MEMBER OF
Dow Jones Sustainability Indices
In Collaboration with RobecoSAM

PTTEP

Investor Presentation

TISCO Energy & Utilities Corporate Day

5 March 2021

Disclaimer

Forward-looking Information

The information, statements, forecasts and projections contained herein reflect the Company's current views with respect to future events and financial performance. These views are based on assumptions subject to various risks. No assurance is given that these future events will occur, or that the Company's assumptions are correct. Actual results may differ materially from those projected.

Petroleum Reserves Information

In this presentation, the Company discloses petroleum reserves that are not included in the Securities Exchange and Commission of Thailand (SEC) Annual Registration Statement Form 56-1 under "Supplemental Information on Petroleum Exploration and Production Activities". The reserves data contained in this presentation reflects the Company's best estimates of its reserves. While the Company periodically obtains an independent audit of a portion of its proved reserves, no independent qualified reserves evaluator or auditor was involved in the preparation of reserves data disclosed in this presentation. Unless stated otherwise, reserves are stated at the Company's gross basis.

This presentation may contain the terms "proved reserves" and "probable reserves". Unless stated otherwise, the Company adopts similar description as defined by the Society of Petroleum Engineers.

Proved Reserves - Proved reserves are defined as 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.

Probable Reserves - Probable reserves are defined as those unproved reserves which analysis of geological and engineering data suggests are more likely than not to be recoverable.

PTTEP Introduction

PTTEP – E&P arm of the PTT Group

Performing a pivotal role in Thailand's Oil & Gas exploration and production

Government of Thailand

63.3%[1]

ptt

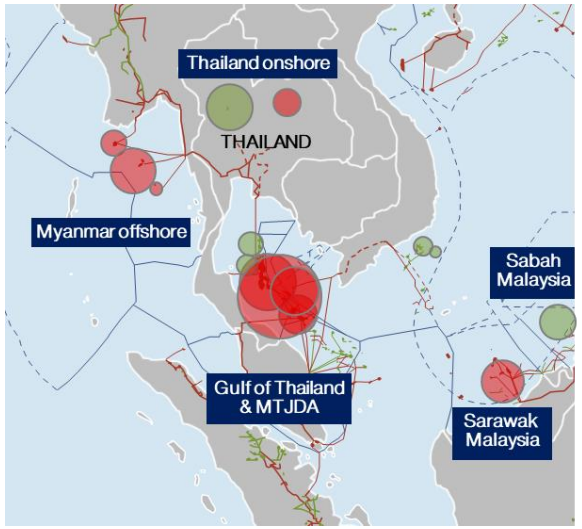
Thailand's National energy company

65.3%[2]

PTTEP

- **Largest** oil & gas producer in Thailand and Myanmar
- **Synergy with PTT's gas value chain** through its dominant position in the regional gas market
- **Opportunities to expand** into regional investments

Key operations in SEA



Approx. 20 KBOED of net sales volume · Gas-weighted · Oil-weighted

95% of PTTEP's total sales volume

78% of PTTEP's sales volume sold to PTT

13.6 USD/BOE Average regional cash cost

International

STANDARD & POOR'S RATINGS SERVICES McGRAW HILL FINANCIAL
BBB+ / Stable
BBB stand-alone rating

FitchRatings
BBB+ / Stable
BBB stand-alone rating

MOODY'S
Baa1 / Stable
Baa2 stand-alone rating

National

TRIS RATING
AAA / Stable

Notes:
1. 51.1% is directly held by the Government of Thailand (Ministry of Finance), with the remaining 12.2% held by the state-controlled Vayupak Fund I as of 5 Jan 2021
2. Ownership as of 14 August 2020 (PTT and Siam Management Holding Co., Ltd. (Subsidiary of PTT)

Strategy and Projects progress

PTTEP Growth drivers in 2021 and Beyond

PTTEP

2021-2022
Short-term

- **G1/61 and G2/61**
  + Volume & Synergy Benefits
- **Sabah H**
  + 270 MMSCFD production Capacity*
- **Oman Block 61****
  Immediate growth addition and long term revenue streams
- **Algeria HBR Phase I**
  + 10-13 KBOED production Capacity*

2023-2026
Medium-term

- **Myanmar Gas-to-Power**
  New business in Power, securing gas market for upstream developments
- **Sarawak SK410B (Lang Lebah)**
  New development for future growth
- **Algeria HBR Phase II**
  + 30-50 KBOED production Capacity*
- **Mozambique Area 1**
  Drive LNG value chain with 13.1 MTPA initial capacity*
- **ARV scaling up**
  Generating new revenue streams

2027-2030
Long-term

- **Exploration campaigns**
  Future prospects in Oman/UAE/MY
- **Other businesses**
  New energy technologies

Note: * The amounts of production capacity only represent a 100% share, not PTTEP's participating interest in the project.

** New M&A announced on Feb 1, 2021 with expected Completion Date in 2021

Strengthen core E&P Business

Key Assets Transition

G1/61 (Erawan)

- Prioritize site access and commence equipment & facilities installation
- Signing GSA with buyers
- Human resources integration and G1 working model

G2/61 (Bongkot)

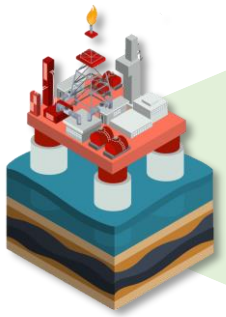
- On track – deliver gas at the minimum volume stated in PSC
  2022@200MMSCFD
  2023@700MMSCFD
- New production platforms installation in 2021 and 2022

Apr 2022 Operatorship Handover

Dec 2021 Facilities Installation

Apr 2021 GSA & Preparation work

Existing Asset value maximization



- Accelerate progress in Lang Lebah, Algeria HBR and Mozambique Area 1
- Value creation for assets in GoT, Malaysia, Myanmar and Middle East
- New Exploration & Appraisal drilling activities for long-term growth

SK410B (Lang Lebah) Appraisal well result

- Very positive result with amount of gas discovery beyond previous estimation
- Completed Pre-Feed study with Front End Engineering Design in 2021
- FID planned in 2022

Note : Transition of Murphy and Partex assets are completed.

New Acquisition to strengthen portfolio – Oman Block 61

Deal size	Deal Completion
2,450* Million USD	**Within 2021** subject to regulatory approvals

Post transaction structure

bp Exploration (Epsilon) Limited *(Operator)*	Makarim Gas Development LLC	PTTEP MENA Limited	PC Oman Ventures Ltd
40%	30%	20%	10%

Block 61

Off-taker
Oman government

Reservoirs
Tight clastic

Development Concept
Grid drilling and hydraulic fracturing

Phase 1 : Khazzan
FID 2013, 1st Gas 2017

Phase 2 : Ghazeer
FID 2018, 1st Gas Oct 2020

Combined Production Capacity: Gas 1500MMSCFD and Condensate >65KBOED

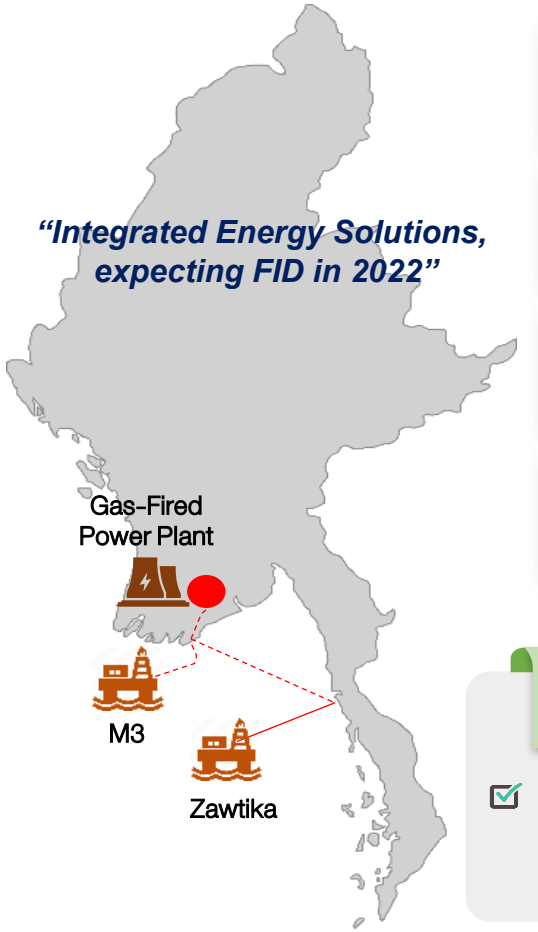
Asset highlights

- **Critical gas asset for the energy security of Oman** ~ 35% of current gas supply**
- **Cash flow stream from gas sales at fixed gas prices**
- **Secured Long-term GSA totaling 1.5 BCFD** with Take-or-Pay obligation
- **Immediate addition to Sales volume, Reserves & reduce unit cost of PTTEP port.**
- **Developing 10.5 TCF of gas resources**

Note: *excluding 140 Million USD contingent payment upon completion of conditions per SPA
** Source from Wood Mackenzie

New Business – Supporting Medium to Long-term growth

Myanmar – Gas to Power



"Integrated Energy Solutions, expecting FID in 2022"

- ~2 billion USD investment covering upstream developments, pipelines network and 600MW Power Plant plus transmission line
- Supply ~10% of Myanmar's existing installed power plant capacity
- Electric Power Generation Enterprise ("EPGE") as buyer, with 20-year term and 5- year extension from COD
- Important milestone in Power business

Completed

- ☑ Notice to Proceed Approved in 2020

Next Steps

- GSA / PPA signing
- Engineering preparation
- Funding arrangements

AI & Robotics

ROVULA – Subsea	ROV 1st award tender from Mubadala; Nautilus preparing for commercialization; Thai Oil AUV service completed
varuna – AgriTech	Sales and service of sprayer drones, farm management APP, and forest management
SKYLLER – DroneBiz	Pursuing business partnerships and approaching customers
HealthTech	Xterilizer UV-C robot re-launched & scaling; Holistic business blueprint in progress

Renewables

- JV with experienced partner
- Exploring in SEA and other potential areas for operating and constructing phases of Wind/Solar projects

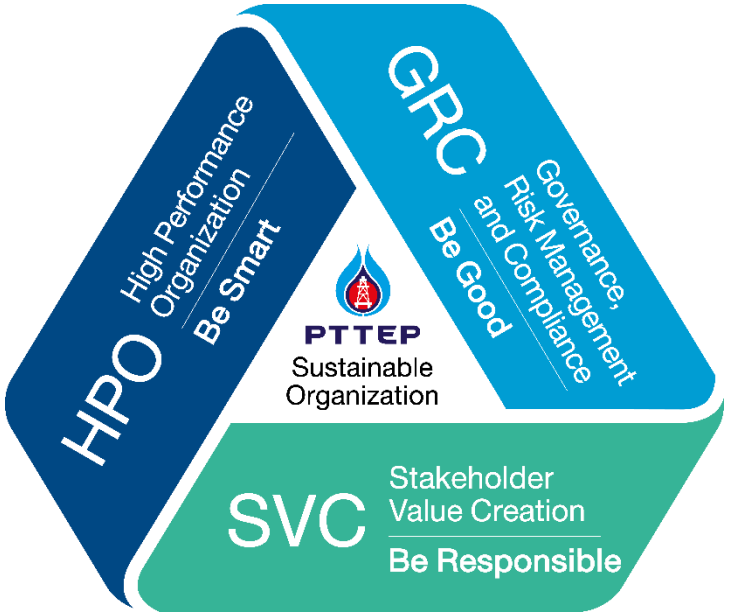
Sustainability and ESG

Delivering Sustainability & Positive Societal Impacts

PTTEP

"Energy Partner of Choice"

through Competitive Performance and Innovation for Long-term Value Creation



PTTEP JOURNEY TOWARDS SUSTAINABILITY

2030 Targets

GHG Reduction

25%
Reduction of GHG emissions intensity
(2012 base year)

Circular Model for E&P

≥50%
of main structures reused

Zero waste to landfill

2020	2025	2030
Zero Hazardous waste to landfill	Zero Industrial waste to landfill	Zero waste to landfill

Ocean for Life

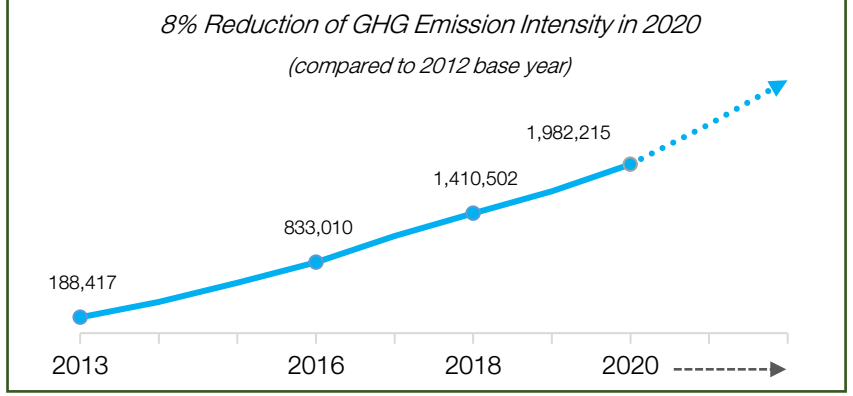
Net Positive Impact
of Biodiversity & Ecosystem Services in Offshore Operations
(2019 base year)

≥50%
Increase in Community Income for local community that participated in our program
(before project implementation)

2020 Key Performance

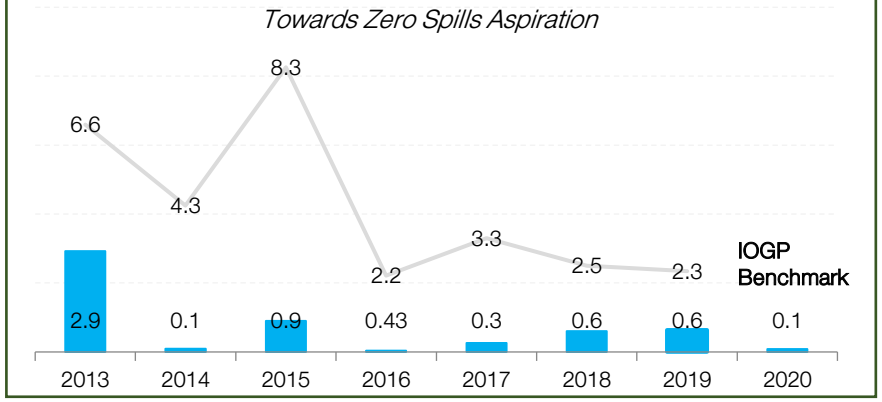
Accumulative GHG Emissions Reduction

(Unit: Absolute (tonne CO_2 equivalent))



Oil and Chemical Spill Rate

(Unit: Tonne per million tonne of petroleum production)



Key Highlights

GHG Reduction

Energy Efficiency
Improve efficiency and increase logistics operation efficiency by, for example, maximizing vessels' cargo deck space utilization to control marine gas oil consumption

Carbon Capture and Storage
Trap carbon dioxide in the process and inject it into suitable storage site

Renewable Energy

> 70% of energy used at offshore remote platforms are from renewable energy (Thailand)

Circular Model for E&P

Zero Waste to Landfill

Achieved zero hazardous waste to landfill in 2020

Topside Reuse Project

1st Topside Reuse was introduced at Arthit Operation in 2021

Pilot Recycled Drill Cuttings Road

1st Pilot completed at PTTEP Technology and Innovation Centre (PTIC)

Ocean for Life

MoU with Kasetsart University

- Baseline Study of Microplastics in the GoT
- 1st Sampling conducted in Q4/2020

MoU with Department of Marine and Coastal Resources

10-year cooperation (2020-2030) to support Ocean for Life target in 2030

CSR Projects

- Aquatic Animal Hatchery Learning Center, Sea Turtle Conservation
- "H.T.M.S. Prab and Sattakut" underwater learning sites
- Mangrove Plantation
- Coastal Conservation Area and Fish Home
- Ocean Waste Management
- Sea Food Product Value Enhancement

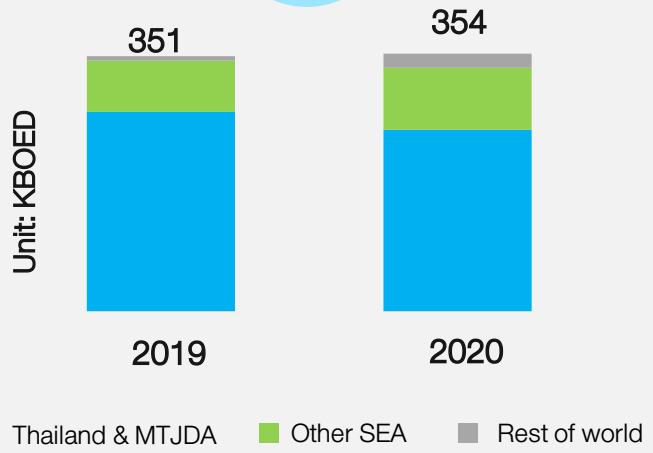
Financial Performance

Financial Performance

Softened Net Income from lower selling price & energy demand despite volume increase from Murphy and Partex

2020 Net Income 720 MMUSD ▼ 54% YTD

Sale Volumes



▲ 1% YTD

Increase from Partex & Malaysia offset with a decline in Gulf of Thailand

Average Selling Price

	2019	2020
Gas ($/MMBTU)	6.92	6.27
Liquid ($/BBL)	61.18	41.55
Weighted Avg. ($/BOE)	47.24	38.92
Avg. Dubai ($/BBL)	63.51	42.27
Volume Mix (Gas : Liquid)	71:29	67:33

▼ 18% YTD

Lower global crude oil price

Unit Cost

Unit : $/BOE	2019	2020
Cash cost	15.88	14.40
Non-Cash cost	15.83	16.10
Unit cost	31.71	30.50

Note: Unit Cost : Exclude costs related to new business

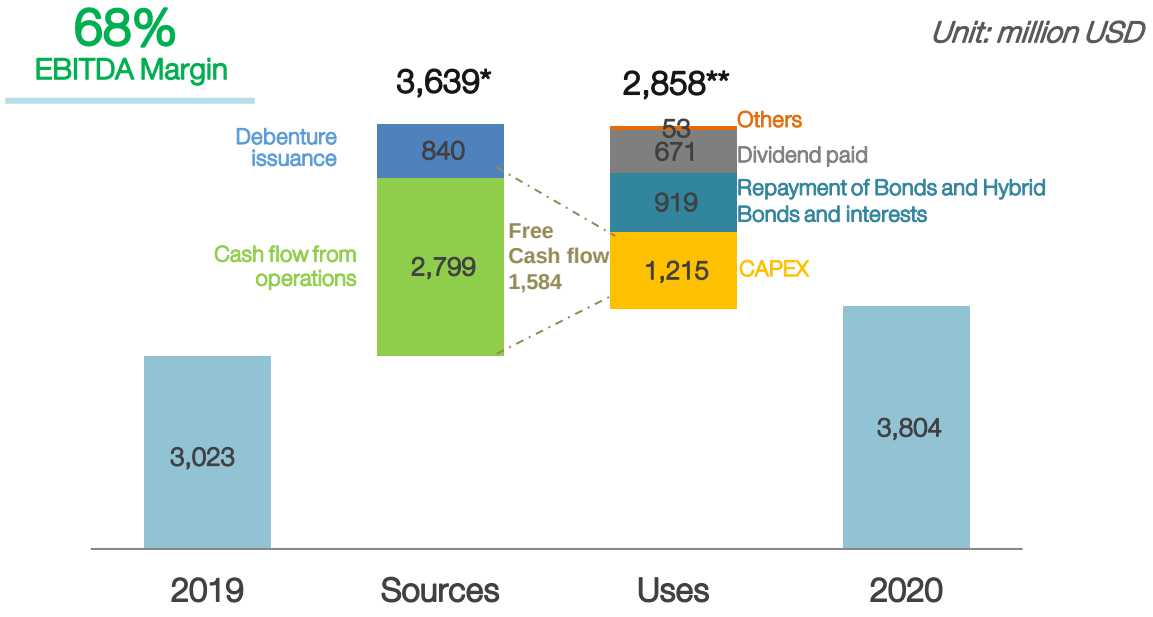
▼ 4% YTD

Maintain unit cost at competitive level

Results – Cash flows and Financial Position

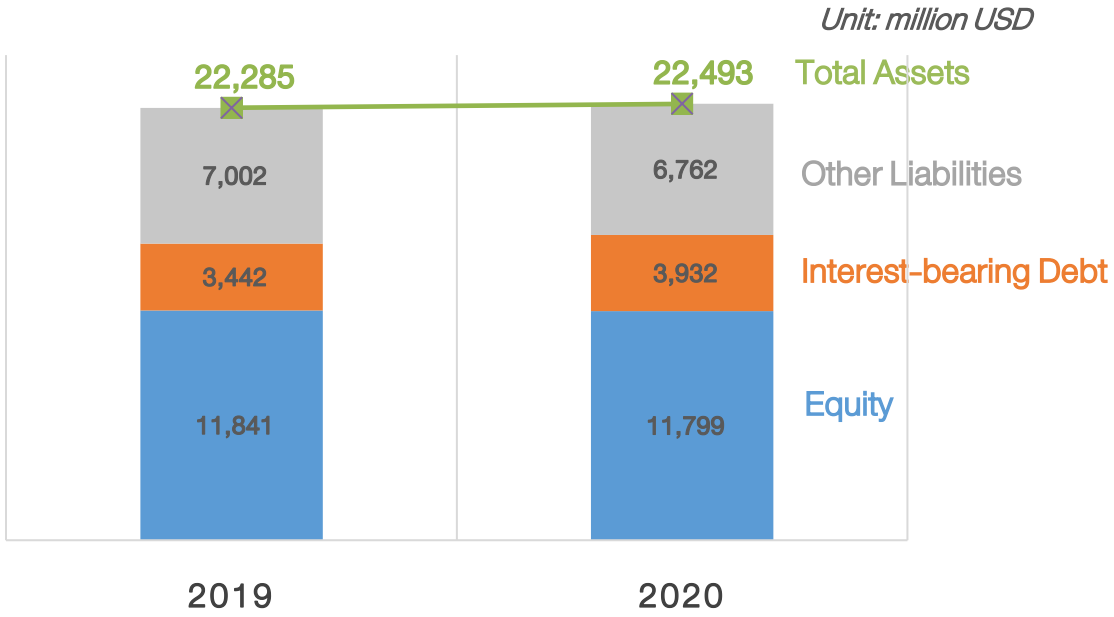
Stormproof financial health to withstand economic uncertainties

2020 CF : Source and Use of Funds



Note: * Net of adjustment for the effect of exchange rate changes on cash and cash equivalents
** Excludes cash flows for investing in short-term investments (Fixed deposit > 3 months)

Financial Position



Debt Profile

D/E ratio	0.29x	0.33x	Weighted Average Loan Life (Years)	13.84	14.08
Weighted Average Cost of Debt (%)	4.41	3.44	Fixed : Floating	82:18	82:18

Note: Debt profile excludes Hybrid bonds

Dividend and Outlook

2021 Guidance *with Oman Block 61* [1]

Average Sales Volume [2]

KBOED

Q1: ~365

Full year: ~398

Average Gas Price [3]

USD/MMBTU

Q1: ~5.7

Full year: ~5.5

Unit Cost

USD/BOE

Q1: ~29–30

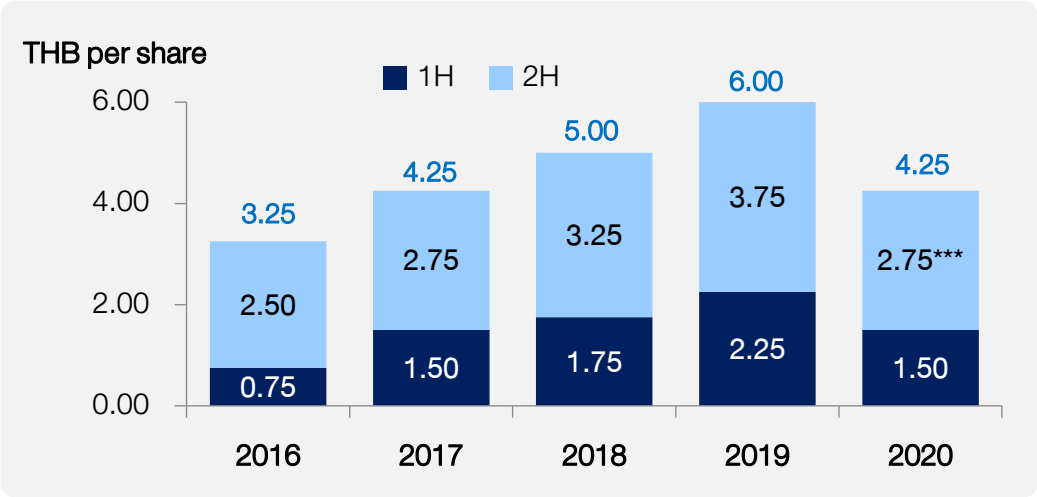
Full year: ~28–29

EBITDA Margin

% of Sales Revenue

Q1 & Full year: ~70%

Dividend Payment History



	2016	2017	2018	2019	2020
Payout Ratio (% of net income)	98	90	55	49	77
Payout Ratio (% of recurring net income)	79	64	51	53	71

Schedule for 2H2020 Dividend Payment [4]

XD Date	1 March 2021
Record date	2 March 2021
Payment Date	26 April 2021

Credit Rating/Outlook

International

STANDARD & POOR'S RATINGS SERVICES McGRAW HILL FINANCIAL

BBB+ / Stable
BBB stand-alone rating

FitchRatings

BBB+ / Stable
BBB stand-alone rating

MOODY'S

Baa1 / Stable
Baa2 stand-alone rating

National

TRIS RATING

AAA / Stable

Note:

(1) New M&A announced on Feb 1, 2021 with expected Completion Date in 2021
(2) Include sales volume from ADNOC Gas Processing (AGP)
(3) Based on average Dubai oil price in 2021 at 50 $/BBL
(4) Subject to approval from 2021 Annual General Shareholders' Meeting

PTTEP

Thank you and Q&A

You can reach the Investor Relations team for more information and inquiry through the following channels

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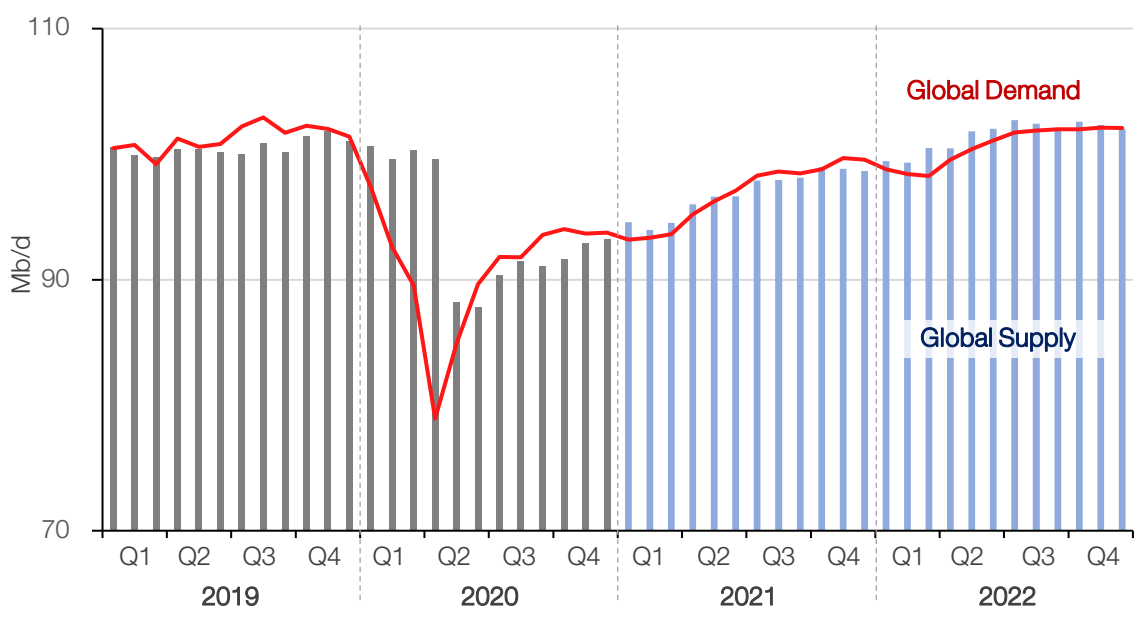
Supplementary information

- Energy Demand and Prices 19-20
- Financial Results YE2020 21-25
- Industry and Thailand Energy Updates 26-28
- Sustainable Development 29-34
- Reserves at Year-end 2020 35
- Key Project Highlights by Region 36-43
- Project Details 44-48
- Organization Structure 49
- Ratio and Formula 50

Oil Market update

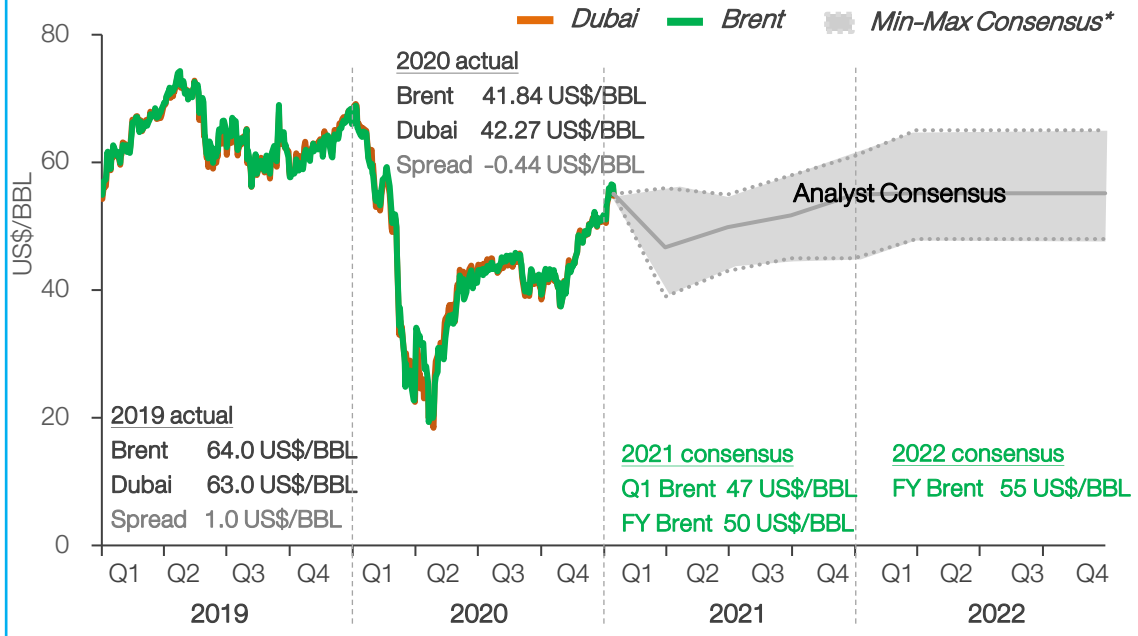
Short-term upside from Demand recovery. Long-term pressure from Energy Transition.

Global Oil Demand & Supply Outlook



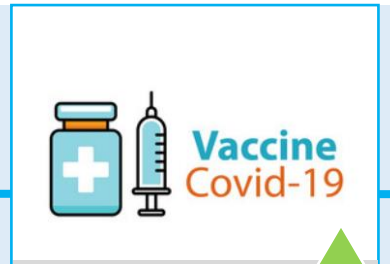
Source: Global Crude Oil Markets Short-Term Outlook: Fundamentals - January 2021, IHS Markit

Oil Prices Outlook



Source: Thomson Reuters Monthly Poll on Oil Prices Analyst, 31 December 2020

Key factors to monitor



COVID-19 Situation & Vaccine Distribution

Economic Recession & Stimulus Measures

Green Energy Policies under Biden

OPEC+ Production cuts agreement

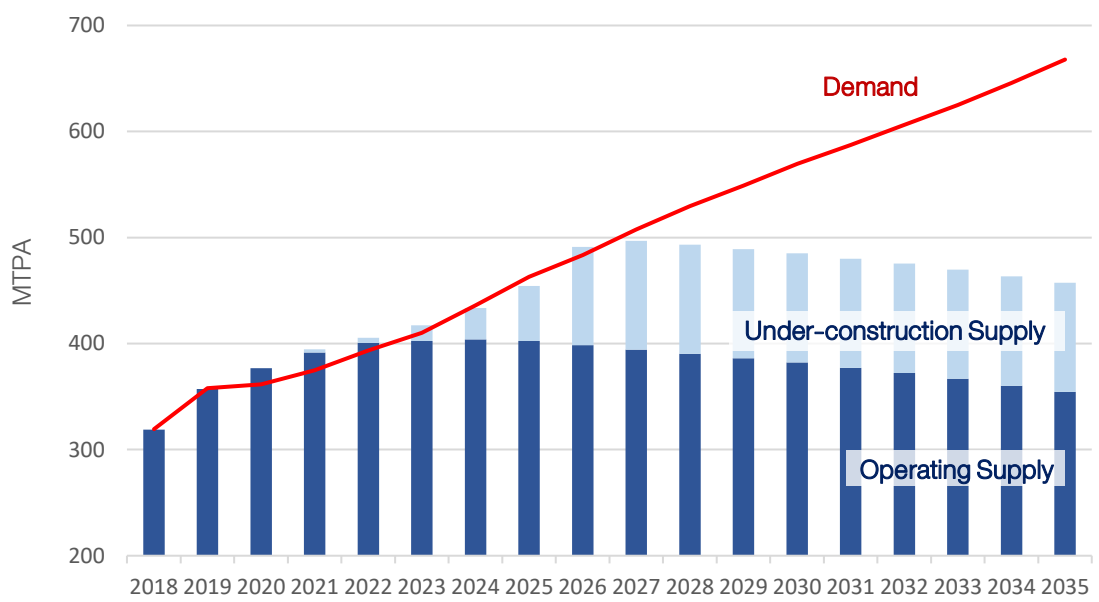
US shale Shut-in/Bankruptcies

US Sanction Policy on Iran & Venezuela

Gas Market update

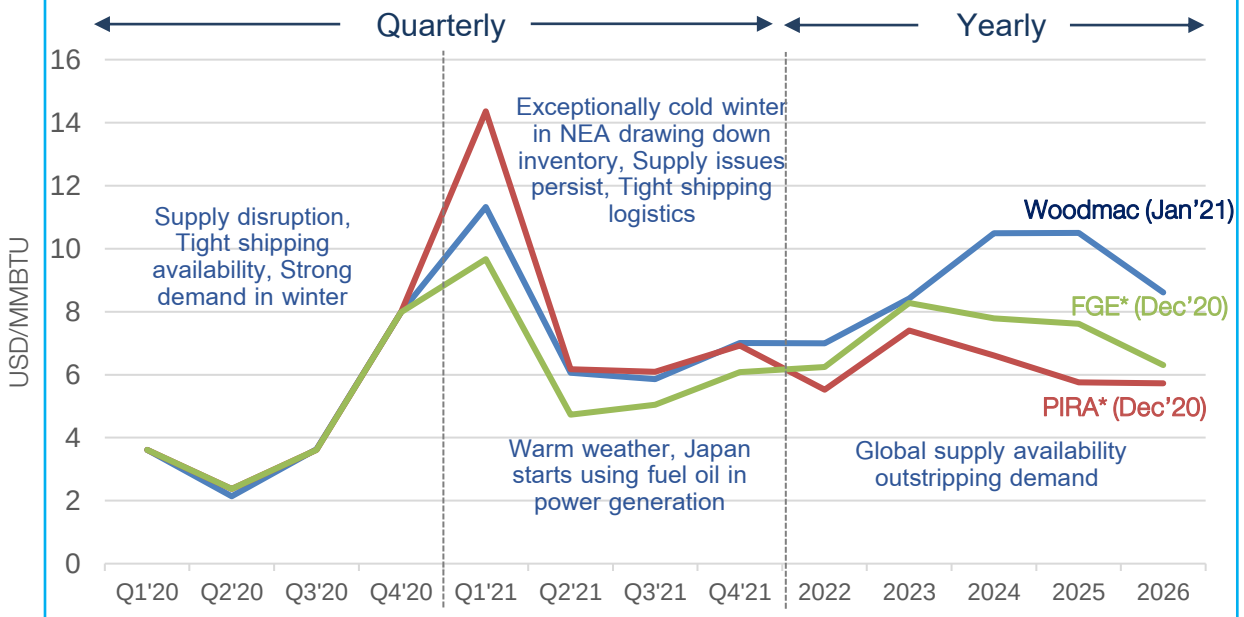
Short-term recovery to pre-COVID level. Long-term growth as transitional energy source.

Global LNG Demand & Supply Outlook



Source: FGE, 7 January 2020

LNG Spot Prices Outlook



Source: Information as of January 2021. FGE/PIRA published latest price forecast for 2021 only.

Key factors to monitor

COVID-19 Situation & Vaccine Distribution

LNG Liberalization & Domestic Gas Production in Asia

Green Energy Policies under Biden

Supply from new projects

Results – Net Income

Softened from lower selling price & energy demand despite volume increase from Murphy and Partex

PTTEP

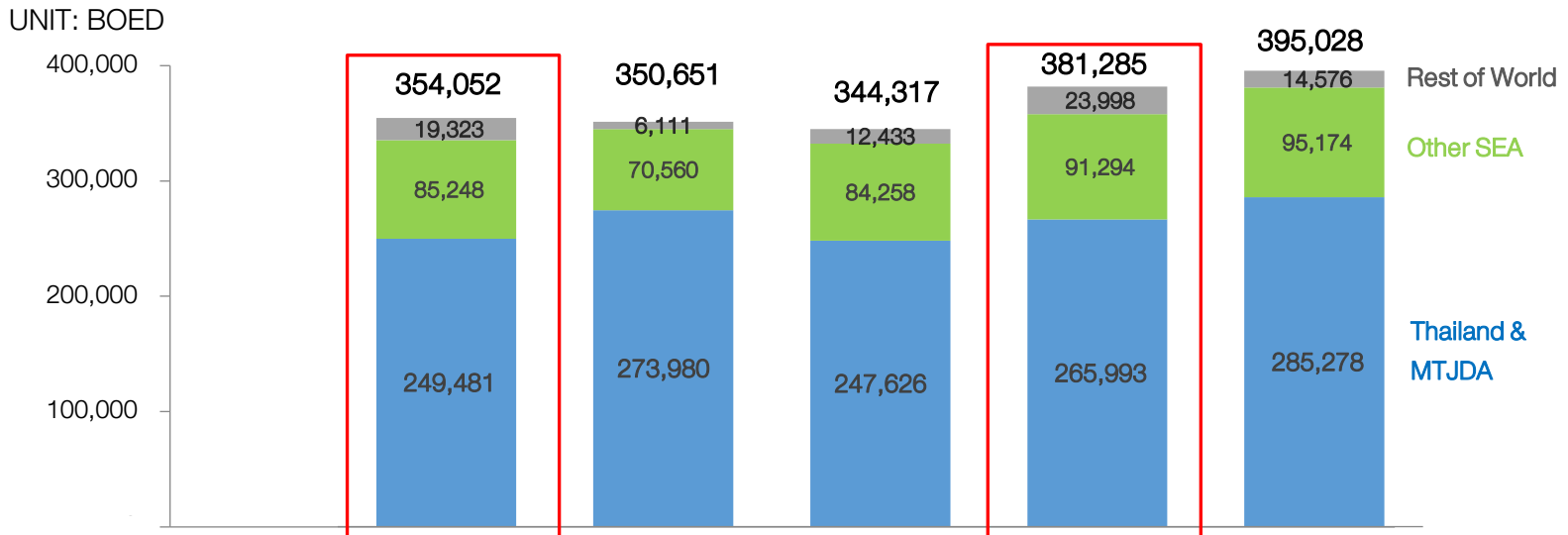
Unit: MMUSD

Statements of Income	2020	2019	%YTD	Q4 20	Q3 20	% QoQ	Q4 19	% YoY
Total Revenues	**5,357**	**6,413**	**(16%)**	**1,348**	**1,305**	**3%**	**1,841**	**(27%)**
Sales	5,043	6,046	(17%)	1,292	1,228	5%	1,755	(26%)
Sales Volume (BOED)	354,052	350,651	1%	381,285	344,317	11%	395,028	(3%)
Sales Price (US$/BOE)	38.92	47.24	(18%)	36.85	38.77	(5%)	48.28	(24%)
Gain on Financial Instruments	99	-	100%	-	27	(100%)	-	-
Total Expenses	**4,637**	**4,844**	**(4%)**	**1,267**	**1,075**	**18%**	**1,457**	**(13%)**
Major Expenses:								
Operating Expenses	795	751	6%	234	181	29%	281	(17%)
Exploration Expenses	104	128	(19%)	27	8	238%	28	(4%)
G&A	314	384	(18%)	117	69	70%	133	(12%)
DD&A	2,086	2,026	3%	548	515	6%	578	(5%)
Loss on Financial Instruments	-	109	(100%)	72	-	100%	41	76%
Income Tax Expenses	603	677	(11%)	79	140	(44%)	189	(58%)
Net income	**720**	**1,569**	**(54%)**	**81**	**230**	**(65%)**	**384**	**(79%)**
Recurring Net Income	781	1,445	(46%)	168	195	(14%)	379	(56%)
Non-recurring Net Income	(61)	124	(>100%)	(87)	35	(>100%)	5	(>100%)
Major items: Non-recurring Net Income – Increase (Decrease) from								
Tax from Effect of FX	(95)	150	(>100%)	10	(2)	>100%	42	(76%)
Oil Price Hedging	112	(45)	>100%	(38)	10	(>100%)	(25)	(52%)
Effect from FX*	16	28	(43%)	(26)	29	(>100%)	9	(>100%)
Impairment Loss on Assets	(91)	-	(100%)	(44)	-	(100%)	-	(100%)

* Consisted of Gain/(Loss) on FX and Forward Contract

Results – Sales Volume and Avg. Selling Price

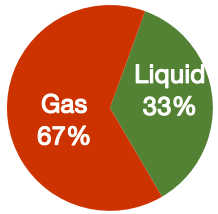
Solid volume growth from Murphy and Partex, offset with low demand in Gulf of Thailand



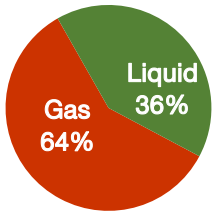
Sales Price	2020	2019	Q3 20	Q4 20	Q4 19
Gas ($/MMBTU)	6.27	6.92	6.22	5.63	6.95
Liquid ($/BBL)	41.55	61.18	41.82	42.61	61.94
Weighted Avg. ($/BOE)	**38.92**	**47.24**	**38.77**	**36.85**	**48.28**
Avg. Dubai ($/BBL)	42.27	63.51	42.88	44.64	62.03
Avg. HSFO ($/BBL) (High Sulphur Fuel Oil)	39.30	58.60	40.35	44.07	43.43

2020 Sales Volume & Revenue By Product

Volume Mix



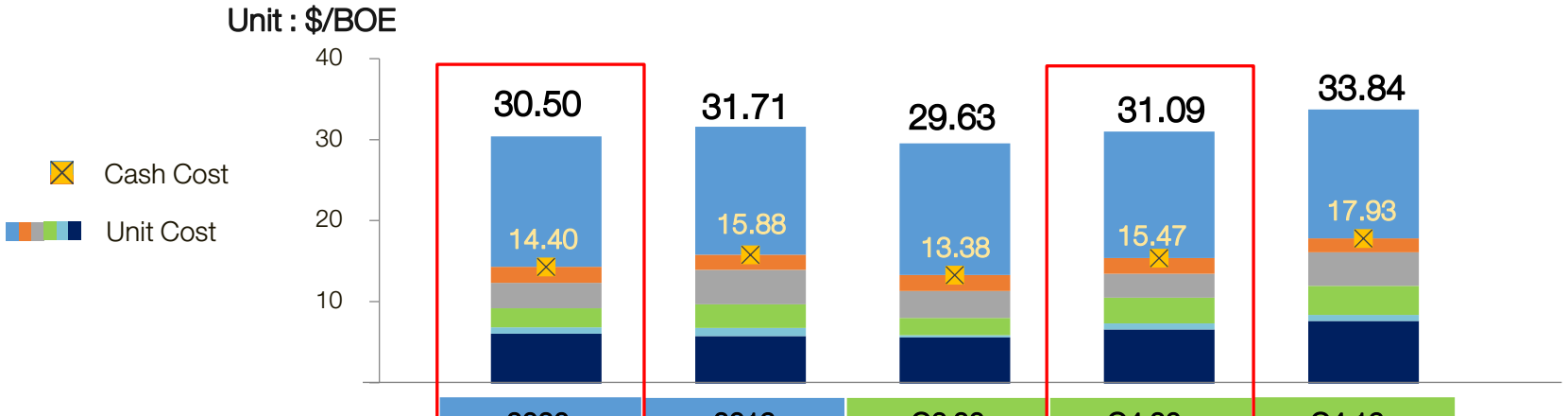
Revenue Mix



Note: Include sales volume from ADNOC Gas Processing (AGP)

Results – Unit Cost

Maintain cost at competitive level



	2020	2019	Q3 20	Q4 20	Q4 19
DD&A	16.10	15.83	16.25	15.62	15.90
Finance Cost	1.96	1.84	1.95	1.91	1.72
Royalties	3.17	4.27	3.32	2.96	4.17
G&A	2.33	2.91	2.13	3.17	3.56
Exploration Expenses	0.80	1.00	0.26	0.76	0.76
Operating Expenses	6.14	5.86	5.72	6.67	7.72
Lifting Cost	4.47	4.31	4.29	4.85	5.42

Note: Unit Cost per 2020 Financial Statements has applied Thai Financial Reporting Standard No. 16 (TFRS 16: Lease), effective 1 Jan 2020
All Unit Cost shown above exclude costs related to new business
The formulas for calculating ratios are provided in the supplementary section for your reference

Five –Year Plan : Sales Volume *(not including Oman Block 61)*

Maximize value of existing assets, accelerate G1/G2 transitions & maintain key milestones for key projects

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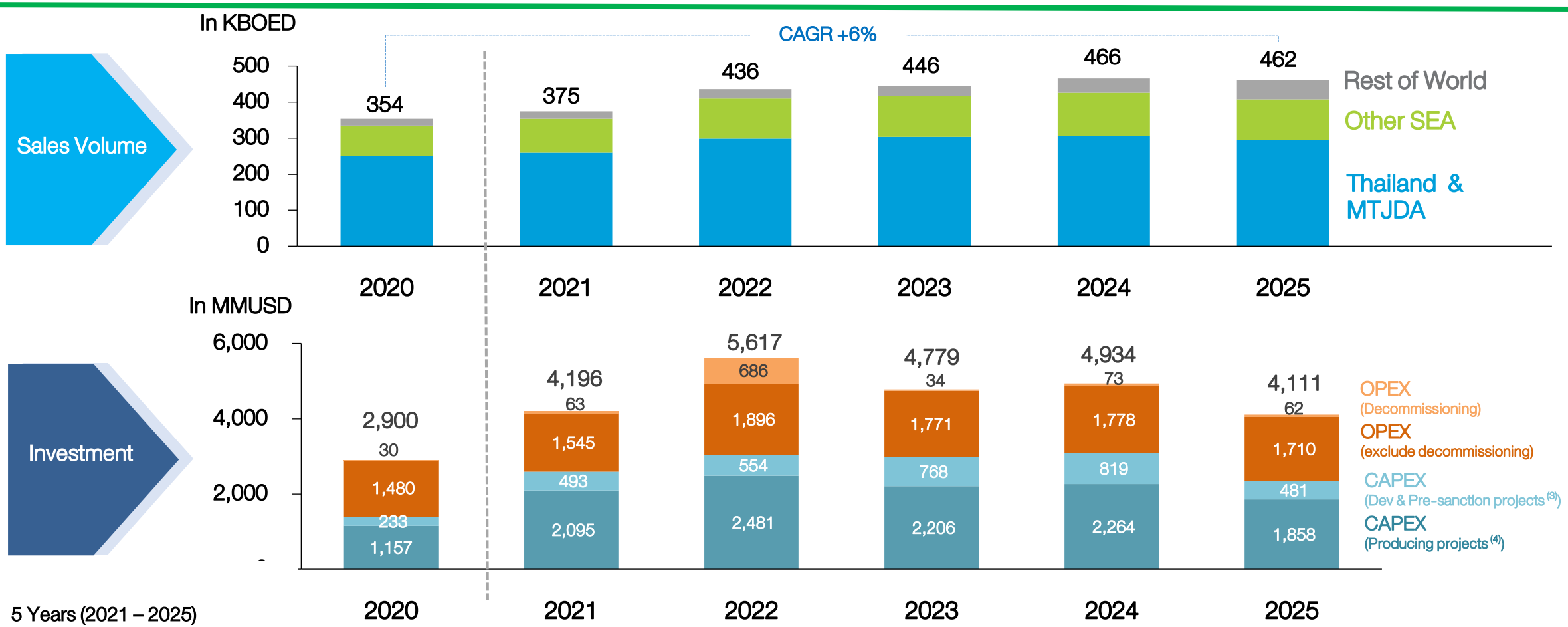
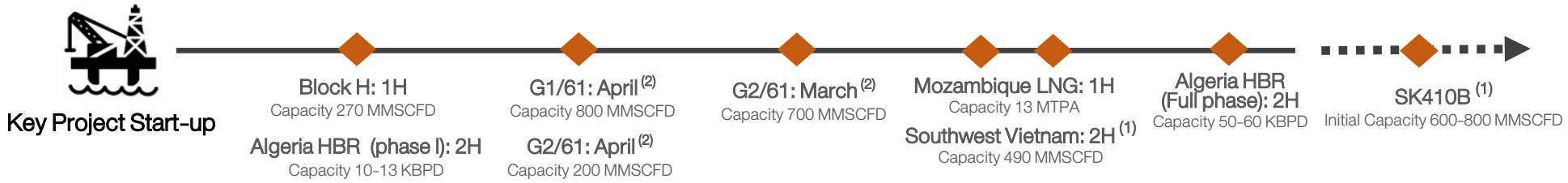


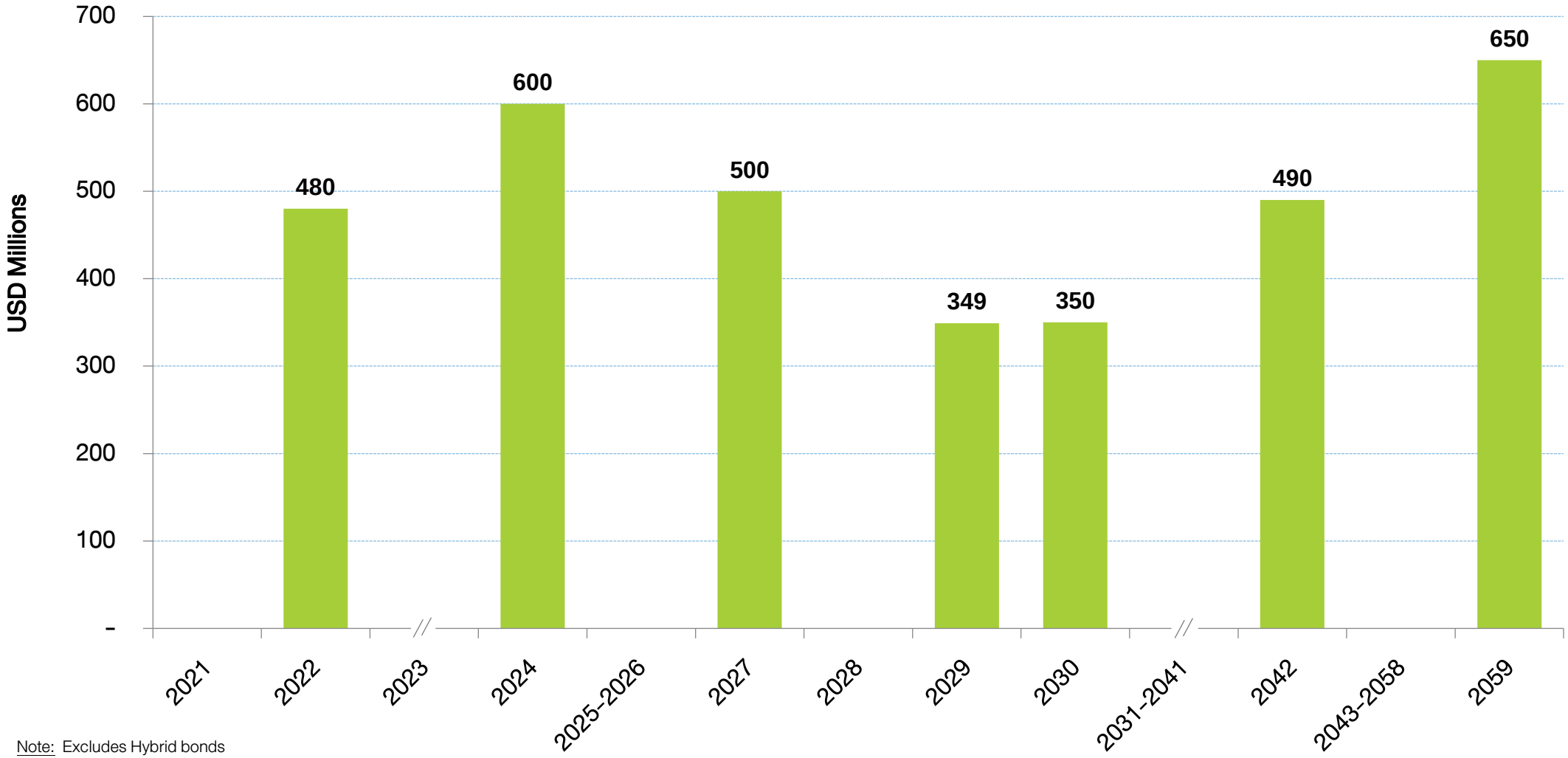
5 Years (2021 – 2025)	
CAPEX	14,020
OPEX	9,617
TOTAL	23,637



Note: (1) Subject to regulatory approval and FID timing (2) According to Production Sharing Contracts signed on 25 February 2019
(3) Development & Pre-sanction projects include Mozambique LNG , Algeria HBR, SK410B, and Southwest Vietnam (4) Includes exploration and appraisal in all projects and head office CAPEX

Debt Maturity Profile

As of January 2021



Note: Excludes Hybrid bonds

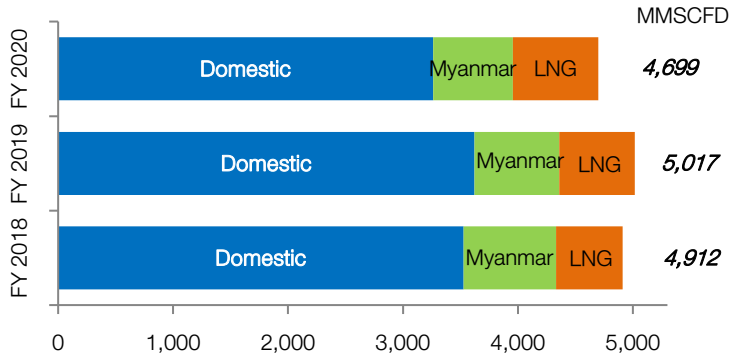
Unit: USD Millions or equivalent after cross currency swap

Thailand Energy Updates and FX rates

Domestic gas volume suppressed by LNG import; THB fluctuation continues

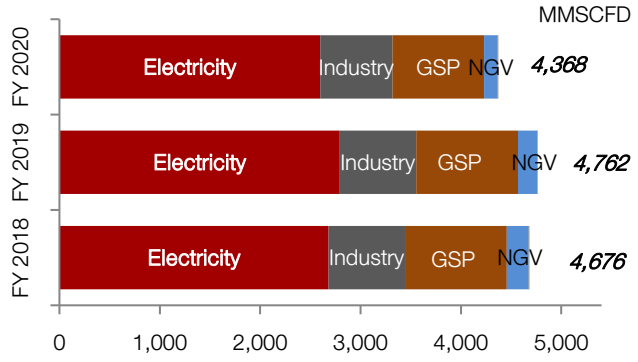
Thailand Energy Overview

Natural Gas Supply

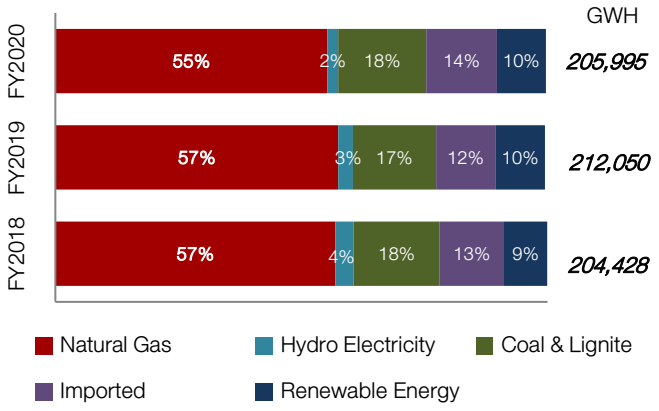


- Lower energy demand from COVID-19 outbreak
- More LNG imports from low LNG spot prices
- Slight decline from Myanmar piped gas imports due to natural decline

Natural Gas Consumption

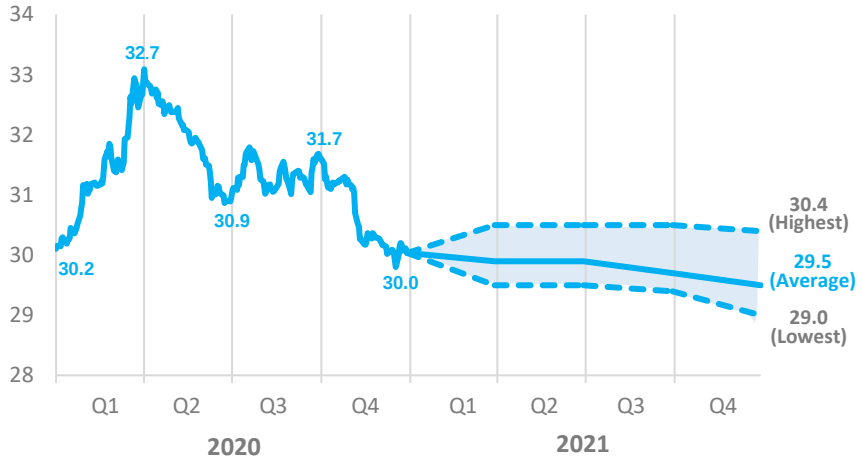


Electricity Generation



Source: EPPO

Exchange Rate Movement (THB/USD)



Consensus on the exchange rate mostly depends on

- Positive COVID-19 vaccine development news despite vaccine distribution challenges and capital inflows to emerging markets
- The recovery of tourism sector in Thailand and global economic recovery
- Concerns on political uncertainty and the new wave of COVID-19 outbreak in Thailand
- Measures equipped by Bank of Thailand to prevent THB appreciation

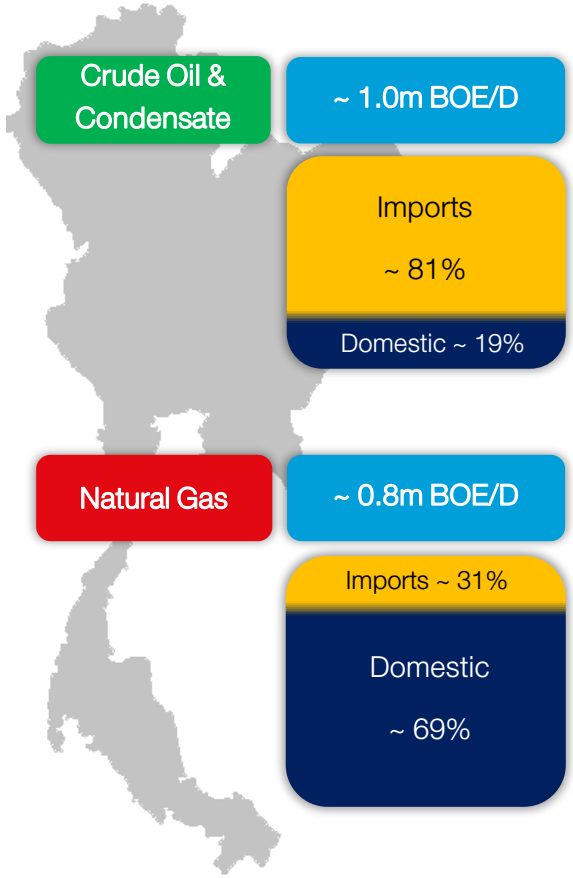
Source: Bank of Thailand, Bloomberg

Forecast based on Bloomberg Consensus as of 4 February 2021

Thailand's Energy Value Chain

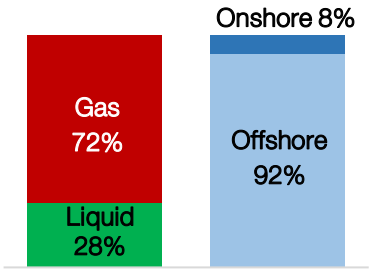
PTTEP contributes over 1/3 of Thailand's petroleum production

FY2020 Thailand's Oil and Gas Demand

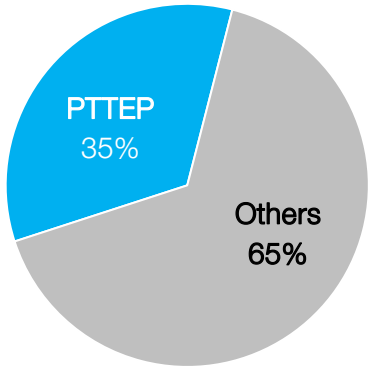


FY2020 Thailand Petroleum Production

% by Petroleum Type and Area



% Production by Company



Midstream

Gas: operated by PTT

- Transmission Pipelines
- Gas Separation Plants

Oil: PTT participates through subsidiaries

- Refineries

Downstream

- Petrochemicals
- Oil and gas marketing

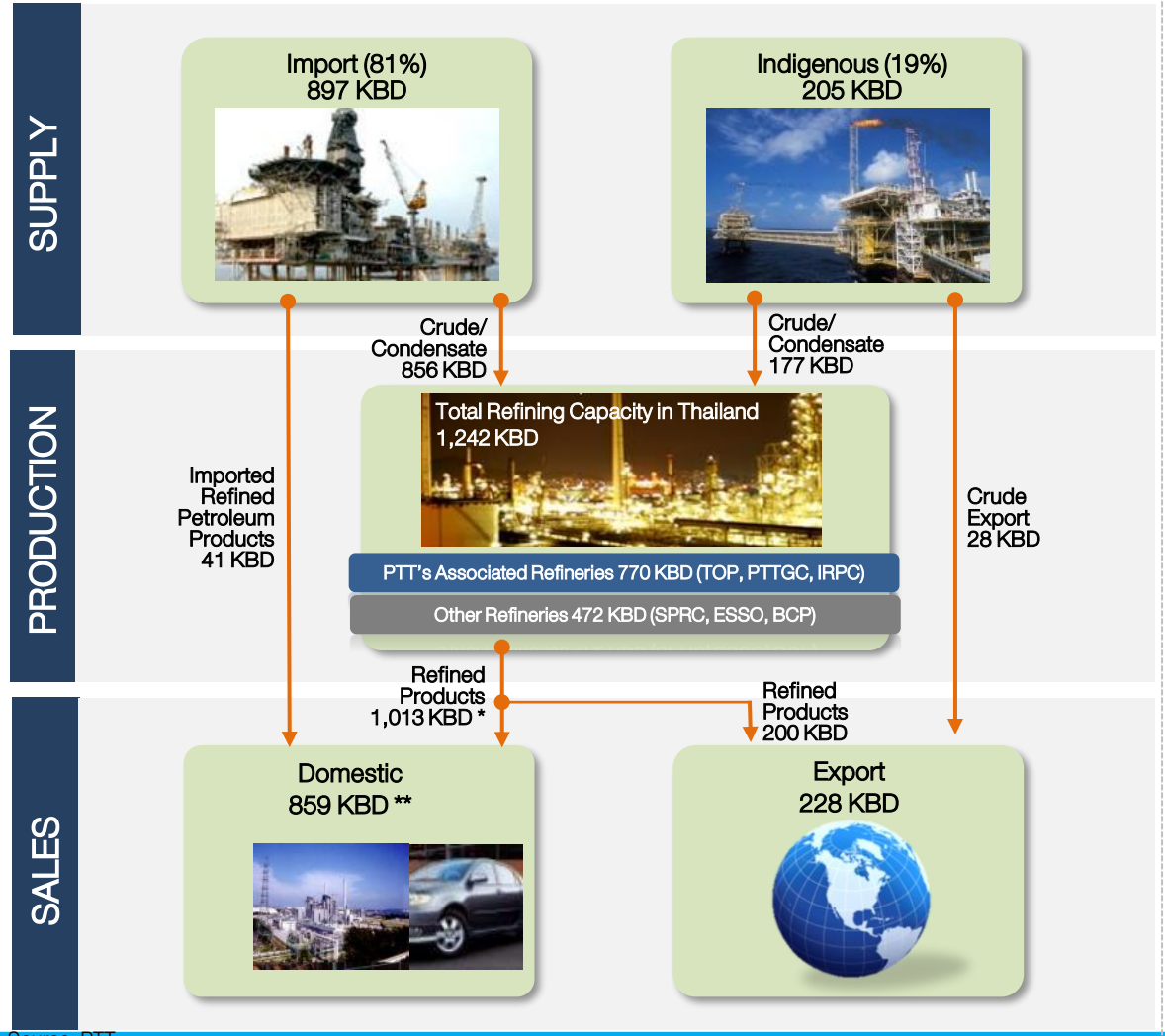
Source: Energy Policy and Planning Office (EPPO) and Department of Mineral Fuels (DMF)

Thailand's Oil and Gas Balance

PTTEP

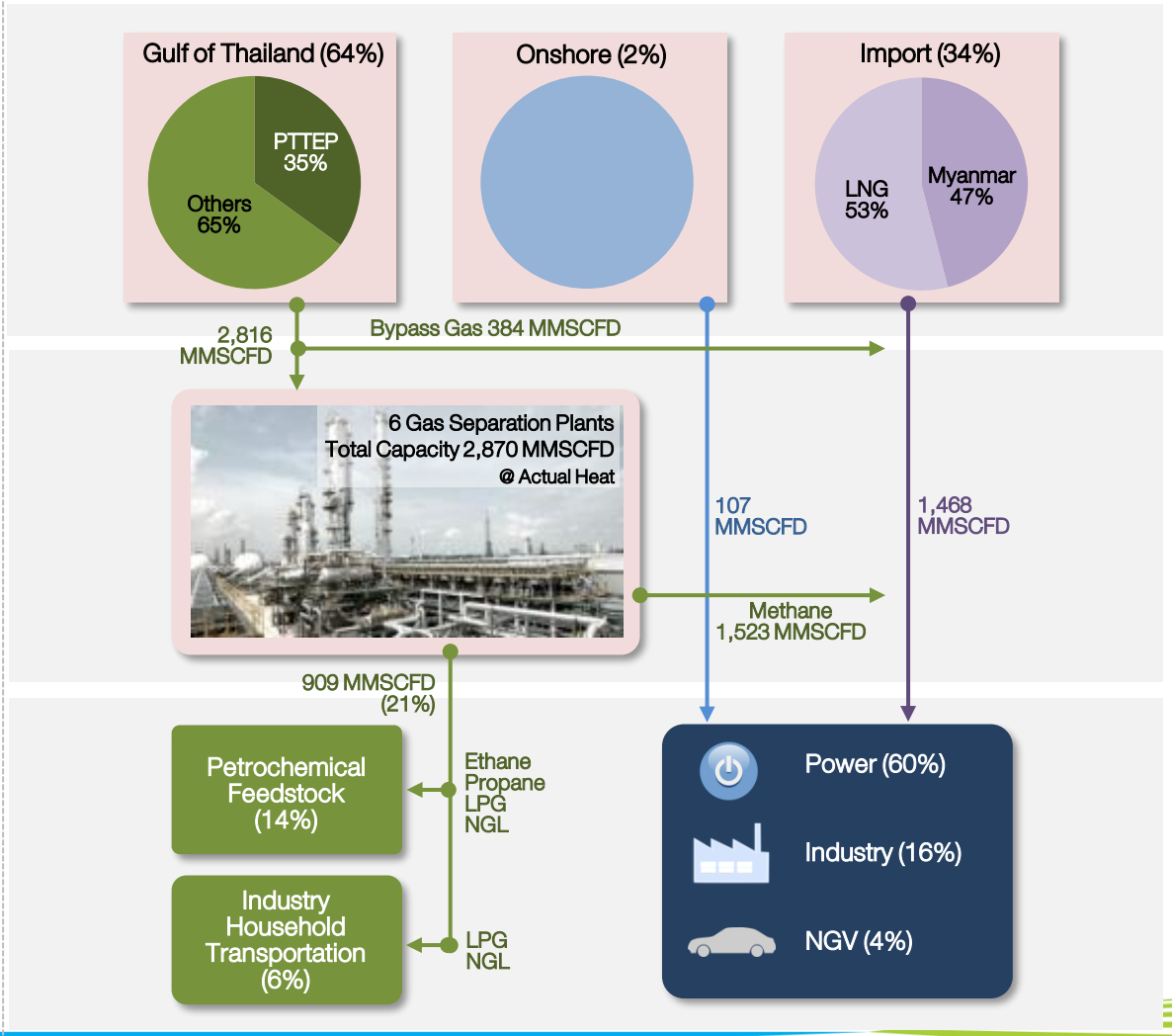
Oil Balance***

Maintains stability supply through adequate refining capacity



Natural Gas Balance****

Main driver of the Thailand economy

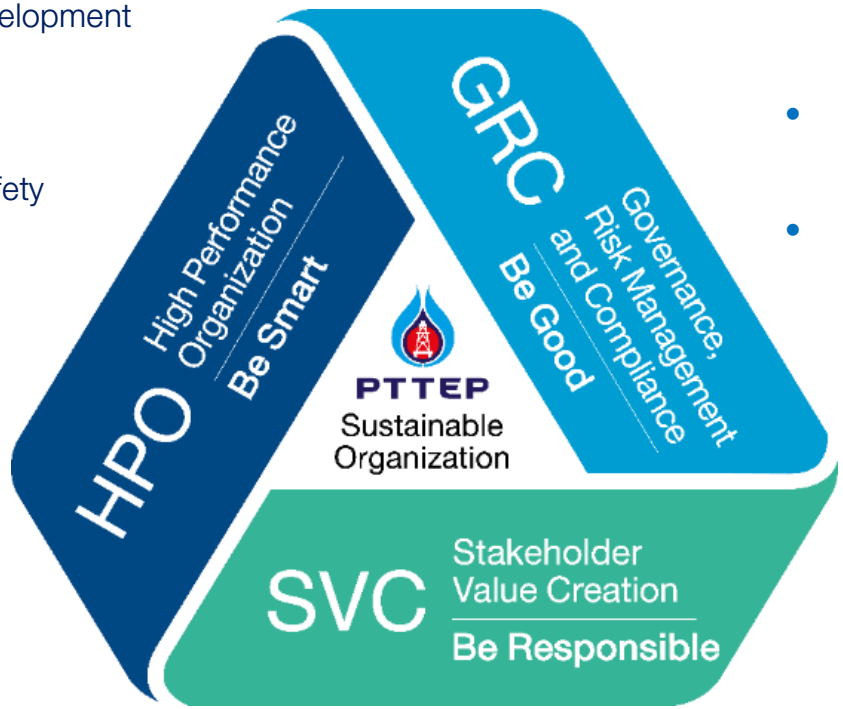


Source: PTT

Note:
- * Refined product from refineries = 944 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 95 KBD
- ** Not included Inventory
- *** Information as of 9M20
- **** Information as of 12M20
- MMSCFD @ Heating Value 1,000 Btu/ft^3

Driving towards Sustainability – PTTEP SD Framework

- Operational Excellence
- Capability Development
- Innovation and Technology
- Health and Safety



- Conducting business with accuracy, transparency, fairness
- Strict compliance with laws and regulations
- Good governance and appropriate risk management

- GHG* Reduction
- Circular Model for E&P
- Ocean for Life

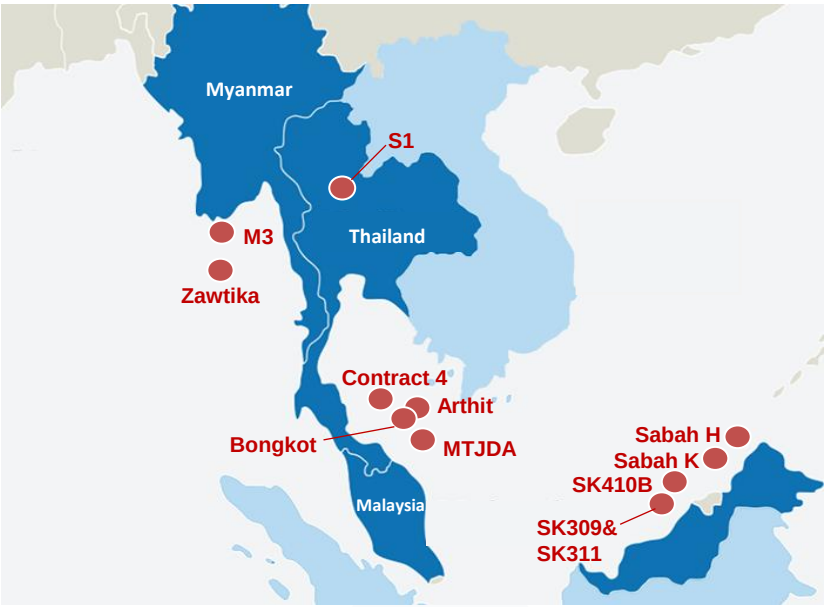
Note: * GHG: Greenhouse Gas

HPO: Strategies for long-term sustainability

Focus on "Execute" while monitoring M&A Opportunity

PTTEP

Value Creation from Existing Assets



Development

Mozambique Area 1

On track to deliver first LNG

Pre-Development

SK410B : Lang-Lebah

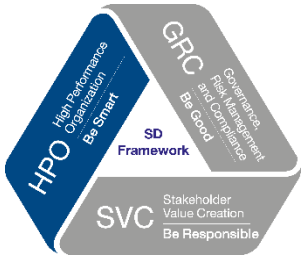
Strong path towards FID

Legacy Assets

- Sustain sales volume as committed
- Operation Continuous
- Cost Management
- Streamline Cost Structure for efficiency
- Explore full potential in Malaysia and Myanmar
- Exploration

Transition of New Assets

- ▶ Operatorship transfer for G1/61
- ▶ Gulf of Thailand capital & operational efficiencies and synergy
- ▶ Increase efficiency and annexation to create more value in Malaysia



EXPAND: M&A and New Businesses

Opportunistic M&A in Strategic Areas

AI AND ROBOTICS VENTURES

Transitioning technology and product builder to Business Builder

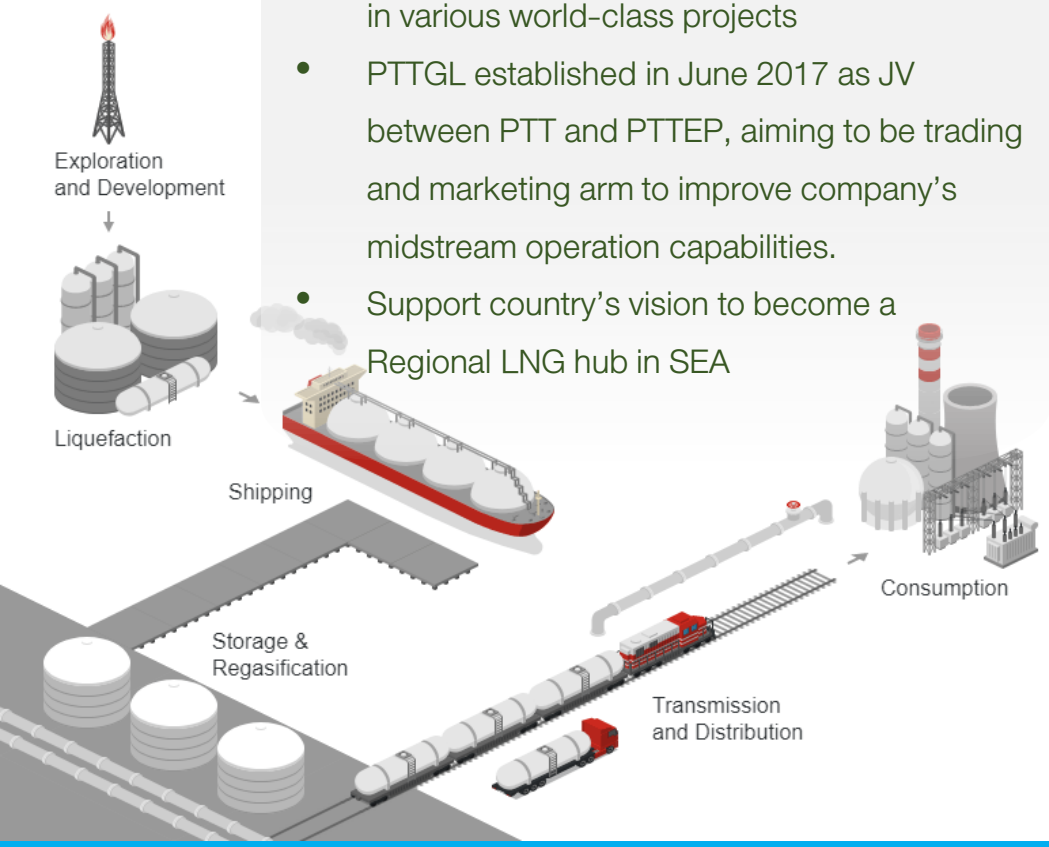
Gas to Power

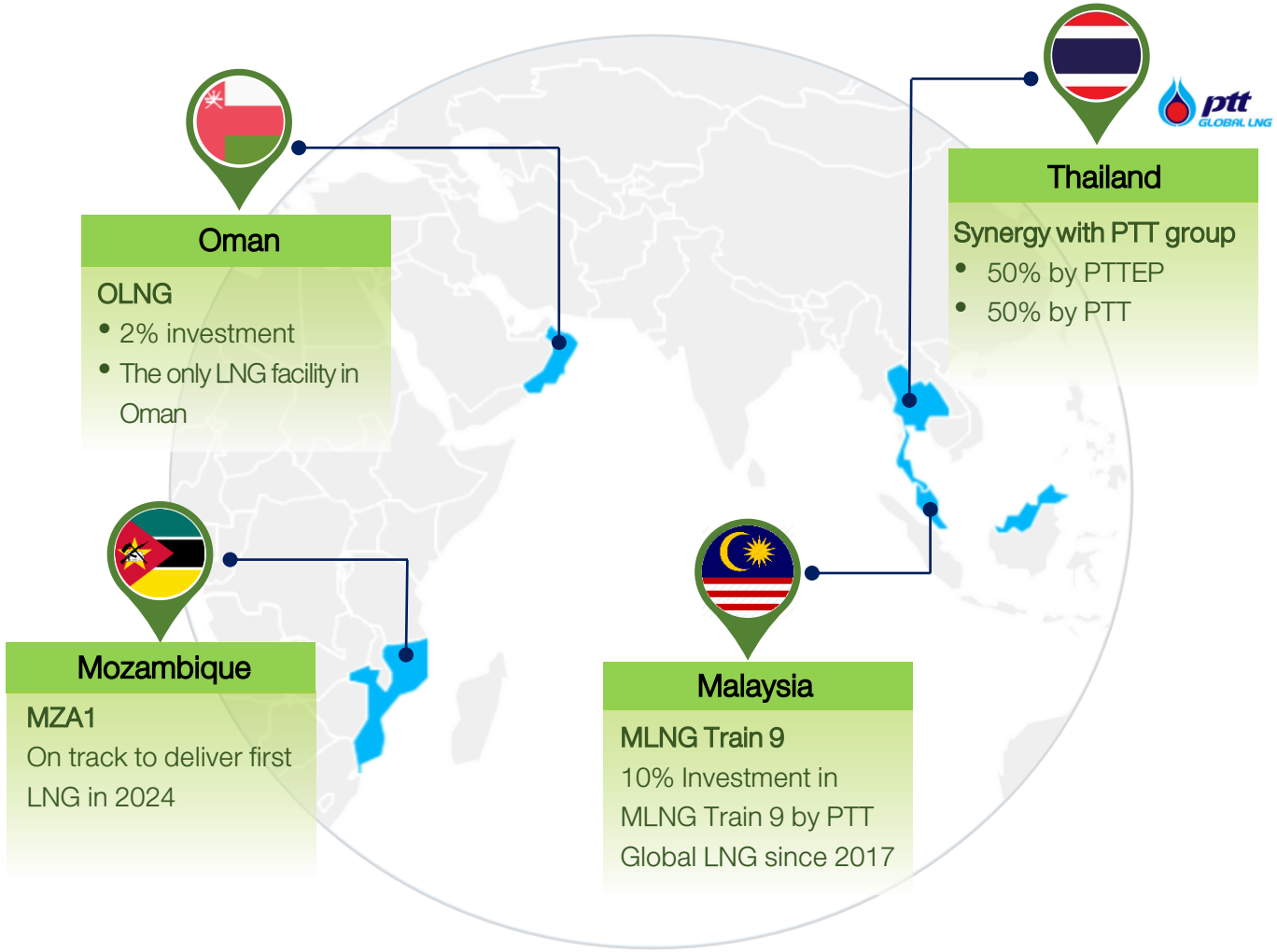
Integrated energy solution and enhancing value of existing assets

LNG value chain strategy

LNG Value Chain*

- PTTEP has put footprints in LNG value chain through upstream and midstream liquefaction in various world-class projects
- PTTGL established in June 2017 as JV between PTT and PTTEP, aiming to be trading and marketing arm to improve company's midstream operation capabilities.
- Support country's vision to become a Regional LNG hub in SEA





*Strategic fit to PTT Group LNG value chain : Regional LNG hub

*LNG Value Chain : Upstream, Liquefaction, Shipping and Regasification

Governance, Risk Management & Compliance

GRC Baseline Application to:

- Global Operations & Newly acquired assets
- Suppliers & Contractors

How do we ensure GRC?

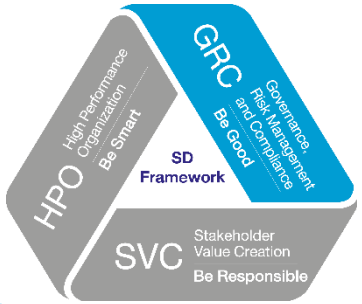
Policy
- Good Corporate Governance and Business Ethics
- Regulations and Policies for operations

Governing Body
- Board of Directors
- Sub-committees e.g. Risk Management Committee, Audit Committee and CG Committee

Awareness
- Policy, plan & process Communication
- Trainings

Control/ Audit
- 3 Lines of Defense
- Control Self-Assessment (CSA)
- External Assessment by independent organizations

Whistle-blowing
- CG Hotline



Anti corruption

fro (NACC)

NO GIFT POLICY

EITI Extractive Industries Transparency Initiative

UN GLOBAL COMPACT

CAC PRIVATE SECTOR COLLECTIVE ACTION AGAINST CORRUPTION

Human rights

UN GLOBAL COMPACT

IPIECA

The 2019 Role Model Organization Award on Human Rights from Ministry of Justices

Stakeholder Value Creation – ESG targets

PTTEP

GHG* Reduction

Growing business,
while decreasing GHGs emission

- Flare Gas Utilization
- Energy Efficiency
- Smart Logistics
- Leakage Prevention
- Reforestation

Circular Model for E&P

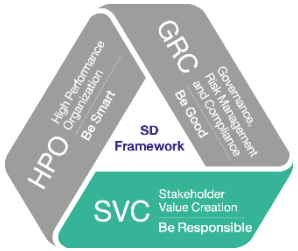
Maximize resource efficiency and
zero waste to landfill

- New Design of reusable WHP and Well Pad
- Topside Reuse
- Facility Reuse
- Part/ Inventory Refurbished
- Drill Cuttings Reuse in Road Construction

Ocean for Life

Improve biodiversity and
local wealth

- Zero Spill
- Conservation & Restoration
- Rig to Reef
- Baseline : Micro-plastic



Achievement Targets in 2030:

GHG

25% GHG Intensity Reduction

from 2012 base year)

Waste

- 50% Reuse of Structure
- Zero Waste to Landfill

Rich

- Improve Positive Value to Biodiversity
- Improve Community Income

Note: GHG : Greenhouse Gas

Awards on Sustainable development

Pursue long-term growth with social and environmental wellness

PTTEP

SAM
Now a Part of S&P Global

A member of Down Jones Sustainability Indices (DJSI) for 7th Consecutive year in 2020

FTSE4Good

A member of FTSE4Good Emerging Index Series for the 5th Consecutive year in 2020

THSI
THAILAND SUSTAINABILITY INVESTMENT 2020

A member of THSI for the 5th Consecutive year in 2020

United Nations Global Compact

Communication on Progress (CoP) Advanced Level

PTTEP

Proven business integrity

Role Model Organization on Human Rights Award 2020
The Department of Rights and Liberties Protection, Ministry of Justice

NACC Integrity Award 2019
The National Anti-Corruption Commission (NACC)

Asia's Icon on Corporate Governance 2019 Award
Corporate Governance Asia magazine

Exemplary social contributor

3G Best Social Empowerment Award 2020
Global Good Governance Awards
IF Analytica

Global CSR Award 2020 (Platinum Winner)
The Energy and Environment Foundation
Global CSR Awards

Best CSR Organizer 2019
BAZNAS of Indonesia
(The National Zakat Board)

Green driver to environment

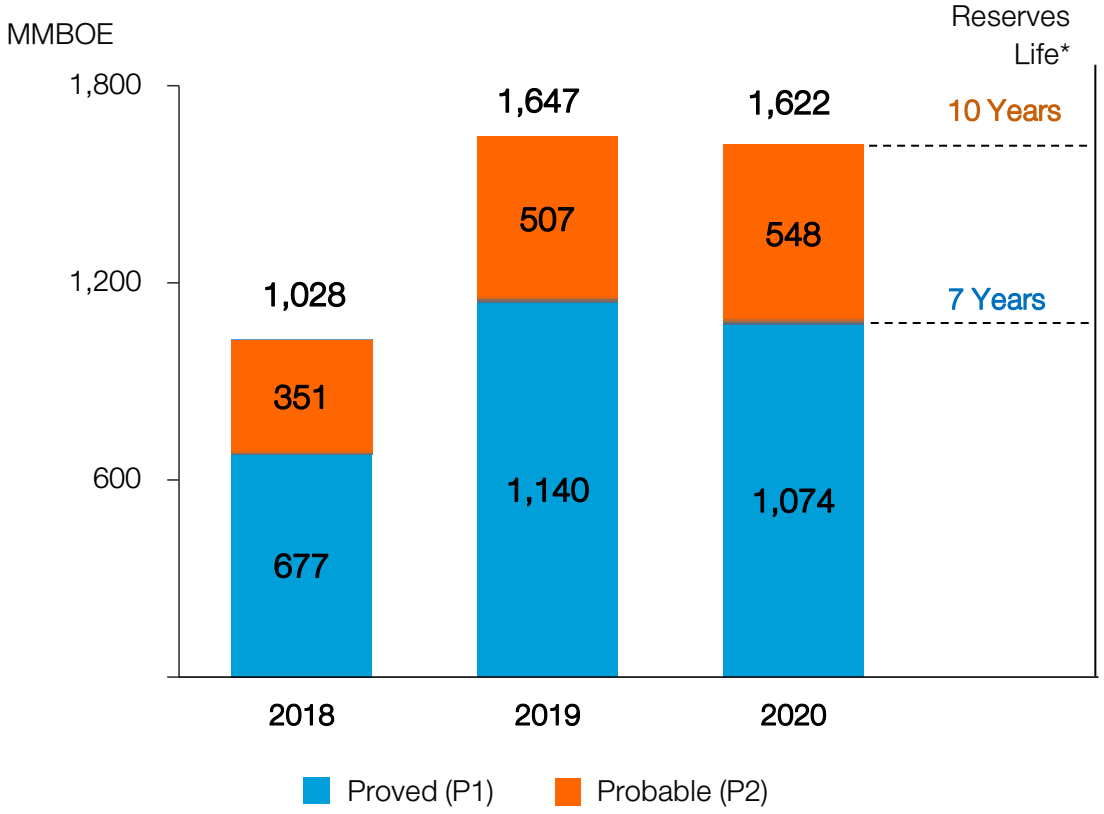
The Excellent Level (G-Gold) of the Green Office Award 2018
The Ministry of Natural Resources and Environment

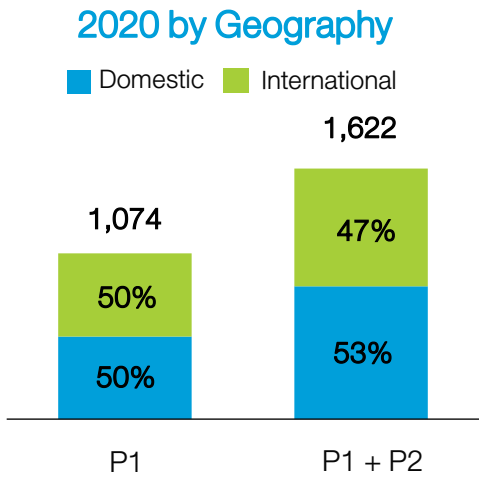
Green Leadership Category for T.M.S. Underwater Learning Site Project
The Asia Responsible Enterprise Awards 2018

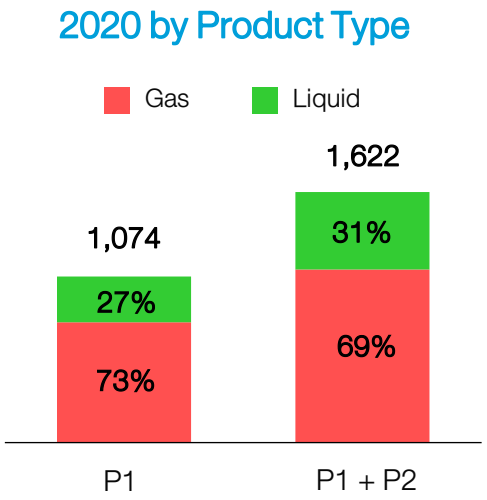
Water A List Award
Carbon Disclosure Project (CDP)

Reserves at the Year-end 2020 *(not including Oman Block 61)*

Sustained reserve life at 7 years target







5-Year Average Proved Reserves Replacement Ratio (RRR)

2018	2019	2020
0.7x	1.5X	1.5X

- Based on total production of natural gas, condensate, and crude oil (including LPG) of 422 KBOED for the year ended December 31, 2020
- Figures include reserves from equity method

Diversified international portfolio

Central Asia

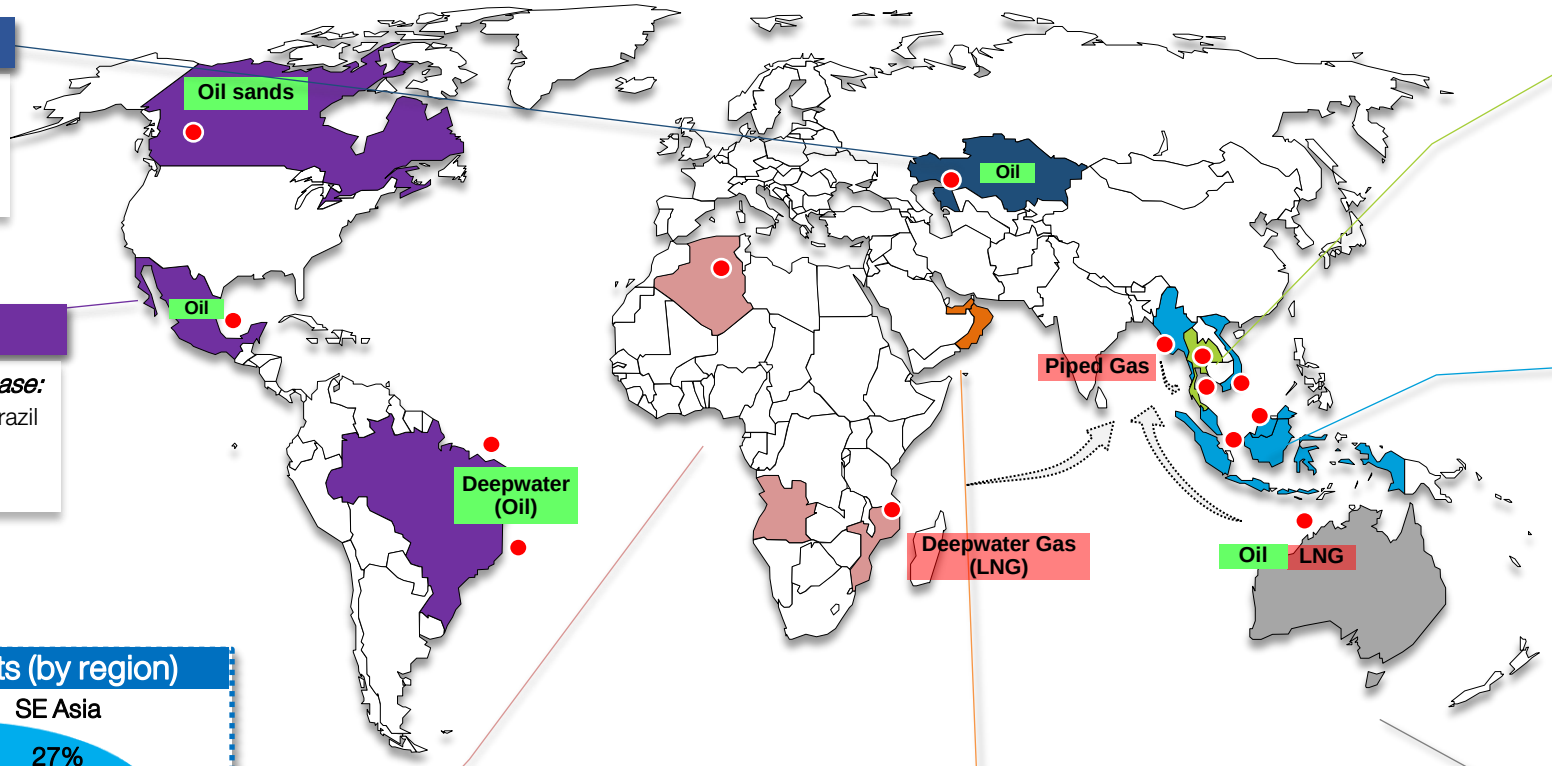
First presence in Kazakhstan:

- Production: Dunga onshore oil field from the acquisition of Partex in 2019

North & South America

Opportunities in an early phase:

- Deepwater exploration in Brazil and Mexico with prominent and prudent operators



Thailand

PTTEP's core production base

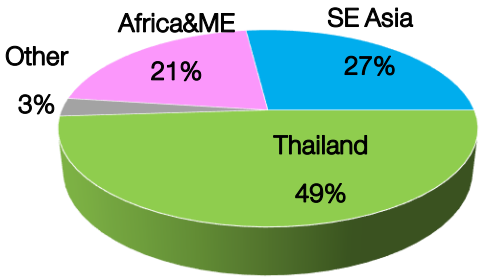
- 70% of total sales volume
- Key producing assets include Bongkot, Arthit, Contract 4 and S1
- Bongkot (G2/61) and Erawan (G1/61) are in transition process to ensure production continuity

Southeast Asia

Second heartland to PTTEP

- 24% of total sales volume mainly from Malaysia and Myanmar
- 3rd Largest by resources size in Malaysia with significant gas discovery in Sarawak SK 410B Project
- Gas production in Myanmar mostly supplied into Thailand
- Other producing assets in Vietnam (oil) and Indonesia (gas)

Book Value of Assets (by region)



As of Dec 2020 *(not including Oman Block 61)*

Total Assets USD 22.5 billion

Africa

An area for growth, key projects include:

- Production: Algeria's Bir Seba oil field with current flow rate of approximately 17 KBPD
- Development : Algeria's Hassi Bir Rakaiz with target 1st phase production in 2021 Mozambique Area 1 with target first cargo in 2024

Middle East

Presence in UAE and Oman:

- 3 offshore exploration blocks partnered with experienced operator, ENI in 2019-2020
- 3 onshore blocks including PDO (Block 6), the largest producing oil asset in Oman

Australasia

Potential gas development

- Sizable undeveloped gas resources in Timor Sea

Information as of 31 December 2020

Thailand, Myanmar and Malaysia

"Coming Home" to maintain strong foundation with full expertise

Thailand

● Production / Ramp-up Projects

Bongkot *(66.6667% WI)*

- Average natural gas and condensate sales volume of 780 MMSCFD and 22 KBPD in 2020

S1 *(100% WI)*

- The largest onshore crude oil production field in Thailand with 2020 average crude oil sales volume of 29 KBPD

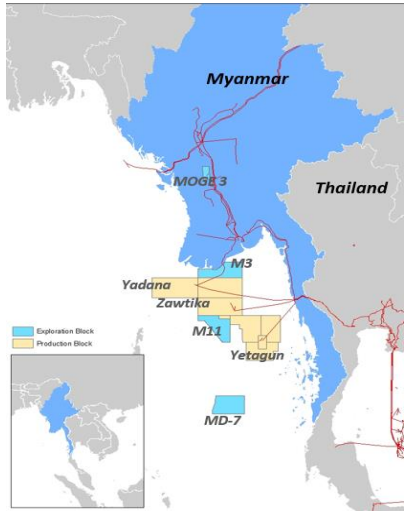
Arthit *(80% WI)*

- Average sales volume in 2020 was 223 MMSCFD of natural gas and 11 KBPD of condensates

Contract 4 *(60% WI)*

- Average sales rate of 329 MMSCFD for natural gas and 13 KBPD for condensate in 2020

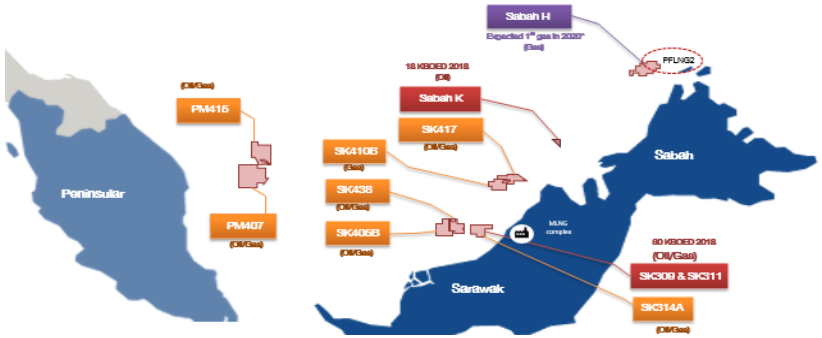
Myanmar



- 3 producing gas fields supplying gas to both Thailand and Myanmar: Yadana, Yetagun, and Zawtika
- Operate Zawtika project, brought online in March 2014 with current gas supply of 317 MMSCFD in 2020

Project Status	
Production	• Zawtika *(80% WI)* • Yadana *(25.5% WI)* • Yetagun *(19.3% WI)*
Appraisal	• M3 *(80% WI)*
Exploration	• MD-7 *(50% WI)*

Malaysia



Production

Block K Project :

Kikeh *(56% WI)* , Siakap North-Petai (SNP) *(22.4% WI)* and Gumusut-Kakap (GK) *(6.4% WI)*

- Average production volume in 2020 was 25* KBPD of crude oil and 28* MMSCFD of natural gas

SK309 and SK311 Project *(59.5% WI)*

For East Patricia field *(42% WI)*

- Average production volume in 2020 was 190* MMSCFD of natural gas and 20* KBPD of condensates and crude.

Block H Project* :

Rotan field *(56% WI)* Remaining Area *(42% WI)*

- First gas early February 2021
- Full capacity at 270 MMSCFD

Exploration

Sarawak SK410B Project *(42.5% WI)*

- Multi TCF significant discovery
- Expected Final Investment Decision (FID) announcement in 2022

Other projects

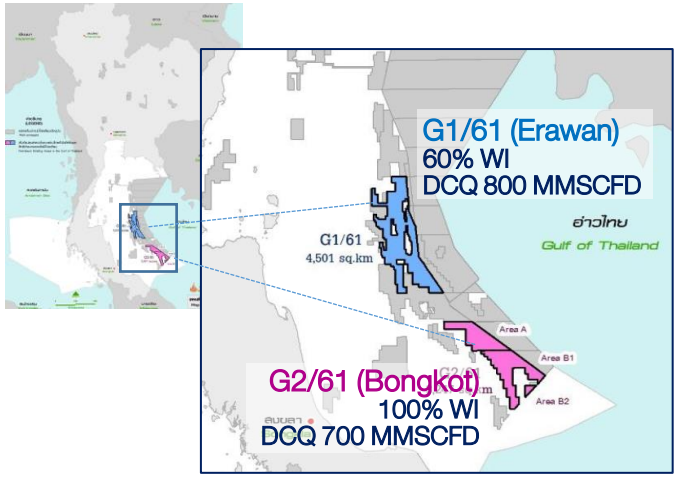
- Evaluating petroleum potentials
- Plan for exploration and appraisal drilling in 2021

** The average production volumes per day, For Block K, gross production is net off utilization*

Note: WI – working interest

Bongkot and Erawan: Thailand Champion in Domestic Gas Supply

Execute Bongkot and Erawan transition plan to ensure production continuity



Growing production and reserves profile

- Substantial volume boost for 10 years and beyond
- Immediate remarkable reserves addition
- Minimal risk in production profile

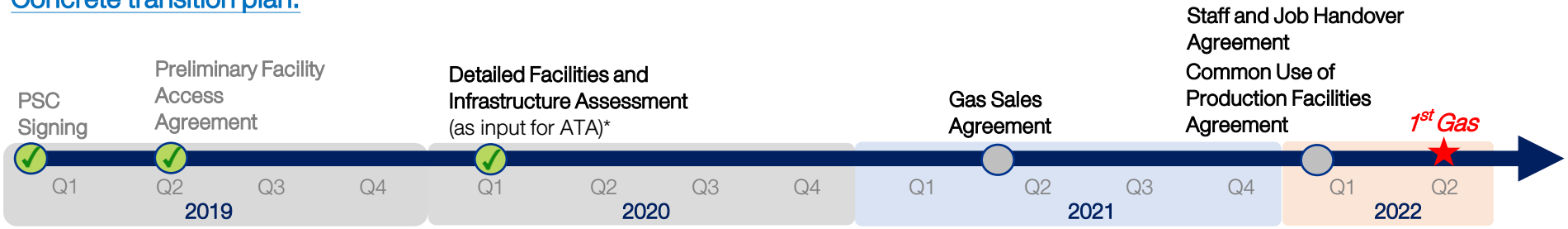
Generating strong cash flow

- No heavy upfront investment
- Self funding (positive net cash flow)
- Achieved target IRR with strong margin despite lower price

G1/61 and G2/61: ***Supply 80% of natural gas production in Thailand***

G1/61	800 MMSCFD	2022
G2/61	200/700 MMSCFD	2022/2023

Concrete transition plan:



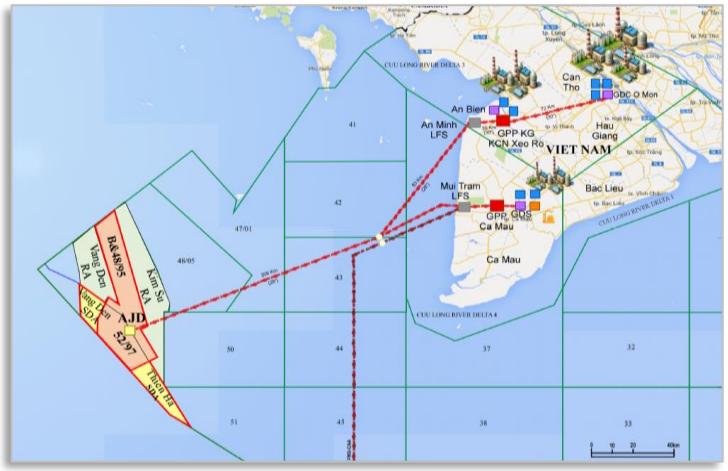
*Asset Transfer Agreement (ATA): To be agreed between current concessionaires and DMF by 2021 (1 year prior concession end)

Source : TOR

Other South East Asia countries

Expanding foothold in the region

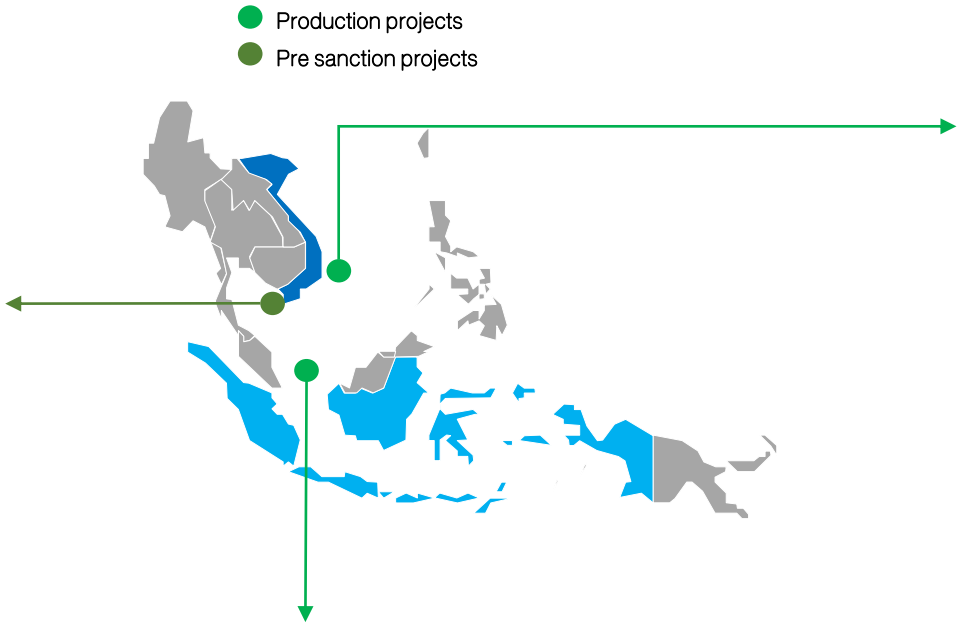
Vietnam and Indonesia



Southwest Vietnam

- Vietnam B & 48/95 *(8.5% WI)*
- Vietnam 52/97 *(7% WI)*

- Field Development Plan was approved by Government
- The project is currently in the negotiation process on commercial terms to put forward FID
- First production target by end of 2023, and ramp up to full capacity of 490 MMSCFD



Vietnam 16-1 *(28.5% WI)*

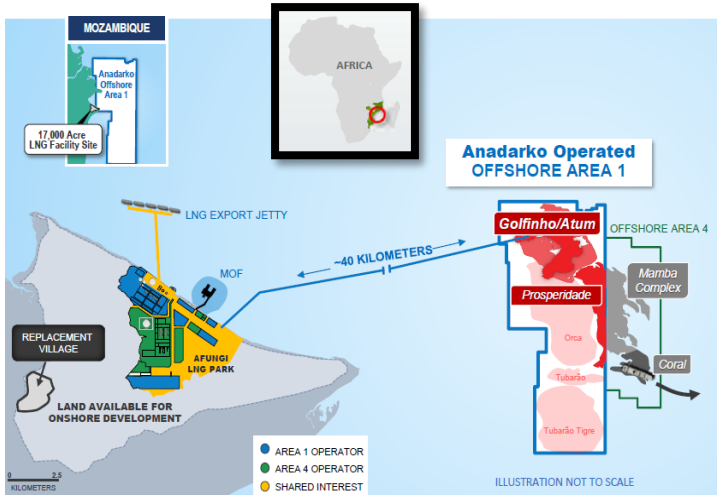
- Average sales volume of crude oil was 13 KBPD in 2020
- The project is preparing the drilling of additional development wells in order to maintain the production level in 2021.

Natuna Sea A *(11.5% WI)*

- Average sales volume of natural gas was 205 MMSCFD in 2020

Mozambique Area 1

FID in 2019, on the path of unlocking value from world class LNG asset



*Substantial recoverable resources of approximately **75 tcf***
*with scalable offshore development expending up to **50 MTPA***

Location and Cost Advantage

- Close proximity to shore
- High quality reservoirs
  capable of flow up to 200 mmcfd per well
- Access to Asian and European markets

Achievements

- Legal & Contractual Framework
- Plan of Development Approved
- Onshore & Offshore Contractors Awarded
- First Mover for the Marine Facility
- LNG SPAs ~11.1 MTPA

FID in June 2019 with initial 2 trains of 13.1 MTPA capacity

Way Forward

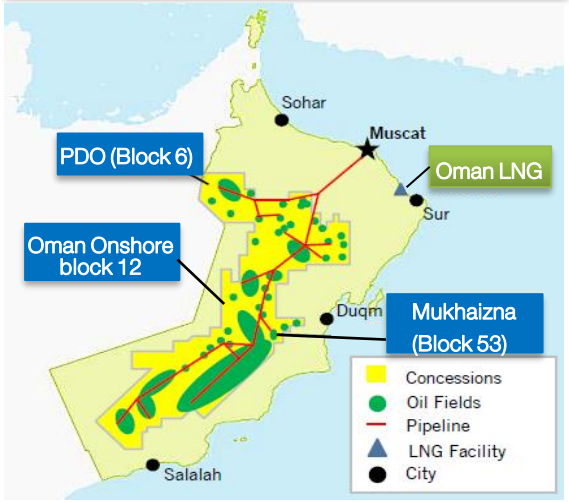
- Project Finance
  (2/3 Project Financed)
- Drilling & Completion
- Onshore Construction and Offshore Installation
- Operation Readiness
- LNG Shipping

1st Cargo *expected 2024*

The Middle East

Access to the largest oil asset in Oman and mega Midstream Complex

Oman



PDO (Block 6)

- Largest asset covering around 1/3 of the country
- Long-life asset, produced only 15% of reserves in-place
- Multi-field oil production volume: 601,264 BPD (69% of Oman production)
- Operated by Petroleum Development of Oman (Joint Operating Company)

Mukhaizna (Block 53)

- Largest single onshore producing field in Oman
- Oil production volume: 90,734 BPD (10% of Oman production)
- Operated by Occidental Petroleum (47% interest)

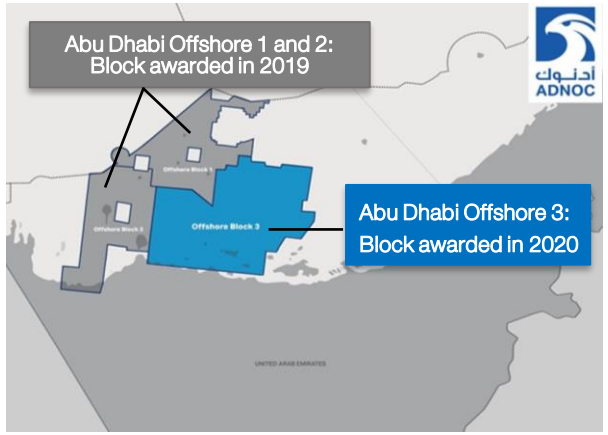
Block 12

- Located onshore central part of the Sultanate of Oman
- Signed agreement with Oman's Ministry of Oil and Gas (MOG) for exploration and production rights in February 2020
- Operated by Total E&P Oman Block 12 B.V. (80% interest)

Oman LNG

- The only LNG facility in Oman
- Processing capacity 10.4 MTPA
- Contracted LNG sales to international buyers: Japan and South Korea
- Government of Oman 51% (Operator)

UAE

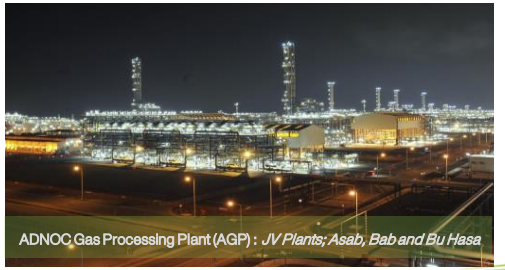


Abu Dhabi Offshore 1,2 and 3

- High potential prospective resources with significant sizeable discoveries
- Located North-west of Abu Dhabi Emirates, United Arab Emirates
- Granted the award for exploration in January 2019 - 2020
- Operated by Eni Abu Dhabi B.V. (70% interest)

ADNOC Gas Processing (AGP)

- One of the largest gas processing complexes in the world (total capacity of 8 BCFD)
  JV: 3 plants with capacity of 1.2 BCFD
  Adnoc: 2 plants with capacity of 6.9 BCFD
- Essential to Abu Dhabi and UAE's economy
- Sizeable volumes of Propane, Butane and Naphtha offtake
- Opreated by ADNOC (68% interest)



ADNOC Gas Processing Plant (AGP) : *JV Plants; Asab, Bab and Bu Hasa*

America: Mexico and Brazil

-- Entry into high potential petroleum province at exploration phase --

Deep Water Brazil

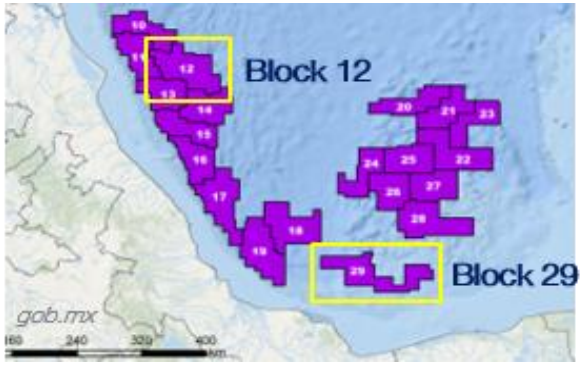
Barreirinhas AP1

- Farm-in 25% from BG Group in 2014
- Operated by Shell Brasil (65% interest)
- Four offshore exploration blocks: BAR-M-215, BAR-M-217, BAR-M-252 and BAR-M-254
- Currently waiting for exploration wells drilling permit from the government

BM-ES-23

- Acquired 20% interest from Shell in Q3 2014
- Partnered with Petrobras (65%, operator) and INPEX (15%)
- Currently evaluating the petroleum potential for further development

Gulf of Mexico, Mexico



Deep-water with high petroleum potentials and attractive fiscal regime

Mexico block 12 (2.4)

- Non-operating partner with 20% participating interest
- Located in the Mexican Ridges, western Gulf of Mexico
- Currently evaluating petroleum potential and preparing for an exploration well drilling in 2021

Mexico block 29 (2.4)

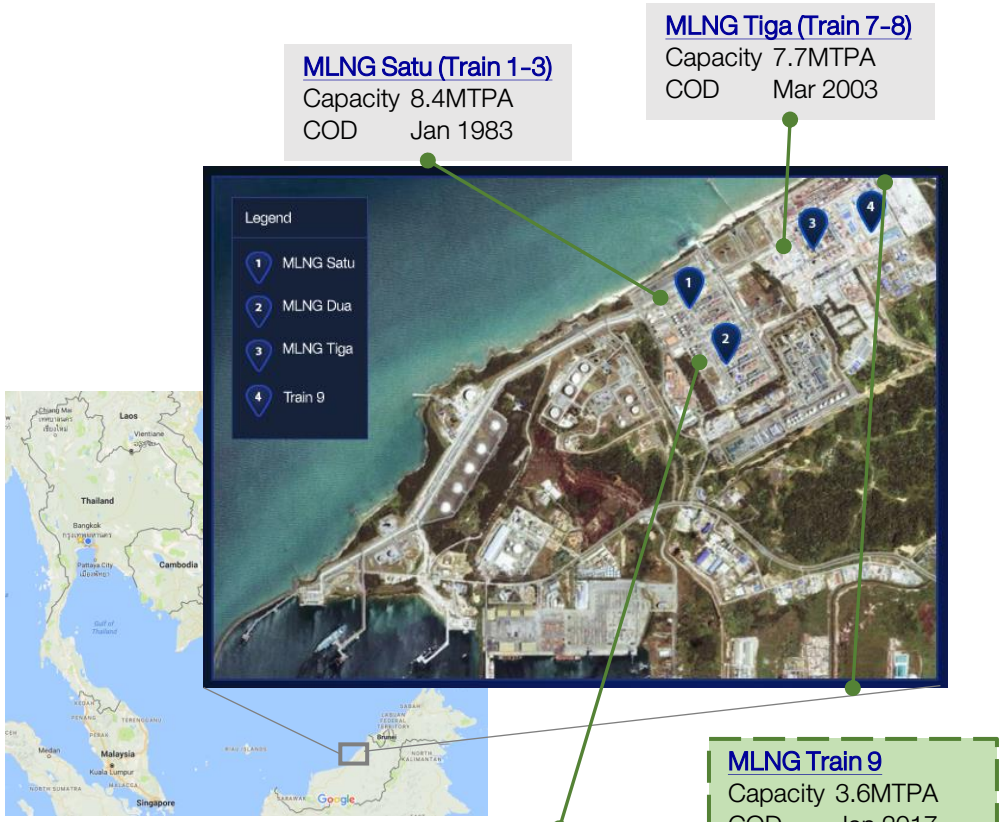
- Non-operating partner with 16.67% participating interest
- Located in the Campeche, southern Gulf of Mexico
- Made two successful deep-water oil discoveries with good quality reservoirs in May 2020
- Currently working on obtaining approval of the appraisal plan from the Mexican regulators and preparing appraisal process in 2021 as well as further development plans

LNG Value Chain Investment : MLNG Train 9

First step into midstream LNG business in strategic area of focus

10% Investment in MLNG Train 9 by PTT Global LNG….

….continue to look for more LNG opportunities globally



MLNG Train 9 – Overview	
Location	Bintulu, Sarawak, Malaysia
Asset	Liquefaction Train 9 Tank 7
Phase	Commercial: Jan 2017
Capacity	3.6MTPA
Contract Life	20 years
Partners (subject to closing)	Petronas 65% JX Nippon 10% PTT Global LNG 10% Sarawak State 10% Sabah State 5%

Key activity in 2020

- Keep maximizing LNG production up to plant capacity
- Continue to improve plant reliability & utility rejuvenation
- Get ready for 2021 plant turnaround

Project information 1/5

	Project	Status*	Phase	PTTEP's Share	Partners (as Dec 2020)	2020 Average Sales Volume **		2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Thailand and JDA								
1	**Arthit**	OP	Production	80%	Chevron 16% MOECO 4%	223	11	• Ensure gas deliverability level at DCQ*** • Drill development wells
2	**B6/27**	OP	Production	100%		-	-	• Prepare for decommissioning activities
3	**B8/32 & 9A**	JV	Production	25.001%	Chevron 51.66% MOECO 16.71% KrisEnergy 4.63% Palang Sophon 2%	51	17	• Drill development wells • Reuse Wellhead platform Study
4	**Bongkot**	OP	Production	66.6667%	TOTAL 33.3333%	780	22	• Drill development wells • Maintained production level as planned • Prepare for decommissioning activities
5	**Contract 3** *(Formerly Unocal III)*	JV	Production	5%	Chevron 71.25% MOECO 23.75%	567	34	• Prepare for decommissioning activities
6	**Contract 4** *(Formerly Pailin)*	JV	Production	60%	Chevron 35% MOECO 5%	329	13	• Ensure gas deliverability level at DCQ*** • Drill development wells • Topside reuse
7	**E5**	JV	Production	20%	ExxonMobil 80%	8	-	• Ensure gas deliverability level at DCQ***
8	**G4/43**	JV	Production	21.375%	Chevron 51% MOECO 21.25% Palang Sophon 6.375%	1	4	• Total Reuse for new platforms
9	**G4/48**	JV	Production	5%	Chevron 71.25% MOECO 23.75%	6	0.464	• Prepare for decommissioning activities
10	**L53/43 & L54/43**	OP	Production	100%		-	1	• Maintain production plateau • Drill development wells • Prepare for decommissioning activities
11	**PTTEP1**	OP	Production	100%		-	0.135	• Drill a development well • Maintain production plateau • Prepare for decommissioning activities
12	**S1**	OP	Production	100%		7	Crude:29 KBPD LPG: 0.182 KMT/D	• Drill development wells • Enhance oil recovery program includes hydraulic fracturing and artificial lift
13	**Sinphuhorm**	OP	Production	55%	Apico**** 35% ExxonMobil 10%	94	0.283	• Ensure gas deliverability • Drill development wells • Negotiate and Finalize GSA

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship / JV = PTTEP as Joint Venture Partner
** Sales volume stated at 100% basis.
*** DCQ = Daily Contractual Quantity
**** PTTEP holds indirectly and directly 80.48% participating interest in Sinphuhorm Project. APICO also holds 100% participating interest in Block L15/43 and Block L27/43.

Project information 2/5

	Project	Status*	Phase	PTTEP's Share	Partners (as Dec 2020)	2020 Average Sales Volume **		2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Thailand and JDA								
14	**L22/43**	OP	Production	100%		-	-	• Resume production once project economic becomes viable • Continue decommissioning preparation
15	**MTJDA**	JOC	Production	50%	Petronas-Carigali 50%	265	7.5	• Drill development wells • Ensure gas deliverability level at DCQ***
16	**G9/43**	OP	Exploration	100%				
17	**G1/61 (Erawan)**	OP	Exploration	60%	MP G2 (Thailand) Limited 40%			• Awarded as an operator for Erawan field (Contract 1, 2 and 3) under PSC (after concession-end in 2022) • Development study • Installation new head platform
18	**G2/61 (Bongkot)**	OP	Exploration	100%				• Awarded as a sole operator under PSC (after concession-end in 2022/2023) • Drill appraisal and exploration wells • Installation new head platform
Others SEA								
1	**Malaysia**	OP (except Gumusut-Kakap (GK) in Block K)	Production/ Exploration/ Development	6.4-80% (varied by permits)		**SK309 and SK311** 190 **Block K** 25	**SK309 and SK311** 20 **Block K** 28	• Production projects(SK309 and SK311, Block K): infill development • Block H: first gas expected in the earliest opportunity in 2021 • Sarawak SK410B:Start Front End Engineering Design (FEED) • Other exploration projects: drill exploration wells and perform 3D seismic activities
2	**Yadana**	JV	Production	25.5%	TOTAL 31.24% Chevron 28.26% MOGE 15%	761	-	• Drill production wells • Ensure gas deliverability level at DCQ***
3	**Yetagun**	JV	Production	19.3178%	Petronas-Carigali 40.91018% MOGE 20.4541% Nippon Oil 19.3178%	55	1.1	• Maintain production level • Refinery Acid Gas Removal Unit (AGRU) Project and facilities modification
4	**Zawtika** (M9 & a part of M11)	OP	Production	80%	Myanma Oil and Gas Enterprise (MOGE) 20%	317	-	• Ensure gas deliverability level at DCQ*** • Drill appraisal wells • Continue Pre-development works
5	**Myanmar M3**	OP	Exploration	80%	MOECO 20%			• FEED/ Subsurface/ Surface studies • Negotiate and Finalize GSA
6	**Myanmar M11**	OP	Exploration	100%				• Block relinquish
7	**Myanmar MD-7**	OP	Exploration	50%	TOTAL 50%			• Complete the termination process • Finish leftover material transferring to MOGE
8	**Myanmar MOGE 3**	OP	Exploration	77.5%	Palang Sophon 10% MOECO 10% WinPreciousResources 2.5%			• Complete the termination process • Finish leftover material transferring to MOGE

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship/ JV = PTTEP as Joint Venture Partner
** Sales volume stated at 100% basis/ For Block K, gross production is net off unitization
*** DCQ = Daily Contractual Quantity

Project information 3/5

	Project	Status*	Phase	PTTEP's Share	Partners (as Dec 2020)	2020 Average Sales Volume **		2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Others SEA								
9	**Vietnam 9-2**	JOC	Production	25%	PetroVietnam 50% SOCO 25%	14	4	• Maintain production level • Development drilling study support
10	**Vietnam 16-1**	JOC	Production	28.5%	PetroVietnam 41% SOCO 28.5% OPECO 2%	7	13	• Maintain production level • Drill development wells • Subsurface and Project study
11	**Vietnam B & 48/95**	JV	Exploration	8.5%	PetroVietnam 65.88% MOECO 25.62%			• Negotiation process on commercial terms in order to push forward the Final Investment Decision (FID) • The first production target at the end of 2024
12	**Vietnam 52/97**	JV	Exploration	7%	PetroVietnam 73.4% MOECO 19.6%			• Negotiation process on commercial terms in order to push forward the Final Investment Decision (FID) • The first production target at the end of 2024
13	**Natuna Sea A**	JV	Production	11.5%	Premier Oil 28.67% KUFPEC 33.33% Petronas 15% Pertamina 11.5%	205	2	• Drill development wells • FEED study: Start Anoa & Gajah Baru compressor project
Middle East								
1	**Abu Dhabi Offshore 1**	JV	Exploration	30%	Eni Abu Dhabi 70%			• Perform 3D seismic activities • G&G studies
2	**Abu Dhabi Offshore 2**	JV	Exploration	30%	Eni Abu Dhabi 70%			• Drill an exploration well • Perform 3D seismic activities
3	**Abu Dhabi Offshore 3**	JV	Exploration	30%	Eni Abu Dhabi 70%			• Perform 3D seismic acquisition • G&G studies
4	**PDO (Block 6)**	JOC	Production	2%	Government of Oman 60% Shell 34% Total 4%		552	• A part of Partex acquisition which was completed on 4 November 2019 • Maintain production plateau • Perform Development activities • Drill exploration and appraisal wells
5	**Mukhaizna**	JV	Production	1%	Occidental 45% OOCEP 20% Indian Oil 17% Mubadala 15% Total 2%		82	• A part of Partex acquisition which was completed on 4 November 2019 • Maintain production plateau • Drill exploration wells • Perform Development activities
6	**Block 12**	JV	Exploration	20%	Total E&P Oman Block 12 B.V. 80%			• Signed Exploration and Production Sharing Agreement (EPSA) with Oman's Ministry of Oil and Gas (MOG) for exploration and production rights on 19 Feb 2020 • Drill an exploration well

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship / / JV = PTTEP as Joint Venture Partner
** Sales volume stated at 100% basis

Project information 4/5

	Project	Status*	Phase	PTTEP's Share	Partners (as Dec 2020)	2020 Average Sales Volume **		2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Other International								
1	**PTTEP Australasia (PTTEP AA)**	OP	Exploration	90%-100% (varied by permits)				• AC/RL7 (Cash Maple) and Orchid Field (AC/P54) : under way to define proper direction in order to increase development opportunities • Other exploration projects: G&G studies • AC/L4: total block relinquishment
2	**Mozambique Area 1**	JV	Development	8.5%	Total, Mitsui, ENH, OVL OVRL & Oil India , Bharat 26.5%,20% 15%, 10% 10%, 10%			• First Cargo is expected by 2024 • Drill development wells • Continue Onshore and Offshore well construction • 1st Debt drawdown in project Finance
3	**Algeria 433a & 416b (Bir Seba)**	JOC	Production	35%	PetroVietnam 40% Sonatrach 25%	-	17 *(net entitlement)*	• Drill development wells • Production respect OPEC policy
4	**Algeria Hassi Bir Rekaiz**	OP	Development	24.5%	CNOOC 24.5% Sonatrach 51%			• Drilling development wells • FEED study • Subsurface model update • Further well sites construction
5	**Mariana Oil Sands**	OP	Exploration	100%				• Conduct well abandonment campaign and reclamation activities
6	**Barreirinhas AP1**	JV	Exploration	25%	Shell Brasil 65% Mitsui E&P Brasil 10%			• Waiting for exploration wells drilling permit from the government
7	**Brazil BM-ES-23**	JV	Exploration	20%	Petrobras 65% INPEX 15%			• G&G and Predevelopment studies
8	**Mexico block 12 (2.4)**	JV	Exploration	20%	PC Carigali Mexico 60% Ophir Mexico 20%			• G&G study • Drilling Exploration wells
9	**Mexico block 29 (2.4)**	JV	Exploration	16.67%	Repsol Mexico 30% PC Carigali Mexico 28.33% Wintershal DEA 25%			• Drilling Appraisal and Exploration wells • Appraisal and Exploration concept study • G&G study to access petroleum potential

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship/ JV = PTTEP as Joint Venture Partner

** Sales volume stated at 100% basis except for Algeria 433a & 416b (Net Entitlement)

Project information 5/5

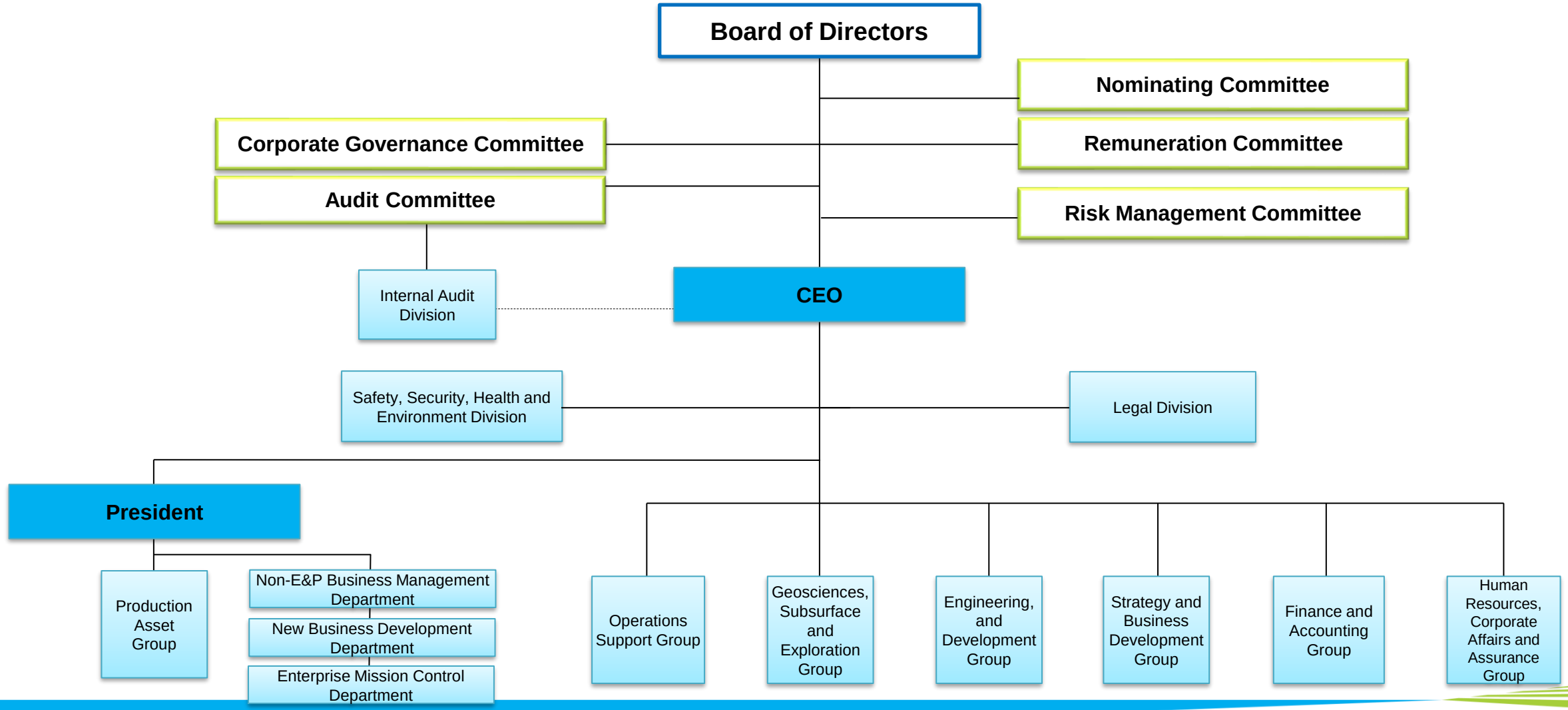
	Project	Status*	Phase	PTTEP's Share	Partners (as Dec 2020)	2020 Average Sales Volume **		2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Other International								
10	**Block 17/06**	JV	Pre development	2.5%	Total 30% Sonangol 30% SSI 27.5% Acrep 5% Falcon Oil 5%			• A part of Partex acquisition which was completed on 4 November 2019 • Maintain production plateau • FEED and Predevelopment Study
11	**Potiguar**	OP	Production	50%	Petro reconcavo 50%		0.189	• A part of Partex acquisition which was completed on 4 November 2019 • Maintain production plateau
12	**Dunga**	JV	Production	20%	Total 60% OOCEP 20%	2	12	• A part of Partex acquisition which was completed on 4 November 2019 • Maintain production plateau • New well tie-ins to gather the system • Designing of Compression and Separation upgrade • Designing of Sea water and Export Line
Midstream Project								
1	**Oman LNG**	Shareholder	On line	2%	Government of Oman 51% Shell 30% Total 5.54% Korea LNG 5% Mitsubishi 2.77% Mitsui 2.77% Itochu 0.92%			• A part of Partex acquisition which was completed on 4 November 2019 • Power Project to maintain operations
2	**ADNOC Gas Processing (AGP)**	JV	On line	2%	ADNOC 68% Shell 15% Total 15%			• A part of Partex acquisition which was completed on 4 November 2019 • Perform Midstream operation activities such as fire water network and plant flare upgrade

- Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship/ / JV = PTTEP as Joint Venture Partner

** Sales volume stated at 100% basis

Organization structure

Ensuring transparency, integrity and good corporate governance



Information as of 1 October 2020

Supplementary Index : Ratio & Formula

Ratio	Formula
Lifting Cost ($/BOE)	(Operating Exp. – Transportation Cost – Stock Variation – Other expenses not related to lifting) / Production Volume
Cash Cost ($/BOE)	(Operating Exp. + Exploration Exp. + G&A + Royalties + Finance Cost) / Sales Volume
Unit Cost ($/BOE)	(Operating Exp. + Exploration Exp. + G&A + Royalties + Finance Cost + DD&A) / Sales Volume
Reserves Replacement Ratio	5-Yr Additional Proved Reserves / 5-Yr Production Volume
Reserves Life Index (Year)	Proved Reserves / Production Volume
Success Ratio	Number of wells with petroleum discovery / Total number of exploration and appraisal wells
Sales Revenue	Sales + Revenue from pipeline transportation
EBITDA	(Sales + Revenue from pipeline transportation) - (Operating expenses + Exploration expenses + Administrative expenses + Petroleum royalties and remuneration + Management's remuneration)
EBITDA Margin	EBITDA / Sales Revenue
Return on Equity	Trailing-12-month net income / Average shareholders' equity between the beginning and the end of the 12-month period
Return on Capital Employed	(Trailing-12-month net income + Trailing-12-month Interest Expenses & Amortization of Bond Issuing Cost) / (Average shareholders' equity and average total debt between the beginning and the end of the 12-month period)
Simple Effective Tax Rate	Income tax expenses / Income before income taxes
Total debt	Short-term loans from financial institution + Current portion of long-term debts + Bonds + Long-term loans from financial institution
Net debt	Total debt – Liquidity
Debt to Equity	Total debt / Shareholders' equity
Net Debt to Equity	Net debt / Shareholders' equity
Total Debt to Capital	Total debt / (Total debt + Shareholders' equity)
Total Debt to EBITDA	Total debt / Trailing-12-month EBITDA
Net Debt to EBITDA	Net debt / Trailing-12-month EBITDA
EBITDA Interest Coverage Ratio	Trailing-12-month EBITDA / Trailing-12-month Interest Expenses & Amortization of Bond Issuing Cost