

# PTT Exploration and Production Public Company Limited

UBS LVMC Conference 2016

2 June 2016



## PTTEP

MEMBER OF

**Dow Jones  
Sustainability Indices**

In Collaboration with RobecoSAM





# Company & Financial Highlights

## Strategy & Outlook



## 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%

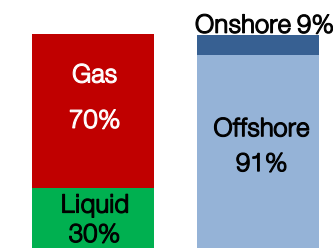
Domestic

~ 75%

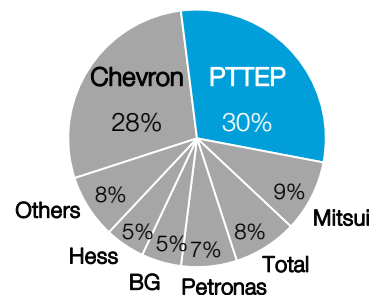
Domestic Production  
(2015)

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:

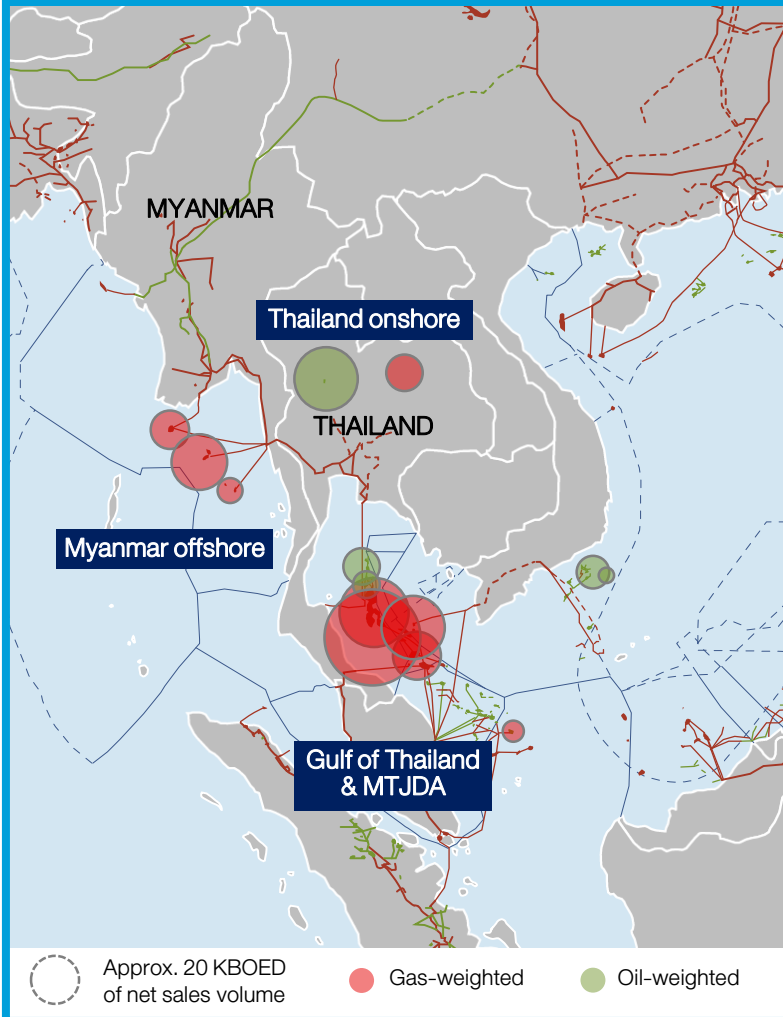
1. Ownership as of 12 February 2016

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

<b>93</b>	%	of PTTEP's total sales volume
<b>+99</b>	%	Reliability of plants and field facilities*
<b>86</b>	%	of PTTEP's sales volume sold to PTT
<b>15</b>	USD/BOE	Average regional cash cost in 2015

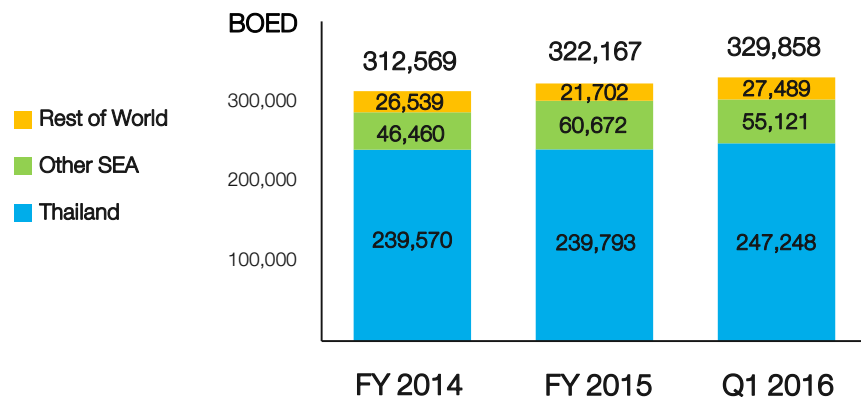
\* of PTTEP-operated projects in Gulf of Thailand, exclude planned shutdown time

All figures are as of year-end 2015



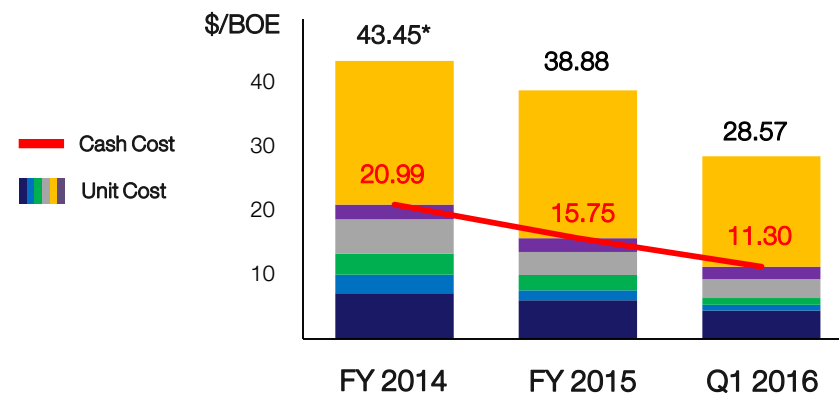


## Sales Volume and Price



Gas (\$/MMBTU)	8.06	7.20	6.09
Liquid (\$/BBL)	94.82	50.05	32.04
Weighted Avg. (\$/BOE)	63.71	45.29	35.08
Avg. Dubai (\$/BBL)	96.60	50.91	30.42
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	86.74	44.86	24.67
Volume Mix (Gas:Liquid)	67 : 33	70 : 30	68 : 32
Revenue Mix (Gas:Liquid)	51 : 49	66 : 34	71 : 29

## Unit Cost



DD&A	22.46	23.13	17.27
Finance Cost	2.27	2.14	1.94
Royalties	5.34	3.62	2.94
G&A	3.30	2.39	1.08
Exploration Expenses	2.92	1.56	0.86
Operating Expenses**	7.16	6.04	4.48
Lifting Cost	5.26	4.62	3.90
Drilling Success Ratio***	25 : 43	31 : 47	2 : 3

Remark: Sales Volume & Royalties: after reclassification of PSC royalty

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

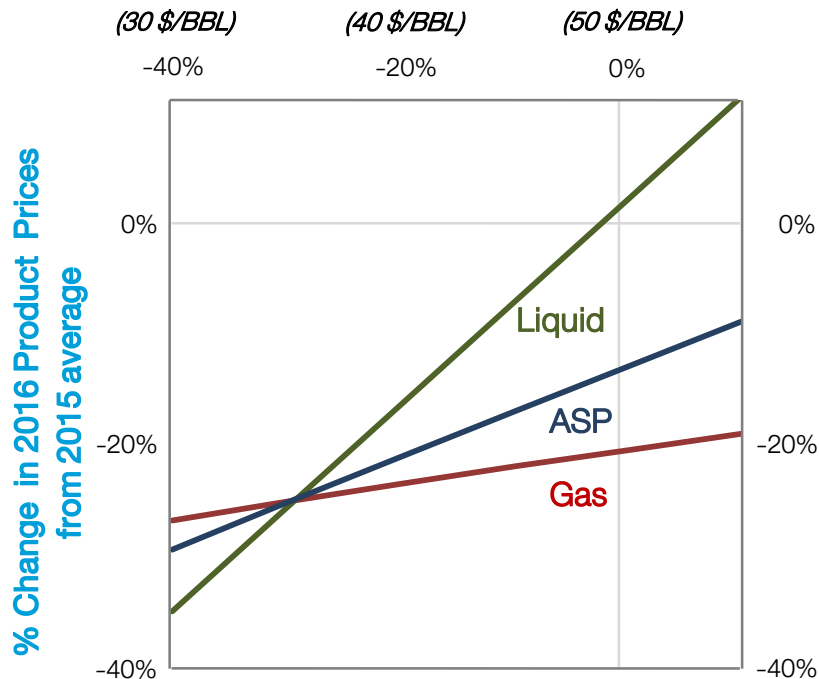
\*\* Exclude diluent cost for blending bitumen in KKD Oil Sands project

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

## Product price sensitivity to oil price

- Liquid price largely moves in line with crude price
- Gas price impacted by last year's crude price due to lag time in price adjustment

% Change in 2016 Dubai from 2015 average  
(average 2015 Dubai at \$50/BBL)



## Financial strength in Q1 2016

**0.8** billion USD  
Operating cash flow

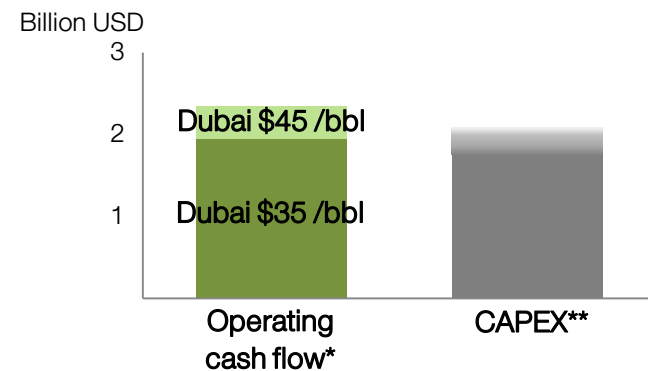
**74** %  
EBITDA margin

**3.7** billion USD  
Cash on hand

**0.27** x  
Total debt/equity ratio

## 2016 liquidity outlook

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



\* assumes various operational assumptions and modelled on varying Dubai prices  
\*\* ranges from 1.9-2.1 billion USD based on the announced 2016 CAPEX and subsequent reduction target of 10%



# Company & Financial Highlights

## Strategy & Outlook

---



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





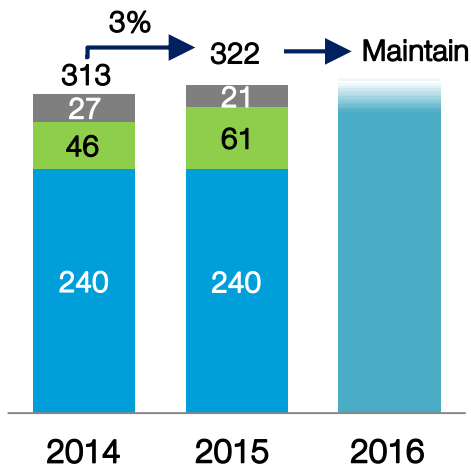
2016

2016 and beyond

## Maintain Sales Volume

Unit : KBOED

SEA RoW  
Thailand

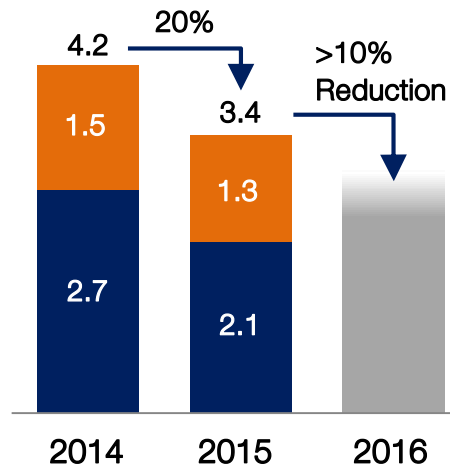


- ▶ Utmost compliance to safety
- ▶ Deliver domestic gas at DCQ
- ▶ Sustain field performance

## Lower Expenditures

Unit : bn USD

CAPEX OPEX

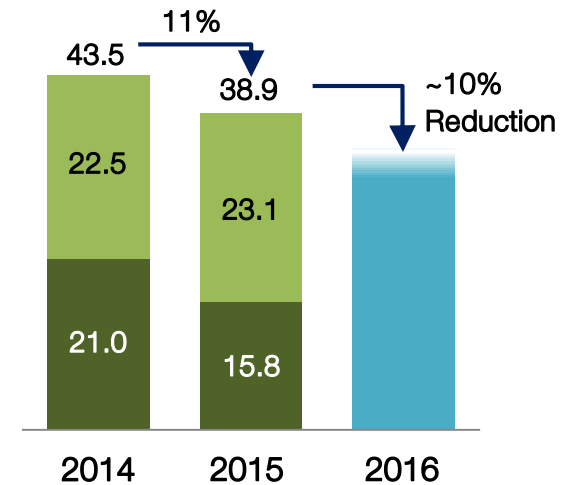


- ▶ Efficiency improvement and contract renegotiation
- ▶ Capital allocation prioritized for high quality assets

## 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

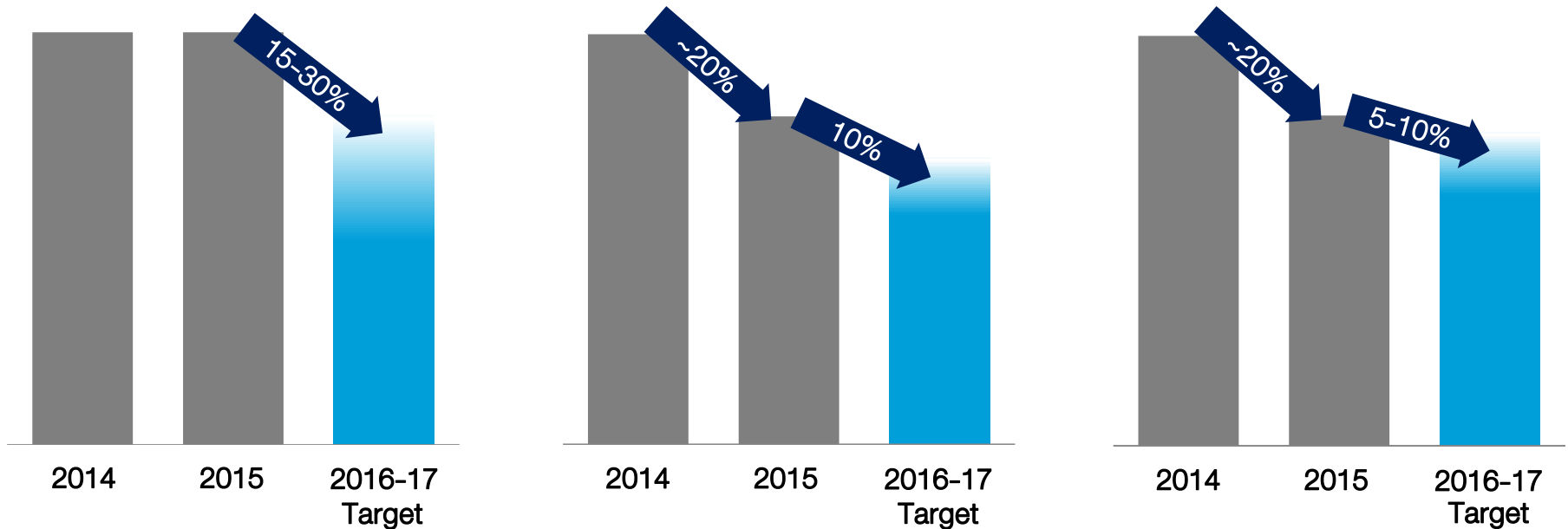


## Cost Improvements Across Operations

### Wellhead Platform Cost\*

### Average Cost Per Well\*\*

### OPEX and G&A Cost Per BOE



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

\*\* Primarily applicable to development wells in PTTEP-operated projects in Southeast Asia

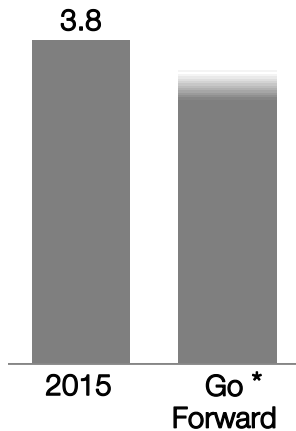


2016

2016 and beyond

## Convert 2C resources...

Unit : bn BOE



## Advancing with medium-term value contributors in portfolio...

Development Focus

Plan in place or revisited for further cost optimization

Commercial  
Cost

Mozambique Rov. Offshore Area 1

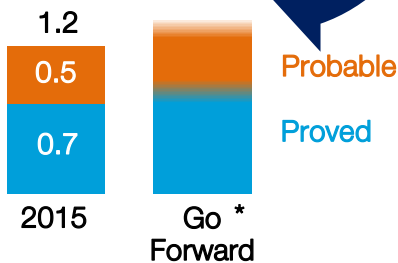
Contract 4 (Ubon)  
Algeria HBR Myanmar M3

Deferred for study / review

Cash/Maple  
Mariana Oil Sands

## ...to P1+P2 reserves

Unit : bn BOE



## ...as well as through portfolio management opportunities



- Producing / near-producing assets primarily in SE Asia
- Synergic opportunities with PTT on LNG value chain
- Consideration of portfolio rationalization

\* Go forward reserves and resources are illustrative and does not reflect the anticipated magnitude of conversion for any particular project



## 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 ~20% reduction in OPEX and G&A

## Financially strong and flexible

- ✓ Well-positioned in downturn with ~3.7 bn USD liquidity available and a low-debt capital structure of 0.27x D/E ratio as of Q1 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





Q1 2016 Financial Results	15-18
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



Unit : MMUSD

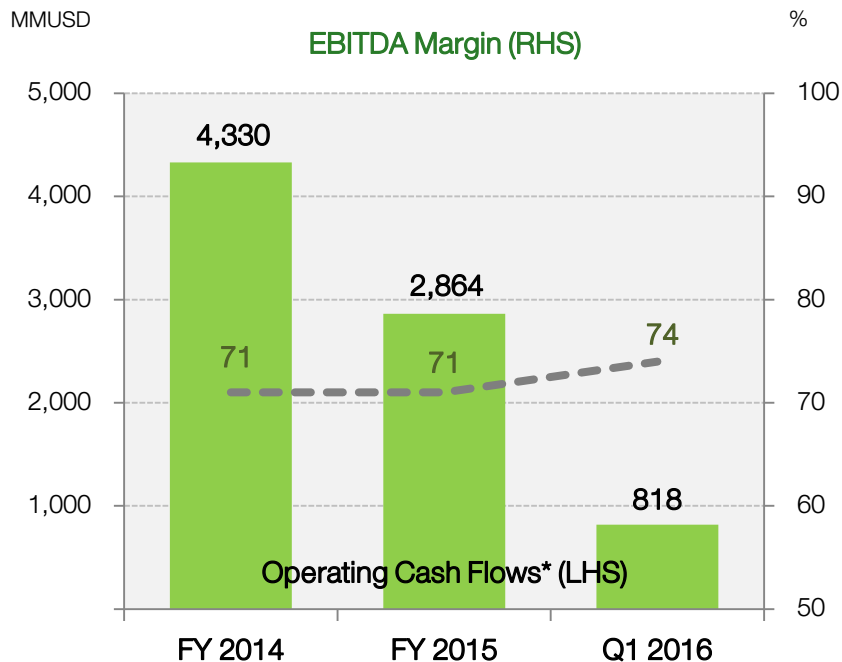
Statement of Income	Q4 15	Q1 16	% QoQ	Q1 15*	% YoY
<b>Total Revenues</b>	1,337	<b>1,093</b>	(18)	1,453	(25)
Sales	1,213	<b>1,053</b>	(13)	1,392	(24)
Others	124	<b>40</b>	(68)	61	(34)
Sales Volume (BOED)	336,363	<b>329,858</b>	(2)	315,851	4
Sales Price (USD/BOE)	39.18	<b>35.08</b>	(10)	48.95	(28)
<b>Total Expenses</b>	1,205	<b>936</b>	(22)	1,189	(21)
<b>Major Expenses:</b>					
Operating Expenses	178	<b>135</b>	(24)	167	(19)
Exploration Expenses	53	<b>26</b>	(51)	13	100
DD&A	612	<b>518</b>	(15)	728	(29)
Income Tax Expense	119	<b>30</b>	(75)	18	67
(Gain)/Loss on FX	(4)	<b>(6)</b>	(50)	34	>(100)
<b>Net Income</b>	<b>132</b>	<b>157</b>	<b>19</b>	<b>264</b>	<b>(41)</b>
Recurring Net Income	13	<b>116</b>	>100	248	(53)
Non-Recurring**	119	<b>41</b>	(66)	16	>100

\* Restated

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

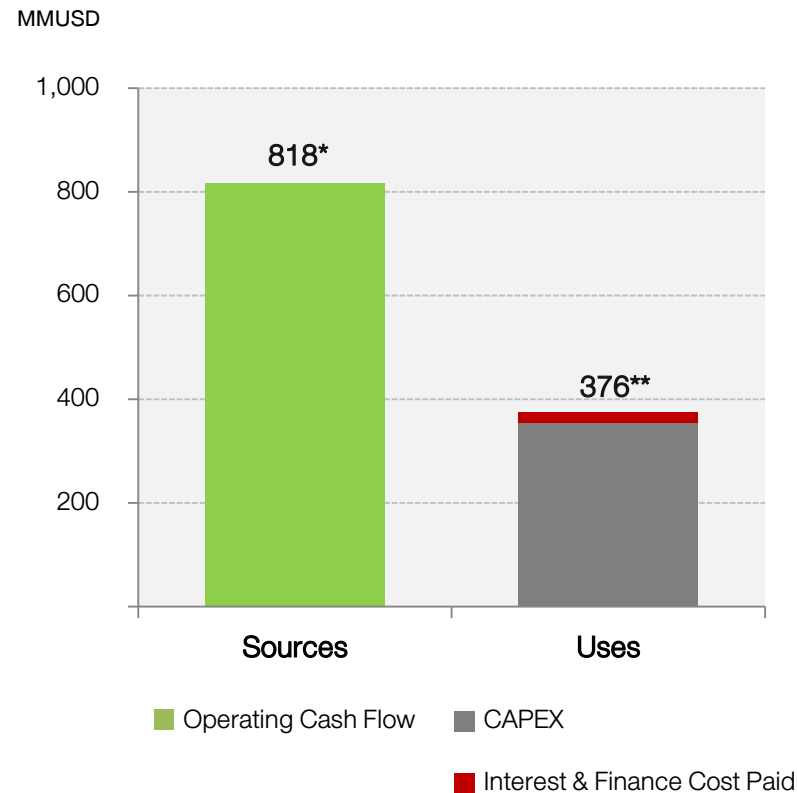


### Cash Flow Performance



Net Income	677	(854)	157
Recurring Net Income***	1,538	718	116

### Source & Use of Funds in Q1 2016

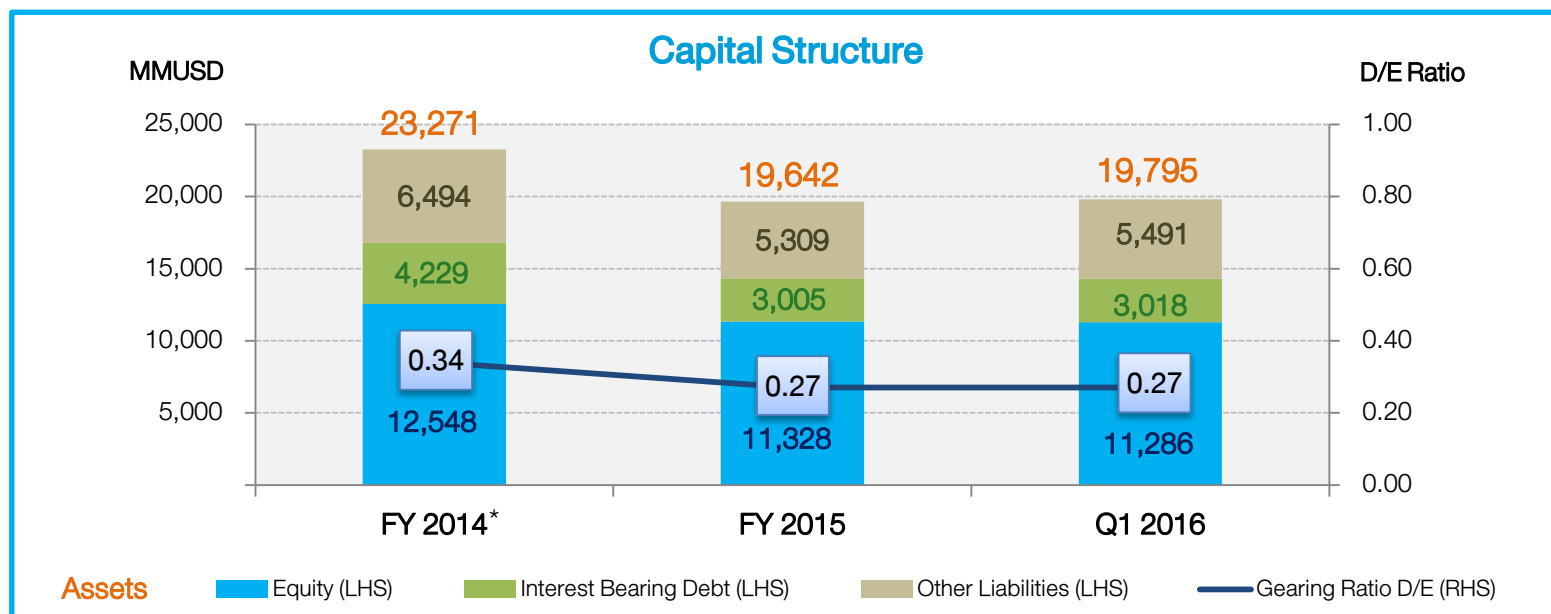


Remark: Sales Volume and sales revenue: after reclassification of PSC royalty

\* 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

4.42

[Fixed : Floating]

[77 : 23]

[82 : 18]

[82 : 18]

Average Loan Life\*\* (Years)

7.05

8.17

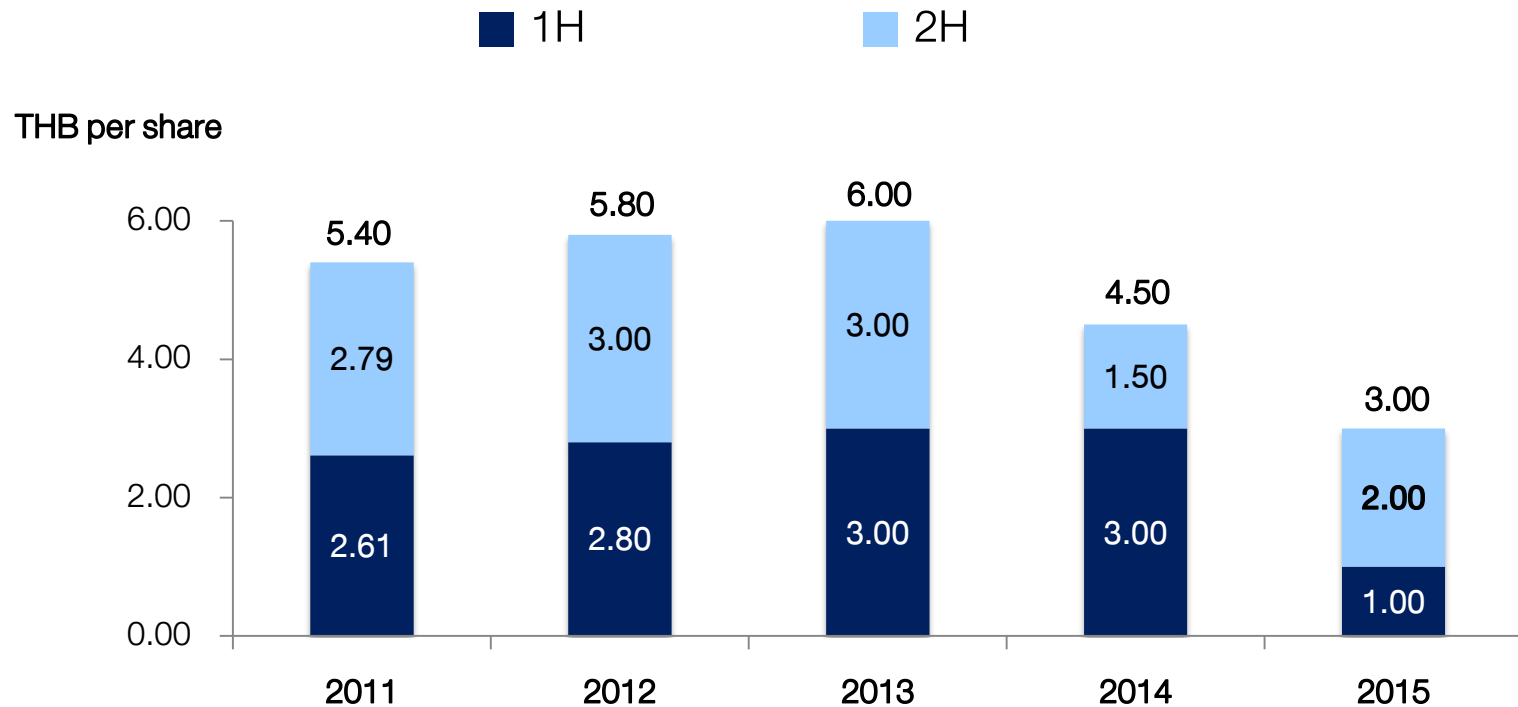
8.54

Remark: \* Restated

\*\* Excludes Hybrid bonds



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

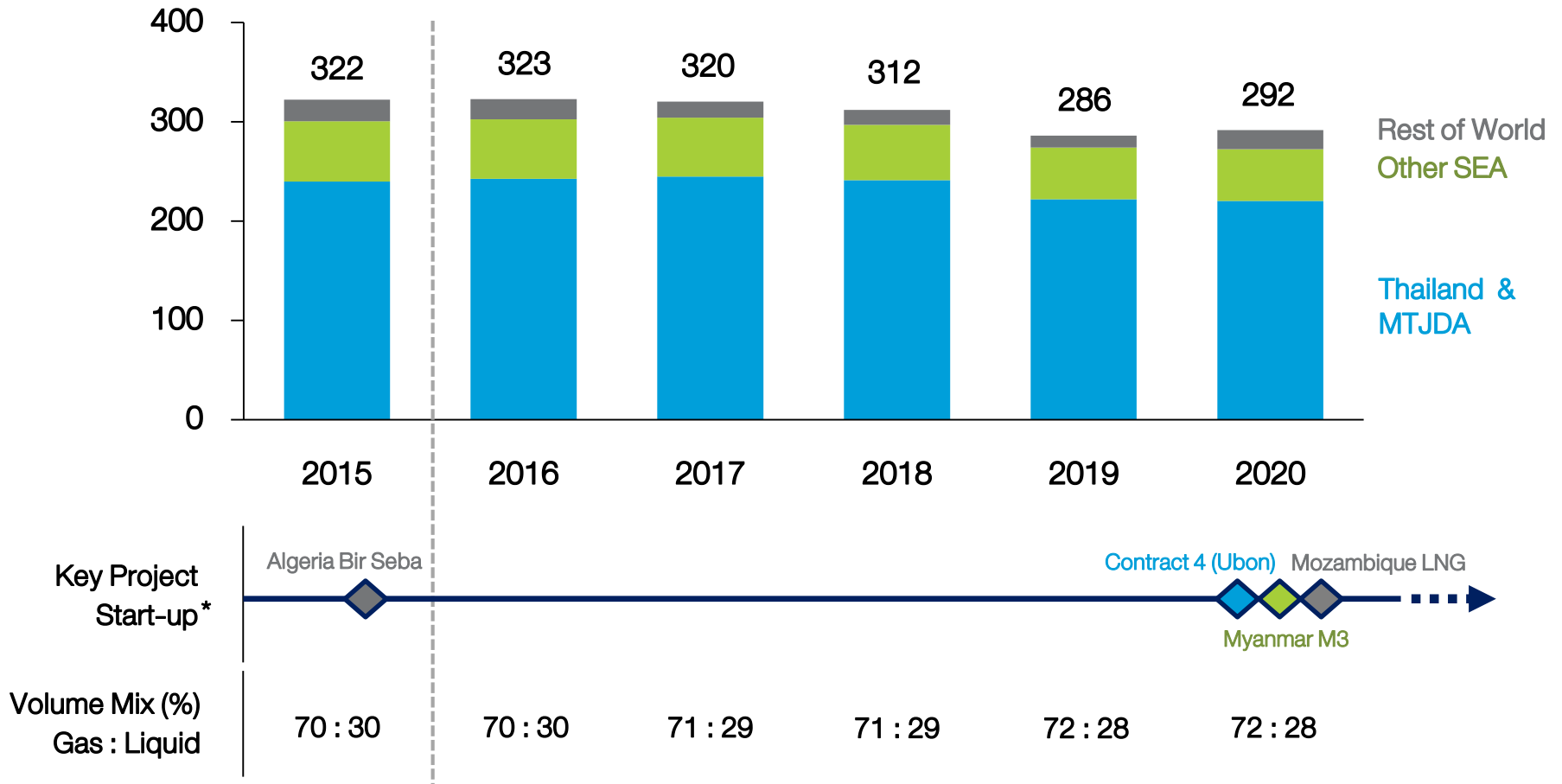


Payout Ratio (%)	40	38	40	82	N/A
------------------	----	----	----	----	-----





Unit : KBOED



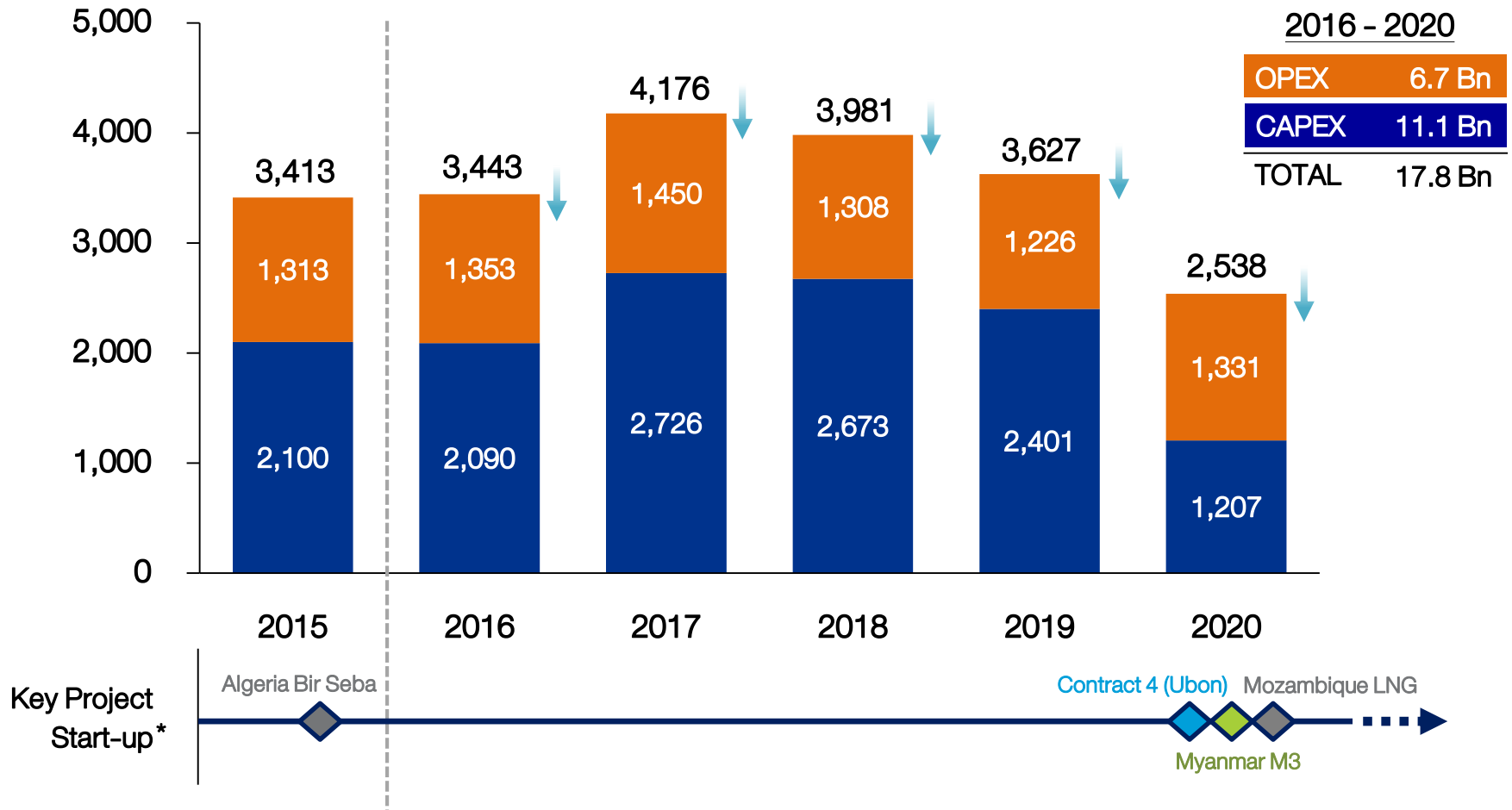
Note: Sales volume after reclassification of PSC royalty

\* Subject to FID timing



Unit : MMUSD

Flexibility to lower investment from the announced plan

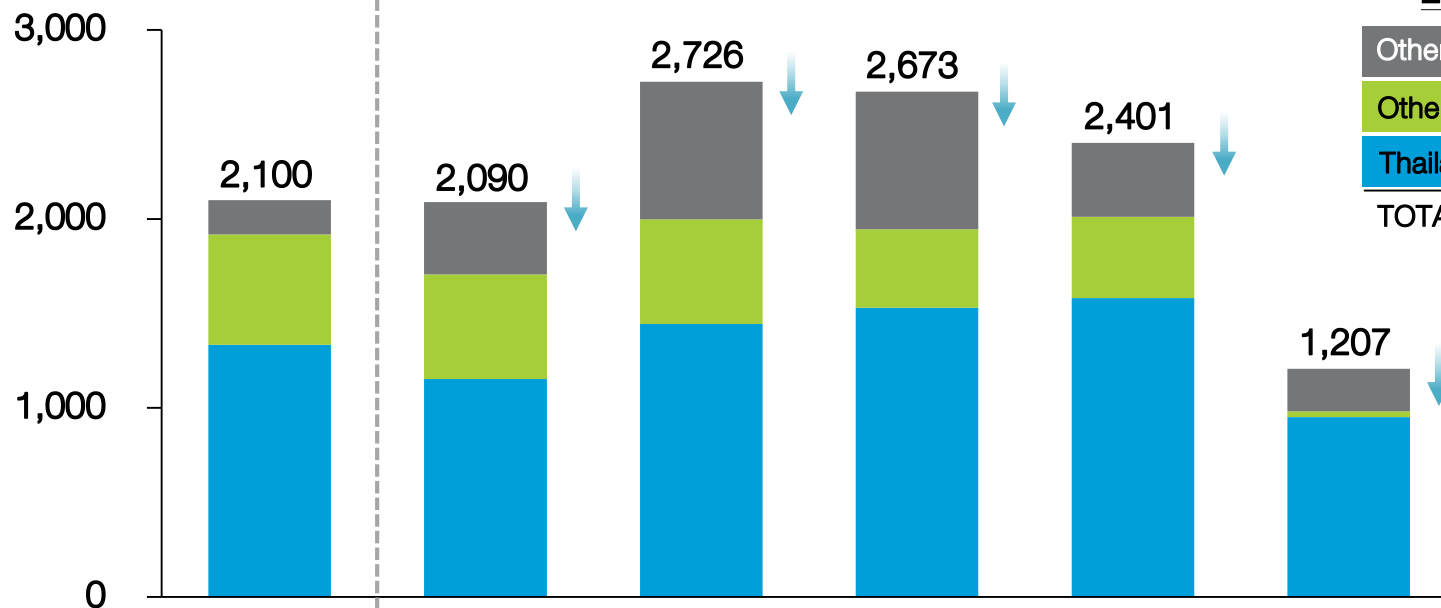


Note: \* Subject to FID timing



## 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

## 2015 DJSI Listed Company

Dow Jones Sustainability World Index  
Oil & Gas Sector



## Proven business integrity

NACC Integrity Awards  
*The National Anti-Corruption Commission*

CG Awards  
*The ASEAN Capital Market Forum (ACMF)*

CG Asia Recognition Awards  
*Corporate Governance Asia Magazine*



**United Nations  
Global Compact**

## Advance Level Certification

United Nations Global Compact



## Exemplary social contributor

The Preservation and Development of Chan Palace project in the area of S1 project operation

The Learning Center (Phase 1) project at the Songkla province

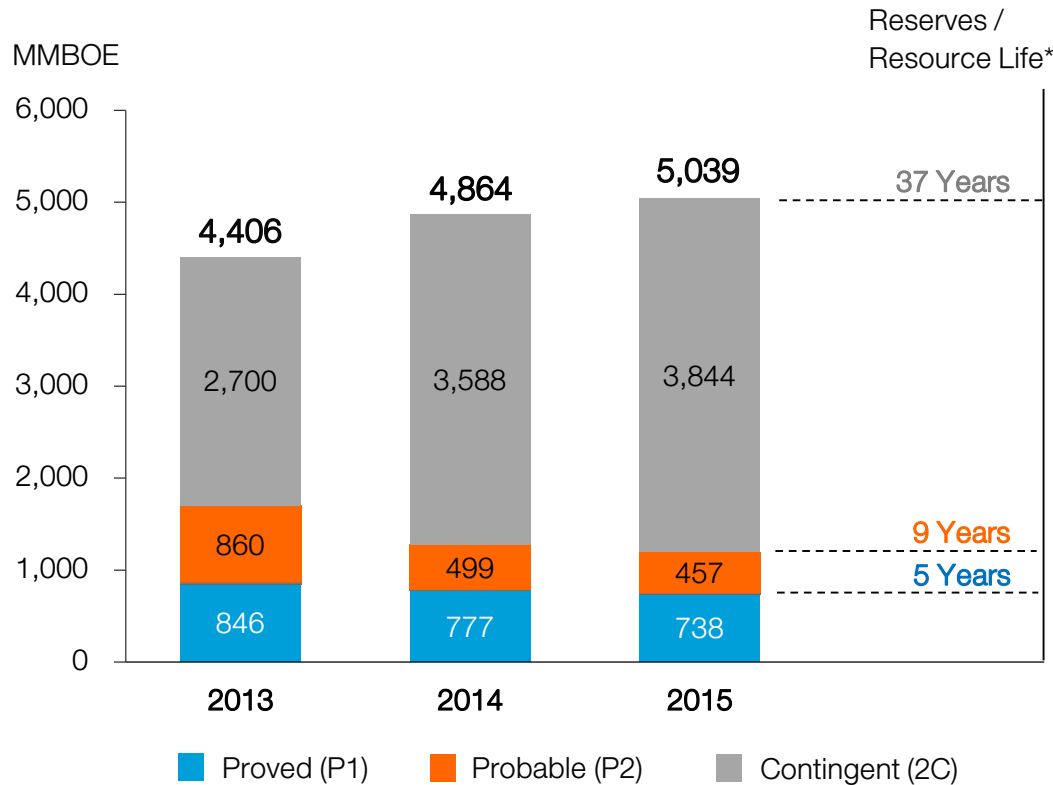
The reforestation for ecological study at the Sri Nakhon Khuean Khan Park

## Green driver to environment

Best Environmental Responsibility  
*Corporate Governance Asia*

CDP's Climate A List  
*CDP*

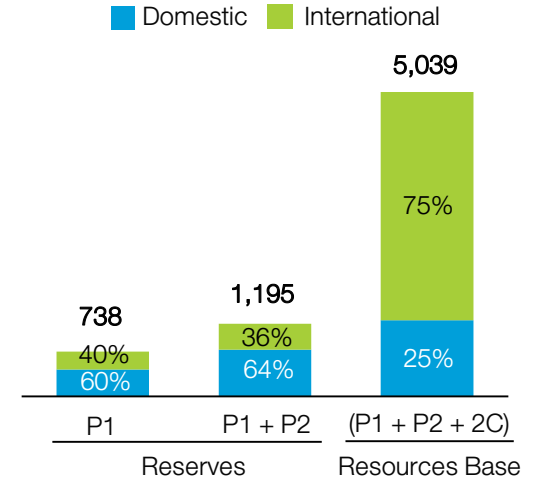
Participation in Thailand Voluntary Emission Reduction Program (T-VER)



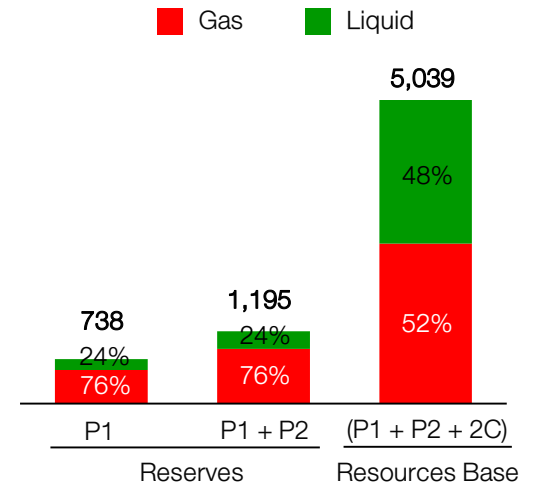
5-Year Average Proved Reserves Replacement Ratio (RRR)

2013	2014	2015
0.82x	0.45x	0.50x

## 2015 by Geography



## 2015 by Product Type

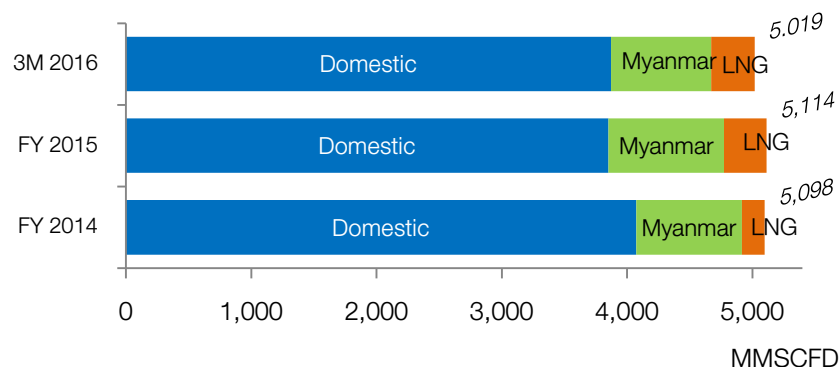


\* Based on total production of natural gas, condensate, and crude oil (including LPG) of 374 KBOED for the year ended December 31, 2015





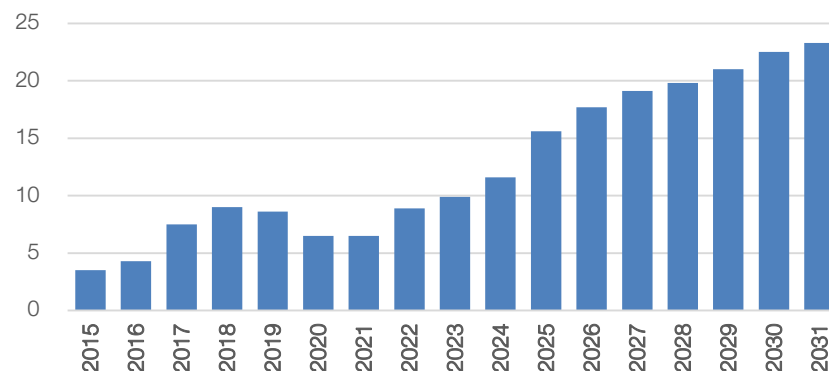
### Thailand's Natural Gas Supply by Source



Source: EPPO

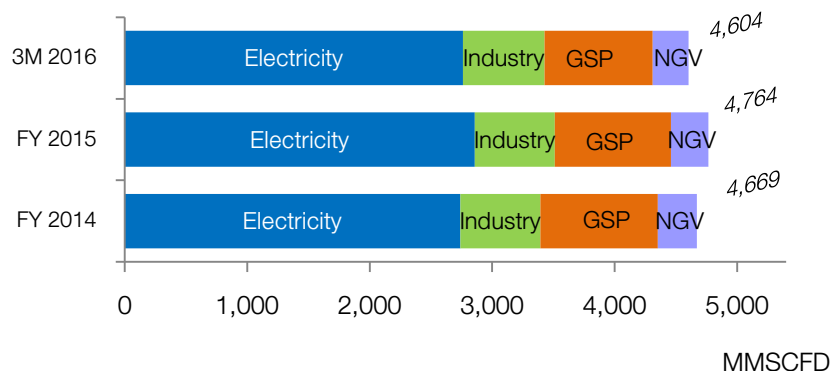
### Domestic LNG Demand Projection

MMTPA



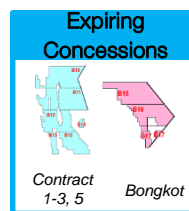
Source: Gas Plan 2015, EPPO

### Thailand's Natural Gas Consumption by Sector

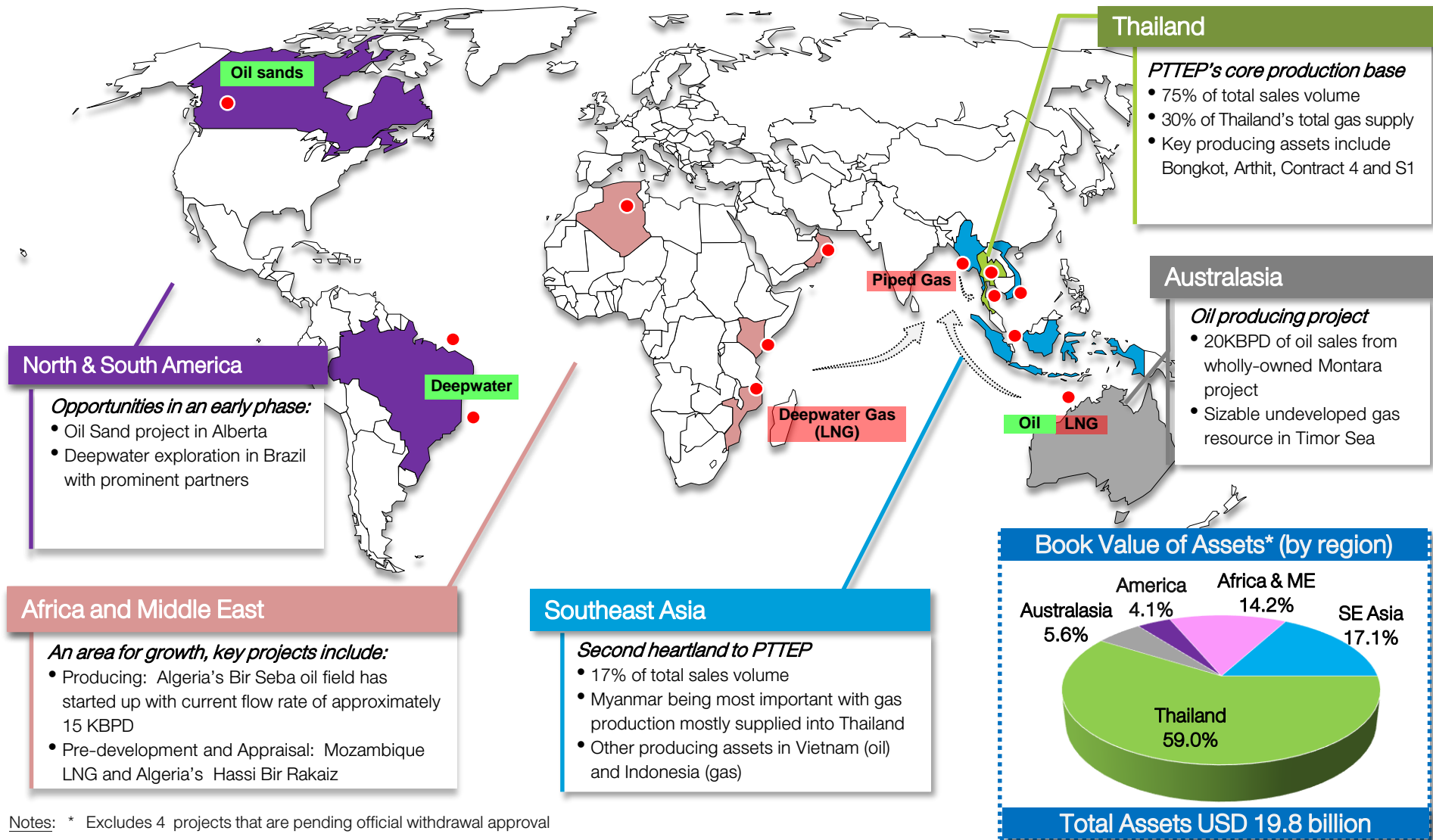


Source: EPPO

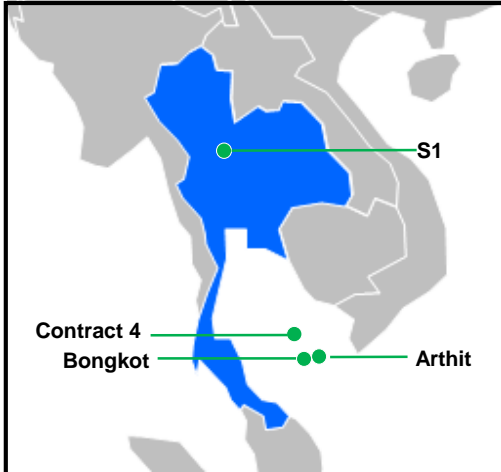
### Upstream Energy Reform



- According to National Energy Policy Office meeting in May 2015, contractual management plan for expiring concessions to be concluded within one year
- Bidding round process could be resumed after amendments to Petroleum Act is finalized



\*Information as of 31 March 2016



● Production / Ramp-up Projects

### Bongkot (44.4% interest)

- Bongkot's natural gas sales volume of 901 MMSCFD (Q1 2016) represents approximately 18% of Thailand's natural gas supply
- Average condensate sales volume was 31 KBPD in Q1 2016

### S1 (100% interest)

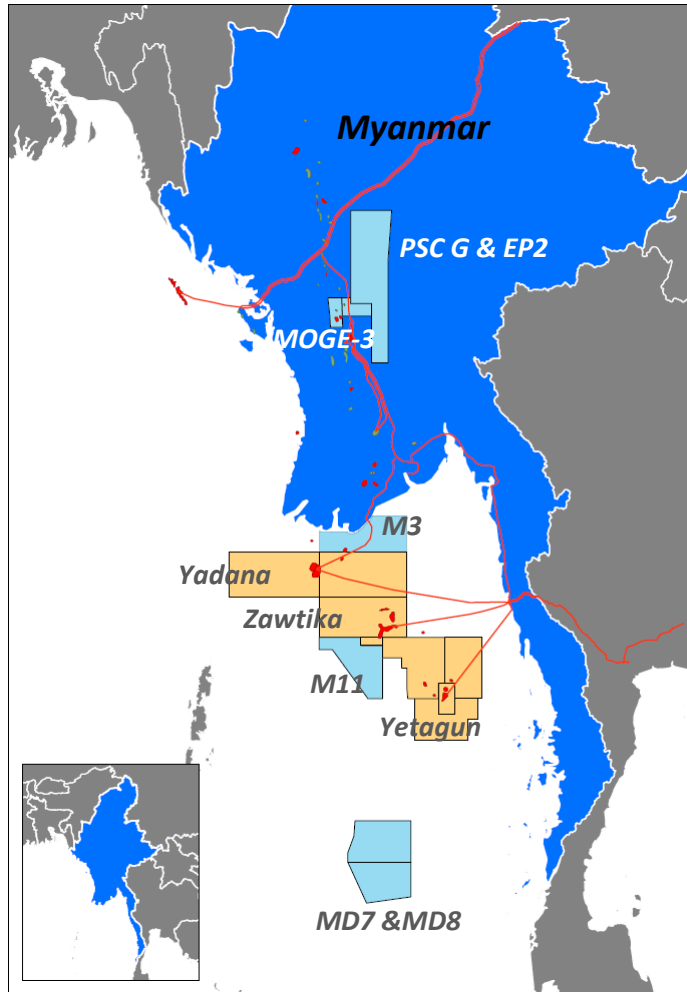
- S1 is the largest onshore crude oil production field in Thailand
- Average crude oil sales volume was 28 KBPD in Q1 2016

### Arthit (80% interest)

- Average sales volume in Q1 2016 was 234 MMSCFD of natural gas and 9.2 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 333 MMSCFD for natural gas and 15 KBPD for condensate in Q1 2016



Exploration block
  Production block

- 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 276 MMSCFD in Q1 2016.
- 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 &amp; MD8 (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)

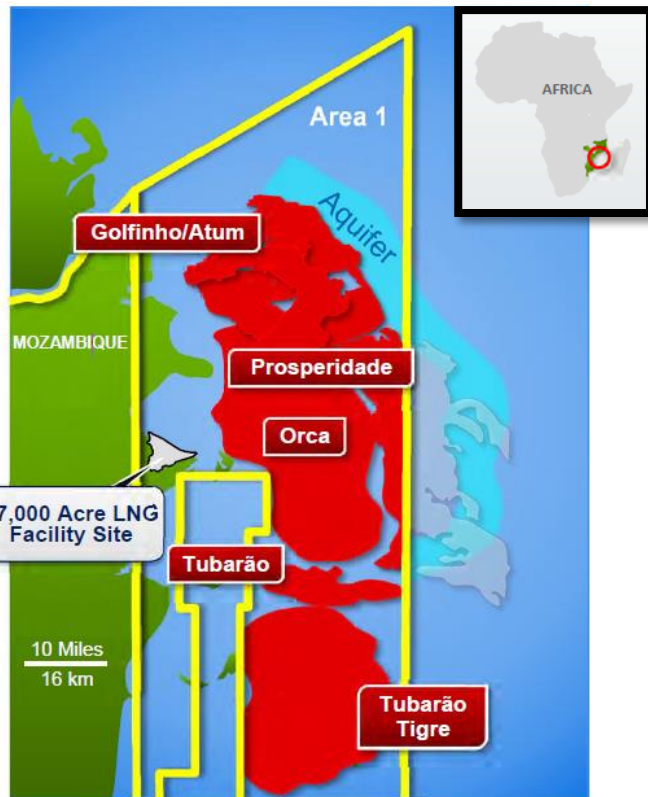
- Average crude oil sales volume of 27 KBPD in Q1 2016
- Commissioned production platform in the H5 area to support current production level

## Natuna Sea A (11.5% interest)

- Average sales volume of natural gas was 218 MMSCFD, and average sales volume of crude oil was 2.2 KBPD in Q1 2016

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 MMTPA of non-blinding HOAs

### Regulatory

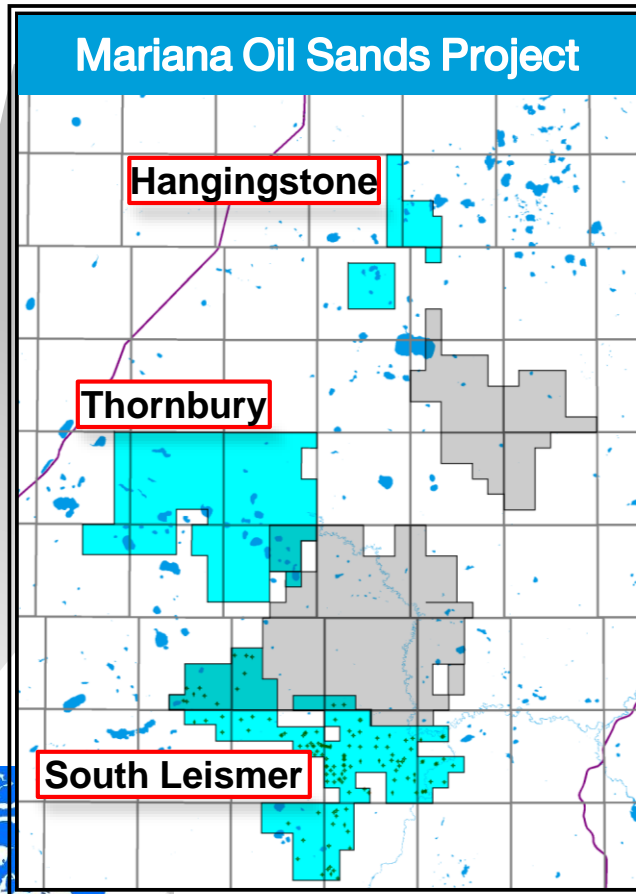
- ✓ Decree law ratified
- ✓ Substantial engagement with government to progress on remaining agreements and approvals to support investment

### Financing

- ✓ Positive indications on project financing

**Onwards to initial phase of 12 MMTPA**

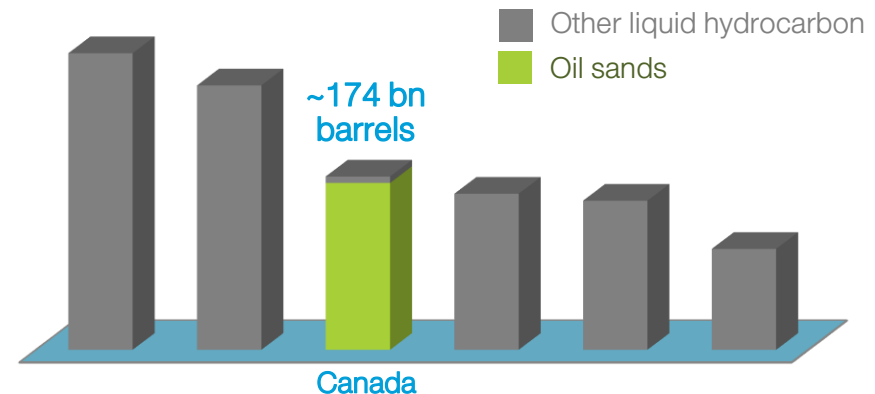
Source: Anadarko



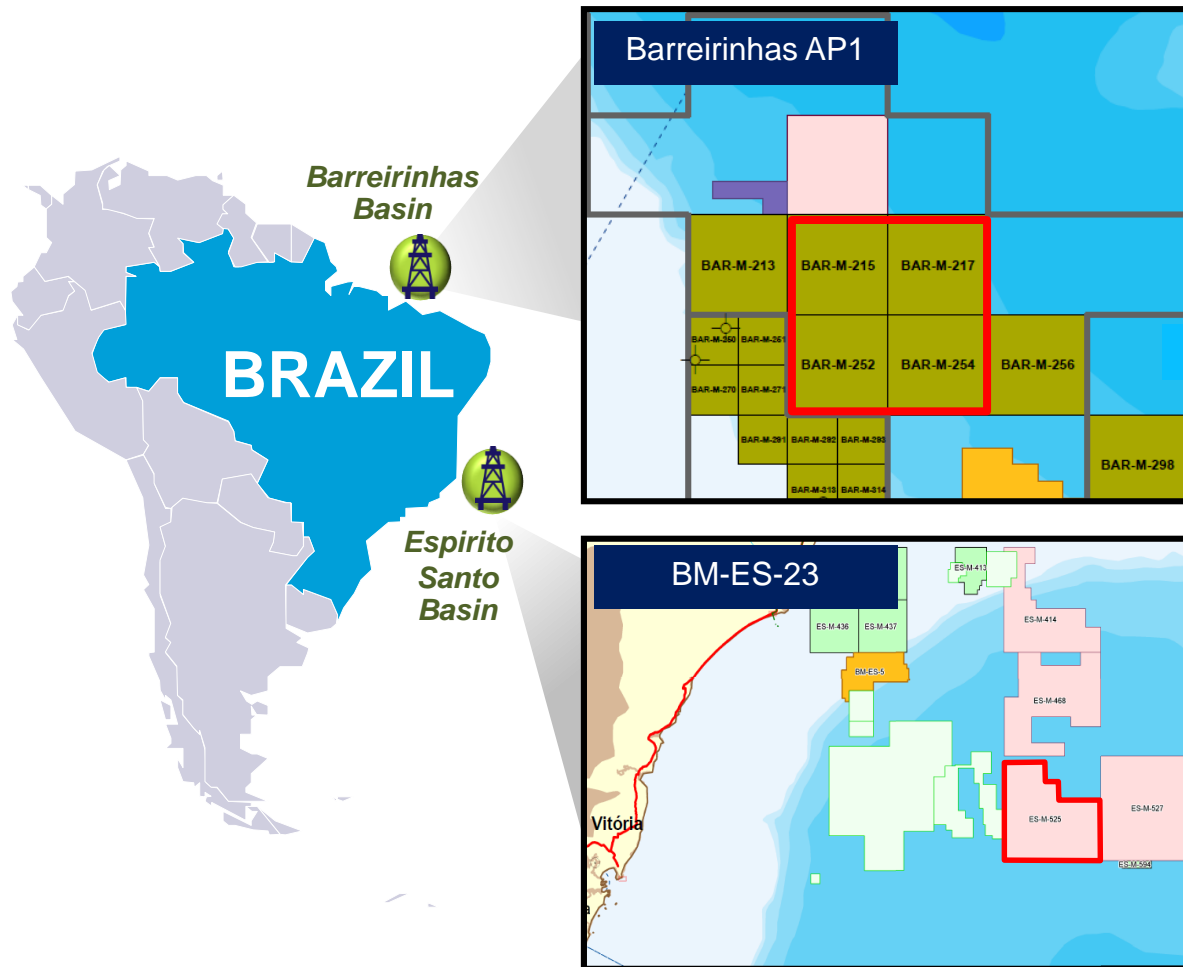
## Project Overview

- 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
  - Currently in the process of conducting 3D seismic survey
- 
- 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 (as of Q1 2016)	Q1 2016 Average Sales Volume **		2016 Key Activities	
					Gas	Oil and Other		
Production Phase								
Thailand and JDA								
1	Arthit	OP	80%	Chevron MOECO	16% 4%	234 MMSCFD	Condensate: 9.2 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%	129 MMSCFD	Crude: 30 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%	901 MMSCFD	Condensate: 31 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 (Formerly Unocal III)		5%	Chevron MOECO	71.25% 23.75%	558 MMSCFD	Crude: 25 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%	333 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%	12 MMSCFD	-	
8	G4/43		21.375%	Chevron MOECO PSTL	51% 21.25% 6.375%	1.2 MMSCFD	Crude: 7.2 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%	5.2 MMSCFD	Crude: 479 BPD	
10	L53/43 & L54/43	OP	100%			-	Crude: 137 BPD	<ul style="list-style-type: none"><li>Drill exploration and development wells</li></ul>
11	PTTEP1	OP	100%			-	Crude: 397 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: 28 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%	124 MMSCFD	Condensate: 482 BPD	<ul style="list-style-type: none"><li>Drill development wells</li></ul>
14	MTJDA	JOC	50%	Petronas-Carigali	50%	314 MMSCFD	Condensate: 6.3 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: 82 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 <i>(as of Q1 2016)</i>	Q1 2016 Average Sales Volume **		2016 Key Activities
					Gas	Oil and Other	
Production Phase							
Overseas							
16	Oman 44	OP	100%		23 MMSCFD	Condensate: 1.3 k 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: 2.7 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%	707 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 10.90878% (Hong Kong)	233 MMSCFD	Condensate: 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%	15 MMSCFD	Crude: 27 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: 20 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%	218 MMSCFD	Crude: 2.2 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%	276 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 k BPD <i>(net entitlement)</i>	<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



	Project	Status*	PTTEP's Share	Partners (as of Q1 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%	• Access development options and commercial potential
27	Mozambique Rovuma Offshore Area 1		8.5%	Anadarko, Mitsui, ENH, Bharat Petroleum, BREML, OVL 26.5%, 20%, 15%, 10%, 10%, 10%	• Preparatory work for Final Investment Decision (FID) including LNG marketing and finalization of remaining commercial contracts
28	Algeria Hassi Bir Rekaiz	OP	24.5%	CNOOC Sonatrach 24.5% 51%	• Drill Appraisal wells
29	Myanmar M11	OP	100%**		
30	Vietnam B & 48/95		8.5%	PVN MOECO 65.88% 25.62%	• Negotiate a GSA with the Vietnamese government
31	Vietnam 52/97		7%	PVN MOECO 73.4% 19.6%	• Negotiate a GSA with the Vietnamese government
32	Myanmar PSC G and EP 2	OP	70%	WinPreciousResources MOECO Palang Sophon Offshore 10% 10% 10%	• Conduct G&G studies
33	Kenya L11A, L11B, L12		10%	Anadarko Total ENI 50% 30% 10%	• Conduct G&G studies

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

\*\* New participating interest subject to government approval

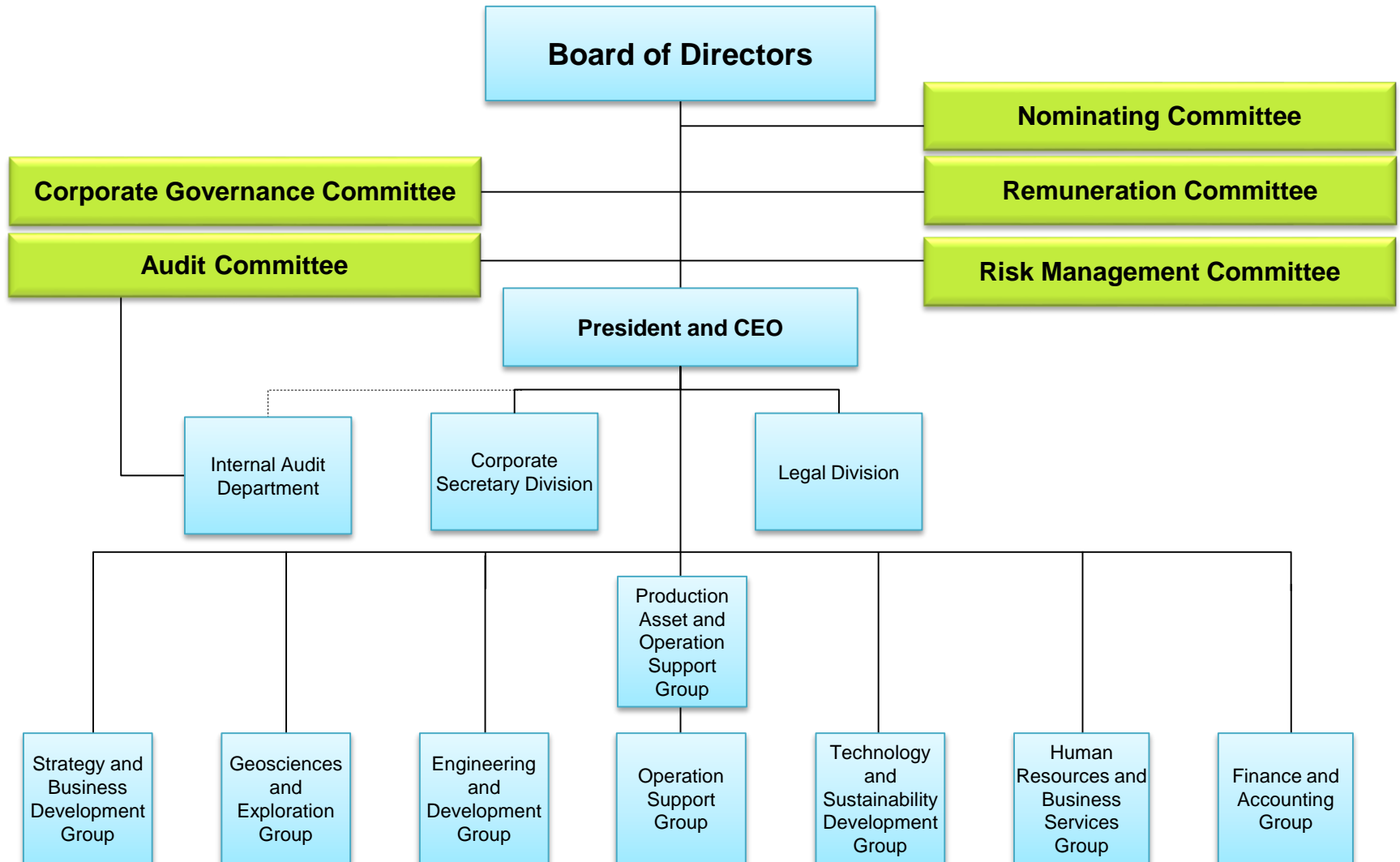


	Project	Status*	PTTEP's Share	Partners (as of 2015)	2016 Key Activities
<b>Exploration Phase</b>					
<b>Overseas (Cont'd)</b>					
34	Myanmar MD 7 and MD 8	OP	100%		
35	Mariana Oil Sands	OP	100%		<ul style="list-style-type: none"> <li>Assess development approach and cost reduction opportunity</li> </ul>
36	Barreirinhas AP1		25%	BG Brasil 75%	<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>
37	Myanmar MOGE 3	OP	75%	Palang Sophon Offshore 10% MOECO 10% WinPreciousResources 5%	<ul style="list-style-type: none"> <li>Acquire 3D seismic</li> </ul>
38	Brazil BM-ES-23		20%	Petrobras 65% INPEX 15%	<ul style="list-style-type: none"> <li>Drilling result and resource evaluation</li> </ul>

Remarks: 38 projects exclude 5 projects that are pending official withdrawal approval

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







Ratio	Formula
Lifting Cost (\$/BOE)	$(\text{Operating Exp.}) / \text{Production Volume}$
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	$\text{Trailing-12-month EBITDA} / \text{Trailing-12-month Interest Expenses \& Amortize Bond Issuing Cost}$