



# Morgan Stanley Asia Pacific Summit Singapore

16-17 October 2016



**PTTEP**



## E&P Company of PTT Group



Government of  
Thailand

66.0%<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-

## Plays a pivotal role in Thailand's oil and gas production<sup>3</sup>

Thailand's Oil and Gas  
Demand

Crude Oil &  
Condensate

~ 1.1m BOE/D

Imports

~ 79%

Domestic ~ 21%

Natural Gas

~ 0.9m BOE/D

Imports ~ 25%

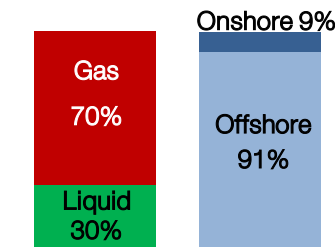
Domestic

~ 75%

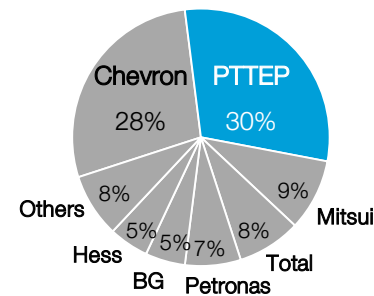
Domestic Production  
(2015)

Midstream

% by Petroleum Type and Area



% Production by Company



Gas: operated by PTT

Transmission  
Pipelines

Gas Separation  
Plants

Oil: PTT participates  
through subsidiaries

Refineries

Downstream

Petrochemicals

Oil and gas  
marketing

Notes:

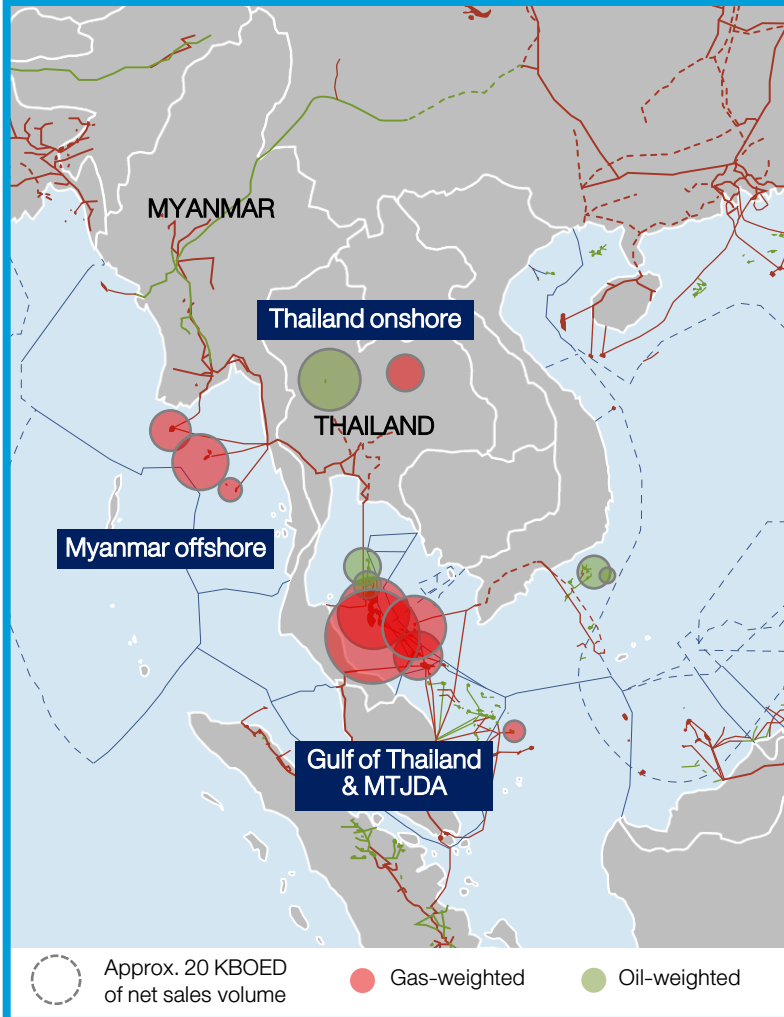
1. Ownership as of 15 August 2016

2. 51.1% is directly held by the Government of Thailand (Ministry of Finance), with the remaining 14.9% held by the state-controlled Vayupak Fund I

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



## PTTEP's oil and gas operations in SEA...



## ...is uniquely positioned

- The 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 capability into regional investments

## ...with competitive operating performances in SEA

93	%	of PTTEP's total sales volume
99	%	Reliability of plants and field facilities*
81	%	of PTTEP's sales volume sold to PTT
12	USD/BOE	Average regional cash cost

\* of PTTEP-operated projects in Gulf of Thailand, exclude planned shutdown time

All figures are as of 9M 2016



2016

2016 and beyond

## RESET to Survive in the Low Oil Price Environment



- Focus on cost reduction and efficiency improvement
- Preserve cash and liquidity through the downturn

## REFOCUS to Capitalize on the Upturn



- Assess and prioritize options for new investments and portfolio rationalization
- Continue to improve productivity to maximize incremental value



### RESET

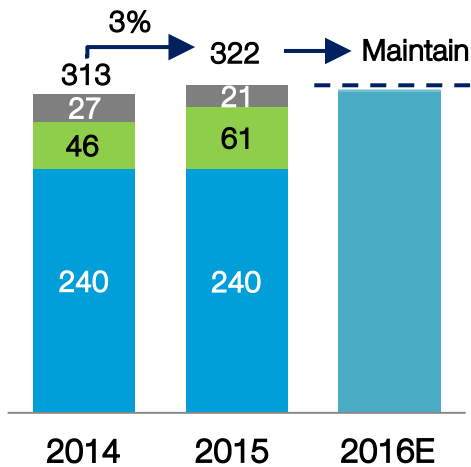
### REFOCUS

### RENEW

#### Maintain Sales Volume

Unit : KBOED

SEA  
Thailand  
RoW

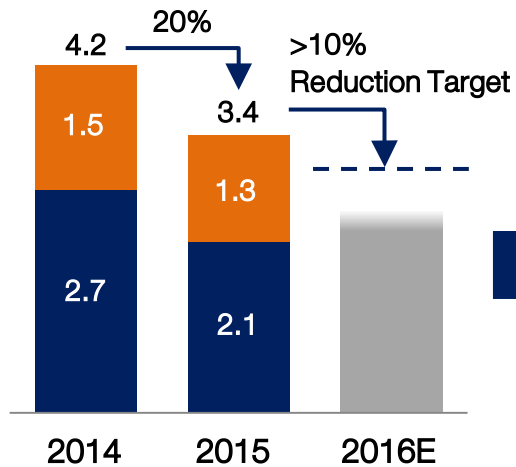


- ▶ Utmost compliance to safety
- ▶ Deliver domestic gas at DCQ
- ▶ Sustain field performance

#### Lower Expenditures

Unit : bn USD

CAPEX  
OPEX

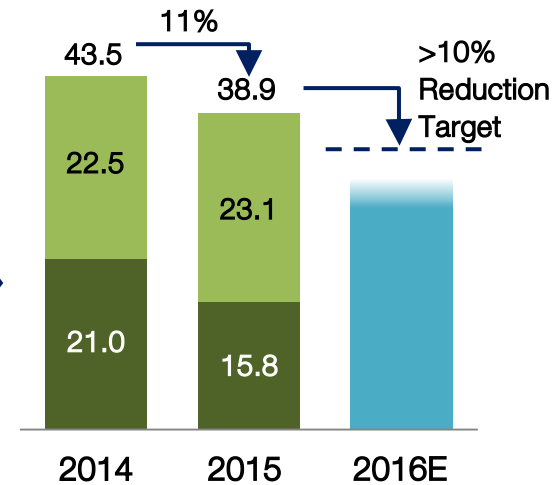


- ▶ Efficiency improvement and contract renegotiation
- ▶ Capital allocation prioritized for high quality assets

#### Bring Down Unit Cost

Unit : USD/BOE

Cash  
Non-cash



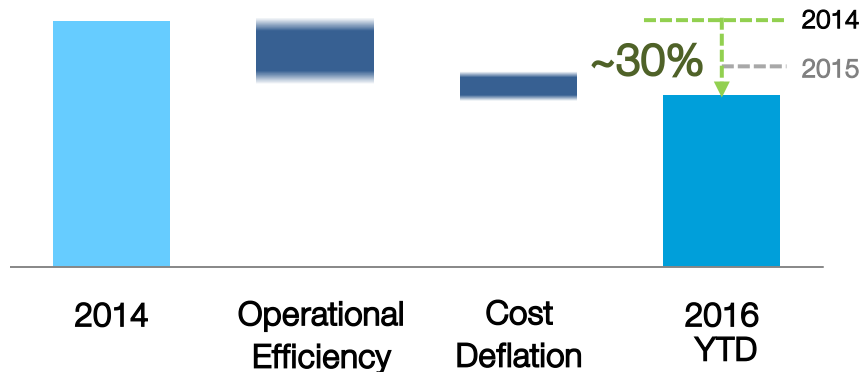
- ▶ Further process streamline
- ▶ Disciplined G&A policies

Preserve liquidity and financial flexibility in near-term

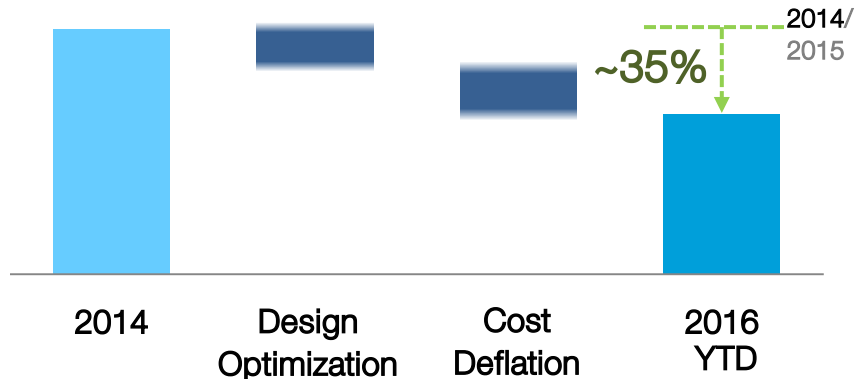


## Notable improvement in key CAPEX components

### Development Drilling Cost per Well\*



### Wellhead Platform Cost per Unit\*

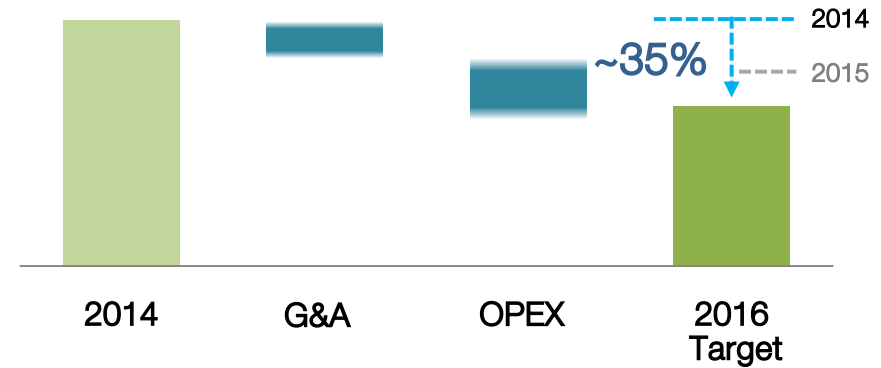


Note : Graph represents cost reduction captured but not yet fully realized

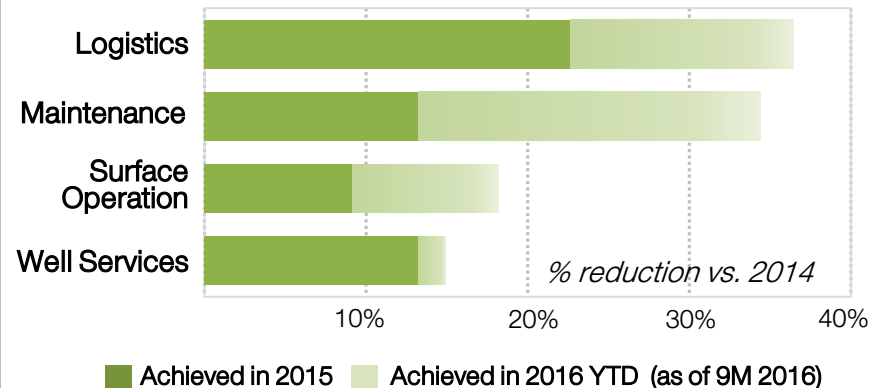
\* Primarily applicable in PTTEP-operated projects in the Gulf of Thailand

## With increased efficiency in OPEX spending

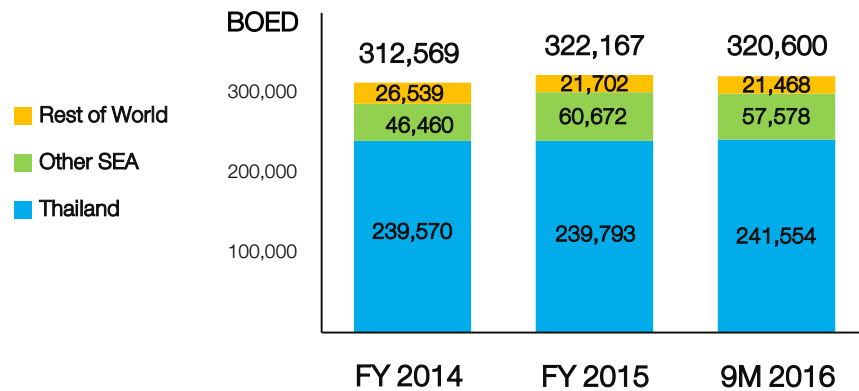
### OPEX and G&A per BOE



### Key OPEX Components

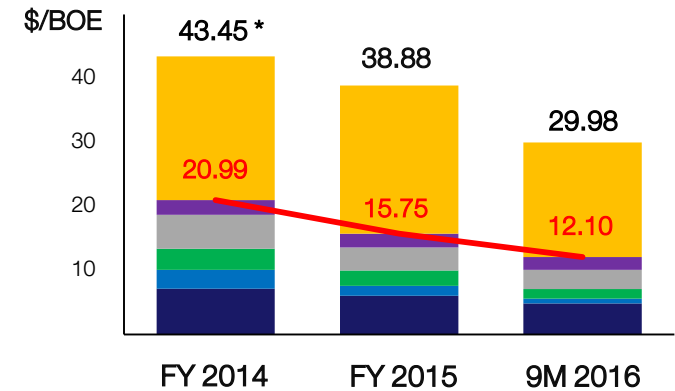


## Sales Volume and Price



Gas (\$/MMBTU)	8.06	7.20	5.75
Liquid (\$/BBL)	94.82	50.05	39.37
Weighted Avg. (\$/BOE)	63.71	45.29	36.00
Avg. Dubai (\$/BBL)	96.60	50.91	38.92
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	86.74	44.86	32.11
Volume Mix (Gas : Liquid)	67 : 33	70 : 30	70 : 30
Revenue Mix (Gas : Liquid)	51 : 49	66 : 34	66 : 34

## Unit Cost



DD&A	22.46	23.13	17.88
Finance Cost	2.27	2.14	2.01
Royalties	5.34	3.62	3.02
G&A	3.30	2.39	1.50
Exploration Expenses	2.92	1.56	0.71
Operating Expenses **	7.16	6.04	4.86
Lifting Cost	5.26	4.62	4.05
Drilling Success Ratio ***	25 : 43	31 : 47	5 : 7

Remark: Sales Volume & Royalties: after reclassification of PSC royalty and includes discontinued operations until August 2016

\* If exclude extra expense from Montara's Development well (H5): For 2014, Operating Exp: 6.73 \$/BOE / Unit cost: 43.02 \$/BOE

\*\* Exclude diluent cost for blending bitumen in KKD Oil Sands project

\*\*\* Successful wells : Total wells (includes Exploration and Appraisal wells)



## Demonstrate financial strength in 9M 2016 ...

**1.7** billion USD Operating cash flow

**73** % EBITDA margin

**3.7** billion USD Cash on hand

**0.25** x Total debt/equity ratio

**0.75** THB/share Interim dividend

## FY 2016 financial outlook

~ **5.5** USD/MMBTU  
Avg Gas Price

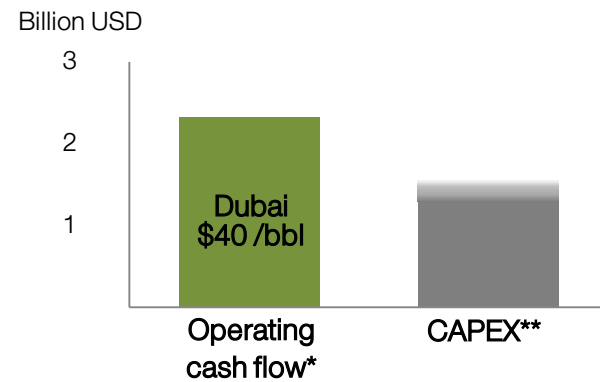
~ **70** %  
EBITDA margin

~ **320** KBOED  
Avg Sales Volume

~ **31** USD/BOE  
Unit Cost

## FY 2016 liquidity outlook

- Solid cash flow from operations despite continued drop in gas price



\* assumes various operational assumptions

\*\* based on closing forecast of 2016 CAPEX spending





## Short to Medium term

### FID Candidates: select to proceed with competitive projects



#### Mozambique Area 1

- 8.5% interest (operated by APC)
- Initial development for 12 MMTPA LNG (2 trains)



#### Contract 4 (Ubon)

- 60% interest (operated by Chevron)
- Oil resources in the Gulf of Thailand
- Proposed production capacity in 25-30 kbpd range



#### Algeria HBR

- 24.5% interest, operator
- Successful appraisal wells result
- Fasten development plan

### Continue to pursue new investments



#### M&A

- Producing / near-term producing assets in SEA



#### Exploration Portfolio

- Low risk, known areas and quick commercialization located in SEA



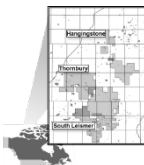
#### LNG Value Chain

- Evaluate feasibility to form LNG value chain partnership with PTT

## Long term

### Resources for further cost efficiency improvement

#### Mariana Oil Sands



- 100% interest, operator
- Re-assessing development plan for cost optimization

#### Cash Maple



- 100% interest, operator
- 5 years Retention lease period (2017-2021)
- In discussion with nearby operators for joint-development

### Business enhancement and sustainability



#### Strengthen E&P capability

- Through R&D on exploration and production technologies

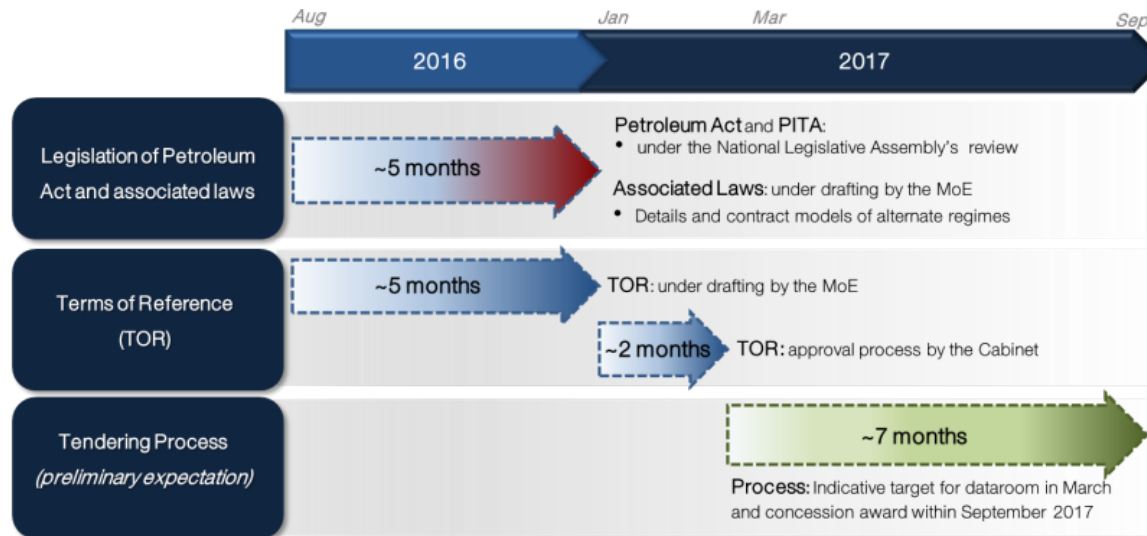


#### Diversification for Future value

- Search for new business in both E&P-related and non-E&P related sectors



## Path to re-tendering of expiring concessions



Source: Interviewed by Director General of DMF, 26 August 2016

## PTTEP : Competitively positioned to continue as operator



- Experienced and reliable: operated at average 99%\* field reliability
- Cost-efficiency: through years of factory drilling and GOT synergies
- Capable catalysts for continuity of gas supply and optimum resource recovery

\*Bongkot field performance as of May 2016



## Uniquely positioned E&P company

- ✓ +90% of sales volume based in growing SE Asia oil and gas market
- ✓ Stable revenues from PTT for +80% of sales volume
- ✓ Strong ties with PTT / Thailand through direct / indirect ownership

## Competitive operating performance

- ✓ Low cost operations in SE Asia contributory to ~70% EBITDA margin
- ✓ Demonstrated cost discipline with over 30% reduction in OPEX and G&A

## Financially strong and flexible

- ✓ Well-positioned in downturn with over 3 bn USD liquidity available and a low-debt capital structure of 0.25x D/E ratio as of Q3 2016
- ✓ A dividend-paying company for over 15 years

## Ample growth opportunities

- ✓ Sufficient funding capacity available to capitalize on market upturn through organic and inorganic investments
- ✓ LNG value chain opportunities to support growing Thailand market





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



<http://www.pttep.com>



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



+66 2 537 4000



Q3 2016 Financial Results	14-18
Five-Year Investment Plan	19-21
Sustainable Development	22
Reserves and resources	23
Thailand Energy Updates	24
Key Project Highlights by Region	25-31
Project Details	32-35
Organization structure	36
Ratios and formula	37



# Summary of Q3 2016 financial results

Healthy bottom line supported by core earnings and non-recurring gains

Unit : MMUSD

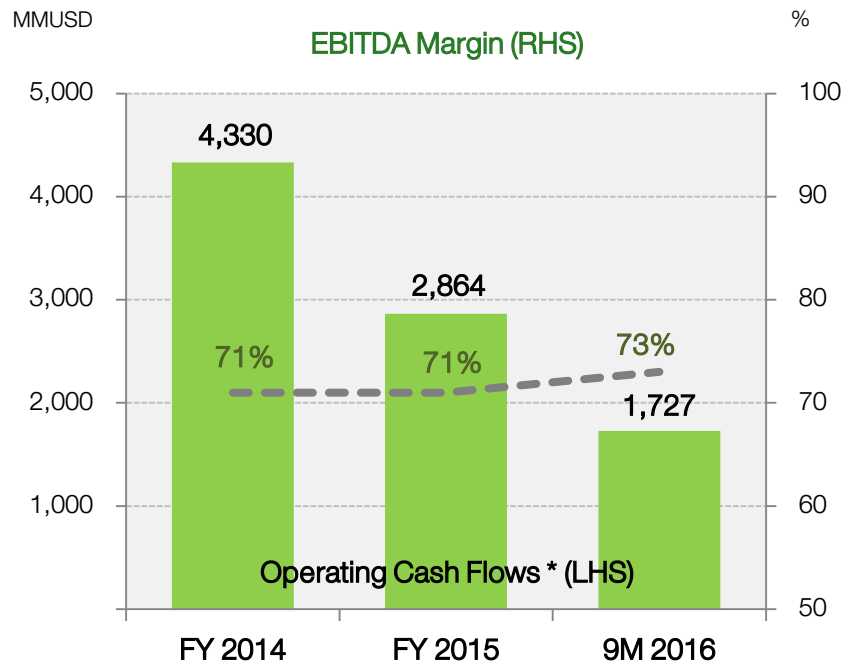
Statement of Income	Q2 16 *	Q3 16	% QoQ	Q3 15 *	% YoY	9M 16	9M 15 *	% YTD
<b>Total Revenues</b>	<b>1,102</b>	<b>1,109</b>	<b>1</b>	<b>1,457</b>	<b>(24)</b>	<b>3,281</b>	<b>4,291</b>	<b>(24)</b>
Sales	1,061	1,047	(1)	1,307	(20)	3,152	4,084	(23)
Others	41	62	51	150	(59)	129	207	(38)
Sales Volume (BOED)	320,657	311,386	(3)	320,795	(3)	320,600	317,383	1
Sales Price (USD/BOE)	36.62	36.32	(1)	44.83	(19)	36.00	47.47	(24)
<b>Total Expenses</b>	<b>1,028</b>	<b>953</b>	<b>(7)</b>	<b>2,710</b>	<b>(65)</b>	<b>2,896</b>	<b>5,245</b>	<b>(45)</b>
<b>Major Expenses:</b>								
Operating Expenses	139	146	5	177	(18)	415	515	(19)
Exploration Expenses	15	20	33	78	(74)	61	129	(53)
DD&A	518	534	3	644	(17)	1,570	2,095	(25)
Impairment loss on assets	-	-	-	1,350	(100)	-	1,350	(100)
Income Tax Expense	55	67	22	220	(70)	152	377	(60)
(Gain)/Loss on FX	(7)	(14)	(100)	20	<(100)	(27)	73	<(100)
<b>Net Income from Continuing Operations</b>	<b>74</b>	<b>156</b>	<b>&gt;100</b>	<b>(1,253)</b>	<b>&gt;100</b>	<b>385</b>	<b>(954)</b>	<b>&gt;100</b>
Profit (Loss) from Discontinued Operations	1	0.3	(70)	(31)	>100	3	(32)	>100
<b>Net Income</b>	<b>75</b>	<b>156</b>	<b>&gt;100</b>	<b>(1,284)</b>	<b>&gt;100</b>	<b>388</b>	<b>(986)</b>	<b>&gt;100</b>
Recurring Net Income	154	75	(51)	264	(72)	345	705	(51)
Non-Recurring **	(79)	81	>100	(1,548)	>100	43	(1,691)	>100

Note: \* Restated / Represented

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

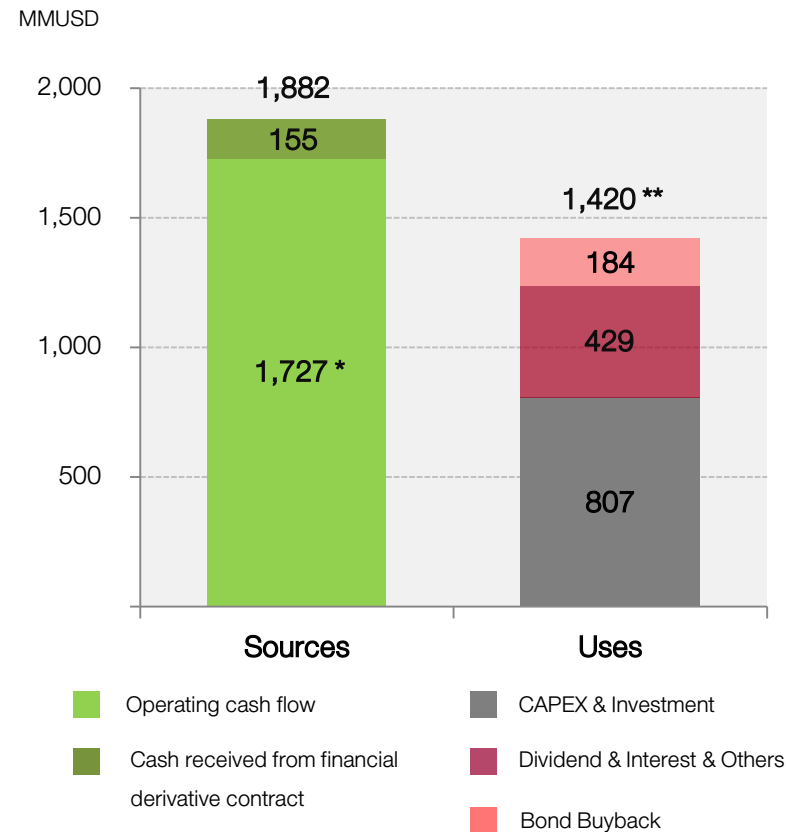


### Cash Flow Performance



Net Income	677	(854)	388
Recurring Net Income ***	1,538	718	345

### Source & Use of Funds in 9M 2016

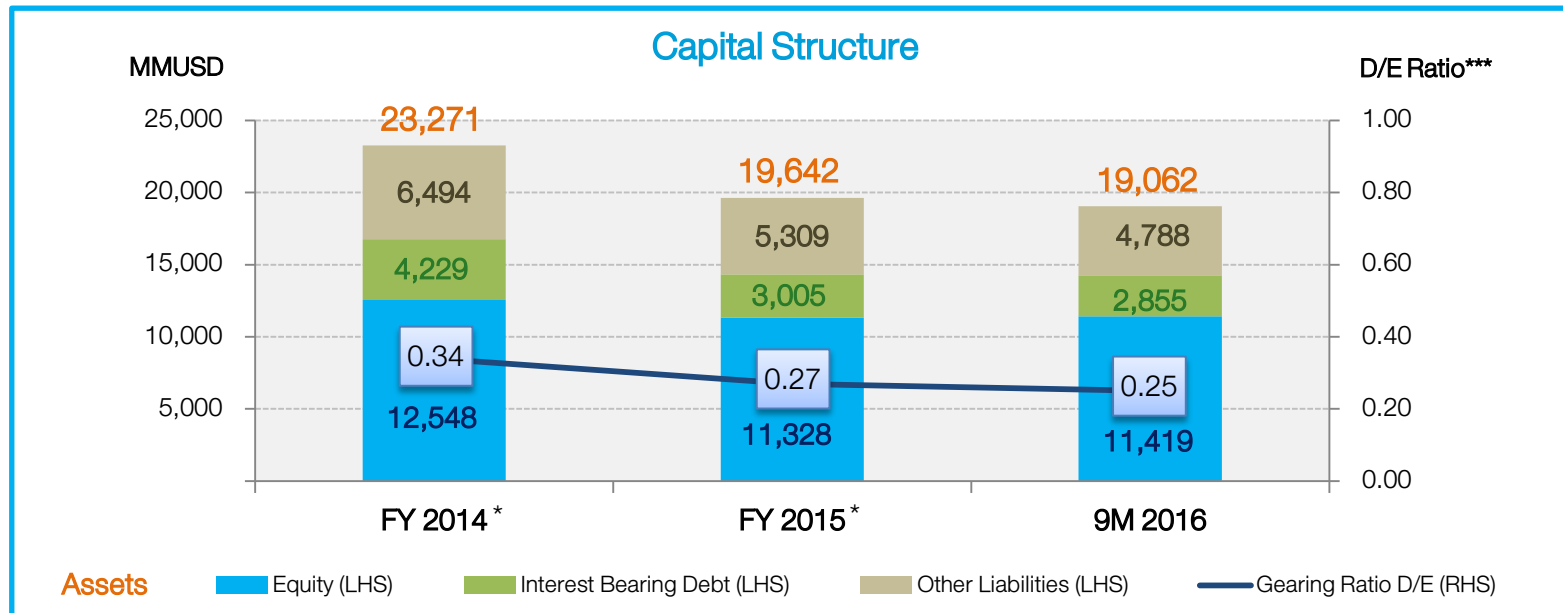


Remark: \* Net of adjustment for the effect of exchange rate changes on cash and cash equivalents

\*\* 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\*\* (%)

4.14

4.32

4.37

[Fixed : Floating]

[77 : 23]

[82 : 18]

[80 : 20]

Average Loan Life\*\* (Years)

7.05

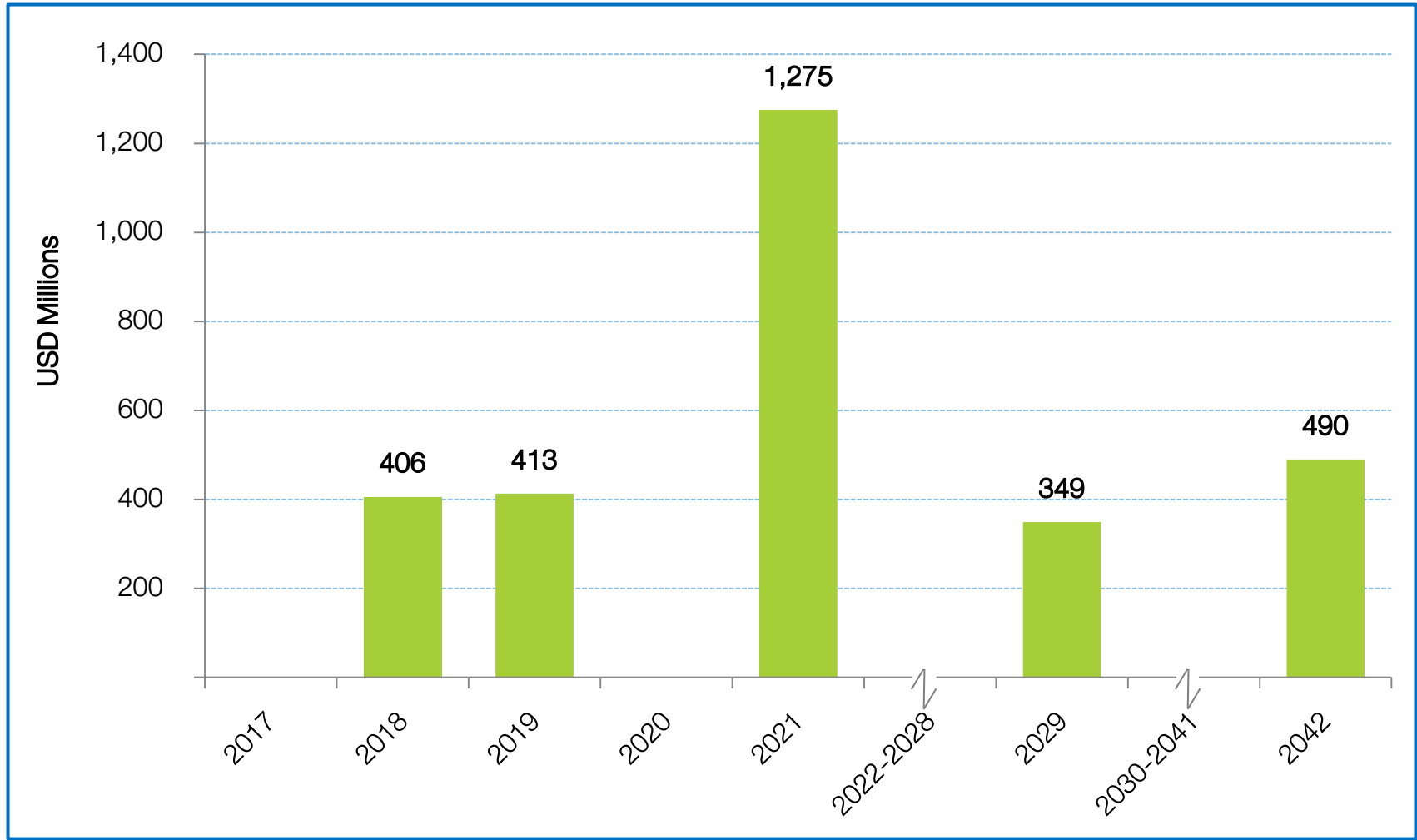
8.17

8.40

Remark: \* Restated

\*\* Excludes Hybrid bonds

\*\*\* Include discontinued operations until end of August 2016

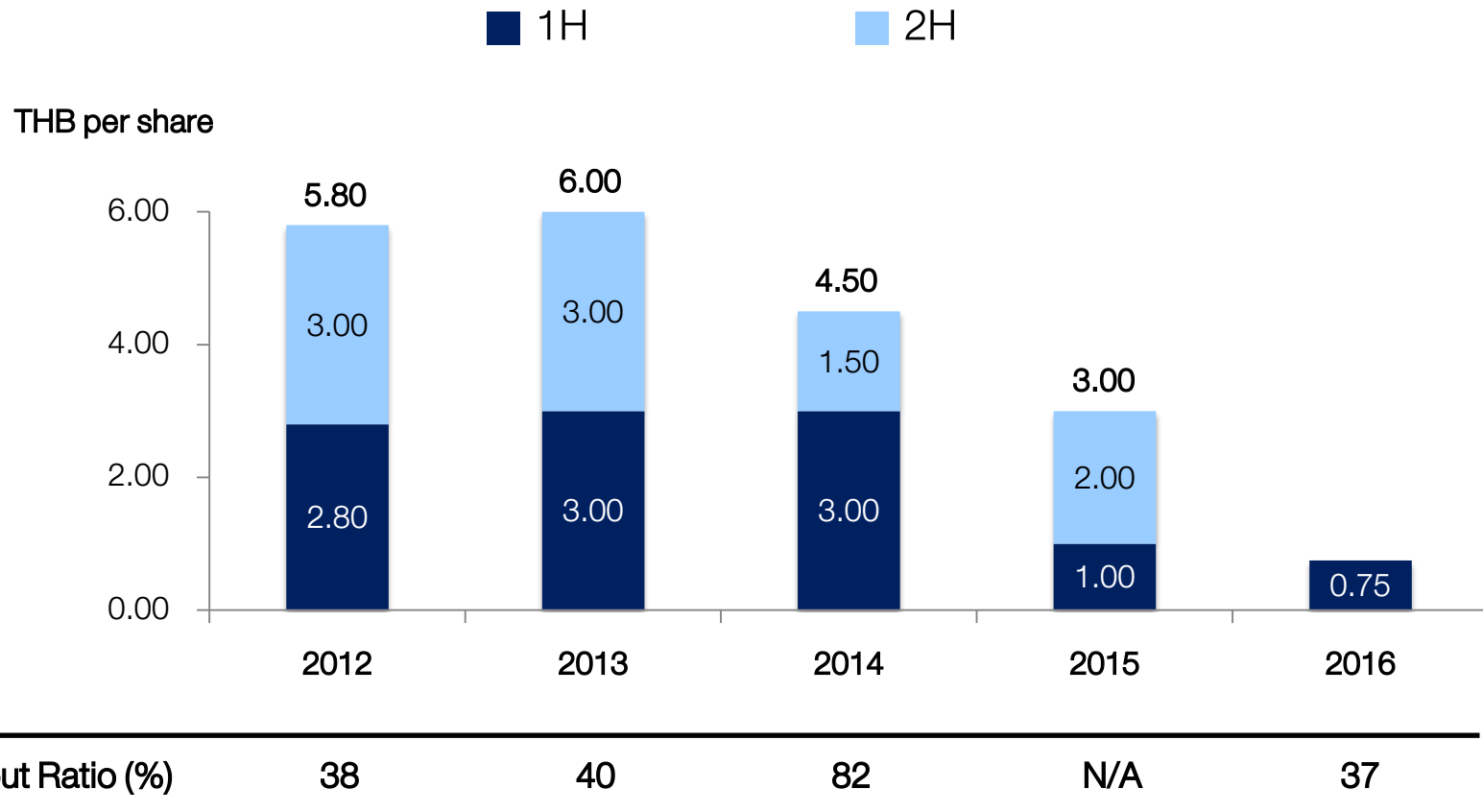


Note: Excludes Hybrid bonds

Unit: USD Millions or equivalent after cross currency swap

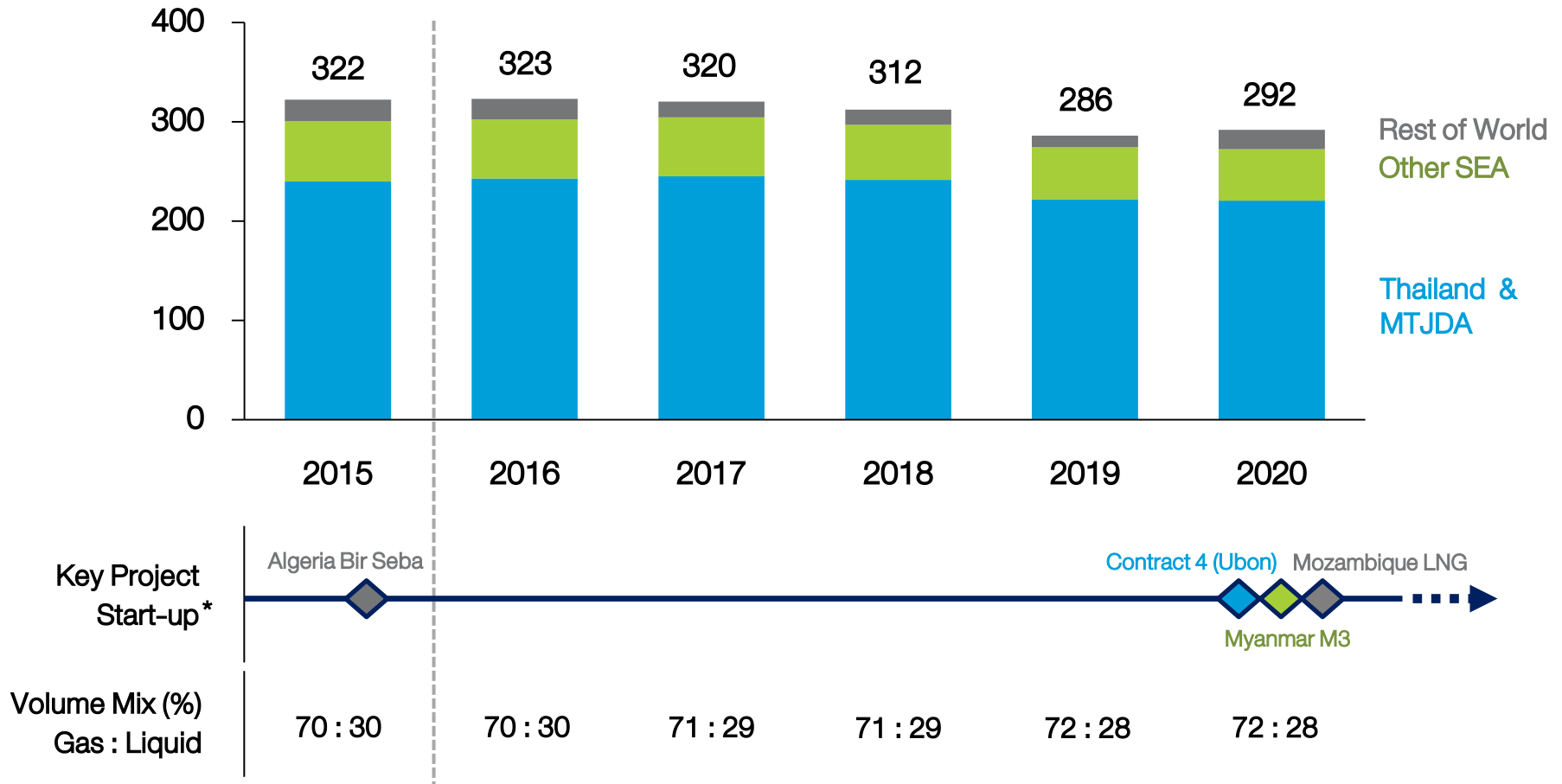


## Dividend Payment History (Policy : No Less Than 30% of Net Income)





Unit : KBOED



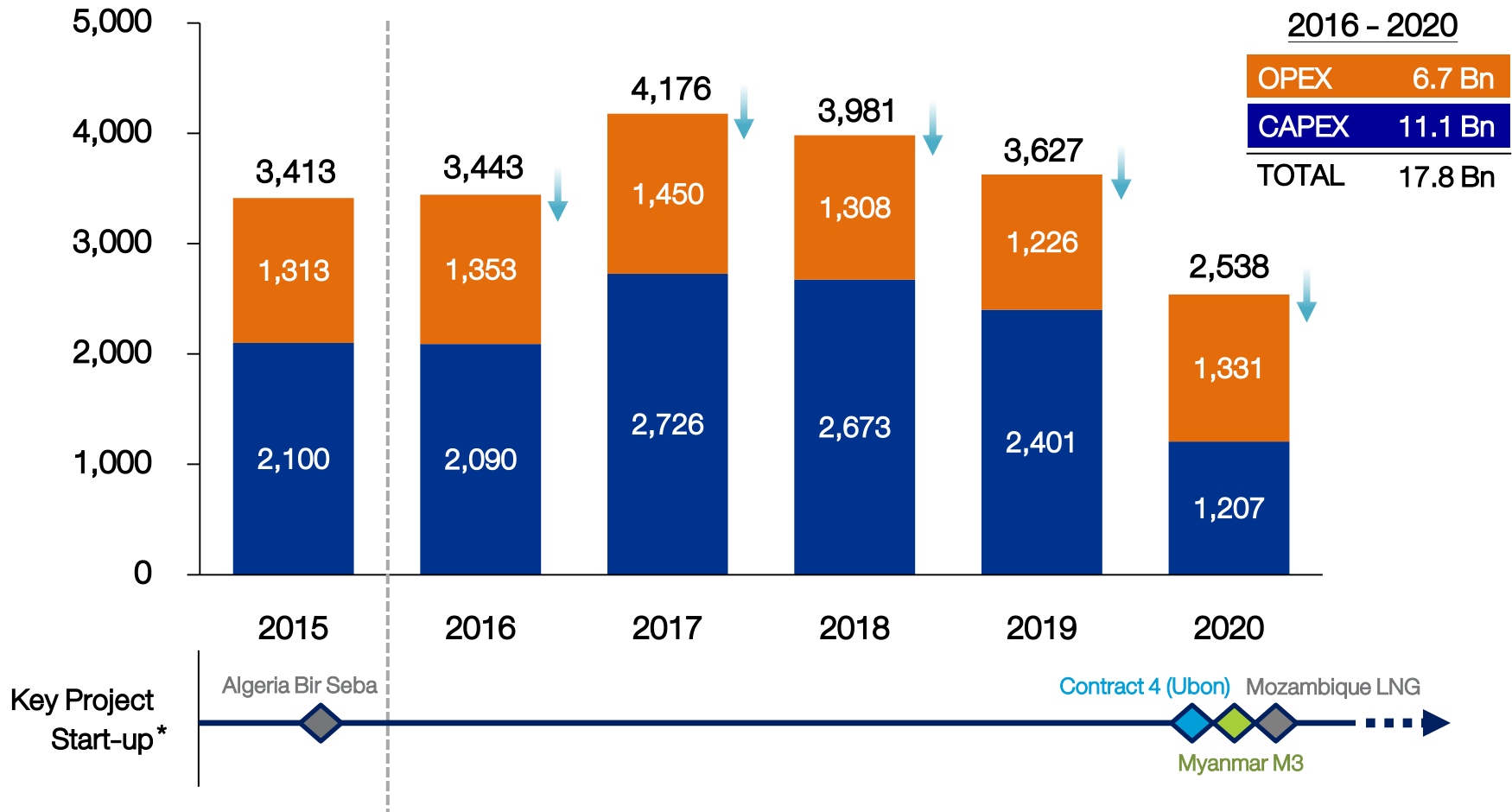
Note: Sales volume after reclassification of PSC royalty

\* Subject to FID timing



Unit : MMUSD

Flexibility to lower investment from the announced plan

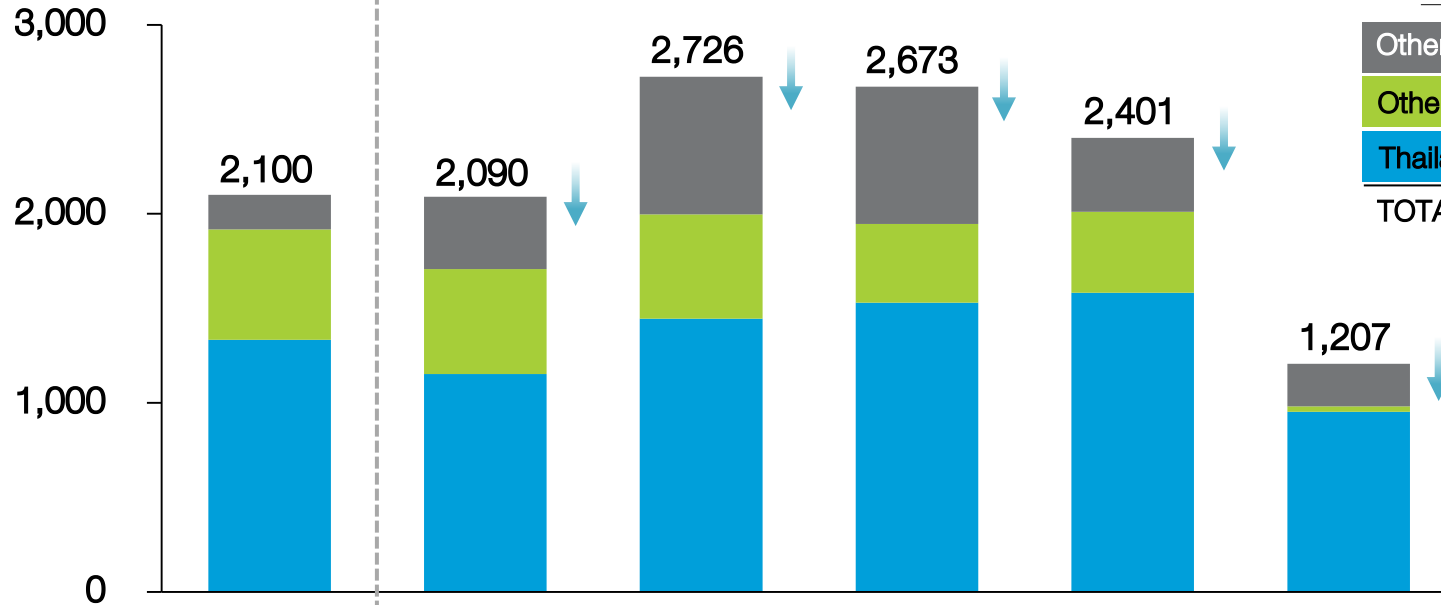


Note: \* Subject to FID timing



## Flexibility to lower CAPEX from the announced plan

Unit : MMUSD



### 2016 - 2020

Other regions	2.4 Bn
Other SEA	2.0 Bn
Thailand	6.7 Bn
<b>TOTAL</b>	<b>11.1 Bn</b>

### By Activities :

	2015	2016	2017	2018	2019	2020	2016 - 2020
Production	81%	82%	64%	53%	52%	65%	62%
New Project Development *	3%	15%	31%	45%	39%	35%	33%
Exploration and Others **	16%	3%	5%	2%	8%	1%	5%

Note: \* Subject to FID

\*\* Includes exploration and appraisal in all projects and HO CAPEX



MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM

## 2016 DJSI Listed Company

PTTEP selected for the DJSI World Oil and Gas Upstream & Integrated Industry with the highest score in 2016



## Proven business integrity

Certified Member

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

CG Awards

*The ASEAN Capital Market Forum (ACMF)*

CG Asia Recognition Awards

*Corporate Governance Asia Magazine*



**United Nations  
Global Compact**

## Advanced Level Certification

United Nations Global Compact



## Exemplary social contributor

Bronze Stevie Award

*Parasite-Free School Program*

Platinum Award

*Free healthcare Center Project Indonesia*

## Green driver to environment

Best Environmental Responsibility

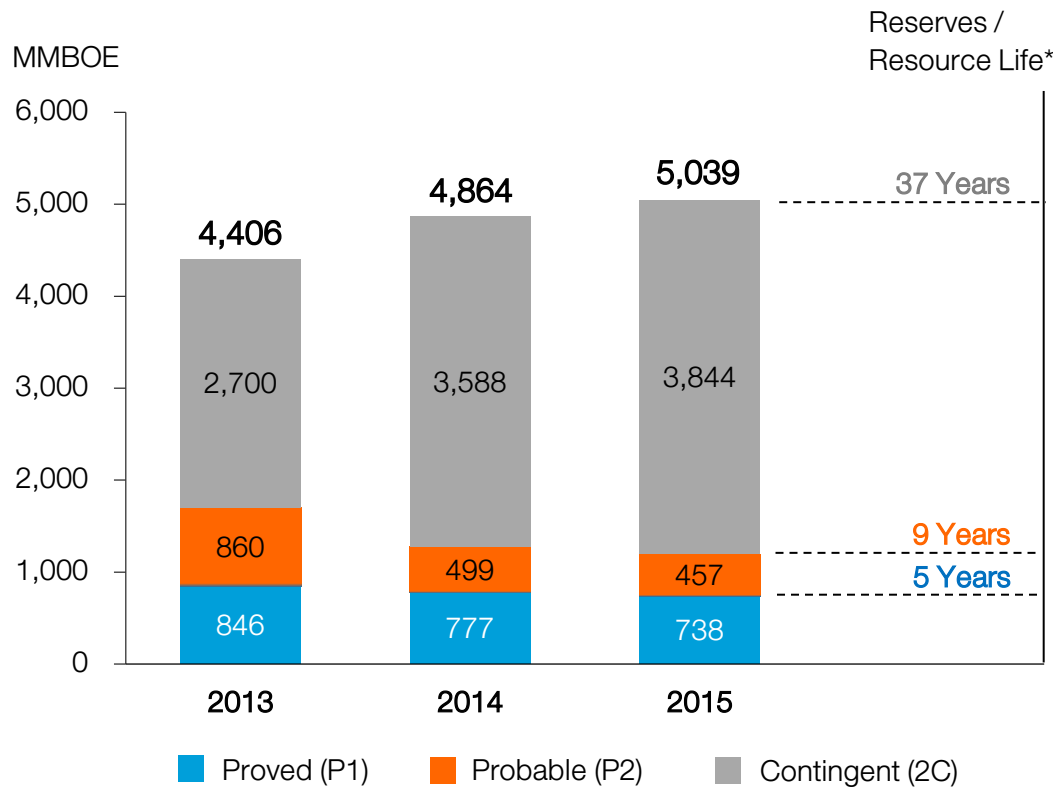
*Corporate Governance Asia Magazine*

CDP's Climate A List

*CDP*

Participation in Thailand Voluntary Emission Reduction Program (T-VER)

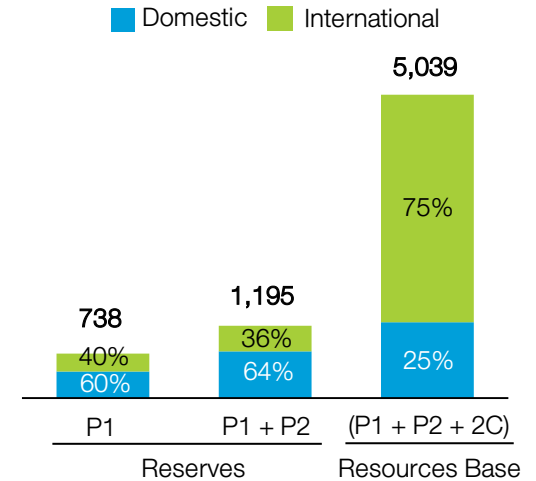




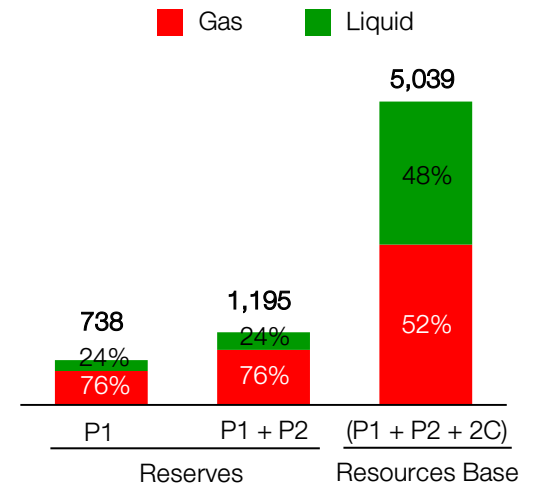
5-Year Average Proved Reserves Replacement Ratio (RRR)

2013	2014	2015
0.82x	0.45x	0.50x

### 2015 by Geography



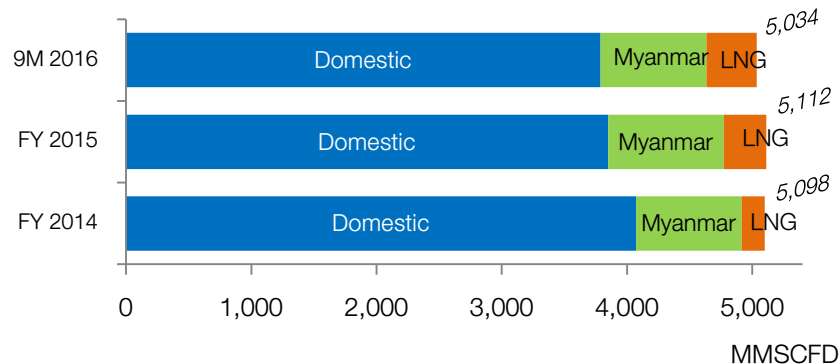
### 2015 by Product Type



\* Based on total production of natural gas, condensate, and crude oil (including LPG) of 374 KBOED for the year ended December 31, 2015

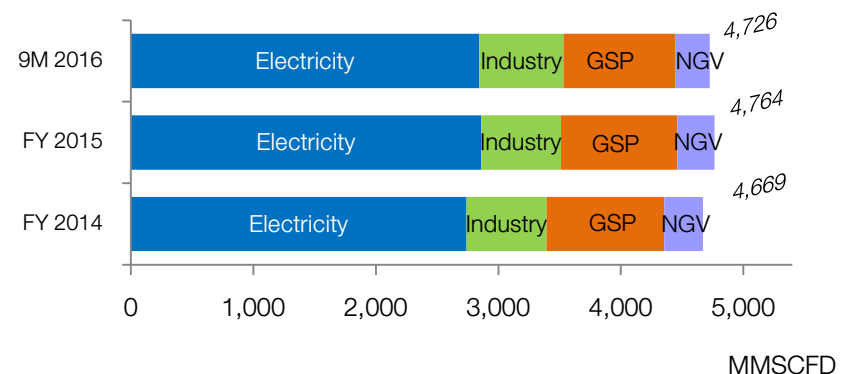


### Thailand's Natural Gas Supply by Source



Source: EPPO

### Thailand's Natural Gas Consumption by Sector



Source: EPPO

### Exchange Rate Movement (THB/USD)



Source: Bank of Thailand, Bloomberg

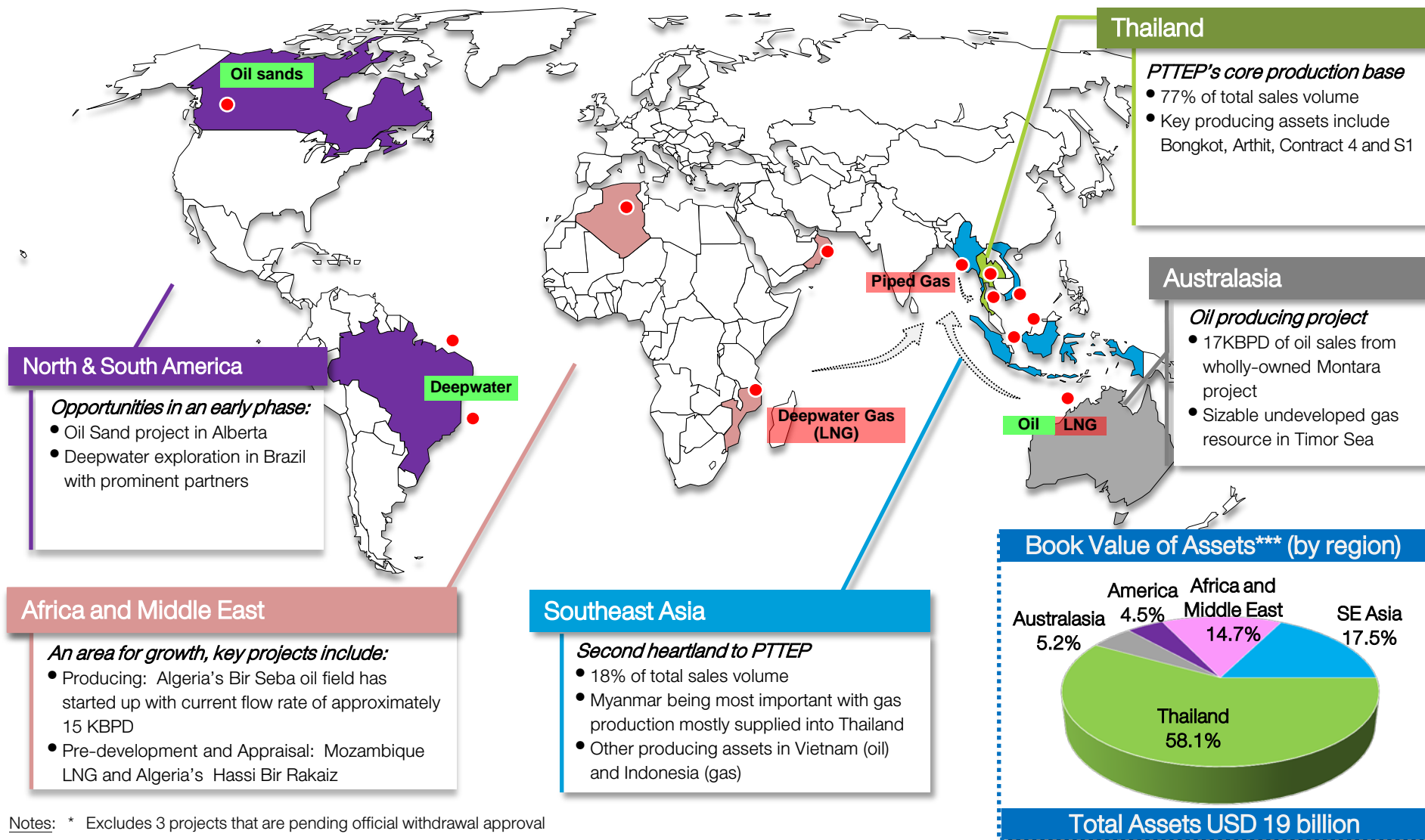
Forecast based on Bloomberg Consensus as of 19 October 2016

### Thailand's Gas Market:

- In meeting stable domestic demand, saw a slight increase in LNG imports and Myanmar volumes decline due to planned shutdown in 9M 2016

### Exchange Rate:

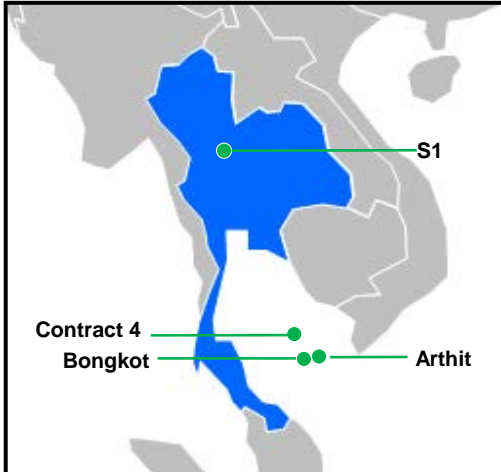
- Continue to be volatile; risk to weakening THB if FED increases interest rate in Q4'2016



Notes: \* Excludes 3 projects that are pending official withdrawal approval

\*\* Information dated as of 31 October 2016

\*\*\* Information as of 30 September 2016



● Production / Ramp-up Projects

### Bongkot (44.4% interest)

- Bongkot's natural gas sales volume of 888 MMSCFD (9M2016) represents approximately 18% of Thailand's natural gas supply
- Average condensate sales volume was 27 KBPD in 9M2016

### S1 (100% interest)

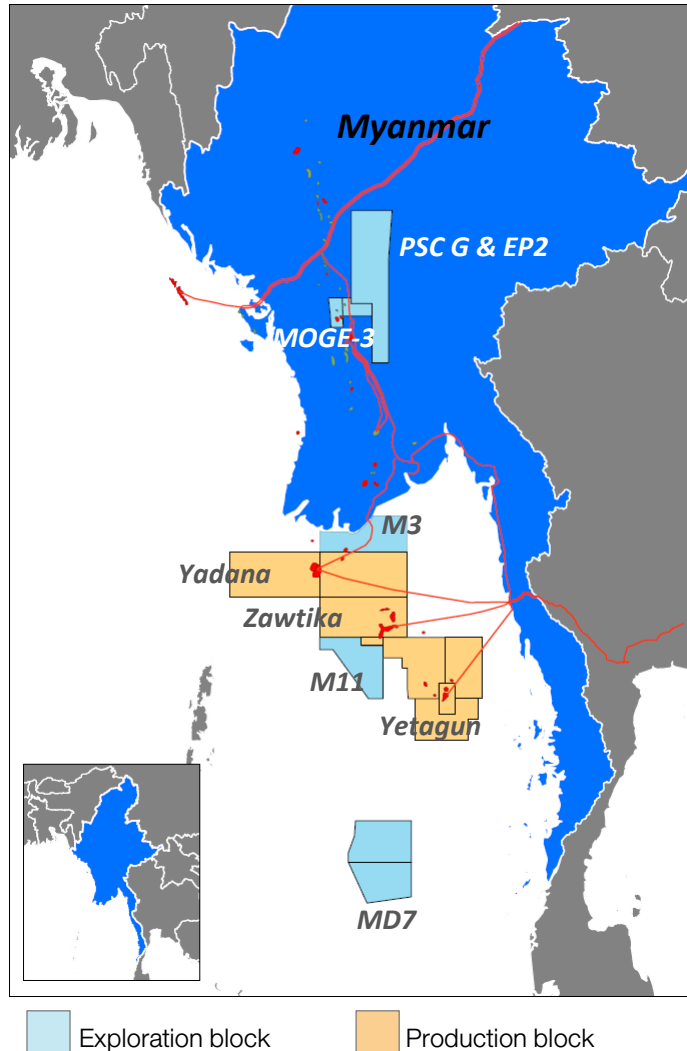
- S1 is the largest onshore crude oil production field in Thailand
- Average crude oil sales volume was 27 KBPD in 9M2016

### Arthit (80% interest)

- Average sales volume in 9M2016 was 220 MMSCFD of natural gas and 10 KBPD of condensates

### Acquisition of Hess Assets in Thailand

- PTTEP successfully acquired Hess Corporation's working interests in the Contract 4 project and Sinphuhorm project, and now holds 60% working interest in the Contract 4 project and 55% working interest in the Sinphuhorm project. PTTEP has also become the operator of the Sinphuhorm project
- The Contract 4 project had an average sales rate of 323 MMSCFD for natural gas and 15 KBPD for condensate in 9M2016



- Participating in three producing gas fields which supply gas to both Thailand and Myanmar: Yadana, Yetagun, Zawtika
- Operate Zawtika project, brought online in August 2014. Deliver gas supply of 301 MMSCFD in 9M2016.
- 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>• PSC G &amp; EP2 (70% WI)</li> <li>• MOGE-3 (75% WI)</li> <li>• M11 (100% WI)*</li> <li>• MD7 (100% WI)*</li> </ul>

Note: WI – working interest

\* New participating interest subject to government approval



**Vietnam 16-1**



● Production / Ramp-up Projects

**Natuna Sea A**



## Vietnam 16-1 (28.5% interest)

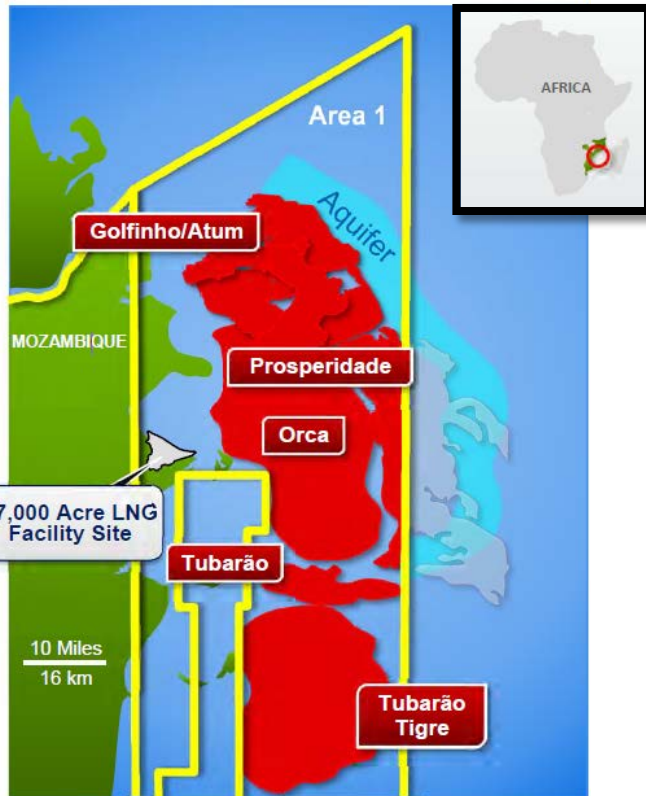
- Average crude oil sales volume of 26 KBPD in 9M2016
- Commissioned production platform in the H5 area to support current production level

## Natuna Sea A (11.5% interest)

- Average sales volume of natural gas was 217 MMSCFD in 9M2016

Source : Premier Oil





## 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

### Technical

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

### Commercial

- ✓ Secured more than 8 MTPA of non-blinding HOAs

### Regulatory

- ✓ Decree law ratified
- ✓ Substantial engagement with government to progress on remaining agreements and approvals to support investment

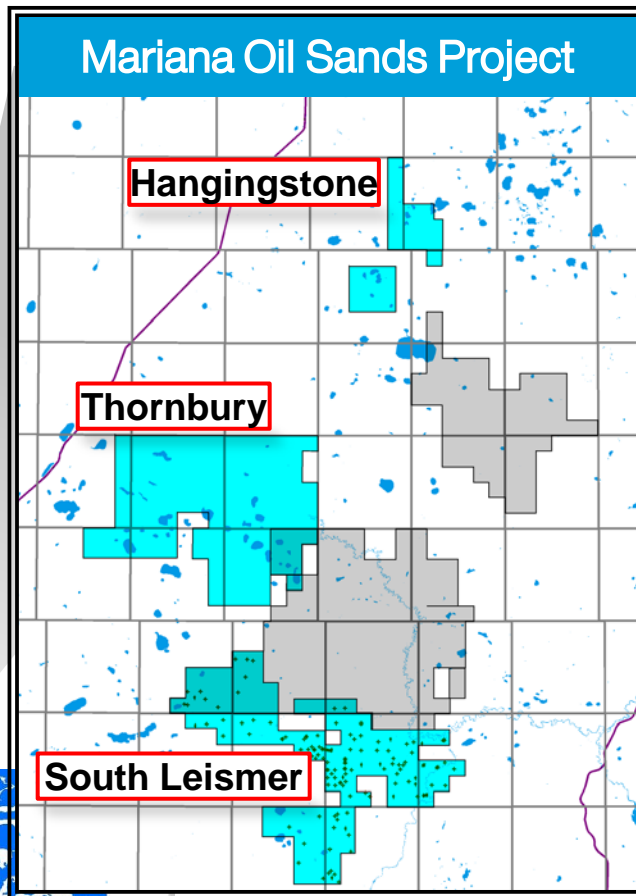
### Financing

- ✓ Positive indications on project financing

**Onwards to initial phase of 12 MTPA**

Source: Anadarko

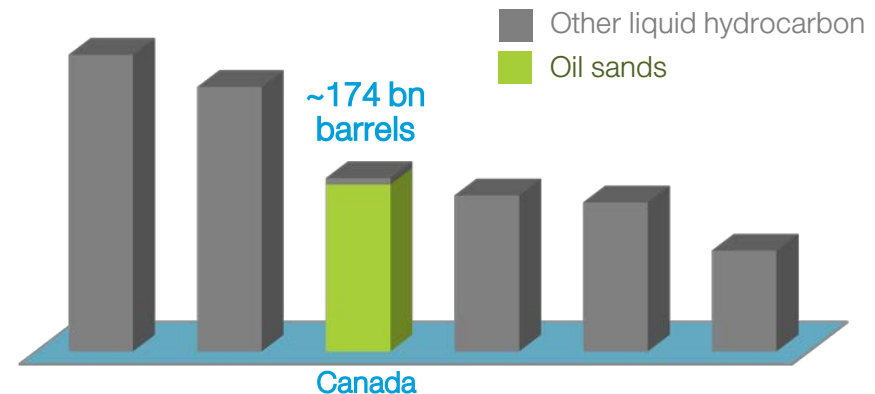




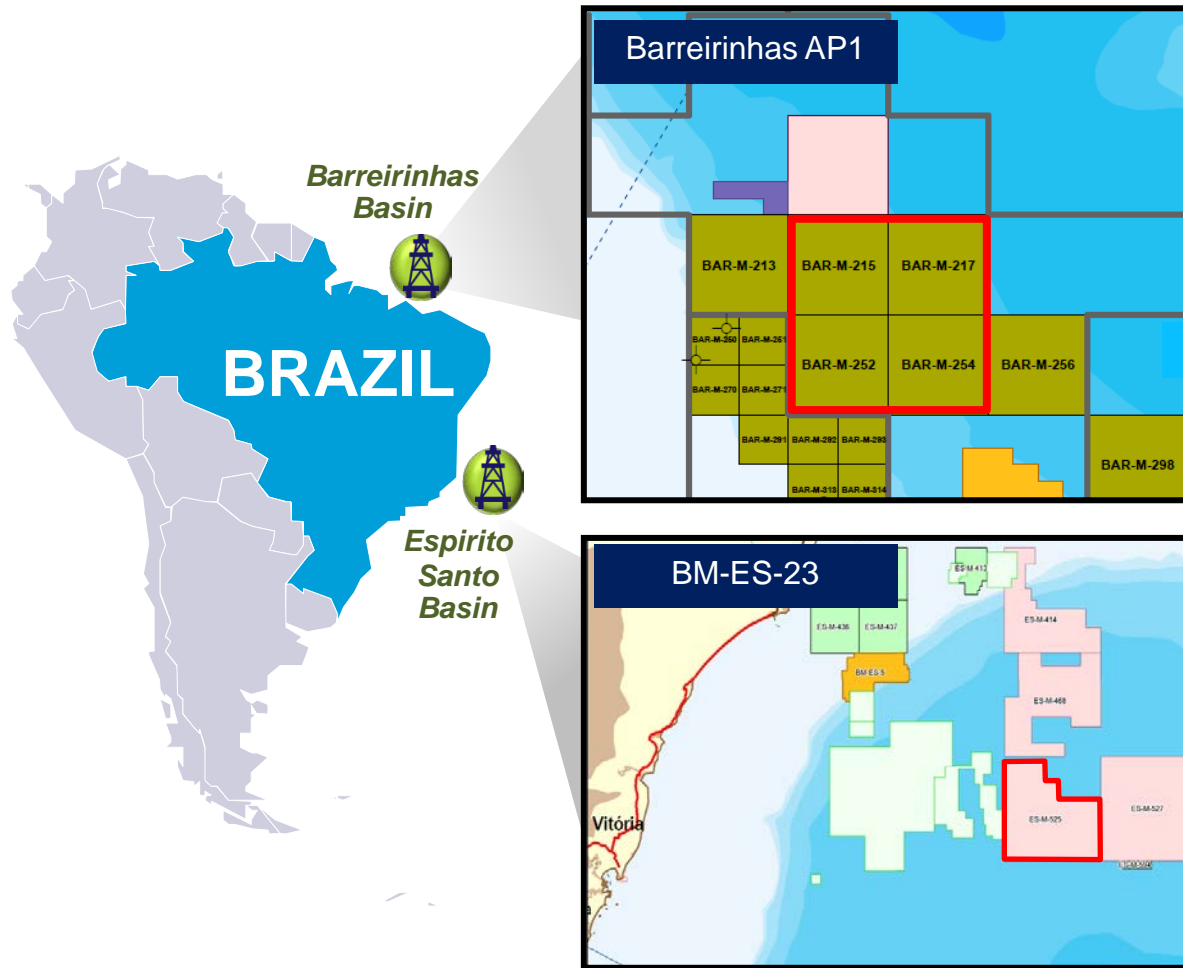
## Project Overview

- 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
- Current focus on assessing cost reduction opportunity in light of low oil price environment.

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 BG Group (75% 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)



	Project	Status*	PTTEP's Share	Partners <i>(as of Q3 2016)</i>		9M 2016 Average Sales Volume **		2016 Key Activities
						Gas	Oil and Other	
Production Phase								
Thailand and JDA								
1	Arthit	OP	80%	Chevron MOECO	16% 4%	220 MMSCFD	Condensate: 10 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>
2	B6/27	OP	60%***			N/A	N/A	<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%	127 MMSCFD	Crude: 29 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 British Gas	33.3333% 22.2222%	888 MMSCFD	Condensate: 27 k BPD	<ul style="list-style-type: none"><li>Ensure gas deliverability level at DCQ****</li><li>Drill Exploration / Appraisal / Development wells</li><li>Install wellhead platforms</li></ul>
5	Contract 3 <i>(Formerly Unocal III)</i>		5%	Chevron MOECO	71.25% 23.75%	586 MMSCFD	Crude: 24 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 <i>(Formerly Pailin)</i>		60%	Chevron MOECO	35% 5%	323 MMSCFD	Condensate: 15 k BPD	<ul style="list-style-type: none"><li>Ensure gas deliverability level at DCQ****</li><li>Drill exploration / appraisal / development wells</li><li>Install wellhead platforms</li><li>Review development plan of Ubon field</li></ul>
7	E5		20%	ExxonMobil	80%	11 MMSCFD	-	
8	G4/43		21.375%	Chevron MOECO PSTL	51% 21.25% 6.375%	1.6 MMSCFD	Crude: 6.3 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%	7.3 MMSCFD	Crude: 1.3 k BPD	
10	L53/43 & L54/43	OP	100%			-	Crude: 544 BPD	<ul style="list-style-type: none"><li>Drill exploration and development wells</li></ul>
11	PTTEP1	OP	100%			-	Crude: 378 BPD	<ul style="list-style-type: none"><li>Drill development wells</li><li>Perform waterflood activities</li></ul>
12	S1	OP	100%			23 MMSCFD	Crude: 27 k BPD	<ul style="list-style-type: none"><li>Drill exploration / appraisal / development wells</li><li>Enhance oil recovery program includes waterflooding and artificial lift</li></ul>
13	Sinphuhorm	OP	55%	Apico ExxonMobil	35% 10%	120 MMSCFD	Condensate: 444 BPD	<ul style="list-style-type: none"><li>Drill development wells</li></ul>
14	MTJDA	JOC	50%	Petronas-Carigali	50%	309 MMSCFD	Condensate: 8.3 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: 165 BPD	<ul style="list-style-type: none"><li>Drill exploration / development wells</li></ul>

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

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

\*\*\* Pending the approval of the partner divestment from DMF

\*\*\*\* DCQ = Daily Contractual Quantity



	Project	Status*	PTTEP's Share	Partners (as of Q3 2016)	9M 2016 Average Sales Volume **		2016 Key Activities
					Gas	Oil and Other	
Production Phase							
Overseas							
16	Oman 44 ***	OP	100%		17 MMSCFD	Condensate: 854 BPD	<ul style="list-style-type: none"><li>Maintain production operation</li></ul>
17	Vietnam 9-2	JOC	25%	PetroVietnam 50% SOCO 25%	12 MMSCFD	Crude: 3.9 k BPD	<ul style="list-style-type: none"><li>Maintain production operation</li><li>Perform reservoir management</li></ul>
18	Yadana		25.5%	TOTAL 31.24% Chevron 28.26% MOGE 15%	745 MMSCFD	-	<ul style="list-style-type: none"><li>Drill exploration / development wells</li><li>Acquire 2D seismic reprocessing</li><li>Perform reservoir management</li></ul>
19	Yetagun		19.3178%	Petronas-Carigali 30.00140% MOGE 20.4541% Nippon Oil 19.3178% PC Myanmar (Hong Kong) 10.90878%	233 MMSCFD	Condensate: 5.4 k BPD	<ul style="list-style-type: none"><li>Drill development wells</li><li>Perform reservoir Management</li></ul>
20	Vietnam 16-1	JOC	28.5%	PetroVietnam 41% SOCO 28.5% OPECO 2%	12 MMSCFD	Crude: 26 k BPD	<ul style="list-style-type: none"><li>Drill development wells</li><li>Perform reservoir management</li><li>Review feasibility for water handling facility upgrade</li></ul>
21	PTTEP Australasia (PTTEP AA)	OP	50%-100% (varied by permits)		-	Crude: 15 k BPD	<ul style="list-style-type: none"><li>Maintain production operation</li><li>Assess resource potential of exploration permits</li></ul>
22	Natuna Sea A		11.5%	Premier Oil 28.67% KUFPEC 33.33% Petronas 15% Pertamina 11.5%	217 MMSCFD	Crude: 1.5 k BPD	<ul style="list-style-type: none"><li>Maintain production operation</li></ul>
23	Zawtika (M9 & a part of M11)	OP	80%	Myanma Oil and Gas Enterprise (MOGE) 20%	301 MMSCFD	-	<ul style="list-style-type: none"><li>Maintain production rate</li><li>Drill development wells</li><li>Install wellhead platforms</li></ul>
24	Algeria 433a & 416b (Bir Seba)	JOC	35%	PetroVietnam 40% Sonatrach 25%	-	Crude: 2.2 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

\*\*\* In the process of divestment transaction closing



	Project	Status*	PTTEP's Share	Partners (as of Q3 2016)	2016 Key Activities
<b>Exploration Phase</b>					
<b>Thailand and JDA</b>					
25	G9/43	OP	100%		
<b>Overseas</b>					
26	Myanmar M3	OP	80%	MOECO 20%	<ul style="list-style-type: none"> <li>Access development options and commercial potential</li> </ul>
27	Mozambique Rovuma Offshore Area 1		8.5%	Anadarko, Mitsui, 26.5%, 20%, ENH, Bharat Petroleum, 15%, 10%, BREML, OVL 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>
28	Algeria Hassi Bir Rekaiz	OP	24.5%	CNOOC 24.5%, Sonatrach 51%	<ul style="list-style-type: none"> <li>Drill Appraisal wells</li> </ul>
29	Myanmar M11	OP	100%**		<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>
30	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>
31	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>
32	Myanmar PSC G and EP 2	OP	70%	WinPreciousResources 10%, MOECO 10%, Palang Sophon Offshore 10%	<ul style="list-style-type: none"> <li>Conduct G&amp;G studies</li> </ul>
33	Myanmar MD 7	OP	100%		<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>
34	Mariana Oil Sands	OP	100%		<ul style="list-style-type: none"> <li>Assess development approach and cost reduction opportunity</li> </ul>
35	Barreirinhas AP1		25%	BG Brasil 75%	<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>

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

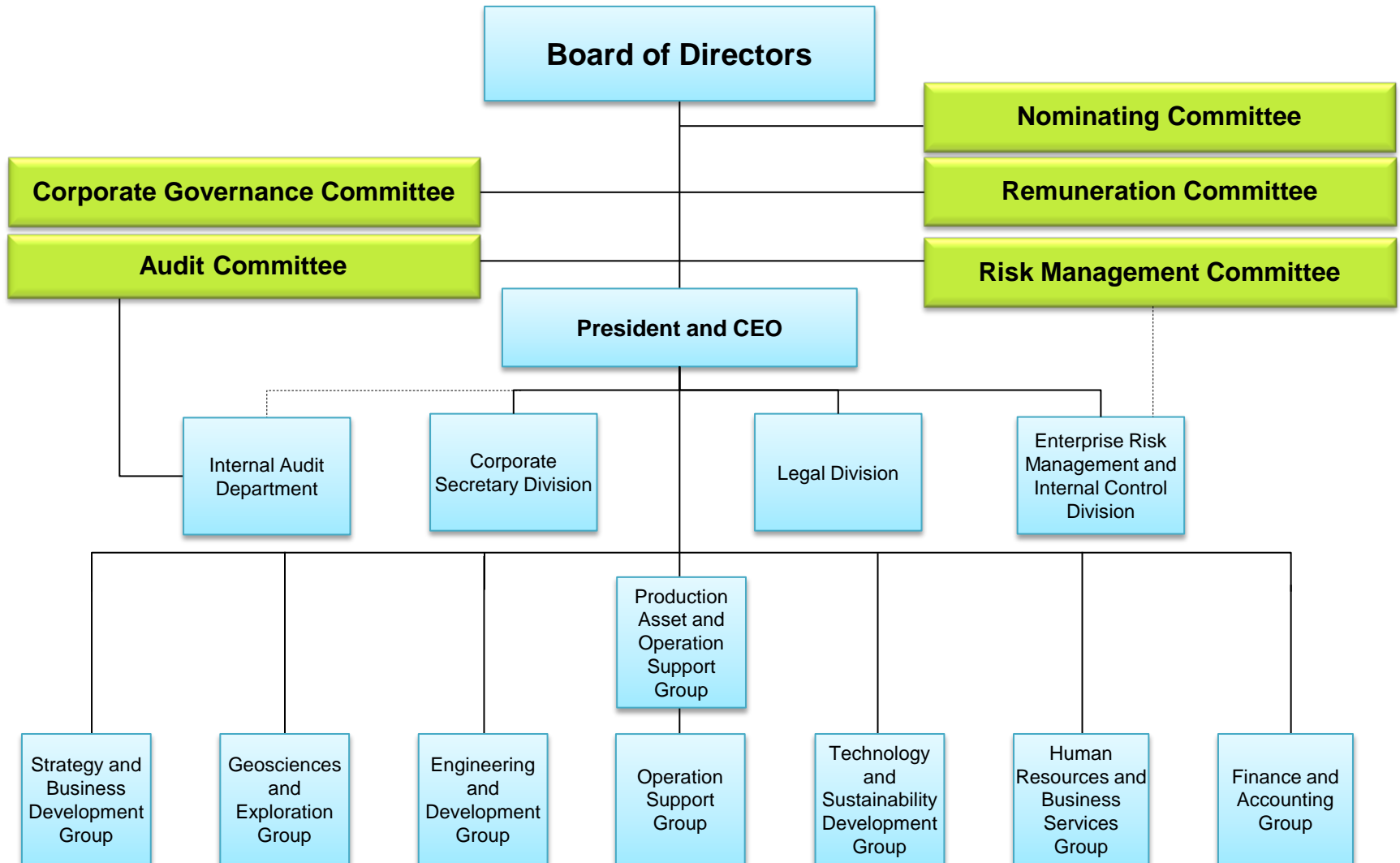
\*\* New participating interest subject to government approval



	Project	Status*	PTTEP's Share	Partners (as of Q3 2016)	2016 Key Activities
<b>Exploration Phase</b>					
<b>Overseas (Cont'd)</b>					
36	<b>Myanmar MOGE 3</b>	OP	75%	Palang Sophon Offshore MOECO WinPreciousResources	10% 10% 5% • Acquire 3D seismic
37	<b>Brazil BM-ES-23</b>		20%	Petrobras INPEX	65% 15% • Drilling result and resource evaluation
38	<b>Malaysia SK410B</b>	OP	42.5%	KUFPEC PSCB	42.5% 15%

Remarks: 38 projects exclude 3 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	$(\text{Trailing-12-month net income} + \text{Trailing-12-month Interest Expenses \& Amortise Bond Issuing Cost}) / (\text{Average shareholders' equity and average total debt between the beginning and the end of the 12-month period})$
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	$\text{Trailing-12-month EBITDA} / \text{Trailing-12-month Interest Expenses \& Amortize Bond Issuing Cost}$