

# PTT Exploration and Production Public Company Limited

HSBC 9<sup>th</sup> Annual Asia Investor Forum

New York and Boston, USA

7 -9 November 2017



**PTTEP**

MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM





Company Overview

Financial Performance

Operational Updates

Investment Plan & Outlook



## As PTT's Upstream Flagship



Government of  
Thailand

64.2%<sup>2</sup>



Thailand's national energy company

65.3%<sup>1</sup>



### Credit ratings equivalent to parent and country

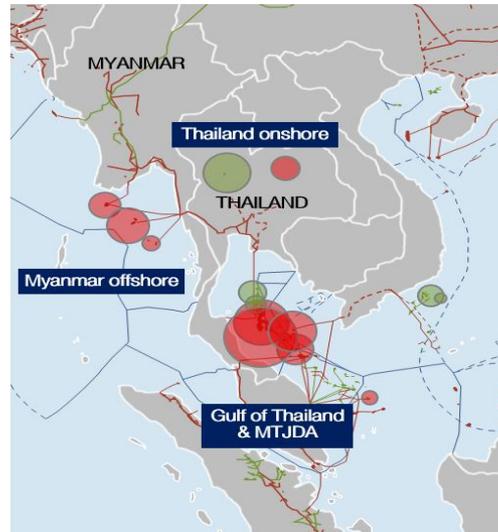
S&P	Moody's	TRIS	JCR
BBB+	Baa1	AAA	A-

*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

**96%**

of PTTEP's total sales volume

**+99%**

Reliability of plants and field facilities\*

**83%**

of PTTEP's sales volume sold to PTT

**12 USD/BOE**

Average regional cash cost

\* of PTTEP-operated projects in Gulf of Thailand, excl. planned shutdown  
All figures are as of 9M 2017

Notes:

1. Ownership as of 11 August 2017

2. 51.1% is directly held by the Government of Thailand (Ministry of Finance), with the remaining 13.1% held by the state-controlled Vayupak Fund I as of 5 September 2017

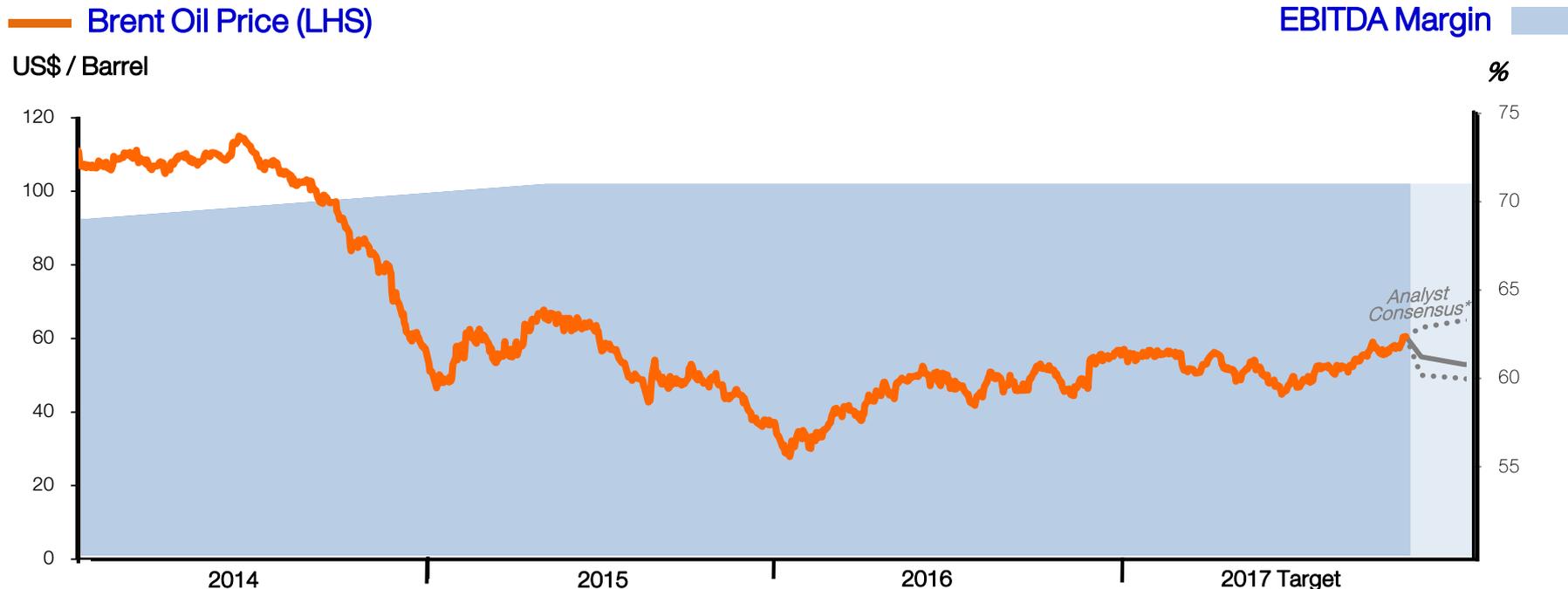


Company Overview

**Financial Performance**

Operational Updates

Investment Plan & Outlook

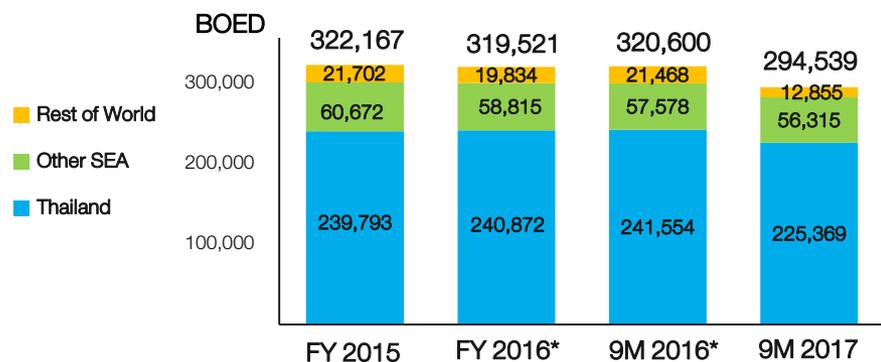


<b>EBITDA Margin</b> <b>69 - 71</b> %	<b>Annual Operating Cash Flow</b> <b>2.3 - 2.9</b> \$ Billion	<b>Cash on Hand</b> <b>3.5 - 4.0</b> \$ Billion	<b>Outlook</b> Expect to maintain strong EBITDA margin throughout 2017 and beyond
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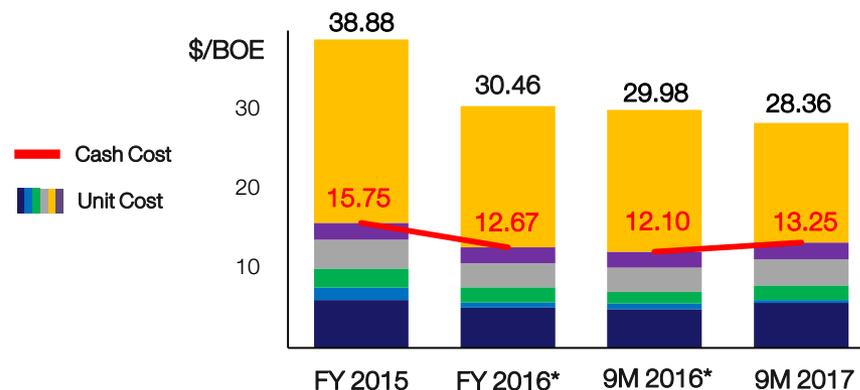
Remark \* Brent oil prices consensus range: Bloomberg Analyst Consensus (CPFC) as of 25 October 2017



## Sales Volume and Price



## Unit Cost



Gas (\$/MMBTU)	7.20	5.60	5.75	<b>5.54</b>
Liquid (\$/BBL)	50.05	41.17	39.37	<b>49.87</b>
<b>Weighted Avg. (\$/BOE)</b>	<b>45.29</b>	<b>35.91</b>	<b>36.00</b>	<b>38.29</b>
Avg. Dubai (\$/BBL)	50.91	41.27	38.92	<b>51.06</b>
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	44.89	35.48	32.11	<b>47.79</b>
<b>Volume Mix (Gas : Liquid)</b>	<b>70 : 30</b>	<b>69 : 31</b>	<b>70 : 30</b>	<b>70 : 30</b>
<b>Revenue Mix (Gas : Liquid)</b>	<b>66 : 34</b>	<b>65 : 35</b>	<b>66 : 34</b>	<b>60 : 40</b>

DD&A	23.13	17.79	17.88	<b>15.11</b>
Finance Cost	2.14	2.01	2.01	<b>2.10</b>
Royalties	3.62	3.02	3.02	<b>3.30</b>
G&A	2.39	1.93	1.50	<b>1.81</b>
Exploration Expenses	1.56	0.63	0.71	<b>0.36</b>
Operating Expenses	6.04	5.08	4.86	<b>5.68</b>
<b>Lifting Cost</b>	<b>4.62</b>	<b>4.18</b>	<b>4.05</b>	<b>4.12</b>
<b>Drilling Success Ratio**</b>	<b>31 : 47</b>	<b>6 : 8</b>	<b>5 : 7</b>	<b>0 : 4</b>

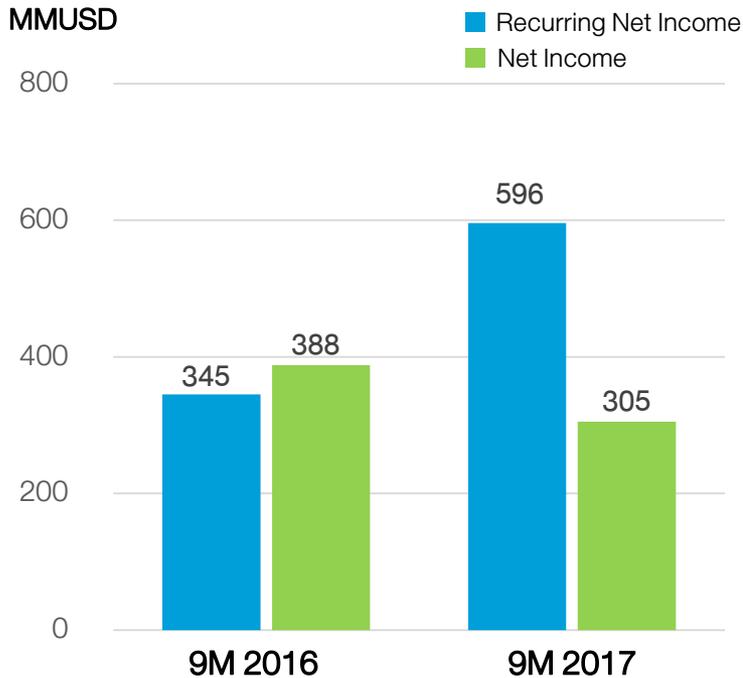
Note: \* Represented and includes discontinued operations until end of August 2016

\*\* Exploration and Appraisal Wells

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



## Net Income 9M Comparison



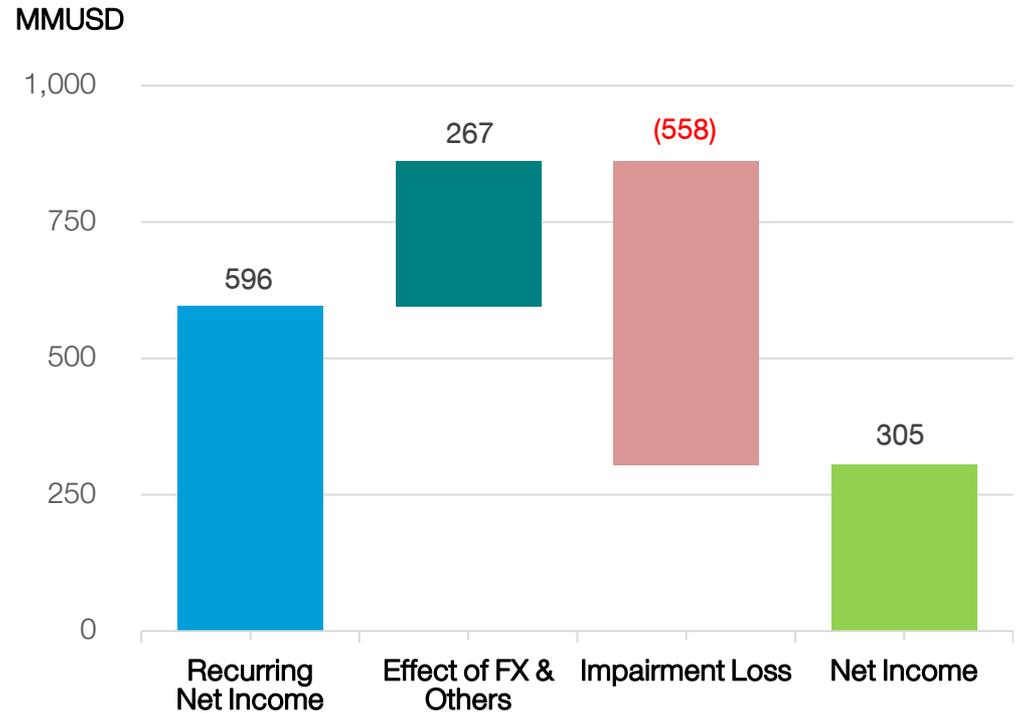
**Recurring Net Income**

Improved due to lower unit cost and better ASP

**Net Income**

Pressured by impairment loss net with higher gains from effect of FX and oil price hedging

## Net Income 9M 2017

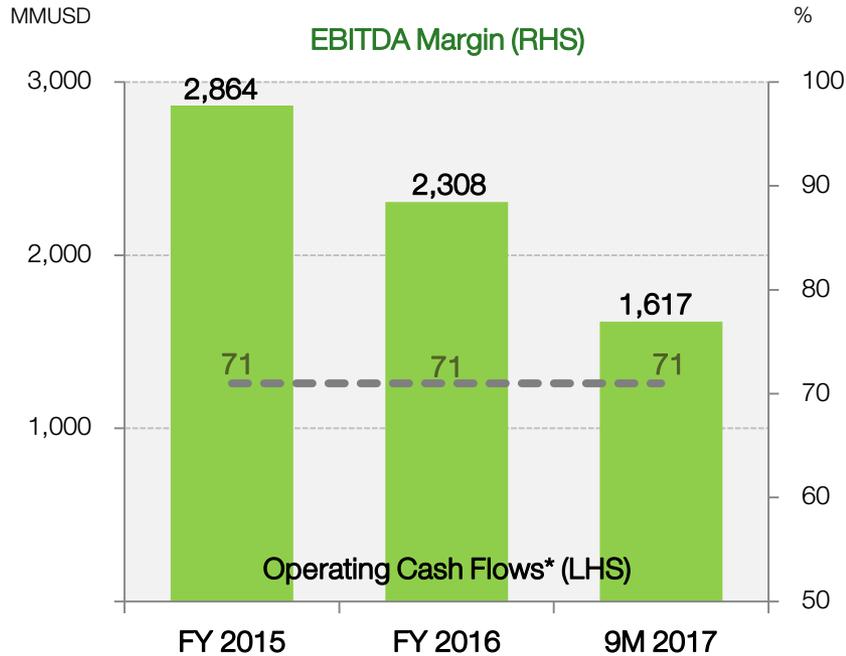


**Impairment Loss**

- Triggered by the revision of Mariana Oil Sands Project's development plan
- Impairment loss has no impact to cash flow

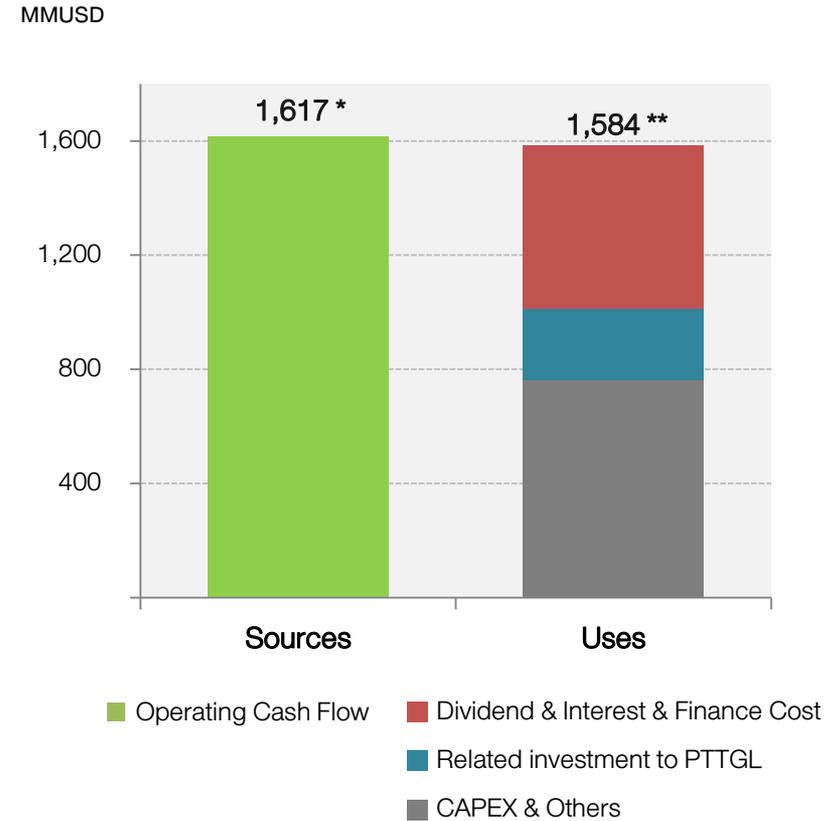


## Cash Flow Performance



Net Income	(854)	372	305
Recurring Net Income***	718	466	596

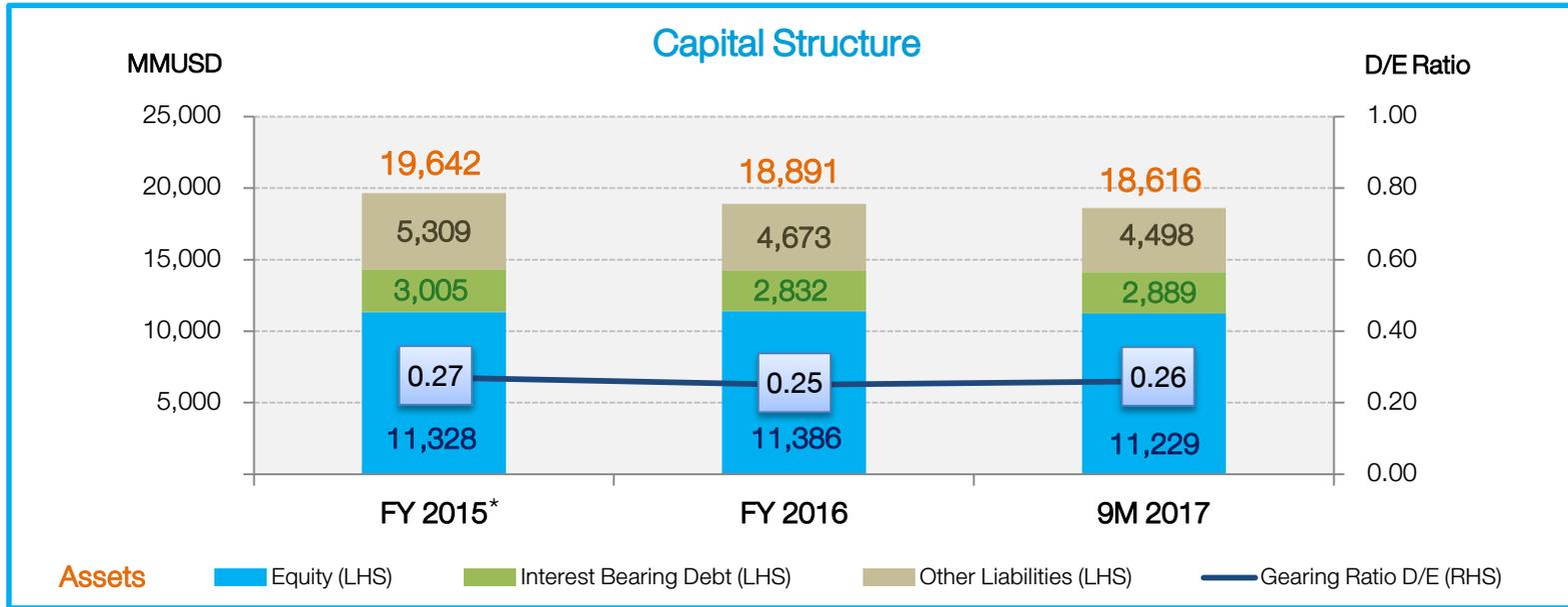
## Source & Use of Funds in 9M 2017



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.



### Debt Profile\*\*



Weighted Average  
Cost of Debt\*\* (%)

4.32

4.41

4.49

[Fixed : Floating]

[82 : 18]

[80 : 20]

[80 : 20]

Average Loan Life\*\* (Years)

8.17

8.15

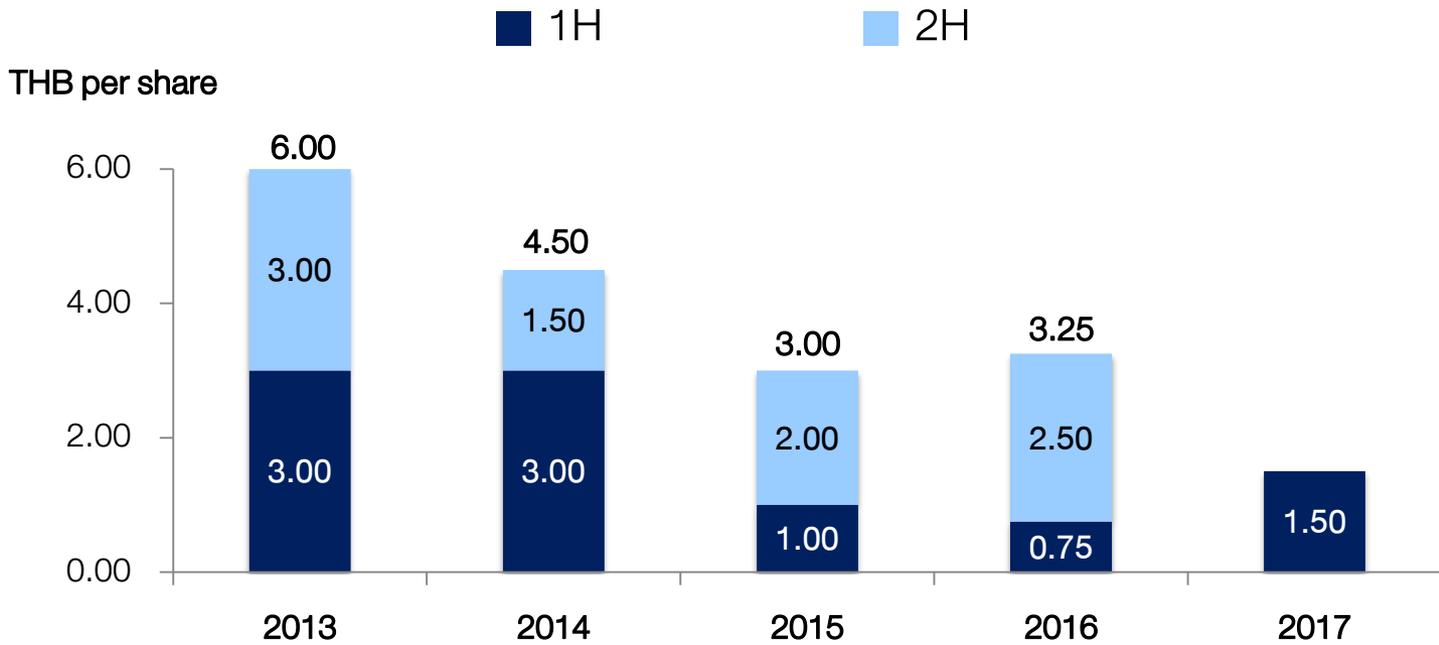
7.40

Remark: \* Restated

\*\* Excludes Hybrid bonds



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



Payout Ratio (%)	2013	2014	2015	2016	2017
	40	82	N/A	98	31



Company Overview

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## On track for FY2017 sales volume and unit cost targets



*aims to maintain sales volume and unit cost at similar level as FY2017*

## Initiatives to uplift production volume

Progress (as of Oct 2017)



Total initiatives ~7 KBOED

*Total initiatives are already included in Sales volume guidance of ~300 KBOED*

### S1 project

- Maximize crude production in current development areas and new discovery areas

### Myanmar projects

- Best endeavor to increase export and domestic gas
- Shutdown plan optimization

### Montara field

- Maximize crude production by facility reliability improvement and reservoir management

### Bongkot and Arthit projects

- Maximize condensate production by high yield well management

## Strong 2H 2017 sales volume outlook



### 2H 2017

- Improved situation on nomination of natural gas projects in Thailand
- Recovering volume from MTJDA project after resolving technical problem of Malaysian buyer's receiving plant
- Low maintenance shutdown activities
- Additional contribution from the company's initiatives



### Mozambique Offshore LNG



**8.5%**  
*(operated by Anadarko)*

Production

**12**MMTPA

Expected Start-up

**2022/23**

- Received approval on marine concessions
- Under preparation for resettlement action plan which is to begin in Q4 2017
- Significant progress on SPA negotiation, especially with PTT – foundation buyer, and project finance is ongoing as planned

### Algeria HBR



**24.5%**  
*(operator)*

Production

**50**KBPD

Expected Start-up

**2023**

- Planned full production of 50 KBPD (including the development phase 1 of 10-13 KBPD with expected start-up in 2019)
- Submitting development plan in Q4 2017 and FID once government approval is received

### Ubon (Contract 4)



**60%**  
*(operated by Chevron)*

Production

**25-30**KBPD

Expected Start-up

**2021**

- Oil field in the Gulf of Thailand
- Pursuing further cost rationalization

### Southwest Vietnam



**Block B&48/95**   **Block 52/97**  
**8.5%**   **7.0%**  
*(operated by PetroVietnam)*

Production

**490**MMSCFD

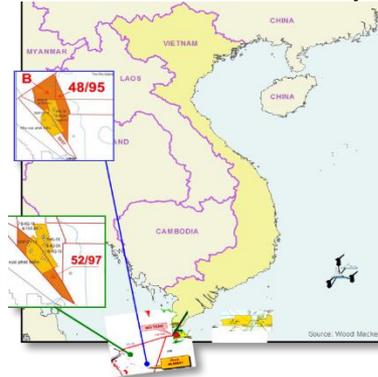
Expected Start-up

**2021**

- Gas production will support domestic power plants through Block B O-Mon Gas Pipeline Project (PTTEP's WI 5.183%)
- Signed Letter of Agreement on gas price and pipeline tariff in Q3 2017
- Finalizing commercial agreements and FID once government approval on FDP is received

#### Upstream

#### Block B&48/95 and 52/97 Project



#### Midstream (Pipeline)

#### Block B O-Mon Gas Pipeline Project





## Path to Retendering Process



## With key objective to ensure energy security...

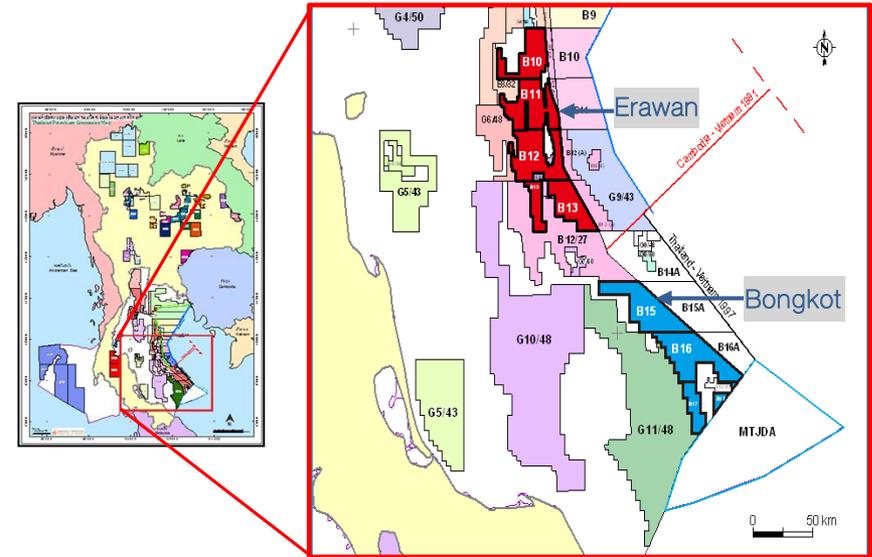


PTTEP is competitively positioned to continue as operator for Bongkot

- *Experienced and reliable*
- *Operational efficiency*
- *Deep subsurface understanding*
- *Synergies in the Gulf of Thailand*

## Related Rules/Laws to the Bidding

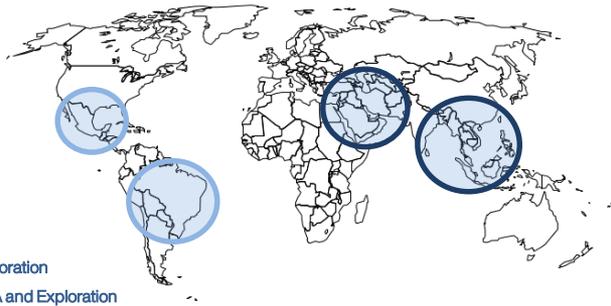
- Petroleum Act & Petroleum Income Tax Act
- Announcement of Petroleum Committee about rules in determining E&P areas
- 3 Ministerial Regulations relating to Production Sharing Contract } *Under State Council's consideration*
- Terms of Reference for this bidding } *Under MoE's consideration*
- 2 Ministerial Regulations relating to Service Contract (Not required prior to this bidding)



Note: indicative timeline and Progress as of 1 November 2017



## M&A and Exploration



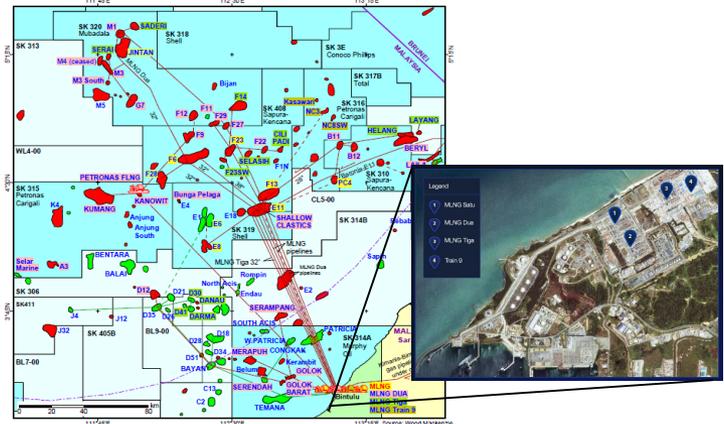
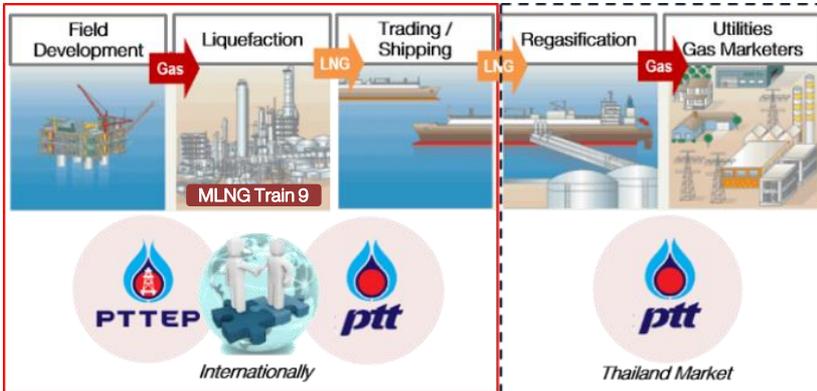
○ Exploration  
○ M&A and Exploration

- Geographical** • SEA and other potential areas
- M&A** • Focus on producing or near-producing
- Exploration** • Focus on prolific areas and quick commercialization
- Participating in bid rounds in potential areas

## Cooperation with PTT on LNG Value Chain



To capture opportunity from increasing LNG demand, while creating value from synergy with PTT in the LNG value chain



Recent 10% Investment in MLNG Train 9 in Malaysia marked as first step into midstream LNG business in strategic area and in vicinity of current and future upstream opportunities

Source – map of Offshore Sarawak: Woodmac



Company Overview

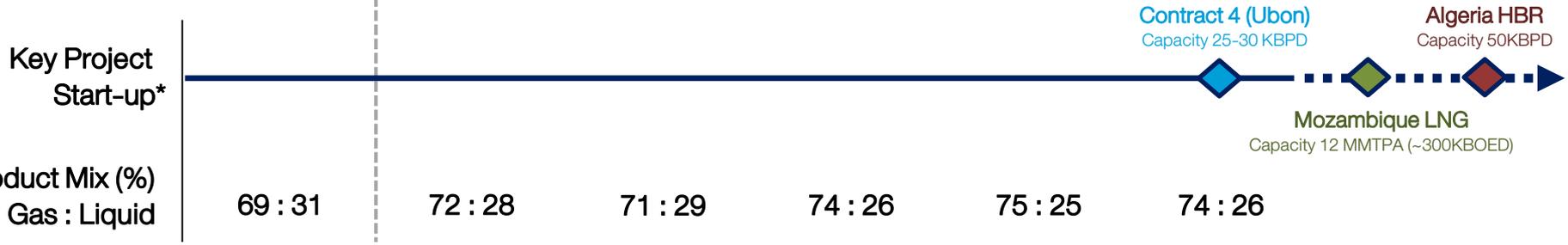
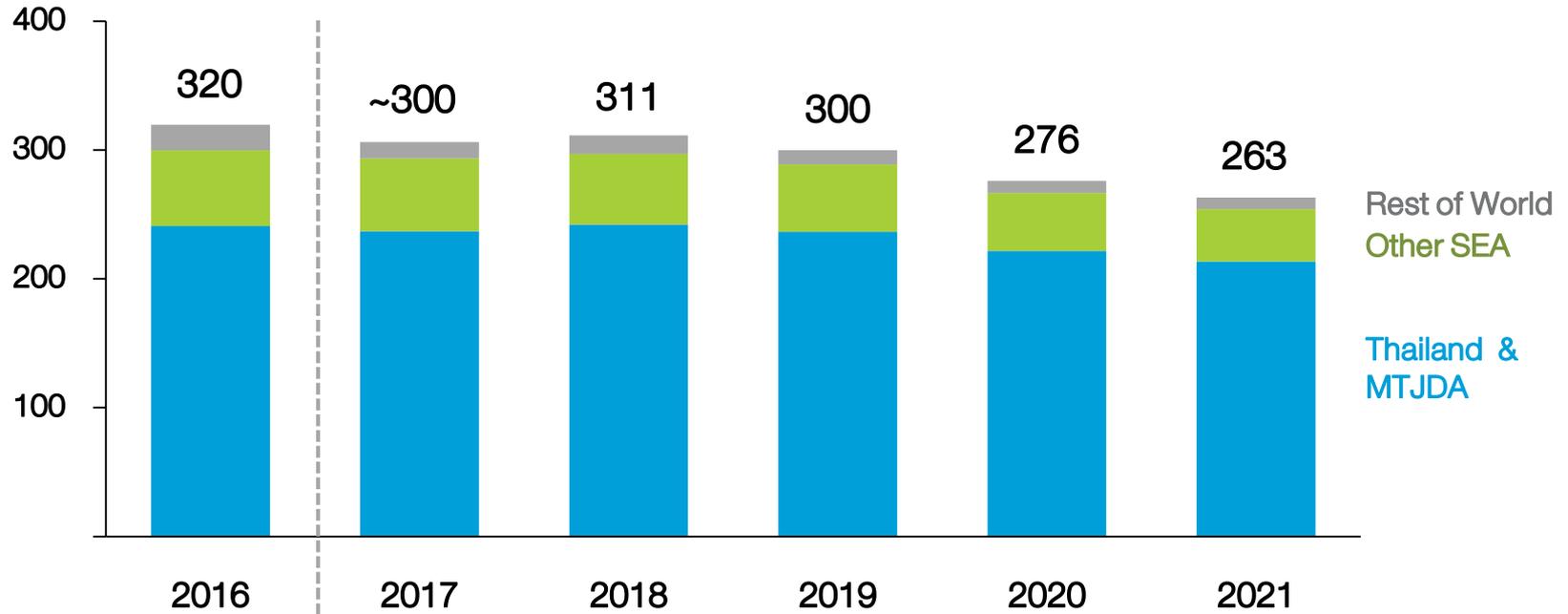
Financial Performance

Operational Updates

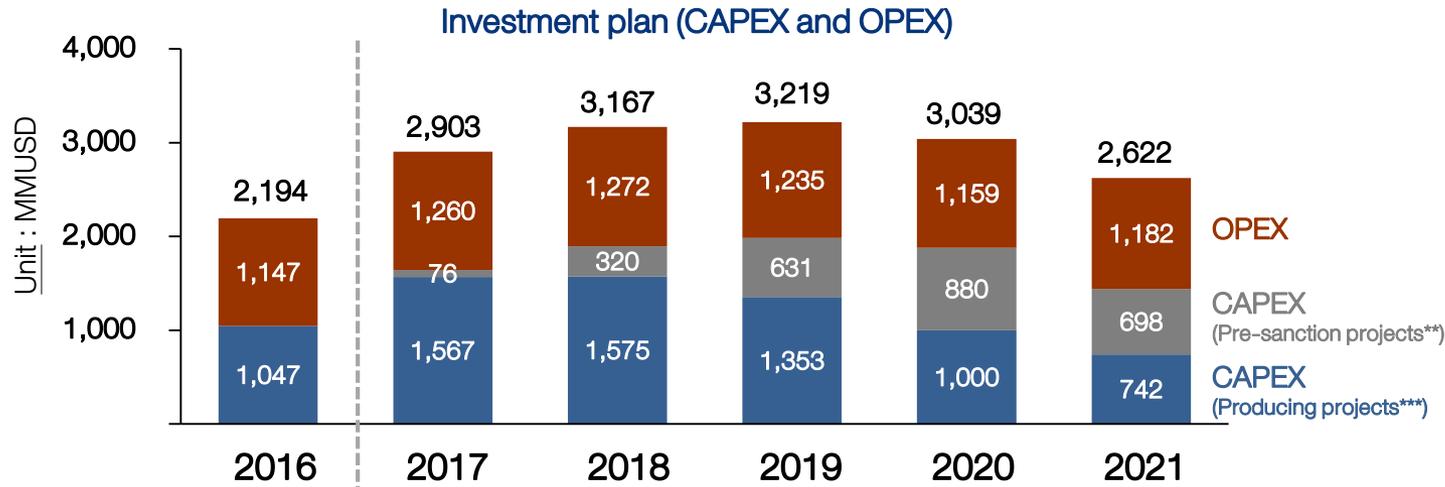
**Investment Plan & Outlook**



Unit : KBOED



Note: \* Subject to FID timing



#### 5 Years (2017 – 2021)

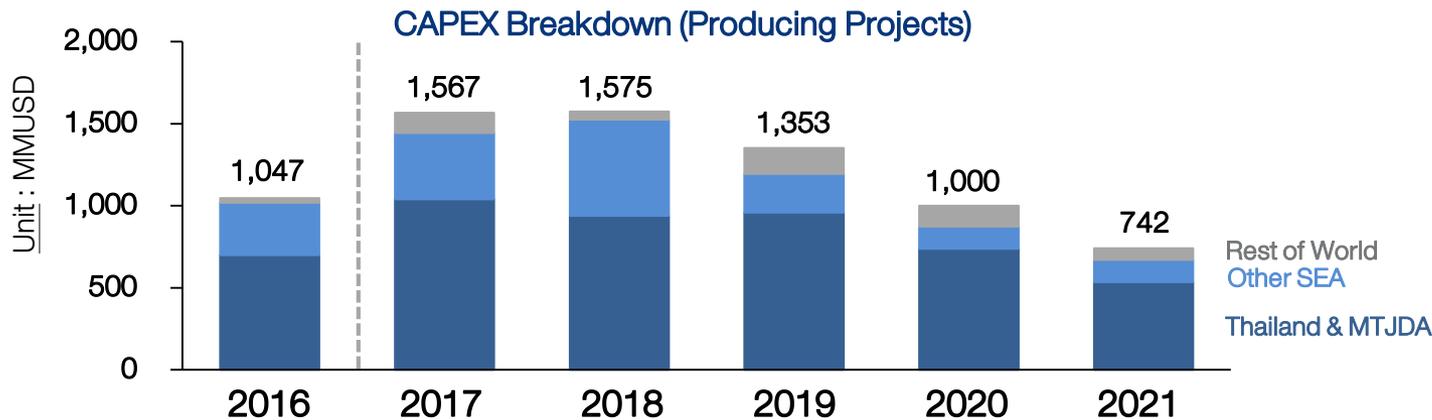
OPEX	6,108
CAPEX	8,842
<b>TOTAL</b>	<b>14,950</b>

#### Key Project Start-up\*

Contract 4 (Ubon)  
Capacity 25-30 KBPD

Algeria HBR  
Capacity 50KBPD

Mozambique LNG  
Capacity 12 MMTPA (~300KBOED)



#### 5 Years (2017 – 2021)

Rest of World	533
Other SEA	1,497
Thailand	4,206
<b>TOTAL</b>	<b>6,236</b>

Note: \* Subject to FID timing  
 \*\* Pre-sanction projects include Mozambique LNG, Contract 4 (Ubon), Algeria HBR  
 \*\*\* Includes exploration and appraisal in all projects and head office CAPEX



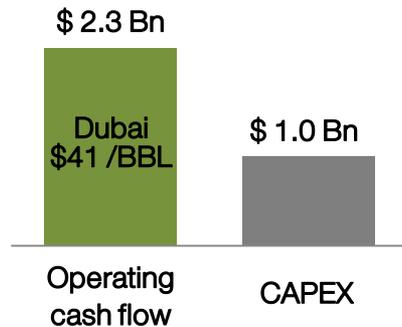
## Strong Financial Capability in 2016

**2.3** billion USD Operating cash flow

**4.0** billion USD Cash on hand

**2.0** billion USD Debt headroom

**0.25** x Total debt/equity ratio



*“Solid cash flow from operations in 2016 despite low oil price environment”*

## Financial Outlook

FY 2017



Average Sales Volume

**~300**  
KBOED



Average Gas Price \*

**~5.6**  
USD/MMBTU



Unit Cost

**~29**  
USD/BOE



EBITDA Margin

**~70**  
% of sales revenue

\* Based on FY2017 Dubai oil price at 52 \$/BBL



## Focused Portfolio with revenue stability

- +90% of sales volume concentrated in SEA
- Stable revenues from PTT +80% of sales volume via long term off-take contracts
- Gas-weighted portfolio to cushion oil price volatility and in line with global trend towards gas

## Competitive Cost base and strong margin

- Low cost operations in SEA with ~70% EBITDA margin amid the low oil prices
- Cost discipline and operation efficiency with over 30% Unit cost reduction

## Best Balance sheet and Capital Management

- \$4 Bn cash on hand and solid capital structure with low D/E ratio
- A consistent dividend-paying company for over 15 years

## Well positioned for future growth

- Organizational Restructuring to enhance operational efficiency
- Series of project developments in the pipeline and M&A
- Cooperation with PTT in LNG Value Chain investments with First Step into LNG midstream



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



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Unit : MMUSD

Statement of Income	Q2 17	Q3 17	% QoQ	Q3 16 *	% YoY	9M 17	9M 16 *	% YTD
<b>Total Revenues</b>	<b>1,032</b>	<b>1,134</b>	<b>10%</b>	<b>1,109</b>	<b>2%</b>	<b>3,252</b>	<b>3,281</b>	<b>(1%)</b>
Sales	975	1,064	9%	1,047	2%	3,079	3,152	(2%)
Others	57	70	23%	62	13%	173	129	34%
Sales Volume (BOED)	281,435	298,139	6%	311,386***	(4%)	294,539	320,600***	(8%)
Sales Price (USD/BOE)	38.08	38.78	2%	36.32	7%	38.29	36.00	6%
<b>Total Expenses</b>	<b>812</b>	<b>1,398</b>	<b>72%</b>	<b>953</b>	<b>47%</b>	<b>2,947</b>	<b>2,896</b>	<b>2%</b>
<b>Major Expenses:</b>								
Operating Expenses	153	162	6%	146	11%	457	415	10%
Exploration Expenses	19	9	(53%)	20	(55%)	29	61	(52%)
DD&A	381	413	8%	534	(23%)	1,214	1,570	(23%)
Impairment Loss on Assets	-	558	>100%	-	>100%	558	-	>100%
Income Tax Expense	67	57	(15%)	67	(15%)	116	152	(24%)
(Gain)/Loss on FX	(11)	(23)	(>100%)	(14)	(64%)	(37)	(27)	(37%)
<b>Net Income from Continuing Operations</b>	<b>220</b>	<b>(264)</b>	<b>(&gt;100%)</b>	<b>156</b>	<b>(&gt;100%)</b>	<b>305</b>	<b>385</b>	<b>(21%)</b>
<b>Profit (loss) from Discontinued Operations</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.27</b>	<b>(100%)</b>	<b>-</b>	<b>3</b>	<b>(100%)</b>
<b>Net Profit</b>	<b>220</b>	<b>(264)</b>	<b>(&gt;100%)</b>	<b>156</b>	<b>(&gt;100%)</b>	<b>305</b>	<b>388</b>	<b>(21%)</b>
Recurring Net Income	167	218	31%	75	>100%	596	345	73%
Non-Recurring **	53	(482)	(>100%)	81	(>100%)	(291)	43	(>100%)

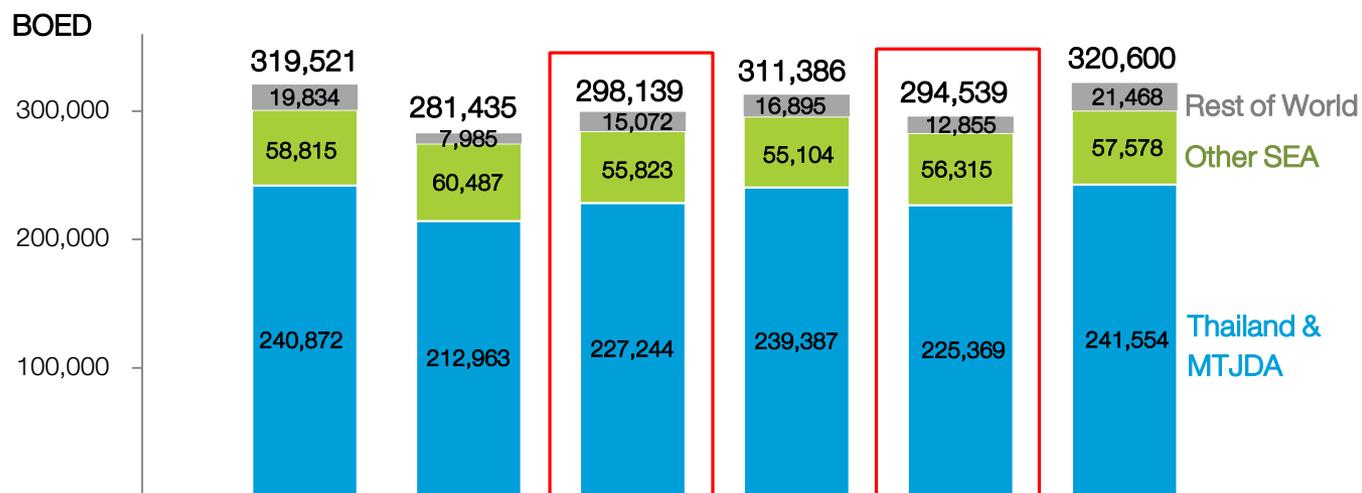
Note: \* Represented

\*\* 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.

\*\*\* Sales volume includes discontinued operations



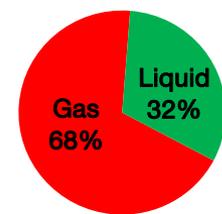
## Sales Volume



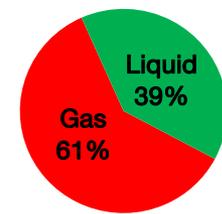
Sales Price	2016*	Q2 17	Q3 17	Q3 16*	9M 17	9M 16*
Gas (\$/MMBTU)	5.60	5.66	5.72	5.56	5.54	5.75
Liquid (\$/BBL)	41.17	48.19	48.46	43.15	49.87	39.37
<b>Weighted Avg. (\$/BOE)</b>	<b>35.91</b>	<b>38.08</b>	<b>38.78</b>	<b>36.32</b>	<b>38.29</b>	<b>36.00</b>
Avg. Dubai (\$/BBL)	41.27	49.68	50.43	43.17	51.06	38.92
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	35.48	46.80	47.95	38.02	47.79	32.11

### Q3 2017 Sales Volume & Revenue By Product

#### Volume Mix



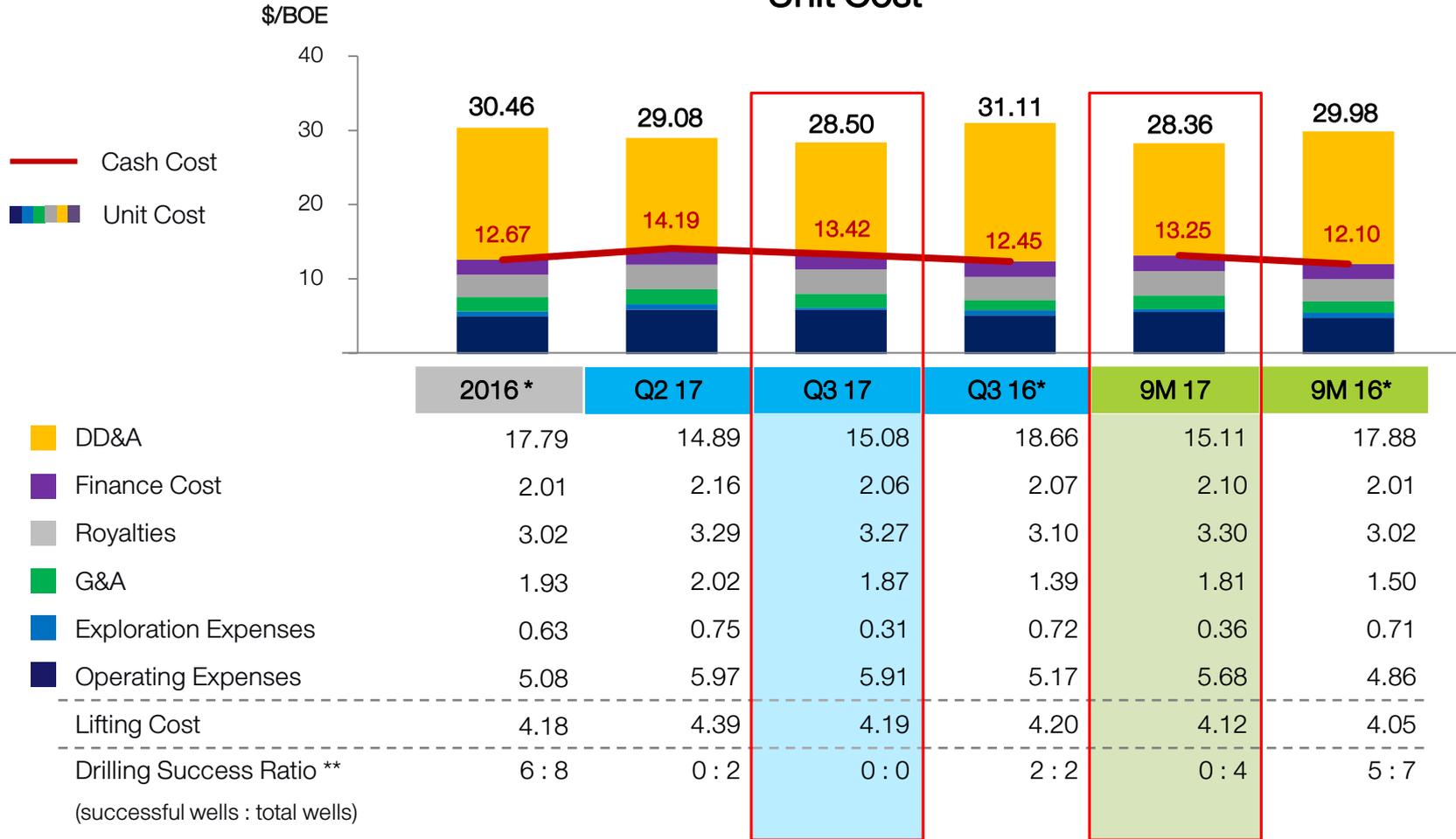
#### Revenue Mix



Note: \* Includes discontinued operations until end of August 2016



## Unit Cost



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

\*\* Exploration and Appraisal Wells

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



	Q2 17	Q3 17	Q3 16*	9M 17	9M 16*
Sales Revenue ** (MMUSD)	993	1,089	1,065	3,135	3,204
EBITDA (MMUSD)	685	777	770	2,238	2,337
Net Income (MMUSD)	220	(264)	156	305	388
Recurring Net Income (MMUSD)	167	218	75	596	345
Earning Per Share (USD)	0.04	(0.07)	0.04	0.06	0.09
<b>Key Financial Ratios</b>					
EBITDA Margin (%)	69	71	72	71	73
Return on Equity (%) (LTM)	6	3	5	3	5
Return on Capital Employed (%) (LTM)	6	3	4	3	4
Return on Equity (%) (LTM, Recurring Net Income)	5	6	3	6	3
Return on Capital Employed (%) (LTM, Recurring Net Income)	5	6	3	6	3

Note: \* Represented

\*\* Sales and revenue from pipeline transportation

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



	Q4 16	Q1 17	Q2 17	Q3 17
Total Assets (MMUSD)	18,891	19,251	18,872	18,616
- Cash & cash equivalents ** (MMUSD)	4,022	4,446	4,206	4,055
Total Liabilities (MMUSD)	7,505	7,800	7,213	7,387
- Interest bearing debt (MMUSD)	2,832	2,863	2,874	2,889
Equity (MMUSD)	11,386	11,451	11,659	11,229
<b>Key Financial Ratios</b>				
Total Debt to Equity (X)	0.25	0.25	0.25	0.26
Net Debt** to Equity (X)	(0.11)	(0.14)	(0.11)	(0.10)
Total Debt to Capital (X)	0.20	0.20	0.20	0.20
Total Debt to EBITDA (X)	0.94	0.95	0.98	0.99
Net Debt** to EBITDA (X)	(0.40)	(0.53)	(0.46)	(0.40)
EBITDA Interest Coverage (X)	22	22	22	22

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

**Weighted Average Cost of Debt \*\* :** 4.49%

**Average Loan Life \*\* :** 7.40 years

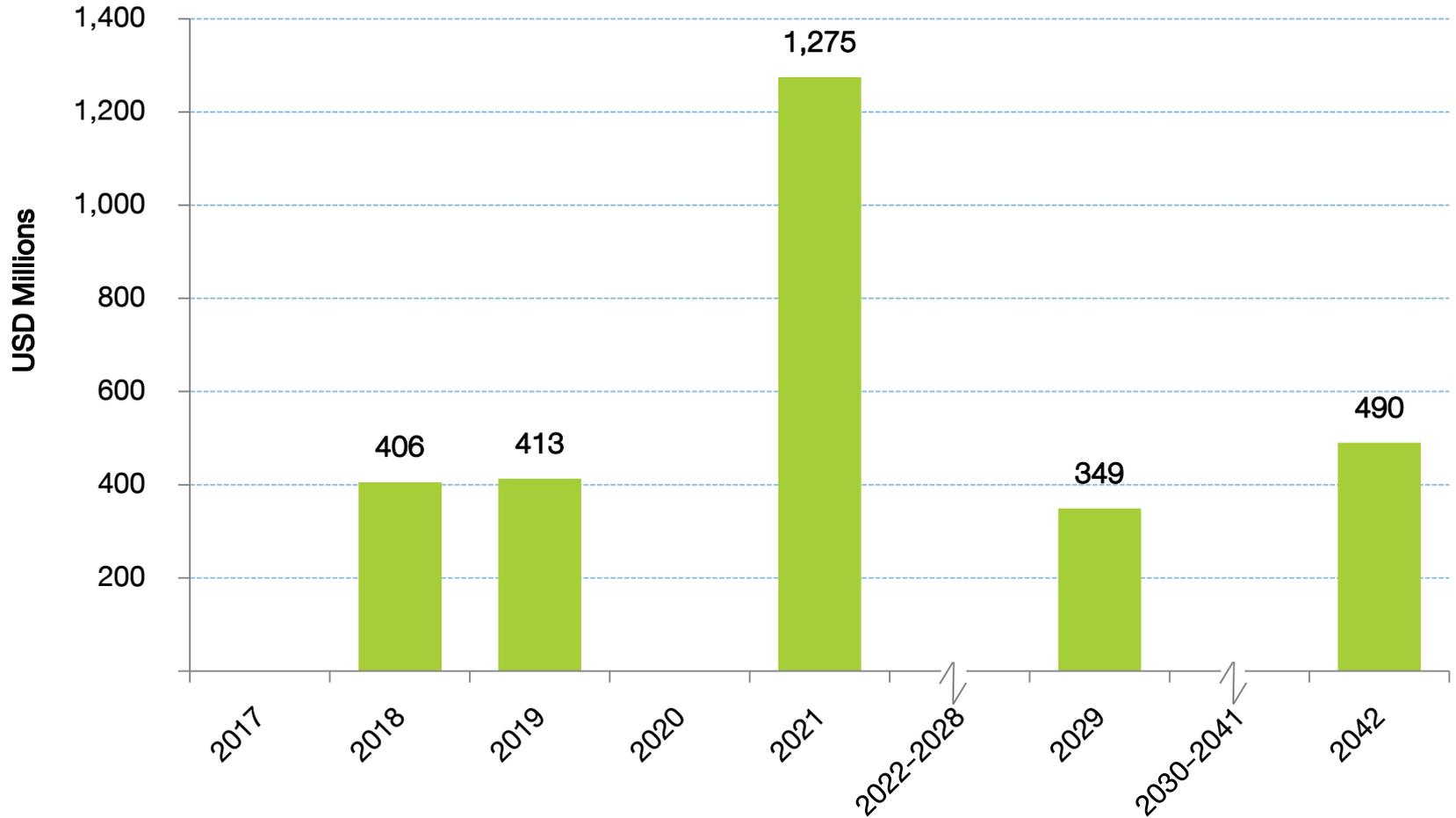
Note: \* Cash & Cash Equivalents (Cash on hand) include Short-term Investments (Fixed deposit > 3 months)

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

\*\* Excludes hybrid bonds

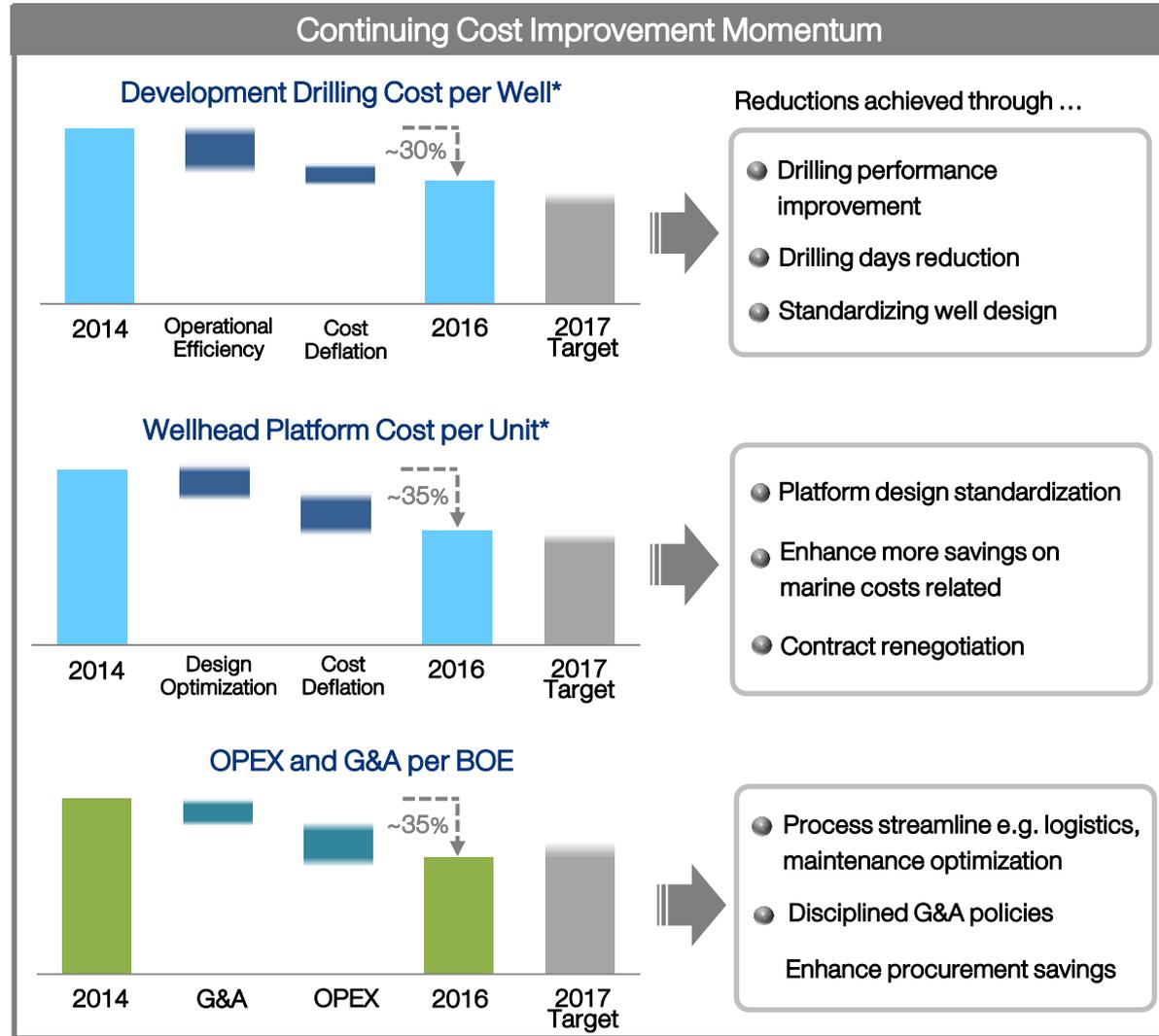
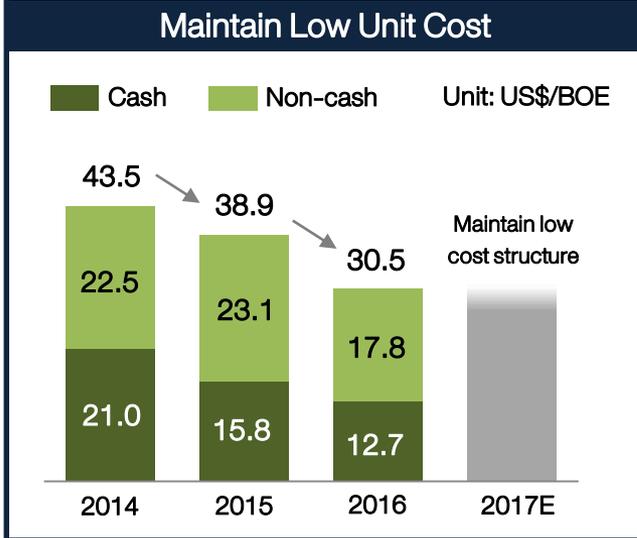
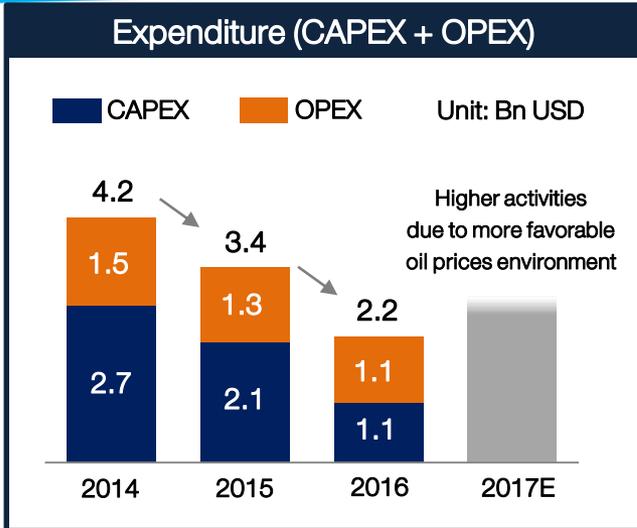
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Note: Excludes Hybrid bonds

Unit: USD Millions or equivalent after cross currency swap



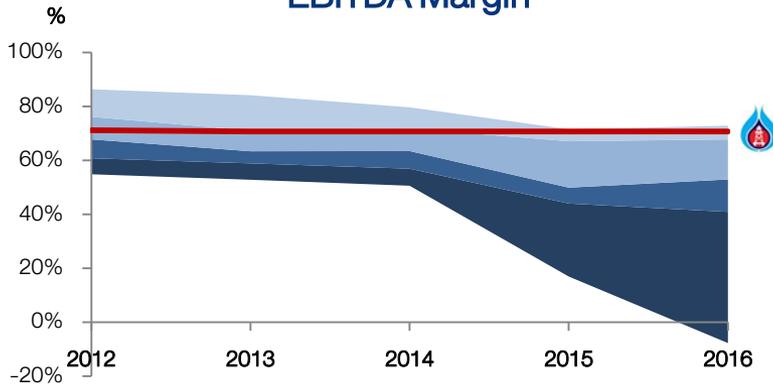
Remark \* Primarily applicable in PTTEP-operated projects in the Gulf of Thailand

Note : For Wellhead Platform Cost: Graph represents cost reduction captured but not yet fully realized

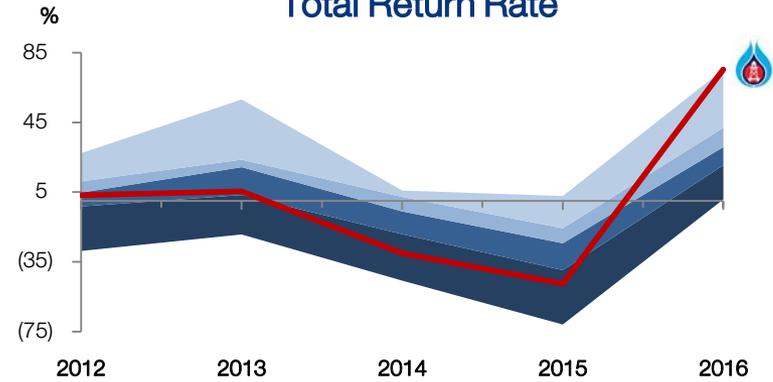


### Deliver better performance...

#### EBITDA Margin

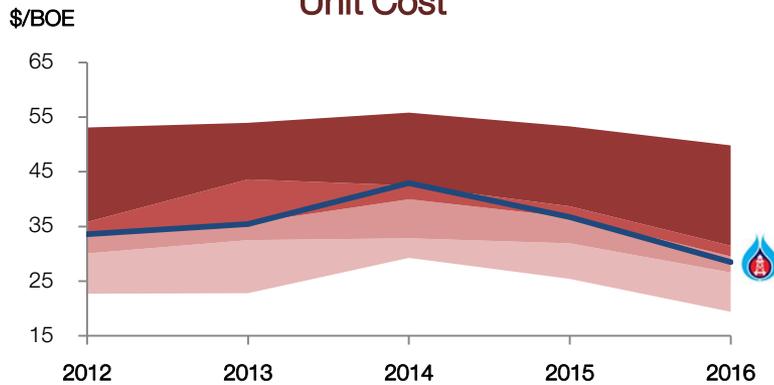


#### Total Return Rate

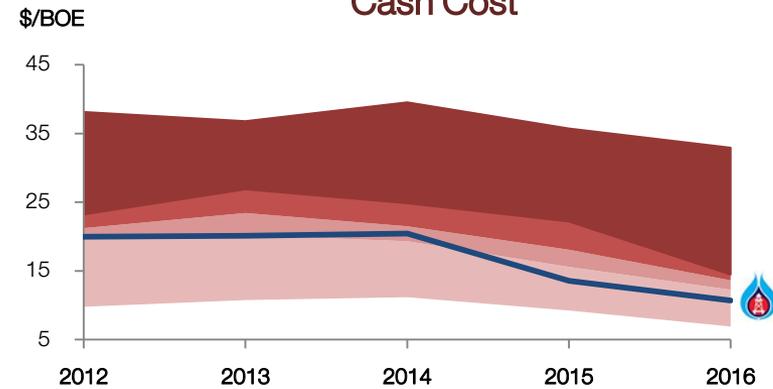


### ...with competitive cost structure

#### Unit Cost\*



#### Cash Cost



Remark: \* Exclude Finance cost

Peers includes Anadarko, BG, BP, Chevron, CNOOC, ConocoPhillips, ExxonMobil, Hess, Inpex, Marathon, Murphy Oil, PetroChina, Petronas, Premier Oil, Repsol, Shell, Sinopec, Total, and Woodside (Upstream division for Integrated firms) (only Total Return Rate: excludes BG, Petronas)

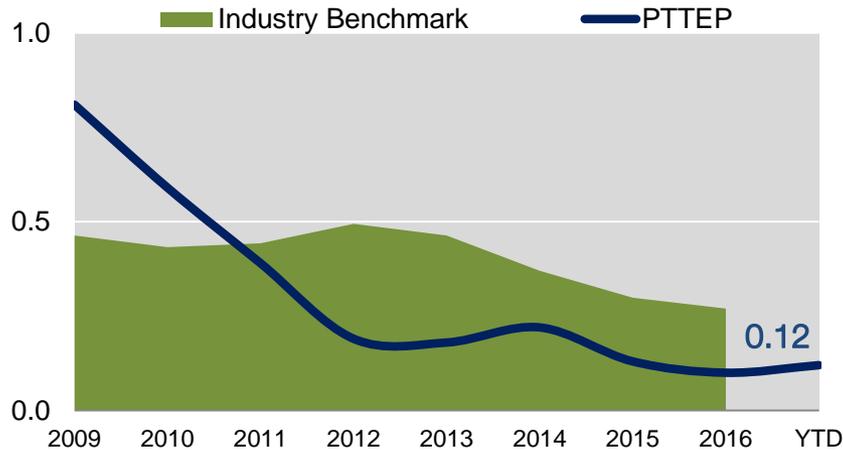
Source: Companies' annual report (except Total Return Rate from Bloomberg)



## 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

Affirm our path to sustainable development

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



**FTSE4Good**




Member of the 2017 Dow Jones Sustainability Indices (DJSI) in the DJSI World Oil and Gas Upstream & Integrated Industry for its fourth consecutive year

Constituent of the FTSE4Good Emerging Index 2017 for a second consecutive year

"Excellence" level of recognition from the 2017 Corporate Governance Report of Thai Listed Companies, conducted by the Thai Institute of Directors (IOD) since 2001



MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM

## 2017 DJSI Listed Company

PTTEP has been selected as a member of the 2017 Dow Jones Sustainability Indices (DJSI) in the DJSI World Oil and Gas Upstream & Integrated Industry for its fourth consecutive year.



## Proven business integrity

Outstanding Sustainability Report Award 2016  
*Thai Listed Companies Association*

Certified Member  
*Thailand's Private Sector Collective Action Coalition Against Corruption (CAC)*

CG Asia Recognition Awards  
*Corporate Governance Asia Magazine*



FTSE4Good

## FTSE4Good Emerging Index 2017

PTTEP becomes a constituent of the FTSE4Good Emerging Index 2017 for a second consecutive year



## Exemplary social contributor

Platinum Award for SIOLA Project:  
Best Community Program  
*the 9<sup>th</sup> Annual Global CSR Summit 2017*

Bronze Stevie Award for SIOLA and Crab  
Hatchery Learning Center Project:  
*The Asia-Pacific Stevie Awards Program*

## Green driver to environment

Asia's Best Environmental Responsibility Award  
*Corporate Governance Asia Magazine*

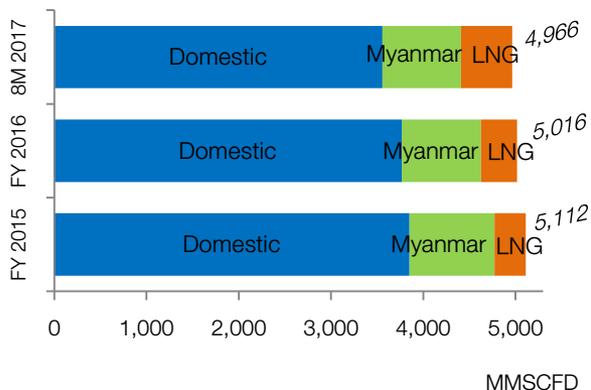
2017 LESS Award Letter of Recognition  
*Thailand Greenhouse Gas Management Organization*

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

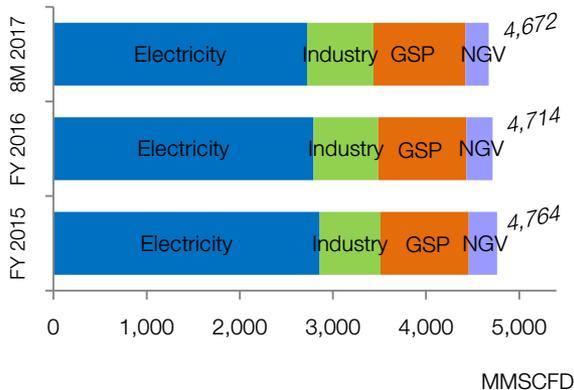


### Thailand Energy Overview

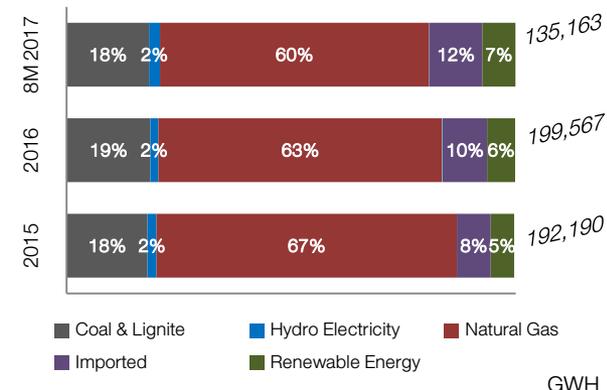
#### Natural Gas Supply



#### Natural Gas Consumption

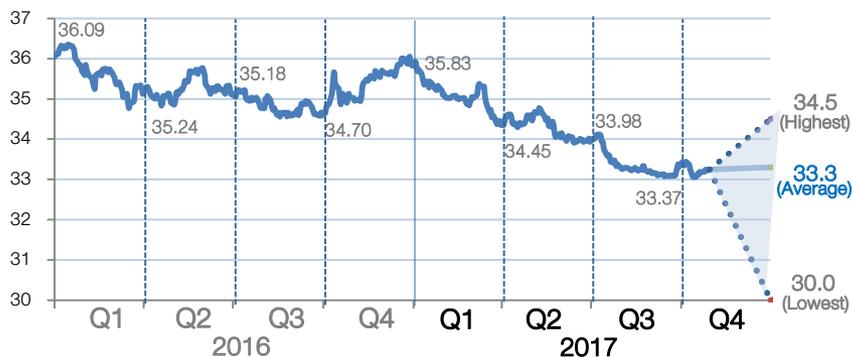


#### Electricity Generation



Source: EPPO

### Exchange Rate Movement (THB/USD)



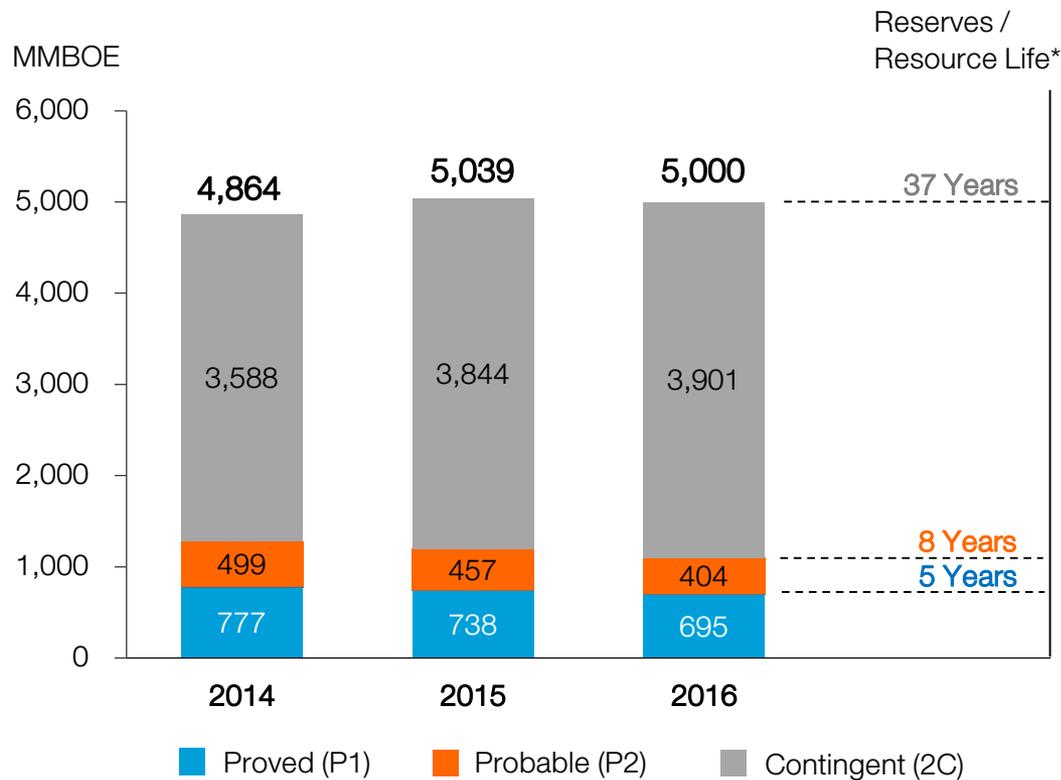
Source: Bank of Thailand, Bloomberg  
 Forecast based on Bloomberg Consensus as of 30 October 2017

#### Thailand's Gas Market

- Slight decline in domestic production and Myanmar piped gas imports while domestic demand remains stable
- Domestic volumes had been pressured by low nomination due to growth in LNG import

#### Consensus on the exchange rate mostly depends on

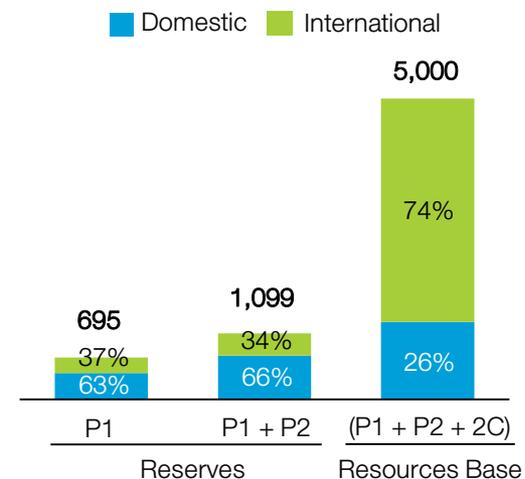
- Determination on ascending interest rate made by FOMC's may lead USD to appreciate against the THB
- Concerns on Trump's Fiscal and Monetary policies



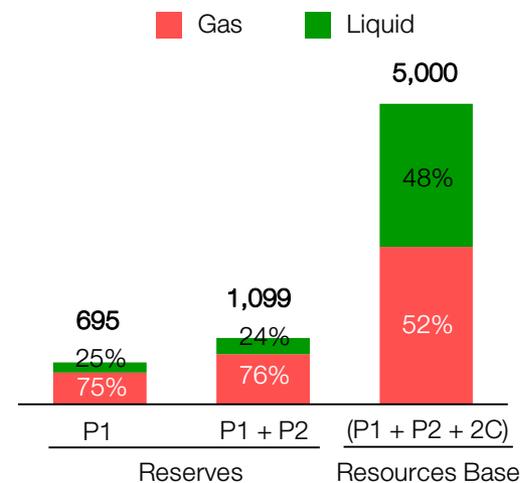
5-Year Average Proved Reserves Replacement Ratio (RRR)

2014	2015	2016
0.45x	0.50x	0.57x

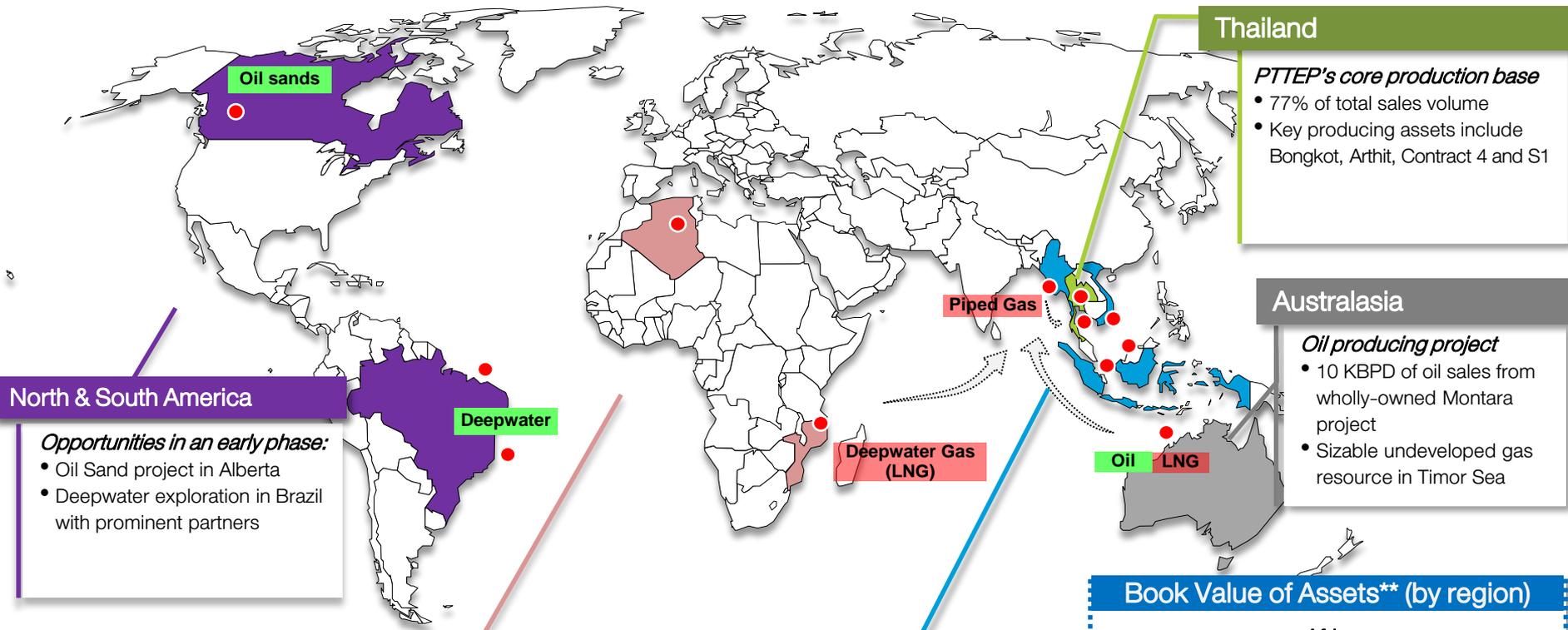
### 2016 by Geography



### 2016 by Product Type



\* Based on total production of natural gas, condensate, and crude oil (including LPG) of 368 KBOED for the year ended December 31, 2016



**North & South America**

*Opportunities in an early phase:*

- Oil Sand project in Alberta
- Deepwater exploration in Brazil with prominent partners

**Africa**

*An area for growth, key projects include:*

- Producing: Algeria's Bir Seba oil field has started up with current flow rate of approximately 18 KBPD
- Pre-development and Appraisal: Mozambique LNG and Algeria's Hassi Bir Rakaiz

**Southeast Asia**

*Second heartland to PTTEP*

- 19% of total sales volume
- Myanmar being most important with gas production mostly supplied into Thailand
- Other producing assets in Vietnam (oil) and Indonesia (gas)

**Thailand**

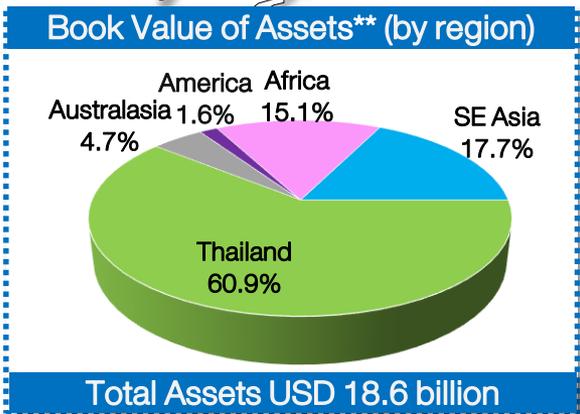
*PTTEP's core production base*

- 77% of total sales volume
- Key producing assets include Bongkot, Arthit, Contract 4 and S1

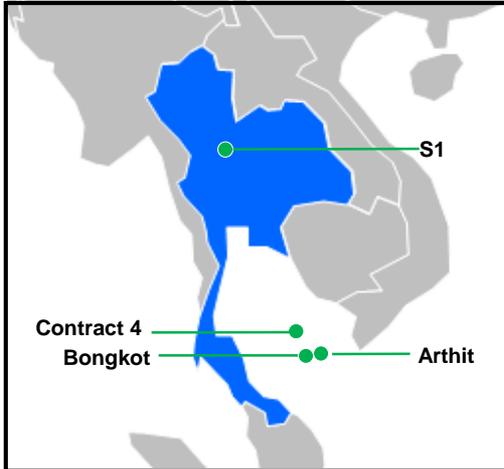
**Australasia**

*Oil producing project*

- 10 KBPD of oil sales from wholly-owned Montara project
- Sizable undeveloped gas resource in Timor Sea



Notes: \* Excludes 2 projects that are pending official withdrawal approval  
 \*\* Information dated as of 30 September 2017 (9M 2017)



● Production / Ramp-up Projects

### Bongkot (44.4445% interest)

- Bongkot's natural gas sales volume of 833 MMSCFD in 9M 2017
- Average condensate sales volume was 25 KBPD in 9M 2017

### S1 (100% interest)

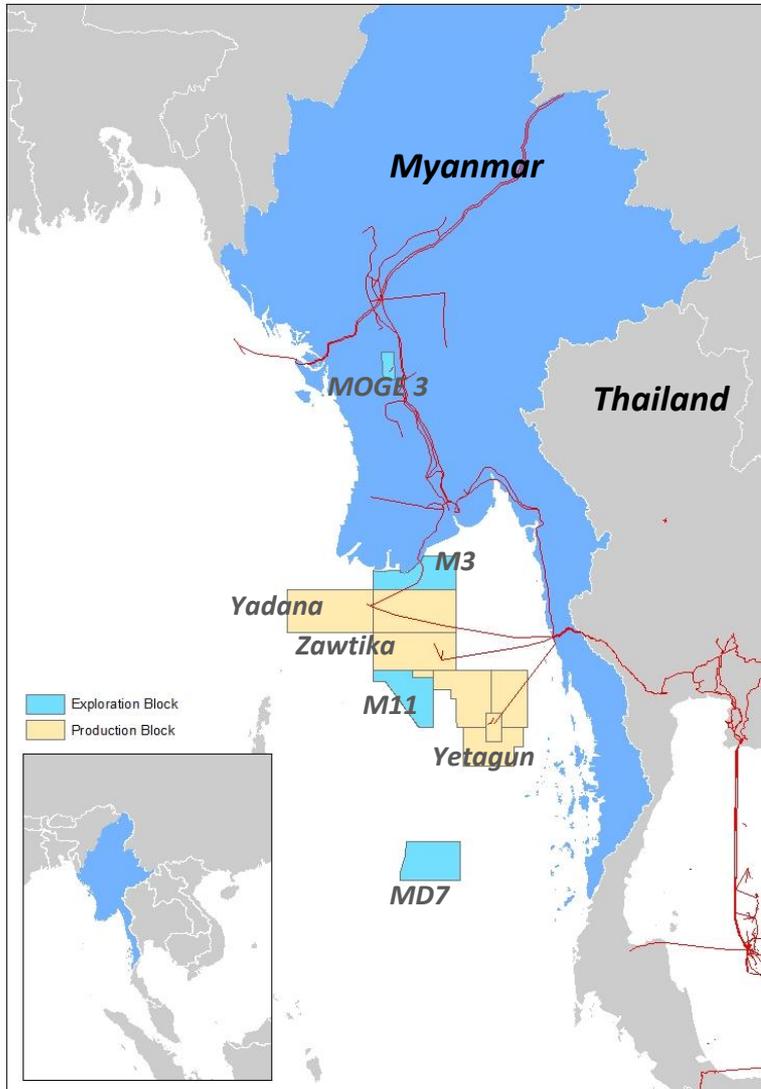
- S1 is the largest onshore crude oil production field in Thailand
- Average crude oil sales volume was 26 KBPD in 9M 2017

### Arthit (80% interest)

- Average sales volume in 9M 2017 was 215 MMSCFD of natural gas and 9.8 KBPD of condensates

### Contract 4 (60% interest)

- Acquired from Hess Corporation in 2014.
- The Contract 4 project had an average sales rate of 330 MMSCFD for natural gas and 15 KBPD for condensate in 9M 2017



- 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 305 MMSCFD in 9M 2017.
- Significant exploration acreage both onshore and offshore in the Moattama Basin

Project Status		
<b>Producing</b>	<b>Appraisal</b>	<b>Exploration</b>
<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



**Vietnam 16-1**



● Production / Ramp-up Projects

**Natuna Sea A**



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

- Average crude oil sales volume of 21 KBPD in 9M 2017
- Commissioned production platform in the H5 area to support current production level

### Natuna Sea A (11.5% interest)

- Average sales volume of natural gas was 221 MMSCFD in 9M 2017



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

## Key Milestones to Final Investment Decision

### Technical

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

### Commercial

- ✓ Secured more than 8 MMTPA of non-binding HOAs

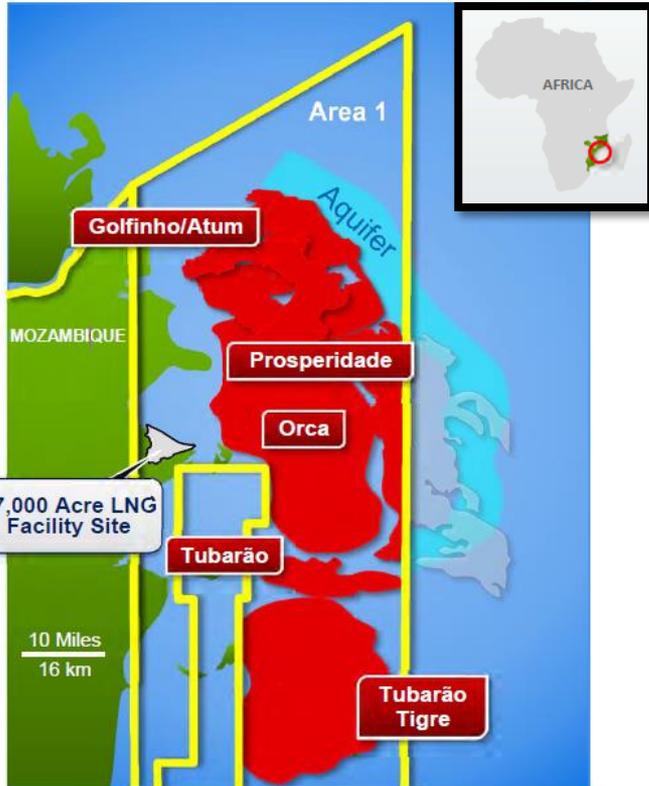
### Regulatory

- ✓ Received approval on marine concession
- ✓ Resettlement plan to begin in Q4 2017

### Financing

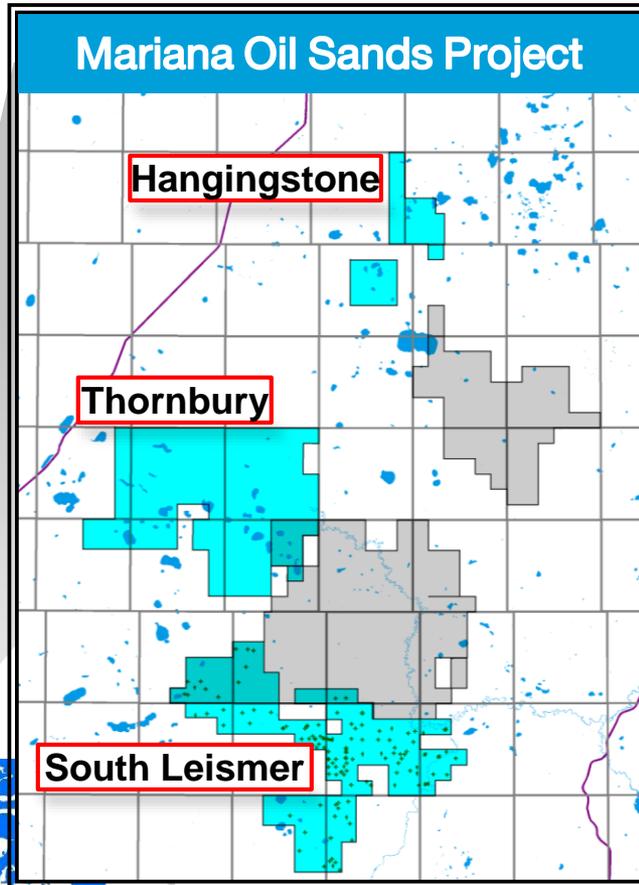
- ✓ On-going negotiation for project financing

**Onwards to initial phase of 12 MMTPA**



### Location and Cost Advantage

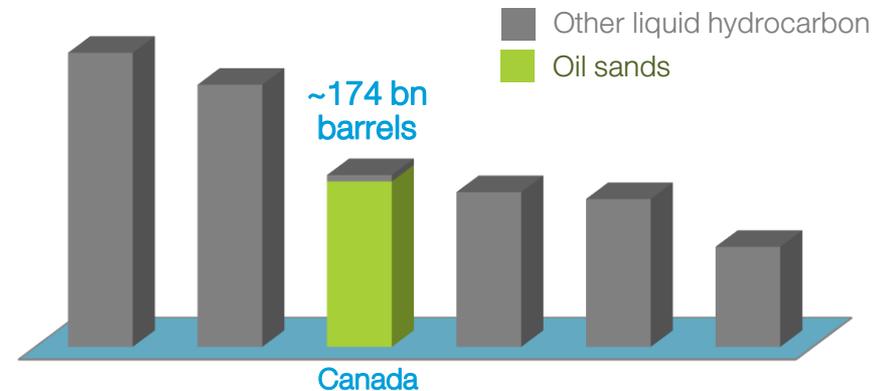
- Close proximity to shore
- High quality reservoirs
- Access to Asian markets



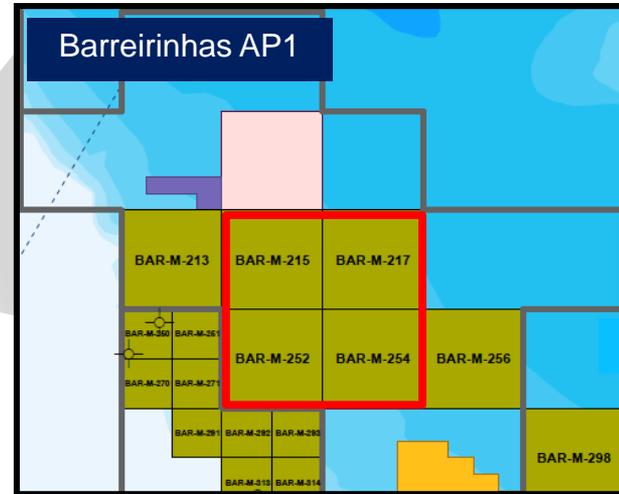
### Project Overview

- 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

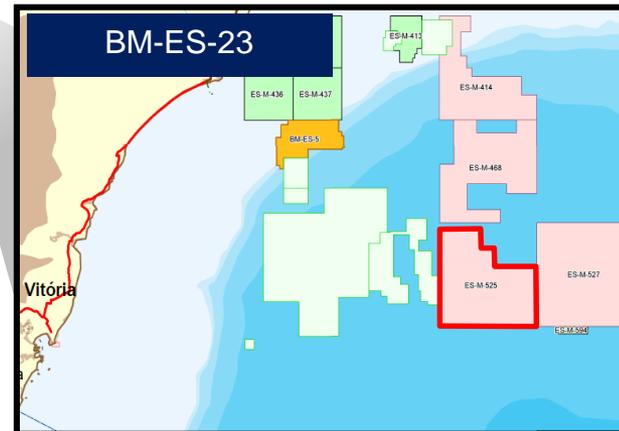
Approximately 96% of the reserves in Canada, the world’s 3<sup>rd</sup> largest oil reserves, is oil sands



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



- 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%)



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	Status*	PTTEP's Share	Partners (as of Q3 2017)	9M 2017 Average Sales Volume **		2017 Key Activities	
					Gas	Oil and Other		
<b>Production Phase</b>								
<b>Thailand and JDA</b>								
1	Arthit	OP	80%	Chevron MOECO	16% 4%	215 MMSCFD	Condensate: 9.8 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>Subsurface study</li> </ul>
3	B8/32 & 9A		25%	Chevron MOECO KrisEnergy PSTL	51.66% 16.71% 4.63% 2%	97 MMSCFD	Crude: 27 k BPD	<ul style="list-style-type: none"> <li>Drill development wells</li> <li>Perform waterflood activities</li> </ul>
4	Bongkot	OP	44.4445%	TOTAL Shell	33.3333% 22.2222%	833 MMSCFD	Condensate: 25 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> </ul>
5	Contract 3 (Formerly Unocal III)		5%	Chevron MOECO	71.25% 23.75%	548 MMSCFD	Crude: 21 k BPD Condensate: 20 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%	330 MMSCFD	Condensate: 15 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>Review development plan of Ubon field</li> </ul>
7	E5		20%	ExxonMobil	80%	9.1 MMSCFD	-	
8	G4/43		21.375%	Chevron MOECO PSTL	51% 21.25% 6.375%	2.3 MMSCFD	Crude: 6.2 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%	6.0 MMSCFD	Crude: 1.4 k BPD	
10	L53/43 & L54/43	OP	100%			-	Crude: 664 BPD	<ul style="list-style-type: none"> <li>Drill exploration / appraisal / development wells</li> </ul>
11	PTTEP1	OP	100%			-	Crude: 278 BPD	<ul style="list-style-type: none"> <li>Drill development wells</li> <li>Perform waterflood activities</li> </ul>
12	S1	OP	100%			21 MMSCFD	Crude: 26 k BPD	<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%	81 MMSCFD	Condensate: 264 BPD	<ul style="list-style-type: none"> <li>Drill development wells</li> </ul>
14	MTJDA	JOC	50%	Petronas-Carigali	50%	235 MMSCFD	Condensate: 6.0 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: 164 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	Status*	PTTEP's Share	Partners (as of Q3 2017)	9M 2017 Average Sales Volume **		2017 Key Activities
					Gas	Oil and Other	
<b>Production Phase</b>							
<b>Overseas</b>							
16	Vietnam 9-2	JOC	25%	PetroVietnam 50% SOCO 25%	12 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%	754 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 (Hong Kong) 10.90878%	219 MMSCFD	Condensate: 5.7 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%	-	Crude: 21 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: 10 k BPD	<ul style="list-style-type: none"> <li>Drill development well in Montara</li> <li>Maintain production operation</li> <li>Acquire 3D seismic reprocessing</li> </ul>
21	Natuna Sea A		11.5%	Premier Oil 28.67% KUFPEC 33.33% Petronas 15% Pertamina 11.5%	221 MMSCFD	Crude: 1.3 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%	305 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: 2.9 k BPD (net entitlement)	<ul style="list-style-type: none"> <li>Maintain production operation</li> <li>Review field development plan for possible capacity expansion</li> </ul>

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

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

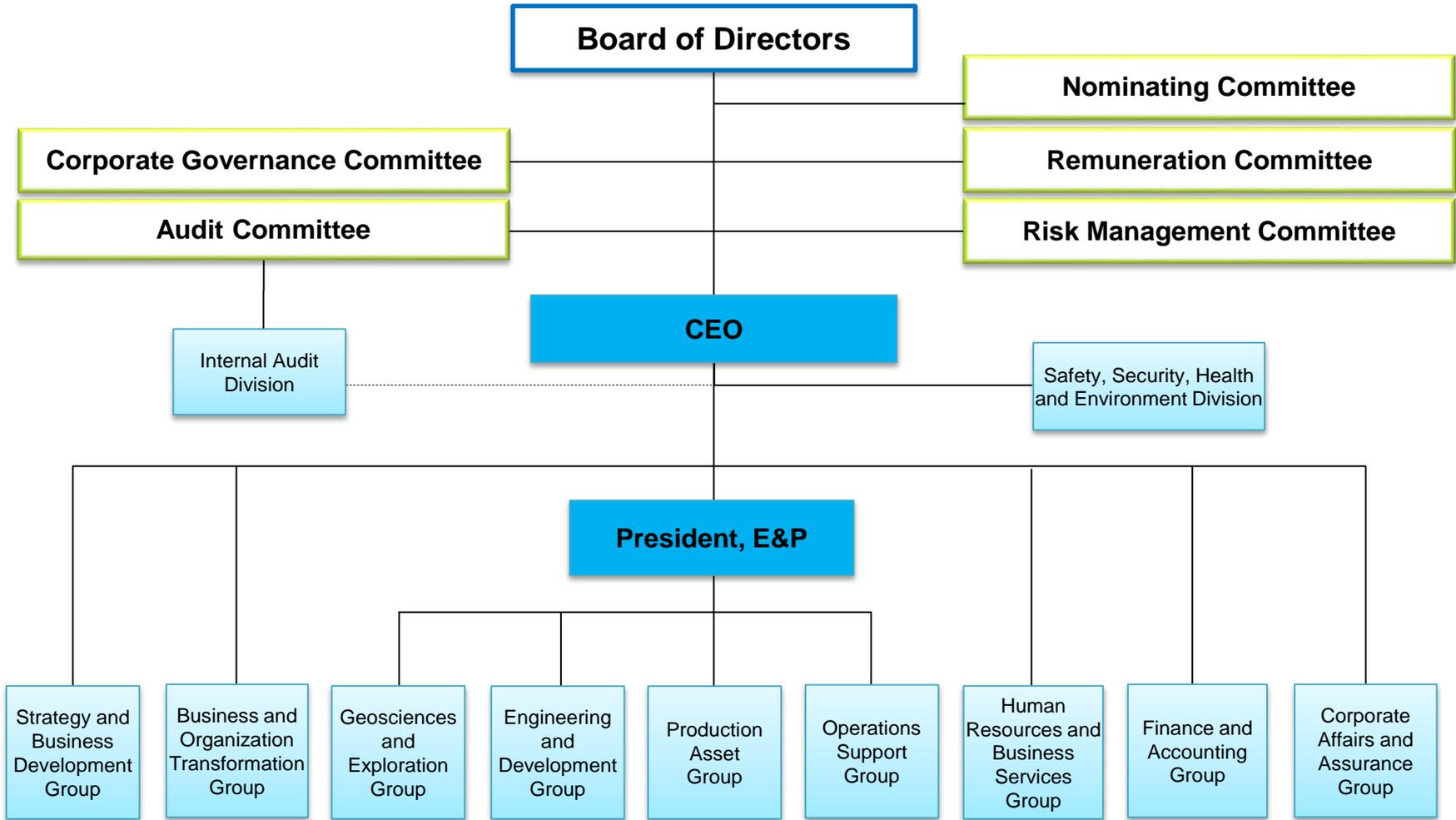
\*\*\* DCQ = Daily Contractual Quantity



	Project	Status*	PTTEP's Share	Partners (as of Q3 2017)	2017 Key Activities
<b>Exploration 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>Assess resource potential and commercial feasibility</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>Conduct pre-development study and prepare project development plan</li> </ul>
28	Myanmar M11	OP	100%		<ul style="list-style-type: none"> <li>Acquire 3D seismic</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 potential</li> </ul>
32	Mariana Oil Sands	OP	100%		<ul style="list-style-type: none"> <li>Assess development approach and cost reduction opportunity</li> </ul>
33	Barreirinhas AP1		25%	Shell Brasil 65% Mitsui E&P Brasil 10%	<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>
34	Myanmar MOGE 3	OP	75%	Palang Sophon 10% MOECO 10% WinPreciousResources 5%	<ul style="list-style-type: none"> <li>Acquire 2D and 3D seismic</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% PSCB 15%	<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>

Remarks: 36 projects exclude 2 projects that are pending official withdrawal approval

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





Ratio	Formula
Lifting Cost (\$/BOE)	$(\text{Operating Exp.} - \text{Transportation Cost} - \text{Stock Variation} - \text{Other expense not related to lifting}) / \text{Production Volume}$
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	$(\text{Trailing-12-month net income} + \text{Trailing-12-month Interest Expenses \& Amortization Bond Issuing Cost}) / (\text{Average shareholders' equity and average total debt between the beginning and the end of the 12-month period})$
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	$\text{Trailing-12-month EBITDA} / \text{Trailing-12-month Interest Expenses \& Amortization of Bond Issuing Cost}$