



25<sup>th</sup>   
**BONGKOT**  
Anniversary

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

## Non Deal Roadshow

New York City – Boston, USA

15 –17 October 2018





Company Overview

Financial Performance

Strategy and Growth

Investment Plan & Outlook

# PTTEP: the E&P Flagship of PTT Group

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



## As PTT's Upstream Flagship



Government of  
Thailand

63.5%<sup>1</sup>



Thailand's national energy company

65.3%<sup>2</sup>



Credit ratings equivalent to parent and country

S&P

Moody's

TRIS

BBB+

Baa1

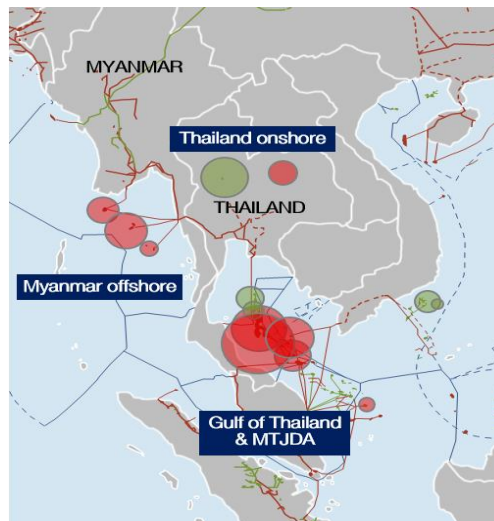
AAA

*Largest* oil and gas producers in  
Thailand and Myanmar

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

*Opportunities* to expand into regional investments

## PTTEP's operations in SEA



○ Approx. 20 KBOED  
of net sales volume

● Gas-  
weighted

● Oil-  
weighted

97%

of PTTEP's total  
sales volume

+99%

Reliability of plants  
and field facilities\*

83%

of PTTEP's sales volume  
sold to PTT

13 USD/  
BOE

Average regional  
cash cost

\* of PTTEP-operated projects in Gulf of Thailand, excl. planned shutdown  
All figures are as of 1H2018

### Notes:

1. 51.1% is directly held by the Government of Thailand (Ministry of Finance), with the remaining 12.4% held by the state-controlled Vayupak Fund I as of 7 March 2018

2. Ownership as of 9 August 2018

# A Firm Core for Accretive Growth

Reflected in 1H2018 performance



## Operation

- ✓ **298 KBOED**  
On-track sales volume target
- ✓ **30.37 \$/BOE**  
Competitive unit cost
- ✓ Achieved **Bongkot** acquisition  
& **Exploration** expansion



## Financials

- ✓ **Healthy margin and liquidity**
  - **74%** EBITDA Margin
  - **\$3.4Bn** Cash on hand
  - **\$1.2Bn** Operating Cash Flow
  - **0.19x** Gearing ratio

Unlocking value through series of portfolio rationalization

### Strengthen focus area

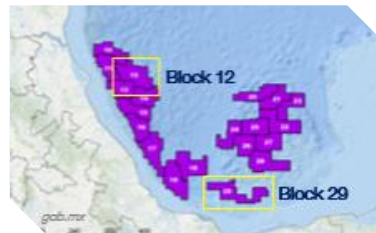
### Reposition non-core

#### Acquisition

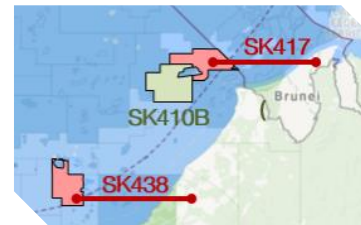


Completed 22.2222% stake acquisition in Bongkot from Shell

#### Expanded Exploration Portfolio



2 Deepwater blocks in Mexico with prudent operators



2 Shallow-water blocks in Malaysia as an operator

#### Divestment



Divestment of Montara Oil Field in Australia



Company Overview

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Strategy and Growth

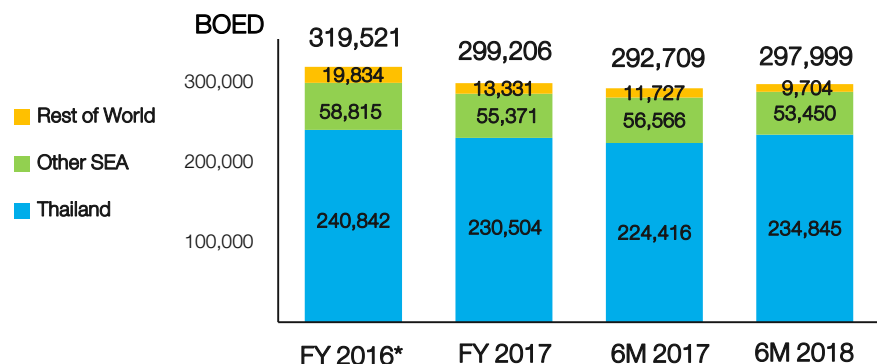
Investment Plan & Outlook



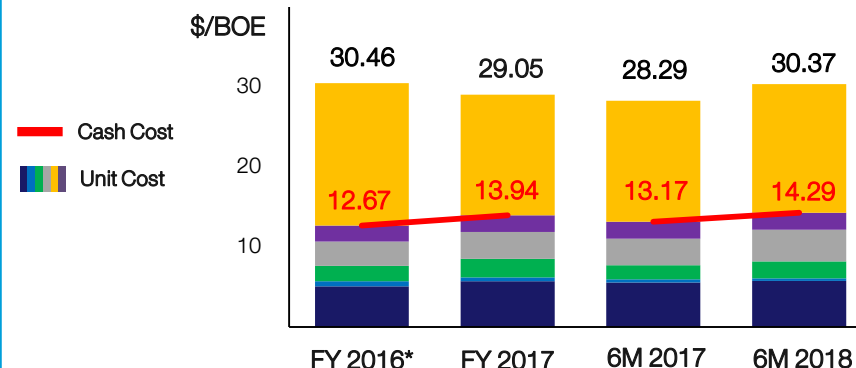
# Sales Volume & Unit Cost

Higher sales volume offset with rising unit cost driven by DD&A

## Sales Volume and Price



## Unit Cost



Gas (\$/MMBTU)	5.60	5.59	5.45	<b>6.14</b>
Liquid (\$/BBL)	41.17	52.26	50.63	<b>66.77</b>
Weighted Avg. (\$/BOE)	35.91	39.20	38.04	<b>45.51</b>
Avg. Dubai (\$/BBL)	41.27	53.14	51.38	<b>68.01</b>
Avg. HSFO (\$/BBL)	35.48	49.64	47.85	<b>61.85</b>
(High Sulphur Fuel Oil)				
Volume Mix (Gas : Liquid)	69 : 31	70 : 30	70 : 30	<b>71 : 29</b>
Revenue Mix (Gas : Liquid)	65 : 35	60 : 40	60 : 40	<b>57 : 43</b>

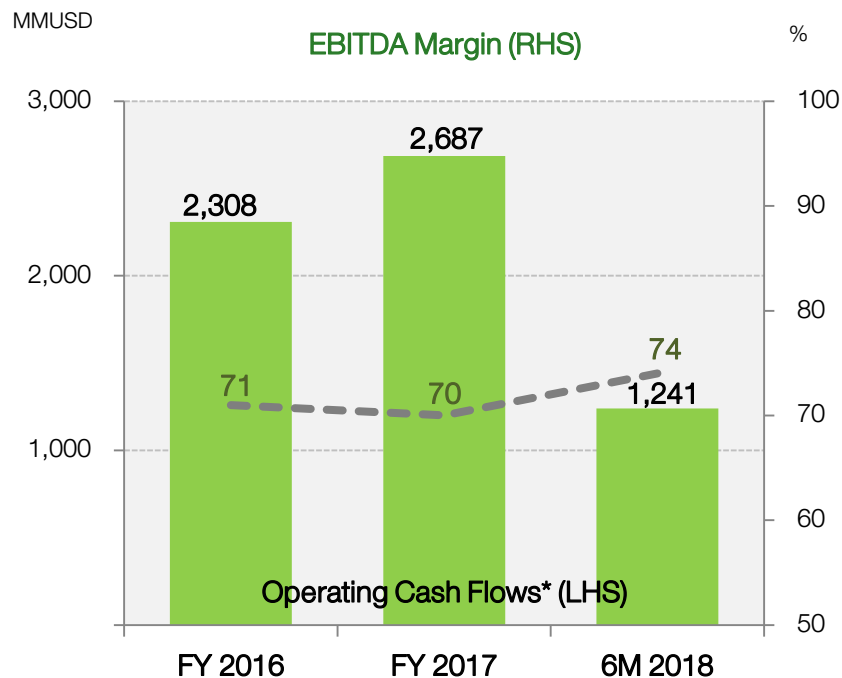
DD&A	17.79	15.11	15.12	<b>16.08</b>
Finance Cost	2.01	2.07	2.12	<b>2.12</b>
Royalties	3.02	3.37	3.32	<b>3.98</b>
G&A	1.93	2.30	1.77	<b>2.11</b>
Exploration Expenses	0.63	0.48	0.39	<b>0.33</b>
Operating Expenses	5.08	5.72	5.57	<b>5.75</b>
Lifting Cost	4.18	4.19	4.10	<b>4.17</b>

Note: \* Represented and includes discontinued operations until end of August 2016  
The formulas for calculating ratios are provided in the supplementary section for your reference

# Cash Flow Performance

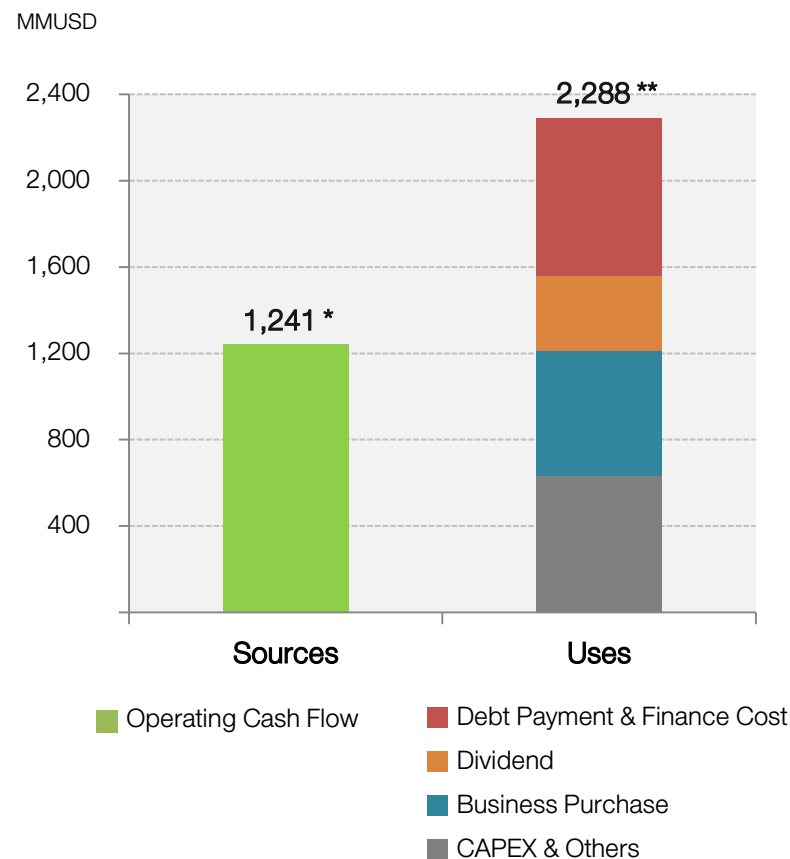
Maintained healthy operating cash flow

## Cash Flow Performance



Net Income	372	594	536
Recurring Net Income***	466	836	640

## Source & Use of Funds in 6M 2018



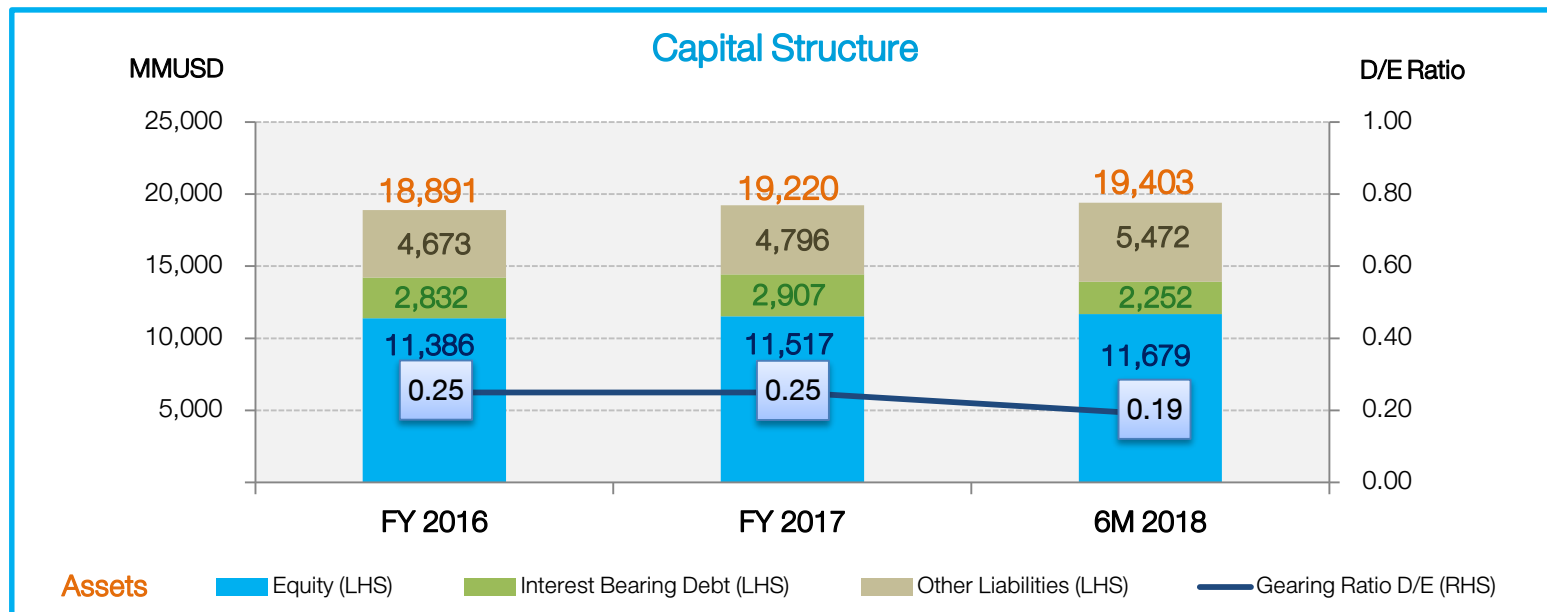
Remark: \* Net of adjustment for the effect of exchange rate changes on cash and cash equivalents

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

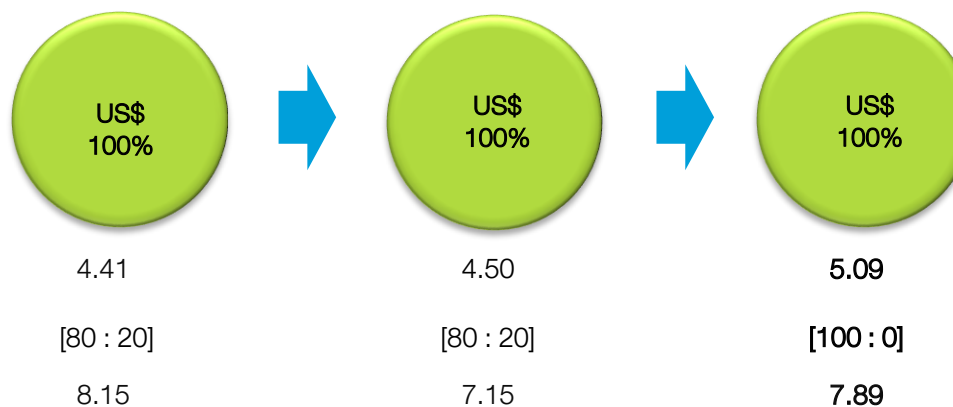
\*\*\* Excludes Gain/(Loss) on FX, Deferred tax from Functional currency, Current Tax from FX Revaluation, Gain/(Loss) from Financial Instruments, Impairment Loss on Assets, and etc.

# Financial Position

Robust financial position with low gearing ratio



## Debt Profile\*



Remark: \* Excludes Hybrid bonds

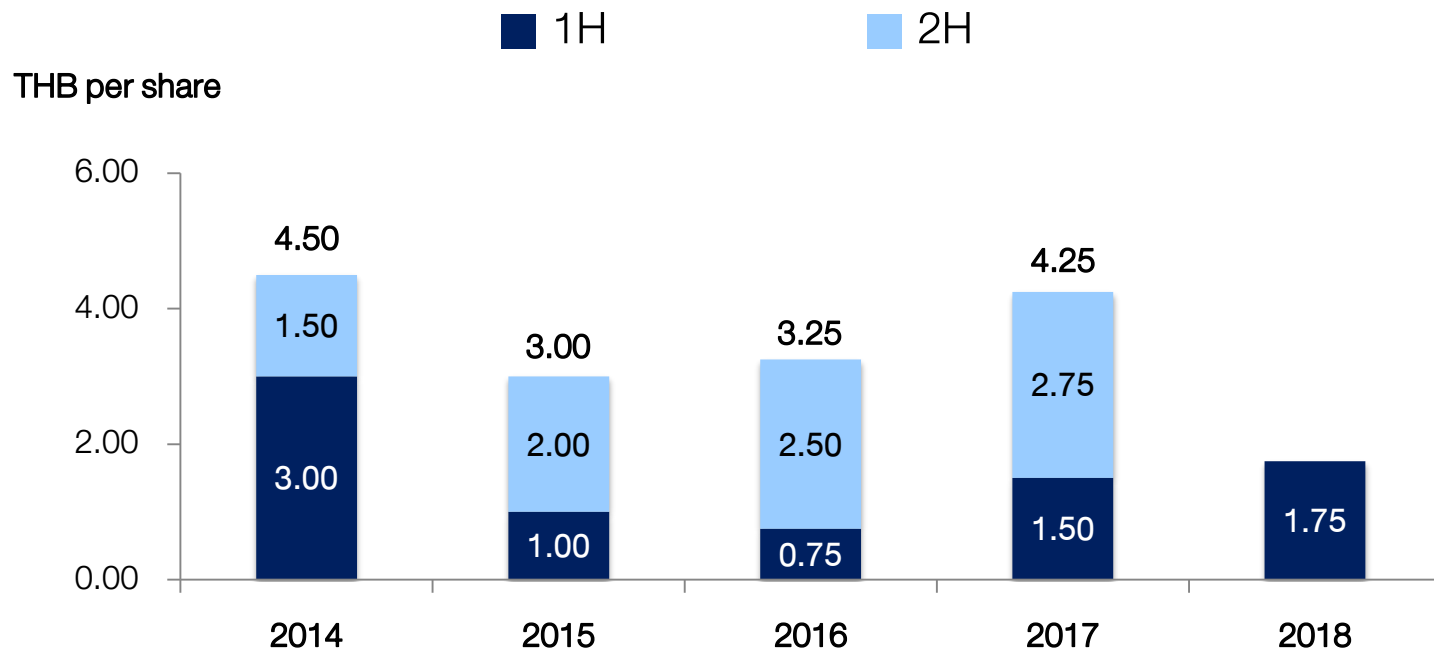


# Dividends

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
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Company Overview

Financial Performance

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# RESET to Uphold Competitiveness

Achieved significant cost reduction and continue to improve efficiency

## Ways

Optimizing Producing Projects



Capital Management



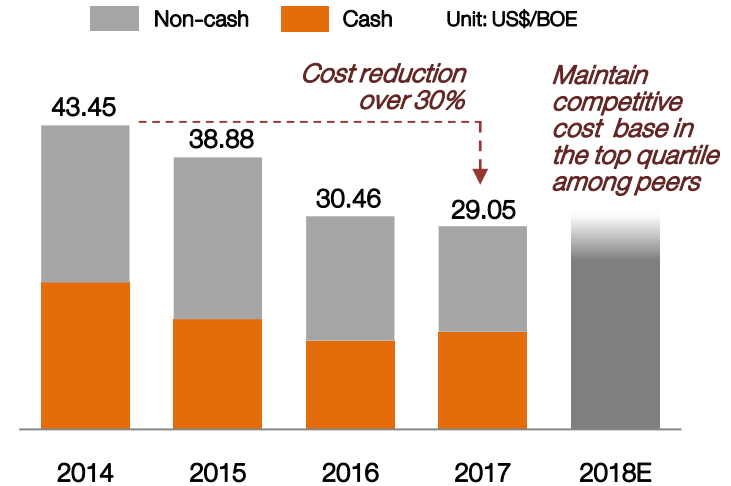
Organizational Restructuring  
to cope with changing E&P landscape



Cost Management  
through SPEND SMART campaign



## Results



### 2017 SPEND SMART results



- ✓ \$200MM Savings
- ✓ \$310MM equivalent in efficiency gain
- ✓ 500+ new ideas initiated

## Initiatives



Exploration



Engineering & Construction



Production Operations



Maintenance & Inspection



Drilling & Well



Logistics



Procurement



Finance & Accounting



G & A



# REFOCUS through Series of Portfolio Rationalization

Strengthen Focus areas, Reposition Non-core

## Strengthen focus areas

### Mexico

2 Deepwater blocks with prudent operators

### Thailand

Acquisition of 22.22% stake in Bongkot from Shell

### Malaysia

2 blocks "Sarawak Cluster" model with operatorship

### Australia

Divestment of Montara Oil Field

## Reposition non-core

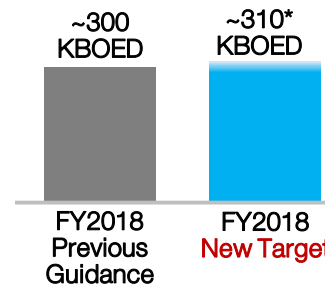
**Transaction:** In July 2018, PTTEP signed SPA to divest 100% stake in Montara field to Jadestone Energy (Eagle) Pty Ltd

**Rationale:** Be a non-operating position in non-core area and reduce exposure on mature and high cost operating assets

## Impact to FY2018's performance

After 22.22% stake acquisition of Bongkot and the divestment of Montara field

### Sales volume:



\* Taken into account the additional Bongkot's sale contribution from late June 2018 (daily sales volume of 35 KBOED) offset with Montara divestment

### Unit Cost:

- Continue to maintain overall unit cost in range between 30-31 \$/BOE

### Financial Position:

- Immediate cash flow contribution from additional stake in Bongkot
- Enhance overall profitability

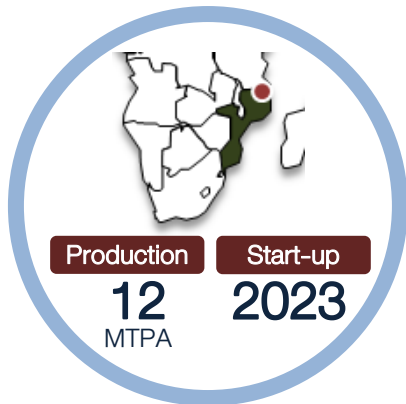
### Reserves life:

- Neutral to R/P ratio

# Fast-tracking FID of Key Pre-Development Projects

Stronger path towards Mozambique LNG FID by 1H2019

## The Mozambique LNG: Significant progress to date



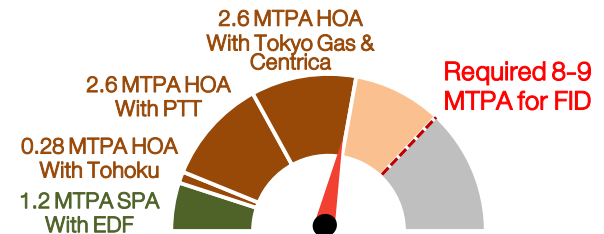
Mozambique Rovuma Offshore Area 1

### Completed

- ✓ Legal & Contractual Framework and Marine Concessions as well as the development plan approved
- ✓ Resettlement Commenced and site preparation underway
- ✓ Off-take agreement: 1.2 MTPA SPA signed with EDF
- ✓ Onshore contractor selected

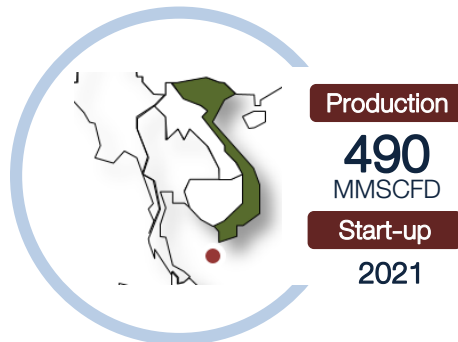
### In-Progress

- ✓ Offshore contractor selections
- ✓ Project finance: Secure 2/3 leverage
- ✓ Marketing: SPA negotiations underway with 6.7 MTPA of announced deals



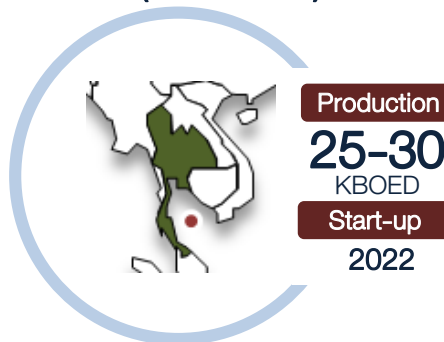
## Along with the acceleration of other pre-FID projects

### Southwest Vietnam



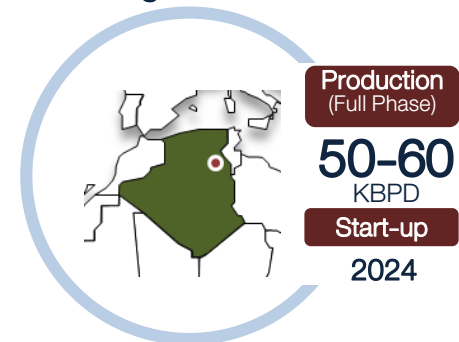
- Finalizing commercial agreements

### Ubon (Contract 4)



- Preparing POD with partners

### Algeria HBR



- Approved POD
- Finalizing documents with partners

# Continue to Pursue Other Growth Strategies

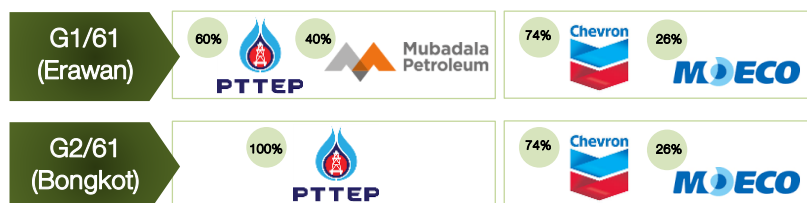
Production and Reserve accretion remains the top priority

Strive to win the Bidding: *PTTEP is well-positioned to bid for Bongkot and Erawan*

## Timeline for the bidding of Expiring Concessions in GoT



## Consortium from the bid submission



Source: DMF

## Summary of TOR

### Bidding Obligations

#### Minimum DCQ

- G1/61: 800MMSCFD
- G2/61: 700MMSCFD

#### Gas price formula

Commit under fixed formula in TOR

#### Facility bonus

- G1/61: 350 MMTHB
- G2/61: 175 MMTHB

#### Decommissioning

Must be obligated all infrastructure / facilities both new and transferred per PSC agreement

## Bidding Proposal

### 1 Technical

- Preparation period work plan
- Exploration work plan
- Field development plan

### 2 State Participation: 25% stake

### 3 Commercial

score

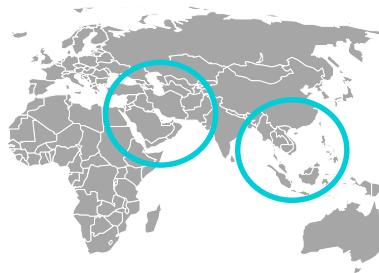
65% **Price Constant:** ≤ 214.23 THB per MMBTU

25% **Profit split:** ≤ 50%

**Bonuses:** Signature Bonus ≥ 350 MMTHB, Production Bonus ≥ 175 MMTHB and Training/CSR ≥ 3.5 MMTHB/Year

5% **Thai Employee Ratio:** ≥ 80% in 1<sup>st</sup> year and ≥ 90% in 5<sup>th</sup> year

## Execution of M&A Deal

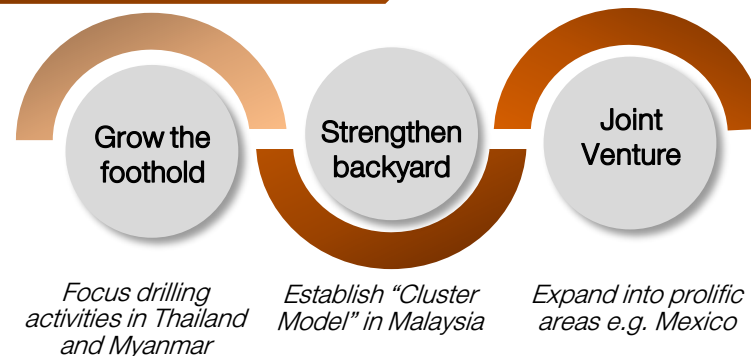


**Geographical:** SEA, Middle East and other potential areas

**Target:** Focus on producing or near-producing

**Size:** 500 – 1,000 MMUSD

## Exploration Portfolio





# RENEW in Response to Changing Industry Landscape

Strengthen core competency and business diversification

## Enhancing Core Capability in Exploration & Production



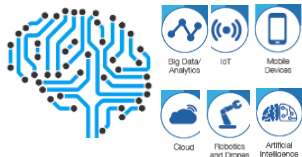
### ORGANIZATIONAL TRANSFORMATION

*Innovative, agile and result-driven*



### E&P TECHNOLOGY

*Drive exploration success, production enhancement and green practices*



### DIGITAL TRANSFORMATION

*Embrace digital technologies to drive efficiency*

## Value through Business Diversification



### E&P-RELATED BUSINESS

*Explore for value enhancement*



### GAS VALUE CHAIN

*Extend presence across the gas chain*

**Midstream LNG:** Invest to support E&P and develop diversified LNG supply and trading portfolio for Asian market

**Gas Market:** Create market beyond Thailand; and capture value along the gas-to-power chain



### RENEWABLE ENERGY

*Evaluate strategic and competency compatibility*



Company Overview

Financial Performance

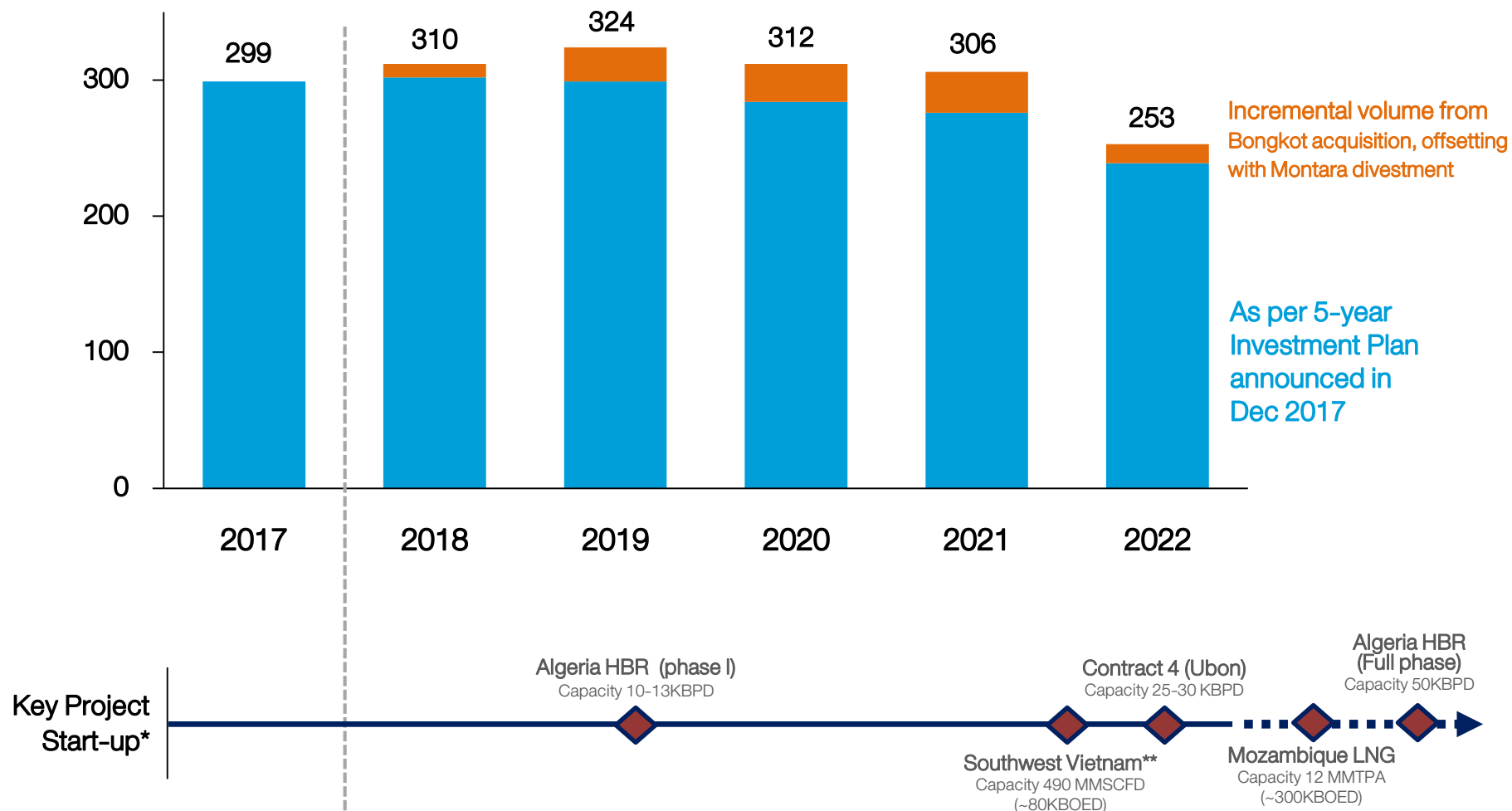
Strategy and Growth

Investment Plan & Outlook

# Sales Volume

M&As and concession bidding remain key upside

Unit : KBOED



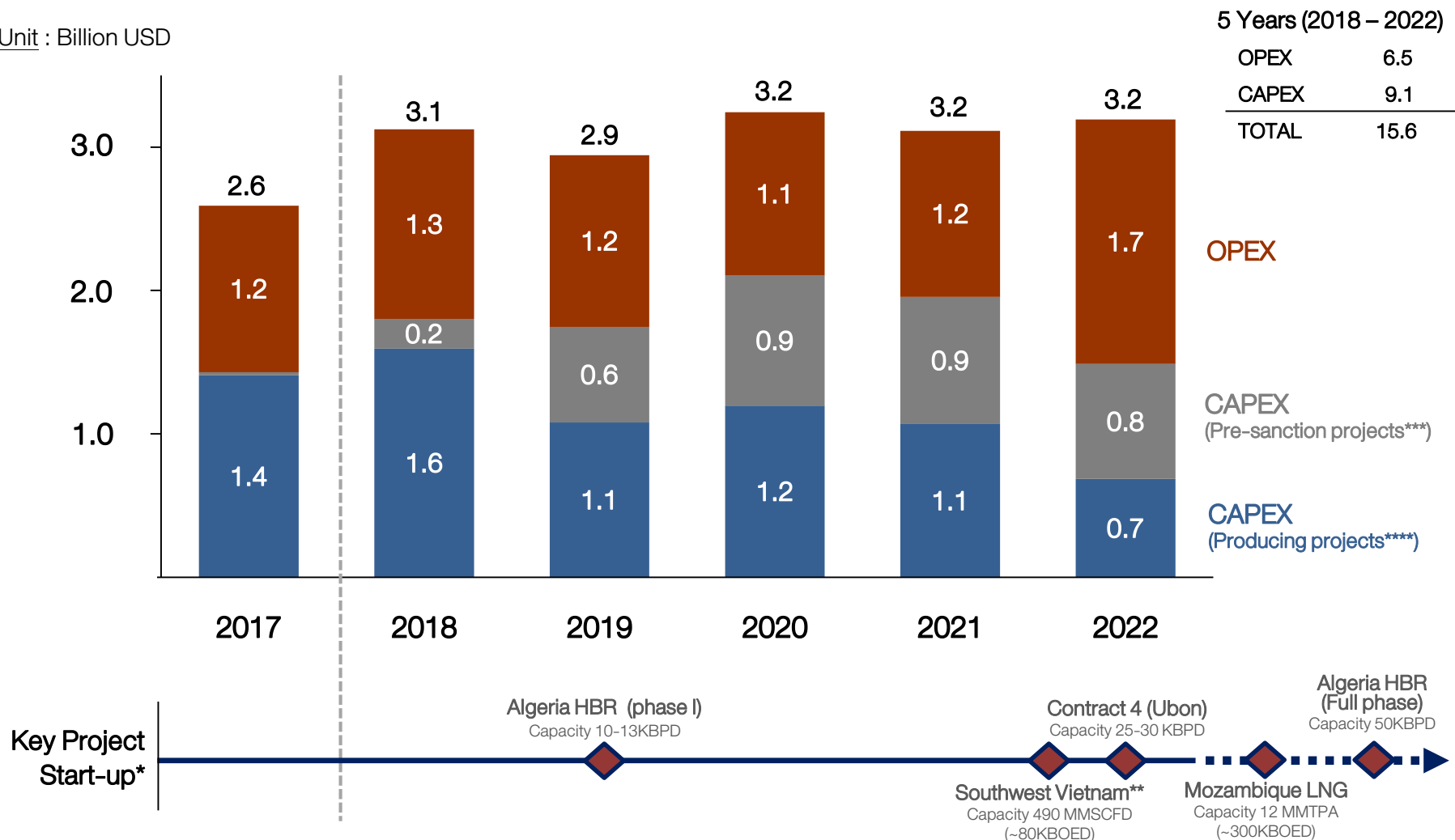
Note: \* Subject to FID timing  
\*\* Expected project start-up in late 2021



# Investment Plan (excluding Acquisition cost on M&As)

Disciplined spending on core assets for future production growth

Unit : Billion USD



Note: \* Subject to FID timing

\*\* Expected project start-up in late 2021

\*\*\* Pre-sanction projects include Mozambique LNG, Contract 4 (Ubon), Algeria HBR and Southwest Vietnam

\*\*\*\* Includes exploration and appraisal in all projects and head office CAPEX

# Financial Outlook

Expect strong core operational performance and margin



**Average  
Sales Volume\***  
KBOED

**Average  
Gas Price\*\***  
USD/MMBTU

**Unit Cost**  
USD/BOE

**EBITDA Margin**  
% of sales volume

Q3 2018

FY 2018

~308

~310

~6.5

~6.5

31-32

30-31

~70-75

Note: \* Included sales volume from 1) the additional stakes in Bongkot and 2) Montara until the expected divestment completion

\*\* Based on FY2018 Dubai oil price at 70 \$/BBL

# Key Takeaways

Maximizing value through solid growth platforms

## Strengthen fundamental

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

## Focus on production and reserves accretion

- Implement series of portfolio rationalization
- Continue gas-weighted portfolio in line with global trend
- Push forward FID of key pre-development projects
- Expansion exploration portfolio and M&A execution in focus areas

## Ready for future challenges

- Organizational Transformation
- Collaboration with PTT for LNG value chain investments
- Diversification through new business opportunities

## Solid balance sheet to support growth

- \$3.4 Bn cash on hand with concrete capital structure
- 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)



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Passion to Explore  
For a Sustainable Future



Q2 2018 Financial Results	23-26
---------------------------	-------

Safety and Sustainability	27-28
---------------------------	-------

Oil Market Outlook	29-30
--------------------	-------

Thailand and LNG Updates	31-34
--------------------------	-------

Reserves and Resources	35
------------------------	----

Key Project Highlights by Region	36-44
----------------------------------	-------

Project Details	45-47
-----------------	-------

Organization Structure	48
------------------------	----

Ratio and Formula	49
-------------------	----

# Summary of Q2 2018 Financial Results

Strong core earnings supported by higher selling price and volumes

Unit : MMUSD

Statement of Income	Q1 18	Q2 18	% QoQ	Q2 17	% YoY	6M 18	6M 17	% YTD
<b>Total Revenues</b>	<b>1,240</b>	<b>1,347</b>	<b>9%</b>	<b>1,032</b>	<b>31%</b>	<b>2,562</b>	<b>2,121</b>	<b>21%</b>
Sales	1,161	1,293	11%	975	33%	2,454	2,015	22%
Others	79	54	(32%)	57	(5%)	108	106	2%
Sales Volume (BOED)	293,099	302,846	3%	281,435	8%	297,999	292,709	2%
Sales Price (USD/BOE)	44.01	46.94	7%	38.08	23%	45.51	38.04	20%
<b>Total Expenses</b>	<b>817</b>	<b>1,234</b>	<b>51%</b>	<b>812</b>	<b>52%</b>	<b>2,026</b>	<b>1,552</b>	<b>31%</b>
<b>Major Expenses:</b>								
Operating Expenses	141	169	20%	153	10%	310	295	5%
Exploration Expenses	3	15	>100%	19	(21%)	18	20	(10%)
DD&A	408	460	13%	381	21%	868	801	8%
Income Tax Expense	5	329	>100%	67	>100%	334	59	>100%
(Gain)/Loss on FX	(25)	30	>100%	(11)	>100%	5	(14)	>100%
<b>Net Income</b>	<b>423</b>	<b>113</b>	<b>(73%)</b>	<b>220</b>	<b>(49%)</b>	<b>536</b>	<b>569</b>	<b>(6%)</b>
Recurring Net Income	304	336	11%	167	>100%	640	378	69%
Non-Recurring *	119	(223)	(>100%)	53	(>100%)	(104)	191	(>100%)

Note: \* Includes Gain/(Loss) on FX, Deferred tax from Functional currency, Current Tax from FX Revaluation, Gain/(Loss) from Financial Instruments and etc.

# Financial Performance : Income Statement

Maintained strong EBITDA margin

	Q1 18	Q2 18	Q2 17	6M 18	6M 17
Sales and Revenue from Pipeline Transportation (MMUSD)	1,184	1,319	993	2,503	2,046
EBITDA (MMUSD)	879	965	685	1,844	1,461
Net Income (MMUSD)	423	113	220	536	569
Recurring Net Income (MMUSD)	304	336	167	640	378
Earning Per Share (USD)	0.10	0.03	0.04	0.13	0.13
<b>Key Financial Ratios</b>					
EBITDA Margin (%)	74	73	69	74	71
Return on Equity (%) (LTM)	6	5	6	5	6
Return on Capital Employed (%) (LTM)	5	5	6	5	6
Return on Equity (%) (LTM, Recurring Net Income)	8	9	5	9	5
Return on Capital Employed (%) (LTM, Recurring Net Income)	7	8	5	8	5

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



# Financial Performance : Balance Sheet

Robust financial position with low gearing ratio

	YE 17	Q2 18
Total Assets (MMUSD)	19,220	19,403
- Cash & cash equivalents* (MMUSD)	4,468	3,421
Total Liabilities (MMUSD)	7,703	7,724
- Interest bearing debt (MMUSD)	2,907	2,252
Equity (MMUSD)	11,517	11,679
<b>Key Financial Ratios</b>		
Total Debt to Equity (X)	0.25	0.19
Net Debt* to Equity (X)	(0.14)	(0.10)
Total Debt to Capitalization (X)	0.20	0.16
Total Debt to EBITDA (X)	0.95	0.65
EBITDA Interest Coverage (X)	23	25

**Credit Ratings :** BBB+ (S&P), Baa1 (Moody's), AAA (TRIS)

**Weighted Average Cost of Debt\*\* :** 5.09%

**Average Loan Life\*\* :** 7.89 years

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

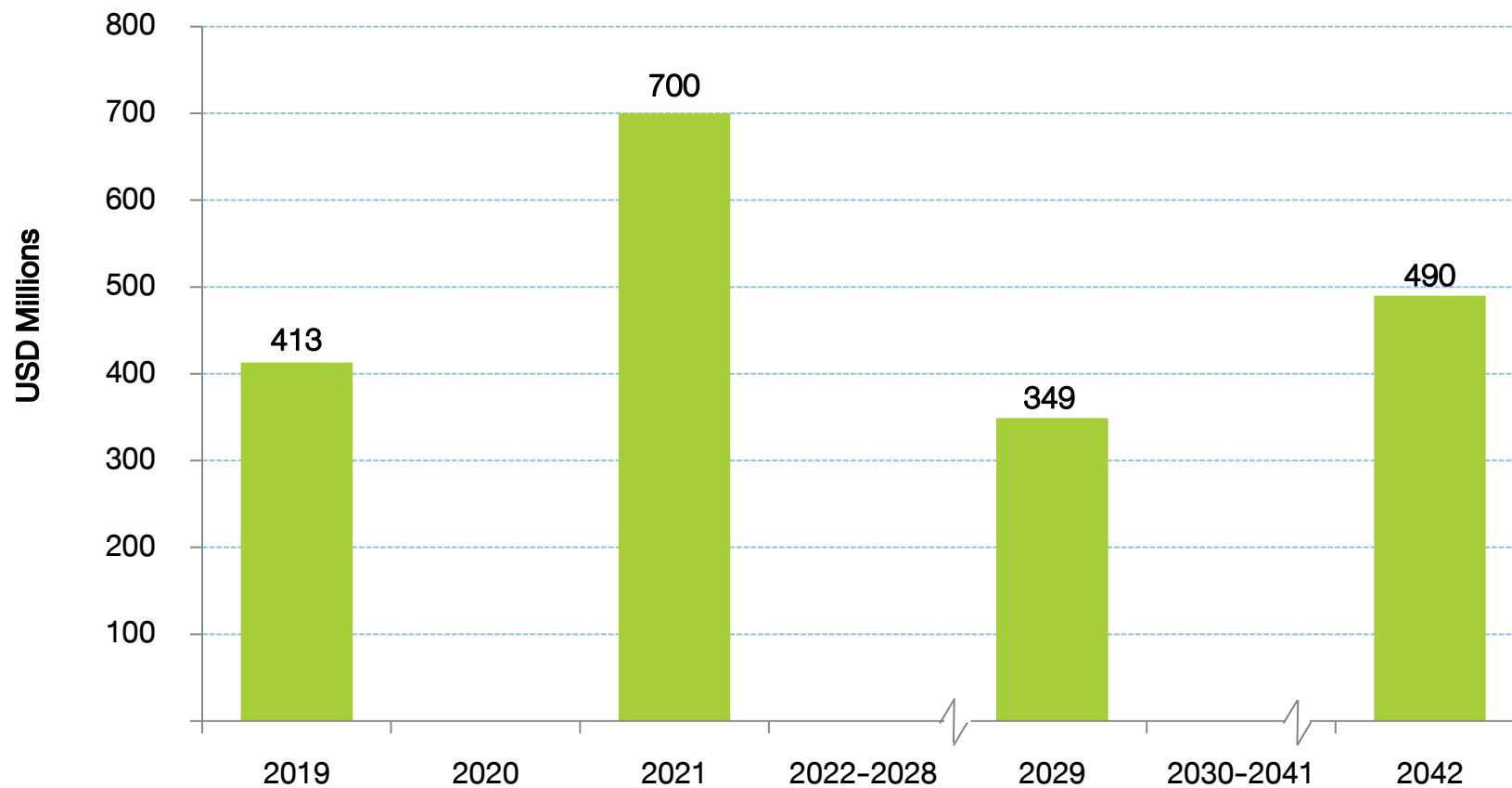
Net Debt = Total Debt less Cash & Cash Equivalents and Short-term Investments

\*\* Excludes hybrid bonds

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

# Debt Maturity Profile

(as of end of September 2018)



Note: Excludes Hybrid bonds

Unit: USD Millions or equivalent after cross currency swap

# Priority on Safety and Sustainability

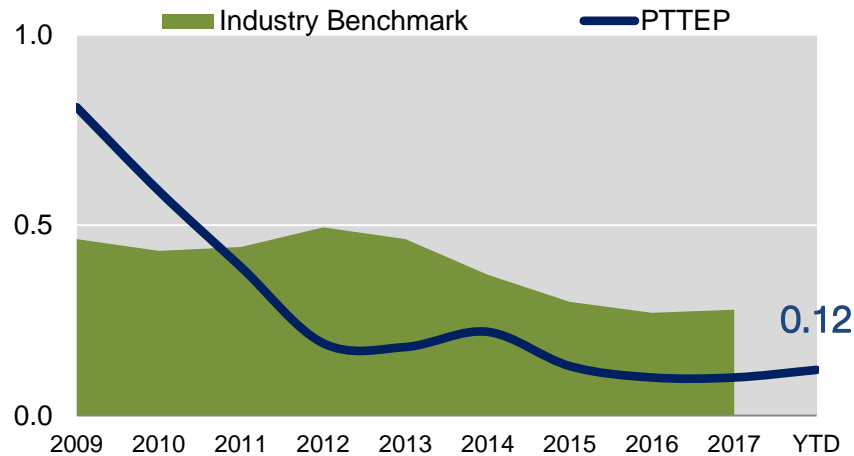
Deliver high safety performance and ensure our commitment to all stakeholders

## Safety

Maintain high safety standard

# of incidents per million man hours

(Lost time injury incident frequency, LTIF)



*Safety of PTTEP employees and contractors in every aspect of our operations is key to achieve the goal of "Target Zero"*

## Sustainability

Create a long-term value for society



*PTTEP as a Member of CAC*

*(Thailand's Private Sector Collective Action Coalition Against Corruption Council)*

To demonstrate our commitment to conduct business with transparency



*PTTEP won 6 international CSR awards 2018 from 4 key CSR projects*

- 3 Awards from the 10<sup>th</sup> Annual Global CSR Summit and Awards and the Global Good Governance Awards 2018, *Indonesia*
- 1 Award from the Area Responsible Entrepreneurship Awards 2018, *Philippines*
- 2 Awards from the 2018 Asia-Pacific Stevie Awards, *Hong Kong*



*H.T.M.S. Underwater Learning Site Project*



*Free Clinic Project*



*Waste to Energy Project*



*Crab Hatchery Learning Center Project*

# 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.



## Proven business integrity

Asia's Icon on Corporate Governance Award  
*Corporate Governance Asia Magazine*

Platinum Corporate Award  
*The Asset Corporate Awards 2017*

Sustainability Report Award 2017  
*Securities and Exchange Commission*



FTSE4Good

## FTSE4Good Emerging Index 2018

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



## Exemplary social contributor

Platinum and Gold Awards for 3 CSR Projects:  
Best Environmental Excellence and Community Program

*the 10<sup>th</sup> Annual Global CSR Summit 2018*

Silver Award for Free Clinic and Waste to Energy Project:  
*the 2018 Asia-Pacific Stevie Awards Program*

## Green driver to environment

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

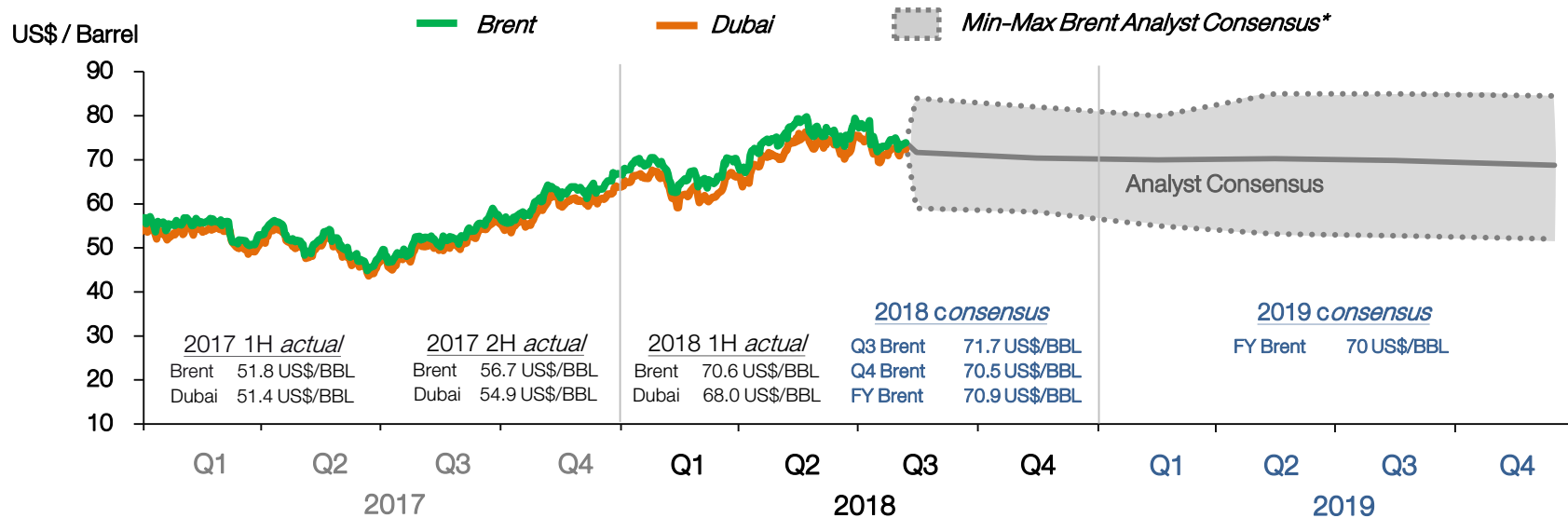
2017 LESS Award Letter of Recognition  
*Thailand Greenhouse Gas Management Organization*

Thailand Occupational Safety and Health Awards  
*the Ministry of Labour*



# Oil Prices

Oil prices stabilize in 65-75 US\$/BBL range as market rebalances



## Q2 2018 Highlights

- Higher than expected supply cut compliance rate

*Compliance Rate Achieved as of Jun'18*

**OPEC 120% | Non-OPEC 66%**

- Lower crude supply from Venezuela as a result of US financial sanctions and port dispute with ConocoPhillips
- Lower crude export from Iran due to nuclear sanctions by US
- Output raise from Saudi Arabia and Russia to replace missing volumes from Venezuela and Iran

## 2H 2018 Outlook

- Continued compliance on supply cut and potential extension of supply cut agreement among OPEC and Non-OPEC

*Compliance Rate Target from Jul'18 onwards*

**OPEC Target 100%**

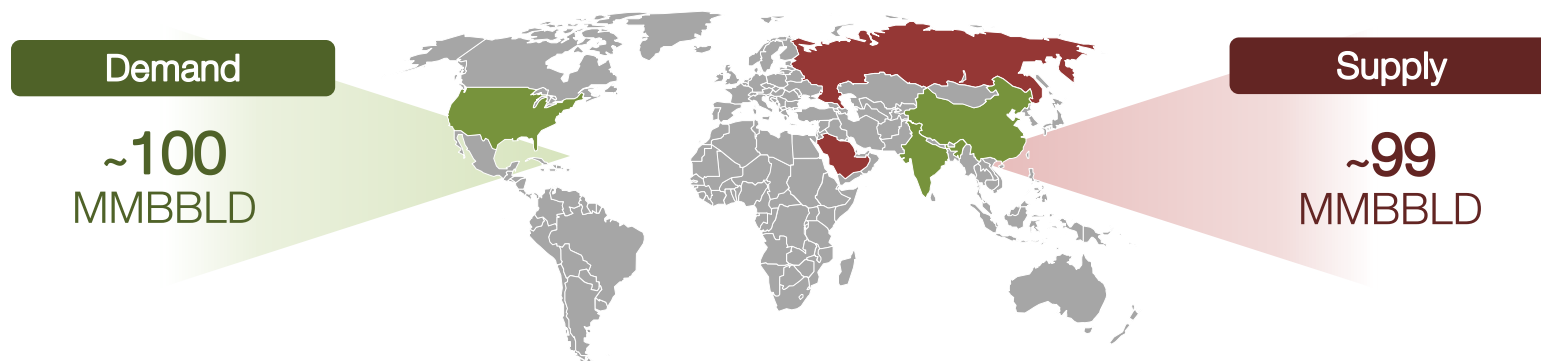
- Prolonged decline in supply from Venezuela and Iran driven by US sanctions
- Slow down in US production ramp up due to pipeline capacity shortage
- Pressure from production uplift from Saudi Arabia and Russia as well as economic momentum around US-China trade war

Remark: \* Bloomberg Analyst Consensus (CPFC) as of 7 August 2018 and IEA (as of July 2018)

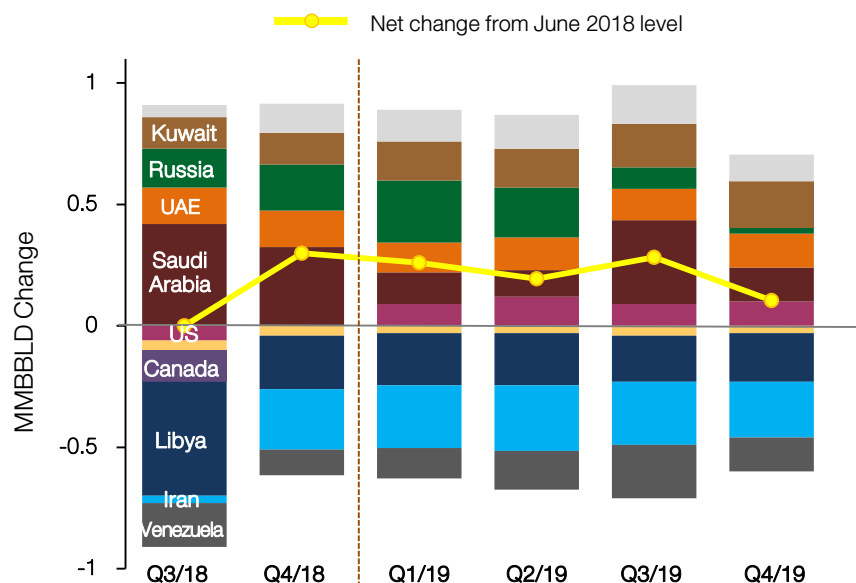
# Oil Market Outlook

Market balancing continues in 2019

Oil demand is forecasted to continue to outstrip supply towards 2019, with support from demand growth in China, India and US



Supply change forecast based on June 2018 supply of ~98.8 MMBBLD



Supply will be driven by OPEC and Russia offsetting with lower volumes from

**Libya**

- 2 main export terminals shut-in
- 2 storage tanks badly damaged by fighting

**Iran**

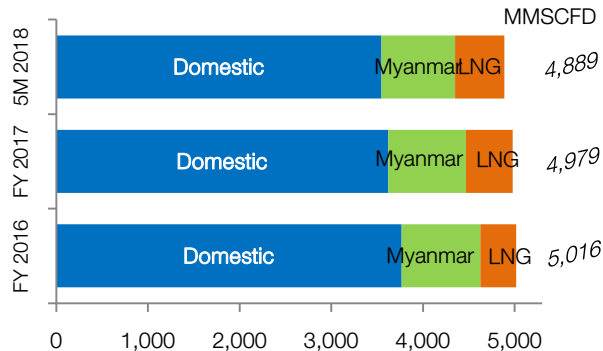
- Nuclear Sanctions by US
- Impact from Q4/2018 onwards

**Venezuela**

- Sanctions imposed by US
- Maintenance outages

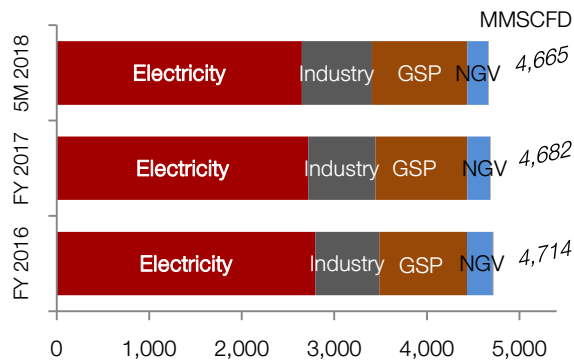
### Thailand Energy Overview

#### Natural Gas Supply

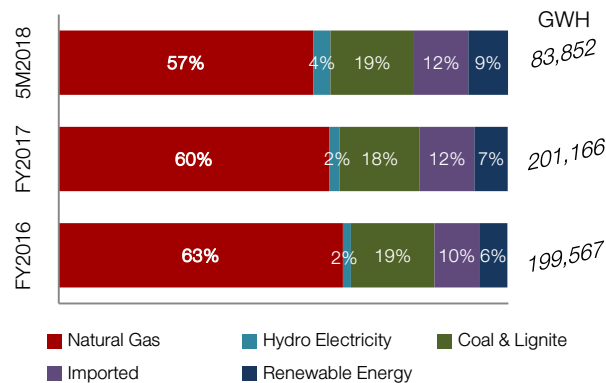


Slight decline in domestic production and Myanmar piped gas imports as a result of lower demands and growth in LNG import

#### Natural Gas Consumption



#### Electricity Generation



Source: EPPO

### Exchange Rate Movement (THB/USD)



Consensus on the exchange rate mostly depends on

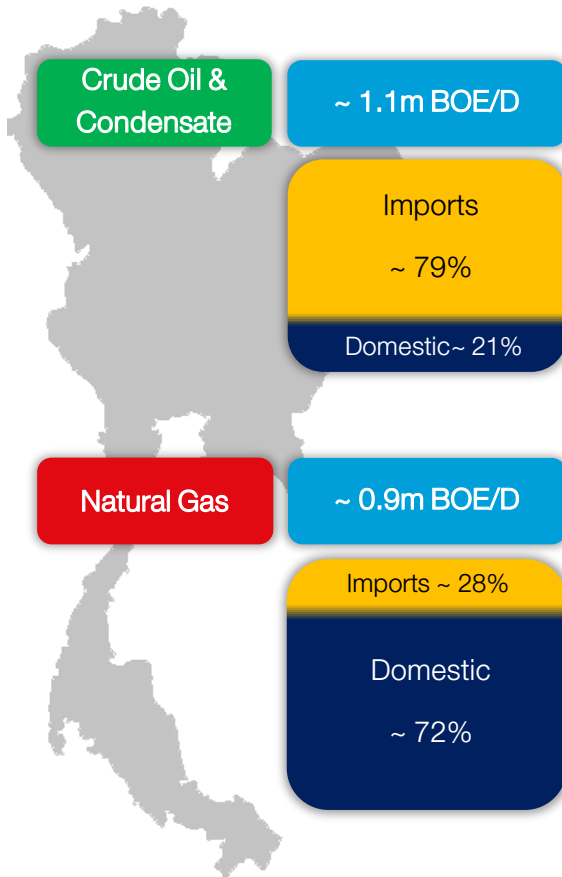
- Continued uncertainty around monetary policies of major global economies such as Europe
- Trade war between the US and China
- The political instability in several regions

Source: Bank of Thailand, Bloomberg  
 Forecast based on Bloomberg Consensus as of 6 August 2018

# Thailand's Energy Value Chain

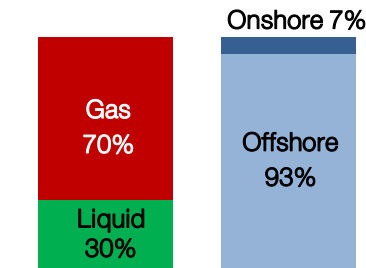
PTTEP contributes almost 1/3 of Thailand's petroleum production

## Thailand's Oil and Gas Demand

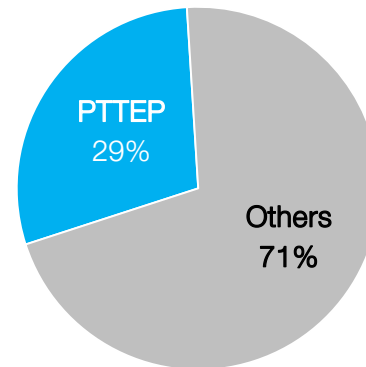


## Thailand Petroleum Production 2017

### % by Petroleum Type and Area



### % Production by Company



## Midstream

Gas: operated by PTT

Transmission Pipelines  
Gas Separation Plants

Oil: PTT participates through subsidiaries

Refineries

## Downstream

Petrochemicals  
Oil and gas marketing

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

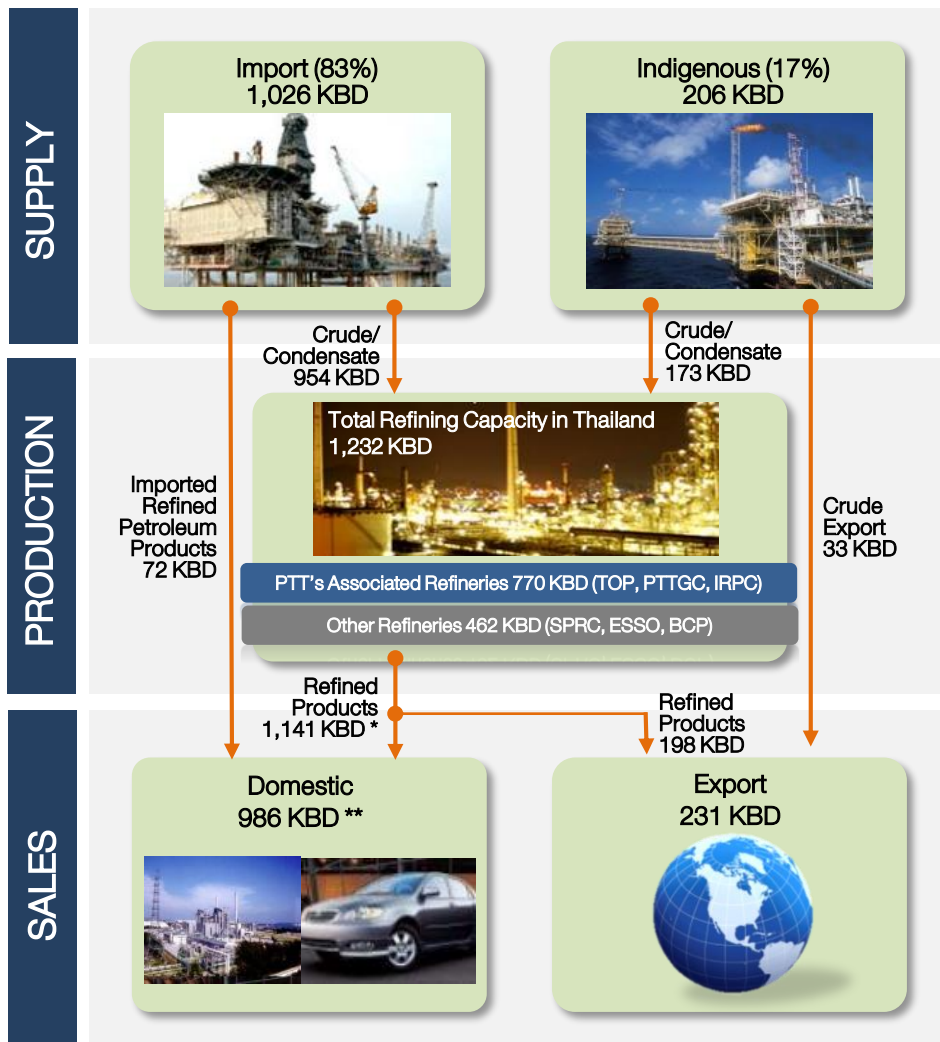


# Thailand's Oil and Gas Balance

January – June 2018

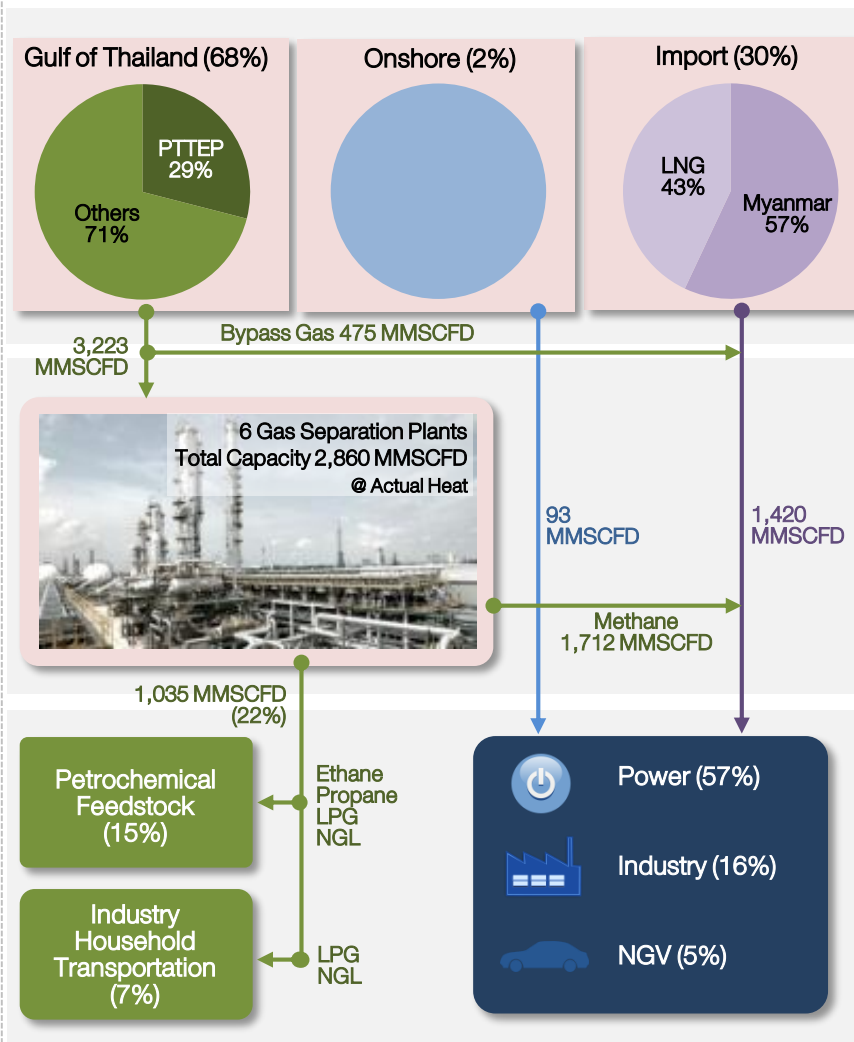
## Oil Balance

Maintains stability supply through adequate refining capacity



## Natural Gas Balance

Main driver of the Thailand economy



Source: PTIT

Remark: \* Refined product from refineries = 1,031 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 110 KBD

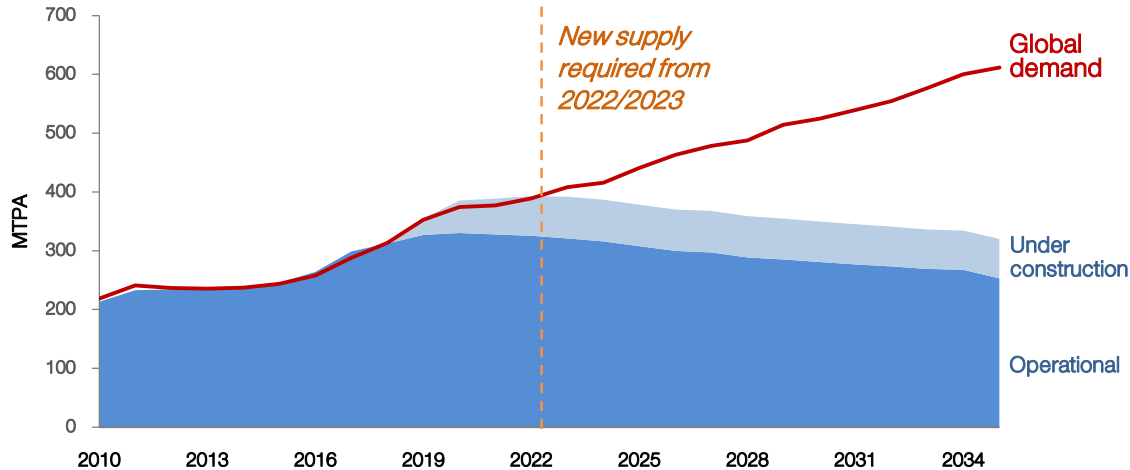
\*\* Not included Inventory

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

# Global LNG Market Update

In need of new LNG supply from 2022/2023 onwards

## Global LNG Market

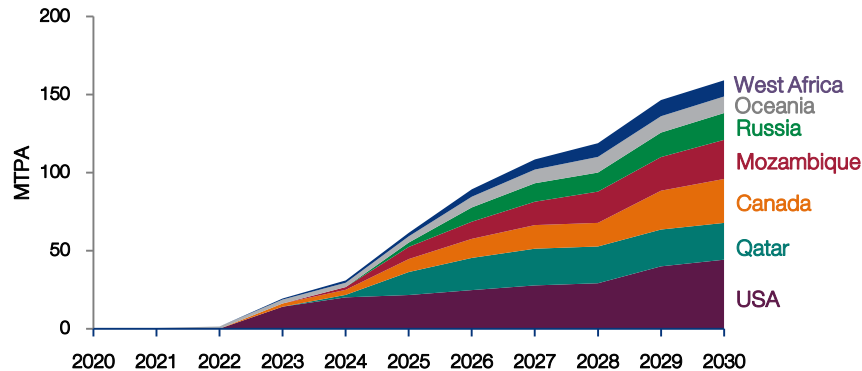


LNG demand shows continuous growth, and market will likely rebalance over the next 3 years

New LNG projects are needed on-stream as a demand gap emerges in 2022. Thus, there is momentum behind investment decision of pre-FID projects over the next 18 months

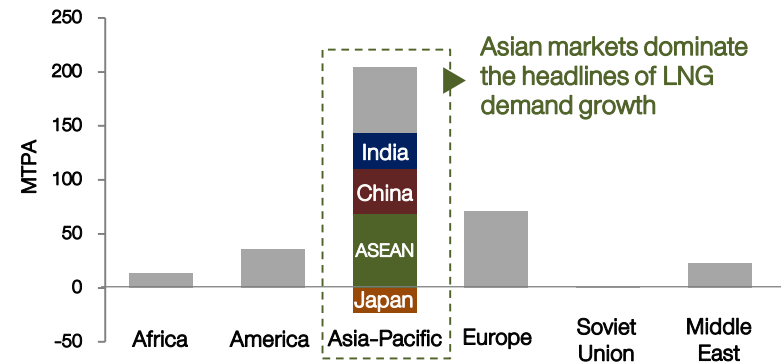
“Risks of a global LNG oversupply continue to reduce but price recovery might be dented by the amount of new FIDs”

## LNG supply growth areas



Pre-FID LNG capacity adds are expected, and with current strong fundamental, players speed-up to take FID

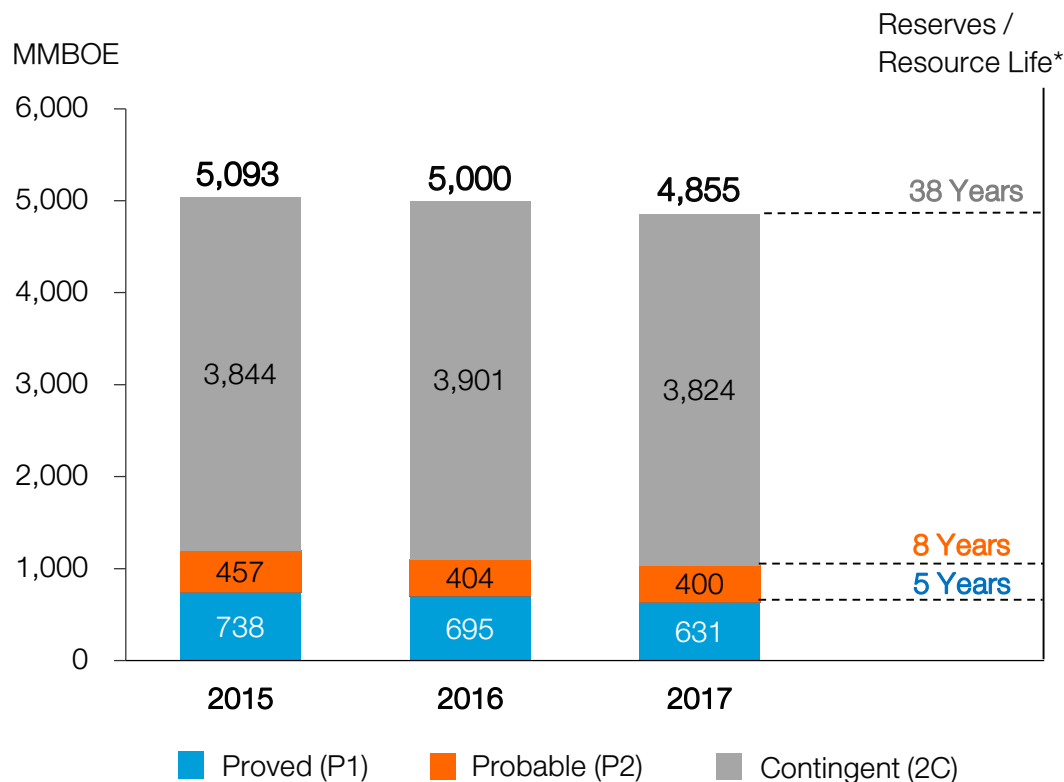
## LNG demand growth outlook (2017-2035)



Key drivers of Asian LNG demand growth include pro-gas energy policies and emerging market growth accelerating

# Reserves and Resources

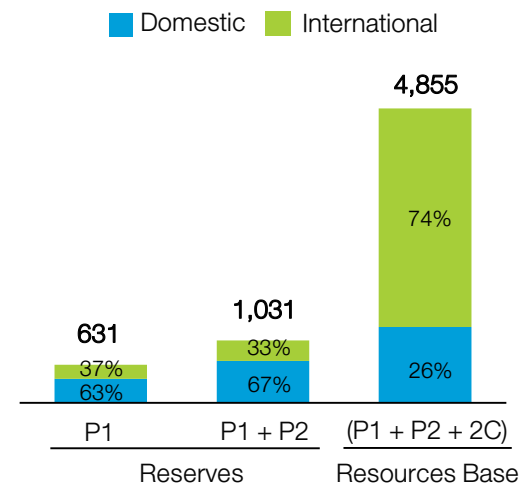
Maintained reserve life with majority of reserves base in SEA



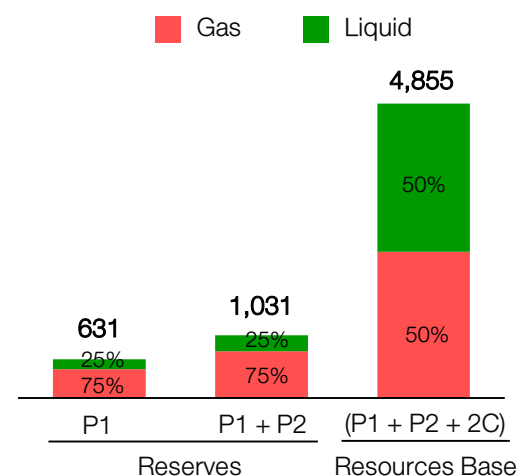
5-Year Average Proved Reserves Replacement Ratio (RRR)

2015	2016	2017
0.50x	0.57x	0.58x

## 2017 by Geography



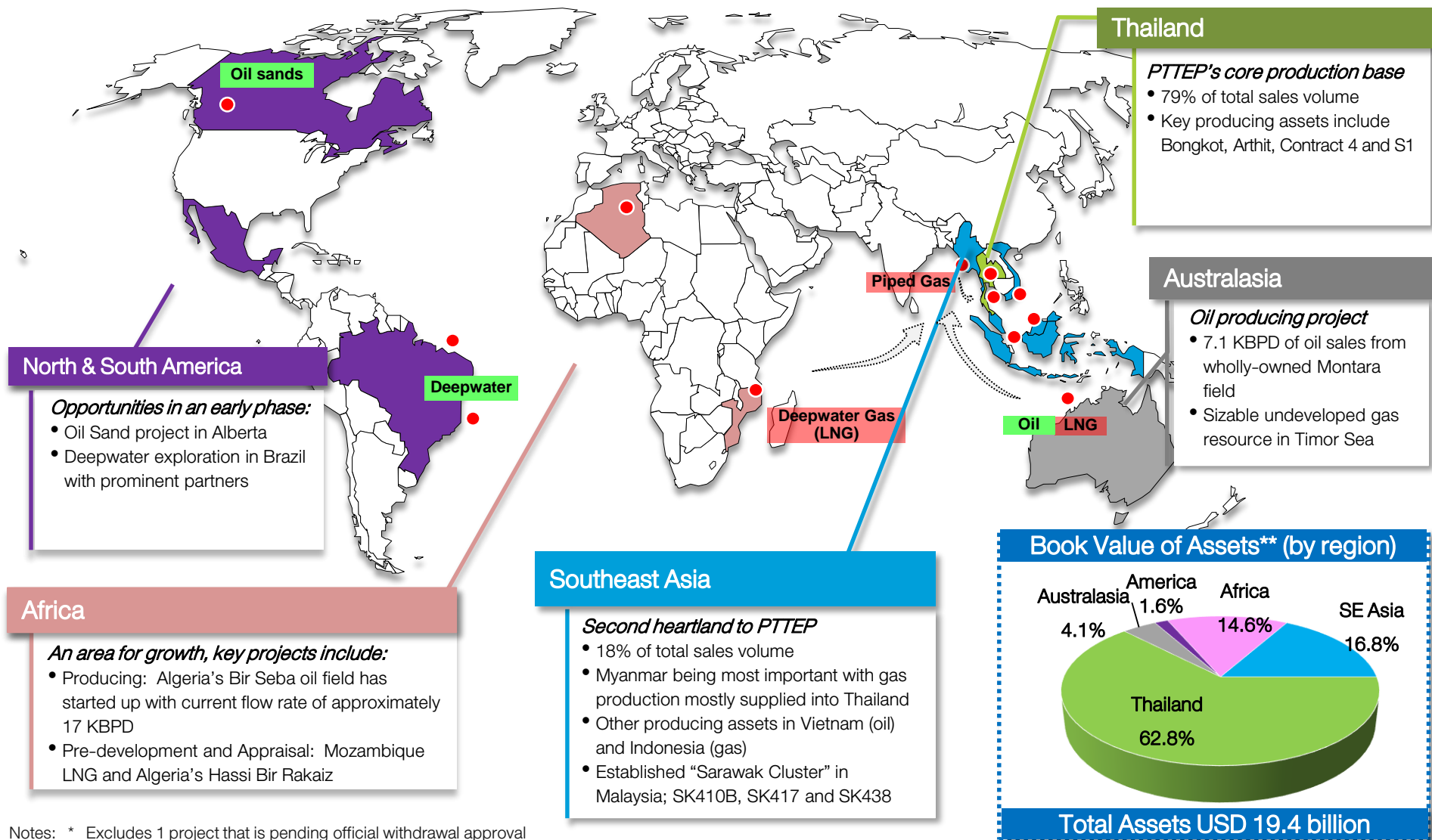
## 2017 by Product Type



\* 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

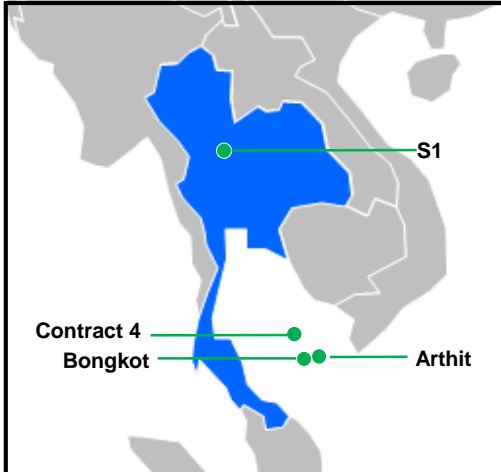
Worldwide operations: 40 projects\* in 11 countries



Notes: \* Excludes 1 project that is pending official withdrawal approval

\*\* Information dated as of 1H 2018





● Production / Ramp-up Projects

### Bongkot (66.6667% interest)

- Bongkot's natural gas sales volume of 776 MMSCFD in 1H2018.
- Average condensate sales volume was 26 KBPD in 1H2018.

### S1 (100% interest)

- S1 is the largest onshore crude oil production field in Thailand.
- Average crude oil sales volume was 27 KBPD in 1H2018.

### Arthit (80% interest)

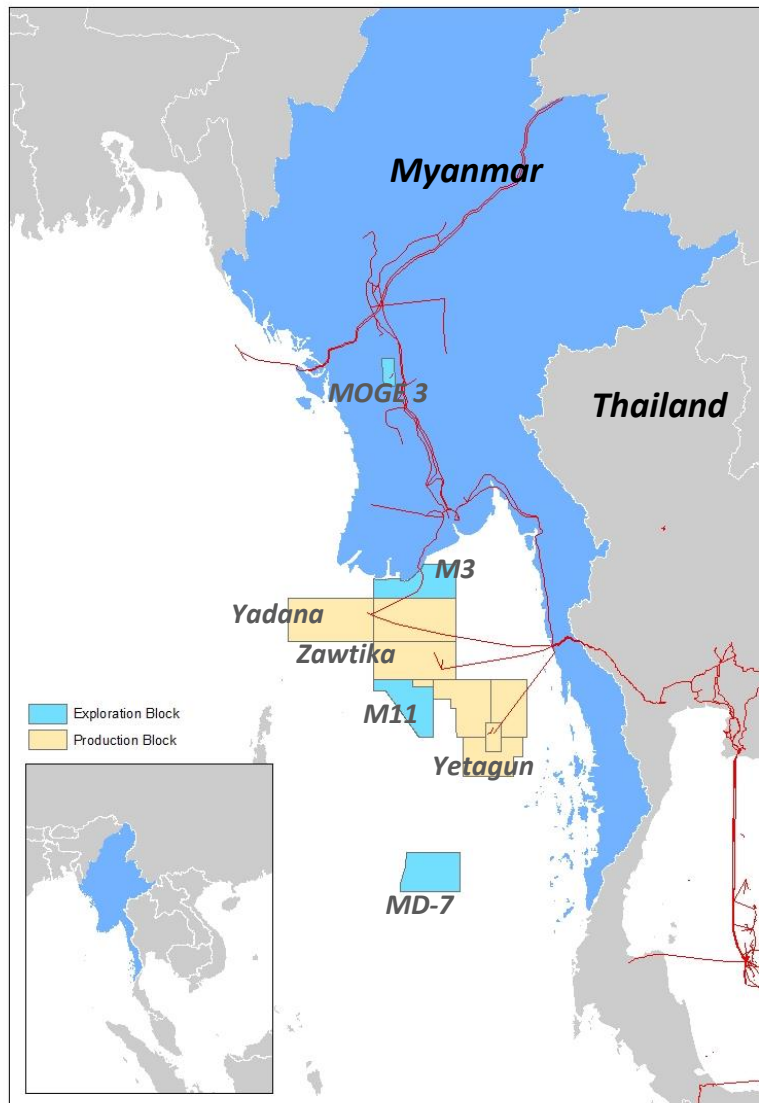
- Average sales volume in 1H2018 was 221 MMSCFD of natural gas and 10 KBPD of condensates.

### Contract 4 (60% interest)

- Acquired from Hess Corporation in 2014.
- Contract 4 had an average sales rate of 403 MMSCFD for natural gas and 17 KBPD for condensate in 1H2018.

# Southeast Asia: Myanmar

Significant contribution to growth



- Participating in three producing gas fields which supply gas to both Thailand and Myanmar: Yadana, Yetagun, Zawtika.
- Operate Zawtika project, brought online in March 2014 with current gas supply of 304 MMSCFD in 1H2018.
- Significant exploration acreage both onshore and offshore in the Moattama Basin.

Project Status		
Producing	Appraisal	Exploration
<ul style="list-style-type: none"><li>• Yadana (25.5% WI)</li><li>• Yetagun (19.3% WI)</li><li>• Zawtika (80% WI)</li></ul>	<ul style="list-style-type: none"><li>• M3 (80% WI)</li></ul>	<ul style="list-style-type: none"><li>• MOGE 3 (75% WI)</li><li>• M11 (100% WI)</li><li>• MD-7 (50% WI)</li></ul>

Note: WI – working interest

# Southeast Asia: Vietnam and Indonesia

Reinforcing regional exposure through strategic partnerships

**Vietnam 16-1**



● Production / Ramp-up Projects

**Natuna Sea A**



## Vietnam 16-1 (28.5% interest)

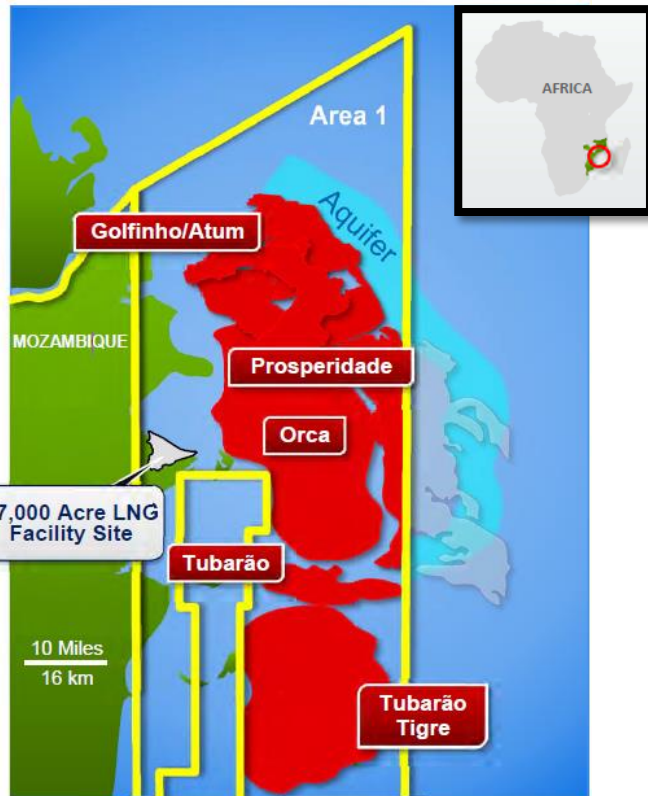
- Average sales volume of crude oil was 19 KBPD in 1H2018.
- The project is preparing further production drilling plan aiming to maintain production plateau.

## Natuna Sea A (11.5% interest)

- Average sales volume of natural gas was 242 MMSCFD in 1H2018.

# 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

*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 multiple HOAs secured

### Regulatory

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

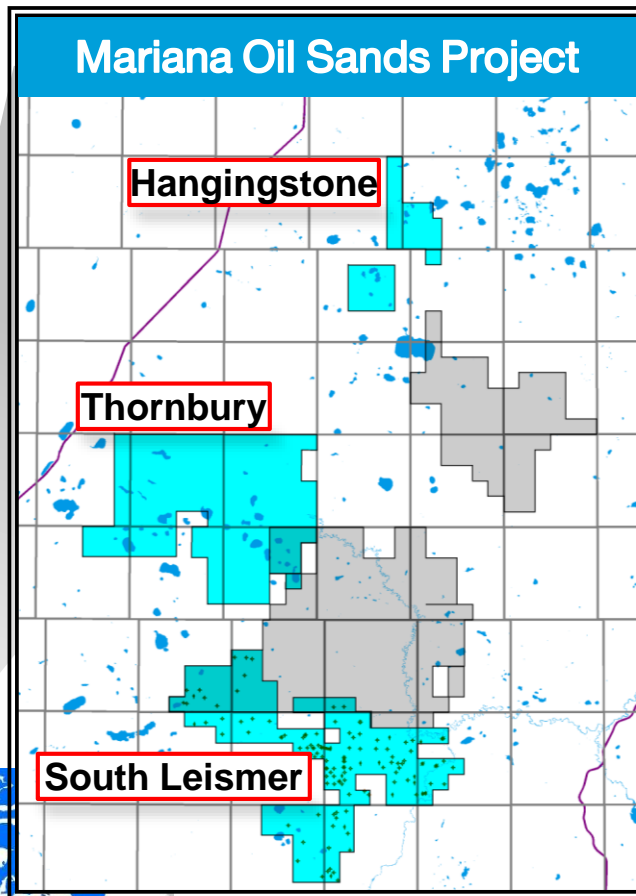
### Financing

- ✓ On-going negotiation for project financing

**Onwards to initial phase of 12 MMTPA**

# America: Canada Oil Sands

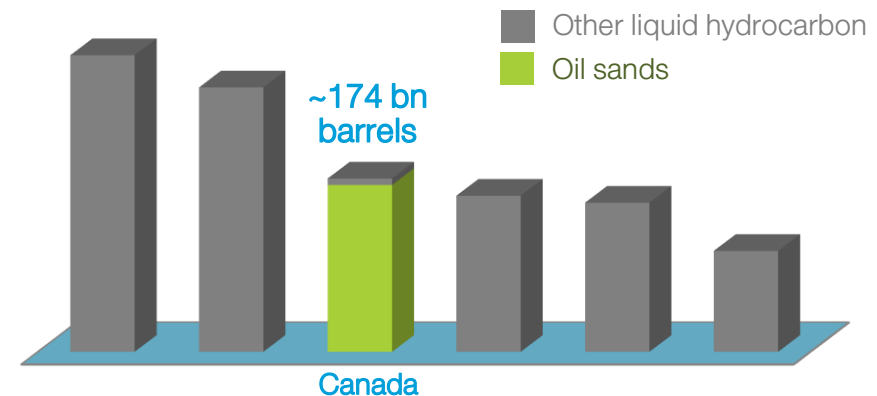
Flexibility to pursue long-term investment from the oil sands project



## 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

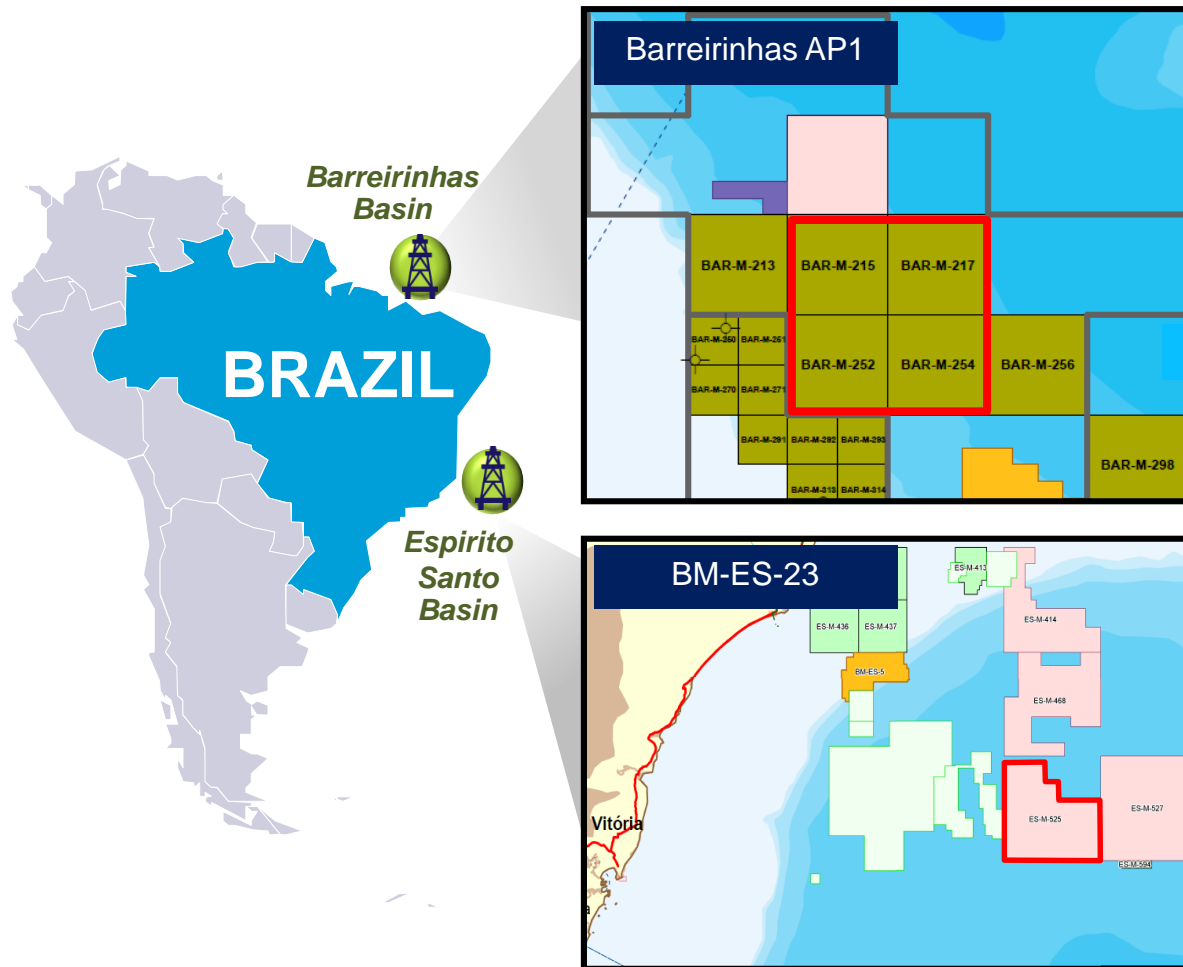


Source: Company data, BP Statistical Review of World Energy 2014



# America: Brazil Deepwater

Entry into high potential petroleum province at exploration phase



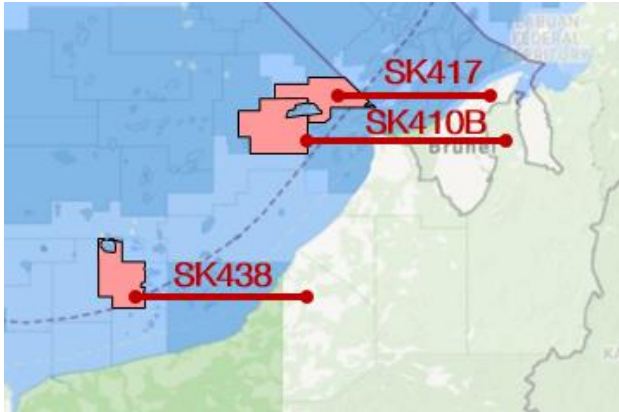
- Farm-in 25% from BG Group in 2014
  - Operated by Shell Brasil (65% interest)
  - Four offshore exploration blocks: BAR-M-215, BAR-M-217, BAR-M-252 and BAR-M-254
  - Completed 3D seismic activities and is in the process of assessing the petroleum potential
- 
- Acquired 20% interest from Shell in Q3 2014
  - Partnered with Petrobras (65%, operator) and INPEX (15%)

Source : The National Agency of Petroleum, Natural Gas and Biofuels, Brazil (the ANP)

# 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

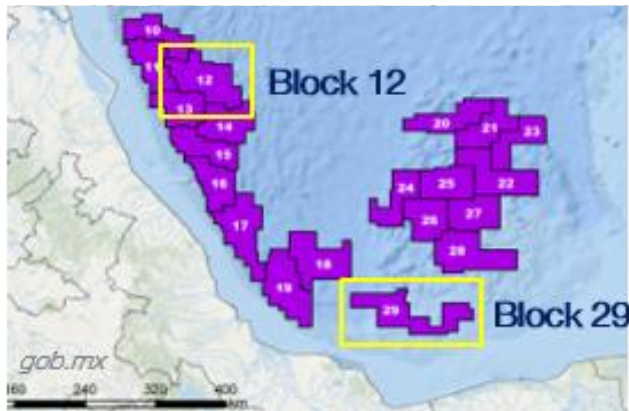
**Location:** Sarawak Basin, Malaysia

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

**Exploration Strategy:**

- Expect exploration drilling activities during 2018-2021
- "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 of Q2 2018)	1H2018 Average Sales Volume **		2018 Key Activities
					Gas	Oil and Other	
Production Phase							
Thailand and JDA							
1	Arthit	OP	80%	Chevron MOECO 16% 4%	221 MMSCFD	Condensate: 10 k BPD	<ul style="list-style-type: none"><li>Ensure gas deliverability level at DCQ****</li><li>Drill development wells</li></ul>
2	B6/27	OP	100%		-	-	<ul style="list-style-type: none"><li>Prepare drilling plan</li></ul>
3	B8/32 & 9A		25%	Chevron MOECO KrisEnergy Palang Sophon 51.66% 16.71% 4.63% 2%	68 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%	TOTAL 33.3333%	776 MMSCFD	Condensate: 26 k BPD	<ul style="list-style-type: none"><li>Ensure gas deliverability level at DCQ****</li><li>Drill development wells</li><li>Install wellhead platforms</li><li>completed the acquisition of 22.2222% from shell</li><li>Dataroom assessment for bidding</li></ul>
5	Contract 3 (Formerly Unocal III)		5%	Chevron MOECO 71.25% 23.75%	623 MMSCFD	Crude: 23 k BPD Condensate: 22 k BPD	<ul style="list-style-type: none"><li>Drill exploration / appraisal / development wells</li><li>Install wellhead platforms</li><li>Perform waterflood activities</li></ul>
6	Contract 4 (Formerly Pailin)		60%	Chevron MOECO 35% 5%	403 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>Install wellhead platforms</li><li>In process of pre-development of Ubon field</li></ul>
7	E5		20%	ExxonMobil 80%	8.3 MMSCFD	-	
8	G4/43		21.375%	Chevron MOECO Palang Sophon 51% 21.25% 6.375%	1.4 MMSCFD	Crude: 4.2 k BPD	<ul style="list-style-type: none"><li>Drill development wells</li><li>Perform waterflood activities</li></ul>
9	G4/48		5%	Chevron MOECO 71.25% 23.75%	4.7 MMSCFD	Crude: 0.9 k BPD	
10	L53/43 & L54/43	OP	100%		-	Crude: 1.1 k BPD	<ul style="list-style-type: none"><li>Drill exploration / appraisal / development wells</li></ul>
11	PTTEP1	OP	100%		-	Crude: 273 BPD	<ul style="list-style-type: none"><li>Drill development wells</li><li>Perform 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 exploration / development wells</li><li>Enhance oil recovery program includes waterflooding and artificial lift</li></ul>
13	Sinphuhorm	OP	55%	Apico ExxonMobil 35% 10%	77 MMSCFD	Condensate: 266 BPD	<ul style="list-style-type: none"><li>Drill development wells</li></ul>
14	MTJDA	JOC	50%	Petronas-Carigali 50%	341 MMSCFD	Condensate: 6.9 k BPD	<ul style="list-style-type: none"><li>Drill development wells</li><li>Install wellhead platforms</li></ul>
15	L22/43	OP	100%		-	Crude: 43 BPD	<ul style="list-style-type: none"><li>Drill development wells</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 Q2 2018)	1H2018 Average Sales Volume **		2018 Key Activities
					Gas	Oil and Other	
Production Phase							
Overseas							
16	Vietnam 9-2	JOC	25%	PetroVietnam 50% SOCO 25%	13 MMSCFD	Crude: 4.1 k BPD	<ul style="list-style-type: none"><li>Maintain production operation</li><li>Perform reservoir management</li></ul>
17	Yadana		25.5%	TOTAL 31.24% Chevron 28.26% MOGE 15%	794 MMSCFD	-	<ul style="list-style-type: none"><li>Ensure gas deliverability level at DCQ***</li></ul>
18	Yetagun		19.3178%	Petronas-Carigali 30.00140% MOGE 20.4541% Nippon Oil 19.3178% PC Myanmar 10.90878% (Hong Kong)	156 MMSCFD	Condensate: 3.3 k BPD	<ul style="list-style-type: none"><li>Drill appraisal / development wells</li><li>Perform reservoir Management</li></ul>
19	Vietnam 16-1	JOC	28.5%	PetroVietnam 41% SOCO 28.5% OPECO 2%	6.0 MMSCFD	Crude: 19 k BPD	<ul style="list-style-type: none"><li>Drill development wells</li><li>Maintain production operation</li></ul>
20	PTTEP Australasia (PTTEP AA)	OP	90%-100% (varied by permits)		-	Crude: 7.1 k BPD	<ul style="list-style-type: none"><li>Maintain production operation</li><li>Divest Montara field to Jadestone on 15 Jul 18 which expected to complete by end of 2018</li></ul>
21	Natuna Sea A		11.5%	Premier Oil 28.67% KUFPEC 33.33% Petronas 15% Pertamina 11.5%	242 MMSCFD	Crude: 0.8 k BPD	<ul style="list-style-type: none"><li>Maintain production operation</li></ul>
22	Zawtika (M9 & a part of M11)	OP	80%	Myanma Oil and Gas Enterprise (MOGE) 20%	304 MMSCFD	-	<ul style="list-style-type: none"><li>Maintain production rate</li><li>Drill development wells</li><li>Install wellhead platforms</li></ul>
23	Algeria 433a & 416b (Bir Seba)	JOC	35%	PetroVietnam 40% Sonatrach 25%	-	Crude: 2.6 k BPD (net entitlement)	<ul style="list-style-type: none"><li>Maintain production operation</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

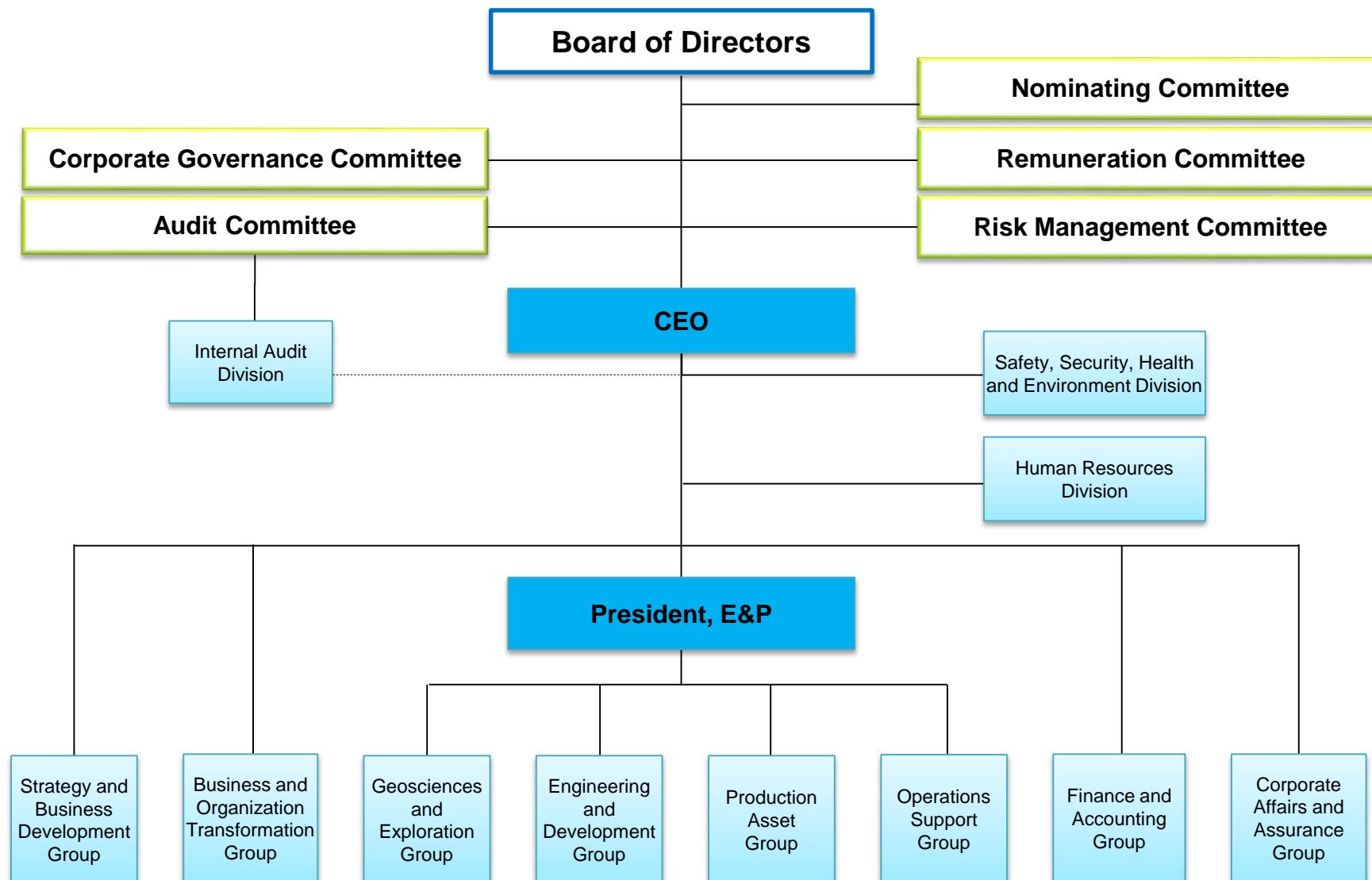
## Exploration/Development phase

	Project	Status*	PTTEP's Share	Partners (as of Q2 2018)	2018 Key Activities
<b>Exploration/Development Phase</b>					
<b>Thailand and JDA</b>					
24	G9/43	OP	100%		
<b>Overseas</b>					
25	Myanmar M3	OP	80%	MOECO 20%	<ul style="list-style-type: none"> <li>Completed Pre-FEED study and expected to propose FDP in Q3/18</li> <li>Negotiate the commercial framework with the Myanmar government</li> </ul>
26	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>Preparatory work for Final Investment Decision (FID) including LNG marketing and finalization of remaining commercial contracts</li> </ul>
27	Algeria Hassi Bir Rekaiz	OP	24.5%	CNOOC 24.5% Sonatrach 51%	<ul style="list-style-type: none"> <li>Got approval on FDP</li> </ul>
28	Myanmar M11	OP	100%		<ul style="list-style-type: none"> <li>Preparation of exploration drilling plan and seeking partner to manage project's risk</li> </ul>
29	Vietnam B & 48/95		8.5%	PVN 65.88% MOECO 25.62%	<ul style="list-style-type: none"> <li>Negotiate a GSA with the Vietnamese government</li> </ul>
30	Vietnam 52/97		7%	PVN 73.4% MOECO 19.6%	<ul style="list-style-type: none"> <li>Negotiate a GSA with the Vietnamese government</li> </ul>
31	Myanmar MD-7	OP	50%	TOTAL 50%	<ul style="list-style-type: none"> <li>Assess resource field's potential</li> </ul>
32	Mariana Oil Sands	OP	100%		<ul style="list-style-type: none"> <li>Assess appropriated development approach</li> </ul>
33	Barreirinhas AP1		25%	Shell Brasil 65% Mitsui E&P Brasil 10%	<ul style="list-style-type: none"> <li>Assess petroleum potential</li> </ul>
34	Myanmar MOGE 3	OP	75%	Palang Sophon 10% MOECO 10% WinPreciousResources 5%	<ul style="list-style-type: none"> <li>prepare exploration drilling well</li> </ul>
35	Brazil BM-ES-23		20%	Petrobras 65% INPEX 15%	<ul style="list-style-type: none"> <li>Assess petroleum potential</li> </ul>
36	Sarawak SK410B	OP	42.5%	KUFPEC 42.5% Petronas-Carigali 15%	<ul style="list-style-type: none"> <li>Assess petroleum potential and prepare exploration drilling plan</li> </ul>
37	Sarawak SK417	OP	80%	Petronas-Carigali 20%	<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>
38	Sarawak SK438	OP	80%	Petronas-Carigali 20%	<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>
39	Mexico block 12 (2.4)		20%	PC Carigali Mexico 60% Ophir Mexico 20%	<ul style="list-style-type: none"> <li>Assess 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>Assess petroleum potential</li> </ul>

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

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