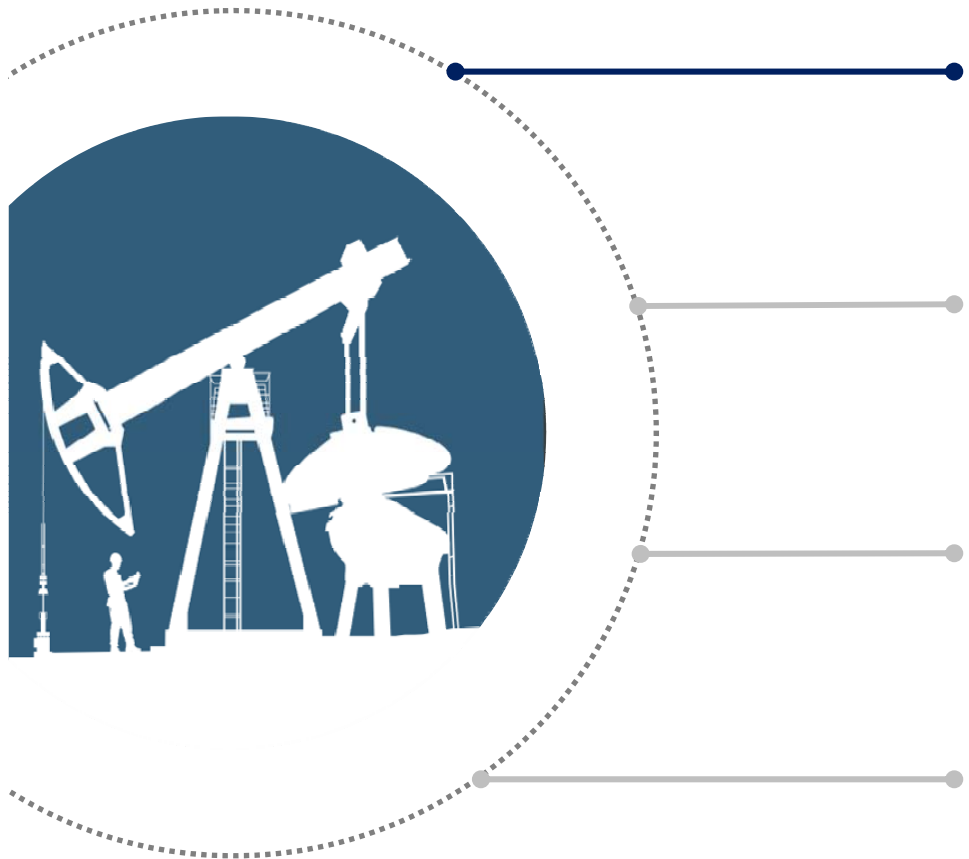


# Investor Presentation

UOB Kay Hian : Non-Deal Roadshow, Bangkok

17 January 2019





## Company Overview

Strategy and Growth

Financial Performance

Investment Plan

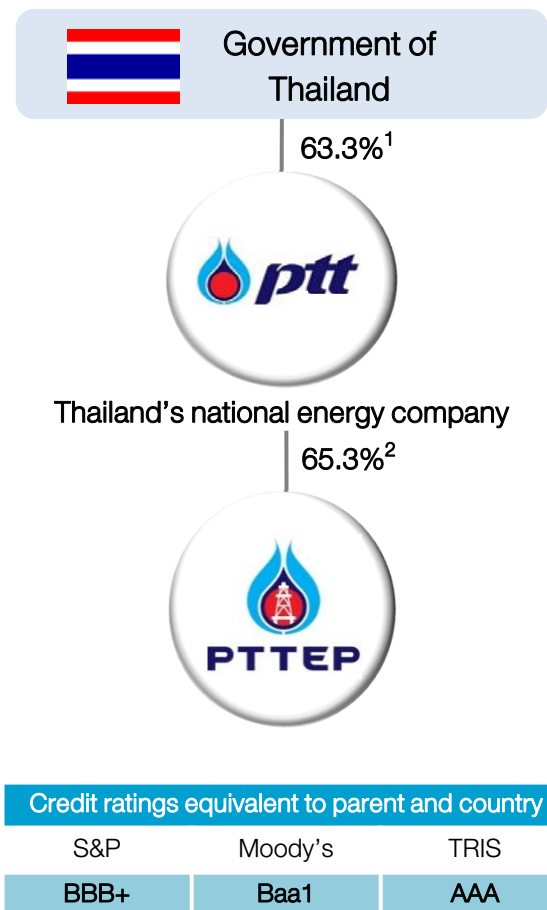


# PTTEP: the E&P Flagship of PTT Group

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



## As PTT's Upstream Flagship

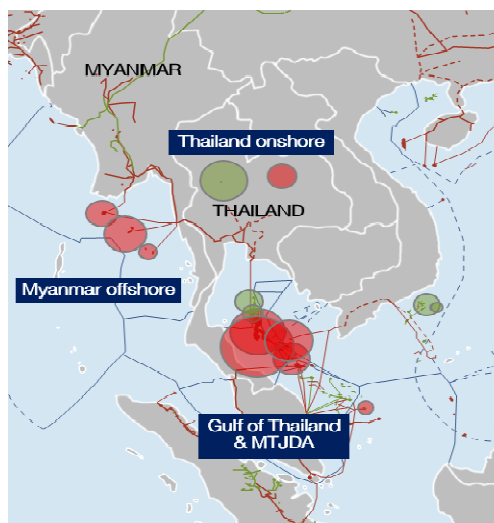


**Largest** oil and gas producer in Thailand and Myanmar

**Synergy** with PTT's gas value chain through its dominant position in the regional gas market

**Opportunities** to expand into regional investments

## PTTEP's operations in SEA



**97%**

of PTTEP's total sales volume

**+99%**

Reliability of plants and field facilities\*

**84%**

of PTTEP's sales volume sold to PTT

**13 USD/BOE**

Average regional cash cost

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

\* of PTTEP-operated projects in Gulf of Thailand, excl. planned shutdown  
All figures are as of 9M2018

Notes:

1. 51.1% is directly held by the Government of Thailand (Ministry of Finance), with the remaining 12.2% held by the state-controlled Vayupak Fund I as of 12 October 2018

2. Ownership as of 9 August 2018

# Recent Key Achievement

Robust all round 2018 performance



## Performance Achievement

### Operation

On-track sales volume target

**300+ KBOED\***

Competitive unit cost

**~31 \$/BOE\***

Top quartile safety performance

**~0.1 LTIF**

Secured GoT position and new Exploration prospects

### Financials

Healthy margin and liquidity\*

**70-75%**

EBITDA Margin

**\$3.5+ Bn**

Cash on hand

**\$3+ Bn**

Operating Cash Flow

**<0.2x**

Gearing ratio

Consistent Dividend

**1.75 THB/Share 1H18 (39% Payout)**

\* Base on 2018 Closing forecast



## Portfolio Highlights

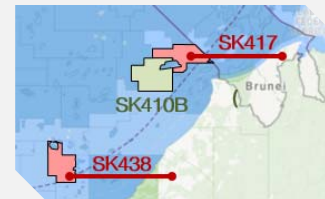
Executed “Coming-home” and “Strategic Alliance” Strategies

### Consolidated Thailand Gas Supply



- Completed ~22% stake acquisition in Bongkot from Shell
- Successful Bidder of Bongkot and Erawan

### Expanded Exploration Portfolio



2 Shallow-water blocks in Malaysia as an operator

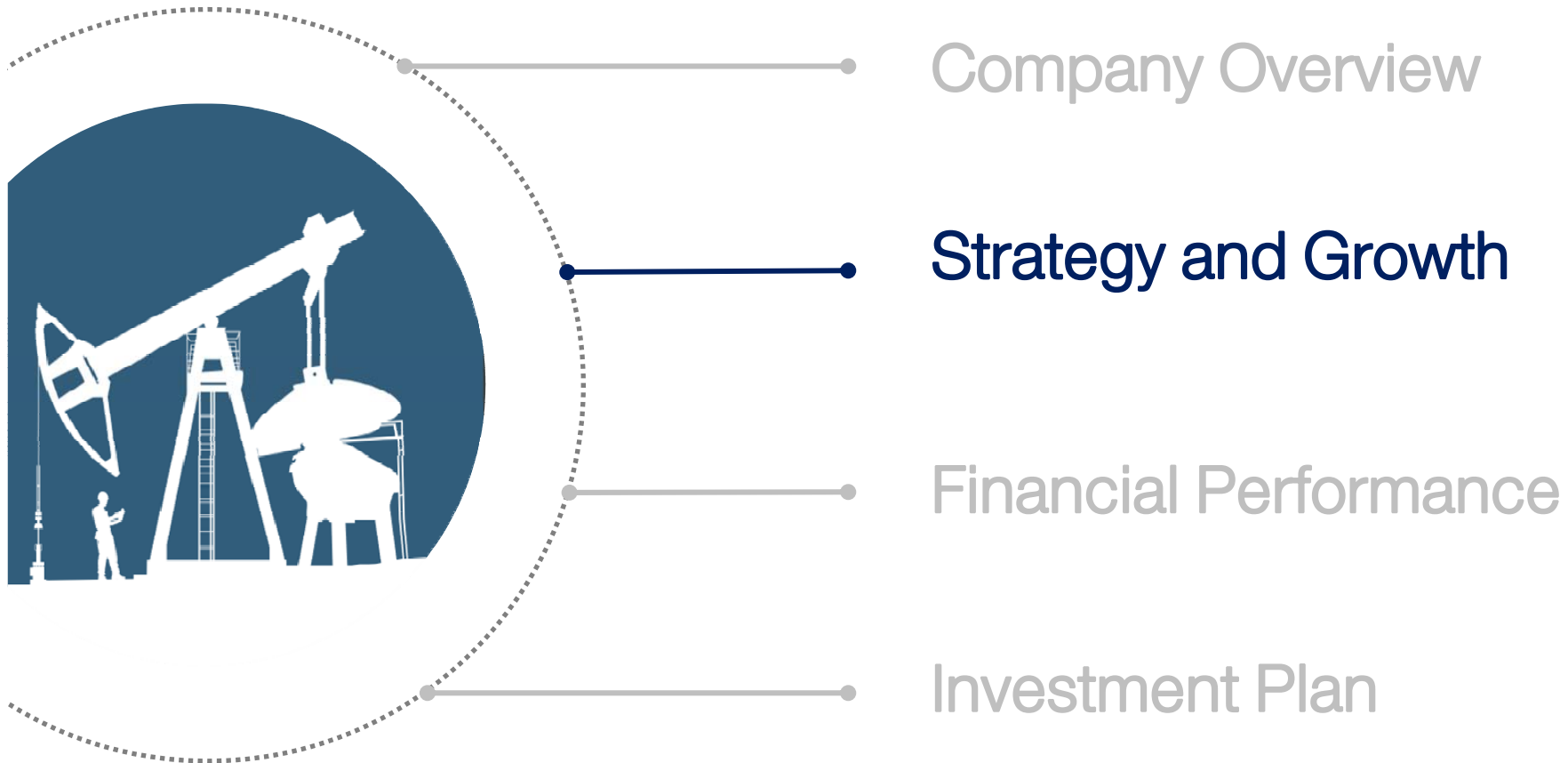


2 Deepwater blocks in Mexico with prudent operators

### Reshaped non-core asset



Divestment of Montara Oil Field in Australia



# Investment Strategy

Strengthen E&P portfolio and diversify business opportunities



***E&P***  
remains our core priority

## *"Coming-home" Strategy*

- **Ensure** continuity for Bongkot and Erawan transition
- **Sustain** production plateau from legacy assets
- **Accelerate** resources discovery in Myanmar and Malaysia

## *Together with...*

- **Increase** reserves life through FID of pre-sanctioned projects and M&A



***Non E&P***  
ensures long-term sustainability

Materialize energy value chain

Generate revenue and deliver synergy  
from In-house Technologies

Deliver investment plan  
in renewable energy

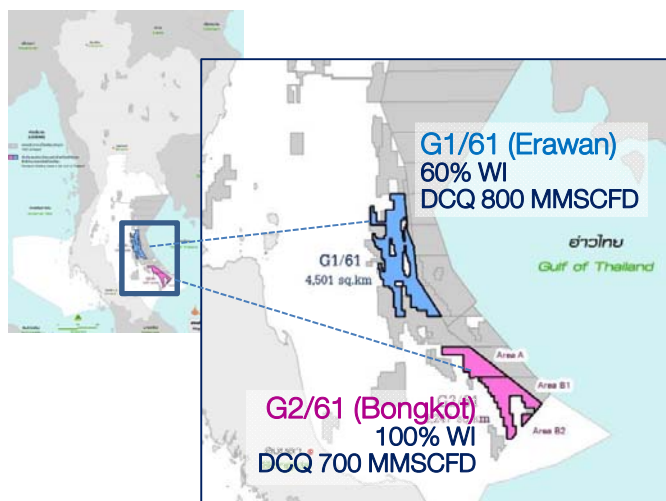


# E&P: Thailand Champion in Domestic Gas Supply

Execute Bongkot and Erawan transition plan



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



## Growing production and reserves profile

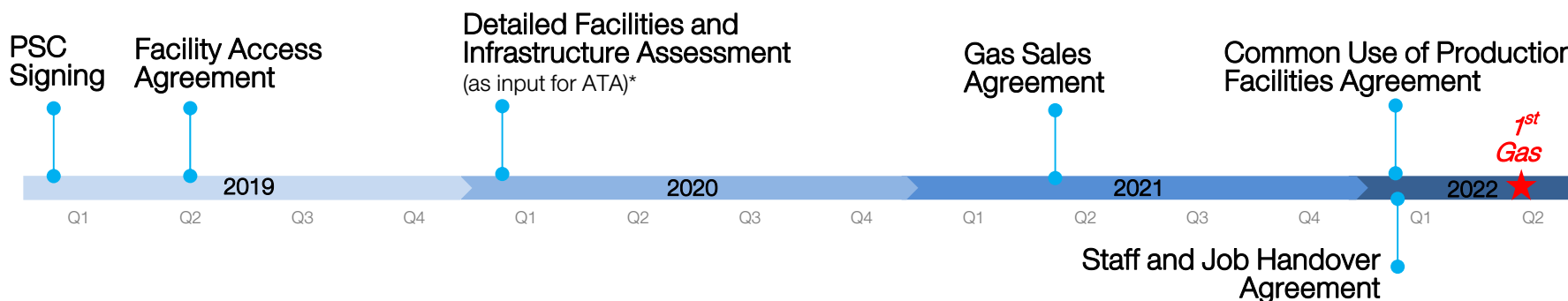
- Substantial volume boost for 10 years and beyond
- Immediate remarkable reserves addition
- Minimal risk in production profile



## 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)

Source : TOR

# E&P: Thailand Champion in Domestic Gas Supply

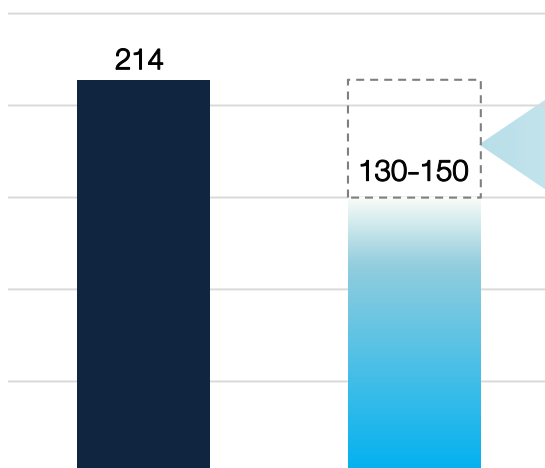
Achievable cost optimization to sustain target return



With new gas price, we can achieve target IRR

## Gas price

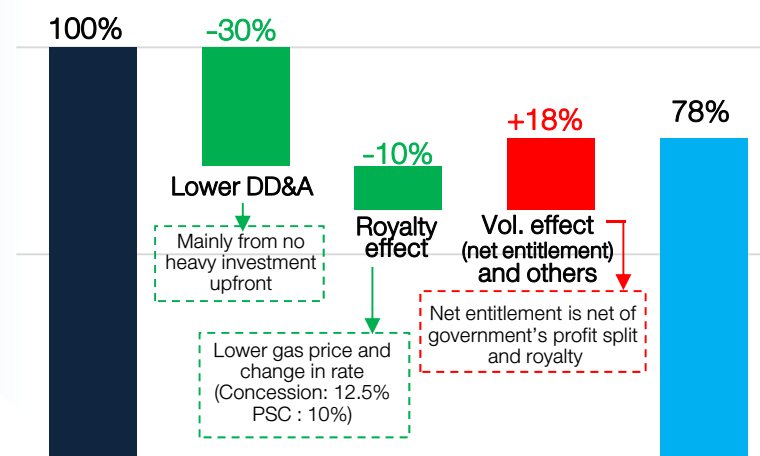
Under Price Constant of 116 THB/MMBTU,  
Gas price 130-150 THB/MMBTU (Dubai 60-80 \$/BBL)



Unit: THB/MMBTU

## Cost optimization

Major processing facilities already in-place. Unit cost lowered by 22% through cost synergy and optimization



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



### Wellhead Platform

- Lean design standardization
- Volume bundling & contracting strategy
- Platform topside and facility reuse



### Drilling & Well

- Implement factory drilling
- Utilize drilling rig with GoT-fitted specifications
- Optimize drilling rig & service contracts across GoT



### Logistics

- Synergy and optimize marine and aviation fleets across GoT
- Procurement strategy



### Decommissioning

- Innovative solutions / technologies
- Economy of Scales

# E&P: Continue to Grow Core Business

Production and Reserves accretion remains the top priority



## Affirm FID Timeline

### Mozambique Rovuma Offshore Area 1

*"Stronger path towards FID by 1H2019"*

Production

12 MTPA

Start-up

2024

Completed

- ✓ Commenced Legal & Contractual Framework approved and resettlement
- ✓ Sales and Purchase Agreement (SPA) signed with EDF (1.2 MTPA) and Tohoku (0.28 MTPA)
- ✓ Offshore Contractors Selected

On-going

- ✓ Project finance: To secure 2/3 leverage
- ✓ To convert non-binding HOAs to meet target SPAs of 8-9 MTPA

Southwest  
Vietnam

Ubon  
(Contract 4)

Algeria HBR

Production

490 MMSCFD

25-30 KBPD

50-60 KBPD

Start-up

End of 2022

2023

2024

## Boost up Exploration Activities

Grow the foothold

Strengthen backyard

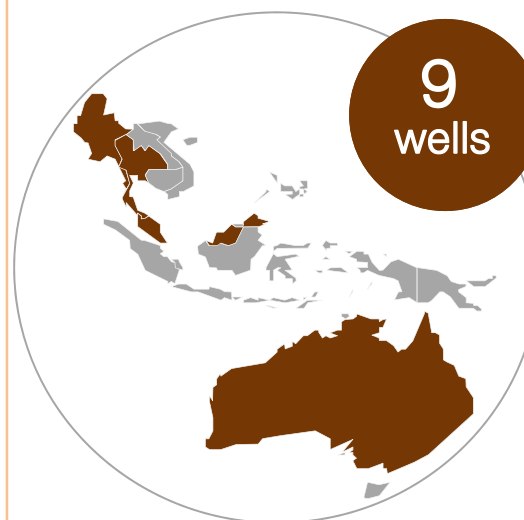
Joint Venture

Focus drilling activities in Myanmar

Establish "Cluster Model" in Malaysia

Expand into prolific areas e.g. Mexico

Key activities in 2019 focused **Myanmar and Malaysia** to accelerate resources discovery



9 wells

5 wells in Myanmar

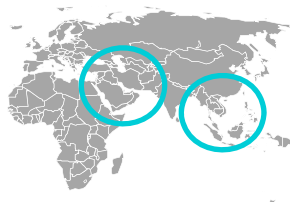
3 wells in Malaysia

1 well in Australia

And also, other exploration activities including

- FEED study in Myanmar and Australia
- Site preparation in Myanmar and Malaysia

## Execute M&A Deals



Geographical

SEA, Middle East and other prolific areas

Target

Focus on producing or near-producing

Size

500 – 1,000 MMUSD

# Non E&P: Explore New Business Opportunities

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



Pursue New Line of Business:



Gas Value Chain  
G2P and LNG



In-House Technology  
AI and Robotics



Renewable Energy

Gas to Power (G2P) in Myanmar

“Integrated Energy Solution”



E&P

+



Pipeline

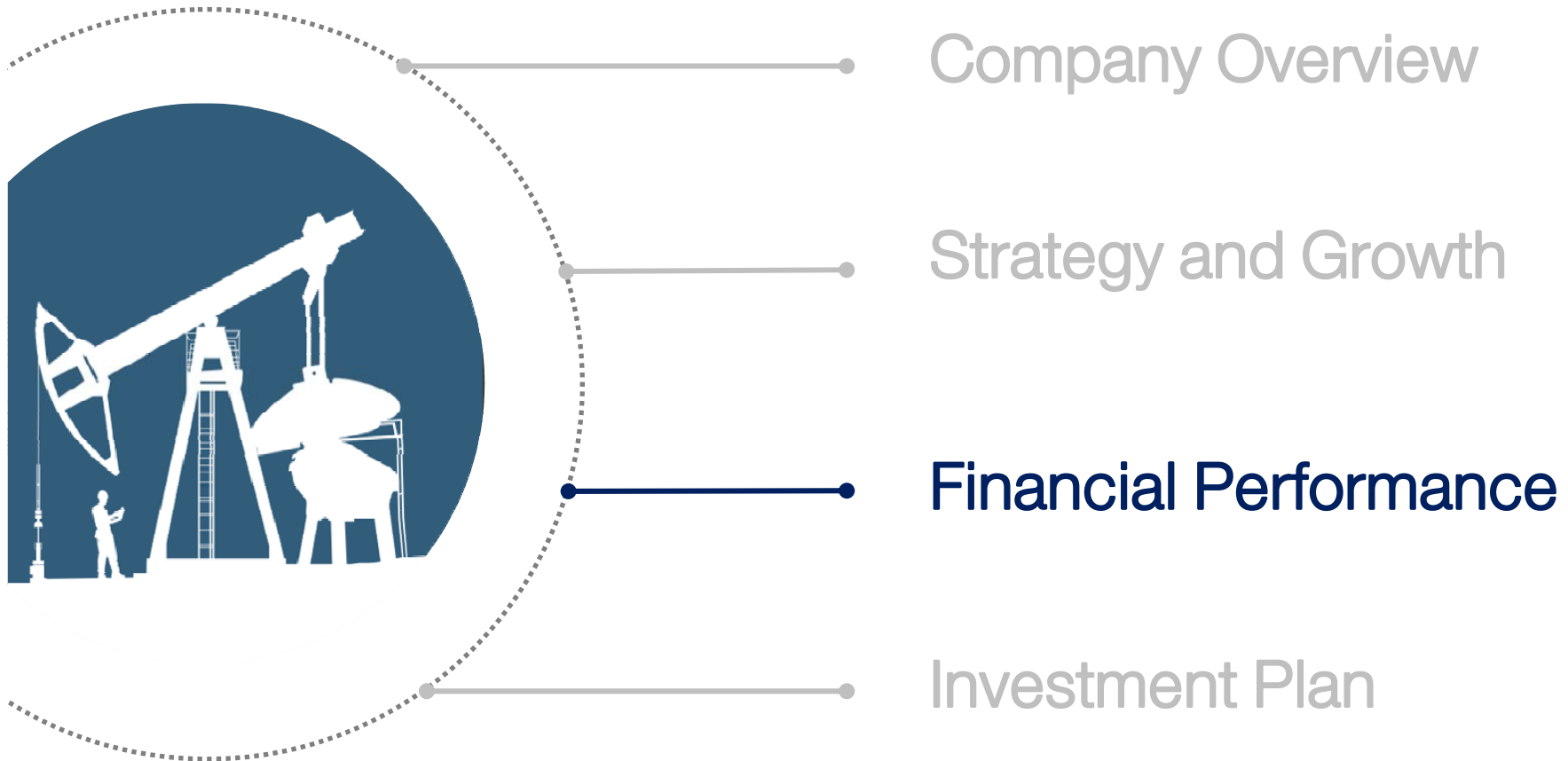
+



Power Plant



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

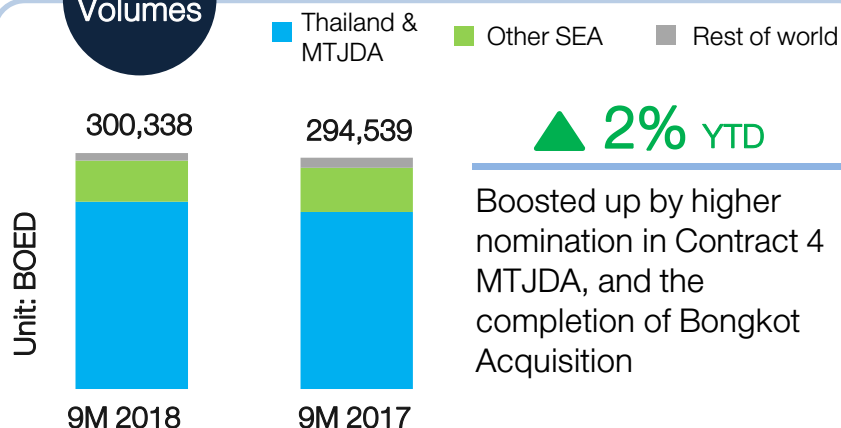


# Financial Performance Key Drivers

Generated solid operating cash flow 9M2018 driven by strong core performance



## Sale Volumes



## Average Selling Price

	9M 2018	9M 2017
Gas (\$/MMBTU)	6.24	5.54
Liquid (\$/BBL)	67.85	49.87
Weighted Avg. (\$/BOE)	46.25	38.29
Avg. Dubai (\$/BBL)	70.10	51.06
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	65.15	47.79
Volume Mix (Gas : Liquid)	71:29	70:30

▲ 21% YTD

Better global oil price led to improved ASP

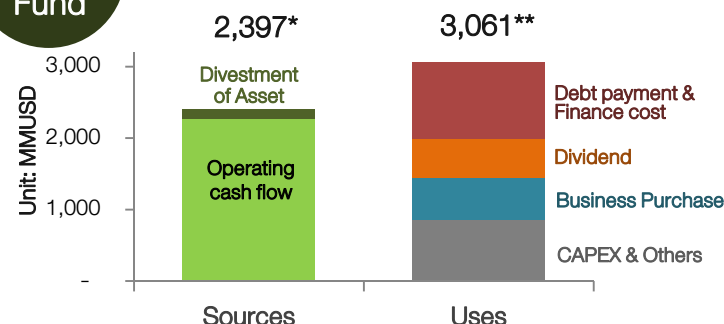
## Unit Cost

Unit : \$/BOE	9M 2018	9M 2017
Cash cost	14.64	13.25
Non-Cash cost	16.64	15.11
Unit cost	31.28*	28.36

▲ 10% YTD

Driven by higher royalties and DD&A from Bongkot acquisition and more completed asset in S1

## Sources & Uses of Fund



73% EBITDA Margin

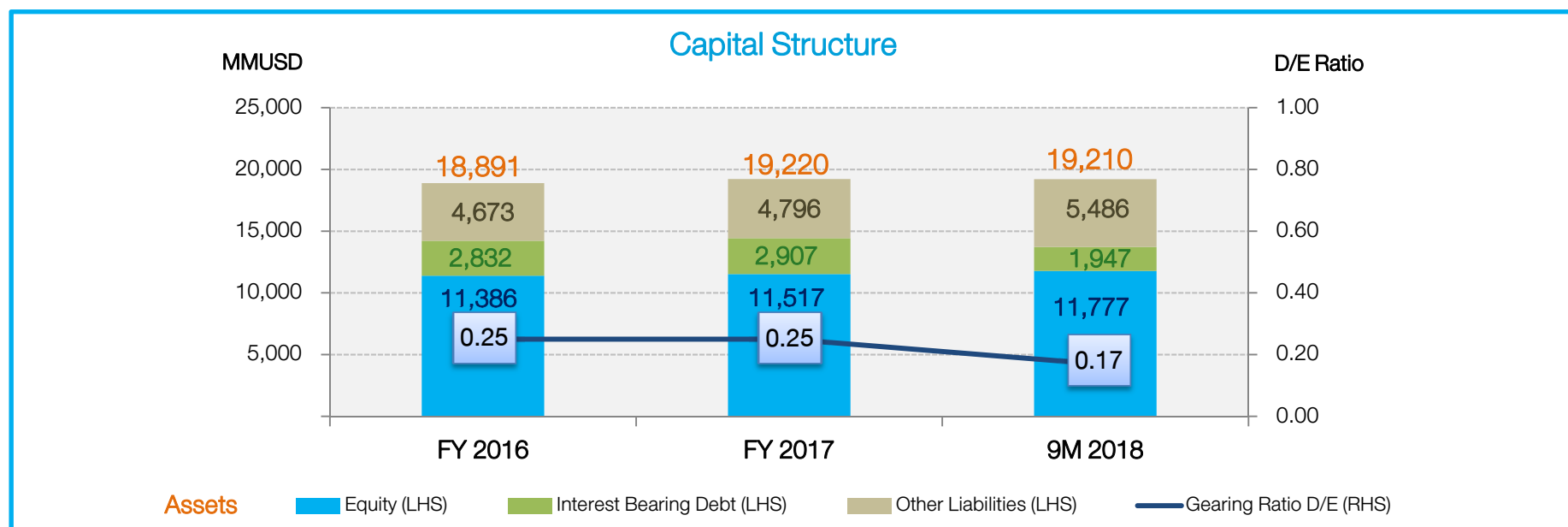
Maintain strong OCF and sustain EBITDA Margin level

Note: \* Exclude costs related to new business, if include, unit cost for 9M 2018 will be 31.35\$/BOE

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

# Financial Position

Healthy balance sheet with low gearing ratio

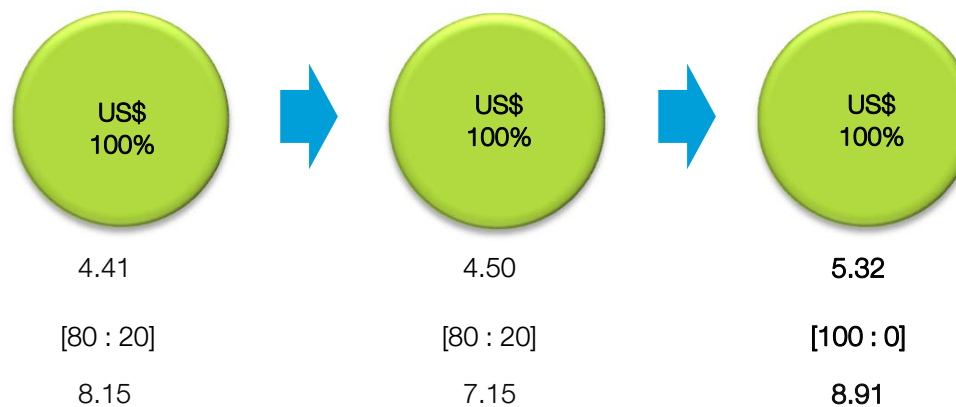


## Debt Profile\*

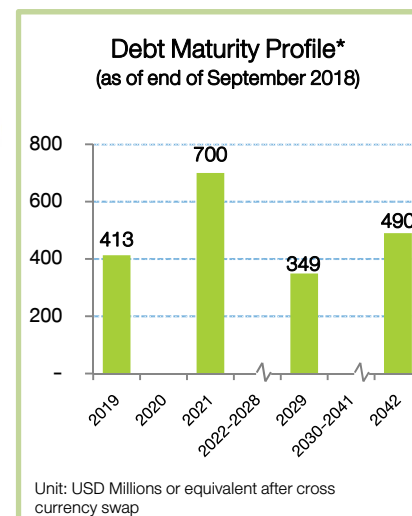
Weighted Average  
Cost of Debt\* (%)

[Fixed : Floating]

Average Loan Life\* (Years)



Remark: \* Excludes Hybrid bonds

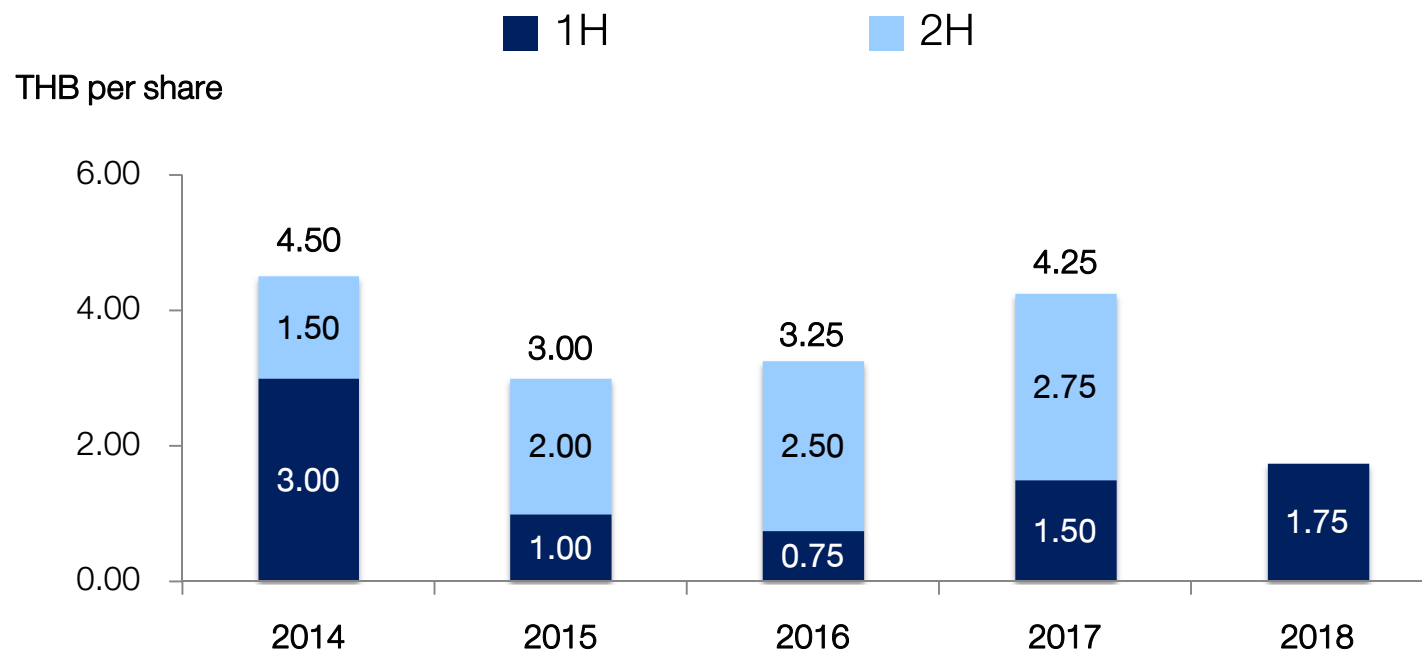


## Dividends

Demonstrating our dividend commitment to shareholders



### Dividend Payment History (Policy : No Less Than 30% of Net Income)



Payout Ratio (%)

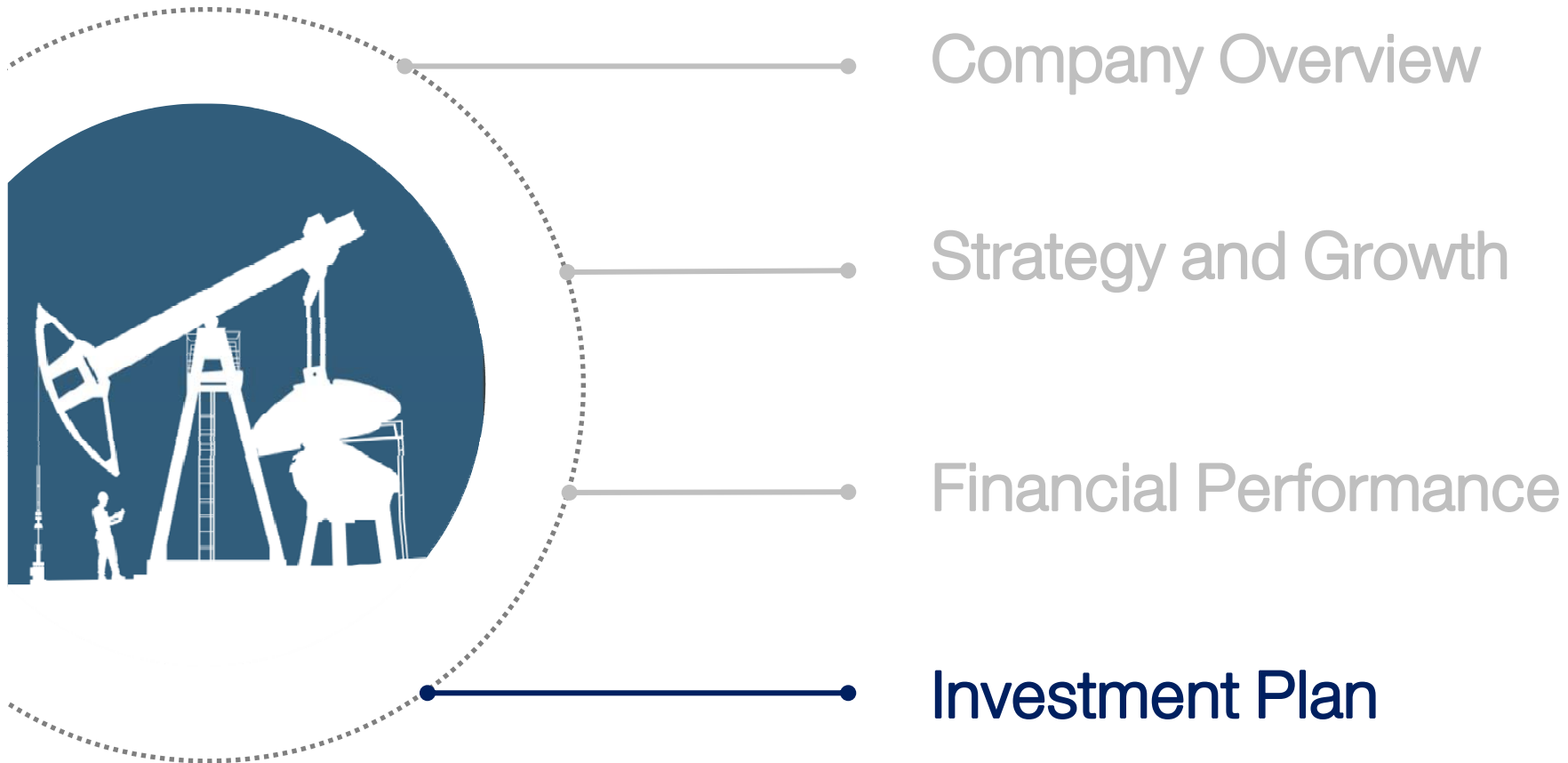
82

N/A

98

90

39

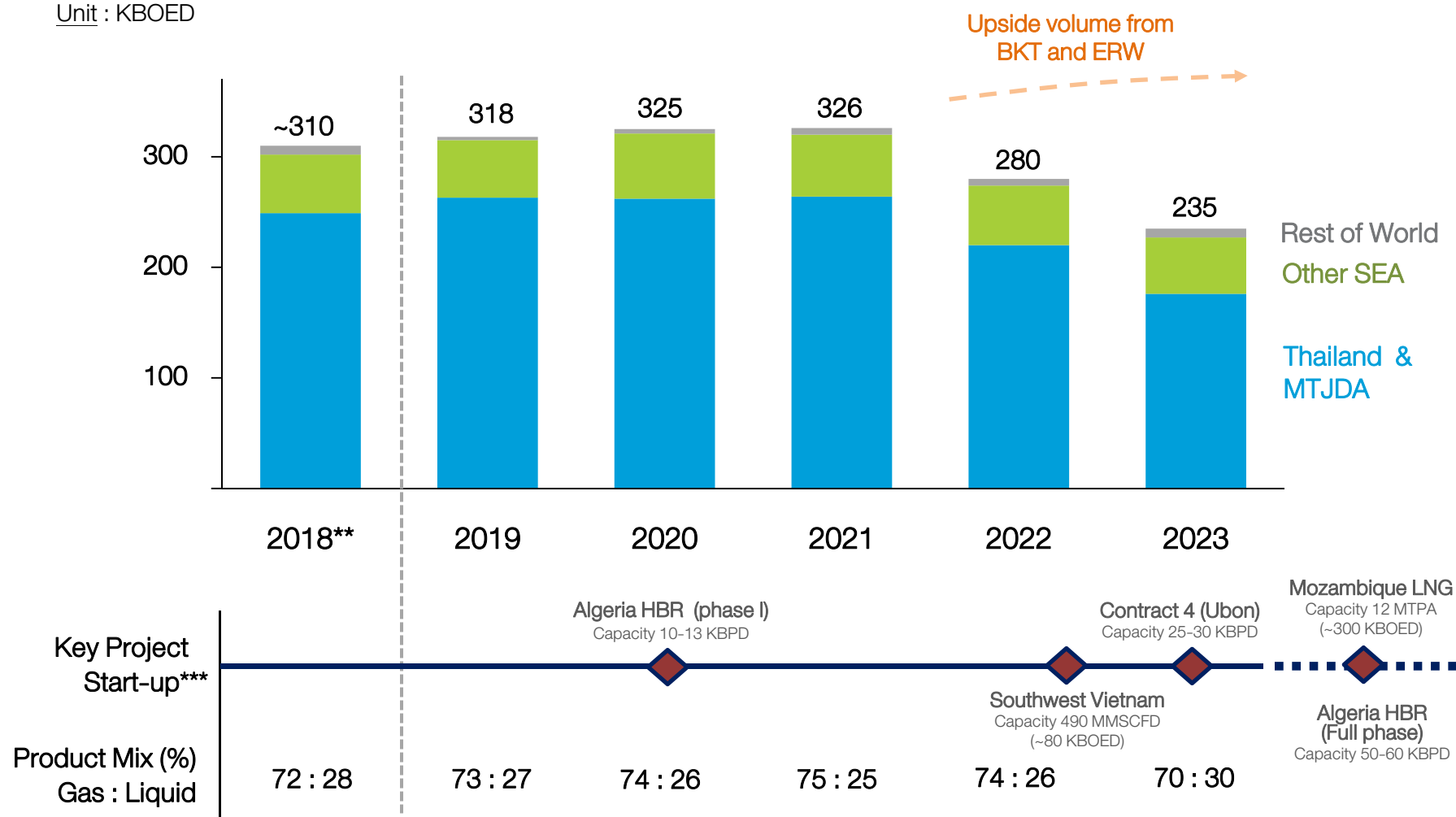


# Target Sales Volume\*

Maximize volume from legacy assets with substantial upside from BKT and ERW after 2022



Unit : KBOED



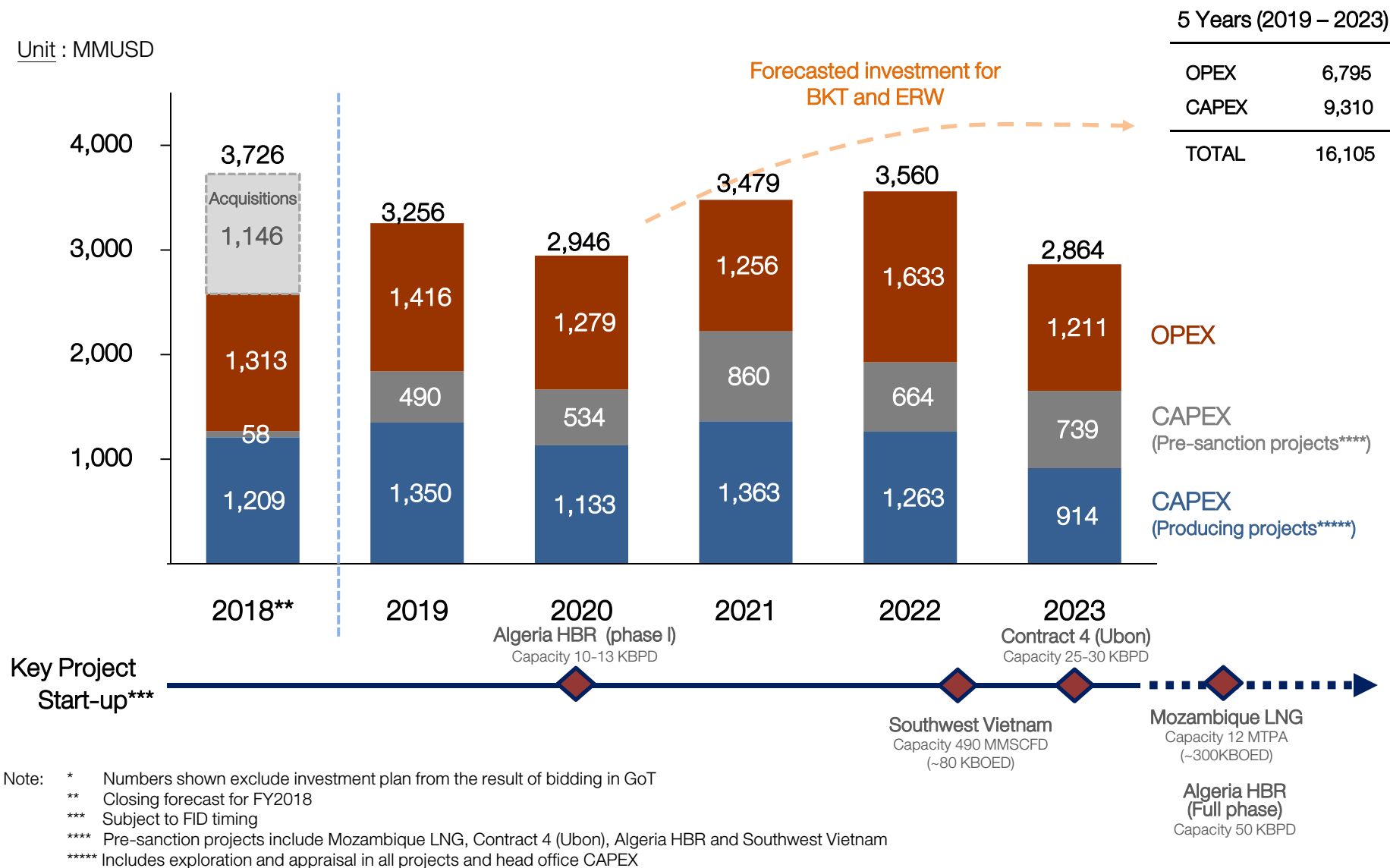
Note: \* Numbers shown exclude upside from result of the bidding in GoT  
 \*\* Closing forecast for FY2018  
 \*\*\* Subject to FID timing

# Investment Plan (CAPEX and OPEX)\*

Prioritize investment to deliver volume target



Unit : MMUSD



# Key Takeaways

Maximizing value through solid growth platforms



## Strengthen fundamental

- Uplift sales volume through efficiency improvement
- Sustain competitive cost structure
- Maintain healthy margin

## Focus on production and reserves accretion

- Implement series of portfolio rationalization
- Push forward FID of key pre-development projects
- Expand exploration portfolio and M&A execution in focus areas

## Ensure long-term sustainability

- Collaborate with PTT for LNG value chain investments
- Diversify through new business opportunities

## Solid balance sheet to support growth

- Maintain concrete capital structure with \$3.5+ Bn cash on hand
- Retain consistent dividend payments to shareholders



## Thank you and Q&A



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



<http://www.pttep.com>



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



+66 2 537 4000



Energy Partner of Choice



Summary of Key Terms from Bidding Results	21
Q3 2018 Financial Results	22-24
Sustainability Development	25
Thailand Energy Updates	26-28
Reserves and Resources	29
Key Project Highlights by Region	30-35
Project Details	36-38
Organization Structure	39
Ratio and Formula	40

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



## Price Formula

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

$DB_{(y)} < 52$	$M = 0.91 + 0.11 \frac{DB_y}{52}$
$52 \leq DB_{(y)} < 100$	$M = 1.02 - 0.15 \frac{DB_y - 52}{48}$
$DB_{(y)} > 100$	$M = 0.22 + 6.44 \times \frac{1}{\sqrt{DB_y}}$

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

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:

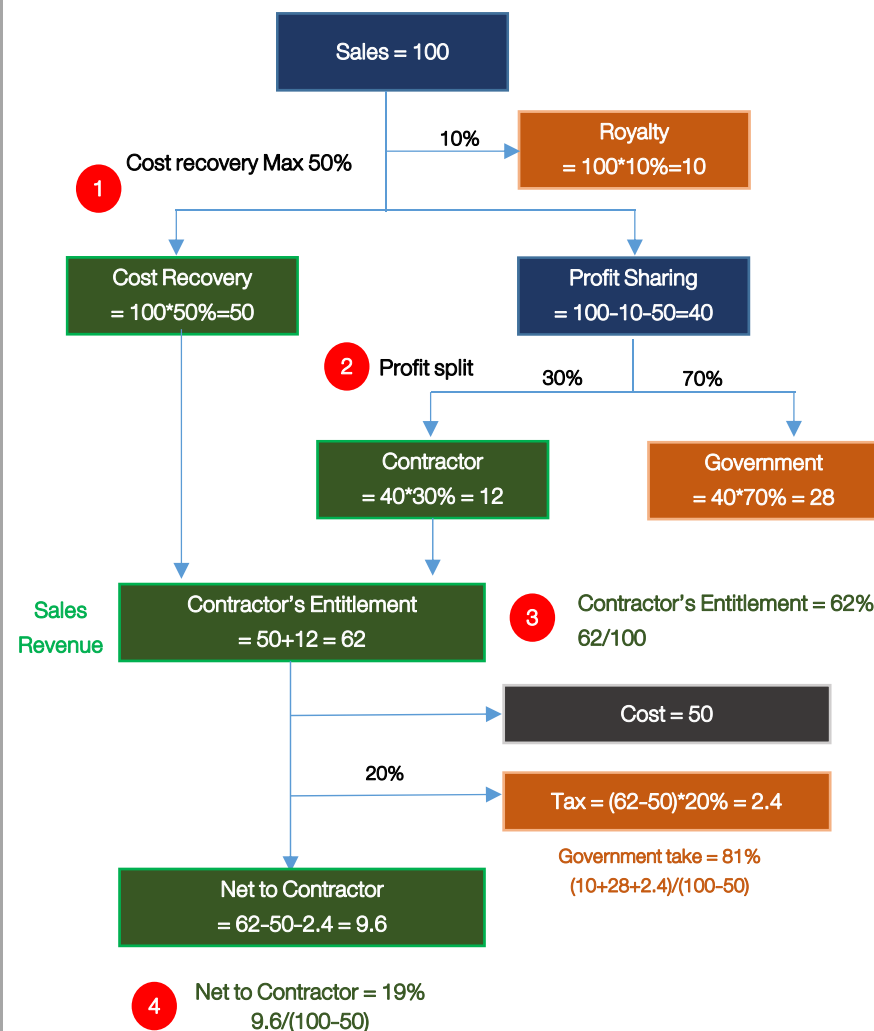
\* No later than 10 working days prior to the PSC signing date

\*\* 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

# Summary of Q3 2018 Financial Results

Better net income QoQ driven by THB appreciation and strong core performance



Unit : MMUSD

Statement of Income	Q2 18	Q3 18	% QoQ	Q3 17	% YoY	9M 18	9M 17	% YTD
<b>Total Revenues</b>	<b>1,347</b>	<b>1,398</b>	<b>4%</b>	<b>1,134</b>	<b>23%</b>	<b>3,960</b>	<b>3,252</b>	<b>22%</b>
Sales	1,293	1,338	3%	1,064	26%	3,792	3,079	23%
Others	54	60	11%	70	(14%)	168	173	(3%)
Sales Volume (BOED)	302,846	304,940	1%	298,139	2%	300,338	294,539	2%
Sales Price (USD/BOE)	46.94	47.67	2%	38.78	23%	46.25	38.29	21%
<b>Total Expenses</b>	<b>1,234</b>	<b>1,083</b>	<b>(12%)</b>	<b>1,398</b>	<b>(23%)</b>	<b>3,109</b>	<b>2,947</b>	<b>5%</b>
<b>Major Expenses:</b>								
Operating Expenses	169	166	(2%)	162	2%	476	457	4%
Exploration Expenses	15	19	27%	9	>100%	37	29	28%
DD&A	460	496	8%	413	20%	1,364	1,214	12%
Impairment Loss on Assets	-	-	-	558	(>100%)	-	558	(>100%)
Loss on Divestment	-	37	>100%	-	>100%	37	-	>100%
Income Tax Expense	329	105	(68%)	57	84%	439	116	>100%
(Gain)/Loss on FX	30	6	(80%)	(23)	>100%	11	(37)	>100%
<b>Net Income</b>	<b>113</b>	<b>315</b>	<b>&gt;100%</b>	<b>(264)</b>	<b>&gt;100%</b>	<b>851</b>	<b>305</b>	<b>&gt;100%</b>
Recurring Net Income	336	292	(13%)	218	34%	932	596	56%
Non-Recurring *	(223)	23	>100%	(482)	>100%	(81)	(291)	72%

Note:

\* Includes 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.

# Financial Performance : Income Statement and Balance Sheet

Sustained solid EBITDA margin with healthy balance sheet



Income Statement		Q2 18	Q3 18	Q3 17	9M 18	9M 17
	Sales and Revenue from Pipeline Transportation (MMUSD)	1,319	1,367	1,089	3,870	3,135
	EBITDA (MMUSD)	965	992	777	2,836	2,238
	Net Income (MMUSD)	113	315	(264)	851	305
	Recurring Net Income (MMUSD)	336	292	218	932	596
	Earning Per Share (USD)	0.03	0.07	(0.07)	0.20	0.06
	<b>Key Financial Ratios</b>					
	EBITDA Margin (%)	73	73	71	73	71
	Return on Equity (%) (LTM)	5	10	3	10	3
	Return on Capital Employed (%) (LTM)	5	9	3	9	3
	Return on Equity (%) (LTM, Recurring Net Income)	9	10	6	10	6
	Return on Capital Employed (%) (LTM, Recurring Net Income)	8	9	6	9	6

Balance Sheet		YE 17	Q3 18
	Total Assets (MMUSD)	19,220	19,210
	- Cash & cash equivalents * (MMUSD)	4,468	3,804
	Total Liabilities (MMUSD)	7,703	7,433
	- Interest bearing debt (MMUSD)	2,907	1,947
	Equity (MMUSD)	11,517	11,777
	<b>Key Financial Ratios</b>		
	Total Debt to Equity (X)	0.25	0.17
	Net Debt** to Equity (X)	(0.14)	(0.16)
	Total Debt to Capitalization (X)	0.20	0.14
	Total Debt to EBITDA (X)	0.95	0.66
	EBITDA Interest Coverage (X)	23	27

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

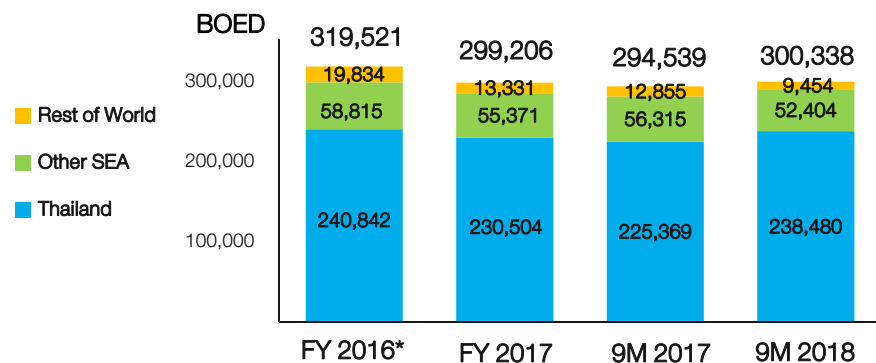
The formulas for calculating ratios are provided in the supplementary section for your reference

# Sales Volume & Unit Cost

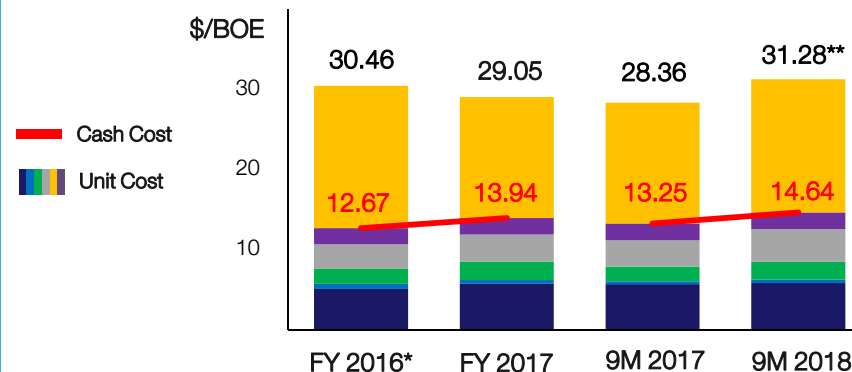
Improved sales volume and selling price with continuous cost management effort



## Sales Volume and Price



## Unit Cost



Gas (\$/MMBTU)	5.60	5.59	5.54	6.24
Liquid (\$/BBL)	41.17	52.26	49.87	67.85
Weighted Avg. (\$/BOE)	35.91	39.20	38.29	46.25
Avg. Dubai (\$/BBL)	41.27	53.14	51.06	70.10
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	35.48	49.64	47.79	65.15
Volume Mix (Gas : Liquid)	69 : 31	70 : 30	70 : 30	71 : 29
Revenue Mix (Gas : Liquid)	65 : 35	60 : 40	60 : 40	58 : 42

DD&A	17.79	15.11	15.11	16.64
Finance Cost	2.01	2.07	2.10	2.09
Royalties	3.02	3.37	3.30	4.10
G&A	1.93	2.30	1.81	2.19
Exploration Expenses	0.63	0.48	0.36	0.45
Operating Expenses	5.08	5.72	5.68	5.81
Lifting Cost	4.18	4.19	4.12	4.38

Note: \* Represented and includes discontinued operations until end of August 2016

\*\* Exclude costs related to new business, If include, unit cost for 9M18 will be 31.35 \$/BOE.

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

# Sustainable development

Pursue long-term growth with social and environmental wellness



MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM

## 2018 DJSI Listed Company

PTTEP has been selected as a member of the 2018 Dow Jones Sustainability Indices (DJSI) in the DJSI World Oil and Gas Upstream & Integrated Industry for its fifth consecutive year.



FTSE4Good

## FTSE4Good Emerging Index 2018

PTTEP becomes a constituent of the FTSE4Good Emerging Index 2018 for the third consecutive year



## Proven business integrity

SET Sustainability Award 2018 – Outstanding Category  
*The Stock Exchange of Thailand (SET)*

ASEAN Corporate Governance (CG) Awards  
*ASEAN CG Scorecard*

Thailand's Strongest Adherence to Corporate Governance (ranked second)  
*Alpha Southeast Asia Magazine 2018*

## Exemplary social contributor

Top Corporate Social Responsibility Advocates winner  
*The Asia Corporate Excellence & Sustainability Awards 2018*

Health Promotion Category for PTTEP LKC Free Health Service Program (Free Clinic Project)  
*The Asia Responsible Enterprise Awards 2018*

Thailand's Best Strategic Corporate Social Responsibility (ranked first)  
*Alpha Southeast Asia Magazine 2018*

## Green driver to environment

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

The Excellent Level (G-Gold) of the Green Office Award 2017  
*The Ministry of Natural Resources and Environment*

Water A List Award  
*Carbon Disclosure Project (CDP)*

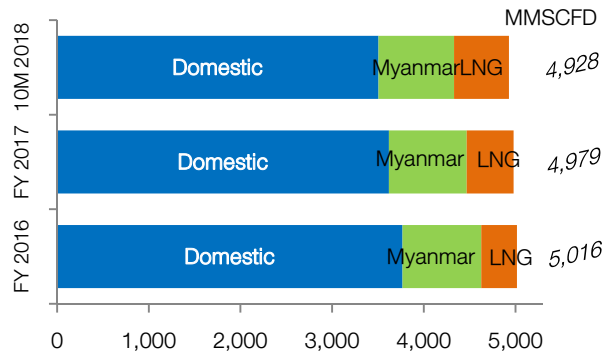
# Thailand Updates

Domestic gas volume suppressed by LNG import; Uncertainty on Thai Baht remains



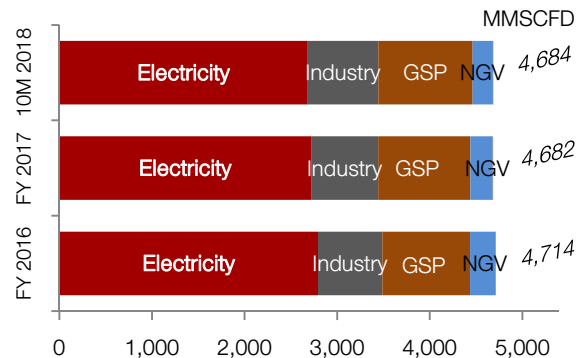
## Thailand Energy Overview

### Natural Gas Supply



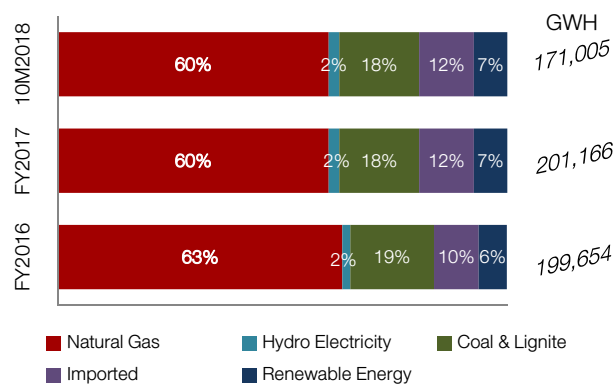
Slight decline in domestic production and Myanmar piped gas imports as a result of lower demands and growth in LNG import

### Natural Gas Consumption



Source: EPPO

### Electricity Generation



## Exchange Rate Movement (THB/USD)



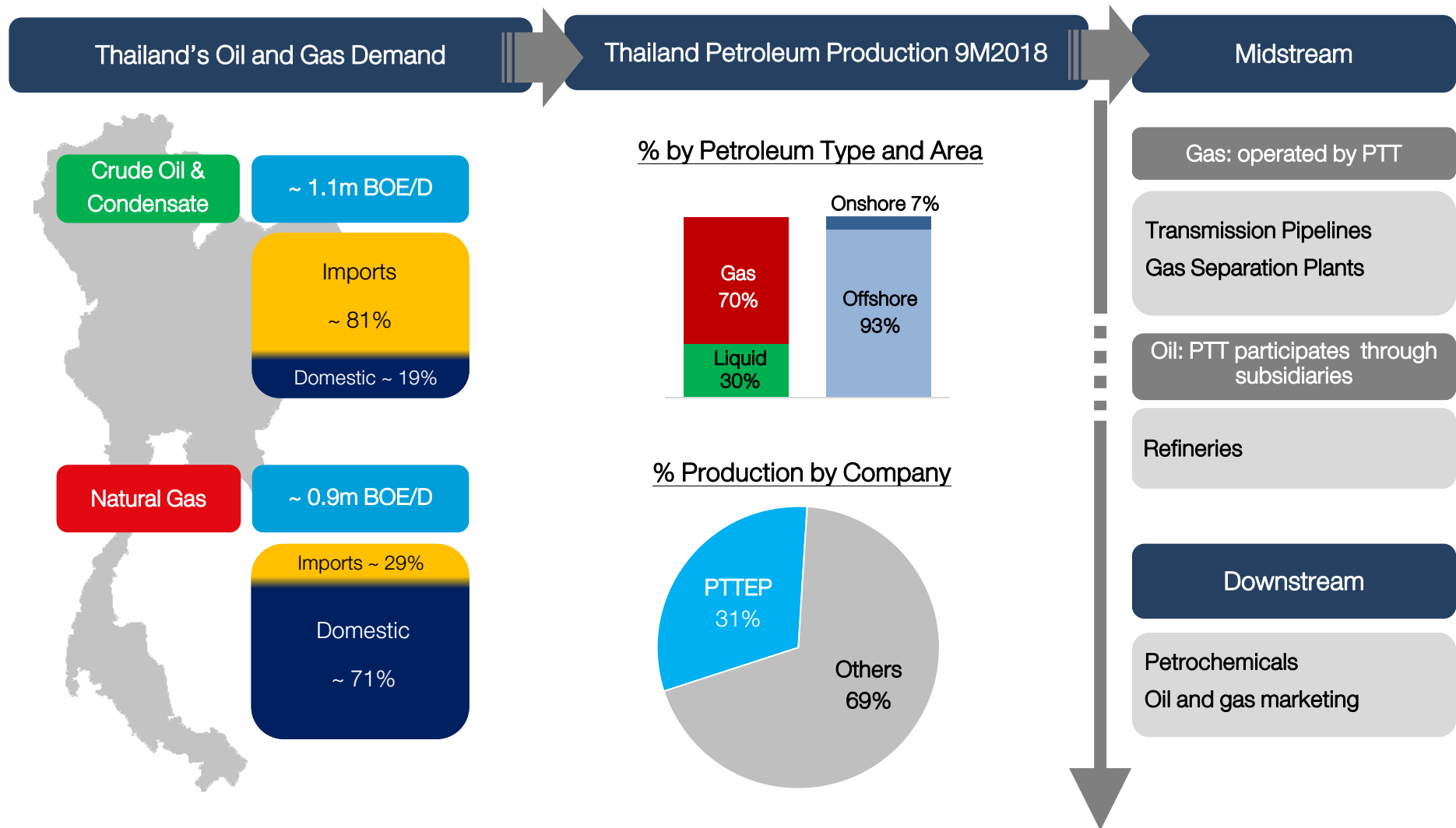
Consensus on the exchange rate mostly depends on

- Tendency on FED interest rate hike
- Trade war between the US and China
- Domestic export and tourism growth as well as the upcoming election

Source: Bank of Thailand, Bloomberg  
 Forecast based on Bloomberg Consensus as of 3 January 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)

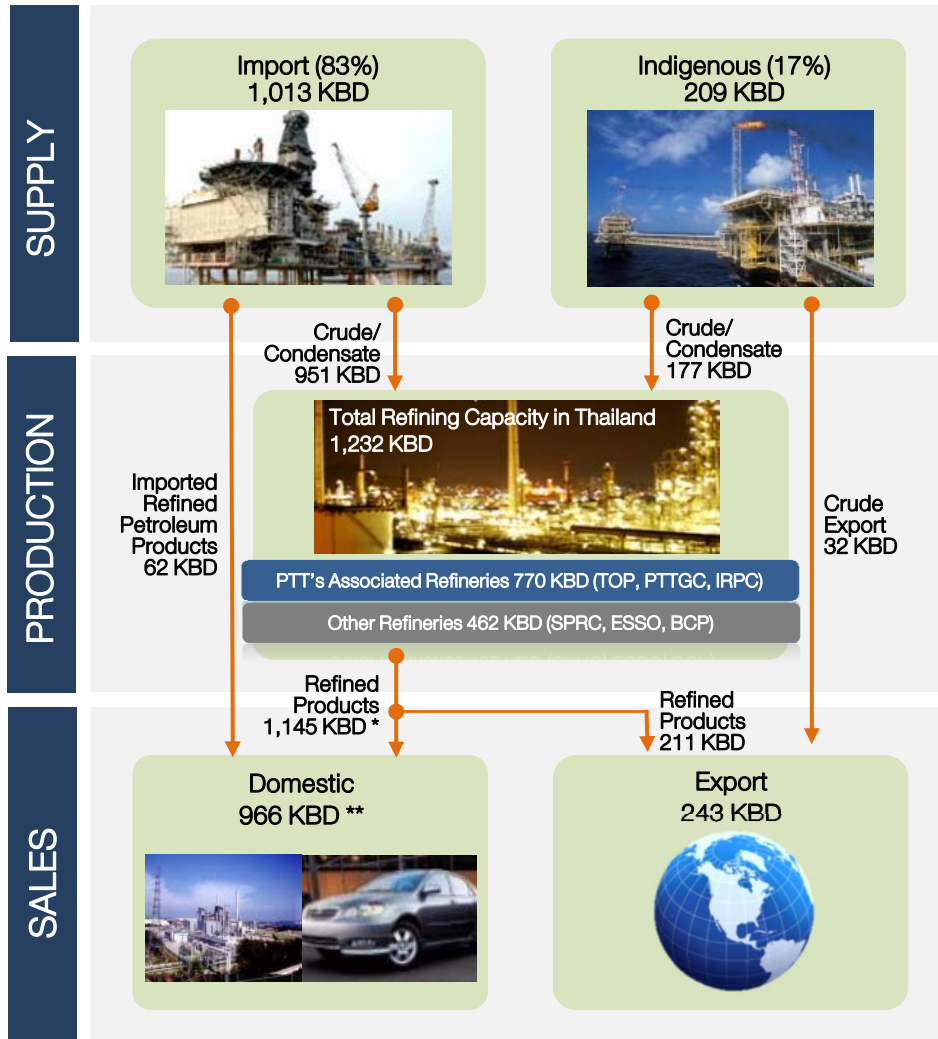
# Thailand's Oil and Gas Balance

January – September 2018



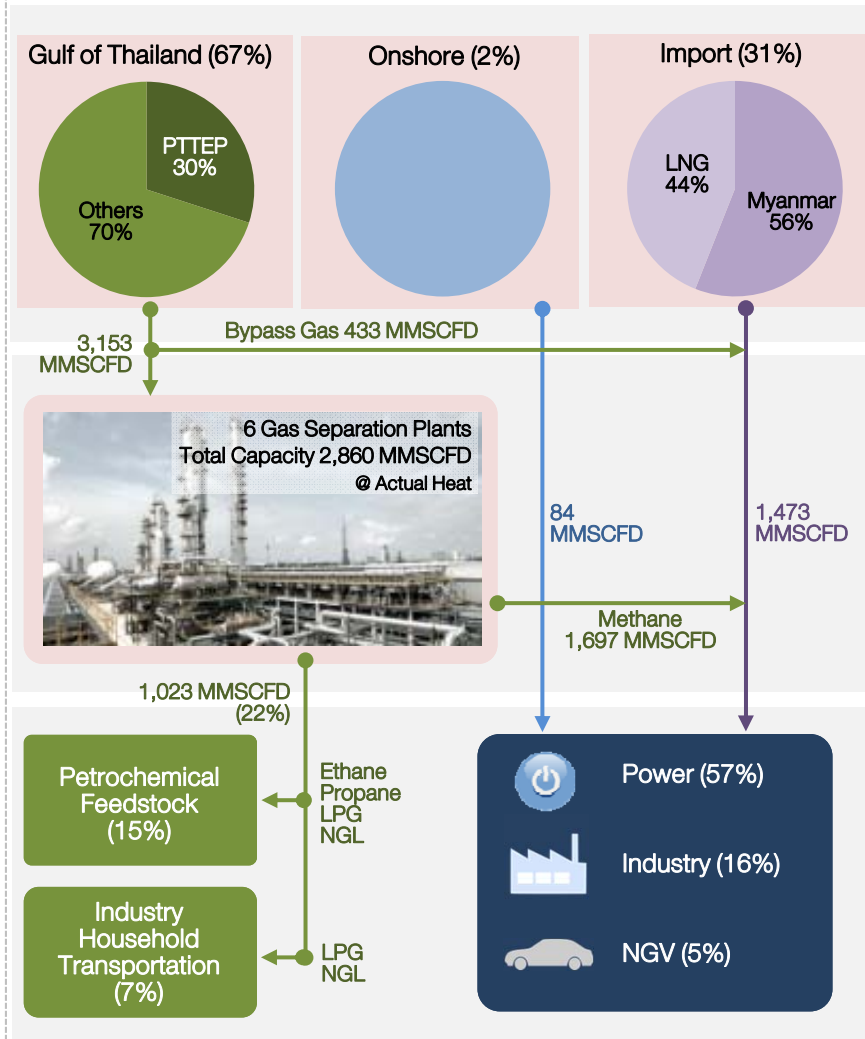
## Oil Balance

*Maintains stability supply through adequate refining capacity*



## Natural Gas Balance

*Main driver of the Thailand economy*



Source: PTIT

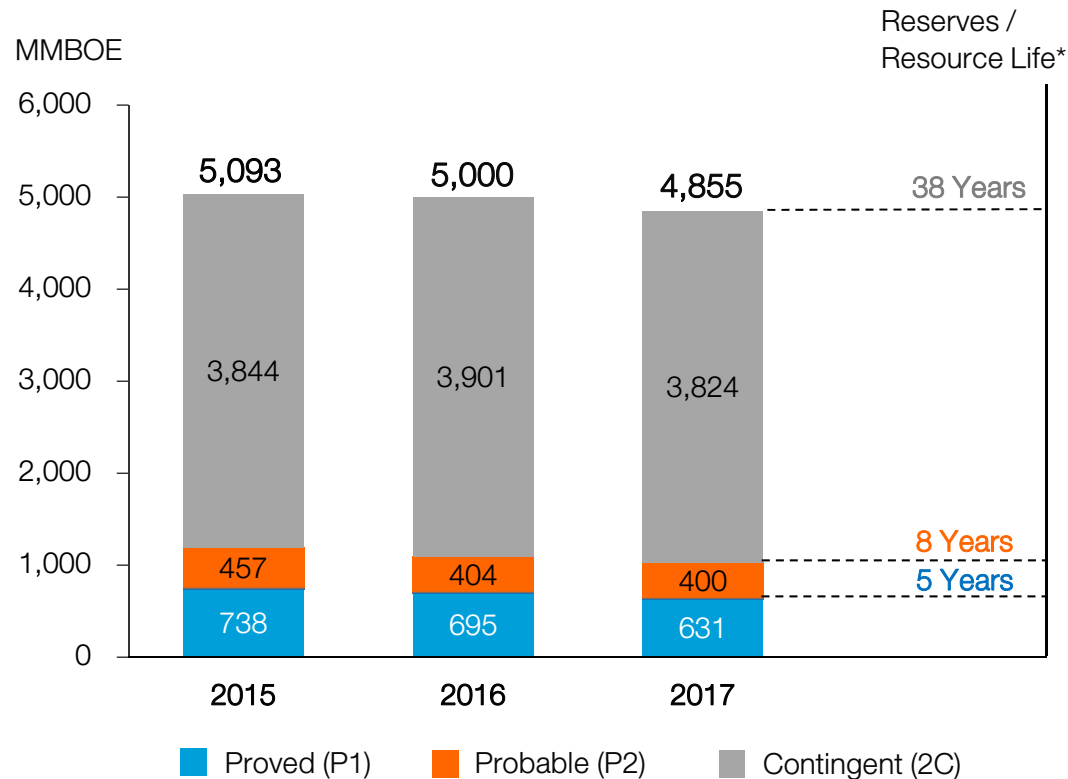
Remark: \* Refined product from refineries = 1,034 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 111 KBD

\*\* Not included Inventory

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

# Reserves and Resources

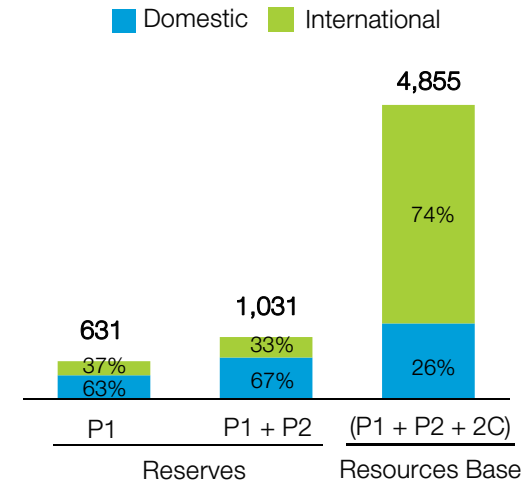
Maintained reserves life with majority of reserves base in SEA



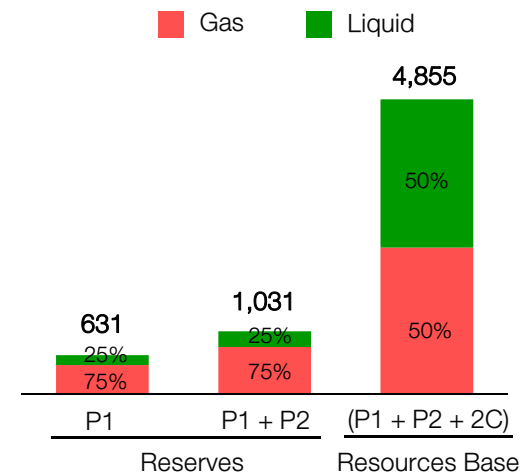
5-Year Average Proved Reserves Replacement Ratio (RRR)

2015	2016	2017
0.50x	0.57x	0.58x

## 2017 by Geography



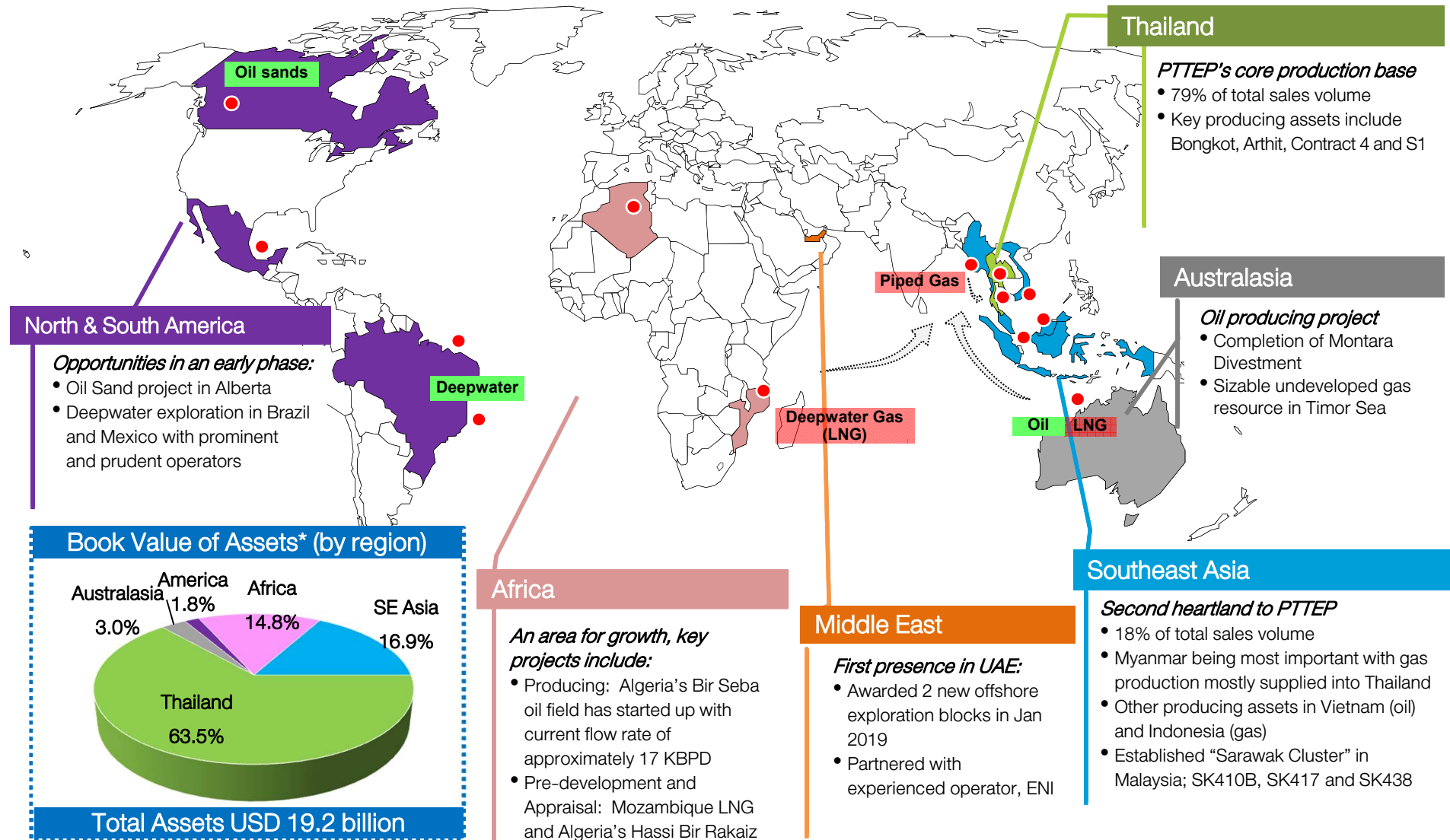
## 2017 by Product Type



\* Based on total production of natural gas, condensate, and crude oil (including LPG) of 347 KBOED for the year ended December 31, 2017

# Diversified international portfolio

Worldwide operations: 42 projects in 12 countries



Notes: \* Information dated as of 9M 2018

# Thailand and other Southeast Asia

Strong base maintaining production plateau and significant contribution to growth



## Thailand



● Production / Ramp-up Projects

### Bongkot (66.6667% WI)

- Average natural gas and condensate sales volume of 739 MMSCFD and 25 KBPD in 9M2018

### S1 (100% WI)

- The largest onshore crude oil production field in Thailand with 9M2018 average crude oil sales volume of 27 KBPD

### Arthit (80% WI)

- Average sales volume in 9M2018 was 206 MMSCFD of natural gas and 10 KBPD of condensates

### Contract 4 (60% WI)

- Average sales rate of 403 MMSCFD for natural gas and 17 KBPD for condensate in 9M2018

## 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 301 MMSCFD in 9M2018
- Significant exploration acreage both onshore and offshore in the Moattama Basin

### Project Status

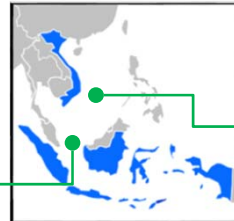
Producing	• Yadana (25.5% WI)
	• Yetagun (19.3% WI)
	• Zawtika (80% WI)
Appraisal	• M3 (80% WI)
Exploration	• MOGE 3 (75% WI)
	• M11 (100% WI)
	• MD-7 (50% WI)

## Vietnam and Indonesia

“Reinforcing regional exposure through strategic partnerships”

### Natuna Sea A (11.5% WI)

- Average sales volume of natural gas was 222 MMSCFD in 9M2018



● Production / Ramp-up Projects

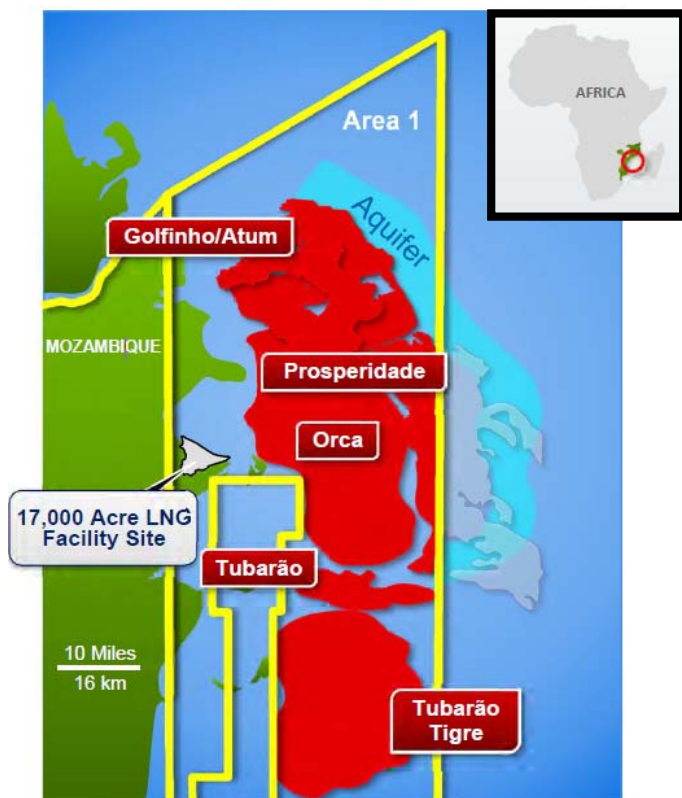
### Vietnam 16-1 (28.5% WI)

- Average sales volume of crude oil was 18 KBPD in 9M2018
- The project is preparing further production drilling plan aiming to maintain production plateau.

Note: WI – working interest

# East Africa: Mozambique

Potential to become one of the world's largest emerging LNG supply hubs



## Location and Cost Advantage

- Close proximity to shore
- High quality reservoirs
- Access to Asian markets

Source: Anadarko

*Substantial recoverable resources of **70+ tcf** with scalable offshore development of **more than 6 LNG trains***

## Key Milestones to Final Investment Decision – targeting at 1H2019

### Technical

- ✓ Certified reserves to support initial trains
- ✓ Announced selection of contractor for onshore LNG facilities construction

### Commercial

- ✓ Recently signed SPA of 1.2 MTPA with EDF (French) and 0.28 MTPA signed with Tohoku Electric

### Regulatory

- ✓ Received approval on marine concession and development plan of Golfoinho-Atum Field
- ✓ Commenced the resettlement plan in Q4 2017

### Financing

- ✓ On-going negotiation for project financing

Onwards to initial phase of 12 MMTPA

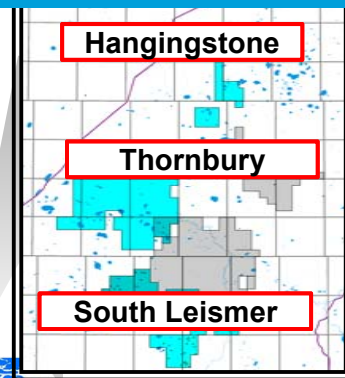
# America: Canada and Brazil



## Canada Oil Sands

*Flexibility to pursue long-term investment from the oil sands project*

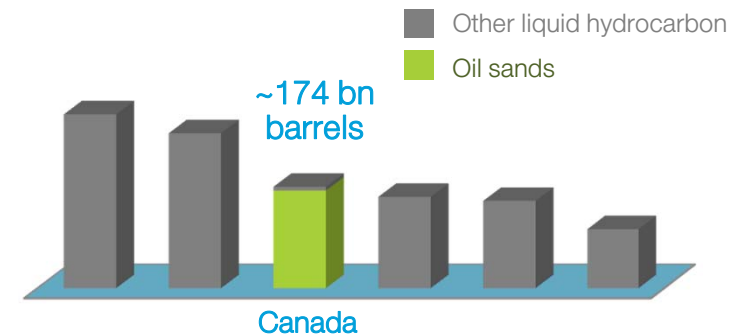
### Mariana Oil Sands Project



### 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
- In Q3 2017, the Company revised the project's development plan which involves delaying the project's Final Investment Decision, to reflect results from the assessment of the industry and commercial feasibility studies

Approximately 96% of the reserves in Canada, the world's 3<sup>rd</sup> largest oil reserves, is oil sands

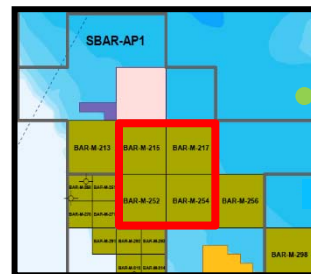


## Brazil Deepwater

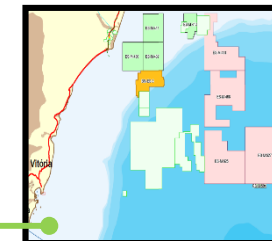
*Entry into high potential petroleum province at exploration phase*

### 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
- Completed 3D seismic activities and is in the process of assessing the petroleum potential



### Barreirinhas Basin



### Espirito Santo Basin

### BM-ES-23

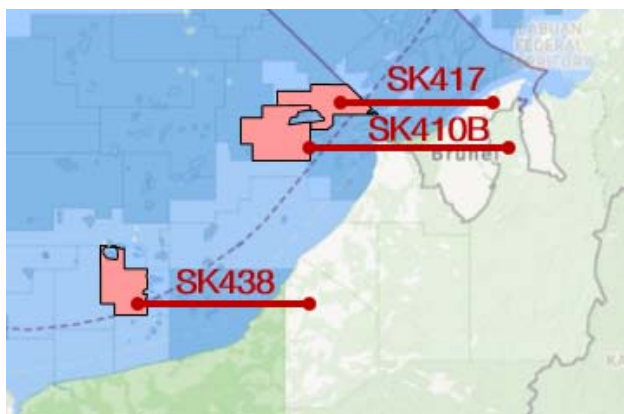
- Acquired 20% interest from Shell in Q3 2014
- Partnered with Petrobras (65%, operator) and INPEX (15%)

Source: Company data, BP Statistical Review of World Energy 2014

# Unlocking the Exploration Potentials

Expanded portfolio in high prolific areas: Malaysia and Mexico

## Sarawak Basin, Malaysia



**PTTEP's Block:** SK410B (42.5%), SK417 (80%) and SK438 (80%) with operatorship

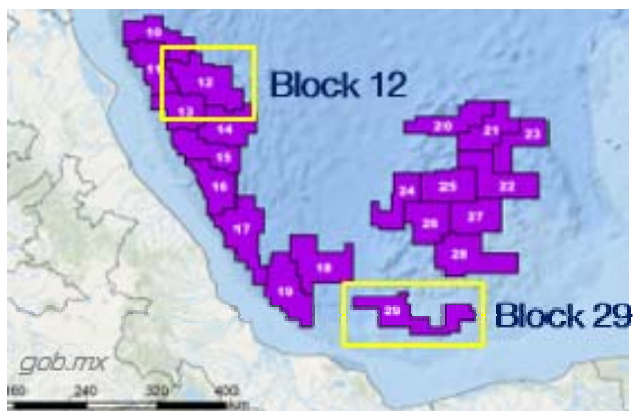
**Location:** Sarawak Basin, Malaysia

**Characteristic:** Shallow-water with low operational risk

**Exploration Strategy:**

- Expect exploration drilling activities during 2019-2021
- "Cluster Model" synergy operations within basin to optimize costs
- In place production infrastructure in nearby area

## 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
- Mexico still has high potential prospective resources with significant sizeable discoveries

# LNG Value Chain Investment : MLNG Train 9

First step into midstream LNG business in strategic area of focus



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

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



## MLNG Train 9 – Overview

Location	Bintulu, Sarawak, Malaysia	
Asset	Liquefaction Train 9 Tank 7	
Phase	Commercial: Jan 2017	
Capacity	3.6MTPA	
Contract Life	20 years	
Partners (subject to closing)	Petronas 80%	
	JX Nippon 10%	
	PTT Global LNG 10%	

## Investment Rationales

- Capture opportunity from increasing LNG demand as a supplement to Thailand gas production
- 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
- In vicinity of future upstream opportunities in focus area – offshore Sarawak

# Project information 1/3

## Production phase: Thailand and JDA



	Project	Status*	PTTEP's Share	Partners (as YE2018)	9M2018 Average Sales Volume **		2019 Key Activities
					Gas	Oil and Other	
Production Phase							
Thailand and JDA							
1	Arthit	OP	80%	Chevron MOECO16%4%	212 MMSCFD	Condensate: 10 k BPD	<ul style="list-style-type: none"><li>• Ensure gas deliverability level at DCQ***</li><li>• Install wellhead platforms</li><li>• Drill development wells</li></ul>
2	B6/27	OP	100%		-	-	
3	B8/32 & 9A		25%	Chevron MOECO KrisEnergy Palang Sophon51.66%16.71%4.63%2%	70 MMSCFD	Crude: 18 k BPD	<ul style="list-style-type: none"><li>• Drill development wells</li><li>• Perform waterflood activities</li></ul>
4	Bongkot	OP	66.6667%	TOTAL33.3333%	739 MMSCFD	Condensate: 25 k BPD	<ul style="list-style-type: none"><li>• Maintained production level as planned</li><li>• Drill development wells</li><li>• Awarded as a sole operator under PSC (after concession-end in 2022/2023)</li></ul>
5	Contract 3 (Formerly Unocal III)		5%	Chevron MOECO71.25%23.75%	604 MMSCFD	Crude: 23 k BPD Condensate: 21 k BPD	<ul style="list-style-type: none"><li>• Drill development wells</li><li>• Prepare for decommissioning activities</li><li>• Awarded as a sole operator for Erawan field (Contract 1, 2 and 3) under PSC (after concession-end in 2022)</li></ul>
6	Contract 4 (Formerly Pailin)		60%	Chevron MOECO35%5%	408 MMSCFD	Condensate: 17 k BPD	<ul style="list-style-type: none"><li>• Ensure gas deliverability level at DCQ***</li><li>• Drill development wells</li><li>• In process of pre-development of Ubon field</li></ul>
7	E5		20%	ExxonMobil80%	8.3 MMSCFD	-	<ul style="list-style-type: none"><li>• Ensure gas deliverability level at DCQ***</li></ul>
8	G4/43		21.375%	Chevron MOECO Palang Sophon51%21.25%6.375%	1.4 MMSCFD	Crude: 4 k BPD	<ul style="list-style-type: none"><li>• Drill development wells</li><li>• Perform waterflood activities</li></ul>
9	G4/48		5%	Chevron MOECO71.25%23.75%	6 MMSCFD	Crude: 1.4 k BPD	<ul style="list-style-type: none"><li>• Drill development wells</li></ul>
10	L53/43 & L54/43	OP	100%		-	Crude: 1.1 k BPD	<ul style="list-style-type: none"><li>• Maintain production plateau</li><li>• Perform reservoir management and waterflood activities</li></ul>
11	PTTEP1	OP	100%		-	Crude: 263 BPD	<ul style="list-style-type: none"><li>• Maintain production plateau</li><li>• Perform reservoir management and waterflood activities</li></ul>
12	S1	OP	100%		15 MMSCFD	Crude: 27 k BPD LPG: 0.2 k MT/D	<ul style="list-style-type: none"><li>• Drill development wells</li><li>• Enhance oil recovery program includes waterflood, hydraulic fracturing and artificial lift</li></ul>

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

\*\* Sales volume stated at 100% basis.

\*\*\* DCQ = Daily Contractual Quantity

# Project information 2/3

## Production phase: Overseas



	Project	Status*	PTTEP's Share	Partners (as of YE2018)		9M2018 Average Sales Volume **		2019 Key Activities
						Gas	Oil and Other	
Production Phase								
13	Sinphuhorm	OP	55%	Apico ExxonMobil	35% 10%	69 MMSCFD	Condensate: 218 BPD	<ul style="list-style-type: none"><li>• Ensure gas deliverability</li><li>• Improve recovery from infill drilling</li></ul>
14	L22/43	OP	100%			-	Crude: 29 BPD	<ul style="list-style-type: none"><li>• Maintain production operation</li></ul>
15	MTJDA	JOC	50%	Petronas-Carigali	50%	327 MMSCFD	Condensate: 6.8 k BPD	<ul style="list-style-type: none"><li>• Drill exploration and development wells</li></ul>
Overseas								
16	Vietnam 9-2	JOC	25%	PetroVietnam SOCO	50% 25%	13 MMSCFD	Crude: 3.7 k BPD	<ul style="list-style-type: none"><li>• Maintain production level</li><li>• Perform well intervention program</li></ul>
17	Vietnam 16-1	JOC	28.5%	PetroVietnam SOCO OPECO	41% 28.5% 2%	6.7 MMSCFD	Crude: 18 k BPD	<ul style="list-style-type: none"><li>• Maintain production level</li><li>• Drill development wells and water injection well</li><li>• Upgrade gas lift system</li></ul>
18	Natuna Sea A		11.5%	Premier Oil KUFPEC Petronas Pertamina	28.67% 33.33% 15% 11.5%	222 MMSCFD	Crude: 1.3 k BPD	<ul style="list-style-type: none"><li>• Well intervention program to secure Gas Deliverability</li><li>• Drill development wells</li></ul>
19	Yadana		25.5%	TOTAL Chevron MOGE	31.24% 28.26% 15%	794 MMSCFD	-	<ul style="list-style-type: none"><li>• Drill infill wells</li><li>• Perform 3D seismic activities</li><li>• Ensure gas deliverability level at DCQ***</li></ul>
20	Yetagun		19.3178%	Petronas-Carigali MOGE Nippon Oil PC Myanmar (Hong Kong)	30.00140% 20.4541% 19.3178% 10.90878%	154 MMSCFD	Condensate: 2.9 k BPD	<ul style="list-style-type: none"><li>• Maintain production level</li><li>• Drill exploration and development wells</li><li>• Perform 3D seismic activities</li></ul>
21	Zawtika (M9 & a part of M11)	OP	80%	Myanma Oil and Gas Enterprise (MOGE)	20%	301 MMSCFD	-	<ul style="list-style-type: none"><li>• Drill 3 exploration wells</li><li>• Drill development wells</li><li>• Perform 3D seismic activities</li><li>• Prepare to Install wellhead platforms</li></ul>
22	Algeria 433a & 416b (Bir Seba)	JOC	35%	PetroVietnam Sonatrach	40% 25%	-	Crude: 2.3 k BPD (net entitlement)	<ul style="list-style-type: none"><li>• Drill development wells</li><li>• Plan for BRS Phase 2 oil field development</li></ul>

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

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

\*\*\* DCQ = Daily Contractual Quantity

# Project information 3/3

## Exploration/Development phase

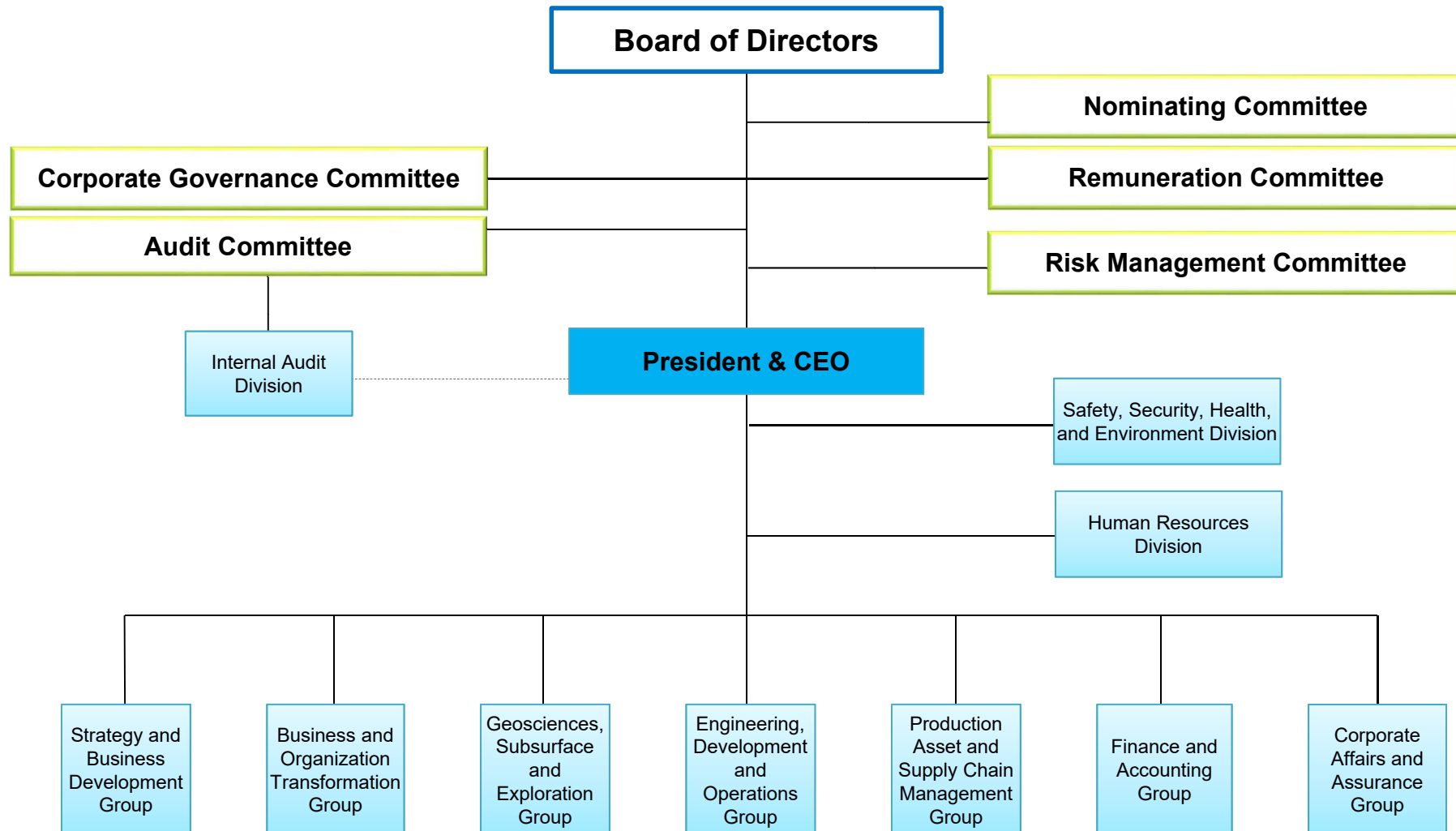


	Project	Status*	PTTEP's Share	Partners (as of YE2018)	2019 Key Activities
<b>Exploration/Development Phase</b>					
<b>Thailand and JDA</b>					
23	G9/43	OP	100%		-
<b>Overseas</b>					
24	Myanmar M3	OP	80%	MOECO 20%	<ul style="list-style-type: none"> <li>Negotiate the commercial framework with the Myanmar government</li> <li>Perform Front End Engineering Design (FEED study)</li> </ul>
25	Myanmar M11	OP	100%		<ul style="list-style-type: none"> <li>Drill first exploration well to prove up recoverable resources</li> </ul>
26	Myanmar MD-7	OP	50%	TOTAL 50%	<ul style="list-style-type: none"> <li>Drill first exploration well to prove up recoverable resources</li> </ul>
27	Myanmar MOGE 3	OP	75%	Palang Sophon 10% MOECO 10% WinPreciousResources 5%	<ul style="list-style-type: none"> <li>Drill 3 exploration wells</li> </ul>
28	Vietnam B & 48/95		8.5%	PVN 65.88% MOECO 25.62%	<ul style="list-style-type: none"> <li>Finalize on Commercial agreements</li> <li>Finalize on Engineering Procurement Construction Installation (EPCI) bidding process</li> </ul>
29	Vietnam 52/97		7%	PVN 73.4% MOECO 19.6%	<ul style="list-style-type: none"> <li>Finalize on Commercial agreements</li> <li>Finalize on Engineering Procurement Construction Installation (EPCI) bidding process</li> </ul>
30	Sarawak SK410B	OP	42.5%	KUFPEC 42.5% Petronas-Carigali 15%	<ul style="list-style-type: none"> <li>Drill 1 appraisal well</li> </ul>
31	Sarawak SK417	OP	80%	Petronas-Carigali 20%	<ul style="list-style-type: none"> <li>Prepare to drill exploration and appraisal wells</li> </ul>
32	Sarawak SK438	OP	80%	Petronas-Carigali 20%	<ul style="list-style-type: none"> <li>Drill 1 exploration well and 1 appraisal well</li> </ul>
33	PTTEP Australasia (PTTEP AA)	OP	90%-100% (varied by permits)		<ul style="list-style-type: none"> <li>Completed Montara Field Divestment to Jadestone on 28 Sep 2018</li> <li>Drill exploration well in AC/P54</li> </ul>
34	Mozambique Rovuma Offshore Area 1		8.5%	Anadarko, Mitsui, 26.5%, 20% ENH, ONGC 15%, 10% Beas Rovuma, Bharat 10%, 10%	<ul style="list-style-type: none"> <li>Prepare work to support Final Investment Decision (FID) targeted in 1H 2019 including LNG marketing and finalize remaining commercial contracts together with project finance</li> </ul>
35	Algeria Hassi Bir Rekaiz	OP	24.5%	CNOOC 24.5% Sonatrach 51%	<ul style="list-style-type: none"> <li>Finalize on Engineering Procurement and Construction (EPC)</li> <li>Drill development wells</li> </ul>
36	Mariana Oil Sands	OP	100%		<ul style="list-style-type: none"> <li>Assess appropriated development approach</li> </ul>
37	Barreirinhas AP1		25%	Shell Brasil 65% Mitsui E&P Brasil 10%	<ul style="list-style-type: none"> <li>Assess petroleum potential</li> </ul>
38	Brazil BM-ES-23		20%	Petrobras 65% INPEX 15%	<ul style="list-style-type: none"> <li>Assess petroleum potential</li> </ul>
39	Mexico block 12 (2.4)		20%	PC Carigali Mexico 60% Ophir Mexico 20%	<ul style="list-style-type: none"> <li>G&amp;G study to access petroleum potential</li> </ul>
40	Mexico block 29 (2.4)		16.67%	Repsol Mexico 30% PC Carigali Mexico 28.33% Sierra Nevada 25%	<ul style="list-style-type: none"> <li>G&amp;G study to access petroleum potential</li> </ul>
41	Abu Dhabi Offshore 1		30%	Eni Abu Dhabi 70%	<ul style="list-style-type: none"> <li>Conduct Seismic</li> </ul>
42	Abu Dhabi Offshore 2		30%	Eni Abu Dhabi 70%	<ul style="list-style-type: none"> <li>Conduct Seismic and drill exploration &amp; appraisal wells</li> </ul>

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

# Organization structure

Ensuring transparency, integrity and good corporate governance



## Supplementary Index : Ratio & Formula



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