, shareholders, and all stakeholders.

In terms of the qualifications, the Company's directors shall not assume a directorship in more than 3 listed companies at once. Details of the number of directorships held by each of the Company's directors are disclosed in the attachment 1 "Information of the Board of Directors, Management, Controlling Persons, and Company Secretary". As of December 31, 2022, none of the directors held a directorship in more than 3 listed companies. Meanwhile, serving a term as a member of the sub-committees is equal to that of the Board members.

Roles of the Chairman and Chief Executive Officer

The Board is authorized to elect one director to be the Chairman of the Board, which will be considered selecting from Independent Directors first, as well as to appoint a person to be Chief Executive Officer where the Chairman and Chief Executive Officer of PTTEP are of two different directors. The Chairman does not participate in the daily management of the business, providing that conducting and monitoring the business policies are entirely separated from the daily operational management. Duties and responsibilities of the Chairman of the Board are as follows:

1) Supervise the Board to perform its duties with efficiency, according to the Board Performance Target and shareholders' expectations, with independency from the management

2) Determine agendas for the Board's meetings

3) Serve efficiently as Chairman at the Board's and the shareholders' meetings and ensure that the Company's directors perform their duties as stipulated in the CG&BE and stimulate it as the Company's culture

4) Support and ensure constructive relations between directors and management

For transparency and appropriateness, the Chairman is not allowed to hold any positions in any of the Company's sub-committees as clearly stated in the charter of the sub-committees. The Chief Executive Officer meanwhile is responsible for the Company's daily management with the authority as empowered and granted by the Board.

Independence of the Chairman

PTTEP considers independency as the first priority in the election of the Company's Chairman of the Board. Shall there be no suitable candidate for the position, the Company's directors will be considered. The current Chairman, Mr. Krairit Euchukanonchai, is an independent director and has performed his duties with autonomy and discretion. The Chairman and his performance were appraised and examined for future improvements by the Board and the score was

also disclosed in the 56-1 One Report (The appraisal score of the Chairman in 2022 was 2.89 out of 3). Details of the appraisal results are disclosed under the "Performance Appraisal of the Board" topic. In addition, all of the Company's directors are allowed to independently express their views with freedom in regard to the business operation, whether in the meetings of the Board, sub-committees, or on other occasions. This is to ensure that the management is able to operate the businesses with efficiency, accuracy, transparency, and in the best interests of the shareholders.

Policy and Practices for Chief Executive Officer, and Executives with Directorships in Other Companies

PTTEP states the principle in the CG&BE in regard to the holding of a directorship position in other companies or organizations which are not of their own or families by the Chief Executive Officer and executives. The individuals must be given an approval from the Company's authorized personnel, on an only-if-necessary and no-harms-done basis, as well as accept the condition that they shall not, in every aspect, associate PTTEP and their position held in the Company in those external activities. Meanwhile, remuneration of the Company's executives who are assigned to assume a directorship role in the organizations or units in, or related to, the petroleum exploration and production is considered PTTEP's; otherwise, the remuneration is considered theirs. Details of the number of directorships held by each of the executives are disclosed in the attachment 1 "Information of the Board of Directors, Management, Controlling Persons, and Company Secretary".

7.3 Sub-Committees

Sub-Committees

The PTTEP Board is responsible for the appointment of the directors who have expertise and knowledge in certain areas to become members of the sub-committees as specified by the Company's Articles of Association. Each of the Company's sub-committees is responsible for a specific set of tasks as determined by its respective charters. Qualifications, responsibilities, and service terms of the sub-committee members are prescribed by the Company's regulations through the designated charter. All members of the Audit Committee must be independent directors, while the majority of the members of the Nominating and Remuneration Committee, and the Corporate Governance and Sustainable Development Committee must be independent directors. The Chairman of the Board, however, is not allowed to assume any chairmanship or directorship in the sub-committees. In addition, the Chairman of each sub-committee must be an independent director. Applying to every meeting, the sub-committees are required to report the results to the Board for acknowledgment as well as to disclose them in the 56-1 One Report as the duties to be completed over the year.

Currently, the Company has 4 sub-committees, namely, (1) the Audit Committee, (2) the Nominating and Remuneration Committee, (3) the Corporate Governance and Sustainable Development Committee, and (4) the Risk Management Committee. Names of the directors, duties and responsibilities, numbers of meetings, meeting attendance, and remuneration policy are disclosed in the "Governance Structure and Key Data on the Board of Directors, Specific Committees, Management, Employees and Others"and "Corporate Governance Milestones" section. Reports of the Company's sub-committees meanwhile are disclosed in the "The Sub-Committees Report" topic.

7.3.1 Corporate Governance and Sustainable Development Committee

The Corporate Governance and Sustainable Development Committee has duties and responsibilities according to its charter as follows:

1) To establish the Company's sustainability target, policy, road map, and workplan which cover all the key aspects: High Performance Organization (HPO), Governance, Risk Management, and Compliance (GRC), Sustainable Value Creation (SVC), and communication before proposing to the Board for approval.

2) To advise and promote the Company's operations to be in line with the established sustainability policy, capable of achieving the Company's targets as well as comparable to the practices of leading companies. Additionally, the Committee shall encourage the Board, management, and all personnel to follow the sustainability framework effectively.

3) To evaluate and review the Company's sustainability target, policy, road map, and workplan in response to a dynamic business environment, the applicable laws, related international best practices, and recommendations from trusted institutions and also to consider and respond to shareholders' proposals.

4) To oversee, monitor, and evaluate the performance of the Company's sustainability to ensure its balance and effectiveness, as well as to create utmost benefits to the Company and its stakeholders and to report the progress to the Board on a regular basis.

5) To establish the Company's good corporate governance and business ethics policy before proposing it to the Board for approval. In addition, the committee advises and promotes the implementation at all levels, reviews the policy annually to ensure its appropriateness and conformity with the laws and the international best practices, and monitors the evaluation and reports on the compliance with good corporate governance and business ethics of PTTEP on a regular basis.

6) To oversee the disclosure of sustainability information to stakeholders in the Company's annual report and sustainability report.

7) To regularly review its charter to ensure its appropriateness and timeliness.

8) To disclose the committee's performance in the Company's annual report.

9) To perform other duties as assigned by the Board.

The Corporate Governance and Sustainable Development Committee consists of at least 3 directors, the majority of whom must be independent directors. The Company Secretary serves as the Committee's secretary. As of December 31, 2022, the Committee comprised four members as follows:

Mr. Bundhit Eua-arporn	Chairman of the Committee and Independent Director
Mrs. Angkarat Priebjrivat	Member and Independent Director
Mr. Veerathai Santiprabhob	Member and Independent Director
Mr. Wattanapong Kurovat	Member

According to its charter, the Committee must meet at least 4 times a year. In 2022, the Committee held 4 meetings which were attended by all incumbent directors. The Committee disclosed its annual performance in the Corporate Governance and Sustainable Development Committee Report for 2022.

7.3.2 Audit Committee

The Audit Committee has the duties and responsibilities according to its charter as follows:

1) To establish the audit committee charter as compatible with the Company's scope of work and responsibilities which must be approved by the Board and revised at least once a year.

2) To review the Company's financial reports with the external auditor on a quarterly basis to ensure accuracy, credibility, and adequacy.

3) To ensure that the Company's activities are performed in compliance with the Securities and Exchange law, SET requirements, other laws, regulations, procedures, cabinet resolutions related to the business, including the Company's rules and regulations.

4) To review connected transactions or transactions with potential conflicts of interest to ensure that these transactions are complied with the laws and SET's regulations and that they are reasonable as well as in the best interests of the Company, and review transactions with potential fraud which may affect the Company's operations.

5) To review the efficiency and effectiveness of internal control, risk management, and governance processes.

6) To oversee and monitor the internal audit process and ensure that the process is appropriate and effective as well as ensure the independence of the Internal Audit Division in order to enhance internal audit performance.

7) To evaluate Internal Audit Division performance, including audit problems and difficulties at least once a fiscal year and report the results and its suggestions for improving the performance to the Board.

8) To consider, select and propose the appointment, including removal of an external auditor, and to propose the auditor's remuneration to the Board as well as attend a meeting with the external auditor from the State Audit Office of the Kingdom of Thailand (SAO) or the external auditor endorsed by SAO at least once a year, in the absence of the management, to review audit findings and other issues, and recommend reviews or audit of any items, if necessary.

9) To endorse appointment, transfer, removal, promotion, and performance appraisal of the Head of the Internal Audit Division by seeking comments from the Chief Executive Officer. The Audit Committee will appoint an investigation committee to investigate the case that the Head of the Internal Audit division is suspected of noncompliance with laws, the Company's rules and regulations, and the Good Corporate Governance and Business Ethics of PTTEP Group.

10) To approve a risk-based audit plan and instruct internal auditors to conduct other duties as appropriate, taking into consideration the Company's benefits as well as the impact on independence and objective of the audit.

11) To endorse the budget, division structure, and manpower of the Internal Audit Division for the management to propose to the Board.

12) To approve the charter of the Internal Audit Division.

13) To approve the Independent Declaration Form when the Head of the Internal Audit Division has to personally conduct audit fieldwork.

14) To endorse the results of audits which were approved in the annual audit plan as well as special audit requests.

15) The Chairman of the Audit Committee or a member must attend the shareholders' meeting to answer questions in regard to the Committee's duties or the appointment of the external auditor.

16) To review the accuracy of self-assessment and related documents in regard to anti-corruption measures in reference to Thai Private Sector Collective Action Against Corruption (CAC).

17) To perform other duties as assigned by the Board upon its consent.

18) To report the Audit Committee's performance on internal audit to the Board at least on a quarterly basis, within 60 days from the end of each quarter, except for the fourth-quarter report, which is required as an annual report. Such reports must be submitted to the regulating ministry of the Company's parent company and the Ministry of Finance within 90 days from the end of the accounting year for acknowledgment. The committee's annual report must also be disclosed in the Company's annual report.

The Audit Committee consists of at least 3 directors, but not more than 5 directors, all of whom must be independent directors. The Head of the Internal Audit Division acts as the Committee's secretary. As of December 31, 2022, the Committee comprised 4 members as follows:

Director's Name	Position	Financial Statements Audit Experience
Ms. Penchun Jarikasem	Chairman of the Audit Committee	• 27 Jun. 2022 - Present Chairman of the Audit Committee, TISCO Financial Group Public Company Limited • 27 Jun. 2022 - Present Chairman of the Audit Committee, TISCO Bank Public Company Limited • 2020 - Present Sub-Committee on Finance and Accounting of the Energy Conservation Fund • 2018 - Present Chairman of the Audit Committee, Ritta Holdings Co., Ltd. • 2016 - Present Chairman of the Audit Committee, Osotspa Public Company Limited • Apr. - 26 Jun. 2022 Member of the Audit Committee, TISCO Financial Group Public Company Limited • Apr. - 26 Jun. 2022 Member of the Audit Committee, TISCO Bank Public Company Limited • 2018 - 2019 Chairman of the Sub-Committee for Finance and Accounting, State Railway of Thailand

Director's Name	Position	Financial Statements Audit Experience
		• 2016 - 2018 Sub-Committee for Finance and Budgeting Improvement, Office of the Public Sector Development Commission (OPDC) • 2011 - 2015 Executive Vice President, Finance and Accounting Group, PTT Exploration and Production Plc.
Mr. Dechapiwat Na Songkhla	Member of the Audit Committee	• 2017 - Sep. 2021 Director of the Budget Bureau • 2015 - 2017 Deputy Director of the Budget Bureau • 2012 - 2015 Senior Advisor of the Budget Bureau • 2010 - 2012 Director of the National Security Budget Preparation Office 1 • 2009 - 2010 Director of the Special Public Organizations and State-Owned Enterprises Budget Preparation Office • 2008 - 2009 Budget Analyst, Expert Level, Budget Bureau
Mrs. Angkarat Priebjrivat	Member of the Audit Committee	• 2016 - Present Member of the Audit Committee, TSFC Securities Public Company Limited • 2012 - Present Member of the Audit Committee, Thai Public Broadcasting Service (Thai PBS) • 1992 - Present Technical Advisor, Listing and Disclosure Department, The Stock Exchange of Thailand • 2013 - Apr. 2022 Member of the Audit Committee, TISCO Financial Group Public Company Limited • 2013 - Apr. 2022 Member of the Audit Committee, TISCO Bank Public Company Limited • 2008 - Feb. 2021 Chairman of the Audit Committee, COL Public Company Limited • 2018 - 2020 Member of the Audit Committee, TOT Corporation Public Company Limited • 2018 - 2020 Member of the Technical Advisory Committee for Financial Reporting Standards, Office of the Securities and Exchange Commission

Director's Name	Position	Financial Statements Audit Experience
		• 2018 - 2019 Member of the Finance and Accounting Subcommittee, State Railway of Thailand • 2014 - 2018 Member of the Audit Committee, Tourism Authority of Thailand
Mr. Teerapong Wongsiwawilas	Member of the Audit Committee	• 2020 - Present Director, Krung Thai Bank Public Company Limited • 2017 - 2021 Audit Committee, Bangchak Corporation Public Company Limited

All members of the Committee were capable of knowledge, expertise, and experience in auditing financial statements. One of the members, Mrs. Angkarat Priebjrivat, holds a degree in accounting.

According to the Audit Committee Charter, the Committee must hold at least one meeting on a quarterly basis. In 2022, the Committee held 14 meetings which included a meeting that was conducted together with the Risk Management Committee. All the directors attended all meetings. The Committee disclosed its annual performance in the Audit Committee Report for 2022.

7.3.3 Nominating and Remuneration Committee

The Nominating and Remuneration Committee has the duties and responsibilities according to its charter as follows:

1) To select and nominate individuals who are qualified to be the Company's directors or the Chief Executive Officer (CEO) when there is a vacancy or to replace those whose terms have expired, or an Acting CEO when there is a vacancy while the nomination process is still underway for election by the Board or the shareholders, considering the Board's composition, knowledge, capability, their useful experience to the Company, number of companies in which they are serving as a director, as well as their conflicts of interest.

2) To consider the CEO's succession plan and appropriate executive-level management development system to ensure the skills and qualifications as required to achieve the Company's target growth.

3) To approve the Skill Mix and prepare a list of possible candidates for the Company's directors, CEO, or Acting CEO in advance and/or when there is a vacancy and to supplement the nomination selection decision before submission to the Board for consideration and to the Annual General Shareholders' Meeting (as applicable).

4) To consider the annual Board Performance Target and Performance Agreement of the CEO, to propose them to the Board for approval, as well as to set the Performance Evaluation Form of the Chairman, directors, sub-committees, and the CEO.

5) To consider and propose qualified directors to be members or the chairman of sub-committees when there are vacancies as well as to propose a restructuring of the sub-committees as deemed appropriate.

6) To consider organization restructuring to support corporate growth and changes in the business environment.

7) To consider the remuneration of the Board and sub-committees prior to proposing it at the Annual General Shareholders' Meeting for approval, using fair and reasonable criteria or principles, while ensuring that the remuneration is in line with the individuals' performances, the Company's performance, industry practices as well as the scopes of duties and responsibilities.

8) To consider the remuneration of the CEO and the salary structure of the Company's executives with fair and reasonable criteria or principles prior to proposing it to the Board for approval, whereas the remuneration of the CEO must be in line with his or her duties and responsibilities as well as performance.

9) To report the performance of the Committee to the Board and disclose it in the Company's annual report.

10) To regularly review and update its own charter to ensure its appropriateness.

11) To perform other duties as assigned by the Board.

The Nominating and Remuneration Committee consists of at least 3 directors, the Chairman and the majority of the members must be independent directors. The Company Secretary serves as the Committee's secretary. As of December 31, 2022, the Committee comprised 4 members with 3 independent directors as follows:

Admiral Tanarat Ubol	Chairman and Vice Chairman of the Independent Director Committee
Mr. Pitipan Tepartimargorn	Member and Independent Director
Mr. Patchara Anuntasilpa	Member
Mr. Teerapong Wongsiwawilas	Member and Independent Director

According to its charter, the Committee must meet at least 2 times a year. In 2022, the Committee held 7 meetings and the majority of incumbent directors attended all meetings. The Committee disclosed its annual performance in the Nominating and Remuneration Committee Report for 2022.

7.3.4 Risk Management Committee

PTTEP's Risk Management Committee holds the following duties and responsibilities in accordance with its charter:

1) Define Enterprise Risk Management Policy and Framework including providing guidance and recommendations to the Board and management on key risks and mitigations.

2) Review Risk Appetite Statement prior to the Board approval as well as approve corporate level Risk Metrics & Limits and monitor the results regularly.

3) Ensure effective establishment and implementation of enterprise wide risk management by enhancing the level of risk awareness within PTTEP through the development of procedures and commitment of resources appropriately.

4) Maintain an enterprise-wide view of risks which are related to the Corporate Direction in the businesses, i.e., E&P, related businesses, and other businesses in which PTTEP invests, as well as to recommend mitigation strategies to manage the risks to keep them within the acceptable level according to clause 2) and to continuously monitor, assess, and improve the mitigation strategy in responding to any changes of the business environment.

5) Support Risk Management Function in assessing key risks and advise on other potential risks which may impact the Company on continuous and efficient risk management comparable to leading companies as well as assign tasks related to PTTEP risk management for the Risk Management Function to perform.

6) Report key risks and results of risk management to the Board regularly and promptly alert all concerned of any significant events related to risk management to the Board.

7) Disclose the committee's performance in the Company's annual report.

8) Regularly review and update its own charter to ensure its appropriateness.

9) Perform other duties relating to PTTEP risk management as may be assigned by the Board.

The Risk Management Committee consists of at least 3 directors, while ensuring that at least one of them must be an independent director. As of December 31, 2022, the Committee comprised 4 members, 4 of which were independent directors as follows:

Mr. Pitipan Tepartimargorn	Chairman and Independent Director
Lieutenant General Nimit Suwannarat	Member and Independent Director
Mr. Veerathai Santiprabhob	Member and Independent Director
Mr. Bundhit Eua-arporn	Member and Independent Director

Mr. Atikom Terbsiri has resigned from the positions of Director and Member of the Risk Management Committee. His resignation is effective from 30 September 2022 onwards.

According to its charter, the Committee must hold a meeting at least 4 times a year. In 2022, the Committee held 12 meetings, which included the meeting that was conducted together with the Audit Committee. The majority of the incumbent directors attended all the meetings. The Committee disclosed its annual performance in the Risk Management Committee Report for 2022.

7.3.5 Independent Directors Committee

The Independent Directors Committee holds the following duties and responsibilities according to its charter:

1) To propose to the Board and/or the President and Chief Executive Officer (as applicable) significant matters which are beneficial to the Company as well as major and minor shareholders.

2) To advise the Board and independent directors on their roles and responsibilities for the benefit of the Company as well as the major and minor shareholders.

3) To review the Company's operations to ensure that they comply with the laws relevant to independent directors as well as to review the definition of independent directors to be lawfully appropriate and complete.

4) To perform other duties as assigned by the Board, provided that such duties do not affect the Committee's independence.

5) To regularly review and update the Independent Directors Committee Charter to ensure its appropriateness.

Those who meet all of the qualifications of independent directors according to the CG&BE are considered independent directors without any appointment from the Board of Directors. As of December 31, 2022, the Committee comprised 10 members as follows:

Mr. Krairit Euchukanonchai	Chairman
Admiral Tanarat Ubol	Vice Chairman
Lieutenant General Nimit Suwannarat	Member
Mr. Pitipan Tepartimargorn	Member
Mr. Veerathai Santiprabhob	Member
Mr. Bundhit Eua-arporn	Member
Mr. Dechapiwat Na Songkhla	Member
Mrs. Angkarat Priebjrivat	Member

Ms. Penchun Jarikasem Member

Mr. Teerapong Wongsiwawilas Member

According to its charter, the Committee must meet at least 1 time a year as necessary or appropriate with the Company Secretary serving as the Committee's secretary. In 2022, the Committee held 3 meetings and the majority of incumbent directors attended all meetings. There was no compensation paid to the members of the Committee for their meeting attendance. The Committee disclosed its annual performance in the Independent Directors Committee Report.

7.4 The Management

7.4.1 List of Management Name

As of January 1, 2023, PTTEP's management, according to the definition of management as defined by the Capital Market Supervisory Board (CMSB), consists of 18 members. Details of their biography, qualifications, and experience are disclosed in the attachment 1 "Information of the Board of Directors, Management, Controlling Persons, and Company Secretary".

List of Names and Number of Shares held by the Management, their Spouse/Cohabiting Couple and Minor Child

List of Name	Number of Ordinary Shares		
	As of January 1, 2022	As of January 1, 2023	Increase/(Decrease) During the Year
1. Mr. Montri Rawanchaikul	52,050	52,050	-
Spouse/Cohabiting Couple	8,900	-	(8,900)
Chief Executive Officer			
2. Mr. Chayong Borisuitsawat	65,096	65,096	-
Executive Vice President, Strategy and Sustainable Growth Group			
3. Mrs. Natruedee Khositaphai	107,457	107,457	-
Executive Vice President, Technology and Carbon Solutions Group			
4. Mr. Suksant Ongvises	30,681	10,681	(20,000)
Executive Vice President, Operations Support Group			
5. Mr. Sumrid Sumneing	13,000	13,000	-
Executive Vice President, Finance and Accounting Group			
6. Mr. Piya Sukhumpanumet	89,916	89,916	-
Executive Vice President, International Production Asset Group			
7. Mr. Nirandorn Rojanasomsith	110,202	120,202	10,000
Spouse/Cohabiting Couple	38,839	38,839	-
Executive Vice President, Engineering, Development, and Maintenance Group			
8. Ms. Kanita Sartwattayu	60,279	50,279	(10,000)
Executive Vice President, Domestic Production Asset Group			

List of Name	Number of Ordinary Shares		
	As of January 1, 2022	As of January 1, 2023	Increase/(Decrease) During the Year
9. Mr. Chalongrut Ya-anan[1]	N/A	-	N/A
Executive Vice President, Geosciences, Subsurface, and Exploration Group			
10. Mr. Sermsak Satchawannakul	45,215	45,215	-
Senior Vice President, Accounting Division			
11. Ms. Orachon Ouiyamapun	-	-	-
Senior Vice President, Finance Division			
12. Mr. Sakchai Sarawek	-	-	-
Vice President, Managerial Accounting Department			
13. Mr. Chayanin Yiamsombut[2]	N/A	22,145	N/A
Acting Vice President, Insurance Department			
14. Mr. Anutra Bunnag	-	-	-
Vice President, attached to Senior Vice President of Finance Division, assigned as Managing Director of PTTEP Treasury Center Co., Ltd.			
15. Ms. Pratamaporn Deesrinthum	53,249	49,249	(4,000)
Vice President, Accounting Policy and Solutions Department			
16. Ms. Nuchanong Sangkeaw	4,605	4,605	-
Vice President, Capital Market and Financial Planning Department			
17. Mrs. Yada Vudhivorn	-	-	-
Vice President, Tax Department			
18. Mrs. Vanasanan Boonyalerdlak	-	-	-
Vice President, Financial Accounting Department			
Management Who Retired or Rotated during 2022			
1. Mrs. Netrsuda Pokkasorn[3]	66,005	N/A	N/A
2. Ms. Porntip Jansuksri[4]	N/A	N/A	N/A

[1] Appointed as Acting Executive Vice President, Geosciences, Subsurface, and Exploration Group effective on April 1, 2022, and appointed as Executive Vice President, Geosciences, Subsurface, and Exploration Group effective on October 1, 2022 (Number of ordinary shares held on appointment date was 0 share).

[2] Appointed as Acting Vice President, Insurance Department effective on October 1, 2022 (Number of ordinary shares held on appointment date were 22,145 shares).

[3] Ceased to perform the role of Vice President, Insurance Department effective on September 30, 2022 (Number of ordinary shares held on the last date in her position on September 30, 2022, were 66,005 shares).

[4] Appointed as Vice President, direct report to Executive Vice President, Finance and Accounting Group effective on October 1, 2022, and retired from this position effective on December 31, 2022 (Number of ordinary shares held on appointment date and the last date in her position were 30,444 shares).

7.4.2 Management's Remuneration Policy

Remuneration of the Chief Executive Officer

Remuneration of the Chief Executive Officer (CEO) is determined using fair and appropriate procedures and defined under the principles which are unbiased, reasonable, justifiable, and transparent. PTTEP's Nominating and Remuneration Committee is responsible for reviewing the remuneration of the CEO prior to proposing for the Board's approval. The approval from the Board is based on his or her performance, duties and responsibilities, the Company's performance, remuneration of listed companies comparably in size and industry, and overall economic situation.

The ratio of the annual compensation of the CEO compared to the average annual compensation of the Company's executives is approximately 1.3 : 1, while the ratio of the annual compensation of the CEO compared to the average annual compensation of the Company's employees is approximately 9.6 : 1

Remuneration of the Executives

PTTEP's Nominating and Remuneration Committee is responsible for the salary structure of the Company's executives. The key principle is to establish an unbiased and reasonable structure which reflects, not only the Company's business nature and its performance but also some of the variables which can be compared to and justified by those of other leading energy companies in the industry. The Board must give approval to the structure prior to the implementation.

The Chief Executive Officer, meanwhile, is responsible for reviewing the appropriateness of the remuneration of each of the executives as well as their annual salary increase, taking into consideration his or her overall target-based performance and the Company's performance.

To maintain the Company's remuneration competitiveness, PTTEP conducts an annual survey on remuneration of leading companies in the industry. The information gathered through the survey allows the Board to better understand the current market situation to further increase the Company's competitiveness in the job market as well as to be able to provide the Board with thorough explanations particularly when the changes in the salary structure and payment method are drastic. The ratio of the average annual compensation of the executives compared to the average annual compensation of the Company's employees is approximately 7.7 : 1

Remuneration of the Executives

	2021		2022	
	Number	Total Amount (THB)	Number	Total Amount (THB)
Salary	9	83,376,340	9[1]	82,029,620
Bonus[2]		52,410,220		62,179,590
Other compensation[3]		9,465,167		10,957,917
Total		**145,251,727**		**155,167,127**

[1] Executives consisted of the Chief Executive Officer, Executive Vice Presidents, and PTT's executives who have been seconded to PTTEP.

[2] Annual bonus shall be paid in January in the following year.

[3] Provident Fund

In 2022, compensation (salary, bonus, and contribution to the provident fund) of PTTEP's and the subsidiaries' employees, including wages of the seconded employees, totaled THB 12,051,317,157.

Remuneration of the Directors of Subsidiaries and Associated Companies

PTTEP's subsidiaries and associated companies are functional units of the Company in carrying out E&P and related businesses including new business in order to optimize the Company's benefits, taking into account the business and investment conditions. PTTEP assigns the Company's management to hold a directorship position in our subsidiaries and/or associated companies in order to ensure that they are managed in compliance with the business direction and strategy of PTTEP.

PTTEP has set up a policy for directors' remuneration of subsidiaries and associated companies. The directors' remuneration policy is based on the roles and authorities of the Board of directors of such subsidiaries and associated companies, their size of investment, and business risks. The management who are assigned to be directors of subsidiaries or associated companies are entitled to an additional remuneration with subject to the remuneration policy of such subsidiaries or associated companies.

7.5 Personnel

7.5.1 Number of Employees

As of December 31, 2022, PTTEP and our subsidiaries had a total workforce of 5,173 employees.

Number of Employees*

Employee Type	Total (Persons)
Thai Permanent Employees	1,978
Thai Contracted Employees	1,931
Non-Thai Contracted Employees	53
Local Employees in Overseas Subsidiaries	1,206
Seconded Employees from PTT Group Companies and Joint Venture Partners	5
Total	5,173

Remarks: * Based on the Company's database as of December 31, 2022.
The list is exclusive of Restart Thailand Project staff, outsourced staff hired through services contracts, and third-party service providers.
M&A and Divestment conditions are excluded.

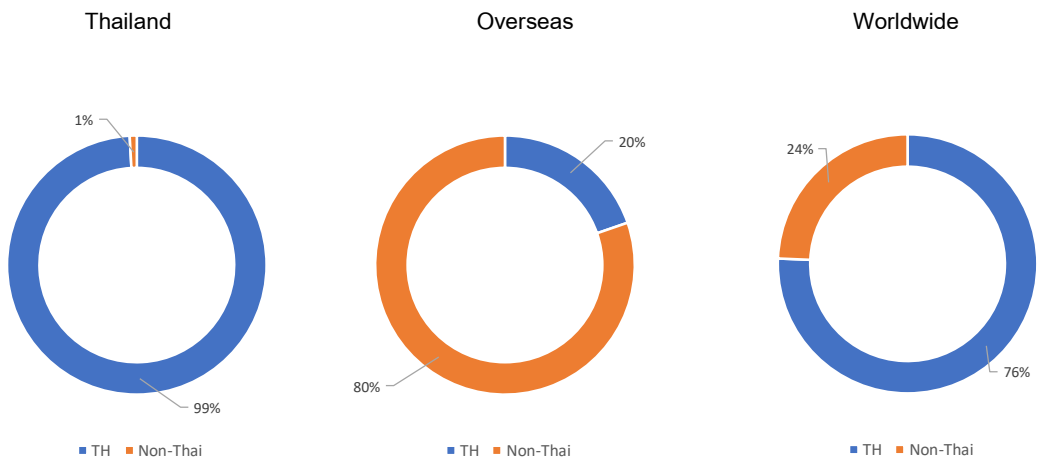
Number of Employees in Each Function Group[1]

Function Group[2]	Thai Permanent Employee	Thai Contracted Employee	Non-Thai Contracted Employee	Local Employee	Seconded Employee	Total
Chief Executive Officer	14	11			1	26
Domestic Production Asset Group	537	884				1,421
Engineering and Development Group	233	190	2	33		458
Finance and Accounting Group	132	156		2	3	293
Geosciences, Subsurface and Exploration Group	228	53	13			294
Human Resources, Corporate Affairs, and Assurance Group	138	76	1	1	1	217
International Production Asset Group	191	49	27	1,168		1,435
Operations Support Group	339	466	9	2		816
Strategy and Business Development Group	75	13				88
Internal Audit Division	13	3				16
E&P Legal Division	17	3				20
Safety, Security, Health, and Environment Division	42	24				66
New Business Division	19	3	1			23
Grand Total	1,978	1,931	53	1,206	5	5,173

Remarks: [1] Based on the Company's database as of December 31, 2022.

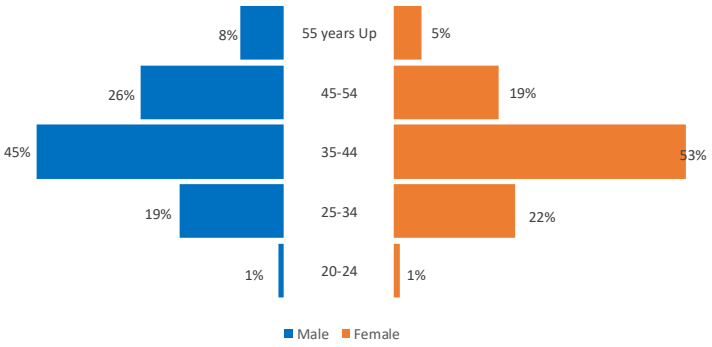
[2] Based on the Company's organization structure as of December 31, 2022. The list is exclusive of Restart Thailand Project staff, outsourced staff hired through services contracts, and third-party service providers. M&A and Divestment conditions are excluded.

Staff Demography by Nationality and Work Location[1]



Remark: [1] Based on the Company's database as of December 31, 2022.

Staff Demography by Gender and Age[1]



Remark: [1] Based on the Company's database as of December 31, 2022.

Employee Turnover

	IN[1, 3]	OUT[1, 2]
Thai Permanent Employees	24	57
Thai Contracted Employees[3]	533	85
Non-Thai Contracted Employees	12	4
Local Employees	319	113
Seconded Employees	-	-

Remarks: [1] Based on the Company's database as of December 31, 2022.

[2] Including voluntary resignation, dismissal, early retirement, retirement, and death

[3] The turnover was exclusive of Restart Thailand Project staff, outsourced staff hired through services contracts, and third-party service providers. M&A and Divestment conditions are excluded.

Turnover Rate

In 2022, the Company's total employee turnover rate (Voluntary resignation, dismissal, early retirement, retirement, death) was 5.0%.

Voluntary Turnover Rate

The voluntary resignation rates (resignation and early retirement) in 2017 through 2022 were as shown below.

2017	2018	2019	2020	2021	2022
3.9%	3.7%	2.5%	1.7%	3.1%	3.1%

Remark: M&A and Divestment conditions are excluded.

7.5.2 Human Resources Development Policy

To increase the organization's capability and accelerate the competency development of the Company's staff for continuous expansion of the business domestically and internationally, PTTEP has executed a capability development system and a process by implementing a competency-based 70 : 20 : 10 model of on-the-job training, coaching and mentoring, and formal training, respectively. In 2022, the Company provided training and development programs to employees through the following channels:

1) In-House and External Training

The Company provides in-house and external trainings, domestic and overseas, to staff and management at all levels. These trainings comprise a wide variety of courses, including technical and functional training, and Safety, Security, Health and Environment (SSHE) training on which PTTEP place an importance on. In 2022, there were many development programs regarding the environment arranged such as Water Management, Environmental Performance Management, Onshore and Offshore Spill Management, Oil Spill Response, and ISO14001:2015 Environmental Aspects, Moreover, PTTEP has also focused on & provided various types of training on digital skills, foreign language, business administration, and leadership skills to our staff to develop their skills. In 2022, PTTEP also continued to develop individual development plans for all our staffs.

In 2022, due to the decline of circumstances caused by the COVID-19 situation, to ensure the highest efficiency and effectiveness for our staff development, PTTEP changed our approaches of learning & development to specifically address our learning objectives and contents. PTTEP focuses on a “Blended Learning” approach, consisting of various types of learning, and “Online Learning” approaches, which support self-learning anywhere and anytime via digital learning tools. These could support speed and effectiveness in staff learning.

To achieve our company’s strategy which will expand to other new business opportunities, low-carbon organization, apart from petroleum exploration and production, PTTEP staffs were equipped with new knowledge and skills for our new business execution in the future. Starting with the key staff for the changes, the foundational knowledge regarding new business, such as alternative energy, electricity, greenhouse gas reduction technology, and LNG were provided to ensure their readiness for the energy transition. Furthermore, management development, to update and equip them with new necessary knowledge and skills, were also provided to support our management team to ensure the company’s sustainable growth and successor readiness in management retirement positions.

2) Long-term Training and Development Programs

Long-term training and development programs are aimed to prepare our employees for roles and assignments in the Company’s current and future projects. The programs are generally provided to selected employees based on their Individual Development Plan (IDP) in 1-3 years. Under this approach, the employees are required to undertake on-the-job trainings through various assignments relating to the Company's projects or to be temporarily assigned to work with the Company’s business partners or services companies in Thailand and overseas. In the technical areas, mentors are also assigned to assist and coach the employees along their development journeys.

3) Master’s & Doctoral Degree Scholarship Programs for Employees

The Company provides scholarships to employees to help them pursue master’s & doctoral degrees in leading domestic and overseas universities in the following fields:

1) Petroleum Geosciences
2) Applied Geophysics
3) Petroleum Engineering
4) Engineering (Future Energy)
5) Drilling and Well Engineering
6) Digital and Information Technology

In 2022, the Company invested in human capital development programs at the total amount of THB 243,814,938 and provided more than 292,512 training and development hours for our employees with an average of 57 training and development hours per person per annum. PTTEP has a policy for management in implementing an Individual Competency Development Plan (ICDP) for PTTEP Staff. To ensure standardization, PTTEP has conducted the Technical Competency Assessment Calibration with Job Family Masters in each Job Family. As a result, our 2022 employees' competency both in PTTEP corporate and international assets increased by approximately 5.94%

The Company calculated the Human Capital Return on Investment (HCROI) in several dimensions. These included man- hours and cost spent on development activities against total revenue and production, time to autonomy of young technical professionals, and readiness of immediate successors for senior management positions, as well as continuous development of additional measurements to evaluate the HCROI more efficiently. The results are subsequently used to evaluate and elevate the efficiency and effectiveness of the development activities for further and future improvement.

7.6 Other Significant Information

7.6.1 Secretary to the Board of Directors

The Board of Directors appointed Mr. Montri Rawanchaikul to the Director and Chief Executive Officer and was assigned to act as Secretary to the Board of Directors, effective from January 1, 2022. The Secretary of the Board of Directors serves as the focal point between the Board and the management and is responsible for providing advice to the Board on legal compliance regarding the duties and responsibilities of the Board and the management. The Secretary of the Board of Directors is also the accountable person for reviewing the agenda and Minutes of the Board's meetings prior to their submission to the Board and managing documentation of the Shareholders' meeting, as well as preparation for the Board for the Shareholders' meeting. Mr. Montri Rawanchaikul is highly knowledgeable, capable, and experienced, allowing him to appropriately support the Board in carrying out its fiduciary duties.

7.6.2 Company Secretary

The Board of Directors resolved to appoint Mrs. Maneeya Srisukhumbowornchai, Senior Vice President, Corporate Secretary Division, as the Company Secretary and Secretary of the Corporate Governance and Sustainable Development Committee, Secretary of the Nominating and Remuneration Committee, and Secretary of the Independent Directors Committee since September 1, 2019. Mrs. Maneeya holds a degree in accounting. She is highly knowledgeable, capable, and experienced in corporate secretarial functions. In addition, she has attended seminars and completed necessary trainings which are beneficial to her role. Detail of the Company Secretary is disclosed under the attachment 1 " Information of the Board of Directors, Management, Controlling Persons, and Company Secretary".

The Company Secretary has performed roles with fiduciary duties by holding responsibilities, and duties on care and loyalty to the Company, as required by the Securities and Exchange Act, including preparing and safeguarding the Company's important documents, namely the director registry, notice of the Shareholders' meetings, notice of the Board's meetings, Minutes of the Shareholders' meetings, Minutes of the Board's meetings, and Annual Reports; safeguarding the Conflicts of Interests Report submitted by the members of the Board and management as well as sending a copy of the report to the Chairman of the Board and Chairman of the Audit Committee, as stipulated by law.

The Company Secretary is also responsible for the following duties as required by the Board:

- Overseeing and advising the Board to ensure that the directors perform their roles in compliance with relevant applicable laws, rules, and regulations as well as the Company's objectives, Articles of Association, resolutions from the Board's and shareholders' meetings.
- Organizing meetings of the Board, sub-committees, and shareholders.
- Providing orientation and giving pieces of advice to new members of the Board.
- Recommending necessary and appropriate training programs to members of the Board.
- Coordinating with the Company's functional units to ensure that the Company's business operations are in line with the direction set by the Board and shareholders' meetings and work with external regulators who oversee listed companies.
- Governing the Company's subsidiaries, including preparing and safeguarding their important documents.
- Promoting and educating the directors, management, and employees about the Good Corporate Governance and Business Ethics of the PTTEP Group and ensuring full compliance with such policy, including reviewing the PTTEP Group's CG&BE to comply with related laws and in line with international practices of leading organizations.
- Ensuring that all shareholders are treated fairly, ethically, and lawfully as well as promoting good relationships with minority shareholders.
- Acting as a focal point who is responsible for coordinating with relevant parties when reports or complaints were submitted through the Whistleblowing System of the PTTEP Group.
- Performing other duties as required by the Company.

7.6.3 Head of the Internal Audit Division

PTTEP has established the Internal Audit Division, which has a direct reporting line to the Audit Committee and an administrative (Dotted-Line Reporting) reporting line to the CEO. Key roles, responsibilities, and the scope of work of the Internal Audit Division include:

1) In-house and Subsidiary Audits

The purpose of the audits is to ensure that the operations achieve the Company's targets. The auditors evaluate the efficiency, adequacy, and effectiveness of governance, risk management, and internal controls in a continuous effort to detect and prevent all types of deceptive schemes with potential fraudulent activities, or schemes which can potentially lead to illegal wrongdoings. The audits and the processes involved are also developed to identify control weaknesses which could potentially open opportunities for fraud as well as to provide recommendations for the enhancement of the internal controls.

2) Joint Venture and Joint Operating Company Audits

The auditors conduct audits on the operators for projects that PTTEP has invested in to ensure that the operators comply with the joint venture agreements and other related contractual arrangements, they possess appropriate internal controls and the expenditure incurred and reported is equitable, reasonable, and accurate for the benefit of all parties involved.

3) Digital Technology Audit

The auditors conduct audits to review and assess the efficiency and effectiveness of IT-related controls of digital technologies utilized in the Company. This is to reasonably ensure that the management of enterprise IT achieves the Company's business objectives in core aspects of benefits realization, risk optimization, and resource optimization.

4) Consulting Services

The auditors pre- determine the scope of the consulting services prior to the engagement, ensuring that they will result in improved efficiency and effectiveness of the existing processes as well as useful recommendations on risk management, internal controls, and corporate governance.

5) Fraud Investigation

The Head of the Internal Audit Division is responsible for undertaking investigations of all reported or suspected frauds in accordance with the Reporting and Whistleblowing Regulation B. E. 2556. Investigation team members must not bear any conflicts of interest on complaints under the investigation. Prevention, detection, further investigation, and prosecution of fraud offenders are however the responsibility of the management.

6) Special Audit Requests

Special audit requests are not included in the annual audit plan. The Internal Audit Division performs special audits as requested by the Company's management and/or the Audit Committee to prevent and mitigate risk.

According to the Audit Committee Charter, the Audit Committee has a duty to endorse the appointment, transfer, removal, promotion, and performance appraisal of the Head of the Internal Audit Division.

Ms. Yaninee Wajeepratubjit has held the position of Senior Vice President of the Internal Audit Division and Head of the Internal Audit Division since January 1, 2021. The Audit Committee deems that the afore-mentioned executive is qualified to undertake the responsibility based on her educational background, necessary knowledge, skills, and work experiences. She has also been up-to-date in terms of professional knowledge and expertise, primarily through extensive training on internal auditing methodologies, management programs, and internal auditor competency development. Such stringent attention to the person holding the title and the support provided to the entire team highlight the importance which the Company has placed on the efficiency and effectiveness of the Internal Audit Division and the performance of the Audit Committee.

The details of the Head of the Internal Audit Division are disclosed in the attachment 3 "Details of Head of the Internal Audit Division and Head of the Compliance Function".

7.6.4 Head of the Compliance Function

PTTEP has established the Governance, Compliance, Internal Control, and Subsidiary Management Department which has a direct reporting line to the Senior Vice President of the Corporate Secretary Division, the Executive Vice President of the Human Resources, Corporate Affairs and Assurance Group, and the Chief Executive Officer, respectively. The key responsibilities are to promote and ensure that the PTTEP Group operates in full compliance with all applicable laws as well as to support the management in managing compliance risk efficiently through various compliance programs. This includes providing communication and training programs, developing and maintaining and monitoring legal compliance using the Legislation e-Database, identifying and conducting compliance risk assessment, providing advice on new issuance or

amendment of the PTTEP Group's internal regulations, coordinating with regulators, and regularly reporting the performance of the compliance programs to the Audit Committee and the management.

Head of the Compliance Function in 2022 was Ms. Chalida Srikorakul had been appointed as the Vice President of the Governance, Compliance, Internal Control, and Subsidiary Management Department from January 26, 2021, up to the present.

More details of the Head of the Compliance Function are disclosed in the attachment 3 "Details of Head of the Internal Audit Division and Head of the Compliance Function section".

7.6.5 Head of the Investor Relations

Details are disclosed under the "Investor Relations" topic.

7.6.6 Remuneration of Auditor

(1) Audit Fees

In 2022, PTTEP and its subsidiaries, both domestic and overseas, paid audit fees for the following:

1)	PwC and persons or companies related to the auditor and the audit firm[1]	0.63	million USD	(THB 22.12 million)
2)	Other auditors than 1)	1.19	million USD	(THB 41.70 million)
	Total	1.82	million USD	(THB 63.82 million)

(2) Non-Audit Fees[2]

In 2022, PTTEP and its subsidiaries paid non-audit fees to the audit firm of PTTEP (PwC) and persons or companies related to the auditor and the audit firm for a total of USD 1.14 million (THB 39.87 million). The majority of fees were charged for Financial Due Diligence advisory services, tax services and other services through procurement process.

Summary of the Auditors' Report for the Past Three Years (2020-2022)

The auditors expressed an unqualified opinion in the Auditors' Report on the PTTEP's consolidated financial statements for the past 3 years.

[1] In accordance with the definition of Securities and Exchange Commission of Thailand (SEC)

[2] "Non-Audit Fees" is a terminology commonly used by SEC reporting requirement.

8. Corporate Governance Milestones

8.1 Summary of Board's Performance in the Past Year

8.1.1 Nomination, Development, and Performance Assessment of the Board

(1) Independent Director

PTTEP's Definition of Independent Directors

The Good Corporate Governance of PTTEP has defined the qualifications of the Company's independent directors more strictly than those defined by the Capital Market Supervisory Board, specifically in the area of shareholding of no more than 0.5% (SEC sets at 1%) of the total voting shares of PTTEP as clarified in 1) below. The definition of an independent director, whose qualifications are annually reviewed, is as follows:

1) Holding shares not exceeding 0.5 percent of the total number of shares with voting rights of PTTEP, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, including shares held by related persons of the independent director.

2) Neither being nor used to be an executive director, employee, staff member, or advisor who receives salary, or a controlling person of PTTEP, our parent company, subsidiary companies, associated companies, sister subsidiary companies, major shareholders, or controlling persons, unless the foregoing status has ended for not less than 2 years prior, excluding the case where the independent director used to be a government official or an advisor of a government unit, which is a major shareholder or a controlling person of the Company.

3) Not being a person related by blood or legal registration as a father, mother, spouse, sibling, and child, including the spouse of a child of the Company's directors, executives, major shareholders, controlling persons, or persons to be nominated as a director, executive, or controlling person of PTTEP or one of the subsidiaries.

4) Neither having nor used to having a business relationship with PTTEP, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons in the manner which may interfere with his or her independent judgment, and neither being nor used to be a significant shareholder, or a controlling person of anyone having a business relationship with the Company, our parent company, subsidiary companies, as sociated companies, major shareholders, or controlling persons, unless the foregoing relationship has ended for not less than 2 years prior.

The term 'business relationship' under the first paragraph shall include normal business transactions, rental or lease of immovable property, transactions relating to assets, services, and granting or receiving of financial assistance. These include receiving or extending of loans, guarantees, collaterals, and other similar actions which can potentially result in PTTEP or his counterparty being subject to indebtedness payable to the other party in the amount, whichever is lower, of between 3 percent or more of the net tangible assets of the Company or THB 20 million or more. The amount of such indebtedness shall be calculated according to the method for calculation of the value of connected transactions under the Notification of the Capital Market Supervisory Board's governing rules on connected transactions mutatis mutandis. The consideration of such

indebtedness shall include indebtedness occurred during the period of one year prior to the date on which the business relationship with the person commences.

5) Neither being nor used to be an auditor of PTTEP, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, and not being a significant shareholder, controlling person, or partner of an audit firm which employs auditors of the Company, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons unless the foregoing relationship has ended for not less than 2 years prior.

6) Neither being nor used to be a provider of any professional services, including those as a legal advisor or financial advisor who receives service fees exceeding THB 2 million per year from PTTEP, our parent company, subsidiary companies, associated companies, major shareholders, or controlling persons, and not being a significant shareholder, controlling person, or partner of the provider of the professional services, unless the foregoing relationship has ended for not less than 2 years prior.

7) Not undertaking any businesses in the same nature and in competition with the business of PTTEP or its subsidiary companies, or not being a significant partner in a partnership or an executive director, employee, staff, advisor who receives salary or holds shares exceeding 1% of the total number of shares with voting rights of any companies which undertake a business of the same nature and in competition with that of the Company or our subsidiaries.

8) Not being a director appointed as a representative of the directors of PTTEP, major shareholders or any shareholders who are related to the major shareholders.

9) Not having any other characteristics which hamper him or her of the ability to express independent opinions in regard to PTTEP's business operations.

An independent director with the qualifications under 1) to 9), may be assigned by the Board to take part in the business decision of PTTEP, our parent company, subsidiary companies, associated companies, sister subsidiary companies, major shareholders, or controlling persons, provided that such decision shall be in the form of a collective decision.

The definition of each of the specific words mentioned is in line with the Notification of the Securities and Exchange Commission RE: Determination of Definitions in Notifications relating to Issuance and Offer for Sale of Securities

Business Relationship or Professional Services of Independent Directors of the Company during the Past Fiscal Year

– None –

(2) Nomination of Directors and Management

Nomination of Directors

When there is a vacancy of a director position or when a director's term limit is due, it is a duty of the Nominating and Remuneration Committee to select the candidates who fit the required skills, experience, and are in line with the Company's Target Skill Mix and strategic directions to ensure that the Board's composition is complete, comprising of experienced and well-rounded experts in various areas, and for the optimal benefit to PTTEP. The Company thoroughly and transparently places high

importance on the Board's diversity, gender, independence, and conflicts of interest. As of December 31, 2022, PTTEP Board comprised 10 independent directors and 2 female directors from 14 directors.

Moreover, the Nominating and Remuneration Committee conducts Gap Analysis of the Board's current Skill Mix and Target Skill Mix, where Target Skill Mix of the Board between 2022-2023 will be considered from various skills by emphasizing the following 4 priorities;

1) Organization Change and Development: To support PTTEP in preparing the business for the changes, and focusing on organization transformation to enhance PTTEP capabilities to accommodate energy transition and new business and the setup of internal control and compliance systems for new domestic and international projects, challenge on workforce diversity and human resources management, experienced director nominees in this area are essential for PTTEP to be truly an international E&P company.

2) Technology: To strengthen PTTEP business by applying technology including information technology, innovation, research, and development to properly set both short-term and long-term strategic directions including to enhance capability of the organization in achieving our corporate vision.

3) Legal: To support legal and compliance risk management which are corporate-level risks with direct impact on business sustainability of the Company, as well as regularly monitoring new laws in responding to new technologies and dynamic environment change especially for new businesses investment.

4) International Market and Collaborations: According to the Diversification to Beyond E&P strategy, PTTEP aims to expand more investment into new business apart from its core E&P business with the focus on adding value to the current projects as well as promoting investment in new business projects both domestically and internationally and developing its potentials in commercial and marketing. Having knowledgeable, experienced, and expert director nominees in this area, especially in commercial and marketing and international relations will be useful for PTTEP to be able to successfully invest and operate its projects internationally.

The process begins with the Nominating and Remuneration Committee considering candidates' skill alignment with the aforementioned Target Skill Mix, where the Board was able to fulfill the Target Skill Mix in Organization Change and Development in 2022 while still placing importance on future candidates who have skills in Technology, International Market and Collaborations and Legal. In addition, the Nominating and Remuneration Committee also holds the process of searching director candidates through the directors' pool of the State Enterprise Policy Office (SEPO) which comprises a list of people who are regarded as highly qualified for state-enterprising. As of December 31, 2022, PTTEP has 8 directors whose names are listed in SEPO's directors' pool. The Company also seeks advice from the major shareholder, PTT, as well as from minor shareholders (if any) according to the rules regarding the nomination of a person to fill in the positions which are due to retirement by rotation. A list of qualified candidates must be endorsed by the State Enterprise Policy Committee, according to the Regulations of the Office of the Prime Minister on State Enterprise Policy and Governance Determination, B.E. 2557.

Election of directors to replace those who are due to retirement by rotation must obtain an approval from the AGM by a majority vote based on the number of the Company's shareholders with voting eligibility at the Meeting. The election process is as follows:

1) Should the number of the director candidates be less than the number of those to be elected, PTTEP will propose at the Meeting to elect all candidates as the directors by voting for the individual candidates, under which each of them must receive majority votes.

2) Should the number of the director candidates exceed the number of those to be elected, a ballot is to be held. Each shareholder may vote for as many director candidates as the number of the opened positions, while voting will then be carried out for each of the individuals. Those with the highest ballots will be elected, as many as the number of the opened positions. Each of them must receive majority votes.

When a director position becomes vacant for reasons other than rotation, the Board, with approval from the State Enterprise Policy Committee, may elect a new director, using the three-fourth majority voting rule. The elected director is permitted to remain in his or her directorship for only as long as the remaining term of the predecessor.

Nomination and Succession Plan of the Chief Executive Officer

The Nominating and Remuneration Committee has included in its Charter the role to consider the Chief Executive Officer succession plan and appropriate executive-level management's development system to ensure a candidate list with the skills and qualifications in line with the Company's target growth.

The Nominating and Remuneration Committee is responsible for considering the candidates' knowledge, skills, experience, and other various specific qualifications to bring about the best of interests to the Company, for example, strategic vision of energy, able to lead large investment to achieve targets, crisis management ability, working experience in Exploration and Production, ability to seek and manage New Business for the Company's sustainable growth and also looking into their probable conflicts of interest.

The Company formulates a succession plan for the Chief Executive Officer to prepare the Company for the time when the Chief Executive Officer is unable to perform his or her duties or when the serving term is completed. The plan helps to minimize the risks and the impacts, potentially resulting from the discontinuity of the management. The succession planning procedure is as follows:

1) PTT Group Management Committee (PTTGMC), a committee in which the Company's Chief Executive Officer is a director, and PTTEP forms the Group Leadership Development Program (GLDP). The program's primary focus is to enhance the capability of the PTT Group's executives, Senior Vice Presidents and above to prepare them for a possible nomination to become the Chief Executive Officer in one of the PTT Group companies.

2) PTT Management Committee (PTTMC), with PTT as the Company's major shareholder, reviews the shortlisted executive names from 1) and proposes them to PTT's Board of Directors who is responsible to select PTTEP's next Chief Executive Officer.

3) After receiving the candidate names, accompanied by opinions of PTT's Board from 2), and comparing them with the Company's potential candidates in the executive vice president level, the Company's Nominating and Remuneration Committee will reassess the individual's knowledge, capability, and experience relating to the business, conflicts of interest, and his or her vision to lead the Company to grow according to the strategic plan.

4) The Nominating and Remuneration Committee proposes the name of the final candidate, together with the opinions and a fair and reasonable package proposed by the Nominating and Remuneration Committee, to the Board of Directors for approval and appointment of the Company's Director and new Chief Executive Officer.

Nomination of Management and Succession Plan

The Board grants Chief Executive Officer an authority to select and appoint the individuals who possess the knowledge, capabilities, and experience to management positions in consultation with the Career Review Board (CRB) Committee and the presence of PTTEP Rules and Regulations for Human Resources Management. The nomination must then be acknowledged by the Board. Exceptions are made for the appointment of the Executive Vice President and above, where the Board's approval is required. If the nominee is from outside of the organization, an interview with the interview committee is required, while the nomination of the Head of Audit Function requires an approval from the Audit Committee.

PTTEP has a systematic succession planning for management of vacant positions which result from the appointment, retirement, and from reorganization to support the Company's business expansion domestically and internationally. The Career Review Board (CRB) Committee is authorized to select and appoint successors for management positions using the Company's Management Success Profile as screening criteria. These profiles comprise organizational knowledge, experiences, competency, as well as personal attributes required for the target positions, while Currently Estimated Potential is also taken into consideration. Once the successors are identified, their individual short-term and long-term development plans will be established with focus on technique and functional knowledge, managerial skills, and soft skills required for different business areas, such as Asset Management, Business Development, Technical Support, and Business Support, according to the corporate values and organizational culture to ensure that the successors are qualified for the target positions by the time of requirement.

(3) Development of Directors

Orientation of New Directors

The orientation which is provided to the Company's new directors consists of:

1) Presentation by the Chief Executive Officer and executives: This briefing involves the nature and operational guidelines of the business, knowledge, and techniques in regard to the petroleum exploration and production business and new business of the PTTEP Group, relevant rules and regulations, Good Corporate Governance and Business Ethics (CG&BE), and essential information for the directors to perform the duties with efficiency.

2) Director Manual: This contains essential information, including the strategic plan, relevant rules and regulations, and the CG&BE covering Human Rights, Measures to prevent the use of inside information, Conflicts of Interest, and Anti-Fraud and Corruption, etc., which will be beneficial for the directors to perform the duties. The Manual is regularly reviewed and updated for the directors to use as a reference.

3) Operational Sites Visit: New directors visit operational sites of the PTTEP Group to enrich their understanding of the Company's operations and optimize their knowledge and experience for the benefit of the Company.

At the end of each orientation, new directors will evaluate the effectiveness of the orientation for further improvement. The director who is elected to be the Chairman and a member of a sub-committee is also required to attend an extra session and subsequently be informed of the important subjects relating to the additional new role, including performing the duties of

the Chairman and a member of a sub-committee as well as conducting and leading meetings of the Company's directors and shareholders.

Development and Trainings of Directors

PTTEP's directors are knowledgeable; however, they are ambitious to learn and understand more about the business and their duties as directors. PTTEP encourages every director to acquire further knowledge through training organized by the Thai Institute of Directors Association (IOD) and other leading organizations as well as attending seminars and business visits to enhance the ability to perform their duties. To continuously provide knowledge and share opinions with the directors, the Company's management delivers lectures and exchange opinions with the Board. In 2022, the Company's management arranged sessions on "Strategy Review" and "Strategic Retreat" for all directors to promote understanding on implementation of our strategy in suitable manner with economic conditions and ongoing changes. PTTEP also provided continuous support to our directors for attendance of external events such as training, meeting, and seminar that were beneficial to perform the role PTTEP's directors. Details are as follows.

Directors	Courses
1) Mr. Krairit Euchukanonchai	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights - Abu Dhabi International Petroleum Exhibition and Conference 2022 (ADIPEC 2022) - Offshore Technology Conference Asia 2022 (OTC Asia 2022)
2) Admiral Tanarat Ubol	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights - Abu Dhabi International Petroleum Exhibition and Conference 2022 (ADIPEC 2022)
3) Lieutenant General Nimit Suwannarat	- Internal Lecture and Discussion Session on 2023 Strategy Review - Introduction to Carbon Credit Market
4) Mr. Pitipan Tepartimargorn	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Abu Dhabi International Petroleum Exhibition and Conference 2022 (ADIPEC 2022) - Introduction to Carbon Credit Market
5) Mr. Bundhit Eua-arporn	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights - Director Briefing "What Director should know about Quantum" by IOD - Introduction to Carbon Credit Market

Directors	Courses
	- Requirement for Global Carbon Market, Blue Carbon as part of GHG offsetting, Regenerative Agriculture and Forestation
6) Ms. Penchun Jarikasem	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights - Abu Dhabi International Petroleum Exhibition and Conference 2022 (ADIPEC 2022) - Director Briefing “What Director should know about Quantum" by IOD
7) Mr. Patchara Anuntasilpa	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights
8) Mr. Dechapiwat Na Songkhla	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat
9) Mrs. Angkarat Priebjrivat	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights - Abu Dhabi International Petroleum Exhibition and Conference 2022 (ADIPEC 2022) - IOD National Director Conference 2022 - Requirement for Global Carbon Market, Blue Carbon as part of GHG offsetting, Regenerative Agriculture and Forestation
10) Mr. Auttapol Rerkpiboon	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat
11) Mr. Veerathai Santiprabhob	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights - Abu Dhabi International Petroleum Exhibition and Conference 2022 (ADIPEC 2022) - Introduction to Carbon Credit Market - Requirement for Global Carbon Market, Blue Carbon as part of GHG offsetting, Regenerative Agriculture and Forestation
12) Mr. Wattanapong Kurovat	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights - Requirement for Global Carbon Market, Blue Carbon as part of GHG offsetting, Regenerative Agriculture and Forestation

Directors	Courses
13) Mr. Teerapong Wongsiwawilas	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights
14) Mr. Montri Rawanchaikul	- Internal Lecture and Discussion Session on 2023 Strategy Review - Internal Lecture and Discussion Session on 2023 Strategic Retreat - Offshore Northern Seas Conference 2022 (ONS 2022) - CCS Project Overview by Northern Lights - Abu Dhabi International Petroleum Exhibition and Conference 2022 (ADIPEC 2022) - Offshore Technology Conference Asia 2022 (OTC Asia 2022)

As of December 31, 2022, the Company had 14 directors in total. 12 of the Company's directors (86% of the total number) have participated in IOD's Director Certification Program (DCP), while 4 of the Company's directors (29% of the total number) have attended the IOD's Director Accreditation Program (DAP). In addition, the Company regularly provided them with information on new and useful seminars and trainings. The details of the training courses attended by the directors are disclosed in Attachment 1 "Information of the Board of Directors, Management, Controlling Persons, and Corporate Secretary".

(4) Performance Appraisal of the Board

The Good Corporate Governance and Business Ethics of the PTTEP Group (CG&BE) stipulates that there should be an annual performance appraisal of the Board derived from Board Performance Target and Performance Appraisal Form. This allowed the Company's directors to review their performance, key issues, and obstacles which they had faced during the year as well as to enhance their directorship efficiency.

The 4 types of Board's performance appraisal are:

1) Individual self-appraisal and individual cross-appraisal by other directors, including 4 evaluation topics, namely (1) qualifications, (2) independence, (3) roles and responsibilities, and (4) training and self-development.

2) Appraisal of the entire Board, including 6 evaluation topics, namely (1) corporate policies and strategic planning, (2) Board performance, (3) management governance and cooperation, (4) Board meetings, (5) Board structure and qualifications, and (6) training and self-development.

3) Appraisal of the sub-committees, which includes questions on each of the sub-committee's performance, efficiency according to the roles and responsibilities stated in their charters.

4) Appraisal of the Chairman, which includes questions about the efficiency of the Chairman's performance, according to the roles and responsibilities of the Chairman as stated in the SEC's Corporate Governance Code for Listed Companies 2017 (CG Code) and the CG&BE of PTTEP Group under Section 6.3: Roles of the Board of Directors and Management.

This includes topics, such as acting as the Chairman of the Board's meetings and the Annual General Shareholders' Meeting, setting agenda for the Board's meetings, and enhancing relationship between the Board and the management.

In 2022, Board Performance Target was established by the Nominating and Remuneration Committee, covering 3 aspects, namely the building of the Company's stability, growth, and appropriate return to the Shareholders, the PTTEP's Corporate Governance assessment results, and directors' meeting attendances and the efficiency of directors' performance. The criteria and performance appraisal form were also reviewed according to the SEC's CG Code. The 2022 performance appraisal form comprised 4 types of Board's performance appraisal with a scoring scale of 1 to 3 (1 = need improvement, 2 = meets standard, and 3 = good). In this year, the Audit Committee and the Risk Management Committee's appraisal questions were adjusted to be more concise, align with their charters, and reflect their current roles and responsibilities.

Process

The Corporate Secretary Division, a focal point of Board's performance appraisal coordination and preparation, will distribute the appraisal form to each director, gather and process the result of assessment in order to summarize and propose the result and improvement plan to the Nominating and Remuneration Committee and the Board for their acknowledgement.

Summary of the 2022 Board Performance Appraisal's Results

1) Self-appraisal average score was 2.86, decreased from 2.90 in 2021 (total score = 3.00). Individual cross-appraisal by other directors, the average score was 2.84, decreased from 2.92 in 2021 (total score = 3.00).

2) Average score from self-appraisal of the entire Board was 2.89, same as 2021 score (total score = 3.00).

In addition, the 2022 self-appraisal of the entire Board included an assessment part of the cooperation between the Board and management. The same set of questions was evaluated by management to further develop their relationships and cooperation and to promote two-way communication.

3) The 2022 appraisal scores of the 4 sub-committees were as follows:

3.1) Appraisal score of the Audit Committee was 3.00, same as 2021 score (total score = 3.00).

3.2) Appraisal score of the Nominating and Remuneration Committee was 2.87, decreased from 2.98 in 2021 (total score = 3.00).

3.3) Appraisal score of the Corporate Governance and Sustainable Development Committee was 2.75, increased from 2.65 in 2021 (total score = 3.00).

3.4) Appraisal score of the Risk Management Committee was 2.89, decreased from 2.93 in 2021 (total score = 3.00).

4) 2022 appraisal of the Chairman of the Board was 2.89, increased from 2.88 in 2021 (total score = 3.00).

PTTEP reported scores to the Board for acknowledgment. Recommendations from the Board's appraisal will be used in the future for efficiency improvement of the Board, sub-committees, Chairman, and management in several aspects, such as reviewing Target Skill Mix for new director to suit to the Company's strategy, proposing more information and Board agenda regarding non-E&P business and sustainability to the Board for their consideration and advice on driving business

operation to correspond to the Company's strategy, and organizing activities related to director self-development e.g. conference, site visit, special lecture, seminar, and directors' training.

(5) Performance Appraisal of the Chief Executive Officer (CEO)

The Board assigned the Nominating and Remuneration Committee to be responsible for conducting the CEO's performance appraisal according to the CEO's Performance Agreement as determined by the Committee. The appraisal was measured by the Corporate KPIs. The appraisal outcome must also be approved by the Board to ensure checks and balances as well as to allow the Company to monitor the performance of the CEO. In addition, it will help promote the Company's Good Corporate Governance and greater operational efficiency in the future.

8.1.2 Meeting Attendance and Individual Directors' Compensation

(1) The Board's Meetings

The Board's monthly meetings and agenda are scheduled and set in advance each year by the Board itself. There are 12 normal meetings annually, held every Friday on the 3rd week of each month. The Board members have been informed of the 2023 meeting schedules since September 2022. Meetings related to the Company's strategic planning, to which the Board has greatly committed its time and priority, are commonly held off-site, whereas additional meetings will be held when deemed appropriate. In 2022, there were 18 Board meetings, including 17 electronic meetings and 1 physical meeting. The Board usually receives meeting invitations from the Company Secretary, along with agenda and important documents related to the meetings, for review at least 7 working days prior to the meeting date, except in those urgent cases with insufficient information. In addition, the meeting documents are delivered to the directors through dedicated software to facilitate and speed up their reviews as well as to promote a paperless process.

Generally, the Company's Chairman, the CEO, the Secretary to the Board of Directors, and the Company Secretary are responsible for agenda proposals for Board meetings; however, in practice, the Company's directors are also eligible to make the proposals. The Board's meeting agenda items are clearly classified, including monthly items of performance review as well as budget execution.

During each of the meetings, which usually lasts approximately 3 - 4 hours, the Chairman allocates an adequate time to each agenda to provide an opportunity for directors to express their opinions independently. The Company's executives are also invited to attend the meetings to provide necessary information as well as to acknowledge the policies and issues being raised. the Company Secretary provides advice to the Board on related rules and regulations for proper practices, take minutes of the meetings, as well as keep complete filing of all the necessary meeting information and documents.

The Board's resolutions are based on a majority vote, where one director has one vote. Should a director have a stake in one of the issues, he or she will not be allowed to attend the meeting and/or to exercise his or her vote on that issue. In the circumstance where the voting is tied, the Chairman of the meeting is entitled to cast the decisive vote.

The issues which require an approval of no less than three-fourths of the total vote of the Company's eligible shareholders attending the meeting are as follows:

1) The sale or transfer of whole or important parts of business of the Company to other persons

2) The purchase or acceptance of business transferring from other public limited companies or private companies to the Company

3) The making, amending, or concealing of contracts relating to the leasing out of the businesses of the Company, wholly or certain important parts, the assignment to any other persons to manage the businesses of the Company or the amalgamation of the businesses with other persons with objectives towards profit and loss sharing

4) To amend the Memorandum or Articles of Association

5) To increase or reduce the registered capital, issue debentures, amalgamate, and dissolve the Company

6) In case where the Company or one of the subsidiaries agrees to enter connected transactions, or disposition or acquisition of the Company's or the subsidiary's assets, as determined by the Securities and Exchange law and notifications in relation to such transaction

The minutes of the Board's meetings cover all significant matters. For issues seeking approval, all resolutions are unanimous. The names of the persons attending or absent from the meetings, the names of the meetings' attendants, board opinions, questions, management answers, or clarifications are recorded in detail, while the minutes are systematically filed and kept safely. All directors of the Board usually attend every meeting unless an absence is deemed necessary, in which case the director in question must provide the Board's Chairman with an application for leave, which must be communicated to all the Board members prior to the meeting and will be subsequently recorded in the report of individual directors' meeting attendance. In 2022, the majority of the Board members attended every meeting. The directors who were unable to attend the meeting informed the Chairman of the reasons in advance.

In 2022, non-executive directors held one meeting in the absence of the management. The purpose of the meeting was to discuss and clarify ongoing issues from corporate performance of 2022. The results were summarized for and acknowledged by the CEO for further consideration.

Meeting Attendance of PTTEP Directors in 2022

Director's Name	Board of Directors	Independent Directors Committee	Non-Executive Directors Committee	Corporate Governance and Sustainable Development Committee	Audit Committee	Nominating and Remuneration Committee	Risk Management Committee	Annual General Shareholders' Meeting 2021
	Total number of meetings 18 Times	Total number of meetings 3 Times	Total number of meetings 1 Time	Total number of meetings 4 Times	Total number of meetings 14 Times	Total number of meetings 7 Times	Total number of meetings 12 Times	Total number of meetings 1 Time
1. Mr. Krairit Euchukanonchai	18/18	3/3	1/1	-	-	-	-	1/1
2. Admiral Tanarat Ubol	17/18	3/3	1/1	-	-	7/7	-	1/1
3. Lieutenant General Nimit Suwannarat	14/18	3/3	-	-	-	-	9/12	1/1
4. Mr. Pitipan Tepartimargorn	18/18	3/3	1/1	-	-	7/7	12/12	1/1
5. Mr. Bundhit Eua-arporn[1]	17/18	2/3	1/1	4/4	-	-	12/12	1/1
6. Ms. Penchun Jarikasem	18/18	3/3	1/1	-	14/14	-	-	1/1
7. Mr. Patchara Anuntasilpa	18/18	-	1/1	-	-	7/7	-	1/1
8. Mr. Dechapiwat Na Songkhla[2]	17/18	3/3	1/1	-	14/14	-	-	1/1
9. Mrs. Angkarat Priebjrivat	18/18	3/3	1/1	4/4	14/14	-	-	1/1
10. Mr. Auttapol Rerkpiboon	18/18	-	1/1	-	-	-	-	1/1
11. Mr. Veerathai Santiprabhob	18/18	3/3	1/1	4/4	-	-	12/12	1/1
12. Mr. Wattanapong Kurovat	18/18	-	1/1	4/4	-	-	-	1/1
13. Mr. Teerapong Wongsiwawilas[3]	17/18	3/3	1/1	-	14/14	7/7	-	1/1
14. Mr. Montri Rawanchaikul	18/18	-	-	-	-	-	-	1/1
Resignation of Former Directors during 2022								
1. Mr. Atikom Terbsiri[4]	13/13	-	1/1	-	-	-	9/9	1/1

[1] Mr. Bundhit Eua-arporn resigned from directorship effective from January 10, 2023

[2] Mr. Dechapiwat Na Songkhla resigned from directorship effective from January 1, 2023

[3] Mr. Teerapong Wongsiwawilas was elected as a director in place of Mr. Achporn Charuchinda and was elected as Audit Committee effective from January 1, 2022

[4] Mr. Atikom Terbsiri resigned from directorship effective from September 30, 2022

Number of PTTEP Shares held by the Directors, their Spouses/Cohabiting Couple and Minor Children as of December 31, 2022

Director's Name	Number of Ordinary Shares		
	As of December 31, 2021	As of December 31, 2022	Increase/(Decrease) during the Year
1. Mr. Krairit Euchukanonchai	-	-	-
2. Admiral Tanarat Ubol	-	-	-
3. Lieutenant General Nimit Suwannarat	-	-	-
4. Mr. Pitipan Tepartimargorn	-	-	-
5. Mr. Bundhit Eua-arporn[1]	-	-	-
Spouse/Cohabiting Couple	4,587	4,587	-
6. Ms. Penchun Jarikasem	-	-	-
7. Mr. Patchara Anuntasilpa	-	-	-
8. Mr. Dechapiwat Na Songkhla[2]	-	-	-
9. Mrs. Angkarat Priebjrivat	-	-	-
10. Mr. Auttapol Rerkpiboon	-	-	-
Spouse/Cohabiting Couple	500	500	-
11. Mr. Veerathai Santiprabhob	-	-	-
12. Mr. Wattanapong Kurovat	-	-	-
13. Mr. Teerapong Wongsiwawilas[3]	N/A	-	-
14. Mr. Montri Rawanchaikul	52,050	52,050	-
Spouse/Cohabiting Couple	8,900	-	(8,900)
Former Directors Resigning during 2022			
1. Mr. Achporn Charuchinda[4]	-	N/A	N/A
2. Mr. Atikom Terbsiri[5]	-	-	-

[1] Mr. Bundhit Eua-arporn resigned from directorship effective from January 10, 2023

[2] Mr. Dechapiwat Na Songkhla resigned from directorship effective from January 1, 2023

[3] Mr. Teerapong Wongsiwawilas was elected as a director and member of the Audit Committee in place of Mr. Achporn Charuchinda effective from January 1, 2022

[4] Mr. Achporn Charuchinda resigned from directorship effective from January 1, 2022.

[5] Mr. Atikom Terbsiri resigned from directorship effective from September 30, 2022.

(2) Remuneration of the Board and Members of the Sub-Committees

PTTEP has a sound and transparent policy in regard to remuneration of the Company's directors of the Board and sub-committees. The Nominating and Remuneration Committee, who is responsible for the policy, reviews the remuneration with prudence by taking into consideration remuneration of listed and comparable companies in the industry, performance of PTTEP, duties and responsibilities of the directors, overall economic situation, and the shareholders' opinions. The 2022 Annual General Shareholders' Meeting (AGM) approved the following remunerations for members of the Board and sub-committees, as proposed by the Nominating and Remuneration Committee.

Remuneration Rates for Members of the Board

1) Monthly allowance of THB 40,000 per person per month in a full-month payment

2) Meeting allowance of THB 50,000 per person per a meeting attendance

3) Bonus for the Board if there is a dividend in that year, totaling 0.2% of the Company's consolidated net profit in that year, but no more than THB 60 million per year.

4) 25% increase in all of the above for the Chairman

Remuneration Rates for Members of the Sub-Committees

The Company's sub-committees received the following remuneration:

1) Meeting allowance of THB 45,000 per person per a meeting attendance

2) 25% increase for the sub-committee's Chairman

Other Remuneration for PTTEP Directors

- None -

Remuneration of Members of the Board and Sub-Committees in 2022

Director's Name	Remuneration							
	Board of Directors		Audit Committee	Corporate Governance and Sustainable Development Committee	Nominating and Remuneration Committee	Risk Management Committee	2021 Bonus Paid in 2022	Total
	Monthly Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance	Meeting Allowance		
1. Mr. Krairit Euchukanonchai	600,000	1,125,000	-	-	-	-	4,918,033	6,643,033
2. Admiral Tanarat Ubol	480,000	850,000	-	-	393,750	-	3,934,426	5,658,176
3. Lieutenant General Nimit Suwannarat	480,000	700,000	-	-	-	405,000	3,934,426	5,519,426
4. Mr. Pitipan Tepartimargorn	480,000	900,000	-	-	315,000	675,000	3,934,426	6,304,426
5. Mr. Bundhit Eua-arporn	480,000	850,000	-	225,000	-	540,000	3,934,426	6,029,426
6. Ms.Penchun Jarikasem	480,000	900,000	787,500	-	-	-	3,934,426	6,101,926
7. Mr. Patchara Anuntasilpa	480,000	900,000	-	-	315,000	-	3,934,426	5,629,426
8. Mr. Dechapiwat Na Songkhla	480,000	850,000	630,000	-	-	-	3,934,426	5,894,426
9. Mrs. Angkarat Priebjrivat	480,000	900,000	630,000	180,000	-	-	3,934,426	6,124,426
10. Mr. Auttapol Rerkpiboon	480,000	900,000	-	-	-	-	3,934,426	5,314,426
11. Mr. Veerathai Santiprabhob	480,000	900,000	-	180,000	-	540,000	3,934,426	6,034,426
12. Mr. Wattanapong Kurovat	480,000	900,000	-	180,000	-	-	3,934,426	5,494,426
13. Mr. Teerapong Wongsiwawilas	480,000	850,000	630,000	-	315,000	-	3,934,426	6,209,426
14. Mr. Montri Rawanchaikul	480,000	900,000	-	-	-	-	3,934,426	5,314,426
Former Directors Resigning during 2022								
1. Mr. Atikom Terbsiri	360,000	650,000	-	-	-	405,000	2,931,956	4,346,956
TOTAL	7,200,000	13,075,000	2,677,500	765,000	1,338,750	2,565,000	58,997,530	86,618,780

Remarks:

(1) 2022 Directors' Bonus to be proposed for approval from the Annual General Meeting of Shareholders for the year 2023 at the rate of 0.2% of the Company's net profit from the 2022 consolidated financial statements of the Company to be approved by the shareholders in 2023. If paid Dividend to shareholders, the payment will be made according to the term of service as the director and the chairman of the board receive a 25% higher bonus, but no more than THB 60 million per year.

(2) PTTEP provides the Chairman with a corporate car to carry out corporate-related purposes while in the chairmanship.

8.1.3 Corporate Governance Concerning Subsidiaries and Associated Companies

PTTEP supervises its subsidiaries and associated companies through the management of PTTEP Group companies. We establish adequate and appropriate monitoring and assessing systems, which include risk management, internal audit and control, compliance with rules and regulations, compliance with good corporate governance and business ethics, and we regularly report the performance to the Corporate Governance and Sustainable Development Committee. We are also aware of the significance of information disclosure in accordance with the principles of good corporate governance, details as disclosed in "Internal Controls and Connected Transactions" section, the "Sufficiency and Suitability of the Internal Control System" topic.

8.1.4 Monitoring of the Compliance with Corporate Governance Policies and Practices

(1) Conflicts of Interest Prevention Policy

PTTEP is committed to preventing all potential conflicts of interest to give the Company's stakeholders' confidence that our business management is efficient, transparent, and in compliance with the Good Corporate Governance and Business Ethics of PTTEP Group under the following principles:

1) Directors, management, and employees shall treat the interests of the PTTEP Group as priority and shall not participate or be involved in all activities which may lead to any conflicts of interest.

2) Directors, management, and employees shall self-review and disclose, at least on an annual basis, their transactions that have led to a conflict of interest with the Company.

3) Directors, management, and employees who have a conflict of interest shall not participate in considering or voting on any matters in which they have vested interest, and such conflict of interest shall be completely disclosed to the Company.

4) Directors, management, and employees shall strictly adhere to the laws and regulations as required by the Stock Exchange of Thailand, particularly in relation to connected transactions.

The Company has established conflict of interest preventive measures as follows:

1) Directors, management, employees, and related persons must avoid financial involvement or engagement in a relationship with outsiders which may result in the PTTEP Group's loss of benefits, conflicts of interest, or operational inefficiency.

2) Directors, management, employees who may have a potential conflict of interest on bidding, selection process, and awarding of the transaction, must report to their supervisors or those participating in the given process through conflicts of interest electronics reporting system. They must also withdraw themselves from participating in such process or conflicted transactions of PTTEP.

3) Directors, management, and employees shall report to the Company through conflicts of interest electronics reporting system regarding the information of persons having close relations and working within the PTTEP Group and the company in which PTTEP has invested. This is to prevent potential conflicts of interest which may arise.

4) Directors, management, and employees must notify the Company immediately should there be any suspicion or the uncertainty of what they or their related persons are involved in, or that their shares in the business with transactions with the Company, may lead to a conflict of interest.

5) Directors, management, and employees shall attend the Good Corporate Governance and Business Ethics (CG&BE) training which were arranged in various forms as indicated by the Company, for example, induction for new directors, management and employees, e-learning, and communication through e-mail etc. The training covers the topics of prevention and reporting of conflicts of interest. In 2022, PTTEP employees attended CG&BE e-learning with 100 percent completion.

6) Directors, management, and employees must self-review their conflicts of interest on an annual basis. To review their conflicts of interest related to any particular matter in the procurement process, management and employees who are directly involved in the procurement process must self-review and disclose their transactions which may lead to a conflict of interest at least every 6 months. Such declaration will enable the supervisors to consider a re-assignment of duty of management, employees who have a conflict of interest to prevent such conflict of interest from occurring. In 2022, all employees conducted self-review and conflicts of interest disclosure with 100 percent completion and the Company found no violation against conflicts of interest policy.

(2) Prevention of Insider Trading

Details are disclosed in the “Corporate Governance” section, under the “Prevention of Insider Trading” topic.

(3) Anti-Corruption

Importance

The PTTEP’s Board places importance on operating with transparency and fairness under corporate governance with zero tolerance on any form of corruption whether directly or indirectly. PTTEP has proper governance on all relevant functions pursuant to the Good Corporate Governance and Business Ethics of PTTEP Group or CG&BE which is the PTTEP Group’s regulations binding all across the organization, from the directors, management, to all employees of PTTEP and its subsidiaries, who are required to sign a commitment form agreeing to observe and conform with such regulations. Also, our measures encourage those related to the PTTEP Group, including suppliers and joint-venture partners, to abide by the CG&BE and uphold similar best practices for anti-corruption at the same level with PTTEP’s standards.

PTTEP believes that efficient anti-corruption measures require a sound governance structure together with a clear management system, adequate and proper risk management and internal controls, good monitoring for strict and ongoing compliance, independent audit and explicit guidelines as stated in the CG&BE. It also requires all directors and management to lead on good governance (CG Leader). The PTTEP Board of Directors assigned the Corporate Governance and Sustainable Development Committee to monitor compliance of the CG&BE as well as the Anti-Corruption Policy. Corporate Governance and Shareholder Engagement Section, under the Corporate Governance, Compliance, Internal Control and Subsidiary Management Department, Corporate Secretary Division, are a central function to support and drive the compliance of the CG&BE and the PTTEP Group’s anti-corruption measures. At least every quarter, updates are to be provided to the Corporate Governance and Sustainable Development Committee and the Board of Directors. The CG&BE has been prepared in writing under the internal control principles and published and distributed to all relevant stakeholders in Thai, English, and Burmese, as well as distribution the full version of the CG&BE on the Company’s website for further study by interested parties’ downloading. Finally, the “Standard of Practices for Anti-Corruption” was rolled out for the management and employees to conduct themselves properly under various circumstances where corruption risks exist – another internal control measure of PTTEP.

In addition, to establish a good standard for transparent business execution and reduce the risk of conflicts of interest, the PTTEP Group constantly adheres to the No Gift Policy and explicitly announces the Policy to outsiders that the PTTEP Group personnel will not accept gifts, entertainment, or any other benefits on any occasion. Integrity & Ethics has also been made as one of the corporate values for cultivation across the organization.

Scope of the PTTEP Group's Anti-Corruption Policy

PTTEP specifies that the CG&BE represents the PTTEP Group's anti-corruption policy. Its contents embrace the principles, guidelines, and clear examples of all matters related to anti-corruption measures. These include governance structure stated under Corporate Governance; guidelines for political neutrality, use and protection of information and assets, conflicts of interest, procurement and contract, anti-money laundering under Business Ethics. In addition, the Company specifically established Standard of Practices for Anti-Corruption as well. The CG&BE is clearly imposed on the directors, management, and employees of PTTEP and its subsidiaries, as well as their business partners, all of whom agreed in writing to comply with the CG&BE and encourage joint-venture partners to adapt suitable corporate governance and suitable business ethics.

PTTEP defined corruption based on applicable rules and legislation, domestic and international. It focuses on intention as a prime consideration any given action for in the interests of the PTTEP Group must not accompany with intention to use one's or others' authority for wrongful gain, which is unlawful and/or against the PTTEP Group's regulations. This also includes all corrupt practices undertaken as a giver or recipient, or through an agent. PTTEP recognizes that certain activities, including not-for-profit donation, sponsorship, and facilitation payment, revolving door may pose vulnerability for corruption. Therefore, in defining "corruption", these activities are mentioned so that practitioners may exercise extra precaution. PTTEP also provides appropriate guidelines for employees when facing such situations in the Standard of Practices for Anti-Corruption to reduce corruption risks. In addition, PTTEP does not make donations to support political parties for election campaigns, both at the local and national levels, which is in line with guideline and the principle of political neutrality under our business ethics.

Measures and Principles for Implementation

Implementation of anti-corruption measures involves an internal control system, risk management, compliance oversight, audit, and promotion of corporate culture and ethics, each of which is under the responsibility of relevant functional units. Therefore, PTTEP defined the "Three Lines Model" of internal control and risk management as follows:

1) The First Line Roles are made up of various functional units responsible for overseeing their respective work while they apply proper risk management, internal control, and full compliance with all applicable laws and regulations. The people in this First Line Roles are required to have knowledge and understanding of internal regulations and relevant laws related to their works. Moreover, they must improve their competencies and attend the necessary trainings to ensure that they are adequately knowledgeable and ready to perform duties in their respective jobs and efficiently confront various situations.

2) The Second Line Roles are made up of those units responsible for overall legislation, regulations, and policies adopted by the Company and for defining regulations and criteria as well as monitoring the compliance. For instance, the units in charge of governance, risk management, internal control, and compliance (GRC) come under the Human Resources, Corporate Affairs, and Assurance Group. There is a proactive and explicit integration of management as stated in the Governance, Risk Management, and Compliance Management System Manual (GRC MS Manual) to enable goal achievement while having proper risk management according to applicable corporate regulations and code of ethics. At the same time, business processes are improved for efficiency and adequate internal control through reduced redundancy.

The work scope contains the following 9 key components: (1) leadership and commitment (2) policies, objectives, and plans (3) organization and resources (4) GRC assessments (5) controls and responses (6) monitoring and assurance (7) audit (8) continual improvement and (9) communication and culture.

3) The Third Line Roles are made up of audit functional unit and external auditors, responsible for independently auditing the overall performance of various management systems under the First and Second Line Roles.

PTTEP assigns the Internal Control Section to regularly conducts internal control assessment on potential fraud risks, which include risks of asset misappropriation, corruption, fraud, and fraudulent financial reporting, by allowing process owners to conduct control self-assessment of their operation process and by evaluating for the adequacy of internal control system at corporate level in accordance with the Office of the Securities and Exchange Commission (SEC)'s regulations. The Company's Vice Presidents are required to conduct annual self-assessment of internal control of each unit in accordance with COSO principles which covers potential fraud risk. The results of the assessment indicated that PTTEP has an adequate and appropriate level of internal control. In addition, PTTEP has improved internal control system to be more effective and efficient continuously.

Continuous Communication and Knowledge Development and Training

The Corporate Governance and Sustainable Development Committee has defined a clear plan for cultivating the CG&BE of the PTTEP Group and the Anti-Corruption Policy for everyone across the organization through various ongoing activities encompassing target groups at all levels and of all age groups. Activities were designed to match target groups' interests and knowledge levels, and their implementation expanded to external stakeholders, including suppliers. Performance indicators of target groups inside and outside PTTEP were clearly defined to ensure proper policy implementation for the most concrete results. This year 2022 relevant actions included the following:

Measures for Internal Parties

1) Organized induction sessions for new directors, management, and employees regarding the governance, risk management, and compliance (GRC) providing them with basic knowledge and understanding for acknowledgment and compliance. In addition, the Company required all personnel to acknowledge CG&BE by signing a commitment form to demonstrate their intention that they shall perform their duties based on CG&BE and the form was signed with 100 percent completion.

2) Organized GRC basic knowledge training courses (GRC 101) for staff who worked with the Company for 2-3 years. Contents cover corporate governance and business ethics, risk management, internal control, and compliance, with an emphasis on anti-corruption and relevant matters so that employees have correct understanding and duly apply them to their work.

3) Arranged training courses for supervisor level up regarding Good Corporate Governance and Business Ethics (CG&BE) under the concept of "CG&BE Train the Trainer". The objectives are to build ethical leadership with an understanding on CG&BE, be a role model, enable to advise and promote their subordinates to be aware and conduct their work ethically.

4) PTTEP hosted the PTT Group CG Day 2022, an annual activity where PTT Group's flagship companies shall take turn to host the event. The activity was arranged for all personnel of the PTT Group and representatives of entities dealing with governance and anti-corruption, suppliers, and customers of the PTT Group. Known this year as "PTT Group CG Day 2022: Togetherverse – CG Power for Sustainability & Beyond", the activity was held on November 23, 2022, as a hybrid event. This event clearly demonstrated the commitment among the PTT Group companies in carrying out businesses with accurate and transparent manners, and free from all types of corruption.

5) Established communication on conflicts of interest, guidance on giving and acceptance of gifts, corporate tokens, representation, or other benefits which may be computed into a monetary value, and the complaint handling together with the provision on protection so that management and employees may recognize an importance of corruption prevention measures. Additionally, the Company provided communication to enhance confidence of all individuals in filing complaints through the Company's defined channels with a good understanding of relevant procedures and protection. The number of complaints was disclosed annually as a summary along with punished cases. (Details are shown under the "Whistleblowing Reporting and Protection Procedures" topic) This is part of the campaign for all to be part in building corporate culture with transparency and corruption-free practices.

6) Instituted other ongoing communications to educate across the organization such as CEO Message regarding No Gift Policy, background checking of vendors and employees for anti-fraud and corruption, questions for self-assessment, and frequently asked questions during work from home etc. In addition, the Company encouraged employees to participate in various anti-corruption activities e.g. promoting Anti-Corruption Day and International Anti-Corruption Day through multiple channels, such as communication signboards, e-mails, and newsletter, etc.

Measures for External Parties

PTTEP has a clear intention to become a leading company in the realm of Corporate Governance (CG) demonstrating strong commitment and expanding good governance to external parties. This is evidenced by PTTEP having a written clear policy covering external stakeholders, for example, vendors, joint venture partners, and representatives of the PTTEP Group. The Company also encourages these external stakeholders to conduct businesses ethically and not to be involved with corruption through the following activities:

1) Notifying all suppliers about the No Gift Policy and request for their cooperation not to give or offer gifts, souvenirs, or other benefits on any occasions to the directors, management, and employees of the PTTEP Group. PTTEP also communicated and invited suppliers with the top 100 contract values to engage in online training (including post-test) on anti-corrupt practices. A total of 94 percent in actual attendance successfully passed the test.

2) Announcing to external parties the No Gift Policy explicitly on PTTEP's website and installing communicating signboards in office premises near spots where visitors can clearly see, both in Thailand and other countries.

3) Advocating to society a culture of good governance and anti-corruption. This year 2022 PTTEP took actions and participated in various key activities. Details are shown under the "Collective Efforts with the Public to Counter Corruption" topic.

4) Establishing channels for external parties to inquire in case of questions or recommendations on good corporate governance and business ethics by emailing to Corporate Secretary Division (corporatesecretary@pttep.com)

Monitoring the Implementation of Anti-Corruption Measures

The Board of Directors has assigned the Corporate Governance and Sustainable Development Committee to monitor implementation concerning anti-corruption measures, which is part of the CG&BE. The Company Secretary, as this Committee's Secretary, gathers such outcomes and reports to the Committee at least quarterly. Besides, since the oversight of compliance with anti-corruption measures of the PTTEP Group is jointly done by several functional units (Second Line Roles and Third Line Roles), reports are made to the applicable sub-committees, namely the Risk Management Committee and the Audit Committee. All implementation results are reported to the Board of Directors and summarized for the Shareholders in the annual report (56-1 One report).

Furthermore, the Corporate Governance and Sustainable Development Committee monitors the outcomes of the CG&BE plan annually and assesses such outcomes against relevant KPIs to ensure goal achievement.

Audit

PTTEP designates the Internal Audit Division to perform fraud auditing tasks, which include corruption, and undertaking further examination when complaints are received. Currently, the Internal Audit Division has an Internal Audit Guideline – Fraud Audit that covers fraud risk assessment, prevention, detection and investigation of fraud, as well as practical guidelines used in the investigation process for complaints of fraud.

PTTEP has implemented its Continuous Control Monitoring System to monitor and inspect any irregular transactions that occur in PTTEP's work processes. The system has been implemented on the Procure to Pay process, and covered warehousing and inventory management, targeting the risk of non-compliance with regulations or work procedures that may possibly lead to fraud and corruption. When an irregular transaction has been detected, the system will send a notice directly to management, enabling them to investigate and promptly resolve the matter. Moreover, in 2022, the Company has continuously implemented technology to prevent the corruption, for example, continuously developing GRC One Digital System which will enable management to receive GRC related information timely and support their important decision making and implementing Robotic Process Automation (RPA) to reduce accounting errors.

Collective Efforts with the Public to Counter Corruption

PTTEP acknowledges the significance of our role as a listed company to build confidence of our shareholders and stakeholders that the Company's management is transparent, fair, and free from fraud and corruption. The Company as one of the State Enterprises has a responsibility to lead by example and to encourage society to adapt better anti-corruption standards. In 2022, the Company proactively took several measures and participated in several activities to counter corruption. For instance, joined Thailand's National Anti-Corruption Day which was on September 6, 2022 at Bang Sue Grand Station, and joined International Anti-Corruption Day (Thailand) which was on December 9, 2022 (Online event).

The Private Sector Collective Action Against Corruption (CAC) certified PTTEP as a member of Thailand's CAC consecutively for the 3rd time. PTTEP has dedicated to improving and strengthening corruption prevention in our operation continuously. This Certification confirms our commitment to operate with transparency and further build trust for our stakeholders.

(4) Whistleblowing Reporting and Protection Procedures

PTTEP's Board of Directors has established the Reporting and Whistleblowing Regulation for the PTTEP Group to ensure that the complaint-handling process is effective, transparent, fair, and comparable to international standards. This Regulation is meant to provide appropriate and fair protection for whistleblowers and those cooperating with the Company in good faith. This mechanism gives an opportunity for both internal and external parties of the organization to report any suspicious misconduct or wrongdoing that might be in violation of laws, the Good Corporate Governance and Business Ethics (CG&BE), anti-corruption policies, and other related regulations, as committed by the Board, management, employees, or representatives of the PTTEP Group.

PTTEP sets clear procedures and timeframe for investigation of complaints as prescribed in the Regulation to ensure the transparency and fairness of the complaint-handling process. The examples are as follows:

- The Corporate Governance Section, Corporate Secretary Division, as a case coordinator according to the Reporting and Whistleblowing Regulation, and a subsidiary case coordinator preliminary evaluates the information and adequacy of the evidence before forwarding the complaint to the Company's investigator within 7 working days.
- The investigators prescribed in the Regulation must complete the investigation within 30 working days. If the period is extended due to necessity, the extension can be made only with the approval of the authorized person (not more than 7 working days at a time for non-complex cases and not more than 30 working days at a time for complex cases). The investigator shall not have vested interests in the complaint. Every complaint coming through the whistleblowing channels is summarized and reported to the Corporate Governance and Sustainable Development Committee and/or Audit Committee (as the case may be), and subsequently reported to the Company's Board of Directors.

The whistleblowing channels of the PTTEP Group are as follows:

1) Send mail to PTTEP Director, Supervisor, or the Corporate Governance Section, Corporate Secretary Division:
PTT Exploration and Production Plc.
555/1 Energy Complex Building A, 33rd Floor,
Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900

2) Send e-mail to the supervisor or the Corporate Governance Section, Corporate Secretary Division (cghotline@pttep.com)

3) Report through the whistleblowing system, which is available on PTTEP's website (www.pttep.com). The system will assign an individual Report Number and PIN to the whistleblowers to ensure security and prevent forbidden access by unauthorized personnel, as well as to allow the whistleblowers to perform a follow-up on the progress of the reported complaint and make inquiries. This system serves as a necessary tool for preventing and monitoring the risks of corruption.

There is also a formulation of the protection of whistleblowers and involved persons including the remedy for any person who is affected by the complaint in this Regulation. Whistleblowers and those cooperating with the Company in good faith shall receive appropriate and fair protection from the PTTEP Group, such as no change of job positions/titles, no threat or unfair treatment, etc. The Complaint investigation shall be conducted on a confidential basis and not disclosed to irrelevant persons.

In 2022, PTTEP received a total of 13 complaints through the channels according to the Whistleblowing Regulation and Human Resources Management Policy. After reviewing on the clarity and adequacy of these complaints, 8 cases were accepted for further investigation. As of December 31, 2022, the investigation of 6 cases were completed while 2 cases are under investigation process (Completed in Quarter 1/2023). A summary of complaints is shown in the table below.

Topic	2020	2021	2022
Number of whistleblowing cases	10	20	13
Whistleblowers			
- External reporter	1	8	3
- Internal reporter	4	4	3
- Anonymous reporter	5	8	7
Number of accepted cases after considering evidence and witnesses	5	10	8
Number of wrongdoing cases	2	3	3
Type of wrongdoings			
- Health and safety	-	-	-
- Business integrity			
- Non-compliance with regulation	-	-	-
- Conflicts of Interest	1	-	-
- Corruption, Fraud, Bribery	-	-	-
- Use of asset and information	-	1	-
- Others	-	-	-
- Human Resources			
- Inappropriate manner	1	-	-
- Sexual harassment	-	2	3
- Non-sexual harassment	-	-	-
- Others	-	-	-
- Others	-	-	-
Consequences of wrongdoings			
- Verbal Warning	1	-	-
- Written Warning	-	3	2
- Suspension	-	-	-
- Termination with severance pay	-	-	-
- Termination without severance pay	1	-	1

After completing the investigation of these 6 accepted cases pursuant to the Regulation, there were 3 cases that no offenses have been found while there were 3 cases of wrongdoing that were related to inappropriate behavior of staff (sexual harassment) which has been considered a disciplinary offense pursuant to the Human Resources Management Policy and Business Ethics on Human Resources. PTTEP has given written warnings and termination without severance pay to the offenders.

The Corporate Governance Section prepared and reported the results of the complaint investigation to related parties. The findings of the cases were used to carry out further improvements to the Company's internal control measures.

For more details of the Reporting and Whistleblowing Regulation and Whistleblowing System, please visit PTTEP website at https://www.pttep.com/en/Aboutpttep/Corporategovernance/ReportingAndwhistleblowingregulations.aspx

8.2 The Audit Committee Report

PTTEP is determined to conduct our E&P business under the strategic direction to achieve sustainable growth and energy transition by emphasizing the importance of transparency, fairness, and good corporate governance as well as benefits for the shareholders and stakeholders.

The Audit Committee and the Internal Audit Division, in line with this direction, are appointed by the Board to govern, oversee and review the Company's processes and their conformity to the Good Corporate Governance and Anti-Corruption policy, ensure that the Governance, Risk management, and Compliance (GRC) management remains effective as well as closely monitor the Company's work processes and goals as we strive towards a sustainable future and aiming to address future challenges and continuously create shared values to stakeholders.

The Audit Committee consisted of 4 independent directors. Ms. Penchun Jarikasem was the Chairman of the Audit Committee. Mr. Dechapiwat Na Songkhla, Mrs. Angkarat Priebjrivat and Mr. Teerapong Wongsiwawilas were members of the Audit Committee. All directors had sufficient knowledge and experiences to review the accuracy and reliability of the financial statements.

In 2022, The Audit Committee executed its Board-assigned duties and those under its own charter, which agreed with best practices and related laws & regulations. The meetings were held 14 times including a co-meeting with the Risk Management Committee, when all the directors had attended all the meetings. In December 2022 Audit Committee Meeting also include the agenda with the Chief Executive Officer (CEO), the Company's internal and external auditors to discuss altogether.

The Committee's activities in 2022 according to the Audit Committee Charter were summarized as follows:

1) Review of Financial Reports

The Committee reviewed the Company's quarterly and annual financial statements with the auditor (PricewaterhouseCoopers ABAS – PwC) without the presence of the Management, to independently discuss about significant event that arise in each accounting period, independence in performance of duties, auditor's opinion, update of accounting standard and also discuss any impact which may have on the Company's financial reporting. The review is to ensure that the Company's financial reporting is accurate and reliable, the statements disclosed complete, sufficient, and timely information and complied with all relevant laws and regulations as well as generally accepted accounting standards. The Committee also provided recommendations regarding the Company's Management's Discussion and Analysis (MD&A) to cover an analysis of the relevant factors affecting the Company's operation and financial statements.

2) Review of the Internal Control System and Risk Management

The Committee reviewed the efficiency and effectiveness of the Company's internal control system through the audit results reporting by Internal Audit Division and also endorsed the assessment results of the Company's internal control

system including an assessment questionnaire required by the Securities and Exchange Commission of Thailand (SEC), which found that the Company had a proper internal control system. This included internal control related to financial objectives and processes with high fraud risk. The Company also improved internal control continuously to align with its operations, objectives and relevant laws and regulations as well as had sufficient controls on subsidiaries.

The Committee reviewed the effectiveness of risk management through acknowledgement of the Company's risk management report as presented to the Board of Directors meeting, together with the review of significant risk reporting in audit reports of the Internal Audit Division. In addition, there was the meeting with the Risk Management Committee to share information to ensure that the audit plan cover major risks and align with dynamic risks.

3) Review of Connected Transactions or Transactions with Potential Conflicts of Interest

The Committee reviewed the connected transactions or transactions with potential conflicts of interest prior to the Board's consideration to ensure that they were reasonable and beneficial to the Company and to safeguard the benefits of minority shareholders.

For connected transactions with the parent company, which are Petroleum Sales Agreement, the Committee consider the negotiation transparency, pricing, and contract duration to ensure the reasonableness of the transactions. The joint venture companies which are third parties have also reviewed the conditions of such transactions.

The Committee also reviewed the disclosure of the transactions in the annual report (56-1 One report) and viewed that the transactions were correctly and completely disclosed as well as the prices and conditions were fair. Moreover, the transactions were appropriately approved by the management or the Board of Directors prior to their commencement.

4) Review of Compliance with related Laws and Regulations

The Committee reviewed the PTTEP Group's compliance with the Securities and Exchange laws, SET's Regulations, and/or other related laws, both Thai laws and the laws of other countries in which the PTTEP Group operates or invests. Moreover, the Committee acknowledged the compliance report prepared by Compliance Function, in addition to the audit results related to compliance with related laws and regulations which is reported by the Internal Audit Division. The Committee also recommend additional relevant action plans and followed up on the progress of those action plans.

5) Oversight of Internal Audit Activities

The Committee reviewed and approved annual audit plan, long-term audit plan, and audit results as well as followed up on the progress of action plans in response to audit findings. The Committee also reviewed the performance against the audit plan, the independence of auditors, key performance indicators of the Internal Audit Division, and assessed the performance of Head of the Internal Audit Division. Moreover, the Committee reviewed the Audit Committee Charter and Audit Charter on an annual basis.

The Committee gave precedence to digital technologies and promoted the adoption of it in the audit process. This enabled audit work to adapt to transformation in the digital era, additionally, supported audit work to be more accurate, complete, and efficient as well as better analysis which led to precise and timely problem-solving. The example was the implementation of the Continuous Control Monitoring System on Procure to Pay Process and Warehouse and Inventory Management Process. The Internal Audit Division fully utilized the Audit Management System (TeamMate+) which assist audit process from the audit planning process to the audit issues follow up process (end to end process). In 2022, Internal Audit Division also enhanced Follow up Dashboard to facilitate management in monitoring the outstanding audit issues.

The Committee promoted personal development of internal audit staff especially training in digital technologies to adopt in audit work and ensure that internal audit activities are appropriate and effective. The Committee also supported Consulting Services role of Internal Audit Division in order to add long-term value to the Company and fulfill stakeholders' expectation.

6) Nomination of the External Auditor for 2022 and Meeting with the External Auditor

The State Audit Office of the Kingdom of Thailand (SAO) requested the Company to outsource the external auditor in accordance with the State Fiscal and Financial Disciplines Act, B.E. 2561 (2018), Section 71, requiring the SAO or the external auditor endorsed by the SAO to audit the financial reports of the government agency. The Company then proposed Ms. Amornrat Pearmpoonvatanasuk, Certified Public Accountant Registration No. 4599 or Mr. Boonrueng Lerdwiseswit, Certified Public Accountant Registration No. 6552 or Mr. Kan Tanthawirat, Certified Public Accountant Registration No. 10456, the auditors from PricewaterhouseCoopers ABAS Limited (PwC), to serve as the Company's external auditor. The Committee considered that PwC is a leading company with reliable performance and independence; furthermore, the audit fee is reasonable. Therefore, the Committee agreed to propose PwC to be the Company's external auditor together with its audit fees to the Board, SAO and the 2023 Annual General Meeting for further consideration and approval.

In addition, the Committee met with the external auditor to acknowledge the audit plan and observations as well as key audit matters in the auditor's report, and also met separately with the external auditor in the absence of the management to acknowledge additional opinions from the auditor.

The Committee also considered non-audit services transactions engaging the company and its affiliated which the external auditors worked for. This is to ensure the external auditor's independence. Additionally, the Committee had an opinion on clear disclosure of non-audit fee in the annual report (56-1 One report). so that shareholders can obtain the information.

7) Oversight of Good Corporate Governance and Fraud Prevention

The Committee encouraged the improvement of the Company's internal control system to ensure optimal control over fraud prevention. For example, the Committee promoted procurement through a competitive bidding process and supported the use of analysis of past procurement reports for preparing annual procurement plans in advance. As a result, the proportion of bidding transactions is continuously higher than direct negotiation transactions every year. The Committee also encouraged staff whistleblowing, which allowed a person to raise a suspicious misconduct or a potential fraud. In addition, the Committee was responsible for verifying the results of the Company's self-assessment relating to the anti-corruption process required by CAC and the Corporate Governance Code for Listed Companies (2017). The Company is also a certified member of Thai Private Sector Collective Action against Corruption (CAC), reflecting our determination to stand strongly and prominently against corrupt practices.

In conclusion, in 2022, the Committee conducted its work thoroughly, methodically, and strictly according to the Audit Committee Charter and reported the results of all meetings to the Board on a regular basis. The committee provided opinions and recommendations that enhanced the Company's good corporate governance. This approach ensures that the Company is able to deliver the best possible performance in comparison with our industrial peers.

In addition, the Committee is confident in the competency of the Internal Audit Division, which consists of personnel with various qualifications, skills, and experiences, enabling them to perform their duties in auditing to cover various aspects efficiently.

The Committee's overall opinion regarding the work in 2022 is that the Company's financial reports were accurate, in compliance with generally accepted accounting standards and with International Financial Reporting Standards. The Company also conducted the operations in compliance with the relevant laws and obligations. In addition, the Company has proper risk management, fraud risk management, internal controls, internal audit, and corporate governance.

The Committee's performance was graded "Very Good" by themselves, the Board of Directors, and related agencies.

(Signed) *Penchun Jarikasem*

(Ms. Penchun Jarikasem)

Chairman of the Audit Committee

8.3 The Sub-Committees Report

8.3.1 The Corporate Governance and Sustainable Development Committee Report

PTTEP places importance on sustainability by taking into consideration Thailand's goals, global trends in combating climate change, and preparation for energy transition. The Company also adheres to The Good Corporate Governance and Business Ethics. PTTEP's Board of Directors designated the Corporate Governance and Sustainable Development Committee which is comprised of at least 3 directors, most of whom are independent directors, to oversee and promote sustainability and corporate governance of PTTEP at all levels.

In 2022, the Committee convened 4 times, with all incumbent directors attending every meeting and providing useful recommendations to management for improving the Company's strategy and operation regarding Corporate Governance and Sustainability. The resolutions of the meeting were regularly reported to the Board of Directors for acknowledgement. The duties and responsibilities of the Committee this year can be summarized as follows:

1) Considered targets and workplans for achieving EP Net Zero 2050 together with encouraging establishing such a proactive and continuing plan regarding greenhouse gas emission reduction and to seeking other possibilities of reduction, for example, clean energy technology in the future.

2) Reviewed and revised our Sustainability Framework and Sustainability Statement to cover key elements more inclusively and demonstrate PTTEP's commitment and direction after announcing the EP Net Zero 2050 target. Additionally, the Committee reviewed and revised the Sustainability Report Structure so that it was in line with the strategy of each target and was able to respond stakeholders' expectations effectively.

3) Monitored progress in accordance with the established sustainability strategy and workplan while emphasizing exploring for opportunity and risk of the operations. The key issues can be summarized as follows:

(3.1) The committee monitored the workplan and progress under the EP Net Zero 2050 target including GHG avoidance and reduction compared to the established target of each year. Moreover, the Committee advised and monitored the progress of GHG offsetting operations both in Thailand and other locations where PTTEP operates and recommended on criteria setting by including effects from greenhouse gas emission in the decision-making process for the future investment.

(3.2) In terms of Business Integrity (Sustain Business Integrity Excellence), the committee advised and monitored operations under the Smart Assurance and Mindful GRC strategies.

(3.3) The committee provided advice for improving operations to ensure tangible outcomes under the strategies relevant to "Optimize Resource & Create Share Value" which are Circular Model for E&P and Ocean for Life, including communication for promoting the perception of sustainability. This is to ensure that current and future operations are in line with the strategies of PTTEP and capable of creating mutual value for stakeholders in a true and sustainable way.

4) Considered 2023 sustainability workplan and budget framework by concerning cost effectiveness, tangible outcomes and supporting the accomplishment of EP Net Zero 2050 targets, as well as other long-term strategies and target.

5) Reviewed and revised the Good Corporate Governance and Business Ethics (CG&BE) in various aspects, for example, anti-fraud and corruption and conflicts of interest by providing more principles, guidelines for good practice, and example situations and guidance with clear and easy-to-understand basis. The Committee emphasized regularly revising internal practices in order to enhance the standard and adapt to the changing expectations of society. In addition, the Committee promoted business operations of the PTTEP Group and performance of the Board, management, and all employees in all

operating areas to be in line with CG&BE by, for example, providing workshops continuously for supervisory level in order to be a role model and able to advise their subordinates, providing CG&BE and anti-corruption e-learning for employees at all levels and vendors, emphasizing to all employees on self-evaluation regarding conflicts of interest at least 1 time a year, communicating a No Gift Policy, supporting being a host for 2022 PTT Group CG Day, and encouraging participation in various good governance assessment as a part of maintaining and improving good corporate governance of PTTEP.

6) Considered and reviewed the implementation of the Corporate Governance Code (CG Code) by means that are deemed suitable to the PTTEP Group's businesses and conducive to strengthening long-term business values. The Company also established corporate governance reporting in accordance with the SEC's CG Code and international standards as well as incorporating the CG Report into the annual report (56-1 One report) for stakeholders.

In 2022, the Committee executed its assigned tasks in accordance with its charter and amendments with prudence, competence, and independence. The Committee properly provided straightforward opinions for enhancement and betterment of corporate governance and business ethics of the organization and the optimal benefit of PTTEP, its shareholders, and stakeholders.

(Signed) *Bundhit Eua-arporn*

(Mr. Bundhit Eua-arporn)

Chairman of the Corporate Governance

and Sustainable Development Committee

8.3.2 The Nominating and Remuneration Committee Report

PTTEP focuses on the "Drive-Decarbonize-Diversify" business strategy with the aim of driving value of E&P business, reducing greenhouse gas emission to reach decarbonization goal, and diversifying into new areas of business. In addition to strengthening our E&P business, PTTEP also focuses on ensuring energy security of the country and pursues to achieve our Net Zero Green House Gas Emissions in 2050 as well as expanding into new business areas beyond E&P to respond to the changes in business environment and support PTTEP sustainable growth. The Nominating and Remuneration Committee has been focusing on organization readiness and restructuring to response to business transformation, development of executives' competencies, and nomination of Company's leaders by developing executive succession plan. Also, the Committee has been nominating directors who are qualified, knowledgeable, and experienced fitting its core business to provide long-term competitiveness.

The Nominating and Remuneration Committee convened 7 times in 2022, summarized as follows:

1) Considered the principles for 2022 Board Performance Target in which the Board shall focus on monitoring and providing feedbacks to the management to best achieve PTTEP's Corporate Key Performance Index (Corporate KPIs) as well as measuring the stakeholders' perspectives towards the Company including the Corporate Governance Report of Thai listed companies (CGR) and criteria and requirements of Dow Jones Sustainability Index (DJSI).

2) Set Board Target Skill Mix of the nominees in replacement of the directors who are due to retire by rotation in 2023 in the areas of Organization Change and Development, International Market and Collaborations, Legal and Technology to focus on organization transformation to accommodate energy transition and readiness for investment expansion in new business and international business collaborations including setting internal control system for both domestic and international projects and properly managing human resources to enhance flexibility and adaptability to changes as being an international E&P company.

3) Nominated to the Board of Directors suitable candidates with appropriate Skill Mix for consideration on election of directors and sub-committee members when positions were vacated, with due consideration for Board composition, competency, experiences that useful to PTTEP, the number of companies they were serving, and potential conflicts of interest. Also, it reviewed the principles allowing shareholders to nominate qualified director nominees in accordance to the Company's Target Skill Mix for considerations by the Board of Directors and consequently the Annual General Shareholders' Meeting so that major and minor shareholders are treated fairly and suitably.

4) Considered the Board, Sub-Committees and Chairman's performance assessment and report the result of the assessment to the Board of Directors.

5) Considered the qualifications and selection process for qualified candidates to be Company's leader and developed appropriate executives succession plan to accommodate organization's growth and to be aligned with business environment both short and long terms. Also, considered the CEO's performance appraisal and remuneration.

6) Screened and commented to the Board of Directors on organization restructuring and work process to support long-term corporate growth.

(7) Considered setting appropriate remuneration policy and PTTEP's salary structure suitable with business environment so that PTTEP can implement its strategic plan effectively.

(8) Reviewed the remuneration policy and criteria for the Board and Sub-Committees on appropriate principles based on their responsibilities and consistent with long-term corporate strategy as well as being comparable to other companies in the same industry. Moreover, the Committee took business environment into account in considering appropriate remuneration to create incentives for the Board to direct the organization to achieve its short and long-term goals together with being adaptive to the changing technology.

The Nominating and Remuneration Committee prudently and freely executed their duties to the best of their ability by providing comments for the best interest of all shareholders and stakeholders. The results of all meetings were regularly reported to the Board of Directors throughout 2022.

(Signed) *Tanarat Ubol*

(Admiral Tanarat Ubol)

Chairman of the Nominating and Remuneration Committee

8.3.3 The Risk Management Committee Report

PTTEP realizes the importance of risk management and commits to its efficiency and effectiveness to enable PTTEP in achieving the vision, mission, objectives, and strategies for energy security as well as value creation for stakeholders. In 2022, it was still very challenging for PTTEP to manage risks due to the oil price volatility stemming from the Russia-Ukraine war, the unrest situations in the countries where PTTEP has invested in, i.e. The Republic of the Union of Myanmar (Myanmar) and The Republic of Mozambique (Mozambique), Operatorship transition of large projects comprising G1/61 and G2/61 project in Thailand and Yadana project in Myanmar, global warming and climate change becoming more critical issues which drive the world transition towards "Low Carbon Future" and "Net Zero Greenhouse Gas Emissions", the COVID-19 pandemic that continually impacts the global economy, Cyber security risks, and Disruptive technologies. Therefore, PTTEP's Board of Directors appointed the Risk Management Committee. As of December 31, 2022, the Committee comprised 4 members, 4 of whom are independent directors. The Committee played a vital role in overseeing PTTEP's risk management so that it remained in line with the PTTEP's Board of Directors' directions.

In 2022, the Committee convened 12 times, which included a meeting with the Audit Committee. The duties and responsibilities of the Committee can be summarized as follows:

1) Governed strategic risk management in response to the dynamic changing of internal and external environment to ensure that PTTEP is able to execute under its main strategies which are Drive Value – strengthening the petroleum exploration and production business, Decarbonize – reducing Greenhouse Gas emissions, and Diversify – expanding into beyond E&P businesses. The Committee considered PTTEP's execution in maintaining the strengths of its E&P businesses for energy security while expanding investments in environmentally friendly energy businesses. Moreover, the Committee considered the 2023 Work Program and Budget, 5-year (2023-2027) investment plan and ensured its alignment with the corporate directions and policies.

2) Closely monitored for the smooth and efficient risk management of the existing projects such as (1) transition of G1/61 Project and G2/61 project in Thailand and becoming an operator of the Yadana project in Myanmar. This enables the projects to produce natural gas continuously and safely. (2) unrest situations in Myanmar and Mozambique by providing recommendations to mitigate the potential impacts. In addition, the Committee considered the Production Sharing Contracts (PSCs) extension in the MTJDA Project, the exploration and production period extension such as Malaysia SK309 project in Malaysia and Sharjah Onshore Area C project in the United Arab Emirates etc. by assessing risks and economic returns. In this regard, the projects have shown to be able to carry out the production and exploration as planned.

3) Considered the petroleum exploration and production business expansion and portfolio management by considering acquisitions to serve the Net Zero GHG Emissions target and focusing on natural gas projects such as the Thailand Bid Round and the acquisition of stakes in the Sharjah Onshore Area A Project in the United Arab Emirates etc. In addition, the Committee considered the divestment projects according to the strategic plan such as the withdrawal from Yetagun project and gas transportation company, Taninthayi Pipeline Company LLC (TPC) in Myanmar, the divestment in Barreirinhas AP1 project and Brazil BM-ES-23 project in Brazil. The Committee provided recommendations on risks and potential opportunities, option analysis and mitigation as well as monitored risk proactively. As a result, PTTEP's investments in E&P businesses are continually based on the given strategic direction.

4) Considered and provided recommendations on investment expansion for new businesses to support the energy transition and respond to future challenges. The Committee considered the opportunity to invest in the power business from natural gas and renewable energy, investment strategy in carbon capture, utilization and storage and hydrogen fuel by providing opinions on risks and opportunities such as conducting option analysis for best selection, formulating partnership with experts, and defining exit strategy, etc.

5) Considered the oil price hedging guideline, closely monitored oil price trends, and provided advice on tools to help data analysis to be more systematic, scenario analysis and dynamic oil price hedging in order to respond to the rapid changes in situation and reduce the impact on net profit from oil price volatility. The Committee also emphasized on the knowledge management from lessons learned from oil price hedging. As a result, PTTEP's oil price hedging has achieved its objectives.

6) Utilized risk management information to support the risk-based audit approach. There was a meeting with the Audit Committee to exchange views on corporate risks and audit plans and to follow up significant risks to ensure effective risk management in place such as cyber security, etc. Moreover, the Committees placed importance of conducting Post Project Reviews from investment projects such as Oman Block 61. This is to enhance decision making of future investments to be more consciously thorough.

Furthermore, the Risk Management Committee consistently oversaw enterprise risk management to ensure the businesses were operated within PTTEP's risk appetite, particularly risks related to the COVID-19 pandemic, exploration and production operations, financial, cyber security, legal, environment including emerging risks. The outcomes of Risk Management Committee meetings were reported to the Board of Directors on a monthly basis.

In summary, the Committee independently performed its duties relating to PTTEP risk management prudently, and competently according to its scopes, authorities and duties defined in PTTEP's Risk Management Committee Charter. These lead PTTEP to efficiently managing risks in order to achieve our objectives and goals for fair and maximum benefit to PTTEP, shareholders, and other stakeholders for long-term sustainability.

(Signed) *Pitipan Tepartimargorn*

(Mr. Pitipan Tepartimargorn)

Chairman of the Risk Management Committee

8.3.4 The Independent Directors Committee Report

Independent directors play a significant role in ensuring the best interests of the Company, shareholders, and stakeholders. They ensure governance, policies, and strategies implementation, together with transparency and efficient operations in order to provide the equal distribution of benefits to all shareholders. PTTEP has set a requirement to have the independent directors more than half of the Board of Directors or enough number to influent decision making of the whole Board of Directors. Currently, the independent directors committee comprises 10 directors from the total 14 Board of Directors to make sure of transparency and benefits to all shareholders. In addition, a director' s qualifications may change and can disqualify of being independent, for this matter, independent directors' qualifications are annually reviewed.

With the vision to become the "Energy Partner of Choice", that takes conscious consideration of all stakeholders' interests, as well as maintains energy security for the nation, PTTEP has established a strategic framework with 3 strategies: E&P Growth Strategy, Decarbonization Strategy, and Beyond E&P Business Strategy. The independent directors provided useful recommendations and independent comments in 3 efficient meetings. The key agenda items discussed are policies and investment strategies for new business in relations to the PTT Group's business. The consideration is made without the influence from major shareholders and leads to the decision making of the whole Board of Directors. The Independent Directors Committee Report in the annual report (56-1 One report) for distribution to all stakeholders is also one of the key agenda items.

The independent directors fully executed their duties and promoted transparency in the Board meeting. In the event that a director is shown to have a conflict of interest with any of the agenda items, he must abstain from expressing an opinion and voting on the agenda items or leave the meeting room when the issue is discussed to allow the other directors to express their opinions freely. An exception can be made if the other directors voted unanimously to allow the director to stay in the meeting room to provide information for the agenda so that the Board of Directors can deliberately make a decision. However, the director is not allowed to vote or decide on an issue having conflict of interest. This is to ensure that the decisions are made for the best interest of the Company without diminishing shareholders' rights, especially minority shareholders and all stakeholders.

(Signed) *Krairit Euchukanonchai*

(Mr. Krairit Euchukanonchai)

Chairman of the Independent Directors Committee

9. Internal Controls and Connected Transactions

9.1 Internal Controls

PTTEP places great emphasis on continuous development of the internal control system by employing The Committee of Sponsoring Organizations of the Treadway Commission (COSO) or COSO 2013 Framework to our business activities adequately and appropriately. This is to provide reasonable assurance that the Company's operations including utilization of resources is efficient and effective, and the safeguarding of its assets, the reporting for both financial and non-financial reports is accurate, reliable, and timely, and all business operations are in compliance with relevant laws and regulations. PTTEP also establishes the Internal Control Unit reporting to the Governance, Compliance, Internal Control, and Subsidiary Management Department to be responsible for governing and supporting our business operations in alignment with the Internal Control Policy as well as to assess the efficiency of the internal control system throughout the organization, which is subsequently reported and reviewed by the Audit Committee every year.

9.1.1 Sufficiency and Suitability of the Internal Control System

PTTEP assesses its internal control system annually based on the five components of COSO 2013 Framework, namely (1) Control Environment, (2) Risk Assessment, (3) Control Activities, (4) Information and Communication, and (5) Monitoring Activities. It also employs the Self-Assessment Form provided by the Office of the Securities and Exchange Commission of Thailand (SEC). The 2022 assessment results are as follows:

1. Control Environment

PTTEP has established a sufficient and suitable control environment which promotes effective and efficient business operations. The Board of Directors ("Board") and management team also continuously cultivate an ethical working attitude and atmosphere where the Company's internal control system is conducted according to the Good Corporate Governance and Business Ethics of PTTEP Group (CG&BE) in order to achieve the ultimate objectives "Growth, Prosperity, Stability, Sustainability, and Dignity." The main activities conducted by our control environment can be summarized as follows:

- PTTEP has specified a written principle of Good Corporate Governance and Business Ethics (CG&BE) as its highest internal regulation of the PTTEP Group. The Board as well as management and employees at all levels are required to sign the commitment form to formally acknowledge and strictly conform to the CG&BE accordingly. They are also required to self-assess their conflicts of interest annually. Moreover, Integrity & Ethics is also embedded as one of the PTTEP's corporate values (*EP* SPIRIT) to emphasize that CG&BE principles shall be implemented as a fundamental concept for our transparent and auditable business operations. All employees will also receive a formal communication regarding our CG&BE along with its booklet to be used as a reference since the very beginning of their employment.
- PTTEP emphasizes the communication of good practices according to the CG&BE and the consequential penalties in case of a breach to ensure that it is well understood by the management and employees, both domestically and internationally, through email communications and other activities such as email alerts regarding blackout periods for stock trading to prevent insider trading issues, induction programs for new directors and employees, as well as e-learning and CG&BE Train the Trainer. PTTEP also publicizes the CG&BE on its website for external stakeholders' communication and demonstrates a strong will to encourage our business alliances including joint venture partners, suppliers/vendors,

and company representatives to operate their businesses with integrity and to avoid involvement in any form of corruption. In addition, online training and examinations are also specifically arranged for our vendors to ensure that PTTEP's anti-corruption practices are well-understood. There are measures and procedures to handle complaints and consequences if an actual offense is committed. The Company also has a clear stance to fight against corruption together with the public sector and civil society by continually participating in anti-corruption activities such as being certified by Thai Private Sector Collective Action Against Corruption (CAC), as well as supporting the International and National Anti-Corruption Day.

- PTTEP monitors and assesses whether our Business Ethics are being followed by the Second Line Roles and the Third Line Roles to ensure that the management and employees can effectively integrate ethical conduct into their work courses. To exemplify, the business ethics on Procurement and Contract has the Supply Chain, Procurement, and Contracts unit perform the second line roles, whereas the Internal Audit Division plays the third line roles to independently audit operations to ensure conformance to internal regulations and efficiency of the Company's internal control system in accordance with the international standards. PTTEP has established Whistleblowing System with formal guidelines and timeframe for complaint response which can be monitored and evaluated for CG&BE compliance. Additionally, PTTEP is regularly evaluated by external independent parties such as assessments by the Corporate Governance Report of Thai Listed Companies held by the Thai Institute of Directors Association (IOD), the Dow Jones Sustainability Indices (DJSI), the ASEAN CG Scorecard, and the Thai Private Sector Collective Action against Corruption (CAC).
- PTTEP establishes clear segregation of duties (SoD) between the Board and management. The Board's duty is to develop corporate goals and strategies without performing routine operations as the management do, and to oversee and follow up on the business performance of the management to achieve strategic plans, operational direction, objectives, and specified policies. The Board also ensures that strategies and policies are practical and suitable enough to allow the management team to smoothly and efficiently operate under the business environment at the particular time and thus enable for the Company's sustainable growth, where the management would report our operational performance to the Board on a regular basis. In 2022, the Board has established corporate strategies that focus on sustaining energy security and preserving the environment. The goal is to create sustainable value from the inside out (From We to World) according to the United Nations Sustainable Development Goals (UN SDGs) that consider the mutual benefits of all stakeholders that consisted of (1) Driving and adding value to E&P business (Drive Value) (2) Reducing greenhouse gas emissions (Decarbonize) and (3) Growing in new business (Diversify). The Board also places high importance on the execution of Governance, Risk Management and Compliance (GRC), assigning The Corporate Governance and Sustainable Development Committee to monitor and advise on GRC operations. In 2022, the Malaysia Project has prepared GRC efficiency development plan which is a continuation of the GRC Maturity Assessment in 2021 with clear target and roadmap, including assigned execution team.
- PTTEP's organization structure is appropriately designed in accordance with our exploration and production business and beyond E&P, with flexibility and efficient collaboration that are in line with internal control principles, such as SoD and checks and balances, so as to support corporate strategic plans and ensure our resource utility management. In 2022, to appropriately support our business growth of both exploration and production and beyond E&P, the Company has conducted organizational restructuring in related areas; for instance, the separation of domestic and international production projects for efficient project management, establishment and restructuring of G1/61 and G2/61 Projects to suit the production sharing contract system, the reorganization to support operations and growth of Lang Lebah gas field, Malaysia, and the revision

scope of work under the New Business Division to cover the business of electricity generation and all other energy-related businesses.

- PTTEP has appropriate reporting-line structures and hierarchy of authorities for the Company's business requirements and responsibilities of the management and employees, which are clearly defined and documented in the Company's Functional Description and the Delegation of Authority and Signatures (DAS). In 2022, PTTEP has improved the Corporate Governance Framework used to supervise projects that PTTEP operates in foreign countries for greater clarity and introduced online DAS (DAS Digitalization).
- PTTEP has an extensive set of human resource management regulations and policies which focus on attracting, developing, and retaining employees to support short-term and long-term organizational growth.
- PTTEP also continuously reviews current and future manpower demands to support business growth and future expansion by specially focusing on the development of existing employees. In addition, specific development plans for high potentials, management succession plans, job rotation, and promotion plans have also been developed. In 2022, PTTEP review and add human resource development goals to support the beyond E&P business, allocate manpower, develop success profiles, succession plans, internal and external recruitment plans, including employee development plan (reskill/upskill) to support new businesses. Additionally, Employee Engagement Survey is regularly carried out every 2 years to obtain current employee satisfaction levels and to create improvement plans for higher levels of employee engagement.
- PTTEP has an established process of employee performance appraisal where the factors such as achievability, practicality, and alignment with current corporate strategy have been taken into account. Employees and their supervisors are encouraged to periodically review their KPI targets, progress, or any limitations so that appropriate revisions could be agreed. The Company also maintains a pay for performance compensation system to retain highly competent individuals. In 2022, the Company improves its employee performance appraisal system and 360 Degree Evaluation. In addition, the system development for merit increase, bonus payment, and its integrated information has also increased the efficiency of performance evaluation, compensation budget monitoring and management. The annual award payment is based on individual performance cover to First-line Manager level or equivalents to drive the performance.
- PTTEP has established both Internal Control Policy and the Internal Control Standard. These documents have been consistently communicated with the management and employees through training courses, activities, and publications such as the GRC program, to ensure an accurate understanding of the principles, roles, and responsibilities of each individual in relation to the internal control system. Moreover, PTTEP, which is defined as a state enterprise under the State Fiscal and Financial Disciplines Act, B.E. 2561 (2018), appointed its Internal Control Committee as stipulated by the Ministry of Finance's Rule on Internal Control Standard and Guidelines for Government Agency, B.E. 2561 (2018) in order to ensure that the Company's operations are in compliance with the mentioned laws and regulations. In addition, the Board has assigned the Audit Committee to oversight and provide advice on the Company's system on internal control and internal audit, financial reports, including select and appoint auditors according to the roles and responsibilities as detailed in the Audit Committee Charter.

2. Risk Assessment

PTTEP places importance on risk management by appointing the Risk Management Committee, which is responsible for setting policy, risk appetite, and risk metrics & limits, as well as overseeing the effectiveness of the company-wide risk management. The Company has also applied the ISO 31000 Risk Management and COSO Enterprise Risk Management (ERM) concepts company-wide as well as the assessment of key risks related to our businesses, including fraud risk or risks which may arise as a result of significant changes to the Company, to appropriately manage such risks in a timely manner. These risk management approaches can be summarized as follows:

- PTTEP has specified a Risk Governance Framework and documents related to risk management including Risk Appetite Statement, Corporate Level Risk Metrics & Limits, and Enterprise Risk Management Policy to clearly define roles, responsibilities, and authorities relevant to risk management at all levels across the Company, including the Board, the Risk Management Committee, and the management, as well as supporting and operational business units. It is also ensured that the contents under each document are updated and aligned with the dynamic business environment as well as being communicated on a regular basis.
- PTTEP regularly communicates its Risk Management Standard, Guidelines, Process, and Tools to the management and employees through various channels, such as training to employees as well as Risk Coordinators, workshops, and email communication to enhance personnel's understanding and to ensure that they can apply the concepts and practices to their work responsibilities in order to ensure the Company's objective achievement.
- PTTEP develops a Business Continuity Management Policy, Business Continuity Management Standard and Corporate Business Continuity Procedure. In 2022, the policy and standard have been reviewed and revised for more appropriate practices. Furthermore, the Company continuously develops and improves the Business Continuity Management System in alignment with the ISO 22301:2019 standard as demonstrated by the certifications possessed by critical assets, namely the maintaining of certifications for PTTEP Myanmar Asset, PTTEP Petroleum Development Support Base (PSB) in Songkhla and S1 Project as well as the recertifications of PTTEP Headquarters in Bangkok. In addition, PTTEP Malaysia Asset is the latest asset that received the certification in 2022. PTTEP continues to develop BCMS Digital Platform for maximizing our capabilities of business continuity management.
- PTTEP manages risk throughout the organization based on four risk categories, namely Strategic Planning and Management, Investment and Divestment Decision Making, Capital Project Management, Operations and Business Process, and Environmental, Social, and Governance (ESG). In addition, the Company has developed its new web-based risk register system and risk profile for relevant units to identify and assess risk at all levels, ranging from corporate, functional group, division, and department levels to asset/project levels.
- Risk mitigation plans are developed, executed, and monitored to reduce the levels of risk through various measures. Key Risk Indicators (KRIs) are also prepared to provide early warnings of risk to prevent and timely develop mitigation plans for risks that can potentially obstruct the Company from achieving its business objectives. Furthermore, to cope with the corporate digital transformation scheme, PTTEP is also developing the risk management chatbot, "RIBOT" with the aim to search and display risk information, and link to other assurance reports.

- PTTEP appointed a Hedging Committee to oversee and manage petroleum price risk and financial risk more efficiently.
- At the corporate level, PTTEP assesses business activities that face high exposure to fraud risk, which comprises asset misappropriation, corruption, fraudulent practices, and misstatement of financial reporting. The Company considers historical information, incentives and/or pressure, opportunities, and rationalization of fraud to evaluate the likelihood and develop its Corporate Risk Profile.
- At the process level, process owners are responsible for managing both fraud and operational risk arising from processes under their responsibilities and developing internal controls corresponding to such risks with the aim to effectively improve our internal control system.
- PTTEP performs risk assessment from all-round factors that may impact corporate performance, including (1) internal factors such as strategic risk, exploration, development, and production risk, investment risk of existing and new projects, competency risk, financial risk, etc. and (2) external factors from volatility risk in oil prices, foreign-exchange rates, interest rates, geopolitical risk, legal risk, climate change, cybersecurity risk, COVID-19 outbreak, etc.
- PTTEP's Audit Committee assigned the Internal Audit Division to carry out audits on high-risk areas which can lead to fraud. The Internal Audit Division is also responsible for undertaking an investigation of any suspected fraud cases upon receipt of a report, or as requested by the Audit Committee and/or the Chief Executive Officer (CEO).
- PTTEP regularly monitors and reviews strategic plans to ensure that business goals remain reasonable and consistent with the changing situations. The Company closely monitors changes in key factors that may affect PTTEP, such as oil prices, global and domestic economies, geopolitics, foreign exchange rates, laws and regulations, government policies, climate change and technological advancements. This is to ensure that PTTEP is able to respond to the risks that have arisen from such factors or any emerging risks in a timely manner.

3. Control Activities

PTTEP has adequate control activities which are able to mitigate risks to acceptable levels for their respective business environments or activities of each unit. Control activities have been established to mitigate risks and these are also periodically reviewed and improved. For instance, deployment of control is done through the practices and regular reviews of policies and work procedures, or usage of technology. The Company also encourages employees to be strictly and constantly aware of the importance of conformance to the control activities and compliance with related laws and regulations to ensure that our internal control system is as effective as designed. Our key control activities can be summarized as follows:

- PTTEP has extensive sets of written policies and work procedures which the management and employees must strictly comply with, whereas the management and supervisors are responsible for overseeing and monitoring compliance with such policies and work procedures. In 2022, to ensure higher work efficiency within the organization, the Company developed and updated corporate policies, standards, and guidelines to improve work efficiency, such as the concept of Work-Life Integration and technology to support the Hybrid Workplace policy, Standard on Compliance with Personal Data Protection Law for Employees, documents related to digital and technology management, Risk Management Committee Charter and Insider Trading Prevention Standard.

- PTTEP recognizes the significance of control activities at the process level, including SoD, review, and authorization of transactions, to ensure that the Company's business operations are efficient and able to prevent fraudulent acts. In 2022, the Company performs Control Self-Assessment (CSA) covering End to End of significant processes of Procure to Pay, Investment to Production, and IT Governance, Digital Center of Excellence and Information Management System to ensure the completeness of risk identification and the adequacy and appropriateness of the existing controls in the overall interrelated processes.
- PTTEP appoints its IT Steering Committee to provide IT strategic directions, goals, strategies, policies, and standards, including investment direction in the IT Master Plan and Roadmap to mitigate IT risk to an acceptable level.
- PTTEP develops general controls over IT system and physical equipment security, including data backup and recovery, to ensure business continuity from any disruption. This IT security policy was announced across the organization in keeping with good corporate governance. IT system operates in accordance with COBIT5 framework and the information security management system standard (ISO 27001), for example, to support the Hybrid Workplace policy, all employees can work, access to the database, and communicate internally and externally from anywhere at any time with the highest security on Office 365 Cloud Platform. The Company also develops and integrates various approval systems (Workflow) on the Service Now Cloud Platform system so that requests and approvals can be performed from anywhere at any time. Azure Active Directory technology is implemented to control access of management and employees to various information resources of the Company. All individuals are enforced by Multi-Factor Authentication (MFA) Systems to add an extra layer of protection when accessing an account or application, an additional credentials must be verified from the mobile phone registered with the Company to the normal username and password. The development of a management system for collecting and destroying Cookies, including preparing Cookie Consent, Privacy Notice and Data consent for the Company application according to Personal Data Protection Act B.E. 2562. For the external access into PTTEP system, the external service providers shall request access through Privilege Access Management (PAM) system in order to effectively control the scope and period of time that external service providers can access to PTTEP's computer system.
- PTTEP manages information management system risks and develops Chaos Engineering for testing cyber-attack from external against the Company's critical systems to develop risk analysis and system improvements. In addition, EPwatch system is developed to report the relevant management and IT team on the cyber threats and assess the impact of affected systems and business processes that rely on those systems in their respective operations for decision making. From the overall implementing and developing information security management systems, PTTEP received ISO/IEC 27001:2013 certification in 2022.
- PTTEP has also continuously reviewed policies and procedures to ensure the appropriateness of established processes and control activities due to change and risks. In 2022, the Company has prepared and revised policies, standards, and procedures, for instance, Sustainable Development Policy, Knowledge Management Policy, Standard of PTTEP Group Governance and Subsidiary Management, Internal Control Policy and Standard which shall be implemented throughout PTTEP Group.
- PTTEP governs its subsidiaries, associated companies, and joint ventures by assigning the Company's management and employees to manage these entities. The Company has developed the Subsidiary Directors'

Guidelines for the assigned persons to ensure standardized Subsidiary Directors' Roles and Responsibilities. As for the governance of PTTEP and our subsidiaries, PTTEP's DAS is the reference for E&P businesses while the assigned directors from PTTEP are in charge of Non-E&P businesses. In 2022, The Internal Audit Division also has the responsibility to audit Assets/Projects in which the Company has invested. PTTEP developed Digital Subsidiary Compliance Calendar for subsidiaries' directors to receive the subsidiary's information, annual plans, tracking and operating reports.

4. Information and Communication

PTTEP realizes the significance of information and communication, particularly the quality of data processing systems, to provide accurate, complete, up-to-date, and timely information which is appropriate and sufficient to support business operations and make effective decisions. The Company has effective internal and external communication systems in place to support the functioning of the internal control system as well as a special communication channel to allow our stakeholders to confidentially report their concerns or complaints. Our key information and communication activities can be summarized as follows:

- PTTEP validates data and information from internal and external sources after being reviewed by responsible units before making decisions. In addition, the Company imposes the confidentiality and accessibility of usage as well as protection of information in both physical and digital formats, including data classification to prevent the disclosure of the Company's sensitive or confidential information.
- PTTEP has developed a Corporate Reference Document Center or FindMe as the information technology infrastructure to store and manage important business documents through a single access channel.
- For internal communication, PTTEP has effective and efficient internal channels to ensure that the management and employees can access essential information for their work requirements. In 2022, the Company communicated the progress of our Drive–Decarbonize–Diversify strategy, targeting zero greenhouse gas emission through EP Net Zero 2050 and Beyond E&P investment strategy for future business growth. The Company has arranged Townhalls, both at corporate and function group levels, as another centralized communication means to stress the importance of internal control thoroughly and consistently. There are also communications with specific relevant employees to receive useful information related to specific assignment in practice.
- For external communication, PTTEP established business units which are responsible for communicating with each specific group of stakeholders, such as Investor Relations, Corporate Communication, and Corporate Secretary units. This is to ensure that information disclosed to external stakeholders is accurate, complete, sufficient, transparent, timely, and regularly communicated. The Company continually provided updated information to our stakeholders, particularly on the business growth as well as activities relative to Corporate Social Responsibility (CSR). The Company also provided information publications for analysts, fund managers, and shareholders to enhance a better understanding of the E&P business of which the majority were completed via Digital Roadshow, Virtual Conference and Analyst Meeting, etc.
- PTTEP maintains the availability of our whistleblowing channels for employees and external stakeholders to accurately, completely, and timely report wrongdoings by our directors, the management, employees, or third parties acting on behalf of the Company. Based on the PTTEP Reporting and Whistleblowing Regulation, complaints can be reported through various channels such as letter, email, and reporting system on the Company's website. The Company

enhanced its Whistleblowing System to fulfill the coverage of complaints management which received from both domestic and overseas operations.

5. Monitoring Activities

PTTEP regularly monitors and assesses the effectiveness of our internal control system through ongoing evaluations which are built into the Company's daily operational activities along with separate evaluations to ensure that the system is sufficient and suitable for the current business environment and dynamic risk factors. Subsequently, once the deficiencies are identified, improvement plans will be developed and responsible parties will be assigned to respond with timely resolutions. For separate evaluations, the Company has developed control self-assessment evaluations (CSA) on an annual basis at both corporate and business process levels. In addition, the Internal Audit Division, which has a direct reporting line to the Audit Committee, has the responsibility for performing independent audits correspondingly. PTTEP's monitoring activities can be summarized as follows:

- PTTEP performs two levels of CSA, namely (1) corporate level, the evaluation is conducted by management review following to COSO 2013 Framework and (2) process levels, related process owners are required to assess controls of their processes and review the assessment results every year. Internal Control Section shall monitor the progress of the internal control improvement implementation. In 2022, the CSA has performed to cover End-to-End of significant processes to enhance the efficiency of risk identification, compressive and completion of the existing controls assessment. Moreover, the digital platform for online assessment has been developed, UControl, will systematically analyze and present the information of risk of individual process and its existing controls which are available at any time.
- The Governance, Compliance, Internal Control, and Subsidiary Management Department is responsible for monitoring, reviewing, and reporting of (1) compliance with external laws and regulations and (2) compliance with internal regulations and policies in high-risk areas. Such reports are to be submitted to the CEO on a monthly basis and to the top management every quarter. Additionally, the report of item (1) shall be presented to the Audit Committee Meeting at least twice a year. In case there is any non-compliance case with significant impact on the PTTEP Group, the management shall report such matter to the Board of Directors as appropriate. In 2022, there are 2 compliance testing performed with Geosciences, Subsurface, and Exploration Group, and Corporate Secretary Division. In addition, the digital system, NC Easy Report, is in the process of development for overall non-compliance reporting, and analysis for further improvement for more effectiveness and reduce risk of future non-compliance by management.
- PTTEP requires all employees to at least once a year submit the annual conflicts of interest disclosure and at least twice per year for employees under Procurement Unit or declare every time when there is an involvement in such activities. The report through online system, PTTEP CG&BE Report System, is introduced to enhance the efficiency of conflicts of interest reporting.
- The Internal Audit Division is responsible for auditing and providing recommendations for improvement to ensure that the defined controls have been complied with. The Internal Audit Division is also responsible for providing recommendations or developing improvement plans to resolve any issues identified and then subsequently communicate with responsible parties, including the Internal Control unit, to further support the remediation, and regularly report the findings and improvement progress to the Audit Committee. In 2022, the Internal Audit Division has audit quality assessment

performed by external agency, which concluded that the internal audit practice is in alignment with international standard. Moreover, there are also improvement plans prepared for quality enhancement.

- In addition to the established Continuous Control Monitoring System (CCMS) for Procure to Pay process and Inventory Management process where the system shall notify the responsible parties in case any irregular transactions are detected for appropriate modifications. Furthermore, PTTEP's whistleblowing channel is another method of monitoring and assessing the Company's CG&BE implementation.

Board of Directors' Evaluation of PTTEP's Internal Control System

For the year 2022, the Board of Directors evaluated PTTEP and its subsidiaries' internal control system, subsequent to the Audit Committee's review. It can be concluded that PTTEP Group's internal control system based on the aforementioned five components, including relative developments during 2022 and recommendations from the management for improvement, is sufficient and suitable. PTTEP Group assigned an adequate and appropriate proportion of human resources to efficiently operate business in accordance with its internal control system which enables the effective and sufficient monitoring and prevention of possible misconducts including asset misappropriation by any unauthorized directors or management individuals, including entering into transactions with persons with potential conflicts of interest or related parties.

9.1.2 Internal Control Deficiencies

-None-

9.1.3 Audit Committee's Evaluation in case it is different from the Board of Directors

-None-

9.1.4 Audit Committee's opinion on the position of the Head of the Internal Audit Division

The Audit Committee deems that the Head of the Internal Audit Division has an educational background, work experience, and necessary knowledge that is sufficient enough to perform duties. Details are disclosed in the "Governance Structure and Key Data on the Board of Directors, Specific Committees, Management, Employees and Others" section, under the "Head of the Internal Audit Division" topic.

9.1.5 Practices for the appointment, transfer, and removal of the Head of the Internal Audit Division

The Audit Committee has a duty to endorse the appointment, transfer, removal, promotion, and performance appraisal of the Head of the Internal Audit Division. Details are disclosed in the "Governance Structure and Key Data on the Board of Directors, Specific Committees, Management, Employees and Others" section, under the "Head of the Internal Audit Division" topic.

9.2 Connected Transactions

9.2.1 Connected transactions at PTTEP and our subsidiaries with other entities that may result in conflicts of interest in the fiscal year ending December 31, 2022, are as follows:

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT Public Company Limited (PTT)	• PTT, the Company's major shareholder, (directly) holds 63.79% of the Company's registered and paid-up capital. • PTT's executives who serve as PTTEP's directors are: (1) Mr. Auttapol Rerkpiboon (2) Mr. Atikom Terbsiri (End of PTTEP's director on 30 September 2022)	Petroleum product sales: crude oil; natural gas; liquefied petroleum gas; and condensate ▪ Total income ▪ Accounts receivable	 6,498.48 675.87	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
		Other income includes: • Income from infrastructure services to support petroleum development such as warehouse, helicopter, and accommodation for PTT personnel at Arthit, Bongkot, G1/61 and G2/61 Projects • Income from charges to PTT for working areas at Arthit, Bongkot, G1/61 and G2/61 Projects' production platforms based on the Gas Sales Agreement • Income from charges to PTT for gas receiving areas, working areas, and accommodation on platforms based on the Greater Bongkot South field's Gas Sales Agreement		• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
		• Income from the jetty and warehouse rentals at Songkhla Base • Income from the Company's personnel seconded to PTT • Income from service charges for management's drivers based on the agreement between PTT and PTTEP Services, a subsidiary of PTTEP • Income from office building rental and facility management provided by Energy Complex Company Limited (Energy Complex), a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 22.42 6.31	

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
		Purchase of petroleum products and related expenses, manpower charges for PTT personnel seconded to the Company and subsidiaries, and other expenses ▪ Total expenses ▪ Accounts payable including deposit for PTT Group Innovation for Happiness Project and rental deposit for office building/service provided by Energy Complex	5.05 1.42	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations. ● Manpower rates are based on the actual rates PTT pays to employees seconded to PTTEP.
		Deferred compensation that is the Company's obligation based on the Arthit Project's Gas Sales Agreement ▪ Accounts payable	1.76	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
Energy Complex Company Limited (Energy Complex)	• PTT, the Company's major shareholder, holds 50% of Energy Complex's registered and paid-up capital. • PTTEP, Energy Complex's major shareholder, holds 50% of Energy Complex's registered and paid-up capital.	Income from the followings: • Dividend income • Income from the Company's personnel seconded to Energy Complex • Income from services provided by AI and Robotics Ventures Company Limited (ARV), a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable including prepaid expenses of The hotel fee at THE EnCony Residential Hotel	2.31 0.11	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations. • Manpower rates are based on the actual rates the Company pays to employees seconded to Energy Complex.
		Lease and services expenses from the following services: • The Company has signed a 3-year lease agreement with Energy Complex to rent the office building, storage, and common areas at the Energy Complex. The Company is eligible to extend its lease agreement for another 3 years. • The hotel fee at THE EnCony Residential Hotel ▪ Total lease and service expenses ▪ Accounts payable	17.34 0.04	• The leasing rate is based on the market rate of the office building lease and follows normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT Digital Solutions Company Limited (PTT Digital)	• PTT, the Company's major shareholder, holds 20% of PTT Digital's registered and paid-up capital. • PTTEP holds 20% of PTT Digital's registered and paid-up capital.	Income from the followings: • Income from the Company's personnel seconded to PTT Digital • Dividend income • Income from equipment storage rentals provided by Petroleum Development Support Base (PSB) • Income from office building rentals and facility service, such as water, electricity, air conditioning, and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 4.02 2.14	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations. • Manpower rates are based on the actual rates the Company pays to employees seconded to PTT Digital.
		The Company and subsidiaries have signed a contract with PTT Digital for IT services and communications. ▪ Total expenses ▪ Accounts payables including rental deposit for office building/service provided by Energy Complex	 40.12 8.62	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT Energy Resources Company Limited (PTTER)	● PTT, the Company's major shareholder, holds 100% of PTTER's registered and paid-up capital.	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.28 0.0036	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.06	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
Business Services Alliance Company Limited (BSA)	● PTT, the Company's major shareholder, holds 25% of BSA's registered and paid-up capital.	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.30 0.01	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
		Expenses from the following services: ● Expenses for field trip ● Manpower charges for BSA personnel seconded to PTT Global LNG Company Limited (PTTGL), a subsidiary of PTTEP *Remark: PTTGL has not been a subsidiary of PTTEP since May 2022 because of divestment to Siam Management Holding Company Limited (SMH)* ● Manpower charges for BSA personnel providing services, based on the agreement between BSA and Energy Complex, a subsidiary of PTTEP at (1) Energy Complex, (2) PTT headquarters, (3) PTT Research and Technology Institute in Wang Noi District, Phra Nakhon Si Ayutthaya Province, and (4) PTT Research and Technology Institute in Wang Chan District, Rayong Province ▪ Total expenses ▪ Accounts payable including rental deposit for office building/service provided by Energy Complex	 1.54 0.22	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
IRPC Public Company Limited (IRPC)	• PTT, the Company's major shareholder, holds 45.05% of IRPC's registered and paid-up capital.	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 2.76 0.02	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.58	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
Thai Oil Public Company Limited (TOP)	• PTT, the Company's major shareholder, holds 45.03% of TOP's registered and paid-up capital.	Income from the following services: • Income from office building rentals and facility service such as water, electricity, air conditioning, and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 1.86 0.02	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.41	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT Global Chemical Public Company Limited (GC)	• PTT, the Company's major shareholder, holds 45.18% of GC's registered and paid-up capital.	Income from the following services: • Income from meeting room rentals • Income from office building rentals and facility service, such as water, electricity, air conditioning, and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 4.60 0.10	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Mercury analysis fees for PTTEP SP Limited, a subsidiary of PTTEP Gas Processing Plant (GPP) ▪ Total expenses ▪ Accounts payable	 0.0030 -	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 1.16	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
PTT Natural Gas Distribution Company Limited (PTT NGD)	• PTT, the Company's major shareholder, holds 58% of PTT NGD's registered and paid-up capital.	Income from office building rental and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.32 0.01	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.07	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
PTT Retail Management Company Limited (PTTRM)	● PTT, the Company's major shareholder, holds 75% of PTT Oil and Retail Business Public Company Limited (OR)'s registered and paid-up capital. ● OR, the major shareholder of PTTRM, holds 100% of PTTRM's registered and paid-up capital.	Income from office building rental and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.12 0.02	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.01	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
PTT Tank Terminal Company Limited (PTT Tank)	● PTT, the Company's major shareholder, holds 100% of PTT Tank's registered and paid-up capital.	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.09 0.0048	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.03	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
Trans Thai-Malaysia (Thailand) Limited (TTM)	● PTT, the Company's major shareholder, holds 50% of TTM's registered and paid-up capital.	Income from warehouse rentals provided by Petroleum Development Support Base (PSB) ▪ Total income ▪ Accounts receivable	 0.01 0.0018	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
PTT International Trading Pte. Ltd. (PTTT)	● PTT, the Company's major shareholder, holds 100% of PTTT's registered and paid-up capital.	Petroleum product sales: crude oil ▪ Total income ▪ Accounts receivable	 388.54 45.56	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Income from oil price hedging contracts ▪ Total income ▪ Accounts receivable	 1.57 -	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Expense from oil price hedging contracts ▪ Total expenses ▪ Accounts payable	 13.93 4.12	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT International Trading London Ltd. (PTTT LDN)	• PTT, the Company's major shareholder, holds 100% of PTTT LDN's registered and paid-up capital.	Petroleum product sales: crude oil ▪ Total income ▪ Accounts receivable	 160.08 43.61	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
Global Power Synergy Company Limited (GPSC)	• PTT, the Company's major shareholder, holds 47.27% of GPSC's registered and paid-up capital. • Co-director is Mr. Atikom Terbsiri (End of PTTEP's director on 30 September 2022).	Income from the following services: • Income from expense charged to GPSC for Domestic Gas to Power (DG2P) Project (Joint project between PTTEP and GPSC) • Income from manpower charges based on the agreement between GPSC and PTTEP Services, a subsidiary of PTTEP • Income from office building rentals and facility service such as water, electricity, air conditioning, and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 1.13 0.10	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.29	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT LNG Company Limited (PTTLNG)	• PTT, the Company's major shareholder, holds 100% of PTTLNG's registered and paid-up capital.	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.15 0.0017	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.03	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
PTT Oil and Retail Business Public Company Limited (OR)	• PTT, the Company's major shareholder, holds 75% of OR's registered and paid-up capital. • Co-director is Mr. Auttapol Rerkpiboon.	Income from the following services: • Income from sublease of office space on 18th Floor, Energy Complex Building B • Income from providing facility services and others • Income from office building rentals and facility service, such as water, electricity, air conditioning, and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 7.51 2.49	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
		Purchase of petroleum products and related expenses ▪ Total expenses ▪ Accounts payables including rental deposit for office building/service provided by Energy Complex	 38.93 13.72	● Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
Siam Management Holding Company Limited (SMH)	● PTT, the Company's major shareholder, holds 100% of PTT Global Management Company Limited (PTTGM)'s registered and paid-up capital. ● PTTGM holds 100% of Global Management Holding Company Limited (GMH)'s registered and paid-up capital. ● GMH holds 100% of SMH's registered and paid-up capital.	PTTEP Business Center Company Limited (PTTEP BC), a subsidiary of PTTEP entered into a sale and purchase agreement with SMH (a company in the PTT Group) to divest its shares of PTT Global LNG Company Limited (PTTGL) on 17 May 2022. ▪ Cash receipt from divestment	 128.84	● The PTTEP Board of Director approved the transaction on the basis that the transaction is reasonable and beneficial to the company with the value consistent with the market rate

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT Global LNG Company Limited (PTTGL)	• PTT, the Company's major shareholder, holds 100% of PTT Global Management Company Limited (PTTGM)'s registered and paid-up capital. • PTTGM holds 100% of Global Management Holding Company Limited (GMH)'s registered and paid-up capital. • GMH holds 100% of Siam Management Holding Company Limited (SMH)'s registered and paid-up capital. • SMH holds 100% of PTTGL's registered and paid-up capital.	Income from the following services: • Income from the Company's personnel seconded to PTTGL • Income from accounting, tax, and financial operations services provided by PTTEP • Income from financial services provided by PTTEP Treasury Center Company Limited (PTTEP TC), a subsidiary of PTTEP • Income from ozone sterilization service provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.48 0.12	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.04	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTTGL Investment Limited (PTTGLI)	• PTT, the Company's major shareholder, holds 100% of PTT Global Management Company Limited (PTTGM)'s registered and paid-up capital. • PTTGM holds 100% of Global Management Holding Company Limited (GMH)'s registered and paid-up capital. • GMH holds 100% of Siam Management Holding Company Limited (SMH)'s registered and paid-up capital. • SMH holds 100% of PTT Global LNG Company Limited (PTTGL)'s registered and paid-up capital. • PTTGL holds 100% of PTTGLI's registered and paid-up capital.	Income from the followings: • Income from accounting, tax, and financial operations services provided by PTTEP • Income from financial services provided by PTTEP Treasury Center Company Limited (PTTEP TC), a subsidiary of PTTEP • Interest Income from PTTEP TC *Remark: PTTGLI paid the remaining loan including interest on 1 June 2022.* ▪ Total income ▪ Accounts receivable	 0.39 -	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
PTT Treasury Center Company Limited (PTT TCC)	• PTT, the Company's major shareholder, holds 100% of PTT TCC's registered and paid-up capital.	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.03 0.05	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Expenses from the following services: • Expenses from accounting and financial services charge for PTTGLI, a subsidiary of PTTEP • Interest expenses paid by PTTGLI (PTTGLI paid the remaining loan including interest on 1 June 2022) *Remark: PTTGLI has not been a subsidiary of PTTEP since May 2022 because of divestment to SMH* ▪ Total expenses ▪ Accounts payables including rental deposit for office building/service provided by Energy Complex	 0.19 0.02	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
Alpha Com Company Limited (Alpha Com)	• PTT, the Company's major shareholder, holds 100% of PTT Global Management Company Limited (PTTGM)'s registered and paid-up capital. • PTTGM holds 100% of Global Management Holding Company Limited (GMH)'s registered and paid-up capital. • GMH holds 100% of Siam Management Holding Company Limited (SMH)'s registered and paid-up capital. • SMH holds 100% of Alpha Com's registered and paid-up capital.	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.24 0.09	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Purchase of goods for Energy Complex, a subsidiary of PTTEP ▪ Total expenses ▪ Accounts payable	 0.0024 -	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.01	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
ARUN PLUS Company Limited (ARUN PLUS)	• PTT, the Company's major shareholder, holds 100% of PTT Global Management Company Limited (PTTGM)'s registered and paid-up capital.	Income from parking rentals and electricity provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.05 0.0043	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
	• PTTGM holds 100% of Global Management Holding Company Limited (GMH)'s registered and paid-up capital. • GMH holds 100% of Siam Management Holding Company Limited (SMH)'s registered and paid-up capital. • SMH holds 100% of Alpha Com Company Limited (Alpha Com)'s registered and paid-up capital. • Alpha Com holds 100% of ARUN PLUS's registered and paid-up capital.	Interest expenses for Electric Vehicle (EV) contract paid by Energy Complex ▪ Total expenses ▪ Accounts payable	 0.02 -	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
EVME PLUS Company Limited (EVME PLUS)	• PTT, the Company's major shareholder, holds 100% of PTT Global Management Company Limited (PTTGM)'s registered and paid-up capital. • PTTGM holds 100% of Global Management Holding Company Limited (GMH)'s registered and paid-up capital	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.08 0.0072	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Interest expenses for Electric Vehicle (EV) contract paid by Energy Complex ▪ Total expenses ▪ Accounts payables	 0.0008 -	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
	• GMH holds 100% of Siam Management Holding Company Limited (SMH)'s registered and paid-up capital. • SMH holds 100% of Alpha Com Company Limited (Alpha Com)'s registered and paid-up capital. • Alpha Com holds 100% of ARUN PLUS Company Limited (ARUN PLUS)'s registered and paid-up capital. • ARUN PLUS holds 100% of EVME PLUS's registered and paid-up capital.	RFID card deposit of Energy Complex ▪ Accounts payables	0.0002	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
Nuovo Plus Company Limited (NUOVO PLUS)	• PTT, the Company's major shareholder, holds 100% of PTT Global Management Company Limited (PTTGM)'s registered and paid-up capital. • PTTGM holds 100% of Global Management Holding Company Limited (GMH)'s registered and paid-up capital	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	0.02 0.02	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
	• GMH holds 100% of Siam Management Holding Company Limited (SMH)'s registered and paid-up capital. • SMH holds 100% of Alpha Com Company Limited (Alpha Com)'s registered and paid-up capital. • Alpha Com holds 100% of ARUN PLUS Company Limited (ARUN PLUS)'s registered and paid-up capital. • ARUN PLUS holds 51% of NUOVO PLUS's registered and paid-up capital. • PTT, the Company's major shareholder, holds 100% of Global Power Synergy Company Limited (GPSC)'s registered and paid-up capital. • GPSC holds 49% of NUOVO PLUS's registered and paid-up capital.	Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	0.0001	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Connected Person	Relationship	Transaction	Value (Unit: Million USD)	Pricing Policy and/or Reason
Horizon Plus Company Limited (HORIZON PLUS)	• PTT, the Company's major shareholder, holds 100% of PTT Global Management Company Limited (PTTGM)'s registered and paid-up capital. • PTTGM holds 100% of Global Management Holding Company Limited (GMH)'s registered and paid-up capital • GMH holds 100% of Siam Management Holding Company Limited (SMH)'s registered and paid-up capital. • SMH holds 100% of Alpha Com Company Limited (Alpha Com)'s registered and paid-up capital. • Alpha Com holds 100% of ARUN PLUS Company Limited (ARUN PLUS)'s registered and paid-up capital. • ARUN PLUS holds 60% of HORIZON PLUS's registered and paid-up capital.	Income from office building rentals and facility service, such as water, electricity, air conditioning and parking provided by Energy Complex, a subsidiary of PTTEP ▪ Total income ▪ Accounts receivable	 0.0011 -	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.
		Rental deposit for office building/service provided by Energy Complex ▪ Accounts payable	 0.0001	• Conditions and price setting follow normal business operations, at an arm's length basis for non-related persons or operations.

Remark: Please see historical data of 2021 and 2020 for a 3-year comparison from the Company's website.

9.2.2 Preconditions and Reasons for Connected Transactions

PTTEP's Audit Committee reviewed the connected transactions which were recorded during the fiscal year ending December 31, 2022, as summarized above and considered them to be indispensable, fair, and justifiable in terms of conditions and prices, and/or within the arm's length basis. The transactions were also approved by the management or the PTTEP's Board of Directors (Board) according to the Company's policy prior to execution.

9.2.3 Policy and Future Possibility of Connected Transactions

1) Policy for Connected Transactions

PTTEP treats connected transactions as normal business transactions without any intentions to transfer benefits between or among the Company and related companies, or persons. The Company strictly adheres to securities and exchange laws and regulations, including those imposed by the Capital Market Supervisory Board, the Stock Exchange of Thailand, and other related supervisory agencies, regarding connected transactions to ensure that, with reasonable business terms and conditions, and use of the market reference prices, for instance, the Company's shareholders and stakeholders will be treated equally and in their interests, in accordance with the Company's good corporate governance policy.

2) Future Possibility of Connected Transactions Potentially Leading to Conflicts of Interest

PTTEP will continue to have connected transactions with related entities in the future. Most of these transactions include normal business, office building-leasing, and supporting business transactions, which can be summarized as follows:

1) Sales of petroleum products and purchases of fuel: Since the transactions are a normal part of the Company's business and are executed under conditions and requirements as stated in the contracts, they will continue due to their necessity to the operations.

2) Lease of office buildings: Since leasing of office buildings is reasonable and necessary for the Company's business operations, the transactions will be continued.

3) Hiring of information and technology services: Since it remains reasonable and necessary for the Company to be supported with information and technology services to operate our business, the transactions will be continued.

Attachment 1: Information of the Board of Directors, Management, Controlling Persons and Corporate Secretary

1. PTTEP's Board of Directors

As of December 31, 2022, PTTEP's Board of Directors consists of 14 directors. Details of 14 current directors and 2 directors retiring from the office during the year 2022 are as below.

• Mr. Krairit Euchukanonchai

Chairman and Chairman of the Independent Directors

Age: 67

Starting Date: February 1, 2021

Education
- Master of Business Administration (Banking and Finance), North Texas State University, Texas, USA
- Bachelor of Science, Chulalongkorn University

Training of Thai Institute of Directors Association
- Role of the Chairman Program (RCP)16/2007
- Director Certification Program (DCP) 59/2005

Other Training
- Certificate, Executive Program on Energy Literacy for a Sustainable Future (Class 12/2018), Thailand Energy Academy (TEA)
- Citibank's Training Courses in many countries

% of Shareholding
None

Family Relationship among Executives
None

Working Experiences in the 5 Preceding Years

Other Listed Companies

2015 - Present	Vice Chairman, Chairman of the Board of Executive Directors, Chairman of the Risk Oversight Committee, Krungthai Bank Public Company Limited
2014 - Present	Independent Director, Chairman of the Audit and Risk Oversight Committee, Advanced Info Service Public Company Limited
2018 - 2020	Chairman, Chairman of Independent Directors, PTT Public Company Limited

Other Companies

2020 - Present	Chairman, INFINITAS by Krungthai Co., Ltd
1998 - Present	Chairman, V. Group Honda Cars Co., Ltd. and its Subsidiaries

Other Organizations

Apr. 2021 - Present	Commissioner (Finance), The Securities and Exchange Commission
2020 - Present	Commissioner (Finance), Office of Insurance Commission
2017 - 2019	Chairman, Mass Rapid Transit Authority of Thailand

• Admiral Tanarat Ubol

Vice Chairman of the Independent Director Committee
and Chairman of the Nominating and Remuneration Committee

Age: 68

Starting Date: September 1, 2014

Education

- Master of Public and Private Management, National Institute of Development Administration (NIDA)
- Bachelor of Science in Electrical Engineering, The National Defense Academy of Japan, Japan

Training of Thai Institute of Directors Association

- Board Matters and Trends (BMT) 4/2017
- Strategic Board Master Class (SBM) 1/2017
- Anti-Corruption: Leadership Role of the Board
- How to Develop a Risk Management Plan (HRP) 9/2016
- Risk Management Program for Corporate Leaders (RCL) 26/2016
- Boards that Make a Difference (BMD) 1/2016
- Ethical Leadership Program (ELP) 1/2015
- Director Certification Program (DCP) 204/2015

Other Training

- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- 22nd World Petroleum Congress (WPC), Istanbul, Turkey
- Maritime Joint Force Commander Course (Admiral Level), Hawaii, USA
- Advanced Security for Senior Executive, Hawaii, USA
- National Institute for Defense Studies (Japan) Class 45
- National Institute for Defense College (Class 51), Thailand

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

None

Other Companies

2014 - 2015	Chairman, Bangkok Dock Company Limited
Apr. - Sep. 2015	Director, Thai Aviation Industries Company Limited

Other Organizations

2015 - Present	Royal Thai Navy Retired, Office of the Permanent Secretary for Defence
2014 - 2015	Chief of Staff, Royal Thai Navy
2014 - 2015	Chairman, Frigate Squadron Project, Royal Thai Navy
Apr. - Sep. 2015	Director, Equipment Control and Industry Development Committee Defence Industry Department, Ministry of Defence
Apr. - Sep. 2015	Deputy Chief of Joint Staff, Royal Thai Armed Forces Headquarters

• Lieutenant General Nimit Suwannarat

Independent Director and Member of the Risk Management Committee

Age: 51

Starting Date: September 1, 2014

Education

- Master of Arts in International Relations, Chulalongkorn University
- Master of Science in Electrical Engineering (Communications and Signal Processing), University of Minnesota, Minneapolis, USA
- Bachelor of Science in Electrical Engineering, Virginia Military Institute, Lexington, Virginia, USA

Training of Thai Institute of Directors Association

- Director Certification Program (DCP) 216/2016

Other Training

- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Public Key Infrastructure (Certification Authority, Digital Signature) Course, Ottawa, Canada
- Electronic Commerce Course, Orlando, Florida, USA
- Computer Emergency Response Team, Carnegie Mellon, Pennsylvania, USA
- National Crisis Management Course, APCSS, Hawaii, USA
- Command and General Staff College (Class 83), Royal Thai Army
- Joint Staff Course, Joint Staff College
- Intermediate Certificate Course in Political Leadership in the New Era (Class 2), King Prajadhipok's Institute

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

None

Other Companies

None

Other Organizations

Oct. 2021 - Present	Special Advisor, Office of the Permanent Secretary for Defence
Jun. 2019 - Present	Advisor to the Prime Minister, The Prime Minister's Office
2018 - Present	Deputy Chief of Office, Office of Military Affairs Coordination to the Ministry of Foreign Affairs, Office of Policy Planning Ministry of Defence, Ministry of Defence
Apr. - Sep. 2018	Staff Officer to the Minister of Defence, Ministry of Defence
2017 - Mar. 2018	Commanding Officer, 1st Development Regiment, Royal Thai Army
2016 - 2017	Senior Operation Officer, Defence Industry and Energy Center, Office of the Permanent Secretary for Defence
2015 - 2016	Commanding Officer of the 1st Field Artillery Regiment, King's Guard, Royal Thai Army

• Mr. Pitipan Tepartimargorn

Independent Director, Chairman of the Risk Management Committee
and Member of the Nominating and Remuneration Committee

Age: 66

Starting Date: November 1, 2015

Education

- M.A. Political Science (Public Administration), Thammasat University
- B.E. Electrical Engineering (Second Class Honor), King Mongkut's Institute of Technology Ladkrabang

Training of Thai Institute of Directors Association

- Anti-Corruption: Leadership Role of the Board
- Anti-Corruption for Executive Program (ACEP) 4/2012
- Director Certification Program (DCP) 138/2010

Other Training

- Director's Briefing - Corporate Strategy beyond he Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Strategic Human Resource Management, Harvard University, USA
- NIDA – Wharton Executive Leadership Program, The Wharton School, University of Pennsylvania, USA
- Senior Executive Program (SEP), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Advance Political and Electoral Development Program (Class 3), Office of The Election Commission of Thailand
- PTT Executive Leadership Program, General Electrics, Crotonville, USA
- Capital Market Leadership Program (CMA19), Capital Market Academy (CMA)

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

Oct. 2018 - Nov. 2019	Chairman of the Nomination and Remuneration Committee, Thai Airways International Public Company Limited
May. - Jul. 2019	Chairman of the Labour Relations Committee, Thai Airways International Public Company Limited
Apr. - Nov. 2019	Member of the Corporate Plan Steering and Monitoring Committee, Thai Airways International Public Company Limited
May. 2018 - Apr. 2019	Member of the Risk Management Committee, Thai Airways International Public Company Limited
Feb. 2018 - Nov. 2019	Member of the Nomination and Remuneration Committee, Thai Airways International Public Company Limited
Aug. 2018 - Apr. 2019	Member of the U-Tapao Aircraft Repair Center Project Governance and Thai Airways Business Development Project at U-Tapao Airport Sub-Committee, Thai Airways International Public Company Limited
Jan. 2018 - Apr. 2019	Member of the Human Resources Committee, Thai Airways International Public Company Limited
Dec. 2017 - Nov. 2019	Director, Thai Airways International Public Company Limited
Mar. - Aug. 2018	Member of the Recruitment of THAI's President Committee, Thai Airways International Public Company Limited
Oct. 2015 - Sep. 2016	Chief Operation Officer, Upstream Petroleum and Gas Business Group, PTT Public Company Limited

Other Companies

Apr. - Oct. 2016	Chairman, PTT Energy Resources Co., Ltd.
2014 - 2016	Director and Chairman of the Remuneration Committee, Sakari Resources Limited

Other Organizations

Sep. 2019 - Present	Senior Advisor of the Governing Board, Kamnoetvidya Science Academy (KVIS)
Feb. 2018 - Present	Chairman of the Executive Committee, Vidyasirimedhi Institute of Science and Technology (VISTEC)
Jul. 2015 - Present	Chairman of the Personnel Management Committee, Vidyasirimedhi Institute of Science and Technology (VISTEC)
May 2015 - Present	Council Member, Vidyasirimedhi Institute of Science and Technology (VISTEC)
Dec. 2017 - Sep. 2019	Vice Chairman of the Governing Board, Kamnoetvidya Science Academy (KVIS)
Oct. 2014 - May 2019	Director, The Civil Service Sub-Commission on Development of Human Resource Management (HRM), The Office of the Civil Service Commission (OCSC)

• Mr. Bundhit Eua-arporn

Independent Director, Chairman of the Corporate Governance and Sustainable Development and Member of the Risk Management Committee

Age: 57

Starting Date: August 1, 2017

Education

- Ph.D., Imperial College of Science Technology and Medicine, University of London, UK
- M.Eng., Chulalongkorn University
- B.Eng., Chulalongkorn University

Training of Thai Institute of Directors Association

- IT Governance and Cyber Resilience Program (ITG) 17/2021
- Director Certification Program (DCP) 110/2009

Other Training

- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- The Executive Program in Energy Literacy for a Sustainable Future (Class 6), Thailand Energy Academy (TEA)
- Power of the Kingdom (Bhumipalung Phandin) (Class 3), Chulalongkorn University Executive Program
- Temasek Foundation - NUS Programme for Leadership in University Management

% of Shareholding

Spouse 0.00012% (4,587 Shares)

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

Apr. 2021 - Present	Independent Director, Bangkok Bank Public Company Limited
2016 - Present	Executive Board Member, Banpu Power Public Company Limited

Other Companies

Nov. 2018 - Present	Chairman of the Board, AI and Robotics Ventures Company Limited (ARV)

Other Organizations

Aug. 2021 - Present	Member of Nominating Committee of the Energy Regulatory Commission
2016 - Present	President, Chulalongkorn University
Aug. - Sep. 2017	Board Member, National Reform Committee in Energy, National Reform Committee
2015 - 2016	Honorary Board Member, Thailand Institute of Scientific and Technological Research
2013 - 2016	Dean, Faculty of Engineering, Chulalongkorn University

• Ms. Penchun Jarikasem

Independent Director and Chairman of the Audit Committee

Age: 67

Starting Date: February 1, 2018

Education

- M.Sc. (Business Administration), Thammasat University
- Bachelor of Arts, Faculty of Arts, Chulalongkorn University

Training of Thai Institute of Directors Association

- IT Governance and Cyber Resilience Program (ITG) 15/2020
- Board Matters and Trends (BMT) 6/2018
- Risk Management Program for Corporate Leaders Class (RCL) 13/2018
- Ethical Leadership Program (ELP) 11/2018
- Role of Chairman Program (RCP) 36/2015
- Advanced Audit Committee Programs (AACP) 7/2012
- Director Certification Program (DCP) 113/2009
- Director Accreditation Program (DAP) 75/2008

Other Training

- Upstream Insight "Navigating Through Uncertainly: Upstream Transformation, Greener Pastures-Better Future, Corporate Strategies for Resilience & NOC's: What is The Path Forward?", HIS Markit.
- Director's Briefing – Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- The Executive Program in Energy Literacy for a Sustainable Future (Class 6), Thailand Energy Academy (TEA)
- Power of the Kingdom (Bhumipalung Phandin) (Class 3), Chulalongkorn University Executive Program
- Senior Executive Program no.77 (SEP 77), London Business School (LBS)
- Capital Market Leadership Program (CMA4), Capital Market Academy (CMA)

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

Jun. 2022 - Present	Independent Director, Chairperson of the Audit Committee and Member of the Nomination and Compensation Committee, TISCO Financial Group Public Company Limited
Apr. - Jun. 2022	Independent Director, Member of the Audit Committee and Member of the Nomination and Compensation Committee, TISCO Financial Group Public Company Limited
Apr. 2016 - Present	Chairperson of the Audit Committee, Osotspa Public Company Limited
Mar. 2016 - Present	Independent Director, Osotspa Public Company Limited

Other Companies

Jun. 2022 - Present	Independent Director and Chairperson of the Audit Committee, TISCO Bank Public Company Limited
Apr. – Jun. 2022	Independent Director and Member of the Audit Committee, TISCO Bank Public Company Limited
Apr. 2018 - Present	Chairman of the Audit Committee, Ritta Holdings Company Limited
Mar. 2018 - Present	Independent Director, Ritta Holdings Company Limited

Other Organizations

Dec. 2020 - Present	Sub-Committee on Finance and Accounting of the Energy Conservation and Promotion Fund
May - Dec. 2020	The working group established to resolve accounting issues of the Energy Conservation Fund from fiscal years 2014 to 2018, The Energy Conservation and Promotion Fund
2017 - 2019	Advisory Committee for Fund Raising and Listed Company Oversight, The Securities and Exchange Commission (SEC)
Dec. 2018 - Dec. 2020	Sub-Committee on Consideration of Debt Securities, Derivatives and Structured Products, The Securities and Exchange Commission (SEC)
2018 - Sep. 2019	Chairman of the Sub-Committee for Finance and Accounting State Railway of Thailand
Apr. 2018 - Sep. 2019	Director, State Railway of Thailand
2016 - Dec. 2018	Sub-Committee for Finance and Budgeting Improvement, Office of The Public Sector Development Commission (OPDC)

• Mr. Patchara Anuntasilpa

Director and Member of the Nominating and Remuneration Committee

Age: 51

Starting Date: November 1, 2018

Education

- Master Degree in Business Administration (MBA), Shenandoah University, USA
- Bachelor Degree in Business Administration, Bangkok University

Training of Thai Institute of Directors Association

- Director Certification Program (DCP) 221/2016

Other Training

- The Executive Program in Energy Literacy for a Sustainable Future (Class 16), Thailand Energy Academy (TEA)
- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Top Executive Program, Royal Thai Police
- The Program for Junior Executives on Justice Administration, Class 23, Judicial Training Institute
- Top Executive Program in Commerce and Trade (TEPCoT), Class 11, Commerce Academy, University of the Thai Chamber of Commerce
- Super Series Program: Leadership & Effective Corporate Culture (Class 2), Institute of Research and Development for Public Enterprises (IRDP) in collaboration with Judge Business School, University of Cambridge
- Capital Market Leadership Program (CMA24), Capital Market Academy (CMA)
- Financial Analysis Program, Haas School of Business, University of California at Berkeley, USA
- Resource Management for National Defense #7, Office of the Army Comptroller
- Executive Program (Additional Program) #3, Office of the Civil Service Commission (OCSC)
- Foreign Affairs Executive Program #3, Ministry of Foreign Affairs
- Fundamentals of Public Procurement, United Nations Development Programme: UNDP, Denmark
- WTO Advanced Regional Workshop on Government Procurement for Asia and Pacific Economies, World Trade Organization: WTO, The People's Republic of China
- Executive Program for Senior Management in collaboration with Kellogg School of Management, Maxwell School of Citizenship and Public Affairs and Schulich School of Business by Fiscal Policy Research Institute Foundation

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

None

Other Companies

None

Other Organizations

Oct. 2020 - Present	Director-General, The Customs Department, Ministry of Finance
Jan. 2022 - Present	Chairman of the Board of Directors, Government Housing Bank
2019 - Jan. 2022	Chairman of the Board of Directors, Government Saving Bank
2019 - Jan. 2021	Chairman of the Board of the Government Lottery, The Government Lottery Office, Ministry of Finance
2018 - Sep. 2020	Director-General, The Excise Department, Ministry of Finance
Apr. 2018 - Oct. 2019	Director, State Railway of Thailand
2015 - May 2019	Director, The Government Lottery Office, Ministry of Finance
2017 - Sep. 2018	Director-General, The Treasury Department, Ministry of Finance
2016 - 2017	Deputy Permanent Secretary of the Expense and Debt Cluster, The Expense and Debt Cluster, Ministry of Finance
2015 - 2016	Fiscal Analyst Advisory Level, The Comptroller General's Department, Ministry of Finance

• Mr. Dechapiwat Na Songkhla

Independent Director and Member of the Audit Committee

Age: 61

Starting Date: January 16, 2019

Education

- Master of Science (National Development and Project Planning), University of Bradford, UK
- Bachelor of Science (Mathematics and Economics), University of Surrey, UK

Training of Thai Institute of Directors Association

None

Other Training

- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- The National Defense Course (Class 54), National Defense College
- Senior Justice Administration Course (Class 19), College of Justice, Office of the Judiciary
- High Level Executives Course for Strategic Management of Anti-Corruption (Class 1), Office of the National Anti-Corruption Commission
- Rule of Law for Democracy Course (Class 2), The Constitutional Court of the Kingdom of Thailand

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

None

Other Companies

None

Other Organizations

Oct. 2021 - Present	Advisor to the Prime Minister, The Prime Minister's Office
May. 2021 - Present	Director, Srisavarinddhira Thai Red Cross Institute of Nursing, Thai Red Cross
Dec. 2020 - Dec. 2022	Director, Judicial Administration Commission, Judicial Administration Office
2017 - Sep. 2021	Director, The Budget Bureau
2017 - Sep. 2021	Committee member by position, The Office of the National Economic and Social Development Council
2017 - Sep. 2021	Committee member by position, The Government Pension Fund (GPF)
2017 - Sep. 2021	Committee member by position, Eastern Economic Corridor Policy Committee
2017 - Sep. 2021	Committee member by position, King Prajadhipok's Institute Council
2015 - 2017	Deputy Director, The Budget Bureau

• Mrs. Angkarat Priebjrivat

Independent Director, Member of the Audit Committee
and Member of the Corporate Governance and Sustainable Development Committee

Age: 67

Starting Date: October 1, 2019

Education

- Ph.D. (Accounting), New York University, USA
- Master of Accounting Program, Thammasat University
- Bachelor of Business Administration (Accounting), (Second-Class Honors) Thammasat University

Training of Thai Institute of Directors Association

- National Director Conference 2022 (NDC)
- National Director Conference 2021 (NDC)
- DCP Series 4/2019: "How to Develop a Winning Digital Strategy"
- Audit Committee Forum 2018: Learn, Unlearn and Relearn - Audit Committee in the Age of Disruption
- Driving Company Success with IT Governance (ITG) 6/2017
- The Role of Chairman (RCP) 2008
- Audit Committee Program (ACP) 2007
- Director Certification Program (DCP) 2006
- Director Accreditation Program (DAP) 2005
- Monitoring the Internal Audit Function Program (MIA)
- Monitoring the System of Internal Control and Risk Management Program (MIR)
- Anti-Corruption for Executive Program

Other Training

- Cyber Security Issues & Defenses for Financial Sector, TISCO Financial Group Public Company Limited
- Artificial Intelligence & Machine Learning, TISCO Learning Center Co., Ltd.
- Cyber Resilience Leadership: SMART Goal, Bank of Thailand, The Securities and Exchange Commission, Thailand and Office of Insurance Commission
- Cyber Armor: Capital Market Board Awareness 2022, Cyber Threat Lessons Learned for Board of Directors
- PTT Group AC Forum 2022, "Risk in Environmental, Social, and Governance (ESG) and Reporting by EY Corporate Services Limited" and "Fundraising and Digital Asset Accounting by EY Office Limited", PTT Public Company Limited
- Management and Staff Roles for Developing Anti-Corruption Compliance System, Private Sector Collective Action against Corruption
- Cyber Armor: Capital Market Board Awareness No.2, The Securities and Exchange Commission, Thailand
- Top Risk 2022 and Audit Risk-based Plan, IA Academy
- Technology Audit and Audit Innovation, IA Academy
- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- IT Security Awareness for Top Management, ACIS Professional Center Co., Ltd
- Corporate Sustainability Development, SBDI Co., Ltd.
- PTT Group AC Forum 2020 "It's time to Reform a Next New Normal", PTT Public Company Limited
- Understanding Thailand Data Protection Law and its Unintended Consequence, ACIS Professional Center Co., Ltd. (ACIS)
- Role of the Board room: Transforming Corporate Compliance into Corruptless Society
- Understanding Cryptocurrency, Blockchain, and Digital Asset and the Opportunities in Thailand, KQ Consulting Co., Ltd.
- Capital Market Leadership Program (CMA 4), Capital Market Academy (CMA)
- Certificate in International Financial Reporting Standard (IFRS), The Institute of Chartered Accountants in England and Wales (ICAEW)

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

Apr. 2022 - Present	Chairperson of the Corporate Governance Committee, Chairperson of the Risk Oversight Committee, and Non-Executive Director, TISCO Financial Group Public Company Limited
Apr. 2021 - Apr. 2022	Chairperson of the Risk Oversight Committee, Audit Committee, and Independent Director, TISCO Financial Group Public Company Limited
2008 - Apr. 2021	Chairperson of Audit Committee, TISCO Financial Group Public Company Limited
2008 - Present	Independent Director, TISCO Financial Group Public Company Limited
2008 - Apr. 2022	Independent Director and Audit Committee, TISCO Financial Group Public Company Limited

Other Companies

Apr. 2021 - Present	Chairperson of the Risk Oversight Committee, TISCO Bank Public Company Limited
Apr. 2021 - Apr. 2022	Chairperson of the Risk Oversight Committee, Audit Committee, Independent Director, TISCO Bank Public Company Limited
Mar. - Aug. 2021	Independent Director, Bioscience Animal Health (Thailand) Co., Ltd.
2016 - Present	Director, Member of Audit Committee, TSFC Securities Public Company Limited
2014 - Feb. 2021	Chairperson of Risk Management Committee, COL Public Company Limited
2013 - 2021	Chairperson of Audit Committee, Independent Director, TISCO Bank Public Company Limited
2013 - Apr. 2022	Independent Director and Audit Committee, TISCO Financial Group Public Company Limited
2008 - Feb. 2021	Chairperson of Audit Committee, Independent Director, COL Public Company Limited
2018 - 2020	Chairperson of Risk Management Committee, Member of Audit Committee, Independent Director, TOT Public Company Limited

Other Organizations

Dec. 2020 - Present	Chairperson of Subcommittee on Finance and Accounting of the Energy Conservation Fund
Jun. - Dec. 2020	The working group to resolve accounting issues of the Energy Conservation Fund fiscal years 2014 - 2018, The Energy Conservation Fund
2012 - Present	Member of Audit Committee, Thai Public Broadcasting Service (Thai PBS)
2002 - Present	Member of Government Accounting Standards Committee, The Comptroller General's Department, Ministry of Finance
1992 - Present	Technical Advisor, Listing and Disclosure Department, Stock Exchange of Thailand
2018 - 2020	Member of Risk Management Committee, The Government Pension Fund (GPF)
2018 - 2020	Member of Technical Advisory Committee for Financial Reporting Standards and Member of Advisory Committee for Fund Raising and Listing Department, The Securities and Exchange Commission Board
2018 - 2019	Member of Finance and Accounting Subcommittee, State Railway of Thailand
2014 - 2018	Director, Member of Audit Committee, Tourism Authority of Thailand

• Mr. Auttapol Rerkpiboon

Director

Age: 57

Starting Date: August 1, 2020

Education

- Master of Economics Program, National Institute of Development Administration
- Bachelor of Engineering (Civil Engineering), Chulalongkorn University
- Diploma of Petroleum Management, College of Petroleum Studies, Oxford University, UK (British Council Scholarship)

Training of Thai Institute of Directors Association

- Director Certification Program (DCP) 173/2013
- Company Secretary Program (CSP) 14/2005

Other Training

- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- The National Defence Course (Class 58), National Defence College
- Advanced Certificate Course in Politics and Governance in Democratic System for Executives, (Class 14), King Prajadhipok's Institute
- Certificate, Executive Program on Energy Literacy for a Sustainable Future (Class 12), Thailand Energy Academy (TEA)
- Capital Market Leadership Program (CMA20), Capital Market Academy (CMA)
- Executive Program on Rule of Law and Development: RoLD (Class2), Thailand Institute of Justice: TIJ
- Executive Development Program (EDP), Class 1, Thai Listed Companies Association (TLCA)
- Rule of Law for Democracy (Class 8), College of the Constitutional Court
- NIDA – Wharton Executive Leadership Program 2009, The Wharton School of the University of Pennsylvania, USA
- PTT Executive Leadership, General Electric, GE, New York, USA

% of Shareholding

Spouse 0.00001% (500 Shares)

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

May. 2020 - Present	President and Chief Executive Officer, PTT Public Company Limited
May. 2020 - Present	Director, Secretary to the Board, PTT Public Company Limited
Dec. 2015 - Present	Chairman, PTT Oil and Retail Business Public Company Limited
Apr. 2018 - Jul. 2020	Director, Chairman of the Risk Management Committee/ Member of the Nomination and Remuneration Committee, Thai Oil Public Company Limited
Oct. 2017 - May. 2020	Chief Operating Officer, Downstream Petroleum Business Group, (Oct. 1, 2017 - Sep. 30, 2018 Acting Senior Executive Vice President, Downstream Business Group Alignment), PTT Public Company Limited
Oct. 2015 - Oct. 2018	Director, Director to the Corporate Governance Committee, Director to the Risk Management Committee, PTT Global Chemical Public Company Limited
Oct. 2015 - Sep. 2017	Senior Executive Vice President - Oil Business Unit, PTT Public Company Limited

Other Companies

Jun. 2021 - Feb. 2022	Director, ARUN PLUS Company Limited

Other Organizations

Nov. - Dec 2022	Advisory Board, Fund Raising Committee for Contribution to a Charity Fund Started by the King, Thai Red Cross Society 2022, Chulalongkorn University
Nov. 2022 - Present	Honorary Advisor, The S.E.A. Write Award Organizing Committee
Nov. 2022 - Present	Chairman Council Board, Thailand Carbon Neutral Network
Oct. 2022 - Present	Advisory Board, Committee of Lottery Tickets Red Cross Fair 2022, the National Council on Social Welfare of Thailand
Oct. 2022 - Present	Director, Steering Committee Friends in need of ("PA") 2022
Oct. 10 - 23, 2022	Chairman, Steering Committee King Chulalongkorn Day 2022, Chulalongkorn University Alumni Association
Sep. 2022 - Present	Member of the Raising Funds Committee for Building and Construction Maintenance, Suan Luang Rama IX Foundation
Jun. 2022 - Present	Committee Member, The General Prem Tinsulanonda Historical Park
May. 2022 - Present	Advisor, IEEE Power & Energy Society
May. 2022 - Present	Director, Steering Committee According to Royal Initiative Projects, the Vetiver Grass Project
Apr. 2022 - Present	Advisory Board, Sirinart Rajini Mangrove Ecosystem Learning Center
Apr. 2022 - Present	Honorary Advisor, The Economic Reporters Association
Mar. 2020 - Present	Expert Committee of NIDA Council, The National Institute of Development Administration (NIDA)
Nov. 2021 - Dec. 2021	Advisory Committee of Fund Raising Committee 2021, Thai Red Cross Society, Chulalongkorn University
Nov. 2021 - Present	Promoting Social Cooperation Committee, Princess Maha Chakri Award Foundation
Mar. 2021 - Present	Director, Thai Foundation
Oct. 2020 - Present	Committee Member, Suan Luang Rama IX Foundation
Oct. 2020 - Present	Advisory Board, The Institute of Energy for Industry
Aug. 2020 - Present	Chairman, Power for Sustainable Future Foundation
Aug. 2020 - Present	Expert Committee of Vidyasirimedhi Institute Council, Vidyasirimedhi Institute of Science and Technology (VISTEC)
Jun. 2020 - Present	Committee Member, Ruamchit Normklao Foundation for Thai Youth under the patronage of H.R.H. the Queen
Jun. 2020 - Present	Chairman, Power of Innovation Foundation
May. 2020 - Present	Member of Trustees, Petroleum Institute of Thailand (PTIT)
May. 2020 - Present	Vice Chairman, Thailand Energy Academy
May. 2020 - Present	Committee member, OUR Khung BangKachao
May. 2020 - Present	President, PTT Group Employee Association
May. 2020 - Present	Advisory Board, PTT Natural Gas Business Saving Co-Operative, Limited
May. 2020 - Present	Committee Member, Green Globe Institute
2019 - Present	Honorary Advisor, The National Institute of Development Administration Alumni Association under the Royal Patronage (NIDA)
Jul. 2018 - Present	Committee Member, Payment Systems Committee (PSC), The Bank of Thailand
2018 - Present	Honorary advisor, Thai-Laos Business Council
Nov. 2016 - Present	Vice President, Swimming Association Thailand

• Mr. Veerathai Santiprabhob

Independent Director, Member of the Risk Management Committee,
and Member of the Corporate Governance and Sustainable Development Committee

Age: 53

Starting Date: October 15, 2020

Education

- Ph.D. in Economics, Harvard University, Cambridge, MA, USA
- A.M. in Economics, Harvard University, Cambridge, MA, USA
- Bachelor of Economics (First Class Honor), Thammasat University

Training of Thai Institute of Directors Association

- Advanced Audit Committee Program (AACP) 41/2021
- Director Certification Program (DCP) 2014
- Director Accreditation Program (DAP) 2007

Other Training

- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Capital Market Leadership Program (CMA4), Capital Market Academy (CMA)
- Corporate Strategy Executive Education Program, MIT Sloan School of Management, Cambridge, MA, USA

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other listed companies

Apr. 2021 - Present	Independent Director and Audit Committee Member, Bangkok Dusit Medical Services Public Company Limited
Apr. 2021 - Present	Independent Director and Chairman of the Audit Committee Member, Univanich Palm Oil Public Company Limited

Other Companies

None

Other Organizations

Nov. 2021 - Present	Member of the Independent Oversight Advisory Committee, World Food Programme
Feb. 2021 - Present	Secretary-General and Chairman of the Executive Board of Mae Fah Luang Foundation under Royal Patronage
Oct. 2015 - Sep. 2020	Governor, Bank of Thailand
Oct. 2015 - Sep. 2020	Member of the Board, Office of Insurance Commission
Oct. 2015 - Sep. 2020	Member of the Board, The Securities and Exchange Commission (SEC)
Oct. 2015 - Sep. 2020	Member, National Economic and Social Development Council

• Mr. Wattanapong Kurovat

Director and Member of the Corporate Governance and Sustainable Development Committee

Age: 48

Starting Date: May 1, 2021

Education

- Master of Business Administration (MBA), Western Michigan University, USA
- Bachelor of Political Science, Thammasat University

Training of Thai Institute of Directors Association

- Director Certification Program (DCP) 288/2020
- Director Accreditation Program (DAP) 168/2020

Other Training

- The Role of the Board in IT Governance 2020
- Digital Transformation for CEO (Class 1)
- The Executive Program in Energy Literacy for Sustainable Future (Class 13), Thailand Energy Academy (TEA)
- The Civil Service Executive Development Program: Visionary and Moral Leadership, Class 86, Civil Service Training Institute, Office of the Civil Service Commission
- Chief of Staff Program, Class 53, Joint Staff College, National Defense Studies Institute

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

Apr. 2021	Director and Member of the Nomination and Remuneration Committee, IRPC Public Company Limited
2019 - Mar. 2021	Director and Member of the Risk Management Committee, IRPC Public Company Limited

Other Companies

None

Other Organizations

2019 - Present	Director General, Energy Policy and Planning Office
2018 - 2019	Deputy Director General, Energy Policy and Planning Office
2015 - 2018	Director, Power Policy Bureau, Energy Policy and Planning Officed

• Mr. Teerapong Wongsiwawilas

Independent Director, Member of the Audit Committee,
and Member of the Nominating and Remuneration Committee

Age: 58

Starting Date: January 1, 2022

Education

- Bachelor of Laws, Thammasat University

Training of Thai Institute of Directors Association

- Director Certification Program (DCP) 246/2017
- Board Nomination and Compensation Program (BNCP) 13/2022
- Director Leadership Certification Program (DLCP) 6/2022

Other Training

- The National Defence Course (Class 57), National Defence College
- Senior Executive Program, Class 8, The office of the Civil Service Commission
- Certificate, Public Law and Management, (Class 12/2013), King Prajadhipok's Institute

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

2020 - Present	Director, Chairman of the Compliance Committee, Nomination and Remuneration Committee, Krung Thai Bank Public Company Limited
2017 - 2021	Independent Director, Audit Committee, Bangchak Corporation Public Company Limited

Other Companies

None

Other Organizations

Oct. 2022 - Present	Permanent Secretary of the Prime Minister's Office
2022 - Present	Council of State No.7 (Natural Resources and Environment Law), Office of the Council of State
2022 - Present	Honorable Executive Director of the Judicial Administration (Administration and Management), Court of Justice
2020 - Present	Committee member of the Political Reform of the Thailand's National Reform, Office of the National Economic and Social Development Council
2019 - Present	Honorable Special Investigation Committee (Law), Department of Special Investigation, Ministry of Justice
2021 - 2022	Advisor to the Prime Minister for Government Officials, The Secretariat of the Prime Minister
2017 - 2021	Secretary-General to the Cabinet
2019 - 2021	National Science and Technology Development Committee, National Science and Technology Development Agency
2015 - 2016	Deputy Secretaries-General to the Cabinet
2014 - 2015	Advisor of the Secretariat of the Cabinet
2013 - 2014	Director of Bureau of Cabinet Submission Analysis

• Mr. Montri Rawanchaikul

Director and Secretary to the Board

Age: 58

Starting Date: October 1, 2021

Education

- Master of Applied Science (Exploration Geophysics), University of New South Wales, Australia
- Bachelor of Science (Physics), Chiang Mai University

Training of Thai Institute of Directors Association

- The Corporate Governance: Regulation and Disclosure Training

Other Training

- Capital Market Academy (CMA) 31/2021
- Leadership Development Program III (LDP III) by PTT Leadership and Learning Institute
- The Executive Program in Energy Literacy for a Sustainable Future (Class 11), Thailand Energy Academy (TEA)
- Leadership Development Program II (LDP II) by PTT Leadership and Learning Institute
- EP LEAD III Leadership Development Program by IMD

% of Shareholding

Director 0.00131% (52,050 Shares)

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

Oct. 2021 - Present	Chief Executive Officer, PTT Exploration and Production Public Company Limited
Oct. 2021 - Present	Senior Executive Vice President, PTT, Reporting to Chief Operating Officer, Upstream Petroleum and Gas Business Group working on a secondment as Chief Executive Officer, PTT Exploration and Production Public Company Limited
Feb. - Sep. 2021	President, PTT Exploration and Production Public Company Limited
Feb. - Sep. 2021	Senior Executive Vice President, PTT, Reporting to Chief Operating Officer, Upstream Petroleum and Gas Business Group working on a secondment as President PTT Exploration and Production Public Company Limited
Oct. 2020 - Jan. 2021	President and acting as Executive Vice President, Production Asset Group, PTT Exploration and Production Public Company Limited
Oct. 2020 - Jan. 2021	Senior Executive Vice President, PTT, Reporting to Chief Operating Officer, Upstream Petroleum and Gas Business Group working on a secondment as President and acting as Executive Vice President, Production Asset Group, PTT Exploration and Production Public Company Limited
Jan. - Sep. 2020	Executive Vice President, Production Asset Group, PTT Exploration and Production Public Company Limited
Oct. 2017 - Dec. 2019	Executive Vice President, Strategy and Business Development Group, PTT Exploration and Production Public Company Limited

Nov. 2017 - Sep. 2018	Executive Vice President, Strategy and Business Development Group and Acting Senior Vice President, New Business Unit, and additional assigned as Project Champion, Spend Smart, PTT Exploration and Production Public Company Limited
Oct. 2016 - Sep. 2017	Acting Executive Vice President, Strategy and Business Development Group, PTT Exploration and Production Public Company Limited
Sep. - Oct. 2016	Senior Vice President, International Asset, PTT Exploration and Production Public Company Limited
Jul. - Aug. 2016	Senior Vice President, attached to Production Asset and Operations Support Group, PTT Exploration and Production Public Company Limited
Jan. 2015 - Jul. 2016	Senior Vice President, Australia Asset and seconded as General Manager, PTTEP Australasia Limited

Other Companies

Jan. 1998 - Aug. 2004	Project Manager and Business Unit Manager, Fugro Jason Geosystems in Netherlands
Jul. 1989 - Dec. 1990	Researcher Assistant Road and Traffic Authority Sydney and Wireline Engineer, Schlumberger in Australia

Other Organizations

None

• Mr. Achporn Charuchinda

Ex-Director

Age: 69

Education

- L.L.B., Faculty of Law, Thammasat University
- Thai Barrister-at-Law, Institute of Legal Education of the Thai Bar Association

Training of Thai Institute of Directors Association

None

Other Training

- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Law Drafting Certificate, Republic of India
- The National Defense Course (Class 46), National Defense College

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

2022 - Present	Director, Bangchak Corporation Public Company Limited
2012 - 2015	Member of the Legal Committee, Thai Airways International Public Company Limited

Other Companies

2013 - 2016	Director, Thai Smile Airways Company Limited

Other Organizations

2020 - Present	Executive Board, Life Insurance Fund
2018 - Present	Advisory Board, The Crown Property Bureau
2018 - Present	Special Advisory Committee, Highland Research and Development Institute (Public Organization)
2017 - Present	Member, The Risk Oversight Committee, The Bank of Thailand
2015 - Present	Member, Constitution Drafting Committee
2003 - Present	Member of the Council of State, The Office of the Council of State
2017 - 2020	Board Member, Office of Insurance Commission
2017 - 2019	Chairman, National Reform Committee in Justice Process, National Reform Committee
2017 - 2019	Board Member in Legal, The National Economic and Social Development Board (NESDB)
2015 - 2020	Board Member, The National Economic and Social Development Board (NESDB)
2015 - 2018	Board Member, Highland Research and Development Institute (Public Organization)
2013 - 2017	Board Member, The Bank of Thailand
Apr. - Oct. 2016	Director, Thailand Tobacco Monopoly, Ministry of Finance

• Mr. Atikom Terbsiri

Ex-Director

Age: 60

Education

- Master of Business Administration (Finance & International Business), High Distinction, Armstrong University, USA
- Bachelor of Business Administration, Assumption University

Training of Thai Institute of Directors Association

- Role of the Chairman Program (RCP) 41/2017
- Risk Management Program for Corporate Leaders (RCL) 4/2016
- Director Certification Program (DCP) 125/2009
- Anti-Corruption: Leadership Role of the Board

Other Training

- Director's Briefing - Corporate Strategy beyond the Crisis, a Chairman/Board Perspective, Bain & Company, Inc.
- Executive Education Program, Harvard Business School, Harvard University, USA
- Advanced Security Management Program, Class 1, National Defence College
- The State, Private Sector and Political Sectors Course, Class 5, National Defence College
- Capital Market Leadership Program (CMA17), Capital Market Academy (CMA)
- The Executive Program in Energy Literacy for a Sustainable Future (Class 6), Thailand Energy Academy (TEA)
- Crisis Management Training for PTT Executives

% of Shareholding

None

Family Relationship among Executives

None

Working Experiences in the 5 Preceding Years

Other Listed Companies

2020 - Sep. 2022	Director, Member of the Nomination and Remuneration Committee, Global Power Synergy Public Company Limited
Sep. 2019 - 2022	Chief Operating Officer, Upstream Petroleum and Gas Business Group, PTT Public Company Limited
2015 - Aug. 2019	Member of the Risk Management Committee, Global Power Synergy Public Company Limited
2014 - Aug. 2019	Director, Global Power Synergy Public Company Limited
2014 - Aug. 2019	Chief Executive Officer and the President and Director (Executive), Member of the Risk Management Committee and the Secretary to the Board of Directors, Thai Oil Public Company Limited

Other Companies

Oct. 2019 - 2022	Chairman, PTTLNG Company Limited
2014 - Sep. 2019	Chairman of the Board TOP SPP Company Limited
2014 - Aug. 2019	Chairman of the Board Thaioil Marine Company Limited
2014 - Aug. 2019	Chairman of the Board Thaioil Solvent Company Limited
2014 - Aug. 2019	Chairman of the Board Thaioil Power Company Limited
2014 - Aug. 2019	Chairman of the Board LABIX Company Limited
2014 - Aug. 2019	Chairman of the Board Thai Paraxylene Company Limited

Other Organizations

Jul. 2020 - Mar. 2022	Director, The Federation of Thai Industries (Term 2020 - 2022)
May 2018 - Present	Member, Backdoor Listing Transaction Committee, Stock Exchange of Thailand
Jan. 2012 - Sep. 2022	Executive Director, Thailand Energy Academy
Mar. 2018 - 2020	Director, The Federation of Thai Industries (Term 2018 - 2020)

Criminal offense record during the past 10 years

Being adjudged of convicting a crime or being on trial for convicting a crime

No

Being adjudged bankrupt or a receiver is appointed

No

Being a management in the company or partnership which is adjudged bankrupt or a receiver is appointed

No

Remark: *The name and number(s) of the authorized directors who may sign to bind the Company from January 12, 2023 are Mr. Wattanapong Kurovat, Mr. Patchara Anuntasilpa and Mr. Wuttikorn Stithit. Two of the above three directors can sign jointly and affix the Company's seal, or Mr. Montri Rawanchaikul, the Chief Executive Officer, can sign singly.*

2. Management

As of January 1, 2023, PTTEP management team had 18 personnel as defined by the Capital Market Supervisory Board. Details are shown below.

- **Mr. Montri Rawanchaikul**
  Chief Executive Officer

Please see part 1 for details

- **Mr. Chayong Borisuitsawat**
  Executive Vice President,
  Strategy and Sustainable Growth Group

Age: 55

Starting Date: January 2023 - Present

Education
- Bachelor of Engineering (Petroleum Engineering), Chulalongkorn University

% of Shareholding
Management 0.00164% (65,096 shares)

Family Relationship among Directors and Executives
None

Working Experiences in the 5 Preceding Years

Dec. 2021 - Dec. 2022	Executive Vice President, Human Resources, Corporate Affairs, and Assurance Group, PTTEP
Jan. 2020 - Nov. 2021	Executive Vice President, Engineering and Development Group, PTTEP
Nov. 2018 - Dec. 2019	Executive Vice President, Business and Organization Transformation Group, PTTEP
Oct. 2018	Executive Vice President, Operations Support Group, PTTEP
Nov. 2017 - Sep. 2018	Acting Executive Vice President, Operations Support Group, PTTEP
Nov. 2017 - Jul. 2018	Project Champion, SPEND SMART Project, PTTEP
Jul. 2016 - Oct. 2017	Project Champion, SAVE to be SAFE, PTTEP

- **Ms. Natruedee Khositaphai**
  Executive Vice President,
  Technology and Carbon Solutions Group

Age: 57

Starting Date: January 2023 - Present

Education
- Master of Business Administration, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Bachelor of Engineering (Petroleum Engineering), Chulalongkorn University

% of Shareholding
Management 0.00271% (107,457 shares)

Family Relationship among Directors and Executives
None

Working Experiences in the 5 Preceding Years

Jan. 2020 - Dec. 2022	Executive Vice President, Strategy and Business Development Group, PTTEP
Jun. - Dec. 2019	Executive Vice President, Corporate Affairs and Assurance Group, PTTEP
Oct. 2018 - May 2019	Acting Executive Vice President, Corporate Affairs and Assurance Group, PTTEP
Oct. - Dec. 2018	Acting Senior Vice President, Corporate Communications and Public Affairs Division, PTTEP
Nov. 2017 - Sep. 2018	Senior Vice President, International Asset, PTTEP
Jul. - Nov. 2017	Acting Senior Vice President, International Asset, PTTEP
May 2016 - Jun. 2017	Vice President, assigned as Project Manager, SAVE to be SAFE Project, PTTEP

• Mr. Suksant Ongvises

Executive Vice President,
Operations Support Group

Age: 58

Starting Date: January 2020 - Present

Education

- Bachelor of Engineering (Chemical), University of Newcastle, Australia

% of Shareholding

Management 0.00027% (10,681 shares)

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Jun. - Dec. 2019	Executive Vice President, Engineering, Development and Operations Group, PTTEP
Oct. 2018 - May. 2019	Acting Executive Vice President, Engineering, Development and Operations Group, PTTEP
Mar. 2017 - Oct. 2018	Senior Vice President, Engineering and Construction Division, PTTEP
Apr. - Sep. 2018	Acting Vice President, M3 Development Project, PTTEP
Jul. 2016 - Feb. 2017	Acting Senior Vice President, Engineering and Construction Division, PTTEP

• Mr. Sumrid Sumneing

Executive Vice President,
Finance and Accounting Group

Seconded from PTT Public Company Limited,
Executive Vice President, attached to Chief Financial Officer

(The person supervising Finance and accounting)

Age: 58

Starting Date: January 2019 - Present

Education

- Master of Business Administration, Kasetsart University
- Bachelor of Accounting, Thammasart University

Training

- Capital Market Academy 29/2019
- Financial & Fiscal Management Program for Senior Executive by The Comptroller General's Department 5/2018
- Executive Development Program (EDP III), Thai Listed Companies Association (TLCA)
- Director Certification Program (Class 180/2013). The Institute of Directors (IOD)
- Leadership Development Program – Center of Creative Leadership (CCL)
- Finance Executive Program (FINEX21), The Thai Institute of Banking and Finance Association

% of Shareholding

Management 0.00033% (13,000 shares)

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Jun. 2016 - Dec. 2018	Executive Vice President, Group Corporate Finance and Strategy, PTT Public Company Limited
Dec. 2014 - Dec. 2015	Vice President, Financial Strategy and Policy, PTT Public Company Limited

• Mr. Piya Sukhumpanumet

Executive Vice President,
International Production Asset Group

Age: 57

Starting Date: April 2022 - Present

Education

- Master of Business Administration, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Bachelor of Geology, Chulalongkorn University

% of Shareholding

Management 0.00226% (89,916 shares)

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Dec. 2021 - Mar. 2022	Executive Vice President, Geosciences, Subsurface and Exploration Group, PTTEP
Jun. - Nov. 2021	Executive Vice President, Human Resources, Corporate Affairs, and Assurance Group, PTTEP
Oct. 2020 - May 2021	Acting Executive Vice President, Human Resources, Corporate Affairs, and Assurance Group, PTTEP
Sep. 2016 - Sep. 2020	Senior Vice President, Myanmar Asset, seconded as General Manager, PTTEP International Limited, Union of Myanmar
Jul. - Aug. 2016	Senior Vice President, Technology and Knowledge Management Division, PTTEP

• Mr. Nirandorn Rojanasomsith

Executive Vice President,
Engineering, Development, and Maintenance Group

Age: 57

Starting Date: January 2023 - Present

Education

- Master of Sciences (Mechanical Engineering), Manhattan College, USA
- Master of Sciences (Computer), Brooklyn College, USA
- Master of Business Administration (Executive), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Bachelor of Engineering (Mechanical Engineering), Kasetsart University

% of Shareholding

Management, Spouse 0.00401% (159,041 Shares)

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Apr. - Dec. 2022	Executive Vice President, Domestic Production Asset Group, PTTEP
Aug. 2021 - Mar. 2022	Executive Vice President, Production Asset Group, PTTEP
Feb. - Jul. 2021	Acting Executive Vice President, Production Asset Group, PTTEP
Feb. 2021	Acting Senior Vice President, Thai Offshore Asset, PTTEP
Aug. 2019 - Jan. 2021	Senior Vice President, Thai Offshore Asset, Production Asset and Supply Chain Management Group, PTTEP
Nov. 2017 - Jul. 2019	Senior Vice President, Australia Asset and seconded as General Manager, PTTEP Australasia Pty Ltd., Australia

• Ms. Kanita Sartwattayu

Executive Vice President,
Domestic Production Asset Group

Age: 52

Starting Date: January 2023 - Present

Education

- Master of Sciences (Engineering Management), University of Missouri-Rolla, Rolla, USA
- Bachelor of Engineering (Chemical Engineering), Chulalongkorn University

% of Shareholding

Management 0.00127% (50,279 shares)

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Jun. - Dec. 2022	Executive Vice President, Engineering and Development Group, PTTEP
Dec. 2021 - May. 2022	Acting Executive Vice President, Engineering and Development Group, PTTEP
Oct. 2019 - Nov. 2021	Senior Vice President, Development Project Division, PTTEP
Jun. - Sep. 2019	Senior Vice President assigned as Project Head of Asset Transition Project and Acting Senior Vice President, Development Project Division, PTTEP
Oct. 2018 - May. 2019	Acting Vice President, M3 Development Project, PTTEP
Oct. 2018 - Jan. 2019	Senior Vice President, Development Project Division, PTTEP
Jul. 2017 - Sep. 2018	Senior Vice President, Business Development 1 Division, PTTEP
Jan. 2016 - Jun. 2017	Acting Senior Vice President, Business Development 1 Division, PTTEP

• Mr. Chalongrut Ya-anan

Executive Vice President,
Geosciences, Subsurface, and Exploration Group

Age: 56

Starting Date: October 2022 - Present

Education

- Bachelor of Sciences (Geology), Chiang Mai University

% of Shareholding

None

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Apr. - Sep. 2022	Acting Executive Vice President, Geosciences, Subsurface, and Exploration Group, PTTEP
Mar. 2020 – Mar. 2022	Senior Vice President, Geosciences, Reservoir Engineering and Corporate Technical Division, PTTEP
Oct. 2018 - Feb. 2020	Senior Vice President, Business Development 1 Division, PTTEP
Aug. – Sep. 2018	Senior Vice President, attached to Strategy and Business Development Group, PTTEP
Jul. 2016 - Jul. 2018	Senior Vice President, Exploration Project Division, PTTEP

• Mr. Sermsak Satchawannakul

Senior Vice President, Accounting Division

(The person is directly responsible to supervise accounting functions)

Age: 54

Starting Date: October 2020 - Present

Education

- Master of Business Administration, Thammasat University
- Bachelor of Accountancy, Thammasat University

Training

- EP LEAD III Leadership Development Program by IMD
- TLCA Executive Development Program by Thai Listed Companies Association
- Financial & Fiscal Management Program for Senior Executive by The Comptroller General's Department 8/2021

Continuing Professional Development (CPD) 2022

- TFRS 9 (2022) [CPD (Accounting) 7 hours]
- Comprehensive Cost Accounting [CPD (Accounting) 6 hours]

(An Accountant with criteria specified by Department of Business Development)

% of Shareholding

Management 0.00114% (45,215 shares)

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Jan. 2019 - Sep. 2020	Vice President, Financial Accounting Department, PTTEP
Jan. 2019	Acting Vice President, Office Facility Management Department, PTTEP
Jul. 2015 - Dec. 2018	Vice President, Myanmar Business Support Department, seconded as Myanmar Business Support Manager, PTTEP International Limited (Yangon Branch), Union of Myanmar

• Ms. Orachon Ouiyamapun

Senior Vice President, Finance Division

Seconded from PTT Public Company Limited, Executive Vice President, attached to Chief Financial Officer

Age: 59

Starting Date: January 2021 - Present

Education

- Master of Business Administration, King Mongkut's Institute of Technology Ladkrabang
- Bachelor of Business Administration (Human Resource Management), Prince of Songkla University

% of Shareholding

None

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Oct. 2018 - Dec. 2020	Vice President, Group Financial Planning, PTT Public Company Limited
Nov. 2016 - Sep. 2018	Vice President, Treasury, PTT Public Company Limited
Jun. - Oct. 2016	Vice President, Group Financial Structure and Funding, PTT Public Company Limited
Dec. 2014 - May 2016	Vice President, Affiliates Financial Management, PTT Public Company Limited

• Mr. Sakchai Sarawek
Vice President, Managerial Accounting Department

Age: 52

Starting Date: July 2020 - Present

Education
- Master of Science (Accounting Information System), Chulalongkorn University
- Bachelor of Accountancy, Thammasat University

% of Shareholding
None

Family Relationship among Directors and Executives
None

Working Experiences in the 5 Preceding Years

Jul. 2018 - Jun. 2020	Vice President attached to International Asset seconded as Senior Manager, Business Support at CPOC, Malaysia
Jul. 2016 - Jun. 2018	Vice President, Accounting Policy and Solutions Department, PTTEP
Nov. 2012 - Jun. 2016	Vice President, attached to Australia Asset, seconded as Finance and Accounting Manager, PTTEP Australasia Limited, Australia

• Mr. Chayanin Yiamsombut
Acting Vice President, Insurance Department

Age: 45

Starting Date: October 2022 - Present

Education
- Master of Business Administration (Finance), DePaul University, USA
- Bachelor of Science (Economics), Chulalongkorn University

% of Shareholding
Management 0.00056% (22,145 shares)

Family Relationship among Directors and Executives
None

Working Experiences in the 5 Preceding Years

Jun. 2014 - Sep. 2022	Senior Analyst, Insurance, PTTEP

• Mr. Anutra Bunnag

Vice President, attached to Finance Division, assigned as Managing Director, PTTEP Treasury Center

Age: 59

Starting Date: May 2017 - Present

Education

- Master of Science (Finance), University of Massachusetts, USA
- Bachelor of Science (Chemistry), University of Bradford, UK

% of Shareholding

None

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Oct. 2016 - Apr. 2017	Vice President, Treasury Department, PTTEP
Feb. 2011 - Sep. 2016	Vice President, seconded as Vice President, Corporate Administration and Finance Department, Energy Complex Co., Ltd. (EnCo)

• Ms. Pratamaporn Deesrinthum

Vice President, Accounting Policy and Solutions Department

Age: 50

Starting Date: April 2020 - Present

Education

- Master of Business Administration, Thammasat University
- Bachelor of Accountancy, Chulalongkorn University

% of Shareholding

Management 0.00124% (49,249 shares)

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Apr. 2018 - Mar. 2020	Vice President, Managerial Accounting Department, PTTEP
Jan. - Apr. 2018	Acting Vice President, Managerial Accounting Department, PTTEP
Jun. - Dec. 2017	Senior Accountant, Thai Offshore Asset, PTTEP

• Ms. Nuchanong Sangkeaw

Vice President, Capital Market and Financial Planning Department

Age: 45

Starting Date: August 2020 - Present

Education

- Master in Professional Accounting, The University of Texas at Austin, USA
- Master of Arts (Economic Law), Chulalongkorn University
- Bachelor of Accountancy, Thammasat University

% of Shareholding

Management 0.00012% (4,605 shares)

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Jan. - Jul. 2020	Acting Vice President, Capital Market and Financial Planning Department, PTTEP
Jul. - Dec. 2019	Acting Vice President, Capital and Investor Relations Department, PTTEP
Nov. 2018 - Jun. 2019	Manager, Investor Relations Section, PTTEP

• Mrs. Yada Vudhivorn

Vice President, Tax Department

Age: 43

Starting Date: April 2020 - Present

Education

- Master of Laws, University of London, UK
- Master of Laws, Northwestern University, USA
- Bachelor of Laws, Thammasat University

% of Shareholding

None

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Sep. 2019 - Mar. 2020	Acting Vice President, Tax Department, PTTEP
Aug. 2015 - Aug. 2019	Manager, Tax Planning Section, PTTEP

• Mrs. Vanasanan Boonyalerdlak

Vice President, Financial Accounting Department

Seconded from PTT Public Company Limited, Vice President, attached to Chief Financial Officer

Age: 51

Starting Date: October 2020 - Present

Education

- Master of Business Administration (Finance), Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Bachelor of Accountancy, Chulalongkorn University

% of Shareholding

None

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Oct. 2017 - Sep. 2020	Vice President, Business Accounting and Services Management, PTT Public Company Limited
Oct. 2016 - Sep. 2017	Managerial Accounting - Gas Business Division Manager, PTT Public Company Limited

PTTEP management team had 2 personnel, as defined by the Capital Market Supervisory Board, who retired or rotated during the year 2022. Details are shown below.

• Mrs. Netrsuda Pokkasorn

Vice President, attached to Executive Vice President, Finance and Accounting Group, seconded to Energy Complex Company Limited as Vice President, Finance, Accounting and Business Support

Age: 57

Starting date: October 2022 - Present

Education

- Master of Science (Economics), University of Missouri, USA
- Bachelor of Science (Economics), Chulalongkorn University

% of Shareholding

None

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Aug. 2017 - Sep. 2022	Vice President, Insurance Department
Feb. 2011 - Jul. 2017	Manager, Insurance Section

• Ms. Porntip Jansuksri

Vice President, direct report to Executive Vice President, Finance and Accounting Group

Age: 60

Starting date: October - December 2022

Education

- Master of Business Administration, Kasetsart University
- Bachelor of Business Administration (Finance), University of the Thai Chamber of Commerce

% of Shareholding

None

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

May 2015 - Sep. 2022	Vice President, attached to Executive Vice President, Finance and Accounting Group, seconded to Energy Complex Company Limited as Vice President, Finance, Accounting and Business Support

3. Corporate Secretary

- **Mrs. Maneeya Srisukhumbowornchai**
  Senior Vice President, Corporate Secretary and Assurance Division, assigned as Company Secretary

Age: 48

Starting Date: September 2020 - Present

Education

- Master of Business Administration, Thammasat University
- Bachelor of Accountancy, Chulalongkorn University

Other Training

- All TFRS (Thai Financial Reporting Standard) 2022 (2/22) by Federation of Accounting Professions
- How to comply with Personal Data Protection Act (PDPA) 2019 by Baker & Mckenzie Ltd.
- Corporate Secretary Program (CSP) by the Thai Institute of Directors (IOD)
- Risk Management Program (Basic) - COSO ERM 2017
- Risk Management Program (Advance) - COSO ERM 2017
- Fundamental for Corporate Secretaries by Thai Listed Companies Association
- The Executive Program in Anti-Corruption by Office of the National Anti-Corruption Commission

% of Shareholding

None

Family Relationship among Directors and Executives

None

Working Experiences in the 5 Preceding Years

Sep. 2020 - Present	Senior Vice President, Corporate Secretary Division, PTTEP, assigned as Company Secretary
Sep. 2019 - Aug. 2020	Acting Senior Vice President, Corporate Secretary Division, PTTEP, assigned as Company Secretary
Oct. 2018 - Jun. 2019	Acting Vice President, Accounting Policy and Solutions Department, PTTEP
May 2015 - Aug. 2019	Vice President, Tax Department, PTTEP
Jun. 2014 - Apr. 2015	Manager, Tax Compliance, PTTEP

Attachment 2: Directors of Subsidiaries and Associated Companies[1]

1. **List of PTTEP's Subsidiaries**: As of December 31, 2022, there were 81 subsidiaries.

Name (the list only includes directors designated by the PTTEP Group)	Subsidiary														
	PTTEP AAA	PTTEP AAO	PTTEP AAS	PTTEP AB	PTTEP AO	PTTEP AP	PTTEP AT	PTTEP AU	NKA	TTI	PTTEP SBO	PTTEP SKO	PTTEP BL	PTTEP CA	PTTEP CIF
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ms. Kanita Sartwattayu	/	/	/	/		/	/								
Mr. Ryan Hartfield	/	/	/	/	/	/	/	/	/	/					
Ms. Rebecca Johnston									/	/					
Mr. Terapol Phoonsiri											/	/			
Mr. Piya Sukhumpanumet											/	/			
Ms. Sirlene Santos Brêtas de Noronha													/		
Ms. Krissana Juisiri														/	/
Ms. Nuchanong Sangkeaw															/

Remark: / = Director

[1] Notification of the Securities and Exchange Commission No. Kor Jor. 17/2551, Re: Determination of Definitions in Notifications Relating to Issuance and Offer for Sale of Securities.

Name (the list only includes directors designated by the PTTEP Group)	Subsidiary														
	CEEAL	PTTEP MZA1	PTTEP HK	PTTEP HKO	PTTEP MENA	ATL	JV Marine	PANG	PBC	PKC	PTTEP AI	PTTEP AG	PTTEPH	PTTEP HL	PTTEP HV
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Mr. Narongpol Suthapintu	/	/													
Ms. Stella Kattashi	/	/													
Ms. Natruedee Khositaphai			/												
Mr. Sermsak Satchawannakul			/												
Mr. Piya Sukhumpanumet				/											
Mr. Terapol Phoonsiri				/											
Mr. Anusorn Tepjitar					/										
Mr. Komson Tachapanich					/				/						
Ms. Nuchanong Sangkeaw													/		
Mr. Polasant Kullavanijaya							/								
Mr. Nirandorn Rojanasomsith							/								
Mr. Suksant Ongvises											/				
Ms. Pariyachat Oonkhanond												/			
Mr. Titi Thongjen						/									
Mr. Kritsada Kleechaya								/		/				/	/
Mr. Chaiwat Kaewla												/			
Mr. Alfredo Coelho Ferreira dos Santos									/						
Mr. Fernando António da Silva Barata Alves									/						

Remark: / = Director

Name (the list only includes directors designated by the PTTEP Group)	Subsidiary														
	PTTEP ID	PTTEP IH	PTTEP KV	PTTEP ML	PTTEP NL	PTTEPO	PTTEP SA	PTTEP SMD	PTTEP SV	PTTEP SVPC	SHL	PTTEP MEP	CPOC	DGT	Natuna
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ms. Kanita Sartwattayu					/										
Ms. Pariyachat Oonkhanond					/									/	
Mr. Kritsada Kleechaya			/						/	/					
Mr. Grinchai Hattagam	/			/				/							/
Mr. Titi Thongjen							/							/	
Mr. Pongtai Wilaireungsuwan							/								
Mr. Sermsak Satchawannakul	/														
Mr. Anusorn Tepjitar												/			
Mr. Awirut Sirimongkolkitti												/			
Ms. Yada Vudhivorn		/													
Mr. Thanasit Vichaipairojwong						/									
Mr. Krit Limbanyen						/									
Mr. Anan Amornprabharwat											/				
Mr. Polasant Kullavanijaya											/		/		
Mr. Nirandorn Rojanasomsith													/		
Ms. Yvonne Maria Wimmers-Thenus															/

Remark: / = Director

Name (the list only includes directors designated by the PTTEP Group)	Subsidiary													
	PGH	PTTEP BI	PTTEP NC	PTTEP NH	PGC	POC	PSC	APT	DGH	APICO KL	ARV	ATi	B-MED X	Cariva
	46	47	48	49	50	51	52	53	54	55	56	57	58	59
Mr. Suppakarn Thanatit		/												
Mr. Komson Tachapanich	/				/	/	/							
Ms. Pariyachat Oonkhanond								/						
Mr. Vitoon Chaisomboonpan					/	/	/							
Mr. Fernando António da Silva Barata Alves					/	/	/							
Mr. Alfredo Coelho Ferreira dos Santos					/	/	/							
Mr. Chalongrut Ya-anan		/												
Ms. Krissana Juisiri			/											
Mr. Ronald Posthumus			/											
Vistra Management Services (Netherlands) B.V.			/											
Mr. Piya Sukhumpanumet				/										
Mr. Marinus Carel Eduard van Gendt	/													
Ms. Kanita Sartwattayu								/	/					
Mr. Ditsaphon Mikusol									/					
Mr. Chooi Kok Yaw								/	/					
Mr. Nathawut Sattayakhunnasakul										/				
Ms. Worrarat Rattanawong										/				
Mr. Bundhit Eua-arporn											/			
Mr. Suksant Ongvises											/			
Ms. Chanamas Sasnanand											/			
Mr. Thana Slanvetpan												/	/	/
Mr. Artid Jivacate												/		
Mr. Pong Kosanunt													/	
Mr. Sinthu Satawiriya														/

Remark: / = Director

Name (the list only includes directors designated by the PTTEP Group)	Subsidiary														
	Energy Complex	EP-Tech	FST	FTEV	Orange	PTTEP BC	PTTEP ED	PTTEP EH	PTTEP G7	PTTEPI	PTTEPS	PTTEP Services	PTTEP TC	Rovula	Skyller
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
Mr. Polasant Kullavanijaya					/					/					
Mr. Anan Amornprabharwat										/	/				
Mr. Nattapong Vattanajaroen											/				
Mr. Sermsak Satchawannakul	/			/	/				/						
Ms. Orachon Ouiyamapun						/									
Ms. Yada Vudhivorn						/									
Ms. Natruedee Khositaphai								/							
Ms. Kanita Sartwattayu							/	/							
Mr. Kitchai Pitiwiwat							/								
Mr. Nirandorn Rojanasomsith					/		/								
Mr. Dittapon Soothi-O-Soth							/								
Mr. Bundit Pattanasak		/													
Mr. Nopasit Chaiwanakupt		/		/											
Mr. Chayong Borisuitsawat	/														
Mr. Thanasit Vichaipairojwong	/														
Mr. Anusorn Wuthijaroen	/														
Mr. Napa Medheethunyapong			/												
Mr. Saran Umpuch			/												
Mr. Adisorn Smathimanant												/			
Ms. Pungjai Jittasevi												/			
Ms. Orachon Ouiyamapun													/		
Mr. Anutra Bunnag													/		
Mr. Thana Slanvetpan														/	/
Mr. Sinthu Satawiriya														/	/

Remark: / = Director

Name (the list only includes directors designated by the PTTEP Group)	Subsidiary						
	Varuna	XPV	ZeaQuest	Cove	PTTEP SP	APICO	APICO KH
	75	76	77	78	79	80	81
Mr. Thana Slanvetpan	/		/				
Ms. Napabhas Hongsaprabhas	/						
Mr. Sinthu Satawiriya			/				
Mr. Nopasit Chaiwanakupt		/					
Mr. Sermsak Satchawannakul		/					
Mr. Narongpol Suthapintu				/			
Mr. Anutra Bunnag					/		
Mr. Anan Amornprabharwat					/		
PTTEP IH						/	
PTTEP ID						/	
APICO LLC							/

Remark: / = Director

2. **List of PTTEP's Associated Companies:** As of December 31, 2022, there were 25 associated companies.

Name (the list only includes directors designated by the PTTEP Group)	Associated Companies														
	Aerosky	AGP	B8/32 Partners	E2FSO	GISCO	MGTC	MOZ LNG1 Financing	MOZ LNG1 Holding	MZ LNG 1	OLNG	PDO	POHOL	PTT Digital	SPSE	SKYVIV
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mr. Komson Tachapanich		/						/		/	/	/			
Mr. Krit Limbanyen						/									
Mr. Vitoon Chaisomboonpan					/										
Mr. Vitoon Chaisomboonpan*		/								/	/				
Mr. Suksant Ongvises													/		
Mr. Sermsak Satchawannakul			/												
Ms. Maylada Chayavadhanangkur*						/									
Ms. Bussaban Cheencharoen														/	
Mr. Fernando António da Silva Barata Alves												/			
Mr. Fernando António da Silva Barata Alves*					/						/				
Mr. Alfredo Coelho Ferreira dos Santos*		/								/					
Mr. Narongpol Suthapintu									/						
Ms. Arporn Aranwattananon*									/						
Ms. Nuchanong Sangkeaw							/								
Mr. Sinthu Satawiriya	/														/
Mr. Polasant Kullavanijaya			/	/											

Remarks: / = Director

* = Alternate Director

Ten associated companies which do not have any directors from PTTEP are:

1) Asia Pacific Marine Service, PDO-S, Moz LNG1 Co-Financing and YS which are governed by shareholders' meetings.

2) HV JOC, HL JOC, GBRS, GHBR and LAL which are governed by the Management Committee.

3) QLNG director will be appointed on a rotation annual basis by OLNG shareholders.

Attachment 3: Details of Head of the Internal Audit Division and Head of the Compliance Function

Details of Head of the Internal Audit Division as of January 1, 2023 are as follows:

- **Ms. Yaninee Wajeepratubjit**
  Senior Vice President, Internal Audit Division

Age: 53

Starting Date: January 1, 2021

Education

- Master of Business Administration, Chulalongkorn University
- Bachelor of Accountancy (Accounting), University of the Thai Chamber of Commerce

Trainings

- 2022 ACIIA Conference "Exponential Internal Audit: Accelerating Pace of Innovation and Transformation", The Asian Confederation of Institutes of Internal Auditors (ACIIA)
- Risk in Environmental, Social, and Governance (ESG) and Reporting, EY
- PDPA and Roles of Internal Auditors, PwC
- Let's Extend Your Leadership to Digital Experience, PTTEP
- ESG and the Role of Internal Audit, PwC
- Forensic Training and Workshop, EY
- Introduction to Data-Driven Organization and Big Data Analytic, PTTEP
- Smart Manufacturing 4.0 vs Internal Audit 4.0, KPMG
- Cloud Auditing & RPA Auditing, PwC
- Performance Audit, KPMG
- Management Audit, Deloitte
- The Divestment and Post Merger Integration, EY
- International Asset Audit, EY
- Overview on Laws & Regulations relating to State Enterprises, PTTEP
- Stakeholders in the Supply Chain Management, CP Training Consortium Ltd.
- EP-LEAD III Leadership Development Program, IMD
- GRC Online Training: Anti-Corruption, PTTEP

Work Experience in the Past 5 Years

Jan. 2021 - Present	Senior Vice President, Internal Audit Division, PTTEP
Nov. 2019 - Dec. 2020	Specialist, attached to President and CEO, in charge of internal audit assignments, PTTEP
Jan. 2019 - Oct. 2019	Acting Senior Vice President, Internal Audit Division, PTTEP
Jul. 2018 - Dec. 2018	Acting Senior Vice President, Enterprise Risk Management and Internal Control Division, PTTEP
Jul. 2015 - Jun. 2018	Vice President, attached to International Asset, seconded as Senior Manager, Business Support Division, Carigali-PTTEPI Operating Company Sdn. Bhd. (CPOC), Malaysia, PTTEP

Details of Head of the Compliance Function as of January 1, 2023 are as follows:

- **Ms. Chalida Srikorakul**
  Vice President, Governance, Compliance, Internal Control, and Subsidiary Management Department

Age: 54

Starting Date: January 26, 2021

Education

- Master of Arts, Linguistics, California State University, Fresno, USA
- Bachelor of Laws, Thammasat University

Trainings

- Subsidiary Governance Program, Thai Institute of Directors
- Ethical Leadership Program, Thai Institute of Directors
- Tax Overview & Compliance, PTTEP
- Petroleum Fiscal System and E&P Economic, PTTEP
- International Tax, PTTEP
- Financial Modelling, PTTEP
- Finance for Non-Finance Management, PTTEP
- Corporate Governance, The Vision Mission Co.,Ltd.
- Overview on LNG Markets and Contracts, Herbert Smith Freehills
- Production Sharing Contract, UNI Strategic Pte Ltd.
- Oil and Gas Contracts, UNI Strategic Pte Ltd.
- LNG Fundamentals, PetroEdge
- Understanding of Gas Sale Agreement, PTTEP
- Petroleum Income Tax, International Consulting Network

Work Experience in the Past 5 Years

Jan. 2021 - Present	Vice President, Governance, Compliance, Internal Control, and Subsidiary Management Department
Dec. 2015 - Dec. 2020	Senior Officer, Subsidiary Secretariat and Governance Department

Attachment 4: Asset Revaluation

- None -

Attachment 5: Good Corporate Governance and Business Ethics

The PTTEP Group values the importance of conducting business with the good corporate governance. The Company, therefore, establishes the “Good Corporate Governance and Business Ethics” of the PTTEP Group as the Company’s regulation. The details are disclosed on PTTEP website at https://www.pttep.com/en/Aboutpttep/Publications/download.aspx?Content=5317.

Attachment 6: Audit Committee Report

The details are disclosed in the “Corporate Governance Milestones” section, “The Audit Committee Report” topic.



Financial Report

Report of the Board of Directors' Responsibilities for the Financial Statements

The financial statements of PTT Exploration and Production Public Company Limited and subsidiaries being consolidated have been prepared in accordance with Thai Financial Reporting Standards under the Accounting Act B.E. 2543, being those Thai Accounting Standards issued under the Accounting Profession Act B.E. 2547 including interpretations and accounting treatment guidance announced by the Federation of Accounting Professions, as well as the financial reporting requirements of the Securities and Exchange Commission under the Securities and Exchange Act B.E. 2535.

The Company's Board of Directors are responsible for the integrity and objectivity of the financial statements of PTT Exploration and Production Public Company Limited and subsidiaries in providing reasonable assurance that the financial statements truly and fairly present financial position, results of operation and cash flows. The books and records of the Company accurately reflect all transactions to safeguard the Company's assets and the control systems are in place to prevent fraud and irregularity. The financial statements have been prepared by adoption of the appropriate accounting policy which is applied on the consistency basis and in accordance with Thai Financial Reporting Standards. In addition, significant information has been adequately disclosed in the notes to financial statements, in which the independent auditor expresses an opinion on the financial statements of PTT Exploration and Production Public Company Limited and subsidiaries in the auditor's report.



(Mr. Krairit Euchukanonchai)
Chairman



(Mr. Montri Rawanchaikul)
Chief Executive Officer

10 February 2023

Independent Auditor's Report

To the Shareholders of PTT Exploration and Production Public Company Limited

My opinion

In my opinion, the consolidated financial statements and the separate financial statements present fairly, in all material respects, the consolidated financial position of PTT Exploration and Production Public Company Limited (the Company) and its subsidiaries (the Group) and the separate financial position of the Company as at 31 December 2022, and its consolidated and separate financial performance and its consolidated and separate cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRS).

What I have audited

The consolidated financial statements and the separate financial statements comprise:

- the consolidated and separate statements of financial position as at 31 December 2022;
- the consolidated and separate statements of income for the year then ended;
- the consolidated and separate statements of comprehensive income for the year then ended;
- the consolidated and separate statements of changes in equity for the year then ended;
- the consolidated and separate statements of cash flows for the year then ended; and
- the notes to the consolidated and separate financial statements, which include significant accounting policies and other explanatory information.

Basis for opinion

I conducted my audit in accordance with Thai Standards on Auditing (TSAs) and the State Audit Standards. My responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated and separate financial statements section of my report. I am independent of the Group and the Company in accordance with the Code of Ethics for Professional Accountants including Independence Standards issued by the Federation of Accounting Professions (TFAC Code) that are relevant to my audit of the consolidated and separate financial statements and the State Audit Standards as determined by the State Audit Commission, and I have fulfilled my other ethical responsibilities in accordance with the TFAC Code and the State Audit Standards. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Other matter

The State Audit Standards as described in the basis for opinion section and the auditor's responsibilities for the audit of the consolidated and separate financial statements section are relevant to the particular section of audit on the financial reporting by independent auditor.

Key audit matters

Key audit matters are those matters that, in my professional judgement, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Key audit matter	How my audit addressed the key audit matter
Impairment assessment of goodwill As at 31 December 2022, the Group has recognised goodwill net of an allowance for impairment of US Dollar 1,548.62 million representing 6.15% of its total consolidated assets. In 2022, the Group recognised an impairment loss for the goodwill of US Dollar 190 million as disclosed in Note 19. The management tests impairment of goodwill annually or whenever there is an indicator of impairment. The impairment test is performed at the cash generating unit (CGU) level. Determining the CGUs' recoverable amount (the higher of value in use or fair value less costs of disposal), which includes goodwill, requires significant management judgement in identifying both the relevant CGUs and valuation assumptions. These assumptions include global oil price trends, estimated petroleum reserves, exploration, development and production plans, cost profiles, growth rate and discount rate applied to the discounted cash flow forecasts.	I carried out the following procedures to assess management's impairment testing of goodwill: • Evaluated the appropriateness of CGUs that the Group identified and the internal impairment assessment process of the Group. • Held discussions with management to understand the basis of the assumptions used to estimate the discounted cash flow to calculate the recoverable amount and assessed whether the impairment testing process and assumptions used in each CGU had been applied consistently across the Group. • Challenged management's significant assumptions for estimating the discounted cash flow, specifically global oil price trends, petroleum reserve estimates, exploration, development and production plans, cost profiles, growth rate and discount rate. The procedures included comparing key assumptions with reliable external sources and the approved business plan. • Assessed the reasonableness of the business plan by comparing the plan for 2022 with actual results.

Key audit matter	How my audit addressed the key audit matter
I focused on the impairment assessment of the following goodwill from the acquisition of exploration and production businesses in each region due to their significant values. Also, determining the recoverable amount of each CGU depends on a number of assumptions and management judgement in determining the appropriate level of those assumptions, which were impacted from an uncertainty of current economic conditions. • goodwill of US Dollar 520.46 million from acquiring the exploration and production business in Thailand; • goodwill of US Dollar 454.10 million from acquiring the exploration and production business in other Southeast Asia countries; and • goodwill of US Dollar 370.79 million from acquiring the exploration and production business in Africa.	• Tested reasonableness of the discount rate by considering publicly available information on other companies in the industry, obtained independently by the auditor's expert, to assess whether the discount rate that management used was within an acceptable range compared to comparable companies in the industry. • Assessed the factors which were sensitive to assumptions and tested the sensitivity analysis of key assumptions in management's model to assess the potential impact of various possible outcomes from changing in those assumptions. Based on the results of the procedures performed, I found that management's key assumptions were reasonable and within the acceptable range. They were consistent with supporting evidence.

Key audit matter	How my audit addressed the key audit matter
Asset acquisition of the G1/61 project Refer to Note 16.1. On 19 April 2022, the Group signed an agreement with MP G2 (Thailand) Limited, which resulted in the Group having control over the operation and entitlement to net assets related to the G1/61 project, including all revenue, costs and petroleum operating expenses related to the project since then and is considered as the business acquisition in accordance with Thai Financial Reporting Standards 3 - Business Combinations (TFRS 3). The management performed a concentration test of the fair value of the gross assets acquired from such agreement in accordance with TFRS 3 to assess such transaction is considered as an asset acquisition. The management determined the group of similar assets and engaged an external valuer to appraise the fair value of each group of assets acquired at the date which the Group had control over the operation to perform a concentration test of the fair value of the gross assets acquired. They found that the fair value of gross assets was substantially concentrated in the exploration and production assets, which is considered as an asset acquisition in accordance with TFRS 3.	I carried out the following procedures to obtain sufficient evidence on the fair value measurement of the gross assets acquired at the date which the Group had control over the operation. • Obtained an agreement and all related documents. • Evaluated the competency, qualifications, experience and independence of management's experts. • Assessed the appropriateness of assumptions used to estimate the fair value of the gross assets acquired on the acquisition date by performing the following procedures: - Tested key assumptions applied in the fair valuation method, especially for global oil price trends, petroleum reserve estimates, exploration, development and production plans, cost profiles, growth rate and discount rate by comparing them with publicly available information, including approved project plans. - Tested reasonableness of the discount rate by considering publicly available information on other companies in the industry, and consulting with the auditor's expert, to assess whether the discount rate used by management was within an acceptable range compared to comparable companies in the industry. - Assessed the fair valuation method under TFRS requirements. • Assessed management's assessment in determining the group of similar assets and assembling the fair value of the gross assets whether it met the concentration test criteria and was appropriately considered as an asset acquisition in accordance with TFRS 3.

Key audit matter	How my audit addressed the key audit matter
Determining the fair value of the gross assets acquired required significant management judgement regarding the fair valuation method, estimated operating results and projected cash flows of the G1/61 project, including the application of discount rate on those projected cash flows. Key assumptions used to determine the fair value were the global oil price trends, estimated petroleum reserves, exploration, development and production plans, cost profiles, growth rate and discount rate applied to the discounted cash flow forecasts. I focused on the fair value determination of the gross assets acquired of the G1/61 project used in a concentration test of the fair value of the gross assets due to the significance of this transaction. Also, the discounted cash flow model in determining the fair value involved significant assumptions and management judgement when determining the possibility of cash flow forecasts and the discount rate. The changes in such assumptions may significantly impact the result of a concentration test of the fair value of the gross assets acquired as well as the presentation and the amount recognised in the consolidated financial statements.	Based on the results of the procedures performed, I found that the method and assumptions management used to assess the fair value and a concentration test of the fair value of the gross assets in accordance with TFRS 3 were appropriate.

Other information

The directors are responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and my auditor's report thereon. The annual report is expected to be made available to me after the date of this auditor's report.

My opinion on the consolidated and separate financial statements does not cover the other information and I will not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

When I read the annual report, if I conclude that there is a material misstatement therein, I am required to communicate the matter to the audit committee.

Responsibilities of the directors for the consolidated and separate financial statements

The directors are responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRS, and for such internal control as the directors determine is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, the directors are responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

The audit committee assists the directors in discharging their responsibilities for overseeing the Group's and the Company's financial reporting process.

Auditor's responsibilities for the audit of the consolidated and separate financial statements

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs and the State Audit Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs and the State Audit Standards, I exercise professional judgement and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with the audit committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide the audit committee with a statement that I have complied with relevant ethical requirements and the State Audit Standards regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with the audit committee, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

PricewaterhouseCoopers ABAS Ltd.



Amornrat Pearmpoonvatanasuk
Certified Public Accountant (Thailand) No. 4599
Bangkok
10 February 2023

Financial Statements

Statement of Financial Position

PTT Exploration and Production Public Company Limited
As at 31 December 2022

		Consolidated financial statements			
		Unit: Thousand US Dollar		Unit: Thousand Baht	
	Notes	2022	2021	2022	2021
Assets					
Current assets					
Cash and cash equivalents	10	3,539,220	2,559,189	122,323,890	85,527,810
Trade and other receivables	11	1,219,995	1,000,303	42,165,954	33,430,040
Short-term loans to a related party	15	1,317	-	45,516	-
Inventories	13	553,046	420,969	19,114,603	14,068,739
Current tax assets		53,878	59,366	1,862,144	1,984,024
Derivative assets	6	16,254	16,427	561,781	548,990
Other current financial assets	12	667	-	23,056	-
Other current assets	25	300,171	120,414	10,374,627	4,024,240
Assets held-for-sale	14	10,730	-	370,848	-
Total current assets		5,695,278	4,176,668	196,842,419	139,583,843
Non-current assets					
Investments in associates	16	115,345	220,880	3,986,595	7,381,771
Investments in joint ventures	16	162,230	210,235	5,607,066	7,026,037
Long-term loans to related parties	15	434	41,500	15,001	1,386,921
Property, plant and equipment	17	11,880,375	11,379,664	410,613,962	380,307,143
Right-of-use assets	18	974,706	519,711	33,688,151	17,368,709
Goodwill	19	1,548,622	1,740,803	53,524,061	58,177,427
Intangible assets		132,703	135,719	4,586,552	4,535,718
Exploration and evaluation assets	20	3,071,577	3,121,294	106,160,969	104,313,320
Deferred tax assets	21	929,484	1,317,826	32,125,179	44,041,594
Rights to receive reimbursement from decommissioning funds		317,176	290,546	10,962,362	9,710,013
Derivative assets	6	26,521	825	916,629	27,581
Other non-current financial assets		139,655	109,824	4,826,788	3,670,310
Other non-current assets	22	173,848	179,692	6,008,589	6,005,282
Total non-current assets		19,472,676	19,268,519	673,021,904	643,951,826
Total assets		25,167,954	23,445,187	869,864,323	783,535,669

(Montri Rawanchaikul)
Chief Executive Officer

(Sermsak Satchawannakul)
Senior Vice President, Accounting Division

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Financial Position

PTT Exploration and Production Public Company Limited
As at 31 December 2022

	Notes	Consolidated financial statements			
		Unit: Thousand US Dollar		Unit: Thousand Baht	
		2022	2021	2022	2021
Liabilities and equity					
Current liabilities					
Trade and other payables	23	1,531,737	1,096,946	52,940,485	36,659,830
Current portion of long-term liabilities	24	303,193	633,346	10,479,059	21,166,366
Income tax payable		800,166	782,837	27,655,640	26,162,328
Short-term provisions		488,591	381,144	16,886,877	12,737,799
Derivative liabilities	6	53,027	49,209	1,832,740	1,644,539
Other current liabilities		137,787	183,466	4,762,261	6,131,426
Liabilities held-for-sale	14	1,704	-	58,887	-
Total current liabilities		3,316,205	3,126,948	114,615,949	104,502,288
Non-current liabilities					
Debentures	24	2,809,260	2,475,802	97,094,695	82,741,041
Long-term loans	24	-	596,057	-	19,920,163
Lease liabilities	24	720,569	388,510	24,904,569	12,983,959
Deferred tax liabilities	21	1,575,376	1,504,258	54,448,734	50,272,138
Provision for employee benefits	27	190,800	205,381	6,594,534	6,863,853
Provision for decommissioning costs	25	2,799,503	2,458,593	96,757,437	82,165,892
Provision for remuneration for production bonus and the renewal of petroleum production	26	193,533	120,727	6,688,963	4,034,672
Derivative liabilities	6	-	8,413	-	281,165
Other non-current liabilities		47,417	132,279	1,638,836	4,420,750
Total non-current liabilities		8,336,458	7,890,020	288,127,768	263,683,633
Total liabilities		11,652,663	11,016,968	402,743,717	368,185,921

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Financial Position

PTT Exploration and Production Public Company Limited
As at 31 December 2022

	Notes	Consolidated financial statements			
		Unit: Thousand US Dollar		Unit: Thousand Baht	
		2022	2021	2022	2021
Liabilities and equity (continued)					
Equity					
Share capital					
Authorised share capital					
Ordinary shares, 3,969,985,400 shares					
at par value of Baht 1 each	28			3,969,985	3,969,985
Issued and paid-up share capital					
Ordinary shares, 3,969,985,400 shares					
paid-up at Baht 1 each		150,684	150,684	3,969,985	3,969,985
Share premium		3,439,037	3,439,037	105,417,620	105,417,620
Subordinated capital debentures		-	156,570	-	4,981,992
Retained earnings					
Appropriated					
Legal reserve		15,048	15,048	396,999	396,999
Reserve for expansion		431,231	431,231	16,900,000	16,900,000
Unappropriated		9,481,343	8,306,161	311,767,883	269,709,716
Other components of equity		(2,052)	(70,512)	28,668,119	13,973,436
Total equity		13,515,291	12,428,219	467,120,606	415,349,748
Total liabilities and equity		25,167,954	23,445,187	869,864,323	783,535,669

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Financial Position

PTT Exploration and Production Public Company Limited
As at 31 December 2022

	Notes	Separate financial statements			
		Unit: Thousand US Dollar		Unit: Thousand Baht	
		2022	2021	2022	2021
Assets					
Current assets					
Cash and cash equivalents	10	1,189,891	788,461	41,125,443	26,350,301
Trade and other receivables	11	810,998	611,701	28,030,016	20,442,990
Short-term loans to a related party	15	-	527,281	-	17,621,666
Inventories	13	107,680	120,098	3,721,688	4,013,664
Current tax assets		21,252	16,584	734,530	554,226
Derivative assets	6	-	6,321	-	211,248
Other current assets	25	196,170	45,588	6,780,110	1,523,537
Total current assets		2,325,991	2,116,034	80,391,787	70,717,632
Non-current assets					
Investments in associates	16	25,577	25,577	884,017	854,795
Investments in subsidiaries	16	3,198,250	2,484,787	110,539,109	83,041,306
Long-term loans to a related party	15	6,982,835	6,440,835	241,343,325	215,251,993
Property, plant and equipment	17	1,631,053	2,146,452	56,373,052	71,734,200
Right-of-use assets	18	44,472	56,230	1,537,064	1,879,210
Goodwill	19	75,158	75,158	2,597,624	2,511,758
Intangible assets		79,659	86,554	2,753,203	2,892,612
Deferred tax assets	21	548,525	789,978	18,958,334	26,400,973
Derivative assets	6	17,743	-	613,234	-
Other non-current financial assets		212	226	7,307	7,552
Other non-current assets	22	24,439	22,437	844,682	749,862
Total non-current assets		12,627,923	12,128,234	436,450,951	405,324,261
Total assets		14,953,914	14,244,268	516,842,738	476,041,893

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Financial Position

PTT Exploration and Production Public Company Limited
As at 31 December 2022

	Notes	Separate financial statements			
		Unit: Thousand US Dollar		Unit: Thousand Baht	
		2022	2021	2022	2021
Liabilities and equity					
Current liabilities					
Trade and other payables	23	385,854	359,366	13,336,041	12,009,981
Current portion of lease liabilities	24	31,264	30,801	1,080,538	1,029,366
Short-term loans from a related party	15	511,605	-	17,682,293	-
Income tax payable		541,373	601,185	18,711,148	20,091,535
Short-term provisions		277,561	339,913	9,593,157	11,359,848
Derivative liabilities	6	44,055	1,284	1,522,630	42,923
Other current liabilities		101,670	135,220	3,513,969	4,519,035
Total current liabilities		1,893,382	1,467,769	65,439,776	49,052,688
Non-current liabilities					
Debentures	24	503,055	520,170	17,386,788	17,384,009
Lease liabilities	24	19,294	29,393	666,844	982,326
Provision for employee benefits	27	106,931	121,516	3,695,792	4,061,055
Provision for decommissioning costs	25	825,031	1,076,113	28,515,021	35,963,586
Provision for remuneration for the renewal of petroleum production	26	21,953	39,711	758,758	1,327,146
Derivative liabilities	6	-	8,413	-	281,165
Other non-current liabilities		15,466	28,076	534,530	938,286
Total non-current liabilities		1,491,730	1,823,392	51,557,733	60,937,573
Total liabilities		3,385,112	3,291,161	116,997,509	109,990,261

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Financial Position

PTT Exploration and Production Public Company Limited
As at 31 December 2022

	Notes	Separate financial statements			
		Unit: Thousand US Dollar		Unit: Thousand Baht	
		2022	2021	2022	2021
Liabilities and equity (continued)					
Equity					
Share capital					
Authorised share capital					
Ordinary shares, 3,969,985,400 shares					
at par value of Baht 1 each	28			3,969,985	3,969,985
Issued and paid-up share capital					
Ordinary shares, 3,969,985,400 shares					
paid-up at Baht 1 each		150,684	150,684	3,969,985	3,969,985
Share premium		3,439,037	3,439,037	105,417,620	105,417,620
Subordinated capital debentures		-	156,570	-	4,981,992
Retained earnings					
Appropriated					
Legal reserve		15,048	15,048	396,999	396,999
Reserve for expansion		431,231	431,231	16,900,000	16,900,000
Unappropriated		7,498,155	6,760,581	250,734,588	225,003,218
Other components of equity		34,647	(44)	22,426,037	9,381,818
Total equity		11,568,802	10,953,107	399,845,229	366,051,632
Total liabilities and equity		14,953,914	14,244,268	516,842,738	476,041,893

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Income

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Notes	Consolidated financial statements			
		Unit: Thousand US Dollar		Unit: Thousand Baht	
		2022	2021	2022	2021
Revenues					
Revenue from sales		9,270,564	6,730,860	326,018,964	216,075,359
Revenue from pipeline transportation		150,923	93,147	5,331,365	2,992,712
Other income					
Gain from a bargain purchase		-	341,874	-	10,693,779
Interest income		44,031	16,750	1,566,585	531,645
Other income		195,134	131,594	6,984,948	4,337,632
Total revenues		9,660,652	7,314,225	339,901,862	234,631,127
Expenses					
Operating expenses		1,110,010	861,495	39,091,978	27,723,557
Exploration expenses		71,683	226,252	2,551,124	7,109,671
Administrative expenses		578,363	355,039	20,386,490	11,416,409
Petroleum royalties		687,723	530,215	24,137,820	16,994,689
Depreciation, depletion and amortisation		2,363,135	2,202,064	83,168,048	70,293,971
Other expenses					
Loss on foreign exchange rate		91,064	37,592	3,277,904	1,312,707
Loss on remeasuring of financial instruments		184,486	234,290	5,889,156	7,263,044
Impairment loss on assets and goodwill	14, 19	300,080	183,000	10,652,638	6,142,011
Finance costs		233,583	202,226	8,218,448	6,471,932
Total expenses		5,620,127	4,832,173	197,373,606	154,727,991
Share of profit of associates and joint ventures		19,556	15,174	667,830	488,626
Profit before income taxes		4,060,081	2,497,226	143,196,086	80,391,762
Income taxes	33	(2,061,501)	(1,286,688)	(72,294,751)	(41,528,167)
Profit for the year		1,998,580	1,210,538	70,901,335	38,863,595

		Unit: US Dollar		Unit: Baht	
		2022	2021	2022	2021
Earnings per share					
Basic earnings per share	34	0.51	0.30	17.94	9.70

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Comprehensive Income

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Consolidated financial statements			
	Unit: Thousand US Dollar		Unit: Thousand Baht	
	2022	2021	2022	2021
Profit for the year	1,998,580	1,210,538	70,901,335	38,863,595
Other comprehensive income (expense)				
Items that will be reclassified subsequently to profit or loss				
Currency translation differences	(850)	4,222	468,895	5,229,507
Changes in hedging reserves	62,562	578	2,281,901	17,712
Income taxes relating to changes in hedging reserves	(12,512)	(116)	(456,380)	(3,543)
Share of other comprehensive expense of associates and joint ventures - net of tax	(2,607)	(8,494)	(92,647)	(267,960)
Total items that will be reclassified subsequently to profit or loss	46,593	(3,810)	2,201,769	4,975,716
Items that will not be reclassified subsequently to profit or loss				
Currency translation differences	-	-	11,798,378	35,010,773
Gain on remeasuring of financial assets	134	93	4,551	2,695
Share of other comprehensive income (expense) of associates	474	(580)	15,916	10,711
Gain from changes in actuarial assumptions of provision for employee benefits	14,787	71,723	514,420	2,360,601
Income taxes resulting from changes in actuarial assumptions of provision for employee benefits	(6,759)	(32,722)	(235,166)	(1,082,611)
Total items that will not be reclassified subsequently to profit or loss	8,636	38,514	12,098,099	36,302,169
Other comprehensive income for the year - net of tax	55,229	34,704	14,299,868	41,277,885
Total comprehensive income for the year	2,053,809	1,245,242	85,201,203	80,141,480

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Income

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Notes	Separate financial statements			
		Unit: Thousand US Dollar		Unit: Thousand Baht	
		2022	2021	2022	2021
Revenues					
Revenue from sales		3,698,710	3,122,448	129,755,643	100,005,612
Other income					
Gain on foreign exchange rate		-	11,531	-	321,459
Gain on remeasuring of financial instruments		1,228	42,024	25,671	1,339,605
Interest income		346,864	372,026	12,126,601	11,884,659
Other income		178,905	160,215	6,291,005	5,141,000
Dividend income from related parties		136,107	71,814	4,810,495	2,369,985
Total revenues		4,361,814	3,780,058	153,009,415	121,062,320
Expenses					
Operating expenses		235,281	252,177	8,248,412	8,112,541
Exploration expenses		1,038	49	35,732	1,558
Administrative expenses		371,290	345,846	12,998,744	11,112,486
Petroleum royalties		466,747	390,306	16,377,896	12,500,702
Depreciation, depletion and amortisation		853,336	915,885	30,019,247	29,092,125
Other expenses					
Loss on foreign exchange rate		37,040	-	1,345,189	-
Finance costs		56,667	54,524	1,994,272	1,743,042
Total expenses		2,021,399	1,958,787	71,019,492	62,562,454
Profit before income taxes		2,340,415	1,821,271	81,989,923	58,499,866
Income taxes	33	(799,452)	(545,428)	(28,046,043)	(17,533,527)
Profit for the year		1,540,963	1,275,843	53,943,880	40,966,339

		Unit: US Dollar		Unit: Baht	
		2022	2021	2022	2021
Earnings per share					
Basic earnings per share	34	0.39	0.32	13.67	10.23

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Comprehensive Income

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Separate financial statements			
	Unit: Thousand US Dollar		Unit: Thousand Baht	
	2022	2021	2022	2021
Profit for the year	1,540,963	1,275,843	53,943,880	40,966,339
Other comprehensive income (expense)				
Items that will be reclassified subsequently to profit or loss				
Changes in hedging reserves	43,366	(3,085)	1,557,346	(101,172)
Income taxes relating to remeasuring of financial assets	(8,673)	617	(311,469)	20,234
Total items that will be reclassified subsequently to profit or loss	34,693	(2,468)	1,245,877	(80,938)
Item that will not be reclassified subsequently to profit or loss				
Currency translation differences	-	-	11,798,378	35,010,773
Loss on remeasuring of financial assets	(2)	(5)	(36)	(163)
Gain from changes in actuarial assumptions of provision for employee benefits	13,557	65,484	471,686	2,166,547
Income taxes resulting from changes in actuarial assumptions of provision for employee benefits	(6,779)	(32,742)	(235,843)	(1,083,273)
Total items that will not be reclassified subsequently to profit or loss	6,776	32,737	12,034,185	36,093,884
Other comprehensive income for the year - net of tax	41,469	30,269	13,280,062	36,012,946
Total comprehensive income for the year	1,582,432	1,306,112	67,223,942	76,979,285

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Changes in Equity

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Consolidated financial statements											
	Unit: Thousand US Dollar											
							Other components of equity					
							Other comprehensive income (expense)					
				Retained earnings								
	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve	Share of other comprehensive expense of associates and joint ventures	Total other components of equity	Total equity
Balance as at 1 January 2021	150,684	3,439,037	156,570	15,048	431,231	7,672,902	(52,178)	(767)	(1,188)	(12,221)	(66,354)	11,799,118
Changes in equity for the year												
Interest expenses for subordinated capital debentures	-	-	-	-	-	(9,138)	-	-	-	-	-	(9,138)
Income tax for subordinated capital debentures	-	-	-	-	-	(1,662)	-	-	-	-	-	(1,662)
Dividends paid	-	-	-	-	-	(605,341)	-	-	-	-	-	(605,341)
Profit for the year	-	-	-	-	-	1,210,538	-	-	-	-	-	1,210,538
Other comprehensive income (expense) for the year	-	-	-	-	-	38,862	4,222	93	462	(8,935)	(4,158)	34,704
Balance as at 31 December 2021	150,684	3,439,037	156,570	15,048	431,231	8,306,161	(47,956)	(674)	(726)	(21,156)	(70,512)	12,428,219

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Changes in Equity

PTT Exploration and Production Public Company Limited

For the year ended 31 December 2022

		Consolidated financial statements											
													Unit: Thousand US Dollar
								Other components of equity					
								Other comprehensive income (expense)					
					Retained earnings								
	Notes	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve	Share of other comprehensive income (expense) of associates and joint ventures	Total other components of equity	Total equity
Balance as at 1 January 2022		150,684	3,439,037	156,570	15,048	431,231	8,306,161	(47,956)	(674)	(726)	(21,156)	(70,512)	12,428,219
Changes in equity for the year													
Interest expenses for subordinated capital debentures		-	-	-	-	-	(4,256)	-	-	-	-	-	(4,256)
Redemption of subordinated capital debentures	30	-	-	(156,570)	-	-	13,980	-	-	-	-	-	(142,590)
Income tax for subordinated capital debentures		-	-	-	-	-	(399)	-	-	-	-	-	(399)
Dividends paid	31	-	-	-	-	-	(819,492)	-	-	-	-	-	(819,492)
Profit for the year		-	-	-	-	-	1,998,580	-	-	-	-	-	1,998,580
Other comprehensive income (expense) for the year		-	-	-	-	-	(13,231)	(850)	134	50,050	19,126	68,460	55,229
Balance as at 31 December 2022		150,684	3,439,037	-	15,048	431,231	9,481,343	(48,806)	(540)	49,324	(2,030)	(2,052)	13,515,291

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Changes in Equity

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Consolidated financial statements											
	Unit: Thousand Baht											
							Other components of equity					
							Other comprehensive income (expense)					
				Retained earnings								
	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve	Share of other comprehensive expense of associates and joint ventures	Total other components of equity	Total equity
Balance as at 1 January 2021	3,969,985	105,417,620	4,981,992	396,999	16,900,000	248,775,592	(25,685,622)	(26,583)	95,044	(414,147)	(26,031,308)	354,410,880
Changes in equity for the year												
Interest expenses for subordinated capital debentures	-	-	-	-	-	(293,908)	-	-	-	-	-	(293,908)
Income tax for subordinated capital debentures	-	-	-	-	-	(51,491)	-	-	-	-	-	(51,491)
Dividends paid	-	-	-	-	-	(18,857,213)	-	-	-	-	-	(18,857,213)
Profit for the year	-	-	-	-	-	38,863,595	-	-	-	-	-	38,863,595
Other comprehensive income (expense) for the year	-	-	-	-	-	1,273,141	40,240,280	2,695	14,169	(252,400)	40,004,744	41,277,885
Balance as at 31 December 2021	3,969,985	105,417,620	4,981,992	396,999	16,900,000	269,709,716	14,554,658	(23,888)	109,213	(666,547)	13,973,436	415,349,748

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Changes in Equity

PTT Exploration and Production Public Company Limited

For the year ended 31 December 2022

		Consolidated financial statements											
													Unit: Thousand Baht
								Other components of equity					
								Other comprehensive income (expense)					
					Retained earnings								
	Notes	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve	Share of other comprehensive income (expense) of associates and joint ventures	Total other components of equity	Total equity
Balance as at 1 January 2022		3,969,985	105,417,620	4,981,992	396,999	16,900,000	269,709,716	14,554,658	(23,888)	109,213	(666,547)	13,973,436	415,349,748
Changes in equity for the year													
Interest expenses for subordinated capital debentures		-	-	-	-	-	(145,093)	-	-	-	-	-	(145,093)
Redemption of subordinated capital debentures	30	-	-	(4,981,992)	-	-	490,594	-	-	-	-	-	(4,491,398)
Income tax for subordinated capital debentures		-	-	-	-	-	(14,283)	-	-	-	-	-	(14,283)
Dividends paid	31	-	-	-	-	-	(28,779,571)	-	-	-	-	-	(28,779,571)
Profit for the year		-	-	-	-	-	70,901,335	-	-	-	-	-	70,901,335
Other comprehensive income (expense) for the year		-	-	-	-	-	(394,815)	12,267,273	4,551	1,825,521	597,338	14,694,683	14,299,868
Balance as at 31 December 2022		3,969,985	105,417,620	-	396,999	16,900,000	311,767,883	26,821,931	(19,337)	1,934,734	(69,209)	28,668,119	467,120,606

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Changes in Equity

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Separate financial statements									
										Unit: Thousand US Dollar
							Other components of equity			
							Other comprehensive income (expense)			
				Retained earnings						
	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Remeasuring of financial assets	Cash flow hedge reserve	Total other components of equity	Total equity
Balance as at 1 January 2021	150,684	3,439,037	156,570	15,048	431,231	6,067,984	-	2,429	2,429	10,262,983
Changes in equity for the year										
Interest expenses for subordinated capital debentures	-	-	-	-	-	(9,138)	-	-	-	(9,138)
Income tax for subordinated capital debentures	-	-	-	-	-	(1,509)	-	-	-	(1,509)
Dividends paid	-	-	-	-	-	(605,341)	-	-	-	(605,341)
Profit for the year	-	-	-	-	-	1,275,843	-	-	-	1,275,843
Other comprehensive income (expense) for the year	-	-	-	-	-	32,742	(5)	(2,468)	(2,473)	30,269
Balance as at 31 December 2021	150,684	3,439,037	156,570	15,048	431,231	6,760,581	(5)	(39)	(44)	10,953,107

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Changes in Equity

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

		Separate financial statements									
											Unit: Thousand US Dollar
							Other components of equity				
							Other comprehensive income (expense)				
					Retained earnings						
	Notes	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Remeasuring of financial assets	Cash flow hedge reserve	Total other components of equity	Total equity
Balance as at 1 January 2022		150,684	3,439,037	156,570	15,048	431,231	6,760,581	(5)	(39)	(44)	10,953,107
Changes in equity for the year											
Interest expenses for subordinated capital debentures		-	-	-	-	-	(4,256)	-	-	-	(4,256)
Redemption of subordinated capital debentures	30	-	-	(156,570)	-	-	13,980	-	-	-	(142,590)
Income tax for subordinated capital debentures		-	-	-	-	-	(399)	-	-	-	(399)
Dividends paid	31	-	-	-	-	-	(819,492)	-	-	-	(819,492)
Profit for the year		-	-	-	-	-	1,540,963	-	-	-	1,540,963
Other comprehensive income (expense) for the year		-	-	-	-	-	6,778	(2)	34,693	34,691	41,469
Balance as at 31 December 2022		150,684	3,439,037	-	15,048	431,231	7,498,155	(7)	34,654	34,647	11,568,802

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Changes in Equity

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Separate financial statements										
											Unit: Thousand Baht
							Other components of equity				
				Retained earnings			Other comprehensive income (expense)				
	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve	Total other components of equity	Total equity
Balance as at 1 January 2021	3,969,985	105,417,620	4,981,992	396,999	16,900,000	202,151,174	(25,653,356)	-	105,502	(25,547,854)	308,269,916
Changes in equity for the year											
Interest expenses for subordinated capital debentures	-	-	-	-	-	(293,908)	-	-	-	-	(293,908)
Income tax for subordinated capital debentures	-	-	-	-	-	(46,448)	-	-	-	-	(46,448)
Dividends paid	-	-	-	-	-	(18,857,213)	-	-	-	-	(18,857,213)
Profit for the year	-	-	-	-	-	40,966,339	-	-	-	-	40,966,339
Other comprehensive income (expense) for the year	-	-	-	-	-	1,083,274	35,010,773	(163)	(80,938)	34,929,672	36,012,946
Balance as at 31 December 2021	3,969,985	105,417,620	4,981,992	396,999	16,900,000	225,003,218	9,357,417	(163)	24,564	9,381,818	366,051,632

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Changes in Equity

PTT Exploration and Production Public Company Limited

For the year ended 31 December 2022

		Separate financial statements										
												Unit: Thousand Baht
							Other components of equity					
					Retained earnings			Other comprehensive income (expense)				
	Notes	Issued and paid-up share capital	Share premium	Subordinated capital debentures	Legal reserve	Reserve for expansion	Unappropriated	Currency translation differences	Remeasuring of financial assets	Cash flow hedge reserve	Total other components of equity	Total equity
Balance as at 1 January 2022		3,969,985	105,417,620	4,981,992	396,999	16,900,000	225,003,218	9,357,417	(163)	24,564	9,381,818	366,051,632
Changes in equity for the year												
Interest expenses for subordinated capital debentures		-	-	-	-	-	(145,093)	-	-	-	-	(145,093)
Redemption of subordinated capital debentures	30	-	-	(4,981,992)	-	-	490,594	-	-	-	-	(4,491,398)
Income tax for subordinated capital debentures		-	-	-	-	-	(14,283)	-	-	-	-	(14,283)
Dividends paid	31	-	-	-	-	-	(28,779,571)	-	-	-	-	(28,779,571)
Profit for the year		-	-	-	-	-	53,943,880	-	-	-	-	53,943,880
Other comprehensive income (expense) for the year		-	-	-	-	-	235,843	11,798,378	(36)	1,245,877	13,044,219	13,280,062
Balance as at 31 December 2022		3,969,985	105,417,620	-	396,999	16,900,000	250,734,588	21,155,795	(199)	1,270,441	22,426,037	399,845,229

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Cash Flows

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Consolidated financial statements			
	Unit: Thousand US Dollar		Unit: Thousand Baht	
	2022	2021	2022	2021
Cash flows from operating activities				
Profit before income taxes	4,060,081	2,497,226	143,196,086	80,391,762
Adjustments for:				
Share of profit of associates and joint ventures	(19,556)	(15,174)	(667,830)	(488,626)
Depreciation, depletion and amortisation	2,363,135	2,202,064	83,168,048	70,293,971
Impairment loss on assets and goodwill	300,080	183,000	10,652,638	6,142,011
Reversal for decrease in value of inventories to net realisable value	-	(882)	-	(27,657)
Write-off of exploration expenses	32,634	214,928	1,178,276	6,763,906
Other amortised expenses	12,426	10,976	442,492	350,393
Loss on disposal of assets	17,704	2,256	617,381	77,913
Income recognised from deferred income	(7,333)	(3,104)	(256,528)	(99,091)
Loss (gain) on remeasuring financial instruments	95,993	(15,718)	2,941,428	(849,979)
Loss on foreign exchange rates	8,142	9,132	284,850	291,535
Interest income lower than interest expenses	179,256	177,752	6,283,322	5,693,537
Gain from a bargain purchase	-	(341,874)	-	(10,693,779)
Other Income	(73,041)	(81,276)	(2,555,307)	(2,727,874)
Other expenses	147,840	19,176	5,173,469	607,935
Cash flows before changes in working capital	7,117,361	4,858,482	250,458,325	155,725,957
Changes in working capital				
Trade and other receivables	(201,830)	(229,783)	(7,060,925)	(7,335,644)
Inventories	(135,478)	(60,357)	(4,739,633)	(1,926,848)
Other current financial assets	(2,544)	(1,425)	(89,017)	(45,499)
Other current assets	(170,716)	(40,122)	(5,972,416)	(1,280,852)
Rights to receive reimbursement from decommissioning funds	(26,630)	(28,656)	(931,647)	(914,816)
Other non-current financial assets	(20,394)	(53,562)	(713,458)	(1,709,928)
Other non-current assets	(2,663)	(5,935)	(93,140)	(189,468)
Trade and other payables	55,656	124,016	1,947,086	3,959,105
Other current liabilities	(63,186)	(20,858)	(2,210,518)	(665,861)
Provisions	(281,543)	(136,019)	(9,849,625)	(4,342,316)
Other non-current liabilities	(12,228)	4,755	(427,783)	151,813
Net cash provided by operating activities	6,255,805	4,410,536	220,317,249	141,425,643
Interest received from bank deposits	27,644	6,855	967,113	218,854
Cash paid for income taxes	(1,611,247)	(989,083)	(56,368,631)	(31,575,682)
Net cash flows provided by operating activities	4,672,202	3,428,308	164,915,731	110,068,815

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Cash Flows

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Consolidated financial statements			
	Unit: Thousand US Dollar		Unit: Thousand Baht	
	2022	2021	2022	2021
Cash flows from investing activities				
Cash received from investing in short-term investment	-	100,000	-	3,192,420
Increase in short-term loans to a related party	(1,250)	-	(43,730)	-
Cash received from long-term loans to related parties	41,500	33,170	1,451,851	1,058,929
Cash paid for long-term loans to a related party	(428)	-	(14,962)	-
Dividend received from related parties	60,979	40,746	2,133,330	1,300,791
Net cash paid for business acquisition	-	(2,299,492)	-	(73,409,451)
Net cash received from asset acquisition	-	11,968	-	382,071
Cash paid for contingent considerations from business acquisition and participating interest in a joint venture	(955)	(54,670)	(33,397)	(1,745,296)
Cash received from disposal of investment in an associate	128,841	-	4,507,420	-
Cash paid for investment in associate and joint ventures	(17,642)	(15,506)	(617,193)	(495,014)
Cash received from lease receivables	234	374	8,181	11,945
Interest received from short-term investment	-	1,850	-	59,060
Interest received from long-term loans to related parties	772	1,010	27,022	32,243
Increase in property, plant and equipment	(1,765,221)	(1,512,174)	(61,755,355)	(48,274,943)
Increase in intangible assets	(31,077)	(29,067)	(1,087,226)	(927,946)
Increase in exploration and evaluation assets	(95,357)	(131,574)	(3,336,028)	(4,200,412)
Net cash flows used in investing activities	(1,679,604)	(3,853,365)	(58,760,087)	(123,015,603)
Cash flows from financing activities				
Cash received from short-term loans	-	200,000	-	6,384,840
Cash paid for repayment of short-term loans	-	(200,000)	-	(6,384,840)
Cash paid for repayment of debentures and long-term loans	(1,025,126)	-	(35,863,486)	-
Cash received from issuance of debentures	358,644	179,960	12,546,980	5,745,095
Cash paid for finance cost from issuance of debentures	(563)	(270)	(19,696)	(8,617)
Cash paid for lease liabilities	(177,008)	(128,482)	(6,192,521)	(4,101,696)
Interest paid	(144,365)	(133,914)	(5,050,512)	(4,275,080)
Cash paid for redemption of subordinated capital debentures	(142,590)	-	(4,988,476)	-
Interest paid for subordinated capital debentures	(4,256)	(9,138)	(148,892)	(291,719)
Net cash received (paid) from financial derivative contracts	(44,924)	1,826	(1,571,643)	58,280
Dividends paid	(819,492)	(605,341)	(28,669,512)	(19,325,041)
Net cash flows used in financing activities	(1,999,680)	(695,359)	(69,957,758)	(22,198,778)

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Statement of Cash Flows

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Consolidated financial statements			
	Unit: Thousand US Dollar		Unit: Thousand Baht	
	2022	2021	2022	2021
Net increase (decrease) in cash and cash equivalents	992,918	(1,120,416)	36,197,886	(35,145,566)
Cash and cash equivalents at the beginning of the year	2,559,189	3,704,003	85,527,810	111,257,372
Adjustment for the impact of exchange rate changes	(12,887)	(24,398)	598,194	9,416,004
Cash and cash equivalents at the end of the year	3,539,220	2,559,189	122,323,890	85,527,810
Significant non-cash transactions				
Outstanding payable from purchases of assets	595,710	387,058	20,840,593	12,356,505
Changes in right-of-use assets	645,890	187,153	22,596,116	5,974,704

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Cash Flows

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Separate financial statements			
	Unit: Thousand US Dollar		Unit: Thousand Baht	
	2022	2021	2022	2021
Cash flows from operating activities				
Profit before income taxes	2,340,415	1,821,271	81,989,923	58,499,866
Adjustments for:				
Depreciation, depletion and amortisation	853,336	915,885	30,019,247	29,092,125
Write-off of exploration expenses	995	-	34,286	-
Other amortised expenses	1,386	2,524	47,602	80,735
Loss on disposal of assets	7,541	3,400	263,321	112,377
Income recognised from deferred income	(867)	(1,759)	(30,348)	(56,165)
Loss (gain) on remeasuring financial instruments	49,104	(29,514)	1,826,168	(881,452)
Dividend income from related parties	(136,107)	(71,814)	(4,810,495)	(2,369,985)
Loss (gain) on foreign exchange rates	10,186	(24,873)	356,335	(794,063)
Interest income higher than interest expenses	(290,626)	(317,744)	(10,148,901)	(10,149,495)
Other expenses	8,384	26,104	293,513	846,137
Cash flows before changes in working capital	2,843,747	2,323,480	99,840,651	74,380,080
Changes in working capital				
Trade and other receivables	(120,038)	(59,242)	(4,199,470)	(1,891,254)
Inventories	9,244	(15,173)	323,384	(484,384)
Other current assets	(149,487)	(9,258)	(5,229,710)	(295,559)
Other non-current assets	(2,402)	(1,686)	(84,020)	(53,836)
Trade and other payables	10,297	44,747	360,230	1,428,520
Other current liabilities	(33,918)	1,724	(1,186,604)	55,042
Provisions	(258,967)	(118,870)	(9,059,820)	(3,794,832)
Other non-current liabilities	(16,946)	(6,887)	(592,854)	(219,857)
Net cash provided by operating activities	2,281,530	2,158,835	80,171,787	69,123,920
Interest received from bank deposits	9,406	1,679	329,064	53,615
Cash paid for income taxes	(640,615)	(445,772)	(22,411,579)	(14,230,928)
Net cash flows provided by operating activities	1,650,321	1,714,742	58,089,272	54,946,607

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Statement of Cash Flows

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

	Separate financial statements			
	Unit: Thousand US Dollar		Unit: Thousand Baht	
	2022	2021	2022	2021
Cash flows from investing activities				
Cash received from investing in short-term investment	-	100,000	-	3,192,420
(Increase) decrease in short-term loans to a related party	449,944	(443,086)	15,741,066	(14,145,169)
Cash received from long-term loans to related parties	-	354,865	-	11,328,769
Cash paid for long-term loans to a related party	(542,000)	-	(18,961,590)	-
Dividend received from related parties	136,107	71,814	4,761,619	2,292,614
Net cash received from asset acquisition	-	11,968	-	382,071
Cash paid for investment in subsidiaries	(713,463)	(1,402,418)	(24,960,145)	(44,771,065)
Cash received from lease receivables	234	374	8,181	11,945
Interest received from short-term investment	-	1,850	-	59,060
Interest received from loans to related parties	272,538	190,841	9,534,610	6,092,435
Increase in property, plant and equipment	(375,047)	(424,426)	(13,120,807)	(13,549,448)
Increase in intangible assets	(12,604)	(21,544)	(440,957)	(687,767)
Net cash flows used in investing activities	(784,291)	(1,559,762)	(27,438,023)	(49,794,135)
Cash flows from financing activities				
Increase in short-term loans from a related party	571,268	-	19,985,504	-
Cash received from issuance of debentures	-	179,960	-	5,745,095
Cash paid for finance cost from issurance of debentures	-	(270)	-	(8,617)
Cash paid for lease liabilities	(42,626)	(30,443)	(1,491,233)	(971,858)
Interest paid	(29,298)	(19,560)	(1,024,963)	(624,431)
Cash paid for redemption of subordinated capital debentures	(142,590)	-	(4,988,476)	-
Interest paid for subordinated capital debentures	(4,256)	(9,138)	(148,892)	(291,719)
Net cash received from financial derivative contracts	-	1,826	-	58,280
Dividends paid	(819,492)	(605,341)	(28,669,512)	(19,325,041)
Net cash flows used in financing activities	(466,994)	(482,966)	(16,337,572)	(15,418,291)
Net increase (decrease) in cash and cash equivalents	399,036	(327,986)	14,313,677	(10,265,819)
Cash and cash equivalents at the beginning of the year	788,461	1,119,258	26,350,301	33,619,228
Adjustment for the impact of exchange rate changes	2,394	(2,811)	461,465	2,996,892
Cash and cash equivalents at the end of the year	1,189,891	788,461	41,125,443	26,350,301
Significant non-cash transactions				
Outstanding payable from purchases of assets	69,758	68,125	2,440,437	2,174,837
Changes in right-of-use assets	33,068	36,659	1,156,883	1,170,296

The notes to the consolidated and separate financial statements are an integral part of these financial statements.

Notes to the Consolidated and Separate Financial Statements

PTT Exploration and Production Public Company Limited
For the year ended 31 December 2022

1 General information

PTT Exploration and Production Public Company Limited (the Company) is registered as a company in Thailand and listed on the Stock Exchange of Thailand. The address of its registered office is 555/1 Energy Complex Building A, 6th,19th - 36th Floor, Vibhavadi-Rangsit Road, Chatuchak, Bangkok 10900.

For reporting purposes, the Company and its subsidiaries are together referred to as the Group.

The principal business operations of the Group are exploration and production of petroleum in Thailand and overseas, and related business associated with the Group's strategy.

These consolidated and separate financial statements were authorised for issue by the Board of Directors on 10 February 2023.

2 Basis of preparation

The consolidated and separate financial statements have been prepared in accordance with Thai Financial Reporting Standards (TFRS) and the financial reporting requirements issued under the Securities and Exchange Act.

The Company's management has determined US Dollar as the functional currency of the Company and presents the consolidated and separate financial statements in US Dollar. However, the Stock Exchange of Thailand and the Department of Business Development require the Company to present its consolidated and separate financial statements in Thai Baht, so the Company also presents its financial statements in Thai Baht by translating from US Dollar.

Where the Group has entered into joint interest operations in the Concession or the Production Sharing Contract with other parties to participate in exploration and production of petroleum businesses, the Group records its share of expenses, assets and liabilities incurred in accordance with the Statements of Expenditures prepared by the operators of the Concession or the Production Sharing Contract. The Statements of Expenditures have been audited by other independent auditors and the joint venture committee on a regular basis.

The consolidated and separate financial statements have been prepared under the historical cost convention except as disclosed in the accounting policies.

The preparation of financial statements in conformity with TFRS requires the Group's management to use certain critical accounting estimates and to exercise its judgement in applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas that are more likely to be materially adjusted due to changes in estimates and assumptions are disclosed in Note 7.

An English version of the consolidated and separate financial statements have been prepared from the statutory financial statements that are in the Thai language. In the event of a conflict or a difference in interpretation between the two languages, the Thai language statutory financial statements shall prevail.

3 Amended financial reporting standards

3.1 Amended financial reporting standards that are effective for accounting period beginning on or after 1 January 2022 and related to the Group

a) Interest rate benchmark (IBOR) reform – phase 2, amendments to Thai Financial Reporting Standard (TFRS) 9, TFRS 7 and TFRS 16 provide the relief measures addressing issues that might affect the financial reporting during the reform, including the additional disclosures about IBOR reform. Key relief measures of the phase 2 amendments are as follows:

- When changing the basis for determining contractual cash flows for financial assets and financial liabilities (including lease liabilities), changes that are necessary as a direct result of the IBOR reform and which are considered economically equivalent, will not result in an immediate gain or loss in the statement of income.
- Most hedge accounting relationships that are directly affected by the IBOR reform will be allowed to continue. However, the entity is still required to recognise the hedged ineffectiveness portion.

Commencing from 1 January 2022, the Group has adopted these amended financial reporting standards. The adoption of the amended financial reporting standards did not have significant impacts to the Group.

3.2 Amended financial reporting standards that are effective for accounting period beginning on or after 1 January 2023 and related to the Group

The Group did not early adopt the amended financial reporting standards before effective date.

a) Amendment to Thai Accounting Standard (TAS) 16 - Property, plant and equipment clarified to prohibit entities from deducting any proceeds received from selling any items produced, while preparing that asset for its intended use, from the cost of property, plant and equipment. The proceeds received shall be recognised as income.

b) Amendment to TAS 37 - Provisions, contingent liabilities and contingent assets clarified that, in considering whether a contract is onerous, the direct costs of fulfilling a contract include both the incremental costs of fulfilling the contract and an allocation of other costs directly related to fulfilling the contract. Before recognising a separate provision for an onerous contract, entities must recognise any impairment losses that have occurred on the assets used in fulfilling the contract.

c) Amendment to TFRS 3 - Business combinations clarified to update its references to the Conceptual Framework for Financial Reporting and added a consideration for the recognition of liabilities and contingent liabilities acquired from business combinations. The amendments also confirmed that contingent assets should not be recognised at the acquisition date.

d) Amendment to TFRS 9 - Financial instruments clarified that only fees between the borrower and lender should be included in the 10% test for the derecognition of financial liabilities.

The Group's management has assessed and found the amended financial reporting standards will not have significant impacts to the Group.

4 Accounting policies

The principal accounting policies applied in the preparation of these consolidated and separate financial statements are set out below.

4.1 Principles of consolidation accounting

a) Subsidiaries

Subsidiaries are all entities over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are consolidated from the date on which control is transferred to the Group until the date that control ceases.

In the separate financial statements, investments in subsidiaries are accounted for using cost method less impairment (if any).

List of subsidiaries has been presented in Note 16.

b) Associates

Associates are all entities over which the Group has significant influence but not control or joint control. Investments in associates are accounted for using the equity method of accounting.

In the separate financial statements, investments in associates are accounted for using cost method less impairment (if any).

List of associates has been presented in Note 16.

c) Joint arrangements

Investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor, rather than the legal structure of the joint arrangements.

Joint operations

A joint operation is a joint arrangement whereby the Group has rights to the assets, and obligations for the liabilities relating to the arrangement. The Group recognises its direct right to the assets, liabilities, revenues and expenses of joint operations and its share of any jointly held or incurred assets, liabilities, revenues and expenses. These have been incorporated in the Group's financial statement line items.

Joint ventures

A joint venture is a joint arrangement whereby the Group has rights to the net assets of the arrangement. Interests in joint ventures are accounted for using the equity method in the consolidated financial statements.

In the separate financial statements, investments in joint ventures are accounted for using cost less impairment (if any).

List of joint ventures and joint operations have been presented in Note 16.

d) Equity method

The investment is initially recognised at cost which is consideration paid and directly attributable costs.

The Group's subsequently recognises shares of its associates and joint ventures' profits or losses and other comprehensive income in the profit or loss and other comprehensive income, respectively. The subsequent cumulative movements are adjusted against the carrying amount of the investment.

When the Group's share of losses in associates and joint ventures equals or exceeds its interest in the associates and joint ventures, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associates and joint ventures.

e) Changes in ownership interests

The Group treats transactions with non-controlling interests that do not result in a loss of control as transactions with equity owners of the Group. A difference between the amount of the adjustment to non-controlling interests to reflect their relative interest in the subsidiary and any consideration paid or received is recognised within equity.

If the ownership interest in associates and joint ventures is reduced but significant influence and joint control is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate. Profit or loss from reduce of the ownership interest in associates and joint ventures is recognise in profit or loss.

When the Group losses control, joint control or significant influence over investments, any retained interest in the investment is remeasured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value becomes the initial carrying amount of the retained interest which is reclassified to investment in an associate, or a joint venture or a financial asset accordingly.

f) Intercompany transactions on consolidation

Intra-group transactions, balances and unrealised gains on transactions are eliminated. Unrealised gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the associates and joint ventures. Unrealised losses are also eliminated in the same manner unless the transaction provides evidence of an impairment of the asset transferred.

4.2 Business combination

The Group applies the acquisition method to account for business combinations with an exception on business combination under common control. The consideration transferred for the acquisition of a subsidiary comprises.

- Fair value of the assets transferred,
- Liabilities incurred to the former owners of the acquiree,
- Equity interests issued by the Group.

Identifiable assets and liabilities acquired and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date.

The excess of the consideration transferred, the amount of any non-controlling interest recognised and the acquisition-date fair value of any previous equity interest in the acquiree (for business combination achieved in stages) over the fair value of the identifiable net assets acquired is recorded as goodwill. In the case of a bargain purchase, the difference is recognised directly in profit or loss.

Acquisition-related cost are recognised as expenses in consolidated financial statements.

Subsequent changes to the fair value of the contingent consideration that is an asset or liability is recognised in profit or loss. Contingent consideration that is classified as equity is not re-measured.

Business combination under common control

The Group accounts for business combination under common control by measuring acquired assets and liabilities of the acquiree at their carrying values presented in the highest level of the consolidation. The Group retrospectively adjusted the business combination under common control transactions as if the combination had occurred on the later of the beginning of the preceding comparative period and the date the acquiree has become under common control.

Consideration of business combination under common control are the aggregated amount of fair value of assets transferred, liabilities incurred and equity instruments issued by the acquirer at the date of which the exchange in control occurs.

The difference between consideration under business combination under common control and the acquirer's interests in the carrying value of the acquiree is presented as "surplus arising from business combination under common control" in equity and is derecognised when the investment is disposed.

4.3 Foreign currency translation

a) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the functional currency). The financial statements are presented in US Dollar, which is the Company's functional currency and the Company's and Group's presentation currency.

b) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the profit or loss.

When a gain or loss on a non-monetary item is recognised in other comprehensive income, any exchange component of that gain or loss is recognised in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognised in profit or loss, any exchange component of that gain or loss is recognised in profit or loss.

c) Group companies

The operational results and financial position of the Group's entities (none of which has the currency of a hyper-inflationary economy) that have a different functional currency from the Group's presentation currency are translated into the presentation currency.

To comply with the financial reporting requirements of the Stock Exchange of Thailand and the Department of Business Development, the Group presents the financial statements by translating from US Dollar to Thai Baht as follows:

- Assets and liabilities are translated at the closing rate at the date of respective statement of financial position;
- Income and expenses for statement of income and statement of comprehensive income are translated at average exchange rates during the period; and
- All resulting exchange differences from such translations are recognised in other comprehensive income (expense).

4.4 Cash and cash equivalents

Cash and cash equivalents includes cash on hand, deposits at bank, short-term highly liquid investments with maturities of three months or less from acquisition date.

4.5 Trade accounts receivable

Trade receivables are amounts due from customers for goods sold or services performed in the ordinary course of business.

Trade receivables are recognised initially at the amount of consideration that is unconditional unless they contain significant financing components, they are recognised at fair value. The Group measures them subsequently at amortised cost.

The impairment of trade accounts receivable are disclosed in Note 4.8 (f).

4.6 Inventories

Inventories are stated at the lower of cost and net realisable value.

Cost of inventories is determined by the weighted average method. Net realisable value is the estimated selling price in the ordinary course of business less the costs of completion and selling expenses.

4.7 Materials and supplies

Materials and supplies are stated at cost less allowance for obsolescence. The costs of materials and supplies are determined using the weighted average cost method.

4.8 Financial asset

a) Classification

The Group classifies its debt instrument financial assets into the following measurement categories depending on i) business model for managing the asset and ii) the cash flow characteristics of the asset whether they represent solely payments of principal and interest (SPPI).

- Those to be measured subsequently at fair value through other comprehensive income (FVOCI) or fair value through profit or loss (FVPL); and
- Those to be measured at amortised cost.

For investments in equity instruments, the Group has an irrevocable election at the time of initial recognition to account for the equity investment at a) fair value through profit or loss or b) at fair value through other comprehensive income except those that are held for trading, they are measured at FVPL.

b) Recognition and derecognition

Regular way purchases, acquires and sales of financial assets are recognised on the trade date, which the Group commits to purchase or sell the asset. Financial assets are derecognised when the rights to receive cash flows from the financial assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership.

c) Measurement

At initial recognition, the Group measures a financial asset at its fair value plus or minus, in the case of a financial asset not at FVPL, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at FVPL are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether the cash flows are solely payment of principal and interest.

d) Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the financial assets. There are three measurement categories into which the Group classifies its debt instruments:

- Amortised cost - Financial assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost. Interest income from these financial assets is included in interest income using the effective interest rate method. Any gain or loss arising on derecognition and foreign exchange gains and losses are recognised in profit or loss and presented in other gains (losses) and gain (loss) on foreign exchange rates, respectively. Impairment losses are presented as a separate line item in the statement of income.

- FVOCI - Financial assets that are held for i) collection of contractual cash flows and ii) for selling the financial assets are measured at FVOCI. Movements in the carrying amount are taken through other comprehensive income (OCI), except for the recognition of impairment gains or losses, interest income using the effective interest method, and foreign exchange gains and losses which are recognised in profit or loss. When the financial assets is derecognised, the cumulative gain or loss previously recognised in OCI is reclassified from equity to profit or loss and recognised in other gains/(losses). Interest income is included in interest income. Impairment expenses are presented separately in the statement of income.

- FVPL - Financial assets that do not meet the criteria for amortised cost or FVOCI are measured at FVPL. A gain or loss on a debt investment that is subsequently measured at FVPL is recognised in profit or loss and presented in gains (loss) on remeasuring of financial instruments from in the period in which it arises.

The Group reclassifies debt instruments only when its business model for managing those assets changes.

e) Equity instruments

The Group measures all equity investments at fair value. Where the Group has elected to present fair value gains and losses on equity instruments in OCI, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividends from such investments continue to be recognised in profit or loss as other income when the right to receive payments is established.

Changes in the fair value of financial assets at FVPL are recognised in gain on remeasuring financial instruments in the incurring period.

Impairment losses and reversal of impairment losses on equity investments are reported together with changes in fair value.

f) Impairment

The Group applies the TFRS 9 simplified approach in recognising the impairment of trade and other receivables, which applies lifetime expected credit loss, from initial recognition, for trade and other receivables.

To measure the expected credit losses, trade receivables have been grouped based on shared credit risk characteristics and the days past due. The expected loss rates are based on the payment profiles and the corresponding historical credit losses experienced. The historical loss rates are adjusted to reflect current and forward-looking information on macroeconomic factors affecting the ability of the customers to settle the receivables.

For long-term loans to related parties and other financial assets carried at amortised cost and FVOCI, the Group applies TFRS 9 general approach in measuring the impairment of those financial assets. Under the general approach, the 12-month or the lifetime expected credit loss is applied depending on whether there has been a significant increase in credit risk since the initial recognition.

The credit risk assessment is performed at the end of each reporting period whether there is any significant increase in credit risk profile from the initial recognition by comparing i) expected risk of default as of the reporting date and ii) estimated risk of default on the date of initial recognition.

The Group assesses expected credit loss by taking into consideration forward-looking information and past experiences. The expected credit loss is a probability-weighted estimate of credit losses (probability-weighted present value of estimated cash shortfall). The cash shortfall is the difference between all contractual cash flows that are due to the Group and all cash flows expected to receive, discounted at the original effective interest rate.

When measuring expected credit losses, the Group reflects the following:

- Probability-weighted estimated uncollectible amounts;
- Time value of money; and
- Supportable and reasonable information as of the reporting date about past experience, current conditions and forecasts of future situations.

Impairment and reversal of impairment losses are recognised in profit or loss and included in administrative expenses.

4.9 Group of non-current assets held-for-sale

Non-current assets (or disposal groups) are classified as assets held-for-sale when their carrying amount will be recovered principally through a sale transaction and a sale is considered highly probable. They are measured at the lower of the carrying amount and fair value less costs to sell.

An impairment loss is recognised for initial and subsequent write-down of the asset (or disposal group) to fair value less costs to sell. A gain is recognised for any subsequent increases in fair value less costs to sell of an asset (or disposal group), but not in excess of any cumulative impairment loss previously recognised.

Non-current assets (including those that are part of a disposal group) are not depreciated or amortised.

4.10 Property, plant and equipment

Property, plant and equipment are presented at cost, after deducting accumulated depreciation and the provision for the impairment of assets.

Land is not depreciated. Depreciation on other assets is calculated as follows:

a) Exploration and production assets

The Group follows the Successful Efforts Method in accounting for its assets used for exploration and production activities as follows:

Cost of exploration and production assets

- Costs of exploration and production assets comprise total acquisition costs of petroleum rights or the acquisition costs of the portion of properties, decommissioning costs as well as support equipment and facilities.

- Exploratory drilling costs are capitalised as exploration and evaluation assets and will be classified as oil and gas properties of the projects if their exploratory wells have identified proved reserves that have been found to be commercially producible. However, if the exploratory wells have not identified proved reserves or have identified proved reserves but have not been found to be commercially producible, such drilling costs will be expensed in the statements of income.

- Exploration costs, comprising geological and geophysical costs as well as area reservation fees during the exploration stage, are charged to expenses in the statement of income when incurred.

- Development costs, whether relating to the successful or unsuccessful development of wells, are capitalised as oil and gas properties.

Depreciation and depletion

- The capitalised acquisition costs of petroleum rights are depreciated using the unit of production method based on proved reserves. Depreciation of exploratory wells, development costs as well as decommissioning costs, except unsuccessful projects, are calculated using the unit of production method based on proved reserves or proved developed reserves. The Group recognises changes in reserve estimates prospectively.

- Proved reserves and proved developed reserves are calculated by the engineers of the Company and are based on the information received from the joint operators.

- Depreciation for support equipment and facilities is calculated using the straight-line method with an estimated useful life of assets not exceeding 20 years.

- Depreciation for remuneration for the renewal of petroleum production is calculated using the straight-line method with an estimated useful life not exceeding 10 years in accordance with the agreement.

b) Pipelines and others

Costs of properties comprises of other direct costs necessary to bring the asset to working condition suitable for its intended use.

Depreciation of pipelines and others is determined using the straight-line method with an estimated useful life of assets not exceeding 30 years.

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

Subsequent costs are included in the asset's carrying amount, only when it is probable that future economic benefits associated with the item will flow to the Group. The carrying amount of the replaced part is derecognised.

Repair and maintenance costs are recognised as expenses when incurred.

Gains and losses on disposal of property, plant and equipment are determined by comparing proceeds from disposal with the carrying amount and are recognised in the statement of income when incurred.

4.11 Rights to receive reimbursement from decommissioning funds

Rights to receive reimbursement from decommissioning funds is recognised at present value when the Group contribute cash into the fund in accordance to terms and it is certainly probable that it can reimburse the cost of decommissioning from the funds. When funds reimburse cash to the Group after the completion of the decommissioning activities, cash will be adjusted against the right to receive reimbursement from decommissioning funds. The differences between the amount received and the remaining carrying amount of the decommissioning fund is recognised profit or loss.

The Group will not offset the rights to receive reimbursement from decommissioning fund with provisions for decommissioning costs if the Group is still obligated to the decommissioning liabilities. The Group does not have control, joint control or significant influence over the funds.

4.12 Goodwill

Goodwill arises from the business combination which represents the excess of the fair value of the consideration transferred over the fair value of the net identifiable assets, liabilities and contingent liabilities of the acquired subsidiaries, joint operations, associates or joint ventures undertaking at the date of the acquisition.

Goodwill on acquisitions of subsidiaries and joint operations is separately reported in the statements of financial position, while goodwill on acquisitions of associates and joint ventures is included in investment in associates and joint ventures.

Goodwill is not amortised but is annually tested for impairment. Goodwill is allocated to cash-generating unit of group of cash-generating units that are expected to gain benefit from the business combination that caused goodwill. Goodwill is presented at cost less accumulated impairment losses.

Impairment losses on goodwill are not reversed. The carrying amount of goodwill is included in the gains and losses on the disposal of business when it is divested.

4.13 Intangible assets

Intangible assets are presented at cost, after deducting accumulated amortisation and the allowance for the impairment of assets.

Where the carrying amount of an asset is greater than its estimated recoverable amount, it is written down to its recoverable amount.

Intangible assets are amortised using the straight-line method according to asset's useful life but not exceeding 10 years.

Research and development/ internally generated intangible assets

Research expenditure is recognised as an expense as incurred.

Development expenditure is recognised as an asset when the Group can demonstrate all of the following:

- The expenditure attributable to its development can be measured reliably and feasibility in technical, financial, commercial, and resource and;
- The Group intends to and has the ability to complete the development for the purpose of using or selling.

Development costs previously recognised as an expense are not recognised as an asset in a subsequent period.

Other intangible assets

Other intangible assets comprise expenditures incurred to acquire computer software licenses and concession rights in midstream oil and gas business.

4.14 Exploration and evaluation assets

Exploration and evaluation expenditures are capitalised at cost as exploration and evaluation assets. If the projects have identified the proved reserves that have been found to be commercially producible, the capitalised exploration and evaluation expenditures under these projects will be transferred to oil and gas properties of the projects with proved reserves. Subsequent accounting of such costs is described in the accounting policy for property, plant and equipment in Note 4.10 - Property, Plant and Equipment. The capitalised exploration and evaluation expenditure is written off as expenses in the statements of income in the period in which the projects have not identified proved reserves or have identified proved reserves, but have not been found to be commercially producible.

4.15 Impairment of assets

The Group's assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may exceed the recoverable amount. Intangible assets that have an indefinite useful life or are not ready to be used are tested for impairment annually.

An impairment loss is recognised for the amount by which the carrying amount of the assets exceeds its recoverable amount which is the higher of an asset's fair value less costs to sell and its value in use, and is recorded in the statement of income. For the purposes of assessing impairment, assets are grouped at the lowest levels in which they are separately identifiable.

Estimates of future cash flows used in the evaluation for impairment of assets which relate to petroleum production are made with consideration of the risk assessment on field and reservoir performance which includes the estimate of proved and unproved reserves.

Allowance for impairment of assets, except when relating to goodwill, is reversed as applicable to the extent that the events or circumstances that triggered the original allowance for impairment change. For this circumstance, the increased carrying amount of the assets from the reversal could not exceed the carrying amount (net of amortisation or depreciation), if the Group did not recognise the impairment loss for assets in the prior period.

4.16 Current and deferred income taxes

The tax expense for the period comprises current and deferred tax. Tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity.

Current tax

The current income tax is calculated on the basis of the tax laws enacted or substantially enacted at the end of the reporting period. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax

Deferred income tax will be recognised when there are temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial statements. However, deferred income tax is not recognised for temporary differences arise from:

- Initial recognition of an asset or liability in a transaction other than a business combination that affects neither accounting nor taxable profit or loss is not recognised
- Investments in subsidiaries, associates and joint arrangements where the timing of the reversal of the temporary difference is controlled by the Group and it is probable that the temporary difference will not be reversed in the foreseeable future.

Deferred income tax is measured using tax rates of the period in which temporary difference is expected to be reversed, based on tax rates and tax laws that have been enacted or substantially enacted by the end of the reporting period.

Deferred tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax assets and liabilities balances relate to the same or different taxable entities which intend either to settle current tax liabilities and assets on a net basis.

4.17 Deferred remuneration under agreement

The Company has an obligation to make a payment to the buyer (PTT) under the conditions in the Gas Sales Agreement of Arthit project. The remuneration is classified as non-current asset, presented under the caption "Other non-current assets", and amortised over contract life using the straight-line method.

4.18 Leases

Leases – where the Group is lessee

Leases are recognised as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the Group. Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

The Group allocates the consideration in the contract to the lease and non-lease components based on their relative stand-alone prices. In the event that the Group cannot allocate the lease and non-lease components, the Group elected not to separate lease and non-lease components and instead accounts for these as a single lease component.

Assets and liabilities arising from a lease are initially measured at a present value basis. Lease liabilities include the net present value of the following lease payments:

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable
- Variable lease payment that are based on an index or a rate
- Amounts expected to be payable by the lessee under residual value guarantees
- The exercise price of a purchase option if the lessee is reasonably certain to exercise that option, and
- Payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

Lease payments under the extension options period are also included in the measurement of the liability, if the Group is reasonably certain about exercising its extension options.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate is used, being the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

The Group is exposed to potential future increases in variable lease payments based on an index or rate, which are not included in the lease liability until they take effect. When adjustments to lease payments based on an index or rate take effect, the lease liability is reassessed and adjusted against the right-of-use asset.

Right-of-use assets are measured at cost comprising the following:

- The amount of the initial measurement of lease liability
- Any lease payments made at or before the commencement date less any lease incentives received
- Any initial direct costs; and
- Restoration costs.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in profit or loss. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise computer and IT equipment.

Leases - where the Group is the lessor

Assets leased under operating leases are included in property, plant and equipment in the statements of financial position. They are depreciated over their expected useful lives on a basis consistent with other similar property, plant and equipment owned by the Group. Rental income is recognised on a straight-line basis over the lease term.

4.19 Financial liabilities

a) Classification

Financial instruments issued by the Group are classified as either financial liabilities or equity securities by considering contractual obligations.

- Where the Group has an unconditional contractual obligation to deliver cash or another financial asset to another entity, it is considered a financial liability unless there is a predetermined or possible settlement for a fixed amount of cash in exchange of a fixed number of the Group's own equity instruments.

- Where the Group has no contractual obligation or has an unconditional right to avoid delivering cash or another financial asset in settlement of the obligation, it is considered an equity instrument.

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the reporting date.

b) Measurement

Financial liabilities are initially recognised at fair value and are subsequently measured at amortised cost.

c) Derecognition and modification

Financial liabilities are derecognised when the obligation specified in the contract is discharged, cancelled, or expired.

Where the terms of a financial liability are renegotiated/modified, the Group assesses whether the renegotiation / modification results in the derecognition of that financial liability. Where the modification results in an extinguishment, the new financial liability is recognised based on fair value of its obligation. The remaining carrying amount of financial liability is derecognised. The difference as well as proceed paid is recognised as other gains (losses) in profit or loss.

Where the modification does not result in the derecognition of the financial liability, the carrying amount of the financial liability is recalculated as the present value of the renegotiated / modified contractual cash flows discounted at its original effective interest rate. The difference is recognised in other gains/(losses) in profit or loss.

4.20 Borrowing costs

General and specific borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, are added to the cost of those assets less investment income earned from these specific borrowings. The capitalisation of borrowing costs is ceased when substantially all of the activities necessary to prepare the qualifying assets for its intended use or sale are complete.

Other borrowing costs are recognised as expenses in the period in which they are incurred.

4.21 Employee benefits

The Group has recognised employee benefits based on the types of benefits which are post-employment benefits and other long-term benefits.

a) Post-employment benefits

The Group has recognised both defined contribution and defined benefit plans as follows:

Defined contribution plan

The Group's employees have become members of the following provident funds: "Employee of PTTEP Registered Provident Fund", "Sinsataporn Registered Provident Fund" and "TISCO Master Pooled Fund Registered Provident Fund".

The provident funds are funded by payments from employees and from the Group which are held in a separate trustee-administered fund. The Group contributes to the funds at a rate of 3% - 15% of the employees' salaries which are charged to the statements of income in the period the contributions are made.

Employee retirement benefits

The Group's obligation in respect of the retirement benefit plans is calculated by estimating the amount of future benefits that employees will earn in return for their services to the Group in current and future periods. Such benefits are discounted to the present value. The employee benefits obligation is calculated by an independent actuary using the projected unit credit method. Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income (loss) in the period in which they arise.

Past-service costs are recognised immediately in the statements of income.

b) Other long-term benefits

The Group's other long-term benefits are benefits based on employees' length of service. The Group calculates the amount of these benefits according to the employees' service period.

The expected obligation of these benefits is calculated by independent actuarial experts and accrued over the period of employment based on the same accounting practice used for the employee retirement benefits. Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions will be recognised in the statements of income in the period in which they arise.

The Group recognises the obligation in respect of employee benefits in the statements of financial position under "Provision for Employee Benefits" as disclosed in Note 28.

4.22 Provisions

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation. The increase in the provision due to passage of time is recognised as interest expense.

4.23 Capital management

The Group's objectives when managing capital are to safeguard its ability to continue as a going concern, to provide returns for shareholders and benefits for other stakeholders, and maintain an optimal capital structure to reduce the cost of capital.

4.24 Other reserve for expansion

The Group considers to set aside a reserve for expanding its investments in new projects in the exploration phase, which is generally susceptible to high risk, and for exploration of additional petroleum reserves. The reserve for expansion is set aside at no more than 35% of the net taxable income from its exploration and production activities.

4.25 Revenue recognition

Revenue are recorded net of value added tax. They are recognised in accordance with the provision of goods or services, provided that collectability of the consideration is probable.

Multiple element arrangements involving delivery or provision of multiple products or services are separated into individual distinct performance obligations. Total transaction price of the bundled contract is allocated to each performance obligation based on their relative standalone selling prices or estimated standalone selling prices. Each performance obligation is recognised as revenue on fulfilment of the obligation to the customer.

The Group has the revenue recognition in each category as follows:

Revenue from contracts with customers

Revenue from contracts with customers is recognised when the Group complete performance obligations at a point in time by transferring petroleum product to a customer and the control over the product is transferred to a customer whom the product is physically possessed. The revenue is measured at the fair value of the consideration which the Group expects to be entitled in exchange for petroleum product, provided that collectability of the consideration is probable. Inter-company sales revenue is excluded in the consolidated financial statements.

Deferred income under agreements (Take-or-Pay)

Under the Gas Sales Agreements, the Group has obligations to supply minimum quantities of gas to a customer in each contract year. If in any contract year, the customer has not taken the minimum quantities of gas according to the Gas Sales Agreements, the customer shall pay for quantities of gas not taken (Take-or-Pay). If the customer is unable to take the minimum contracted quantities in a given year, the volume of gas that the customer has paid for but has not taken in that year (Make-up) can be taken free of charge in subsequent years. Payments received in advance under these agreements are recognised as deferred income. This deferred income is recognised in the statements of income when the gas is subsequently taken.

Interest income

Interest income is recognised based on time proportion basis considering on an effective interest rate of one point of time until the end of term and considering on an outstanding balance of the principal recognised in deferred income account of the Group.

Dividend income

Dividend income is recognised when the right to receive payment is established.

Other income

Other income is recognised on an accrual basis.

4.26 Share capital

Ordinary shares with discretionary dividends are classified as equity.

Incremental costs directly attributable to the issue of new shares or options (net of tax) are shown as a deduction in equity.

4.27 Dividend distribution

Dividend distributed to the Company's shareholders is recognised as a liability when interim dividends are approved by the Board of Directors' meeting, and when the annual dividends are approved by the shareholders' meeting.

4.28 Earnings per share

Basic earnings per share are calculated by dividing the income for the year attributable to ordinary shareholders less interest expense for subordinated capital debentures by the weighted average number of ordinary shares outstanding during the year.

Diluted earnings per share are calculated by dividing the income for the year attributable to shareholders less interest expense for subordinated capital debentures by the weighted average number of ordinary shares outstanding during the year, adjusted with dilutive potential ordinary shares. The Company assumes that all dilutive potential ordinary shares are converted into ordinary shares.

4.29 Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The chief operating decision-maker is a person responsible for allocating resources and assessing performance of the operating segments that makes strategic decisions.

In considering the segment reporting, the chief operating decision-maker considers product types as well as geographical areas classified by business segments which are identified by different business activities that are subject to risks and returns that are different from those of other business segments.

4.30 Derivatives and hedging activities

a) Embedded derivative and derivatives that do not qualify for hedge accounting

Embedded derivative that is separately accounted for and derivatives that do not qualify for hedge accounting is initially recognised at fair value. Changes in the fair value are included in other income or other expenses.

Fair value of derivatives is classified as a current or non-current following its remaining maturity.

b) Hedge accounting

Derivatives are initially recognised at fair value on the date a derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The Group designates certain derivatives as either 1) hedges of the fair value of recognised assets or liabilities or 2) hedges of a particular risk associated with the cash flows of highly probable forecast transactions (cash flow hedges).

At inception of the hedge relationship, the Group documents i) the economic relationship between hedging instruments and hedged items including whether changes in the cash flows of the hedging instruments are expected to offset changes in the cash flows of hedged items and ii) its risk management objective and strategy for undertaking its hedge transactions.

The full fair value of a hedging derivative is classified as a current or non-current asset or liability following the maturity of related hedged item.

The fair values of derivative financial instruments designated in cash flow hedge relationships and movements in the hedging reserve in shareholders' equity are disclosed in Note 6.

Cash flow hedges

The effective portion of changes in the fair value of derivatives that are designated and qualified as cash flow hedges is recognised in the cash flow hedge reserve within equity. The gain or loss relating to the ineffective portion is recognised immediately in profit or loss.

The Group applies hedge accounting on cross currency and interest rate swap and interest rate collar (zero cost collar) in hedge relationships that were being used to hedge the underlying assets and liabilities. The Group only designates the spot component of cross currency and interest rate swap and the intrinsic value of interest rate collar (zero cost collar) as hedging instrument. Gains or losses relating to the effective portion of the change in the spot component and intrinsic value are recognised in the cash flow hedge reserve within equity and recognised the changes in foreign currency basis spreads of cross currency and interest rate swap and time value of interest rate collar (zero cost collar) that relate to hedged items as the costs of hedging reserve within other comprehensive income of equity.

Amounts accumulated in equity are reclassified in the periods when the hedged item affects profit or loss.

The gain or loss relating to the effective portion of cross currency and interest rate swap and interest rate collar (zero cost collar) hedging variable rates borrowings and debentures is recognised in profit or loss within finance costs at the same time as the interest expense on the hedged borrowings and debentures.

4.31 Financial guarantee contracts

Financial guarantee contracts are recognised as a financial liability at the time the guarantee is issued. The liability is initially measured at fair value and subsequently at the higher of:

- The amount determined in accordance with the expected credit loss model under TFRS 9; and
- The amount initially recognised less the cumulative amount of income recognised in accordance with the principles of TFRS 15.

The fair value of financial guarantees is determined based on the present value of the difference in cash flows between a) the contractual payments required under the debt instrument; and b) the payments that would be required without the guarantee, or the estimated amount that would be payable to a third party for assuming the obligations.

The Group recognised guarantees associated with loans or other payables without compensation as part of the cost of the investment.

5 Financial risk management

The Group exposes to various risks from its business operations as follows:

5.1 Financial risk

The Group exposes to a variety of financial risks which comprise market risk (including foreign exchange risk, interest rate risk and price risk), credit risk and liquidity risk. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential effects on the Group's financial performance to an acceptable level. The Group also uses derivative financial instruments to hedge certain exposures.

Financial risk management is centralised and carried out by the financial risk management function. The Group's financial risk management includes areas such as foreign exchange risk, interest rate risk, price risk, credit risk and liquidity risk. The framework parameters are approved by the Board of Directors and uses as the key communication and control tools for financial risk management function of the Group's subsidiaries.

5.1.1 Market risk

a) Foreign exchange risk

The vast majority of the Group's domestic and overseas business (revenues and expenses) are in US Dollar and most companies in the Group has determined the US Dollar as the functional currency by considering from revenue and operating expenses used in the primary economic environment in which the entity operates. The Group's exposure to the foreign exchange risk arises from transactions which are denominated in currencies that are not the functional currency.

Exposure

The Group and the Company have significant exposure to financial statements from transactions denominated in Baht at the end of the reporting period as follows:

	Consolidated financial statements			
	31 December 2022		31 December 2021	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Cash and cash equivalents	462	15,966	339	11,341
Trade and other receivables	561	19,396	409	13,653
Cross currency and interest rate swaps				
- hedge derivative *	843	29,120	969	32,400
Other current financial assets	1	23	-	-
Other non-current financial assets	-	8	-	8
Other non-current assets	4	148	4	150
Trade and other payables	(462)	(15,974)	(322)	(10,774)
Forward foreign exchange contracts				
- trading *	(1,197)	(41,368)	(1,001)	(33,467)
Other current liabilities	(50)	(1,731)	(100)	(3,333)
Lease liabilities	(55)	(1,891)	(36)	(1,208)
Debentures	(850)	(29,376)	(969)	(32,384)

	Separate financial statements			
	31 December 2022		31 December 2021	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Cash and cash equivalents	52	1,794	65	2,184
Trade and other receivables	383	13,227	316	10,564
Cross currency and interest rate swaps				
- hedge derivative *	503	17,400	521	17,400
Short-term loans to related parties	15	528	-	-
Other non-current financial assets	-	7	-	8
Other non-current assets	4	147	4	147
Trade and other payables	(291)	(10,050)	(247)	(8,243)
Short-term loans from a related party	-	-	(16)	(548)
Forward foreign exchange contracts				
- trading *	(1,087)	(37,560)	(901)	(30,125)
Other current liabilities	(50)	(1,731)	(100)	(3,333)
Lease liabilities	(37)	(1,275)	(26)	(884)
Debentures	(503)	(17,387)	(520)	(17,384)

* These are disclosed with notional amount.

Financial instruments used by the Group for risk management

The Group manages its foreign exchange risks on financial assets and financial liabilities those are not the Group's functional currency by balancing the structure and transactions, types of assets, liabilities and equity. In addition, the Group uses derivative instruments to manage and hedge the risks exposure of the foreign currency transaction while it also considers costs, effectiveness, and risks that may arise in each interval.

The Group used cross currency and interest rate swaps, forward foreign exchange contracts and foreign currency options in a consistent manner to hedge firm and anticipated foreign exchange commitments and to manage its foreign exchange risk arising from future commercial transactions. The Group does not usually hedge its net investments in foreign operations except in circumstances where there is a material exposure arising from a currency that is anticipated to be volatile and the hedging is cost effective. The Group manages its foreign exchange risks by swapping into the entity's functional currency. Foreign currency borrowings are swapped into the entity's functional currency using cross currency and interest rate swaps, except where the foreign currency borrowings are repaid with cash flows generated in the same foreign currency. The purpose of these hedges is to mitigate the impact of movements in foreign exchange rates on assets and liabilities and the profit or loss of the Group.

The Group enters into cross currency and interest rate swaps, forward foreign exchange contracts and foreign currency options to hedge its exposure to foreign exchange risk. Under the Group's policy, the critical terms of these contracts must align with the hedged items. However, the Group do not apply hedge accounting for forward foreign exchange contracts and foreign currency options. As a result, gain or loss is recognised in profit or loss.

The Group only designates the spot component of cross currency and interest rate swap in hedge relationships. The spot component is determined with reference to relevant spot market exchange rates. The difference between the contracted forward rate and the spot market exchange rate is defined as the forward points. It is discounted, where material.

The changes in the forward element of the cross currency and interest rate swaps that relate to hedged items are deferred in the costs of hedging reserve.

The Group and the Company entered into a cross currency and interest rate swaps with 99.05% of total Thai Baht borrowings which are not matched with the Company's and each subsidiary's functional currency.

Cross currency and interest rate swaps comprise of accrued interest income and expense which will be made twice a year. The due date of interest and principal of the cross currency and interest rate swaps are the same date as loan maturity date.

The Group's exposure of hedging instrument to financial position and performance are as follows:

									Consolidated financial statements
									31 December 2022
	Hedging instrument		Carrying amount of hedging instrument						
Type of hedge	Derivative	Total contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht	Hedge ratio	Maturity date	Contractual exchange rate	Swap rate received	Swap rate paid
Cash flow hedge	Cross currency and interest rate swap	349	15	497	1:1	6 June 2029	32.66	4.82%	4.99%
		182	3	116	1:1	5 November 2026	33.00	2.00% - 2.75%	2.46% - 2.55%
		148	2	77	1:1	5 April 2027	33.75	2.09%	2.88% - 3.26%
		30	1	20	1:1	5 April 2029	33.60	2.69%	3.68%
		171	6	206	1:1	5 April 2032	33.50	3.05%	4.05% - 4.16%

									Consolidated financial statements
									31 December 2021
	Hedging instrument		Carrying amount of hedging instrument						
Type of hedge	Derivative	Total contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht	Hedge ratio	Maturity date	Contractual exchange rate	Swap rate received	Swap rate paid
Cash flow hedge	Cross currency and interest rate swap	349	(6)	(201)	1:1	6 June 2029	32.66	4.82%	4.99%
		480	(33)	(1,098)	1:1	19 June 2022	31.25	2.26%	2.63% - 3.05%
		182	(2)	(80)	1:1	5 November 2026	33.00	2.00% - 2.75%	2.46% - 2.55%

Separate financial statements									
31 December 2022									
	Hedging instrument		Carrying amount of hedging instrument						
Type of hedge	Derivative	Total contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht	Hedge ratio	Maturity date	Contractual exchange rate	Swap rate received	Swap rate paid
Cash flow hedge	Cross currency and interest rate swap	349	15	497	1:1	6 June 2029	32.66	4.82%	4.99%
		182	3	116	1:1	5 November 2026	33.00	2.00% - 2.75%	2.46% - 2.55%

Separate financial statements									
31 December 2021									
	Hedging instrument		Carrying amount of hedging instrument						
Type of hedge	Derivative	Total contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht	Hedge ratio	Maturity date	Contractual exchange rate	Swap rate received	Swap rate paid
Cash flow hedge	Cross currency and interest rate swap	349	(6)	(201)	1:1	6 June 2029	32.66	4.82%	4.99%
		182	(2)	(80)	1:1	5 November 2026	33.00	2.00% - 2.75%	2.46% - 2.55%

Sensitivity analysis

As shown in the table above, the Group is primarily exposed to changes in Baht and US Dollar exchange rates. The sensitivity of profit or loss to changes in the exchange rates arises mainly from financial assets and financial liabilities denominated in foreign currency other than its functional currency and the impact on profit before income tax arises. If the Group determines the exchange rate as at 31 December 2022 and 2021 to be changed by 10% and holding all other variables constant, the impact on profit before income tax of the Group will be as follows:

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2022		
Baht to US Dollar exchange rate		
- increase 10%	36	1,258
- decrease 10%	(36)	(1,258)

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2021		
Baht to US Dollar exchange rate		
- increase 10%	32	1,058
- decrease 10%	(32)	(1,058)

	Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2022		
Baht to US Dollar exchange rate		
- increase 10%	57	1,973
- decrease 10%	(57)	(1,973)

	Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2021		
Baht to US Dollar exchange rate		
- increase 10%	51	1,718
- decrease 10%	(51)	(1,718)

b) Interest rate risk

Interest rate risk is the risk of changes in market value of interest rate which affect to the cash flow from assets and liabilities at variable rates. Therefore, the borrowing at variable rates is the cause of the Group's interest rate risk. The Group's policy is to maintain an appropriate proportion of its borrowings at fixed rates and variable rates considering the Group's business operation. In doing so, the Group maintains its fixed interest rate borrowings not less than 80%. In addition, the Group considers entering into derivative such as interest rate collar (zero cost collar). The Group also considers costs, market conditions, and acceptable risk before entering into the financial instrument to manage interest rate risk.

Following interest rate benchmark reform, there are cessations in several benchmark interest rates including LIBOR, which is applied by the Group as part of the variable rate calculation. The Group had monitored and managed the transition to alternative benchmark rates for loan agreements and financial instruments. As a result, the uncertainty does not significantly impact the Group. As at 31 December 2022 and 2021, the financial instruments that have not yet to transition to alternative benchmark rates did not have significant impact

The exposure of the Group's borrowings to interest rate changes of the borrowings at the end of the reporting period are as follows:

	Consolidated financial statements					
	31 December 2022			31 December 2021		
	Unit: Million US Dollar	Unit: Million Baht	% of total borrowings	Unit: Million US Dollar	Unit: Million Baht	% of total borrowings
Variable rate borrowings - LIBOR	-	-	-	596	19,920	17
Fixed rate borrowings	2,636	91,102	94	2,746	91,747	78
Fixed rate borrowings - repricing 1 - 5 years	173	5,993	6	179	5,991	5
	2,809	97,095	100	3,521	117,658	100

	Separate financial statements					
	31 December 2022			31 December 2021		
	Unit: Million US Dollar	Unit: Million Baht	% of total borrowings	Unit: Million US Dollar	Unit: Million Baht	% of total borrowings
Fixed rate borrowings	330	11,394	66	341	11,393	66
Fixed rate borrowings - repricing 1 - 5 years	173	5,993	34	179	5,991	34
	503	17,387	100	520	17,384	100

The percentage of total borrowings shows the proportion of borrowings that are currently at variable rates and fixed rates in relation to the total amount of borrowings. An analysis by maturities is provided in Note 24.

Financial instruments used by the Group for risk management

The Group had entered into interest rate collar (zero cost collar), which represents 50% of total variable rate borrowing. The interest rate collar (zero cost collar) comprises of put option with interest rate cap at 2.42% per annum and call option with interest rate floor at 0.20% per annum. The variable interest rate is reference to 6M LIBOR. However, during 2022 the Group cancelled the interest rate collar due to the repayment of the variable interest rate loan in full.

The Group's exposure of interest rate-related hedging instrument to financial position and performance are as follows:

							Consolidated financial statements	
							31 December 2021	
	Hedging instrument		Carrying amount of hedging instrument					
Type of hedge	Derivative	Total contractual amount (Million US Dollar)	Unit: Million US Dollar	Unit: Million Baht	Hedge ratio	Maturity date	Swap rate received	Swap rate paid
Cash flow hedge	Interest rate collar (zero cost collar)	300	1	28	1:1	21 October 2024	Reference interest rate, as of borrowing's interest rate reset date, floats over 2.42% per annum	Reference interest rate, as of borrowing's interest rate reset date, floats below 0.20% per annum

Sensitivity analysis

Profit or loss is mainly sensitive to higher or lower interest expenses from borrowings as a result of changes in interest rates.

The Group is exposed to change in market rate of variable interest rate borrowings from financial institutions. If the Group determines the interest rate to be changed and holding all other variables constant, the impact on profit before income tax of the Group will be as follows:

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2021		
Interest rate		
- Increase 1%	(3)	(97)
- Decrease 1%	3	97

c) Price risk

Exposure

The Group's exposure to price risk arises from petroleum product prices because the Group's selling price of petroleum products is reference to the world's crude oil price, which are fluctuated subject to various factors beyond its control.

Fluctuations in the world's crude oil prices directly affect the prices of the Group's crude oil and condensate, while the prices of natural gas, which is the main product of the Group, change in the same direction with the reference oil prices and other factors in the gas price formula. Natural gas prices have adjusted periods that reflect actual price delayed by every 3 to 21 months (lag time) depending on each contract. The natural gas price will move corresponding to lower volatility compared to the prices of crude oil and condensate.

The Group has managed the price risk by analysing the impact of the level of oil price changes to revenue, cash flow and net profit of the Group annually. The risk mitigation plan is reviewed by the Risk Management Committee and the Board of Directors in order to be used as the Group's operation framework.

As at 31 December 2022, the Group entered into oil price hedging derivatives for the year 2023 totalling 3.3 million barrel (2021: the Group entered into oil price hedging derivatives for the year 2022 totalling 15.4 million barrel).

Sensitivity analysis

The changes in oil price, holding all other variables constant, will impact fair value of oil price hedging derivative as at 31 December 2022 and 2021 as follows:

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2022		
Price per barrel		
- Increase 1 US Dollar	(1)	(40)
- Decrease 1 US Dollar	1	37

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
2021		
Price per barrel		
- Increase 1 US Dollar	(8)	(269)
- Decrease 1 US Dollar	8	273

5.1.2 Credit risk

a) Risk management

The Group's policy to manage its credit risk is to enter into transactions with the customers who have good credit profiles. The majority of sales is made with PTT Public Company Limited, the parent company. In addition, the Group carefully assesses and regularly reviews the credit profiles of its customers.

The Group places deposits with the banks which are rated at investment grade level. The Group regularly assesses credit quality and stability of these banks by taking into account of their credit rating, investment portfolio and other financial ratios which demonstrate their performance and the ability to control their business risks, such as non-performing loan to total loan ratio. These factors are used to manage risks and to consider the amount of bank deposit limit in order to ensure that deposits are well-diversified and to avoid concentration risks with individual bank together with the consideration yields and acceptable risk in each time interval.

Before entering into financial derivative contracts, the Group has assessed the financial position and credit worthiness, including setting up credit exposure limit, of counterparty bank in the same way as when the Group assesses banks before placing deposit as described above. Currently all banks in which the Group has entered into financial derivative contracts are rated at investment grade level. In addition, the Group has adjusted, based on the timing and type of transactions, the outstanding balance of each derivative financial instrument made with banks to reflect the risk-adjusted exposure and has diversified transactions to avoid concentration risks with individual bank together with the costs, consideration yields and risks arising in each interval.

b) Security

For some trade receivables, the Group may obtain security in the form of guarantees or letters of credit which can be called upon if the counterparty is in default under the terms of the agreement.

c) Impairment of financial assets

The Group has following financial assets that are subject to the expected credit loss model as follows:

- Cash and cash equivalents
- Trade and other receivables
- Other current assets
- Short-term loans to a related party
- Long-term loans to related parties
- Other non-current financial assets
- Other non-current assets

Management consider that impairment loss of financial assets mentioned above are immaterial.

5.1.3 Liquidity risk

Liquidity risk is the risk that suitable sources of funding for the Group's business activities may not be available. The Group's contractual maturity of liabilities and interest, including the derivative contracts are as follows:

a) Maturity of financial liabilities

The tables below analyse the maturity of financial liabilities grouping based on their contractual maturities. The amounts disclosed are the contractual undiscounted cash flows as at 31 December 2022 and 2021.

	Consolidated financial statements				
	Unit: Million US Dollar				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
2022					
Trade and other payables	1,514	-	-	1,514	1,514
Other current liabilities	74	-	-	74	74
Lease liabilities	322	578	197	1,097	1,024
Contingent considerations from business acquisition	-	1	-	1	1
Debentures - fixed interest rate					
Principal	-	818	2,022	2,840	2,809
Interest expense *	108	424	1,338	1,870	13
Forward foreign exchange contracts - net **	71	-	-	71	53

	Consolidated financial statements				
	Unit: Million US Dollar				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
2021					
Trade and other payables	1,082	-	-	1,082	1,082
Other current liabilities	132	-	-	132	132
Lease liabilities	196	331	89	616	572
Contingent considerations from business acquisition	1	76	-	77	72
Loans from financial institutions - variable interest rate					
Principal	-	600	-	600	596
Interest expense *	7	17	-	24	1
Debentures - fixed interest rate					
Principal	449	179	2,331	2,959	2,925
Interest expense *	105	402	1,404	1,911	11
Cross currency and interest rate swaps - net **	35	9	11	55	41
Forward foreign exchange contracts - net **	1	-	-	1	2

	Consolidated financial statements				
	Unit: Million Baht				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
2022					
Trade and other payables	52,303	-	-	52,303	52,303
Other current liabilities	2,570	-	-	2,570	2,570
Lease liabilities	11,143	19,983	6,797	37,923	35,384
Contingent considerations from business acquisition	25	25	-	50	50
Debentures - fixed interest rate					
Principal	-	28,281	69,898	98,179	97,095
Interest expense *	3,745	14,660	46,245	64,650	462
Forward foreign exchange contracts – net **	2,445	-	-	2,445	1,833

	Consolidated financial statements				
	Unit: Million Baht				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
2021					
Trade and other payables	36,163	-	-	36,163	36,163
Other current liabilities	4,422	-	-	4,422	4,422
Lease liabilities	6,553	11,072	2,954	20,579	19,153
Contingent considerations from business acquisition	32	2,555	-	2,587	2,412
Loans from financial institutions – variable interest rate					
Principal	-	20,052	-	20,052	19,920
Interest expense *	245	558	-	803	42
Debentures - fixed interest rate					
Principal	15,000	6,000	77,905	98,905	97,738
Interest expense *	3,509	13,433	46,912	63,854	373
Cross currency and interest rate swaps - net **	1,176	308	367	1,851	1,379
Forward foreign exchange contracts - net **	49	-	-	49	55

	Separate financial statements				
	Unit: Million US Dollar				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
2022					
Trade and other payables	380	-	-	380	380
Other current liabilities	57	-	-	57	57
Lease liabilities	32	19	1	52	50
Debentures – fixed interest rate					
Principal	-	173	330	503	503
Interest expense *	19	76	24	119	2
Forward foreign exchange contracts – net **	64	-	-	64	44

	Separate financial statements				
	Unit: Million US Dollar				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
2021					
Trade and other payables	356	-	-	356	356
Other current liabilities	102	-	-	102	102
Lease liabilities	31	29	1	61	60
Debentures – fixed interest rate					
Principal	-	180	341	521	520
Interest expense *	20	83	41	144	4
Cross currency and interest rate swaps - net **	2	9	11	22	8
Forward foreign exchange contracts - net **	1	-	-	1	1

	Separate financial statements				
	Unit: Million Baht				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
2022					
Trade and other payables	13,138	-	-	13,138	13,138
Other current liabilities	1,986	-	-	1,986	1,986
Lease liabilities	1,102	648	44	1,794	1,748
Debentures – fixed interest rate					
Principal	-	6,000	11,400	17,400	17,387
Interest expense *	669	2,633	824	4,126	75
Forward foreign exchange contracts – net **	2,203	-	-	2,203	1,523

	Separate financial statements				
	Unit: Million Baht				
	Within 1 year	1 - 5 years	Over 5 years	Total	Total carrying amount
2021					
Trade and other payables	11,883	-	-	11,883	11,883
Other current liabilities	3,414	-	-	3,414	3,414
Lease liabilities	1,025	954	45	2,024	2,011
Debentures – fixed interest rate					
Principal	-	6,000	11,400	17,400	17,384
Interest expense *	669	2,753	1,374	4,796	127
Cross currency and interest rate swaps - net **	77	308	367	752	281
Forward foreign exchange contracts - net **	38	-	-	38	43

The major assumptions for the data presented in the table above are that all the interest expenses are calculated based on the nominal interest rate and there is no change in aggregate principal amounts of loans other than repayment at scheduled maturity.

- Thai Baht liabilities were equivalent to US Dollar at the closing rate at the date respective statement of financial position.

* Interest paid represents the interest payment due within year.

** Derivatives were presented at the net amount between cash inflow and cash outflow.

As at 31 December 2022, the Company has commitments from the guarantees of debentures and loans of its subsidiaries as disclosed in Note 35.3, the maturity date of obligations follows the maturity of loan agreements, debentures and loans of subsidiaries.

b) Financing arrangements

The Group manages its liquidity risks by preparing cash flow forecasts and adjusting financial forecasts on a regular basis, entering into financing program, issuing short-term debt securities in order to access Thailand's capital market, as well as entering into credit facilities with financial institutions with the interest rate agreed in advance.

As at 31 December 2022 and 2021, the outstanding principal amount and undrawn facilities are summarised below.

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	Credit limit	Undrawn amount	Credit limit	Undrawn amount
2022				
Committed credit facility	574	574	19,825	19,825
Uncommitted credit facility	281	281	9,708	9,708

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	Credit limit	Undrawn amount	Credit limit	Undrawn amount
2021				
Committed credit facility	580	580	19,368	19,368
Uncommitted credit facility	374	374	12,504	12,504

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	Credit limit	Undrawn amount	Credit limit	Undrawn amount
2022				
Committed credit facility	174	174	6,000	6,000
Uncommitted credit facility	266	266	9,190	9,190

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	Credit limit	Undrawn amount	Credit limit	Undrawn amount
2021				
Committed credit facility	180	180	6,000	6,000
Uncommitted credit facility	373	373	12,451	12,451

Thai Baht credit facility is translated to US Dollar using the closing rate at the date respective statement of financial position.

The Company's International Credit Rating is comparable with the Sovereign Rating of Thailand and the National Credit Rating is at the AAA. As a result, the Company can access to the source of fund for the long-term loan at the interest rate approximate the market interest rate. For the years 2022 and 2021, the Company's credit ratings as assigned by prominent credit rating agencies are as follows:

	2022		2021	
	Foreign Currency	Domestic Currency	Foreign Currency	Domestic Currency
Rating Agency				
Moody's	Baa1	Baa1	Baa1	Baa1
Standard and Poor's	BBB+	BBB+	BBB+	BBB+
Fitch Ratings	BBB+	-	BBB+	-
TRIS Rating (National Rating)	-	AAA	-	AAA

5.2 Capital management

5.2.1 Risk management

Capital Risk Management

The Group manages capital to keep financial strength comparable with the leading companies in the same industry, alignment with the business strategy, economy, market positioning and finance cost as well as impact to the financial ratio and credit rating of the Company and providing the ultimate returns to shareholders and benefits to other stakeholders.

6 Derivatives and hedge accounting

Book value of derivatives as at 31 December 2022 and 2021 are disclosed in Note 9.

6.1 Classification of derivative financial instruments

Derivatives are only used for economic hedging purposes, not for speculative investments. The Group adopts hedge accounting for some derivatives which meet the condition of cash flow hedges instruments and determines the hedge ratio at 1:1 considering the relationship of the relevant transactions and risk factors between hedged items and hedging instruments. However, where derivatives do not meet the hedge accounting criteria, they are classified as 'held for trading' for accounting purposes and are accounted for at fair value through profit or loss.

The fair value of a hedging derivative is presented as current or non-current following the maturity of related hedged items.

6.2 Hedge effectiveness

Hedge effectiveness is determined at the inception of the hedge relationship, and through periodic effectiveness assessments, to ensure that an economic relationship exists between the hedged items and hedging instruments.

Foreign exchange risk

For cross currency and interest rate swap, the Group enters into hedging transaction where the critical terms of the hedging instrument match exactly with the terms of the hedged item. The Group therefore performs a qualitative assessment of effectiveness. If changes in circumstances affect the terms of the hedged item such that the critical terms no longer match exactly with the critical terms of the hedging instrument, the Group uses the hypothetical derivative method to assess effectiveness.

In hedging of foreign currency on cross currency and interest rate swap, ineffectiveness may arise if there are changes in the credit risk of the derivative counterparty, a reduction in value of the hedged items, or a significant change in components of cross currency and interest rate swap.

Interest rate risk

The Group enters into interest rate collar (zero cost collar) that have similar critical terms as the hedged item, such as reference rate, payment dates, maturities and notional amount. The Group does not hedge 100% of its loans, therefore the hedged item is identified as a proportion of the outstanding loans up to the notional amount of the interest rate collar (zero cost collar). Because, all critical terms of the hedging instruments and hedged items are matched, it considered as hedging of economic relationship.

Hedge ineffectiveness for interest rate collar (zero cost collar) is assessed using the same principles as for hedges of cross currency and interest rate swap. It may occur due to changes in the credit risk of the derivative counterparty and changes in critical terms between the interest rate collar (zero cost collar) and loans and potentiality effects of the uncertainty caused by Interest rate benchmark (IBOR) reform.

However, during the year 2022, the Group cancelled the interest rate collar (zero cost collar) due to the repayment of the hedged loan in full.

6.3 Cash flow hedge reserve

Hedging reserve includes costs of hedging and cash flow hedge reserve. The cash flow hedge reserve is used to recognise the effective portion of gains or losses on changes in fair value of derivatives that are qualified for hedge accounting.

The Group has hedging reserve presented in other comprehensive income comprising financial instruments as follows:

	Consolidated financial statements							
	Unit: Million US Dollar				Unit: Million Baht			
	Cost of hedging reserve	Spot component of currency forwards	Intrinsic value of option	Total	Cost of hedging reserve	Spot component of currency forwards	Intrinsic value of option	Total
As at 1 January 2022	10	(13)	2	(1)	425	(354)	38	109
Changes in fair value of hedging instruments recognised in OCI	-	51	(2)	49	-	1,846	(49)	1,797
Costs of hedging deferred and recognised in OCI	18	-	-	18	645	-	-	645
Reclassified from OCI to profit or loss								
- Loss on foreign exchange rate	-	(4)	-	(4)	-	(160)	-	(160)
Deferred tax	(3)	(10)	-	(13)	(129)	(338)	11	(456)
As at 31 December 2022	25	24	-	49	941	994	-	1,935

	Consolidated financial statements							
	Unit: Million US Dollar				Unit: Million Baht			
	Cost of hedging reserve	Spot component of currency forwards	Intrinsic value of option	Total	Cost of hedging reserve	Spot component of currency forwards	Intrinsic value of option	Total
As at 1 January 2021	8	(9)	-	(1)	340	(245)	-	95
Changes in fair value of hedging instruments recognised in OCI	-	(94)	2	(92)	-	(2,874)	47	(2,827)
Costs of hedging deferred and recognised in OCI	3	-	-	3	106	-	-	106
Reclassified from OCI to profit or loss								
- Gain on foreign exchange rate	-	89	-	89	-	2,738	-	2,738
Deferred tax	(1)	1	-	-	(21)	27	(9)	(3)
As at 31 December 2021	10	(13)	2	(1)	425	(354)	38	109

	Separate financial statements					
	Unit: Million US Dollar			Unit: Million Baht		
	Cost of hedging reserve	Spot component of currency forwards	Total	Cost of hedging reserve	Spot component of currency forwards	Total
As at 1 January 2022	11	(11)	-	378	(353)	25
Changes in fair value of hedging instruments recognised in OCI	-	24	24	-	838	838
Costs of hedging deferred and recognised in OCI	3	-	3	101	-	101
Reclassified from OCI to profit or loss						
- Gain on foreign exchange rate	-	17	17	-	618	618
Deferred tax	(1)	(8)	(9)	(20)	(292)	(312)
As at 31 December 2022	13	22	35	459	811	1,270

	Separate financial statements					
	Unit: Million US Dollar			Unit: Million Baht		
	Cost of hedging reserve	Spot component of currency forwards	Total	Cost of hedging reserve	Spot component of currency forwards	Total
As at 1 January 2021	8	(6)	2	270	(165)	105
Changes in fair value of hedging instruments recognised in OCI	-	(46)	(46)	-	(1,509)	(1,509)
Costs of hedging deferred and recognised in OCI	4	-	4	135	-	135
Reclassified from OCI to profit or loss						
- Gain on foreign exchange rate	-	39	39	-	1,274	1,274
Deferred tax	(1)	2	1	(27)	47	20
As at 31 December 2021	11	(11)	-	378	(353)	25

6.4 Amounts recognised in profit or loss

In addition to the amounts reclassified from hedge reserve as disclosed in Note 6.3, the following amounts recognised in profit or loss relating to derivatives:

	Consolidated financial statements	
	Unit: Million US Dollar	
For the year ended 31 December	2022	2021
Net loss on derivatives that do not qualify for hedge accounting, presented in loss on revaluation of financial instruments	(125)	(241)

	Consolidated financial statements	
	Unit: Million Baht	
For the year ended 31 December	2022	2021
Net loss on derivatives that do not qualify for hedge accounting, presented in loss on revaluation of financial instruments	(3,817)	(7,471)

	Separate financial statements	
	Unit: Million US Dollar	
For the year ended 31 December	2022	2021
Net gain on derivatives that do not qualify for hedge accounting, presented in gain on revaluation of financial instruments	1	28

	Separate financial statements	
	Unit: Million Baht	
For the year ended 31 December	2022	2021
Net gain on derivatives that do not qualify for hedge accounting, presented in gain on revaluation of financial instruments	26	907

7 Critical accounting estimates and judgements

Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

7.1 Impairment of assets and goodwill

In assessing the impairment of assets and goodwill the Group estimates using the discounted future cash flows which are based on management's key assumptions in relation to selling price using the future oil price, estimated future production volume based on a proved and probable reserves and gross margin rate. These assumptions are based on management's judgment and past experience as well as the future prediction that is believed to be reasonable in the present situation. Changes in the information or new noticeable information may lead to the change in the assumptions and the discount rate for the estimation of the discounted future cash flows. The assumption of selling price is determined from the short-term oil price based on forward oil price curve and long-term oil price based on demand and supply of oil in the world market.

7.2 Estimation related to the fair values of gross assets used in a concentration test

In assessing the fair value of property, plant and equipment and exploration and evaluation assets used in concentration test on acquisition date, the Group estimates using the discounted future cash flows applying uncertain estimated information including management's key assumptions which mainly comprise discount rate, selling price using the future oil price, estimated future production volume and estimated expenditure.

7.3 Estimation of petroleum reserves

Petroleum reserves are key elements in the Group's investment decision-making process. They are also important elements in testing for impairment. Changes in proved reserves will also affect the present value of the net cash flows and depreciation calculated using the unit-of-production method.

Proved reserves are the quantities of petroleum that are demonstrated with reasonable certainty to be commercially producible in future years from known reservoirs under existing economic and operating conditions including government rules and regulations. The proved reserves have to be examined and assessed annually by the Group's geologists and reservoir engineers.

8 Segment and revenue information

Consolidated financial statements

Unit: Million US Dollar

For the year ended 31 December 2022	Exploration and production							Others	Intercompany elimination	Total
	Southeast Asia									
	Thailand	Other Southeast Asia	Middle East	Australia	America	Africa	Others			
Revenues - Third parties	283	1,542	429	-	-	-	50	70	-	2,374
- Related parties	5,369	1,060	811	-	-	160	-	-	(353)	7,047
Other income	110	2	72	-	-	14	-	134	(180)	152
Interest income	-	3	1	-	-	10	-	-	-	14
Total revenues	5,762	2,607	1,313	-	-	184	50	204	(533)	9,587
Operating expenses	674	672	86	-	-	17	13	67	(419)	1,110
Exploration expenses	4	4	28	31	5	-	-	-	-	72
Administrative expenses	63	96	12	132	5	10	2	104	(114)	310
Petroleum royalties	596	78	-	-	-	14	-	-	-	688
Depreciation, depletion and amortisation	1,399	608	261	-	-	36	15	9	(4)	2,324
Loss on foreign exchange rates	54	10	-	2	5	-	-	-	-	71
Finance costs	65	23	5	-	-	2	-	-	-	95
Share of profit of associates and joint ventures	-	-	(19)	(1)	-	-	-	-	-	(20)
Impairment loss on assets and goodwill	-	-	-	-	95	205	-	-	-	300
Total expenses	2,855	1,491	373	164	110	284	30	180	(537)	4,950
Segment profit (loss)	2,907	1,116	940	(164)	(110)	(100)	20	24	4	4,637
Depreciation - general										(39)
Administrative expenses										(268)
Operating profit										4,330
Other income, net										43
Interest income										30
Finance costs										(139)
Loss on foreign exchange rates										(20)
Loss on remeasuring financial instruments										(184)
Profit before income taxes										4,060
Income tax - Project	(1,064)	(333)	(648)	-	-	(67)	(8)	(13)		(2,133)
- Group										72
Profit (loss) for the year	1,843	783	292	(164)	(110)	(167)	12	11		1,999

	Consolidated financial statements									
	Unit: Million Baht									
	Exploration and production							Others	Intercompany elimination	Total
	Southeast Asia									
For the year ended 31 December 2022	Thailand	Other Southeast Asia	Middle East	Australia	America	Africa	Others			
Revenues - Third parties	9,964	54,187	15,108	-	-	-	1,745	2,465	-	83,469
- Related parties	188,739	37,368	28,470	-	-	5,742	-	-	(12,438)	247,881
Other income	3,918	85	2,639	4	-	509	-	4,693	(6,363)	5,485
Interest income	11	125	21	-	-	327	4	9	-	497
Total revenues	202,632	91,765	46,238	4	-	6,578	1,749	7,167	(18,801)	337,332
Operating expenses	23,787	23,630	3,035	-	-	609	449	2,367	(14,785)	39,092
Exploration expenses	152	130	976	1,105	181	7	-	-	-	2,551
Administrative expenses	2,203	3,345	433	4,817	172	366	73	3,647	(4,015)	11,041
Petroleum royalties	20,891	2,750	-	-	-	497	-	-	-	24,138
Depreciation, depletion and amortisation	49,332	21,353	9,138	6	-	1,271	521	302	(130)	81,793
Loss (gain) on foreign exchange rates	1,933	380	-	54	161	(12)	5	9	-	2,530
Finance costs	2,291	820	170	-	-	55	4	7	(4)	3,343
Share of (profit) loss of associates and joint ventures	-	-	(657)	(23)	-	-	-	12	-	(668)
Impairment loss on assets and goodwill	-	-	-	-	3,517	7,136	-	-	-	10,653
Total expenses	100,589	52,408	13,095	5,959	4,031	9,929	1,052	6,344	(18,934)	174,473
Segment profit (loss)	102,043	39,357	33,143	(5,955)	(4,031)	(3,351)	697	823	133	162,859
Depreciation - general										(1,375)
Administrative expenses										(9,345)
Operating profit										152,139
Other income, net										1,500
Interest income										1,069
Finance costs										(4,875)
Loss on foreign exchange rates										(748)
Loss on remeasuring financial instruments										(5,889)
Profit before income taxes										143,196
Income tax - Project	(37,320)	(11,654)	(22,793)	-	-	(2,346)	(295)	(464)		(74,872)
- Group										2,577
Profit (loss) for the year	64,723	27,703	10,350	(5,955)	(4,031)	(5,697)	402	359		70,901

	Consolidated financial statements								
	Unit: Million US Dollar								
	Exploration and production							Others	Total
	Southeast Asia								
As at 31 December 2022	Thailand	Other Southeast Asia	Middle East	Australia	America	Africa	Others		
Segment assets	7,294	6,127	3,229	272	72	4,001	222	144	21,361
Investments under equity method	-	-	33	-	-	-	-	245	278
Unallocated assets									3,529
Total assets									25,168
Segment liabilities	5,250	1,875	589	132	2	643	64	54	8,609
Unallocated liabilities									3,044
Total liabilities									11,653
Capital expenditures	2,814	543	182	-	1	156	11	88	3,795

	Consolidated financial statements								
	Unit: Million Baht								
	Exploration and production							Others	Total
	Southeast Asia								
As at 31 December 2022	Thailand	Other Southeast Asia	Middle East	Australia	America	Africa	Others		
Segment assets	252,107	211,768	111,587	9,393	2,498	138,300	7,660	4,968	738,281
Investments under equity method	-	-	1,149	-	-	-	-	8,445	9,594
Unallocated assets									121,989
Total assets									869,864
Segment liabilities	181,473	64,796	20,350	4,551	66	22,211	2,234	1,863	297,544
Unallocated liabilities									105,200
Total liabilities									402,744
Capital expenditures	98,453	18,984	6,347	-	51	5,452	372	3,092	132,751

	Consolidated financial statements									
	Unit: Million US Dollar									
	Exploration and production							Others	Intercompany elimination	Total
	Southeast Asia									
For the year ended 31 December 2021	Thailand	Other Southeast Asia	Middle East	Australia	America	Africa	Others			
Revenues - Third parties	231	926	702	-	2	-	47	63	-	1,971
- Related parties	4,074	844	127	-	-	58	-	-	(250)	4,853
Other income	35	81	-	-	-	-	-	119	(119)	116
Gain from a bargain purchase	-	-	342	-	-	-	-	-	-	342
Interest income	-	1	-	-	-	9	-	-	-	10
Total revenues	4,340	1,852	1,171	-	2	67	47	182	(369)	7,292
Operating expenses	454	512	84	-	1	13	13	53	(269)	861
Exploration expenses	-	59	9	(11)	168	1	-	-	-	226
Administrative expenses	43	58	13	2	7	16	-	91	(101)	129
Petroleum royalties	501	29	-	-	-	-	-	-	-	530
Depreciation, depletion and amortisation	1,339	550	237	-	-	23	15	9	(4)	2,169
Loss on foreign exchange rates	38	14	-	-	1	-	-	-	-	53
Finance costs	54	26	4	-	-	1	-	-	-	85
Share of (profit) loss of associates and joint ventures	-	-	(1)	4	-	-	-	(18)	-	(15)
Impairment loss on assets and goodwill	-	20	-	-	-	163	-	-	-	183
Total expenses	2,429	1,268	346	(5)	177	217	28	135	(374)	4,221
Segment profit (loss)	1,911	584	825	5	(175)	(150)	19	47	5	3,071
Depreciation - general										(33)
Administrative expenses										(226)
Operating profit										2,812
Other income, net										15
Interest income										7
Finance costs										(117)
Gain on foreign exchange rates										15
Loss on remeasuring financial instruments										(234)
Profit before income taxes										2,498
Income tax - Project	(691)	(228)	(399)	-	-	3	(6)	(10)		(1,331)
- Group										44
Profit (loss) for the year	1,220	356	426	5	(175)	(147)	13	37		1,211

For the year ended 31 December 2021	Exploration and production							Others	Intercompany elimination	Total
	Southeast Asia									
	Thailand	Other Southeast Asia	Middle East	Australia	America	Africa	Others			
										Consolidated financial statements
										Unit: Million Baht
Revenues - Third parties	7,393	29,893	22,661	-	68	-	1,522	2,027	-	63,564
- Related parties	130,461	26,992	4,217	-	-	1,848	-	-	(8,014)	155,504
Other income	1,103	2,704	8	2	2	-	-	3,815	(3,797)	3,837
Gain from a bargain purchase	-	-	10,694	-	-	-	-	-	-	10,694
Interest income	2	30	1	-	1	290	-	-	-	324
Total revenues	138,959	59,619	37,581	2	71	2,138	1,522	5,842	(11,811)	233,923
Operating expenses	14,600	16,459	2,698	-	33	402	407	1,728	(8,603)	27,724
Exploration expenses	4	1,930	276	(366)	5,222	44	-	-	-	7,110
Administrative expenses	1,380	1,865	496	41	234	531	6	2,858	(3,245)	4,166
Petroleum royalties	16,052	938	-	-	5	-	-	-	-	16,995
Depreciation, depletion and amortisation	42,617	17,604	7,614	2	4	727	484	285	(115)	69,222
Loss (gain) on foreign exchange rates	1,242	446	-	5	9	(3)	-	5	-	1,704
Finance costs	1,736	802	132	-	1	35	6	2	(10)	2,704
Share of (profit) loss of associates and joint ventures	-	-	(25)	142	-	-	-	(606)	-	(489)
Impairment loss on assets and goodwill	-	671	-	-	-	5,471	-	-	-	6,142
Total expenses	77,631	40,715	11,191	(176)	5,508	7,207	903	4,272	(11,973)	135,278
Segment profit (loss)	61,328	18,904	26,390	178	(5,437)	(5,069)	619	1,570	162	98,645
Depreciation - general										(1,072)
Administrative expenses										(7,250)
Operating profit										90,323
Other income, net										501
Interest income										208
Finance costs										(3,768)
Gain on foreign exchange rates										391
Loss on remeasuring financial instruments										(7,263)
Profit before income taxes										80,392
Income tax - Project	(22,204)	(7,324)	(13,012)	-	(5)	95	(191)	(317)		(42,958)
- Group										1,430
Profit (loss) for the year	39,124	11,580	13,378	178	(5,442)	(4,974)	428	1,253		38,864

	Consolidated financial statements								
	Unit: Million US Dollar								
	Exploration and production							Others	Total
	Southeast Asia								
As at 31 December 2021	Thailand	Other Southeast Asia	Middle East	Australia	America	Africa	Others		
Segment assets	5,859	6,180	3,477	305	166	4,061	227	111	20,386
Investments under equity method	-	-	48	-	-	-	-	383	431
Unallocated assets									2,628
Total assets									23,445
Segment liabilities	4,039	1,826	641	2	7	620	72	48	7,255
Unallocated liabilities									3,762
Total liabilities									11,017
Capital expenditures	1,149	542	2,658	-	34	355	4	80	4,822

	Consolidated financial statements								
	Unit: Million Baht								
	Exploration and production							Others	Total
	Southeast Asia								
As at 31 December 2021	Thailand	Other Southeast Asia	Middle East	Australia	America	Africa	Others		
Segment assets	195,806	206,531	116,192	10,186	5,562	135,702	7,578	3,726	681,283
Investments under equity method	-	-	1,590	-	-	-	-	12,818	14,408
Unallocated assets									87,845
Total assets									783,536
Segment liabilities	135,001	61,010	21,416	64	228	20,734	2,408	1,594	242,455
Unallocated liabilities									125,731
Total liabilities									368,186
Capital expenditures	36,688	17,290	82,415	-	1,098	11,340	142	2,547	151,520

The Group is organised into the following business segments:

- Exploration and production: The Group operates in oil and gas exploration and production both domestically and overseas including gas transportation pipeline in overseas, either as an operator or as a joint venture partner with international oil and gas companies. Most domestic projects are located in the Gulf of Thailand. Overseas projects are located in Southeast Asia, Middle East, Australia, America, Africa and others.
- The Group's other operations consist mainly of investments in related business associated with the Group's strategy, and other operations. These do not constitute a separately reportable segment.

For the year ended 31 December 2022 and 2021, the Group has one major customer from revenues under the exploration and production segment, representing 70% of total revenues from sales. The mentioned revenue is presented in Note 15 (a) under the topic transactions with parent company.

9 Fair value

9.1 Fair value estimation

The following tables present financial assets and liabilities recognised by their fair value hierarchy.

	Consolidated financial statements							
	Unit: Million US Dollar							
	Level 1		Level 2		Level 3		Total	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Assets								
Financial derivatives assets								
Derivatives assets used for hedging								
- Cross currency and interest rate swap	-	-	27	-	-	-	27	-
- Interest rate collar (zero cost collar)	-	-	-	1	-	-	-	1
Derivatives assets measured at fair value through profit or loss								
- Oil price hedge	-	-	14	9	-	-	14	9
- Forward foreign exchange contracts	-	-	2	7	-	-	2	7
Other financial assets								
Financial assets measured at fair value through profit or loss								
- Investment in debt instruments	1	-	-	-	-	-	1	-
Financial assets measured at fair value through other comprehensive income								
- Investment in equity instruments	1	1	-	-	-	-	1	1
Other non-current assets								
Assets measured at fair value through profit or loss								
- Pension scheme investments from joint operation	74	61	-	-	-	-	74	61
Total assets	76	62	43	17	-	-	119	79

	Consolidated financial statements							
	Unit: Million US Dollar							
	Level 1		Level 2		Level 3		Total	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Liabilities								
Financial derivatives liabilities								
Derivatives liabilities used for hedging								
- Cross currency and interest rate swap	-	-	-	41	-	-	-	41
Derivatives liabilities measured at fair value through profit or loss								
- Oil price hedge	-	-	-	15	-	-	-	15
- Forward foreign exchange contracts	-	-	53	2	-	-	53	2
Other current liabilities								
Financial liabilities measured at fair value through profit or loss								
- Contingent considerations from business acquisition	-	-	-	-	-	1	-	1
Other non-current liabilities								
Financial liabilities measured at fair value through profit or loss								
- Contingent considerations from business acquisition	-	-	-	-	1	71	1	71
Total liabilities	-	-	53	58	1	72	54	130

	Consolidated financial statements							
	Unit: Million Baht							
	Level 1		Level 2		Level 3		Total	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Assets								
Financial derivatives assets								
Derivatives assets used for hedging								
- Cross currency and interest rate swap	-	-	917	-	-	-	917	-
- Interest rate collar (zero cost collar)	-	-	-	28	-	-	-	28
Derivatives assets measured at fair value through profit or loss								
- Oil price hedge	-	-	508	304	-	-	508	304
- Forward foreign exchange contracts	-	-	53	245	-	-	53	245
Other financial assets								
Financial assets measured at fair value through profit or loss								
- Investment in debt instruments	29	6	-	-	-	-	29	6
Financial assets measured at fair value through other comprehensive income								
- Investment in equity instruments	26	21	-	-	1	1	27	22
Other non-current assets								
Assets measured at fair value through profit or loss								
- Pension scheme investments from joint operation	2,559	2,048	-	-	-	-	2,559	2,048
Total assets	**2,614**	**2,075**	**1,478**	**577**	**1**	**1**	**4,093**	**2,653**

	Consolidated financial statements							
	Unit: Million Baht							
	Level 1		Level 2		Level 3		Total	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Liabilities								
Financial derivatives liabilities								
Derivatives liabilities used for hedging								
- Cross currency and interest rate swap	-	-	-	1,379	-	-	-	1,379
Derivatives liabilities measured at fair value through profit or loss								
- Oil price hedge	-	-	-	493	-	-	-	493
- Forward foreign exchange contracts	-	-	1,833	54	-	-	1,833	54
Other current liabilities								
Financial liabilities measured at fair value through profit or loss								
- Contingent considerations from business acquisition	-	-	-	-	25	32	25	32
Other non-current liabilities								
Financial liabilities measured at fair value through profit or loss								
- Contingent considerations from business acquisition	-	-	-	-	25	2,380	25	2,380
Total liabilities	-	-	1,833	1,926	50	2,412	1,883	4,338

	Separate financial statements							
	Unit: Million US Dollar							
	Level 1		Level 2		Level 3		Total	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Assets								
Financial derivatives assets								
Derivatives assets used for hedging								
- Cross currency and interest rate swap	-	-	18	-	-	-	18	-
Derivatives assets measured at fair value through profit or loss								
- Forward foreign exchange contracts	-	-	-	6	-	-	-	6
Total assets	-	-	18	6	-	-	18	6
Liabilities								
Financial derivatives liabilities								
Derivatives liabilities used for hedging								
- Cross currency and interest rate swap	-	-	-	8	-	-	-	8
Derivatives liabilities measured at fair value through profit or loss								
- Forward foreign exchange contracts	-	-	44	1	-	-	44	1
Total liabilities	-	-	44	9	-	-	44	9

	Separate financial statements							
	Unit: Million Baht							
	Level 1		Level 2		Level 3		Total	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Assets								
Financial derivatives assets								
Derivatives assets used for hedging								
- Cross currency and interest rate swap	-	-	613	-	-	-	613	-
Derivatives assets measured at fair value through profit or loss								
- Forward foreign exchange contracts	-	-	-	211	-	-	-	211
Other financial assets								
Financial assets measured at fair value through profit or loss								
- Investment in debt instruments	6	6	-	-	-	-	6	6
Financial assets measured at fair value through other comprehensive income								
- Investment in equity instruments	-	-	-	-	1	1	1	1
Total assets	6	6	613	211	1	1	620	218

	Separate financial statements							
	Unit: Million Baht							
	Level 1		Level 2		Level 3		Total	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Liabilities								
Financial derivatives liabilities								
Derivatives liabilities used for hedging								
- Cross currency and interest rate swap	-	-	-	281	-	-	-	281
Derivatives liabilities measured at fair value through profit or loss								
- Forward foreign exchange contracts	-	-	1,523	43	-	-	1,523	43
Total liabilities	-	-	1,523	324	-	-	1,523	324

The valuation of financial assets and financial liabilities fair value is based on accounting policy disclosed in Note 4.8 Financial assets and Note 4.19 Financial liabilities

Transfer between fair value hierarchy

The Group has no transaction transfer between Level 1, Level 2, and Level 3 of the fair value hierarchy during the year.

9.2 Fair value valuation techniques

Fair values are categorised into hierarchy based on inputs used as follows:

9.2.1 Valuation techniques used to derive level 1 fair values

The fair value of financial instruments is based on quoted prices of each asset or liability by reference of active markets.

9.2.2 Valuation techniques used to derive level 2 fair values

The fair value of financial instruments is determined using valuation techniques which significantly use observable data and, as little as possible, the Group specific estimates.

Valuation techniques used to derive level 2 fair values of financial derivative instruments are as follows:

- Oil price hedge comprises oil price swaps and options. The fair value of oil price swaps is assessed based on the price level calculated using the market price of future contracts. The fair value of oil price options is calculated using premium which requires various variable factors, such as the price level of swap, timing of exercise, and price volatility.
- The fair value of forward contracts, including forward foreign exchange contracts with resettable option, are calculated using forward foreign exchange rates that are quoted in an active market for the forward contract portion. The fair value of resettable option is assessed based on various variable factors, such as future forward foreign exchange rate, the market value of swap price, timing of exercise, and foreign exchange rate volatility.

- The fair value of cross currency and interest rate swaps including Memorandum of Understanding on Cross Currency Swap (MOU) in relation to interest rate adjustment with the financial institution, is calculated using forward interest rates derived from the yield curves in an observable interest market and forward foreign exchange rates that are quoted in an active market including assessing the possibilities of interest rate adjustment according to MOU.
- The fair value of interest rate collar which is zero cost collar (option) is assessed based on various variable factors, such as the market price level of swap, reference rate, timing of exercise, and price volatility.

9.2.3 Valuation techniques used to derive level 3 fair values

The fair value of financial instruments is measured using unobservable inputs in which the Group uses discounted cash flows method to derive level 3 fair value.

Changes in level 3 fair value of financial instruments for the year ended as at 31 December 2022 and 2021 are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar			
	Contingent considerations from business acquisition	Contingent considerations from participating interest acquisition in joint venture	Financial assets measured at fair value through comprehensive income	Total
Opening balance as at 1 January 2021	6	53	-	59
Business acquisition	69	-	-	69
Decrease	(4)	(54)	-	(58)
Changes recognised in profit or loss	1	1	-	2
Closing balance as at 31 December 2021	72	-	-	72
Increase	-	-	-	-
Changes recognised in profit or loss	(71)	-	-	(71)
Closing balance as at 31 December 2022	1	-	-	1

	Consolidated financial statements			
				Unit: Million Baht
	Contingent considerations from business acquisition	Contingent considerations from participating interest acquisition in joint venture	Financial assets measured at fair value through comprehensive income	Total
Opening balance as at 1 January 2021	169	1,601	1	1,771
Business acquisition	2,132	-	-	2,132
Decrease	(108)	(1,745)	-	(1,853)
Changes recognised in profit or loss	33	43	-	76
Currency translation differences	186	101	-	287
Closing balance as at 31 December 2021	2,412	-	1	2,413
Increase	3	-	-	3
Changes recognised in profit or loss	(2,478)	-	-	(2,478)
Currency translation differences	113	-	-	113
Closing balance as at 31 December 2022	50	-	1	51

During 2022, the contingent consideration in a business acquisition of Block 61 Sultanate of Oman (Oman Block 61) was changed due to possibilities in relation to conditions as specified in sale and purchase agreement (SPA). The Group recognised such changes in contingent consideration in the consolidated statement of income.

	Separate financial statements
	Unit: Million US Dollar
	Financial assets measured at fair value through other comprehensive income
Opening balance as at 1 January 2021	-
Changes recognised in other comprehensive income	-
Closing balance as at 31 December 2021	-
Changes recognised in other comprehensive income	-
Closing balance as at 31 December 2022	-

	Separate financial statements
	Unit: Million Baht
	Financial assets measured at fair value through other comprehensive income
Opening balance as at 1 January 2021	1
Changes recognised in other comprehensive income	-
Closing balance as at 31 December 2021	1
Changes recognised in other comprehensive income	-
Closing balance as at 31 December 2022	1

The following table summarises the quantitative information about the significant unobservable inputs used in level 3 fair value measurements.

	Fair value				Unobservable inputs		
	Unit: Million US Dollar		Unit: Million Baht			Inputs	
	2022	2021	2022	2021		2022	2021
Contingent consideration in a business combination	1	72	50	2,412	Risk-adjusted discount rate	2.71% - 2.84%	1.79% - 2.84%

The following table presents the relationship of unobservable inputs to fair value:

			Change in fair value	
			Increase in assumption	Decrease in assumption
	Unobservable input	Movement	2022	2022
Contingent consideration in a business combination	Risk-adjusted discount rate	1.00%	Decrease by 0.64%	Increase by 0.66%

The Group's valuation processes

Significant unobservable input of fair value hierarchy level 3 is risk adjusted discount rate. It is estimated based on the Group's cost of debt and assumptions relating to possibilities in accordance to conditions as specified in sale and purchase agreement (SPA).

The fair value of investments in unquoted equity, classified as financial assets and measured at fair value through comprehensive income, were assessed based on business plan and market conditions. Management considers that the book value of the financial assets approximates their fair value.

The following figures presented fair value and book value of assets and financial liabilities for each category, but not include transaction which has a book value similar to fair value.

The details of fair values of long-term loans and long-term liabilities as at 31 December 2022 and 2021 calculated by using the discounted cash flow based on a discount rate of borrowing with similar terms are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar			
	Book value		Fair value	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Unsecured and unsubordinated debentures	2,809	2,925	2,567	3,278

	Consolidated financial statements			
	Unit: Million Baht			
	Book value		Fair value	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Unsecured and unsubordinated debentures	97,095	97,738	88,723	109,542

	Separate financial statements			
	Unit: Million US Dollar			
	Book value		Fair value	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Long-term loans to related parties	6,983	6,441	7,479	7,035
Unsecured and unsubordinated debentures	503	520	537	574

	Separate financial statements			
	Unit: Million Baht			
	Book value		Fair value	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Long-term loans to related parties	241,343	215,252	258,501	235,123
Unsecured and unsubordinated debentures	17,387	17,384	18,570	19,176

Book value of long-term loans to related parties and unsecured and unsubordinated debentures is measured at amortised cost.

The fair value of debentures in Thai Baht is calculated using the reference price in the secondary market of Thai Bond Market Association that are quoted in an active market and classified as level 2 fair value.

The fair value of debentures in US Dollar is calculated using the reference observable price in the secondary market of foreign bond that are quoted in an active market and classified as level 2 fair value.

The fair value of long-term loans to related parties is calculated by the discounted cash flow method using the reference discount rate in the market and classified as level 3 fair value.

The fair value of the following financial assets and liabilities approximates their book value.

The book value of long-term loans approximates their fair value, since their interest rates are close to market rate.

Consolidated financial statements	Separate financial statements
Financial assets	Financial assets
• Cash and cash equivalents	• Cash and cash equivalents
• Trade and other receivables	• Trade and other receivables
• Other current assets	• Short-term loans to related parties
• Long-term loans to related parties	• Other current assets
• Other non-current financial assets	• Other non-current assets
• Other non-current assets	
Financial liabilities	Financial liabilities
• Trade and other payables	• Trade and other payables
• Lease liabilities	• Short-term loans from related parties
• Other current liabilities	• Lease liabilities
• Long-term loans	• Other current liabilities

Book value of the above financial assets and liabilities is measured at amortised cost.

10 Cash and cash equivalents

Cash and cash equivalents comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Cash and bank deposits	2,069	1,756	71,503	58,681
Cash equivalents				
Fixed deposits with banks	1,114	803	38,501	26,841
Money market funds	356	-	12,320	6
Total cash and cash equivalents	3,539	2,559	122,324	85,528

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Cash and bank deposits	253	298	8,749	9,968
Cash equivalents				
Fixed deposits with banks	581	490	20,056	16,376
Money market funds	356	-	12,320	6
Total cash and cash equivalents	1,190	788	41,125	26,350

11 Trade and other receivables

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Trade receivables, net (Note 15)	996	796	34,439	26,613
Other receivables, net	224	204	7,727	6,817
Total trade and other receivables, net	1,220	1,000	42,166	33,430

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Trade receivables, net (Note 15)	409	311	14,141	10,377
Other receivables, net	402	301	13,889	10,066
Total trade and other receivables, net	811	612	28,030	20,443

Aging of trade receivables can be analysed as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Not yet due	964	769	33,325	25,726
Over due				
- Up to 3 months	6	-	221	-
- Over 3 months but not over 6 months	-	-	-	-
- Over 6 months but not over 12 months	1	-	26	-
- Over 12 months	25	28	867	920
	996	797	34,439	26,646
Less Loss allowance from impairment	-	(1)	-	(33)
Total	996	796	34,439	26,613

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Not yet due	384	284	13,275	9,492
Over due				
- Up to 3 months	-	-	-	-
- Over 3 months but not over 6 months	-	-	-	-
- Over 6 months but not over 12 months	-	-	-	-
- Over 12 months	25	28	866	918
	409	312	14,141	10,410
Less Loss allowance from impairment	-	(1)	-	(33)
Total	409	311	14,141	10,377

Due to the short-term nature of the current receivables, their carrying amount is considered to be the same as their fair values.

12 Other current financial assets

Other current financial assets comprised investments in fixed income fund. The movements of other current financial assets for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Opening book value	-	-	-	-
Increase	226	368	7,915	11,771
Decrease	(223)	(367)	(7,826)	(11,724)
Foreign exchange differences	(2)	(1)	(66)	(47)
Closing book value	1	-	23	-

Other current financial assets above is financial assets at fair value through profit or loss (FVPL). The Group's exposure on credit risk is related to investment in debt measured at FVPL. The ultimate risk at the end of reporting period is equivalent to the book value of the investment.

13 Inventories

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Inventory	40	36	1,368	1,217
Materials and supplies	537	426	18,569	14,237
	577	462	19,937	15,454
Less Allowance for slow moving and obsolete	(24)	(41)	(822)	(1,385)
Total	553	421	19,115	14,069

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Inventory	11	5	391	159
Materials and supplies	108	138	3,745	4,617
	119	143	4,136	4,776
Less Allowance for slow moving and obsolete	(11)	(23)	(414)	(762)
Total	108	120	3,722	4,014

14 Assets and liabilities held-for-sale

- On 31 August 2022, PTTEP Netherlands Holding Holding Coöperatie U.A. (PTTEP NH) and PTTEP Brazil Investment B.V. (PTTEP BI), subsidiaries of the Group, signed a sale and purchase agreement to sell all of the investment in PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL), a subsidiary of the Group, which registered in Federative Republic of Brazil, to Ubuntu Engenharia e Serviços Ltda. PTTEP BL has participating interests in Barreirinhas AP1 project at 25% and Brazil BM-ES-23 project at 20%. The sale and purchase shall be completed when the conditions specified in the sale and purchase agreement are met.

  On 31 December 2022, the Group had classified such investment as assets and liabilities held-for-sale at the lower of the carrying amount and the fair value less costs to sell and recognised the impairment loss amounting to US Dollar 95.00 million (Baht 3,517.27 million) in 2022.

- On 16 December 2022, PTTEP (Angola) Corporation (PANG), a subsidiary of the Group, signed a sale and purchase agreement to sell all of the investment in Block 17/6 in Angola at 2.5% to SOMOIL BLOCO 17/06 (SU), S.A. The sale and purchase shall be completed when the conditions specified in the sale and purchase agreement are met, which is expected to be completed by the mid of 2023.

  On 31 December 2022, the Group had classified such investment as assets and liabilities held-for-sale at the lower of the carrying amount and the fair value less costs to sell and recognised the impairment loss amounting to US Dollar 15.08 million (Baht 524.79 million) in 2022.

15 Significant transactions with related parties

Individuals or entities that directly, or indirectly through one or more intermediaries, control, or are controlled by, or are under common control with, the Company, including holding companies, subsidiaries and fellow subsidiaries are related parties of the Company. Individuals and associates owning, directly or indirectly, an interest in the voting power of the Company that gives them significant influence over the enterprise, key management personnel, directors and close members of the family of these individuals and companies associated with these individuals also constitute related parties.

In considering each possible related party relationship, the Company's attention is directed to the substance of the relationship, and not merely the legal form.

PTT Public Company Limited, a company registered in Thailand, is the major shareholder of the Company and holds in proportion of 63.79% of the shareholding interest. The general public hold the remaining shares.

Other related parties include major shareholders, associates and joint ventures of the Company, which have control in other related parties.

The pricing policies for transactions between parent company, subsidiaries, associates, joint ventures, joint operations and related parties are as follows:

- Sales are set based on market price.
- Interest income is calculated using weighted average cost of debt plus profit markup.
- Other income is calculated based on rate in the agreement.
- Dividend income is approved by shareholders of subsidiaries, associates and joint ventures.
- The prices of purchases and services charged are in accordance with the conditions in the agreement.
- Rental expenses are set based on price in the agreement.
- Other expenses comprise management and service fees charged to the parent company, subsidiaries and related parties for rendering the management services in the normal course of business. The fees are based on the service costs plus profit markup and loss on oil price hedge is calculated based on rate in the agreement.

Significant transactions with related parties are summarised as follows:

a) Transactions with related parties

Transactions with related parties for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Parent company				
Revenue from sales	6,498	4,712	227,961	151,070
Other income	7	5	231	159
Purchase and other expenses	5	6	179	190
Subsidiaries, associates, joint ventures and joint operations				
Interest income	-	-	1	6
Other income	1	2	38	61
Dividend income	61	41	2,133	1,301
Rental and service expenses	59	49	2,058	1,552
Purchase and other expenses	-	-	2	-
Other related parties				
Revenue from sales	549	140	19,920	4,434
Interest income	-	1	13	31
Other income	2	1	72	18
Purchase and other expenses	100	82	3,513	2,632

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Parent company				
Revenue from sales	3,621	3,115	126,935	99,763
Other income	2	2	64	69
Purchase and other expenses	5	5	163	148
Subsidiaries, associates, joint ventures and joint operations				
Interest income	334	367	11,667	11,719
Other income	1	2	48	71
Dividend income	136	72	4,810	2,293
Rental and service expenses	38	47	1,317	1,496
Other related parties				
Revenue from sales	74	-	2,697	-
Other income	-	1	12	18
Purchase and other expenses	10	33	351	1,053

b) Account receivable - related parties

Account receivable - related parties comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Parent company	676	503	23,360	16,817

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Parent company	377	310	13,033	10,353

c) Short-term loans from a related party

Short-term loans from a related party comprised:

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Subsidiary	512	-	17,682	-

The Group has a loan from subsidiary and the interest rate for the year ended 31 December 2022 was 2.00 – 3.80 % per annum.

d) Short-term loans to related parties

Short-term loans to related parties comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Joint venture	1	-	46	-

The Group has provided loans to a joint venture and the interest rate for the year ended 31 December 2022 was 7% per annum.

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Subsidiary	-	527	-	17,622

The Company has provided loans to a subsidiary and the interest rate for the year ended 31 December 2021 was 0.05% per annum.

e) Long-term loans to related parties

Long-term loans to related parties comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Associate	-	-	15	-
Other related party	-	42	-	1,387
	-	42	15	1,387

The Company has provided loans to an associate and the interest rate for the year ended 31 December 2022 was 6.25% - 6.85% per annum

The Group has provided loans to another related party and the interest rate for the year ended 31 December 2021 was 1.96% - 2.06% per annum.

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Subsidiary	6,983	6,441	241,343	215,252

The Company has provided loans to a subsidiary and the interest rate for the year ended 31 December 2022 was 4.74% per annum (2021: interest rate was 5.48% per annum). The borrower shall make the repayment notice within this loan term which is over than 1 year.

The movements of the long-term loans to related parties for the year are as follows:

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
Balance as at 1 January 2022	42	1,387	6,441	215,252
Increase	-	15	542	18,961
Decrease	(42)	(1,452)	-	-
Currency translation differences	-	65	-	7,130
Balance as at 31 December 2022	-	15	6,983	241,343

Loans to related parties

Loans to related parties measured at amortised cost are considered to have low credit risk, and the expected credit loss in the following 12 months and lifetime expected credit losses of the loans from increasing in credit risk is insignificant.

e) Director and executive management fees

Director and executive management fees for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Short-term benefits	7	7	244	233
Post-employment and other long-term benefits	-	-	8	12
	7	7	252	245

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Short-term benefits	7	7	244	232
Post-employment and other long-term benefits	-	-	8	12
	7	7	252	244

16 Investments in subsidiaries, associates, joint ventures and joint operations

The amounts of investments recognised in the statement of financial position are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Investments in associates	116	221	3,987	7,382
Investments in joint ventures	162	210	5,607	7,026
Total	278	431	9,594	14,408

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Investments in associates	3,198	2,485	110,539	83,041
Investments in joint ventures	26	26	884	855
Total	3,224	2,511	111,423	83,896

16.1 Significant events during the current year

On 3 December 2021, PTTEP MENA Limited (PTTEP MENA), a subsidiary of the Group, signed Farm-Out Agreement to acquire 25% stake in Sharjah Onshore Area C Project, the Emirate of Sharjah from Eni Sharjah B.V. The acquisition of the shareholding interest is an asset acquisition and was completed on 1 March 2022. The Group classified this investment as an investment in a joint operation.

On 21 January 2022, TotalEnergies EP Myanmar (TotalEnergies), an operator and joint partner of Yadana and Moattama Gas Transportation Company (MGTC) with participating interest of 31.2375%, notified its joint partners for its intention to withdraw, as both operator and joint partner, from the projects. On 14 March 2022, the project's joint partners subsequently approved PTTEP International Limited (PTTEPI), a subsidiary of the Company and a joint partner of the projects to be the operator of the projects and was effective on 20 July 2022. The participating interest of PTTEPI in Yadana and MGTC is 37.0842%.

On 19 April 2022, PTTEP Energy Development Company Limited (PTTEP ED), a subsidiary of the Group, entered into an agreement with MP G2 (Thailand) Limited. As a result, PTTEP ED is a sole investment operator who has control over the operation and entitlement to net assets related to G1/61 project including of all revenue, costs and petroleum operating expenses related to the project since then. The Group performed a concentration test of the gross assets acquired from such agreement in accordance to the requirement of TFRS 3 Business Combination and found that all of the fair value of gross assets is substantially concentrated in the exploration and production assets which is considered as an asset acquisition in accordance to TFRS 3. Therefore, PTTEP ED recognised the asset acquisition transaction as property, plant and equipment amounting to US Dollar 117.85 million (Baht 3,974.01 million) and the remainings were recognised as relevant assets and liabilities.

On 26 October 2022, PTTEP MENA signed Farm-Out Agreement to acquire 25% stake in Sharjah Onshore Area A Project, the Emirate of Sharjah from Eni Sharjah B.V. The acquisition of the shareholding interest is an asset acquisition and was completed on 23 December 2022. The Group classified this investment as an investment in a joint operation.

16.2 Investments in subsidiaries

Changes of investments in subsidiaries during the year are as follows:

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
For the year ended 31 December	2022	2021	2022	2021
Opening book value	2,485	1,082	83,041	32,511
Increase in investments	713	1,403	24,960	44,771
Currency translation differences	-	-	2,538	5,759
Closing book value	3,198	2,485	110,539	83,041

On 20 January 2022, PTTEP Energy Holding (Thailand) Company Limited (PTTEP EH), a subsidiary of the Company, increased its authorised share capital amounting to Baht 182.85 million by issuing of 1.83 million new ordinary shares at a par value of Baht 100 each. The Company paid the share subscription according to the Company's shareholding portion with an amount equivalent to US Dollar 5.45 million.

On 3 March 2022, PTTEP EH increased its authorised share capital amounting to Baht 2,591.99 million by issuing of 25.92 million new ordinary shares at a par value of Baht 100 each. The Company paid the share subscription according to the Company's shareholding portion with an amount equivalent to US Dollar 78.75 million.

On 15 March 2022, PTTEP HK Holding Limited (PTTEP HK), a subsidiary of the Company, increased its authorised share capital of Hong Kong Dollar (HK Dollar) 156.45 million by increasing its par value to be HK Dollar 1.50 million per share. The Company paid the share subscription according to the Company's shareholding portion with an amount equivalent to US Dollar 5 million.

On 20 May 2022, PTTEP EH increased its authorised share capital amounting to Baht 9,282 million by issuing of 92.82 million new ordinary shares at a par value of Baht 100 each. The Company paid the share subscription according to the Company's shareholding portion with an amount equivalent to US Dollar 273 million.

On 29 August 2022, PTTEP EH increased its authorised share capital amounting to Baht 46 million by issuing 0.46 million new ordinary shares at a par value of Baht 100 each. The Company paid the share subscription to the Company's shareholding portion with an amount equivalent to US Dollar 1.26 million.

On 3 October 2022, PTTEP EH increased its authorised share capital amounting to Baht 12,668 million by issuing of 126.68 million new ordinary shares at a par value of Baht 100 each. The Company paid the share subscription according to the Company's shareholding portion with an amount equivalent to US Dollar 350 million.

On 22 November 2022, EP-Tech Ventures Holding Company Limited (EP-Tech), a subsidiary of the Group, established Xplore Ventures Company Limited (XPV) with a registered capital of Baht 5 million. The registered capital comprises 0.05 million ordinary shares at a par value of Baht 100 each. EP-Tech holds 100% interest in XPV. Its registered shares were fully paid with an amount equivalent to US Dollar 0.13 million. The Group classifies the investment in XPV as an investment in a subsidiary.

Details of investments in subsidiaries of the Company are as follows:

List of subsidiaries	Country of incorporation	Type of business	Participating interest (%) (including direct holding)		Participating interest (%) (including indirect holding)		Separate financial statements (Cost method)			
							Unit: Million US Dollar		Unit: Million Baht	
			31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
PTTEP International Limited (PTTEPI)	Thailand	Petroleum	100	100	-	-	516	516	17,847	17,257
PTTEP Services Limited (PTTEP Services)	Thailand	Human resource support	25	25	75	75	-	-	3	3
PTTEP Siam Limited (PTTEPS)	Thailand	Petroleum	51	51	49	49	100	100	3,449	3,335
PTTEP Offshore Investment Company Limited (PTTEPO)	Cayman Islands	Petroleum	75	75	25	25	-	-	-	-
PTTEP HK Holding Limited (PTTEP HK)	Hong Kong	Petroleum	25	25	75	75	484	479	16,728	16,008
PTTEP Treasury Center Company Limited (PTTEP TC)	Thailand	Treasury center for the Group's business	25	25	75	75	-	-	3	2
PTTEP Energy Holding (Thailand) Company Limited (PTTEP EH)	Thailand	Petroleum	100	100	-	-	2,098	1,390	72,509	46,436

Investments in subsidiaries of the Company for the consolidated financial statements are as follows:

List of subsidiaries	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)	
			31 December 2022	31 December 2021
PTTEP Business Center Company Limited (PTTEP BC)	Thailand	Petroleum	100	100
PTTEP Energy Development Company Limited (PTTEP ED)	Thailand	Petroleum	100	100
EP-Tech Ventures Holding Company Limited (EP-Tech)	Thailand	Petroleum related technology	100	100
AI and Robotics Ventures Company Limited (ARV)	Thailand	Technology	100	100
PTTEP Southwest Vietnam Company Limited (PTTEP SV)	Cayman Islands	Petroleum	100	100
PTTEP Kim Long Vietnam Company Limited (PTTEP KV)	Cayman Islands	Petroleum	100	100
PTTEP Hoang-Long Company Limited (PTTEP HL)	Cayman Islands	Petroleum	100	100
PTTEP Hoan-Vu Company Limited (PTTEP HV)	Cayman Islands	Petroleum	100	100
PTTEP Algeria Company Limited (PTTEP AG)	Cayman Islands	Petroleum	100	100
PTTEP Holding Company Limited (PTTEPH)	Cayman Islands	Petroleum	100	100
PTTEP Indonesia Company Limited (PTTEP ID)	Cayman Islands	Petroleum	100	100
PTTEP Africa Investment Limited (PTTEP AI)	Cayman Islands	Petroleum	100	100
PTTEP Australia Pty Ltd (PTTEP AU)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia Offshore Pty Ltd (PTTEP AO)	Commonwealth of Australia	Petroleum	100	100
PTTEP South Asia Limited (PTTEP SA)	Cayman Islands	Petroleum	100	100
PTTEP Australia Perth Pty Ltd (PTTEP AP)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia Browse Basin Pty Ltd (PTTEP AB)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australia Timor Sea Pty Ltd (PTTEP AT)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Operations) Pty Ltd (PTTEP AAO)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA)	Commonwealth of Australia	Petroleum	100	100
PTTEP Australasia (Staff) Pty Ltd (PTTEP AAS)	Commonwealth of Australia	Petroleum	100	100

List of subsidiaries	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)	
			31 December 2022	31 December 2021
PTTEP International Holding Company Limited (PTTEP IH)	Cayman Islands	Petroleum	100	100
PTTEP Southwest Vietnam Pipeline Company Limited (PTTEP SVPC)	Cayman Islands	Gas pipeline transportation	100	100
PTTEP FLNG Holding Company Limited (PTTEP FH) [1]	Hong Kong	Petroleum	-	100
PTTEP Netherland Holding Limited (PTTEP NL)	Cayman Islands	Petroleum	100	100
JV Marine Limited (JV Marine)	Cayman Islands	Petroleum	100	100
PTTEP South Mandar Limited (PTTEP SMD)	Cayman Islands	Petroleum	100	100
PTTEP South Sageri Limited (PTTEP SS) [2]	Cayman Islands	Petroleum	-	100
PTTEP Sadang Limited (PTTEP SD) [3]	Cayman Islands	Petroleum	-	100
PTTEP Malunda Limted (PTTEP ML)	Cayman Islands	Petroleum	100	100
PTTEP Netherlands Coöperatie U.A. (PTTEP NC)	Netherlands	Petroleum	100	100
PTTEP Canada Limited (PTTEP CA)	Canada	Petroleum	100	100
PTTEP Canada International Finance Limited (PTTEP CIF)	Canada	Investment funding for the Group's business	100	100
Cove Energy Limited (Cove)	United Kingdom of Great Britain and Northern Ireland	Petroleum	100	100
Cove Energy East Africa Limited (CEEAL)	Republic of Cyprus	Petroleum	100	100
PTTEP Mozambique Area 1 Limited (PTTEP MZA1)	Republic of Cyprus	Petroleum	100	100
PTTEP Netherlands Holding Coöperatie U.A. (PTTEP NH)	Netherlands	Petroleum	100	100
PTTEP Brazil Investment B.V. (PTTEP BI)	Netherlands	Petroleum	100	100
PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL)	Federative Republic of Brazil	Petroleum	100	100
Sinphuhorm Holdings Limited (SHL)	Cayman Islands	Petroleum	100	100
PTTEP SP Limited (PTTEP SP)	United Kingdom of Great Britain and Northern Ireland	Petroleum	100	100
PTTEP G7 Limited (PTTEP G7) [4]	Thailand	Petroleum	100	100
PTTEP HK Offshore Limited (PTTEP HKO)	Hong Kong	Petroleum	100	100
PTTEP MENA Limited (PTTEP MENA)	Hong Kong	Petroleum	100	100
PTTEP Mexico E&P Limited, S. de R.L. de C.V. (PTTEP MEP)	Mexico	Petroleum	100	100
PTTEP Sabah Oil Limited (PTTEP SBO)	Bahamas	Petroleum	100	100
PTTEP Sarawak Oil Limited (PTTEP SKO)	Bahamas	Petroleum	100	100

List of subsidiaries	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)	
			31 December 2022	31 December 2021
PTTEP Group Holding B.V. (PGH)	Netherlands	Petroleum	100	100
PTTEP (Kazakhstan) Corporation (PKC)	Cayman Islands	Petroleum	100	100
PTTEP (Angola) Corporation (PANG)	Cayman Islands	Petroleum	100	100
Partex (Brazil) Corporation (PBC) [5]	Cayman Islands	Petroleum	100	100
PTTEP Gas Corporation (PGC)	Republic of Panama	Petroleum	100	100
Partex Services Corporation (PSC)	Republic of Panama	Human resource support	100	100
Participations and Explorations Corporation (PEC) [6]	Republic of Panama	Petroleum	-	100
PTTEP Oman E&P Corporation (POC)	Republic of Panama	Petroleum	100	100
Partex Services Portugal – Serviços para a Indústria Petrolífera, S.A. (PSP) [7]	Portugal	Human resource support	-	100
Asia Power and Transportation SG Holding PTE. LTD. (APT)	Singapore	Petroleum related business	100	100
Delta Gas Transportation SG Holding PTE. LTD. (DGH)	Singapore	Gas pipeline transportation	100	100
Delta Gas Transportation Limited (DGT)	Republic of the Union of Myanmar	Gas pipeline transportation	100	100
Rovula (Thailand) Co., Ltd. (Rovula)	Thailand	Technology	100	100
Skyller Solutions Co., Ltd. (Skyller)	Thailand	Technology	100	100
Varuna (Thailand) Co., Ltd. (Varuna)	Thailand	Technology	100	100
Cariva (Thailand) Co., Ltd. (Cariva)	Thailand	Technology	100	100
FutureTech Energy Ventures Co., Ltd. (FEV)	Thailand	Renewable energy and related new business	100	100
FutureTech Solar (Thailand) Co., Ltd. (FST)	Thailand	Solar power	100	100
Xplore Ventures Company Limited. (XPV)	Thailand	Technology and innovation	100	-

[1] On 15 July 2022, PTTEP FLNG Holding Company Limited (PTTEP FH), a subsidiary of the Group, received the approval for company dissolution from the registrar.

[2] On 30 December 2022, PTTEP South Sageri Limited (PTTEP SS), a subsidiary of the Group, received the approval for company dissolution from the registrar.

[3] On 31 March 2022, PTTEP Sadang Limited (PTTEP SD), a subsidiary of the Group, received the approval for company dissolution from the registrar.

4 On 4 November 2022, PTTEP G7 Limited (PTTEP G7), a subsidiary of the Group, has registered for the dissolution with the Ministry of Commerce and in the process of liquidation.

5 On 28 December 2022, Partex (Brazil) Corporation (PBC), a subsidiary of the Group, received the approval for company dissolution from the registrar and is in the process of dissolution.

6 On 23 December 2022, Participations and Explorations Corporation (PEC), a subsidiary of the Group, received the approval for company dissolution from the registrar.

7 On 1 April 2022, Partex Services Portugal – Serviços para a Indústria Petrolífera, S.A. (PSP), a subsidiary of the Group, completed the dissolution and liquidation.

16.3 Investment in associates

Changes of investments in associates during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
For the year ended 31 December	2022	2021	2022	2021
Opening book value	221	217	7,382	6,514
Share of net profit after income taxes	11	5	377	141
Dividends received	(3)	(4)	(119)	(119)
Share of other comprehensive income (expenses)				
- Remeasurement of employee benefits	-	-	7	2
- Measurement of financial assets	-	-	9	9
- Currency difference arising from translation of financial statements of associates	(3)	(9)	(92)	(267)
Increase in investments	17	12	577	391
Disposal of investment	(127)	-	(4,451)	-
Currency translation differences	-	-	297	711
Closing book value	116	221	3,987	7,382

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
For the year ended 31 December	2022	2021	2022	2021
Opening book value	26	26	855	768
Currency translation differences	-	-	29	87
Closing book value	26	26	884	855

On 10 January 2022, MoZ LNG1 Holding Company Ltd (HoldCo), an associate of the Group, increased its authorised share capital amounting to US Dollar 20.66 million by issuing of 20.66 million new ordinary shares at a par value of US Dollar 1 each. The Group paid the share subscription according to the Group's shareholding portion amounting to US Dollar 1.76 million.

On 18 January 2022, HoldCo increased its authorised share capital amounting to US Dollar 54.07 million by issuing of 54.07 million new ordinary shares at a par value of US Dollar 1 each. The Group paid the share subscription according to the Group's shareholding portion amounting to US Dollar 4.60 million.

On 21 April 2022, HoldCo increased its authorised share capital amounting to US Dollar 54.60 million by issuing of 54.60 million new ordinary shares at a par value of US Dollar 1 each. The Group paid the share subscription according to the Group's shareholding portion amounting to US Dollar 4.64 million.

On 1 July 2022, HoldCo increased its authorised share capital amounting to US Dollar 8 million by issuing of 8 million new ordinary shares at a par value of US Dollar 1 each. The Group paid the share subscription according to the Group's shareholding portion amounting to US Dollar 0.68 million.

On 15 December 2022, HoldCo increased its authorised share capital amounting to US Dollar 56.85 million by issuing of 56.85 million new ordinary shares at a par value of US Dollar 1 each. The Group paid the share subscription according to the Group's shareholding portion amounting to US Dollar 4.83 million.

Details of investment in associates of the Group and the Company are as follows:

List of associates [1, 2]	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)		Consolidated financial statements (Equity method)			
					Unit: Million US Dollar		Unit: Million Baht	
			31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Energy Complex Company Limited (Energy Complex)	Thailand	Property rental services	50	50	69	64	2,367	2,130
PTT Digital Solutions Company Limited (PTT Digital)	Thailand	Information technology and communication services	20	20	19	17	658	569
PTTEP AP Group's Associates [3]	Commonwealth of Australia	Air base services	50	50	-	-	-	-
PTT Global LNG Company Limited (PTT GL) [4]	Thailand	Petroleum	-	50	-	127	-	4,258
Leismer Aerodrome Limited (LAL)	Canada	Air transportation	32	32	-	-	-	-
MoZ LNG1 Holding Company Ltd (HoldCo)	United Arab Emirates	Petroleum	8.5	8.5	28	13	962	425
Gas Investments and Services Company Limited (GISCO)	Bermuda	Investment funding, technology, and human resource support	5	5	-	-	-	-

List of associates [1, 2]	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)		Consolidated financial statements (Cost method)			
					Unit: Million US Dollar		Unit: Million Baht	
			31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Energy Complex Company Limited (Energy Complex)	Thailand	Property rental services	50	50	25	25	857	829
PTT Digital Solutions Company Limited (PTT Digital)	Thailand	Information technology and communication services	20	20	1	1	27	26

1 All investments in associates have been assessed as immaterial to the Group.

2 The Group has no contingent liabilities with participating interest in investment in associates.

3 PTTEP AP's Group Associates are North Kimberley Airport Pty Ltd (Former name is Mungalalu Truscott Airbase Pty Ltd) and Troughton Island Pty Ltd.

4 On 17 May 2022, PTTEP Business Center Company Limited (PTTEP BC), a subsidiary of the Group, entered into Sale and Purchase Agreement (SPA) to sell all shares of PTT Global LNG Company Limited, which registered in Thailand, to Siam Management Holding Company Limited, a company under PTT Group. The transaction was completed on 1 June 2022. The Group recognised gain on disposal of the investment amounting to US Dollar 2.17 million (Baht 75.91 million) in the consolidated statement of income.

Individually immaterial associates

The Group's immaterial associates accounted for using equity method are as follows:

	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Aggregate carrying amount of share of individually immaterial associates	116	221	3,987	7,382

	Unit: Million US Dollar		Unit: Million Baht	
For the year ended 31 December	2022	2021	2022	2021
Aggregate amounts of the Group's share of associates:				
Profit from continuing operations	11	5	377	141
Other comprehensive income	(2)	(9)	(76)	(256)
Total comprehensive income for the year	9	(4)	301	(115)

16.4 Investments in Joint Ventures

Changes of investments in Joint Ventures during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
For the year ended 31 December	2022	2021	2022	2021
Opening book value	210	233	7,026	7,009
Share of net profit after income taxes	9	11	290	347
Dividends received	(58)	(37)	(2,014)	(1,182)
Share of other comprehensive income				
- Currency differences arising from translation of financial statements of joint ventures	-	-	-	(1)
Increase in investments	1	3	40	104
Currency translation differences	-	-	265	749
Closing book value	162	210	5,607	7,026

On 21 April 2022, Cariva (Thailand) Company Limited (Cariva), a subsidiary of the Group, co-invested in B-Med X Company Limited (B-Med X) with a registered capital of Baht 1 million. The registered capital comprises 0.01 million ordinary shares at a par value of Baht 100 each. Cariva holds 50% interest in B-Med X. The Group classifies the investment in B-Med X as an investment in a joint venture.

On 27 July 2022, B-Med X increased its authorised share capital amounting to Baht 19 million by issuing of 0.19 million new ordinary shares at a par value of Baht 100 each. The Group paid the share subscription according to the Group's shareholding portion with an amount equivalent to US Dollar 0.25 million.

On 29 November 2022, Skyller Solutions Co., Ltd. (Skyller), a subsidiary of the Group, co-invested in SkyVIV Company Limited (SkyVIV) with a registered capital of Baht 40 million. The registered capital comprises 0.40 million ordinary shares at a par value of Baht 100 each. Skyller holds 23.2% interest in SkyVIV. The Group paid the share subscription according to the Group's shareholding portion with an amount equivalent to US Dollar 0.55 million. The Group classifies the investment in SkyVIV as an investment in a joint venture.

Details of investments in joint ventures of the Group are as follows:

List of joint ventures [1, 2]	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)		Consolidated financial statements (Equity method)			
					Unit: Million US Dollar		Unit: Million Baht	
			31 December 2022	31 December 2021	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Erawan 2 FSO PTE. Ltd. (Erawan 2 FSO PTE.)	Singapore	FSO rental services	13.11	13.11	32	37	1,117	1,238
APICO LLC (APICO)	United States of America	Petroleum	72.8215	72.8215	95	123	3,285	4,125
Oman LNG LLC (OLNG)	Sultanate of Oman	Petroleum	2	2	33	48	1,149	1,590
ATI Technologies Company Limited (ATI)	Thailand	Technology	50	50	-	-	-	5
Zeaquest Company Limited (Zeaquest)	Thailand	Technology	50	50	1	2	23	59
AeroSky Solutions Co., Ltd. (AeroSky)	Thailand	Technology	33	33	-	-	4	9
B-Med X Company Limited (B-Med X)	Thailand	Technology	50	-	-	-	10	-
SkyVIV Company Limited (SkyVIV)	Thailand	Technology	23.2	-	1	-	19	-

[1] All investments in joint ventures have been assessed as immaterial to the Group.

[2] The Group has no contingent liabilities with participating interest in investment in joint ventures.

Individually immaterial joint ventures

The Group's immaterial joint ventures accounted for using equity method are as follows:

	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Aggregate carrying amount of share of individually immaterial joint ventures	162	210	5,607	7,026

	Unit: Million US Dollar		Unit: Million Baht	
For the year ended 31 December	2022	2021	2022	2021
Aggregate amounts of the Group's share of joint ventures:				
Profit from continuing operations	9	11	290	347
Other comprehensive income	-	-	-	(1)
Total comprehensive income for the year	9	11	290	346

16.5 Investments in Joint Operations

Details of investments in joint operations of the Group are as follows:

List of joint operations	Country of incorporation	Type of business	Participating interest (%) (including indirect holding)	
			31 December 2022	31 December 2021
Carigali - PTTEPI Operating Company Sdn Bhd. (CPOC)	Malaysia	Petroleum	50	50
Moattama Gas Transportation Company (MGTC) [1]	Bermuda	Gas pipeline transportation	37.0842	25.5
Yadana Suboo Company Limited	Bermuda	Community enterprise	37.0842	25.5
Taninthayi Pipeline Company LLC (TPC) [2]	Cayman Islands	Gas pipeline transportation	19.3178	19.3178
Orange Energy Limited (Orange)	Thailand	Petroleum	53.9496	53.9496
B8/32 Partners Limited (B8/32 Partners)	Thailand	Petroleum	25.0009	25.0009
Hoang-Long Joint Operating Company	Socialist Republic of Vietnam	Petroleum	28.5	28.5
Hoan-Vu Joint Operating Company	Socialist Republic of Vietnam	Petroleum	25	25
Groupement Bir Seba (GBRS)	People's Democratic Republic of Algeria	Petroleum	35	35
Andaman Transportation Limited (ATL)	Cayman Islands	Gas pipeline transportation	80	80
Natuna 2 B.V. (Natuna)	Netherlands	Petroleum	50	50
Petroleum Development Oman LLC (PDO)	Sultanate of Oman	Petroleum	2	2
Abu Dhabi Gas Industries Limited (AGP)	United Arab Emirates	Petroleum	2	2
Private Oil Holdings Oman Limited (POHOL)	United Kingdom of Great Britain and Northern Ireland	Petroleum	5	5
Petroleum Development Oman Services LLC (PDO-S)	Sultanate of Oman	Petroleum	1.9998	1.9998
Groupement Hassi Bir Rekaiz (GHBR) [3]	People's Democratic Republic of Algeria	Petroleum	49	-

[1] On 14 March 2022, the Moattama Gas Transportation Company (MGTC)'s joint partners subsequently approved PTTEP International Limited (PTTEPI), a subsidiary of the Company and a joint partner of MTGC, to be the operator of MGTC and was effective on 20 July 2022. The participating interest of PTTEPI in MGTC is 37.0842% as disclosed in Note 16.1 Significant events during the current year.

[2] On 29 April 2022, PTTEP Offshore Investment Company Limited (PTTEPO), subsidiary of the Company, notified its intention to withdraw from Taninthayi Pipeline Company LLC (TPC), with participating interest 19.31% and proceeded to withdraw all shares in TPC. This will be effective upon receiving official regulator approval from Myanmar Government.

[3] On 3 August 2022, the Company co-established Groupement Hassi Bir Rekaiz (GHBR) in People's Democratic Republic of Algeria with 49% shareholding interest. The Company classifies the investment as an investment in a joint operation.

Details of exploration and production projects operated by the Group are as follows:

Project	Country	Operator	Participating interest (%)	
			31 December 2022	31 December 2021
PTT Exploration and Production Public Company Limited				
Bongkot	Thailand	PTT Exploration and Production Public Company Limited	66.6667	66.6667
Arthit	Thailand	PTT Exploration and Production Public Company Limited	80	80
Contract 4 (B12/27)	Thailand	Chevron Thailand Exploration and Production, Ltd.	45	45
Sinphuhorm (E5 North)	Thailand	PTTEP SP Limited	20	20
S1	Thailand	PTTEP Siam Limited	25	25
Contract 3 (B10, B11, B12 and B13) [1]	Thailand	Chevron Thailand Exploration and Production, Ltd.	5	5
E5	Thailand	ExxonMobil Exploration and Production Khorat Inc.	20	20
Algeria Hassi Bir Rekaiz	People's Democratic Republic of Algeria	Groupement Hassi Bir Rekaiz	49	49

Project	Country	Operator	Participating interest (%)	
			31 December 2022	31 December 2021
PTTEP International Limited (PTTEPI)				
Yadana [2]	Republic of the Union of Myanmar	PTTEP International Limited	37.0842	25.5
Yetagun [3]	Republic of the Union of Myanmar	Gulf Petroleum Myanmar Company Limited.	19.31784	19.31784
PTTEP 1	Thailand	PTTEP International Limited	100	100
G4/43	Thailand	Chevron Offshore (Thailand) Ltd.	21.375	21.375
G9/43	Thailand - Kingdom of Cambodia	PTTEP International Limited	100	100
L22/43	Thailand	PTTEP International Limited	100	100
L53/43 & L54/43	Thailand	PTTEP International Limited	100	100
G4/48	Thailand	Chevron Pattani, Ltd.	5	5
Bongkot (G12/48)	Thailand	PTTEP International Limited	66.6667	66.6667
Contract 4 (G7/50)	Thailand	Chevron Pattani, Ltd.	60	60
Arthit (G8/50)	Thailand	PTTEP International Limited	80	80
Zawtika	Republic of the Union of Myanmar	PTTEP International Limited	80	80
Myanmar M3 [4]	Republic of the Union of Myanmar	PTTEP International Limited	100	100
MTJDA	Thailand - Malaysia	Carigali-PTTEPI Operating Company Sdn Bhd.	50	50
PTTEP Offshore Investment Company Limited (PTTEPO)				
B8/32 & 9A [5]	Thailand	Chevron Offshore (Thailand) Ltd.	25.001	25.001
PTTEP Southwest Vietnam Company Limited (PTTEP SV)				
Vietnam 52/97	Socialist Republic of Vietnam	Vietnam Oil and Gas Group	7	7

Project	Country	Operator	Participating interest (%)	
			31 December 2022	31 December 2021
PTTEP Kim Long Vietnam Company Limited (PTTEP KV)				
Vietnam B & 48/95	Socialist Republic of Vietnam	Vietnam Oil and Gas Group	8.5	8.5
PTTEP Hoang-Long Company Limited (PTTEP HL)				
Vietnam 16-1	Socialist Republic of Vietnam	Hoang-Long Joint Operating Company	28.5	28.5
PTTEP Hoan-Vu Company Limited (PTTEP HV)				
Vietnam 9-2	Socialist Republic of Vietnam	Hoan-Vu Joint Operating Company	25	25
PTTEP Algeria Company Limited (PTTEP AG)				
Algeria 433A & 416B	People's Democratic Republic of Algeria	Groupement Bir Seba	35	35
PTTEP Siam Limited (PTTEPS)				
Sinphuhorm (EU-1)	Thailand	PTTEP SP Limited	20	20
B6/27	Thailand	PTTEP Siam Limited	100	100
S1	Thailand	PTTEP Siam Limited	75	75
PTTEP South Asia Limited (PTTEP SA)				
Myanmar MD-7 [6]	Republic of the Union of Myanmar	PTTEP South Asia Limited	-	50
PTTEP Canada Limited (PTTEP CA)				
Mariana Oil Sands	Canada	PTTEP Canada Limited	100	100
PTTEP Australia Perth Pty Ltd (PTTEP AP)				
PTTEP Australasia*	Commonwealth of Australia			

* Details of operators and participating interests in PTTEP Australasia Project are as follows:

Block	Operator	Participating interest (%)	
		31 December 2022	31 December 2021
AC/RL7, AC/RL12 and AC/P54 [7]	PTTEP Australasia (Ashmore Cartier) Pty Ltd	100	100
AC/L3 [8]	PTTEP Australasia (Ashmore Cartier) Pty Ltd	-	100
AC/RL10	PTTEP Australia Timor Sea Pty Ltd	90	90
AC/RL4 (Tenacious)	PTTEP Australia Timor Sea Pty Ltd	100	100
AC/RL6 (Audacious), AC/RL6 (exclusive of Audacious) [9]	PTTEP Australia Timor Sea Pty Ltd	100	100
AC/RL4 (exclusive of Tenacious)	PTTEP Australia Timor Sea Pty Ltd	100	100

Project	Country	Operator	Participating interest (%)	
			31 December 2022	31 December 2021
PTTEP Mozambique Area 1 Limited (PTTEP MZA1)				
Mozambique Area 1	Republic of Mozambique	TotalEnergies EP Mozambique Area 1 Limitada	8.5	8.5
Natuna 2 B.V. (Natuna)				
Natuna Sea A	Republic of Indonesia	Premier Oil Natuna Sea BV	11.5	11.5
PTTEP Brazil Investments in Oil and Gas Exploration and Production Limitada (PTTEP BL)				
Barreirinhas AP1	Federative Republic of Brazil	Shell Brasil Petroleo Ltda.	25	25
Brazil BM-ES-23	Federative Republic of Brazil	Petróleo Brasileiro S.A. (Petrobas)	20	20
PTTEP SP Limited (PTTEP SP)				
Contract 4 (B12/27)	Thailand	Chevron Thailand Exploration and Production, Ltd.	15	15
Sinphuhorm (E5 North and EU-1)	Thailand	PTTEP SP Limited	35	35

Project	Country	Operator	Participating interest (%)	
			31 December 2022	31 December 2021
PTTEP HK Offshore Limited (PTTEP HKO)				
Sarawak SK 410B	Malaysia	PTTEP HK Offshore Limited	42.5	42.5
Sarawak SK 417	Malaysia	PTTEP HK Offshore Limited	80	80
Sarawak SK 438	Malaysia	PTTEP HK Offshore Limited	80	80
Peninsular PM 407	Malaysia	PTTEP HK Offshore Limited	55	55
Peninsular PM 415	Malaysia	PTTEP HK Offshore Limited	70	70
Sabah SB 412 [10]	Malaysia	PTTEP HK Offshore Limited	60	-
PTTEP Mexico E&P Limited, S. de R.L. de C.V. (PTTEP MEP)				
Mexico block 12 (2.4)	Mexico	PC Carigali Mexico Operations, S.A. de C.V.	20	20
Mexico block 29 (2.4)	Mexico	Repsol Exploración México, S.A. de C.V.	16.67	16.67
PTTEP Energy Development Company Limited (PTTEP ED)				
G1/61 [11]	Thailand	PTTEP Energy Development Company Limited	60	60
G2/61	Thailand	PTTEP Energy Development Company Limited	100	100
PTTEP MENA Limited (PTTEP MENA)				
Abu Dhabi Offshore 1	United Arab Emirates	Eni Abu Dhabi B.V.	30	30
Abu Dhabi Offshore 2	United Arab Emirates	Eni Abu Dhabi B.V.	30	30
Oman Onshore Block 12	Sultanate of Oman	TotalEnergies EP Oman Block 12 B.V.	20	20
Abu Dhabi Offshore 3	United Arab Emirates	Eni Abu Dhabi B.V.	30	30
Oman Block 61	Sultanate of Oman	BP Exploration (Epsilon) Limited (BP)	20	20
Sharjah Onshore Area A [12]	United Arab Emirates	Eni Sharjah B.V.	25	-
Sharjah Onshore Area C [13]	United Arab Emirates	Eni Sharjah B.V.	25	-

Project	Country	Operator	Participating interest (%)	
			31 December 2022	31 December 2021
PTTEP Sabah Oil Limited (PTTEP SBO)				
Malaysia Block K **	Malaysia			
Malaysia Block H ***	Malaysia			

** Details of operators and participating interests in Malaysia Block K project are as follows:

Block	Operator	Participating interest (%)	
		31 December 2022	31 December 2021
Kikeh	PTTEP Sabah Oil Limited	56	56
SNP	PTTEP Sabah Oil Limited	22.4	22.4
GK	Sabah Shell Petroleum Co., Ltd.	7.1657292	7.1657292

*** Details of operators and participating interests in Malaysia Block H project are as follows:

Block	Operator	Participating interest (%)	
		31 December 2022	31 December 2021
Rotan	PTTEP Sabah Oil Limited	56	56
Others	PTTEP Sabah Oil Limited	42	42

Project	Country	Operator	Participating interest (%)	
			31 December 2022	31 December 2021
PTTEP Sarawak Oil Limited (PTTEP SKO)				
Sarawak SK 314A	Malaysia	PTTEP Sarawak Oil Limited	59.5	59.5
Sarawak SK 405B	Malaysia	PTTEP Sarawak Oil Limited	59.5	59.5
Sarawak SK 309 and SK 311 ****	Malaysia			

**** Details of operators and participating interests in Sarawak SK 309 and Sarawak SK 311 projects are as follows:

Block	Operator	Participating interest (%)	
		31 December 2022	31 December 2021
East Patricia	PTTEP Sarawak Oil Limited	42	42
Others	PTTEP Sarawak Oil Limited	59.5	59.5

Project	Country	Operator	Participating interest (%)	
			31 December 2022	31 December 2021
PTTEP Holding Group B.V. (PGH)				
Block 17/06 [14]	Angola	TotalEnergies E&P Angola Block 17.06 (TEPA)	2.5	2.5
Dunga	Kazakhstan	Total E&P Dunga GmbH	20	20
PDO (Block 6)	Sultanate of Oman	Petroleum Development Oman LLC	2	2
Mukhaizna (Block 53)	Sultanate of Oman	Occidental Mukhaizna,LLC	1	1

[1] On 23 April 2022, the concession of Contract 3 Project, which the Company had a participating interest of 5%, was terminated. The operator returned the exploration block. However, a joint partner still has obligations for decommission of assets until it has been finished as required by the specific laws.

[2] On 14 March 2022, the Yadana's joint partners subsequently approved PTTEP International Limited (PTTEPI), a subsidiary of the Company and a joint partner of Yadana to be the operator of the project and was effective on 20 July 2022. The participating interest of PTTEPI in Yadana is increased to 37.0842% as disclosed in Note 16.1 Significant events during the current year.

[3] On 29 April 2022, PTTEPI notified its intentions to withdraw from Yetagun project, which the Group had the pacipating interest at 19.31%. This will be effective upon receiving official regulator approval from Myanmar Government. However, the Company did not recognise assets, liabilities and expenses from operation in according to such investing proportion since then.

[4] On 30 December 2022, the Government of the Republic of the Union of Myanmar approved the withdrawal of shareholding interest at 20% of Mitsui Oil Exploration Company Limited (MOECO), a joint partner of Myanmar M3 project. As a result, the participating interest of PTTEPI, the operator of Myanmar M3 project, is increased to 100%, which was effective on 22 November 2022.

[5] PTTEP Offshore Investment Company Limited (PTTEPO) has shareholding interest in Orange Energy Limited and B8/32 Partners Limited, which hold the project's concession.

[6] On 25 October 2022, PTTEP South Asia Limited (PTTEP SA), a subsidiary of the Group, signed termination agreement with joint partner and the Government of the Republic of the Union of Myanmar to terminate and return 50% of the exploration block of Myanmar MD-7 Project. The termination agreement has effect on 14 November 2020.

[7] On 22 December 2022, PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA), a subsidiary of the Group, submitted a request to terminate and return the exploration block of AC/P 54 Project. The termination will be effective after receiving the official approval from the Government of the Commonwealth of Australia (Australia).

[8] On 19 November 2021, PTTEP AAA submitted a request to terminate and return the exploration block of AC/L3 Project. The termination received the official approval from the Government of the Commonwealth of Australia (Australia) on 2 August 2022.

[9] On 20 December 2022, PTTEP Australia Timor Sea Pty Ltd (PTTEP AT), a subsidiary of the Group, submitted a request not to extend the exploration block of AC/RL 6 Project. The termination will be effective after receiving the official approval from the Government of the Commonwealth of Australia (Australia).

[10] On 22 March 2022, PTTEP HK Offshore Limited (PTTEP HKO), a subsidiary of the Group, signed a Production Sharing Contract (PSC) with Petroliam Nasional Berhad (PETRONAS), for exploration and production rights of Sabah SB412 Project, located offshore northwest of Sabah, Malaysia. PTTEP HKO holds 60% participation interests in this Block and is the operator. The Group classified this investment as an investment in a joint operation.

[11] On 19 April 2022, PTTEP Energy Development Company Limited (PTTEP ED), a subsidiary of the Group, entered into an agreement with MP G2 (Thailand) Limited. As a result, PTTEP ED is a sole investment operator who has control over the operation and entitlement to net assets related to G1/61 project including of all revenue, costs and petroleum operating expenses related to the project since then.

[12] On 26 October 2022, PTTEP MENA Limited (PTTEP MENA), a subsidiary of the Group, signed Farm-Out Agreement to acquire 25% stake in Sharjah Onshore Area A Project and the acquisition was completed on 23 December 2022 as disclosed in Note 16.1 Significant events during the current year.

[13] On 3 December 2021, PTTEP MENA signed Farm-Out Agreement to acquire 25% stake in Sharjah Onshore Area C Project and the acquisition was completed on 1 March 2022. The Group classified this investment as an investment in a joint operation as disclosed in Note 16.1 Significant events during the current year.

[14] On 16 December 2022, PTTEP (Angola) Corporation (PANG), a subsidiary of the Group, has signed a sale and purchase agreement to sell all of the investment in Block 17/06 which registered in Republic of Angola, to SOMOIL BLOCO 17/06 (SU), S.A. PANG has participating interests in Black 17/06 at 2.5%. The sale and purchase shall be completed when the conditions specified in the sale and purchase agreement are met, which is expected to be completed by mid of 2022.

17 Property, plant and equipment

	Consolidated financial statements				
	Unit: Million US Dollar				
	Exploration and production assets	Pipeline	Others	Assets under construction	Total
As at 1 January 2021					
Cost	28,968	896	153	2,020	32,037
Less Accumulated depreciation	(21,423)	(308)	(100)	-	(21,831)
Less Accumulated impairment	(362)	(6)	-	-	(368)
Net book value	7,183	582	53	2,020	9,838
For the year ended 31 December 2021					
Opening net book value	7,183	582	53	2,020	9,838
Business acquisition	1,862	-	-	304	2,166
Additions	705	1	5	1,267	1,978
Disposals and write-off, net	(385)	(2)	(1)	(28)	(416)
Reclassification	674	-	1	(631)	44
Depreciation charged	(2,170)	(30)	(10)	-	(2,210)
Allowance for impairment of assets	(14)	(6)	-	-	(20)
Closing net book value	7,855	545	48	2,932	11,380
As at 31 December 2021					
Cost	31,583	894	153	2,932	35,562
Less Accumulated depreciation	(23,367)	(338)	(105)	-	(23,810)
Less Accumulated impairment	(361)	(11)	-	-	(372)
Net book value	7,855	545	48	2,932	11,380

	Consolidated financial statements				
	Unit: Million US Dollar				
	Exploration and production assets	Pipeline	Others	Assets under construction	Total
For the year ended 31 December 2022					
Opening net book value	7,855	545	48	2,932	11,380
Additions	1,751	-	22	1,253	3,026
Disposals and write-off, net	(274)	(12)	(1)	(4)	(291)
Reclassification	579	-	18	(601)	(4)
Reclassification to assets held-for-sale (Note 14)	(10)	-	-	-	(10)
Depreciation charged	(2,184)	(28)	(9)	-	(2,221)
Closing net book value	7,717	505	78	3,580	11,880
As at 31 December 2022					
Cost	31,644	819	188	3,580	36,231
Less Accumulated depreciation	(23,648)	(314)	(110)	-	(24,072)
Less Accumulated impairment	(279)	-	-	-	(279)
Net book value	7,717	505	78	3,580	11,880

	Consolidated financial statements				
	Unit: Million Baht				
	Exploration and production assets	Pipeline	Others	Assets under construction	Total
As at 1 January 2021					
Cost	870,110	26,903	4,584	60,683	962,280
Less Accumulated depreciation	(643,493)	(9,254)	(2,996)	-	(655,743)
Less Accumulated impairment	(10,876)	(170)	-	-	(11,046)
Net book value	215,741	17,479	1,588	60,683	295,491
For the year ended 31 December 2021					
Opening net book value	215,741	17,479	1,588	60,683	295,491
Business acquisition	59,651	-	-	9,730	69,381
Additions	22,517	19	181	40,455	63,172
Disposals and write-off, net	(12,298)	(72)	(39)	(894)	(13,303)
Reclassification	21,535	-	24	(20,146)	1,413
Depreciation charged	(69,373)	(954)	(317)	-	(70,644)
Allowance for impairment of assets	(470)	(201)	-	-	(671)
Currency translation differences	25,214	1,924	167	8,163	35,468
Closing net book value	262,517	18,195	1,604	97,991	380,307
As at 31 December 2021					
Cost	1,055,511	29,878	5,106	97,991	1,188,486
Less Accumulated depreciation	(780,932)	(11,293)	(3,502)	-	(795,727)
Less Accumulated impairment	(12,062)	(390)	-	-	(12,452)
Net book value	262,517	18,195	1,604	97,991	380,307

	Consolidated financial statements				
	Unit: Million Baht				
	Exploration and production assets	Pipeline	Others	Assets under construction	Total
For the year ended 31 December 2022					
Opening net book value	262,517	18,195	1,604	97,991	380,307
Additions	61,265	12	775	43,830	105,882
Disposals and write-off, net	(9,591)	(426)	(28)	(138)	(10,183)
Reclassification	20,252	-	641	(21,014)	(121)
Reclassification to assets held-for-sale (Note 14)	(345)	-	-	-	(345)
Depreciation charged	(76,876)	(954)	(342)	-	(78,172)
Currency translation differences	9,480	641	39	3,086	13,246
Closing net book value	266,702	17,468	2,689	123,755	410,614
As at 31 December 2022					
Cost	1,093,703	28,314	6,478	123,755	1,252,250
Less Accumulated depreciation	(817,353)	(10,846)	(3,789)	-	(831,988)
Less Accumulated impairment	(9,648)	-	-	-	(9,648)
Net book value	266,702	17,468	2,689	123,755	410,614

	Separate financial statements			
	Unit: Million US Dollar			
	Exploration and production assets	Others	Assets under construction	Total
As at 1 January 2021				
Cost	13,514	89	500	14,103
Less Accumulated depreciation	(11,285)	(64)	-	(11,349)
Net book value	2,229	25	500	2,754
For the year ended 31 December 2021				
Opening net book value	2,229	25	500	2,754
Additions	326	1	324	651
Disposals and write-off, net	(259)	-	-	(259)
Reclassification	175	1	(176)	-
Depreciation charged	(996)	(4)	-	(1,000)
Closing net book value	1,475	23	648	2,146
As at 31 December 2021				
Cost	13,628	87	648	14,363
Less Accumulated depreciation	(12,153)	(64)	-	(12,217)
Net book value	1,475	23	648	2,146

	Separate financial statements			
	Unit: Million US Dollar			
	Exploration and production assets	Others	Assets under construction	Total
For the year ended 31 December 2022				
Opening net book value	1,475	23	648	2,146
Additions	331	9	135	475
Disposals and write-off, net	(168)	-	(1)	(169)
Reclassification	295	17	(312)	-
Depreciation charged	(816)	(5)	-	(821)
Closing net book value	1,117	44	470	1,631
As at 31 December 2022				
Cost	12,573	111	470	13,154
Less Accumulated depreciation	(11,456)	(67)	-	(11,523)
Net book value	1,117	44	470	1,631

	Separate financial statements			
	Unit: Million Baht			
	Exploration and production assets	Others	Assets under construction	Total
As at 1 January 2021				
Cost	405,914	2,683	15,017	423,614
Less Accumulated depreciation	(338,973)	(1,911)	-	(340,884)
Net book value	66,941	772	15,017	82,730
For the year ended 31 December 2021				
Opening net book value	66,941	772	15,017	82,730
Additions	10,402	48	10,347	20,797
Disposals and write-off, net	(8,261)	(3)	(13)	(8,277)
Reclassification	5,575	22	(5,597)	-
Depreciation charged	(31,760)	(145)	-	(31,905)
Currency translation differences	6,392	84	1,913	8,389
Closing net book value	49,289	778	21,667	71,734
As at 31 December 2021				
Cost	455,445	2,895	21,667	480,007
Less Accumulated depreciation	(406,156)	(2,117)	-	(408,273)
Net book value	49,289	778	21,667	71,734

	Separate financial statements			
	Unit: Million Baht			
	Exploration and production assets	Others	Assets under construction	Total
For the year ended 31 December 2022				
Opening net book value	49,289	778	21,667	71,734
Additions	11,572	319	4,706	16,597
Disposals and write-off, net	(5,861)	(7)	(35)	(5,903)
Reclassification	10,316	604	(10,920)	-
Depreciation charged	(28,737)	(155)	-	(28,892)
Currency translation differences	2,025	(4)	816	2,837
Closing net book value	38,604	1,535	16,234	56,373
As at 31 December 2022				
Cost	434,566	3,843	16,234	454,643
Less Accumulated depreciation	(395,962)	(2,308)	-	(398,270)
Net book value	38,604	1,535	16,234	56,373

As at 31 December 2022 and 2021, the Group has capital expenditure commitments as disclosed in Note 35.1.

18 Right-of-use assets

	Consolidated financial statements		
	Unit: Million US Dollar		
	Exploration and production assets	Others	Total
As at 1 January 2021			
Cost	558	35	593
Less Accumulated amortisation	(90)	(20)	(110)
Net book value	468	15	483
For the year ended 31 December 2021			
Opening net book value	468	15	483
Additions	149	33	182
Decreases	(9)	-	(9)
Agreement modification	5	-	5
Amortisation charged	(127)	(14)	(141)
Closing net book value	486	34	520
As at 31 December 2021			
Cost	672	44	716
Less Accumulated amortisation	(186)	(10)	(196)
Net book value	486	34	520

	Consolidated financial statements		
	Unit: Million US Dollar		
	Exploration and production assets	Others	Total
For the year ended 31 December 2022			
Opening net book value	486	34	520
Additions	619	20	639
Decreases	(7)	-	(7)
Reclassification	21	-	21
Agreement modification	7	-	7
Amortisation charged	(190)	(15)	(205)
Closing net book value	936	39	975
As at 31 December 2022			
Cost	1,234	61	1,295
Less Accumulated amortisation	(298)	(22)	(320)
Net book value	936	39	975

	Consolidated financial statements		
	Unit: Million Baht		
	Exploration and production assets	Others	Total
As at 1 January 2021			
Cost	16,756	1,045	17,801
Less Accumulated amortisation	(2,700)	(600)	(3,300)
Net book value	14,056	445	14,501
For the year ended 31 December 2021			
Opening net book value	14,056	445	14,501
Additions	4,763	1,051	5,814
Decreases	(280)	(7)	(287)
Agreement modification	159	2	161
Amortisation charged	(4,098)	(426)	(4,524)
Currency translation differences	1,626	78	1,704
Closing net book value	16,226	1,143	17,369
As at 31 December 2021			
Cost	22,459	1,463	23,922
Less Accumulated amortisation	(6,233)	(320)	(6,553)
Net book value	16,226	1,143	17,369

	Consolidated financial statements		
	Unit: Million Baht		
	Exploration and production assets	Others	Total
For the year ended 31 December 2022			
Opening net book value	16,226	1,143	17,369
Additions	21,658	697	22,355
Decreases	(254)	(6)	(260)
Reclassification	724	-	724
Agreement modification	240	1	241
Amortisation charged	(6,705)	(514)	(7,219)
Currency translation differences	439	39	478
Closing net book value	32,328	1,360	33,688
As at 31 December 2022			
Cost	42,644	2,113	44,757
Less Accumulated amortisation	(10,316)	(753)	(11,069)
Net book value	32,328	1,360	33,688

	Separate financial statements		
	Unit: Million US Dollar		
	Exploration and production assets	Others	Total
As at 1 January 2021			
Cost	48	31	79
Less Accumulated amortisation	(8)	(19)	(27)
Net book value	40	12	52
For the year ended 31 December 2021			
Opening net book value	40	12	52
Additions	9	25	34
Decreases	(2)	-	(2)
Agreement modification	2	-	2
Amortisation charged	(19)	(11)	(30)
Closing net book value	30	26	56
As at 31 December 2021			
Cost	55	33	88
Less Accumulated amortisation	(25)	(7)	(32)
Net book value	30	26	56

	Separate financial statements		
	Unit: Million US Dollar		
	Exploration and production assets	Others	Total
For the year ended 31 December 2022			
Opening net book value	30	26	56
Additions	11	18	29
Decreases	(2)	-	(2)
Agreement modification	4	-	4
Amortisation charged	(30)	(13)	(43)
Closing net book value	13	31	44
As at 31 December 2022			
Cost	41	50	91
Less Accumulated amortisation	(28)	(19)	(47)
Net book value	13	31	44

	Separate financial statements		
	Unit: Million Baht		
	Exploration and production assets	Others	Total
As at 1 January 2021			
Cost	1,440	927	2,367
Less Accumulated amortisation	(239)	(554)	(793)
Net book value	1,201	373	1,574
For the year ended 31 December 2021			
Opening net book value	1,201	373	1,574
Additions	296	792	1,088
Decreases	(67)	(1)	(68)
Agreement modification	82	1	83
Amortisation charged	(620)	(365)	(985)
Currency translation differences	126	61	187
Closing net book value	1,018	861	1,879
As at 31 December 2021			
Cost	1,862	1,099	2,961
Less Accumulated amortisation	(844)	(238)	(1,082)
Net book value	1,018	861	1,879

	Separate financial statements		
	Unit: Million Baht		
	Exploration and production assets	Others	Total
For the year ended 31 December 2022			
Opening net book value	1,018	861	1,879
Additions	381	622	1,003
Decreases	(57)	6	(51)
Agreement modification	153	1	154
Amortisation charged	(1,085)	(448)	(1,533)
Currency translation differences	55	30	85
Closing net book value	465	1,072	1,537
As at 31 December 2022			
Cost	1,445	1,717	3,162
Less Accumulated amortisation	(980)	(645)	(1,625)
Net book value	465	1,072	1,537

19 Goodwill

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
As at 1 January 2021				
Cost	2,016	60,561	75	2,258
Less Provision for impairment	(112)	(3,376)	-	-
Net book value	1,904	57,185	75	2,258
For the year ended 31 December 2021				
Opening net book value	1,904	57,185	75	2,258
Allowance for impairment of assets	(163)	(5,471)	-	-
Currency translation differences	-	6,463	-	254
Closing net book value	1,741	58,177	75	2,512
As at 31 December 2021				
Cost	2,016	67,381	75	2,512
Less Provision for impairment	(275)	(9,204)	-	-
Net book value	1,741	58,177	75	2,512
For the year ended 31 December 2022				
Opening net book value	1,741	58,177	75	2,512
Reclassification to assets held-for-sale (Note 14)	(2)	(76)	-	-
Allowance for impairment of assets	(190)	(6,611)	-	-
Currency translation differences	-	2,034	-	86
Closing net book value	1,549	53,524	75	2,598

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
As at 31 December 2022				
Cost	2,014	69,609	75	2,598
Less Provision for impairment	(465)	(16,085)	-	-
Net book value	1,549	53,524	75	2,598

Goodwill is allocated to the Group's cash-generating units (CGUs).

Goodwill allocation net from impairment presented by the CGUs as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
As at 31 December				
Exploration and production				
Thailand	521	521	17,988	17,393
Other Southeast Asia	454	454	15,695	15,176
Middle East	142	142	4,909	4,747
Africa	371	563	12,815	18,814
Others	44	44	1,515	1,465
Others	17	17	602	582
Total	1,549	1,741	53,524	58,177

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
As at 31 December				
Exploration and production				
Thailand	75	75	2,598	2,512
Total	75	75	2,598	2,512

Goodwill impairment testing

The Group tested impairment of goodwill from business acquisition annually, or more frequently if events or changes in circumstances indicate that it might be impaired. The Group compares the carrying amount of the goodwill with the recoverable amount of each cash-generating units which is the higher of the fair value less cost to sell or value-in-use.

An asset or group of assets described as cash-generating unit (CGU) is the smallest identifiable group of assets that generates inflows that are largely independent from the cash flows from other CGUs. The Group considers the CGU at the individual project level assessing the expected future cash flows over the average life of the project with a growth rate along with the industry's information.

The measurements of fair value less cost to sell and value-in-use are based on a proved and probable reserve production profile including other key estimates and assumptions such as the short-term forward oil price curve, long-term oil price based on supply and demand of oil in the global market, project management team estimate of the capital expenditure and operating expenditure using the constant inflation rate for periods beyond five years, exchange rates, discount rates, and as well as past industry performance which were consistent with the external sources of information. The weighted average cost of capital of each project in each region is used for discount rate for financial estimation. For consolidated financial statements, the discount rate for exploration and production segment consists of Southeast Asia at rate of 7% - 9% per annum (2021: 6% - 7% per annum), Africa at rate of 10% - 11% per annum (2021: 8% - 9% per annum), Middle East at rate of 8% - 11% per annum (2021: 5% - 8% per annum) and others at rate of 8% - 9% per annum (2021: 5% - 6% per annum), and for others segment is at rate of 7% - 9% per annum (2021: 4% - 5% per annum). For separate financial statements, the discount rate for exploration and production segment consists of Southeast Asia at rate of 7% - 9% per annum (2021: 6% - 7% per annum).

If the discount rate using for goodwill impairment testing of CGUs which are not recognised impairment loss in current year increases approximately 0.34% - 10% per annum, there still would be no allowance for goodwill impairment recognised in the consolidated and separate financial statements for the year ended 31 December 2022.

Impairment loss on goodwill

During the year 2022, the Group considered and found that some projects in development phase have changed their development plan based on current situation resulting in a significant delay of its operation. These events are the key indicators that require the Group to perform impairment assessment for its projects. The Group found that there was impairment loss on goodwill occurred.

The Group measures recoverable amount of assets using fair value less cost to sell which are based on a proved and probable reserve production profile including other key estimates and assumptions such as the long-term oil price based on supply and demand of oil in the global market, project management team estimate of the capital expenditure and operating expenditure using the constant inflation rate for periods beyond five years, exchange rates, discount rates, and as well as past industry performance which were consistent with the external sources of information. The Group used the discounted cash flows based on the average life of the project greater than 5 years with discount rates around 10% - 11%.

During the year ended 31 December 2022, the Group recognised impairment loss on goodwill in the consolidated statement of income as follows:

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
Impairment loss on goodwill	190	6,611
Total	190	6,611

		Consolidated financial statements		
		Unit: Million US Dollar		
Group of assets	Basis using to identify the recoverable amount	The carrying amount of group of assets before impairment	The carrying amount of group of assets after impairment	Impairment loss
Overseas	Fair value less cost to sell	2,649	2,459	190
			Total	190

		Consolidated financial statements		
				Unit: Million Baht
Group of assets	Basis using to identify the recoverable amount	The carrying amount of group of assets before impairment	The carrying amount of group of assets after impairment	Impairment loss
Overseas	Fair value less cost to sell	91,605	84,994	6,611
			Total	6,611

The amount of impairment loss on goodwill is disclosed in Note 8 Segment and revenue information.

20 Exploration and evaluation assets

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
As at 1 January 2021		
Cost	4,694	140,982
Less Accumulated impairment	(1,808)	(54,288)
Net book value	2,886	86,694
For the year ended 31 December 2021		
Opening net book value	2,886	86,694
Business acquisition	332	10,286
Additions	134	4,280
Decreases	(187)	(5,971)
Reclassification	(44)	(1,413)
Currency translation differences	-	10,437
Closing net book value	3,121	104,313

	Consolidated financial statements	
	Unit: Million US Dollar	Unit: Million Baht
As at 31 December 2021		
Cost	4,446	148,599
Less Accumulated impairment	(1,325)	(44,286)
Net book value	3,121	104,313
For the year ended 31 December 2022		
Opening net book value	3,121	104,313
Additions	95	3,329
Decreases	(28)	(995)
Reclassification	(17)	(603)
Reclassification to assets held-for-sale (Note 14)	(99)	(3,470)
Currency translation differences	-	3,587
Closing net book value	3,072	106,161
As at 31 December 2022		
Cost	4,312	149,032
Less Accumulated impairment	(1,240)	(42,871)
Net book value	3,072	106,161

21 Deferred income taxes

Deferred tax assets and liabilities comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Deferred tax assets	929	1,318	32,125	44,042
Deferred tax liabilities	(1,575)	(1,504)	(54,449)	(50,272)
Deferred taxes, net	(646)	(186)	(22,324)	(6,230)

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Deferred tax assets	549	790	18,958	26,401
Deferred tax liabilities	-	-	-	-
Deferred taxes, net	549	790	18,958	26,401

The movements in deferred tax assets and liabilities during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar			
	As at 1 January 2022	Statement of income	Statement of comprehensive income	As at 31 December 2022
Deferred tax assets				
Decommissioning costs	1,100	(106)	-	994
Provision for employee benefits	79	(9)	(7)	63
Property, plant and equipment and intangible assets	5	1	-	6
Loss carried forward	235	(119)	-	116
Financial derivatives	7	11	(9)	9
Allowance for impairment loss on assets	128	6	-	134
Lease liabilities	8	8	-	16
Cost recovery	252	(226)	-	26
Others	131	(15)	-	116
	1,945	(449)	(16)	1,480
Tax effect of currency translation on tax base	-	-	-	-
	1,945	(449)	(16)	1,480
Deferred tax liabilities				
Property, plant and equipment and intangible assets	2,113	(82)	-	2,031
Financial derivatives	1	(3)	4	2
Others	15	61	-	76
	2,129	(24)	4	2,109
Tax effect of currency translation on tax base	2	15	-	17
	2,131	(9)	4	2,126
Deferred taxes, net	(186)	(440)	(20)	(646)

	Consolidated financial statements				
	Unit: Million US Dollar				
	As at 1 January 2021	Statement of income	Statement of comprehensive income	Business acquisition	As at 31 December 2021
Deferred tax assets					
Decommissioning costs	1,112	(12)	-	-	1,100
Provision for employee benefits	111	-	(32)	-	79
Property, plant and equipment and intangible assets	6	(1)	-	-	5
Loss carried forward	316	(79)	(2)	-	235
Financial derivatives	2	5	-	-	7
Allowance for impairment loss on assets	135	(7)	-	-	128
Lease liabilities	5	3	-	-	8
Cost recovery	36	(110)	-	326	252
Others	167	(36)	-	-	131
	1,890	(237)	(34)	326	1,945
Tax effect of currency translation on tax base	8	(8)	-	-	-
	1,898	(245)	(34)	326	1,945
Deferred tax liabilities					
Property, plant and equipment and intangible assets	2,222	(218)	-	109	2,113
Financial derivatives	6	(5)	-	-	1
Others	17	(2)	-	-	15
	2,245	(225)	-	109	2,129
Tax effect of currency translation on tax base	-	2	-	-	2
	2,245	(223)	-	109	2,131
Deferred taxes, net	(347)	(22)	(34)	217	(186)

	Consolidated financial statements				
	Unit: Million Baht				
	As at 1 January 2022	Statement of income	Statement of comprehensive income	Currency translation differences	As at 31 December 2022
Deferred tax assets					
Decommissioning costs	36,776	(3,649)	-	1,259	34,386
Provision for employee benefits	2,602	(326)	(235)	93	2,134
Property, plant and equipment and intangible assets	167	30	-	5	202
Loss carried forward	7,854	(4,105)	(14)	279	4,014
Financial derivatives	238	393	(316)	20	335
Allowance for impairment loss on assets	4,286	211	-	152	4,649
Lease liabilities	268	298	-	(21)	545
Cost recovery	8,427	(7,976)	-	453	904
Others	4,352	(484)	-	100	3,968
	64,970	(15,608)	(565)	2,340	51,137
Tax effect of currency translation on tax base	-	-	-	-	-
	64,970	(15,608)	(565)	2,340	51,137
Deferred tax liabilities					
Property, plant and equipment and intangible assets	70,634	(2,726)	-	2,310	70,218
Financial derivatives	12	(93)	140	(5)	54
Others	503	2,144	-	(21)	2,626
	71,149	(675)	140	2,284	72,898
Tax effect of currency translation on tax base	51	526	-	(14)	563
	71,200	(149)	140	2,270	73,461
Deferred taxes, net	(6,230)	(15,459)	(705)	70	(22,324)

	Consolidated financial statements					
	Unit: Million Baht					
	As at 1 January 2021	Statement of income	Statement of comprehensive income	Business acquisition	Currency translation differences	As at 31 December 2021
Deferred tax assets						
Decommissioning costs	33,400	(260)	-	21	3,615	36,776
Provision for employee benefits	3,335	(13)	(1,083)	-	363	2,602
Property, plant and equipment and intangible assets	172	(24)	-	-	19	167
Loss carried forward	9,477	(2,535)	(51)	-	963	7,854
Financial derivatives	53	172	(4)	-	17	238
Allowance for impairment loss on assets	4,060	(149)	-	-	375	4,286
Lease liabilities	147	102	-	-	19	268
Cost recovery	1,090	(3,581)	-	10,094	824	8,427
Others	5,013	(1,154)	-	-	493	4,352
	56,747	(7,442)	(1,138)	10,115	6,688	64,970
Tax effect of currency translation on tax base	246	(248)	-	-	2	-
	56,993	(7,690)	(1,138)	10,115	6,690	64,970
Deferred tax liabilities						
Property, plant and equipment and intangible assets	66,748	(6,644)	-	3,378	7,152	70,634
Financial derivatives	154	(148)	-	-	6	12
Others	517	(71)	-	-	57	503
	67,419	(6,863)	-	3,378	7,215	71,149
Tax effect of currency translation on tax base	-	46	-	-	5	51
	67,419	(6,817)	-	3,378	7,220	71,200
Deferred taxes, net	(10,426)	(873)	(1,138)	6,737	(530)	(6,230)

	Separate financial statements			
	Unit: Million US Dollar			
	As at 1 January 2022	Statement of income	Statement of comprehensive income	As at 31 December 2022
Deferred tax assets				
Decommissioning costs	680	(149)	-	531
Provision for employee benefits	71	(6)	(7)	58
Loss carried forward	131	(79)	-	52
Others	40	(19)	(9)	12
	922	(253)	(16)	653
Deferred tax liabilities				
Property, plant and equipment and intangible assets	132	(75)	-	57
Others	-	47	-	47
	132	(28)	-	104
Deferred taxes, net	790	(225)	(16)	549

	Separate financial statements			
	Unit: Million US Dollar			
	As at 1 January 2021	Statement of income	Statement of comprehensive income	As at 31 December 2021
Deferred tax assets				
Decommissioning costs	732	(52)	-	680
Provision for employee benefits	105	(1)	(33)	71
Loss carried forward	211	(78)	(2)	131
Others	62	(23)	1	40
	1,110	(154)	(34)	922
Deferred tax liabilities				
Property, plant and equipment and intangible assets	338	(206)	-	132
Others	2	(2)	-	-
	340	(208)	-	132
Deferred taxes, net	770	54	(34)	790

	Separate financial statements				
	Unit: Million Baht				
	As at 1 January 2022	Statement of income	Statement of comprehensive income	Currency translation differences	As at 31 December 2022
Deferred tax assets					
Decommissioning costs	22,721	(5,235)	-	861	18,347
Provision for employee benefits	2,375	(226)	(236)	86	1,999
Loss carried forward	4,387	(2,769)	(14)	194	1,798
Others	1,339	(676)	(311)	67	419
	30,822	(8,906)	(561)	1,208	22,563
Deferred tax liabilities					
Property, plant and equipment and intangible assets	4,398	(2,632)	-	192	1,958
Lease liabilities	20	(20)	-	-	-
Others	3	1,669	-	(25)	1,647
	4,421	(983)	-	167	3,605
Deferred taxes, net	26,401	(7,923)	(561)	1,041	18,958

	Separate financial statements				
	Unit: Million Baht				
	As at 1 January 2021	Statement of income	Statement of comprehensive income	Currency translation differences	As at 31 December 2021
Deferred tax assets					
Decommissioning costs	21,992	(1,601)	-	2,330	22,721
Provision for employee benefits	3,139	(22)	(1,083)	341	2,375
Loss carried forward	6,331	(2,390)	(46)	492	4,387
Others	1,872	(701)	20	148	1,339
	33,334	(4,714)	(1,109)	3,311	30,822
Deferred tax liabilities					
Property, plant and equipment and intangible assets	10,140	(6,311)	-	569	4,398
Lease liabilities	4	14	-	2	20
Others	68	(66)	-	1	3
	10,212	(6,363)	-	572	4,421
Deferred taxes, net	23,122	1,649	(1,109)	2,739	26,401

Deferred income tax assets are recognised for tax loss and carried forwards only to the extent that realisation of the related tax benefit through the future taxable profits is probable. The Group does not recognise deferred tax asset from tax losses of US Dollar 1,159 million (2021: US Dollar 1,025 million) to carry forward against future taxable income. Some portions of tax losses could be carried forward against future taxable income without expiration invalid and some portions will be expired during 2023 to 2041.

22 Other non-current assets

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Land usage fee	18	20	635	664
Advance payment	44	49	1,529	1,640
Pension scheme investments from joint operation	76	61	2,626	2,048
Prepaid expenses	12	10	397	341
Deferred remuneration under agreement	6	8	208	260
Others	18	32	614	1,052
	174	180	6,009	6,005

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Deposits	4	4	148	145
Land usage fee	5	5	159	166
Prepaid expenses	2	1	69	22
Deferred remuneration under agreement	6	8	208	260
Others	7	4	261	157
	24	22	845	750

23 Trade and other payable

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Trade payable	158	148	5,446	4,952
Working capital to co-ventures	19	21	640	691
Account payable - related parties	25	16	872	529
Accrued expenses	1,312	897	45,345	29,990
Accrued interest expense	18	15	637	498
	1,532	1,097	52,940	36,660

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Trade payable	24	26	810	865
Account payable - related parties	7	9	253	310
Accrued expenses	349	320	12,075	10,708
Accrued interest expense	6	4	198	127
	386	359	13,336	12,010

24 Loans, debentures and lease liabilities

Loans, debentures and lease liabilities comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Current portion				
Current portion of debentures	-	449	-	14,997
Current portion of lease liabilities	303	184	10,479	6,169
	303	633	10,479	21,166
Non-current portion				
Debentures	2,809	2,476	97,095	82,741
Long-term loans	-	596	-	19,920
Lease liabilities	721	388	24,905	12,984
	3,530	3,460	122,000	115,645
Total loans, debentures and lease liabilities	3,833	4,093	132,479	136,811

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Current portion				
Current portion of lease liabilities	31	31	1,081	1,029
	31	31	1,081	1,029
Non-current portion				
Debentures	503	520	17,387	17,384
Lease liabilities	19	29	667	982
	522	549	18,054	18,366
Total debentures and lease liabilities	553	580	19,135	19,395

a) Debentures

The carrying value of unsecured and unsubordinated debentures comprised:

				Consolidated financial statements			
				Unit: Million US Dollar		Unit: Million Baht	
	Interest rates (% per annum)	Effective interest rates (% per annum)	Maturity date	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Maturity date within 1 year							
- Debentures Baht 15,000 million	2.26	2.314	19 June 2022	-	449	-	14,997
Maturity date over 3 years but not exceeding 5 years							
- Debentures Baht 6,000 million	2.00 - 2.75	2.284	5 November 2026	173	179	5,993	5,991
- Debentures US Dollar 500 million	2.587	2.637	10 June 2027	499	499	17,241	16,663
- Debentures Baht 5,000 million	2.09	2.121	5 April 2027	144	-	4,996	-
Maturity date over 5 years							
- Debentures Baht 11,400 million	4.82	4.89	6 June 2029	330	341	11,394	11,393
- Debentures US Dollar 350 million	2.993	3.063	15 January 2030	325	322	11,239	10,759
- Debentures US Dollar 490 million	6.35	6.507	12 June 2042	488	487	16,856	16,295
- Debentures US Dollar 650 million	3.903	3.958	6 December 2059	648	648	22,382	21,640

				Consolidated financial statements			
				Unit: Million US Dollar		Unit: Million Baht	
	Interest rates (% per annum)	Effective interest rates (% per annum)	Maturity date	31 December 2022	31 December 2021	31 December 2022	31 December 2021
- Debentures Baht 1,000 million	2.69	2.725	5 April 2029	29	-	999	-
- Debentures Baht 6,000 million	3.05	3.084	5 April 2032	173	-	5,995	-
Total carrying value				2,809	2,925	97,095	97,738

				Separate financial statements			
				Unit: Million US Dollar		Unit: Million Baht	
	Interest rates (% per annum)	Effective interest rates (% per annum)	Maturity date	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Maturity date over 3 years but not exceeding 5 years							
- Debentures Baht 6,000 million	2.00 - 2.75	2.284	5 November 2026	173	179	5,993	5,991
Maturity date over 5 years							
- Debentures Baht 11,400 million	4.82	4.89	6 June 2029	330	341	11,394	11,393
Total carrying value				503	520	17,387	17,384

The fair values of debentures as at 31 December 2022 and 2021 are disclosed in Note 9.2.3.

The movements of debentures for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Opening net book value	2,925	2,830	97,738	85,016
Cash flows:				
Increase	359	180	12,547	5,745
Repayment of debentures	(425)	-	(14,873)	-
Deferred finance cost	(1)	-	(24)	(5)
Non-cash movement:				
Amortisation of deferred finance cost	4	4	149	118
Foreign exchange differences	(53)	(89)	(1,832)	(2,851)
Currency translation differences	-	-	3,390	9,715
Closing net book value	2,809	2,925	97,095	97,738

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Opening net book value	520	379	17,384	11,392
Cash flows:				
Increase	-	180	-	5,745
Non-cash movement:				
Amortisation of deferred finance cost	-	-	1	(8)
Foreign exchange differences	(17)	(39)	(600)	(1,239)
Currency translation differences	-	-	602	1,494
Closing net book value	503	520	17,387	17,384

Repurchase and issuance of debentures

The details of movements of debentures during the year ended 31 December 2022 are as follows:

On 5 April 2022, PTTEP Treasury Center Company Limited (PTTEP TC), a subsidiary of the company, has completed the issuance of senior guaranteed debentures with a bondholders' representative to institutional and high net-worth investors, for a total of Baht 12,000 million (US Dollar 358.64 million). The debentures have three tranches consisting of 5-year tranche totalling Baht 5,000 million (US Dollar 149.44 million), 7-year tranche totalling Baht 1,000 million (US Dollar 29.88 million), and 10-year tranche totalling Baht 6,000 million (US Dollar 179.32 million), carrying the fixed coupon rates of 2.09%, 2.69% and 3.05% per annum, respectively. PTTEP TC, then, has entered into cross currency swap transactions with the financial institutions to swap Baht 11,720 million debentures to US Dollar 348.66 million at the average exchange rate of Baht 33.62 per US Dollar with an average interest rate of 3.63 per annum. The debentures and cross currency swap transactions are fully guaranteed by the Company.

On 20 June 2022, PTTEP TC has redeemed the senior guaranteed debentures with a bondholders' representative of Baht 15,000 million (US Dollar 425.13 million).

b) Long-term loans

Long-term loans from financial institutions comprised:

				Consolidated financial statements			
				Unit: Million US Dollar		Unit: Million Baht	
	Interest rates (% per annum)	Effective interest rates (% per annum)	Maturity date	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Maturity date over 1 years but not exceeding 3 years							
- Loans US Dollar 480 million	6M LIBOR + 0.85	1.67	20 October 2024	-	477	-	15,927
- Loans US Dollar 120 million	6M LIBOR + 0.95	1.667	20 October 2024	-	119	-	3,993
Total carrying value				-	596	-	19,920

The fair values of long-term loans are close to their carrying amounts, as disclosed in Note 9.2.3.

The movements of long-term loans for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Opening net book value	596	595	19,920	17,862
Cash flows:				
Repayment of long-term loans	(600)	-	(20,991)	-
Non-cash movement:				
Amortisation of deferred finance cost	4	1	138	45
Currency translation differences	-	-	933	2,013
Closing net book value	-	596	-	19,920

On 20 October 2022, PTTEP Treasury Center Company Limited (PTTEP TC) had early repaid the unsecured and unsubordinated loans, in the amount of US Dollar 600 million (Baht 20,991 million).

c) Lease liabilities

The movements of lease liabilities for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Opening net book value	572	507	19,153	15,230
Cash flows:				
Repayment of lease liabilities	(197)	(145)	(6,915)	(4,621)
Non-cash movements:				
Deferred finance cost	18	16	637	520
Increase of lease liabilities	635	194	22,216	6,186
Decrease of lease liabilities	(9)	(3)	(339)	(85)
Agreement modification	7	5	234	161
Foreign exchange differences	(2)	(2)	(66)	(52)
Currency translation differences	-	-	464	1,814
Lease liabilities	1,024	572	35,384	19,153
Less current portion of lease liabilities	(303)	(184)	(10,479)	(6,169)
Closing net book value	721	388	24,905	12,984

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Opening net book value	60	57	2,011	1,707
Cash flows:				
Repayment of lease liabilities	(42)	(31)	(1,481)	(999)
Non-cash movements:				
Deferred finance cost	1	1	44	45
Additions of lease liabilities	29	34	1,008	1,088
Decreases of lease liabilities	(2)	(3)	(58)	(82)
Agreement modification	4	3	145	82
Foreign exchange differences	-	(1)	6	(27)
Currency translation differences	-	-	73	197
Lease liabilities	50	60	1,748	2,011
Less Current portion	(31)	(31)	(1,081)	(1,029)
Closing net book value	19	29	667	982

Related leases transaction recognised in the statement of income for the year ended 31 December are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million US Baht	
	2022	2021	2022	2021
Expenses related to short-term lease	16	9	564	288
Expenses related to low-value assets lease	5	5	163	148
Expenses related to variable lease payment, which does not include in lease liabilities	-	-	4	3

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million US Baht	
	2022	2021	2022	2021
Expenses related to short-term lease	1	2	36	60
Expenses related to low-value assets lease	4	4	152	137
Expenses related to variable lease payment, which does not include in lease liabilities	-	-	2	2

25 Provision for decommissioning costs

Provision for decommissioning costs are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Provision for decommissioning costs	3,114	2,724	107,623	91,044
Less Current portion	(314)	(265)	(10,866)	(8,878)
Non-current portion of provision for decommissioning costs	2,800	2,459	96,757	82,166

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Provision for decommissioning costs	1,080	1,310	37,336	43,795
Less Current portion	(255)	(234)	(8,821)	(7,831)
Non-current portion of provision for decommissioning costs	825	1,076	28,515	35,964

The movements of provision for decommissioning costs during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Balance as at 1 January	2,724	3,203	91,044	96,209
Business acquisition	-	4	-	138
Additional provision	711	49	24,858	1,564
Provision used during the year	(157)	(36)	(5,494)	(1,152)
Finance costs	76	64	2,683	2,042
Reversal of provision	(238)	(556)	(8,340)	(17,762)
Foreign exchange differences	(2)	(4)	(57)	(117)
Currency translation differences	-	-	2,929	10,122
Balance as at 31 December	3,114	2,724	107,623	91,044

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Balance as at 1 January	1,310	1,713	43,795	51,468
Additional provision	1	12	30	393
Provision used during the year	(153)	(29)	(5,364)	(929)
Finance costs	25	31	871	989
Reversal of provision	(101)	(413)	(3,532)	(13,200)
Foreign exchange differences	(2)	(4)	(57)	(120)
Currency translation differences	-	-	1,593	5,194
Balance as at 31 December	1,080	1,310	37,336	43,795

During the year ended 31 December 2022, the Group recognised provision for decommissioning costs of production projects under production sharing contracts. The recognition is in accordance with the related laws and there is a probable possibility of the present obligation. In addition, the Company has paid the decommissioning costs for a portion of the project that had come to the end of concession, resulting in the decrease in provision for decommissioning costs, and prepaid the related decommissioning costs which was presented as part of other current assets in the statements of financial position.

The Group records a provision for decommissioning costs whenever it is probable that there would be an obligation as a result of a past event and the amount of that obligation is reliably estimated by the Group's engineers and management's judgment. The Group recognises provision for decommissioning costs as part of oil and gas properties, using the discounted present value before tax based on the estimated eventual costs that relate to the removal of the production facilities and amortised based on the unit of production of the proved reserve or the proved developed reserve. The Group recognises an increase that reflects the passage of time from the unwinding discount in each period, as a finance cost in the statements of income.

The provisions are based on the current situation such as regulations, technologies and prices. The actual results could differ from these estimates as future confirming events occur.

26 Provision for remuneration for production bonus and the renewal of petroleum production

Provision for remuneration for production bonus and the renewal of petroleum production are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Provision for remuneration for production bonus and the renewal of petroleum production	237	236	8,202	7,894
Less Current portion	(43)	(115)	(1,513)	(3,859)
Non-current portion of provision for remuneration for production bonus and the renewal of petroleum production	194	121	6,689	4,035

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Provision for remuneration for the renewal of petroleum production	44	145	1,531	4,856
Less Current portion	(22)	(105)	(772)	(3,529)
Non-current portion of provision for remuneration for the renewal of petroleum production	22	40	759	1,327

Movements of provision for remuneration for production bonus and the renewal of petroleum production during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Balance as at 1 January	236	191	7,894	5,732
Additional provision during the year	113	157	3,963	5,018
Remuneration paid during the year	(126)	(117)	(4,414)	(3,736)
Finance costs	-	5	13	168
Reversal of provision	9	-	310	-
Currency translation differences	5	-	436	712
Balance as at 31 December	237	236	8,202	7,894

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
As at 1 January 2021	145	173	4,856	5,206
Additional provision during the year	5	75	186	2,403
Remuneration paid during the year	(109)	(106)	(3,823)	(3,396)
Finance costs	1	3	28	99
Reversal of provision	2	-	76	-
Currency translation differences	-	-	208	544
Balance as at 31 December	44	145	1,531	4,856

The Group recognised provision for remuneration for production bonus and the renewal of petroleum production which has to pay remuneration fee to the Ministry of Energy by using the discounted cash flows based on the significant assumptions, such as sales volume data, accumulate volume of total petroleum production, oil price and discounted rate, etc.

27 Provision for employee benefits

Provision for employee benefits are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Statements of financial position				
Retirement benefits	181	194	6,246	6,495
Other long-term benefits	10	11	349	369
Liabilities in the statements of financial position	191	205	6,595	6,864
Statement of income				
Retirement benefits	19	37	663	1,184
Other long-term benefits	1	1	48	43
	20	38	711	1,227

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Statements of financial position				
Retirement benefits	97	111	3,362	3,692
Other long-term benefits	10	11	334	369
Liabilities in the statements of financial position	107	122	3,696	4,061
Statement of income				
Retirement benefits	8	27	302	872
Other long-term benefits	1	1	33	43
	9	28	335	915

The movements of provision for retirement benefits during the year are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
As at 1 January	194	252	6,495	7,571
Current service cost	13	16	444	509
Past service cost	-	14	-	440
Interest expense	6	7	219	235
	213	289	7,158	8,755
Gain from actuarial assumptions	(15)	(72)	(514)	(2,361)
Benefits paid	(8)	(10)	(303)	(314)
Foreign exchange differences	(9)	(13)	(319)	(421)
Currency translation differences	-	-	224	836
	(32)	(95)	(912)	(2,260)
As at 31 December	181	194	6,246	6,495

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
As at 1 January	111	175	3,692	5,253
Current service cost	6	10	228	336
Past service cost	-	13	-	434
Interest expense	2	3	74	102
	119	201	3,994	6,125
Gain from actuarial assumptions	(14)	(65)	(472)	(2,167)
Benefits paid	(5)	(7)	(173)	(248)
Foreign exchange differences	(3)	(18)	(116)	(589)
Currency translation differences	-	-	129	571
	(22)	(90)	(632)	(2,433)
As at 31 December	97	111	3,362	3,692

Expenses recognised in the statements of income for the years are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Current service cost	13	16	444	509
Past service cost	-	14	-	440
Interest expense	6	7	219	235
Total	19	37	663	1,184
Other long-term benefits	1	1	48	43
Expenses recognised in statement of income	20	38	711	1,227

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Current service cost	6	11	228	336
Past service cost	-	13	-	434
Interest expense	2	3	74	102
Total	8	27	302	872
Other long-term benefits	1	1	33	43
Expenses recognised in statement of income	9	28	335	915

(Gain) loss from actuarial assumptions recognised in the statements of comprehensive income are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Change in financial assumptions	(21)	(59)	(726)	(1,951)
Change in demographic assumptions	-	3	-	105
Experience adjustment	6	(16)	212	(515)
Total	(15)	(72)	(514)	(2,361)

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Change in financial assumptions	(18)	(51)	(626)	(1,706)
Change in demographic assumptions	-	-	-	3
Experience adjustment	4	(14)	154	(464)
Total	(14)	(65)	(472)	(2,167)

The significant actuarial assumptions used were as follows:

	% per annum	
	2022	2021
Discount rate	1.37 - 7.26	0.52 - 6.70
Inflation rate	2.0	2.0
Turnover rate	0.0 - 15.0	0.0 - 15.0

Sensitivity analysis for each significant assumption used is as follows:

	Increase (Decrease) in impact on defined retirement benefit obligation			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Discount rate				
Increase 1%	(11)	(15)	(377)	(506)
Decrease 1%	13	19	451	630

The above sensitivity analysis is based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions, the same method has been applied as when calculating the retirement benefits recognised in the statement of financial position.

The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the previous year.

As at 31 December 2022, the weighted average duration of the defined retirement benefit obligation is 23 years (2021: 23.6 years).

Maturity analysis of undiscounted retirement benefits are as follows:

	Consolidated financial statements		Separate financial statements	
	Unit: Million US Dollar	Unit: Million Baht	Unit: Million US Dollar	Unit: Million Baht
As at 31 December 2022				
Not later than 1 year	8	283	3	97
Over 1 to 5 years	40	1,373	28	983
Over 5 to 10 years	48	1,645	45	1,550
Over than 10 years	354	12,249	307	10,606
	450	15,550	383	13,236

28 Share capital

The total number of authorised ordinary shares is 3,969.98 million shares (2021: 3,969.98 million shares) with a par value of Baht 1 each (2021: a par value of Baht 1 each). All authorised ordinary shares are fully paid.

29 Legal reserve

Under the Public Companies Act., B.E. 2535, the Company is required to set aside as a legal reserve at least 5% of its net profit for the year until the reserve is not less than 10% of the authorised ordinary shares capital. The legal reserve is not available for dividend distribution. The Company has already set aside full legal reserve at 10% of the authorised ordinary shares capital.

30 Subordinated capital debentures

On 15 June 2022, the Company has redeemed and repaid the Baht nominated subordinated capital debentures with issuance and offering values of Baht 5,000 million as follows:

	Consolidated financial statements					
	Unit: Million US Dollar			Unit: Million Baht		
	Before Redemption	(Redeemed)	After Redemption	Before Redemption	(Redeemed)	After Redemption
Net value from finance cost	157	(157)	-	4,982	(4,982)	-

	Separate financial statements					
	Unit: Million US Dollar			Unit: Million Baht		
	Before Redemption	(Redeemed)	After Redemption	Before Redemption	(Redeemed)	After Redemption
Net value from finance cost	157	(157)	-	4,982	(4,982)	-

31 Dividends

On 28 March 2022, the Annual General Meeting of Shareholder approved payment of dividend payment for the year 2021 at the rate of Baht 5.00 per share. The Company had made an interim dividend payment for the first half-year operations of 2021 at the rate of Baht 2.00 per share on 27 August 2021. The remaining is for the second half-year operations of 2021 at the rate of Baht 3.00 per share on 18 April 2022.

On 30 January 2023, the Company's Board of Directors endorsed the proposal of dividend payment for the year 2022 at the rate of Baht 9.25 per share. The Company had made an interim dividend payment for the first half-year operations of 2022 at the rate of Baht 4.25 per share on 26 August 2022. The remaining is for the second half-year operations of 2022 at the rate of Baht 5.00 per share which will be paid after receiving approval from the Annual General Meeting of the Shareholders.

32 Expense by nature

Significant expenses by nature of the Group which comprise the expenses based on its participating interest in each project for the years are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Salary, wages and employees' benefits	294	287	10,235	9,116
Repair and maintenance	293	188	10,247	6,002
Exploration well and projects write-off	33	215	1,178	6,764
Geological and geophysical expenses	34	7	1,206	226
Logistics	283	149	9,888	4,757

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Salary, wages and employees' benefits	259	273	9,042	8,713
Repair and maintenance	53	69	1,865	2,214
Exploration well and projects write-off	1	-	34	-
Geological and geophysical expenses	-	-	1	1
Logistics	73	62	2,560	1,975

33 Income tax expense

Income tax rates for the year ended 31 December 2022 are as follows:

	Tax Rate (%)
Income tax in Thailand	
- Corporate income tax under Revenue Code	3, 20
- Petroleum income tax on petroleum businesses in Thailand pursuant to Petroleum Income Tax Act, B.E. 2514 and 2532	50
- Petroleum income tax on petroleum business in Thailand pursuant to Petroleum Income Tax Act, B.E. 2560	20
Income tax from the Petroleum business in the Thailand - Malaysia Joint Development Area under the Petroleum Income Tax Act (No.5), B.E. 2541 and Petroleum Income tax in Malaysia	
- From the first to the eighth accounting period	Exempt
- From the ninth to the fifteenth accounting period	10
- From the sixteenth accounting period onwards	20
Income tax in Malaysia	
- Corporate income tax	24
- Petroleum income tax	25, 38
Corporate income tax in the Republic of the Union of Myanmar	25
Corporate income tax in the Socialist Republic of Vietnam	20, 50
Corporate income tax in the Republic of Indonesia	
- Corporate income tax	30
- Income tax from the profit distribution	20
Corporate income tax in the Republic of Singapore	17
Corporate income tax in Hong Kong Special Administrative Region of the People's Republic of China	16.5
Corporate income tax in the Republic of Portugal	21
Corporate income tax in United Kingdom	19
Corporate income tax in the Kingdom of the Netherlands	15, 25.8
Corporate income tax in the Republic of Cyprus	12.5

	Tax Rate (%)
Corporate income tax in the Commonwealth of Australia	
- Corporate income tax	30
- Petroleum resource rent tax in the Commonwealth of Australia	40
Corporate income tax in the Federative Republic of Brazil	24, 34
Corporate income tax in Canada	23
Corporate income tax in the United Mexican States	30
Corporate income tax in the Republic of Panama	25
Corporate income tax in the People's Democratic Republic of Algeria	
- Corporate income tax	38, 19 - 80
- Petroleum income tax	20 - 70
Income tax in Sultanate of Oman	
- Corporate income tax	15
- Petroleum income tax	55, 80
Corporate income tax in the United Arab Emirates	50, 55
Corporate income tax in the Republic of Kazakhstan	
- Corporate income tax	30
- Income tax from the profit distribution	15
Corporate income tax in the Republic of Mozambique	32
Petroleum income tax in the Republic of Angola	50

Income tax expenses for the year ended 31 December comprised:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Current income tax	1,622	1,265	56,836	40,655
Deferred income tax	440	22	15,459	873
Total income tax expenses	2,062	1,287	72,295	41,528

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Current income tax	574	599	20,123	19,183
Deferred income tax	225	(54)	7,923	(1,649)
Total income tax expenses	799	545	28,046	17,534

The income tax on the Group's profit before income tax differs from the theoretical amount that would arise using the basic tax rate of the home country of the Company are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Profit before income tax	4,060	2,497	143,196	80,392
Tax calculated at a tax rate of 50%	2,030	1,249	71,598	40,196
Tax effect of:				
Loss of the entities not subject to tax	205	246	7,232	7,920
Expenses not deductible for tax purpose	312	155	11,002	4,988
Adjustment in respect of prior year	6	(15)	190	(474)
Results of operations of associates and joint ventures, net of tax	(10)	(8)	(334)	(244)
Tax credit on petroleum royalty	(576)	(485)	(20,330)	(15,606)
Deferred tax on functional currency	15	10	526	294
Foreign income tax	66	30	2,342	964
Difference in tax rate of the Group's operating countries	14	105	491	3,387
Others	-	-	(422)	103
Tax charge	2,062	1,287	72,295	41,528

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	2022	2021	2022	2021
Profit before income tax	2,340	1,821	81,990	58,500
Tax calculated at a tax rate of 50%	1,170	911	40,995	29,250
Tax effect of:				
Gain from the entities not subject to tax	(27)	(15)	(954)	(461)
Expenses not deductible for tax purpose	222	173	7,782	5,573
Adjustment in respect of prior year	12	(1)	399	(23)
Tax credit on petroleum royalty	(453)	(390)	(15,881)	(12,501)
Foreign income tax	18	-	636	-
Tax rate difference impact on profits before tax	(143)	(133)	(4,988)	(4,282)
Others	-	-	57	(22)
Tax charge	799	545	28,046	17,534

34 Earnings per share

Basic earnings per share for the year ended 31 December are calculated as follows:

	Consolidated financial statements			
	Unit: US Dollar		Unit: Baht	
	2022	2021	2022	2021
Profit attributable to equity holders of parent (unit: million)	1,999	1,211	70,901	38,864
Less Interest expenses for subordinated capital debentures (unit: million)	(4)	(9)	(145)	(294)
Redemption of subordinated capital debentures (unit: million)	14	-	490	-
Income tax for subordinated capital debentures (unit: million)	(1)	(2)	(14)	(52)
Profit used to determine basic earnings per share (unit: million)	2,008	1,200	71,232	38,518
Weighted average number of ordinary shares outstanding during the year (million shares)	3,970	3,970	3,970	3,970
Basic earnings per share	0.51	0.30	17.94	9.70

	Separate financial statements			
	Unit: US Dollar		Unit: Baht	
	2022	2021	2022	2021
Profit attributable to equity holders of parent (unit: million)	1,541	1,276	53,944	40,966
Less Interest expenses for subordinated capital debentures (unit: million)	(4)	(9)	(145)	(294)
Redemption of subordinated capital debentures (unit: million)	14	-	490	-
Income tax for subordinated capital debentures (unit: million)	(1)	(2)	(14)	(46)
Profit used to determine basic earnings per share (unit: million)	1,550	1,265	54,275	40,626
Weighted average number of ordinary shares outstanding during the year (million shares)	3,970	3,970	3,970	3,970
Basic earnings per share	0.39	0.32	13.67	10.23

35 Commitments and contingent liabilities

35.1 Contractual commitments

As at 31 December 2022 and 2021, significant contractual commitments contracted but not recognised as liabilities are as follows:

	Consolidated financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Capital commitments	2,085	1,637	72,079	54,708
Other commitments	168	72	5,797	2,406
Total	2,253	1,709	77,876	57,114

	Separate financial statements			
	Unit: Million US Dollar		Unit: Million Baht	
	31 December 2022	31 December 2021	31 December 2022	31 December 2021
Capital commitments	227	310	7,815	10,360
Other commitments	8	22	292	735
Total	235	332	8,107	11,095

35.2 Contingent liabilities

- On 9 August 2016, PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEP AAA) was notified of a claim made in the Sydney Registry of the Federal Court of Australia seeking damages on behalf of a group of West Timorese seaweed farmers (Class Action) for compensation relating to the Montara oil spill incident in the Timor Sea in 2009. Subsequently, on 19 March 2021, the court found that oil from the Montara oil spill incident, on the balance of probabilities, reached the lead plaintiff's seaweed farm in late 2009, destroying his seaweed crops and making it difficult for him to re-establish his crops in the following five years. The court determined the damages caused only to the lead plaintiff of the class action of approximately Indonesian Rupiah 253 million or equivalent to US Dollar 0.02 million (Baht 0.54 million). Interest on these damages was agreed to be approximately Indonesian Rupiah 165 million or equivalent to US Dollar 0.01 million (Baht 0.35 million).

  On 25 October 2021, the court delivered its judgment on the remaining unanswered common questions in the class action. The court identified the impacted areas, on the balance of probabilities, from the Montara oil spill incident, from the period September to at least November 2009. The judgment related to the lead plaintiff's claim and the common questions raised at trial only. Claims of all the class members are presently statute barred and must be determined separately. The court's decision did not negate the requirement for individual class members to demonstrate their actual loss and damage.

  PTTEP AAA lodged an appeal on 13 December 2021 against the court's first instance judgment in its entirely. The court also made orders requiring a mediation to occur in the Class Action proceeding and PTTEP AAA participated in that mediation. The mediation resulted in PTTEP AAA reaching an in-principle agreement with the group of Indonesian seaweed farmers resulting in signature of a settlement deed in November 2022, that PTTEP AAA will pay Australian Dollar 192.5 million, in full, and finalise settlement of the Class Action (including PTTEP AAA's appeal). The in-principle settlement was made on a no admission of liability basis and is still subject to court approval.

As at 31 December 2022, PTTEP AAA recognised a provision for the Class Action settlement of Australian Dollar 192.5 million or equivalent to US Dollar 130.42 million (Baht 4,507.58 million).

- As at 31 December 2022, the Company had contingent liabilities in the form of letters of guarantee with an amount equivalent to US Dollar 342.46 million (Baht 11,836.32 million) for the separate financial statements and with an amount equivalent to US Dollar 504.21 million (Baht 17,426.74 million) for the consolidated financial statements.

35.3 Commitments

Commitment from the guarantee of debentures and loans of subsidiaries

The Company has commitment for the guarantee of unsecured and unsubordinated capital debenture of US Dollar 490 million for PTTEP Canada International Finance Limited (PTTEP CIF), a subsidiary of the Group.

The Company has commitment for the guarantee of unsecured and unsubordinated capital debenture of US Dollar 1,500 million and the senior guaranteed debentures with a bondholders' representative of Baht 12,000 million for PTTEP Treasury Center Company Limited (PTTEP TC), a subsidiary of the Company.

The Company has commitment for the guarantee of cross currency swap transactions for PTTEP TC to swap Baht debenture to US Dollar with guaranteed amount of US Dollar 348.66 million.

The Company has commitment for the guarantee of senior debt financing agreements in the form of Project Finance of a subsidiary of MoZ LNG1 Holding Company Ltd (HoldCo) with the facility in the amount of US Dollar 14,900 million, which is guaranteed by the Company based on the Group's participating interest in HoldCo of 8.5%, which is equivalent to US Dollar 1,267 million.

The Company has commitment for the guarantee of PTTEP TC's US Dollar loan agreement which is a committed revolving credit facilities with a financial institution. The total loan facility is in amount of US Dollar 400 million. As at 31 December 2022, there is unutilised credit facilities of US Dollar 400 million.

36 Events occurring after the reporting date

On 10 January 2023, AI and Robotics Ventures Company Limited (ARV), a subsidiary of the Group, established Bind Analytics Company Limited (BIND) with a registered capital of Baht 5 million. The registered capital comprises 0.5 million ordinary shares at a par value of Baht 10 each. ARV holds 100% interest in BIND. Its registered shares were unpaid. The Group classifies the investment in BIND as an investment in a subsidiary.

On 10 January 2023, ARV established Bedrock Analytics Company Limited (Bedrock) with a registered capital of Baht 5 million. The registered capital comprises 0.5 million ordinary shares at a par value of Baht 10 each. ARV holds 100% interest in Bedrock. Its registered shares were unpaid. The Group classifies the investment in Bedrock as an investment in a subsidiary.

On 10 January 2023, Rovula (Thailand) Co., Ltd. (Rovula), a subsidiary of the Group, established S2 Robotics Company Limited (S2) with a registered capital of Baht 1 million. The registered capital comprises 0.01 million ordinary shares at a par value of Baht 100 each. Rovula holds 100% interest in S2. Its registered shares were unpaid. The Group classifies the investment in S2 as an investment in a subsidiary.

Supplemental Information on Petroleum Exploration and Production Activities (Unaudited)

(A) PTTEP and Our Subsidiaries' Petroleum Reserves Report as of December 31, 2022

The total Proved Reserves of PTTEP and our subsidiaries as of December 31, 2022 are shown in the attached table. The Proved Reserves are reviewed annually by Company's earth scientists and reservoir engineers to ensure rigorous professional standards. The Proved Reserves are reported on a gross basis, which includes the Company's net working interest and related host country's interest.

Furthermore, in order to improve efficiency, check and balance of the reserves estimation, reporting and disclosure, the company maintains a Reserves Committee which has the following roles and responsibilities:

- Review and endorse the Company's Annual Reserves
- Review and approve Major Changes of Reserves, and Reserves for Newly-Acquired Project
- Ensure that all activities that related to reserves estimation and disclosure of reserves information conform to regulatory and legal requirements as well as to corporate and international standards
- Approve Annual Reserves Audit Plan, appoint Reserves Auditor, as well as approve Reserves Audit Report to ensure compliance with Company's framework and continual process improvement

As of December 31, 2022, the total amount of Proved Reserves of PTTEP Group's projects[(1)] was 365 million stock-tank barrels (MMSTB) of crude oil and condensate[(2)] and 6,523 billion standard cubic feet (BSCF) of natural gas or 1,077 million barrels of oil equivalent (MMBOE). The total amount of Proved Reserves in terms of oil equivalent was therefore 1,442 MMBOE.

In 2022, the total production of PTTEP Group[(1)] was 214 MMBOE, consisting of 56 MMSTB of crude oil and condensate[(2)] and 977 BSCF (158 MMBOE) of natural gas. This was equivalent to the average production rate of 585,244 barrels of oil equivalent per day (BOED) which was approximately 90,367 BOED or 18% increase from the previous year. The increase in production mainly comes from G1/61, G2/61, and Algeria Hassi Bir Rekaiz projects first production in April and July 2022. In addition, PTTEP Group has signed side deed to perform sole risk in G1/61 project and obtained participating interest increase from 25.5% to 37.0842% in Yadana project due to TotalEnergies withdrawal with effective date on July 20, 2022.

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(1) Include APICO Joint Venture project

(2) Include Natural Gas Liquids (NGL)

PTT Exploration and Production Public Company Limited

Crude Oil and Condensate and Natural Gas Proved Reserves[1]

	Crude Oil and Condensate[2] (MMSTB)			Natural Gas (BSCF)			Barrel of Oil Equivalent (MMBOE)		
	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total
Company's share of proved reserves of consolidated companies									
As of December 31, 2020	112	183	295	2,580	2,171	4,751	533	540	1,073
1) Revision of previous estimates	7	4	11	51	(25)	26	15	2	17
2) Improved recovery	2	-	2	2	-	2	3	-	3
3) Extensions and discoveries	20	8	28	781	48	829	147	15	162
4) Purchases/Sales of Petroleum in place	-	69	69	-	1,117	1,117	-	264	264
5) Production	(26)	(22)	(48)	(470)	(342)	(812)	(103)	(76)	(179)
As of December 31, 2021	115	242	357	2,944	2,969	5,913	595	745	1,340
Company's share of proved reserves of consolidated companies									
As of December 31, 2021	115	242	357	2,944	2,969	5,913	595	745	1,340
1) Revision of previous estimates	13	6	19	173	208	381	41	33	74
2) Improved recovery	1	0	1	1	-	1	1	0	1
3) Extensions and discoveries	32	9	41	859	171	1,030	174	37	211
4) Purchases/Sales of Petroleum in place	3	(0)	3	80	35	115	16	4	20
5) Production	(31)	(25)	(56)	(566)	(402)	(968)	(123)	(89)	(212)
As of December 31, 2022	**133**	**232**	**365**	**3,491**	**2,981**	**6,472**	**704**	**730**	**1,434**

[1] The Proved Reserves are reported on a gross basis which includes the Company's net working interest and the related host country's interest.

[2] Include Natural Gas Liquids (NGL)

PTT Exploration and Production Public Company Limited

Crude Oil and Condensate and Natural Gas Proved Reserves[1]

	Crude Oil and Condensate[2] (MMSTB)			Natural Gas (BSCF)			Barrel of Oil Equivalent (MMBOE)		
	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign	Total
Company's share of proved reserves of equity companies[3]									
As of December 31, 2020	0	-	0	9	-	9	1	-	1
1) Revision of previous estimates	(0)	-	(0)	(3)	-	(3)	(0)	-	(0)
2) Improved recovery	-	-	-	-	-	-	-	-	-
3) Extensions and discoveries	0	-	0	63	-	63	11	-	11
4) Purchases/Sales of Petroleum in place	-	-	-	-	-	-	-	-	-
5) Production	(0)	-	(0)	(9)	-	(9)	(2)	-	(2)
As of December 31, 2021	0	-	0	60	-	60	10	-	10
Company's share of proved reserves of equity companies[3]									
As of December 31, 2021	0	-	0	60	-	60	10	-	10
1) Revision of previous estimates	-	-	-	-	-	-	0	-	0
2) Improved recovery	-	-	-	-	-	-	-	-	-
3) Extensions and discoveries	-	-	-	-	-	-	-	-	-
4) Purchases/Sales of Petroleum in place	-	-	-	-	-	-	-	-	-
5) Production	(0)	-	(0)	(9)	-	(9)	(2)	-	(2)
As of December 31, 2022	**0**	**-**	**0**	**51**	**-**	**51**	**8**	**-**	**8**
Total Proved Reserves As of December 31, 2022	**133**	**232**	**365**	**3,542**	**2,981**	**6,523**	**712**	**730**	**1,442**

[1] The Proved Reserves are reported on a gross basis which includes the Company's net working interest and the related host country's interest.

[2] Include Natural Gas Liquids (NGL)

[3] Reserves from APICO Joint Venture project

(B) Capitalized Costs Relating to Oil and Gas Producing Activities

Capitalized costs represent cumulative expenditures for proved and unproved properties together with related accumulated depreciation, depletion, amortization, and allowance for impairment loss on assets.

Proved properties include exploration wells, development wells, transportation pipelines, producing facilities, right-of-use assets and decommissioning costs. Unproved properties represent amounts associated with capitalized cost of projects which have not yet found proved reserves.

(Unit: Million US Dollar)	2022	2021
Proved properties	37,248	36,055
Unproved properties	4,312	4,446
Gross capitalized costs	**41,560**	**40,501**
Accumulated depreciation, depletion, amortization, and allowance for impairment	(25,779)	(25,588)
Net capitalized costs	**15,781**	**14,913**

(C) Costs Incurred in Oil and Gas Property Acquisition, Exploration, and Development Activities

Costs incurred in oil and gas property acquisition, exploration and development activities represent amounts both capitalized and charged to expense during the year.

Property acquisition costs include costs to purchase proved and unproved properties.

Exploration costs include geological and geophysical expenses, exploratory drilling cost as well as reservation fee for exploration blocks.

Development costs include costs associated with drilling and equipping development wells, improved recovery systems, facilities for extraction, treating, gathering and storage, producing facilities for existing developed reserves, and costs associated with transportation pipeline.

(Unit: Million US Dollar)	2022			2021		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Acquisition of properties						
- Proved	5	-	5	19	2,300	2,319
- Unproved	-	12	12	-	3	3
Exploration costs	13	107	120	44	157	201
Development costs	1,374	718	2,092	799	832	1,631
Total	**1,392**	**837**	**2,229**	**862**	**3,292**	**4,154**

(D) Results of Operations for Producing Activities

Results of operations from oil and gas producing activities for the year 2022 and 2021 are shown in the following table.

Operating expenses include lifting costs incurred to operate and maintain productive wells and related equipment.

Exploration expenses consist of geological and geophysical costs, and exploratory well including project cost write off expenses.

Administrative expenses are expenses directly related to oil and gas producing activities.

Depreciation, depletion, and amortization expenses relate to capitalized costs incurred in acquisition, exploration and development activities, transportation pipeline, including amortized decommissioning costs.

Other expenses (income) mainly include impairment loss on assets, foreign exchange gains and losses directly related to oil and gas producing activities and other income.

Income tax expenses are based on the results of operations from petroleum producing activities.

General corporate overhead and finance costs are excluded from the results of operations for petroleum producing activities.

(Unit: Million US Dollar)	2022			2021		
	Domestic	Foreign	Total	Domestic	Foreign	Total
Revenues						
Revenues from sales – Related parties	5,369	2,031	7,400	4,074	1,029	5,103
Revenues from sales – Third parties	283	2,021	2,304	231	1,677	1,908
Total revenues from sales	**5,652**	**4,052**	**9,704**	**4,305**	**2,706**	**7,011**
Expenses						
Operating expenses	674	788	1,462	454	623	1,077
Exploration expenses	4	68	72	0	226	226
Administrative expenses	63	257	320	43	96	139
Petroleum royalties	596	92	688	501	29	530
Depreciation, depletion and amortization	1,399	920	2,319	1,339	825	2,164
Other (income) / expenses	(56)	209	153	3	(222)	(219)
Total expenses	**2,680**	**2,334**	**5,014**	**2,340**	**1,577**	**3,917**
Results before income taxes	**2,972**	**1,718**	**4,690**	**1,965**	**1,129**	**3,094**
Income tax expenses	1,064	1,056	2,120	691	630	1,321
Net results of operations	**1,908**	**662**	**2,570**	**1,274**	**499**	**1,773**

(E) Standardized Measure of Discounted Future Net Cash Flows (SMDCF) Relating to the Proved Oil and Gas Reserves

The standardized measure of discounted future net cash flows related to the above proved oil and gas reserves, is computed by applying 12-month average prices* (with consideration of price changes only to the extent provided by contractual arrangements), to the estimated future production of year-end remaining proved oil and gas reserves less estimated future expenditures (based on year-end costs) to be incurred in developing and producing the proved reserves.

Future income taxes are calculated by applying the appropriate year-end statutory tax rates to the future pre-tax net cash flows and deducted by applicable tax deductions or tax credits.

Net Cash flows are discounted using a rate of 10% per year to reflect the estimated timing of the future cash flows.

The estimation of discounted future net cash flow shown below is not intended to represent the fair value of oil and gas properties. The fair value should take into account of several factors, such as probable and possible reserves which may turn into proved reserves in the future, anticipated future oil and gas prices, interest rates, changes in development and production costs and risks associated with future production. Therefore, the fair value will subject to the view and perception of analyst.

* Twelve-month average prices are calculated as the unweighted arithmetic average of the first-day-of-the-month price for each month.

Standardized Measure of Discounted Future Net Cash Flows Relating to Prove Oil and Gas Reserves

(Unit: Million US Dollar)	Domestic		Foreign		Total	
	2022	2021	2022	2021	2022	2021
Future cash inflows	20,444	15,555	31,528	23,197	51,972	38,752
Future production costs	(6,713)	(5,872)	(5,929)	(5,797)	(12,642)	(11,669)
Future development costs	(6,530)	(4,758)	(3,741)	(3,603)	(10,271)	(8,361)
Future income tax expenses	(1,128)	(1,261)	(6,660)	(3,456)	(7,788)	(4,717)
Future net cash flows	**6,073**	**3,664**	**15,198**	**10,341**	**21,271**	**14,005**
10% annual discount	(1,683)	(678)	(7,585)	(5,243)	(9,268)	(5,921)
Standardized measure of discounted future net cash flows (SMDCF) of consolidated companies	**4,390**	**2,986**	**7,613**	**5,098**	**12,003**	**8,084**
SMDCF of equity companies [1]	211	145	-	-	211	145
Total SMDCF	**4,601**	**3,131**	**7,613**	**5,098**	**12,214**	**8,229**

Changes in Standardized Measure of Discounted Future Net Cash Flows Relating to Proved Oil and Gas Reserves

(Unit: Million US Dollar)	2022	2021
Present value at beginning of year of consolidated companies	**8,084**	**5,158**
Sales and transfers of oil and gas produced, net of production costs during period	(7,334)	(4,624)
Development costs incurred during the period	2,920	1,842
Net changes in prices and production costs	12,466	5,794
Net changes in development costs	(1,455)	(343)
Extensions, discoveries and improved recovery	2,132	1,334
Revisions of previous quantity estimates	1,354	233
Purchases / sales of petroleum in place	253	3,795
Accretions of discount	(3,347)	(3,105)
Net changes in income taxes	(3,070)	(2,000)
Present value at the year end of consolidated companies	**12,003**	**8,084**
Present value at the year end of equity company [1]	211	145
Total Present value at the year end	**12,214**	**8,229**

[1] included investment in APICO Joint Venture project

(F) Other Information

Producing Oil and Gas Wells

The numbers of producing wells[1] as of December 31, 2022 were as follows:

	Oil	Gas
Thailand	1,707	2,552
Overseas:		
Southeast Asia	125	218
Others	9,595	133
Total	**11,427**	**2,903**

Definition of producing wells:

- Producing wells: wells which are either currently producing or temporarily closed but exclude water disposal wells or wells which have been plugged & abandoned.
- Producing Oil wells: wells which primarily produce oil, with or without associated gas.
- Producing Gas wells: wells which primarily produce natural gas, with or without associated liquids.

Drilling in Progress of Oil and Gas Wells

The numbers of wells in progress as at December 31, 2022 were as follows:

	Number of Well [1]
Exploratory	
Thailand	-
Overseas:	
Southeast Asia	1
Others	-
Total	**1**
Development	
Thailand	56
Overseas:	
Southeast Asia	3
Others	4
Total	**63**

[1] Total number of wells reported at 100% (Gross), not only PTTEP's participating interest

Oil and Gas Wells[1] Drilled Annually in 2022

	Technical Success	Dry Well
Exploratory		
Thailand	2	2
Overseas:		
Southeast Asia	1	1
Others	2	-
Total	5	3

	Productive Well	Dry Well
Development		
Thailand	340	9
Overseas:		
Southeast Asia	17	1
Others	35	-
Total	392	10

[1] Total number of wells reported at 100% (Gross), not only PTTEP's participating interest

Quarterly information in 2022 and 2021 for the consolidated financial statements are as follows:

Unit: Thousand US Dollar

Year 2022	4thQ	3rdQ	2ndQ	1stQ
Revenues				
Revenue from sales	2,469,448	2,388,305	2,382,536	2,030,275
Revenue from pipeline transportation	44,825	43,021	32,719	30,358
Other income				
Gain on foreign exchange rates	44,568	-	-	-
Gain on remeasuring of financial instruments	-	152,519	8,724	-
Interest income	22,778	11,402	5,587	4,264
Other income	115,607	21,835	39,519	18,173
Total revenues	**2,697,226**	**2,617,082**	**2,469,085**	**2,083,070**
Expenses				
Operating expenses	321,407	300,286	291,598	196,719
Exploration expenses	7,511	41,497	16,553	6,122
Administrative expenses	292,910	80,444	112,400	92,609
Petroleum royalties	174,009	170,824	178,681	164,209
Depreciation, depletion and amortisation	649,934	631,112	565,330	516,759
Other expenses				
Loss on foreign exchange rates	-	86,591	44,217	4,824
Loss on remeasuring of financial instruments	100,117	-	-	245,612
Impairment loss on assets and goodwill	205,084	94,996	-	-
Finance costs	55,586	62,335	63,694	51,968
Total expenses	**1,806,558**	**1,468,085**	**1,272,473**	**1,278,822**
Share of profit (loss) of associates and joint ventures	13,510	(17,485)	12,964	10,567
Profit before income taxes	**904,178**	**1,131,512**	**1,209,576**	**814,815**
Income taxes	(486,965)	(467,916)	(609,835)	(496,785)
Profit for the period	**417,213**	**663,596**	**599,741**	**318,030**
Earnings per share				
Basic earnings per share	0.11	0.17	0.15	0.08

Unit: Thousand US Dollar

Year 2021	4thQ	3rdQ	2ndQ	1stQ
Revenues				
Revenue from sales	1,867,008	1,743,639	1,728,895	1,391,318
Revenue from pipeline transportation	26,248	26,686	19,804	20,409
Other income				
Gain on foreign exchange rates	4,946	-	-	-
Gain from a bargain purchase	(8,097)	-	-	349,971
Interest income	3,428	3,465	4,726	5,131
Other income	95,068	10,459	14,392	11,675
Total revenues	1,988,601	1,784,249	1,767,817	1,778,504
Expenses				
Operating expenses	275,037	219,801	192,455	174,202
Exploration expenses	19,698	50,285	7,464	148,805
Administrative expenses	125,534	71,625	82,935	74,945
Petroleum royalties	142,654	131,997	137,964	117,600
Depreciation, depletion and amortisation	419,870	605,821	629,714	546,659
Other expenses				
Loss on foreign exchange rates	-	36,323	1,753	4,462
Loss on remeasuring of financial instruments	6,529	5,052	124,350	98,359
Impairment loss on assets and goodwill	183,000	-	-	-
Finance costs	50,826	52,008	51,372	48,020
Total expenses	1,223,148	1,172,912	1,228,007	1,213,052
Share of profit of associates and joint ventures	3,305	6,895	2,795	2,179
Profit before income taxes	768,758	618,232	542,605	567,631
Income taxes	(447,941)	(326,179)	(320,957)	(191,611)
Profit for the period	320,817	292,053	221,648	376,020
Earnings per share				
Basic earnings per share	0.08	0.07	0.06	0.09

Petroleum Sales Volume and Average Unit Prices

	2022	2021
Net sales of petroleum (BOED)	468,130	416,141
Average petroleum unit prices		
Average unit prices of crude oil and condensate (USD/BBL)	94.89	66.70
Average unit prices of natural gas (USD/MMBTU)	6.27	5.69
Average unit prices of petroleum (USD/BOE)	53.39	43.49
Lifting cost (USD/BOE)	4.42	4.13



PTTEP

PTT Exploration and Production Public Company Limited

Energy Complex Building A, Floors 19-36
555/1 Vibhavadi Rangsit Road, Chatuchak,
Bangkok 10900, THAILAND
Tel: +66(0) 2537 4000
Fax: +66(0) 2537 4444

PTTEP website

PTTEP facebook