



PTTEP

MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM

Q3 2019 Financial Results and Strategy Update

Analyst Meeting

6 November 2019





Industry Trends



Strategy and Growth



Financial Performance



Industry Trends



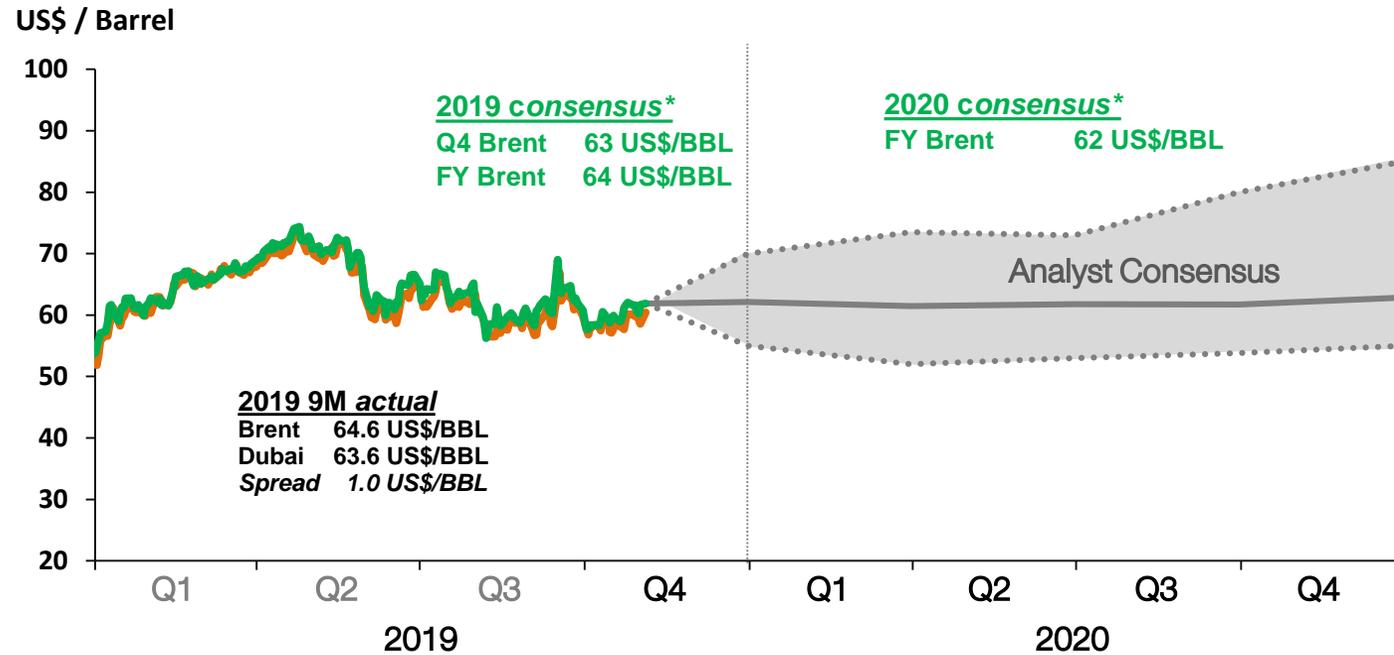
Strategy and Growth



Financial Performance

Industry Trends: Oil Market Outlook

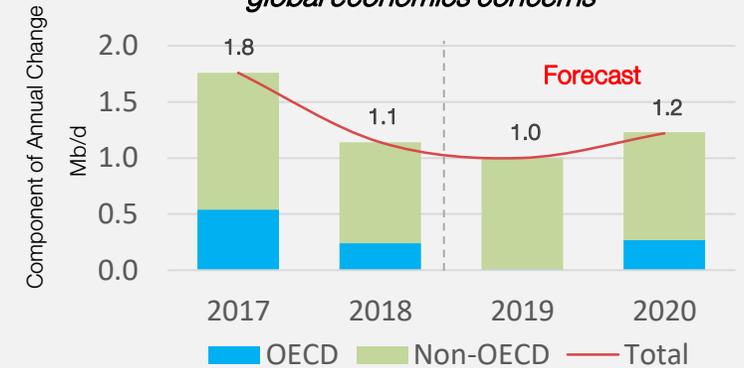
Price volatility driven by uncertainty of global economy



Remark: * Bloomberg Analyst Consensus (CPFC) as of 1 Nov 2019

World Oil Consumption Growth

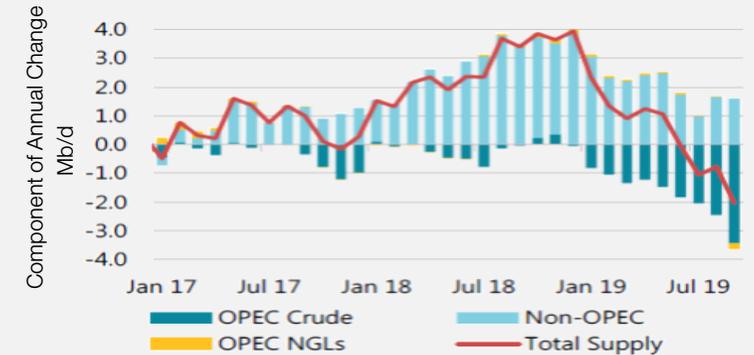
IEA cut demand growth forecast several times following global economics concerns



Source: IEA, Oil Market Report, October 2019

OPEC and Non-OPEC Oil Supply

OPEC+ agreed to cut production until March 2020



Source: IEA, Oil Market Report, October 2019



Industry Trends



Strategy and Growth



Financial Performance

Ensuring Smooth Business Transition

G1/61 and G2/61



- ✓ Signed Production Sharing Contract
- ✓ Signed Preliminary Facility Access Agreement
- ✓ Started Site Survey for Production Platform installation plan

Newly Acquired Assets from Murphy



- ✓ 3rd Largest player by resources size after acquisition completion
- ✓ Transition in place for business continuity and operational synergy

Newly Acquired Assets from Partex



- ✓ Completed transaction on 4 November 2019
- ✓ In process of business transition

Acceleration of Exploration Activities





Industry Trends



Strategy and Growth



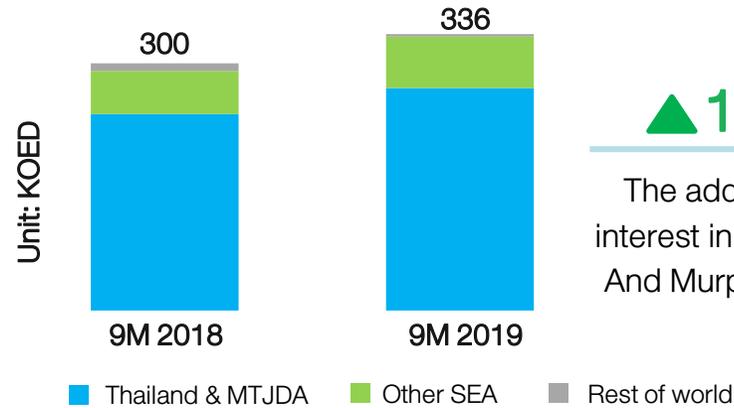
Financial Performance

9M 2019 Key Financial Performance

Strong core performance supported by higher volume and gas price



Sale Volumes



Average Selling Price

	9M 2018	9M 2019
Gas (\$/MMBTU)	6.24	6.91
Liquid (\$/BBL)	67.85	60.82
Weighted Avg. (\$/BOE)	46.25	46.83
Avg. Dubai (\$/BBL)	70.10	64.02
Volume Mix (Gas : Liquid)	71:29	72:28

▲ 1% YTD

Strong gas price leading to higher average selling price

Key Financial Performance

Unit : \$/BOE	9M 2018	9M 2019
Cash cost	14.64	15.06
Non-Cash cost	16.64	15.80
Unit cost	31.28	30.86

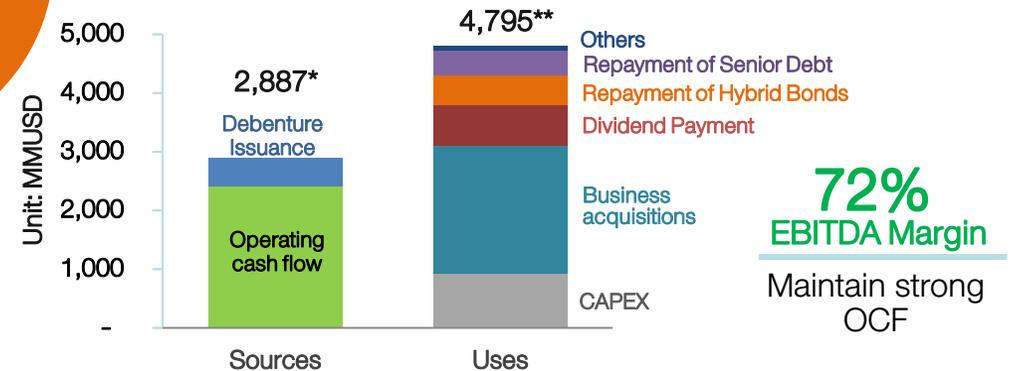
▼ 1% YTD

Remain competitive unit cost

Note: Unit Cost : Exclude costs related to new business which is approximately 0.1\$/BOE for each period



Unit Cost



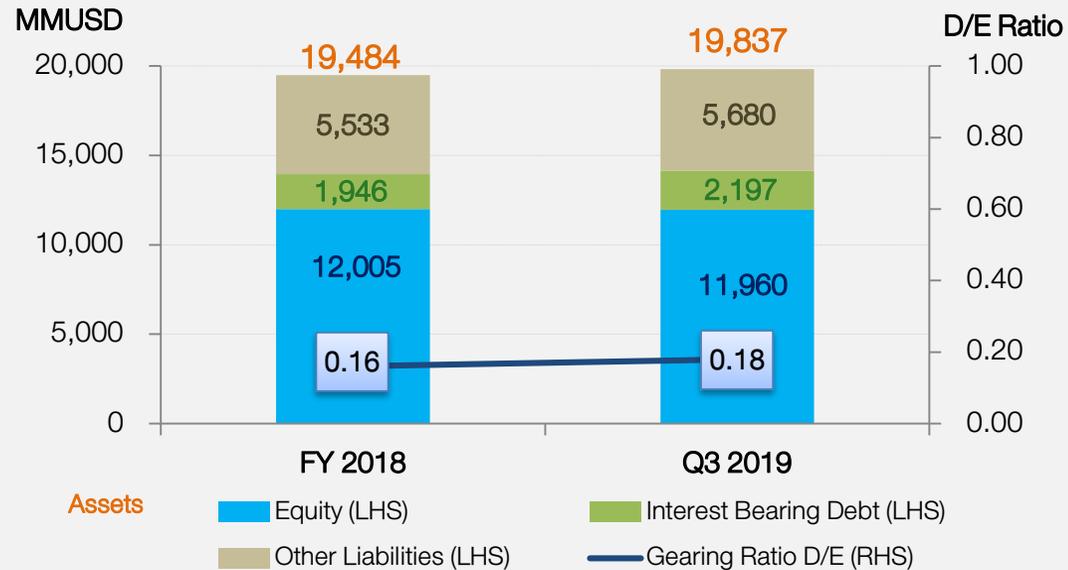
Remark: * Net of adjustment for the effect of exchange rate changes on cash and cash equivalents
 ** Excludes cash flows for investing in short-term investments (Fixed deposit > 3 months)



9M Source & Use of Funds

Capital Structure

Healthy balance sheet with low gearing



Debt Profile



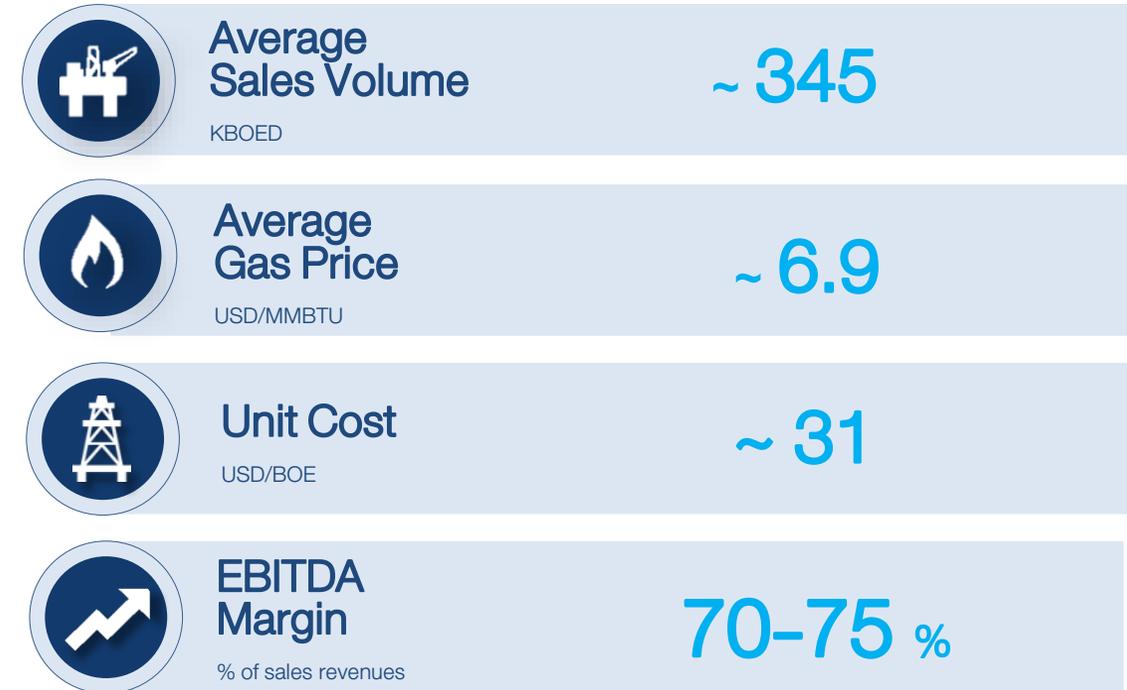
Weighted Average Cost of Debt (%)	5.32	5.04
[Fixed : Floating]	[100 : 0]	[100 : 0]
Average Loan Life (Years)	8.67	8.36

Remark: Debt profile excludes Hybrid bonds

2019 Guidance

Volumes boost with priorities in business transition for full value realization

FY 2019



Note: Included the acquisition of Murphy's business in Malaysia which was completed in July 2019
Excluded the acquisition of Partex
Based on FY2019 average Dubai oil price at 63 \$/BBL

Supplementary information

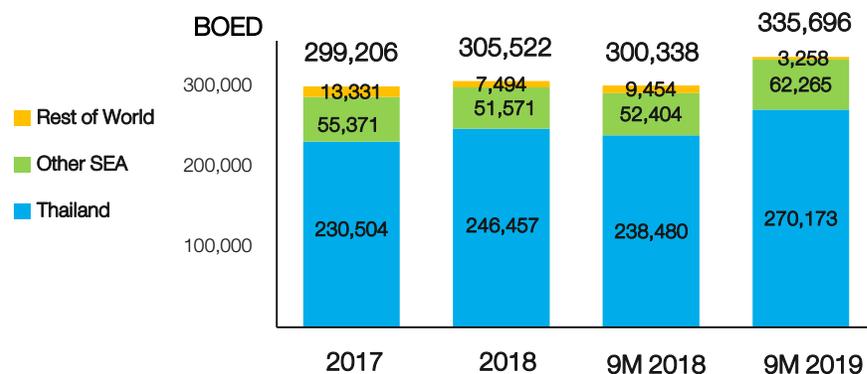


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Sales Volume & Unit Cost

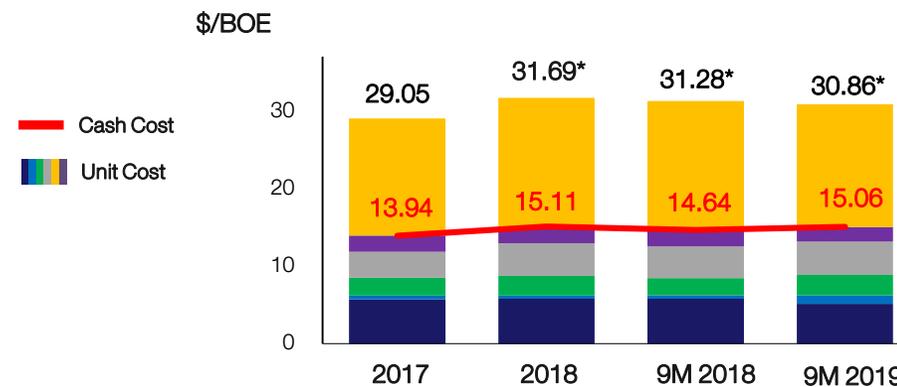
Upward sales volume after completion of acquisitions with competitive cost

Sales Volume and Price



Gas (\$/MMBTU)	5.59	6.42	6.24	6.91
Liquid (\$/BBL)	52.26	67.40	67.85	60.82
Weighted Avg. (\$/BOE)	39.20	46.66	46.25	46.83
Avg. Dubai (\$/BBL)	53.14	69.65	70.10	64.02
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	49.64	67.01	65.15	63.81
Volume Mix (Gas : Liquid)	70 : 30	72 : 28	71 : 29	72 : 28
Revenue Mix (Gas : Liquid)	60 : 40	59 : 41	58 : 42	64 : 36

Unit Cost



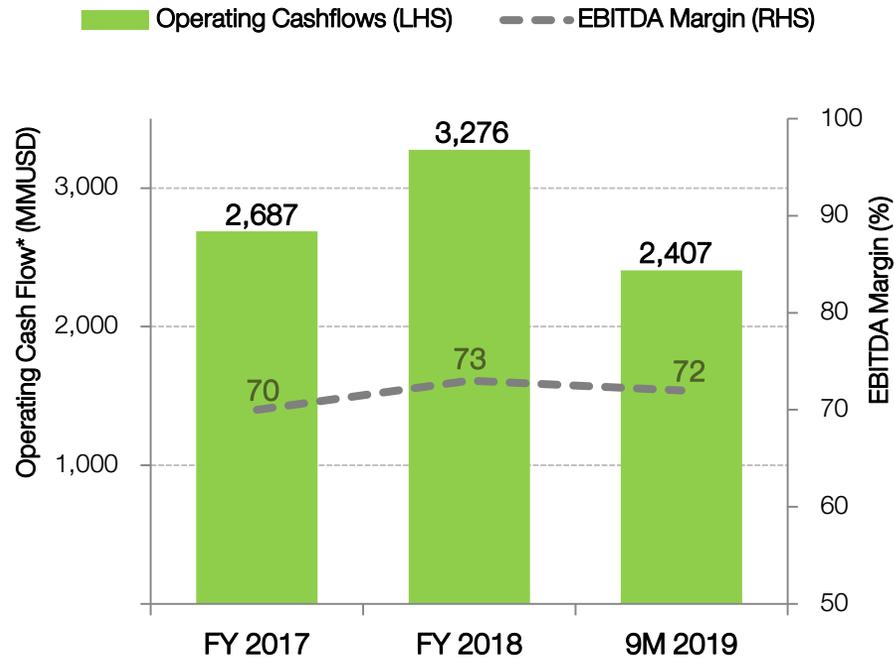
DD&A	15.11	16.58	16.64	15.80
Finance Cost	2.07	2.14	2.09	1.88
Royalties	3.37	4.21	4.10	4.31
G&A	2.30	2.57	2.19	2.64
Exploration Expenses	0.48	0.41	0.45	1.10
Operating Expenses	5.72	5.78	5.81	5.13
Lifting Cost	4.19	4.33	4.38	3.88

Note: * Exclude costs related to new business, If include cost for 2018, 9M2018 and 9M2019 will be 31.72 \$/BOE, 31.35 \$/BOE and 30.96 \$/BOE respectively
The formulas for calculating ratios are provided in the supplementary section for your reference

Cash Flow Performance

Robust operating cash flow

Cash Flow Performance



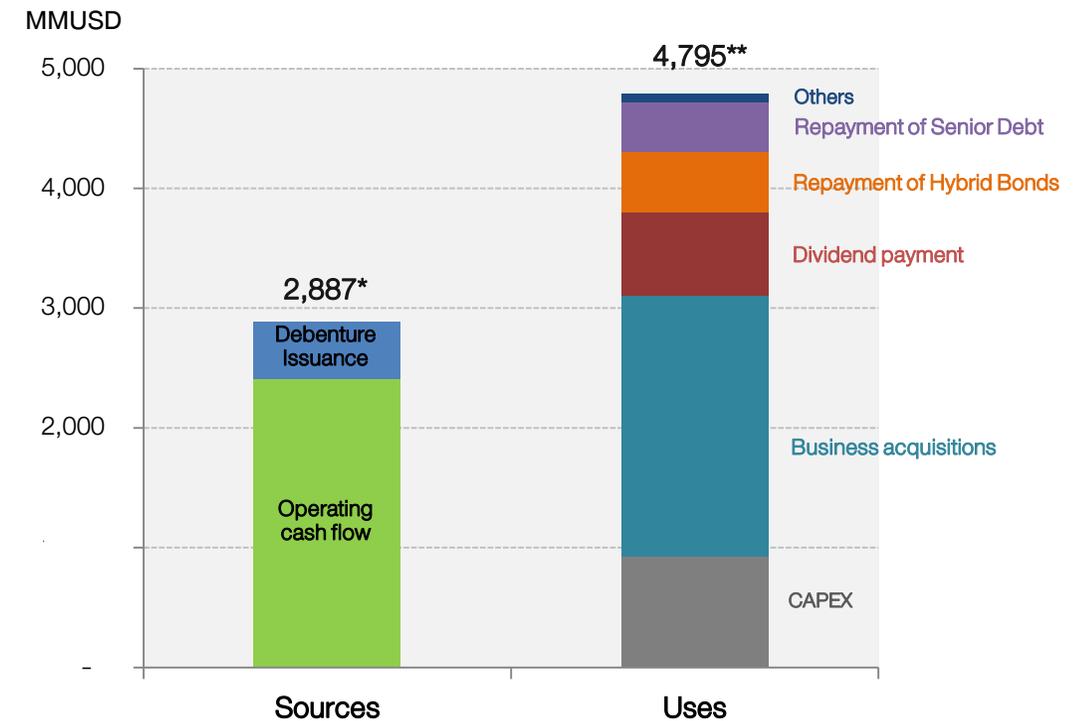
Net Income	594	1,120	1,185
Recurring Net Income***	836	1,215	1,066

Remark: * Net of adjustment for the effect of exchange rate changes on cash and cash equivalents

** Excludes cash flows for investing in short-term investments (Fixed deposit > 3 months)

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

Source & Use of Funds in 9M 2019



Financial Performance : Income Statement

Sustained solid EBITDA



	Q2 19	Q3 19	Q3 18	9M 19	9M 18
Sales and Revenue from Pipeline Transportation (MMUSD)	1,503	1,524	1,367	4,383	3,870
EBITDA (MMUSD)	1,087	1,054	992	3,166	2,836
Net Income (MMUSD)	433	358	315	1,185	851
Recurring Net Income (MMUSD)	389	303	292	1,066	932
Earning Per Share (USD)	0.10	0.09	0.07	0.29	0.20
Key Financial Ratios					
EBITDA Margin (%)	72	69	73	72	73
Return on Equity (%) (LTM)	12	12	10	12	10
Return on Capital Employed (%) (LTM)	11	11	9	11	9
Return on Equity (%) (LTM, Recurring Net Income)	11	11	10	11	10
Return on Capital Employed (%) (LTM, Recurring Net Income)	10	10	9	10	9

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

Financial Performance : Balance Sheet

Healthy balance sheet with low gearing ratio



	YE 18	Q3 19
Total Assets (MMUSD)	19,484	19,837
- Cash & cash equivalents * (MMUSD)	4,001	2,093
Total Liabilities (MMUSD)	7,479	7,877
- Interest bearing debt (MMUSD)	1,946	2,197
Equity (MMUSD)	12,005	11,960
Key Financial Ratios		
Total Debt to Equity (X)	0.16	0.18
Net Debt** to Equity (X)	(0.17)	0.01
Total Debt to Capitalization (X)	0.14	0.16
Total Debt to EBITDA (X)	0.63	0.49
EBITDA Interest Coverage (X)	32	42

Credit Ratings : BBB+ (S&P), Baa1 (Moody's), AAA (TRIS)
Weighted Average Cost of Debt ** : 5.04%
Average Loan Life ** : 8.36 years

Note: * Cash & Cash Equivalents (Cash on hand) include Short-term Investments (Fixed deposit > 3 months)

Net Debt = Total Debt less Cash & Cash Equivalents and Short-term Investments

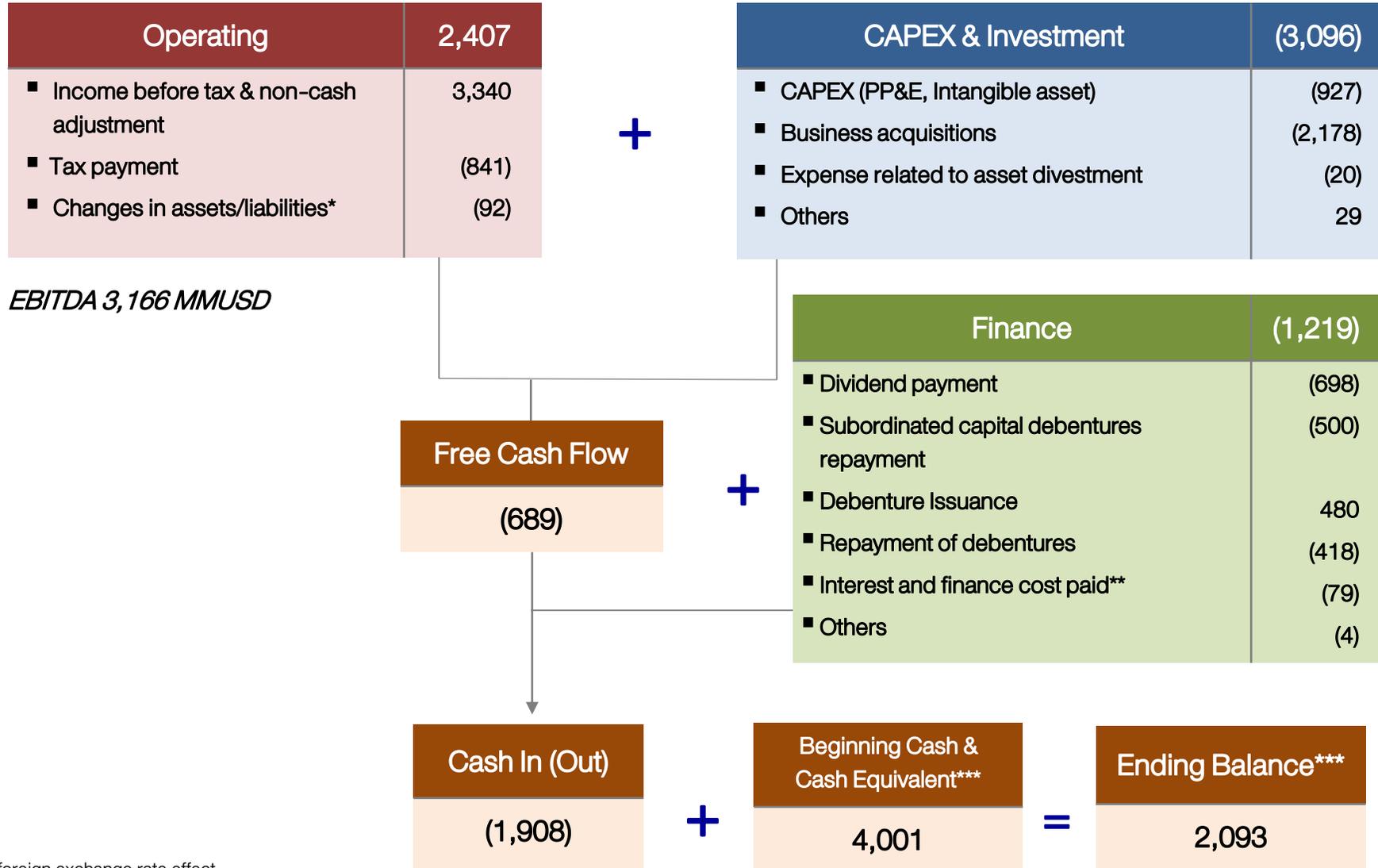
** Excludes hybrid bonds

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

Cash Flows : January – September 2019

Healthy operating cash flow

Unit : MMUSD



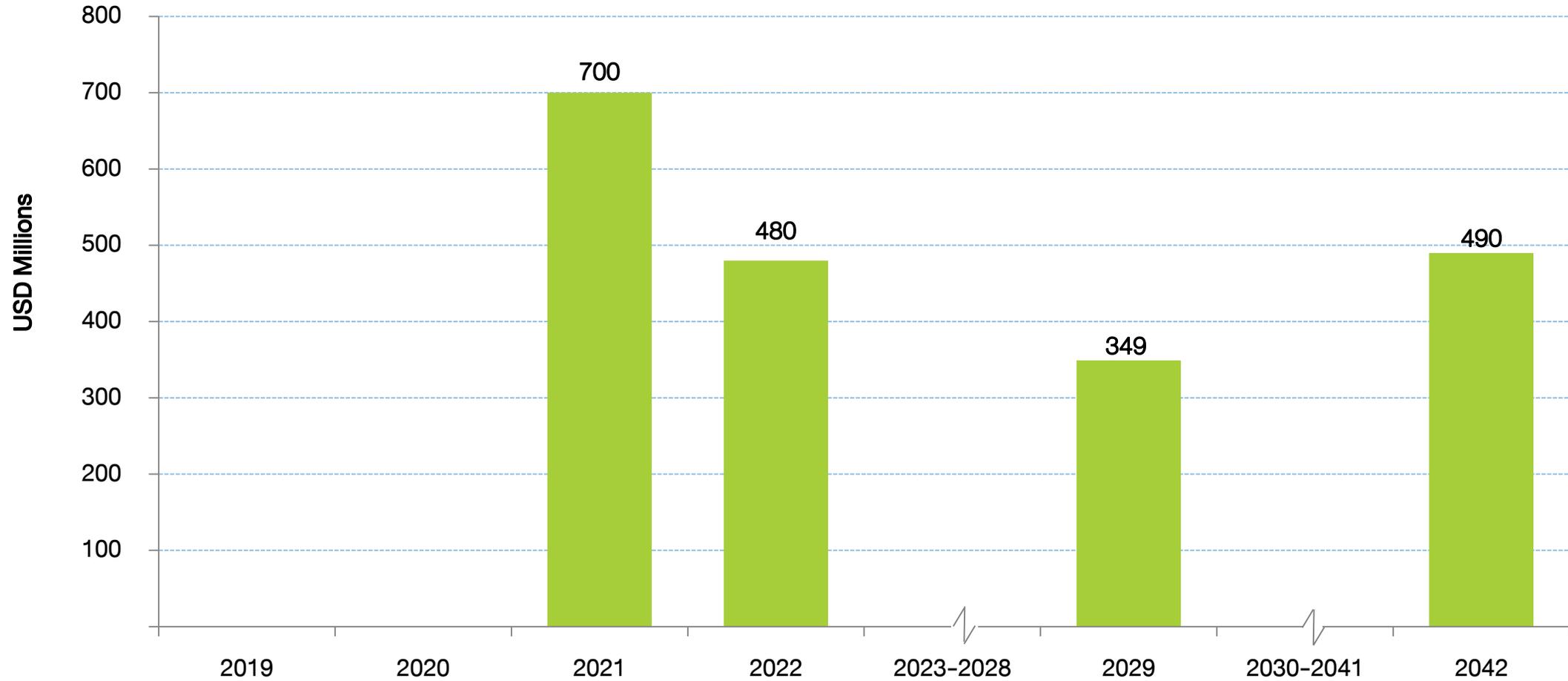
Note: * Net of foreign exchange rate effect

** Net of interest received

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

Debt Maturity Profile

As of September 2019



Note: Excludes Hybrid bonds

Unit: USD Millions or equivalent after cross currency swap

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2019 DJSI Listed Company

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



Proven business integrity

- Asia's Icon on Corporate Governance 2019 Award
Corporate Governance Asia magazine
- SET Sustainability Award 2018 – Outstanding Category
The Stock Exchange of Thailand (SET)
- Board of the Year Award 2018 (Silver)
The Thai Institute of Directors Association (IOD)




FTSE4Good

FTSE4Good Emerging Index 2019

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



Green driver to environment

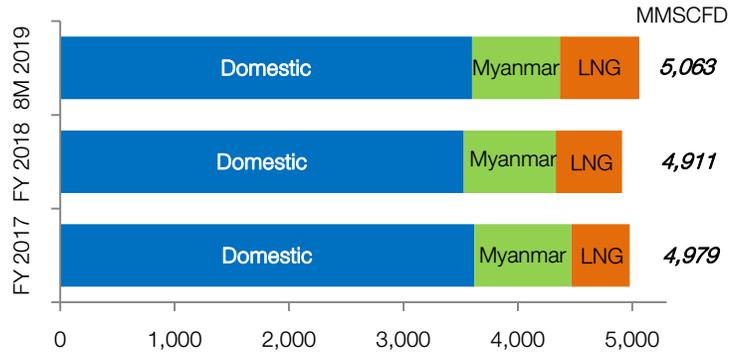
- The Excellent Level (G-Gold) of the Green Office Award 2018
The Ministry of Natural Resources and Environment
- Green Leadership Category for T.M.S. Underwater Learning Site Project
The Asia Responsible Enterprise Awards 2018
- Water A List Award
Carbon Disclosure Project (CDP)

Exemplary social contributor

- Best CSR Organizer 2019
BAZNAS of Indonesia (The National Zakat Board)
- Thailand's Best Strategic Corporate Social Responsibility (ranked first)
Alpha Southeast Asia Magazine 2018
- Role Model Organization on Human Rights
Department of Rights and Liberties Protection, Ministry of Justice

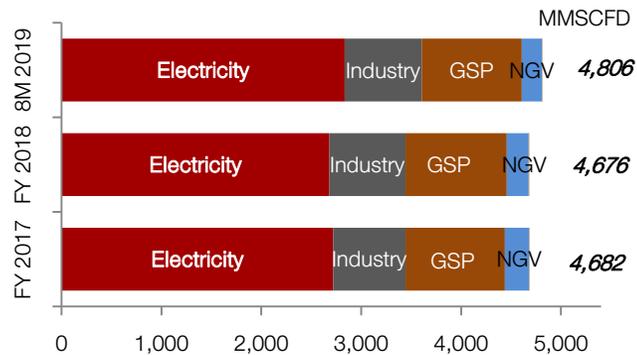
Thailand Energy Overview

Natural Gas Supply

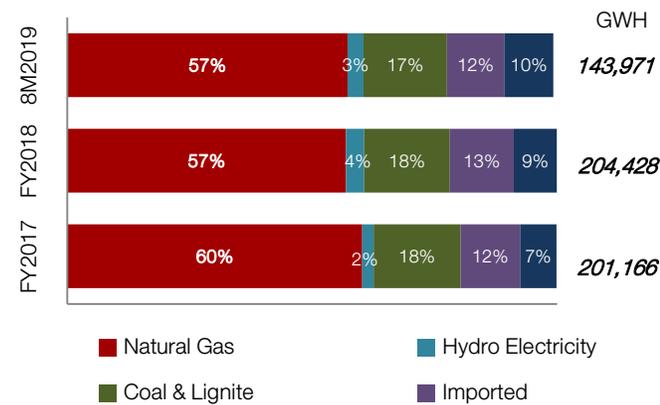


Slight decline from Myanmar piped gas imports due to natural decline and significant growth in LNG import

Natural Gas Consumption



Electricity Generation



Source: EPPO

Exchange Rate Movement (THB/USD)



Consensus on the exchange rate mostly depends on

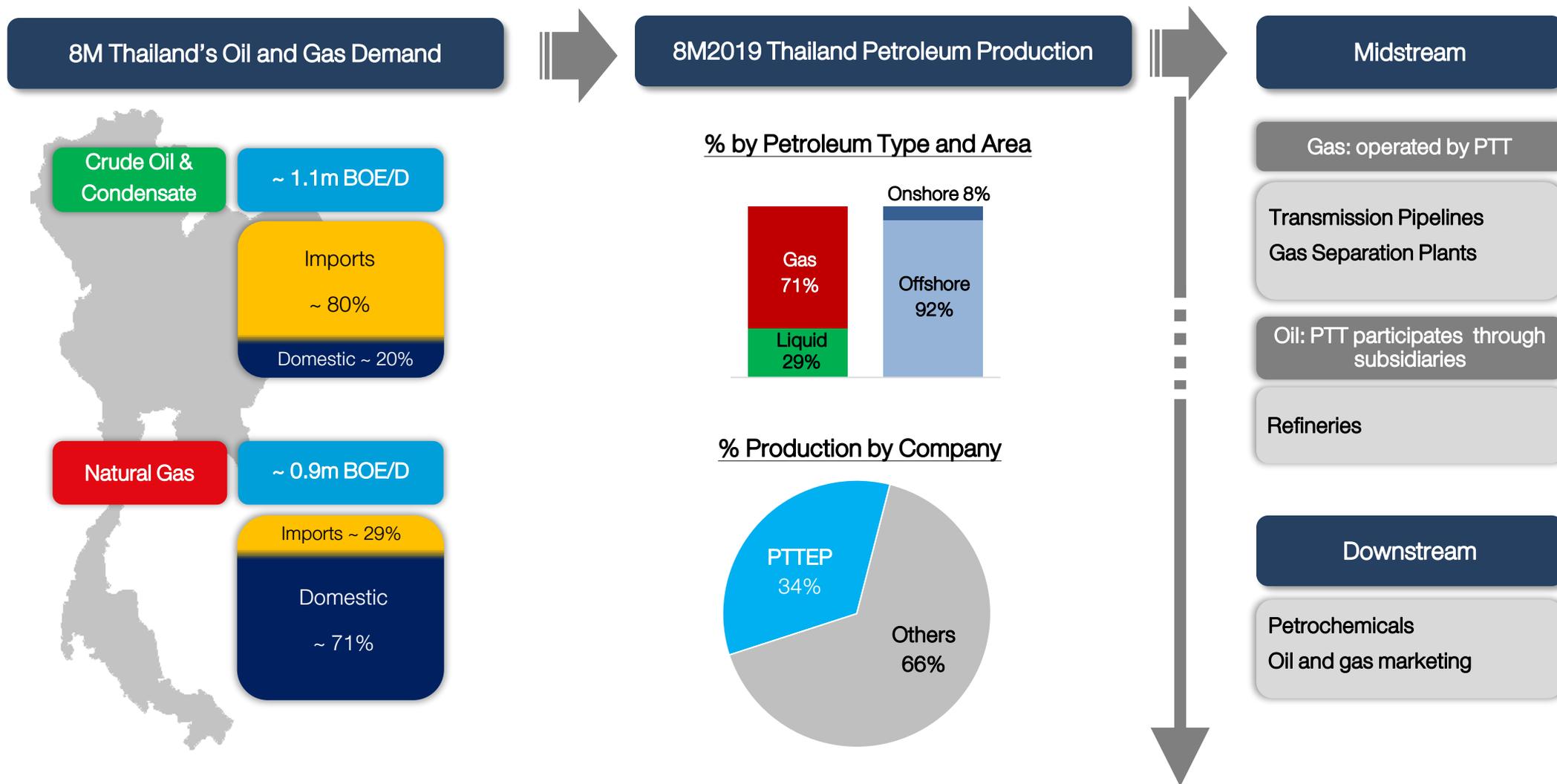
- Tendency on FED to lower interest rate
- Trade war between the US and China
- Uncertainty on Brexit
- BOT's direction on monetary policy
- Slow recovery in Tourism growth

Source: Bank of Thailand, Bloomberg

Forecast based on Bloomberg Consensus as of 1 November 2019

Thailand's Energy Value Chain

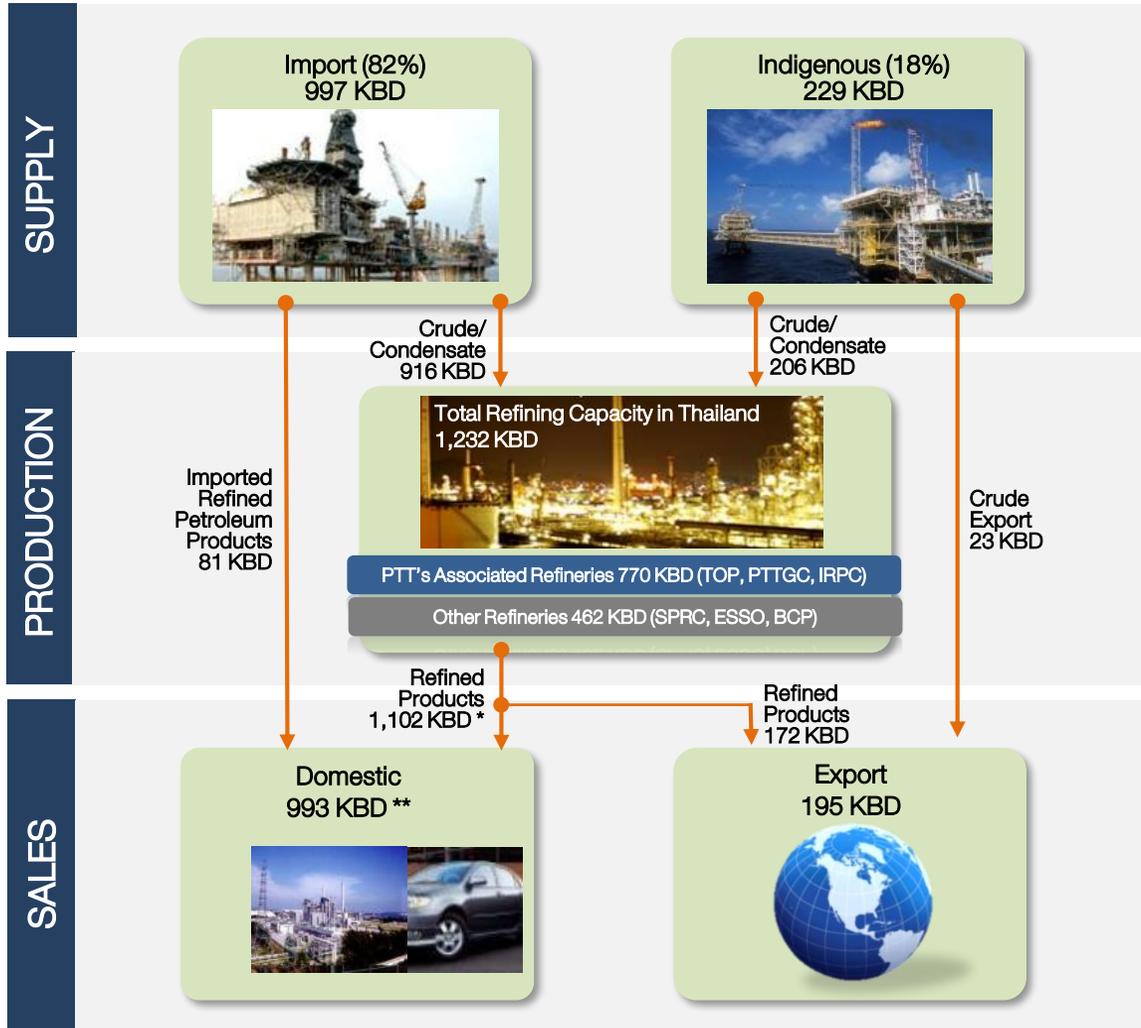
PTTEP contributes almost 1/3 of Thailand's petroleum production



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

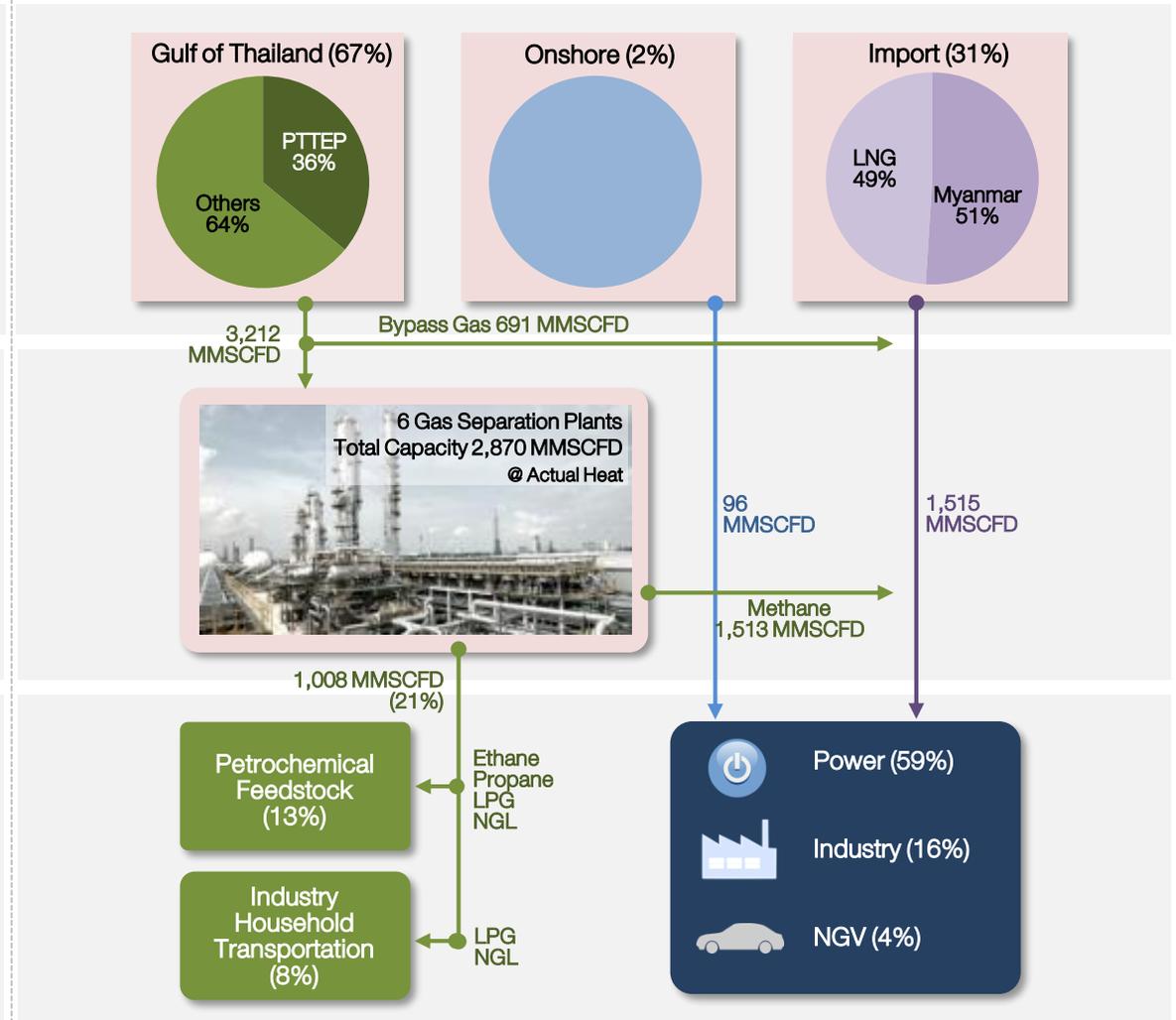
Oil Balance***

Maintains stability supply through adequate refining capacity



Natural Gas Balance****

Main driver of the Thailand economy



Source: PTT

Remark: * Refined product from refineries = 1,102 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 106 KBD

** Not included Inventory

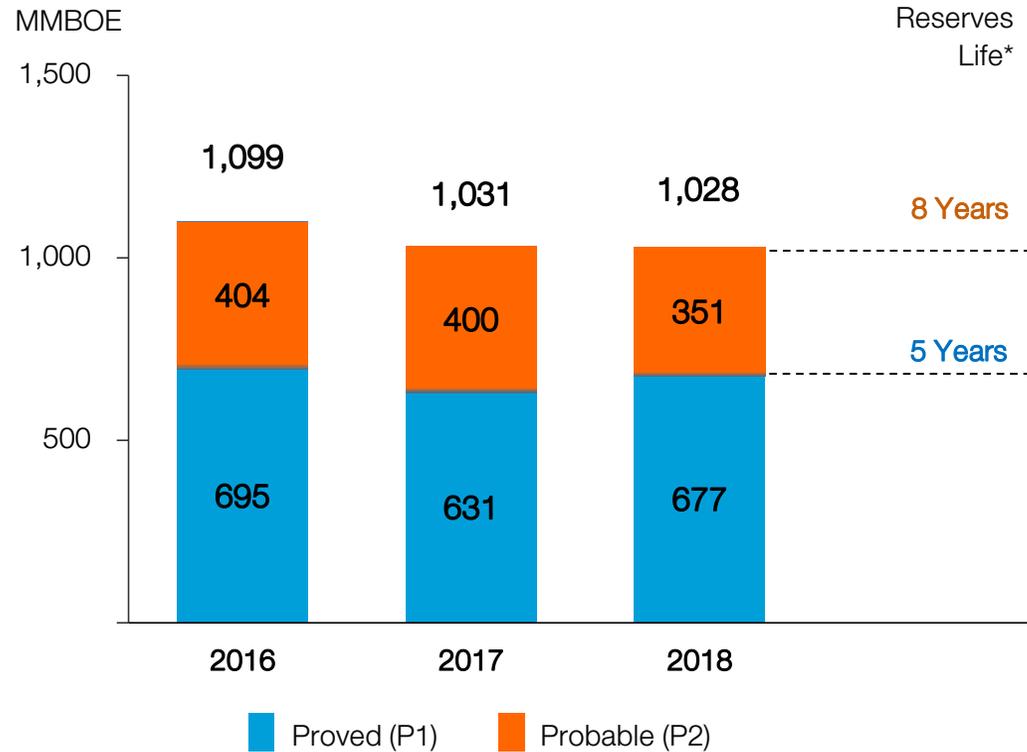
*** Information as of 8M19

**** Information as of 9M19

MMSCFD @ Heating Value 1,000 Btu/ft³

Reserves at the Year-end 2018

Maintained reserves life with majority of reserves base in SEA

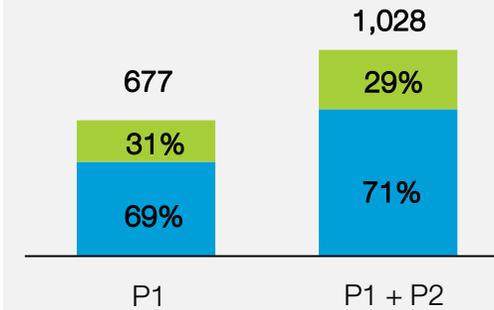


5-Year Average Proved Reserves Replacement Ratio (RRR)

2016	2017	2018
0.57x	0.58x	0.74x

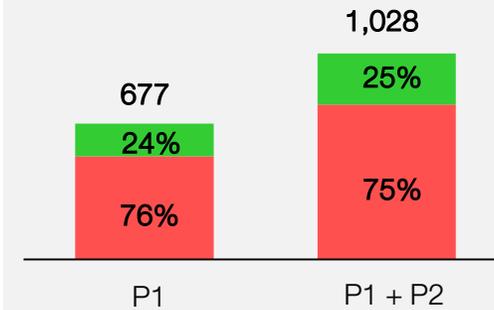
2018 by Geography

Domestic International



2018 by Product Type

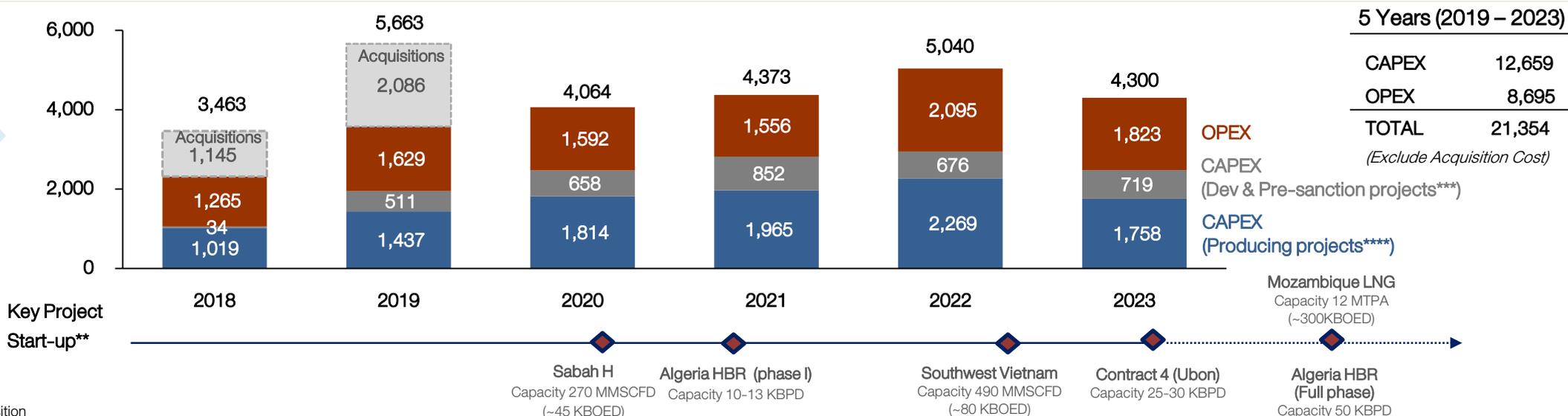
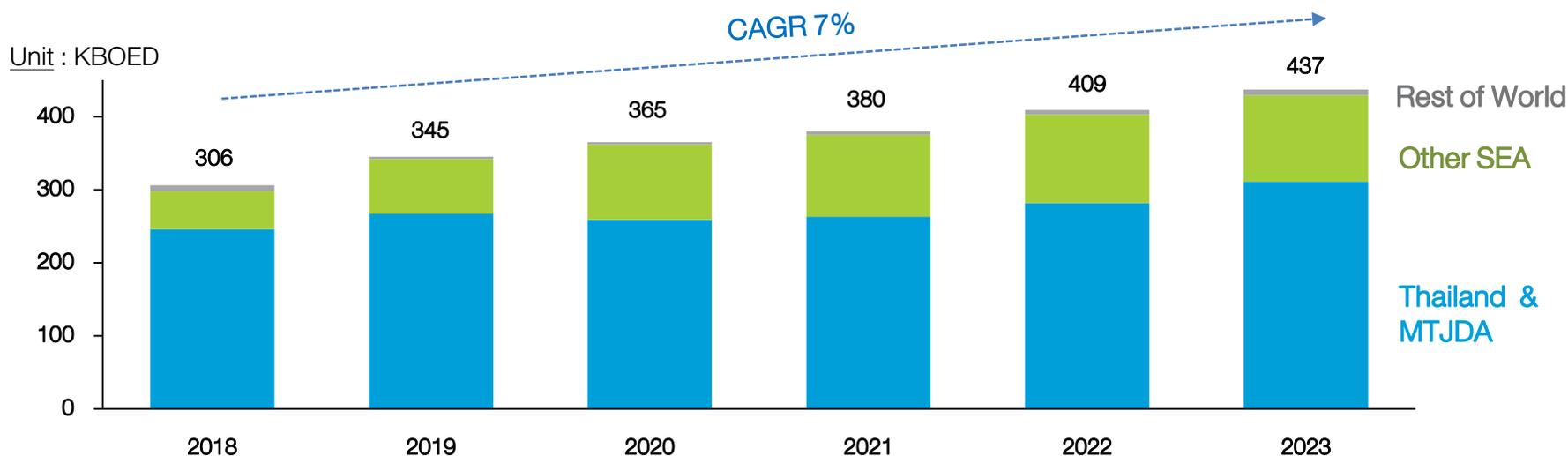
Gas Liquid



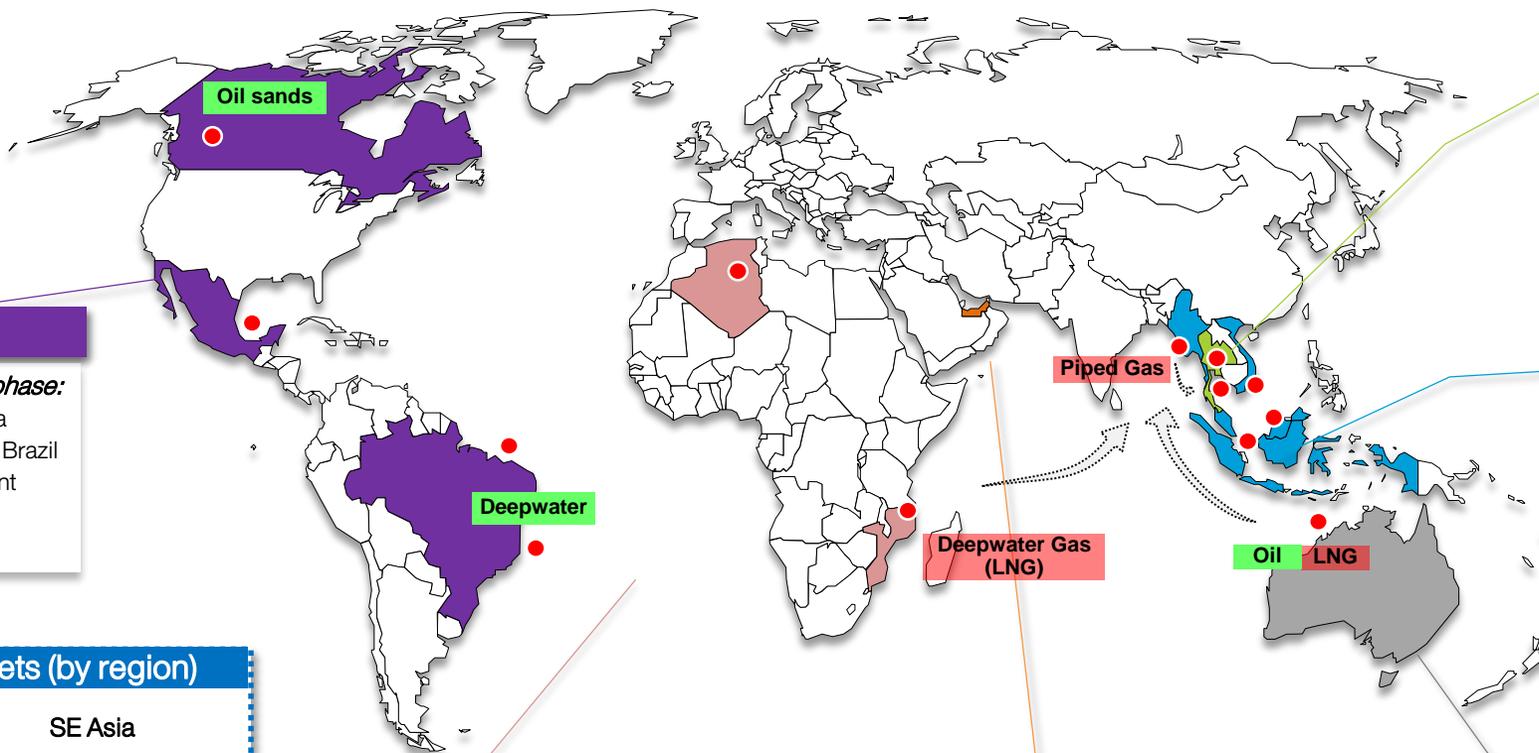
* Based on total production of natural gas, condensate, and crude oil (including LPG) of 359 KBOED for the year ended December 31, 2018

Revised Five –Year Plan*

Incorporating growth from recent developments : Murphy and Bidding win of BKT & ERW



Note: * Exclude Partex acquisition
 ** Subject to FID timing
 *** Development & Pre-sanction projects include Sabah H, Mozambique LNG, Contract 4 (Ubon), Algeria HBR and Southwest Vietnam
 **** Includes exploration and appraisal in all projects and head office CAPEX

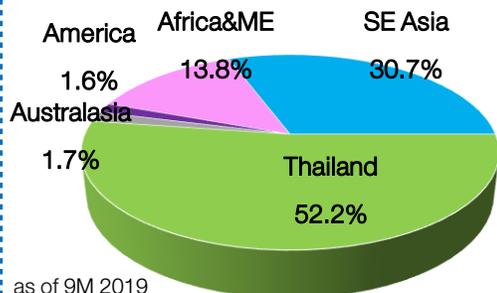


North & South America

Opportunities in an early phase:

- Oil Sand project in Alberta
- Deepwater exploration in Brazil and Mexico with prominent and prudent operators

Book Value of Assets (by region)



Total Assets USD 19.8 billion

as of 9M 2019

Africa

An area for growth, key projects include:

- Production: Algeria's Bir Seba oil field with current flow rate of approximately 18 KBPD
- Development : Algeria's Hassi Bir Rakaiz with target phase 1 production in 2021
- Mozambique Area 1 with target first cargo in 2024

Middle East

First presence in UAE:

- Awarded 2 new offshore exploration blocks in Jan 2019
- Partnered with experienced operator, ENI

Thailand

PTTEP's core production base

- 80% of total sales volume
- Key producing assets include Bongkot, Arthit, Contract 4 and S1
- The PSCs signing of Bongkot (G2/61) and Erawan (G1/61) on 25 February 2019

Southeast Asia

Second heartland to PTTEP

- 19% of total sales volume mainly from Malaysia and Myanmar
- 3rd Largest by resources size in Malaysia with significant gas discovery in Sarawak SK 410B Project
- Gas production in Myanmar mostly supplied into Thailand
- Other producing assets in Vietnam (oil) and Indonesia (gas)

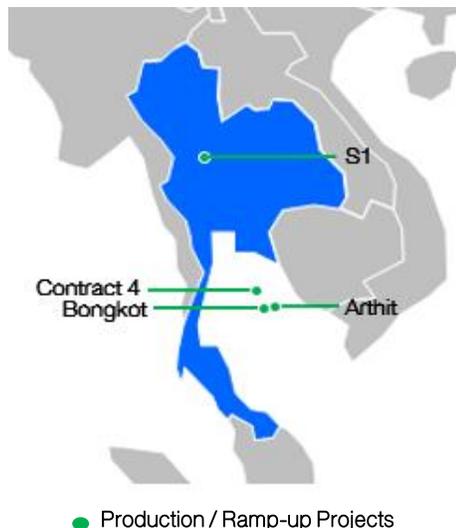
Australasia

Potential gas development

- Sizable undeveloped gas resources in Timor Sea
- Completion of Montara Divestment

Note : Excluding Partex acquisition

Thailand



Bongkot (66.6667% WI)

- Average natural gas and condensate sales volume of 779 MMSCFD and 22 KBPD in 9M2019

S1 (100% WI)

- The largest onshore crude oil production field in Thailand with 9M2019 average crude oil sales volume of 30 KBPD

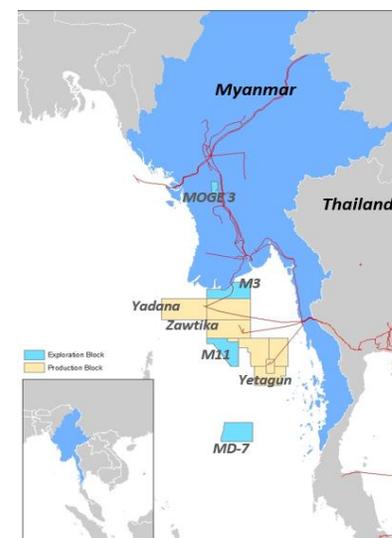
Arthit (80% WI)

- Average sales volume in 9M2019 was 224 MMSCFD of natural gas and 11 KBPD of condensates

Contract 4 (60% WI)

- Average sales rate of 411 MMSCFD for natural gas and 18 KBPD for condensate in 9M2019

Myanmar

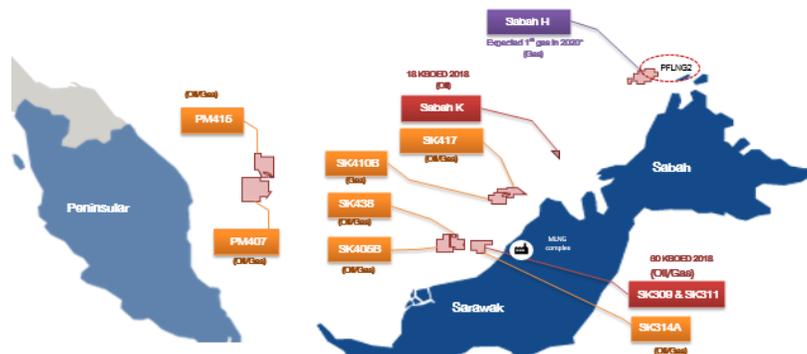


- 3 producing gas fields supplying gas to both Thailand and Myanmar: Yadana, Yetagun, and Zawtika
- Operate Zawtika project, brought online in March 2014 with current gas supply of 304 MMSCFD in 9M2019
- Significant exploration acreage in offshore, Moattama Basin

Project Status

Production	Exploration
<ul style="list-style-type: none"> • Zawtika (80% WI) • Yadana (25.5% WI) • Yetagun (19.3% WI) 	<ul style="list-style-type: none"> • MOGE 3 (77.5% WI) • M11 (100% WI) • MD-7 (50% WI)
Appraisal	<ul style="list-style-type: none"> • M3 (80% WI)

Malaysia



Production

Block K Project* :

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

- Average production volume in Q32019 was 24** KBPD of crude oil

SK309 and SK311 Project* (59.5% WI)

For East Patricia field (42% WI)

- Average production volume in Q32019 was 240 MMSCFD of natural gas and 24 KBPD of condensates and crude.

Development

Block H Project* :

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

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

Exploration

Sarawak SK410B Project (42.5% WI)

- Multi TCF significant discovery
- Preparing additional drilling of an appraisal well in 2020

Other projects

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

*This asset is a part of the acquisition of Murphy's business in Malaysia which was completed in July 2019

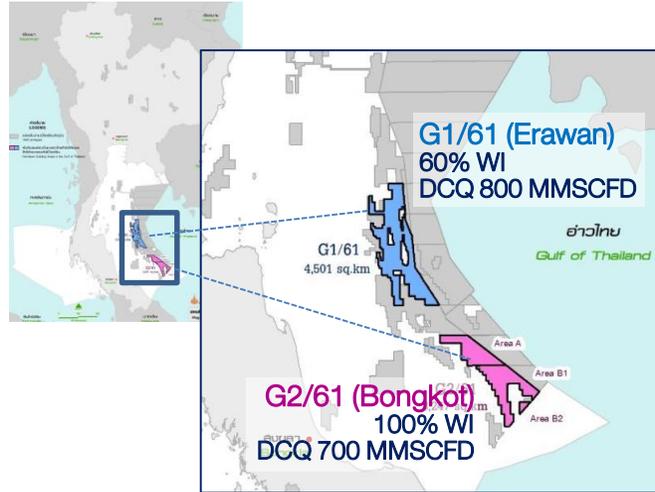
** Block K gross production is net off utilization

Note: WI – working interest

Bongkot and Erawan: Thailand Champion in Domestic Gas Supply

Execute Bongkot and Erawan transition plan

To supply 2/3 of domestic gas production starting from 2022 onwards.....



Growing production and reserves profile

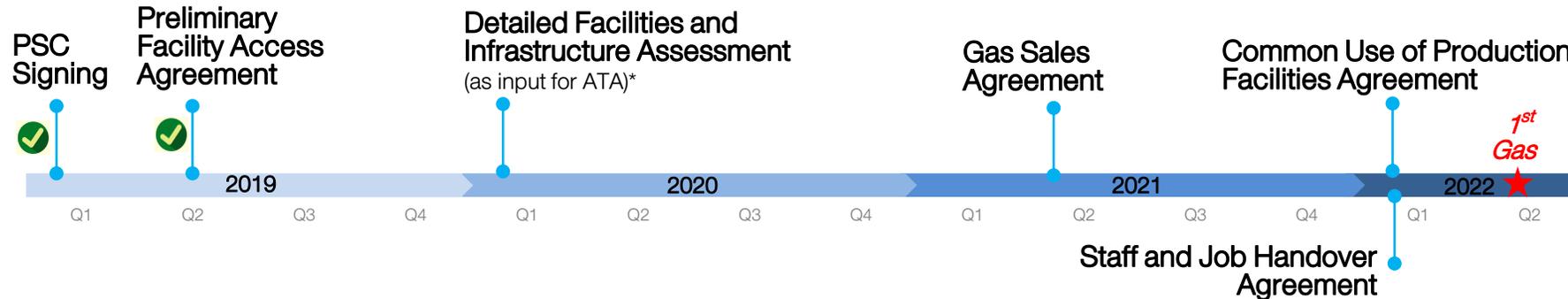
- Substantial volume boost for 10 years and beyond
- Immediate remarkable reserves addition
- Minimal risk in production profile



Generating strong cash flow

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

Concrete transition plan as an operator of G1/61 (Erawan) under PSC



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

Summary of Terms from Bidding Result of Bongkot and Erawan and PSC Model

Price Formula

Pricing Formula: $Pr_{(y)} = Pc \times M_{(y)} \times \left(a \frac{PPI_{(y)}}{PPI} + \frac{I_{(y)}}{I} \left\{ b \frac{OM_{(y)}}{OM} + c \frac{DB_{(y)}}{DB} + d \right\} \right)$

$DB_{(y)} < 52$	$M = 0.91 + 0.11 \frac{DB_y}{52}$	Whereas: Pr: Gas Price Pc: Price Constant I: Exchange rate PPI: Producer Price Index OM: PPI for Oil Machinery and Tools DB: Dubai oil price
$52 \leq DB_{(y)} < 100$	$M = 1.02 - 0.15 \frac{DB_y - 52}{48}$	
$DB_{(y)} > 100$	$M = 0.22 + 6.44 \times \frac{1}{\sqrt{DB_y}}$	

Base year numbers (2016): PPI = 101.4167 I = 35.3 THB/USD OM = 214.88 DB = 41.27\$/BBL

$$Pr_{(y)} = 116 \times M_{(y)} \times \left(0.25 \frac{PPI_{(y)}}{101.4167} + \frac{I_{(y)}}{35.3} \left\{ 0.3 \frac{OM_{(y)}}{214.88} + 0.4 \frac{DB_{(y)}}{41.27} + 0.05 \right\} \right)$$

Terms

	G2/61 (Bongkot)	G1/61 (Erawan)
Price Constant	116 THB per MMBTU	116 THB per MMBTU
Contractor's Profit Split	30%	32%
Bonuses	Signature Bonus* 1,050 MMTHB Production Bonus** 1,575 MMTHB Supporting Contribution 7 MMTHB Other benefits 685 MMTHB	Signature Bonus* 1,050 MMTHB Production Bonus** 1,575 MMTHB Supporting Contribution 7 MMTHB Other benefits 35 MMTHB
Thai Employee Ratio	99%	98%
Facility Bonus***	175 MMTHB	350 MMTHB

Remark of payment terms:

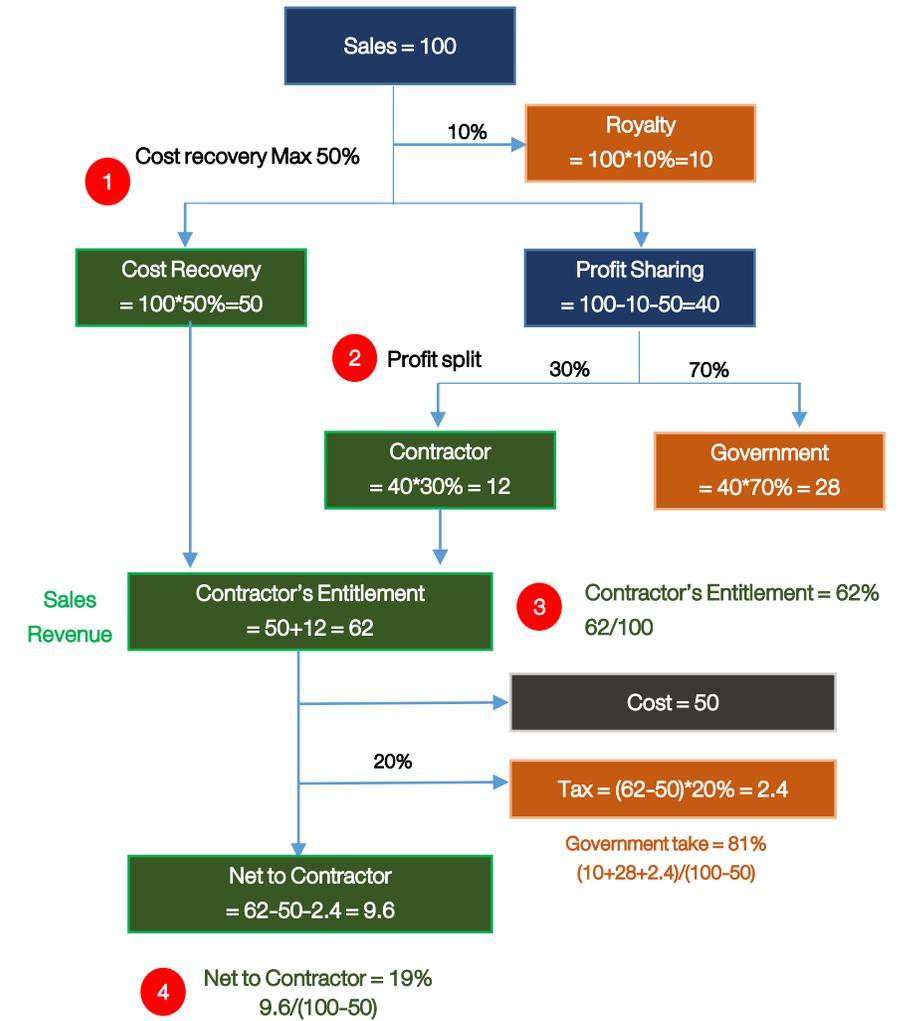
* No later than 10 working days prior to the PSC signing date

** Each time the cumulative production/sales reaches 100, 200 and 300 MMBOE

*** Equally separate into 3 payments by 24th April of every year from 2022

Source: Press release from Department of Mineral Fuels (13 December 2018) and TOR

PSC Model

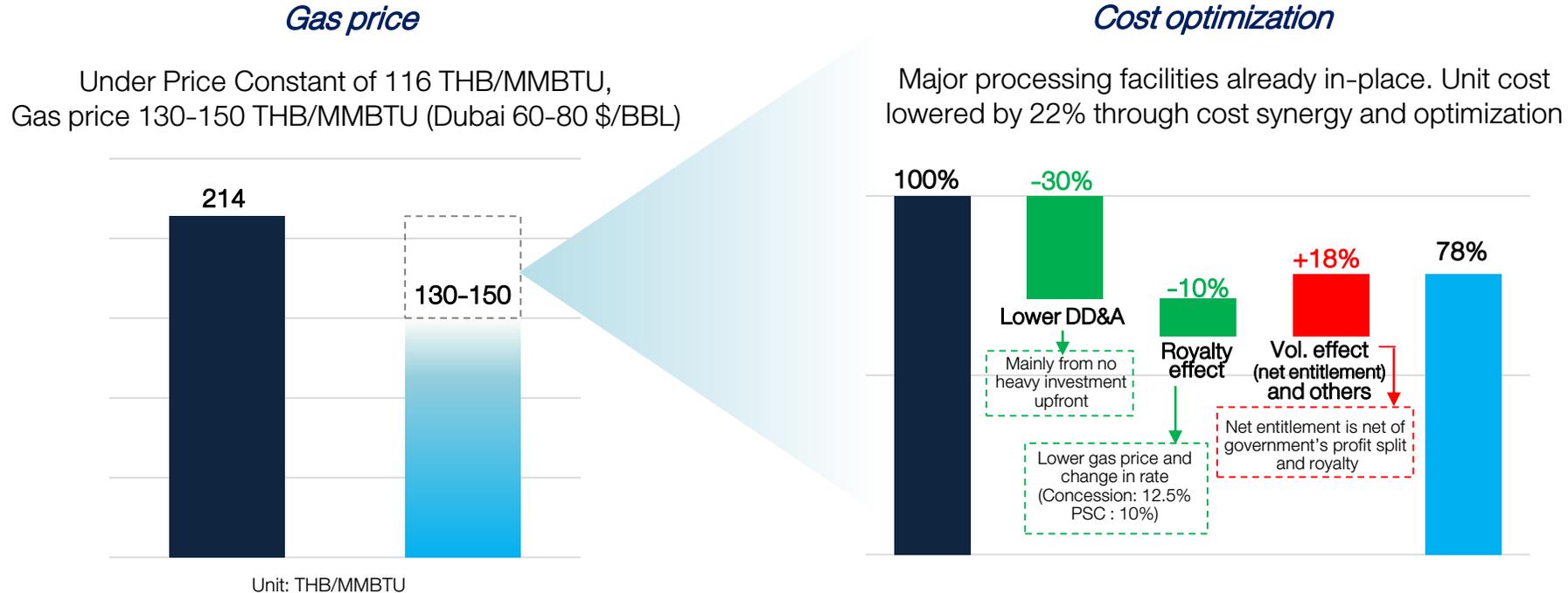


*Assumption bases on field life, cost can be fully recovered

Bongkot and Erawan: Thailand Champion in Domestic Gas Supply

Achievable cost optimization to sustain target return

With new gas price, we can achieve target IRR



Enablers of cost synergy and optimization through economy of scale and technology improvement

 <p>Wellhead Platform</p> <ul style="list-style-type: none"> Lean design standardization Volume bundling & contracting strategy Platform topside and facility reuse 	 <p>Drilling & Well</p> <ul style="list-style-type: none"> Implement factory drilling Utilize drilling rig with GoT-fitted specifications Optimize drilling rig & service contracts across GoT 	 <p>Logistics</p> <ul style="list-style-type: none"> Synergy and optimize marine and aviation fleets across GoT Procurement strategy 	 <p>Decommissioning</p> <ul style="list-style-type: none"> Innovative solutions / technologies Economy of Scales
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Vietnam and Indonesia

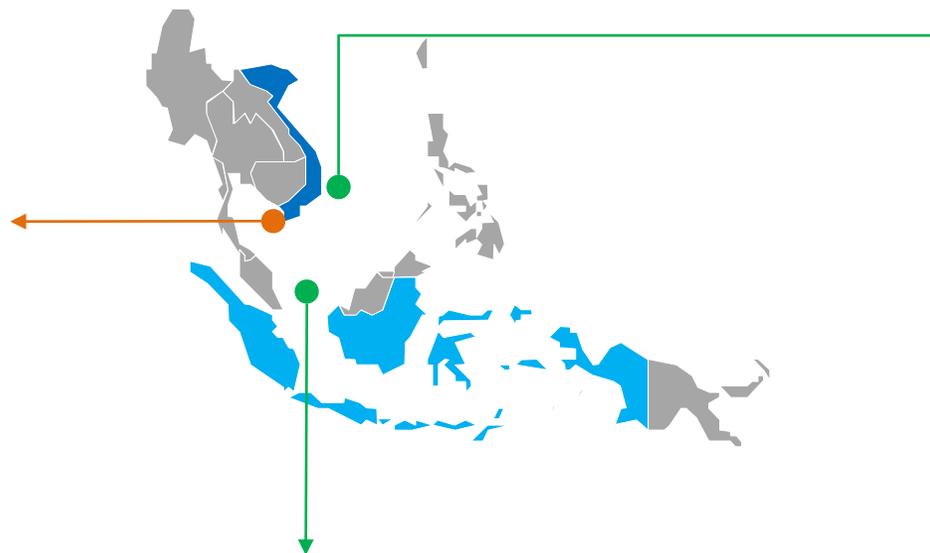


Southwest Vietnam

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

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

- Production projects
- Pre sanction projects



Vietnam 16-1 (28.5% WI)

- Average sales volume of crude oil was 17 KBPD in 9M2019
- The project is currently drilling an additional production well to maintain production plateau.

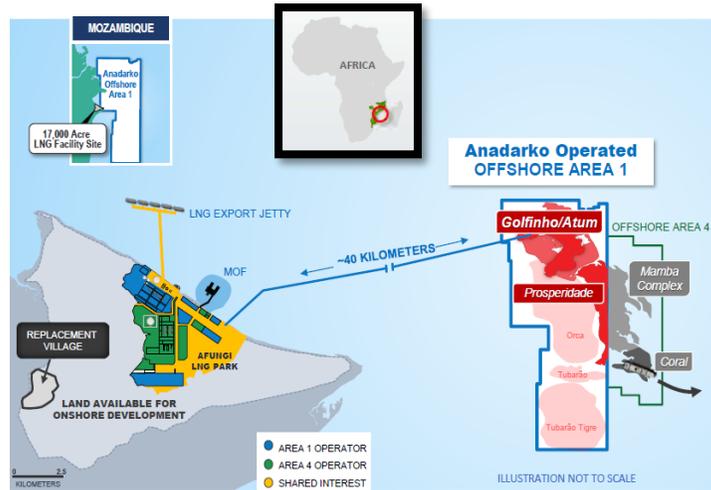


Natuna Sea A (11.5% WI)

- Average sales volume of natural gas was 188 MMSCFD in 9M2019

Mozambique Area 1

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



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

Location and Cost Advantage

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

Achievements

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

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

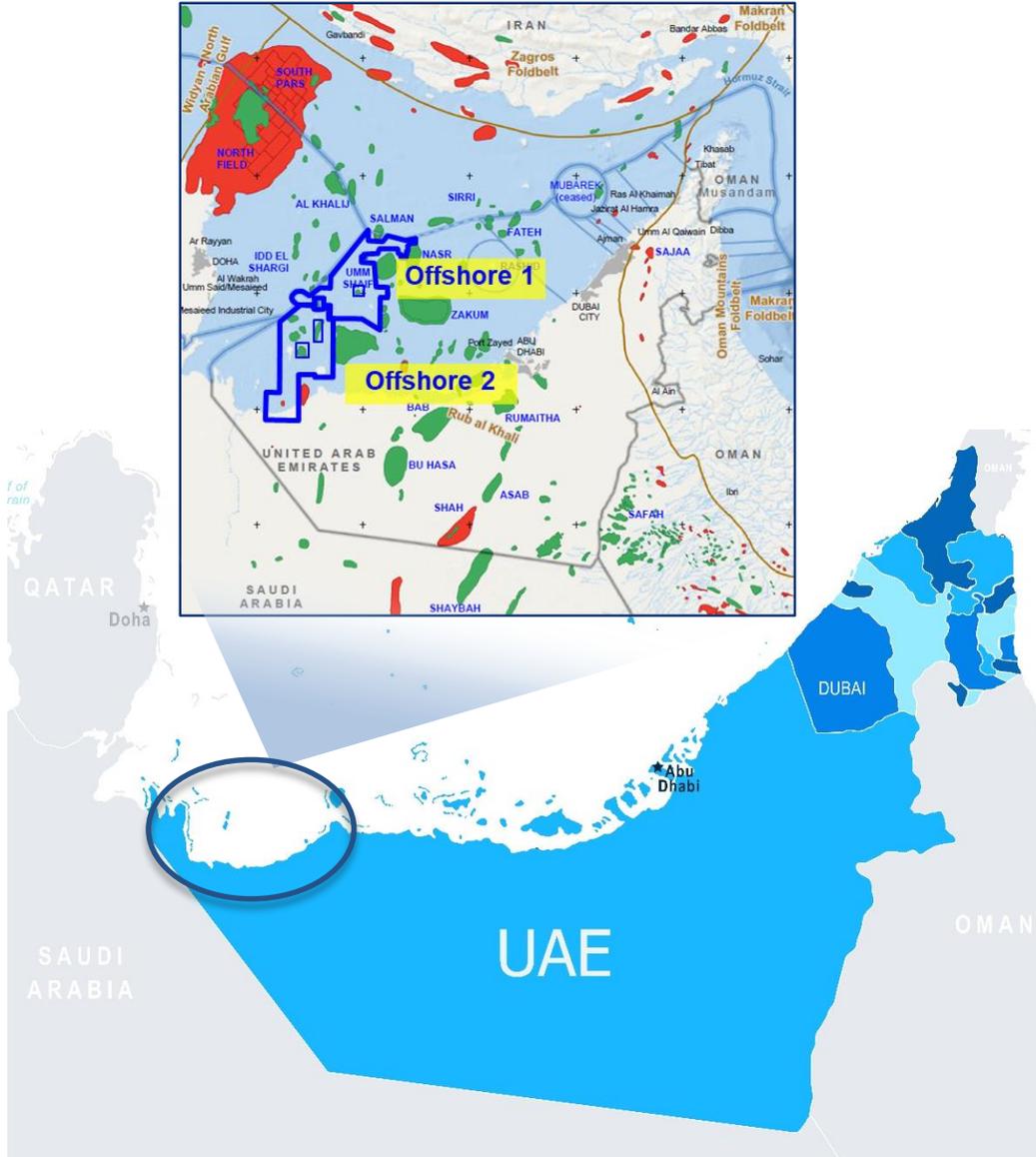
Way Forward

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

1st Cargo
expected
2024

The Middle East : United Arab Emirates

“Partnering” to JV with prudent operators in prolific low cost area



Project Overview		
PTTEP's Block	Abu Dhabi Offshore 1	Abu Dhabi Offshore 2
Location	North-west of Abu Dhabi Emirates, United Arab Emirates	
Characteristics	Shallow water	
Partners (exploration phase)	ENI 70% (Operator) PTTEP 30%	
Exploration Strategy	<ul style="list-style-type: none"> • Joined hand with prudent operators • UAE still has high potential prospective resources with significant sizeable discoveries 	



The award of Abu Dhabi Offshore Exploration Blocks 1 & 2 on 12th January 2019

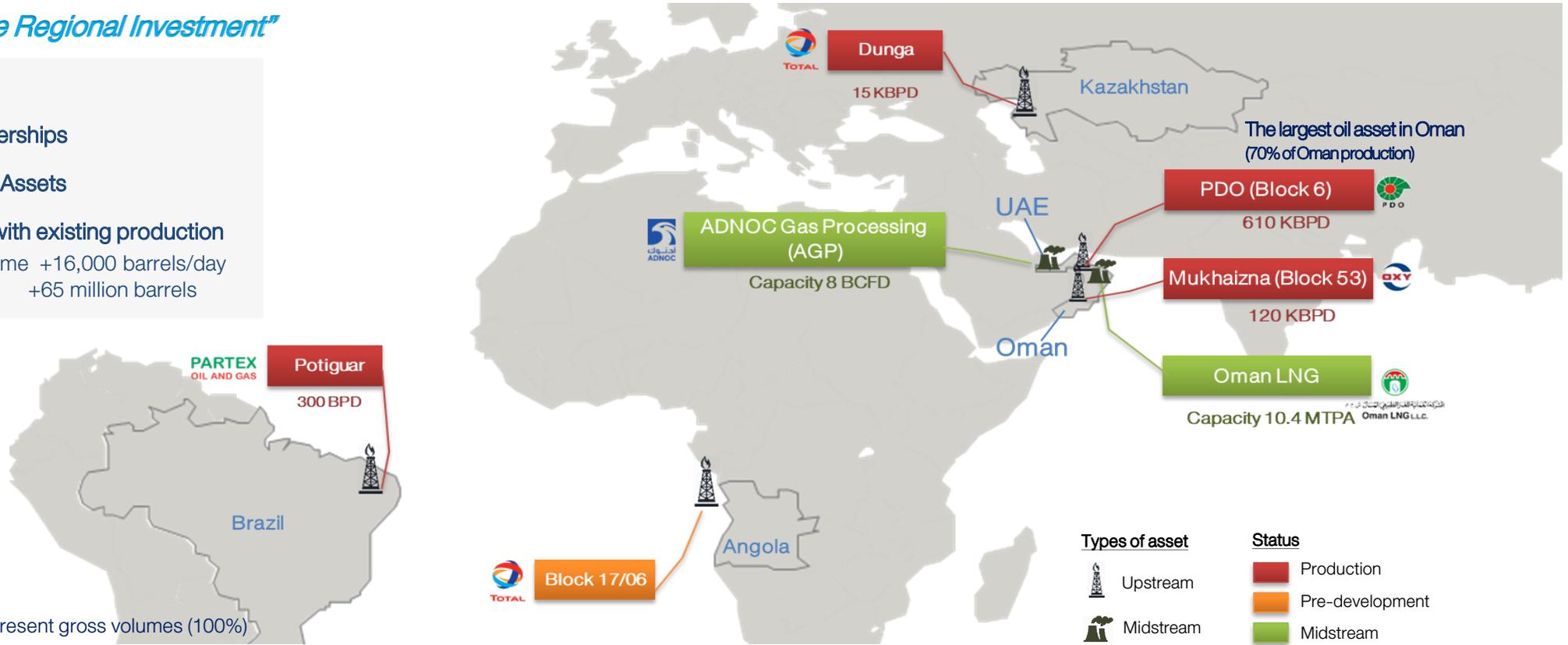
Acquisition of Partex

Partnering with experienced operators in the Middle East

- PTTEP acquired 100% of the shares in Partex, with total consideration of approximately USD 622 million
- The major assets are in Oman and UAE which include PDO (Block 6), the largest oil asset in Oman
- The acquisition was completed on 4 November 2019

“Gateway to Future Regional Investment”

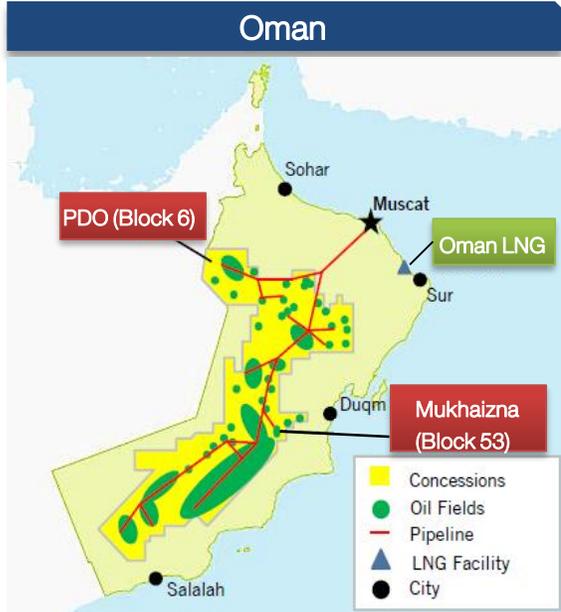
-  Prolific Area
-  Strong Partnerships
-  World-Class Assets
-  Self funded with existing production
 - Sales volume +16,000 barrels/day
 - 2P Add +65 million barrels



Note: Volumes stated represent gross volumes (100%)

World Class Assets under Partex

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



PDO (Block 6)

- Largest asset covering around 1/3 of the country
- Long-life asset, produced only 15% of reserves in-place
- Multi-field oil production: 610,000 BPD (70% of Oman production)
- Experienced and reputable partners



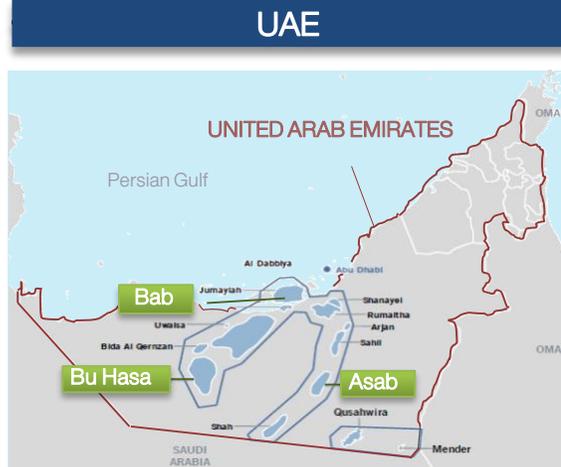
Mukhaizna (Block 53)

- Largest single onshore producing field in Oman
- Oil production: 120,000 BPD (13% of Oman production)
- Strong and experienced operator



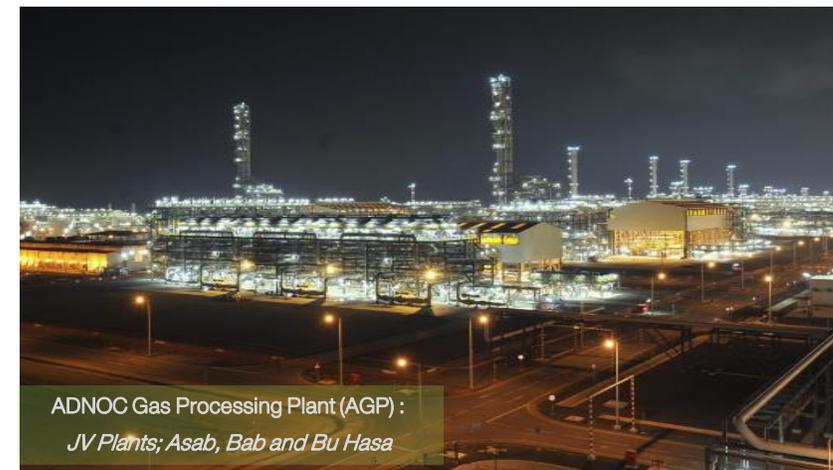
Oman LNG

- The only LNG facility in Oman
- Processing capacity 10.4 MTPA
- Contracted LNG sales to international buyers: Japan and South Korea



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
- Strong and experienced partners



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

Canada Oil Sands



Project Overview

- Operates 100% interest of the Thornbury, Hangingstone and South Leismer (THSL) areas (exploration and appraisal phase)
- Potential large resource base with over a billion barrel
- The project is currently under the evaluation for appropriate development plan

Deep Water Brazil



Barreirinhas AP1

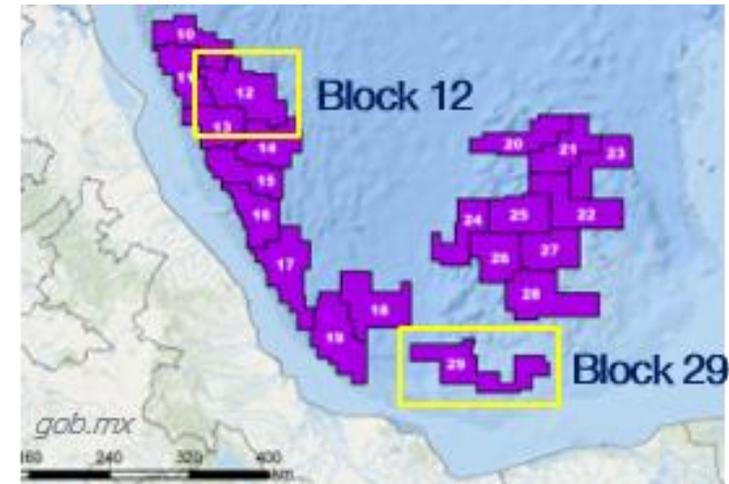
- Farm-in 25% from BG Group in 2014
- Operated by Shell Brasil (65% interest)
- Four offshore exploration blocks: BAR-M-215, BAR-M-217, BAR-M-252 and BAR-M-254

BM-ES-23

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

In 2019, Both projects are currently evaluating the petroleum potential

Gulf of Mexico, Mexico



PTTEP's Block: Block 12 (20%) and Block 29 (16.67%), as non-operating partner

Location: Mexican Ridges Basin for Block 12 and Campeche Basin for Block 29

Characteristic: Deep-water with high petroleum potentials and attractive fiscal regime

Exploration Strategy: Joined hand with prudent operators being Petronas and Repsol

In 2019, projects received the exploration plan approval from the National Hydrocarbons Commission in Mexico and are currently evaluating the petroleum potential for further process according to the approved plan

LNG Value Chain Investment : MLNG Train 9

First step into midstream LNG business in strategic area of focus

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

....continue to look for more LNG opportunities globally



MLNG Train 9 – Overview												
Location	Bintulu, Sarawak, Malaysia											
Asset	Liquefaction Train 9 Tank 7											
Phase	Commercial: Jan 2017											
Capacity	3.6MTPA											
Contract Life	20 years											
Partners (subject to closing)	<table border="0"> <tr> <td>Petronas</td> <td>65%</td> <td rowspan="5">  </td> </tr> <tr> <td>JX Nippon</td> <td>10%</td> </tr> <tr> <td>PTT Global LNG</td> <td>10%</td> </tr> <tr> <td>Sarawak State</td> <td>10%</td> </tr> <tr> <td>Sabah State</td> <td>5%</td> </tr> </table>	Petronas	65%		JX Nippon	10%	PTT Global LNG	10%	Sarawak State	10%	Sabah State	5%
Petronas	65%											
JX Nippon	10%											
PTT Global LNG	10%											
Sarawak State	10%											
Sabah State	5%											

Investment Rationales

- Venture into midstream LNG as a mean to secure LNG supply and growth of PTT and PTTEP, as well as capture value added along with LNG value chain
- Low risk and highly market secured opportunity
 - Highly experienced operator
 - Already commenced commercial production with immediate revenue stream

Key activity in 2020

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

New Business Opportunities

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

Gas to Power "Integrated Energy Solution"



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

AI AND ROBOTICS VENTURES "Cutting Edge Technology for E&P and more"

UAV



Aerial inspection service:

- Flare Tower
- Telecommunication Tower
- Tank inspection

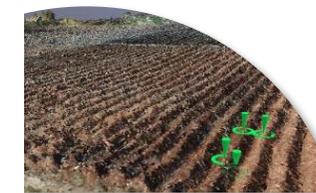
AUV



Subsea Inspection & Surveillance:

- Pipeline and structural inspection
- Geophysical survey
- Gas leak survey

Non E&P



Focused Sectors:

- Agriculture
- Environmental
- Security

Remark: UAV is Unmanned Aerial Vehicle. AUV is Autonomous Underwater Vehicle.

	Project	Status*	Phase	PTTEP's Share	Partners (as Sep 2019)	9M2019 Average Sales Volume **		2019 Key Activities	
						Gas	Oil and Other		
Thailand and JDA									
1	Arthit	OP	Production	80%	Chevron MOECO	16% 4%	224 MMSCFD	Condensate: 11 KBPD	<ul style="list-style-type: none"> • Ensure gas deliverability level at DCQ*** • Install wellhead platforms • Drill development wells
2	B6/27	OP	Production	100%			-	-	
3	B8/32 & 9A		Production	25%	Chevron MOECO KrisEnergy Palang Sophon	51.66% 16.71% 4.63% 2%	75 MMSCFD	Crude: 22 KBPD	<ul style="list-style-type: none"> • Drill development wells • Perform waterflood activities
4	Bongkot	OP	Production	66.6667%	TOTAL	33.3333%	779 MMSCFD	Condensate: 22 KBPD	<ul style="list-style-type: none"> • Maintained production level as planned • Drill development wells • Awarded as a sole operator under PSC (after concession-end in 2022/2023)
5	Contract 3 (Formerly Unocal III)		Production	5%	Chevron MOECO	71.25% 23.75%	625 MMSCFD	Crude: 18 KBPD Condensate: 23 KBPD	<ul style="list-style-type: none"> • Drill development wells • Prepare for decommissioning activities • Awarded as a operator for Erawan field (Contract 1, 2 and 3) under PSC (after concession-end in 2022)
6	Contract 4 (Formerly Pailin)		Production	60%	Chevron MOECO	35% 5%	411 MMSCFD	Condensate: 18 KBPD	<ul style="list-style-type: none"> • Ensure gas deliverability level at DCQ*** • Drill development wells • In process of pre-development of Ubon field
7	E5		Production	20%	ExxonMobil	80%	8 MMSCFD	-	<ul style="list-style-type: none"> • Ensure gas deliverability level at DCQ***
8	G4/43		Production	21.375%	Chevron MOECO Palang Sophon	51% 21.25% 6.375%	1.5 MMSCFD	Crude: 3 KBPD	<ul style="list-style-type: none"> • Drill development wells • Perform waterflood activities
9	G4/48		Production	5%	Chevron MOECO	71.25% 23.75%	3 MMSCFD	Crude: 0.8 KBPD	<ul style="list-style-type: none"> • Drill development wells
10	L53/43 & L54/43	OP	Production	100%			-	Crude: 1.8 KBPD	<ul style="list-style-type: none"> • Maintain production plateau • Perform reservoir management and waterflood activities
11	PTTEP1	OP	Production	100%			-	Crude: 245 BPD	<ul style="list-style-type: none"> • Maintain production plateau • Perform reservoir management and waterflood activities
12	S1	OP	Production	100%			10 MMSCFD	Crude: 30 KBPD LPG: 0.2 KMT/D	<ul style="list-style-type: none"> • Drill development wells • Enhance oil recovery program includes waterflood, hydraulic fracturing and artificial lift
13	Sinphuhorm	OP	Production	55%	Apico**** ExxonMobil	35% 10%	81 MMSCFD	Condensate: 262 BPD	<ul style="list-style-type: none"> • Ensure gas deliverability • Improve recovery from infill drilling

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship

** Sales volume stated at 100% basis.

*** DCQ = Daily Contractual Quantity

**** PTTEP holds indirectly and directly 80.48% participating interest in Sinphuhorm Project. APICO also holds 100% participating interest in Block L15/43 and Block L27/43.

	Project	Status*	Phase	PTTEP's Share	Partners (as of Sep 2019)		9M2019 Average Sales Volume **		2019 Key Activities
							Gas	Oil and Other	
Thailand and JDA									
14	L22/43	OP	Production	100%			-	-	<ul style="list-style-type: none"> Maintain production operation
15	MTJDA	JOC	Production	50%	Petronas-Carigali	50%	335 MMSCFD	Condensate: 8.9 KBPD	<ul style="list-style-type: none"> Drill exploration and development wells
16	G9/43	OP	Exploration	100%					
17	G1/61 (Erawan)	OP	Exploration	60%	MP G2 (Thailand) Limited	40%			
18	G2/61 (Bongkot)	OP	Exploration	100%					
Overseas									
1	Vietnam 9-2	JOC	Production	25%	PetroVietnam SOCO	50% 25%	14 MMSCFD	Crude:4.2 KBPD	<ul style="list-style-type: none"> Maintain production level Perform well intervention program
2	Vietnam 16-1	JOC	Production	28.5%	PetroVietnam SOCO OPECO	41% 28.5% 2%	7 MMSCFD	Crude: 17 KBPD	<ul style="list-style-type: none"> Maintain production level Drill development wells and water injection well Upgrade gas lift system
3	Natuna Sea A		Production	11.5%	Premier Oil KUFPEC Petronas Pertamina	28.67% 33.33% 15% 11.5%	188 MMSCFD	Crude: 1.3 KBPD	<ul style="list-style-type: none"> Well intervention program to secure Gas Deliverability Drill development wells
4	Yadana		Production	25.5%	TOTAL Chevron MOGE	31.24% 28.26% 15%	796 MMSCFD	-	<ul style="list-style-type: none"> Drill infill wells Perform 3D seismic activities Ensure gas deliverability level at DCQ***
5	Yetagun		Production	19.3178%	Petronas-Carigali MOGE Nippon Oil PC Myanmar (Hong Kong)	30.00140% 20.4541% 19.3178% 10.90878%	112 MMSCFD	Condensate: 2.3 KBPD	<ul style="list-style-type: none"> Maintain production level Drill exploration and development wells Perform 3D seismic activities
6	Zawtika (M9 & a part of M11)	OP	Production	80%	Myanma Oil and Gas Enterprise (MOGE)	20%	304 MMSCFD	-	<ul style="list-style-type: none"> Drill 3 exploration wells Drill development wells Perform 3D seismic activities Prepare to Install wellhead platforms
7	Algeria 433a & 416b (Bir Seba)	JOC	Production	35%	PetroVietnam Sonatrach	40% 25%	-	Crude: 3.3 KBPD (net entitlement)	<ul style="list-style-type: none"> Drill development wells Plan for BRS Phase 2 oil field development
8	Malaysia	OP (except Gumusut- Kakap (GK) in Sabah K)	Production/ Exploration/ Developmen t	6.4-80% (varied by permits)			SK309 and SK311 240 MMSCFD	SK309 and SK311 Crude & Condensate 24 KBPD Block K Crude : 24 KBPD	<ul style="list-style-type: none"> Transition plan for operation of the newly acquired blocks Sarawak SK410B - Drilled 1 exploration well with multi TCF discovery Sarawak SK417, SK438- Prepare to drill exploration and appraisal wells PM407 and PM415 - Signed PSC with Petronas on 21/03/2019

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship

** Sales volume stated at 100% basis except for Algeria 433a & 416b (Net Entitlement) and Malaysia (Production volume 100% as of Q3/2019)/ For Block K, gross production is net off unitization

*** DCQ = Daily Contractual Quantity

	Project	Status*	Phase	PTTEP's Share	Partners (as of Sep 2019)	2019 Key Activities
Overseas						
9	Myanmar M3	OP	Exploration	80%	MOECO 20%	<ul style="list-style-type: none"> Negotiate the commercial framework with the Myanmar government Perform Front End Engineering Design (FEED study)
10	Myanmar M11	OP	Exploration	100%		<ul style="list-style-type: none"> Drill first exploration well to prove up recoverable resources
11	Myanmar MD-7	OP	Exploration	50%	TOTAL 50%	<ul style="list-style-type: none"> Drill first exploration well to prove up recoverable resources
12	Myanmar MOGE 3	OP	Exploration	77.5%	Palang Sophon 10% MOECO 10% WinPreciousResources 2.5%	<ul style="list-style-type: none"> Drill 3 exploration wells
13	Vietnam B & 48/95		Exploration	8.5%	PVN 65.88% MOECO 25.62%	<ul style="list-style-type: none"> Finalize on Commercial agreements Finalize on Engineering Procurement Construction Installation (EPCI) bidding process
14	Vietnam 52/97		Exploration	7%	PVN 73.4% MOECO 19.6%	<ul style="list-style-type: none"> Finalize on Commercial agreements Finalize on Engineering Procurement Construction Installation (EPCI) bidding process
15	PTTEP Australasia (PTTEP AA)	OP	Exploration	90%-100% (varied by permits)		<ul style="list-style-type: none"> Completed Montara Field Divestment to Jadestone on 28 Sep 2018 Drill exploration well in AC/P54
16	Mozambique Area 1		Development	8.5%	Anadarko, Mitsui, 26.5%, 20% ENH, ONGC 15%, 10% Beas Rovuma, Bharat 10%, 10%	<ul style="list-style-type: none"> Announced FID with the onshore LNG facility of the initial two liquefaction trains, capacity of 12.88 MTPA on 18 June 2019 Successfully secured the long-term LNG sales of 11.1 MTPA with key LNG buyers in both Asia and Europe, expected the signing by the end of 2019 First Cargo is expected by 2024
17	Algeria Hassi Bir Rekaiz	OP	Development	24.5%	CNOOC 24.5% Sonatrach 51%	<ul style="list-style-type: none"> Started development on Phase 1 since March 2019 with the expected first oil production for the initial phase around 10,000-13,000 barrels per day (BPD) in 2021 and the second phase production capacity ramping up to around 50,000-60,000 BPD in 2025
18	Mariana Oil Sands	OP	Exploration	100%		<ul style="list-style-type: none"> Assess appropriated development approach
19	Barreirinhas AP1		Exploration	25%	Shell Brasil 65% Mitsui E&P Brasil 10%	<ul style="list-style-type: none"> Assess petroleum potential
20	Brazil BM-ES-23		Exploration	20%	Petrobras 65% INPEX 15%	<ul style="list-style-type: none"> Assess petroleum potential
21	Mexico block 12 (2.4)		Exploration	20%	PC Carigali Mexico 60% Ophir Mexico 20%	<ul style="list-style-type: none"> G&G study to access petroleum potential
22	Mexico block 29 (2.4)		Exploration	16.67%	Repsol Mexico 30% PC Carigali Mexico 28.33% Sierra Nevada 25%	<ul style="list-style-type: none"> G&G study to access petroleum potential
23	Abu Dhabi Offshore 1		Exploration	30%	Eni Abu Dhabi 70%	<ul style="list-style-type: none"> Conduct Seismic
24	Abu Dhabi Offshore 2		Exploration	30%	Eni Abu Dhabi 70%	<ul style="list-style-type: none"> Conduct Seismic and drill exploration & appraisal wells

* Status: OP = PTTEP operatorship / JOC = PTTEP joint operatorship

Projects from Partex's Acquisition

Project Details (1/2)

	Country	Project	Working Interest	Type of Asset/ Status	2018 Total Production volume	2018 Net Sale volume
1	Sultanate of Oman	PDO (Block 6)	Government of Oman 60%	Upstream Oil <i>Production</i>	610,000 BPD	12,200 BPD
			Shell 34%			
			Total 4%			
			Partex 2%			
			<i>PDO* (Joint Operating Company)</i>			
2		Mukhaizna (Block 53)	Occidental* 47%	Upstream Oil <i>Production</i>	120,000 BPD	700 BPD
			OOCEP 20%			
			Indian Oil 17%			
			Mubadala 15%			
			Partex 1%			
3		Oman LNG	Government of Oman 51%	Midstream LNG <i>Production capacity 10.4 MTPA</i>	N/A	N/A
			Shell 30%			
			Total 5.54%			
			Korea LNG 5%			
			Mitsubishi 2.77%			
			Mitsui 2.77%			
			Partex 2%			
			Itochu 0.92%			
			<i>OLNG* (Joint Operating Company)</i>			
4	Republic of Kazakhstan	Dunga	Total* 60%	Upstream Oil <i>Production</i>	15,000 BPD	3,000 BPD
			OOCEP 20%			
			Partex 20%			

* Operator

Projects from Partex's Acquisition

Project Details (2/2)



	Country	Project	Working Interest	Type of Asset	2018 Total Production volume	2018 Net Sale volume
5	United Arab Emirates	AGP	ADNOC* 68% Shell 15% Total 15% Partex 2%	Midstream Gas <i>Production</i> <i>Processing capacity</i> <i>1.2 BCFD</i>	N/A	N/A
6	Republic of Angola	Block 17/06	Total* 30% Sonangol 30% SSI 27.5% Acrep 5% Falcon Oil 5% Partex 2.5%	Upstream Oil <i>Pre-Development</i>	N/A	N/A
7	Federative Republic of Brazil	Potiguar	Partex* 50% Petrobras 50%	Upstream Oil <i>Production</i>	300 BPD	150 BPD

* Operator

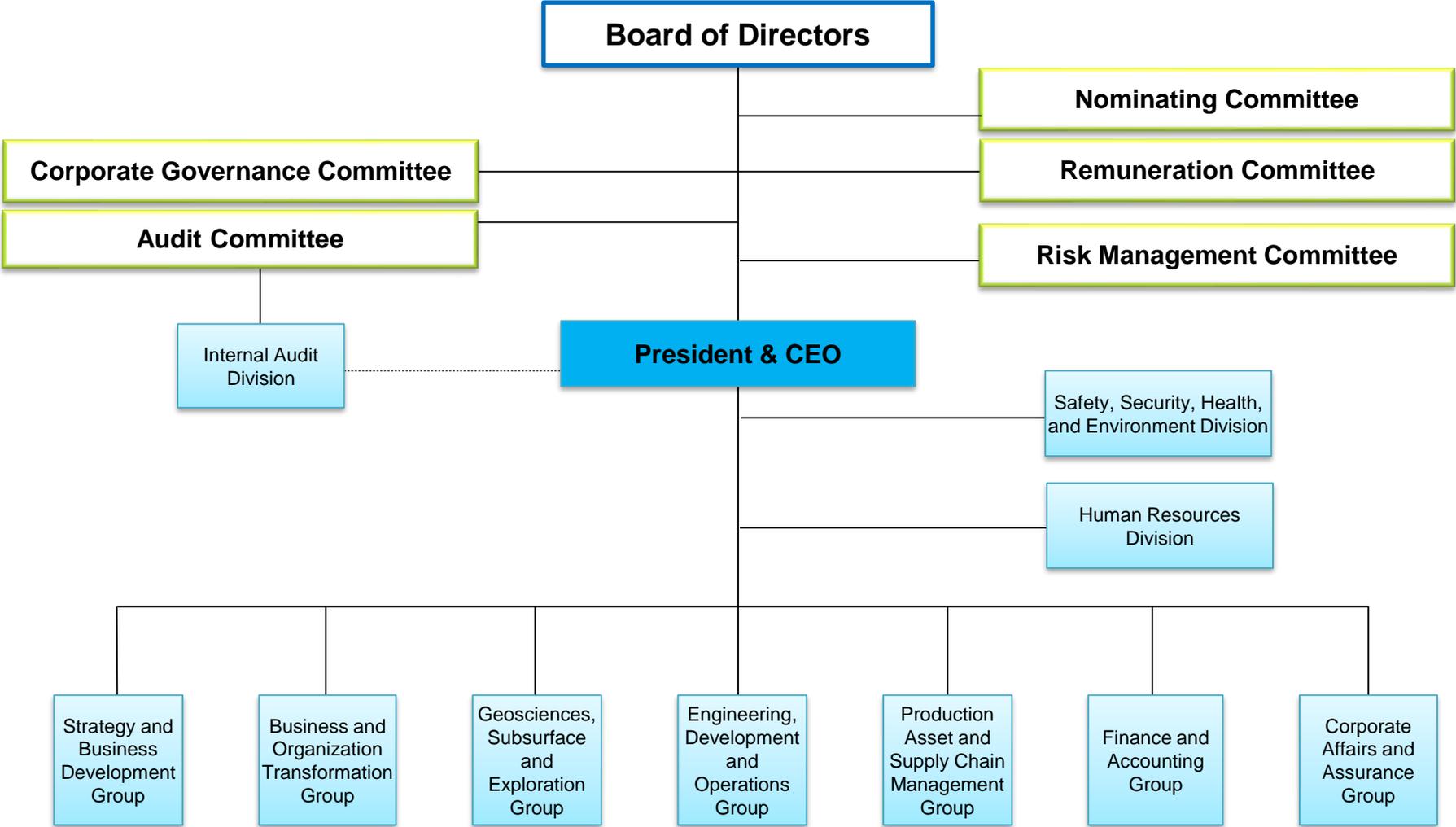
Note:

PDO: Petroleum Development Oman
 OLNG: Oman LNG L.L.C.
 OOCEP: Oman Oil Company Exploration & Production LLC
 ADNOC: Abu Dhabi National Oil Company
 SSI: Sonangol Sinopec International (SSI) Seventeen Limited

BPD: Barrel per Day
 BCFD: Billion Cubic Feet per Day
 MTPA: Million Ton per Annum

Organization structure

Ensuring transparency, integrity and good corporate governance



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