



Executive Summary

2020 has been a very challenging year for businesses due to the on-going Coronavirus 2019 (COVID-19) pandemic that has severely affected global economy and caused a significant drop in demand for crude oil. Together with the fallen crude oil demand, the oil price war from the disagreement in production cut among OPEC+ members, had caused a sharp drop in crude oil prices in the beginning. However, the situation was better in 2H/2020 as there were signs of recovery in many industries, despite concerns on the new wave of COVID-19 in many countries. Crude oil prices have started to recover from its lowest point in the second quarter, supported by the improving crude oil demand as a result of the easing of lockdown restriction and COVID-19 vaccine administration in some countries, together with strong commitment of OPEC+ compliance and agreement.

PTTEP has sharpened our plan under the strategy “Execute” and “Expand” in order to be resilient in the industry’s increasingly challenging environment and enhance our competitive advantage and promote sustainability. In 2020, PTTEP has focused on strengthening core business, Exploration and Production by optimizing development and production plans for cost competitiveness with the goal to continuously reducing unit cost. In terms of our operations, our projects in the Gulf of Thailand, namely Bongkot, Arthit and Contract 4 projects, were able to deliver production volumes according to the buyer’s lower nomination as a result of fallen demand from the outbreak. The results of the drilling of appraisal well at Sarawak SK410B Project that has begun in late Q3/2020 to further evaluate upside potential after the successful exploration in mid-2019, is expected to be in Q1/2021. We have also started to drill an exploration well at Sarawak SK417 Project in Q4/2020, with the results expected in Q1/2021. In addition, we have expanded our investments in the Middle East, a prolific area with high petroleum potential, with the exploration and production rights for Oman Onshore block 12 Project in Oman and Abu Dhabi Offshore 3 Project in UAE. On 1 February 2021, PTTEP has signed a Sale and Purchase Agreement (SPA) to acquire 20% interest in Oman Block 61 in Sultanate of Oman from BP Exploration (Epsilon) Limited. The transaction value of this acquisition is 2,450 million US dollars, subject to final net working capital and other closing adjustments per SPA, and the contingent payment at the maximum amount of 140 million US dollars, if the pre-agreed conditions under SPA are accomplished. The Completion Date is expected to be in 2021, including necessary regulatory approvals.

Moreover, for our new business, we have expanded AI & Robotics Venture (ARV) business by establishing two joint ventures companies, namely ATI Technologies Co., Ltd. for Smart Farming related business and Zeaquest Co.,Ltd. for subsea inspection, repair and maintenance (Subsea IRM) business. The Gas to Power Project has made a good progress with the approval of Notice to Proceed in Q4/2020 and FID expected in 2022.

In 2020, PTTEP reported net income of 720 MMUSD, a decrease of 54% compared to the previous year. This is mainly driven by lower selling prices as a result of lower global crude oil prices. Nonetheless, PTTEP was able to reduce unit cost and cash cost to 30.5 USD/barrel of oil equivalent (BOE) and 14.4 USD/BOE, respectively. As a result, PTTEP reported cash flow generated from operations of 2,799 MMUSD with EBITDA margin at 68%. During 2020, PTTEP also recognized impairment loss on asset (before taxes) of 91 MMUSD mainly from the Mariana Oil Sand Project due to the forecast of low oil price in long term indicating project development uncommercial and adjustments to the productions profile of Yetagun Project. As at year-end 2020, PTTEP reported total assets of 22,493 MMUSD, of which 3,804 MMUSD was cash and short-term investments, while total liabilities were reported at 10,694 MMUSD, of which 3,932 MMUSD was interest-bearing debt. Total shareholders’ equity ended at 11,799 MMUSD with debt to equity ratio at 0.33, reflecting strong and healthy financial structure.

Table of key financial results

(Unit: Million US Dollar)	2020	2019	% Inc. (Dec.) YTD	Q3 2020	Q4 2020	Q4 2019	% Inc. (Dec.) QoQ	% Inc. (Dec.) YoY
Total Revenue	5,357	6,413	(16)	1,305	1,348	1,841	3	(27)
Sales Revenue	5,043	6,046	(17)	1,228	1,292	1,755	5	(26)
EBITDA	3,512	4,354	(19)	890	829	1,188	(7)	(30)
Profit(loss) for the period	720	1,569	(54)	230	81	384	(65)	(79)
Basic earnings(loss) per share (Unit: US Dollar)	0.18	0.38	(53)	0.06	0.02	0.09	(67)	(78)
Profit(loss) from normal operation	781	1,445	(46)	195	168	379	(14)	(56)
Profit(loss) from non-recurring items	(61)	124	>(100)	35	(87)	5	>100	>(100)



Economic Overview in 2020

Crude Oil Price

Crude oil price is one of the major factors affecting the Company's performance. In 2020, average Dubai crude price fell to 42.3 USD per barrel, lower than 2019 average price of 63.5 USD per barrel. This was mainly due to the COVID-19 outbreak, which caused country lockdown in several parts of the world. Consequently, crude demand decreased from 97 million barrels per day (MBPD) in January to 85 MBPD in March. In addition, the OPEC+ meeting to cut additional output had failed, making Saudi Arabia to counter back by increasing the oil supply to a record high and led to a drop in oil price to 23.4 USD per barrel at the end of Q1/2020. Pressured by the rise of COVID-19 cases worldwide, crude demand and Dubai price in April thus hit the lowest level at 75 million barrels per day and below 20 USD per barrel, respectively. However, to uphold the crude price, OPEC+ had reached the mutual agreement to cut the output by 9.7 MBPD from May to July and by 7.7 MBPD from August to December 2020. In addition, the G20 countries, led by U.S., Canada, and Brazil, had agreed to contribute additional production cut up to 5 MBPD, while improved COVID-19 situation in many countries also supported the recovery of crude demand to 91 MBPD and average Dubai price at 42.9 USD per barrel in Q3/2020.

During Q4/2020, the approval of COVID-19 vaccine was issued and vaccines were then administered to Americans, British, EU citizens in December. Together with the strong commitment of OPEC+ compliance and agreement reached during OPEC+ meeting in December 2020, which the production cut of January 2021 will be 7.2 MBPD compared with 5.8 MBPD cut agreed previously, average Dubai crude price in this quarter then went up to 44.6 USD per barrel, and even beyond 50 USD per barrel during the last week of 2020.

Liquefied Natural Gas (LNG)

For LNG Market in 2020, the average Asian Spot LNG price decreased to 4.39 USD per MMBTU, with the lowest level in Q2/2020 at 1.83 USD per MMBTU. The key driver was from lower demand caused by COVID-19 outbreak. However, during the last week of December the Spot LNG Price went up to an average of 13.49 USD per MMBTU, mainly from the boosted demand from freezing temperatures across North Asia, the transportation congestion at the Panama Canal, as well as LNG supply shortage caused by shut down of several LNG projects. For the global LNG market in 2020, total capacity was at 378 million tons per annum (MTPA) (2019: 360 MTPA), while LNG demand remained at approximately 362 MTPA (2019: 351 MTPA). (Source: FGE as of December 2020)

Thailand's Energy Demand

Thailand's energy demand from January to October 2020 was reported at 1.98 million BOED, a decrease of 7.9% relative to the same period of the previous year (Source: EPP0, The Ministry of Energy). The decrease was attributed primarily by the economy slowdown resulting from the COVID-19 pandemic which caused country lockdown and impacted almost every business sectors, especially the tourism industry and jet fuel usage. Overall, energy usage decreased for every segment except for hydro and imported electricity.

Exchange Rates (Thai Baht against US Dollar)

During 2020, the THB, against USD, was quite volatile throughout the year, weakening in the first quarter and strengthening for the rest of the year to close at 30.04 THB/USD, attributed by the COVID-19 pandemic, which created negative impacts to the global economy and financial markets. The government of Thailand has exercised both monetary and fiscal measures to stimulate the economy and uphold the confidence in financial markets. Furthermore, Bank of Thailand continued to use accommodative monetary policies and cut the policy interest rate to a historical low at 0.50 percent. Nonetheless, THB rapidly rallied in the last quarter of the year, in line with other regional currencies, supported by increasing investments from foreign investors into emerging markets after the U.S. election and positive news of COVID-19 vaccine progress, despite the new wave of COVID-19 outbreak in Thailand.

In terms of financial performance, PTTEP is affected by THB fluctuations mainly in the form of income tax filing due to the difference in tax filing currency (THB) and functional currency (USD) according to accounting standards. Tax laws and related regulations were completely enacted so that PTTEP can submit tax filing in US Dollar currency which is its functional currency, as a result, there will be no impact of THB/USD foreign exchange volatility on PTTEP's financial performance from Q4/2020 onward.



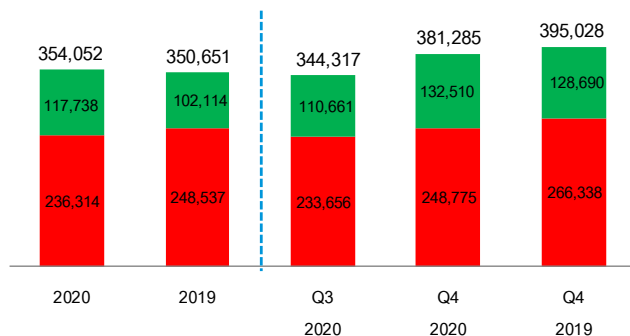
Financial Performance

Average Sales Volume and Selling Price

Unit: Barrels of Oil Equivalent per Day

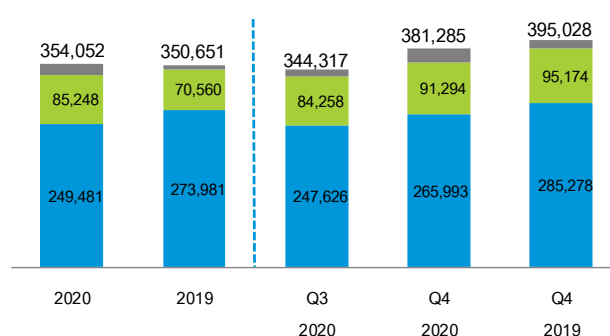
By Product Type

■ Gas ■ Liquid



By Geographical Region

■ Thailand ■ Other Southeast Asia ■ Rest of the World



Average selling price and Dubai crude oil price (Unit : US Dollar)	2020	2019	% Inc. (Dec.) YTD	Q3 2020	Q4 2020	Q4 2019	% Inc. (Dec.) QoQ	% Inc. (Dec.) YoY
Average selling price (/BOE)	38.92	47.24	(18)	38.77	36.85	48.28	(5)	(24)
Liquid price (/BOE)	41.55	61.18	(32)	41.82	42.61	61.94	2	(31)
Gas price (/MMBTU)	6.27	6.92	(9)	6.22	5.63	6.95	(9)	(19)
Average Dubai crude oil price (/BBL)	42.27	63.51	(33)	42.88	44.64	62.03	4	(28)

For 2020 compared with 2019

In 2020, the average sales volume of PTTEP and its subsidiaries (the “Group”) increased to 354,052 barrels of oil equivalent per day (BOED) when compared with 2019 of 350,651 BOED. The increase was primarily from sales volume of Malaysia Project and Partex Group according to full year recognition after business acquisition in the second half of 2019, offset with a decrease in sales volume from Contract 4 Project and Bongkot Project due to lower gas nomination from buyer. The average selling price in 2020 decreased to 38.92 USD/BOE (2019: 47.24 USD/BOE).

For the Fourth quarter of 2020 compared with the Third quarter of 2020

In Q4/2020, the average sales volume of the Group increased to 381,285 BOED when compared with Q3/2020 of 344,317 BOED primarily from Contract 4 Project due to higher gas nomination from buyer, as well as, an increase in crude oil sales volume of Partex Group and Malaysia Project. The average selling price in Q4/2020 decreased to 36.85 USD/BOE (Q3/2020: 38.77 USD/BOE).

For the Fourth quarter of 2020 compare with the Fourth quarter of 2019

When compared the average sales volume for Q4/2020 to Q4/2019 of 395,028 BOED, the average sales volume decreased primarily from Bongkot Project due to maintenance shutdown in Q4/2020 and MTJDA Project due to lower gas nomination from buyer. The average selling price in Q4/2020 decreased to 36.85 USD/BOE (Q4/2019: 48.28 USD/BOE).

Overall Operating Results

For 2020 compared with 2019

In 2020, the Group had net profit of 720 MMUSD, a decrease of 849 MMUSD or 54% from a net profit in 2019 of 1,569 MMUSD. The decrease was primarily due to a decrease in sales revenue of 1,003 MMUSD, as well as, a recognition of impairment loss on assets of 91 MMUSD (2019: no loss recognized), offset with gain on financial instruments of 99 MMUSD (2019: recognized loss of 109 MMUSD). The net profit for 2020 of 720 MMUSD can be separated as following.

The profit from normal operation in 2020 was 781 MMUSD, a decrease of 664 MMUSD when compared with a profit in 2019 of 1,445 MMUSD. The reason was primarily from a decrease in sales revenue of 1,003 MMUSD due to lower average selling price despite of an increase in sales volume. Additionally, depreciation, depletion and amortization and operating expenses increased by 60 MMUSD and 44 MMUSD, respectively, according to full year recognition of Malaysia Project and Partex Group after business acquisition in the second half of 2019. However, there were decreases in income tax expenses of 319 MMUSD due to lower sales revenue and petroleum royalties of 135 MMUSD from lower domestic sales revenue.

The loss from non-recurring items in 2020 was 61 MMUSD, a change of 185 MMUSD when compared with a profit in 2019 of 124 MMUSD. The reason was primarily from an increase in income tax expenses relating to foreign exchange rate of 245 MMUSD due to higher reversal amount of income tax benefits which were recognized in prior years. Such reversal was due to the change of corporate income tax and petroleum income tax calculation currency. While in 2019, the Group recognized lower income tax expenses relating to foreign exchange rate (tax saving) from the appreciation of Thai Baht against USD at 2.30 THB/USD. In addition, the Group recognized impairment loss on assets of 91 MMUSD (2019: no loss recognized), primarily from Yetagun Project and Mariana Oil Sands Project, offset with gain on financial instruments of 99 MMUSD, mainly from oil price hedging instruments while recognized loss of 109 MMUSD in 2019.

For the Fourth quarter of 2020 compared with the Third quarter of 2020

In Q4/2020, the Group had net profit of 81 MMUSD, a decrease of 149 MMUSD or 65% from a net profit in Q3/2020 of 230 MMUSD. The decrease was primarily from a recognition of loss on financial instruments of 72 MMUSD (Q3/2020: recognized gain of 27 MMUSD) together with increases in operating expenses and administrative expenses of 53 MMUSD and 48 MMUSD, respectively. In addition, there was a recognition of impairment loss on assets of 44 MMUSD (Q3/2020: no loss recognized), offset with an increase in sales revenue of 64 MMUSD and a decrease in income tax expenses of 61 MMUSD. The net profit for Q4/2020 of 81 MMUSD can be separated as following.

The profit from normal operation in Q4/2020 was 168 MMUSD, a decrease of 27 MMUSD compared with a net profit in Q3/2020 of 195 MMUSD. The reason was primarily from an increase in operating expenses of 53 MMUSD mainly from higher sales volume of Partax Group, together with an increase in administrative expenses of 48 MMUSD mainly from higher professional and consulting fee. However, sales revenue increased by 64 MMUSD from higher average sales volume despite of a decrease in average selling price.

The loss from non-recurring items in Q4/2020 was 87 MMUSD, a change of 122 MMUSD when compared with a profit in Q3/2020 of 35 MMUSD. The reason was primarily from a recognition of loss on financial instruments of 72 MMUSD while recognized gain of 27 MMUSD in Q3/2020 mainly from foreign exchange forward contracts and oil price hedging instruments. In addition, there was a recognition of impairment loss on assets of 44 MMUSD from Yetagun Project (Q3/2020: no loss recognized).

For the Fourth quarter of 2020 compared with the Fourth quarter of 2019

When compared with the same period last year which reported a net profit of 384 MMUSD, the Group had a decrease in net profit of 303 MMUSD or 79%. The decrease was primarily due to a decrease in sales revenue of 463 MMUSD and a recognition of impairment loss on assets of 44 MMUSD (Q4/2019: no loss recognized). However, there were decreases in income tax expenses of 110 MMUSD, petroleum royalties and operating expenses of 47 MMUSD each. The net profit for Q4/2020 of 81 MMUSD can be separated as following.

The profit from normal operation in Q4/2020 was 168 MMUSD, a decrease of 211 MMUSD compared with a net profit in Q4/2019 of 379 MMUSD. The reason was primarily from a decrease in sales revenue of 463 MMUSD due to decreases in average selling price and average sales volume. While income tax expenses decreased by 142 MMUSD due to lower sales revenue, petroleum royalties decreased by 47 MMUSD from lower domestic sales revenue and operating expenses decreased by 47 MMUSD primarily from Malaysia Project due to maintenance shutdown in Q4/2019.

The loss from non-recurring items in Q4/2020 of 87 MMUSD, a change of 92 MMUSD when compare with a profit in Q4/2019 of 5 MMUSD. The reason was primarily from a recognition of impairment loss on assets of 44 MMUSD from Yetagun Project (Q4/2019: no loss recognized) and an increase in income tax expenses relating to foreign exchange rate of 32 MMUSD primarily from lower amount of income tax benefits relating to exchange rate (tax saving) due to the change of corporate income tax and petroleum income tax calculation currency. While in Q4/2019, the Group recognized income tax benefits relating to foreign exchange rate (tax saving) due to the appreciation of Thai baht against USD at 0.44 THB/USD in Q4/2019. In addition, there is an increase in loss on financial instruments of 31 MMUSD mainly from foreign exchange forward contracts and oil price hedging instruments.

Operating Results by Segments

Net Profit (loss)	2020	2019	% Inc. (Dec.)	Q3	Q4	Q4	%	%
(Unit: Million US Dollar)			YTD	2020	2020	2019	Inc. (Dec.)	Inc. (Dec.)
							QoQ	YoY
Exploration and production	868	1,634	(47)	254	215	457	(15)	(53)
Southeast Asia	944	1,660	(43)	260	207	473	(20)	(56)
- Thailand	799	1,236	(35)	192	204	343	6	(41)
- Other Southeast Asia	145	424	(66)	68	3	130	(96)	(98)
Australia	(28)	(15)	(87)	(1)	(16)	(1)	>(100)	>(100)
America	(56)	(10)	>(100)	(2)	(5)	(2)	>(100)	>(100)
Africa	23	14	64	(3)	32	(7)	>100	557
Others	(15)	(15)	0	(0.49)	(3)	(6)	>(100)	50
Head office and others	(148)	(65)	>(100)	(24)	(134)	(73)	>(100)	(84)
Total	720	1,569	(54)	230	81	384	(65)	(79)

For 2020 compared with 2019

For 2020, the Group reported a net profit of 720 MMUSD, a decrease of 849 MMUSD or 54% when compared with a net profit of 1,569 MMUSD in 2019, primarily from a decrease of Exploration and Production segment in Southeast Asia (Thailand decreased of 437 MMUSD and Other Southeast Asia decreased of 279 MMUSD), decrease in America of 46 MMUSD and a decrease in Head office and others segment of 83 MMUSD.

Exploration and Production segment

- Southeast Asia

- Thailand

In 2020, Thailand reported a net profit of 799 MMUSD, a decrease of 437 MMUSD or 35% when compared with a net profit of 1,236 in 2019, primarily from a decrease of sales revenue due to a decrease in both average selling price and sales volume, while there was a decrease in income tax expense, petroleum royalties in accordance with a decrease in sales revenue, as well as a decrease of depreciation, depletion and amortization in accordance with a decrease in average sales volume.

- Other Southeast Asia

In 2020, Other Southeast Asia reported a net profit of 145 MMUSD, a decrease of 279 MMUSD or 66% when compared with a net profit of 424 MMUSD in 2019, primarily from a decrease of sales revenue due to a decrease in average selling price despite of an increase in average sales volume. The depreciation, depletion and amortization were increased in accordance with an increase of sales volume of Malaysia Project according to full year recognition after business acquisition in the second half of 2019. Moreover, there was a recognition of impairment loss on assets from Yetagun Project in 2020 (2019: no loss recognized). However, exploration expenses decreased, mainly due to decrease in exploration wells written-off.

- America

In 2020, America reported a net loss of 56 MMUSD, an increase of 46 MMUSD or more than 100% when compare with a net loss of 10 MMUSD in 2019, primarily from recognition of impairment loss on assets from Mariana Oil Sands Project.

Head Office and Others segment

In 2020, Head office and others segment reported a net loss of 148 MMUSD, an increase of 83 MMUSD or more than 100% when compared with a net loss of 65 MMUSD in 2019, primarily from an increase of income tax expense as a result of an increase in taxable income, offset with recognition of gain on financial instruments mainly from oil price hedging instruments, while loss was recognized in 2019.

For the Fourth quarter of 2020 compared with Third quarter of 2020

For the Q4/2020, the Group reported a net profit of 81 MMUSD, a decrease of 149 MMUSD or 65% compared with a net profit of 230 MMUSD in Q3/2020, primarily from a decrease of Exploration and Production segment in Southeast Asia (mainly decrease from Other Southeast Asia decreased of 65 MMUSD) and decrease in Head office and others segment of 110 MMUSD.

Exploration and Production segment

- Southeast Asia

- Other Southeast Asia

In Q4/2020, Other Southeast Asia reported a net profit of 3 MMUSD, a decrease of 65 MMUSD or 96% when compared with a net profit of 68 MMUSD in Q3/2020, primarily from a recognition of impairment loss on assets from Yetagun Project in Q4/2020 (Q3/2020: no loss recognized) and a decrease of sales revenue due to a decrease of average selling price despite of an increase in average sales volume.

Head Office and Others segment

In Q4/2020, Head office and others segment reported a net loss of 134 MMUSD, an increase of 110 MMUSD or more than 100% when compared with a net loss of 24 MMUSD in Q3/2020, primarily from a recognition of loss on financial instruments mainly from foreign exchange forward contracts and oil price hedging instruments.

For the Fourth quarter of 2020 compared with the Fourth quarter of 2019

For the Q4/2020, the Group reported a net profit of 81 MMUSD, a decrease of 303 MMUSD or 79% compared with a net profit of 384 MMUSD in Q4/2019, primarily from a decrease of Exploration and Production segment in Southeast Asia (Thailand decreased of 139 MMUSD and Other Southeast Asia decreased of 127 MMUSD) and decrease in Head office and others of 61 MMUSD.

Exploration and Production segment

- Southeast Asia

- Thailand

In Q4/2020, Thailand reported a net profit of 204 MMUSD, a decrease of 139 MMUSD or 41% when compared with a net profit of 343 MMUSD in Q4/2019, primarily from a decrease of sales revenue due to a decrease in both average selling price and sales volume, while there was a decrease in income tax expense and petroleum royalties in accordance with a decrease in sales revenues, as well as, a decrease of depreciation, depletion and amortization in accordance with a decrease in sales volume.

- Other Southeast Asia

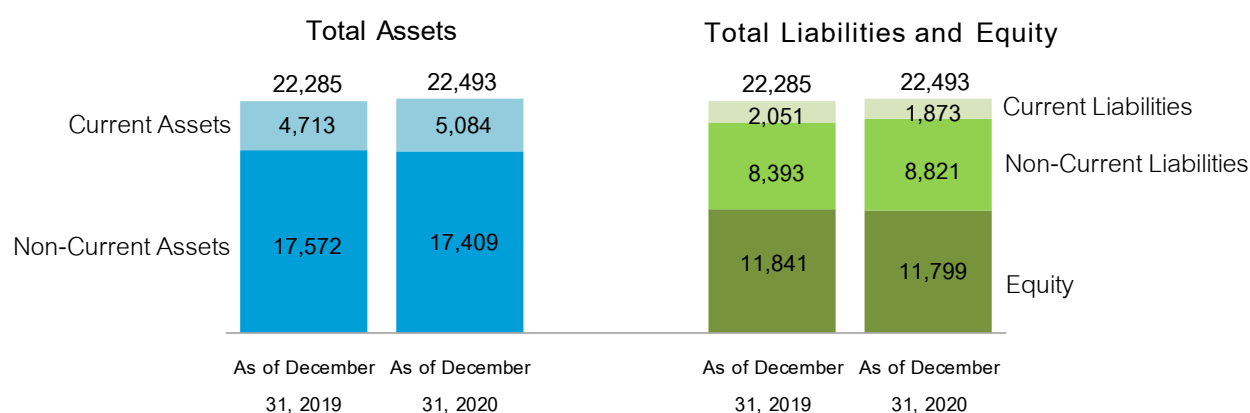
In Q4/2020, Other Southeast Asia reported a net profit of 3 MMUSD, a decrease of 127 MMUSD or 98% when compared with a net profit of 130 MMUSD in Q4/2019, primarily from a decrease of sales revenues due to a decrease in average selling price, recognition of impairment loss on assets from Yetagun Project (Q4/2019: no loss recognized) while there was a decrease of operating expenses together with a decrease of income tax expense as a result of a decrease of sales revenue.

Head Office and Others segment

In Q4/2020, Head office and others segment reported a net loss of 134 MMUSD, an increase of 61 MMUSD or more than 84% when compared with a net loss of 73 MMUSD in Q4/2019, primarily due to higher loss on financial instruments mainly from foreign exchange forward contracts and oil price hedging instruments and an increase of income tax expense as a result of an increase in taxable income.

Financial Position

Unit: Million US Dollar



Assets

As at December 31, 2020, the Group had total assets amount of 22,493 MMUSD, an increase of 208 MMUSD from total assets as at December 31, 2019 of 22,285 MMUSD, primarily due to;

- (1) Current assets, which were primarily comprised of cash and cash equivalents, short-term investments, trade and other receivables and inventories, increased of 371 MMUSD mainly from increases in cash and cash equivalents and short-term investments of 781 MMUSD mainly from cash flow from operation offset with decrease of other current assets of 214 MMUSD from selling of investment securities during 2020 and decrease in trade and other receivables of 192 MMUSD in accordance with a decrease in sales revenue.
- (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 and deferred tax assets, decreased 163 MMUSD mainly due to a depreciation, depletion and amortization expenses, although there was an increase in investments for exploration and production assets.

Liabilities

As at December 31, 2020, the Group had total liabilities of 10,694 MMUSD, an increase of 250 MMUSD from total liabilities as at December 31, 2019 of 10,444 MMUSD, primarily due to;

- (1) Current liabilities, which were primarily comprise of trade and other payables and income tax payable, decreased of 178 MMUSD mainly due to income tax payable of 358 MMUSD from the payment of income tax for the year 2019 offset with increase of current portion of lease liabilities due within one year of 117 MMUSD.
- (2) Non-current liabilities, which were primarily comprised of provision for decommissioning costs, debentures and deferred tax liabilities, increased of 428 MMUSD mainly due to an increase of lease liabilities of 246 MMUSD and an increase of debenture of 126 MMUSD primarily due to debentures issuance during 2020.

Equity

As at December 31, 2020, the Group had equity of 11,799 MMUSD, a decrease of 42 MMUSD from equity as at December 31, 2019 of 11,841, primarily due to the dividend payment for the second half of 2019 and for the first half of 2020, as well as the repurchase of the remaining of USD denominated subordinated capital debentures offset with the profit of 2020.

Capital Structure

As at December 31, 2020, the capital structure comprised of 11,799 MMUSD in equity and 10,694 MMUSD in total liabilities. The group total liabilities comprised of 3,932 MMUSD worth of interest-bearing debts with a weighted average cost of debt of 3.44% and

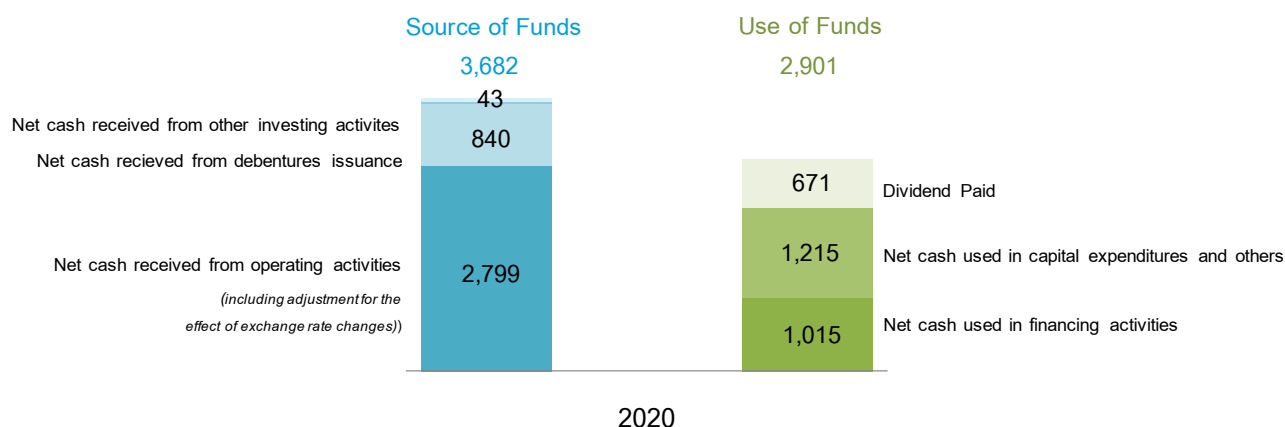
having average maturity of 14.08 years, in which all interest-bearing debts were denominated in USD and the fixed interest rates to the floating interest rates ratio is 82:18.

In 2020, the Group had managed its financial structure in relation to USD denominated debentures to ensure the highest efficiency, appropriateness and in consistent with the current investment condition, as following details;

- 1) Repurchased of the remaining of 31 MMUSD worth of its 500 MMUSD USD denominated subordinated capital debentures with a fixed interest rate at 4.60% per annum at the redemption price in accordance with the terms, conditions and methods prescribed in the bond indenture January 10, 2020. After the repurchase, The Group has no outstanding USD denominated subordinated capital debentures.
- 2) Repurchased of 700 MMUSD USD denominated senior unsecured and unsubordinated debentures with a fixed interest rate at 5.692% per annum which was issued and offered to offshore inventors. On January 15, 2020, PTTEP repurchased such debentures of 220 MMUSD and repurchased remaining debenture of 480 MMUSD on February 25, 2020 at the redemption price in accordance with the terms, conditions and methods prescribed in the bond indenture.
- 3) Issued and offered of 350 MMUSD debentures with a fixed interest rate at 2.993% per annum to offshore investors on January 15, 2020. The debenture will be mature on January 15, 2030.
- 4) Issued and offered of 500 MMUSD debentures with a fixed interest rate at 2.587% per annum to offshore investors on June 10, 2020. The debenture will be mature on June 10, 2027.

Cash Flows

Unit: Million US Dollar



As at December 31, 2020, the Group's cash and cash equivalents, including short-term investments in the form of bank fixed deposit with a maturity of more than three months but within twelve months of 3,804 MMUSD, an increase of 781 MMUSD from cash and cash equivalents, including short-term investments as at December 31, 2019 of 3,023 MMUSD

Sources of funds amount of 3,682 MMUSD primarily came from Net cash received from operating activities as a result of the positive net cash flow from sales revenues, offset with cash payment for expenditures and income tax expenses and Net cash received from financing activities derived from the issuance of the USD denominated unsecured and unsubordinated debentures.

Uses of funds amount of 2,901 MMUSD, primarily from the Net cash used in financing activities as a result of the repurchase of the USD denominated unsecured and unsubordinated debentures, as well as the dividend payment for the second half of 2019 and for the first half of 2020. The net cash used in capital expenditures were mainly from exploration and production assets, primarily for investing in S1, Mozambique Area 1 and Malaysia Projects

Key Financial Ratios

	2020	2019	Q3 2020	Q4 2020	Q4 2019
Profitability Ratio (%)					
EBITDA to revenue from sales	68.38	70.65	70.99	63.26	66.74
Return on equity	6.09	13.16	8.64	6.09	13.16
Net profit margin	13.43	24.47	17.01	13.43	24.47
Leverage Ratio (Times)					
Debt to equity	0.33	0.29	0.33	0.33	0.29
Debt to EBITDA	1.05	0.62	0.78	1.05	0.62

Remark:

- EBITDA to revenue from sales = Profit before deduction of interest, tax and depreciation to revenue from sales including 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



Operational Highlights

At the end of 2020, PTTEP has over 40 projects with domestic and international operations in 15 countries, with total proved reserves of 1,074 million barrels of oil equivalent (MMBOE) and probable reserves of 548 MMBOE. The following are key project highlights.

Projects in Southeast Asia

PTTEP's primary operational base is in Southeast Asia, with projects located in Thailand, the Republic of the Union of Myanmar (Myanmar), the Federation of Malaya (Malaysia), the Socialist Republic of Vietnam (Vietnam), and the Republic of Indonesia (Indonesia). In 2020, the average sales volume from projects in Thailand is 249,500 BOED, accounting for 70% of total sales volume. Average sales volume from other countries in this region is 85,200 BOED, which accounted for 24% of total sales volume.

- Projects in Thailand

The majority of PTTEP's projects in Thailand, located in the Gulf of Thailand and onshore, are in the *production phase*. Key activities of the main producing projects are as follows. The **S1 Project** was able to maintain production volumes as planned and, in November 2020, has been officially approved to extend the petroleum production period for another 10 years until 2031. The **Bongkot Project**, **Arthit Project** and **Contract 4 Project** was able to deliver production volumes as nominated from the buyer. **G2/61 Project** (Bongkot field) was on track for its preparation per transition plan similar to all other projects of the company. **G1/61 Project** (Erawan field), is in the process of site access negotiation with current operator and preparation work in the area of staff recruitment, Gas Sales Agreement, and related procurement activities aiming for successful transition and gas production as per commitment.

- Projects in Myanmar

The key *producing project* in Myanmar is the **Zawtika Project** located in the Gulf of Moattama in Myanmar which can maintain production volumes as planned. Projects in *exploration phase* are highlighted and detailed as follows. The **Myanmar M3 Project**, the project is waiting for an approval from the government on Field Development Plan, which was resubmitted in Q3/2020. The **Gas to Power Project** has received the approval of Notice to Proceed in December 2020. The Gas to Power project is an investment in power plant and gas transportation. At the initial stage, PTTEP plans to feed the natural gas from Zawtika Project and Myanmar M3 Project to supply a new power plant with a capacity of 600 Megawatts for domestic consumption due to the high demand of electricity in the country. The Final Investment Decision (FID) of the Integrated Gas to Power Project is expected in 2022. The **Myanmar MD-7 Project**, has completed the drilling of an exploration well and found no commercial reserves. The project submitted the block relinquishment notification letter in Q4/2020. The termination will be effective after receiving the official approval from the Government of the Republic of the Union of Myanmar.

- Projects in Malaysia

The *producing projects* in Malaysia include the **Block K Project**, an oil producing field consisting of Kikeh, Siakap North-Petai (SNP) and Gumusut-Kakap (GK) fields which are located in the deep water of offshore Sabah. The main projects for 2021 are the infill development of SNP and GK. The **Sarawak SK309 and SK311 Project** are oil and gas producing fields located in the shallow water of offshore Sarawak. The main projects for 2021 include the installation and start-up of the Pemanis gas facility and the infill oil development to increase production from the existing facilities.

Development Projects in Malaysia are as follows. **Block H Project**, located in the deep-water of offshore Sabah with capacity of 270 MMSCFD. During the final stage of commissioning prior to the original first gas target in late Q3/2020, there was a failure of a subsea component. The remediation plan is well in progress and the revised first gas delivery is expected at the earliest opportunity in 2021. This event caused no harm to the environment.

Exploration Projects in Malaysia are highlighted as follows. The **Sarawak SK410B Project** is currently drilling an appraisal well to confirm petroleum potential upside resources of the Lang Lebah field along with studying on the field development plan. The petroleum potential results are expected within Q1/2021 and the Final Investment Decision (FID) is expected in 2022. The **PM415 Project** is currently drilling 2 exploration wells to explore and evaluate petroleum potential. The **Sarawak SK417 Project** is drilling an exploration well with the results expected in Q1/2021. Moreover, the project will continue drilling an addition exploration well in 2021. The **Sarawak SK438 Project**, and the **Sarawak SK405B Project** are currently planning to drill 2 exploration wells and 1 exploration well in 2021, respectively. Other Malaysia Exploration projects are in the process of studying and prioritizing exploration drilling plan.

- Projects in Vietnam

The key *Producing Project* is the **Vietnam 16-1 Project**, located offshore in the southeastern region. The project has completed drilling an appraisal well in Q2/2020 to maintain production plateau as planned. For *Exploration Projects*, the **Vietnam B & 48/95 Project** and the **Vietnam 52/97 Project**, located offshore, are currently in the negotiation process on commercial terms in order to push forward the Final Investment Decision (FID). The projects have production capacity approximately 490 MMSCFD.

Projects in the Middle East

PTTEP's project highlights in this region are located in Sultanate of Oman (Oman) and United Arab Emirates (UAE).

Projects under *production phase* in this region include the **PDO (Block 6) Project** which is the largest potential onshore oil producing asset in Oman. The **Mukhaizna (Block 53) Project** is a large producing onshore oil field located in southern Oman. In 2020, both projects continue to curb production per OPEC+ agreement to support price due to weakening energy demand. For *Exploration Projects*, **Oman Onshore block 12 Project** located onshore central part of the Sultanate of Oman, with Total, in February 2020, received exploration and production rights from Oman's Ministry of Oil and Gas (MOG). Currently, the project continues geological and geophysical studies and plan to drill an exploration well in 2021.

Middle East projects under *exploration phase* are located offshore in the northwest of Abu Dhabi, UAE. The **Abu Dhabi Offshore 1 Project** is currently being evaluated for petroleum potential for future exploration. The **Abu Dhabi Offshore 2 Project**, is currently being evaluated for petroleum potential to prepare for the drilling of the first exploration well in 2021. The **Abu Dhabi Offshore 3 Project** with Eni Abu Dhabi, had been selected as the successful bidders for exploration and production rights of Offshore 3 Block. The consortium had signed Concession Agreement with the Abu Dhabi National Oil Company (ADNOC) in December 2020.

Projects in the Americas

PTTEP's exploration main projects in this region are located in Canada, the Federative Republic of Brazil (Brazil) and United Mexican States (Mexico).

The **Mariana Oil Sands Project** is located in Alberta, Canada. The project is currently under evaluation for an appropriate plan.

Projects in Brazil include the **Barreirinhas AP1 Project** located in the Barreirinhas Basin, offshore of the northeastern region of Brazil, is waiting for exploration wells drilling permit from the government. The **Brazil BM-ES-23 Project** located offshore in the Espirito Santo basin, east of Brazil, is currently evaluating the petroleum potential for further development.

Projects in Mexico include the **Mexico block 12 (2.4) Project** located in the Mexican Ridges, western Gulf of Mexico, is currently being evaluated for petroleum potential to prepare for drilling of an exploration well in 2021. The **Mexico block 29 (2.4) Project**, located in the Campeche, has completed drilling of 2 exploration wells in 2020, both exploration wells show promising high potential. The project is currently working on obtaining approval of the appraisal plan from the Mexican regulators and preparing appraisal process in 2021 as well as further development plans.

Projects in Australia

PTTEP's projects in this region include only the **PTTEP Australasia Project**, which is located in the Commonwealth of Australia (Australia) and consists of 7 permits.

The **Cash Maple Field** is currently under evaluation for the appropriate development plan. The **AC/P54** in **Orchid Field** is in the *exploration phase*, plans to include its development along with the Cash Maple Field.

Projects in Africa

PTTEP projects in this region are located in the People's Democratic Republic of Algeria (Algeria) and the Republic of Mozambique (Mozambique).

The **Algeria 433a and 416b Project**, both of which are in the *production phase*, are located onshore in the eastern part of Algeria. In 2020, the project had average production of 17,280 barrels per day (BPD) resulting from the agreement of OPEC+ and the weakening energy demand.

The **Algeria Hassi Bir Rekaiz Project**, which is in the *development phase*, is located onshore in the eastern part of Algeria. The project has started the development on Phase 1 following the conclusion from an approved development plan by the government in Q1/2019. The project is currently under construction and drilling production wells with expected first oil production for the initial phase of around 10,000-13,000 barrels per day (BPD) in 2021. In the second phase, production capacity is planned to ramp up to around 50,000-60,000 BPD in 2025. In addition, PTTEP has entered into the Asset Sale and Purchase Agreement (ASPA) for the participating interest of 24.5% in the project from CNOOC, the current partner of the project, at the transaction value of CNOOC's proportion of development cost until approval received. The transaction will be completed when receiving confirmation and official announcement by Algerian government. After the completion of the transaction, PTTEP's stake in the project will increase from 24.5% to 49%. The main joint venture partner is SONATRACH, the national state-owned oil company of Algeria, with the participating interest of 51%.

The **Mozambique Area 1 Project**, which is in the *development phase*, is a large LNG project located in offshore Mozambique. In 2020, the Afungi site improvement consists of Airstrip, staff camp, Palma-Afungi Highway and Temporary Beach Landing are completed as plan. Although the project had an impact from COVID-19 which caused the project to lockdown for a while, and resumed in June, the work was in progress as planned. In addition, the project has completed the process of the LNG ship-owners selection and is in the finalization process to execute Time Charter Party Agreements. Moreover, the project has signed senior debt financing agreements under project finance arrangement, in the amount of US\$ 14.9 billion to advance the first two-train LNG development. Currently, the project is in the process of document preparation for 1st drawdown from Project Finance for its first commercial cargo by 2024 as planned.



Strategies under Sustainable Development Framework

PTTEP adheres to the Sustainable Development policy according to global practices and UN principles. Operating under the concept FROM “WE” to “WORLD” in order to become the sustainable organization that takes conscious consideration of all stakeholders’ interests, maintains energy security, delivers value and fosters sustainability for the wider society. With the aim towards a balance between the strong performance, and the business sustainability, PTTEP has set an aspiration to create a balance between strong performance and business sustainability. PTTEP has set the aspiration targets to be achieved by 2030 as follows:

- Continuously reduce unit cost to be at the industry top quartile (approximately 25 USD per BOE)
- Sustain 5% average production growth (CAGR)
- Maintain the reserves to production ratio (R/P) of 7 years
- Drive the LNG value chain through joint venture investments in upstream and liquefaction plants
- Achieve 20% contribution to Net Income from new businesses
- Transform to the New Normal through the transformation projects that consist of various initiatives to accelerate digital transformation aimed at improving long-term work efficiency towards the concept of “One Team, One Goal”

To be in line with the vision to become the "Energy Partner of Choice", PTTEP has established our sustainable development framework which comprises of three main components namely: High Performance Organization (HPO); Governance, Risk Management and Compliance (GRC); and Stakeholder Value Creation (SVC). Key highlights are as follows:

High Performance Organization (HPO) PTTEP is still focus on EXECUTE and EXPAND strategies. Nevertheless, the company has sharpened our execution plans in order to adapt to the changing situation, enhance the company’s competitive advantage and promote sustainable growth. The afore-mentioned plans can be highlighted as follows:

(1) EXECUTE: Strategy to increase sales volume of legacy assets and maintain competitive advantage

- **Create additional value from existing assets** with an emphasis on increasing production from key projects while also accelerating the development of major overseas projects particularly the Mozambique Area 1 Project in Mozambique and the Hassi Bir Rekaiz Project in Algeria to ensure timely production start-ups.
- **Continuously maintain competitive unit costs** by using digital technology and increasing work effectiveness to strengthen PTTEP’s core business amid the increasingly volatile environment of the industry.
- **Effectively execute the transitions** for G1/61 and G2/61 and newly acquired assets.
- **Transform to the New Normal** by implementing transformation projects and redesigning human resources within the company. The new transformation projects consist of various initiatives to accelerate digital transformation aimed at improving long term efficiency, changing the organization’s mindset towards “One Team One Goal”, improving internal capabilities and work processes, introducing new ways of working in a post COVID-19 world, for instance.

(2) EXPAND: Strategy to focus growth in strategic investment areas and diversify into energy related businesses for long-term sustainability

- **Coming-Home Strategy:** PTTEP focuses investments in strategic investment areas being Thailand and South East Asia. Moreover, PTTEP is also expanding business opportunities in the Gas Value Chain business in Myanmar in the form of Gas to Power.
- **Strategic Alliance Strategy:** PTTEP aims to capture investment opportunity in other petroleum prolific areas with strategic alliances by mainly focusing on the Middle East.
- **New Business Investment Strategy for Sustainability:** PTTEP targets to invest in businesses focusing on technology and innovation as well as R&D capability enhancement to support core E&P business, future investment opportunity related to the energy industry, e.g. solar and wind and the A.I. and Robotics Ventures (ARV) scale-up.
- **LNG Strategy:** PTTEP is committed to drive LNG value chain with a focus on investments in the upstream and liquefaction plants while developing in-house LNG capabilities.

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 2020, the Company maintained a strong liquidity position with cash on hand of approximately USD 3,804 MMUSD. The debt-to-equity ratio is 0.33x which is in line with the Company's financial policy. In addition, the Company has implemented liability management activities, continuing from 2019, with respect to its USD denominated bonds which reduce the cost of capital from 4.41% to 3.44%, with no debt service obligation in 2020 and 2021. PTTEP is, therefore, confident that its solid financial position and liquidity will enable the Company to withstand such oil price fluctuation and global economic slowdown.

Moreover, PTTEP has encouraged Research and Development (R&D), technological applications and innovation to increase efficiency and lower unit cost of exploration and production activities. The objectives of R&D include unlocking high CO₂ reserve, removing contaminants in condensate, enhancing oil recovery, reducing environmental impact, reducing decommissioning cost and improving operation and maintenance efficiency. As of the end of Q4/2020, there are 38 projects under research and development in which 10 projects are under field trial phase. PTTEP has an environmental management system which is a subset of PTTEP's Safety, Security, Health and Environment Management System (SSHE MS). In the last quarter of 2020, PTTEP had Lost Time Injury Frequency (LTIF) of 0.12 and a Total Recordable Incident Rate (TRIR) of 0.29. The Company's performance on both safety indicators (LTIF and TRIR) are among the First Quartile of the International Association of Oil and Gas Producers (IOGP) average.

In Q4/2020, PTTEP received three innovative awards from both national and international organizations, including the Innovative Organization Award from the National Innovation Agency which is an organization under the Ministry of Higher Education, Science, Research and Innovation, the Best Innovative Company Award From the Stock Exchange of Thailand, as well as the winner of the ADIPEC Awards 2020 in the Breakthrough Technological Project of the Year category from ADIPEC, which is the world's largest oil and gas exhibition and conference held in the United Arab Emirates. The awards reflect that PTTEP has a good innovation management system and has been recognized as an innovative organization by external agencies.

Governance, Risk Management and Compliance (GRC) – PTTEP is committed to conducting its business with transparency and effectiveness by adhering to the good corporate governance principles, maintaining robust risk management and internal control system, as well as strictly conforming to applicable laws and regulations to assure stable and sustainable growth of the Company. In 2020, although PTTEP was facing many operation challenges during the COVID-19 pandemic which has led to adjust its working method under the project of “New Way of Working”, PTTEP remains committed and adhered to carry out GRC work as planned. The main progress of GRC work achieved within 2020 are as follows:

- Extended responsible scope of the Corporate Governance Committee to oversee sustainable development and GRC, including “Smart Assurance”, which aims to develop assurance processes and utilize digital technologies to increase efficiency, and “GRC in Common Sense”, which focuses on cultivating GRC principles in employee mindset. In addition, the Company successfully prepared GRC roadmap for 2020-2030 with regularly monitor the performance progress.
- Completed the implementation of GRC principles in newly acquired assets (Transition Projects) and prepare GRC Maturity Level Assessment Program in oversea projects, which will be assessed in 2021.
- Extended communication and understanding of GRC principles to employees in oversea assets through GRC training course (GRC101) to prepare readiness of employees in all assets in accordance with GRC strategies, including improvement of communication channels according to New Way of Working such as online training and e-learning.
- Started using Web-based Risk Register System for risk owners to identify and analyze risks for more completeness, flexibility, conciseness and effectiveness of the risk register processes. It also allows related parties to quickly and conveniently monitor the risk management, anywhere, anytime.
- Cooperated with Internal Audit to review lists of key processes and company-wide risks in order to improve company database.
- Worked with Sustainable Development and Knowledge Management Department in preparing Stakeholder Perception Survey on GRC role model among Thai listed companies to analyze result and improve our GRC Program to achieve the goal of being GRC role model. This survey is set as part of 2021 workplan.
- Shared GRC good practices to PTT Group companies and external business alliances by participating as a guest speaker on Risk Management for the Thai Listed Companies Association.

PTTEP's strong commitment and concrete performance has made PTTEP recognized by both domestic and international institutions. This can be seen from the awards which PTTEP received in 2020 such as the NACC Integrity Awards (Year 2019) for the third time and the 2 awards from 15th ASIAN ESG Award 2019 – The Best of Asia (by Corporate Governance Asia in Hongkong); Asia's Icon on Corporate Governance for the 8th consecutive year and Asian Corporate Director Recognition Award given to Mr. Phongstorn Thavisin, PTTEP's Chief Executive Officer. PTTEP also earned an "Excellent" level and received five symbols of recognition, which is the highest level, from the Corporate Governance Report of Thai Listed Companies 2020 (CGR 2020) and the 2 awards from 2019 ASEAN CG Scorecard; ASEAN Top 20 PLCs Award which is given to companies in the top 20 among all ASEAN listed companies and ASEAN Asset Class PLCs Award is given to companies with the scores of at least 97.50. Moreover, the Dow Jones Sustainability Indices (DJSI) score on PTTEP's Risk and Crisis Management topic was rated Top Quartile for the 7th consecutive year.

Stakeholder Value Creation (SVC) PTTEP concern for natural resource conservation, environmental restoration as well as community and social development. Our strategies and main progress in 2020 of SVC are as follows:

- **Greenhouse Gas Reduction Strategy:** To mitigate global warming and climate change, PTTEP aims to become a Low Carbon Footprint organization and aims to reduce its greenhouse gas emissions intensity by at least 25% by 2030, compared to the 2012 base year. As of the end of 2020, the Company reduced greenhouse gas emissions intensity by 8% through continuously project implementation including flare gases recovering and utilization, energy & process efficiency improvement and reducing methane leakage from production processes.
- **Circular Model for E&P Strategy:** PTTEP's work processes were redesigned and resources were reused and recycled. The target is to reuse at least 50% of main structures which are retained at appropriate, safe, and efficient conditions by 2030. In 2020, PTTEP has launched Circular Design Guideline for E&P Facilities Development for our internal application for the new asset. For the resource efficiency maximization, the Company also conducted the study on the use of rocks and soils generated from our drilling activities (drill cuttings) as alternative material for road construction and maintenance. The pilot stage has been completed for 168 meters road pavement at the PTTEP Technology and Innovation Centre (PTIC) helipad in August. Additionally, in 2020, our hazardous waste to landfill is reported at zero in line with our long-term target for zero waste to landfill by 2030.
- **Ocean for Life Strategy:** PTTEP, whose operations are mostly offshore, aims to be a leader in conserving restoring and monitoring natural resources and marine ecosystems to support economic growth and quality of life of nearshore communities, with the target to achieve Net Positive Impact of Ocean Biodiversity and Ecosystem Services (Ocean BES) value in domestic offshore operations by 2025 and all offshore operations by 2030, compared to the 2019 base year. The Company also set the target to Increase 50% of community income for focused communities and achieve 16,000 conservation networks by 2030, compared to the baseline data before PTTEP project implementation. In Q4 2020, PTTEP has signed a Memorandum of Understanding (MOU) with the Department of Marine and Coastal Resources to support our Ocean for Life strategy. During Q4, PTTEP also conducted the first-time sampling around our operation area in the Gulf of Thailand for the Baseline Study of Microplastics project with Kasetsart University. In 2020, the Company also established 5 zones of Coastal Conservation Area and Fish Home and 5 Aquatic Animal Hatchery Learning Center Projects in Songkhla, Nakhon Sri Thammarat and Pattani provinces.

Furthermore, PTTEP also supports the SVC strategy by carrying out research and development (R&D) projects such as the Greenhouse Gas (GHG) reduction by converting Carbon Dioxide to high valued products, the Carbon nanotube production from flare gas, the waste reduction by converting the produced sand to high value products, and the green buoy for underwater condition monitoring project. These projects are currently under development and field trial.

In Q4/2020, PTTEP received CSR award for Innovation in Community Relations or Public Service Communications category (Silver) from the Asia-Pacific Stevie Awards 2020, United States of America for the implementation of the Crab Hatchery Learning Center at Ban Hua Khao in Songkhla. The Company also received CSR award in Green Leadership from Asia Responsible Enterprise Awards 2020 (AREA 2020), Singapore for the implementation of the Forest Restoration Project for Eco-Learning at Sri Nakhon Khuean Khan Park (Khung Bang Kachao).



Future Business Outlook

Energy Outlook

The COVID-19 pandemic and subsequent economic downturn has caused a slump in global energy consumption. Oil-based transportation has been the most affected, and in a less magnitude for gas and renewables. However, the primary global energy demand still relies on fossil fuels such as crude oil, natural gas and coal. IHS Markit forecasted that fossil fuels' consumption during the next 30 years is expected to maintain its dominant proportion. Natural gas and LNG demand remains robust as global economy recovers and expands and is especially strong in the power generation sector stemming from the national energy policies of various key growth countries which is transforming to natural gas, which is cleaner energy. Crude oil consumption continues to slowly grow and eventually plateau by 2040, mainly from petrochemical, trade and goods transportation sectors, partially offset by efficiency gains and alternative transport fuels. Moreover, in the short term, the renewable energy sector tends to suffer from the COVID-19 pandemic due to the lack of governments budget to provide support, however, in the longer term, demand in the renewable energy will eventually recovers, particularly for solar and wind as support for environmental and climate policies implemented by several countries globally.

For Thailand, the Government has updated the Power Development Plan (PDP 2018 Rev1), issued in October 2020, of which added long-term investment plan of community power plant to support. However, the plan is expected to be revised soon to reflect the impact from COVID-19.

PTTEP continues to highly focus on natural gas which aligns with the world's transition towards cleaner energy. The Company committed to developing large natural gas projects in its portfolio such as the SK410B Project in Malaysia and Mozambique Area 1 Project in Mozambique, including opportunities in the gas value chain business in Myanmar in the form of Gas-to-Power. Moreover, PTTEP continues to drive the LNG value chain by focusing on investments in the upstream and liquefaction plants while developing in-house LNG capabilities. Furthermore, the Company is also focusing on technology and innovation as well as R&D capability to support core E&P business, future investment opportunity related to the energy industry, e.g. power business from solar and wind.

Oil Price Outlook

Oil market outlook in 2021 is expected to continue its recovery from COVID-19 pandemic. Key contributor is COVID-19 vaccine development which was proven above 90% effectiveness. The vaccine has been used in many countries since December 2020. The vaccination program will continue throughout 2021 with the expectation that 50% of total population in the developed countries will get vaccinated by 2021 year-end, which build the immunity across majority of its population and thus enhance more economic activities and mobility across regions. The new variant and 2nd wave of COVID-19 situation still needs to be monitored closely as this might cause repetitive lockdown in several countries. However, it is expected that global oil demand will be recover from 2020 by 4-5 million barrels per day (MBPD).

Meanwhile, oil supply is expected to remain under control by OPEC+ at least few months of early 2021 after its member reached conclusion to extend the production cut at 7.2, 8.125, and 8.05 MBPD from January, February, and March 2021 respectively (including Saudi Arabia voluntary additional cut of 1 MBPD) instead of previously agreed cut at only 5.8 MBPD. Moreover, they will also discuss the production cut quota again in monthly OPEC+ meeting. The meeting is aimed to assess demand situation and production cut compliance from each member to sustain oil price at appropriate level. For U.S., the production will be maintained around 11-12 MBPD at least for 2021 due to negative factors, such as oil rig count, reduced workforce, and oil company bankruptcies in 2020. The concern for 2021 is the production surplus from OPEC+ countries' non-compliance on the production cuts, and the relief of U.S. sanction, according to Joe Biden's policy, which might result in a supply rise from Iran and Venezuela.

Based on above-mentioned demand and supply situations, the average Dubai price is expected to be slightly recovered to around 50-55 USD per barrel in 2021. The key factors which need to be monitored are COVID-19 situation, lockdown measures, vaccination progress, demand recovery, economic stimulus, oil supply levels of main producing countries (OPEC, Russia and United State) and U.S. policy to Iran and Venezuela.

LNG Market

The oversupply situation of Global LNG market is expected to prolong throughout 2021, with total production capacity of existing and upcoming LNG projects growing by 24 MTPA to 402 MTPA from 2020 (approximately 6%), while demand for LNG is anticipated to be to 375 MTPA (Source: FGE as of December 2020). The crude oil prices in the world market are likely to still fluctuate in 2021, which could affect LNG price. LNG demand tends to increase as a result of LNG market liberalization that drive the demand in several Asian countries. Moreover, a decline in domestic gas production in many countries would cause more demand for LNG import. The average 2021 Asian Spot LNG price is expected to be around 6.4 – 7.6 USD per MMBTU (Source: Woodmac, FGE as of January 2021).

Environmental, Social and Governance (ESG)

The Environmental, Social and Governance (ESG) is a challenging issue that companies have to find effective management methods as it directly affects the sustainability of the organization and in turns, profitability, competitiveness and reputation. Therefore, the organization has to focus on ESG risks and integrate them into the organization's management which includes formulating vision and strategy as well as risk management, in order to build confidence among all stakeholders.

PTTEP has completed the materiality assessment to identify the key material issues to the business in the stakeholders' perspectives, in order to support the management of ESG risk which consists of 8 key areas; including 1) Governance, Risk Management and Compliance 2) Increasing Petroleum Reserves 3) Human Resource Preparation 4) Technology and Innovation 5) Occupational Health and Safety 6) Contribution to Communities and Society 7) Lower Carbon Future 8) Environmental Management. PTTEP has developed sustainability strategy to address these issues under PTTEP's Sustainable Development Framework. The framework comprises of three main components namely: High Performance Organization (HPO), Governance, Risk Management and Compliance (GRC), and Stakeholder Value Creation (SVC). The balance of these three components will support PTTEP's journey towards sustainability, please refer to "Strategies under Sustainable Development Framework" for more details.

Thai Economy and Foreign Exchange Outlook

The Bank of Thailand expects the economy to expand at 3.2 percent in 2021 due to the high degree of uncertainty of economic recovery. The new wave of COVID-19 outbreak situation and containment measures by the government are still the factors to be closely monitored in the short run. From a longer term perspective, the economic recovery would depend on the globally prolonged COVID-19 pandemic, the recovery of tourism sector in Thailand and the efficacy of COVID-19 vaccines. Therefore, Bank of Thailand signaled that the monetary policy in the near term will mainly focus on boosting the economic recovery.

In 2021, THB is expected to strengthen and move within the range of 29.00 – 30.50 THB/USD, driven by positive COVID-19 vaccine development news despite vaccine distribution challenges and capital inflows to emerging markets given the global economy recovers. However, on Thailand front, political uncertainty and the new wave of COVID-19 may continue to pose as negative factors to the recovery of tourism sector. In the meantime, Bank of Thailand has closely monitored the foreign exchange market and capital flows and markets expect that the policy interest rate would remain unchanged at 0.50 percent. Bank of Thailand is equipped to continue applying measures to prevent the THB appreciation, which could negatively impact economic recovery.

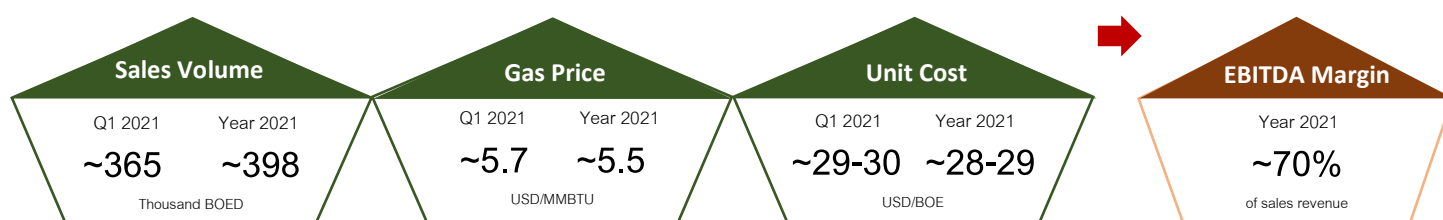
PTTEP has adopted the natural hedge method to manage FX risks by matching USD and USD-linked revenues from petroleum products with major USD expenses. Remaining FX risk exposures from non-USD revenues and expenses are managed by utilizing financial hedging instruments such as forwards and cross currency swaps. Moreover, interest rate volatility does not materially impact the Company's financial performance as 82 percent of total interest-bearing debt is fixed rate

Other important factors that affect the Company's operations

Enactment of the Revenue Code Amendment Act (No. 50) B.E. 2562 and the Petroleum Income Tax Amendment (No. 9) B.E. 2562 in April 2019 and relevant regulations in June 2020, which allow tax filing to be done in US Dollar, which is the company's functional currency for the fiscal year starting from 2020. PTTEP group had already recognized the financial impacts of such changes in Q2/2020 and Q3/2020, and there will be no impact from THB/USD fluctuation to the company's financial performance starting from Q4/2020 onward.

PTTEP's performance outlook for 2021

PTTEP's performance depends on three major factors including Sales volumes, Gas price and Unit cost with the guidance summary as follows;



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

2. The assumption is based on average Dubai price in 2020 of 50 USD/BBL

3. Including Oman Block 61 performance which, on 1 February 2021, PTTEP has signed a Sale and Purchase Agreement (SPA) to acquire 20% interest, with an expected Completion Date in 2021.

Sales volume:

PTTEP expects the average sales volume for the Q1/2021 and for the full year of 2021 to be approximately 365,000 and 398,000 barrels of oil equivalent per day, respectively. The higher sales volume in 2021, compared to the previous year was mainly from additional sales volume from Sabah H and Algeria Hassi Bir Rekaiz projects that will start production during the year and the acquisition of Oman Block 61 which the expected Completion Date in 2021.

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 Q1/2021 and the full year of 2021 are estimated at approximately 5.7 and 5.5 USD/MMBTU respectively, reflecting the adjustment of selling price in accordance with global crude prices and the acquisition of Oman Block 61 as above-mentioned.
- Outstanding volume of oil price hedging at the end of 2021 is approximately 21 million barrels; the Company, however, consistently monitors crude oil price movements and has the flexibility to adjust its hedging plan as appropriate.

Unit Cost:

For Q1/2021 and the full-year of 2021, PTTEP expects to be able to maintain unit cost at around 29-30 and 28-29 USD/BOE respectively, in line with planned investments and activities. The unit cost for the full-year 2021 slightly declines from the acquisition of Oman Block 61 as above-mentioned.