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**Sustainability Indices**  
In Collaboration with RobecoSAM

# Investor Presentation

the 28<sup>th</sup> Annual CITIC CLSA Flagship  
Investors' Forum

14 September 2021

## **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.

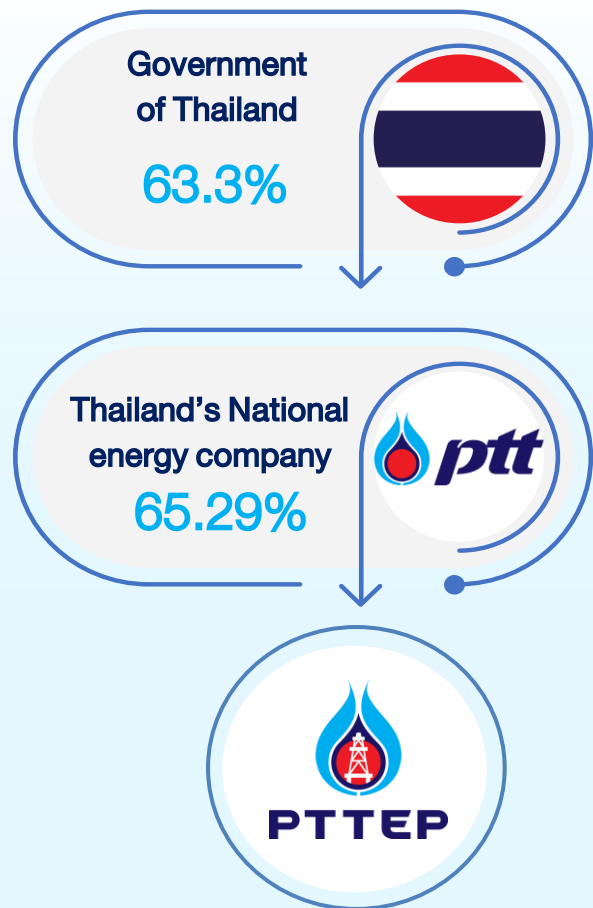




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# Corporate Introduction

# PTTEP – The Largest E&P company in Thailand



As of March 2021

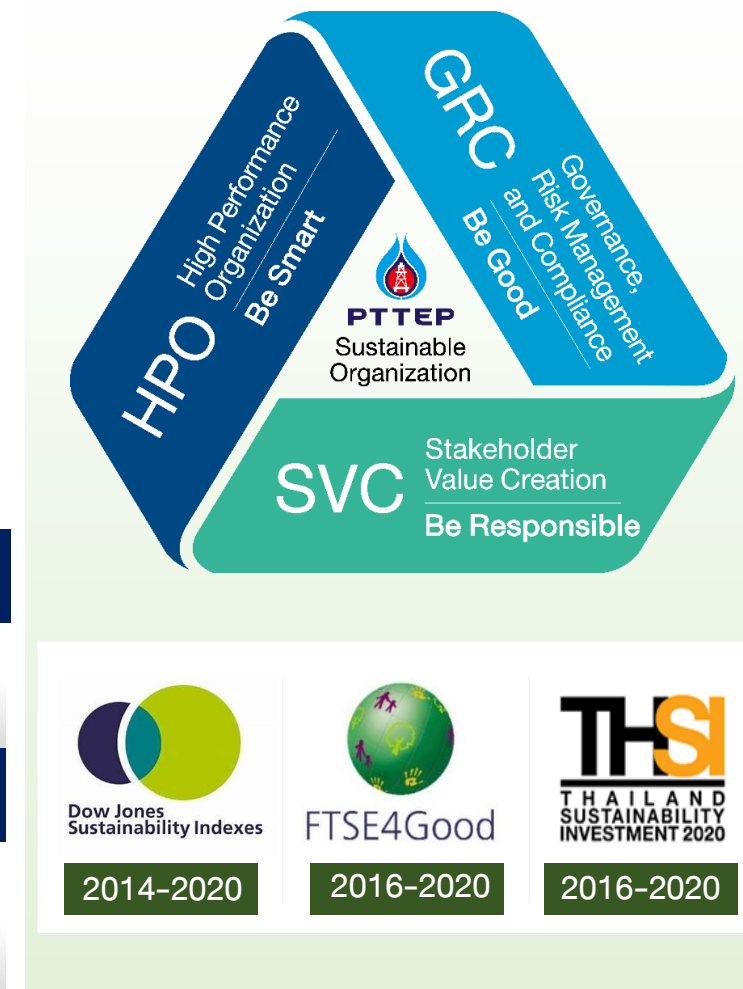
**E&P arm of PTT Group**  
Established 1985

**Market Cap. > 14bn USD**  
SET Listed since 1993

**Sales Revenue > 90%**  
SEA & Middle East

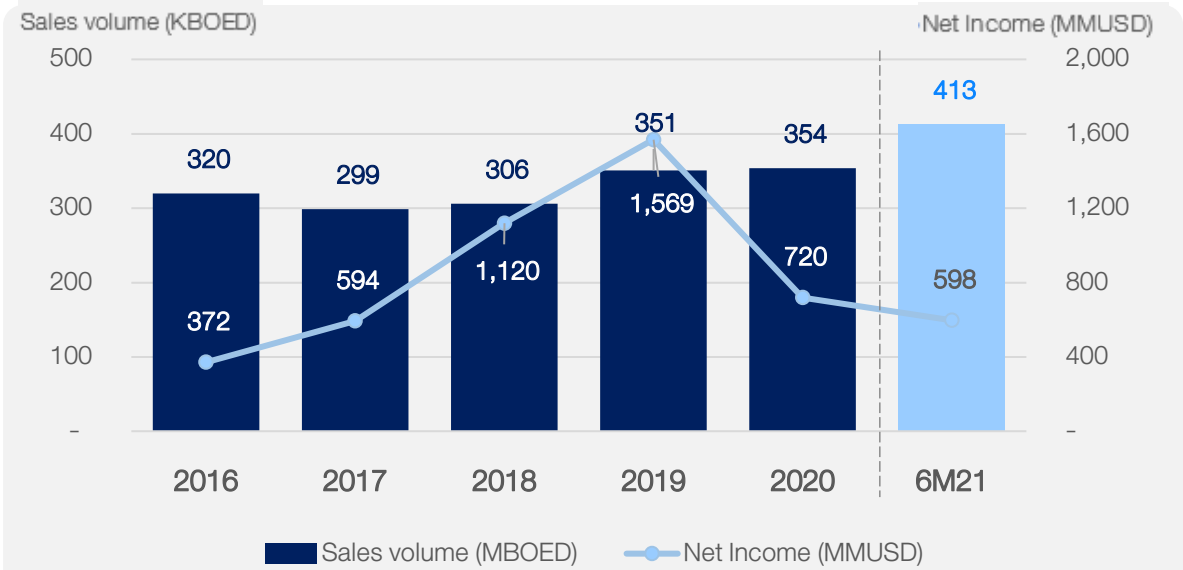
**Cash Cost < 13\$/BOE**  
Cost Competitive

<b>STANDARD &amp; POOR'S RATINGS SERVICES</b> McGraw Hill Financial  <b>BBB+ / Stable</b> Stand-alone at BBB	<b>FitchRatings</b>  <b>BBB+ / Stable</b> Stand-alone at BBB
<b>MOODY'S</b>  <b>Baa1 / Stable</b> Stand-alone at Baa2	<b>TRIS RATING</b>  <b>AAA / Stable</b>

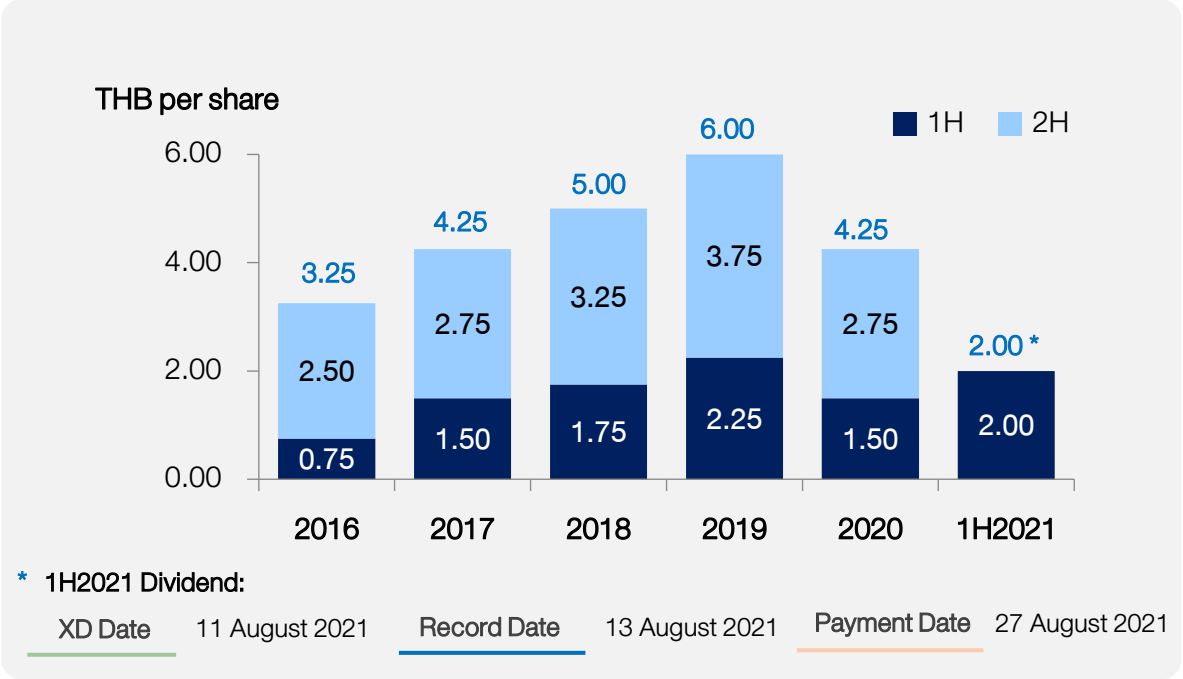


# Consistent Performance

### Historical Sales Volume and Net Income



### Dividend Payment History



EBITDA margin (% of sales revenue)	71	70	73	71	68	75
Unit Cost (USD/BOE)	30.46	29.05	31.69	31.71	30.5	27.57

Payout Ratio (% of net income)	98	88	55	49	77	40
Payout Ratio (% of recurring net income)	79	63	51	53	71	38





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## Energy Transition & PTTEP Strategy



Climate change is Top Agenda



Stakeholders demanding lower carbon footprint



Shifting to low carbon energy



Fossil Fuel demand will peak

Global

- **GHG Reduction** to sustain E&P business
- **Gas** is a transition fuel
- **Electrification** is the future

- **New Policy & Incentives** for green investment
- **Easy Access & Cheap Funding** from Investor

- **Renewables growing at 10% CAGR** from 2010-2040
- **H<sub>2</sub> Society** becomes aspiration for many countries

- **Peak Oil: 2028–2040+** by speed of growth in EVs
- **Peak Gas: 2037–2040+** by growth in renewables

Thailand
















- **2030 GHG reduction target 20%**
- **Net-zero emission year** being defined
- **Climate Change Act** being prepared

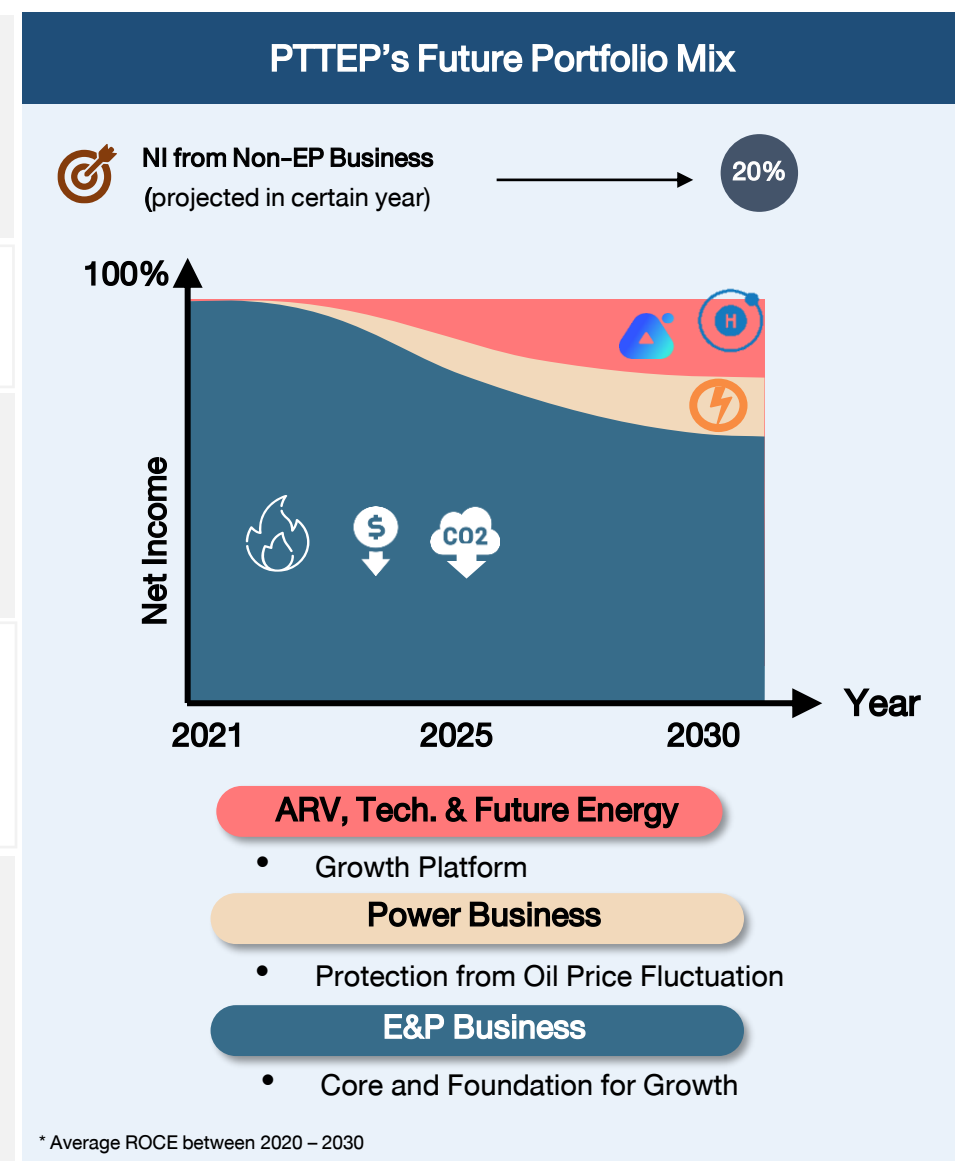
- Govt. plans to
  - Change **fuel mix**
  - Support **goods from low-carbon** processes
  - Encourage **Carbon Capture and Storage**

- **Renewables growing at 2–3% CAGR** (2019–2050)
- **H<sub>2</sub> Symposium & H<sub>2</sub> Thailand Working Group** established among private sectors

- **Peak Oil: 2034** by clean energy & policy
- **Peak Gas: 2040+** by technology development

# PTTEP's Position towards Energy Transition

Strategy	Last man standing	Cautious diversified	Low-carbon adopter	Energy transition frontrunner
Emission Targets	Minimal adhere to regulations	Commitment but not Net Zero	Net zero target	Aggressive 2°C goal
Core Oil & Gas Business	Focused + Offset activities	Maintain + Offset activities	Reduced + Offset activities	Divested
New Business	Minimal	Minor	Increased	Focused
Company Mapping	  	      	   	





# PTTEP's Directions and Long-Term Targets

## Execute & Expand

### Sustainable E&P Business

- **Production CAGR** 5% in 2030, maintain @700 KBOED after 2030
- **R/P** > 5 years
- **Unit Cost** ≤ 25 \$/BOE

#### Strategy:

- **Domestic gas sales** to ensure gas supply continuity
- **Cost competitiveness** of oil projects in Thailand & Malaysia
- **Resources monetization** of exploration and development assets
- **"Go for Gas"** growth in TMM & ME
- **New LNG investment shift** to medium-long term

- **GHG emission intensity** reduced by 25% in 2030
- **PTTEP's visibility** as "Guardian of the Ocean"

#### Strategy:

- ❑ **GHG reduction initiatives** e.g. CCS in Thailand & Malaysia
- ❑ **Ocean for life initiatives** e.g. Ocean data platform, Rig to reef, CSR around ocean

### Diversification to non-E&P

- **Net Income contribution** 20% by 2030

#### Strategy:

- ❑ **ARV** superior growth
- ❑ **Power Business** in Vietnam / Myanmar
- ❑ **In-house Tech Commercialization**, CCU, Hydrogen

### Resources Preparedness

- **Resilient organization** for both E&P and non-E&P

#### Strategy:

- ❑ **Efficient human resources and funding plan**
- ❑ **Spin-off** non-E&P businesses

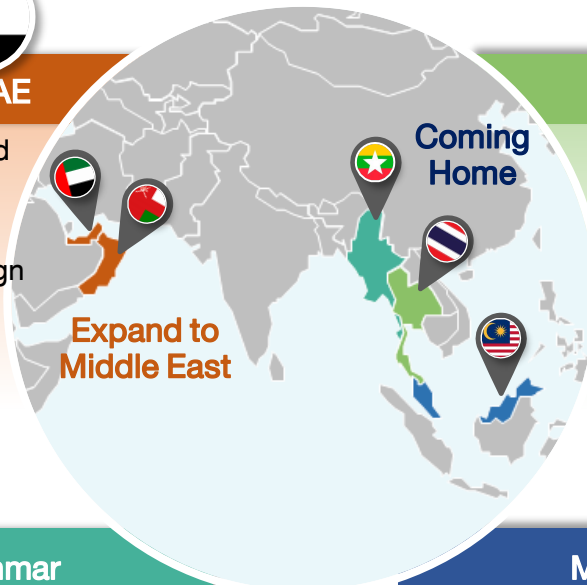
## E&P Business

*Growth in Core Area & Strategic Partnership*



### Oman and UAE

- Monetize Discovered Resources
- Accelerate Exploration Campaign
- Grow through Strategic Partner



### Thailand

- Ensure **domestic gas supply** continuity
- Accelerate resources recovery from onshore assets
- Find **new growth opportunity** from OCA and bid round



### Myanmar

- Pursue growth in **Western Corridor**
- Unlock full potential of existing assets
- Closely monitor **political situation**

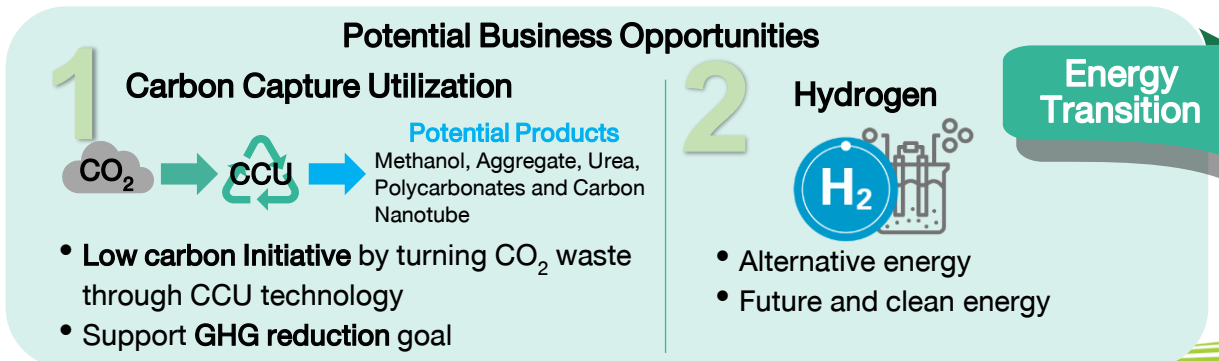
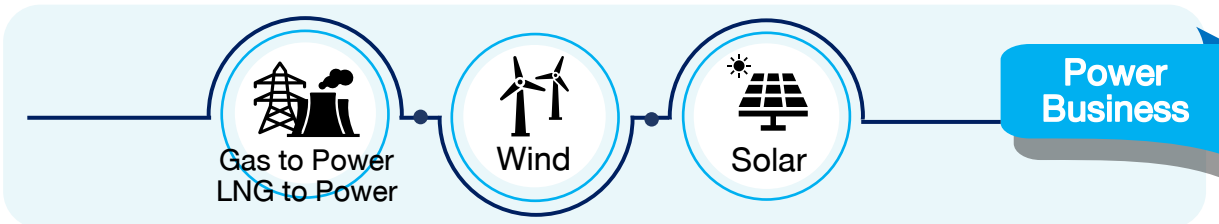
### Malaysia

- Fully Explore and synergize with existing facilities
- Focus on **Lang Lebah (LLB)** Development
- Resources monetization from exploration blocks



## Non-E&P Business

*Diversification : NI > 20% by 2030*







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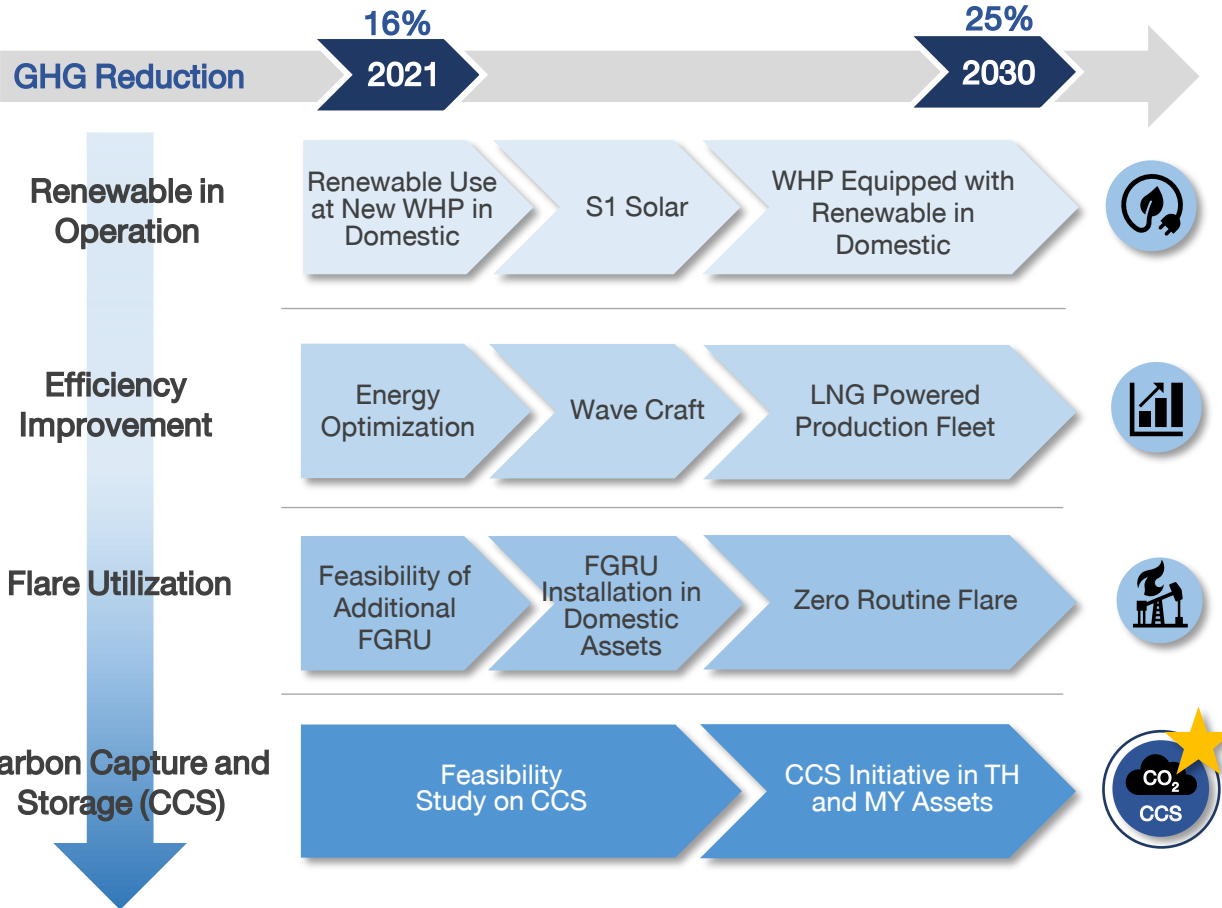
## SD Roadmap



# SD Roadmap – GHG and Ocean for Life

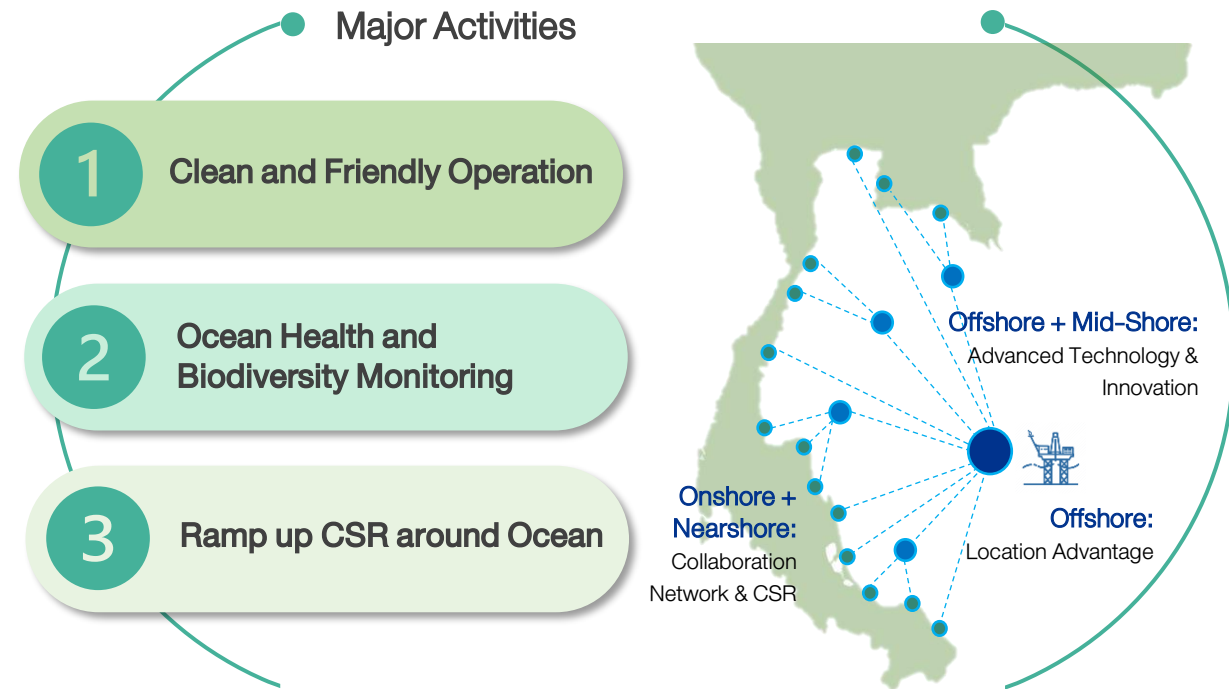
## GHG Reduction Roadmap for 2030 Target

*25% GHG Intensity Reduction (base year 2012)*



## Ocean for Life

*Guardian of the Ocean (via Ocean Data Platform)*





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## Operations Update

## Assets Transition in Thailand

**G1/61**  
(Erawan)



**Delayed  
Site Access**



**Starting producing  
below PSC volume**



**Remediation Plan**  
(accelerate ramp-up and  
uplift other fields)

**G2/61**  
(Bongkot)



**WHP Construction  
and Installation**  
(complete in Nov)



**Awarded  
drilling rig**  
(ready to drill in Nov)



**GSA Finalized**

*On track towards 1st gas in 2022*

## Production boost in Oman

**Oman Block 61**

- Ramp up production to full capacity from 27 June 2021
- Gas: 1,500 MMSCFD  
Condensate: 69,000 BBL/D



## New volume in Algeria

**Algeria HBR**

- Construction and commissioning on progress
- 1<sup>st</sup> oil production expected in 2H/2021 with capacity 10-13KBPD

## Stronger foothold in Malaysia

### SK410B Project

- Under field development study reflecting larger gas discovery volume and CO<sub>2</sub> management as per GHG aspiration target
- FID target on track
- Several petroleum prospects under study with additional drilling planned in 2022

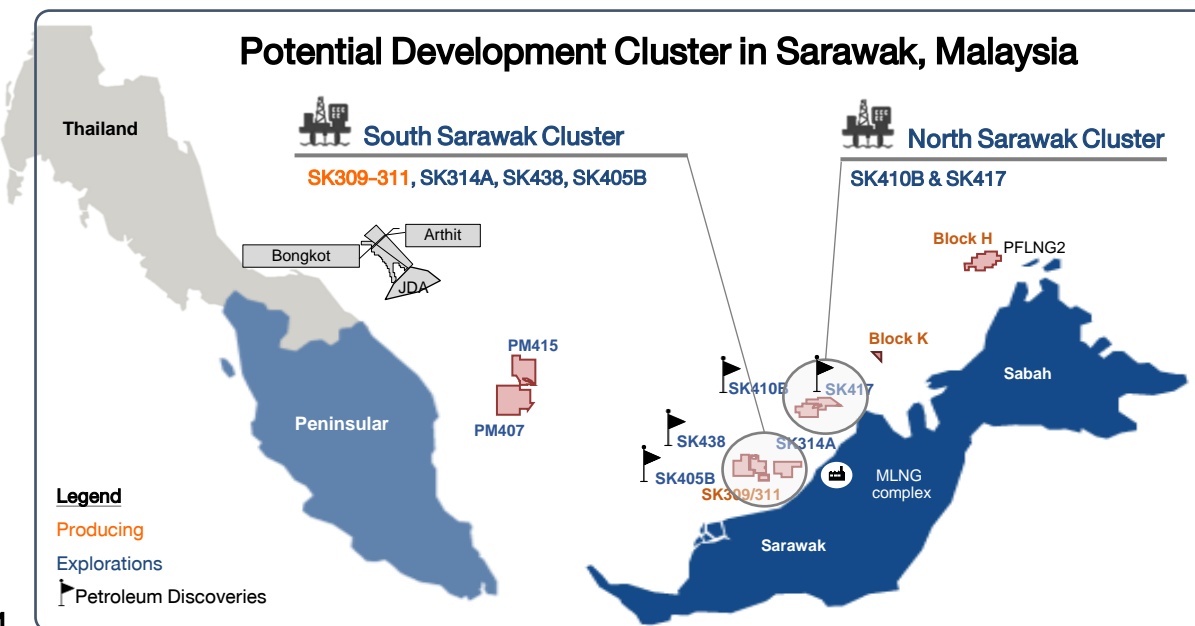
### SK438 Project

- Evaluating petroleum potential at Mak Yong-1, after gas discovery at Kulintang-1 (1<sup>st</sup> exploration well) in April 2021

### PM407 Project

- Conducting 3D Seismic Reprocessing and preparing for exploration drilling campaign in 2022-2023

## Potential Development Cluster in Sarawak, Malaysia





# New Business Update – ARV



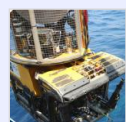
End-to-end AI-augmented **Subsea**  
Inspection Repair and Maintenance (IRM)

One-stop Service for **Smart Farming**  
and **Smart Forestry** Solutions

Cloud-based Asset **Inspection** and Mgmt.  
Platform via Drones & AI/ML services

Thailand's largest lifetime **digital health**  
ecosystem for illness and good-health.

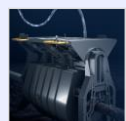
## Products and Services



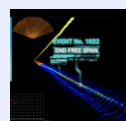
**ROV**  
Inspection & repair



**Xplorer AUV**  
Surveillance & inspection



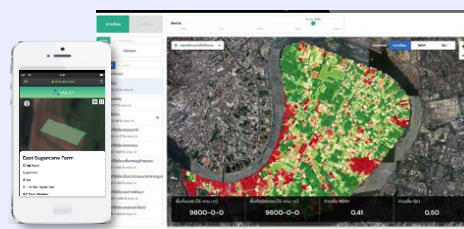
**Nautilus**  
Repair & Maintenance



**Software & Data**  
Analytics & Insights



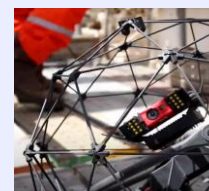
**AiAng Sprayer Drone**



**VARUN Platform**



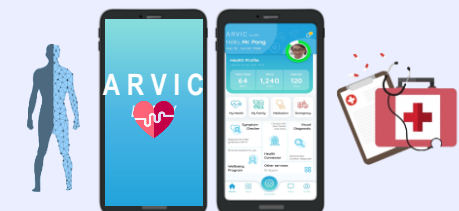
**AIM Platform**



**Drone Inspection**



**IoT  
Temp  
Monitoring**



**Health Ecosystem Platform**

## Business Highlights

- Delivered ROV support for pipeline replacement to Mubadala
- Awarded for Zawtika pipeline survey
- Awarded for ME ROV support project
- 5 sales opportunities in pipeline

- 1,120 sq.km Varuna analytics performed in POC stage
- 31 AiAang sprayer drone confirmed orders in Q2 (to be delivered in Q3)
- Ongoing discussion with 3 additional AiAang distributors
- Awarded for 48 sq.km spraying service
- 14 sales opportunities in pipeline

- AeroSky JV established
- MOU signed for power sector
- Delivered POC for Telecom and Construction sectors
- Ongoing inspection services performed 2,000 km of PTT Pipeline
- Awarded for HMC long-term service
- 12 sales opportunities in pipeline

- Delivered 2,000 units of IoT cold-chain device for Covid-19 vaccine
- Ongoing development of COVID-19 risk evaluator software (Thaisavefamily platform) for Department of Health
- Ongoing health ecosystem platform development (ARVIC) with potential 1.5m users on board
- Ongoing POC development of wellness platform with BJC



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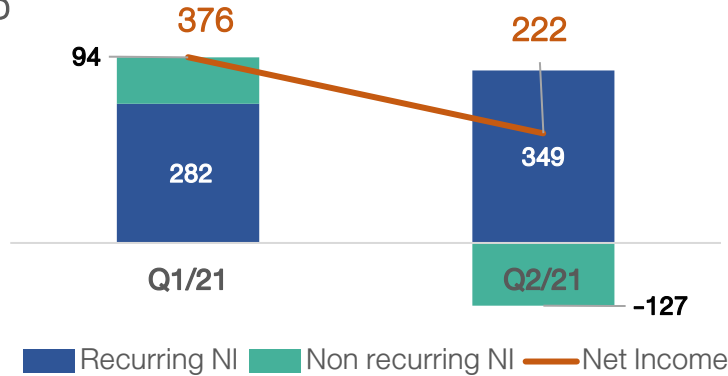
## Q2/2021 Results & Outlook

# Results – Net Income

Impressive recurring net income curbed by oil price hedging loss

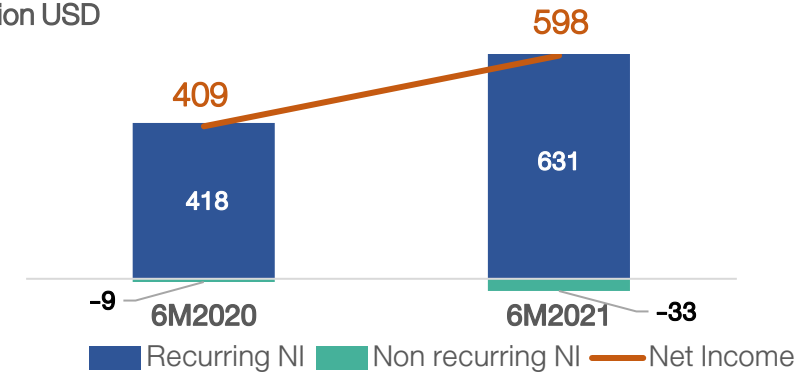
## Q2/21 on Q1/21 (QoQ)

Unit: million USD



## 6M2021 on 6M2020 (YTD)

Unit: million USD



### Recurring (+67 MMUSD or +24%)



**+16%**  
Mainly from Oman Block 61  
and Sabah H



**+4%**  
Higher liquid price



**-3%**  
Lower unit costs

### Recurring (+213 MMUSD or +51%)



**+20%**  
Increase from Gulf of Thailand,  
Sabah H, and Oman Block 61



**+3%**  
Higher liquid price  
offset with  
lower gas price



**-10%**  
Lower unit costs

### Non-recurring (-221 MMUSD or ->100%)



Higher oil price hedging loss in Q2, and realization of gain from bargain purchase offset with exploration asset write-off in Q1

### Non-recurring (-24 MMUSD or ->100%)



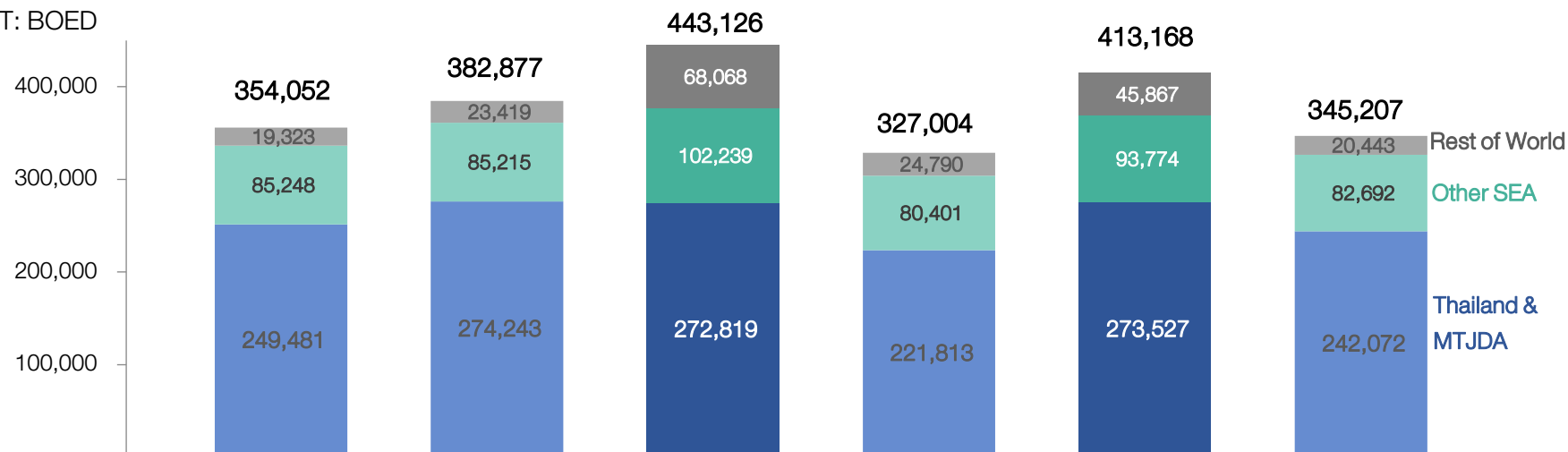
Higher oil price hedging loss offset with a gain from bargain purchase in 2021



# Results – Sales Volume and Avg. Selling Price

Solid volume addition from Oman Block 61 and Malaysia Sabah-H

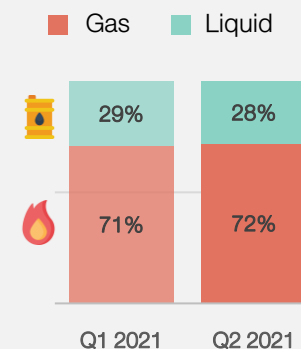
UNIT: BOED



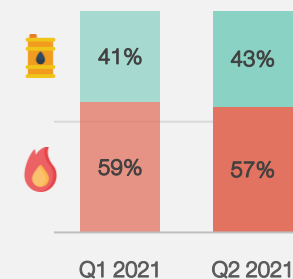
Product Price	2020	Q1 21	Q2 21	Q2 20	6M 2021	6M 2020
Gas (\$/MMBTU)	6.27	5.61	5.59	6.37	5.60	6.64
Liquid (\$/BBL)	41.55	56.59	63.98	28.92	60.52	40.80
<b>Weighted Avg. (\$/BOE)</b>	<b>38.92</b>	<b>40.38</b>	<b>42.19</b>	<b>34.97</b>	<b>41.35</b>	<b>40.15</b>
Avg. Dubai (\$/BBL)	42.27	60.21	67.02	30.72	63.62	40.72
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	39.30	56.74	61.21	29.18	58.98	36.26

**Note:** Include sales volume from ADNOC Gas Processing (AGP)  
Exclude Oman Block 61 deemed sales volume from tax payment by government

## Volume Mix

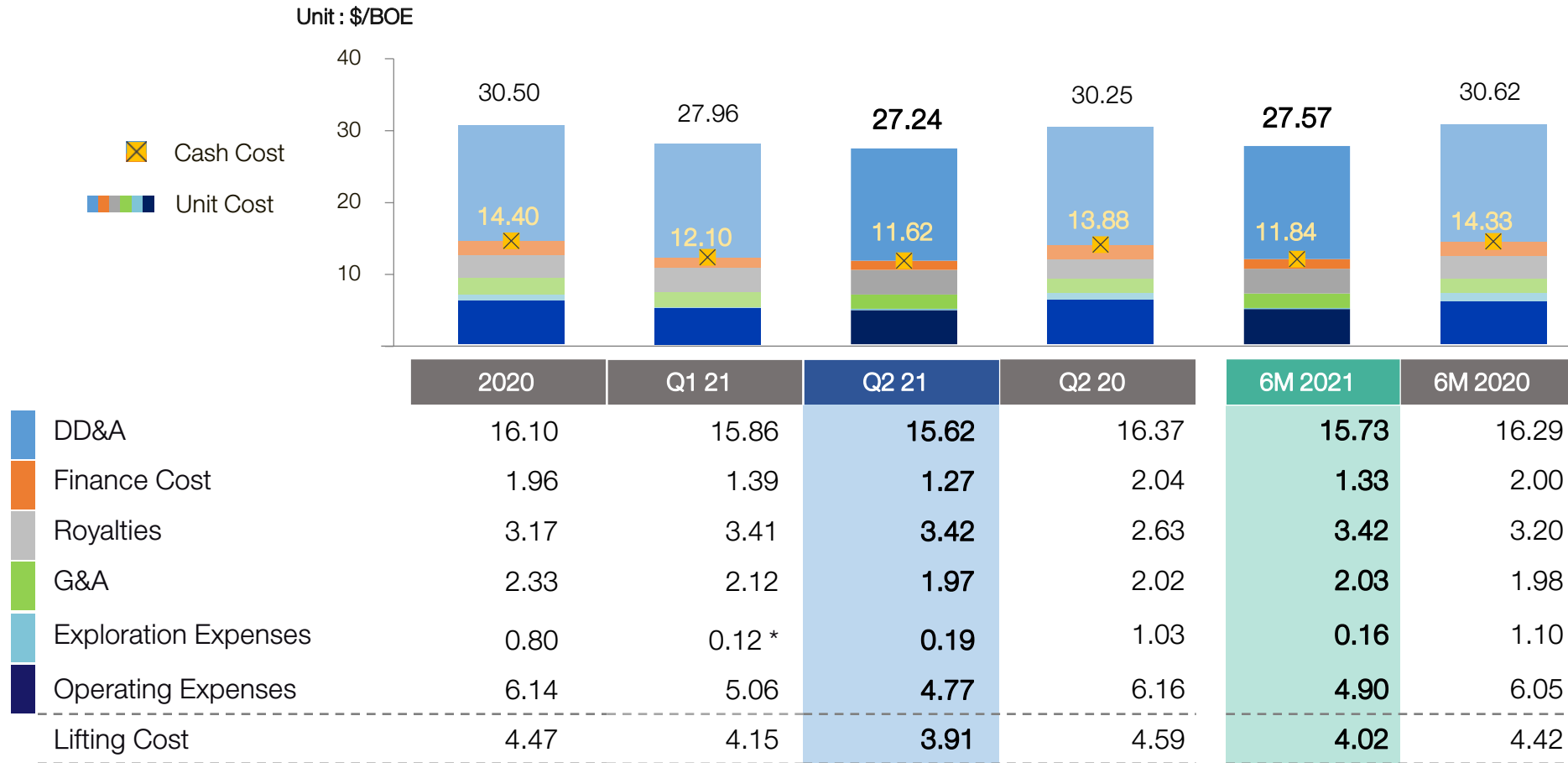


## Revenue Mix



# Results – Unit Cost

Consistent decline in unit cost to meet long-term aspiration cost target



Note: \* Exclude Exploration assets write-off in Brazil for Q1 21

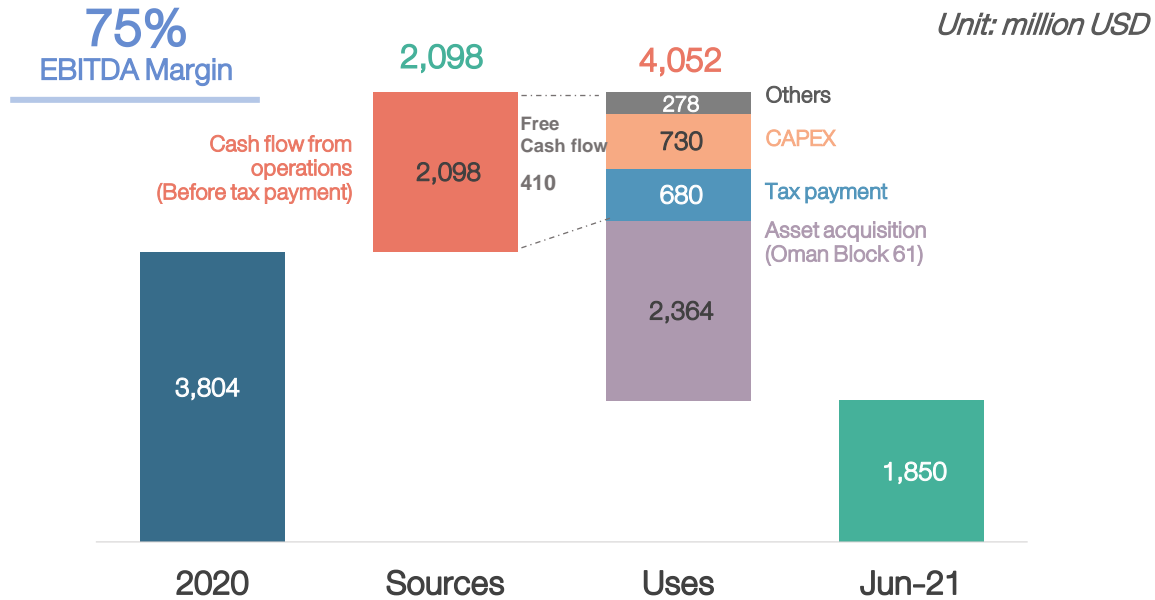
All Unit Cost shown above exclude costs related to new business

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

# Results – Cash flows and Financial Position

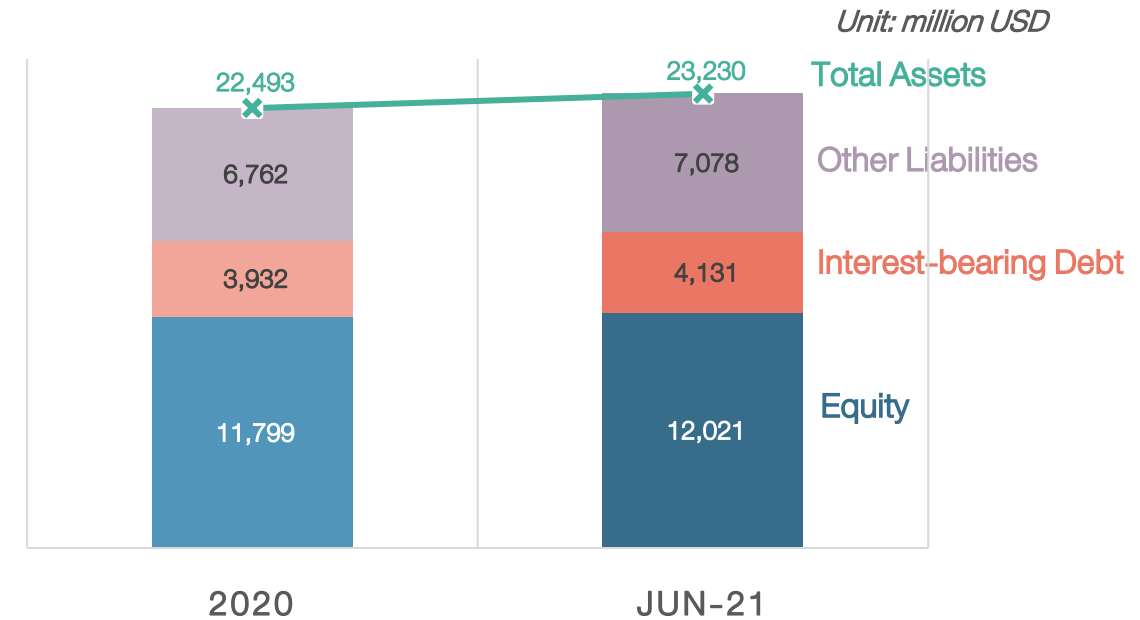
Robust operating cash flow with higher EBITDA margin

## 6M 2021 : Source and Use of Funds\*



Note: \* Include Short-term investment  
Net of adjustment for the effect of exchange rate changes on cash and cash equivalents

## Financial Position



## Debt Profile

D/E ratio	0.33x	0.34x	Weighted Average Loan Life (Years)	14.08	12.86
Weighted Average Cost of Debt (%)	3.44	3.31	Fixed : Floating	82:18	78:22

Remark: Debt profile excludes Hybrid bonds



# Financial Outlook

## 2021 Guidance

Average Sales Volume\*

KBOED

Q3  
~405

Full year

~412

Average Gas Price\*\*

USD/MMBTU

Q3 & Full year

~5.7

Unit Cost

USD/BOE

Q3 & Full year

~28-29

EBITDA Margin

% of Sales Revenue

Q3 & Full year

~70-75%

Note:

\* Include sales volume from  
ADNOC Gas Processing (AGP)

\*\* Based on average Dubai oil  
price in 2021 at 67.6 \$/BBL

## Credit Rating/Outlook

International

National



**BBB+ / Stable**  
BBB stand-alone rating

FitchRatings

**BBB+ / Stable**  
BBB stand-alone rating

Moody's

**Baa1 / Stable**  
Baa2 stand-alone rating

TRIS  
RATING

**AAA / Stable**





# 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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## Supplementary information

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# Results – Net Income

Unit: million USD

Statements of Income	Q2 21	Q1 21	%QoQ	Q2 20	%YoY	6M21	6M20	%YTD
<b>Total Revenues</b>	<b>1,768</b>	<b>1,779</b>	<b>(1%)</b>	<b>1,095</b>	<b>61%</b>	<b>3,546</b>	<b>2,779</b>	<b>28%</b>
Sales <sup>(1)</sup>	1,729	1,391	24%	1,041	66%	3,120	2,523	24%
Sales Volume (BOED) <sup>(2)</sup>	443,126	382,877	16%	327,004	36%	413,168	345,207	20%
Sales Price (US\$/BOE)	42.19	40.38	4%	34.97	21%	41.35	40.15	3%
Gain from a bargain purchase	-	350	(100%)	-	-	350	-	100%
Others <sup>(3)</sup>	39	38	3%	54	(28%)	76	256	(70%)
<b>Total Expenses</b>	<b>1,548</b>	<b>1,405</b>	<b>10%</b>	<b>959</b>	<b>61%</b>	<b>2,953</b>	<b>2,382</b>	<b>24%</b>
<b>Major Expenses:</b>								
Operating Expenses	193	174	11%	183	5%	367	380	(3%)
Exploration Expenses	7	149	(95%)	30	(77%)	156	69	>100%
G&A	83	75	11%	62	34%	158	128	23%
DD&A	629	547	15%	488	29%	1,176	1,024	15%
Loss on Financial Instruments	125	98	28%	78	60%	223	-	100%
Impairment Loss on Assets	-	-	-	47	(100%)	-	47	(100%)
Income Tax Expenses	321	192	67%	(68)	>100%	513	384	34%
<b>Share of profit (loss) from associates and JV</b>	<b>2</b>	<b>2</b>	<b>-</b>	<b>(2)</b>	<b>&gt;100%</b>	<b>5</b>	<b>12</b>	<b>(58%)</b>
<b>Net income</b>	<b>222</b>	<b>376</b>	<b>(41%)</b>	<b>134</b>	<b>66%</b>	<b>598</b>	<b>409</b>	<b>46%</b>
Recurring Net Income	349	282	24%	128	>100%	631	418	51%
Non-recurring Net Income	(127)	94	(>100%)	6	(>100%)	(33)	(9)	(>100%)
<b>Non-recurring Net income breakdown:</b>								
Oil Price Hedging	(141)	(107)	(32%)	(26)	(>100%)	(248)	140	(>100%)
Tax from Effect of FX	-	(9)	100%	122	(100%)	(9)	(103)	91%
Effect from FX and others	14	5	>100%	(43)	>100%	19	1	>100%
Impairment Loss on Assets	-	-	-	(47)	>100%	-	(47)	100%
Exploration assets write-off	-	(145)	100%	-	-	(145)	-	(100%)
Gain from a bargain purchase	-	350	(100%)	-	-	350	-	100%

## Note:

(1) Include Oman Block 61 deemed sales revenues from tax payment by government (28 MMUSD for Q2 21 and 6M21)

(2) Exclude Oman Block 61 deemed sales volume from tax payment by government

(3) Consisted of Revenue from Pipeline, Gain from FX, Forward Contract, and Oil price Hedging

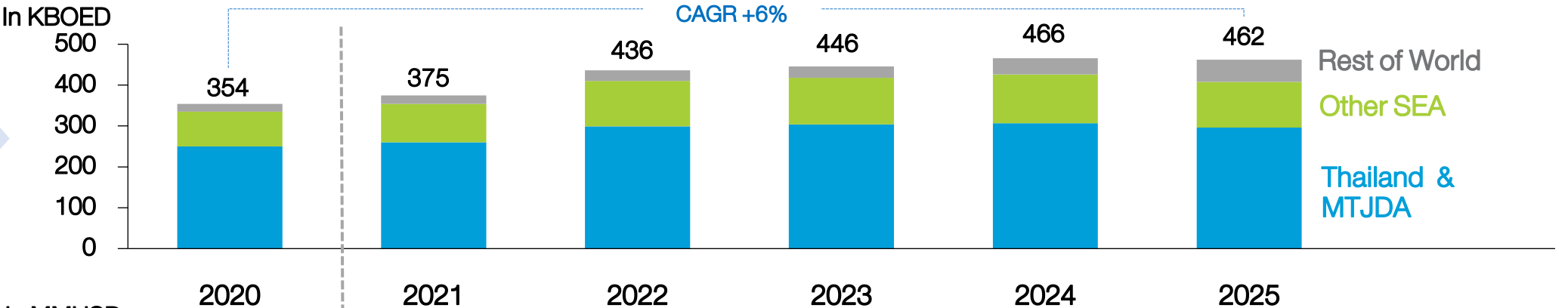
# Five –Year Plan : Sales Volume

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

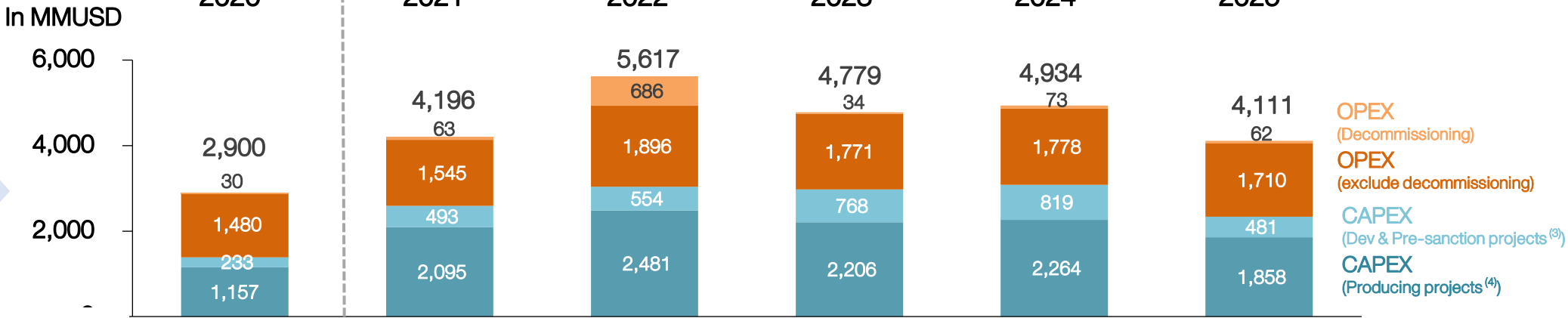
Figures have not yet reflected Oman block 61



Sales Volume

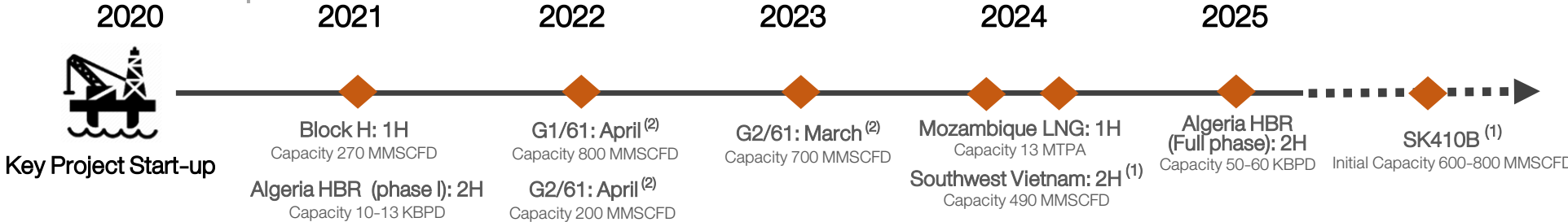


Investment



5 Years (2021 – 2025)

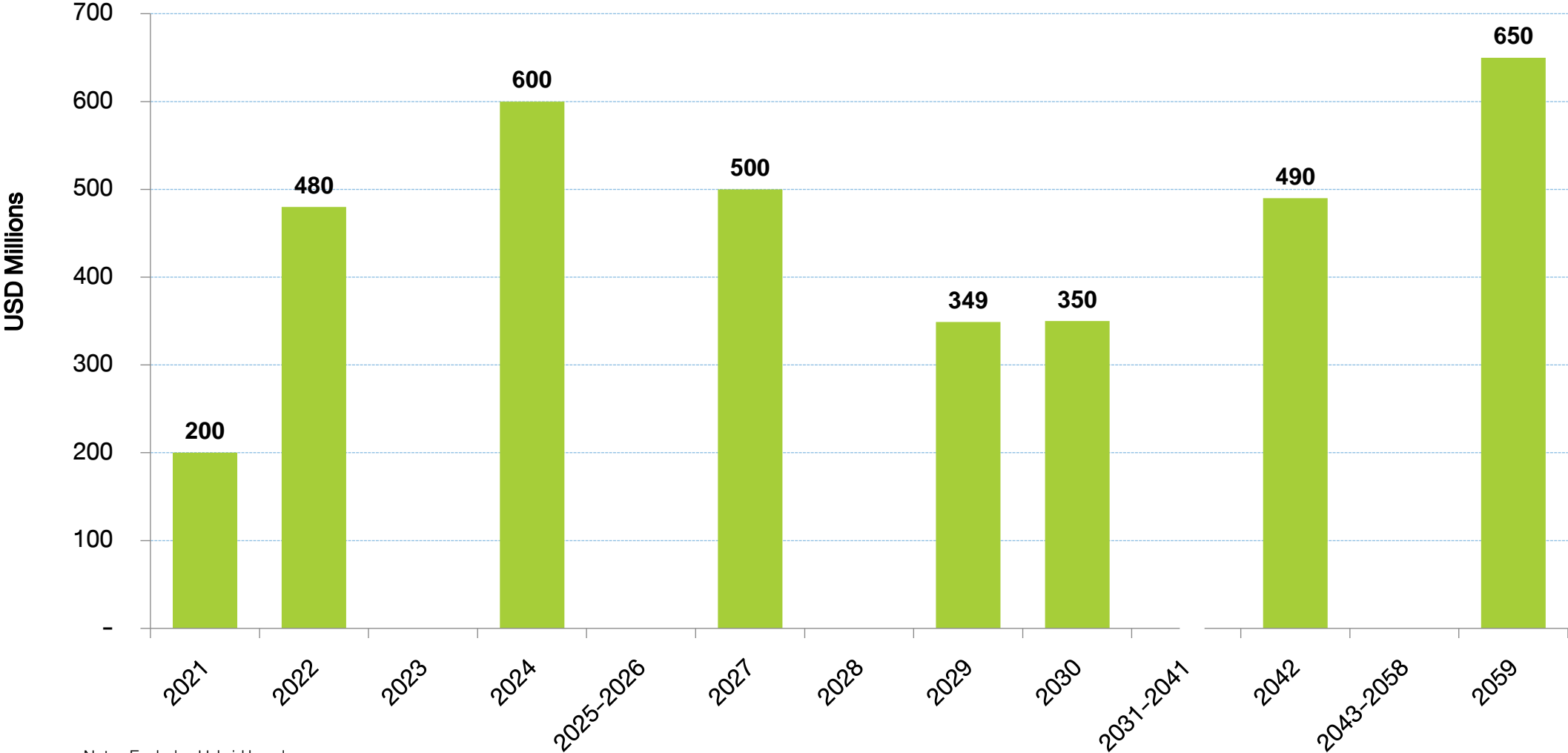
CAPEX	14,020
OPEX	9,617
TOTAL	23,637



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

# Debt Maturity Profile

As of June 2021



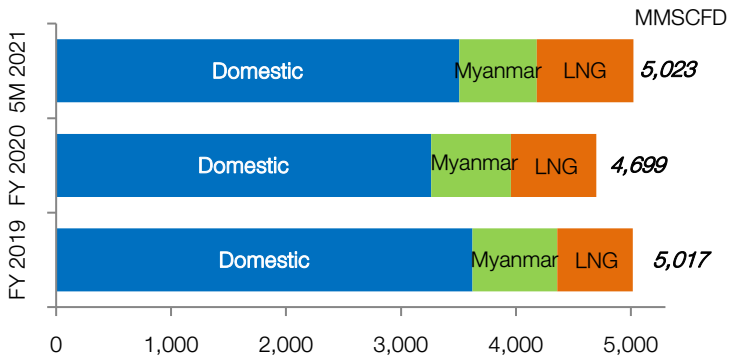
Note: Excludes Hybrid bonds

Unit: USD Millions or equivalent after cross currency swap



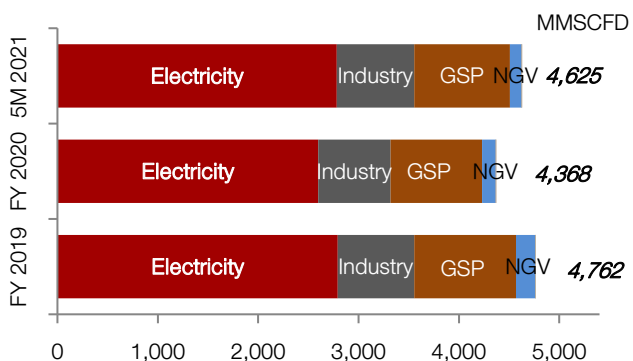
## Thailand Energy Overview

### Natural Gas Supply



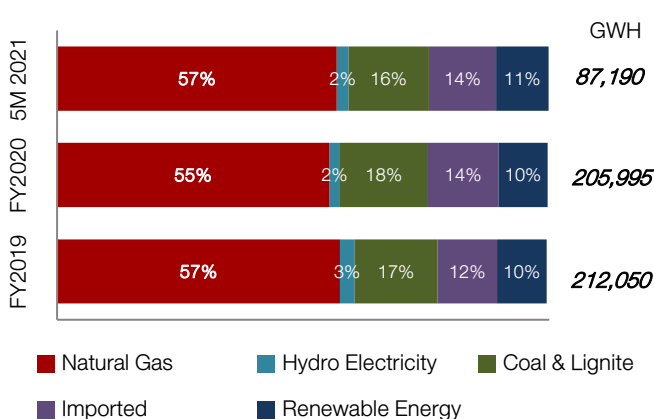
- Recovering energy demand, which rebounded to the same level of pre COVID-19
- As of April 2021: Higher domestic supply, while LNG imports decreased slightly and a decline from Myanmar piped gas imports due to natural decline

### Natural Gas Consumption



Source: Energy Policy and Planning Office (EPPO)

### Electricity Generation



## Exchange Rate Movement (THB/USD)



### Consensus on the exchange rate mostly depends on

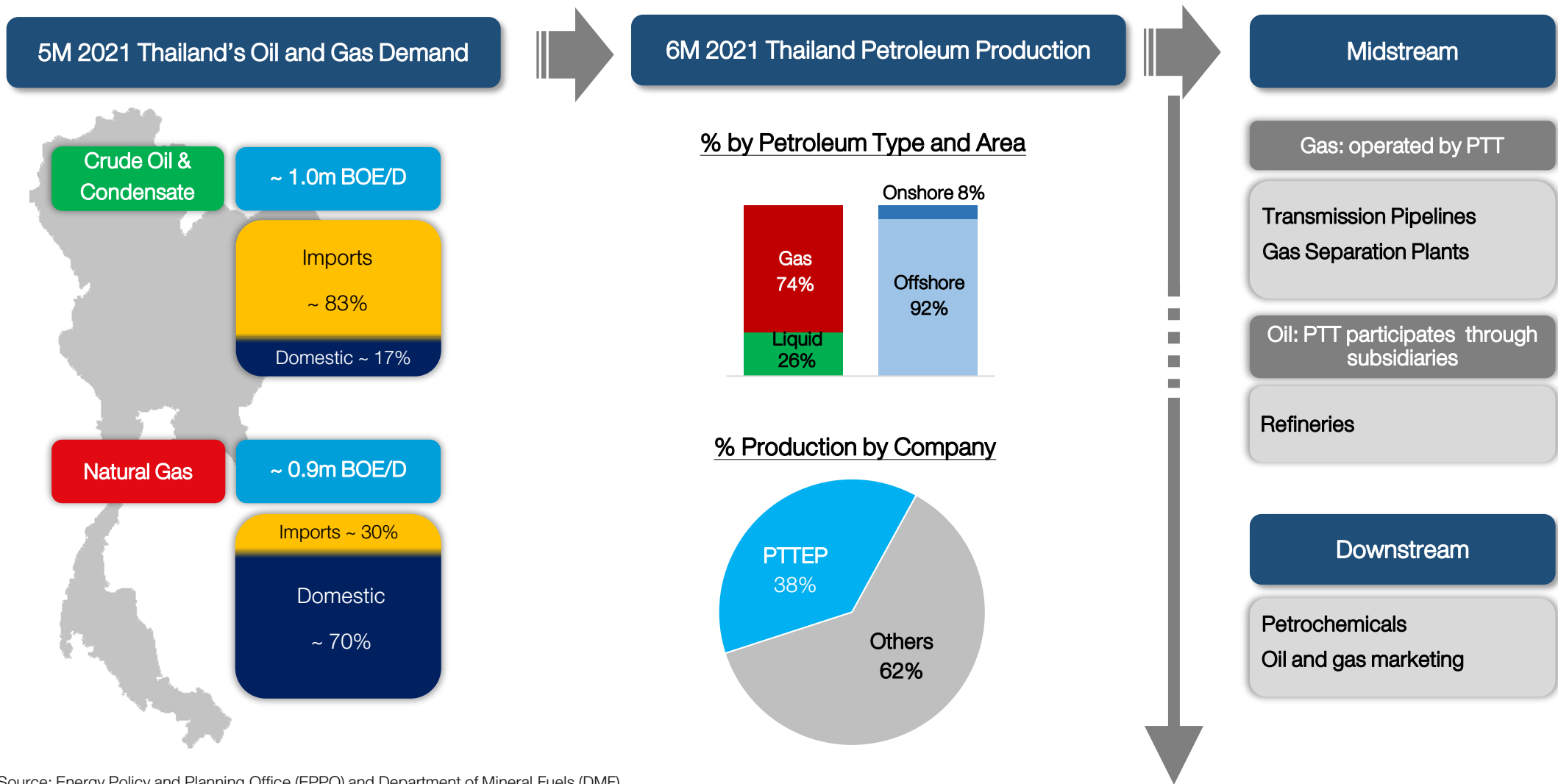
- Efficacy of Covid-19 containment measures in Thailand and vaccine procurement and distribution timeline
- Thailand's economic recovery which heavily depends on tourism recovery
- Sustained fiscal and monetary policy support in Thailand and Federal Reserve tapering timeline

Source: Bank of Thailand, Bloomberg

Forecast based on Bloomberg Consensus as of 12 July 2021

# Thailand's Energy Value Chain

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

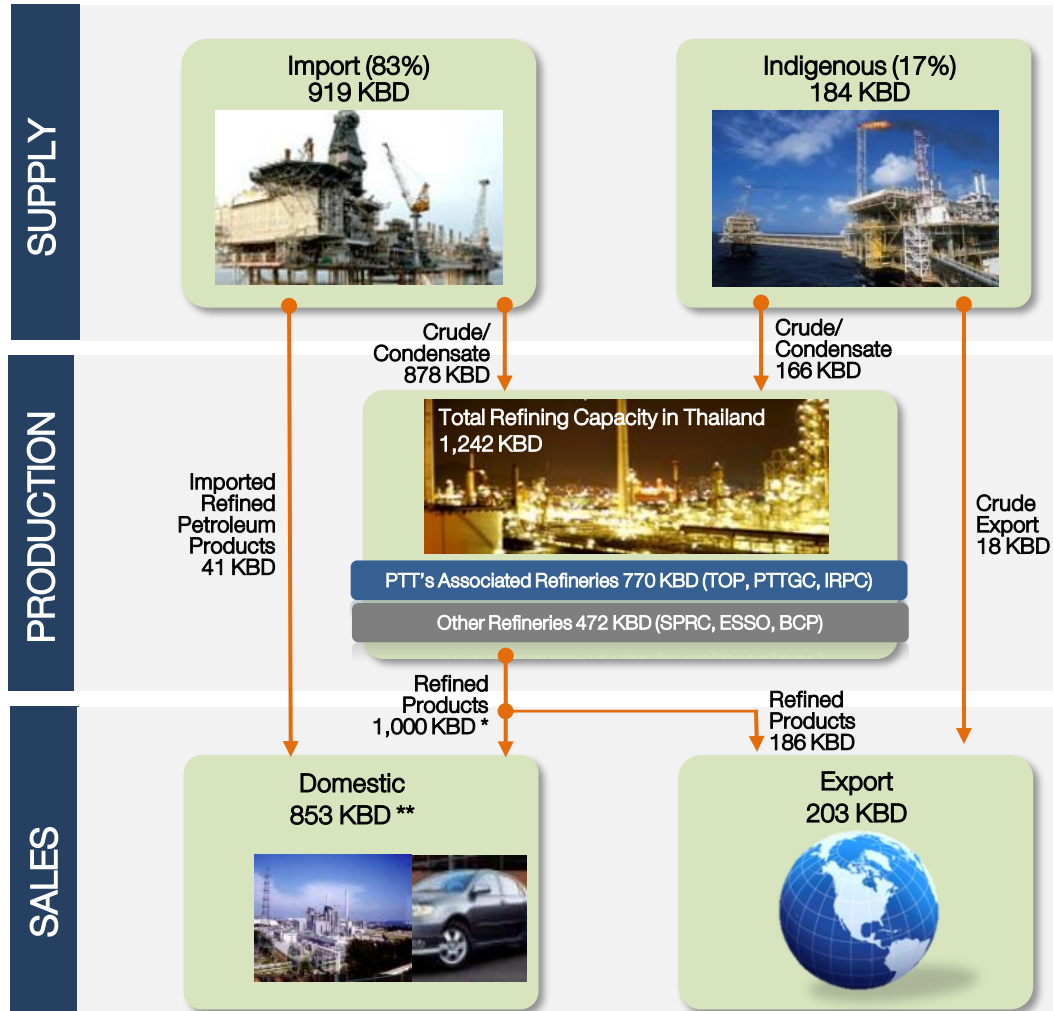


Source: Energy Policy and Planning Office (EPPO) and Department of Mineral Fuels (DMF)

# Thailand's Oil and Gas Balance

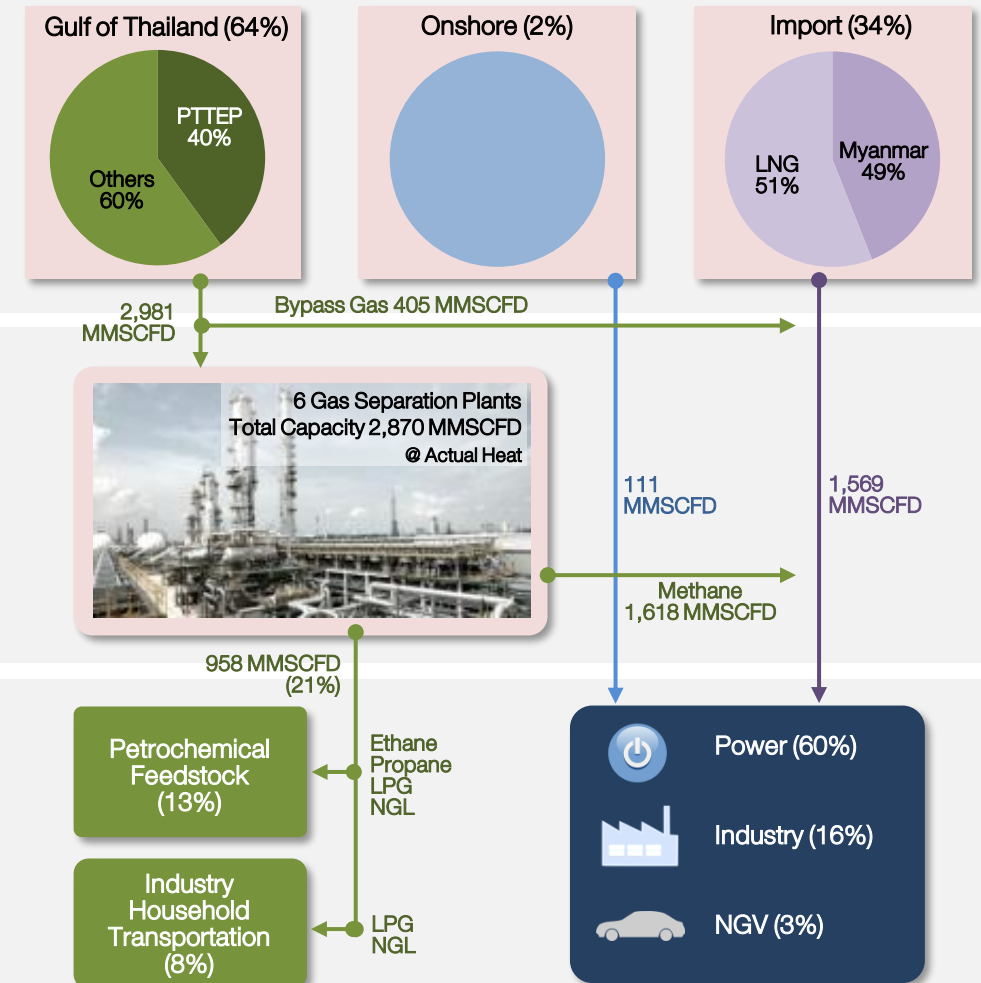
## Oil Balance\*\*\*

Maintains stability supply through adequate refining capacity



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

Main driver of the Thailand economy



Source: PTT

Note: \* Refined product from refineries = 908 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 92 KBD

\*\* Included Inventory

\*\*\* Information as of 6M21

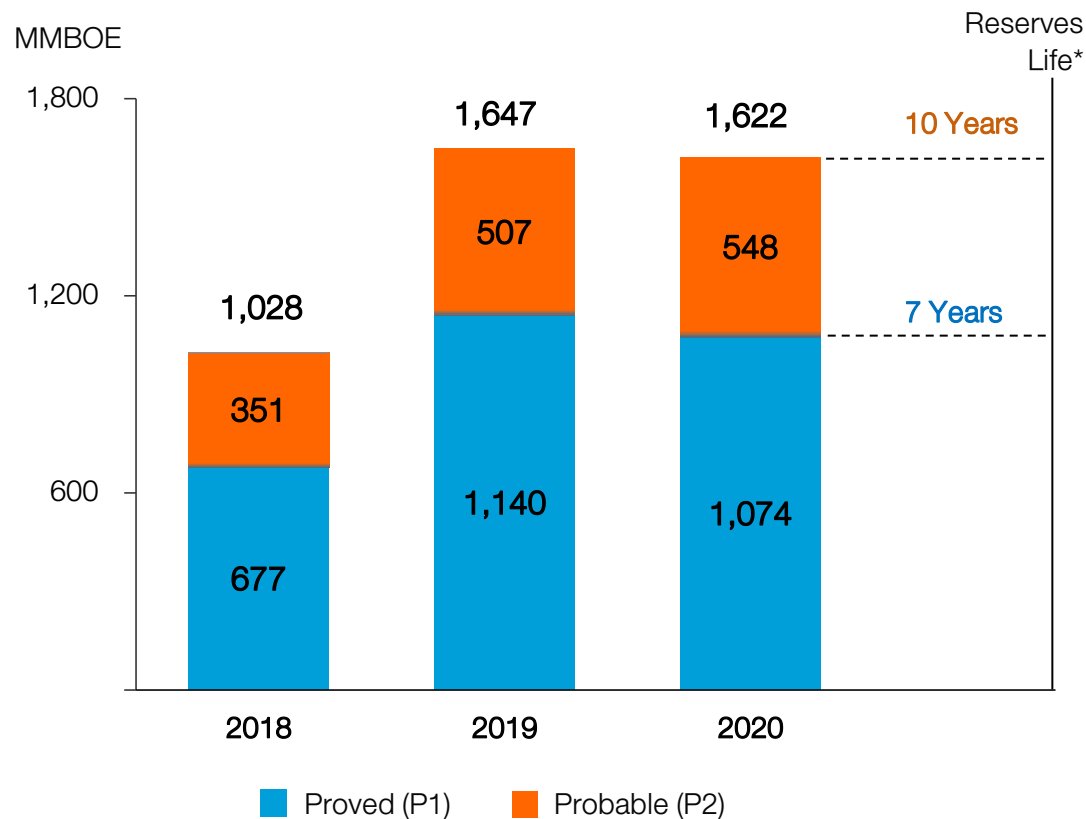
\*\*\*\* Information as of 6M21

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



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

Sustained reserve life at over 5 years target

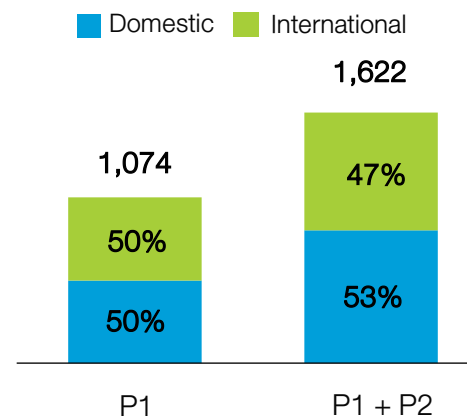


5-Year Average Proved Reserves Replacement Ratio (RRR)

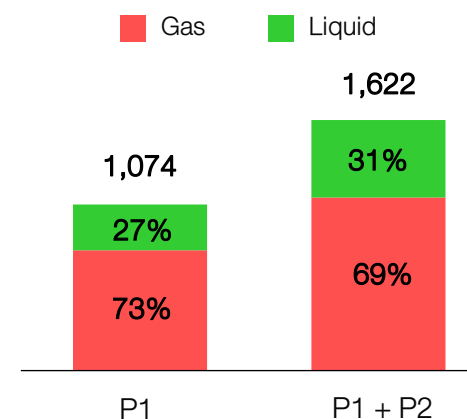
2018	2019	2020
0.7x	1.5X	1.5X

- 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

## 2020 by Geography



## 2020 by Product Type



# Diversified international portfolio



## Central Asia

- First presence in Kazakhstan:**
- Production: Dunga onshore oil field from the acquisition of ParTex in 2019

Oil sands

Oil

## Thailand

### PTTEP's primary operational base

- 66% of total sales volume
- Key producing assets include Bongkot, Arthit, Contract 4 and S1
- Transition of operations for G1/61 (Erawan) and G2/61 (Bongkot) are in process to ensure production continuity under new PSCs

## North & South America

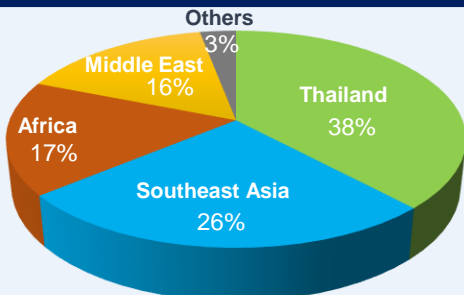
- Opportunities in an early phase:**
- Deepwater exploration in Brazil and Mexico with prominent and prudent operators

Oil

Oil

## Book Value of Assets by region

Total assets USD 23.23 billion



As of Jun 2021 (including Oman Block 61)

## 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 and Mozambique Area 1 with target first cargo in 2024

## Middle East

### Strong presence in UAE and Oman:

- 3 offshore exploration blocks in UAE, partnered with experienced operator
- 4 onshore blocks in Oman including PDO (Block 6), largest producing oil asset, and Block 61, largest tight gas development
- Stake in O LNG

Piped Gas

Oil

GAS/LNG

## Southeast Asia

### Second heartland to PTTEP

- 23% of total sales volume, mainly from Malaysia and Myanmar
- Recent multiple petroleum discoveries in Malaysia formed fundamental for cluster development potential
- Other producing assets in Vietnam (oil) and Indonesia (gas)

## Australia

### Potential gas development

- Sizable undeveloped gas resources in Timor Sea

# Thailand, Myanmar and Malaysia

“Coming Home” strategy to maintain strong foundation and utilize expertise

## 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 340 MMSCFD in 6M2021

### Project Status

Production	• Zawtika (80% WI)
	• Yadana (25.5% WI)
	• Yetagun* (19.3% WI)
Appraisal	• M3 (80% WI)

## Thailand

### Production / Ramp-up Projects

**Bongkot (66.6667% WI)**

Average natural gas and condensate sales volume of 919 MMSCFD and 22 KBPD in 6M2021

**S1 (100% WI)**

The largest onshore crude oil production field in Thailand with 6M2021 average crude oil sales volume of 28 KBPD

**Arthit (80% WI)**

Average sales volume in 6M2021 was 243 MMSCFD of natural gas and 12 KBPD of condensates

**Contract 4 (60% WI)**

Average sales rate of 395 MMSCFD for natural gas and 16 KBPD for condensate in 6M2021



● Production phase  
● Exploration phase

## 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 6M2021 was 25\* KBPD of crude oil and 25\* MMSCFD of natural gas

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

For East Patricia field (42% WI)

- Average production volume in 6M2021 was 173\* MMSCFD of natural gas and 17\* KBPD of condensates and crude

#### Block H Project :

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

- First gas delivered in early February 2021 with average production volume in 6M2021 at 142 MMSCFD of natural gas
- Full capacity at 270 MMSCFD

*For Block K, gross production is net off utilization*

### Exploration

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

- Multi TCF significant discovery
- Expected Final Investment Decision (FID) announcement by end of 2022/beginning of 2023

#### Sarawak SK417 and Sarawak SK405B projects

- New Petroleum discoveries with additional well drilling to assess upside potential

*Note: WI – working interest*



# Other South East Asia countries

Expanding foothold in the region



- Production projects
- Pre sanction projects

## Vietnam



### Vietnam 16-1 (28.5% WI)

- Average sales volume of crude oil was 12 KBPD in 6M2021
- The project is preparing the drilling of additional development wells in order to maintain the production level in 2021.



### 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 2024, and ramp up to full capacity of 490 MMSCFD

## Indonesia

### Natuna Sea A (11.5% WI)

- Average sales volume of natural gas was 214 MMSCFD in 6M2021
- The project is preparing the drilling of additional development wells in 2021.



## Building strategic presence and gaining access to Upstream oil & gas asset as well as Midstream Complex

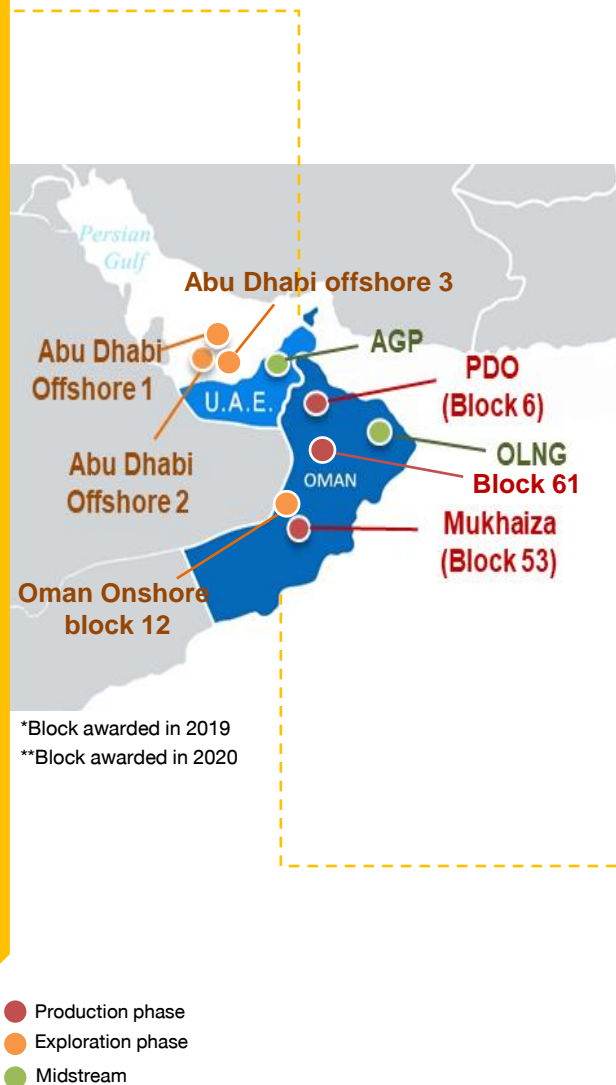
### UAE

#### 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
- Operated by ADNOC (68% interest)



### Oman

#### PDO (Block 6)

- Largest asset covering around 1/3 of the country
- Long-life asset, produced only 15% of reserves in-place
- Average oil production volume of 627 KBPD in Q22021
- Operated by Petroleum Development of Oman (Joint Operating Company)

#### Oman Onshore 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)

#### Mukhaizna (Block 53)

- Largest single onshore producing field in Oman
- Average oil production volume of 96 KBPD in Q22021
- Operated by Occidental Petroleum (47% interest)

#### Oman Block 61

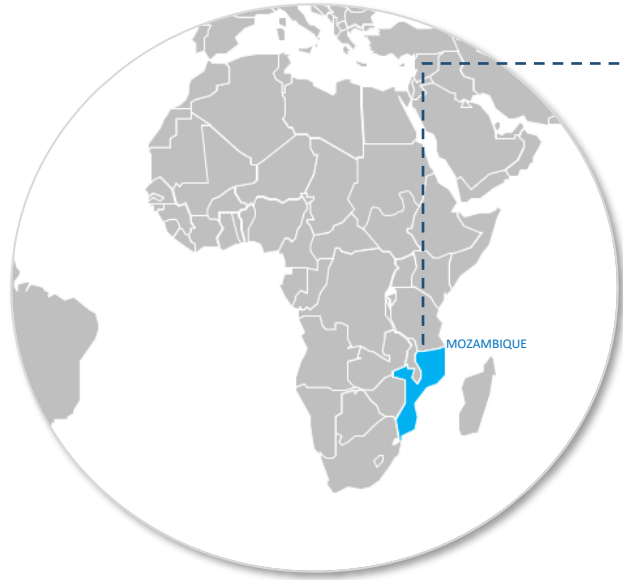
- Largest tight gas development in Middle East
- Gas and condensate production capacity of 1,500 MMSCFD and 69,000 BPD respectively
- Operated by BP Exploration (Epsilon) Limited (40% interest)

#### 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)

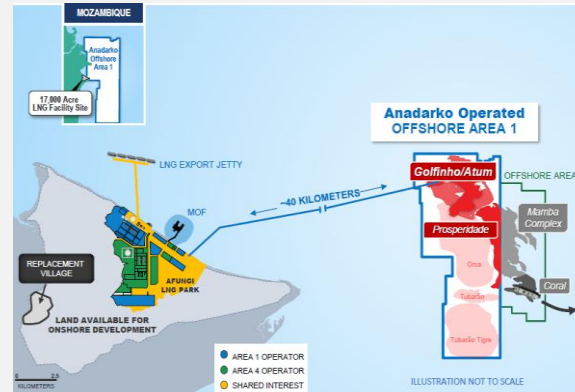
# Mozambique Area 1

On the path of unlocking value from world class LNG asset



## Mozambique

*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

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



## Next milestones

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



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

# America: Mexico and Brazil

Entry into high potential petroleum province at exploration stage

## Mexico

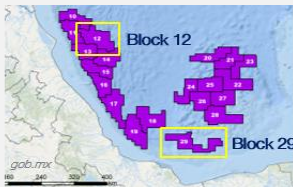
Deep-water with high petroleum potentials and attractive fiscal regime

### 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
- The appraisal plan and exploration plan were approved by the Mexican regulators (CNH) on 25 March 2021.
- Preparing for exploration well and appraisal drilling.



● Exploration phase

## Brazil

Deep Water

### 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





	Project	Status*	Phase	PTTEP's Share	Partners <i>(as of April 2021)</i>		6M2021 Average Sales Volume **		2021 Key Activities
							Gas (MMSCFD)	Liquid (KBPD)	
Thailand and JDA									
1	Arthit	OP	Production	80%	Chevron MOECO	16% 4%	243	12	<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%	48	15	<ul style="list-style-type: none"><li>• Ensure deliverability of production volumes as nominated from the buyer</li><li>• Drill development wells</li></ul>
4	Bongkot	OP	Production	66.6667%	TOTAL	33.3333%	919	22	<ul style="list-style-type: none"><li>• Drill development wells</li><li>• Maintain production level as planned</li><li>• Carry out wells plug and abandonment, and prepare for non-transferred wellhead platforms decommissioning</li></ul>
5	Contract 3 <i>(Formerly Unocal III)</i>	JV	Production	5%	Chevron MOECO	71.25% 23.75%	501	27	<ul style="list-style-type: none"><li>• Prepare for decommissioning activities</li></ul>
6	Contract 4 <i>(Formerly Pailin)</i>	JV	Production	60%	Chevron MOECO	35% 5%	395	16	<ul style="list-style-type: none"><li>• Ensure gas deliverability level at DCQ***</li><li>• Drill development wells</li><li>• Topside reuse</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%	1	3	<ul style="list-style-type: none"><li>• Deliver production volumes as nominated from the buyer and oil production as planned</li></ul>
9	G4/48	JV	Production	5%	Chevron MOECO	71.25% 23.75%	2	0.2	<ul style="list-style-type: none"><li>• Prepare for decommissioning activities</li></ul>
10	L53/43 & L54/43	OP	Production	100%	-		-	1	<ul style="list-style-type: none"><li>• Maintain production plateau</li><li>• Explore for additional field potential i.e. new drilling well and EOR/IOR</li><li>• Prepare for decommissioning activities</li></ul>
11	PTTEP1	OP	Production	100%	-		-	0.2	<ul style="list-style-type: none"><li>• Maintain production plateau</li><li>• Explore for additional field potential i.e. new drilling well and EOR/IOR</li><li>• Prepare for decommissioning activities</li></ul>
12	S1	OP	Production	100%	-		8	Crude:28 KBPD LPG: 190 MTon/Day	<ul style="list-style-type: none"><li>• Maximize crude production by fully implemented the business plan and work activities as planned</li><li>• 10 years strategy roadmap is being submitted to the management committee to ensure all focused strategic areas will be set up in the long term until end of concession in year 2031</li></ul>
13	Sinphuhorm	OP	Production	55%	Apico**** ExxonMobil	35% 10%	97	0.3	<ul style="list-style-type: none"><li>• Ensure gas deliverability</li><li>• Drill development well</li><li>• Sinphuhorm new Gas Sales Agreement is under Government's consideration and approval process</li></ul>

\* 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	Status*	Phase	PTTEP's Share	Partners <i>(as of April 2021)</i>	6M 2021 Average Sales Volume **		2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Thailand and JDA								
14	L22/43	OP	Production	100%	-	-	-	<ul style="list-style-type: none"><li>Study to explore additional field potential</li><li>Prepare for decommissioning activities</li></ul>
15	MTJDA	JOC	Production	50%	Petronas-Carigali 50%	263	8	<ul style="list-style-type: none"><li>Ensure gas deliverability level at DCQ***</li></ul>
16	G9/43	OP	Exploration	100%	-	-	-	<ul style="list-style-type: none"><li>Activity suspended</li></ul>
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>Preparing all transitional works including construction of facilities, staff recruitment, Gas Sales Agreement, and related procurement activities, aiming for successful transition and gas production as per commitment.</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 wellhead platforms and drill production wells</li><li>Finalise Gas Sales Agreement and Prepare for seamless operation handover</li></ul>
Others SEA								
1	Malaysia	OP (except Gumusut-Kakap (GK) in Block K)	Production/ Exploration	6.4-80% (varied by permits)	Varied by permits	SK309 and SK311** 173 Block K** 25 Block H** 142	SK309 and SK311** 17 Block K** 25	<ul style="list-style-type: none"><li>SK309 and SK311: Pemanis Gas Development Topside Installation and South Acis Satellite infill oil development drilling</li><li>Block K: SNP Development Drilling</li><li>Block H: Maximize production at plateau 270MMSCFD after first gas in February 2021</li></ul>
2	Yadana	JV	Production	25.5%	TOTAL 31.24% Chevron 28.26% MOGE 15%	767	-	<ul style="list-style-type: none"><li>Drill 2nd production well</li><li>New DCQ*** proposal and negotiation with PTT</li></ul>
3	Yetagun	JV	Production	19.3178%	Petronas-Carigali 40.91018% MOGE 20.4541% Nippon Oil 19.3178%	-	-	<ul style="list-style-type: none"><li>Suspended the production due to the feed gas was not sufficient for the minimum threshold level</li></ul>
4	Zawtika (M9 & a part of M11)	OP	Production	80%	Myanma Oil and Gas Enterprise (MOGE) 20%	340	-	<ul style="list-style-type: none"><li>Some activities are delayed and process under difficulty due to the political situation and COVID-19 in Myanmar</li></ul>
5	Myanmar M3	OP	Exploration	80%	MOECO 20%	-	-	<ul style="list-style-type: none"><li>Waiting for approval of PSC Supplementary</li><li>FEED &amp; OE and survey activities</li><li>Gas Sales Agreement negotiation</li></ul>
6	Myanmar M11	OP	Exploration	100%	-	-	-	<ul style="list-style-type: none"><li>Waiting for final termination document from MOGE</li><li>Leftover material transferring to MOGE in progress (slow progress due to current situation in Myanmar)</li></ul>
7	Myanmar MD-7	OP	Exploration	50%	TOTAL 50%	-	-	<ul style="list-style-type: none"><li>Termination process in progress</li><li>Leftover material transferring to MOGE in progress (slow progress due to current situation in Myanmar)</li></ul>
8	Myanmar MOGE 3	OP	Exploration	77.5%	Palang Sophon 10% MOECO 10% WinPreciousResources 2.5%	-	-	<ul style="list-style-type: none"><li>Termination process in progress</li><li>Leftover material transferring to MOGE in progress (slow progress due to current situation in Myanmar)</li></ul>

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

\*\* Sales volume stated at 100% basis/ For Malaysia project, gross production is net off unitization

\*\*\* DCQ = Daily Contractual Quantity



	Project	Status*	Phase	PTTEP's Share	Partners <i>(as of April 2021)</i>		6M 2021 Average Sales Volume **		2021 Key Activities
							Gas (MMSCFD)	Liquid (KBPD)	
Others SEA									
9	Vietnam 9-2	JOC	Production	25%	PetroVietnam SOCO	50% 25%	15	3	<ul style="list-style-type: none"><li>• Maintain production level</li><li>• Development drilling study support</li></ul>
10	Vietnam 16-1	JOC	Production	28.5%	PetroVietnam SOCO OPECO	41% 28.5% 2%	8	12	<ul style="list-style-type: none"><li>• Maintain production level</li><li>• Drill development wells</li><li>• Under procurement process for Equipment and Services</li></ul>
11	Vietnam B & 48/95	JV	Exploration	8.5%	PetroVietnam MOECO	65.88% 25.62%	-	-	<ul style="list-style-type: none"><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 2024</li></ul>
12	Vietnam 52/97	JV	Exploration	7%	PetroVietnam MOECO	73.4% 19.6%	-	-	<ul style="list-style-type: none"><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 2024</li></ul>
13	Natuna Sea A	JV	Production	11.5%	Premier Oil KUFPEC Petronas Pertamina	28.67% 33.33% 15% 11.5%	214	2	<ul style="list-style-type: none"><li>• Drill development wells</li></ul>
Middle East									
1	Abu Dhabi Offshore 1	JV	Exploration	30%	Eni Abu Dhabi	70%	-	-	<ul style="list-style-type: none"><li>• Being evaluated for petroleum potential to support future exploration, including G&amp;G report</li></ul>
2	Abu Dhabi Offshore 2	JV	Exploration	30%	Eni Abu Dhabi	70%	-	-	<ul style="list-style-type: none"><li>• Preparation for exploration well which to be drilled in Q3/2021</li></ul>
3	Abu Dhabi Offshore 3	JV	Exploration	30%	Eni Abu Dhabi	70%	-	-	<ul style="list-style-type: none"><li>• Appraisal plan of Pre-existing discovery has been approved by ADNOC</li><li>• Project is on-going with G&amp;G study.</li></ul>
4	PDO (Block 6)	JOC	Production	2%	Government of Oman Shell Total	60% 34% 4%	-	627**	<ul style="list-style-type: none"><li>• Normal operations with daily production around 600 KBD</li></ul>
5	Mukhaizna	JV	Production	1%	Occidental OOCEP Indian Oil Mubadala	47% 20% 17% 15%	-	96**	<ul style="list-style-type: none"><li>• Normal operations with daily production around 95 KBD</li></ul>
6	Oman Onshore Block 12	JV	Exploration	20%	Total E&P Oman Block 12 B.V.	80%	-	-	<ul style="list-style-type: none"><li>• 3D seismic reprocessing (original 3D) in progress</li><li>• Preparation of 3D seismic acquisition (new 3D)</li></ul>
7	Oman Block 61	JV	Production	20%	BP Makarim Gas Development LLC PC Oman Ventures Limited (PETRONAS)	40% 30% 10%	647	31	<ul style="list-style-type: none"><li>• Completed production ramp up as planned</li></ul>

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

\*\* Sales volume stated at 100% basis / For PDO (Block 6) and Mukhaizna projects, gross production is net off unitization



	Project	Status*	Phase	PTTEP's Share	Partners (as of April 2021)	6M 2021 Average Sales Volume **		2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Other International								
1	PTTEP Australasia (PTTEP AA)	OP	Exploration	100%	-	-	-	<ul style="list-style-type: none"><li>AC/RL7 (Cash Maple) and Oliver (AC/RL12) Field : under way to define proper direction in order to increase development opportunities</li><li>Other exploration projects: G&amp;G studies</li></ul>
2	Mozambique Area 1	JV	Development	8.5%	Total, Mitsui, ENH, OVL OVRL & Oil India , Bharat	26.5%,20% 15%, 10% 10%, 10%	-	<ul style="list-style-type: none"><li>First Cargo is expected by 2024 (Under further assessment)</li><li>1st Debt drawdown in project Finance</li><li>The Force Majeure has been declared by the operator for safety reason due to the security incident in Palma.</li><li>Project management under FM and study of impacts</li><li>Plan to resume the project after safety security</li></ul>
3	Algeria 433a & 416b (Bir Seba)	JOC	Production	35%	PetroVietnam Sonatrach	40% 25%	-	3 <ul style="list-style-type: none"><li>Drill development wells</li><li>Existing wells intervention</li><li>Production respect OPEC+ policy</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>Expected first oil production for the initial phase of around 10,000-13,000 barrels per day (BPD) in 2021</li></ul>
5	Mariana Oil Sands	OP	Exploration	100%	-	-	-	-
6	Barreirinhas AP1	JV	Exploration	25%	Shell Brasil Mitsui E&P Brasil	65% 10%	-	- <ul style="list-style-type: none"><li>Waiting for exploration wells drilling permit from the government</li></ul>
7	Brazil BM-ES-23	JV	Exploration	20%	Petrobras INPEX	65% 15%	-	- <ul style="list-style-type: none"><li>Evaluating the petroleum potential for development concept</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>The geophysical survey processing and interpretation are in progress for further petroleum potential evaluation</li><li>Drilling exploration wells</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>Completed drilling of 2 exploration wells in 2020 with successful result.</li><li>The drilling operation for exploration well and appraisal drilling is ongoing, and it is expected to complete by Q4/2021.</li></ul>

\* 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 (production volume)

	Project	Status*	Phase	PTTEP's Share	Partners <i>(as of April 2021)</i>	6M 2021 Average Sales Volume **		2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Other International								
10	Block 17/06	JV	Pre development	2.5%	Total Sonangol 30% SSI 30% Acrep 27.5% Falcon Oil 5% 5%	-	-	• Completed Begonia FEED study (in-house)
11	Potiguar	OP	Production	50%	Petro reconcavo 50%	-	0.2	• Maintain production plateau
12	Dunga	JV	Production	20%	Total OOCEP 60% 20%	2	11	• Continue to curb production per OPEC+ agreement to support price • Procurement process for designing of Compression, Separation upgrade and Flare package • Engineering 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%	-	-	• Normal operations
2	ADNOC Gas Processing (AGP)	JV	On line	2%	ADNOC 68% Shell 15% Total 15%	-	***	• Perform midstream operation activities • Maintain production and plant integrity with maintenance work as planned • Improving plant's efficiency and capacity with plant debottlenecking as planned

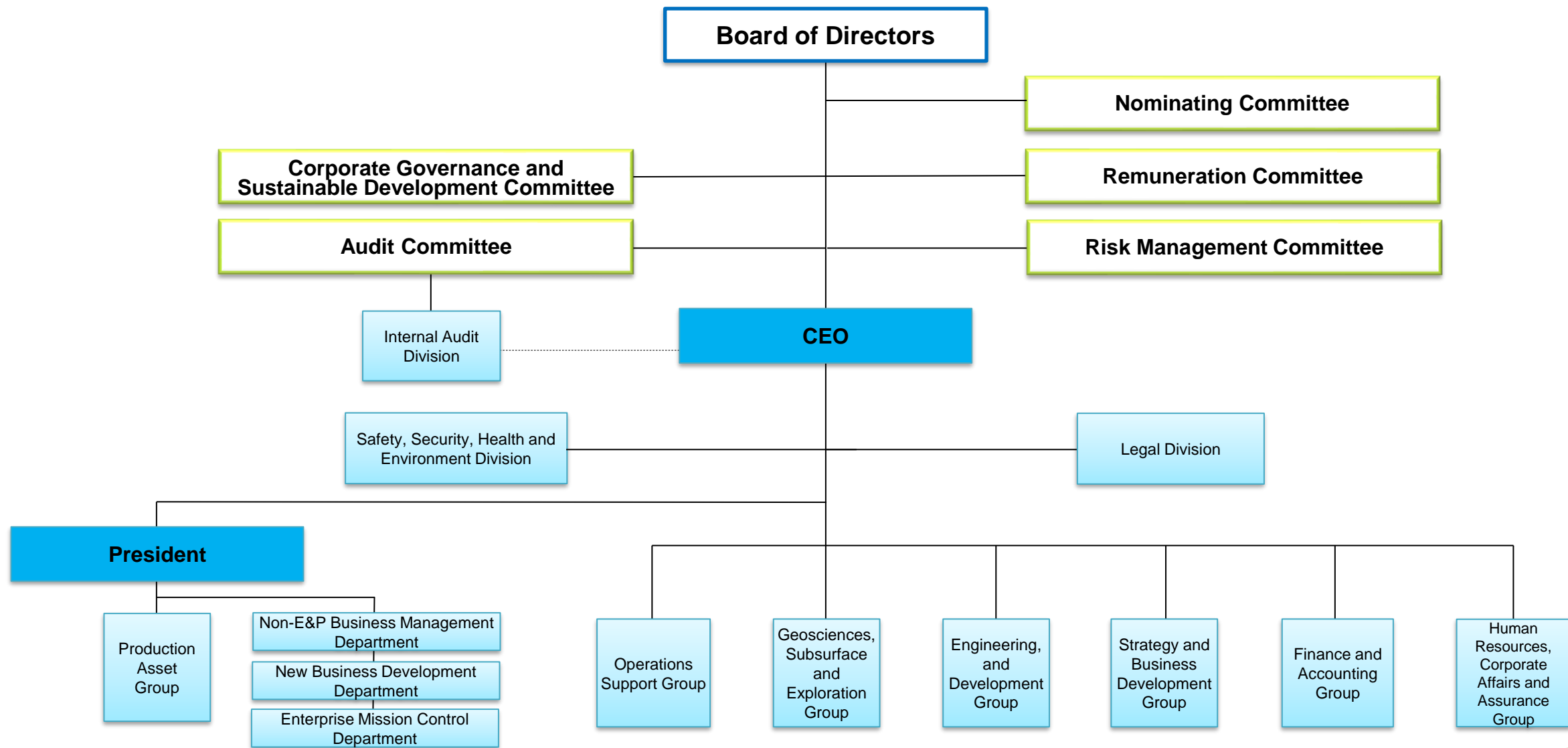
\* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship/ / JV = PTTEP as Joint Venture Partner

\*\* Sales volume stated at 100% basis

\*\*\* Products are propane, butane and naphtha.

# Organization structure

*Ensuring transparency, integrity and good corporate governance*





# Supplementary Index : Ratio & Formula

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	$\text{Trailing-12-month EBITDA} / \text{Trailing-12-month Interest Expenses \& Amortization of Bond Issuing Cost}$