



**PTTEP**

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**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM

# Investor Presentation

SET Digital Roadshow  
Q3/2021 Performance Review

23 November 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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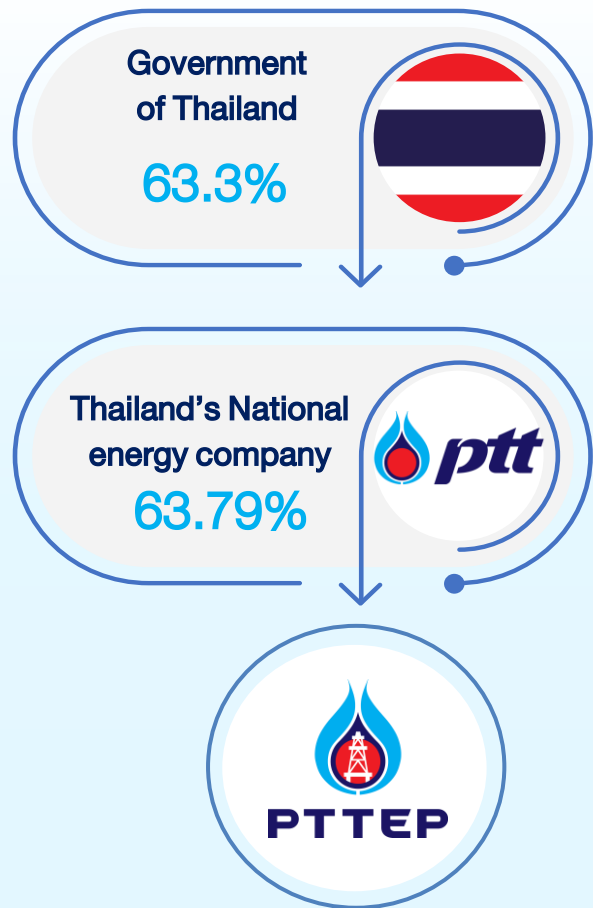
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# Corporate Introduction



# PTTEP - The Largest E&P company in Thailand



As of August 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>



 Dow Jones Sustainability Indexes 2014-2021	 FTSE4Good 2016-2021	 THSI THAILAND SUSTAINABILITY INVESTMENT 2020 2016-2021
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# Strategy Update

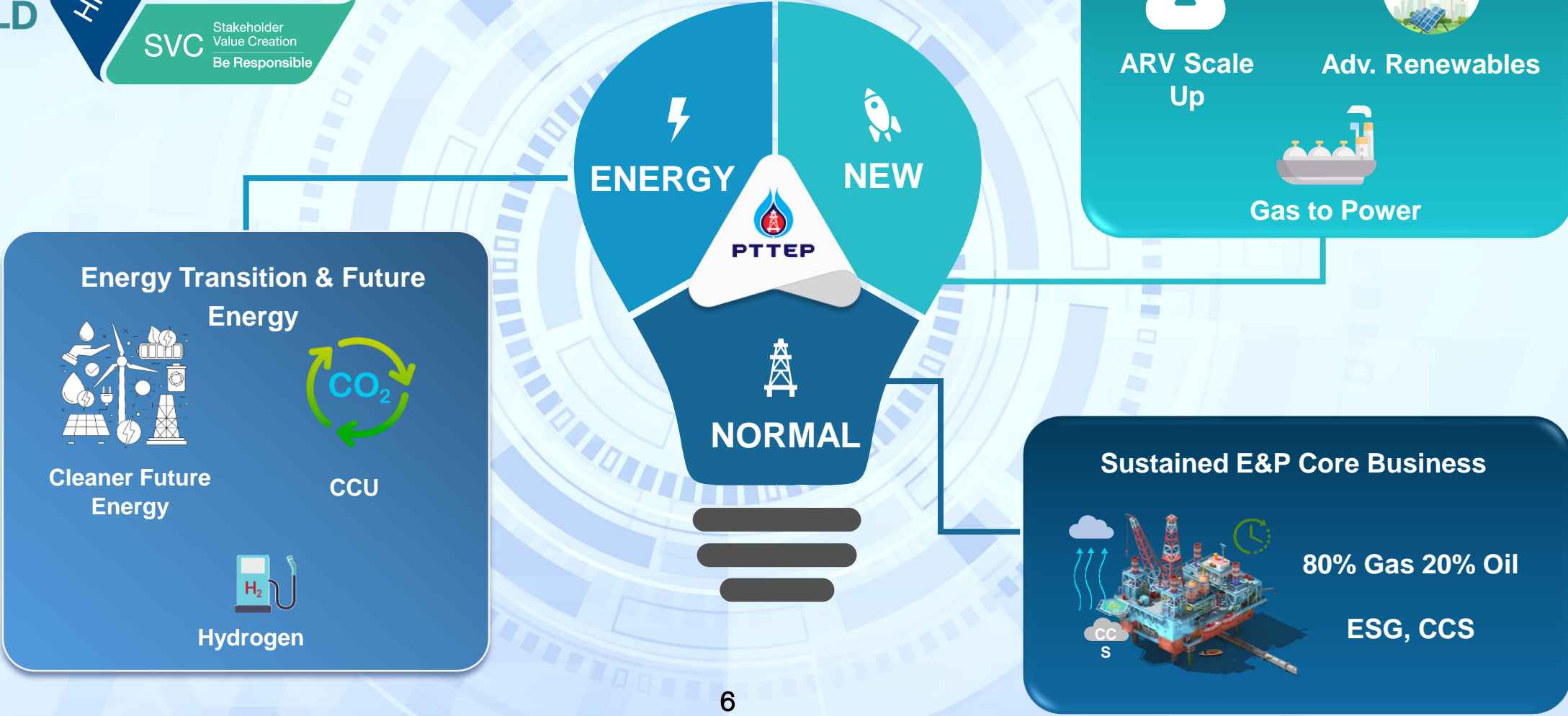


ENERGY

Partner of Choice

FROM WE  
TO WORLD

TO BECOME A SUSTAINABLE  
ORGANIZATION



# Sustain E&P Core Business



Grow business in Strategic Locations and focus on Gas



Reduce carbon emission through Carbon Capture Storage (CCS)



## Oman and UAE

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



## Thailand, Malaysia, Myanmar

- TH – Ensure domestic gas supply and OCA opportunity
- MY – Synergy & Focus on LLB and Exploration
- MM – Secure Western corridor gas and unlock potentials



## CCS Technology

- Membrane & Solvent Extraction
- Sequestration into depleted reservoir



# Non-E&P Business Directions

## CCU, CCS, Power and Future Energy

### Carbon Capture and Utilization

CCU

Carbon Nanotube



Prototype Unit at S1  
[Trial Test]



CNT Powder

CO<sub>2</sub> to Methanol



Rapid Scale-Up Center  
At Rayong

### Power

GTP

Gas to Power

- 600 MW gas-fired power plant project



ADV  
Renew

Wind

- Low Speed Wind Turbine

Solar

- Solar Nextgen
- Concentrated Solar Thermal

### Carbon Capture and Storage

CCS



Cleaner Gas & Driver to Achieve GHG Intensity Reduction Target

17%

2021

25%

2030

GHG Reduction

Carbon Capture  
and Storage (CCS)

Feasibility  
Study on CCS

CCS Initiative in TH  
and MY Assets



Production  
Platform



CO2 Removal Facility  
• Membrane Technology  
• Solvent Extraction

CAPTURE

CO2 Pipeline &  
Transportation

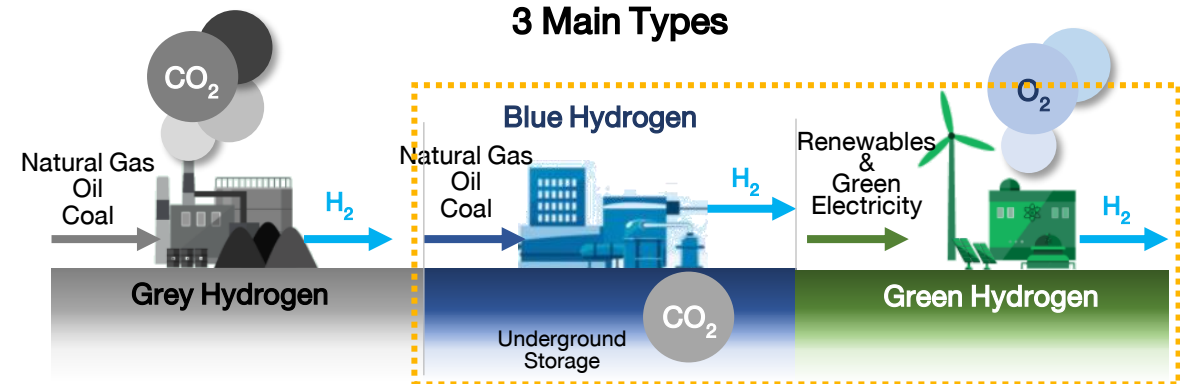


CO2 Sequestration into  
Depleted Reservoir

STORAGE

### Hydrogen

#### 3 Main Types



- Energy Transition – Pathway to Future & Clean Energy
- Opportunity – Focus on production of Blue and Green Hydrogen





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## Sustainability Development



# Journey towards Sustainability



## GHG Reduction

~17% Reduction of GHG Emission Intensity as of Sep 2021  
(compared to 2012 base year)



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

## CCUS Study

**CCU:** Study potential CNTs to high value product and on-going engineering design of CNT prototype test unit



**CCS:** On-going pre-Project study in GoT and subsurface study for reservoir modeling in Lang Lebah



## Circular Model for E&P

### Zero Waste to Landfill

Review waste disposal method to manage existing industrial waste to landfill.

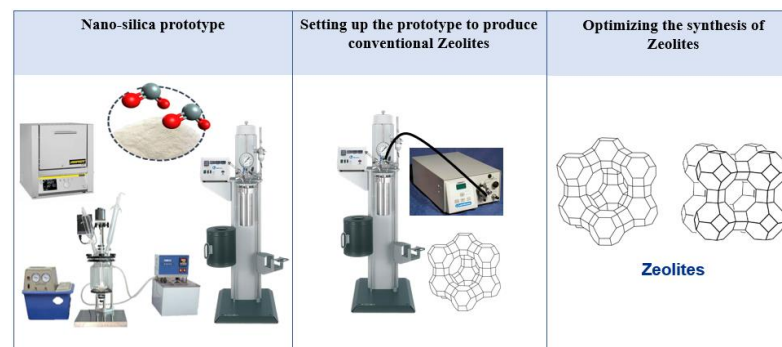
### Topside Reuse Project

Completed the 1<sup>st</sup> topside relocation at ART in August 2021



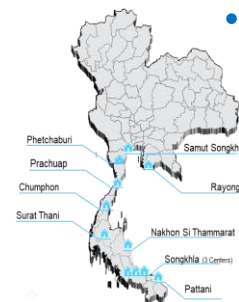
### Upcycling High Volume Waste

**Sand to Zeolite:** Successfully synthesized nano-silica from sand waste



## Ocean for Life

### Community Income Baseline Survey



- To support in the measurement of success for Ocean for Life towards the target of ≥ 50% Increase Community Income
- Completed community income baseline study of 11 communities in 9 provinces
- On process of result analysis

### Baseline Study of Microplastics in the GoT

Completed 1<sup>st</sup> time microplastic baseline survey in offshore operations (4 rounds/year) at GBN, GBS and ART including Koh Tao, Koh Losin and Chumphon



### Awards under Ocean for Life Strategy

- Until now, PTTEP CSR projects received 19 international Awards.
- The latest awards is **the Gulf Sustainability Awards 2021** for H.T.M.S. Underwater Learning Site Project, in the category of Best Community Development.







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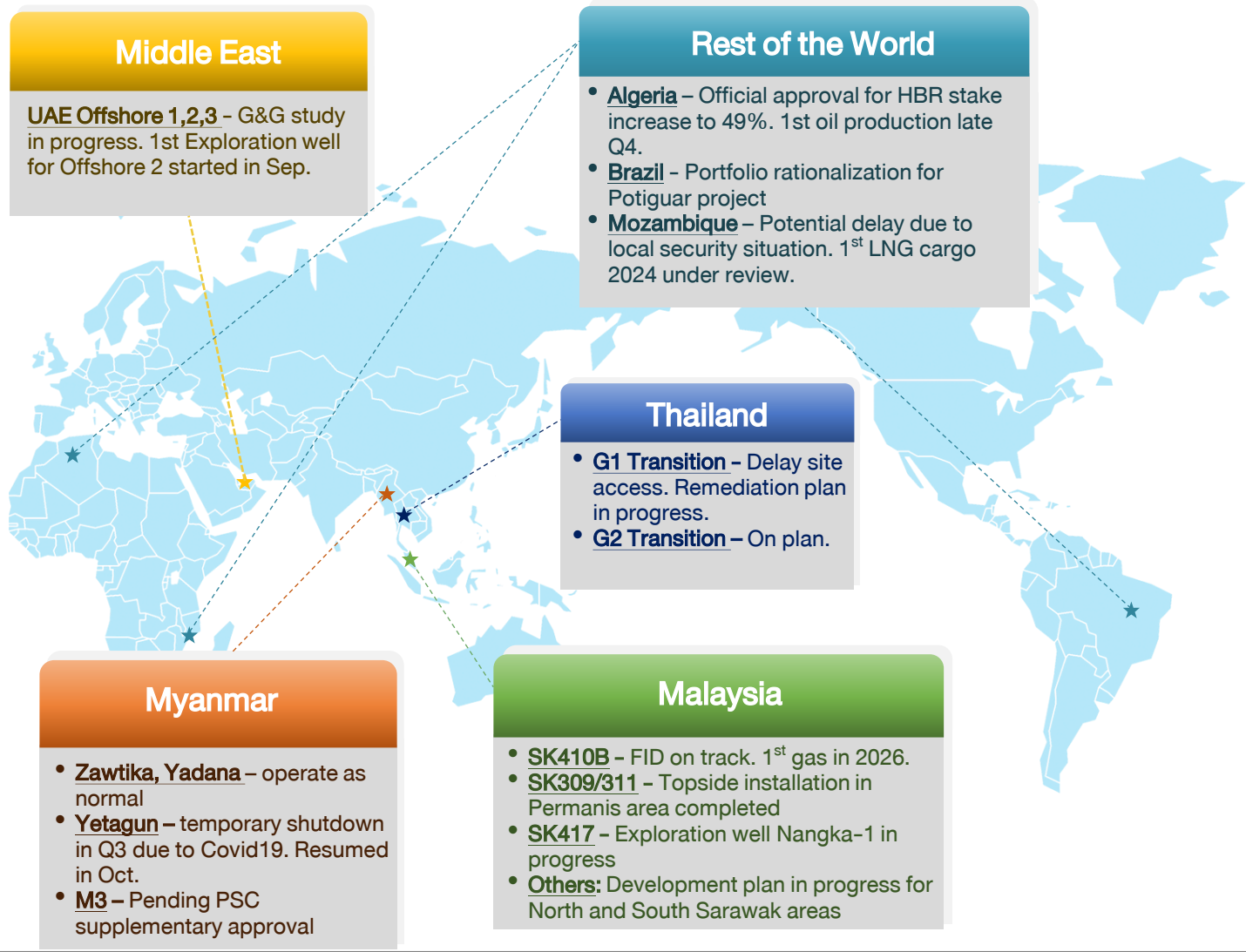
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# Operations Update



# Operations Update

## E&P Business



## Non-E&P Business

Tech.


**AI AND ROBOTICS VENTURES**






**ROVULA**
**varuna**
**SKYLLER**
**CARIVA**



**Power**

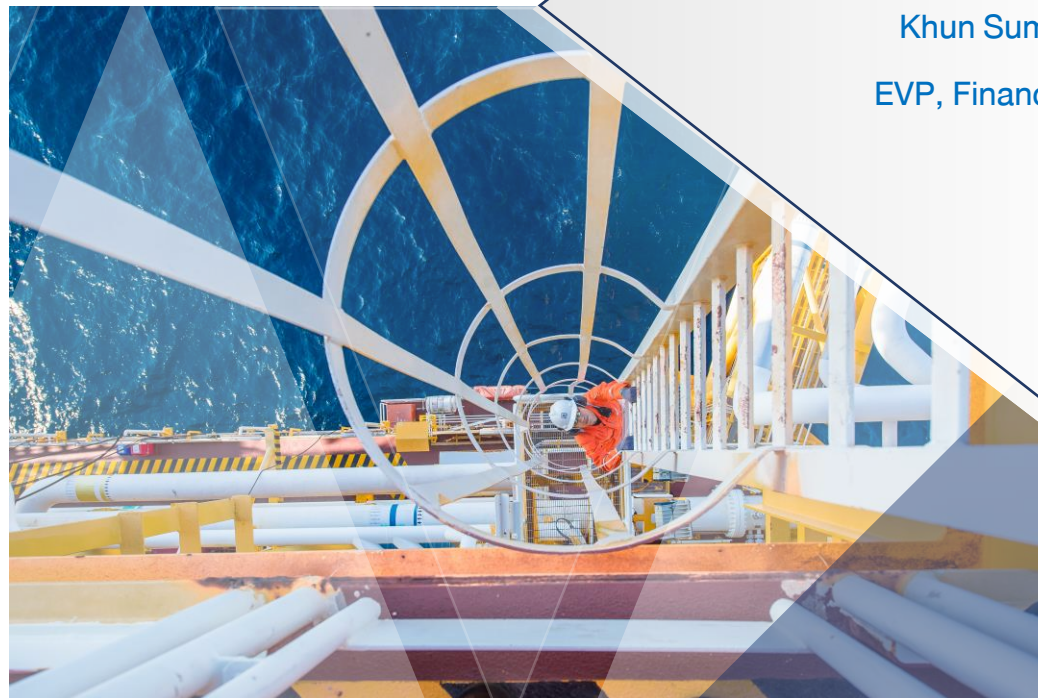
- Gas to Power** – Delay due to local political situation and Covid19
  - FID expected 2022
  - COD expected 2025
- Renewables** – New subsidiaries established for investment in renewables



**Others**

- LNG Shipper License** – granted to PTTGL in July





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# Financial Results

Khun Sumrid Sumneing

EVP, Finance & Accounting

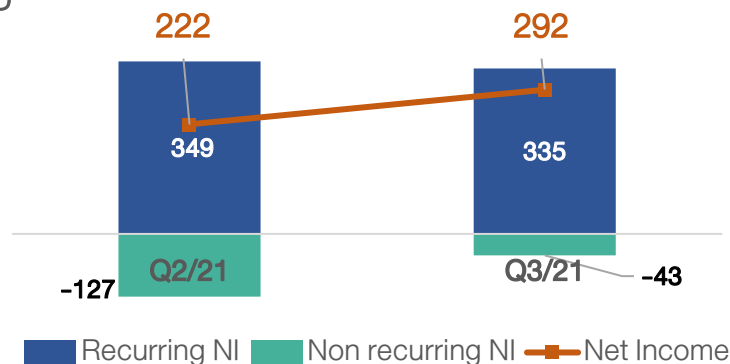


# Results – Net Income

Strong performance YoY from volume growth, price increase and lower cost

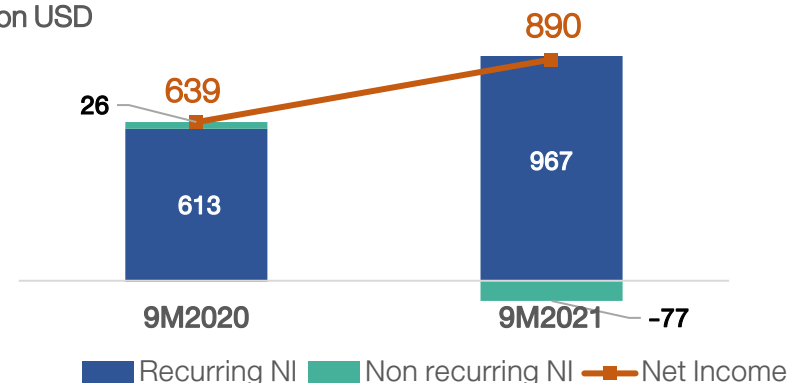
## Q3/21 on Q2/21 (QoQ)

Unit: million USD



## 9M2021 on 9M2020 (YTD)

Unit: million USD



### Recurring (-14 MMUSD or -4%)



**-6%**  
Mainly from Gulf of Thailand  
due to annual shutdowns



**+5%**  
Higher gas and  
liquid price



**+8%**  
Higher unit costs from  
well write-off and OPEX

### Recurring (+354 MMUSD or +58%)



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



**+7%**  
Higher liquid price  
offset with  
lower gas price



**-7%**  
Lower unit costs

### Non-recurring (+84 MMUSD or +66%)



Lower oil price hedging loss

### Non-recurring (-103 MMUSD or ->100%)

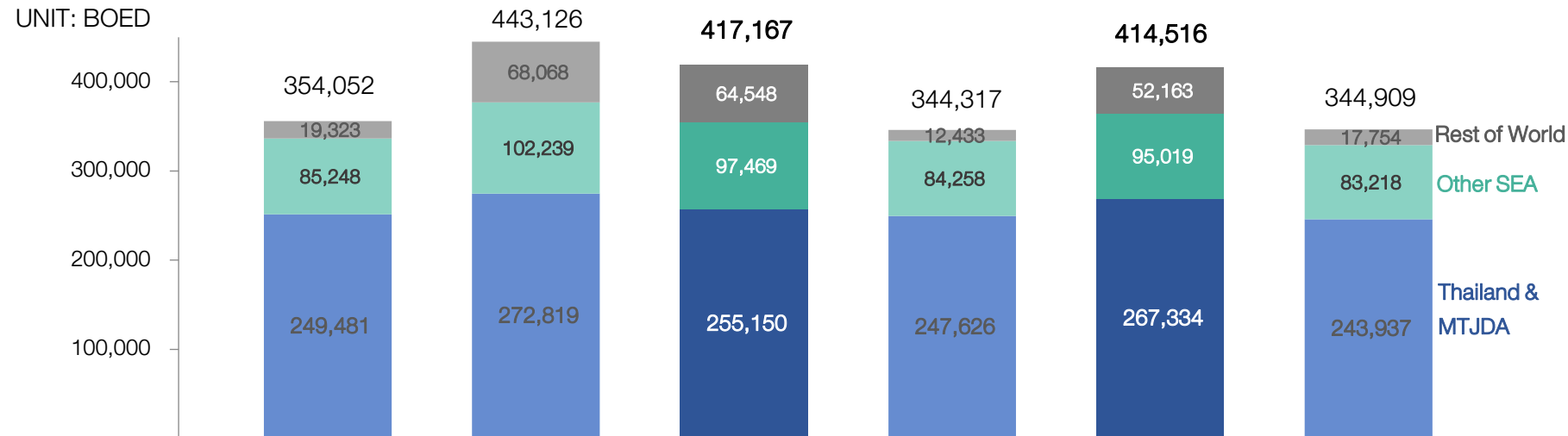


Higher oil price hedging loss offset with  
gain from bargain purchase



# Results – Sales Volume & Average Selling Price

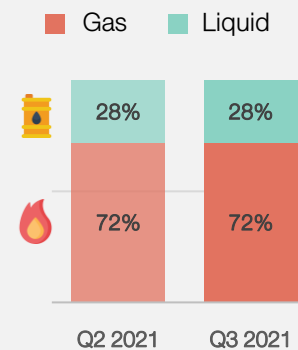
Softened volume QoQ from planned shutdown. ASP tracked higher energy prices.



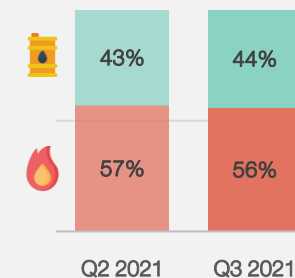
Product Price	2020	Q2 21	Q3 21	Q3 20	9M 2021	9M 2020
Gas (\$/MMBTU)	6.27	5.59	5.76	6.22	5.66	6.50
Liquid (\$/BBL)	41.55	63.98	69.16	41.82	63.40	41.14
<b>Weighted Avg. (\$/BOE)</b>	<b>38.92</b>	<b>42.19</b>	<b>44.25</b>	<b>38.77</b>	<b>42.34</b>	<b>39.69</b>
Avg. Dubai (\$/BBL)	42.27	67.02	71.68	42.88	66.35	41.45
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	39.30	61.21	68.35	40.35	62.14	37.64

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

## Volume Mix

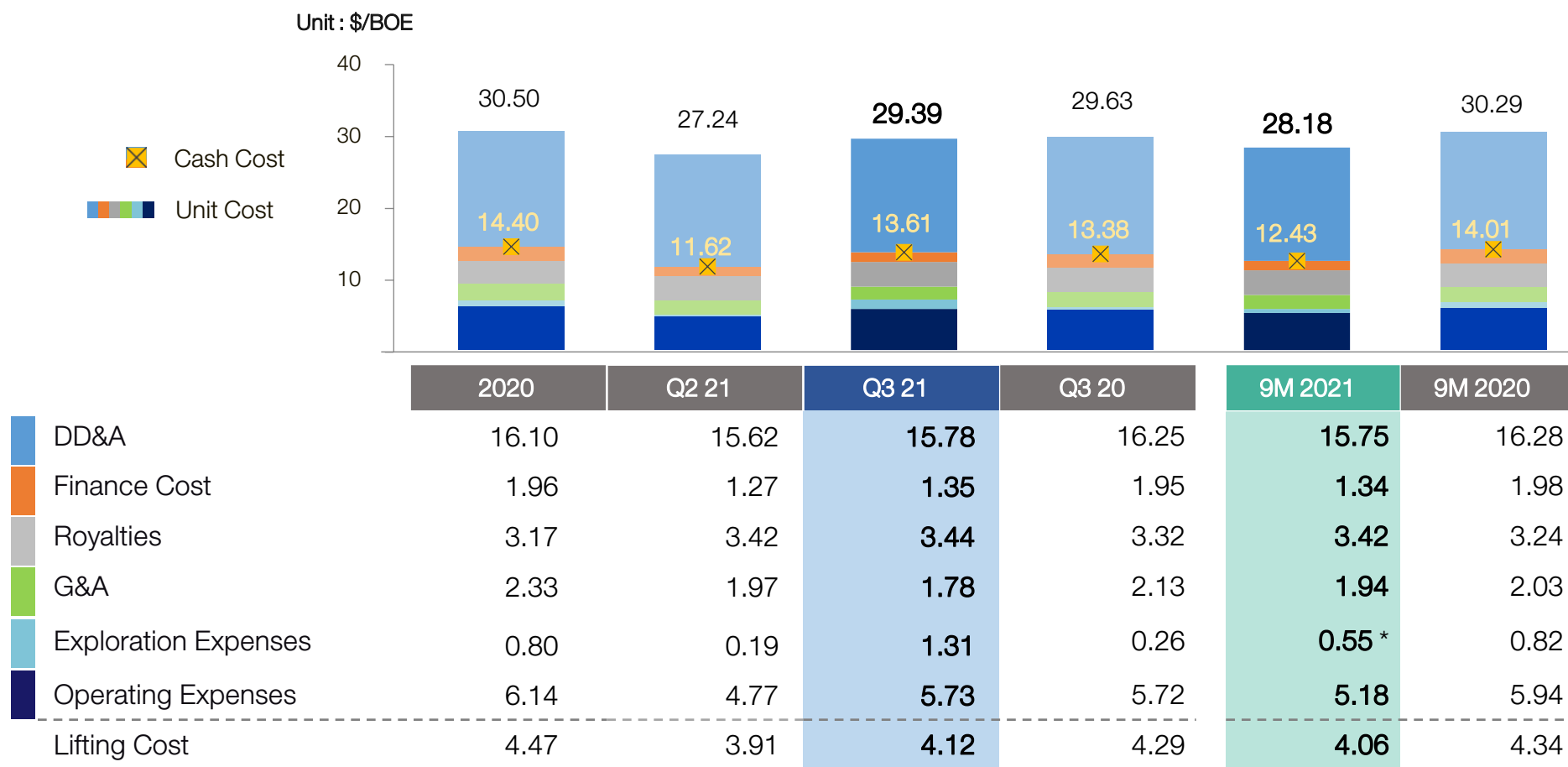


## Revenue Mix



# Results – Unit Cost

Rise in exploration well write-offs and OPEX from planned shutdowns



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

All Unit Cost shown above exclude costs related to new business

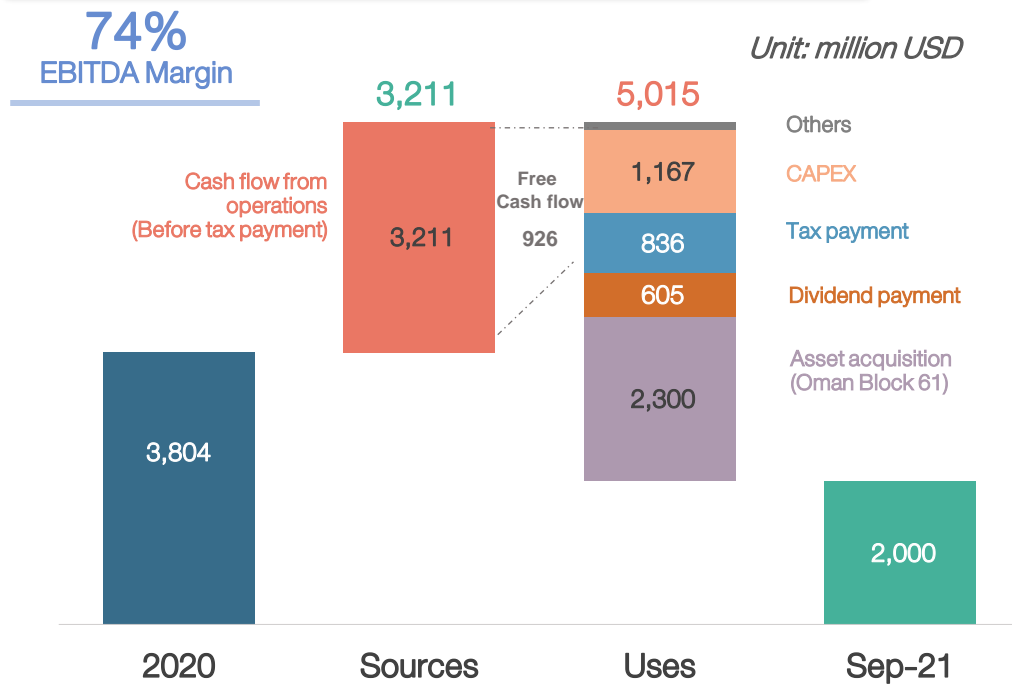
The formulas for calculating ratios are provided in the supplementary section for your reference



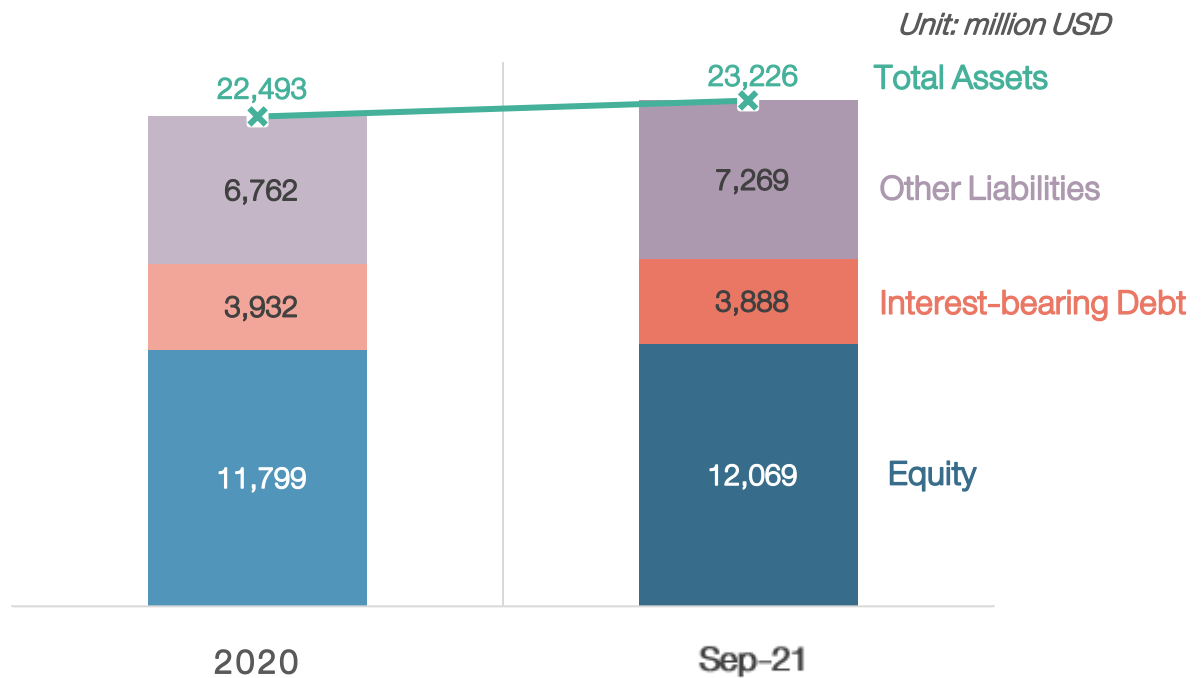
# Results – Cashflows and Financial Position

## Solid position despite M&A payments

### 9M 2021 : Source and Use of Funds\*



### Financial Position



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

Debt Profile					
D/E ratio	0.33x	0.32x	Weighted Average Loan Life (Years)	14.08	13.34
Weighted Average Cost of Debt (%)	3.44	3.43	Fixed : Floating	82:18	82:18

Note: Debt profile excludes Hybrid bonds



## 2021 Guidance

Average Sales Volume\*  
KBOED



Average Gas Price\*\*  
USD/MMBTU



Unit Cost  
USD/BOE

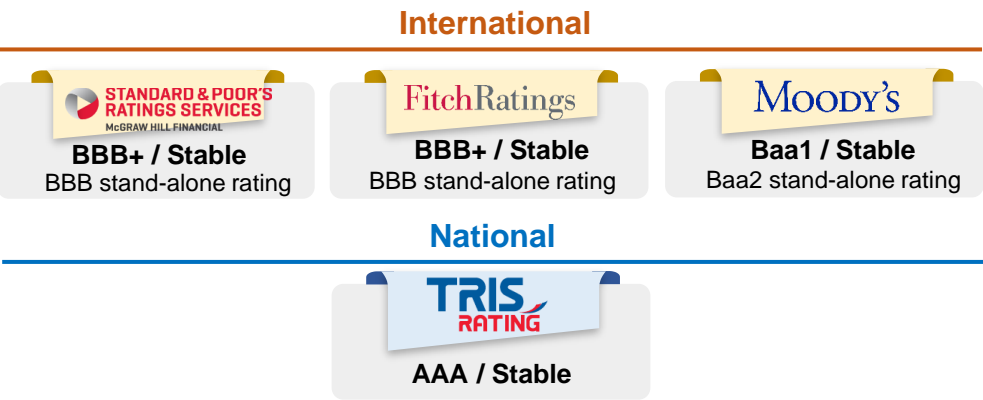


EBITDA Margin  
% of Sales Revenue

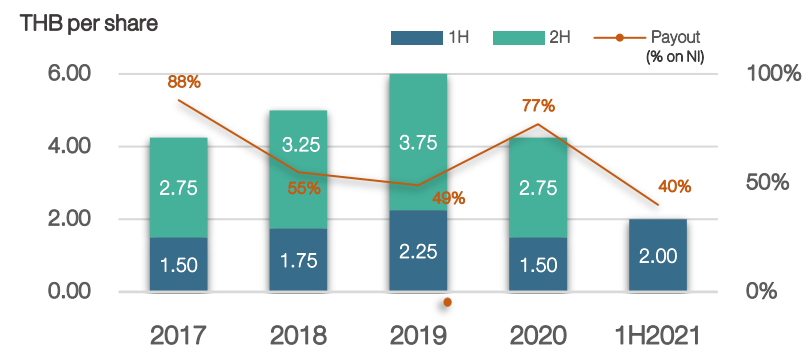


Note:  
\* Include sales volume from  
ADNOC Gas Processing (AGP)  
\*\* Based on average Dubai oil  
price in 2021 at 67.2 \$/BBL

## Credit Ratings - Stable



## Dividend Payment History





# 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	Q3 21	Q2 21	%QoQ	Q3 20	%YoY	9M21	9M20	%YTD
<b>Total Revenues</b>	<b>1,784</b>	<b>1,768</b>	<b>1%</b>	<b>1,305</b>	<b>37%</b>	<b>5,331</b>	<b>4,082</b>	<b>31%</b>
Sales <sup>(1)</sup>	1,744	1,729	1%	1,228	42%	4,864	3,751	30%
Sales Volume (BOED) <sup>(2)</sup>	417,167	443,126	(6%)	344,317	21%	414,516	344,909	20%
Sales Price (US\$/BOE)	44.25	42.19	5%	38.77	14%	42.34	39.69	7%
Gain from a bargain purchase	-	-	-	-	-	350	-	100%
Others <sup>(3)</sup>	40	39	3%	77	(48%)	117	331	(65%)
<b>Total Expenses</b>	<b>1,499</b>	<b>1,548</b>	<b>(3%)</b>	<b>1,080</b>	<b>39%</b>	<b>4,453</b>	<b>3,459</b>	<b>29%</b>
<b>Major Expenses:</b>								
Operating Expenses	220	193	14%	181	22%	586	561	4%
Exploration Expenses	50	7	>100%	8	>100%	207	78	>100%
G&A	72	83	(13%)	69	4%	229	197	16%
DD&A	606	629	(4%)	515	18%	1,782	1,538	16%
Loss on Financial Instruments	5	125	(96%)	-	>100%	228	-	100%
Impairment Loss on Assets	-	-	-	47	(>100%)	-	47	(100%)
Income Tax Expenses	326	321	2%	140	>100%	839	524	60%
<b>Share of profit (loss) from associates and JV</b>	<b>7</b>	<b>2</b>	<b>&gt;100%</b>	<b>5</b>	<b>40%</b>	<b>12</b>	<b>16</b>	<b>(25%)</b>
<b>Net income</b>	<b>292</b>	<b>222</b>	<b>32%</b>	<b>230</b>	<b>27%</b>	<b>890</b>	<b>639</b>	<b>39%</b>
Recurring Net Income	335	349	(4%)	195	72%	967	613	58%
Non-recurring Net Income	(43)	(127)	66%	35	(>100%)	(77)	26	(>100%)
<b>Non-recurring Net income breakdown:</b>								
Oil Price Hedging	(41)	(141)	32%	10	(>100%)	(289)	150	(>100%)
Tax from Effect of FX	(2)	-	(100%)	(2)	-	(11)	(105)	90%
Effect from FX and others	1	14	(93%)	27	(96%)	18	28	(36%)
Impairment Loss on Assets	-	-	-	-	-	-	(47)	100%
Exploration assets write-off	-	-	-	-	-	(145)	-	(100%)
Gain from a bargain purchase	-	-	-	-	-	350	-	100%

## Note:

(1) Include Oman Block 61 deemed sales revenues from tax payment by government

(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 Gain from Oil price Hedging



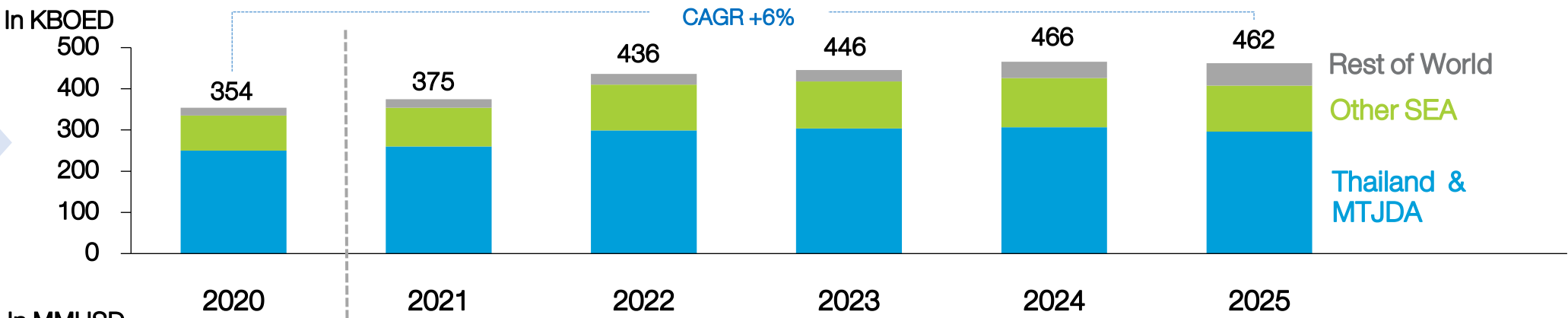
# Five –Year Plan : Sales Volume

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

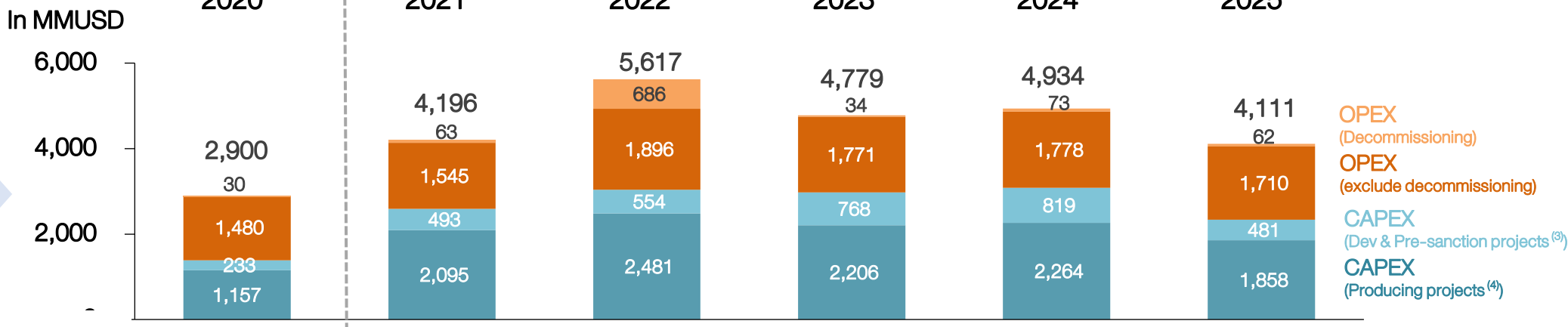
Figures have not yet reflected Oman block 61



Sales Volume

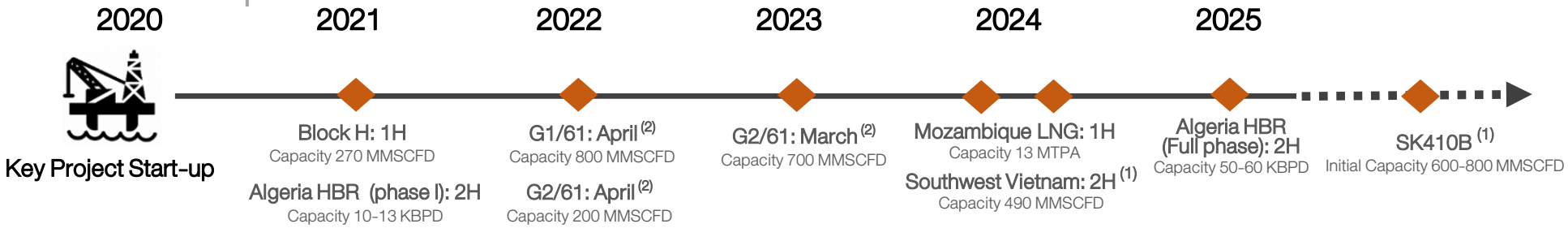


Investment



5 Years (2021 – 2025)

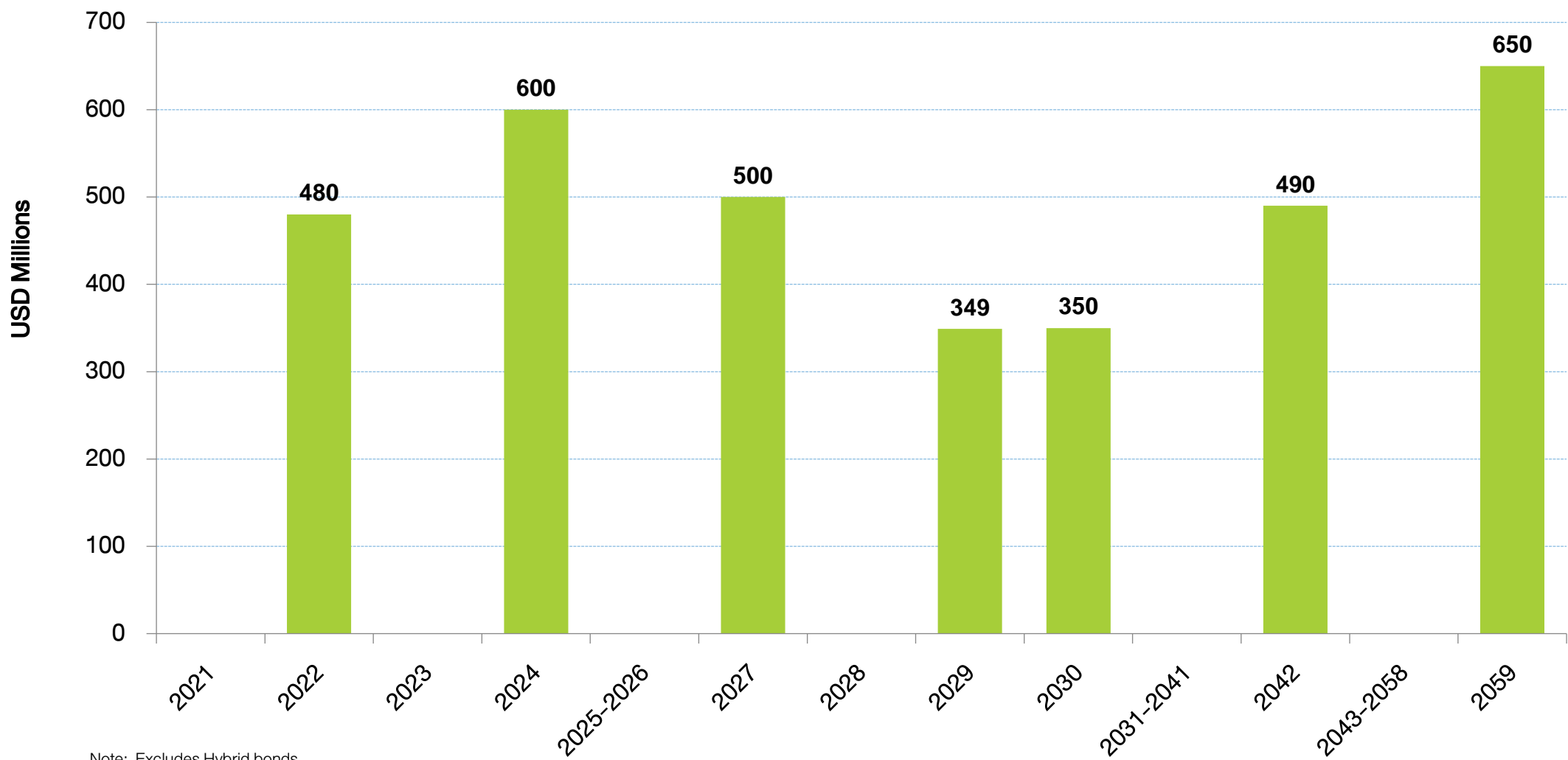
CAPEX	14,020
OPEX	9,617
TOTAL	23,637



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

# Debt Maturity Profile

As of September 2021



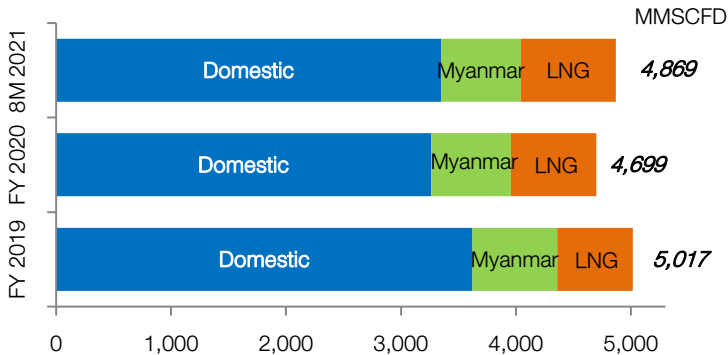
Note: Excludes Hybrid bonds

Unit: USD Millions or equivalent after cross currency swap



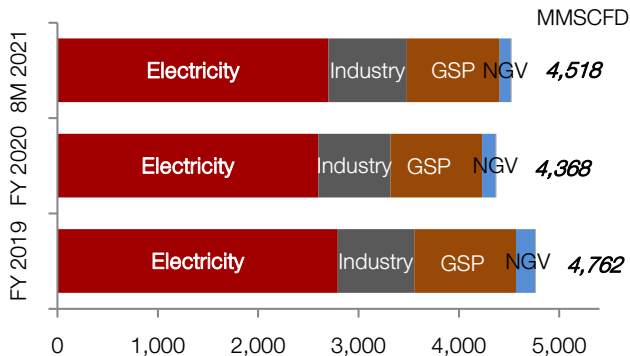
## Thailand Energy Overview

### Natural Gas Supply

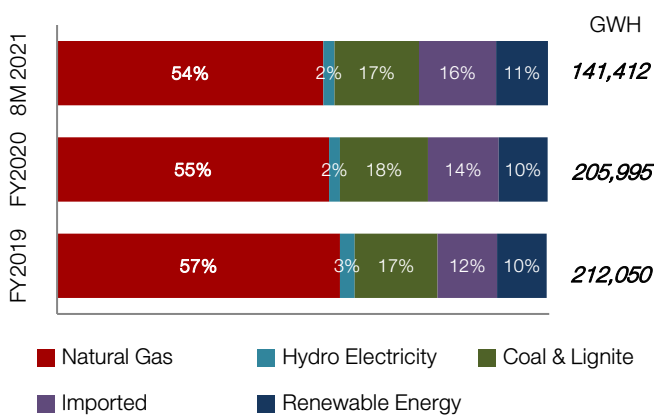


- Recovering energy demand, which rebounded to nearly the same level pre COVID-19
- As of August 2021, compared with the same period of last year: Higher domestic supply, and LNG imports with a slight decline from Myanmar piped gas due to natural field potential

### Natural Gas Consumption



### Electricity Generation



## Exchange Rate Movement (USD/THB)



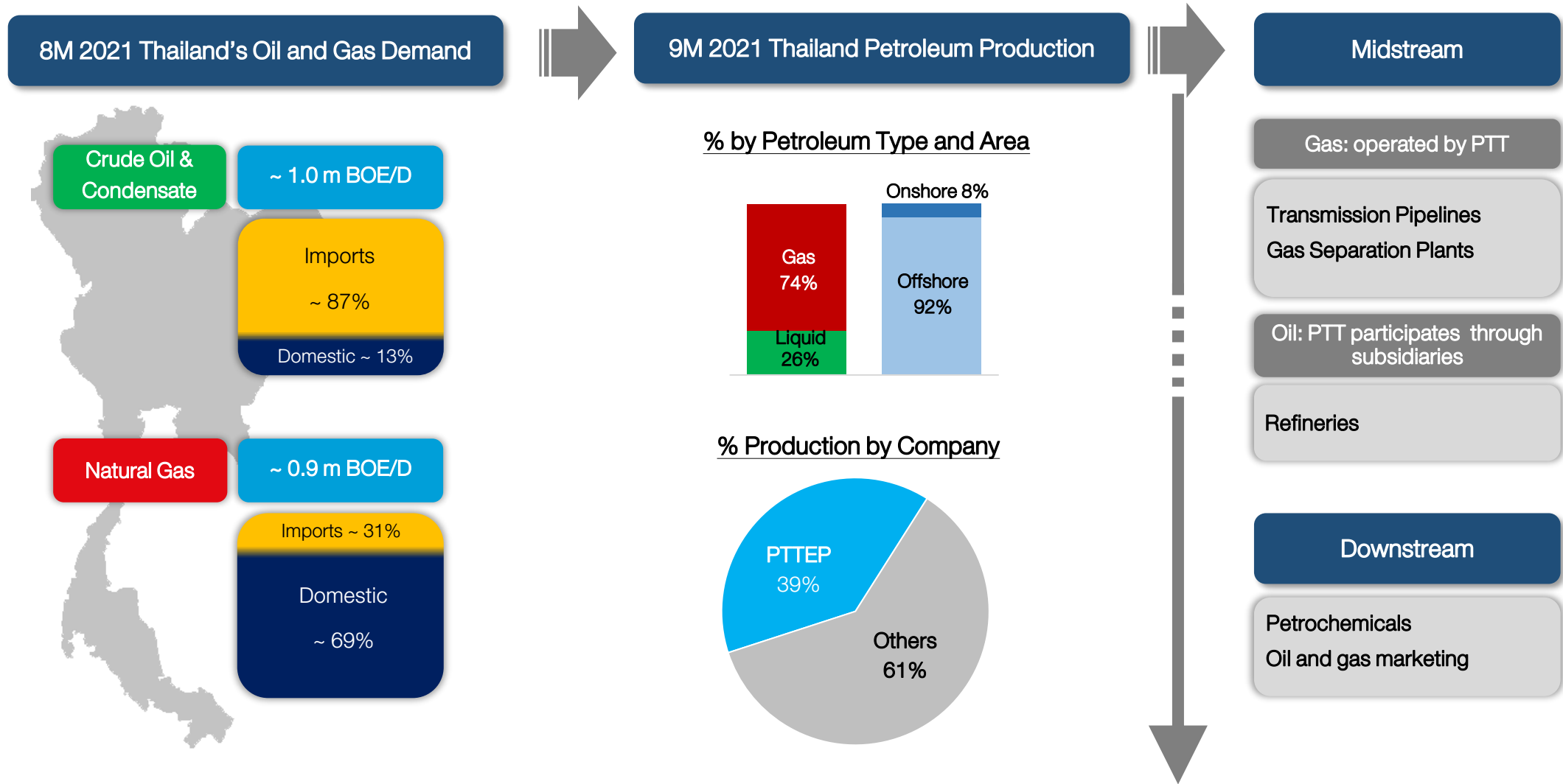
### Consensus on the exchange rate mostly depends on

- Thailand's general economic recovery in particular from the tourism sector
- Covid-19 infection containment in Thailand after easing of tourism restrictions and general lockdown measures
- Central bank monetary policy – tapering timeline and interest rate adjustment schedule of Bank of Thailand and the Federal Reserve

Source: Bank of Thailand, Bloomberg

Forecast based on Bloomberg Consensus as of 4 October 2021

Source: Energy Policy and Planning Office (EPPO)



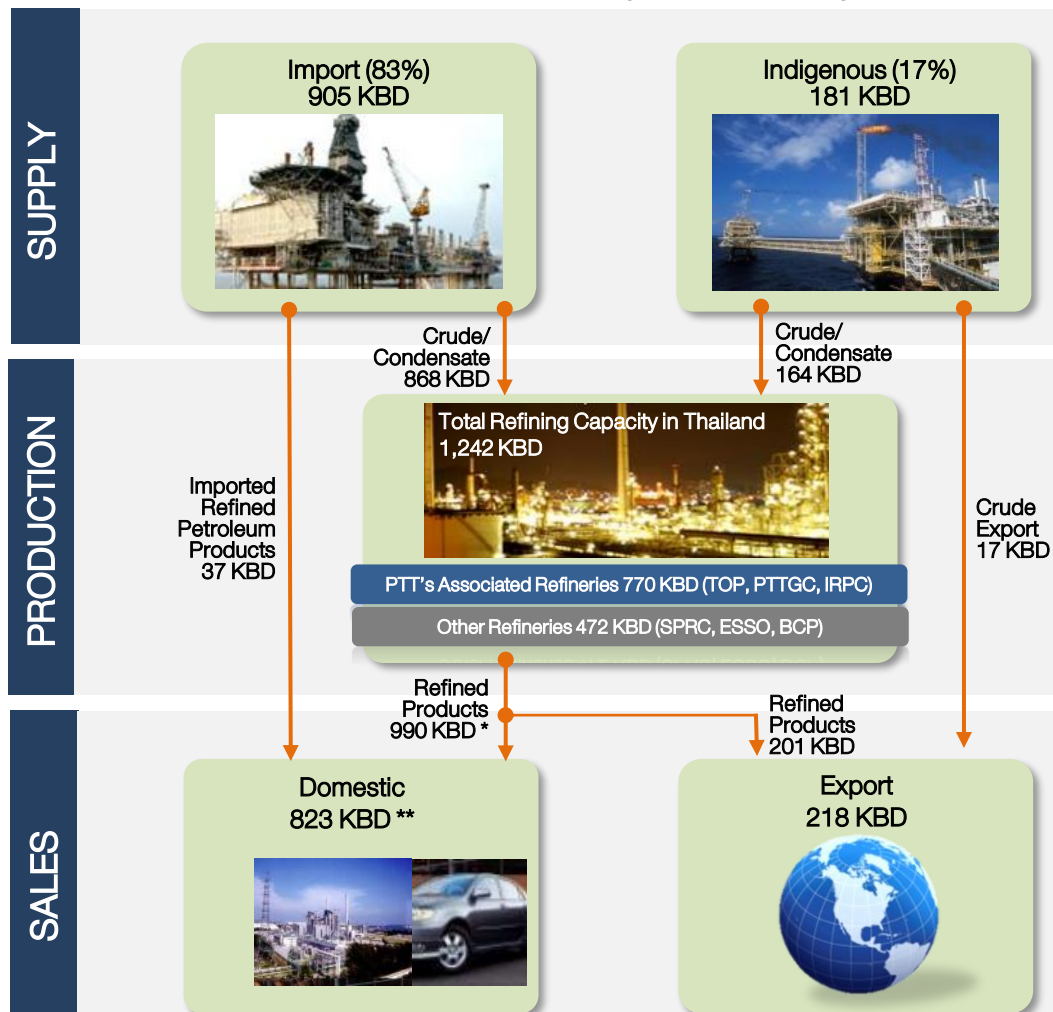
Source: Energy Policy and Planning Office (EPPO) and Department of Mineral Fuels (DMF)



# Thailand's Oil and Gas Balance

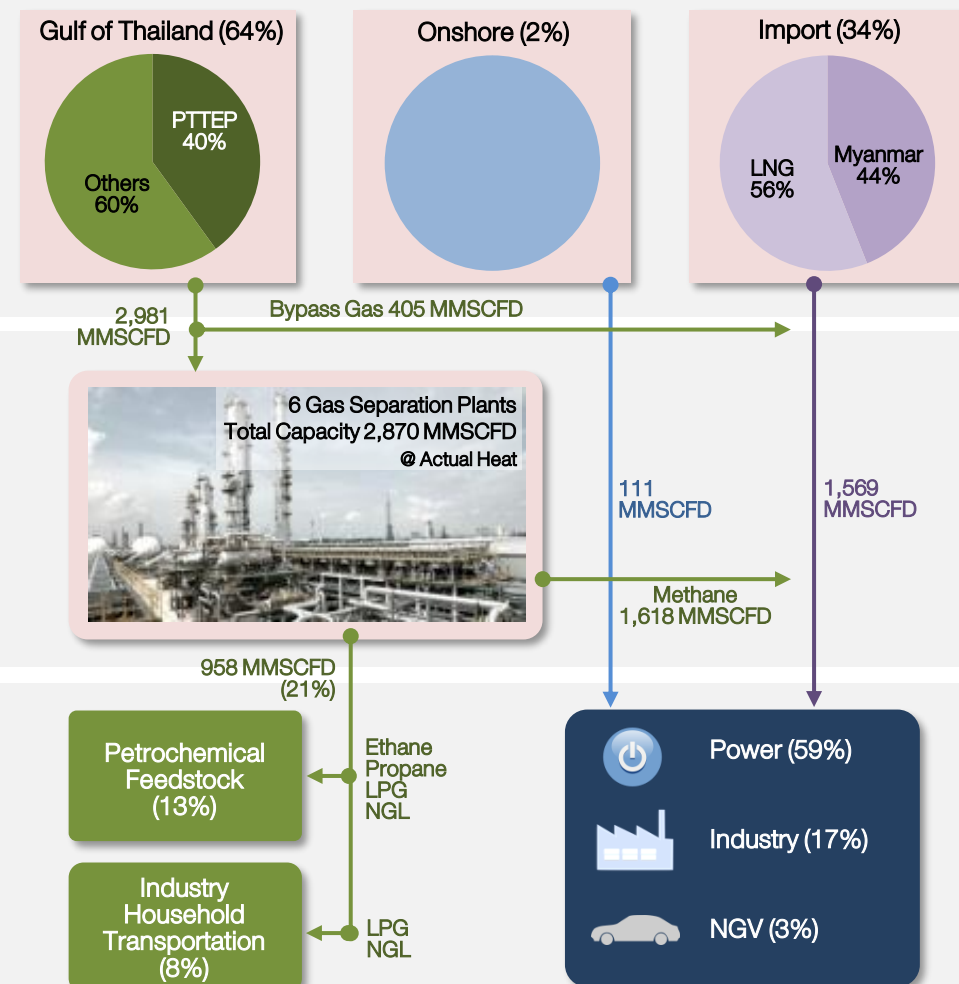
## Oil Balance\*\*\*

Maintains stability supply through adequate refining capacity



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

Main driver of the Thailand economy



Source: PTT

Note: \* Refined product from refineries = 899 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 91 KBD

\*\* Not included Inventory

\*\*\* Information as of 8M21

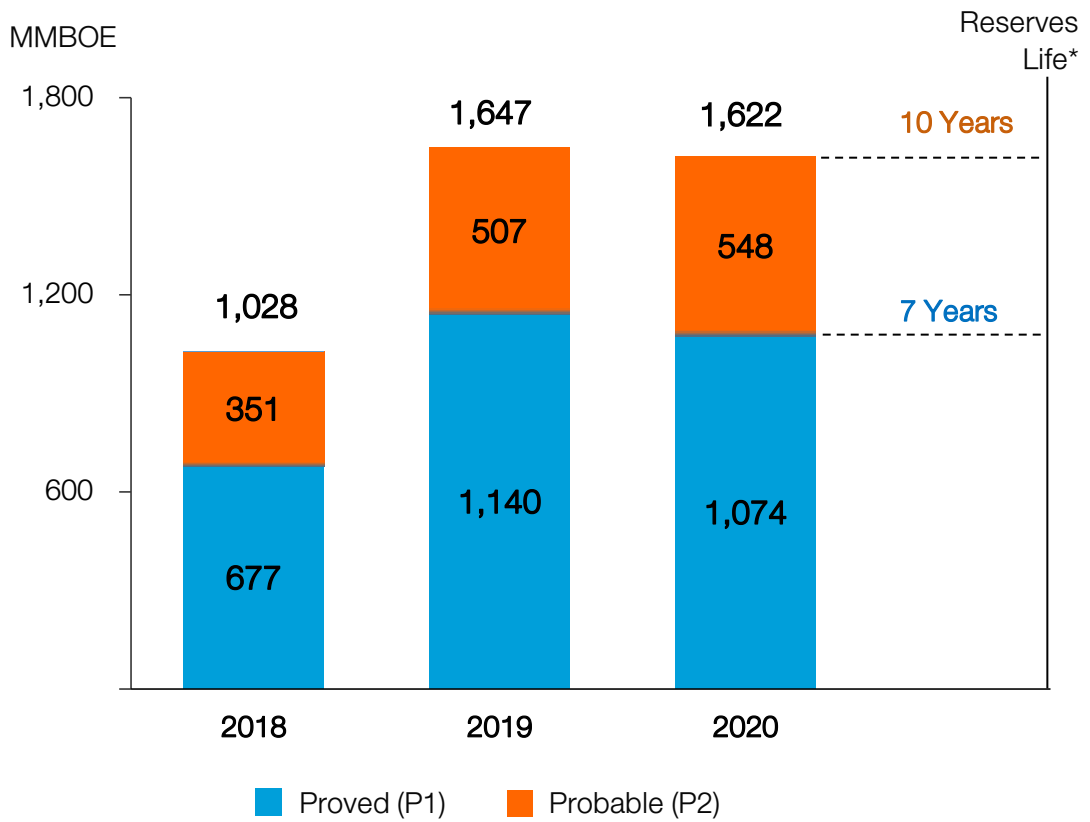
\*\*\*\* Information as of 6M21

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

# Reserves at the Year-end 2020

Sustained reserve life at over 5 years target

Figures does not include Oman Block 61

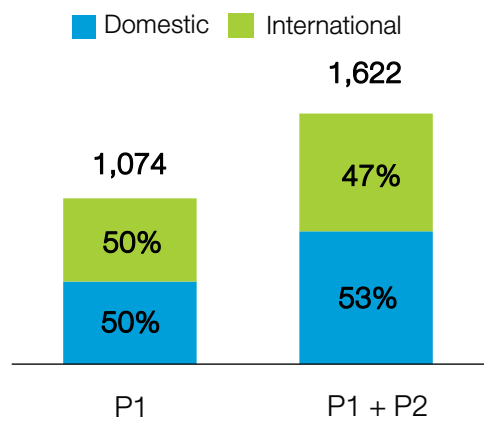


5-Year Average Proved Reserves Replacement Ratio (RRR)

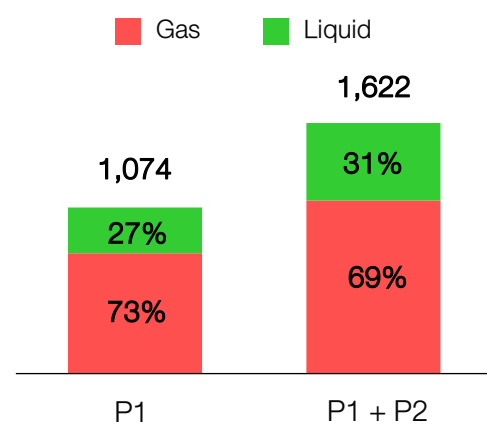
2018	2019	2020
0.7x	1.5X	1.5X

• 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

## North & South America

Opportunities in an early phase:

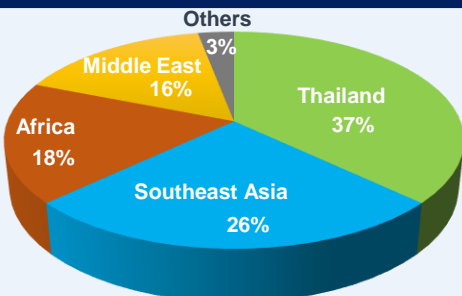
- Deepwater exploration in Brazil and Mexico with prominent and prudent operators

Oil

Oil

## Book Value of Assets by region

Total assets USD 23.23 billion



As of Sep 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 16 KBPD
- Development : Algeria's Hassi Bir Rakaiz with target 1st phase production in Q4 2021 and Mozambique Area 1 project with first cargo LNG target 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 OLNQ

## Thailand

PTTEP's primary operational base

- 64% of total sales volume (9M2021)
- 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

## Southeast Asia

Second heartland to PTTEP

- 23% of total sales volume, mainly from Malaysia and Myanmar (9M2021)
- 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

Note: \* Possible delay due to local security situation

Information as of 30 September 2021

# 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, start up in March 2014 with current gas supply of 336 MMSCFD for 9M2021

### 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 887 MMSCFD and 23 KBPD in 9M2021

#### S1 (100% WI)

The largest onshore crude oil production field in Thailand with 9M2021 average crude oil sales volume of 27 KBPD

#### Arthit (80% WI)

Average sales volume in 9M2021 was 240 MMSCFD of natural gas and 12 KBPD of condensates

#### Contract 4 (60% WI)

Average sales rate of 401 MMSCFD for natural gas and 16 KBPD for condensate in 9M2021



- 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 9M2021 was 24\* 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 9M2021 was 164\* MMSCFD of natural gas and 15\* 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 9M2021 at 179 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 gas discovery in Lang Lebah Field
- Expected to reach Final Investment Decision (FID) in 2023

#### Sarawak SK417 and Sarawak SK405B projects

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

*Note: WI – working interest*



# Other Southeast 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 9M2021
- 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, with production capacity approximately 490 MMSCFD

## Indonesia

### Natuna Sea A (11.5% WI)

- Average sales volume of natural gas was 201 MMSCFD in 9M2021
- The project has completed drilling 1 well in October 2021 and another well is in progress.



# The Middle East

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

## UAE

### Abu Dhabi Offshore 1,2 and 3

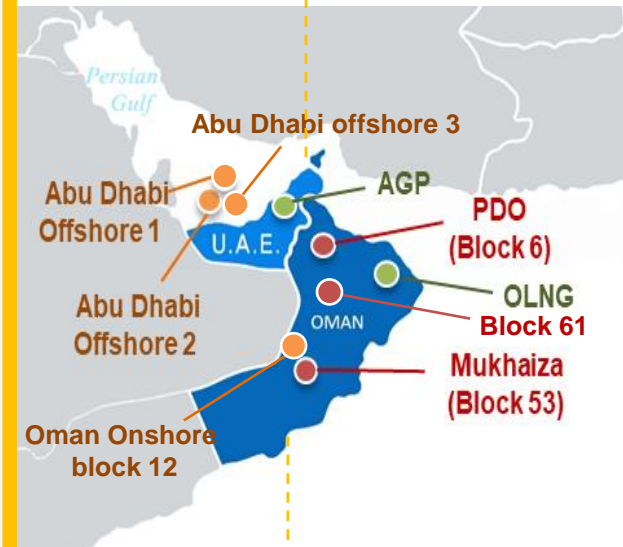
- High potential prospective resources with significant sizeable discoveries
- Located North-west of Abu Dhabi Emirates, United Arab Emirates
- Granted the award for exploration in January 2019 - 2020
- Operated by Eni Abu Dhabi B.V. (70% interest)

### 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)



**Note:** ADNOC : Abu Dhabi National Oil Company



\*Block awarded in 2019  
\*\*Block awarded in 2020

- Production phase
- Exploration phase
- Midstream

## 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 621 KBPD for 9M2021
- 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 97 KBPD for 9M2021
- 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)



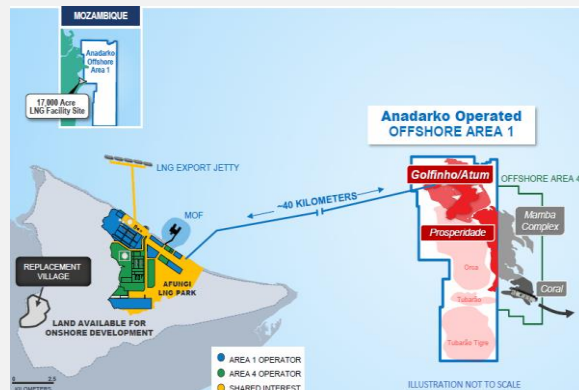
# Mozambique Area 1

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



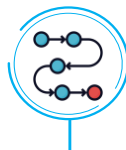
## Achievements

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



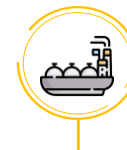
## FID

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 \*

Note: \* Possible delay due to local security situation

Mexico

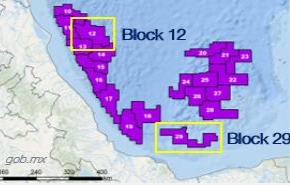
Deep-water with high petroleum potentials and attractive fiscal regime

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 information 1/5



	Project	Status*	Phase	PTTEP's Share	Partners <i>(as of September 2021)</i>	9M2021 Average Sales Volume **		Q3 2021 Key Activities	
						Gas (MMSCFD)	Liquid (KBPD)		
Thailand and JDA									
1	Arthit	OP	Production	80%	Chevron MOECO	16% 4%	240	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><li>Decommissioning Environmental Assessment (DEA) report has been approved by DMF on 8 July 2021.</li></ul>
3	B8/32 & 9A	JV	Production	25.001%	Chevron MOECO KrisEnergy Palang Sophon	51.66% 16.71% 4.63% 2%	48	14	<ul style="list-style-type: none"><li>Ensure deliverability of production volumes as nominated from the buyer</li></ul>
4	Bongkot	OP	Production	66.6667%	TOTAL	33.3333%	887	23	<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%	463	25	<ul style="list-style-type: none"><li>Decommissioning activities</li></ul>
6	Contract 4 <i>(Formerly Pailin)</i>	JV	Production	60%	Chevron MOECO	35% 5%	401	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	0.1	<ul style="list-style-type: none"><li>Decommissioning activities</li></ul>
10	L53/43 & L54/43	OP	Production	100%	-		-	0.7	<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: 27 KBPD LPG: 188 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%	90	0.3	<ul style="list-style-type: none"><li>Ensure gas deliverability</li><li>Drill development well as planned</li><li>Sinphuhorm new GSA was approved by Government</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 information 2/5



	Project	Status*	Phase	PTTEP's Share	Partners <i>(as of September 2021)</i>	9M 2021 Average Sales Volume **		Q3 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%	248	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 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** 164 Block K** 25 Block H** 179	SK309 and SK311** 15 Block K** 24	<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%	773	-	<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%	10	0.7	<ul style="list-style-type: none"><li>Suspended the production due to Covid-19 situation and will resume its production in October</li></ul>
4	Zawtika (M9 & a part of M11)	OP	Production	80%	Myanma Oil and Gas Enterprise (MOGE) 20%	336	-	<ul style="list-style-type: none"><li>Some activities are delayed and process under difficulty due to the COVID-19 and political situation 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>Received final termination agreement from MOGE</li><li>Completed leftover material transferring to MOGE</li></ul>
7	Myanmar MD-7	OP	Exploration	50%	TOTAL 50%	-	-	<ul style="list-style-type: none"><li>Termination process in progress</li><li>Completed leftover material transferring to MOGE</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>Received final termination agreement from MOGE</li><li>Completed leftover material transferring to MOGE</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 information 3/5



	Project	Status*	Phase	PTTEP's Share	Partners <i>(as of September 2021)</i>		9M 2021 Average Sales Volume **		Q3 2021 Key Activities
							Gas (MMSCFD)	Liquid (KBD)	
Others SEA									
9	Vietnam 9-2	JOC	Production	25%	PetroVietnam SOCO	50% 25%	14	4	• Maintain production level
10	Vietnam 16-1	JOC	Production	28.5%	PetroVietnam SOCO OPECO	41% 28.5% 2%	7	12	• Maintain production level • Drilling operation for 3 wells • Under procurement process for Equipment and Services
11	Vietnam B & 48/95	JV	Exploration	8.5%	PetroVietnam MOECO	65.88% 25.62%	-	-	• Negotiation process on commercial terms in order to push forward the Final Investment Decision (FID) • The first production target at the end of 2024
12	Vietnam 52/97	JV	Exploration	7%	PetroVietnam MOECO	73.4% 19.6%	-	-	• Negotiation process on commercial terms in order to push forward the Final Investment Decision (FID) • The first production target at the end of 2024
13	Natuna Sea A	JV	Production	11.5%	Premier Oil KUFPEC Petronas Pertamina	28.67% 33.33% 15% 11.5%	201	2	• Completed drilling 1 well in Q3/2021 with another well drilling in process
Middle East									
1	Abu Dhabi Offshore 1	JV	Exploration	30%	Eni Abu Dhabi	70%	-	-	• Being evaluated for petroleum potential to support future exploration, including G&G report
2	Abu Dhabi Offshore 2	JV	Exploration	30%	Eni Abu Dhabi	70%	-	-	• Commencement of 1 exploration well drilling
3	Abu Dhabi Offshore 3	JV	Exploration	30%	Eni Abu Dhabi	70%	-	-	• G&G study is on-going
4	PDO (Block 6)	JOC	Production	2%	Government of Oman Shell Total	60% 34% 4%	-	642**	• Normal operations with daily production around 600 KBD
5	Mukhaizna	JV	Production	1%	Occidental OOCEP Indian Oil Mubadala	47% 20% 17% 15%	-	99**	• Normal operations with daily production around 95 KBD
6	Oman Onshore Block 12	JV	Exploration	20%	Total E&P Oman Block 12 B.V.	80%	-	-	• 3D seismic reprocessing (original 3D) in progress • Preparation of 3D seismic acquisition (new 3D)
7	Oman Block 61	JV	Production	20%	BP Makarim Gas Development LLC PC Oman Ventures Limited (PETRONAS)	40% 30% 10%	929	41	• Completed production ramp up as planned

\* 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 <i>(as of September 2021)</i>		9M 2021 Average Sales Volume **		Q3 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>Tenacious and Oliver : On-going for well abandonment campaign</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 2025 (Under further assessment)</li><li>1<sup>st</sup> 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%	-	16	<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	49%	Sonatrach	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>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>Completed drilling 2 wells in Q3 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 September 2021)</i>	9M 2021 Average Sales Volume **		Q3 2021 Key Activities
						Gas (MMSCFD)	Liquid (KBPD)	
Other International								
10	Block 17/06	JV	Pre-development	2.5%	Total Sonangol SSI Acrep Falcon Oil 30% 30% 27.5% 5% 5%	-	-	• Completed Begonia FEED study (in-house)
11	Potiguar	OP	Production	50%	Petro reconcavo 50%	-	0.2	• Divestment was announced on 30 July 2021, expect completion by October 2021.
12	Dunga	JV	Production	20%	Total OOCEP 60% 20%	2	12	• Continue to curb production per OPEC+ agreement to support price • Procurement process Compression, Separation upgrade and Flare package • Engineering of Sea water pipeline
Midstream Project								
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%	-	-	• Normal operations
2	ADNOC Gas Processing (AGP)	JV	On line	2%	ADNOC Shell Total 68% 15% 15%	-	-**Q3	• Perform midstream operation activities • Maintain production and plant integrity with maintenance work as planned • Completion of plant debottlenecking

\* 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.





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