

**Energy Day by KGI**

1 October 2020

## **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: the E&P Flagship of PTT Group

Plays a pivotal role in Thailand's oil and gas production



## As PTT's Upstream Flagship



Government of Thailand

63.3%<sup>1</sup>



Thailand's national energy company

63.8%<sup>2</sup>



Credit ratings equivalent to parent and country

S&P

Moody's

FITCH

TRIS  
(national rating)

BBB+

Baa1

BBB+

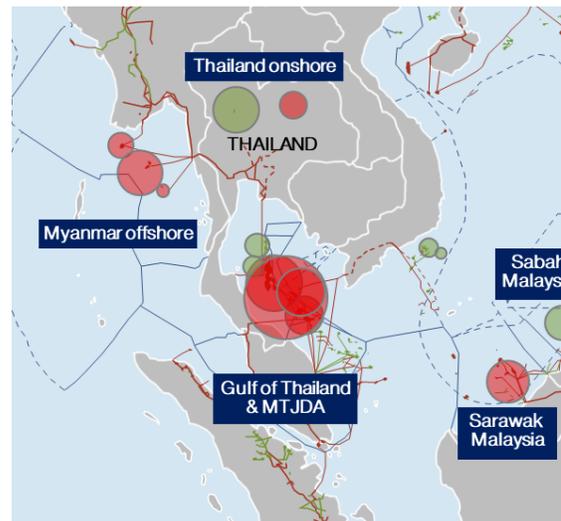
AAA

**Largest** oil and 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

## PTTEP's operations in SEA



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

**94%**

of PTTEP's total sales volume

**+99%**

Reliability of plants and field facilities\*

**78%**

of PTTEP's sales volume sold to PTT

**14** USD/BOE

Average regional cash cost

\* of PTTEP-operated projects in Gulf of Thailand, excl. planned shutdown  
All figures are as of 6M2020

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 29 May 2020

2. Ownership as of 14 August 2020

## Industry and Strategy



## Operational Highlights



## Financial Performance



## The Global New Normal

### #1 Resiliency is key

- Rethink business model
- Redesign Supply Chain
- Reskill for employees
- Focus on Environmental, Social and Governance

### #3 Acceleration of workplace digitalization

- Remote working/operations
- Use of AI and Automation in processes
- Online training and conferences

### #2 Windows of opportunities for investment

- M&A and consolidation of distressed companies
- Diversification to new business

### #4 Major shift in consumer behavior

- Digital familiarity
- Greater importance for health, hygiene and safety
- Increasing concern for the environment

## Energy Transition – 2 Degrees Celsius Scenario



Energy transition to achieve that goal:



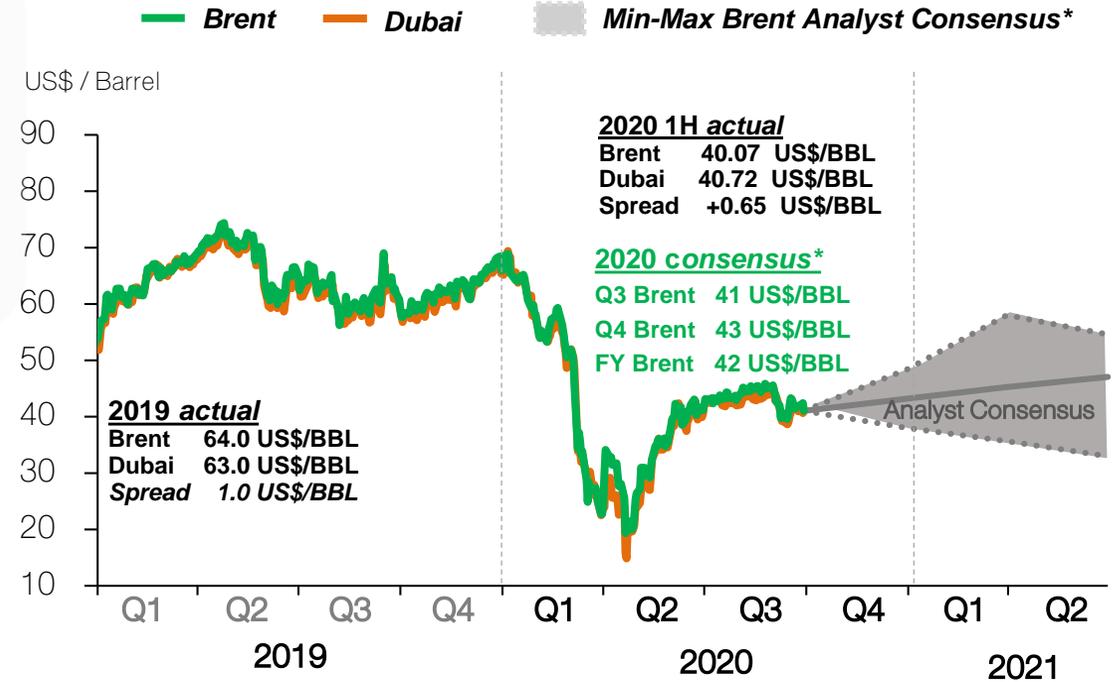
Phasing out fossil fuels, especially coal and oil



- Focusing more on clean energy
- Investing in low carbon technology
- Shifting to electric vehicles

Source: Paris agreement, COP24 and IEA

## Oil price



Keys to Watch

- COVID-19 Outbreak & Preventive Measures
- Economic Recession & Stimulus Measures
- Rising tensions between US – China
- OPEC+ production cuts and compliance
- US shale producers shut-in /bankruptcies
- US election

## Energy Partner of Choice

through competitive performance and innovation for long-term value creation

**Strengthen Core Business**

- Top Quartile Unit Cost (25 US\$/BOE)
- Production 5% CAGR

- Cost optimization
- Synergy value creation

**Grow E&P portfolio**

**R/P 7 years**

Capture opportunity during crisis (Exploration, M&A)



**Drive LNG Value Chain**

**JV Investment & Marketing Capability**

- Reshape LNG strategy
- Synergy with PTT group

**Diversify to New Business**

**20% Net Income from New Business**

- Scale up ARV
- Expand to Power Business
- Invest in future technology

**Transform to the New Normal**

- Efficiency improvement
- Top Quartile Manpower

- Implement Transformation project
- Redesign Human Resources

## Industry and Strategy



## Operational Highlights

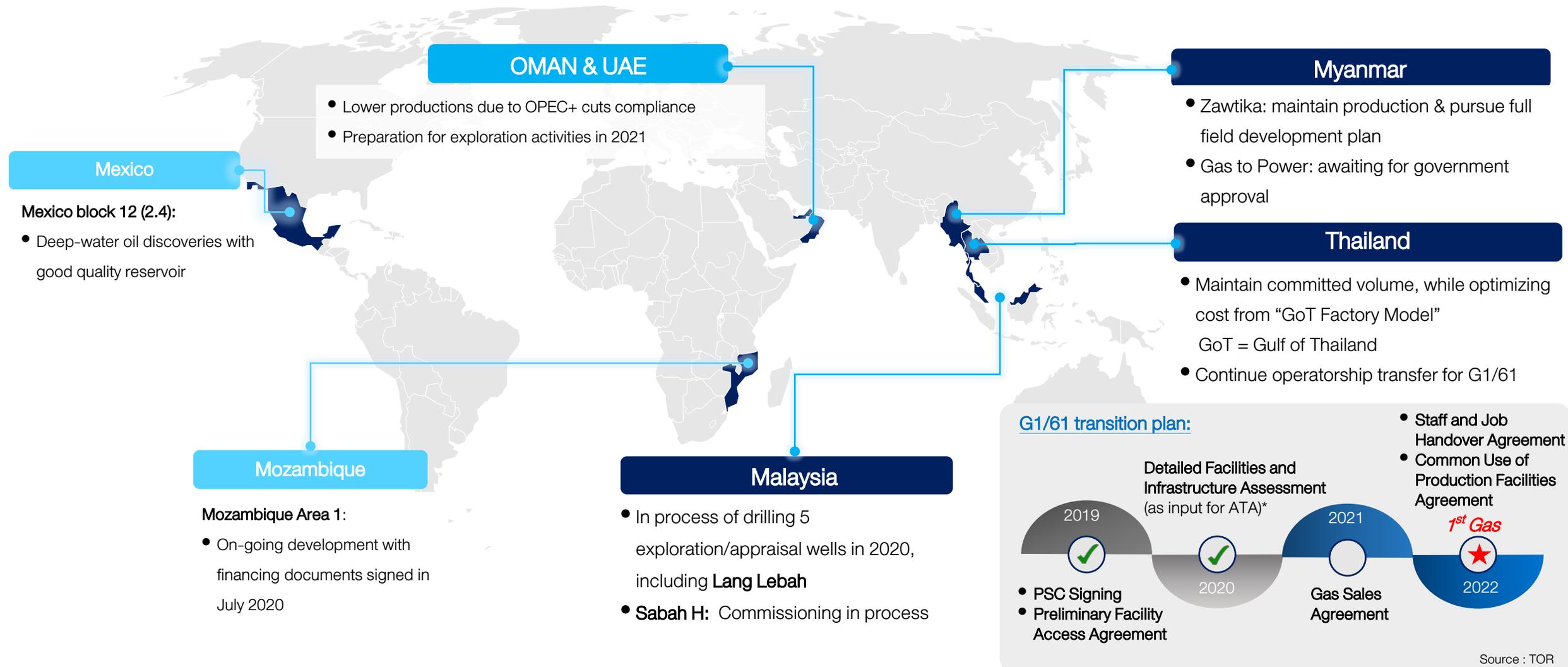


## Financial Performance



# Project Highlights

Continuous operations in core business

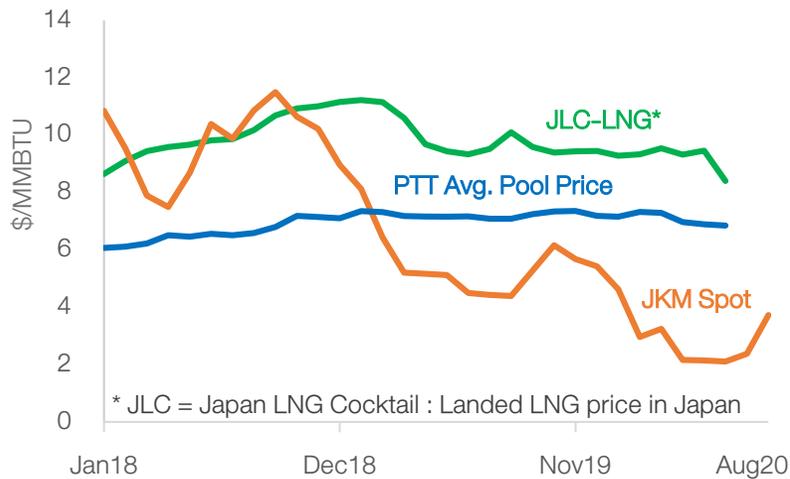


\*Asset Transfer Agreement (ATA): To be agreed between current concessionaires and DMF by 2021 (1 year prior concession end)

# Operational Impact from lower LNG Prices

Lower volumes with downside protection from minimum offtake requirements

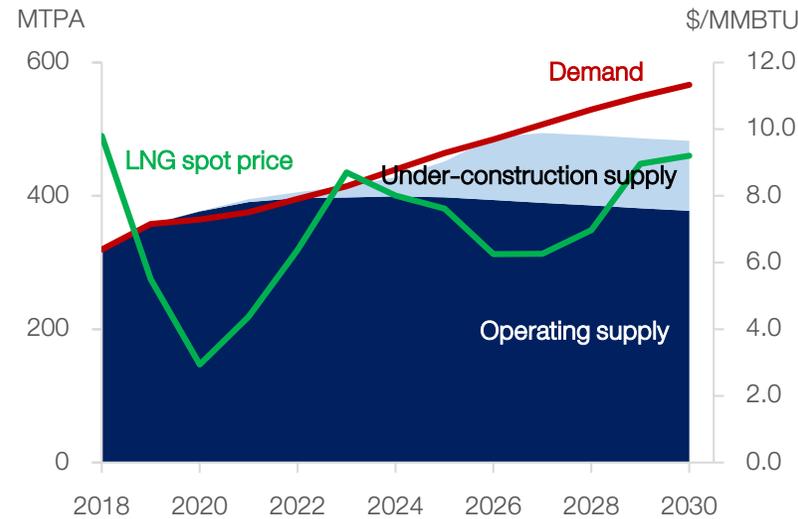
## Historical Natural Gas and LNG Prices



Source: PTT

- The drop in LNG spot prices has encouraged additional LNG imports in Thailand
- Lower gas demand & more LNG imports effect 2020 sales volume forecast to be down by 9%
- However, impacts are lessen due to the minimum offtake requirements with take-or-pay obligations in the gas sales agreements

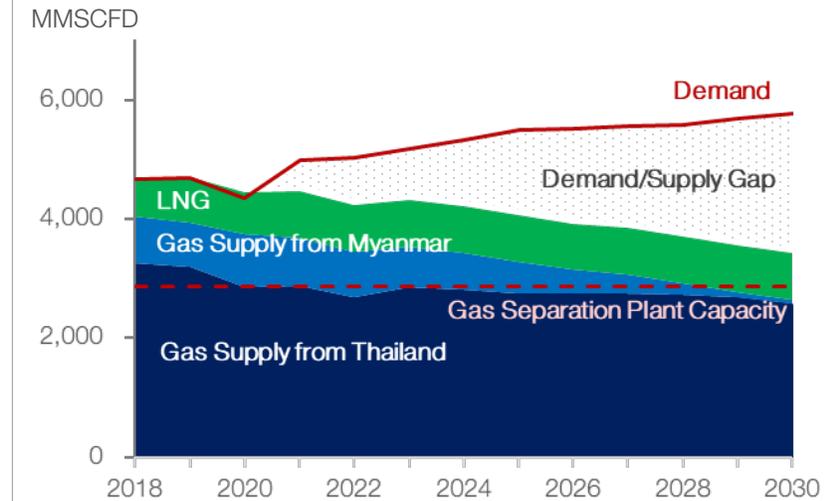
## Global LNG Outlook



Source: FGE, 22 September 2020

- Oversupply likely to continue in short term
- In 2023-2024 , demand-supply expected to rebalance and price to recover

## Thailand Gas Outlook



Source: PDP2018 and PTTEP

- Gas from Gulf of Thailand is mainly supplied to Gas Separation Plant (GSP)
- With G1/61 and G2/61 commencing production in 2022/2023, gas supply would maintain to meet GSP capacity till at least 2030
- Opportunistic investments in LNG value chain (upstream and liquefaction plants)

## Industry and Strategy



## Operational Highlights



## Financial Performance



# 1H 2020 Key Financial Performance

Soften net income from lower selling prices

Net Income 409 MMUSD

▼ 51% YTD

## Sale Volumes



▲ 6% YTD

Acquisition of Malaysia Assets and Partex

## Average Selling Price



	1H 2019	1H 2020
Gas (\$/MMBTU)	6.98	6.64
Liquid (\$/BBL)	62.07	40.80
Weighted Avg. (\$/BOE)	47.26	40.15
Avg. Dubai (\$/BBL)	65.48	40.72
Volume Mix (Gas : Liquid)	73:27	67:33

▼ 15% YTD

Lower global crude oil price

## Unit Cost



Unit : \$/BOE	1H 2019	1H 2020
Cash cost	14.42	14.33
Non-Cash cost	15.82	16.29
Unit cost	30.24	30.62

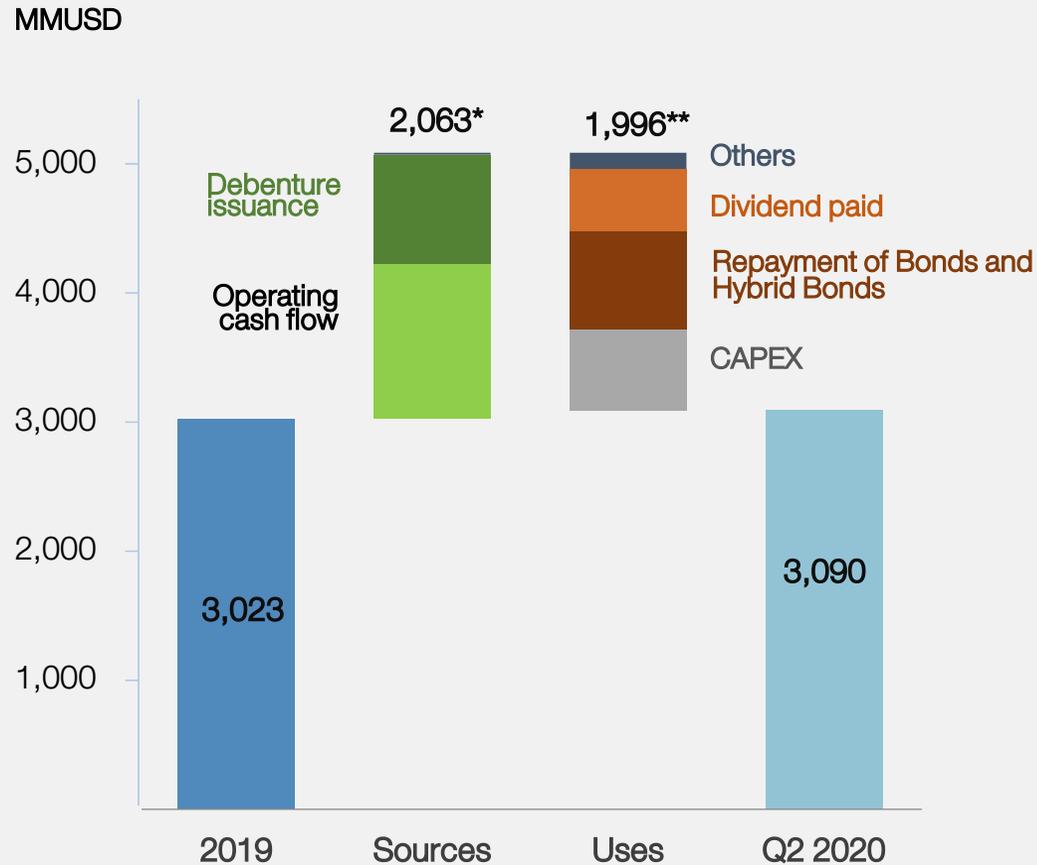
Note: Unit Cost : Exclude costs related to new business

▲ 1% YTD

Maintained competitive unit cost

## 6M 2020 : Source and Use of Funds

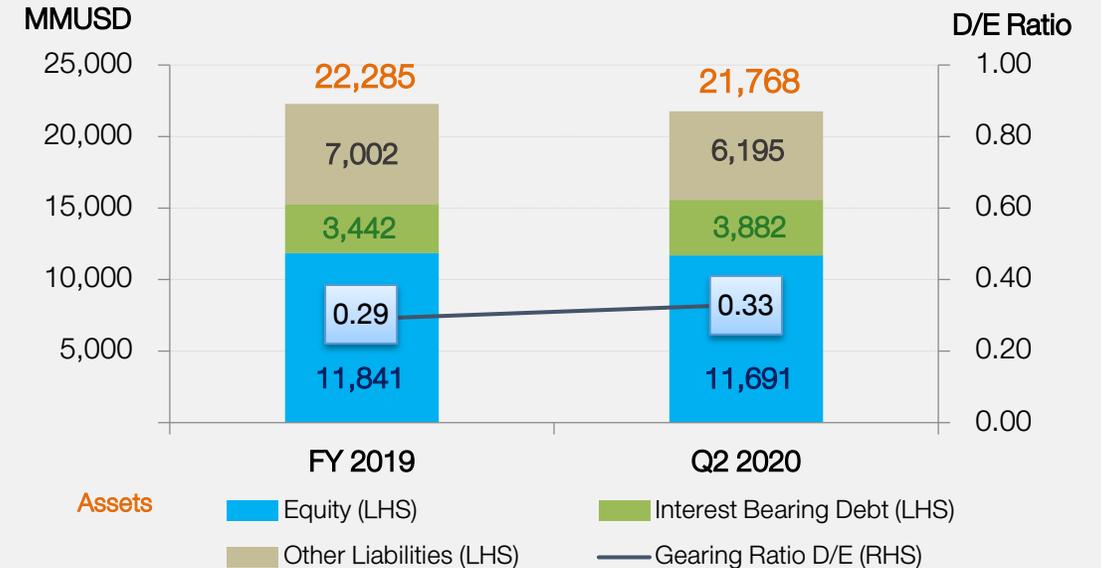
Healthy operating cash flow



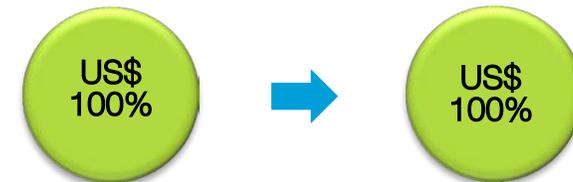
Remark: \* Net of adjustment for the effect of exchange rate changes on cash and cash equivalents  
 \*\* Excludes cash flows for investing in short-term investments (Fixed deposit > 3 months)

## Capital Structure

Healthy balance sheet at competitive leverage level



### Debt Profile



Weighted Average Cost of Debt (%)	4.41	3.74
[Fixed : Floating]	[82 : 18]	[82 : 18]
Average Loan Life (Years)	13.84	14.59

Remark: Debt profile excludes Hybrid bonds

## Dividend Payment History

*Policy : No Less Than 30% of Net Income*

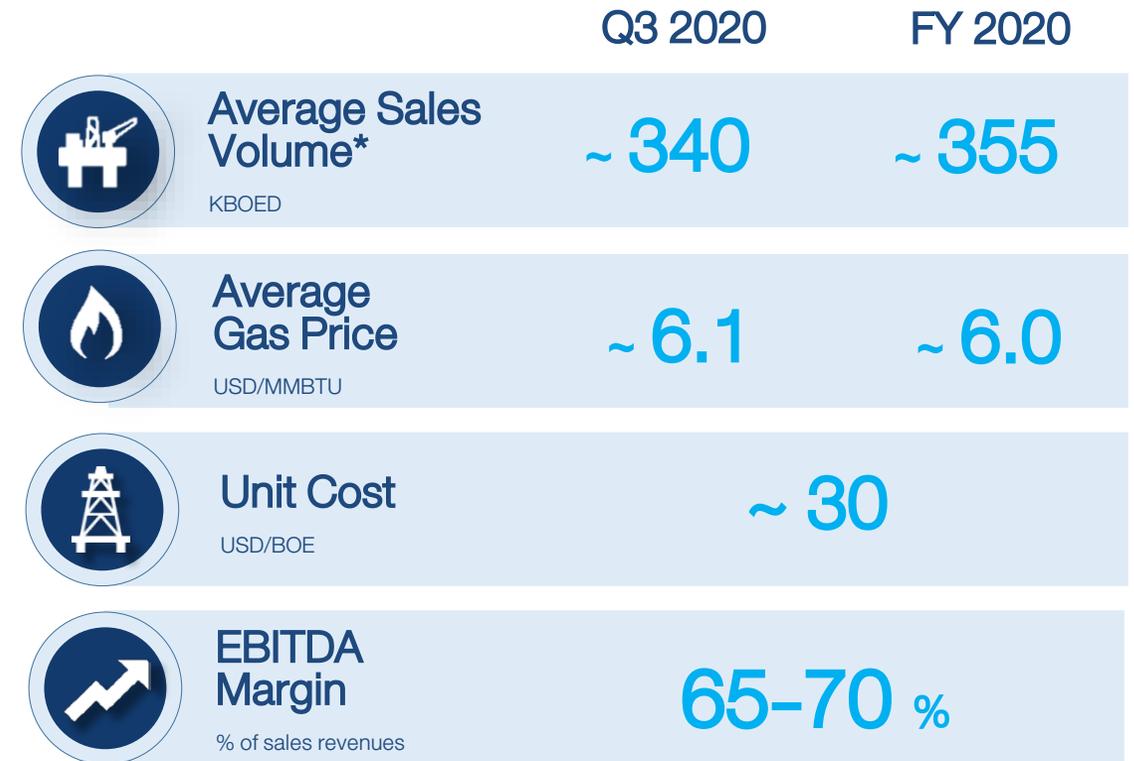


Payout Ratio (% of net income)	98	90	35	55	46
Payout Ratio (% of recurring net income)	79	64	38	51	45

<i>XD Date</i>	13 August 2020
<i>Record date</i>	14 August 2020
<i>Payment Date</i>	28 August 2020

## 2020 Guidance

*Strong gas price with competitive unit cost*



Note:

\* Include sales volume from ADNOC Gas Processing (AGP)  
Based on average Dubai oil price in 2020 at 38 \$/BBL



+66 2 537 4000

# Thank you and Q&A

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



[IR@pttep.com](mailto:IR@pttep.com)



<http://www.pttep.com>



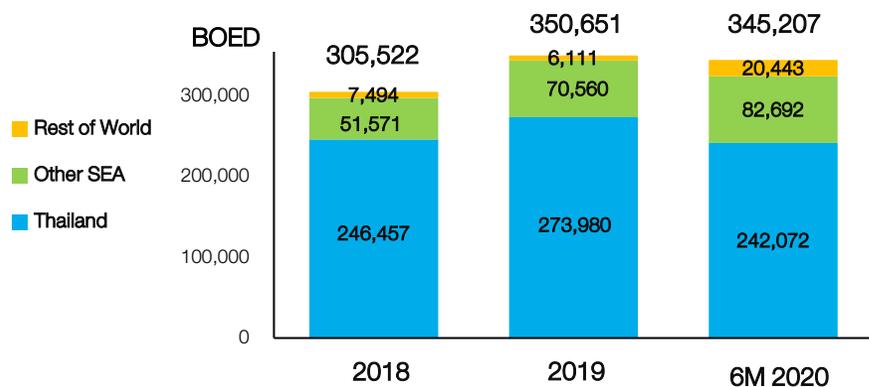
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# Sales Volume & Unit Cost

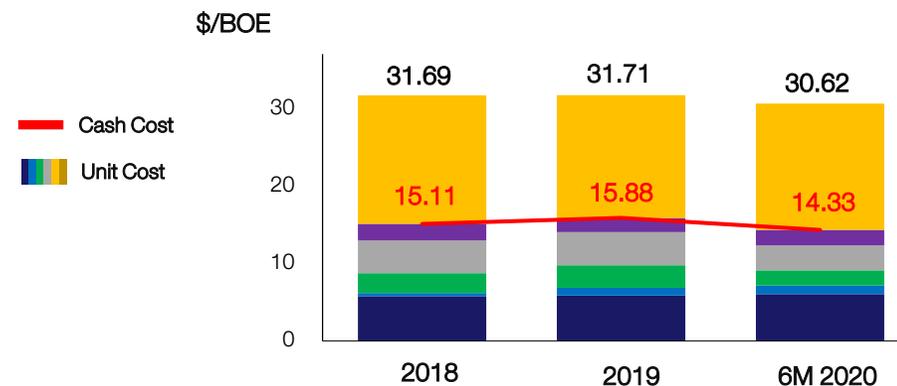
Lower sales volume from lower demand with competitive cost

## Sales Volume and Price



Gas (\$/MMBTU)	6.42	6.92	6.64
Liquid (\$/BBL)	67.40	61.18	40.80
<b>Weighted Avg. (\$/BOE)</b>	<b>46.66</b>	<b>47.24</b>	<b>40.15</b>
Avg. Dubai (\$/BBL)	69.65	63.51	40.72
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	67.01	58.60	36.26
<b>Volume Mix (Gas : Liquid)</b>	<b>72 : 28</b>	<b>71 : 29</b>	<b>67 : 33</b>
<b>Revenue Mix (Gas : Liquid)</b>	<b>59 : 41</b>	<b>62 : 38</b>	<b>66 : 34</b>

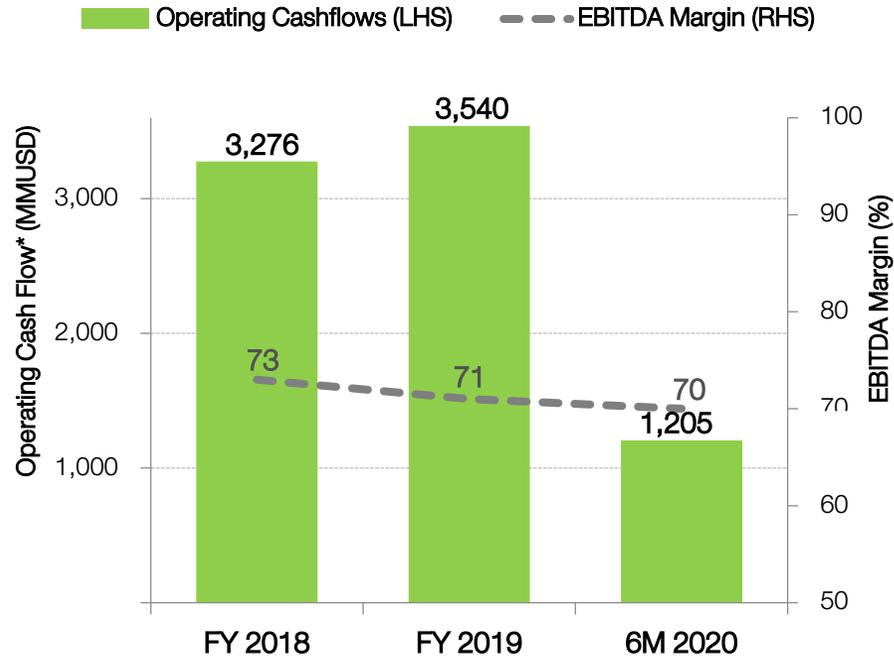
## Unit Cost



DD&A	16.58	15.83	16.29
Finance Cost	2.14	1.84	2.00
Royalties	4.21	4.27	3.20
G&A	2.57	2.91	1.98
Exploration Expenses	0.41	1.00	1.10
Operating Expenses	5.78	5.86	6.05
<b>Lifting Cost</b>	<b>4.33</b>	<b>4.31</b>	<b>4.40</b>

Note: Exclude costs related to new business and applied Thai Financial Reporting No. 16 (TFRS 16: Lease), effective 1 Jan 2020  
The formulas for calculating ratios are provided in the supplementary section for your reference

## Cash Flow Performance



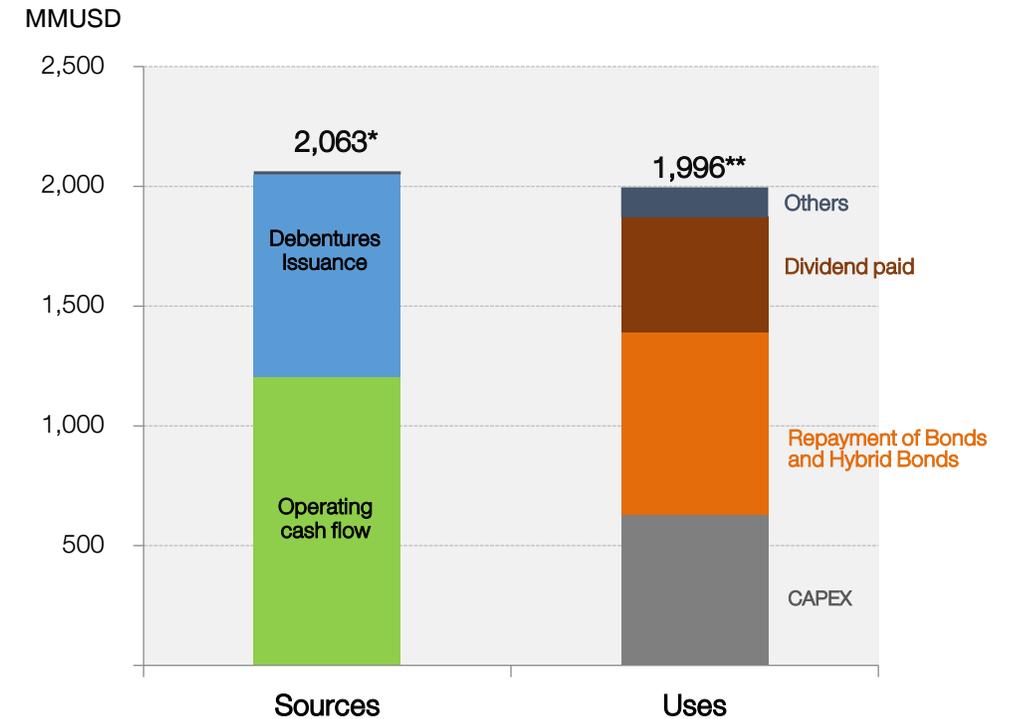
Net Income	1,120	1,569	409
Recurring Net Income***	1,215	1,445	418

Remark: \* 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)

\*\*\* Excludes Gain/(Loss) on FX, Deferred tax from Functional currency, Current Tax from FX Revaluation, Gain/(Loss) from Financial Instruments, Impairment Loss on Assets, and etc.

## Source & Use of Funds in 6M 2020



# Financial Performance : Income Statement

*Solid EBITDA margin*

	Q1 20	Q2 20	Q2 19	6M 20	6M 19
Sales and Revenue from Pipeline Transportation (MMUSD)	1,506	1,066	1,503	2,571	2,859
EBITDA (MMUSD)	1,082	711	1,087	1,793	2,112
Net Income (MMUSD)	275	134	433	409	827
Recurring Net Income (MMUSD)	290	128	389	418	763
Earning Per Share (USD)	0.07	0.03	0.10	0.10	0.20
<b>Key Financial Ratios</b>					
EBITDA Margin (%)	72	67	72	70	74
Return on Equity (%) (LTM)	12	10	12	10	12
Return on Capital Employed (%) (LTM)	11	8	11	8	11
Return on Equity (%) (LTM, Recurring Net Income)	12	9	11	9	11
Return on Capital Employed (%) (LTM, Recurring Net Income)	10	8	10	8	10

Note: The formulas for calculating ratios are provided in the supplementary section for your reference

# Financial Performance : Balance Sheet

*Healthy balance sheet at competitive leverage level*



	YE 19	Q2 20
Total Assets (MMUSD)	22,285	21,768
- Cash & cash equivalents * (MMUSD)	3,023	3,090
Total Liabilities (MMUSD)	10,444	10,077
- Interest bearing debt (MMUSD)	3,442	3,882
Equity (MMUSD)	11,841	11,691
<b>Key Financial Ratios</b>		
Total Debt to Equity (X)	0.29	0.33
Net Debt** to Equity (X)	0.04	0.07
Total Debt to Capitalization (X)	0.23	0.25
Total Debt to EBITDA (X)	0.62	0.73
EBITDA Interest Coverage (X)	39	32

**Credit Ratings :** BBB+ (S&P), Baa1 (Moody's), AAA (TRIS), BBB+ (FITCH)  
**Weighted Average Cost of Debt \*\* :** 3.74%  
**Average Loan Life \*\* :** 14.59 years

Note: \* Cash & Cash Equivalents (Cash on hand) include Short-term Investments > 3 months *but* < 12 months

Net Debt = Total Debt less Cash & Cash Equivalents

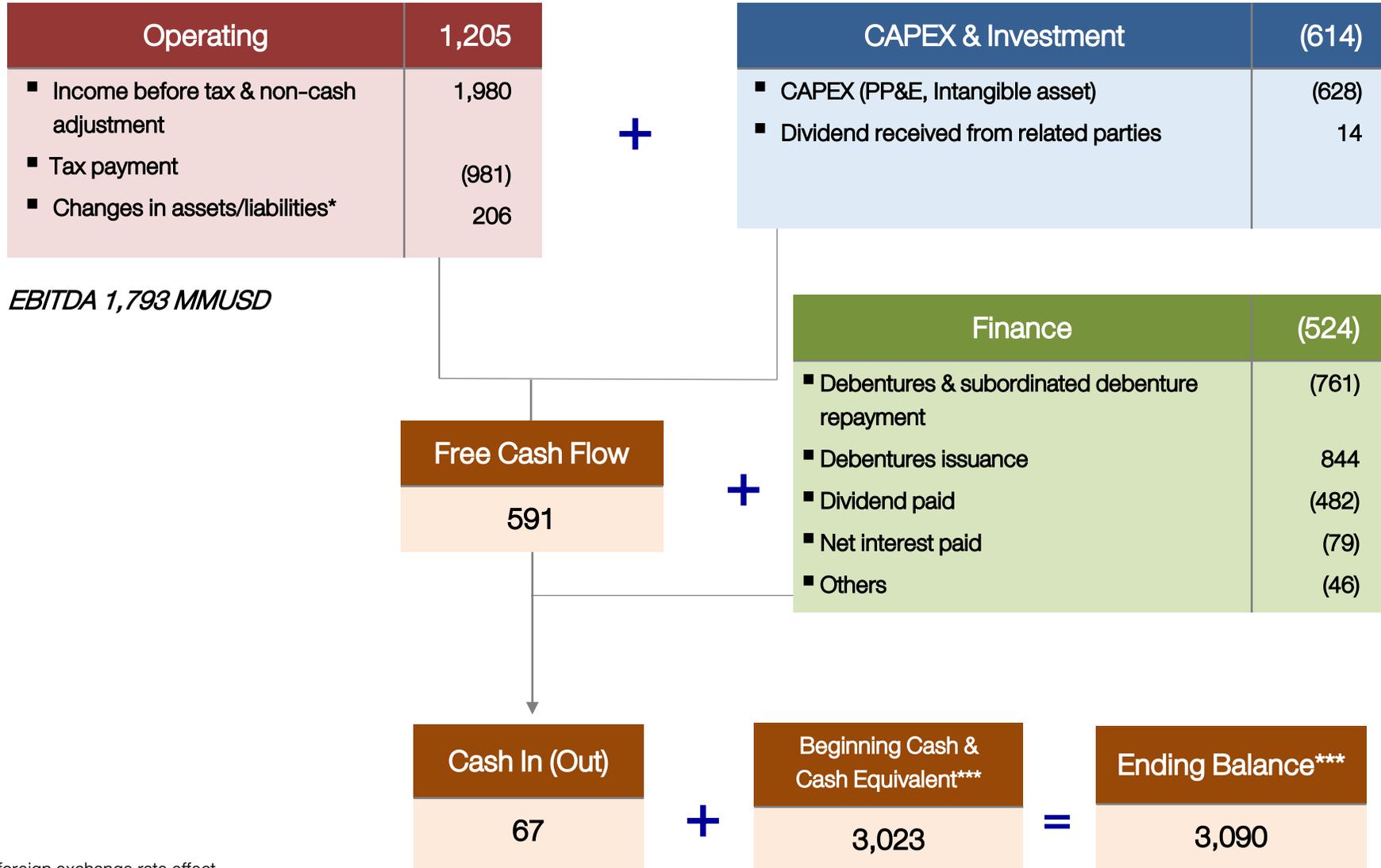
\*\* Excludes hybrid bonds

The formulas for calculating ratios are provided in the supplementary section for your reference

# Cash Flows : January – June 2020

Healthy operating cash flow

Unit : MMUSD



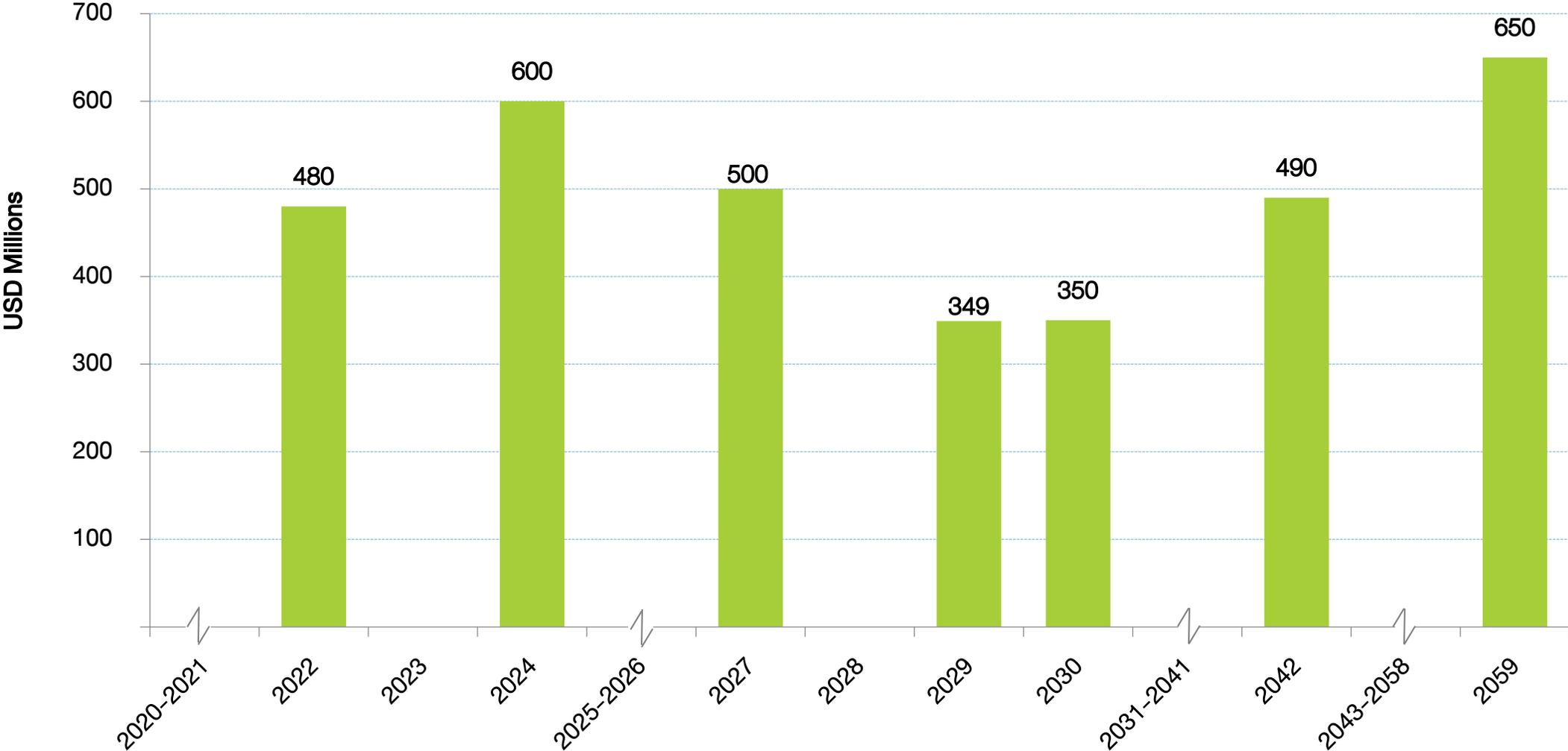
Note: \* Net of foreign exchange rate effect

\*\* Net of interest received

\*\*\* Include Short-term Investment (Fixed deposit > 3 months)

# Debt Maturity Profile

As of June 2020

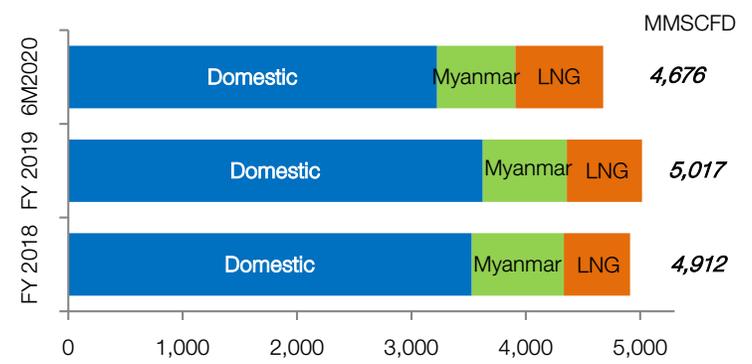


Note: Excludes Hybrid bonds

Unit: USD Millions or equivalent after cross currency swap

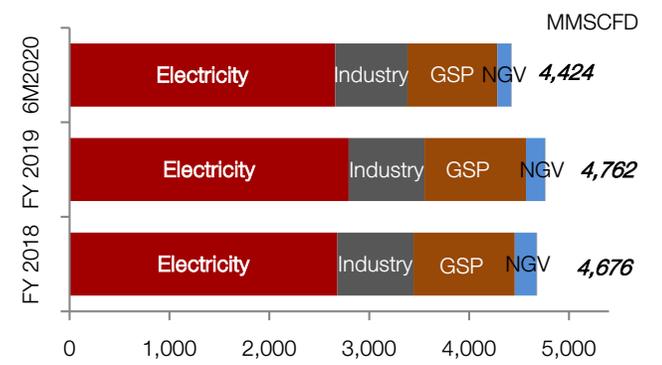
## Thailand Energy Overview

### 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



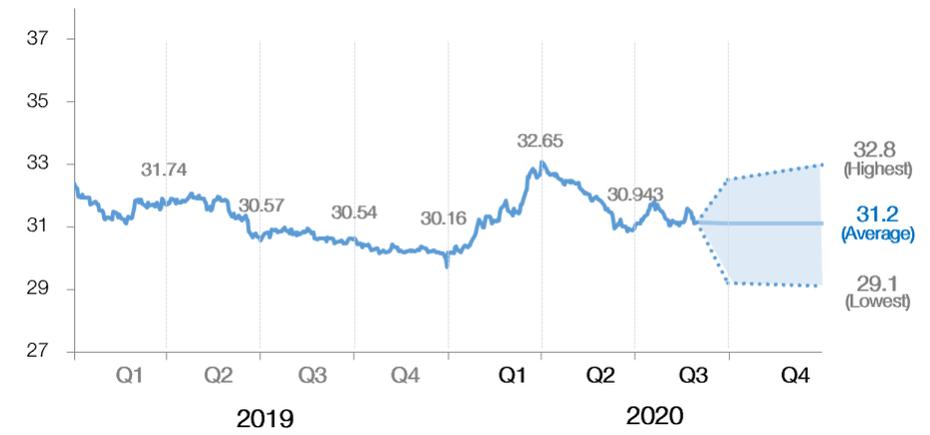
### Electricity Generation



Source: EPPO

■ Natural Gas    ■ Hydro Electricity    ■ Coal & Lignite  
■ Imported    ■ Renewable Energy

## Exchange Rate Movement (THB/USD)



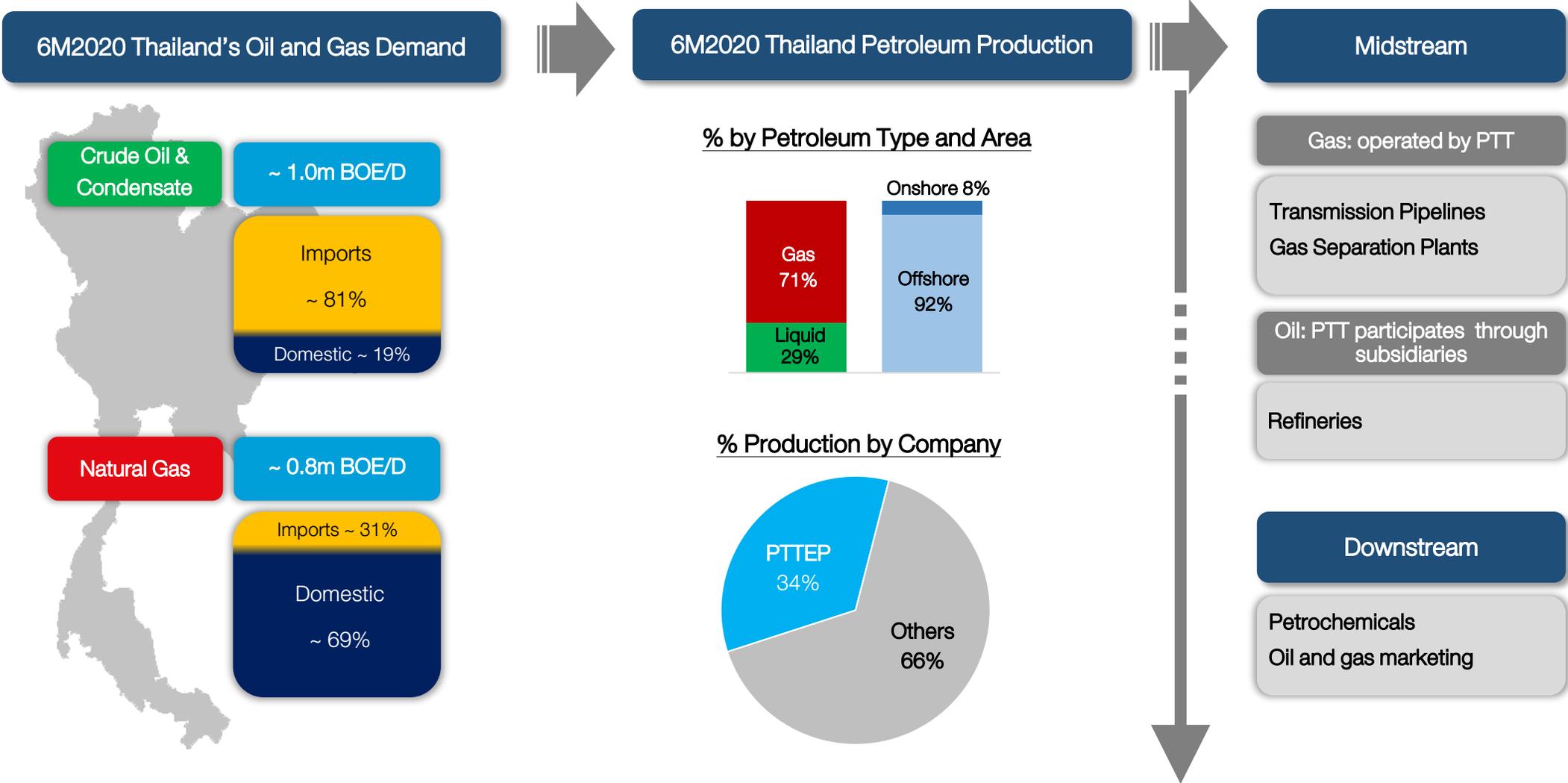
### Consensus on the exchange rate mostly depends on

- The concern on the second wave of COVID-19 outbreak
- Additional monetary policies from BOT and easing lockdown restriction will boost economic growth
- Capital outflows of bond and stock markets into safer assets

Source: Bank of Thailand, Bloomberg  
Forecast based on Bloomberg Consensus as of 30 August 2020

# Thailand's Energy Value Chain

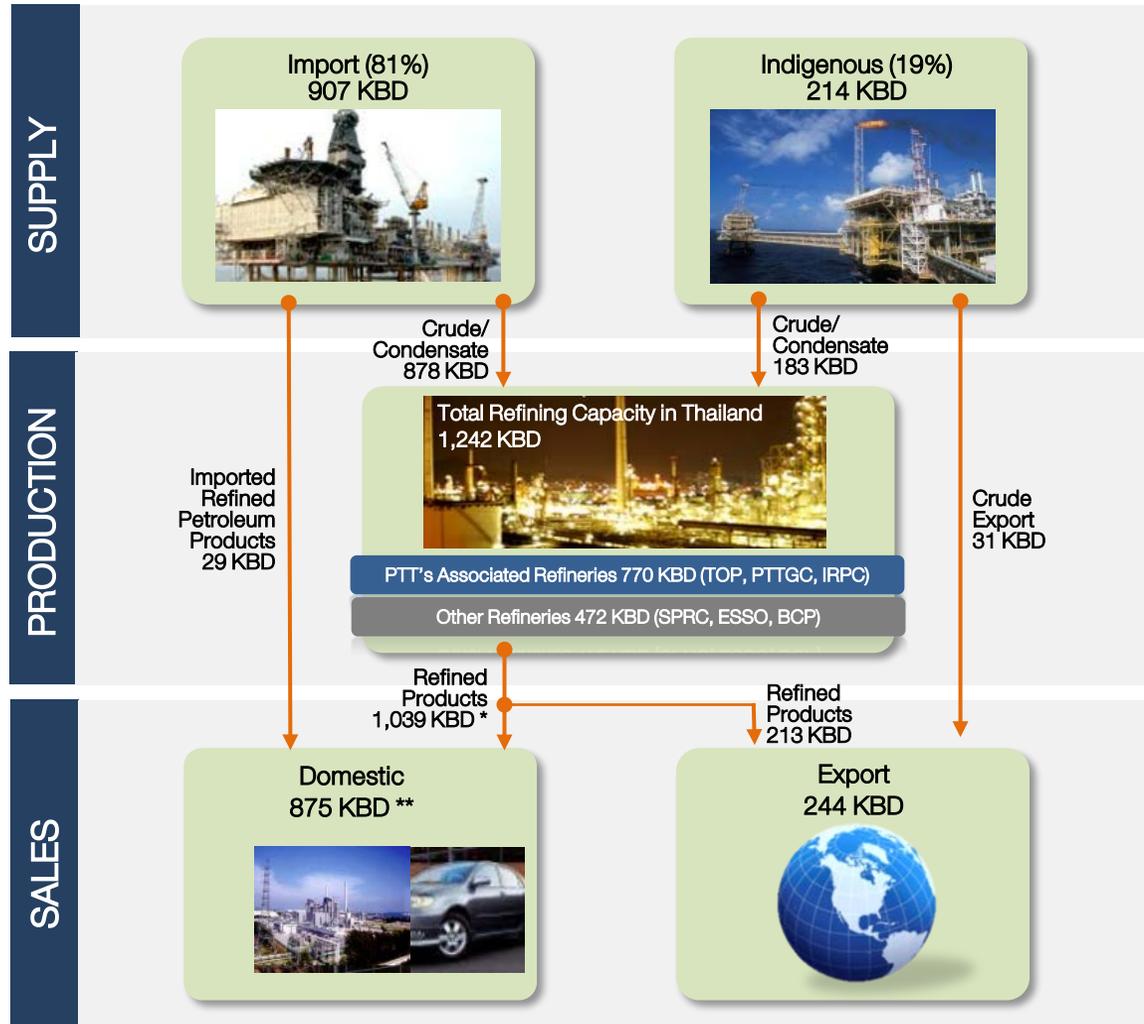
PTTEP contributes almost 1/3 of Thailand's petroleum production



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

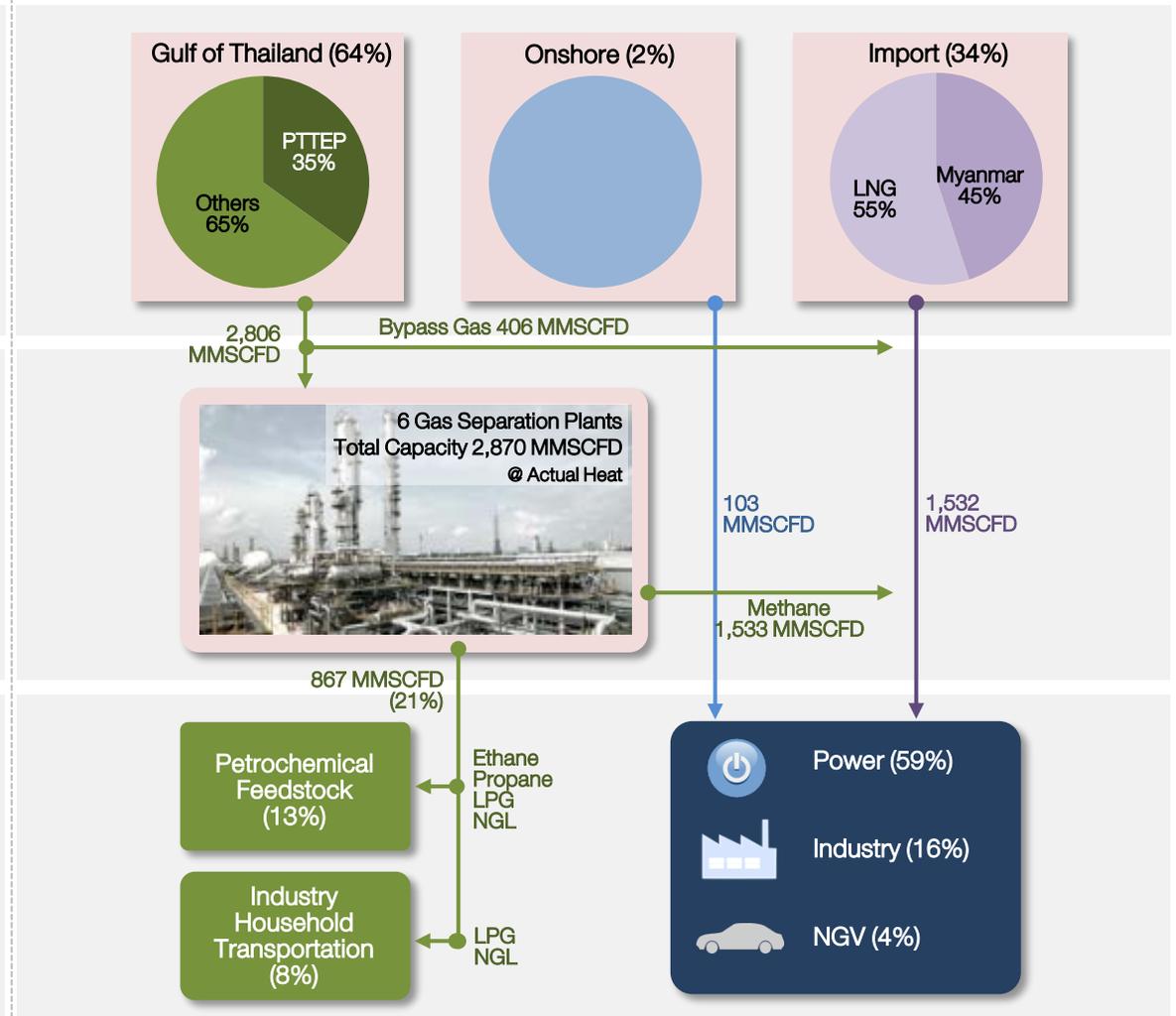
## Oil Balance\*\*\*

Maintains stability supply through adequate refining capacity



## Natural Gas Balance\*\*\*\*

Main driver of the Thailand economy



Source: PTT

Remark: \* Refined product from refineries = 944 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 95 KBD

\*\* Not included Inventory

\*\*\* Information as of 5M20

\*\*\*\* Information as of 6M20

MMSCFD @ Heating Value 1,000 Btu/ft<sup>3</sup>

MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM

## 2019 DJSI Listed Company

PTTEP has been selected as a member of the 2019 Dow Jones Sustainability Indices (DJSI) for the 6<sup>th</sup> consecutive year and the 2<sup>nd</sup> time as industry leader in the DJSI World Oil and Gas Upstream & Integrated Industry



### Proven business integrity

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

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

Board of the Year Award 2018 (Silver)  
*The Thai Institute of Directors Association (IOD)*



FTSE4Good

## FTSE4Good Emerging Index 2019

PTTEP becomes a constituent of the FTSE4Good Emerging Index 2019 for the fourth consecutive year



### 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

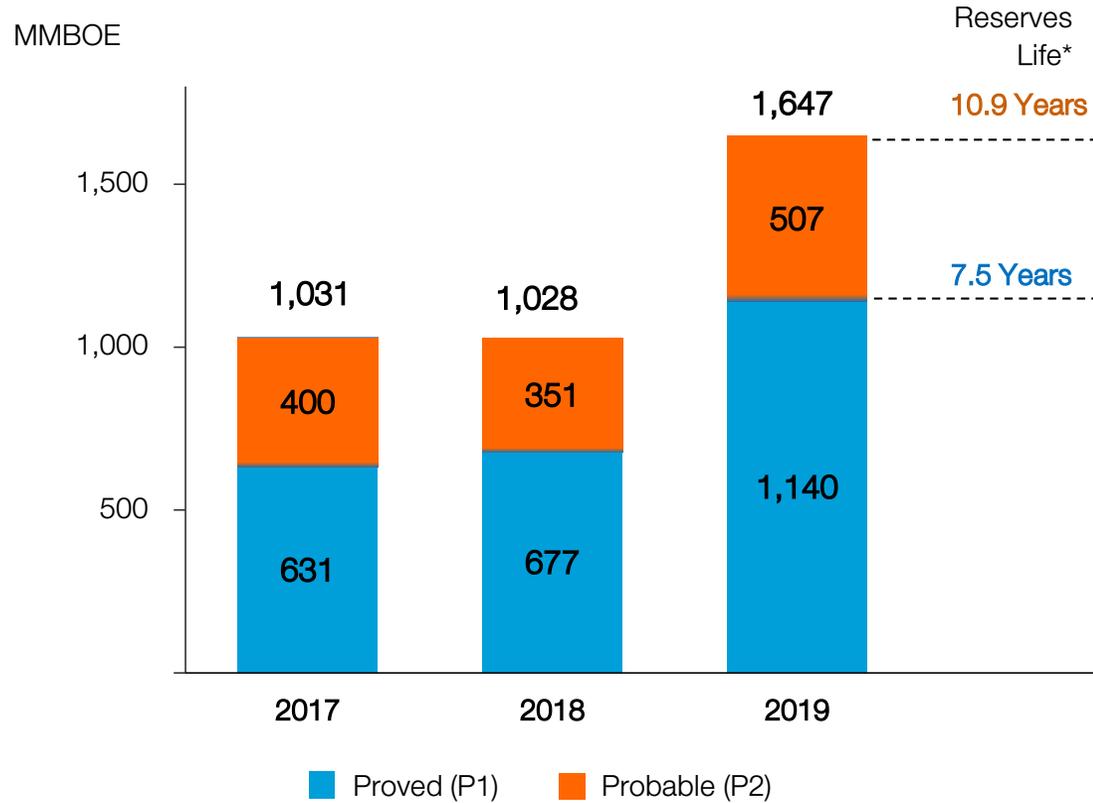
The Excellent Level (G-Gold) of the Green Office Award 2018  
*The Ministry of Natural Resources and Environment*

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)*

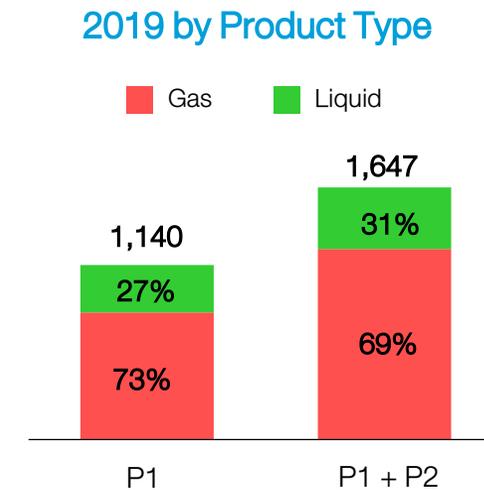
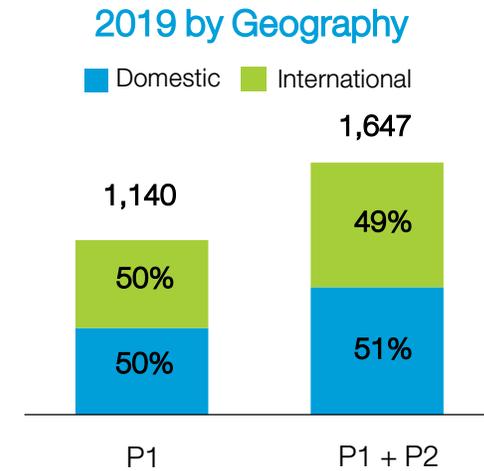
# Reserves at the Year-end 2019

Significantly improved reserve life to over 7 years



5-Year Average Proved Reserves Replacement Ratio (RRR)

2017	2018	2019
0.58x	0.74x	1.53X

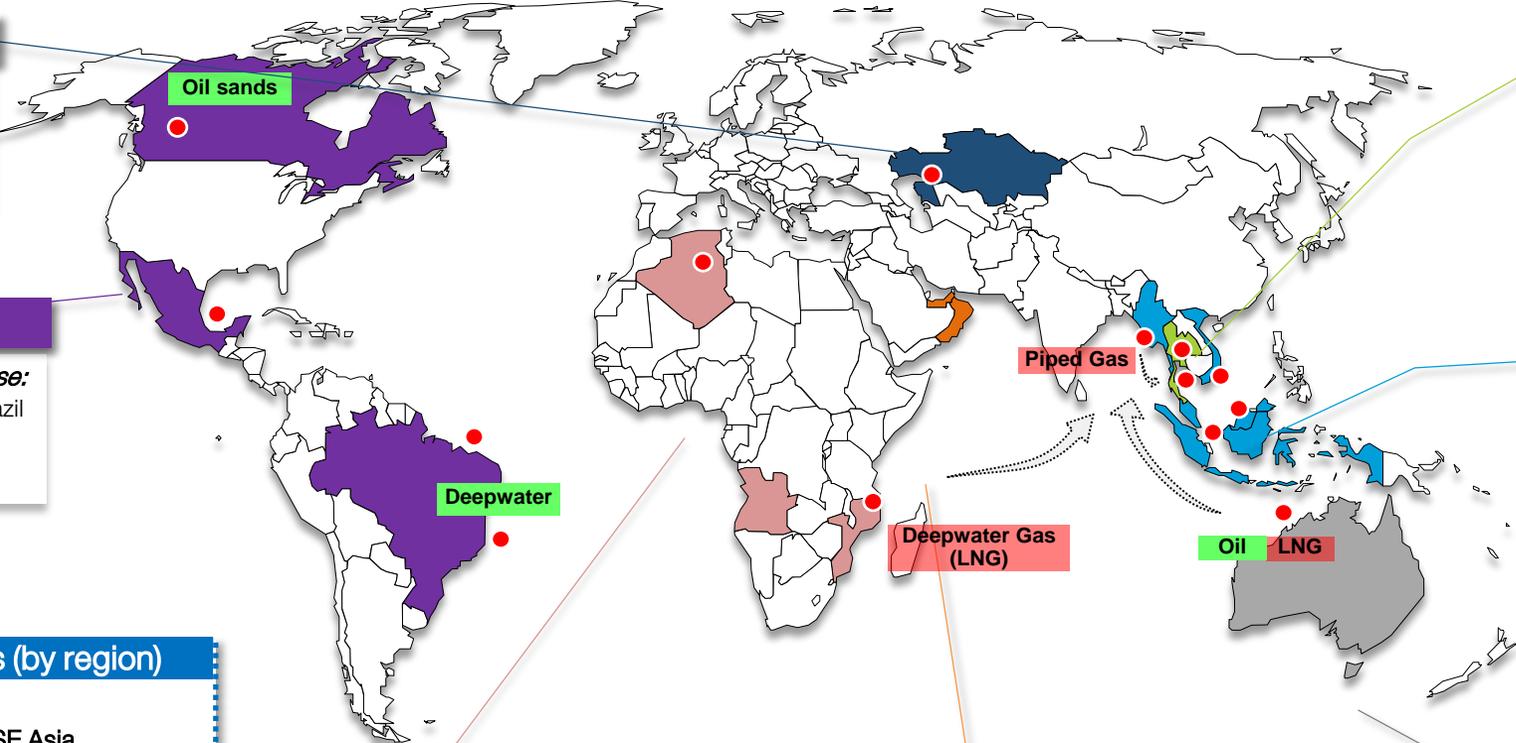


- Based on total production of natural gas, condensate, and crude oil (including LPG) of 414 KBOED for the year ended December 31, 2019
- Figures include reserves from equity method

## 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**

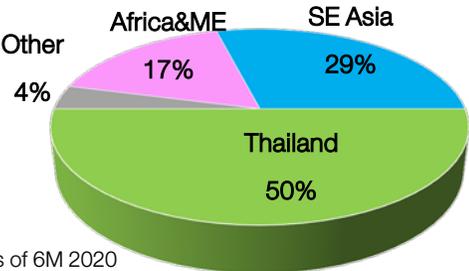
- 70% of total sales volume
- Key producing assets include Bongkot, Arthit, Contract 4 and S1
- Bongkot (G2/61) and Erawan (G1/61) are in transition process to ensure production continuity

## Southeast Asia

**Second heartland to PTTEP**

- 24% of total sales volume mainly from Malaysia and Myanmar
- 3<sup>rd</sup> 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 6M 2020  
**Total Assets USD 21.8 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:**

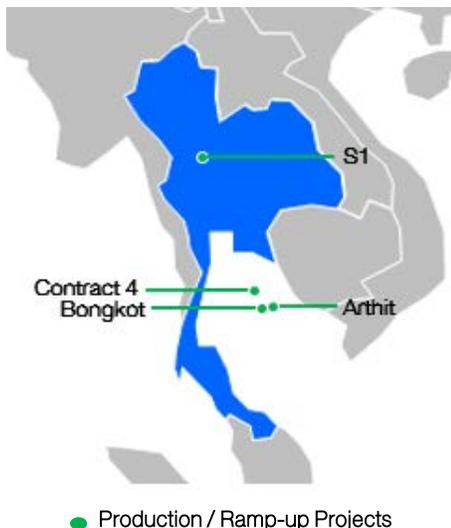
- 2 offshore exploration blocks partnered with experienced operator, ENI in Jan 2019
- 3 onshore blocks including PDO (Block 6), the largest producing oil asset in Oman

## Australasia

**Potential gas development**

- Sizable undeveloped gas resources in Timor Sea

## Thailand



### Bongkot (66.6667% WI)

- Average natural gas and condensate sales volume of 729 MMSCFD and 21 KBPD in 6M2020

### S1 (100% WI)

- The largest onshore crude oil production field in Thailand with 6M2020 average crude oil sales volume of 29 KBPD

### Arthit (80% WI)

- Average sales volume in 6M2020 was 218 MMSCFD of natural gas and 11 KBPD of condensates

### Contract 4 (60% WI)

- Average sales rate of 307 MMSCFD for natural gas and 13 KBPD for condensate in 6M2020

## 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 319 MMSCFD in 6M2020

### Project Status

#### Production

- Zawtika (80% WI)
- Yadana (25.5% WI)
- Yetagun (19.3% WI)

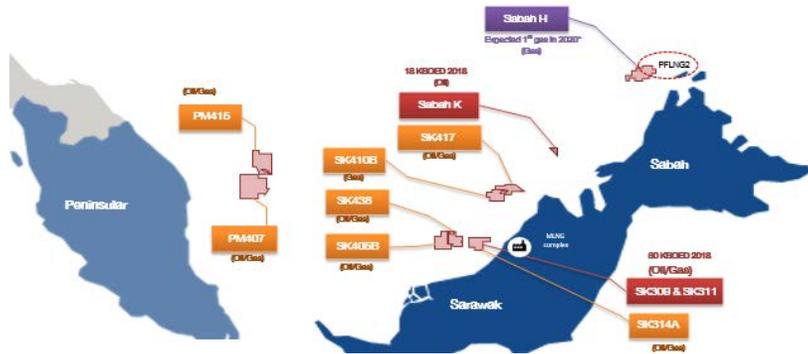
#### Appraisal

- 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 6M2020 was 27\* KBPD of crude oil and 23\* MMSCFD of natural gas

#### SK309 and SK311 Project (59.5% WI)

For East Patricia field (42% WI)

- Average production volume in 6M2020 was 220\* MMSCFD of natural gas and 22\* KBPD of condensates and crude.

### Development

#### Block H Project\* :

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

- First gas expected in Q3/2020
- Full capacity at 270 MMSCFD

### Exploration

#### Sarawak SK410B Project (42.5% WI)

- Multi TCF significant discovery
- Preparing additional drilling of an appraisal well in the end of Q3/2020

#### Other projects

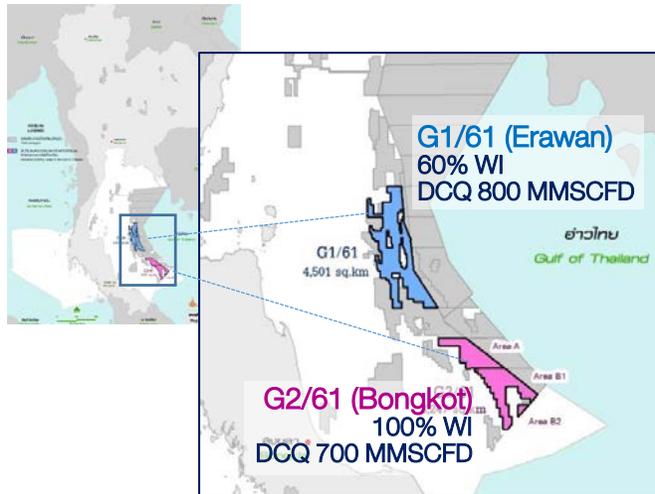
- Evaluating petroleum potentials
- Plan for exploration and appraisal drilling in 2020-2021

\* 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



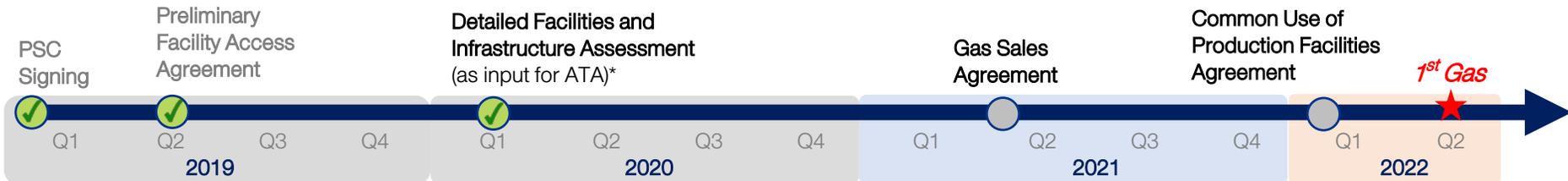
## Generating strong cash flow

- 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



### Concrete transition plan:



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

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

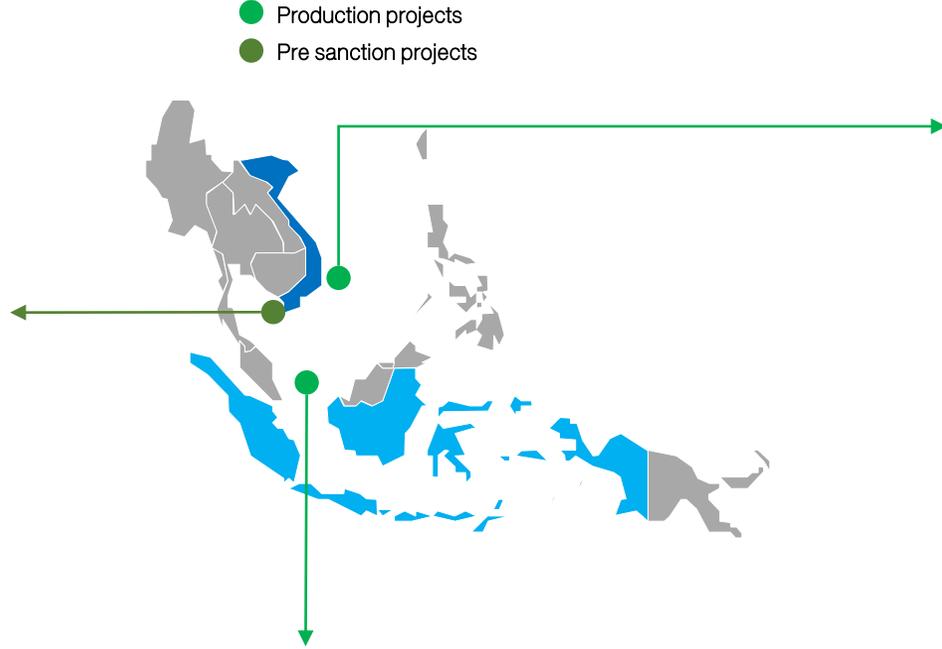
## Vietnam and Indonesia



**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 14 KBPD in 6M2020
- The project is currently drilling an additional production well to maintain production plateau.

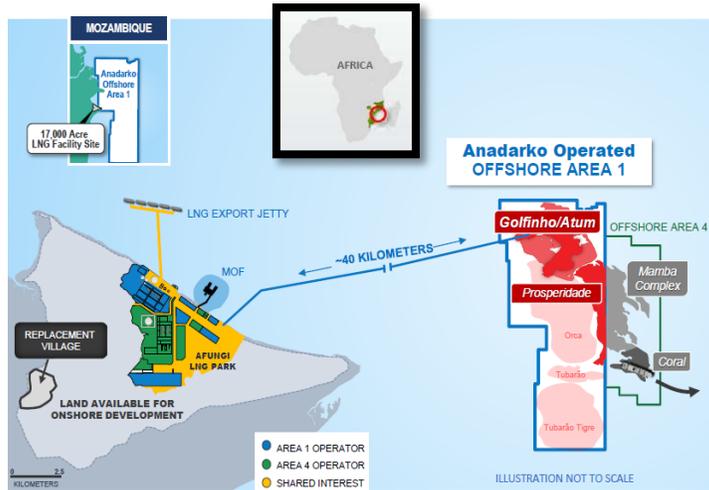


**Natuna Sea A (11.5% WI)**

- Average sales volume of natural gas was 226 MMSCFD in 6M2020

# Mozambique Area 1

FID, 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 mmcf/d 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

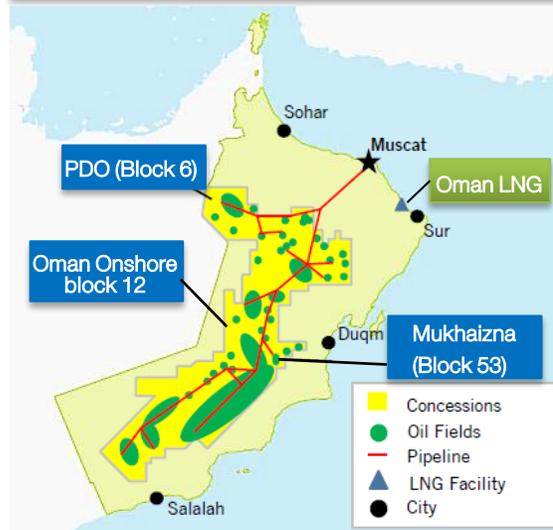
## Way Forward

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



1<sup>st</sup> Cargo  
expected  
2024

### 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: 610,000 BPD (70% of Oman production)
- Operated by Petroleum Development of Oman (Joint Operating Company)

#### Mukhaizna (Block 53)

- Largest single onshore producing field in Oman
- Oil production: 120,000 BPD (13% of Oman production)
- Operated by Occidental Petroleum (47% interest)

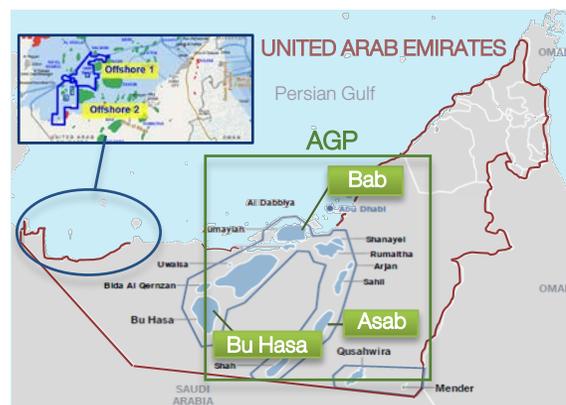
#### Block 12

- 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 and 2

- 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
- 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
- Operated by ADNOC (68% interest)



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

## Deep Water Brazil



### Barreirinhas AP1

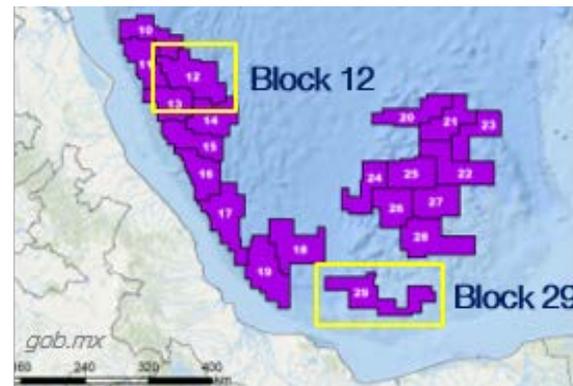
- Farm-in 25% from BG Group in 2014
- Operated by Shell Brasil (65% interest)
- Four offshore exploration blocks: BAR-M-215, BAR-M-217, BAR-M-252 and BAR-M-254

### BM-ES-23

- Acquired 20% interest from Shell in Q3 2014
- Partnered with Petrobras (65%, operator) and INPEX (15%)

In 2020, Both projects are currently evaluating the petroleum potential

## 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 being evaluated for petroleum potential to prepare for drilling of an exploration well 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 preparing to evaluate for petroleum potential as well as future development plans for further regulatory approval

# 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)	<table border="0"> <tr> <td>Petronas</td> <td>65%</td> <td rowspan="5"> </td> </tr> <tr> <td>JX Nippon</td> <td>10%</td> </tr> <tr> <td>PTT Global LNG</td> <td>10%</td> </tr> <tr> <td>Sarawak State</td> <td>10%</td> </tr> <tr> <td>Sabah State</td> <td>5%</td> </tr> </table>	Petronas	65%		JX Nippon	10%	PTT Global LNG	10%	Sarawak State	10%	Sabah State	5%
Petronas	65%											
JX Nippon	10%											
PTT Global LNG	10%											
Sarawak State	10%											
Sabah State	5%											
Key activity in 2020												
<ul style="list-style-type: none"> <li>• Keep maximizing LNG production up to plant capacity</li> <li>• Continue to improve plant reliability &amp; utility rejuvenation</li> <li>• Get ready for 2021 plant turnaround</li> </ul>												

# New Business Opportunities

Expand value chain, create innovation and step towards long-term sustainability



## Gas to Power

### "Integrated Energy Solution"



E&P



Pipeline



Power Plant

- Enhance value of existing assets in Myanmar e.g. Zawtika, M3
- Support Myanmar pipeline infrastructure development
- Partner with Independent Power Producer (IPP)



## AI AND ROBOTICS VENTURES

### Shifting Gear to Business Building



Subsea



- End-to-end AI-augmented Inspection Repair and Maintenance (IRM)



DroneBiz



- Infrastructure Asset Inspection On-demand



AgriTech



- Smart Farming Services Platform



MedTech



- Fully autonomous model of UVC-Disinfection Robot

	Project	Status*	Phase	PTTEP's Share	Partners (as March 2020)	6M2020 Average Sales Volume **		2020 Key Activities	
						Gas (MMSCFD)	Liquid (KBPD)		
<b>Thailand and JDA</b>									
1	Arthit	OP	Production	80%	Chevron MOECO	16% 4%	218	11	<ul style="list-style-type: none"> <li>Ensure gas deliverability level at DCQ***</li> <li>Drill development wells</li> </ul>
2	B6/27	OP	Production	100%			-	-	<ul style="list-style-type: none"> <li>Prepare for decommissioning activities</li> </ul>
3	B8/32 & 9A	JV	Production	25.001%	Chevron MOECO KrisEnergy Palang Sophon	51.66% 16.71% 4.63% 2%	51	17	<ul style="list-style-type: none"> <li>Drill development wells</li> <li>Perform waterflood activities</li> </ul>
4	Bongkot	OP	Production	66.6667%	TOTAL	33.3333%	729	21	<ul style="list-style-type: none"> <li>Maintained production level as planned</li> <li>Prepare for decommissioning activities</li> </ul>
5	Contract 3 (Formerly Unocal III)	JV	Production	5%	Chevron MOECO	71.25% 23.75%	597	36	<ul style="list-style-type: none"> <li>Drill development wells</li> <li>Prepare for decommissioning activities</li> </ul>
6	Contract 4 (Formerly Pailin)	JV	Production	60%	Chevron MOECO	35% 5%	307	13	<ul style="list-style-type: none"> <li>Ensure gas deliverability level at DCQ***</li> <li>Drill development wells</li> </ul>
7	E5	JV	Production	20%	ExxonMobil	80%	8	-	<ul style="list-style-type: none"> <li>Ensure gas deliverability level at DCQ***</li> </ul>
8	G4/43	JV	Production	21.375%	Chevron MOECO Palang Sophon	51% 21.25% 6.375%	2	4	<ul style="list-style-type: none"> <li>Drill development wells</li> </ul>
9	G4/48	JV	Production	5%	Chevron MOECO	71.25% 23.75%	6	0.4	<ul style="list-style-type: none"> <li>Drill development wells</li> </ul>
10	L53/43 & L54/43	OP	Production	100%			-	1.2	<ul style="list-style-type: none"> <li>Maintain production plateau</li> <li>Drill development wells</li> </ul>
11	PTTEP1	OP	Production	100%			-	0.130	<ul style="list-style-type: none"> <li>Drill a development well</li> <li>Maintain production plateau</li> </ul>
12	S1	OP	Production	100%			6	Crude: 29 KBPD LPG: 0.2 KMT/D	<ul style="list-style-type: none"> <li>Drill development wells</li> <li>Enhance oil recovery program includes hydraulic fracturing and artificial lift</li> </ul>
13	Sinphuhorm	OP	Production	55%	Apico**** ExxonMobil	35% 10%	90	0.279	<ul style="list-style-type: none"> <li>Ensure gas deliverability</li> <li>Drill an exploration well and development wells</li> </ul>

\* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship / JV = PTTEP 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	Status*	Phase	PTTEP's Share	Partners (as March 2020)		6M2020 Average Sales Volume **		2020 Key Activities
							Gas (MMSCFD)	Liquid (KBPD)	
<b>Thailand and JDA</b>									
14	L22/43	OP	Production	100%			-	-	<ul style="list-style-type: none"> <li>Maintain production operation</li> </ul>
15	MTJDA	JOC	Production	50%	Petronas-Carigali	50%	268	8.3	<ul style="list-style-type: none"> <li>Drill development wells</li> <li>Ensure gas deliverability level at DCQ***</li> </ul>
16	G9/43	OP	Exploration	100%					
17	G1/61 (Erawan)	OP	Exploration	60%	MP G2 (Thailand) Limited	40%			<ul style="list-style-type: none"> <li>Awarded as an operator for Erawan field (Contract 1, 2 and 3) under PSC (after concession-end in 2022)</li> <li>E&amp;A study (seismic interpretation)</li> <li>Installation new head platform</li> </ul>
18	G2/61 (Bongkot)	OP	Exploration	100%					<ul style="list-style-type: none"> <li>Awarded as a sole operator under PSC (after concession-end in 2022/2023)</li> <li>Drill appraisal and exploration wells</li> <li>Installation new head platform</li> </ul>
<b>Others SEA</b>									
1	Malaysia	OP (except Gumusut-Kakap (GK) in Block K)	Production/ Exploration/ Development	6.4-80% (varied by permits)			SK309 and SK311 220 Block K 23	SK309 and SK311 22 Block K 27	<ul style="list-style-type: none"> <li>Production projects(SK309 and SK311, Block K): Maintain production plateau</li> <li>Block H: first gas expected in 2H/2020</li> <li>Sarawak SK410B: drill an appraisal well</li> <li>Other exploration projects: drill exploration wells, G&amp;G study and perform 3D seismic activities</li> </ul>
2	Yadana	JV	Production	25.5%	TOTAL Chevron MOGE	31.24% 28.26% 15%	741	-	<ul style="list-style-type: none"> <li>Drill exploration and development wells</li> <li>Ensure gas deliverability level at DCQ***</li> </ul>
3	Yetagun	JV	Production	19.3178%	Petronas-Carigali MOGE Nippon Oil PC Myanmar (Hong Kong)	30.00140% 20.4541% 19.3178% 10.90878%	61	1.1	<ul style="list-style-type: none"> <li>Maintain production level</li> <li>Drill exploration and development wells</li> </ul>
4	Zawtika (M9 & a part of M11)	OP	Production	80%	Myanma Oil and Gas Enterprise (MOGE)	20%	319	-	<ul style="list-style-type: none"> <li>Ensure gas deliverability level at DCQ***</li> <li>Drill exploration and development wells</li> <li>Perform 3D seismic activities</li> </ul>
5	Myanmar M3	OP	Exploration	80%	MOECO	20%			<ul style="list-style-type: none"> <li>FEED/ Subsurface/ Surface studies</li> <li>Negotiate and finalize GSA</li> </ul>
6	Myanmar M11	OP	Exploration	100%					<ul style="list-style-type: none"> <li>Perform 3D seismic activities</li> <li>Block relinquish</li> </ul>
7	Myanmar MD-7	OP	Exploration	50%	TOTAL	50%			<ul style="list-style-type: none"> <li>Drill an exploration well</li> <li>3D Reprocessing seismic activities</li> <li>G&amp;G studies</li> </ul>

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

\*\* Sales volume stated at 100% basis except Malaysia (Production volume 100% as of 3M/2020)/ For Block K, gross production is net off unitization

\*\*\* DCQ = Daily Contractual Quantity

	Project	Status*	Phase	PTTEP's Share	Partners (as March 2020)	6M2020 Average Sales Volume **		2020 Key Activities	
						Gas (MMSCFD)	Liquid (KBPD)		
<b>Others SEA</b>									
8	Myanmar MOGE 3	OP	Exploration	77.5%	Palang Sophon MOECO WinPreciousResources	10% 10% 2.5%			<ul style="list-style-type: none"> <li>G&amp;G studies</li> <li>Complete site reinstatement</li> </ul>
9	Vietnam 9-2	JOC	Production	25%	PetroVietnam SOCO	50% 25%	15	3.8	<ul style="list-style-type: none"> <li>Maintain production level</li> <li>Perform well intervention program</li> <li>Development drilling study support</li> </ul>
10	Vietnam 16-1	JOC	Production	28.5%	PetroVietnam SOCO OPECO	41% 28.5% 2%	7	14	<ul style="list-style-type: none"> <li>Maintain production level</li> <li>Drill development wells</li> </ul>
11	Vietnam B & 48/95	JV	Exploration	8.5%	PVN MOECO	65.88% 25.62%			<ul style="list-style-type: none"> <li>FEED study</li> <li>Negotiation process on commercial terms in order to push forward the Final Investment Decision (FID)</li> <li>the first production target at the end of 2023</li> </ul>
12	Vietnam 52/97	JV	Exploration	7%	PVN MOECO	73.4% 19.6%			<ul style="list-style-type: none"> <li>FEED study</li> <li>Negotiation process on commercial terms in order to push forward the Final Investment Decision (FID)</li> <li>the first production target at the end of 2023</li> </ul>
13	Natuna Sea A	JV	Production	11.5%	Premier Oil KUFPEC Petronas Pertamina	28.67% 33.33% 15% 11.5%	226	2.4	<ul style="list-style-type: none"> <li>FEED study: Start Anoa &amp; Gajah Baru compressor project</li> </ul>
<b>Middle East</b>									
1	Abu Dhabi Offshore 1	JV	Exploration	30%	Eni Abu Dhabi	70%			<ul style="list-style-type: none"> <li>Reprocess Seismic</li> <li>G&amp;G studies</li> </ul>
2	Abu Dhabi Offshore 2	JV	Exploration	30%	Eni Abu Dhabi	70%			<ul style="list-style-type: none"> <li>Drill an exploration well</li> <li>Perform 3D seismic activities</li> </ul>
3	PDO (Block 6)	JOC	Production	2%	Government of Oman Shell Total	60% 34% 4%		507	<ul style="list-style-type: none"> <li>A part of Partex acquisition which was completed on 4 November 2019</li> <li>Maintain production plateau</li> </ul>
4	Mukhaizna	JV	Production	1%	Occidental OOCEP Indian Oil Mubadala	47% 20% 17% 15%		85	<ul style="list-style-type: none"> <li>A part of Partex acquisition which was completed on 4 November 2019</li> <li>Maintain production plateau</li> </ul>
5	Block 12	JV	Exploration	20%	Total E&P Oman Block 12 B.V.	80%			<ul style="list-style-type: none"> <li>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</li> </ul>

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\*\* Sales volume stated at 100% basis

	Project	Status*	Phase	PTTEP's Share	Partners (as March 2020)		6M2020 Average Sales Volume **		2020 Key Activities
							Gas (MMSCFD)	Liquid (KBPD)	
<b>Other International</b>									
1	PTTEP Australasia (PTTEP AA)	OP	Exploration	90%-100% (varied by permits)					<ul style="list-style-type: none"> <li>AC/RL7 (Cash Maple): under the evaluation of appropriated development plan and seeking partner to manage the project's risk</li> <li>Other exploration projects: G&amp;G and P&amp;A studies</li> <li>AC/L3: total block relinquishment</li> </ul>
2	Mozambique Area 1	JV	Development	8.5%	Total, Mitsui, ENH, ONGC Beas Rovuma, Bharat	26.5%, 20% 15%, 10% 10%, 10%			<ul style="list-style-type: none"> <li>First Cargo is expected by 2024</li> <li>Finalize project Finance</li> <li>Continue Onshore and Offshore well construction</li> <li>Complete Resettlement</li> </ul>
3	Algeria 433a & 416b (Bir Seba)	JOC	Production	35%	PetroVietnam Sonatrach	40% 25%	-	18 (net entitlement)	<ul style="list-style-type: none"> <li>Drill production wells</li> </ul>
4	Algeria Hassi Bir Rekaiz	OP	Development	24.5%	CNOOC Sonatrach	24.5% 51%			<ul style="list-style-type: none"> <li>Drilling development wells</li> <li>FEED study</li> <li>Continue Improvement oil study (IOR)</li> </ul>
5	Mariana Oil Sands	OP	Exploration	100%					<ul style="list-style-type: none"> <li>Assess appropriated development approach</li> </ul>
6	Barreirinhas AP1	JV	Exploration	25%	Shell Brasil Mitsui E&P Brasil	65% 10%			<ul style="list-style-type: none"> <li>G&amp;G studies</li> </ul>
7	Brazil BM-ES-23	JV	Exploration	20%	Petrobras INPEX	65% 15%			<ul style="list-style-type: none"> <li>G&amp;G studies</li> </ul>
8	Mexico block 12 (2.4)	JV	Exploration	20%	PC Carigali Mexico Ophir Mexico	60% 20%			<ul style="list-style-type: none"> <li>EIA and G&amp;G study to access petroleum potential</li> </ul>
9	Mexico block 29 (2.4)	JV	Exploration	16.67%	Repsol Mexico PC Carigali Mexico Wintershal DEA	30% 28.33% 25%			<ul style="list-style-type: none"> <li>Drilling Exploration wells</li> <li>G&amp;G study to access petroleum potential</li> </ul>

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

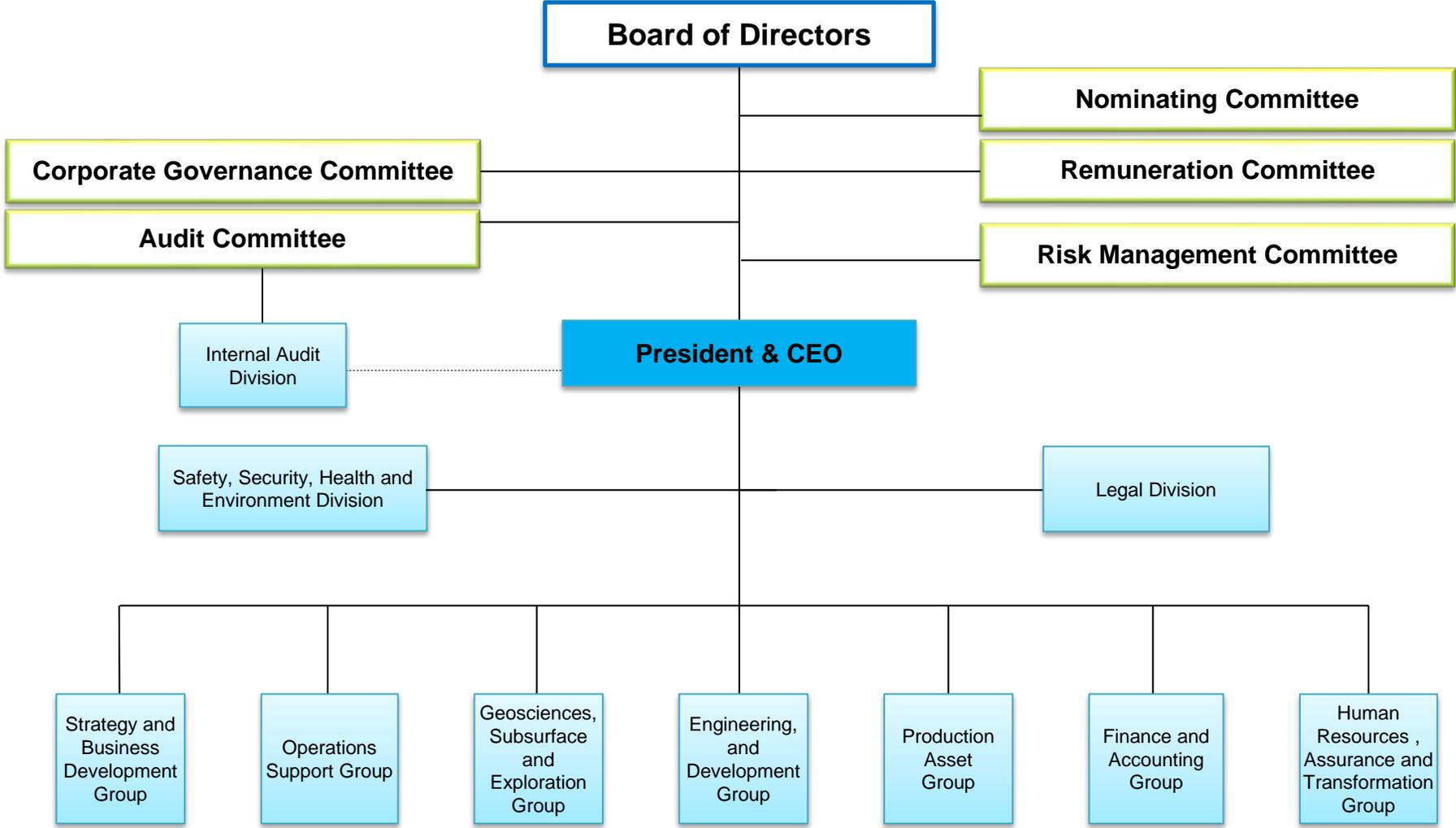
\*\* Sales volume stated at 100% basis except for Algeria 433a & 416b (Net Entitlement)

	Project	Status*	Phase	PTTEP's Share	Partners (as March 2020)	6M2020 Average Sales Volume **		2020 Key Activities	
						Gas (MMSCFD)	Liquid (KBPD)		
<b>Other International</b>									
10	Block 17/06	JV	Pre development	2.5%	Total Sonangol SSI Acrep Falcon Oil	30% 30% 27.5% 5% 5%			<ul style="list-style-type: none"> <li>A part of Partex acquisition which was completed on 4 November 2019</li> <li>Maintain production plateau</li> </ul>
11	Potiguar	OP	Production	50%	Petro reconcavo	50%	0.206		<ul style="list-style-type: none"> <li>A part of Partex acquisition which was completed on 4 November 2019</li> <li>Maintain production plateau</li> </ul>
12	Dunga	JV	Production	20%	Total* OOCEP	60% 20%	2	12	<ul style="list-style-type: none"> <li>A part of Partex acquisition which was completed on 4 November 2019</li> <li>Maintain production plateau</li> </ul>
<b>Midstream Project</b>									
1	Oman LNG	Shareholder	On line	2%	Government of Oman Shell Total Korea LNG Mitsubishi Mitsui Itochu	51% 30% 5.54% 5% 2.77% 2.77% 0.92%			<ul style="list-style-type: none"> <li>A part of Partex acquisition which was completed on 4 November 2019</li> </ul>
2	ADNOC Gas Processing (AGP)	JV	On line	2%	ADNOC Shell Total	68% 15% 15%			<ul style="list-style-type: none"> <li>A part of Partex acquisition which was completed on 4 November 2019</li> </ul>

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

# Organization structure

Ensuring transparency, integrity and good corporate governance



Information as of 1 July 2020

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