

PTT Exploration and Production Public Company Limited

dbAccess Global Emerging Markets (dbGEMs) Conference 2016

7-8 September 2016



PTTEP

MEMBER OF

**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM





E&P Company of PTT Group



Government of
Thailand

66.0%²



Thailand's national energy company

65.3%¹



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 production³

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%

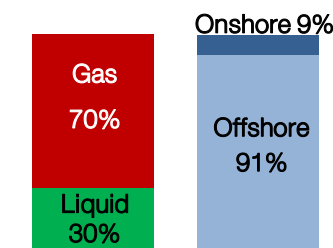
Domestic

~ 75%

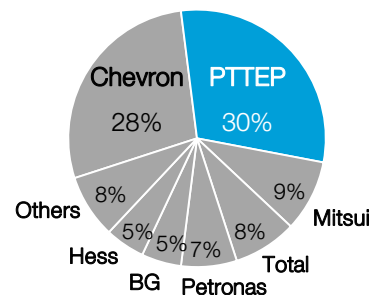
Domestic Production
(2015)

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:

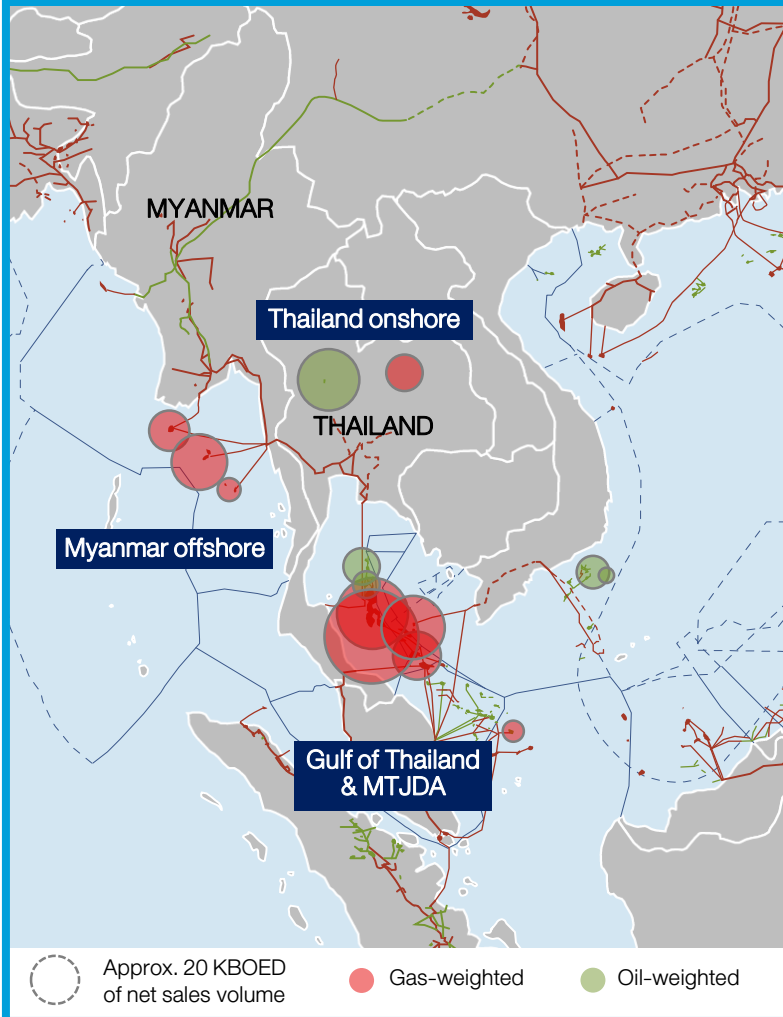
1. Ownership as of 12 February 2016

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

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

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

All figures are as of first half of 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 to survive in the low oil price environment

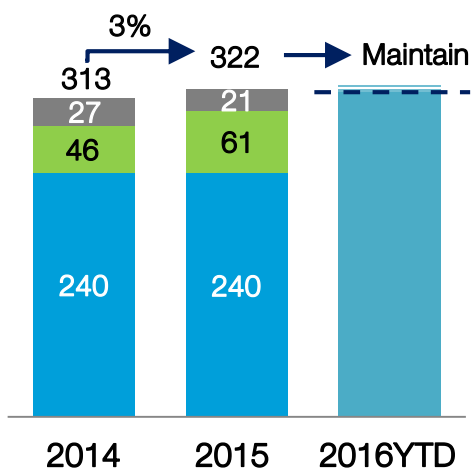
Significant progress on cost reductions with stable sales volume delivered as planned

RESET

Maintain Sales Volume

Unit : KBOED

SEA
Thailand
RoW



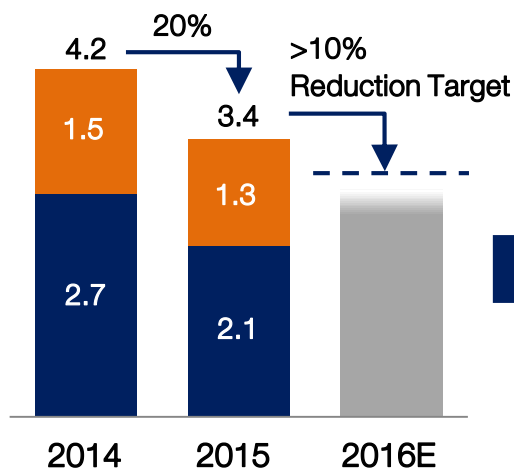
- ▶ Utmost compliance to safety
- ▶ Deliver domestic gas at DCQ
- ▶ Sustain field performance

REFOCUS

Lower Expenditures

Unit : bn USD

CAPEX
OPEX



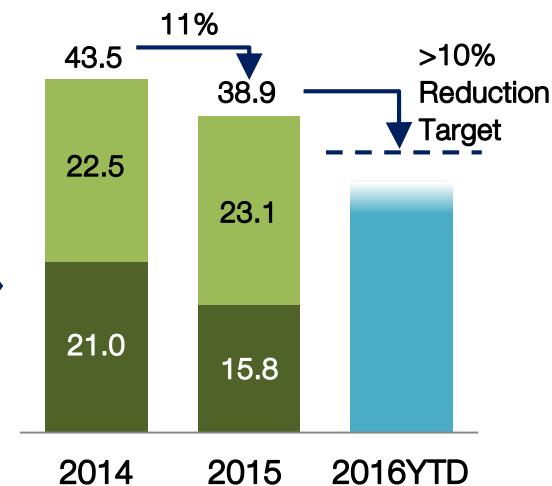
- ▶ Efficiency improvement and contract renegotiation
- ▶ Capital allocation prioritized for high quality assets

RENEW

Bring Down Unit Cost

Unit : USD/BOE

Cash
Non-cash



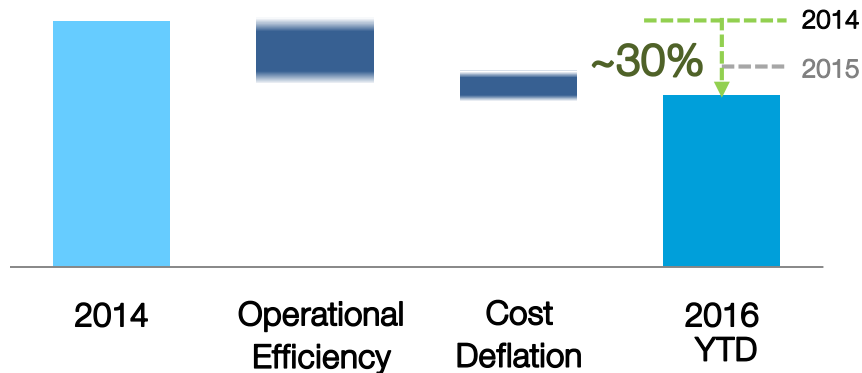
- ▶ Further process streamline
- ▶ Disciplined G&A policies

Preserve liquidity and financial flexibility in near-term

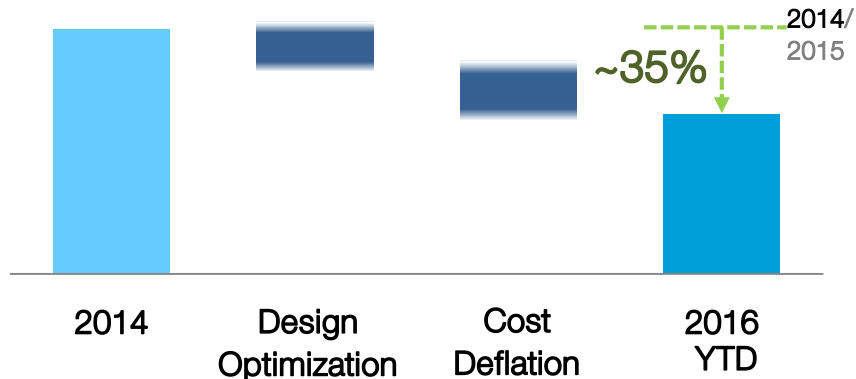


Notable improvement in key CAPEX components

Development Drilling Cost per Well*



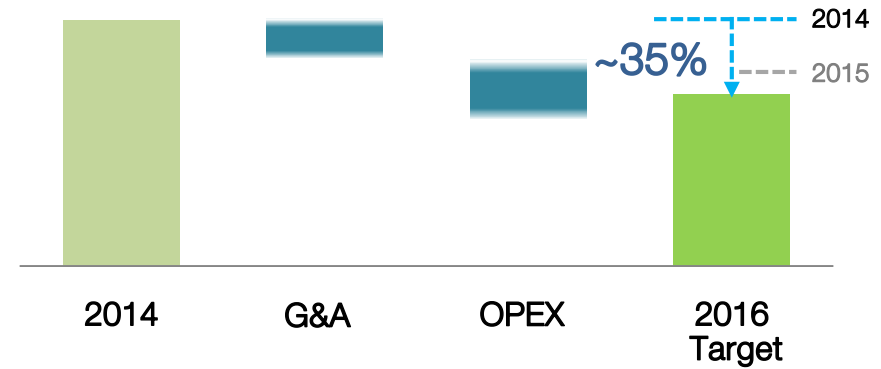
Wellhead Platform Cost per Unit*



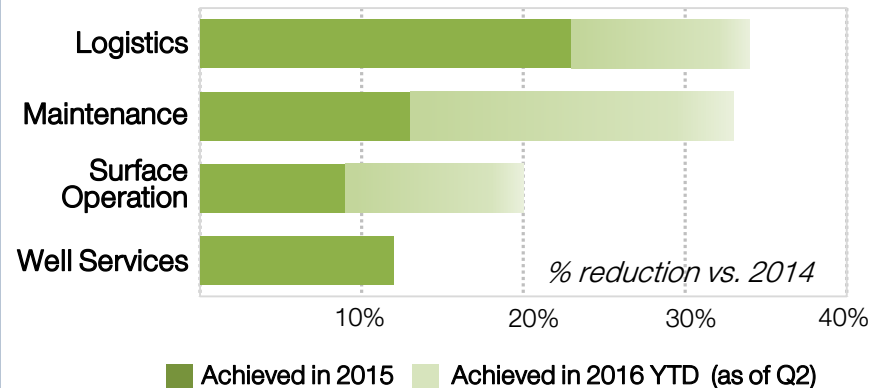
Note : Graph represents cost reduction captured but not yet fully realized

With increased efficiency in OPEX spending

OPEX and G&A per BOE

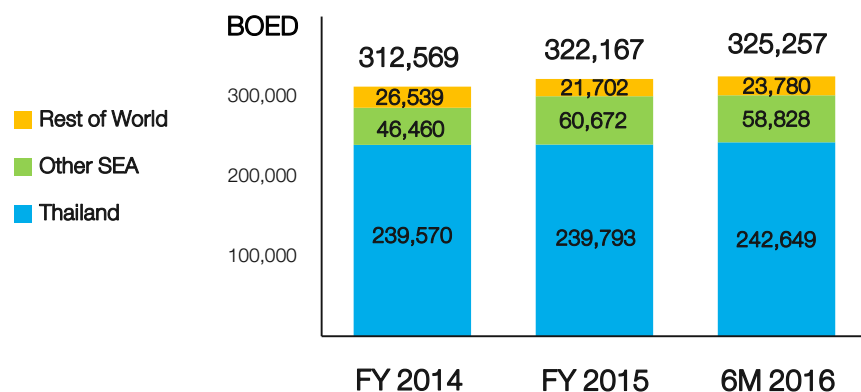


Key OPEX Components



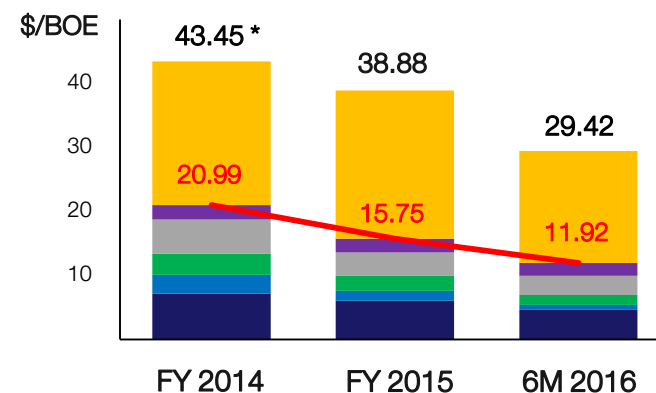


Sales Volume and Price



Gas (\$/MMBTU)	8.06	7.20	5.84
Liquid (\$/BBL)	94.82	50.05	37.61
Weighted Avg. (\$/BOE)	63.71	45.29	35.84
Avg. Dubai (\$/BBL)	96.60	50.91	36.80
Avg. HSFO (\$/BBL) (High Sulphur Fuel Oil)	86.74	44.86	29.16
Volume Mix (Gas : Liquid)	67 : 33	70 : 30	69 : 31
Revenue Mix (Gas : Liquid)	51 : 49	66 : 34	67 : 33

Unit Cost



DD&A	22.46	23.13	17.50
Finance Cost	2.27	2.14	1.98
Royalties	5.34	3.62	2.98
G&A	3.30	2.39	1.56
Exploration Expenses	2.92	1.56	0.70
Operating Expenses **	7.16	6.04	4.70
Lifting Cost	5.26	4.62	3.97
Drilling Success Ratio ***	25 : 43	31 : 47	3 : 5

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)

Demonstrate financial strength in 1H 2016 ...

1.0 billion USD Operating cash flow

73 % EBITDA margin

3.2 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

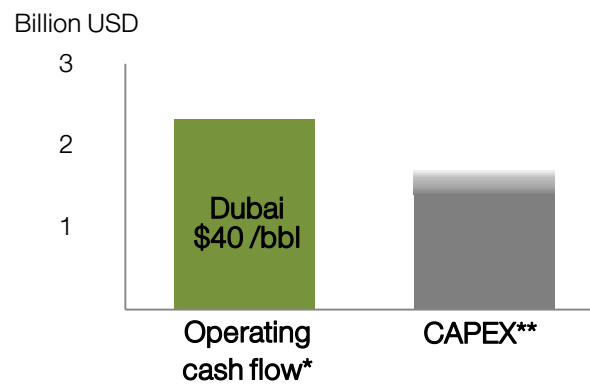
~ **65-70** %
EBITDA margin

~ **322** 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



RESET

REFOCUS

RENEW

Progress on
portfolio rationalization
and realization

Malaysia exploration

- New exploration project (SK410B)
- Operator (42.5% WI)
- Gas-proven basin, offshore Sarawak, with established infrastructure

Algeria HBR

- Completed exploration and appraisal drilling
- Prepared to fast-track development study

Mozambique LNG

- Continue to make progress on various regulatory and commercial negotiations

Continue to
pursue new
investments

Bongkot extension

- PTTEP well-positioned to continue as operator after the existing concession expires
- Awaiting clarity over the bidding process

M&A opportunities

- Producing / near-term producing assets in SEA
- Prospective exploration blocks

LNG value chain

- Evaluate feasibility to form LNG value chain partnership with PTT

Pursue business
enhancement and
sustainability

Enhance E&P capability

- Through R&D on exploration and production technologies

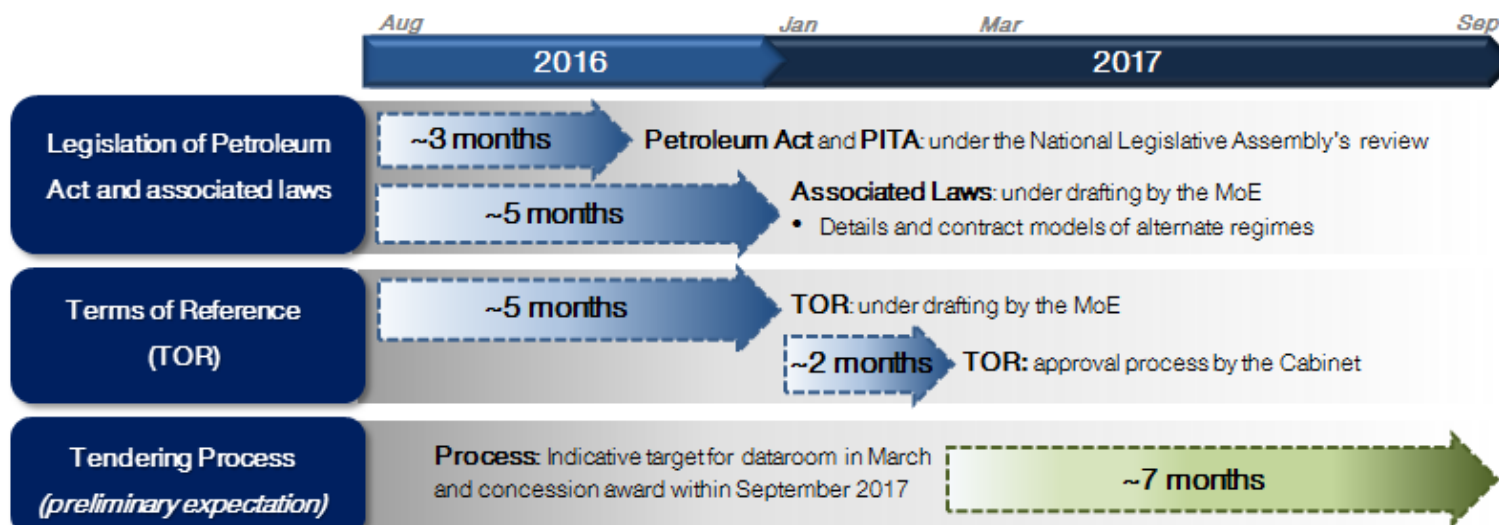


Value through diversification

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



Path to re-tendering of expiring concessions



Source: as interviewed by Permanent Secretary, the Ministry of Energy on 2 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 Q2 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:



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Q2 2016 Financial Results	14-17
Five-Year Investment Plan	18-20
Sustainable Development	21
Reserves and resources	22
Thailand Energy Updates	23
Key Project Highlights by Region	24-30
Project Details	31-34
Organization structure	35
Ratios and formula	36

Unit : MMUSD

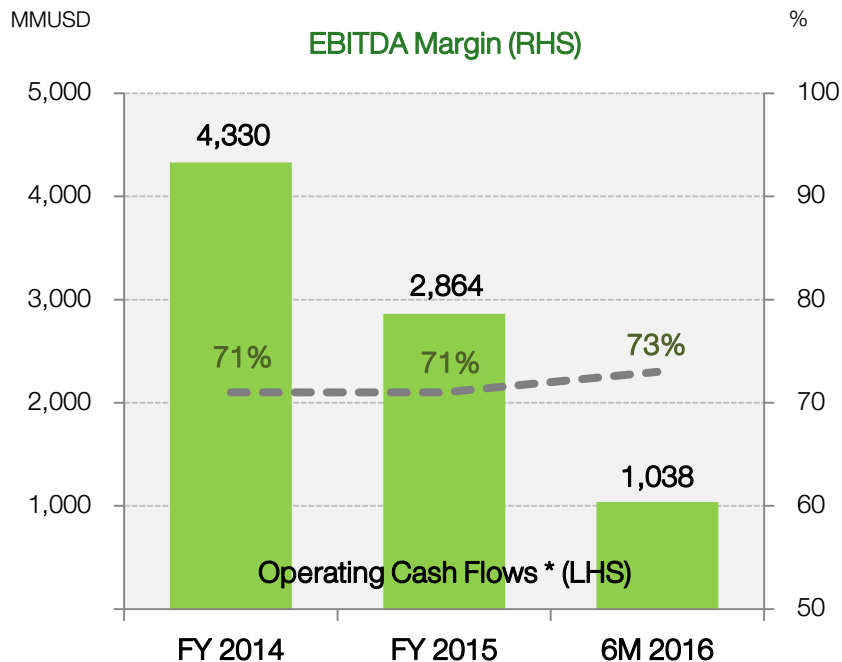
Statement of Income	Q1 16	Q2 16	% QoQ	Q2 15 *	% YoY	6M 16	6M 15 *	% YTD
Total Revenues	1,093	1,110	2	1,448	(23)	2,203	2,895	(24)
Sales	1,053	1,069	2	1,398	(24)	2,122	2,790	(24)
Others	40	41	3	50	(18)	81	105	(23)
Sales Volume (BOED)	329,858	320,657	(3)	315,450	2	325,257	315,649	3
Sales Price (USD/BOE)	35.08	36.62	4	48.71	(25)	35.84	48.83	(27)
Total Expenses	936	1,035	11	1,413	(27)	1,971	2,596	(24)
Major Expenses:								
Operating Expenses	135	144	7	182	(21)	279	349	(20)
Exploration Expenses	26	15	(42)	38	(61)	41	52	(21)
DD&A	518	518	-	726	(29)	1,036	1,454	(29)
Income Tax Expense	30	55	83	137	(60)	85	155	(45)
(Gain)/Loss on FX	(6)	(7)	(17)	19	>(100)	(13)	53	>(100)
Net Income	157	75	(52)	35	>100	232	299	(22)
Recurring Net Income	116	154	33	194	(21)	270	442	(39)
Non-Recurring **	41	(79)	>(100)	(159)	50	(38)	(143)	73

* Restated

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

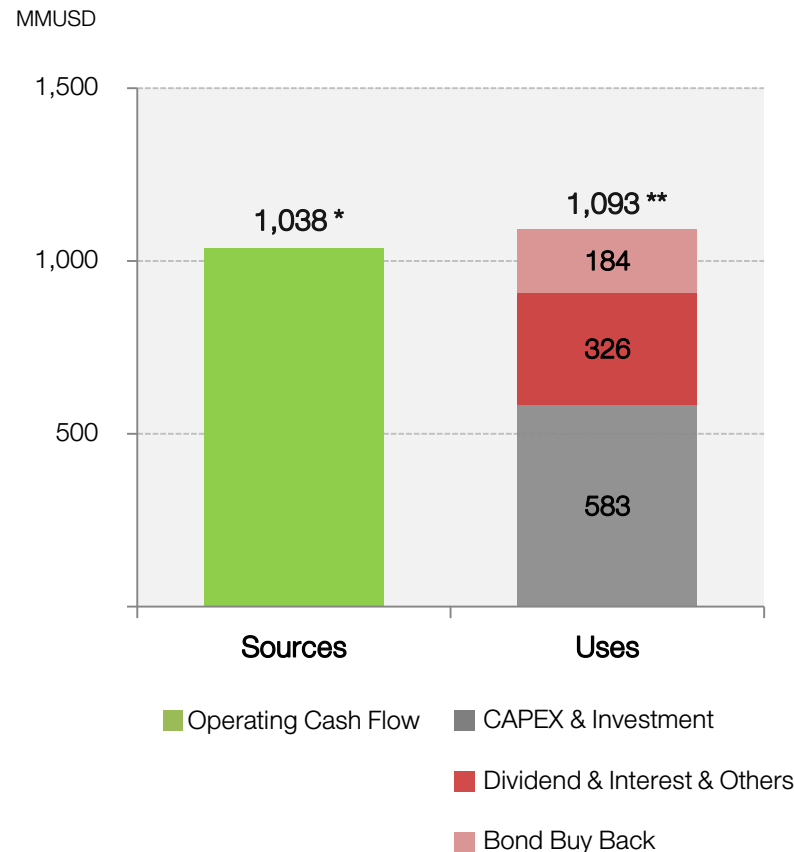


Cash Flow Performance



Net Income	677	(854)	232
Recurring Net Income ***	1,538	718	270

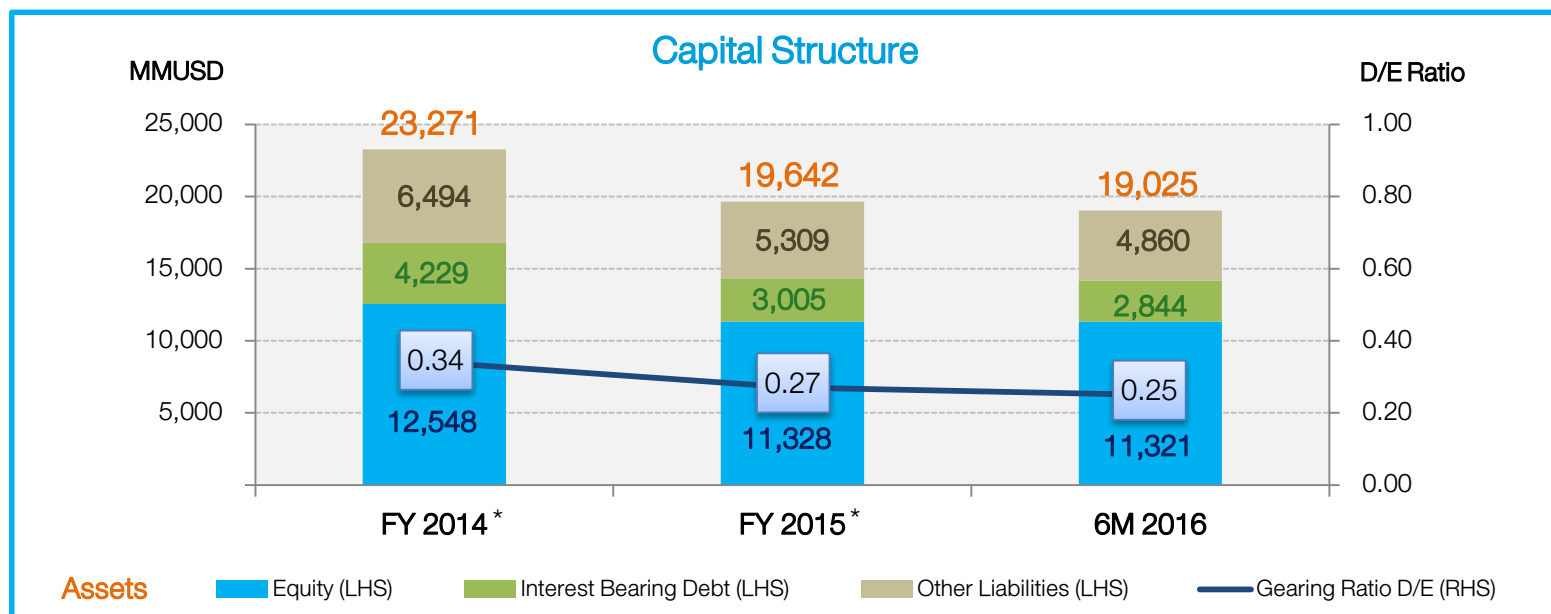
Source & Use of Funds in 6M 2016



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

4.40

[Fixed : Floating]

[77 : 23]

[82 : 18]

[80 : 20]

Average Loan Life** (Years)

7.05

8.17

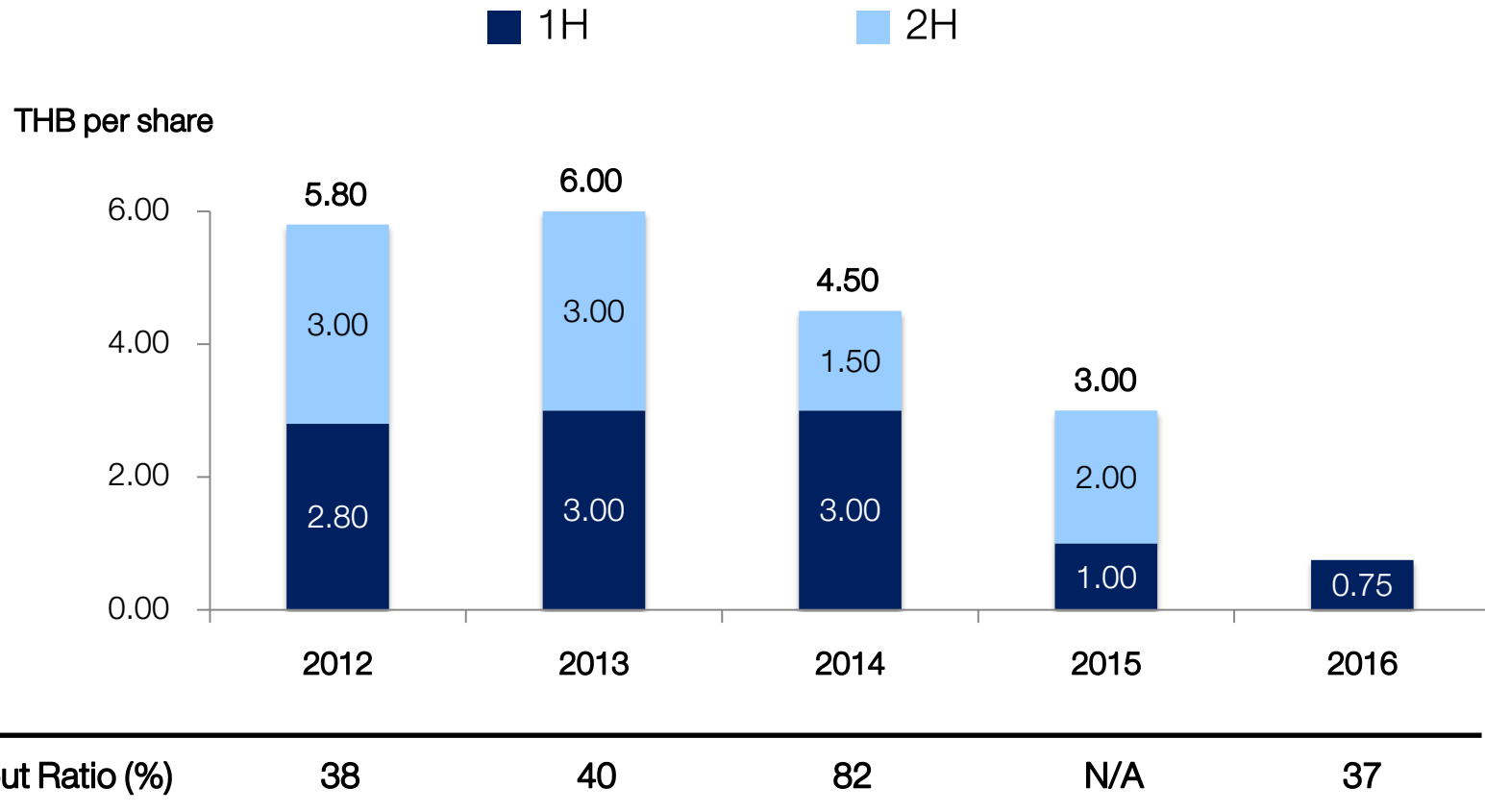
8.65

Remark: * Restated

** Excludes Hybrid bonds

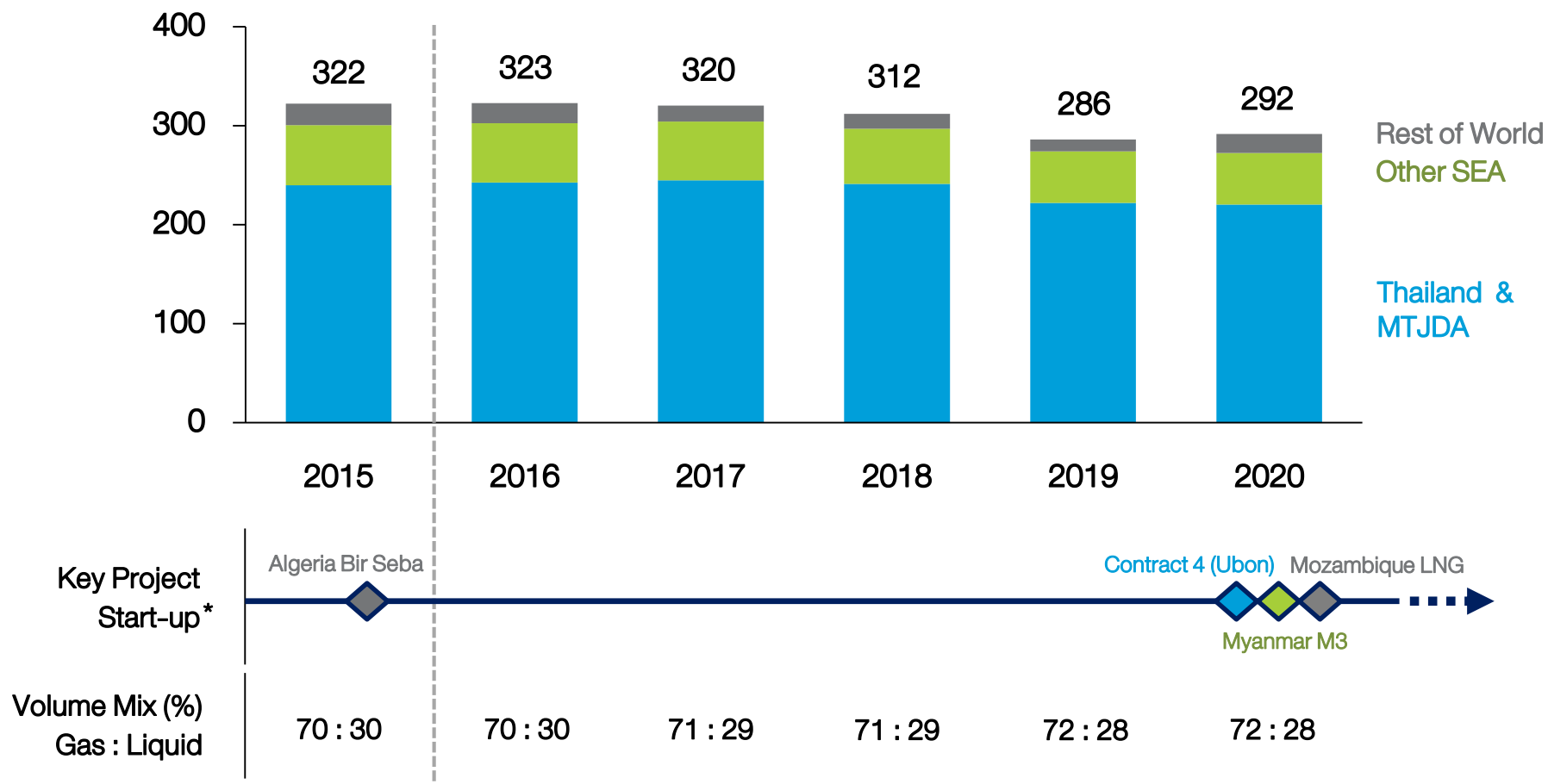


Dividend Payment History (Policy : No Less Than 30% of Net Income)





Unit : KBOED



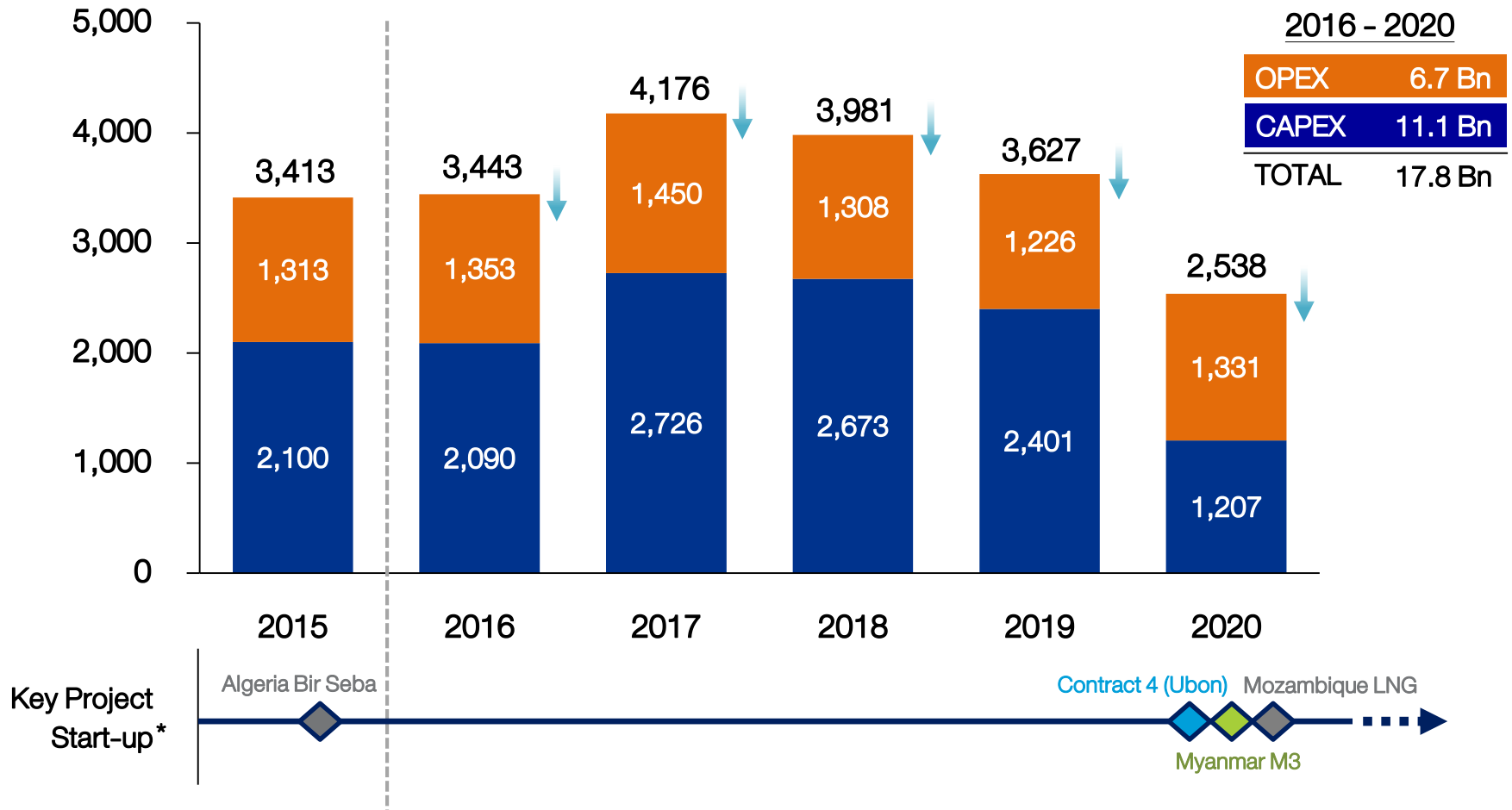
Note: Sales volume after reclassification of PSC royalty

* Subject to FID timing



Unit : MMUSD

Flexibility to lower investment from the announced plan

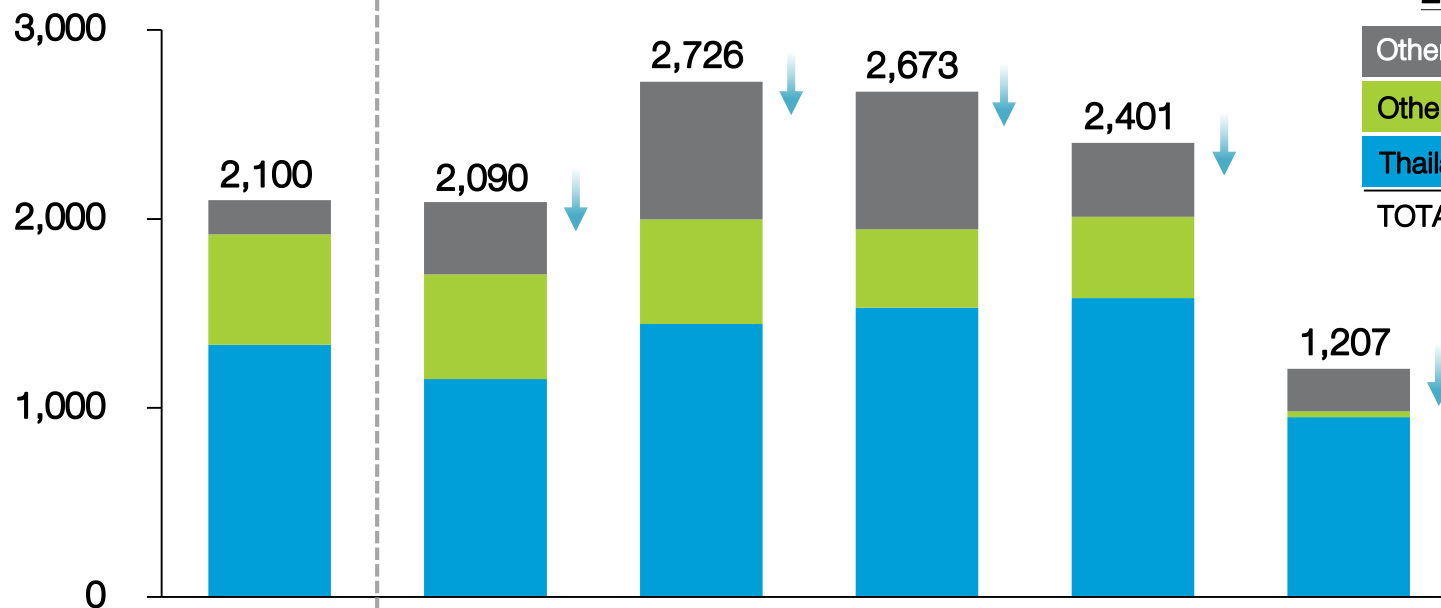


Note: * Subject to FID timing



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
TOTAL	11.1 Bn

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



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2015 DJSI Listed Company

Dow Jones Sustainability World Index
Oil & Gas Industry



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



PTTEP



**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

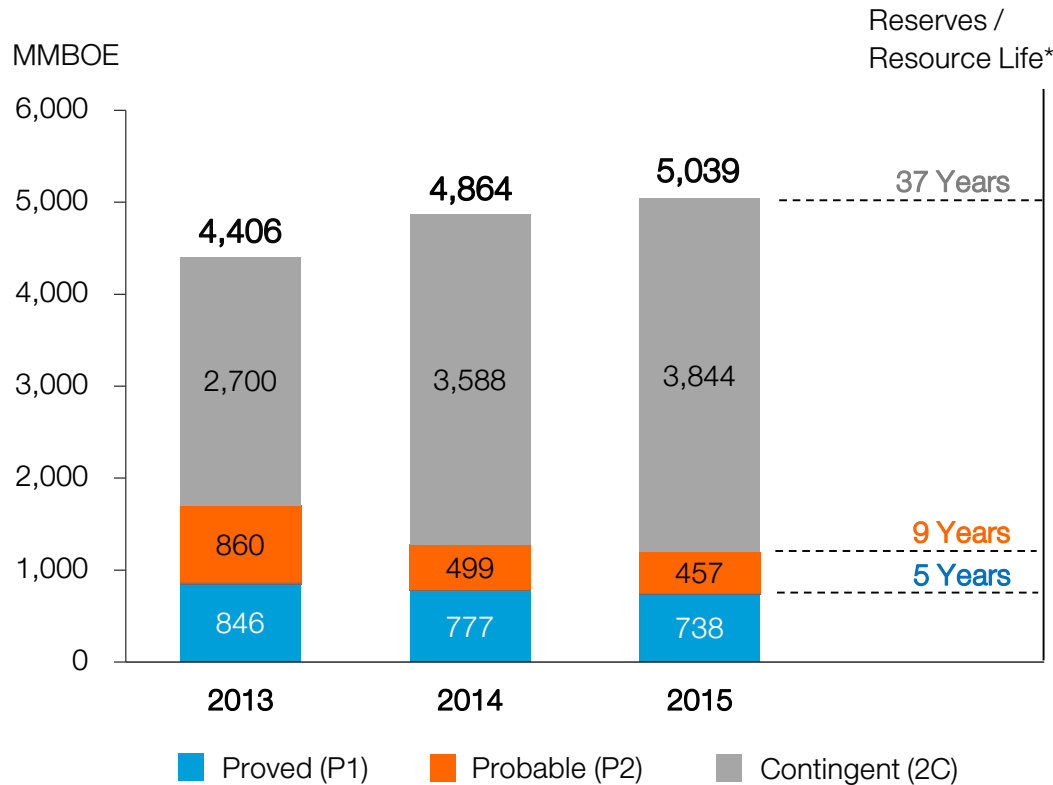
Best Environmental Responsibility

Corporate Governance Asia Magazine

CDP's Climate A List

CDP

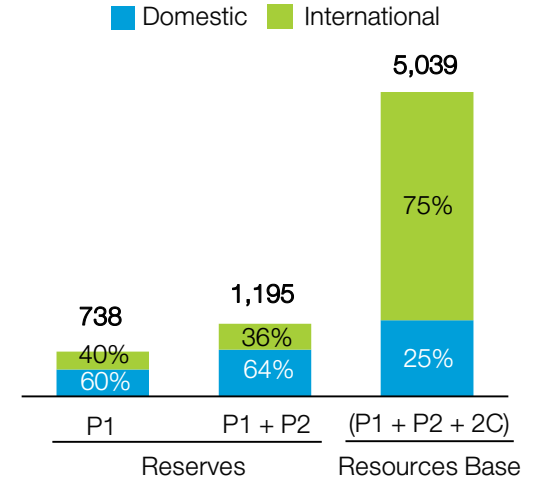
Participation in Thailand Voluntary Emission
Reduction Program (T-VER)



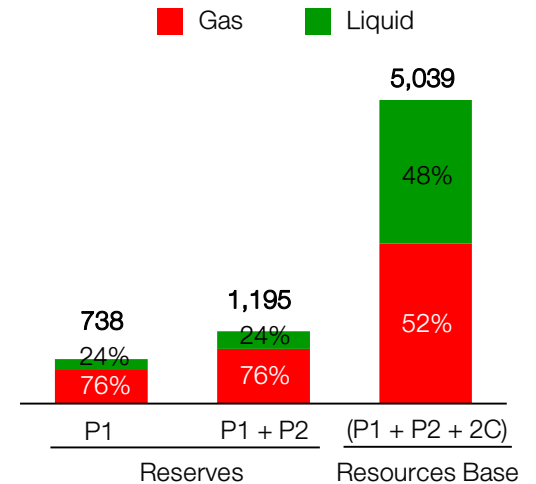
5-Year Average Proved Reserves Replacement Ratio (RRR)

2013	2014	2015
0.82x	0.45x	0.50x

2015 by Geography



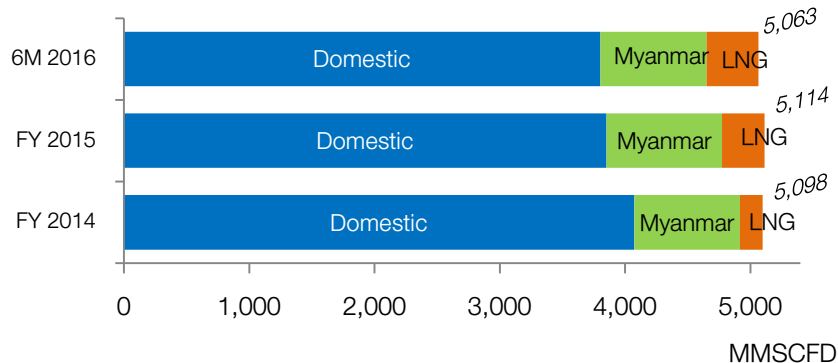
2015 by Product Type



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

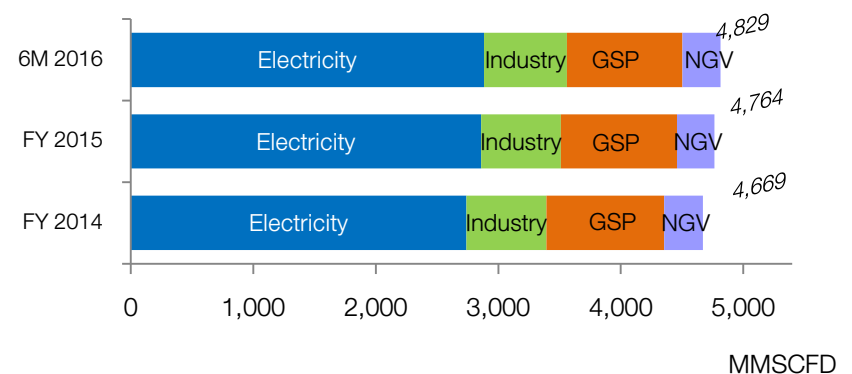


Thailand's Natural Gas Supply by Source



Source: EPPO

Thailand's Natural Gas Consumption by Sector



Source: EPPO

Exchange Rate Movement (THB/USD)



Source: Bank of Thailand, Bloomberg

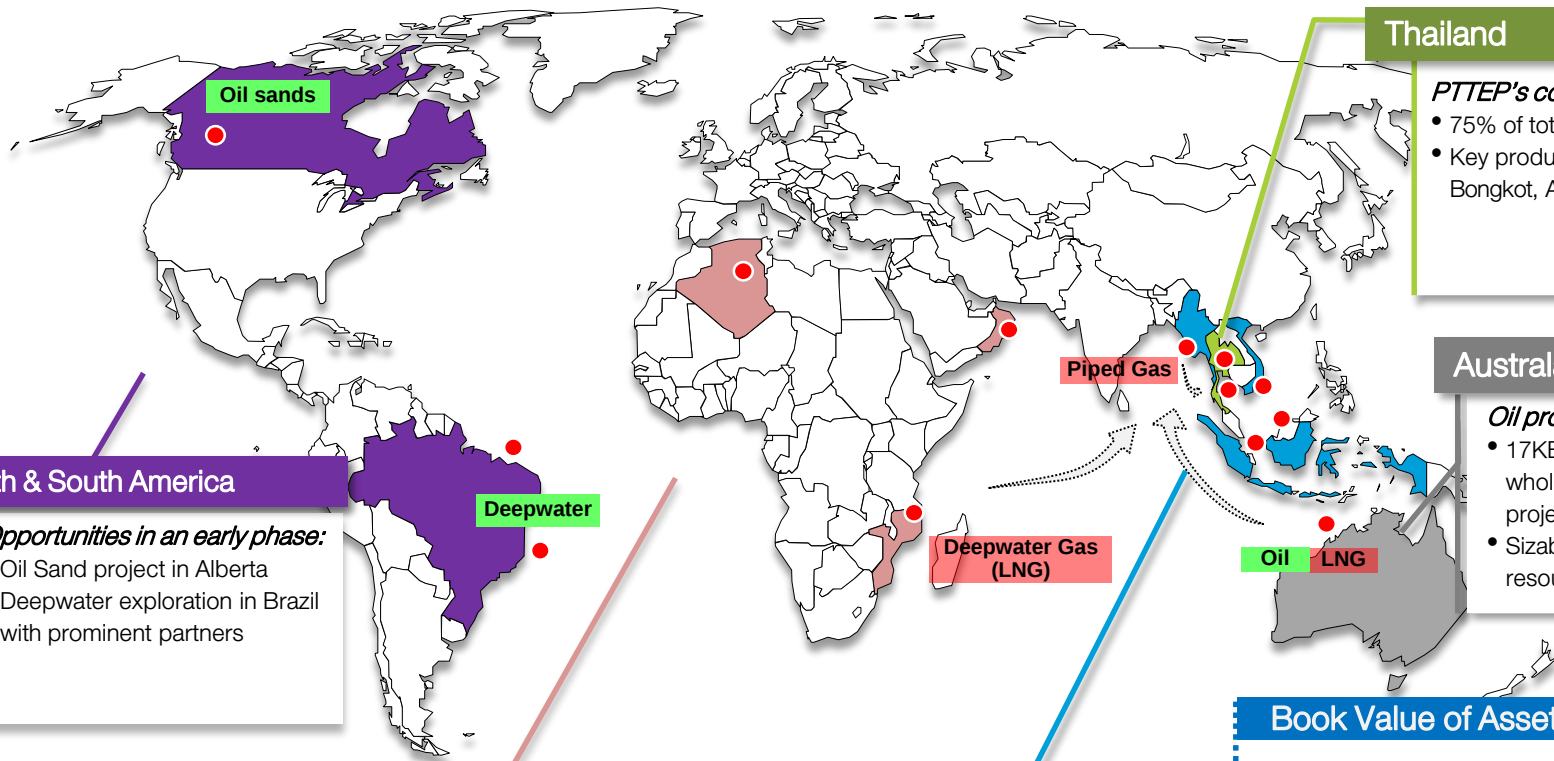
Forecast based on Bloomberg Consensus as of 18 July 2016

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 1H16

Exchange Rate:

- Continue to be volatile; risk to weakening THB if FED increases interest rate in 2H16



North & South America

Opportunities in an early phase:

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

Africa and Middle East

An area for growth, key projects include:

- Producing: Algeria's Bir Seba oil field has started up with current flow rate of approximately 15 KBPD
- Pre-development and Appraisal: Mozambique LNG and Algeria's Hassi Bir Rakaiz

Southeast Asia

Second heartland to PTTEP

- 18% 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

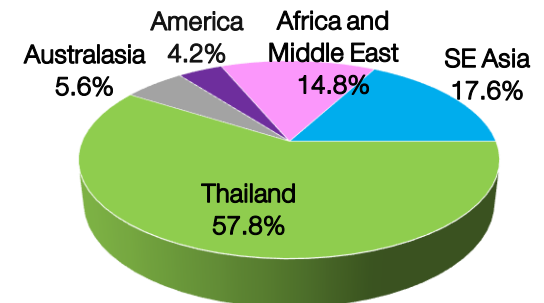
- 75% of total sales volume
- Key producing assets include Bongkot, Arthit, Contract 4 and S1

Australasia

Oil producing project

- 17KBPD of oil sales from wholly-owned Montara project
- Sizable undeveloped gas resource in Timor Sea

Book Value of Assets*** (by region)

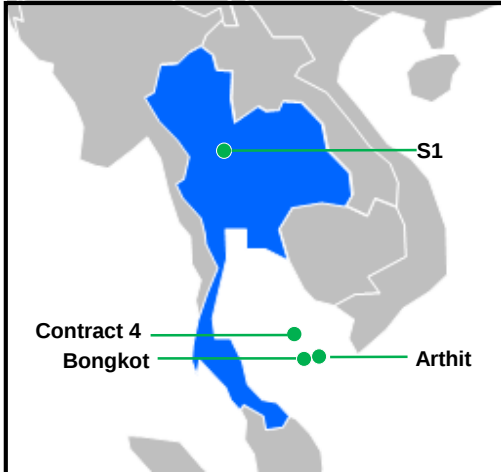


Total Assets USD 19 billion

*** Information as of 30 June 2016

Notes: * Excludes 4 projects that are pending official withdrawal approval

** Information dated as of 30 June 2016 (6M 2016)



● Production / Ramp-up Projects

Bongkot (44.4% interest)

- Bongkot's natural gas sales volume of 885 MMSCFD (1H2016) represents approximately 17% of Thailand's natural gas supply
- Average condensate sales volume was 27 KBPD in 1H2016

S1 (100% interest)

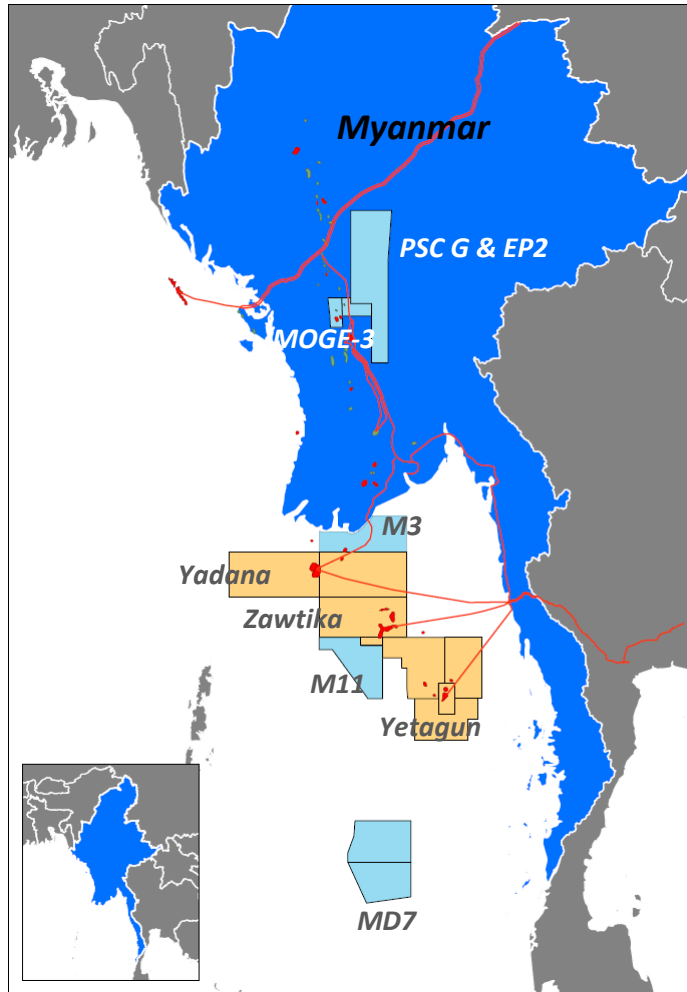
- S1 is the largest onshore crude oil production field in Thailand
- Average crude oil sales volume was 28 KBPD in 1H2016

Arthit (80% interest)

- Average sales volume in 1H2016 was 227 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 321 MMSCFD for natural gas and 15 KBPD for condensate in 1H2016



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 303 MMSCFD in 1H2016.
- Significant exploration acreage both onshore and offshore in the Moattama Basin

Project Status		
Producing	Appraisal	Exploration
• Yadana (25.5% WI) • Yetagun (19.3% WI) • Zawtika (80% WI)	• M3 (80% WI)	• PSC G & EP2 (70% WI) • MOGE-3 (75% WI) • M11 (100% WI)* • MD7 (100% WI)*

Note: WI – working interest

* New participating interest subject to government approval



Vietnam 16-1



● Production / Ramp-up Projects

Natuna Sea A



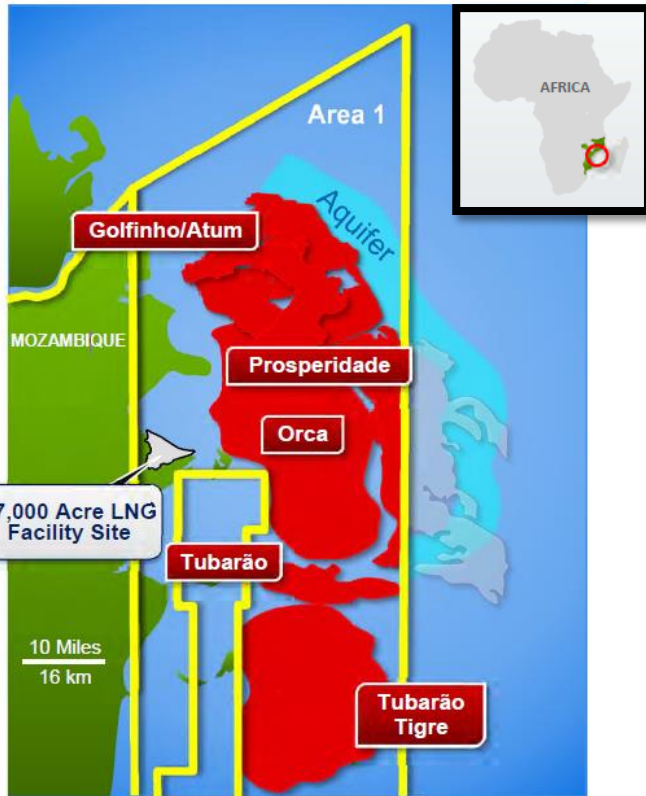
Vietnam 16-1 (28.5% interest)

- Average crude oil sales volume of 27 KBPD in 1H2016
- 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 216 MMSCFD in 1H2016

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

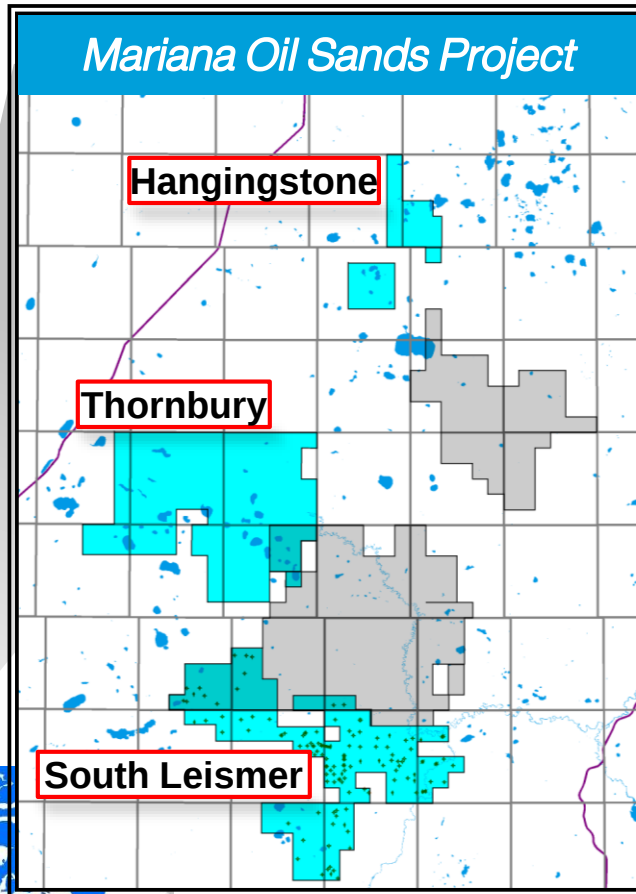
- ✓ Decree law ratified
- ✓ Substantial engagement with government to progress on remaining agreements and approvals to support investment

Financing

- ✓ Positive indications on project financing

Onwards to initial phase of 12 MMTPA

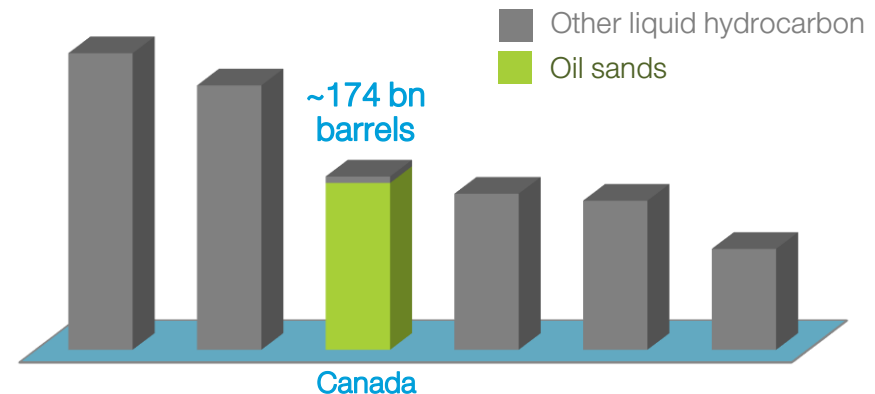
Source: Anadarko



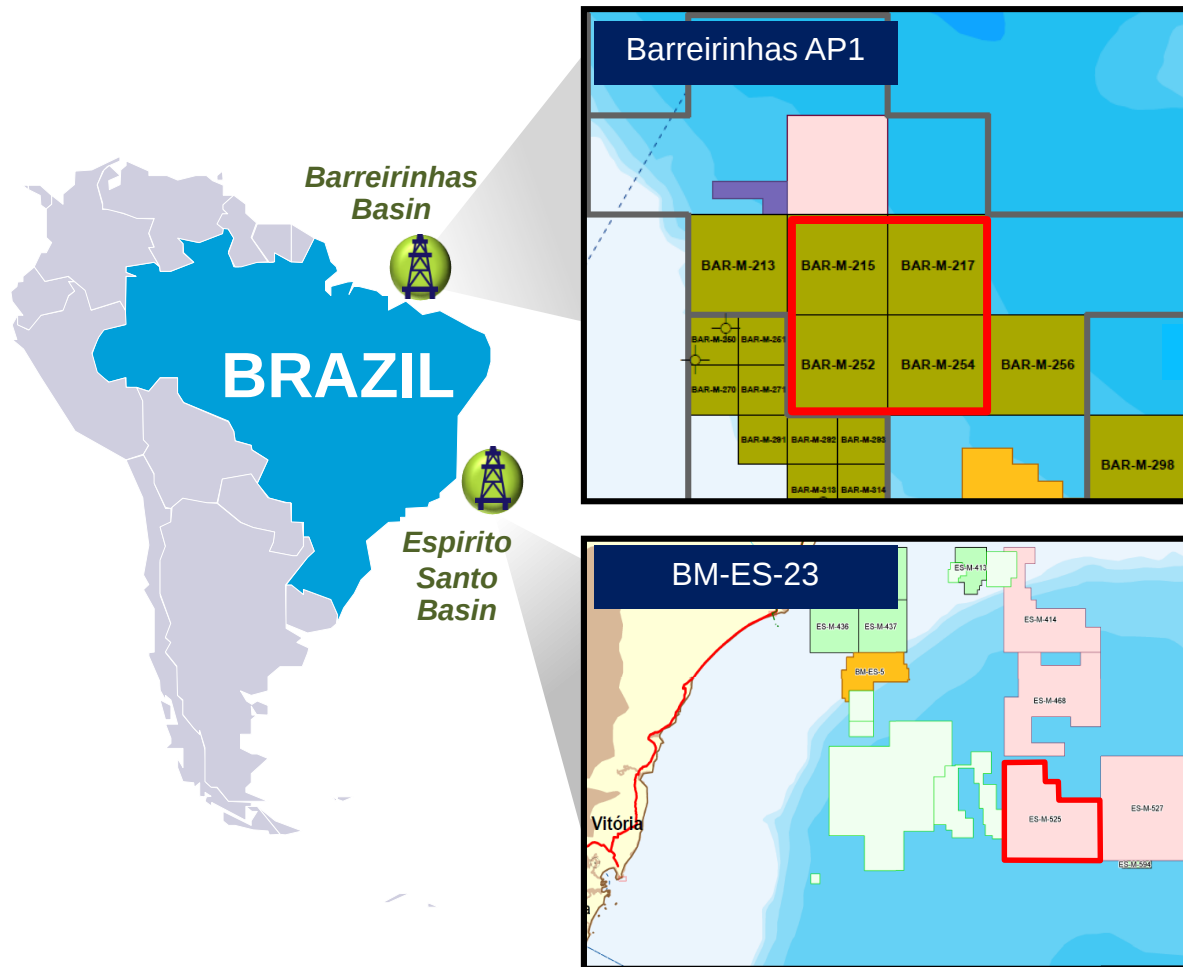
Project Overview

- 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 3rd 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 Q2 2016)	6M 2016 Average Sales Volume **		2016 Key Activities	
					Gas	Oil and Other		
Production Phase								
Thailand and JDA								
1	Arthit	OP	80%	Chevron MOECO	16% 4%	227 MMSCFD	Condensate: 10 k BPD	- Ensure gas deliverability level at DCQ**** - Drill development wells - Install wellhead platforms
2	B6/27	OP	60%***			N/A	N/A	Subsurface study
3	B8/32 & 9A		25%	Chevron MOECO KrisEnergy PSTL	51.66% 16.71% 4.63% 2%	126 MMSCFD	Crude: 27 k BPD	- Drill development wells - Perform waterflood activities
4	Bongkot	OP	44.4445%	TOTAL British Gas	33.3333% 22.2222%	885 MMSCFD	Condensate: 27 k BPD	- Ensure gas deliverability level at DCQ**** - Drill Exploration / Appraisal / Development wells - Install wellhead platforms
5	Contract 3 (Formerly Unocal III)		5%	Chevron MOECO	71.25% 23.75%	577 MMSCFD	Crude: 22 k BPD Condensate: 23 k BPD	- Drill exploration / appraisal / development wells - Install wellhead platforms - Perform waterflood activities
6	Contract 4 (Formerly Pailin)		60%	Chevron MOECO	35% 5%	321 MMSCFD	Condensate: 15 k BPD	- Ensure gas deliverability level at DCQ**** - Drill exploration / appraisal / development wells - Install wellhead platforms - Review development plan of Ubon field
7	E5		20%	ExxonMobil	80%	12 MMSCFD	-	
8	G4/43		21.375%	Chevron MOECO PSTL	51% 21.25% 6.375%	1.5 MMSCFD	Crude: 6.7 k BPD	- Drill development wells - Perform waterflood activities
9	G4/48		5%	Chevron MOECO	71.25% 23.75%	7.9 MMSCFD	Crude: 0.9 k BPD	
10	L53/43 & L54/43	OP	100%			-	Crude: 537 BPD	Drill exploration and development wells
11	PTTEP1	OP	100%			-	Crude: 409 BPD	- Drill development wells - Perform waterflood activities
12	S1	OP	100%			23 MMSCFD	Crude: 28 k BPD	- Drill exploration / appraisal / development wells - Enhance oil recovery program includes waterflooding and artificial lift
13	Sinphuhorm	OP	55%	Apico ExxonMobil	35% 10%	126 MMSCFD	Condensate: 471 BPD	Drill development wells
14	MTJDA	JOC	50%	Petronas-Carigali	50%	305 MMSCFD	Condensate: 7.8 k BPD	- Drill development wells - Install wellhead platforms
15	L22/43	OP	100%			-	Crude: 82 BPD	Drill exploration / development wells

* 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 Q2 2016)	6M 2016 Average Sales Volume **		2016 Key Activities
					Gas	Oil and Other	
Production Phase							
Overseas							
16	Oman 44 ***	OP	100%		20 MMSCFD	Condensate: 1.3 k BPD	Maintain production operation
17	Vietnam 9-2	JOC	25%	PetroVietnam 50% SOCO 25%	12 MMSCFD	Crude: 4.6 k BPD	- Maintain production operation - Perform reservoir management
18	Yadana		25.5%	TOTAL 31.24% Chevron 28.26% MOGE 15%	741 MMSCFD	-	- Drill exploration / development wells - Acquire 2D seismic reprocessing - Perform reservoir management
19	Yetagun		19.3178%	Petronas-Carigali 30.00140% MOGE 20.4541% Nippon Oil 19.3178% PC Myanmar (Hong Kong) 10.90878%	232 MMSCFD	Condensate: 6.0 k BPD	- Drill development wells - Perform reservoir Management
20	Vietnam 16-1	JOC	28.5%	PetroVietnam 41% SOCO 28.5% OPECO 2%	13 MMSCFD	Crude: 27 k BPD	- Drill development wells - Perform reservoir management - Review feasibility for water handling facility upgrade
21	PTTEP Australasia (PTTEP AA)	OP	50%-100% (varied by permits)		-	Crude: 17 k BPD	- Maintain production operation - Assess resource potential of exploration permits
22	Natuna Sea A		11.5%	Premier Oil 28.67% KUFPEC 33.33% Petronas 15% Pertamina 11.5%	216 MMSCFD	Crude: 1.1 k BPD	Maintain production operation
23	Zawtika (M9 & a part of M11)	OP	80%	Myanma Oil and Gas Enterprise (MOGE) 20%	303 MMSCFD	-	- Maintain production rate - Drill development wells - Install wellhead platforms
24	Algeria 433a & 416b (Bir Seba)	JOC	35%	PetroVietnam 40% Sonatrach 25%	-	Crude: 2.2 k BPD (net entitlement)	- Maintain production operation - Review field development plan for possible capacity expansion

* 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 Q2 2016)	2016 Key Activities
Exploration Phase					
Thailand and JDA					
25	G9/43	OP	100%		
Overseas					
26	Myanmar M3	OP	80%	MOECO 20%	• Access development options and commercial potential
27	Mozambique Rovuma Offshore Area 1		8.5%	Anadarko, Mitsui, 26.5%, 20%, ENH, Bharat Petroleum, 15%, 10%, BREML, OVL 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 24.5%, Sonatrach 51%	• Drill Appraisal wells
29	Myanmar M11	OP	100%**		• Acquire 3D seismic
30	Vietnam B & 48/95		8.5%	PVN 65.88%, MOECO 25.62%	• Negotiate a GSA with the Vietnamese government
31	Vietnam 52/97		7%	PVN 73.4%, MOECO 19.6%	• Negotiate a GSA with the Vietnamese government
32	Myanmar PSC G and EP 2	OP	70%	WinPreciousResources 10%, MOECO 10%, Palang Sophon Offshore 10%	• Conduct G&G studies
33	Myanmar MD 7	OP	100%		• Acquire 3D seismic
34	Mariana Oil Sands	OP	100%		• Assess development approach and cost reduction opportunity
35	Barreirinhas AP1		25%	BG Brasil 75%	• Acquire 3D seismic

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

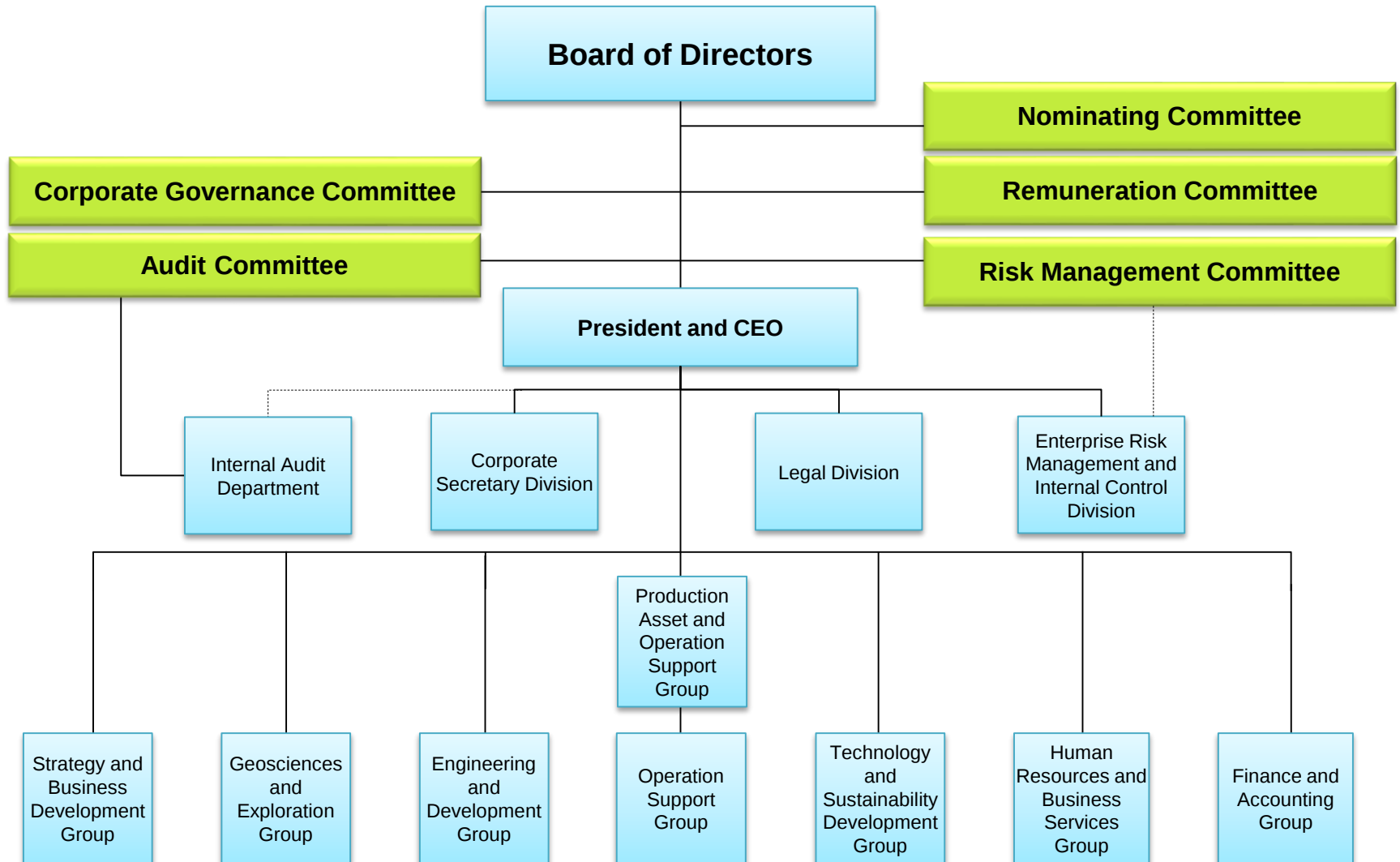
** New participating interest subject to government approval



	Project	Status*	PTTEP's Share	Partners (as of Q2 2016)	2016 Key Activities
Exploration Phase					
Overseas (Cont'd)					
36	Myanmar MOGE 3	OP	75%	Palang Sophon Offshore MOECO WinPreciousResources	10% 10% 5% • Acquire 3D seismic
37	Brazil BM-ES-23		20%	Petrobras INPEX	65% 15% • Drilling result and resource evaluation
38	Malaysia SK410B	OP	42.5%	KUFPEC PSCB	42.5% 15%

Remarks: 38 projects exclude 4 projects that are pending official withdrawal approval

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