

MEMBER OF
Dow Jones
Sustainability Indices
In Collaboration with RobecoSAM



Thai Oil Public Company Limited

Presentation to Investors

April 2019



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Some statements made in this material are forward-looking with relevant assumptions, which are subject to uncertainties, which may cause the actual result/performance to be materially deviated from any future result/performance implied by such forward-looking statements. Please note that the company and management/staff are not capable to control and guarantee if these forward-looking statements will be accurately materialized, they are subject to various risks and uncertainties.

Corporate Vision, Mission and Values

VISION	<p align="center">Empower Human Life through Sustainable Energy and Chemicals</p>
MISSION	<ul style="list-style-type: none"> • To enrich stakeholders' well-being and deliver sustainable returns built upon innovation, technology and resilient portfolio with top class management and accountable corporate governance
VALUES	<p> Professionalism Ownership & Commitment Social Responsibility </p> <p align="center">  </p> <p> Integrity Teamwork & Collaboration </p> <p> Excellent Striving Vision Focus Initiative </p>

Corporate Governance

Corporate Governance Policy

The board of directors, management and all staff shall commit to moral principles, equitable treatment to all stakeholders and perform their duties for the company's interest with dedication, integrity, and transparency.

Anti-Corruption Policy

The Board, the management, and employees must not corrupt or accept corruption of all forms in any circumstances, covering the business of the Company in every country and in every relevant agency. The Company defines guidelines, operating measures, and roles and duties of responsible persons, as well as regularly monitoring and reviewing the implementation of the anti-corruption policy in compliance with changes in businesses, rules, regulations, and relevant laws.

Roles and Responsibilities for Stakeholders

- Truthfully report company's situation and future trends to all stakeholders equally on a timely manner.
- Shall not exploit the confidential information for the benefit of related parties or personal gains.
- Shall not disclose any confidential information to external parties.

Whistle-Blowing Channels

Should you discover any ethical wrongdoing that is not compliance to CG policies or any activity that could harm the Company's interest, please inform:



Chairman of the Board or
Chairman of the CG Committee or
Chairman of the Audit Committee or
CEO/President or Company Secretary

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CG
Manual

<http://www.thaioilgroup.com>



Our Achievement in Sustainable Development



MEMBER OF

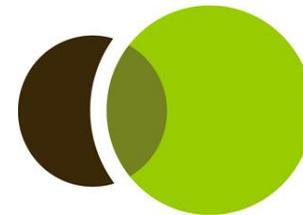
**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM 

**6th Consecutive Year as the Member
of DJSI Emerging Markets**

5th Consecutive Year of leading positions:

Oil & Gas Refining & Marketing



**ROBECOSAM
Sustainability Award
Gold Class 2018**



Presentation Agenda

TOP GROUP BUSINESS OVERVIEW

KEY FINANCIAL HIGHLIGHTS

STRATEGIC INVESTMENT PLANS

MARKET OUTLOOK

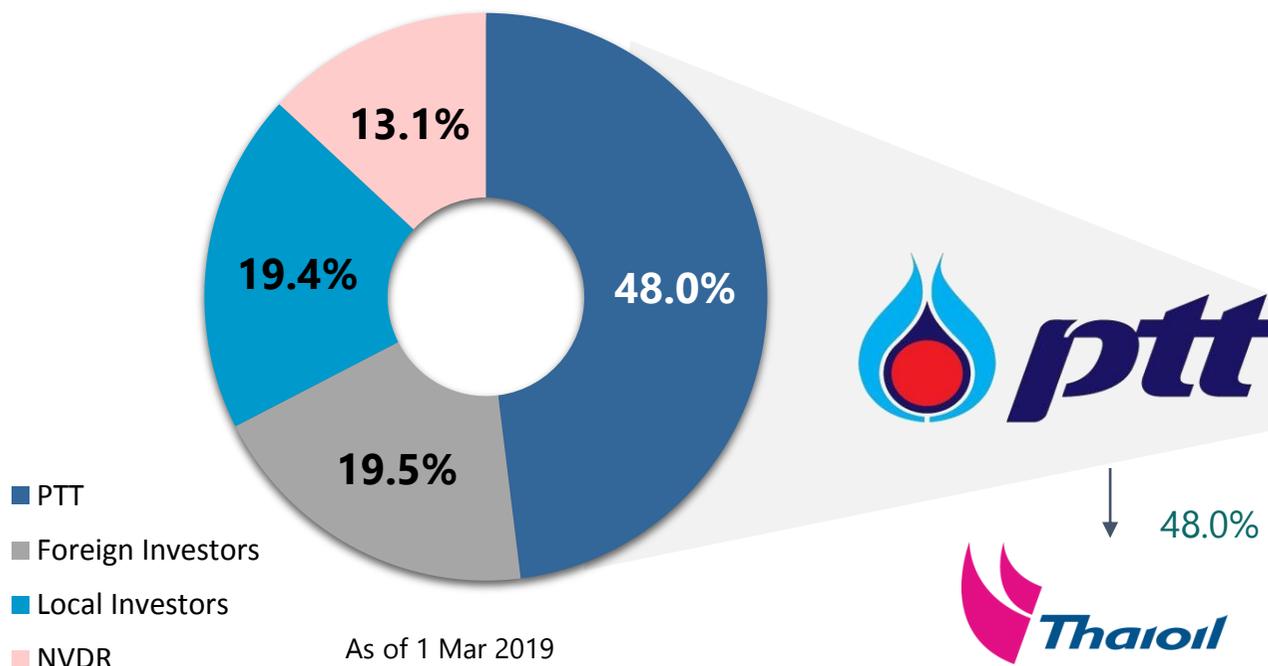
APPENDIX



TOP GROUP BUSINESS OVERVIEW

Strategic Relationship and Operational Integration with PTT

Thai Oil's strong shareholder base



- Benefits from PTT's dual role as our major shareholder and key business partner
- All transactions take place at arm's length and in adherence with strong corporate governance principles

Key strategic benefits for Thai Oil

1. Long-term strategic partnership

- Thai Oil is PTT's principal refiner
- Long-term strategic shareholder and joint investment

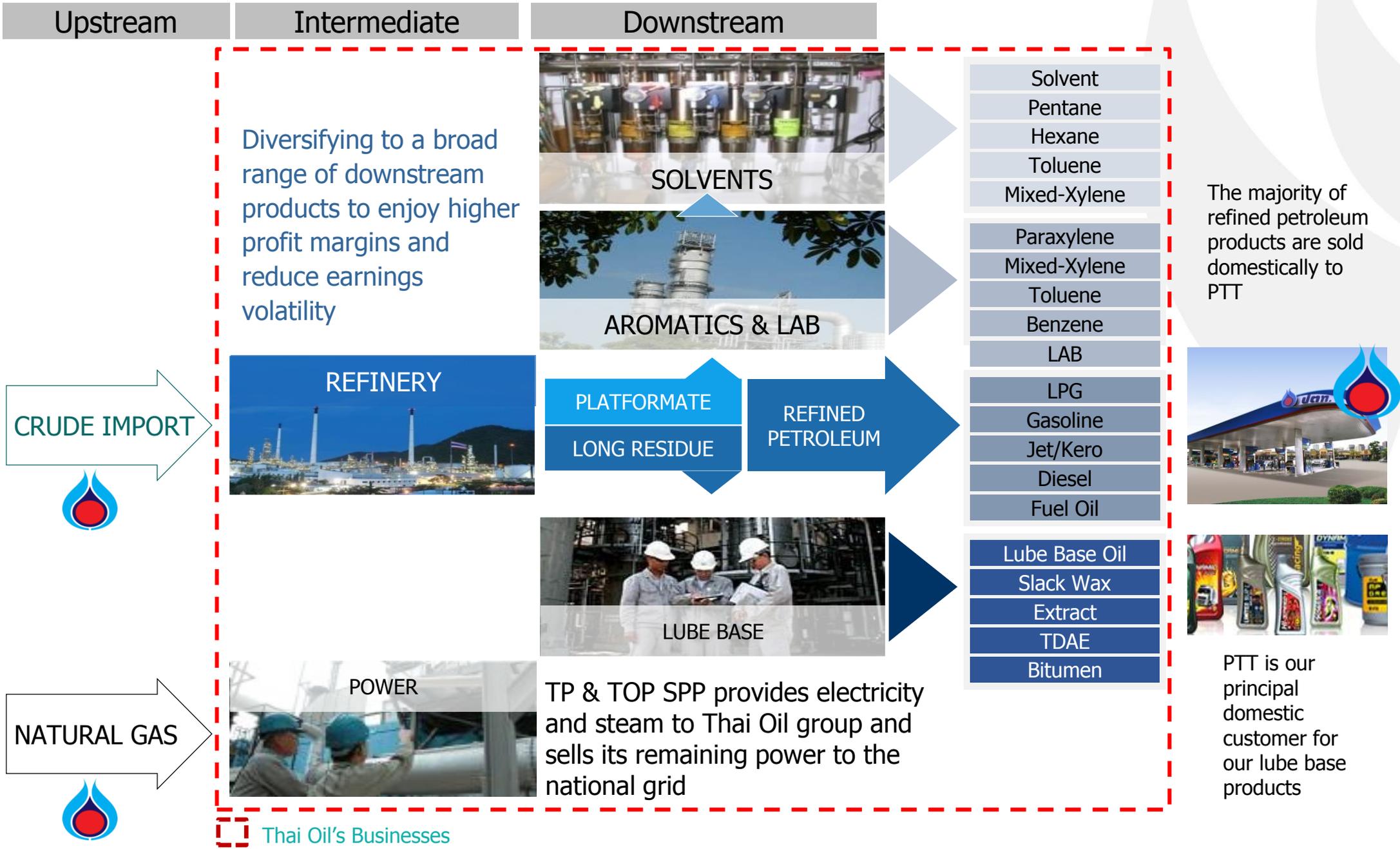
2. Business partnership

- Product offtake
- Crude procurement

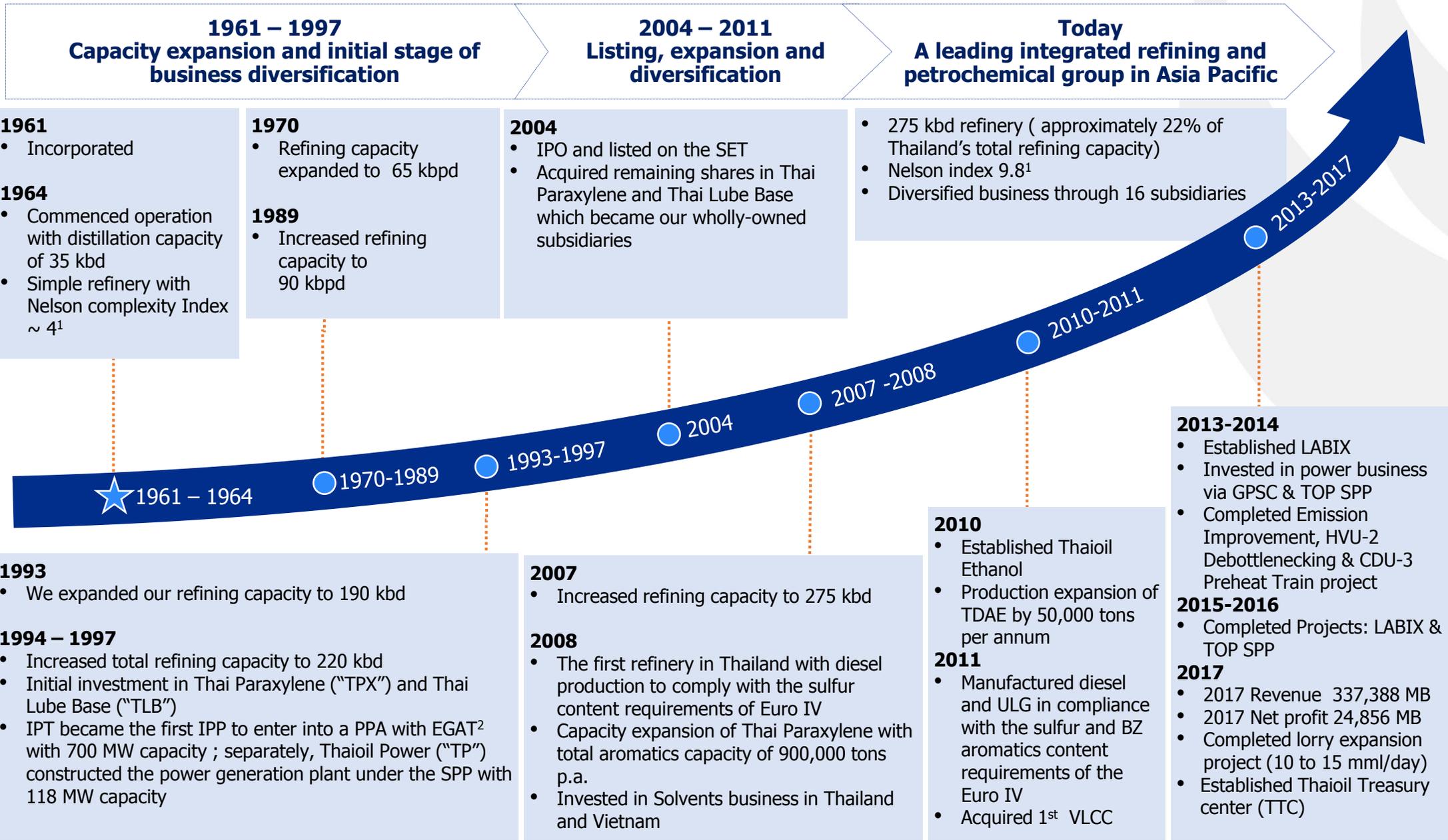
3. Operational synergies

- Freight costs reduction
- Knowledge transfer and shared services
- Close management collaboration and secondment of trained staff

TOP Group Synergy & Strategic Role in PTT Group Value Chain



Key Milestones: 57 Years, A Long Track Record of Success



Note 1. Based on our internal estimates using the methodology of the Nelson Complexity Index

2. The Electricity Generating Authority of Thailand ("EGAT") is the national grid

Thai Oil Group Business Structure



Core Business Value Enhancement Earning Stability Marketing / IT Support

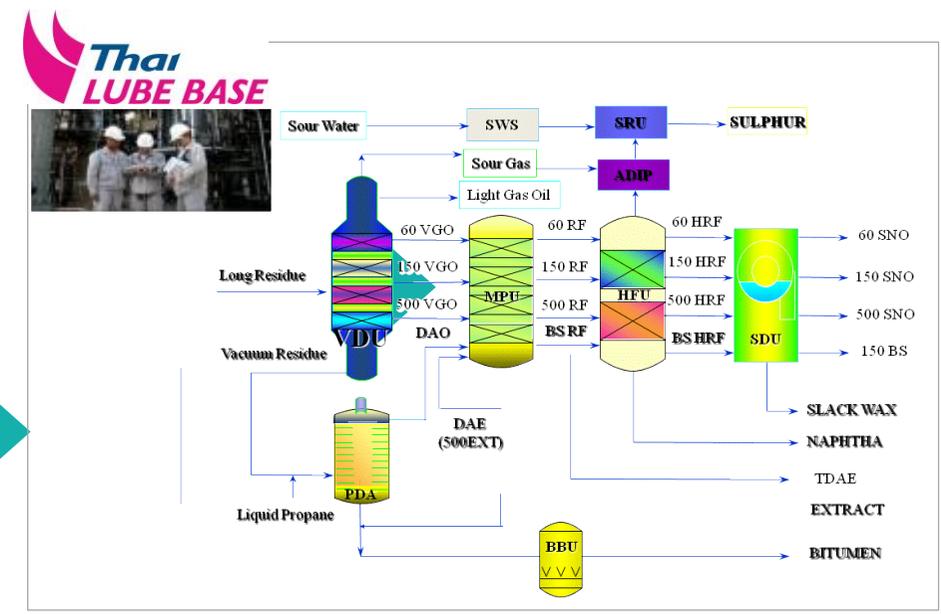
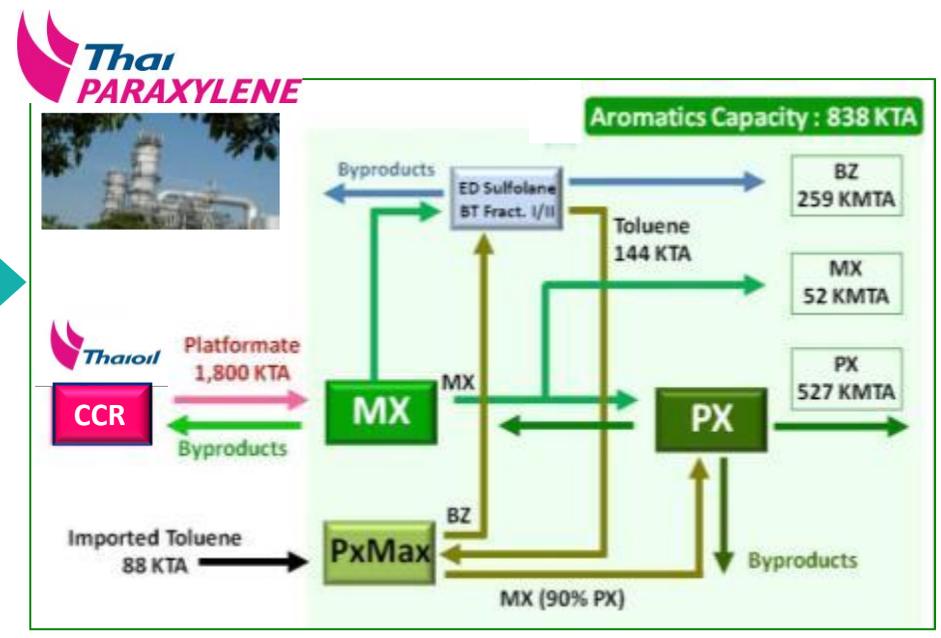
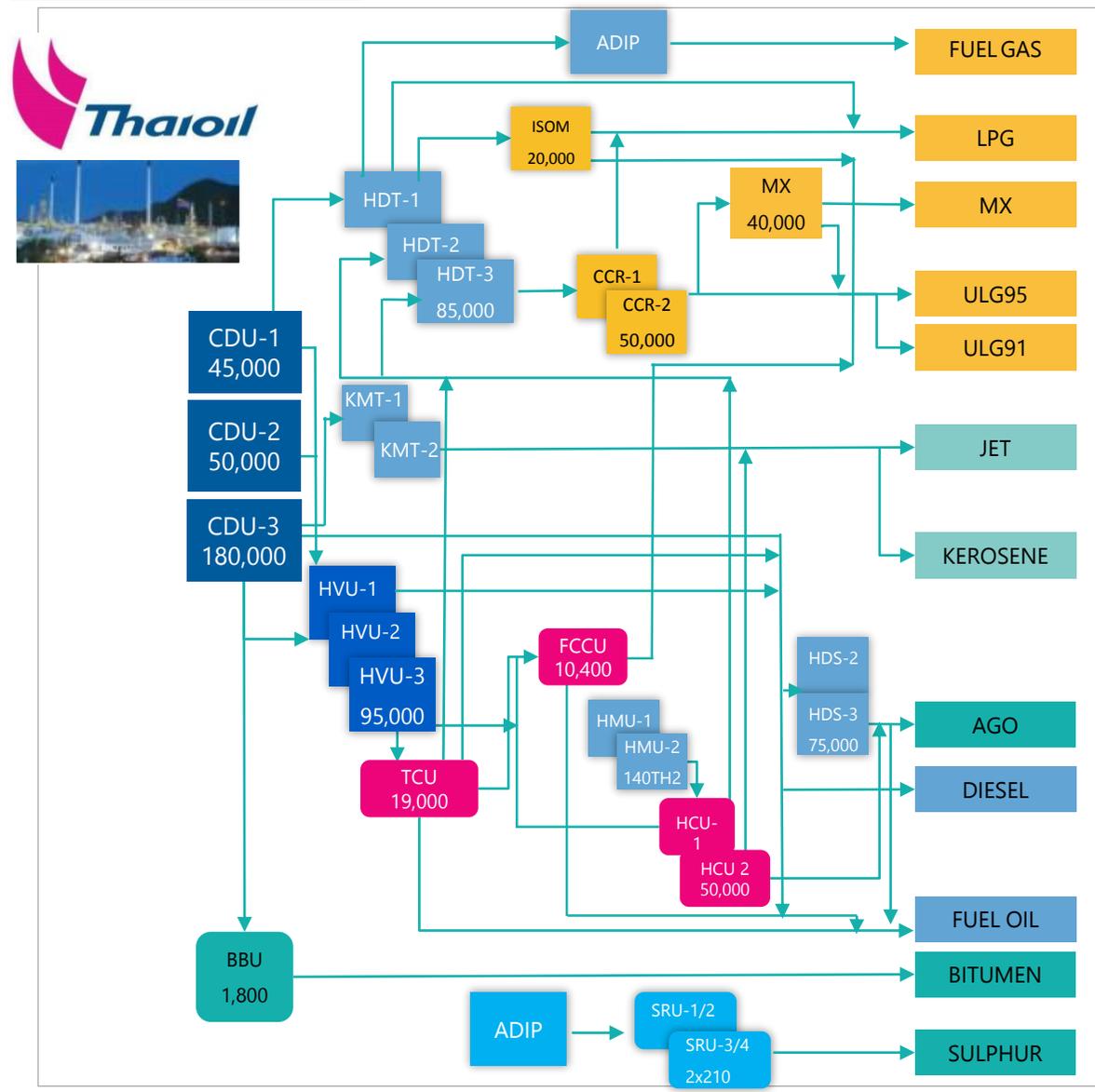


(Avg. from 2006 – 2018)

- Refinery
- Aromatics
- Lube Base
- Others

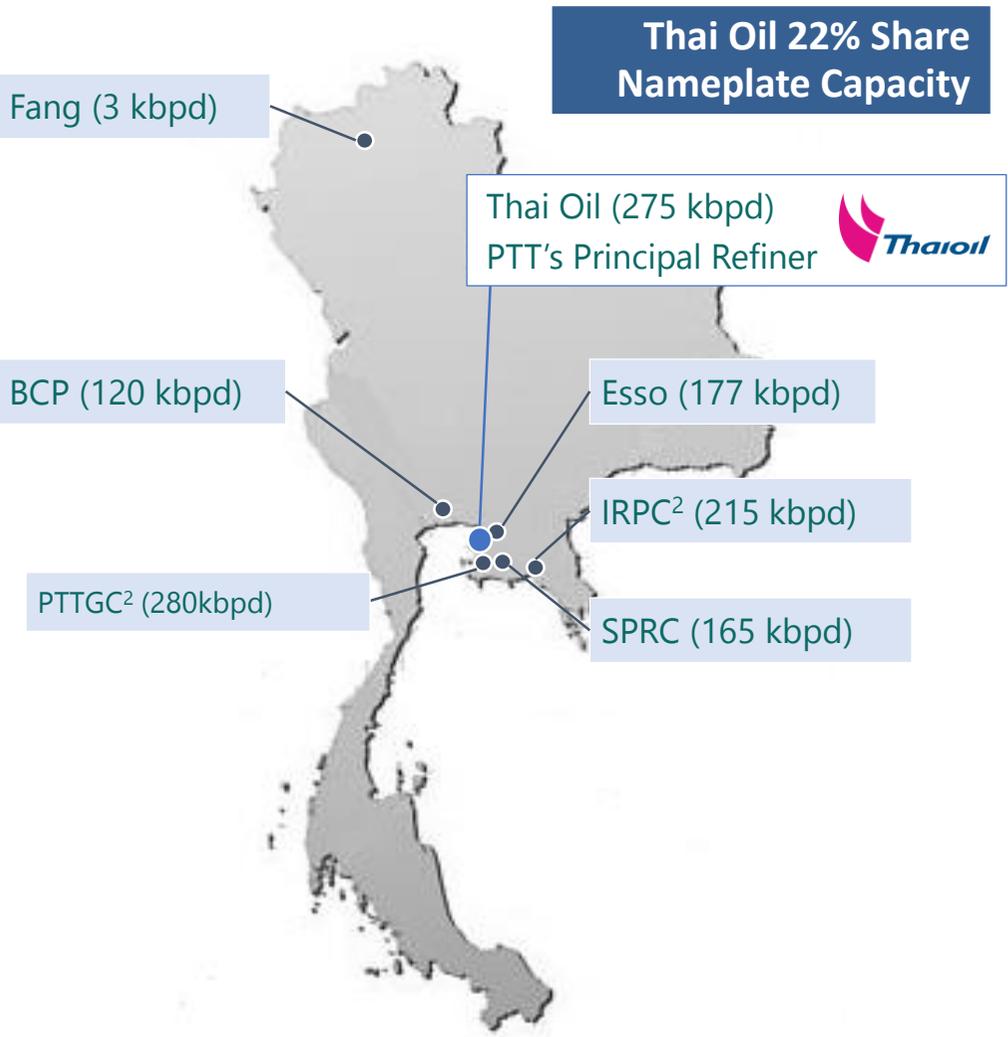
Process Linkage: Beauty of Integration

PROCESS FLOWCHART

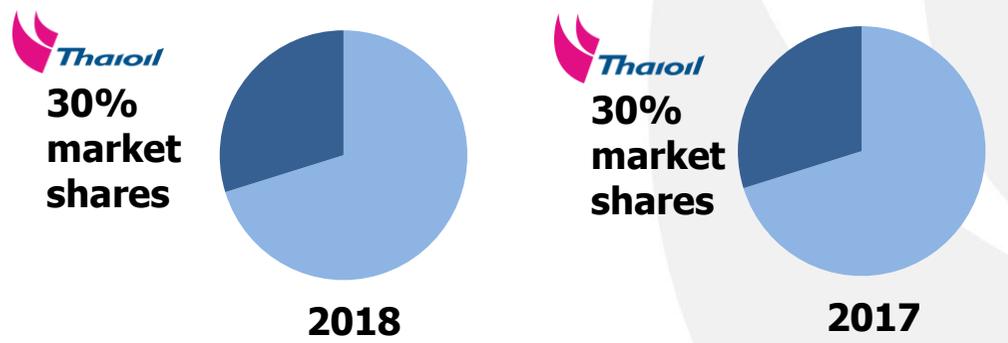


One of Region's Leading Refineries

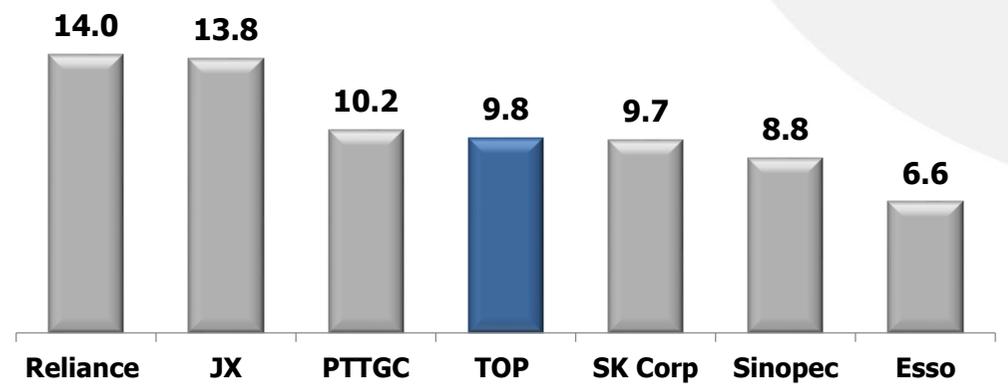
Total Thailand crude refining capacity 1,235 kbd



Market shares for refined petroleum product³



Nelson Index - Regional Comparison⁴



Remarks:

- Nelson Complexity Index measures refinery's upgrading capability for comparison
- It is the ratio of complexity barrels divided by crude distillation capacity

Note: 1. Source: Energy Policy and Planning Office (EPPO), Ministry of Energy Thailand as of December 2018
 2. PTT holds a 48.1% interest in IRPC as at 5 Sep 18 , a 48.18% interest in PTTGC as at 3 Sep 18
 3. Calculate by total domestic sales of refined petroleum products (excluding by product & LPG) of Thai Oil divided by total sales of petroleum products in Thailand excl LPG. Source from EPPO
 4. Source: Worldwide Refinery Survey and Complexity Analysis 2015 from Oil & Gas Journal and company information

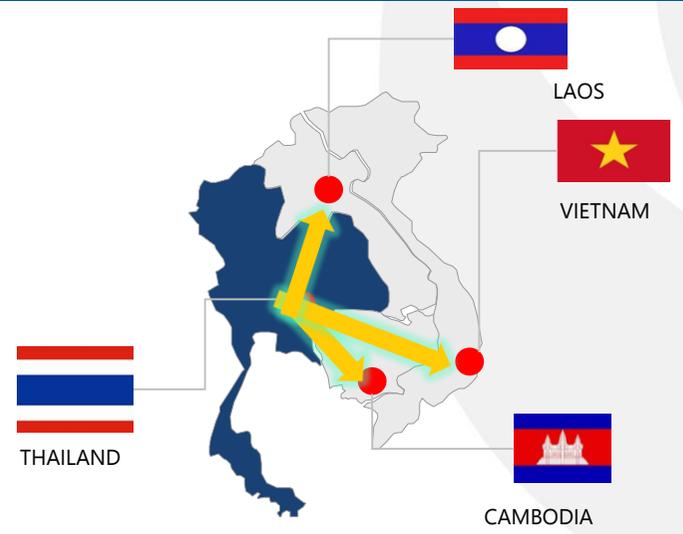
Strategic Location with Competitive Advantages in Access to Key Markets

Close proximity to the key domestic markets

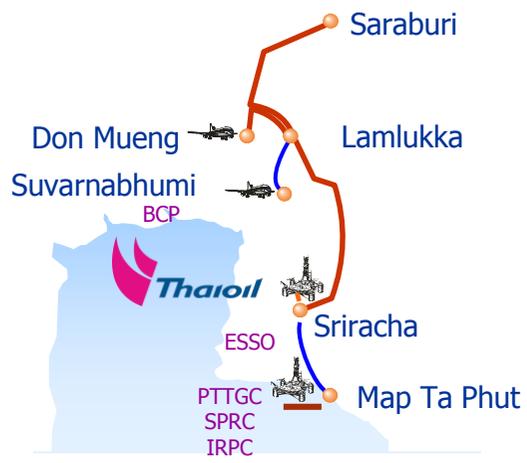
Access to Indochina markets through deep water ports and trucks

Our strategic location provide us with

1. Close proximity with the key domestic markets and Indochina
2. Direct access to deep water ports
3. Direct connection with multi-product pipelines



Direct connection with product pipeline system



Product pipeline system

- ✓ Our plants are located within the Sriracha Complex
- ✓ SBM provides direct access to deep water ports, and ability to receive feedstock directly from VLCC
- ✓ We also enjoy available connections to delivery networks such as multi-product pipelines, including Thappline

Optimized & Flexible Operations...Superior Performance

Crude Assays based on TOP configuration*



Sources of Crude

Product output

Reference Price



Domestic demand for petroleum products**

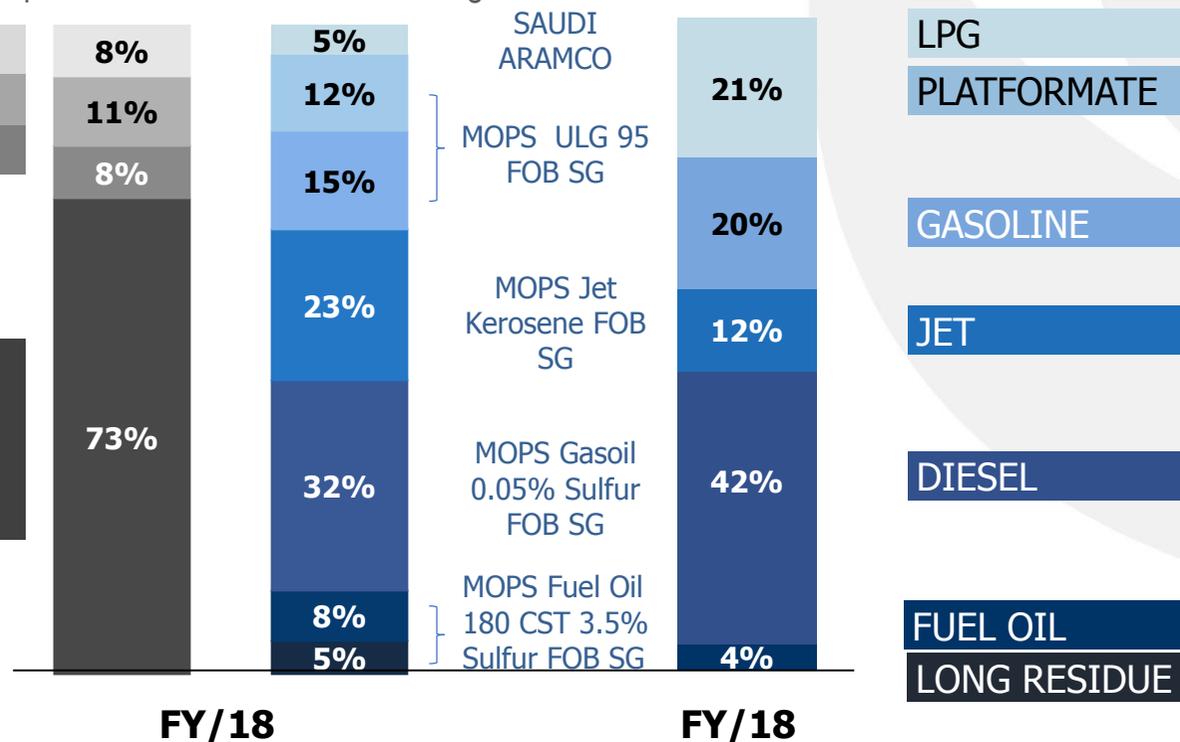
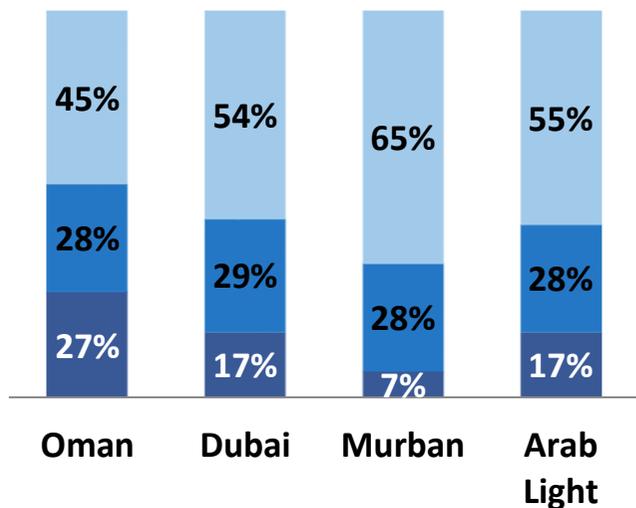
Thai Oil is able to diversify its type of crude intake and product outputs to maximize demand and margin

% S = 1.43 API = 32.0	% S = 2.52 API = 31.2	% S = 0.78 API = 39.4	% S = 1.97 API = 32.8
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Others***
Far East
Local

Middle East

■ Short Residue ■ Waxy ■ Gasoline/Distillates



- Flexibility in crude intake allows diversification of crude types to source cheaper crude
- Flexibility in product outputs by maximizing middle distillates (jet and diesel) by adjusting production mode to capture domestic demand and price premium
- Maximize Platformate production to capture higher margin on aromatics
- Minimize fuel oil output to avoid lower margin products

*Crude yield as per assay in Spiral as of Feb 2016

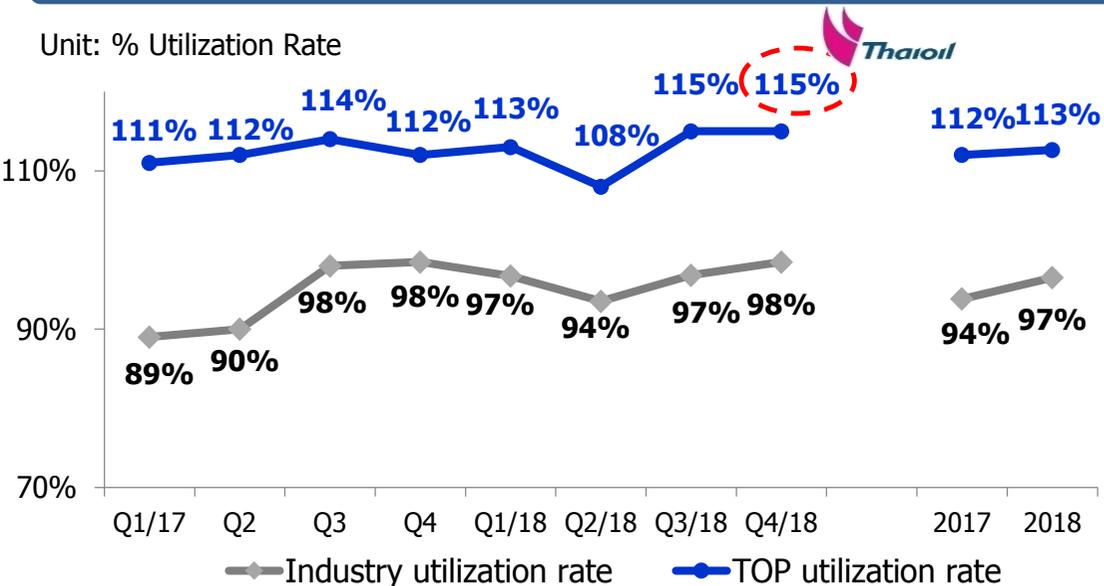
**Source: Energy Policy and Planning Office, Ministry of Energy Thailand

*** Including Nigeria, Russia and others

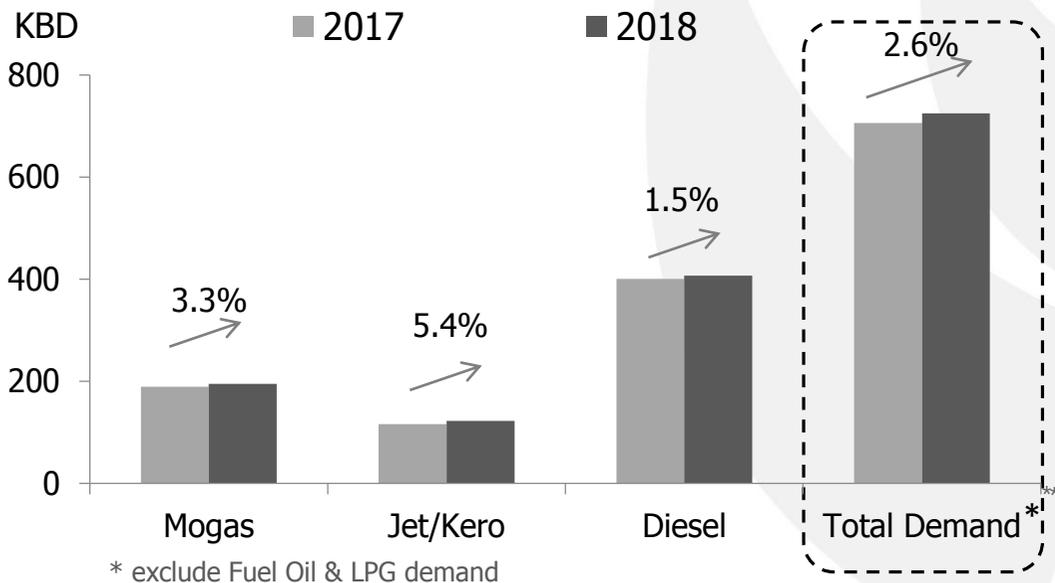
Refinery: Maintain High Utilization Rate

TOP/ Domestic Refinery Utilization Rate

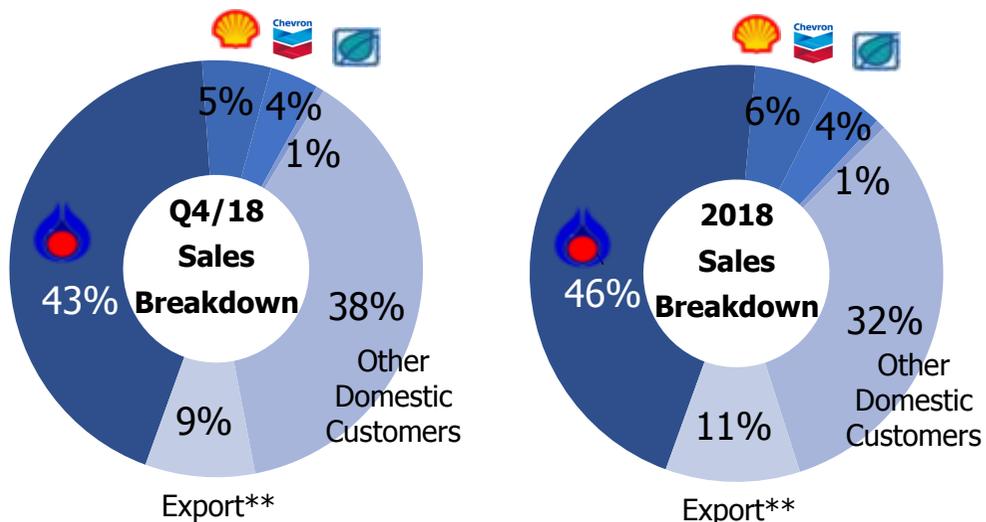
Unit: % Utilization Rate



Domestic Oil Demand

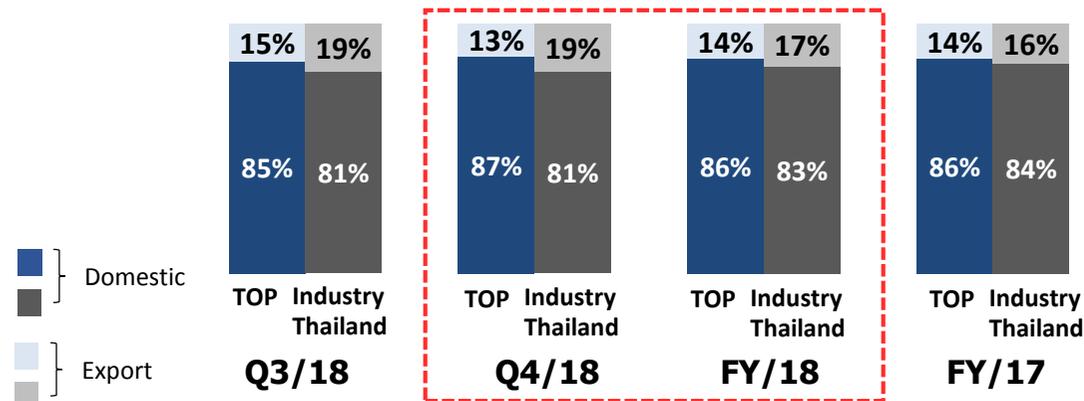


Sales breakdown by customers



TOP's Domestic Sale vs Industry***

Export	Q3/18		Q4/18		FY/18		FY/17	
	TOP	Ind.	TOP	Ind.	TOP	Ind.	TOP	Ind.
CLMV	8%	9%	8%	10%	9%	7%	9%	6%
Others	7%	10%	5%	9%	5%	10%	5%	10%



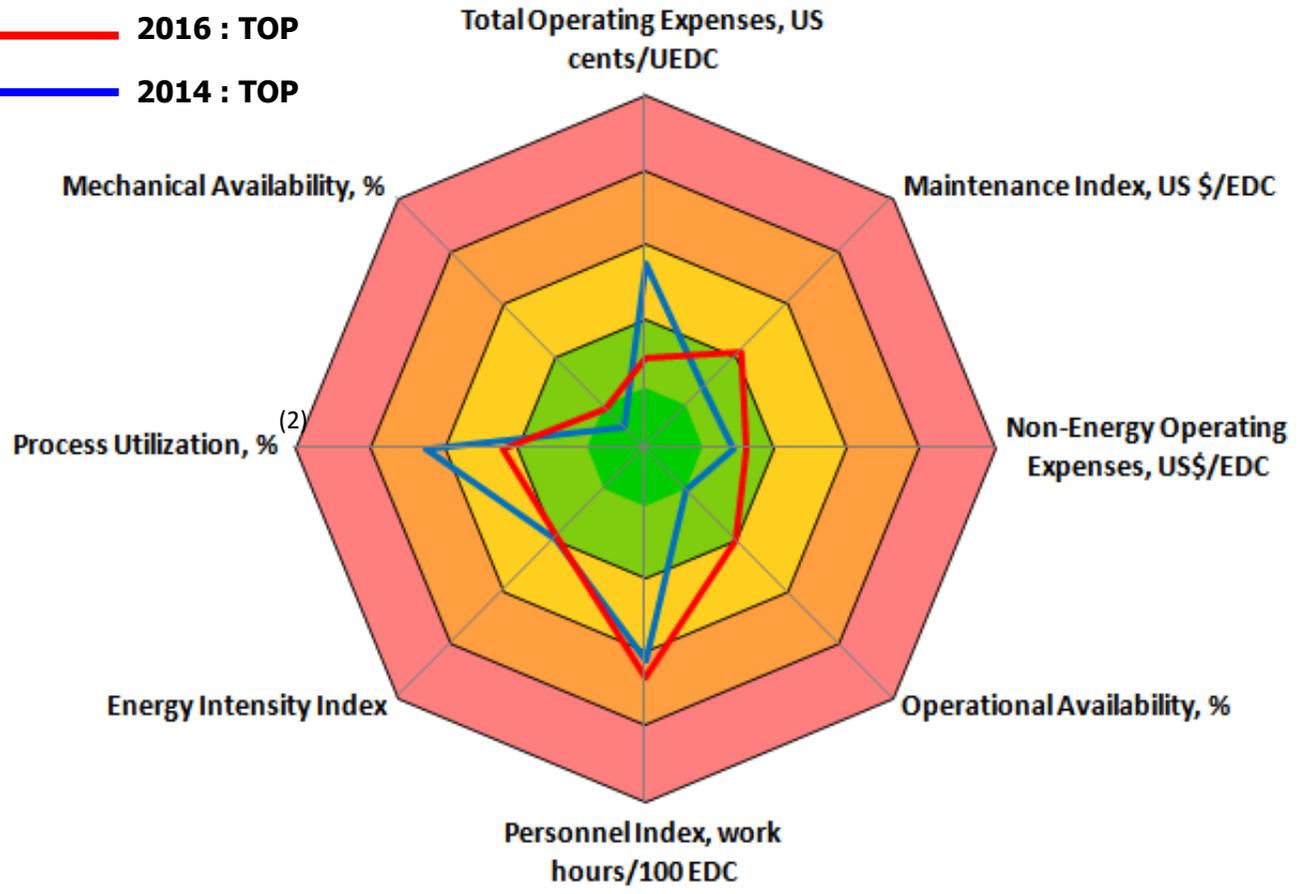
** Excludes export sale through PTT

*** Source: Department of Energy Business, Ministry of Energy

Competitive Performance Benchmarking

Solomon for GOC 3⁽¹⁾ Category

— 2016 : TOP
— 2014 : TOP



Solomon Associates is the independent 3rd party who applies Comparative Performance Analysis methodology to industry peers in the area of reliability, equipment, utilization, operating expense, gross margin and overall performance range and come up with comparative ranking

Remark :

⁽¹⁾ GOC 3 stands for Gas Oil Conversion Group 3, under which refineries in this group have equivalence distillation capacity 1,800 – 2,999 KEDC

⁽²⁾ In 2014, Thai Oil had Major turnaround for CDU-3 46 days and 2014FY refinery utilization was at 98%

TOP Group Key Highlights



Thailand's largest and one of the region's most advanced and competitive refineries

1

Diversified earnings through integration with, and significant contribution from, our subsidiaries

2

Strategic relationship and operational integration with PTT as the Group's principal refiner

3

Strategic location with competitive advantages in access to key markets

4

Industry with high barriers to entry and strong market positioning

5

Technological superiority, logistical advantages & cost leadership

6

Highly experienced management team

7

Strong financial profile

8



KEY FINANCIAL HIGHLIGHTS

2018 Key Market Drivers Highlights

Refinery



- **Soften refinery margins** pressured by **higher crude premium** due to supply tightness followings OPEC's cut and **weak gasoline spread** due to high inventory worldwide. But negative impact was partially offset by **strong middle distillates margin** supported by decent demand and limited supply
- **Slightly lower crude price** toward year end pressured by **1) U.S. recorded high production 2) waiver of imported Iranian crude** by U.S. until 1 May, 2019

Implication

- **Mkt GRM at 4.7 \$/bbl¹⁾**
(2017 = 6.7 \$/bbl)
¹⁾ Include Margin and Productivity Improvement
- **(0.4) \$/bbl inventory loss²⁾**
(from stock gain 0.9 \$/BBL in 2017)
²⁾ Based on refinery intake

Aromatics & LAB



- **Robust aromatics contribution** mainly from **strong PX spread** supported by **1) supply tightness** as the start-up of PetroRabigh (1.3 MTA) and Nghi Son (0.7 MTA) were not at full capacity **2) robust demand from downstream product** i.e. PTA & Polyester

- **Robust Aromatics & LAB Margins³⁾**
(GIM contribution 1.8 \$/bbl from 1.6 \$/bbl in 2017)

³⁾ Aromatic contribution including LAB

Lube Base



- **Soften Base Oil spread** pressured by **additional base oil supply** mainly from Saudi Arabia (0.89 MTA) and China (0.65 MTA)

- **Soften Lube Base Contribution**
(GIM contribution 0.5 \$/bbl from 0.8 \$/bbl in 2017)

Refinery + Aromatics & LAB + Lube Base

\$/BBL	FY/17	FY/18
Market GIM	9.1	↓ 6.9
Inventory Gains/ (Loss) ⁴⁾	0.8	↓ (0.3)
Accounting GIM	9.9	↓ 6.6

⁴⁾ Based on integrated intake

2018 Key Achievements

Key Achievements 2018

Operational Excellence



Growth & Profitability Improvement



Sustainability & Awards



Maintain high reliable production

	2018	2017
Refinery	113 % *	112 %
Aromatic	89 %	83 %
Base Oil	84 %	88 %

* Planned MTA CDU-1 (May-Jun'18)

Capture high local & Indochina sales

	2018	2017
Local	86 %	86 %
Indochina	9 %	9 %
Other exports	5 %	5 %

2018 Dividend 2.65 Baht per share (Dividend payout 53%)

In Aug, EGM approved investment in CFP Project CAPEX USD 4.8 bn. And, in Oct, Thailoil signed EPC Contract, with a consortium of companies

In Apr, TTC Successfully did Liability Management Transactions to enhance debt management efficiency. In Nov, TTC issued USD 1bn to support CFP investment

Subsidiaries financial management successfully refinanced LABIX and TMS

Sustainability Member for Oil & Gas Industry for 6th consecutive years of DJSI Emerging Markets

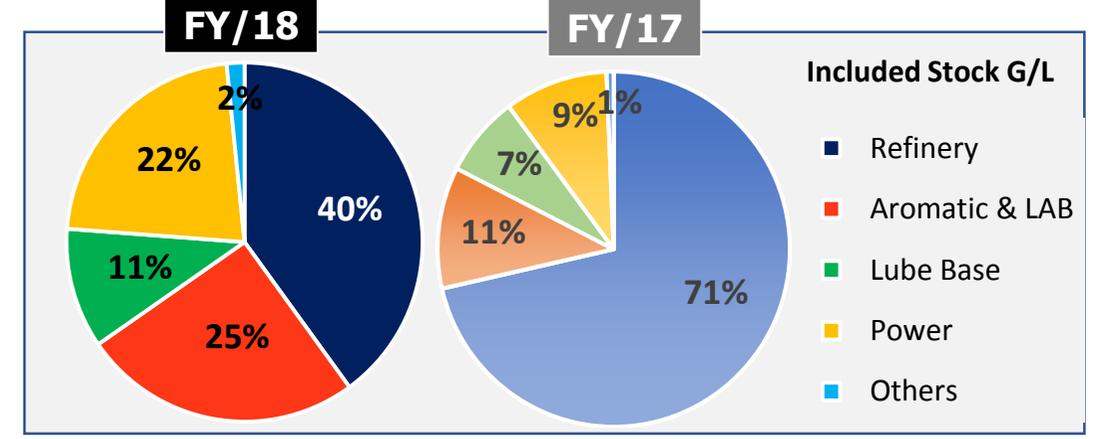
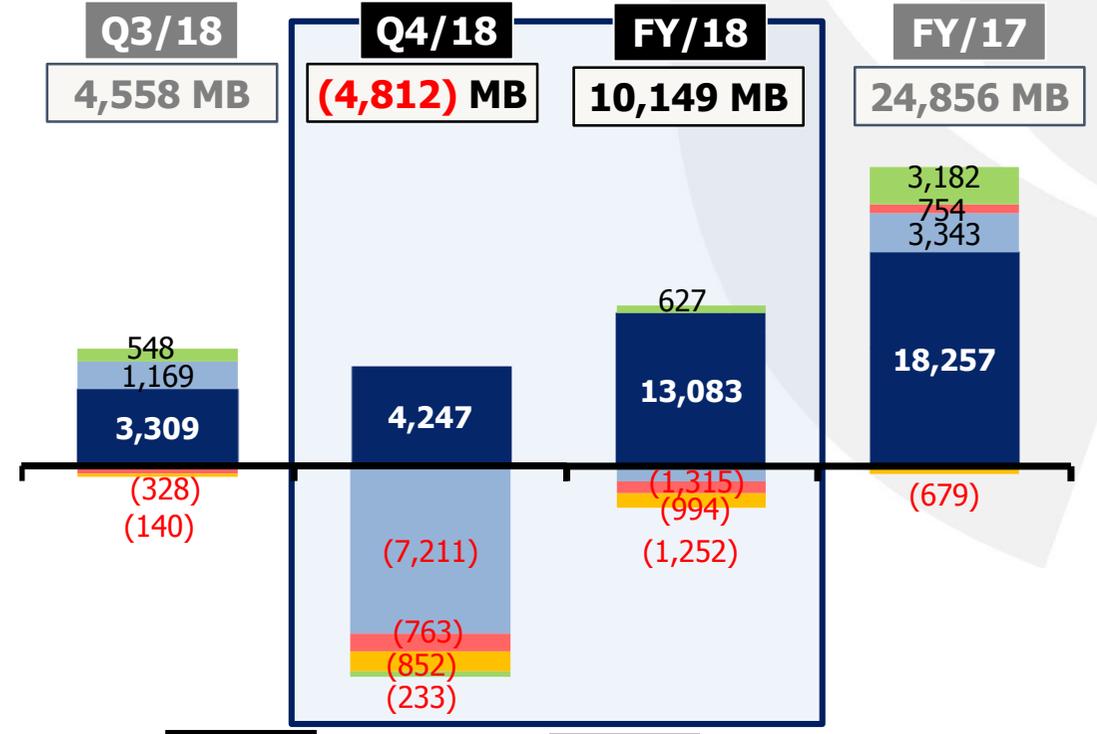
Best Company Performance Awards 2018, listed company with market cap > 100 Bn THB from SET

Best IR in energy sector – South East Asia, IR Magazine 2018

TOP Group Net Profit

Unit : million THB (MB)

- Net Operating Profit
- Reversal of NRV/(NRV) & Adjusted to cost
- Stock gain/(loss)
- F/X gain/(loss)
- Others i.e. Hedging gain/(loss) & Non-recurring items



2018 Margin and Productivity Improvement (VS Corporate Plan)

Cost Management

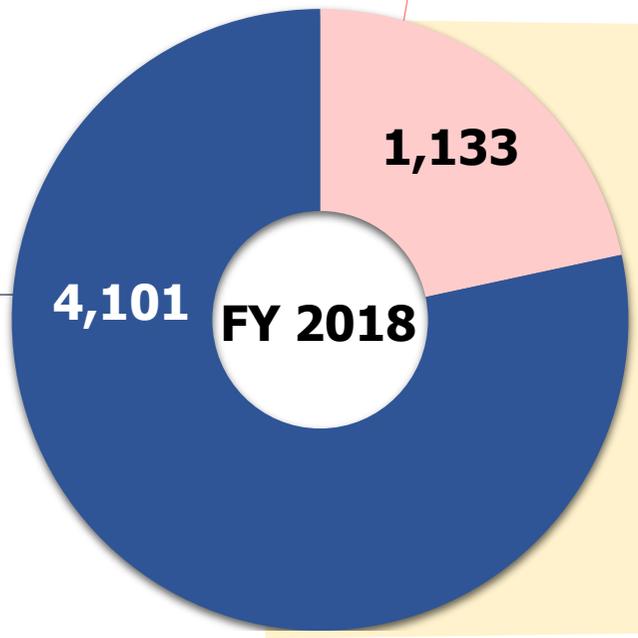


General & Admin , Procurement & warehouse , Operation & Maintenance , Project & Manpower management

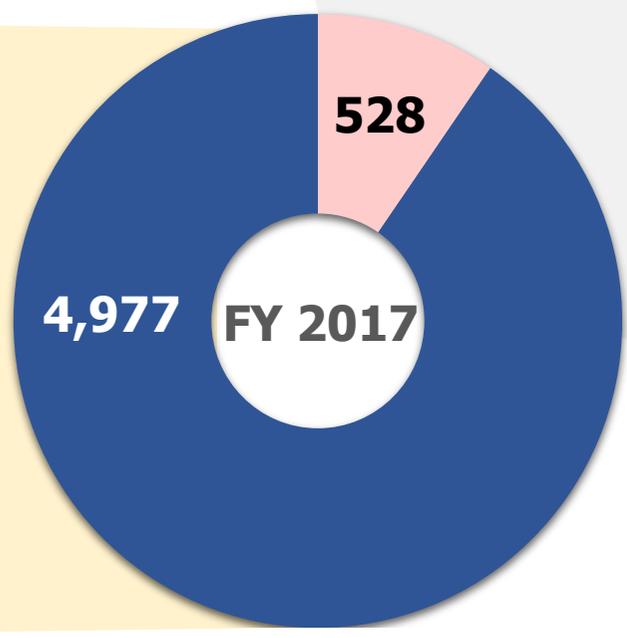
Unit: million THB

Margin Improvement (Hydrocarbon Management : HMR) and Productivity Improvement (Non HMR)

- ✓ **21%** Higher domestic/ better product premium 
- ✓ **18%** Plant optimization 
- ✓ **17%** Crude Enhancement 
- ✓ **8%** Higher Intake 
- ✓ **3%** Energy improvement 
Energy
- ✓ **2%** VLCC freight & demurrage saving 
- ✓ **10%** Others



THB 5,234 mn*



THB 5,505 mn*



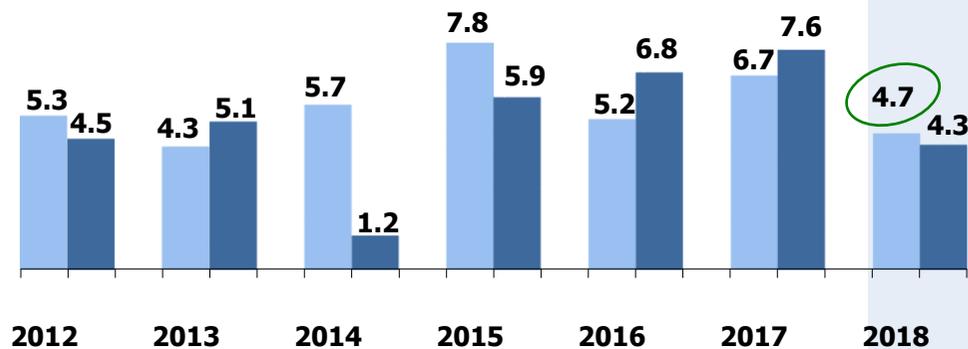
* Compared with Corp. plan

Integrated Margin & Competitive Cash Cost

Gross Refining Margin

(Unit: US\$/bbl)

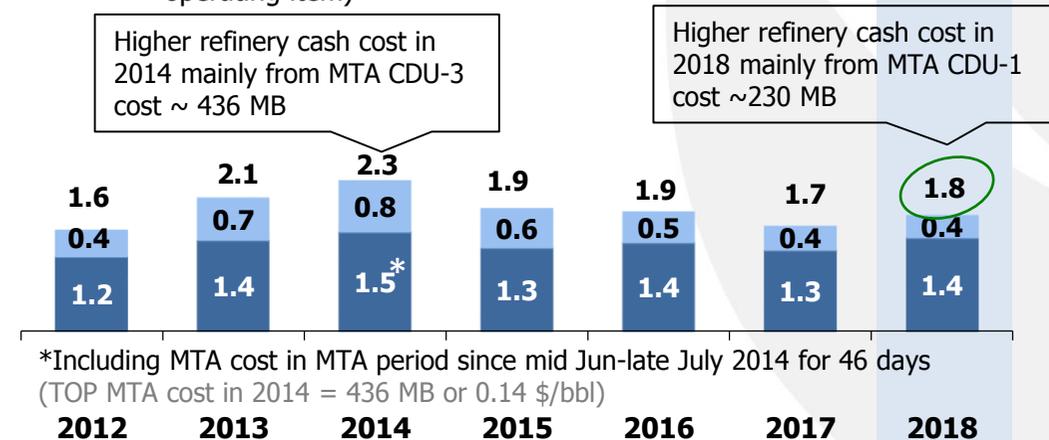
■ Market GRM ■ Accounting GRM (Market GRM + Stock G/L)



Refinery's Cash Cost

(Unit: US\$/bbl)

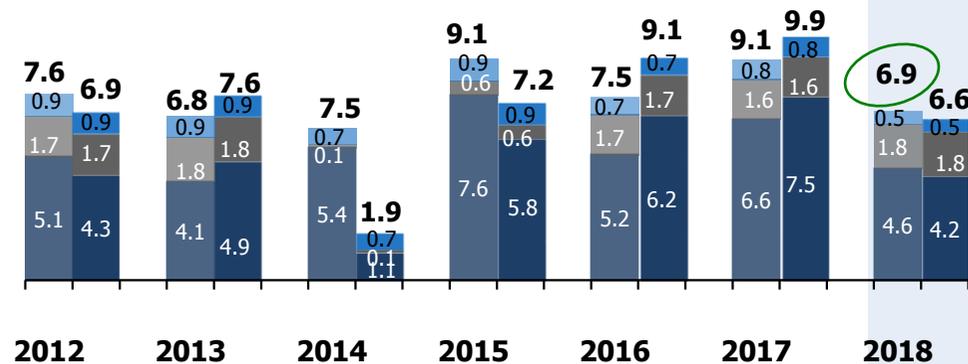
■ Operating Cost (excl. one-time non-operating item) ■ Interest Expense (net)



Gross Integrated Margin

(Unit: US\$/bbl)

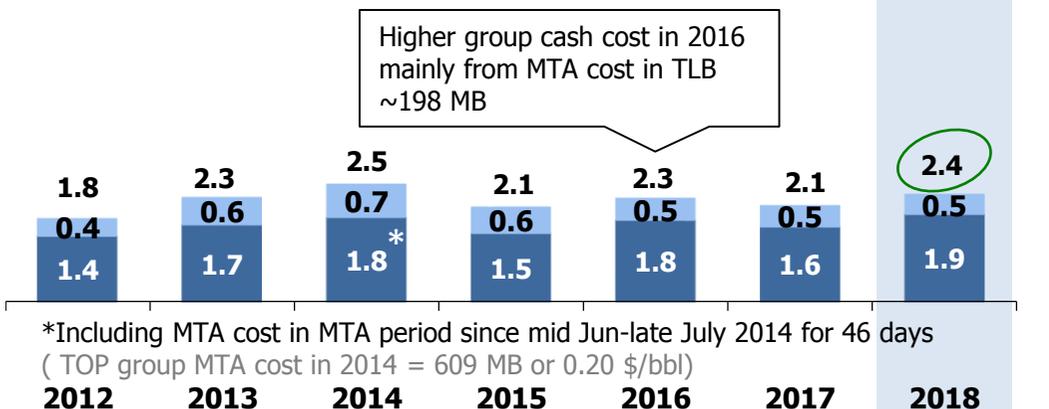
■ Market GIM ■ Accounting GIM (Market GIM + Stock G/L)
 ■ Refinery ■ Aromatics+LAB ■ Lube Base



Group's Cash Cost

(Unit: US\$/bbl)

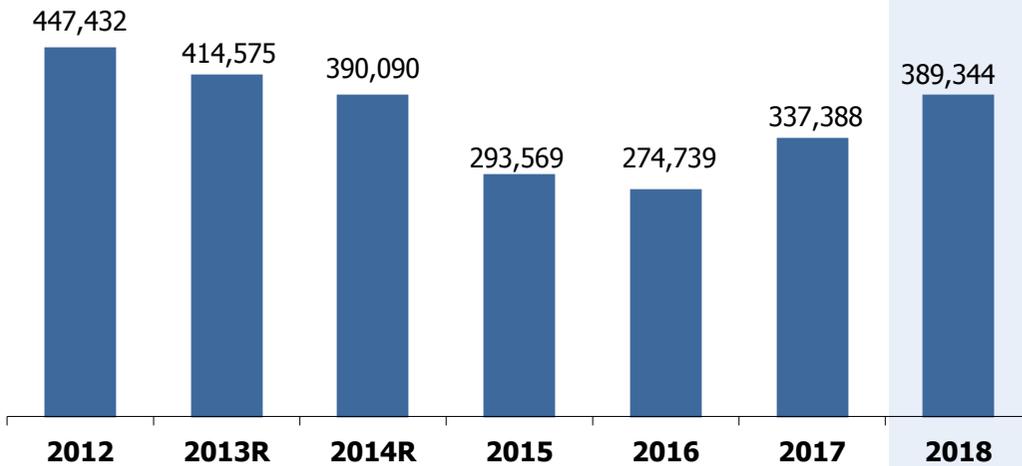
■ Operating Cost (excl. one-time non-operating item) ■ Interest Expense (net)



Financial Performance

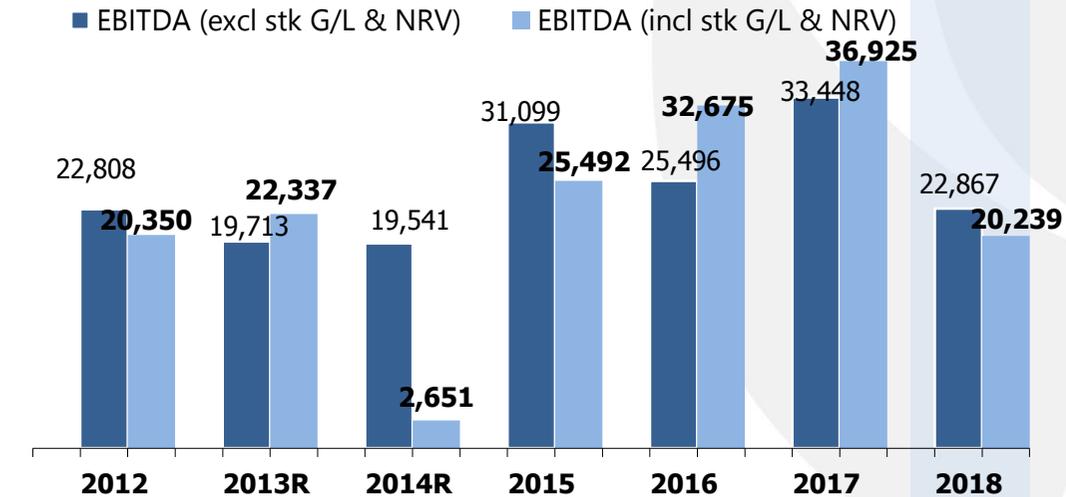
Sales Revenue

Unit: Million THB



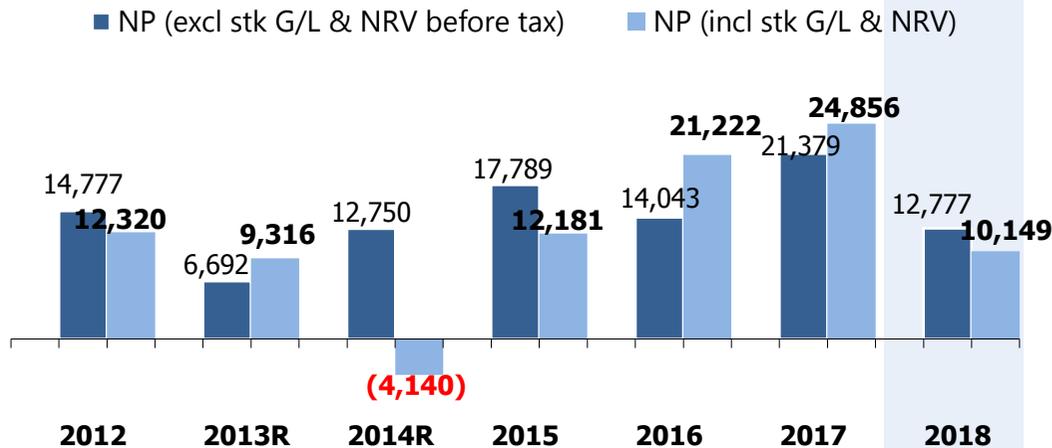
EBITDA

Unit: Million THB



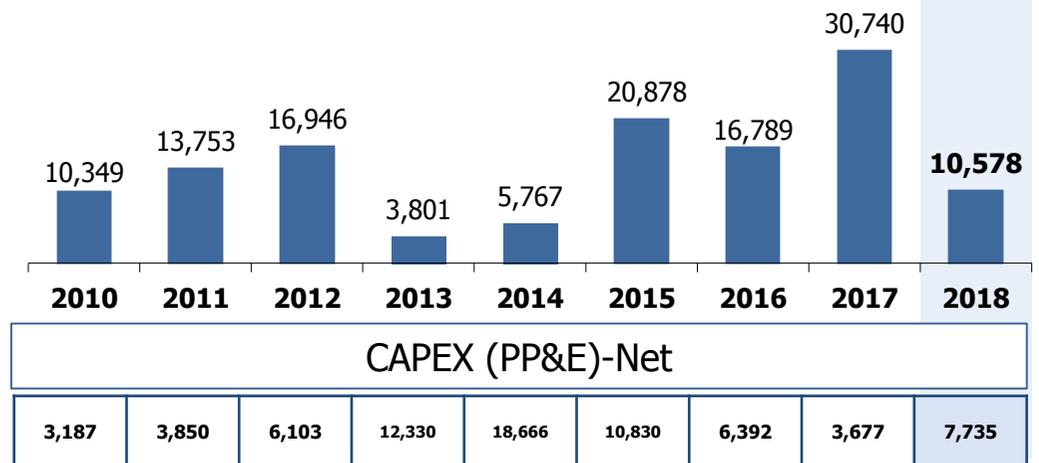
Net Profit

Unit: Million THB



Free Cash Flow*

Unit: Million THB



CAPEX (PP&E)-Net

3,187	3,850	6,103	12,330	18,666	10,830	6,392	3,677	7,735
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^R Restated financial statement

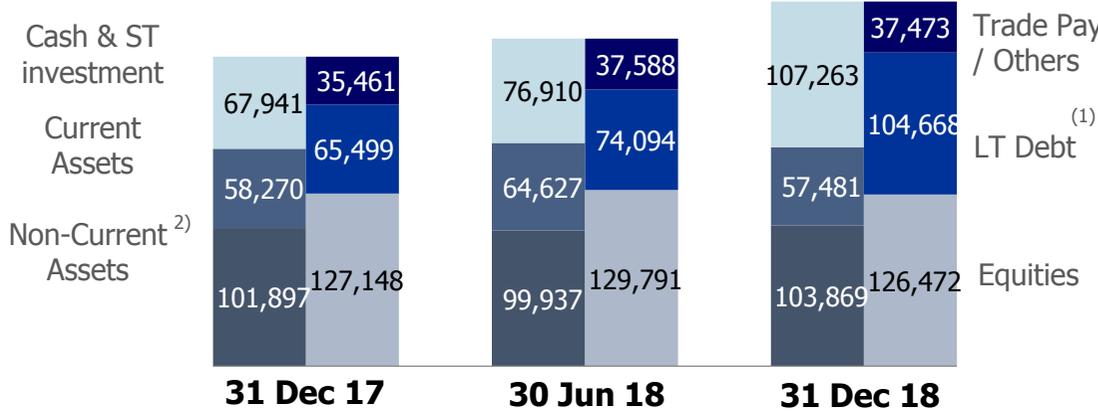
* Free Cash Flow (FCF) = Operating cash flow – CAPEX(PP&E)-Net

2018 TOP Group Strong Financial Position & Financial Ratios

Statements of Financial Position

(Unit: million THB)

228,108 241,473 **268,613**

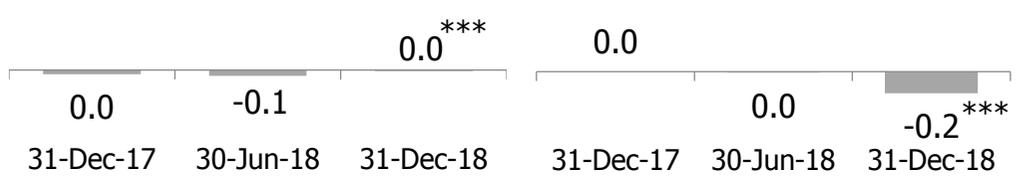


ROE	20.8 %	19.0 %	8.0 %*
ROIC	20.2 %	20.6 %	9.2 %*

(1) Including current portion of Long-Term Debt
 (2) Including investment held as available for sale 31 Dec 17 = 2,859 MB, 30 Jun 18 = 2,170 MB, 31 Dec 18 = 361 MB

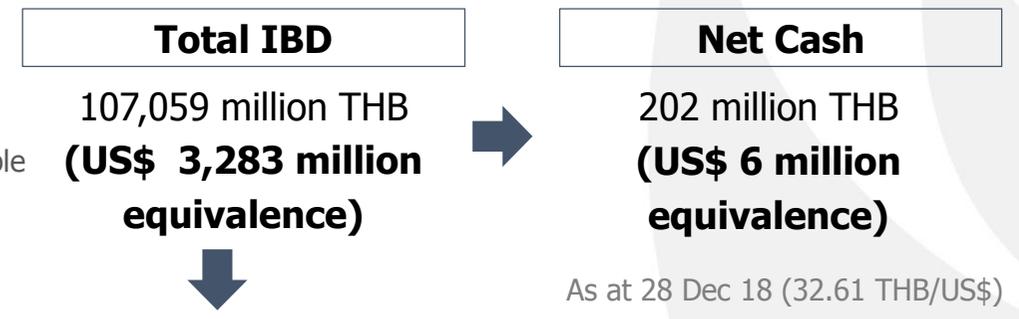
Financial Ratios

Net Debt / adj. EBITDA** **Net Debt / Equity**



* Based on actual performance in the past 12 months
 ** Annualized EBITDA (excl stock gain/loss & Reversal of NRV/(NRV))
 *** As of 31 Dec 18 Net Cash 202 MB or 6 M\$

Consolidated Long-Term Debt as at 31 Dec 18



	Value (Million)	Portion
US\$ Bond & US\$ Loan ⁽³⁾	USD 1,989	62%
THB Bond	THB 23,500	22%
THB Loan	THB 16,284	16%

(3) Including VND Loan equivalent to USD

Interest Rate	Portion
Float	10%
Fixed	90%
TOP avg.debt life	13.89 Yrs

Cost of Debt	
TOP Group (Net***)	2.51% ⁽⁴⁾
TOP Group (Gross)	4.81%

(4) Due to yield enhancement

MOODY'S
Baa1
Stable Outlook

STANDARD & POOR'S
BBB
Stable Outlook

FitchRatings
AA- (tha)
Stable Outlook

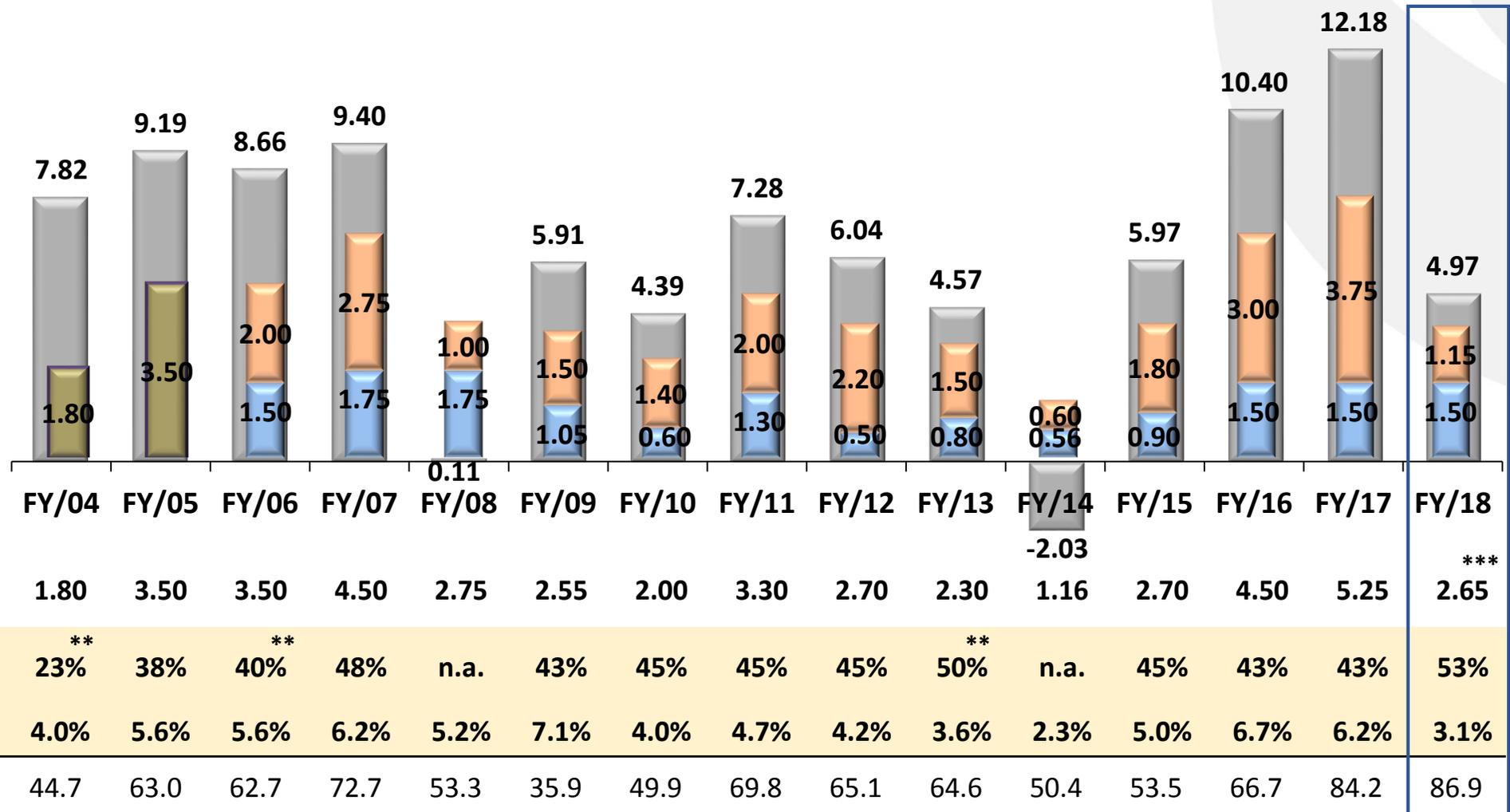
2018 Dividend Payment

Dividend Policy :

Not less than 25% of consolidated net profit after deducting reserves, subject to cash flow and investment plan

Unit : THB/Share

 EPS^R
 2H dividend
 1H dividend
  Year Dividend



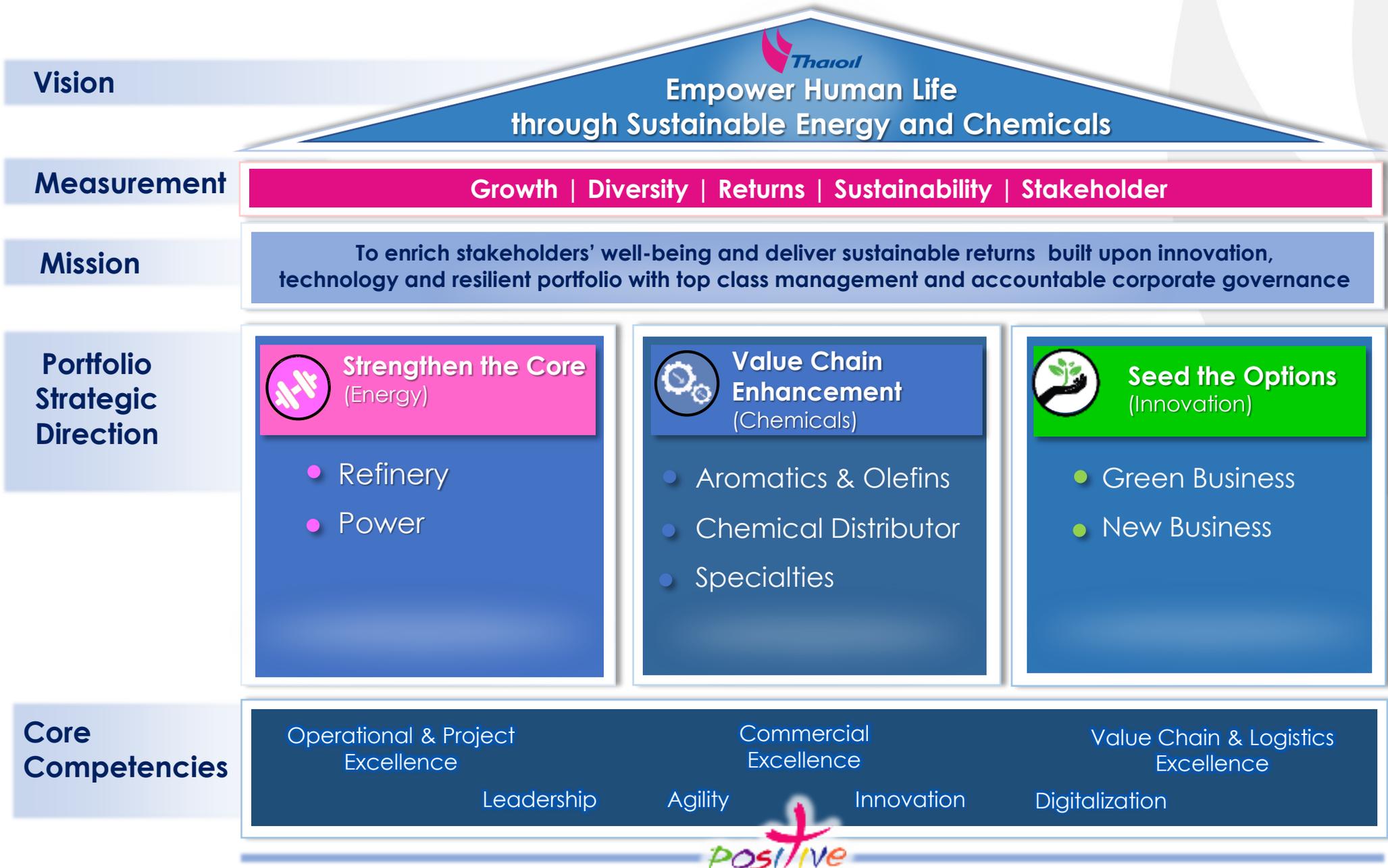
^R Based on restated financial statement

* Based on average TOP share price in each year ** Dividend payout before restated ; 2004 = 25% , 2006 = 43% , 2013 = 45% *** Subject to AGM Approval on Apr 10,2019



STRATEGIC INVESTMENT PLANS

Thaioil Strategic Direction 2018 – 2030



Strategic Investment Plan Approved by Board of Directors

CAPEX Plan (Unit US\$ million)

Project	Planned capital investment				
	2018	2019	2020	2021	2022
Reliability, Efficiency and Flexibility Improvement	37	60	17	2	
Infrastructure Improvement					
- Lorry Expansion	1				
- Jetty 7&8 / Improvement	29	83	5		
- Office Relocation & New Crude Tank	61	35	16		
- Site office preparation for fire water & fire water improvement	8	21	12		
Other Investments (i.e. solvent distribution in North Vietnam, benzene derivatives-LAB license fee)	20	38	43	9	
Total Ongoing CAPEX	156	237	93		
CFP project	79	1,295	1,811	883	651
Total CAPEX (including CFP)	235	1,532	1,904	894	651

Notes: Excluding approximately 40 M\$/year for annual maintenance

Clean Fuel Project (CFP) : Rationale & Timeline

Project Rationale

- Risk of losing competitiveness to others regional refineries as more new refineries with higher capacity and more advanced technologies are on stream.
- Adjust product portfolio by producing high demand and clean product to serve customer needs and country's energy stability.
- Replace units i.e. CDU 1,2 which have been operating more than 50 and 40 years respectively.

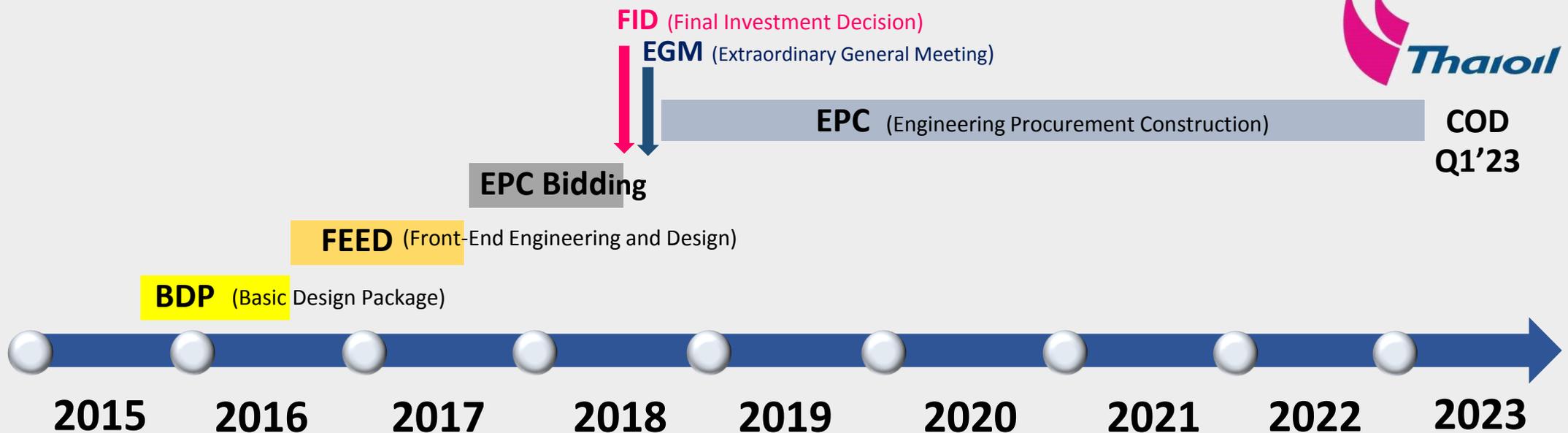
Project Cost

USD 4.825 billion. However, in order to lessen the Company's burden in CFP cost, company will seek a potential partner who is interested in investing in the Energy Recovery Unit (ERU) and will reduce the cost to not exceeding USD 4.174 billion

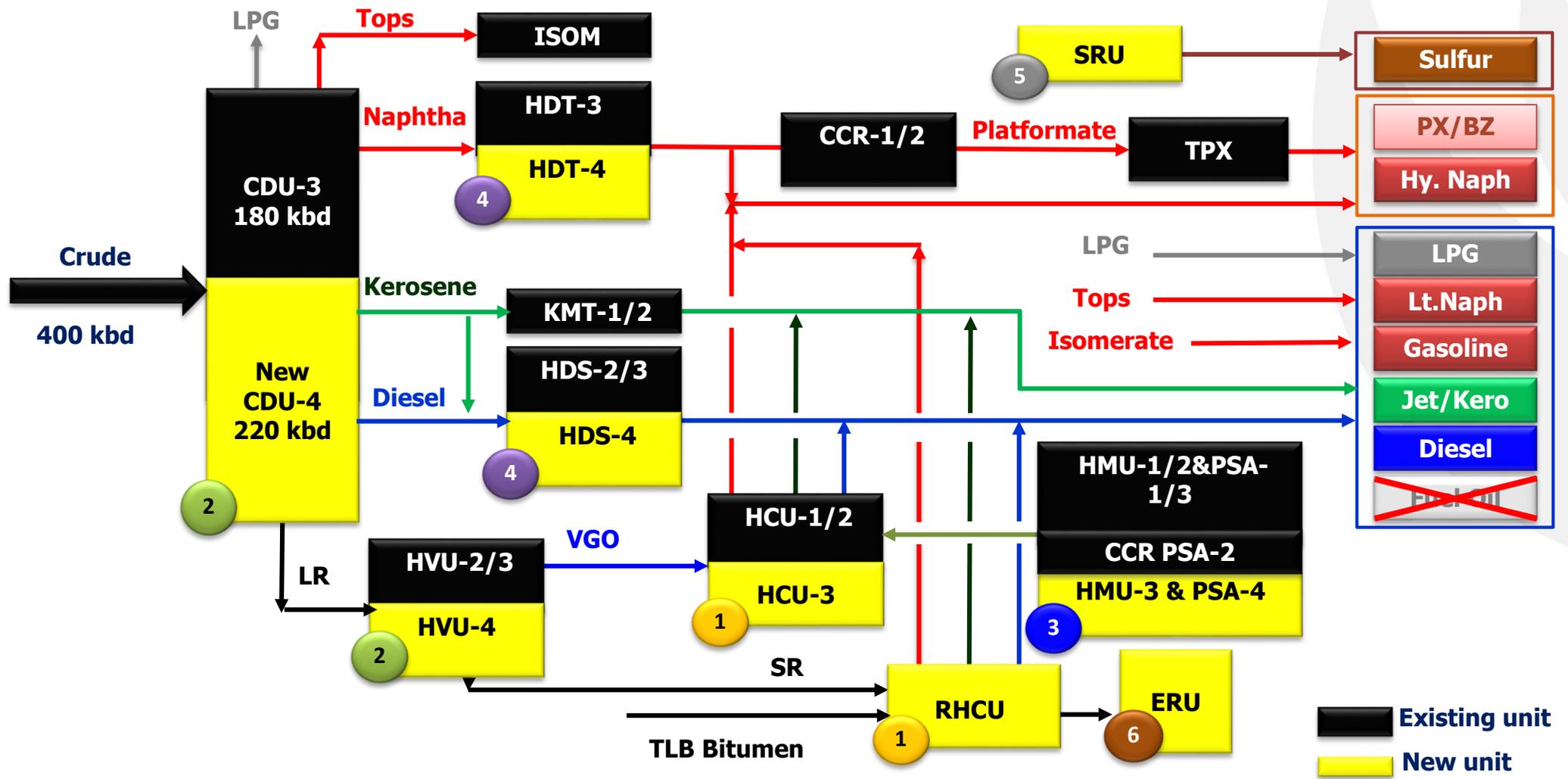
CFP Timeline



COD
Q1'23



Scope of CFP & Technical Aspect



- (1) New Upgrading Unit
- (2) New Distillation Unit
- (3) New Hydrogen Manufacturing Unit
- (4) New Treating Unit
- (5) New Sulphur Recovery Unit
- (6) New Energy Recovery Unit



CFP Competitiveness

Without CFP

- **CDU Capacity**

275,000 bbl per day

- **Upgrading Ratio** **28 %**
(upgrading capacity⁽¹⁾ over CDU capacity)

With CFP

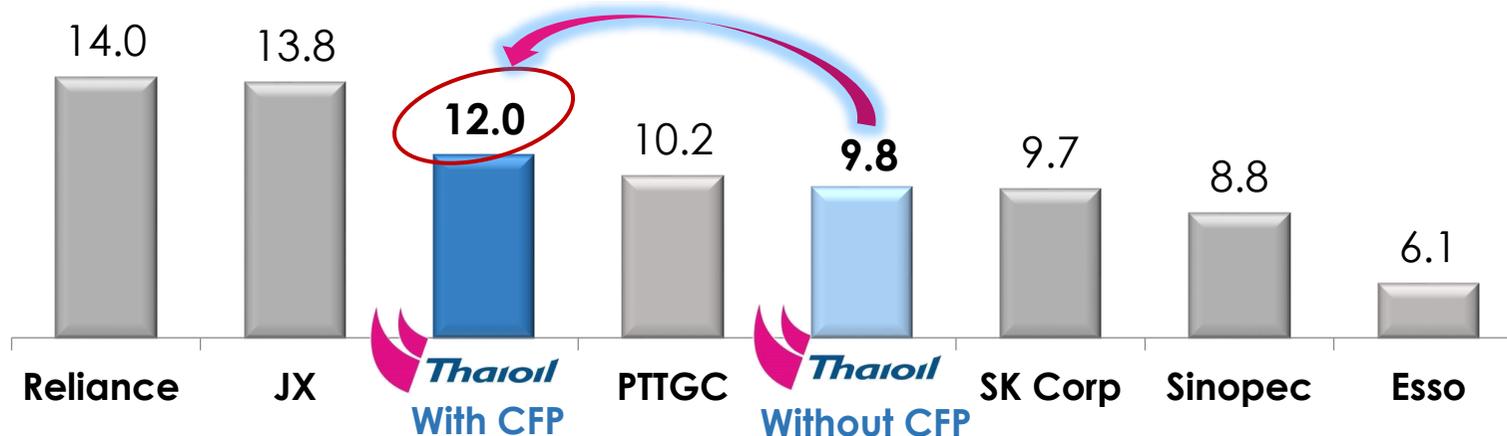
- **CDU Capacity**

400,000 bbl per day

- **Upgrading Ratio** **50%**
(upgrading capacity⁽²⁾ over CDU capacity)
- **Power Plant** **250 MW**

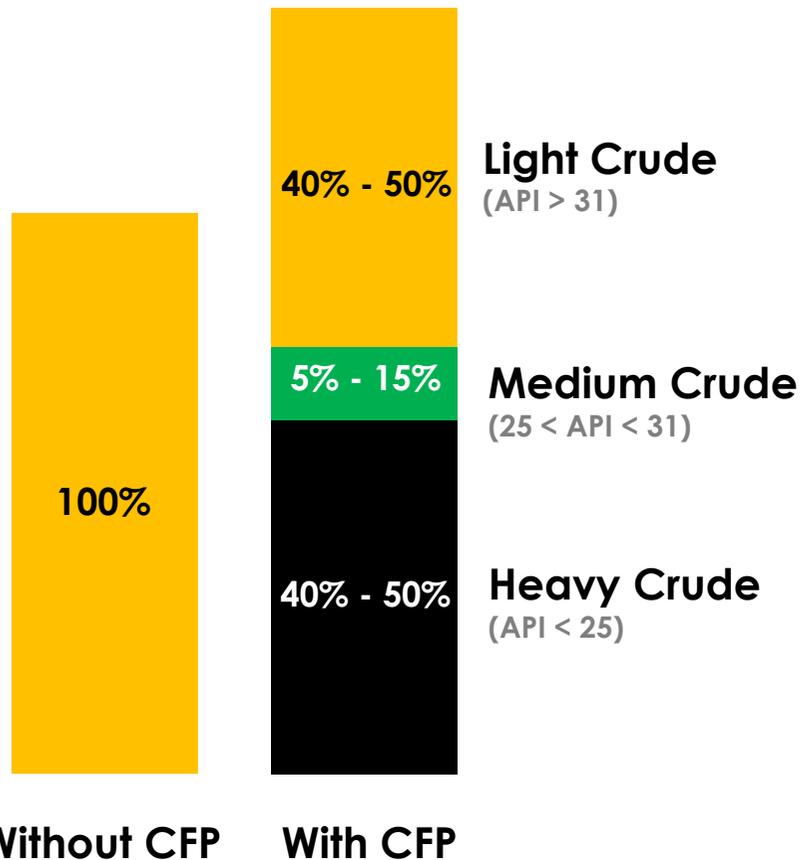
Remark : (1) including HCU 1/2, FCCU, TCU (2) including HCU 1/2/3, RHCU

Nelson Index - Regional Comparison



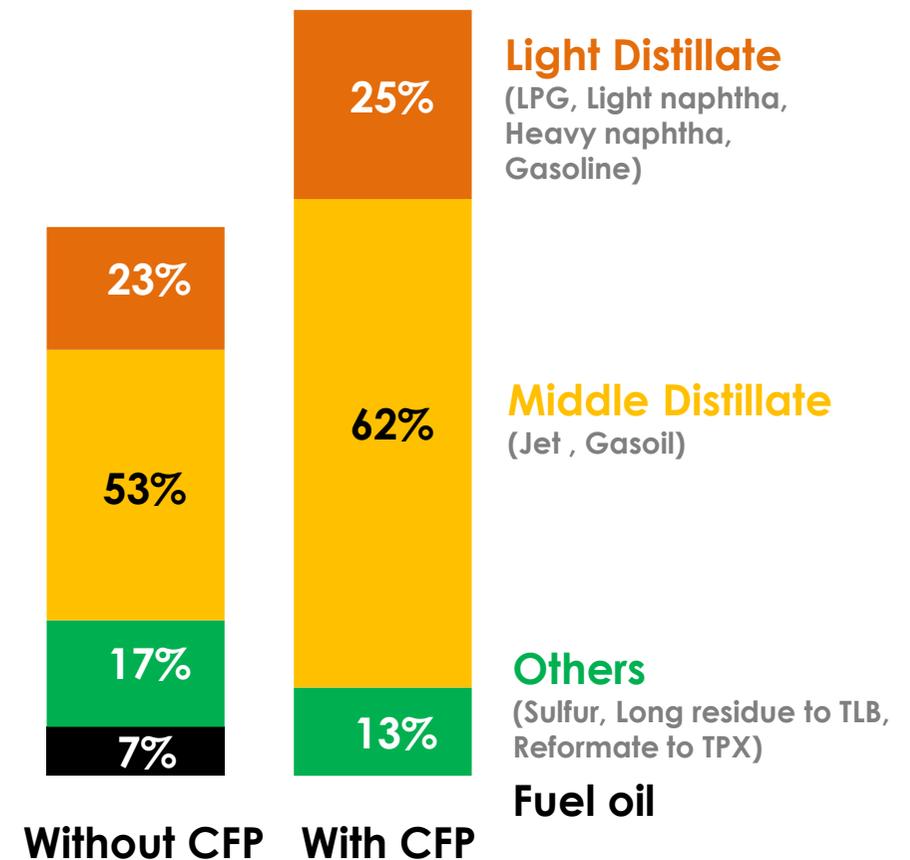
CFP Value Proposition

Flexibility of crude intake



Unit in %Vol.

Product Upgrading



Unit in %Vol.

Note : After CFP, all products based on average data 2023-2043



1H-19 MARKET OUTLOOK

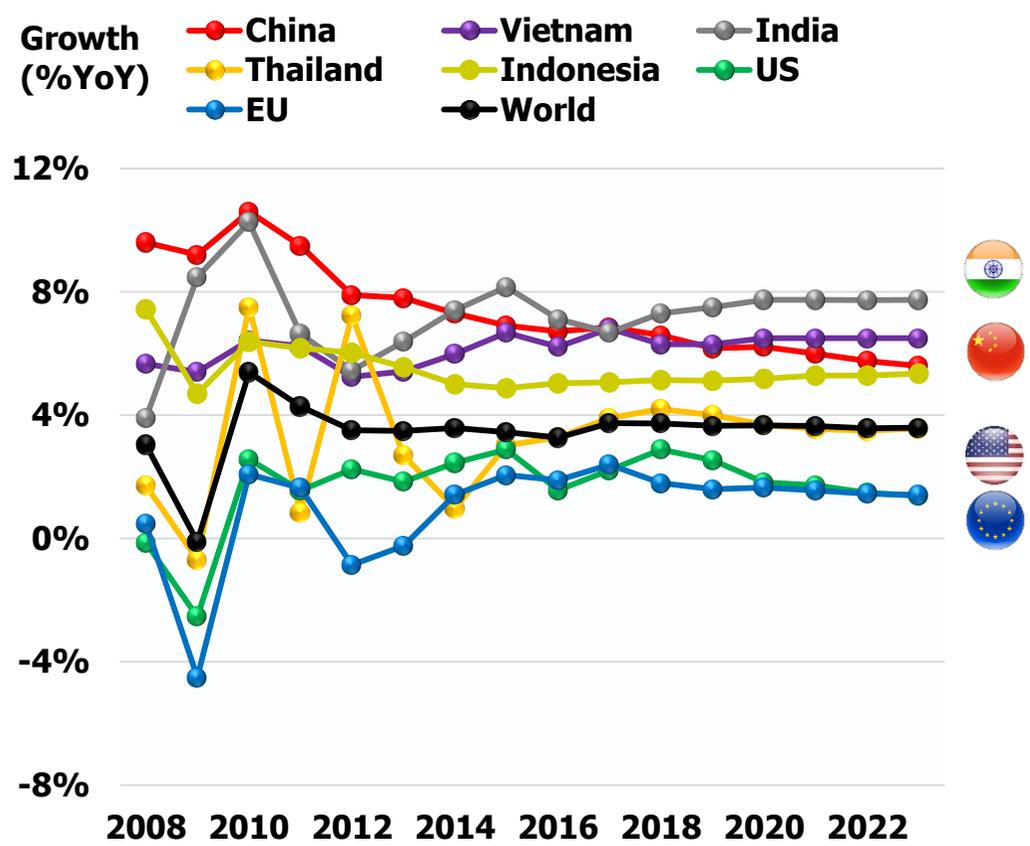
- *Crude Oil*
- *Petroleum Products*
- *Aromatics*
- *Base Oil & Bitumen*
- *Linear Alkyl Benzene (LAB)*

CRUDE OIL



Global Economic Outlook

Stable GDP growth at 3.5-3.7% in 2018-19 led by improved emerging and developing market, but downside risks such as trade barriers pressure growth

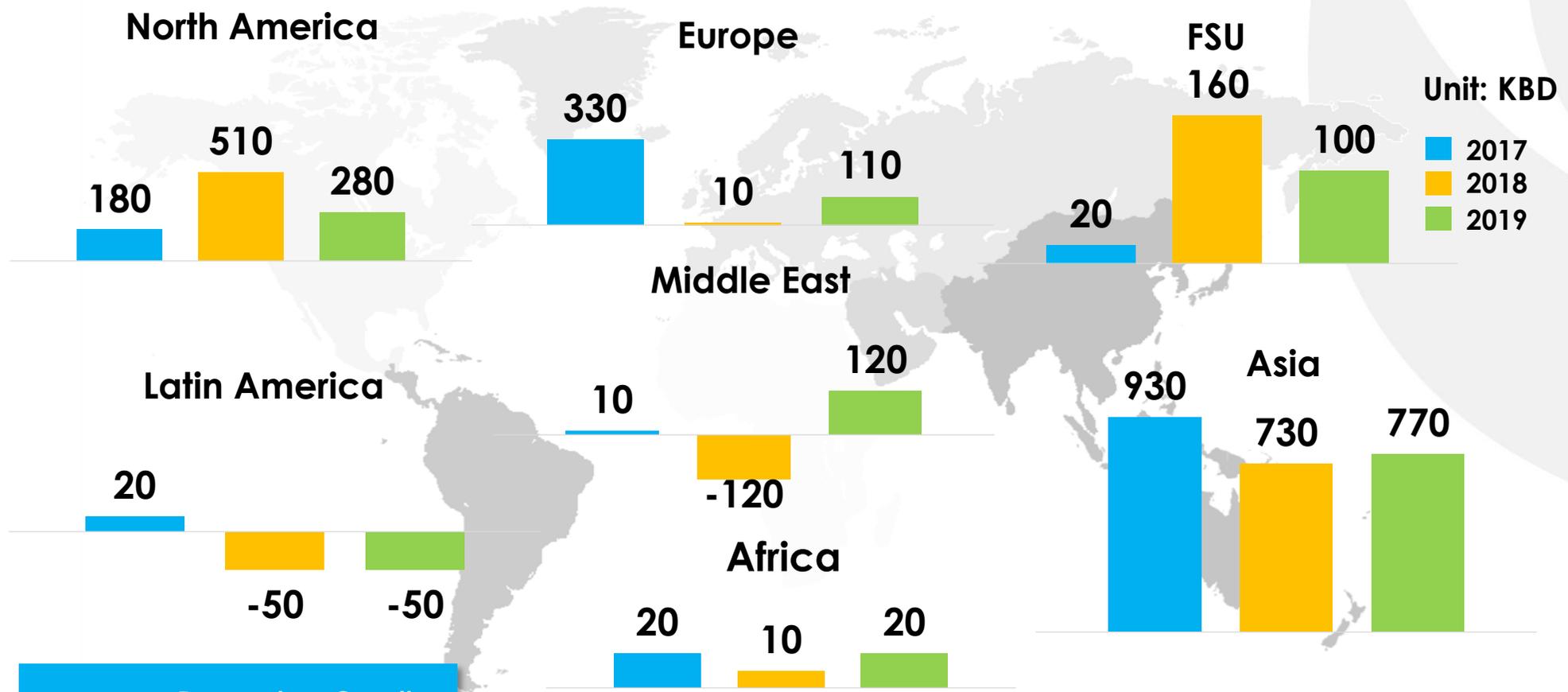


INTERNATIONAL MONETARY FUND	2018	2019	2020-23
	Jan-19 ⁽¹⁾	Jan-19 ⁽¹⁾	Oct-18 ⁽¹⁾
US	2.9%	2.5%	1.6%
EU	1.8%	1.6%	1.5%
China	6.6%	6.2%	5.9%
India	7.3%	7.5%	7.7%
Thailand	4.1% ⁽²⁾	4.0% ⁽²⁾	3.6% ⁽¹⁾
Indonesia	5.1%	5.1%	5.3%
Vietnam	6.3%	6.3%	6.5%
World	3.7%	3.5%	3.6%

Sources : 1) IMF Jan'19 (2) NESDB Feb'19

Global Oil Demand Growth Projection

IEA forecasts global oil demand to grow by 1.4 MBD in 2019

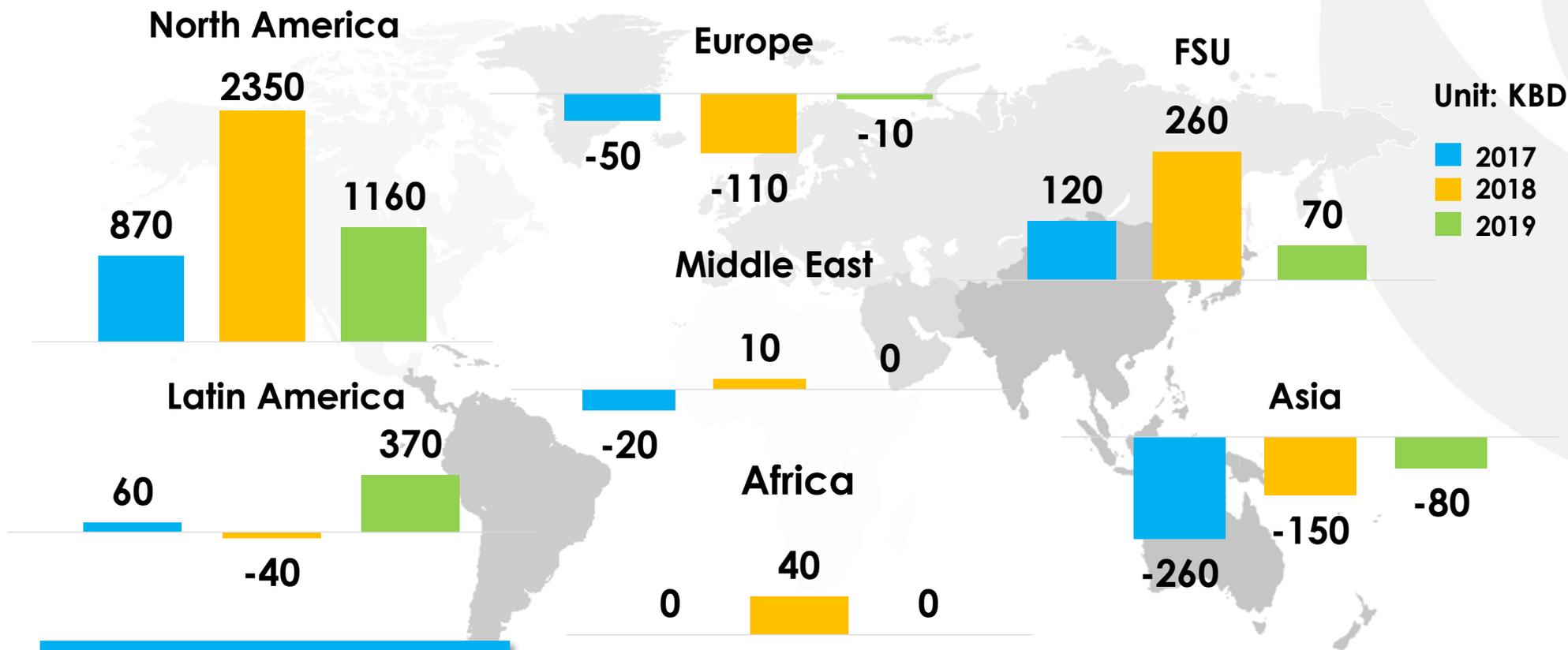


IEA	Demand (MBD)	Growth (MBD)
2017	97.9	1.5
2018	99.2	1.3
2019	100.6	1.4

■ The global oil demand will grow by **1.4 MBD in 2019**, driven by global economic recovery especially emerging and developing countries

Non-OPEC Supply Growth Projection

IEA estimated Non-OPEC supply growth to grow by 1.6 MBD in 2019

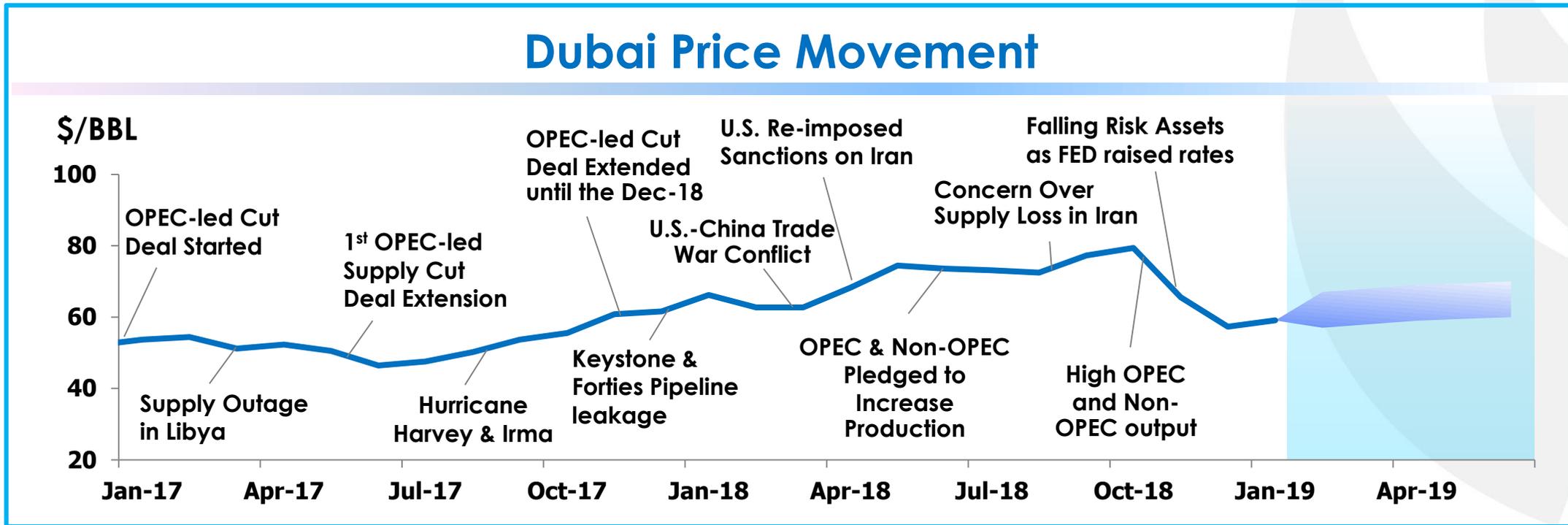


IEA	Non OPEC Supply (MBD)	Growth (MBD)
2017	58.0	0.8
2018	60.5	2.5
2019	62.1	1.6

Remarks: Regional Non-OPEC Supply excl. Biofuels/Processing G/(L)

■ Non-OPEC oil supply is forecasted to expand by **1.6 MBD in 2019**, where the U.S. will be the largest contributor to growth.

Recovering Oil Price on Tighter than Expected Supply



*Q1'19: \$63.2/BBL

Key Highlights in 1H-2019

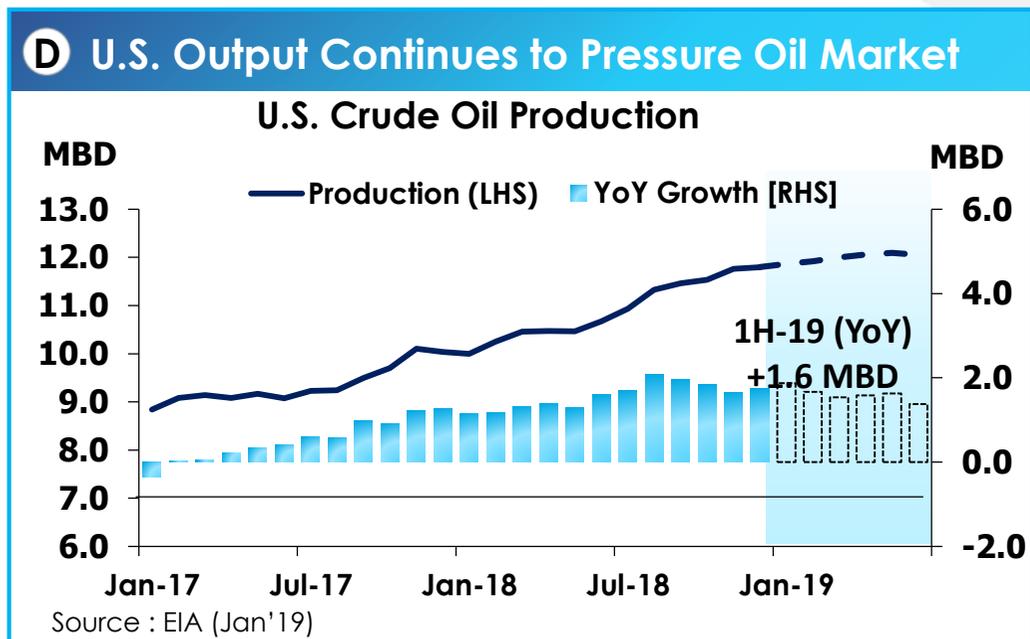
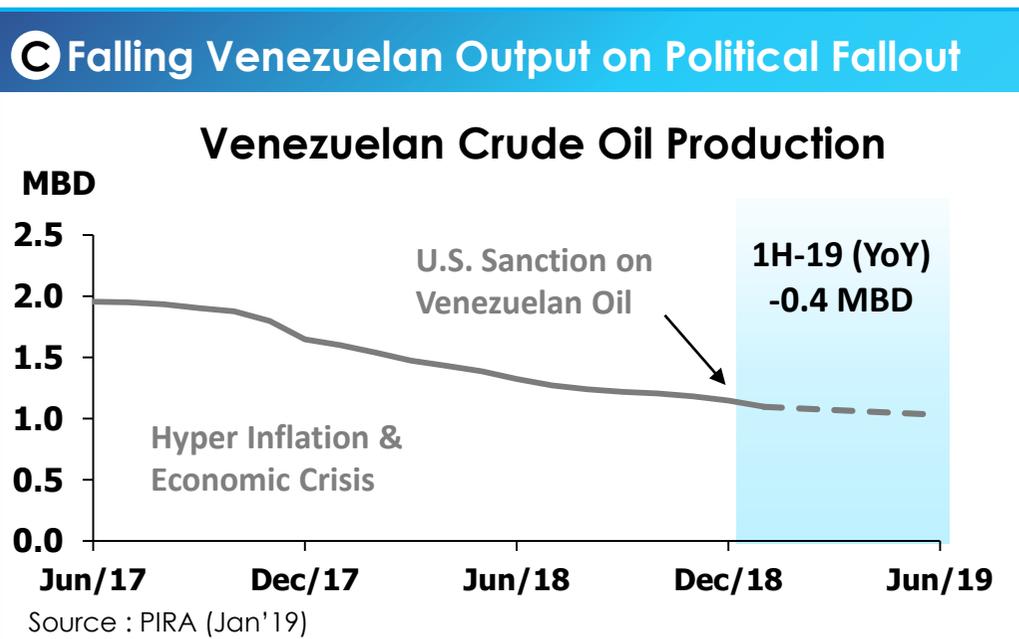
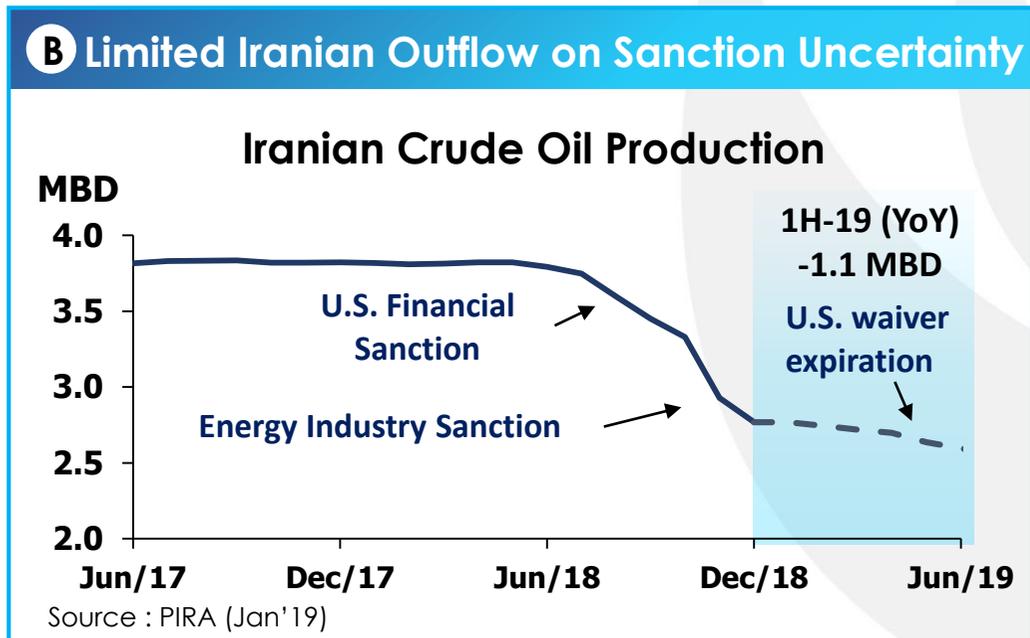
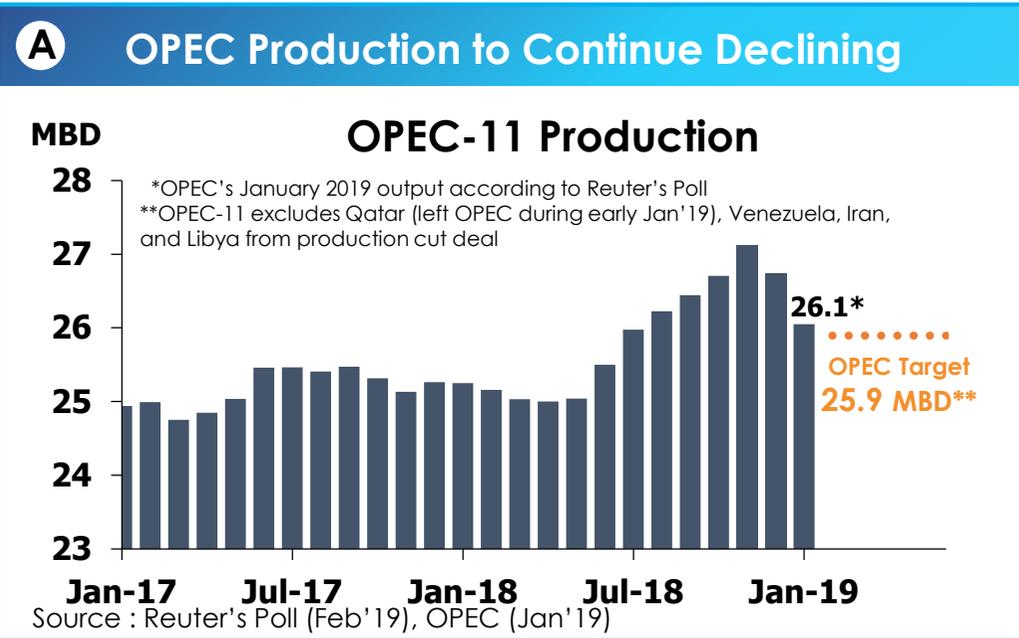
1

Tightening Supply on OPEC Production Cut Deal and Tumbling Supplies in Iran and Venezuela

2

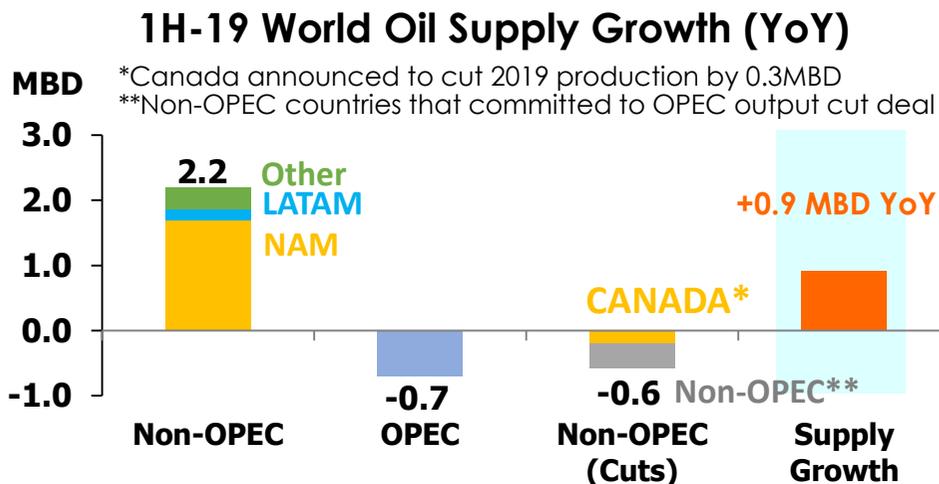
Deficit Market in 1H-19 on Limited Supplies and Strong Demand

1 Tightening Supply on OPEC Production Cut Deal and Tumbling Supplies in Iran and Venezuela



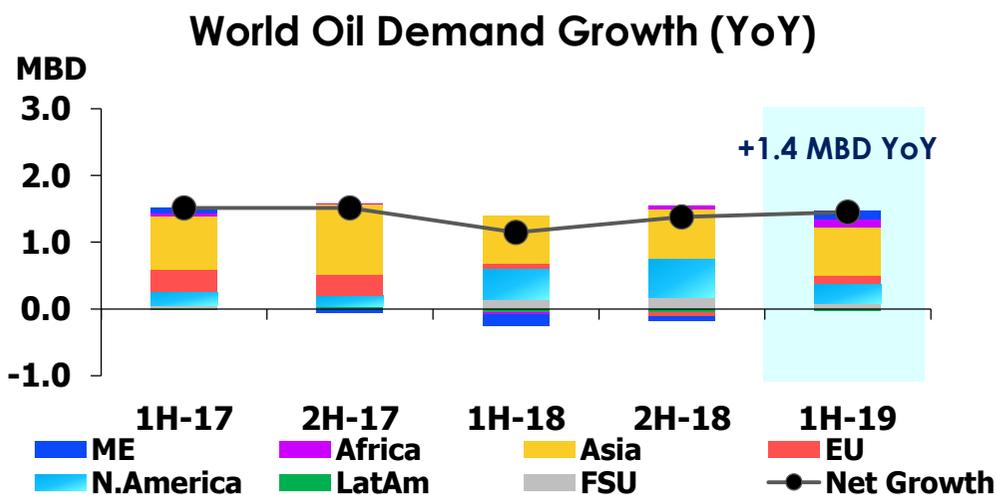
2 Deficit Market in 1H-19 on Limited Supplies and Strong Demand

A Supply Growth Dragged Down by Output Cut



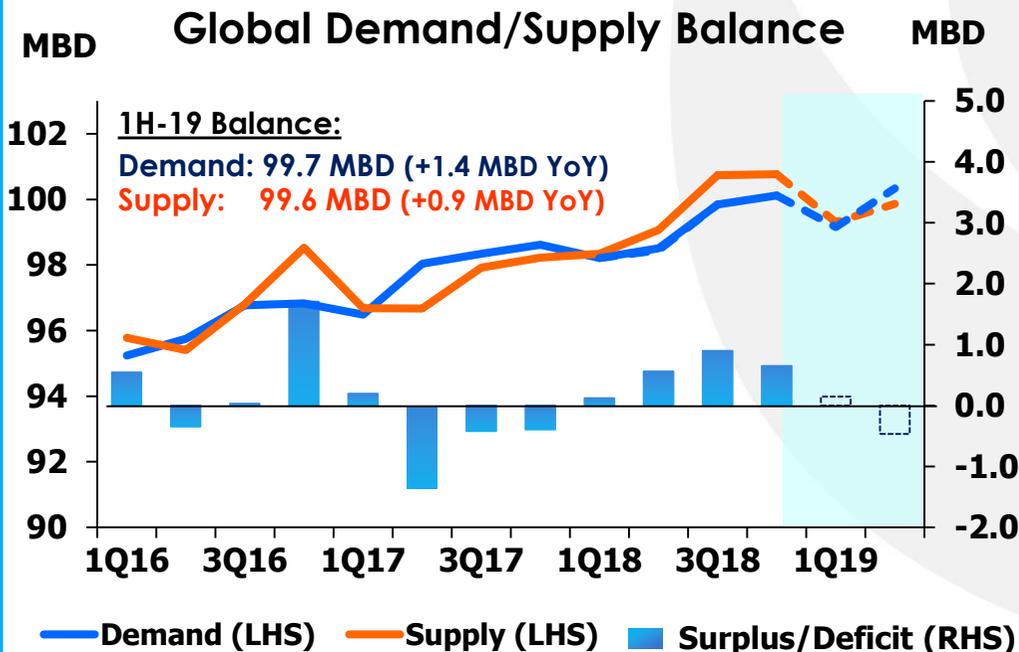
Sources: IEA (Jan'19), PIRA (Jan'19), OPEC (Jan'19) and TOP's Estimate

B Still Robust Global Crude Oil Demand



Source: IEA (Jan'19)

C Tighter Global Crude Oil Market in 2019



- ▶ Tight crude oil market on OPEC and Non-OPEC production cut deal
- ▶ Supply loss in Iran and Venezuela steepens market deficit
- ▶ Demand remains stable but economic risks loom

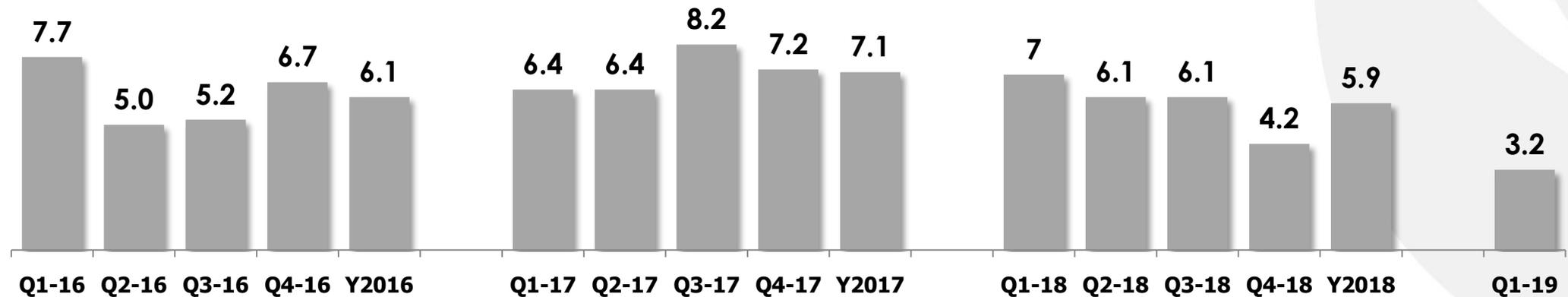
Sources: IEA (Jan'19), PIRA (Jan'19) and TOP's Estimate

PETROLEUM PRODUCTS



Slightly Softer Refining Margins from Weak Gasoline Market and Still Supported by Recovering Middle Distillate Cracks Q-o-Q

Singapore Cracking GRM (\$/BBL)



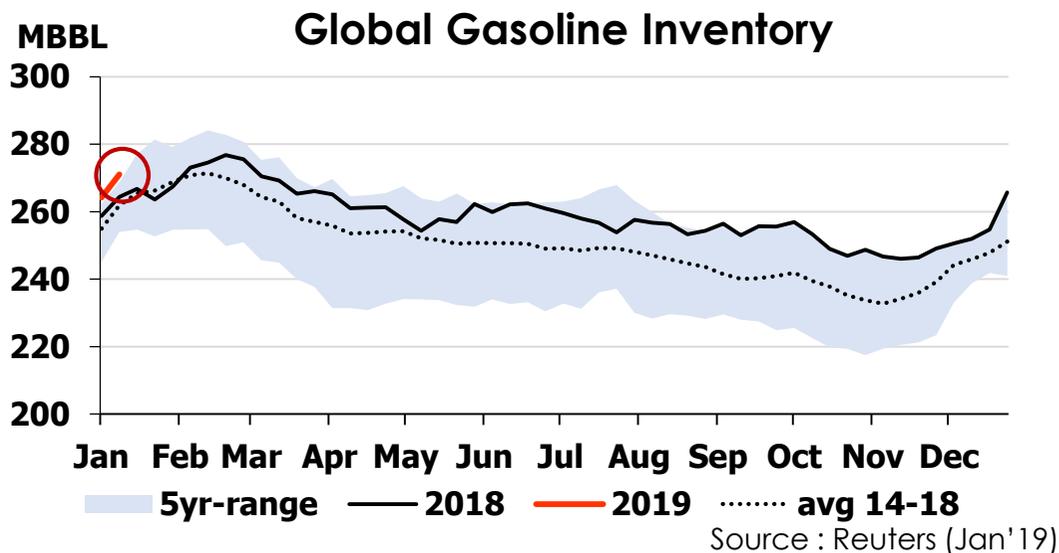
(\$/BBL)	2017	Q1-18	Q2-18	Q3-18	Q4-18	2018	Q1-19
ULG95-DB	14.9	13.6	12.2	11.5	4.7	10.6	3.7
JET-DB	12.1	16.0	15.3	14.5	15.7	15.4	13.0
GO-DB	12.5	14.7	14.6	14.3	15.0	14.7	12.8
HSFO-DB	(2.3)	(4.9)	(4.5)	(2.5)	1.3	(2.6)	0.6

Key Highlights in 1H-2019

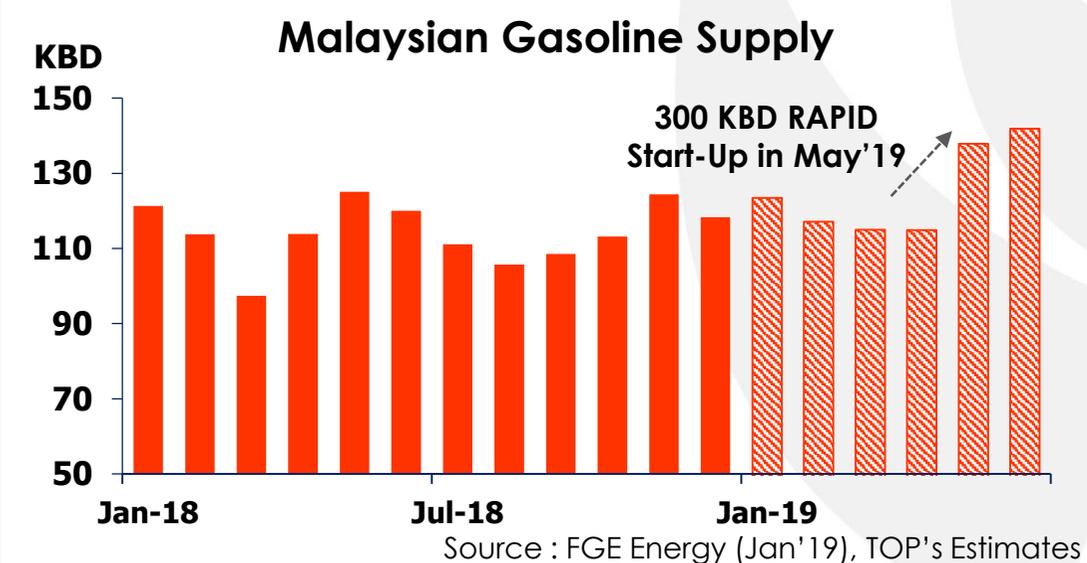
- 1 Soft Gasoline Cracks Pressured by Abundant Supply Until the Start of Maintenance Season and Summer Season
- 2 Recovering Middle Distillate Cracks Q-o-Q from Firm Demand and Tighter Supply
- 3 Demand Growth Outpacing Supply Addition

1 Soft Gasoline Cracks Pressured by Abundant Supply Until the Start of Maintenance Season and Summer Season

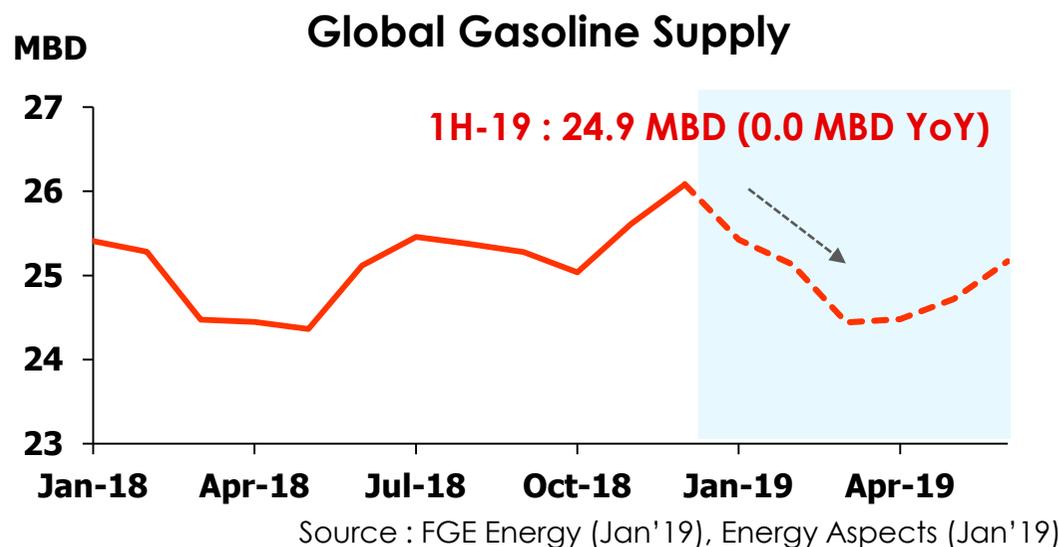
A Above 5-year Average Stocks



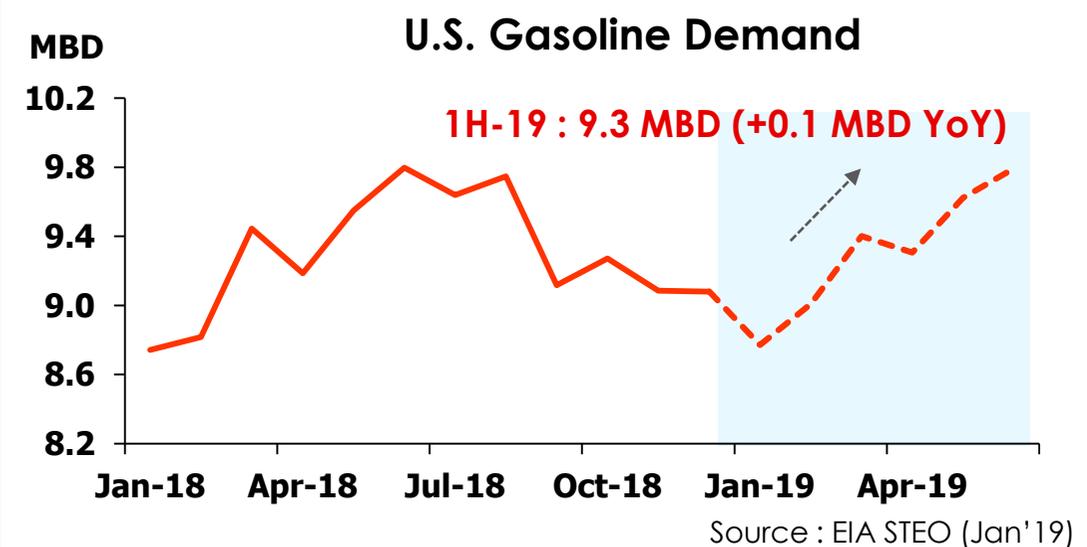
B Higher Malaysian Supply From New Refinery S/U



C Lower Supply During Refinery MTA Period

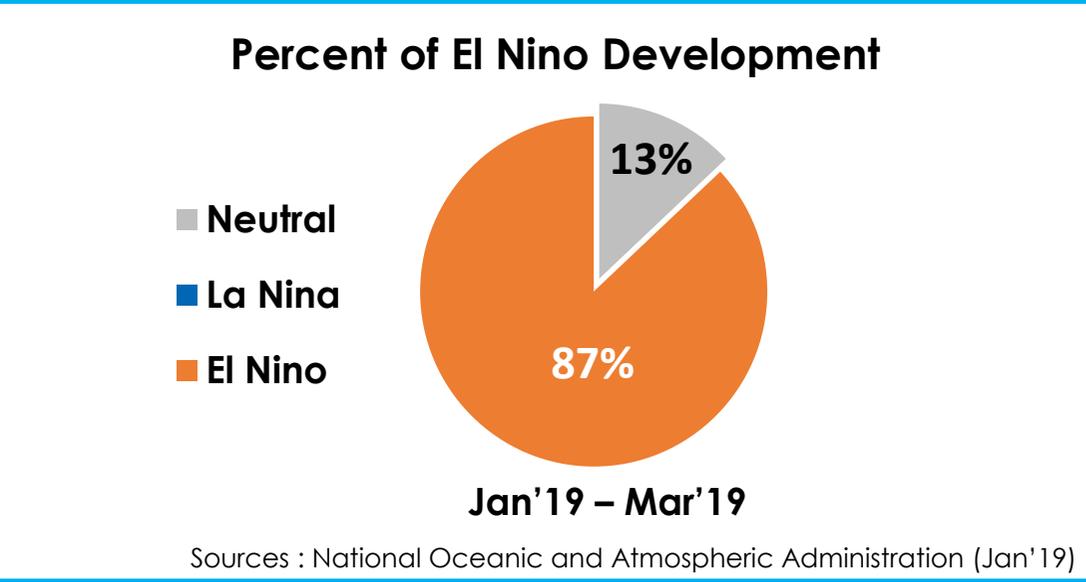


D Pick-Up in Global Demand During Summer

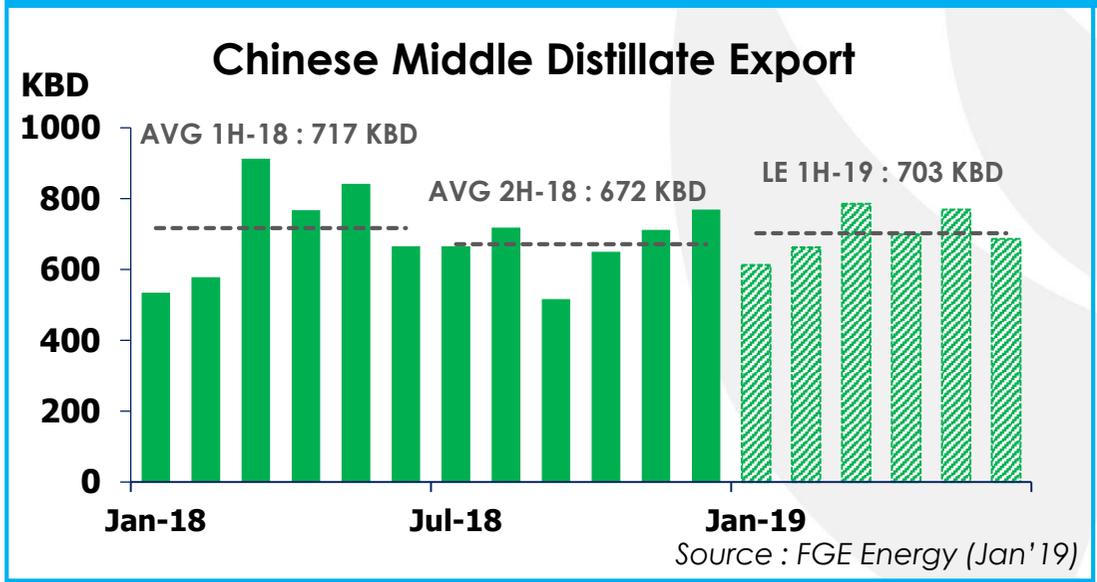


2 Recovering Middle Distillate Cracks Q-o-Q from Firm Demand and Tighter Supply

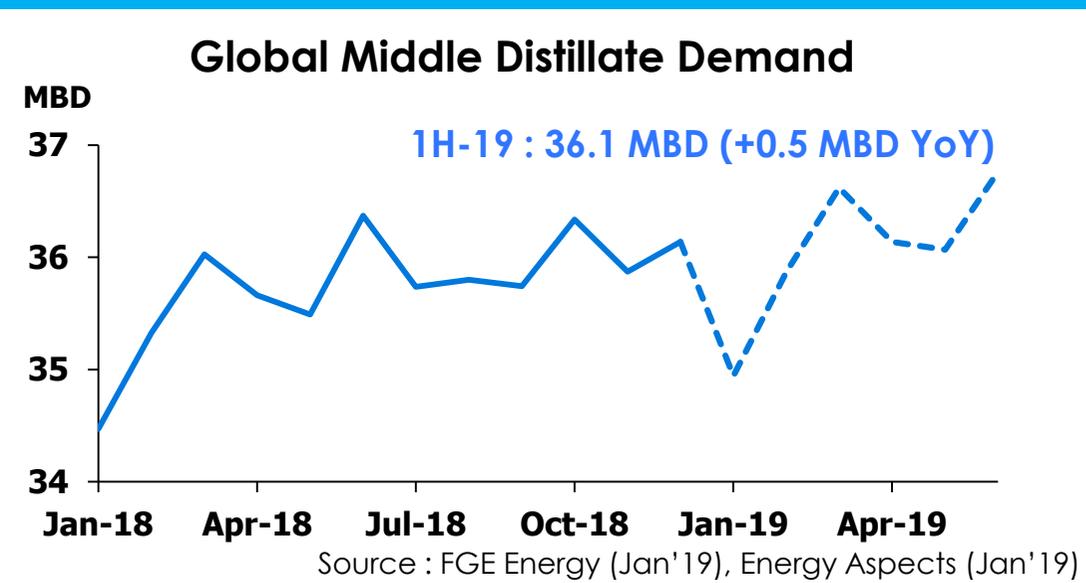
A Warmer-than-normal Winter Pressuring Demand



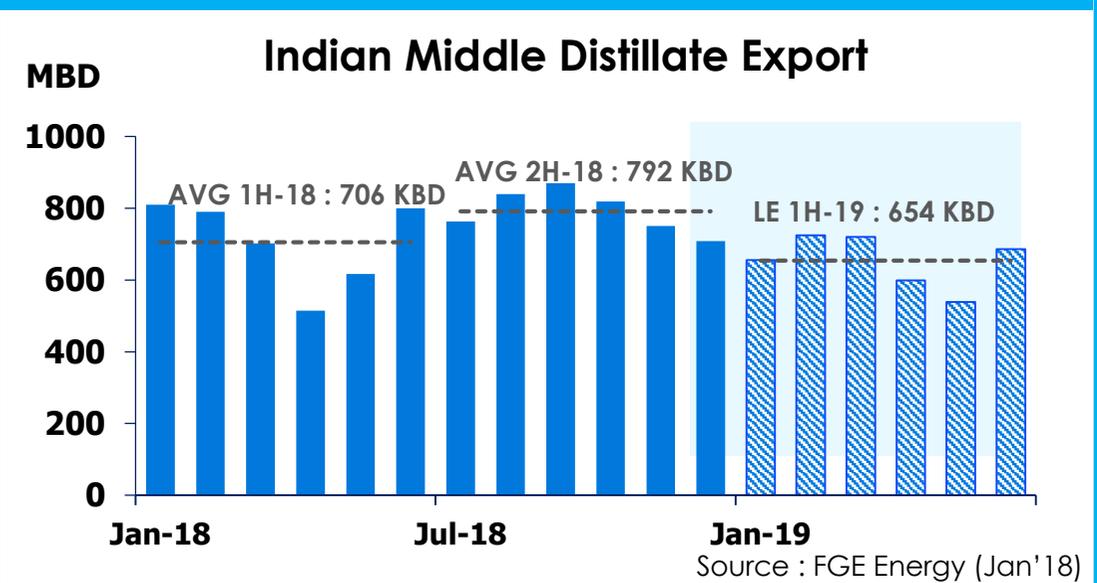
B High Chinese Exports Amid Higher Export Quota



C Firm Demand From Growing Economy

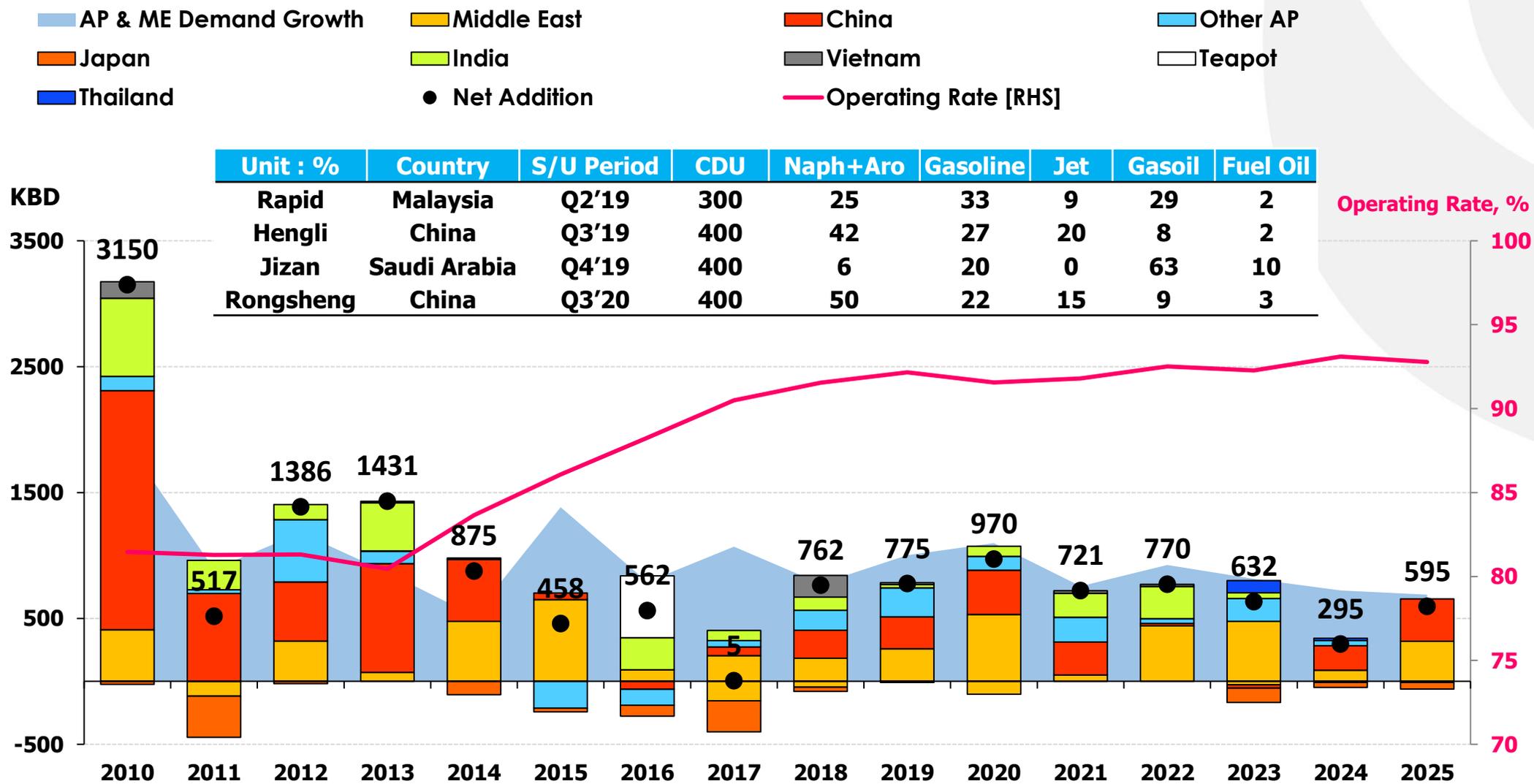


D Lower Indian Exports Due to Heavy Refinery MTA



3 Demand Growth Outpacing Supply Addition

Asia Pacific and Middle East Effective CDU Addition VS Additional Demand



Note: Adjusted capacity based on start-up period (effective additional capacity)

Thailand Oil Demand Growth

Thailand Oil Demand Growth



Year on Year	Y2016 ^(B)	Y2017 ^(B)	Y2018 ^(B) VS 2017	Y2019F VS 2018
Mogas ^(A)	+9.8%	+3.7%	+3.3%	Steady demand growth due to lower oil price
Jet/Kero	+6.8%	+4.4%	+5.4%	Slightly softer demand growth due to limited airport capacity
Diesel ^(A)	+3.1%	+2.9%	+1.5%	Steady demand growth following economic expansion
Total	+5.4%	+3.4%	+2.6%	
GDP	+3.2%	+4.0%	+4.1% ^(C)	+4.0% ^(D)

- Remarks:** (A) Mogas and Diesel includes Ethanol and Biodiesel, respectively
 (B) DOEB Statistics
 (C) NESDB (Feb'19)
 (D) NESDB's Estimate (Feb'19)

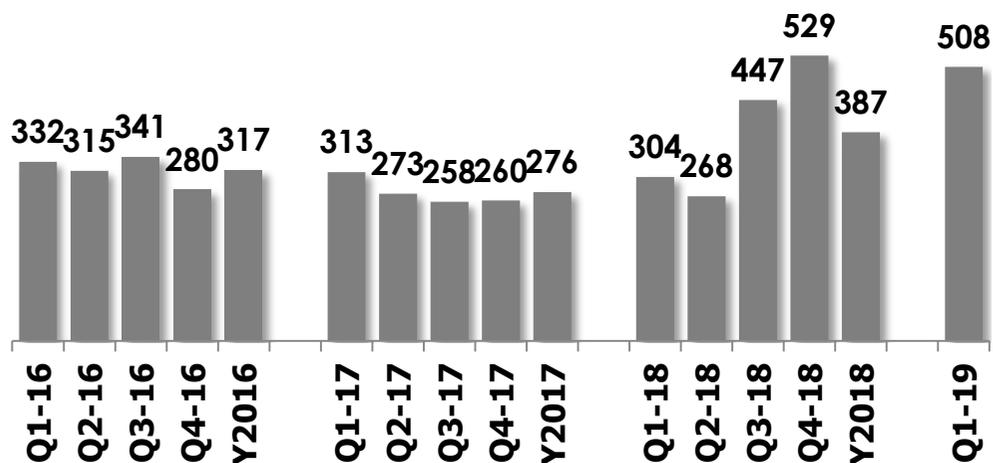
AROMATICICS



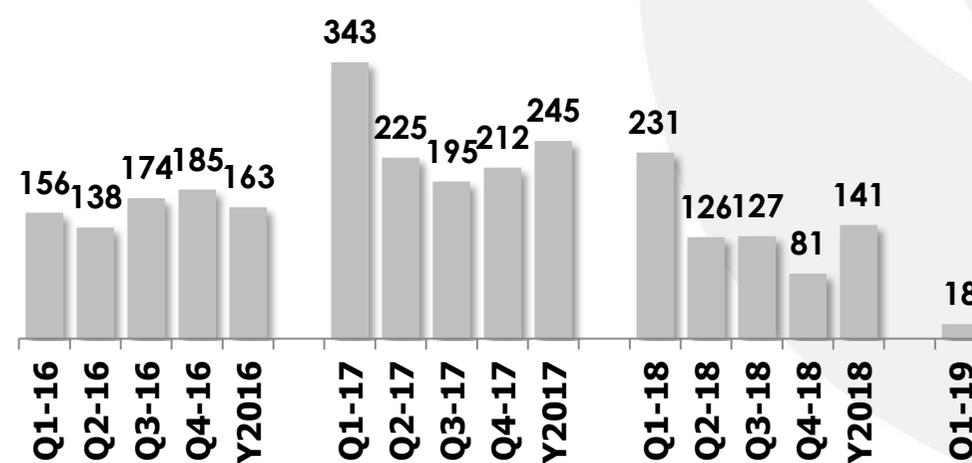
Firm PX Market on Growing Demand against Softer BZ Market on Still-High Stock and Surplus Supply

Aromatics Market

PX CFR Taiwan-ULG95 (\$/TON)



BZ FOB Korea-ULG95 (\$/TON)



(\$/TON)	2017	Q1-18	Q2-18	Q3-18	Q4-18	Q1-19
PX-ULG95	276	304	268	447	529	508
BZ-ULG95	245	231	126	127	81	18

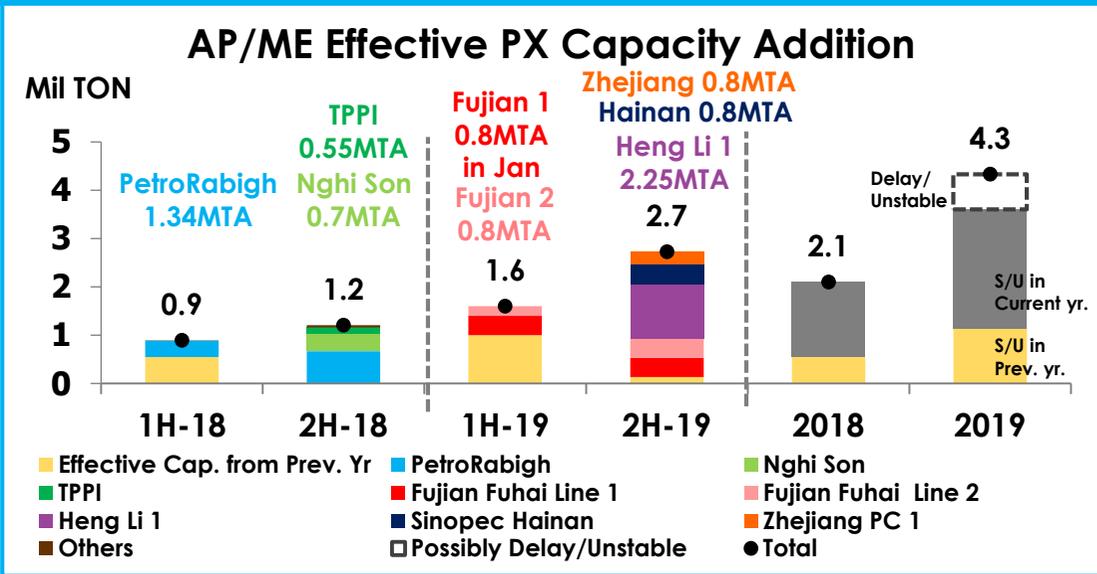
Key Highlights in 1H-2019

- 1 Firm PX market on Growing Demand Growth, but Pressured from Restart of Chinese Plant**
- 2 Softer BZ Market due to High Stock in China amid Stable Capacity Addition**

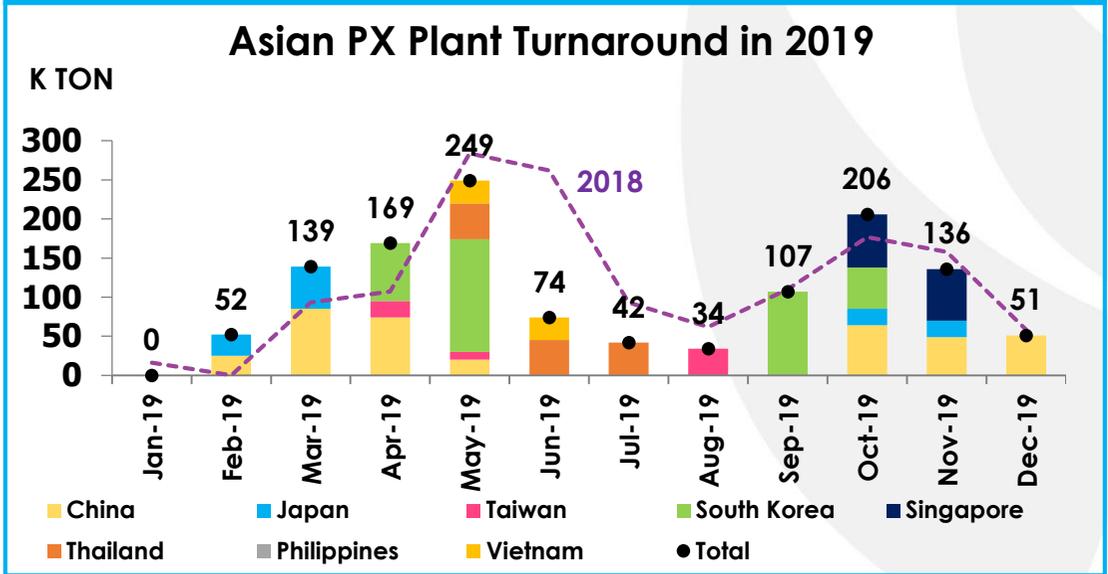
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Firm PX market on Growing Demand Growth, but Pressured from Restart of Chinese Plant

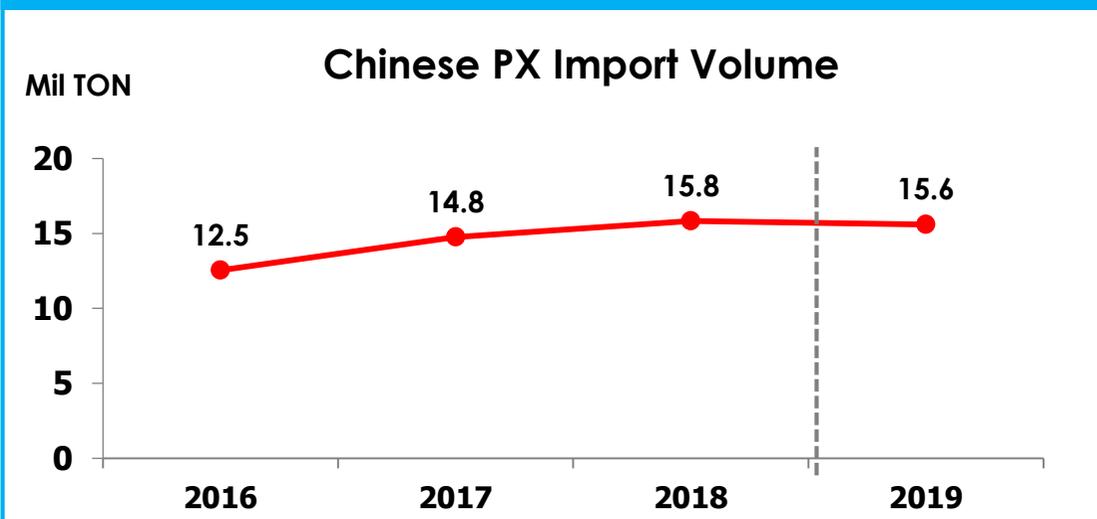
A Roll-Over Capacity to Pressure PX Market in 1H-19



B Tighten Supply in 1H from Peak Asian M/T in Mar-May

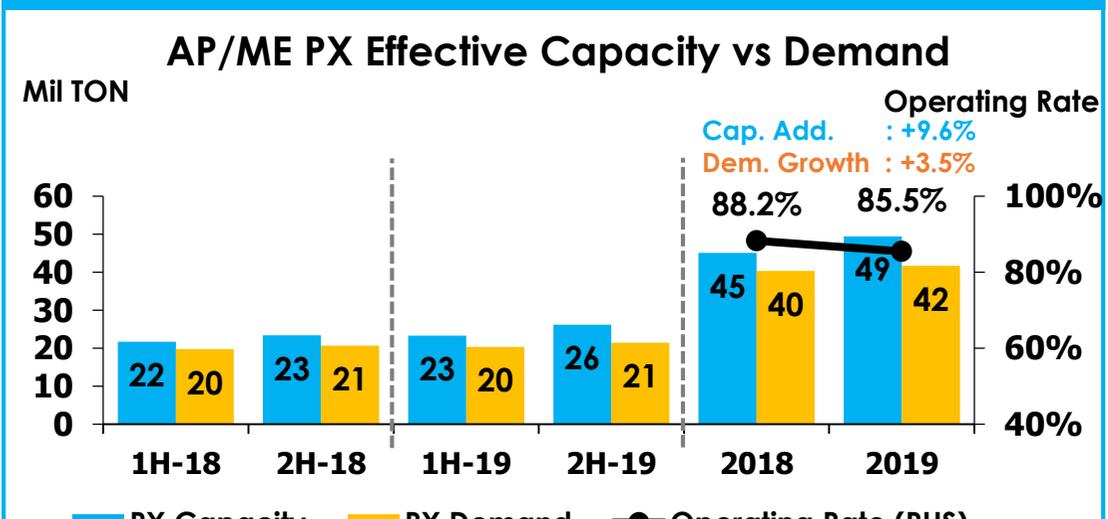


C Chinese Import to Support Asian Market



Note: China is still the global biggest PX importer

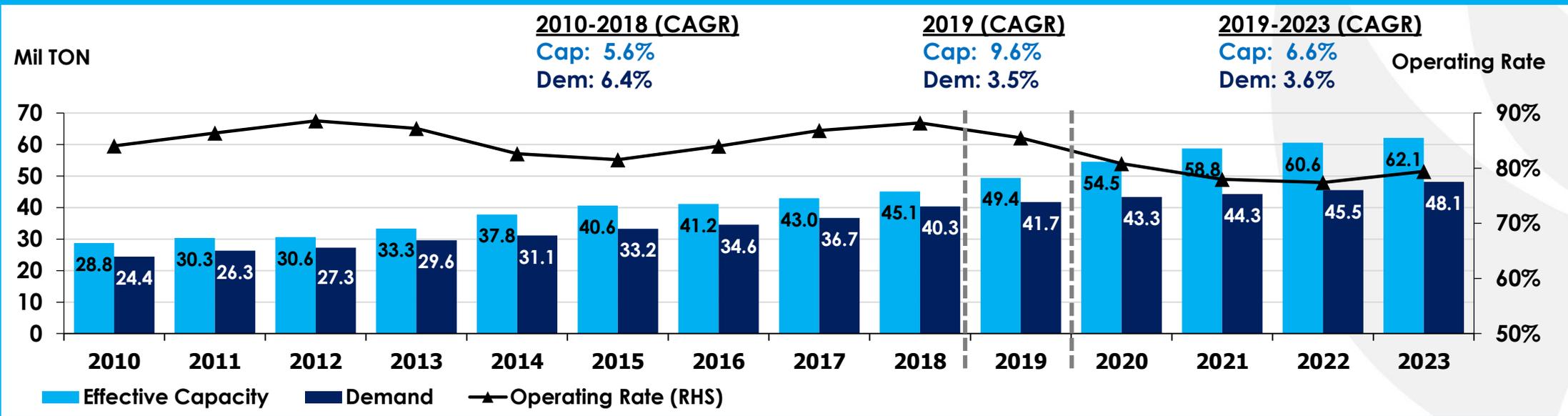
D Lower Opt. Rate due to High Supply Rise in 2H-19



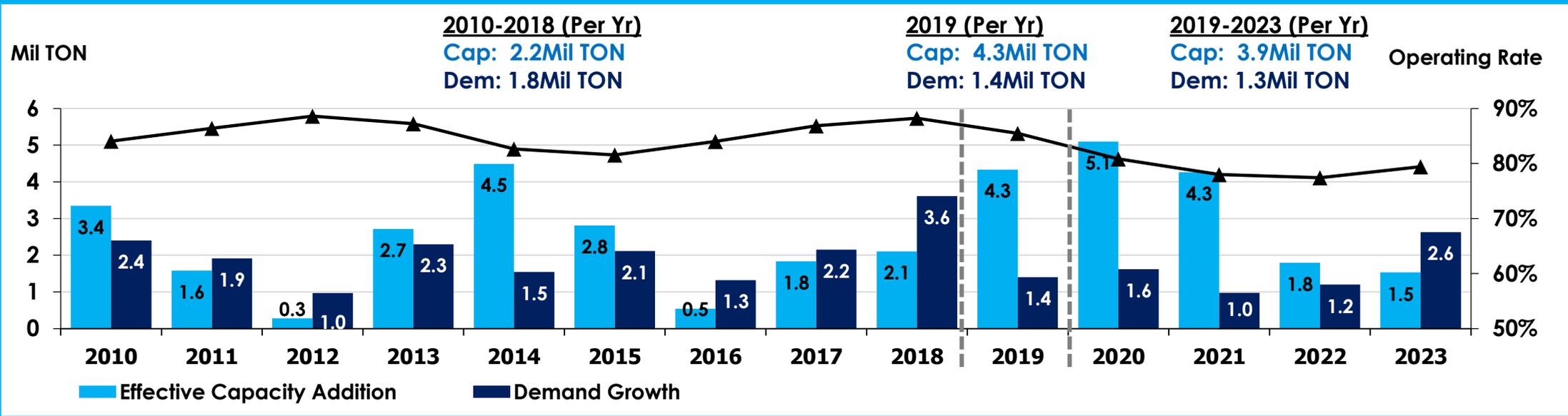
Note: the number may not sum to total due to rounding

AP/ME PX Balance

AP/ME PX Supply Demand Balance



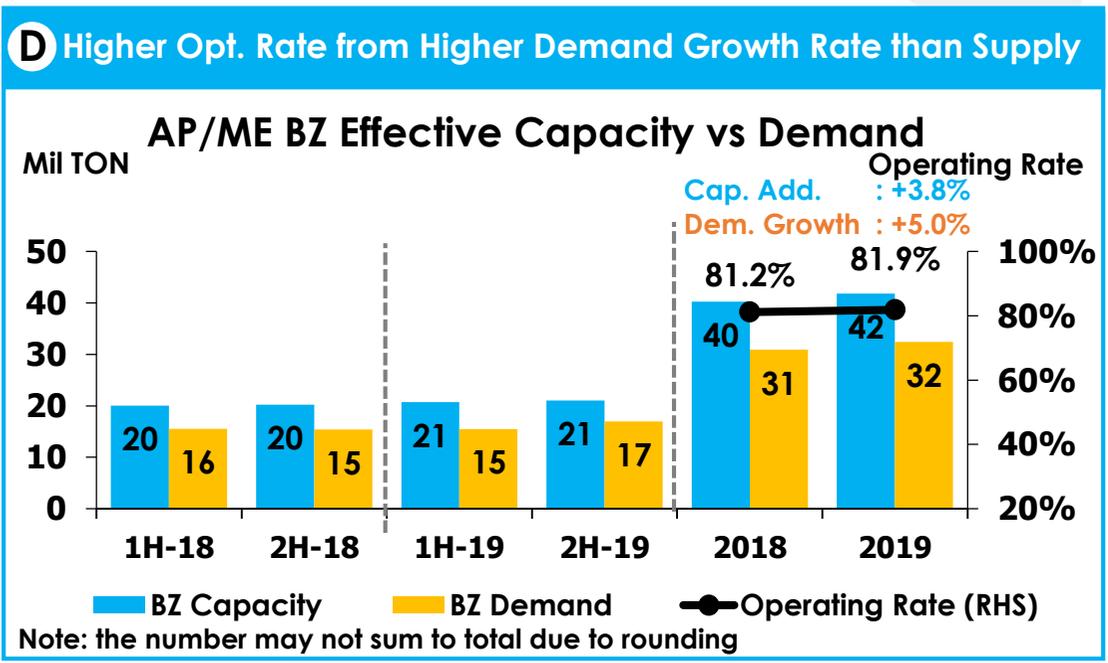
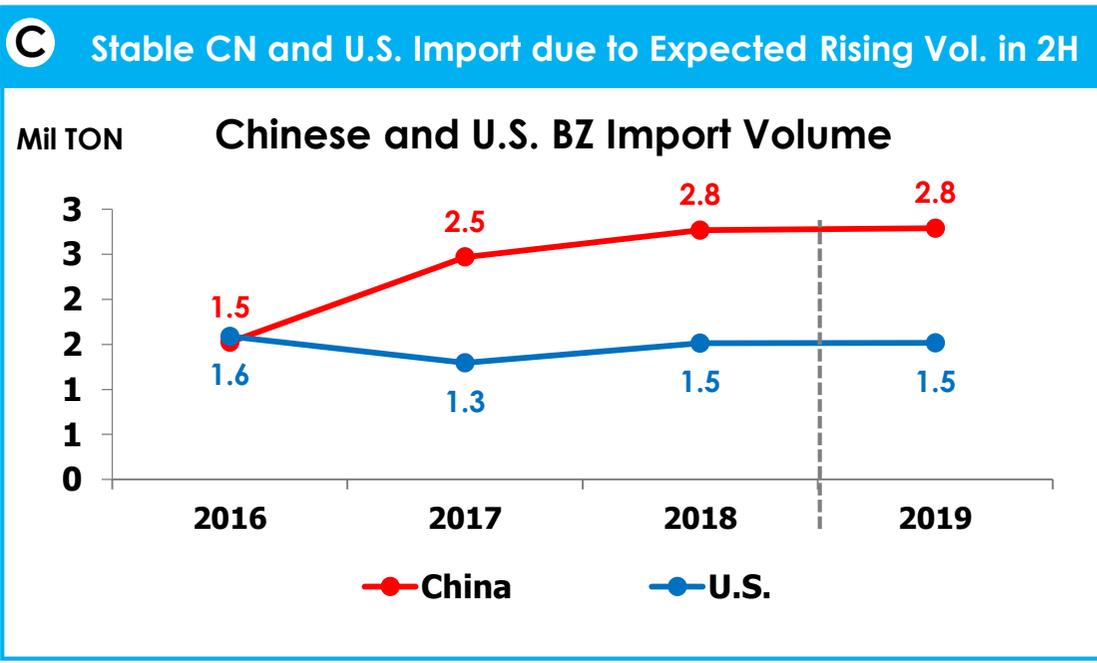
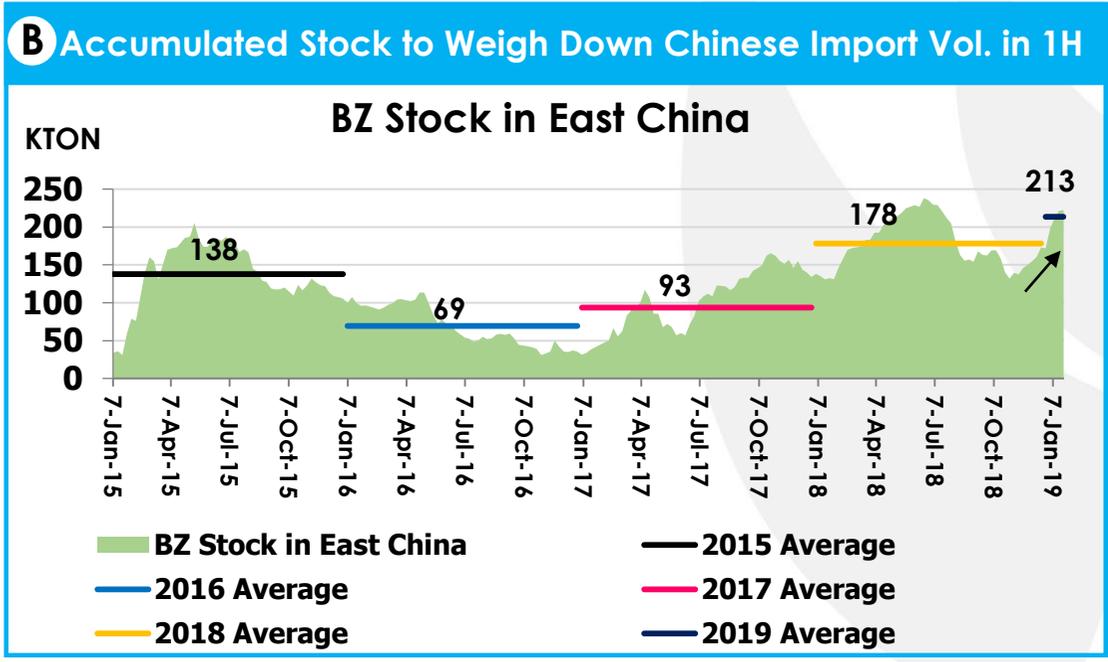
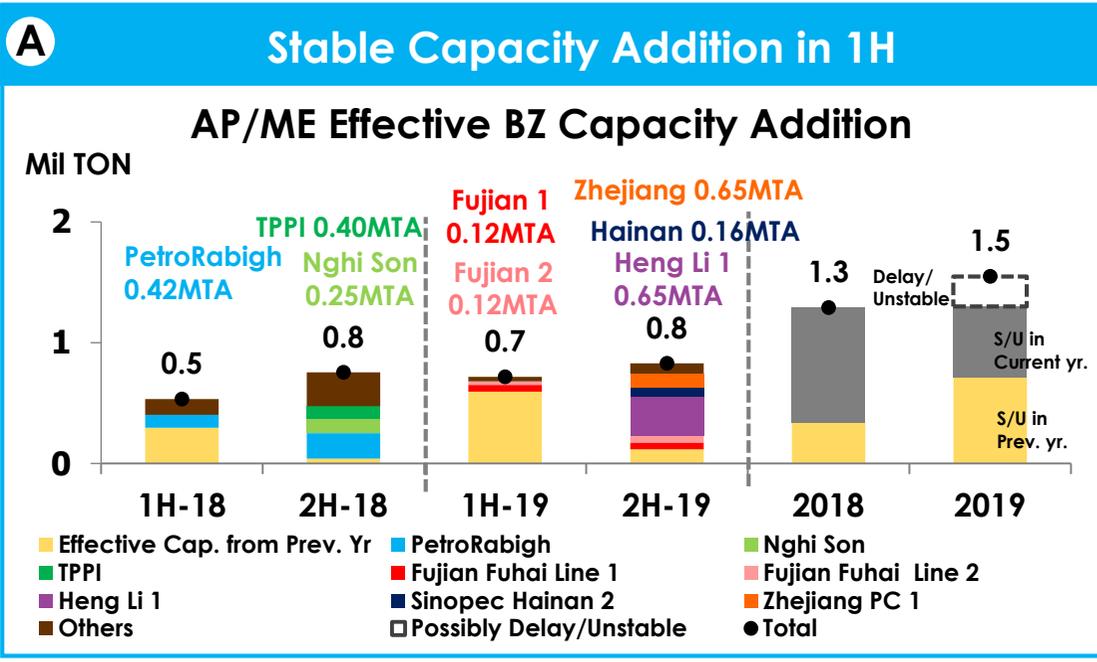
AP/ME Effective Capacity Addition and Demand Growth



Sources: WM Chemicals (Dec'18)

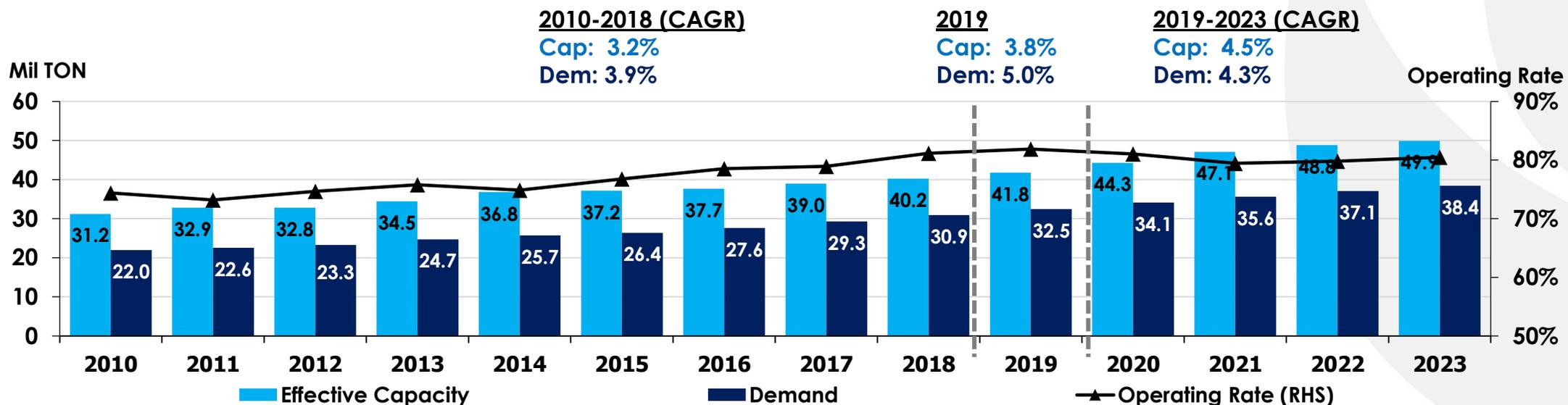
2

Softer BZ Market due to High Stock in China amid Stable Capacity Addition

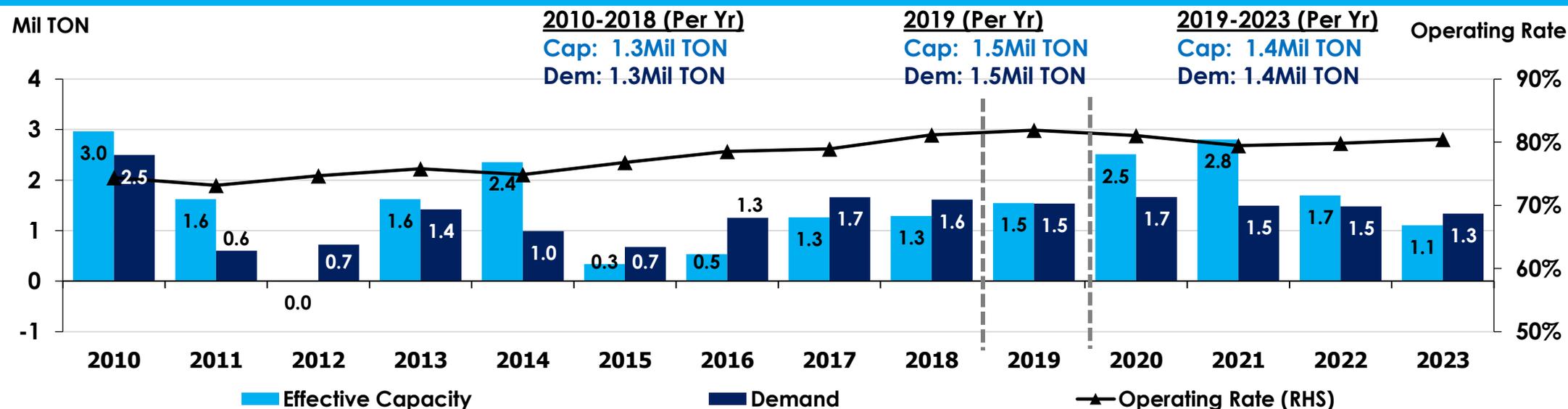


AP/ME BZ Balance

AP/ME BZ Supply Demand Balance



AP/ME BZ Effective Capacity Addition and Demand Growth

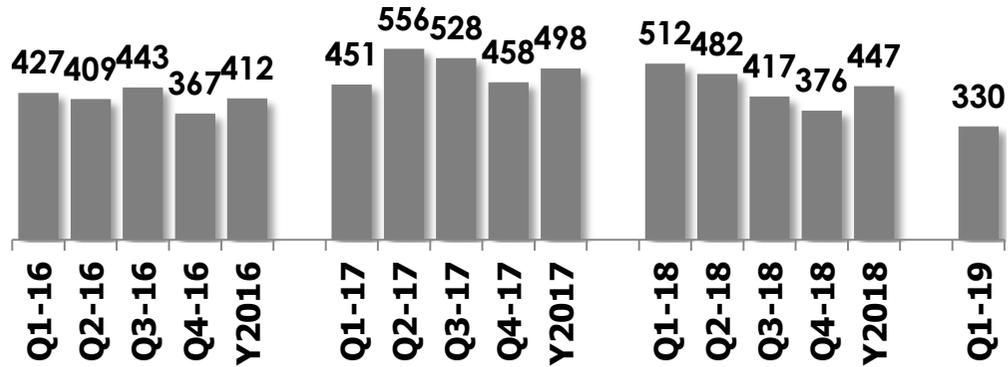


BASE OIL & BITUMEN



Soft Base Oil Market on Higher Capacity Addition

500SN – HSFO (\$/TON)

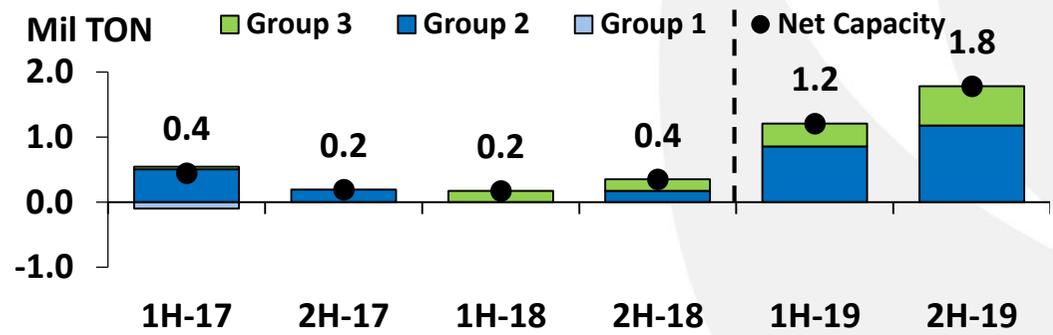


(\$/TON)	2017	Q1-18	Q2-18	Q3-18	Q4-18	2018	Q1-19
500SN-HSFO	498	512	482	417	376	447	330

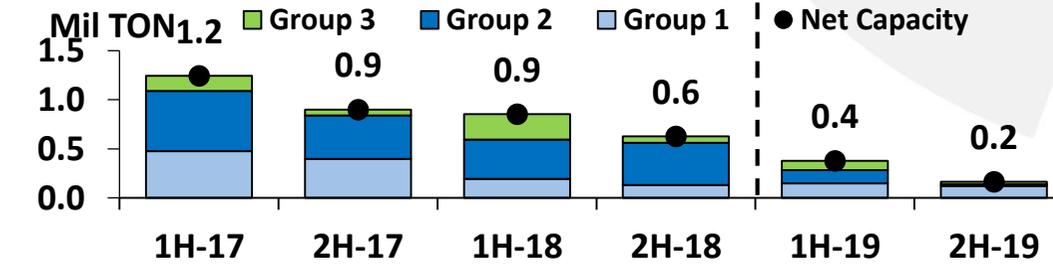
Key Highlights in 1H-2019

- 1 New Base Oil Gr.2/3 Plants Startup Causing Higher Supply Availability
- 2 Lower Plant Maintenance
- 3 Firm Demand in 1H especially in Summer Season

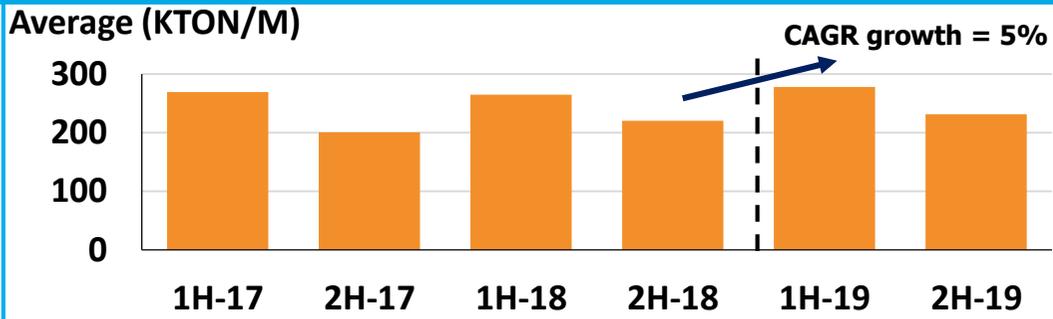
1 AP Base Oil Effective Capacity Addition



2 AP Plant Maintenance



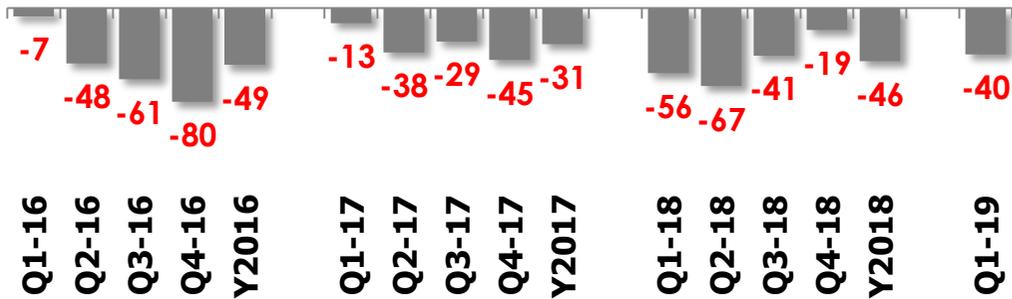
3 China Import Base oil



Sources: Argus (Feb'19), Petrosil (Jan'19) and TOP's Estimate

Stable Bitumen Market on Firm Demand

Bitumen-HSFO (\$/TON)



(\$/TON)	2017	Q1-18	Q2-18	Q3-18	Q4-18	2018	Q1TD-19*
Bitumen-HSFO	-31	-56	-67	-41	-19	-46	-40

Key Highlights in 1H-2019

- 1 Firm Asian Bitumen Demand for Road System
- 2 Higher Thai Government Budget to Support Demand Growth

1 Firm Asian Bitumen Demand on Continuous Projects



China has set up \$40 billion Silk Road Fund (One Belt, One Road) to roll out the initiative

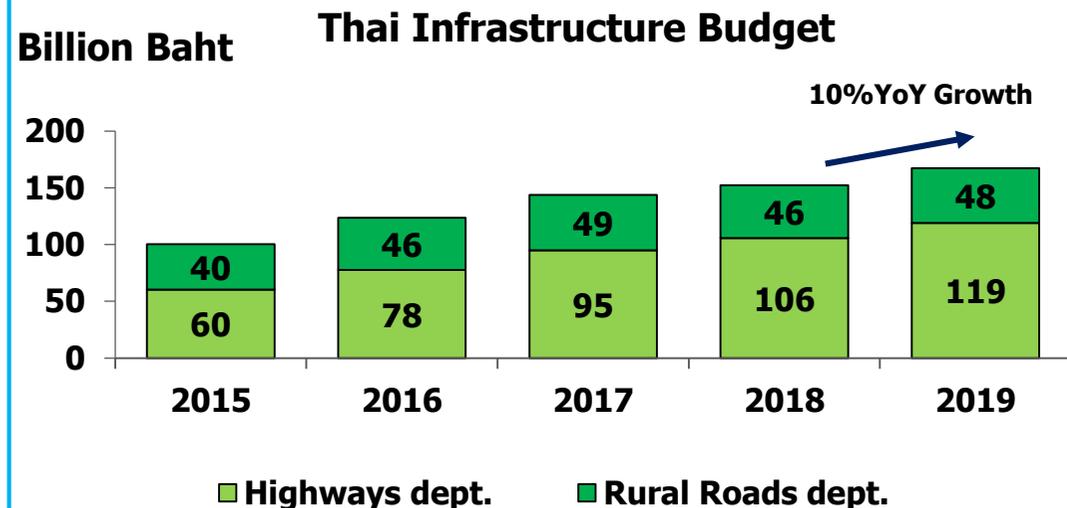


India increases Highways budget by 6%, for 2019-2020



Indonesia's infrastructure budget rises by 26% for 2019 for building 667 kilometers of new roads, 905 kilometers of toll roads

2 Rising of Thai Infrastructure Budget



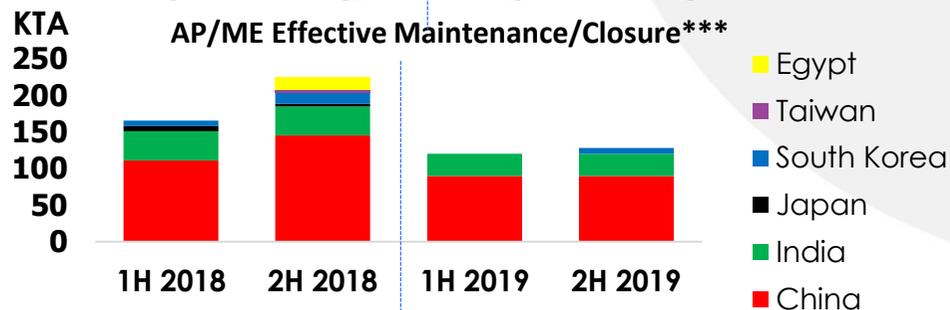
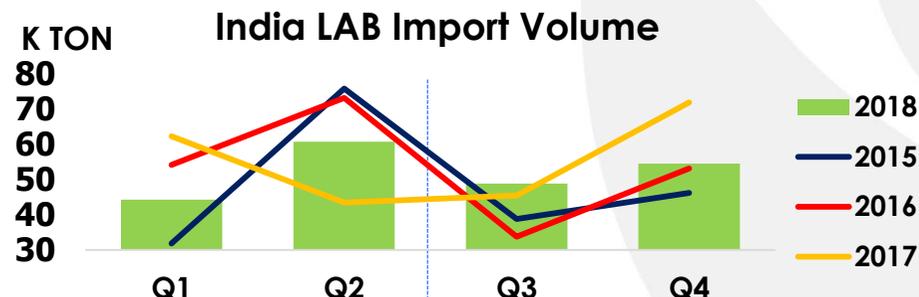
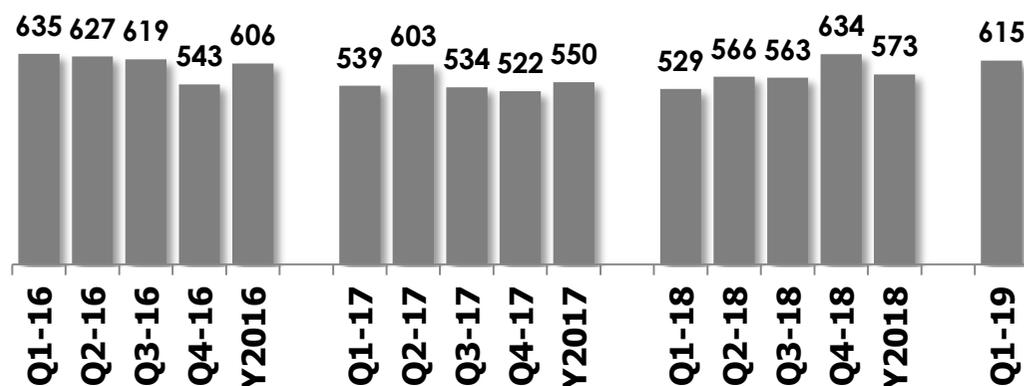
Linear Alkyl Benzene (LAB)



Stable-to-Firm Demand in 1H-2019 due to Peak Seasonal Demand in Summer, but Pressured by Lower Maintenance

LAB Market

LAB Spread* (\$/TON)



***Temporary

(\$/TON)	2017	Q1-18	Q2-18	Q3-18	Q4-18	2018	Q1-19
LAB Spread	550	529	566	563	634	573	615

Remarks: *Estimated indicator

Key Highlights in 1H-2019

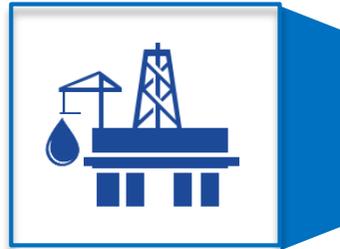
- 1 Peak demand in Q2 as summer season boosts detergent demand
- 2 Lower AP/ME LAB plants maintenance

CONCLUSION



1H-2019 Market Outlook Conclusion

(vs. 2H-2018)



Crude Oil

Recovering Oil Price on Tighter than Expected Supply



Refinery

Slightly Softer Refining Margins from Weak Gasoline Market and Still Supported by Recovering Middle Distillate Cracks Q-o-Q



Aromatics

Firm PX Market on Growing Demand against Softer BZ Market on Still-High Stock and Surplus Supply



Lube Base

**Soft Base Oil Market on Higher Capacity Addition
Stable Bitumen Market on Firm Demand**



LAB

Stable-to-Firm LAB Market Supported by Peak Seasonal Demand in Summer, but still Pressured by Lower Maintenance Level

Thank You

Any queries, please contact:



at email: ir@thaioilgroup.com

Tel: 662-797-2999 / 662-797-2961

Fax: 662-797-2976





APPENDIX

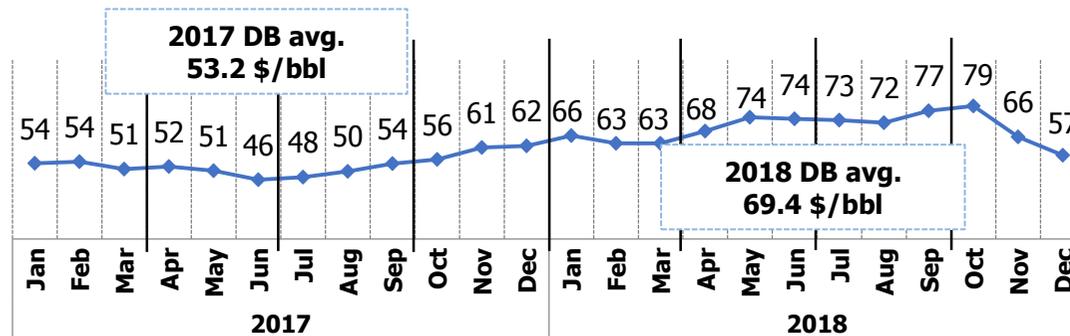
- Q4/18 Performance analysis
- CDU Addition VS Additional Demand – AP & ME
- World GRM / Inventories
- Thailand petroleum demand by products

Q4/18: Lower Mkt GRM pressured by Weak Gasoline Spread

Dubai Crude Price & Key Petroleum Product Spreads

\$/bbl	2017				2018				2017	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	FY18	FY17
DUBAI (DB)	53.1	49.8	50.5	59.3	63.9	72.1	74.3	↓67.4	69.4	53.2
ULG95 - DB	14.8	14.2	16.1	14.4	13.7	12.1	11.6	↓4.7	10.5	14.9
JET - DB	11.3	10.8	13.2	13.3	16.1	15.3	14.5	↑15.6	15.4	12.1
GO - DB	11.8	11.4	13.9	13.0	14.8	14.6	14.4	↑14.8	14.6	12.5
HSFO - DB	(3.1)	(1.8)	(1.3)	(3.1)	(4.9)	(4.4)	(2.5)	↑1.4	(2.6)	(2.3)

Dubai Price
(US\$/bbl)



Refinery Utilization

Q3/18	Q4/18	2018	2017
115%	115%	113%	112%

% MB Intake/OSP*

Q3/18	Q4/18	2018	2017
36%/2.9	32%/2.5	35%/3.1	42%/1.7

*Murban OSP over Dubai (\$/bbl)

Q1'19	
ULG95-DB	= 3.7 \$/bbl
JET-DB	= 13.0 \$/bbl
GO-DB	= 12.8 \$/bbl
HSFO-DB	= 0.6 \$/bbl

Q4/18 Market GRM

- **Weak gasoline spread** due to high inventory worldwide
- + **Higher middle distillate margin** supported by winter demand as well as **improved FO spread** due to tight supply
- **Lower crude price** due to more supply after OPEC and Non OPEC increased production 1 MBD

Q4/18 Performance

- + **Highest refinery run rate at 115%**

2018 FY

- **Lower 2018 Market GRM** due to higher crude premium

Gross Refinery Margins - GRM

\$2.7/bbl	2017				2018				2017	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	FY18	FY17
Market GRM	6.5	6.1	8.1	6.0	5.7	4.0	5.0	3.9	4.7	6.7
Stock G/(L)	(0.2)	(2.2)	2.4	3.6	0.4	5.0	1.2	(7.5)	(0.4)	0.9
Accounting GRM	6.3	3.9	10.5	9.6	6.2	9.0	6.2	(3.6)	4.3	7.6

Q4/18: Robust Aromatics Contribution supported by Strong PX spread

Aromatics Spreads and Margins

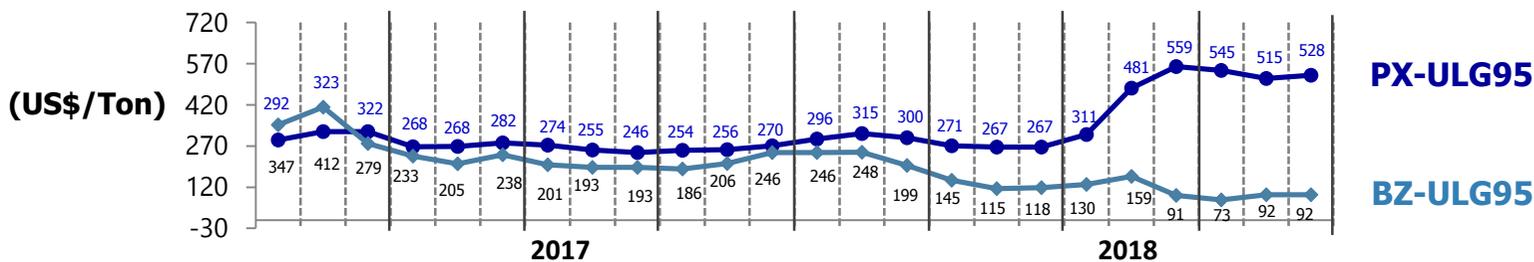
	2017				2018				2017	
\$/ton	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	FY18	FY17
PX**-ULG95	312	273	258	260	304	268	451	↑528	388	276
BZ**-ULG95	346	226	195	213	231	126	126	↓81	141	245

Aromatics Production

Q3/18	Q4/18	2018	2017
89%	94%	89%	83%

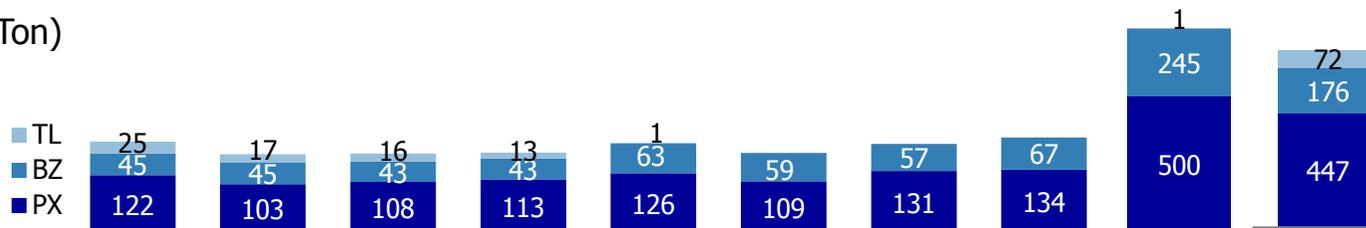
Q1'19

PX**-ULG95	508 \$/ton
BZ**-ULG95	18 \$/ton



Aromatic's Sales (excluding by product) & Product-To-Feed Margin (P2F)

(Unit : KTon)



	2017				2018				2017	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	FY18	FY17
Aromatic P2F - \$/ton	126	91	84	93	110	87	129	151	121	99
Aromatic P2F - \$/bbl	16.4	11.9	11.0	12.2	14.5	11.6	16.9	20.2	15.9	12.9
GIM contribution***	2.1	1.5	1.4	1.5	1.7	1.3	2.0	2.2	1.8	1.6

** PX price = CFP Taiwan, BZ price = FOB Korea *** including LAB contribution since 25 Feb 2016

Remark: TOL -ULG95 Q3/18 = 58 \$/ton, Q4/18 = 73 \$/ton, FY/18 = 57 \$/ton

Q4/18 Market

- + **Strong PX spread** mainly due to supply tightness and demand from downstream product i.e. Polyester
- **Lower BZ spread** due to ample supply as most producers maximized PX production to capture decent PX spread

Q4/18 Performance

- + **Higher utilization rate** to capture decent PX margins

2018 FY

- + **Higher 2018 P2F** supported by PX supply tightness in 2H18 due to the delay of new capacity from Saudi Arabia and Vietnam

Q4/18: Stable Contribution as Soften Lube Base Spread

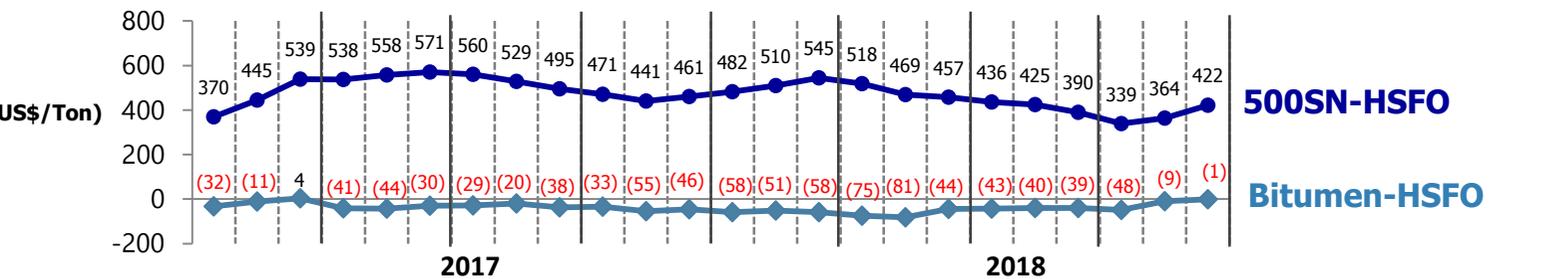
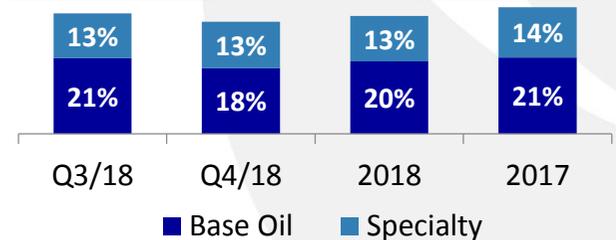
Base Oil & Bitumen Spreads & Margins

	2017				2018				2017	
\$/ton	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	FY18	FY17
500SN-HSFO	451	556	528	458	512	481	417	↓376	447	528
BITUMEN-HSFO	(13)	(38)	(29)	(45)	(56)	(67)	(41)	↑(19)	(46)	(29)

Base oil Production

Q3/18	Q4/18	2018	2017
72%	86%	84%	88%

% Base Oil & Specialty Sales Volume

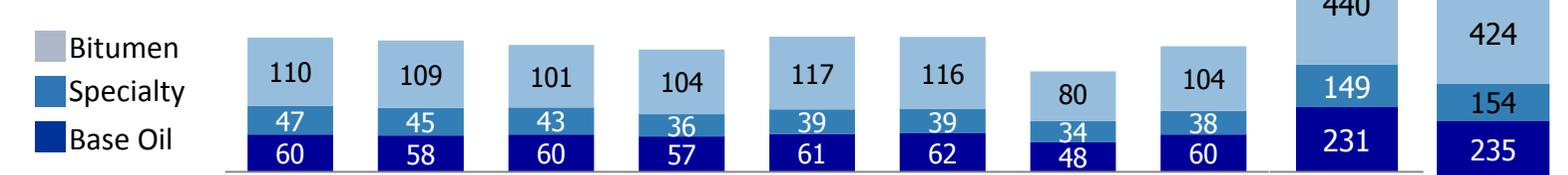


Q1'19

500SN-HSFO	330 \$/ton
BITUMEN-HSFO	(40) \$/ton

TLB's Sales (excluding byproduct) & Product-To-Feed Margin (P2F)

(Unit : KTon)



	2017				2018				2017	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	FY18	FY17
P2F -\$/ton	116	118	113	102	105	97	66	73	84	112
P2F -\$/bbl	17.6	17.9	17.1	15.5	16.0	14.8	9.9	11.1	12.8	17.0
GIM contribution	0.9	0.9	0.8	0.7	0.7	0.7	0.4	0.4	0.5	0.8

Q4/18 Market

- **Soften lube spread** due to more supply after resumption from maintenance and additional base oil supply from China (0.65 MTA)
- + **Improved bitumen spread** as good demand especially in Indonesia and China

Q4/18 Performance

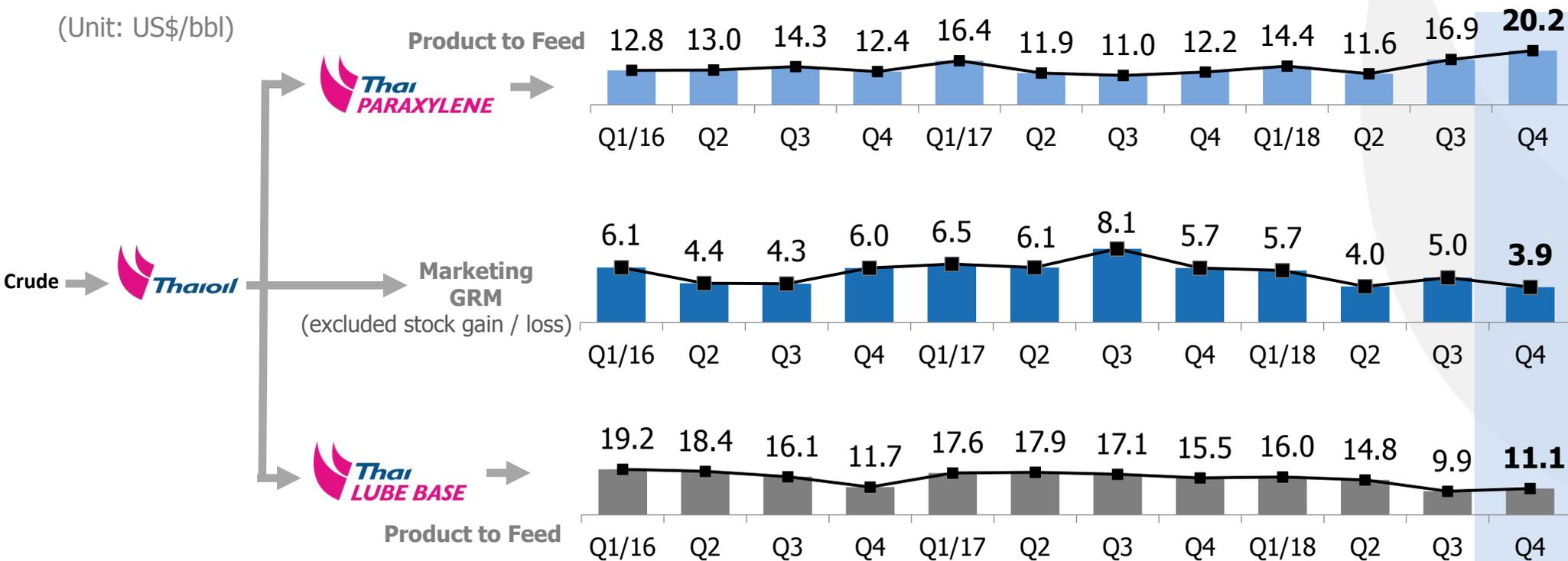
- + **Higher utilization rate** at 86%

2018 FY

- **Lower 2018 P2F** due to additional base oil capacity from Saudi Arabia and China

Beauty of Integration...Sustainable GIM

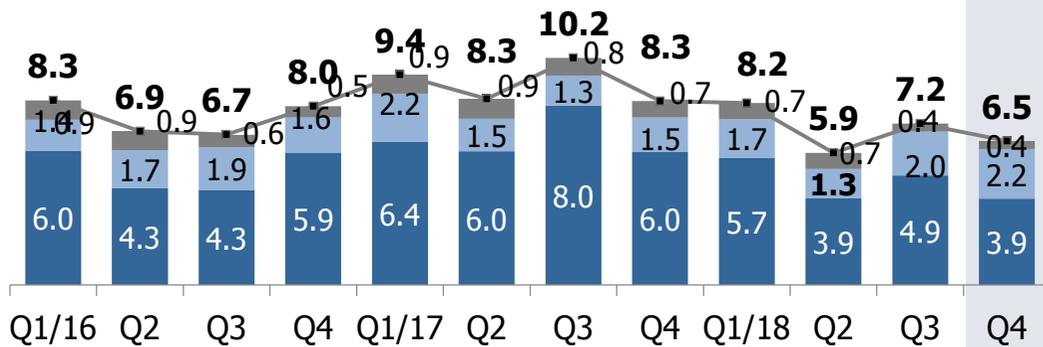
(Unit: US\$/bbl)



Marketing GIM

(Unit: US\$/bbl)

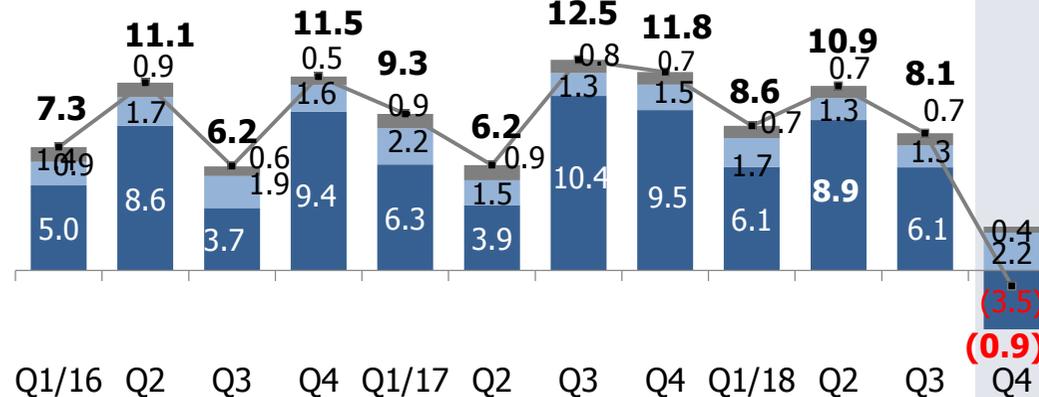
TOP TPX TLB — GIM



Accounting GIM

(Unit: US\$/bbl)

TOP TPX TLB — GIM



Q4/18 Power Sector Performance...Growing Contribution to the Group

Power Business Sector



Equity holding in



***TOP shareholding 24.29% (8.91% via TOP and 20.79% via TP)
 GPSC is an associate company of TOP.
 Equity method is applied to recognize share of profit. (EBITDA calculation excludes profit sharing from GPSC)

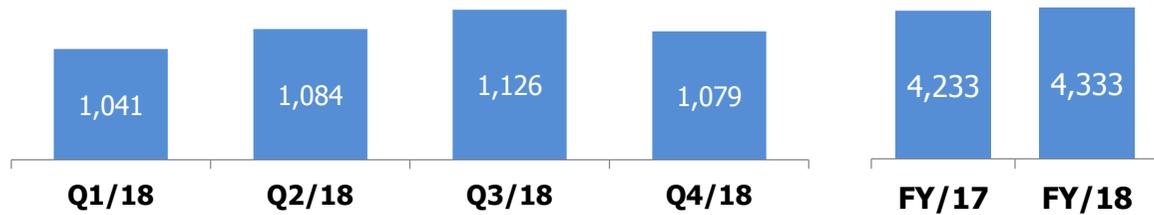
- Equity income from GPSC
- SPP (TP+TOP SPP)
- (1) 100% of TP and TOP SPP

Power & Steam Sales

Electricity ⁽¹⁾
(GWh)

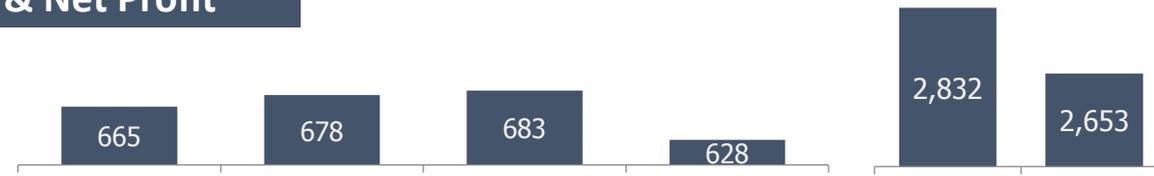


Steam ⁽¹⁾
(kton)



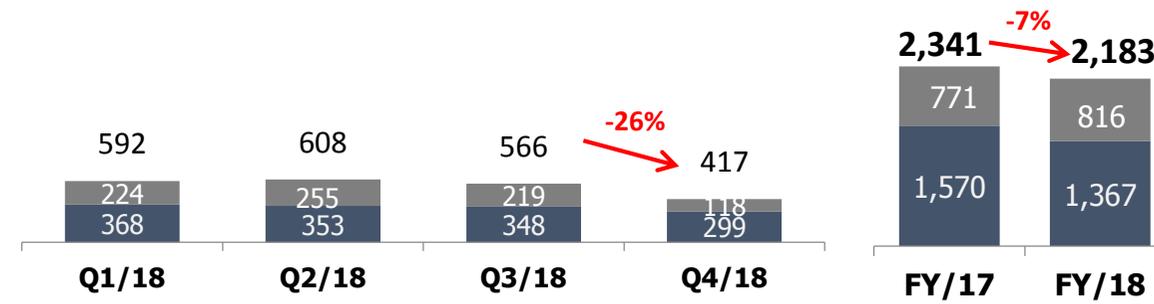
EBITDA & Net Profit

EBITDA ⁽³⁾
(THB million)



⁽³⁾ consolidated EBITDA of TP and TOP SPP

Net Profit ⁽⁴⁾
(THB million)



⁽⁴⁾ Net profit of 74% TP + 100% TOP SPP + 24.29% profit sharing from GPSC

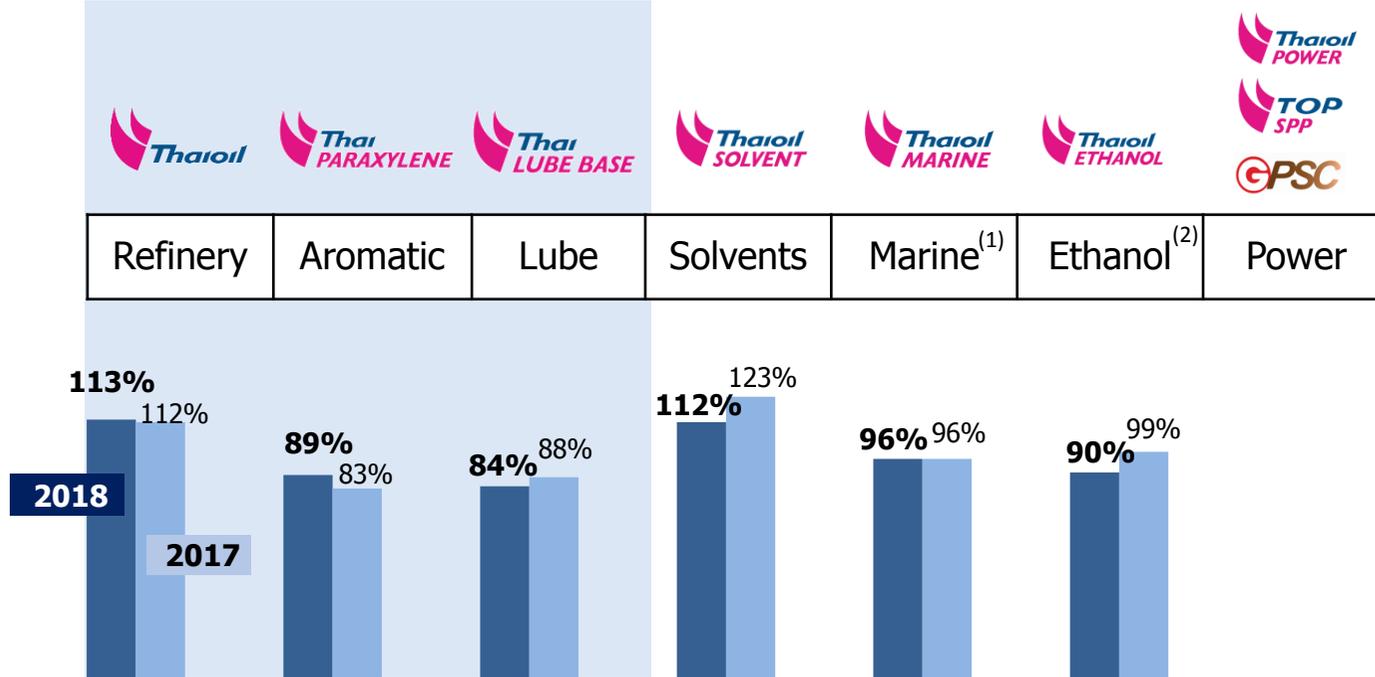
Performance Highlight

- Lower power contribution due to higher fuel cost
- + Higher contribution from GPSC's profit sharing



2018: Performance Breakdown by Business Unit

Utilization/Production (%) & Net Profit (million THB)



Key Points

- **Refinery:** record high run rate to capture strong demand in domestic and Indochina market
- **Aromatic/LAB:** higher run rate to capture robust PX spread due to supply tightness
- **Lube:** declined contribution pressured by new base oil supply
- **Power:** lower contribution due to higher fuel cost
- **Solvents:** lower contribution due to lower sale gross margins pressured by high competitive market
- **Marine:** declined contribution pressured by slowdown in E&P business
- **Ethanol:** lower contribution due to higher feedstock cost while lower ethanol selling price

	Refinery	Aromatic	Lube	Solvents	Marine ⁽¹⁾	Ethanol ⁽²⁾	Power	GPSC	Consol	Stock G/(L) & Reversal of NRV/(NRV)	Consol Excl Stock G/(L) & Reversal of NRV/(NRV)
Q1/18	3,747	751 ⁽³⁾	417	38	17	27	592 ⁽⁴⁾	5,608	272	5,336	
Q2/18	3,374	196 ⁽³⁾	360	83	6	(19)	608 ⁽⁴⁾	4,795	4,455	340	
Q3/18	2,948	837 ⁽³⁾	158	16	(2)	(10)	566 ⁽⁴⁾	4,558	1,169	3,389	
Q4/18	(6,087)	747 ⁽³⁾	145	(14)	(65)	7	417 ⁽⁴⁾	(4,812)	(8,524)	3,712	
2018	3,983	2,530 ⁽³⁾	1,079	123	(44)	4	2,183 ⁽⁴⁾	10,149	(2,628)	12,777	

(1) U-rate of 5 Oil & Chemical Tankers (total capacity: 22,800 DWT, acquired 1 LPG vessel in Dec 18))

(2) U-rate of of TET Q1/18 includes SAPTHIP 87% and UBE 108%, Q2/18 includes SAPTHIP 73% and UBE 65%, Q3/18 includes SAPTHIP 91% and UBE 95%, Q4/18 includes SAPTHIP 96% and UBE 98%, FY/18 includes SAPTHIP 87% and UBE 92%

(3) Includes 75% of LAB net profit Q1/18 = 115 MB, Q2/18 = (161) MB, Q3/18 = 18 MB, Q4/18 = (28) MB, and FY/18 = (56) MB

(4) Apply on an equity accounted basis in the consolidated financial statement. (GPSC has been held by TOP 8.9% and TP 20.8%, TP has been held by TOP 74% & TOP SPP has been held by TOP 100%)

2018 TOP Group Consolidated P&L

(Unit : million THB)

	<u>Q4/18</u>	<u>Q3/18</u>	<u>QoQ</u>	<u>Q4/17</u>	<u>YoY</u>	<u>FY/18</u>	<u>FY/17</u>	<u>YoY</u>
Sales Revenue	99,755	101,261	(1,506)	89,443	10,312	389,344	337,388	51,956 (A)
Hedging Gain / (Loss)	(852)	(140)	(712)	(63)	(789)	(821)	(133)	(688)
EBITDA	↓ (3,582)	7,124	(10,706)	10,810	(14,392) ↓	20,239	36,925	(16,686) (B)
EBITDA <u>excl.</u> Stock G/(L) & Reversal of NRV/(NRV)	4,942	5,955	(1,013)	7,333	(2,391)	22,867	33,510	(10,643) (C)
Financial Charges	(1,078)	(844)	(234)	(797)	(281)	(3,511)	(3,285)	(226)
Financial costs from repurchase of debentures	-	-	-	-	-	(431)	-	(431) (D)
FX G/(L) & CCS	(233)	548	(781)	677	(910)	627	3,182	(2,555) (E)
(Tax Expense)/reversal of income tax	1,315	(1,008)	2,323	(1,711)	3,026	(1,983)	(5,529)	3,546
Net Profit / (Loss)	↓ (4,812)	4,558	(9,370)	6,927	(11,739) ↓	10,149	24,856	(14,707)
EPS (THB/Share)	(2.36)	2.23	(4.59)	3.73	(6.09)	4.97	12.18	(7.21)
Stock G/(L) & Reversal of NRV	(8,524)	1,169	(9,693)	3,477	(12,001)	(2,628)	3,415	(6,043)
Net Profit/ (Loss) <u>excl.</u> Stock G/(L) and Reversal of NRV/(NRV)	3,712	3,389	323	3,450	262	12,777	21,441	(8,664)
THB/US\$ - average	32.99	33.15	(0.16)	33.11	(0.12)	32.49	34.10	(1.61)
THB/US\$ - ending	32.61	32.58	0.03	32.85	(0.24)	32.61	32.85	(0.24)
Effective Tax Rate (%)	N/A	18%	N/A	20%	N/A	16%	18%	-2%

YoY analysis

- (A) Increase overall product prices following crude oil price
- (B) Mainly from stock loss 0.4 \$/bbl in 2018 compared with stock gain 0.9 \$/bbl in 2017
- (C) Mainly due to soften Mkt GIM 6.9 \$/bbl in 2018 from 9.1 \$/bbl in 2017
- (D) One-time expense on liability management and accounting loss from discounted bond buy back in 2018
- (E) Mainly from realized on USD debt as THB slightly appreciated

2018 TOP Group Consolidated Cash Flow

(Unit: Million THB)

Operating Cash Flow		
	FY/18	FY/17
Operating Cash Flow	18,313	34,417
Net income & non-cash adj.	23,978	38,568
Change in working capital	(5,665)	(4,151)

(Unit: Million THB)

Investments		
	FY/18	FY/17
Investments	(25,846)	(30,092)
Dividend income	772	740
ST investments	(21,597)	(23,423)
Available for sale	2,732	(2,865)
CAPEX (PP&E) & other	(7,753) ¹⁾	8,348

1)TOP 6,976MB, TSV 292MB, TOPSPP112MB

Financing		
	FY/18	FY/17
Financing	25,566	(19,226)
Loans proceeding	95,705 ²⁾	3,681 ²⁾
Loans repayment	(55,706) ³⁾	(10,088) ³⁾
Interest	(3,428)	(3,364)
Dividend	(11,006)	(9,455)

2) TOP 18,990 TTC 51,634
TOPSPP 8,415 LABIX 5,373

3) TOP 39,067(loan18,990,bond 20,076)
LABIX 12,499

Free Cash Flow	(7,533)	5,082
-----------------------	----------------	--------------

	Beginning	Change	Effect of FCD	Ending
cash	15,623	18,032 ↑	386	34,041
S/T investment	52,318	(20,903) ⁴⁾ ↓		73,221
Investment held as Available for sale	3,103	(2,742) ⁵⁾ ↓		361
	71,045			107,623⁶⁾

non-cash transactions:

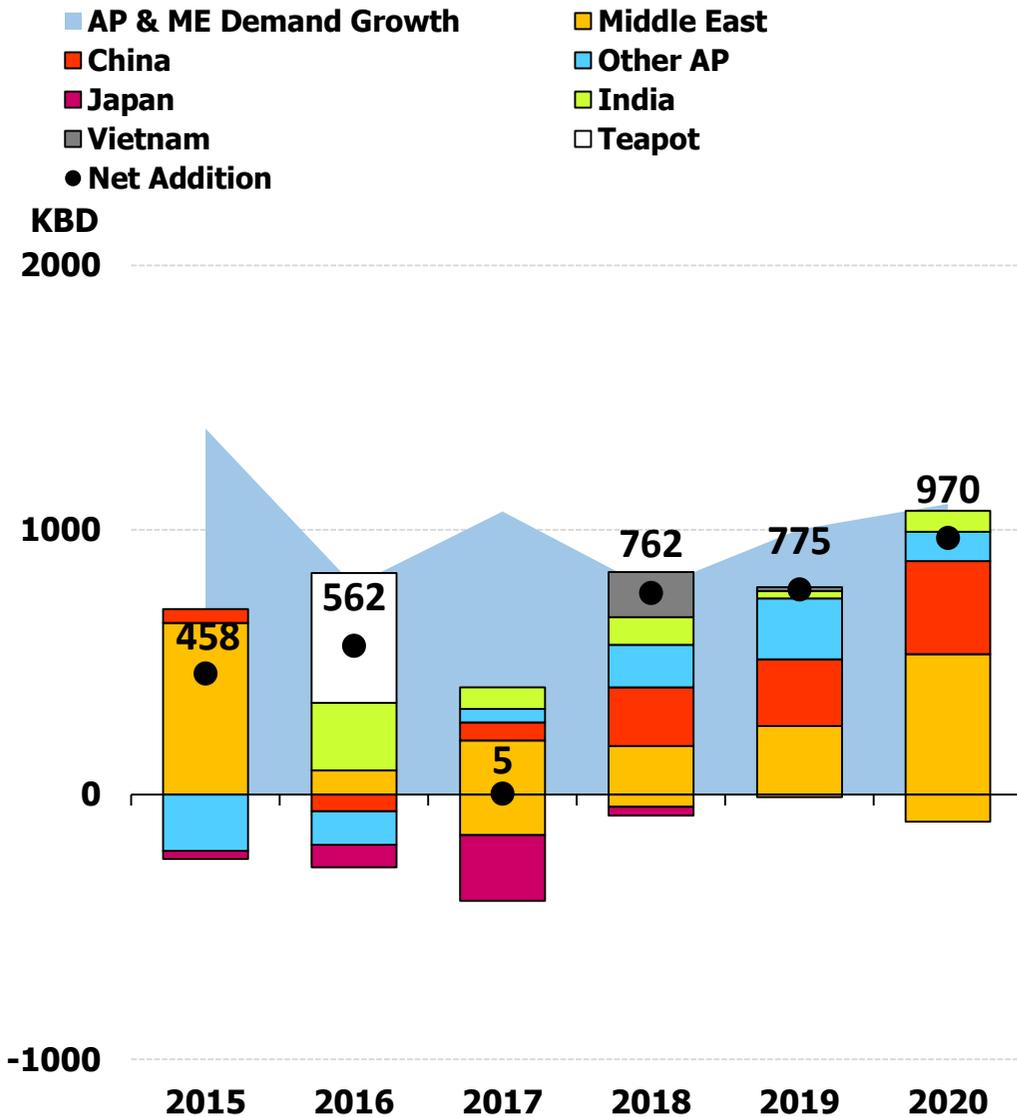
4) adj. FX loss from fixed deposit 524MB, other adjustment 171MB

5) MTM EPIF&Private fund 5MB, AP(private fund)

as at 31Dec17 = 5MB

6) FCD = 56,144 MB (1,744 MUSD)

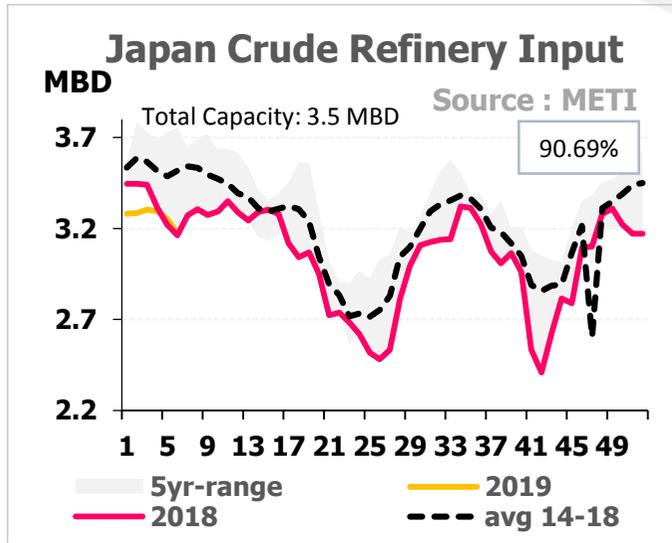
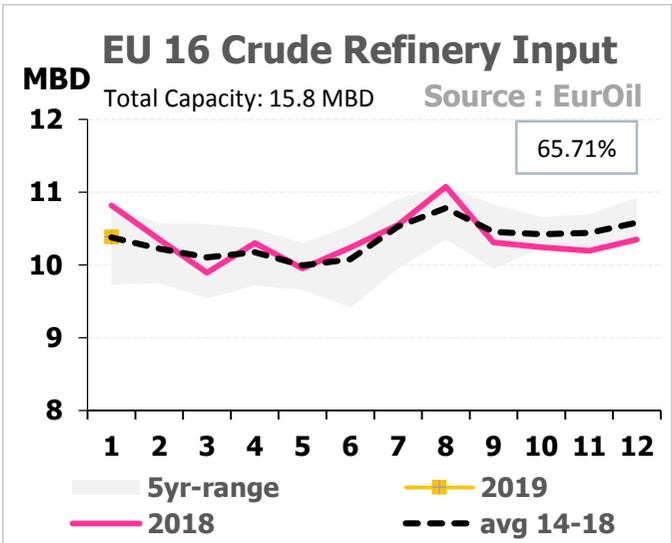
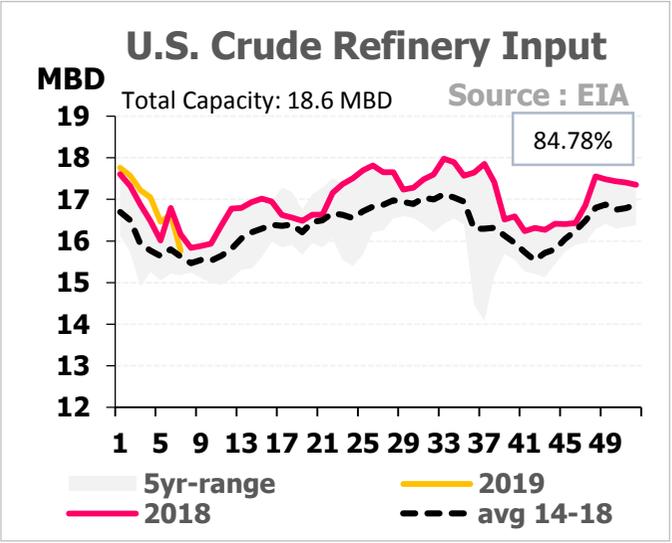
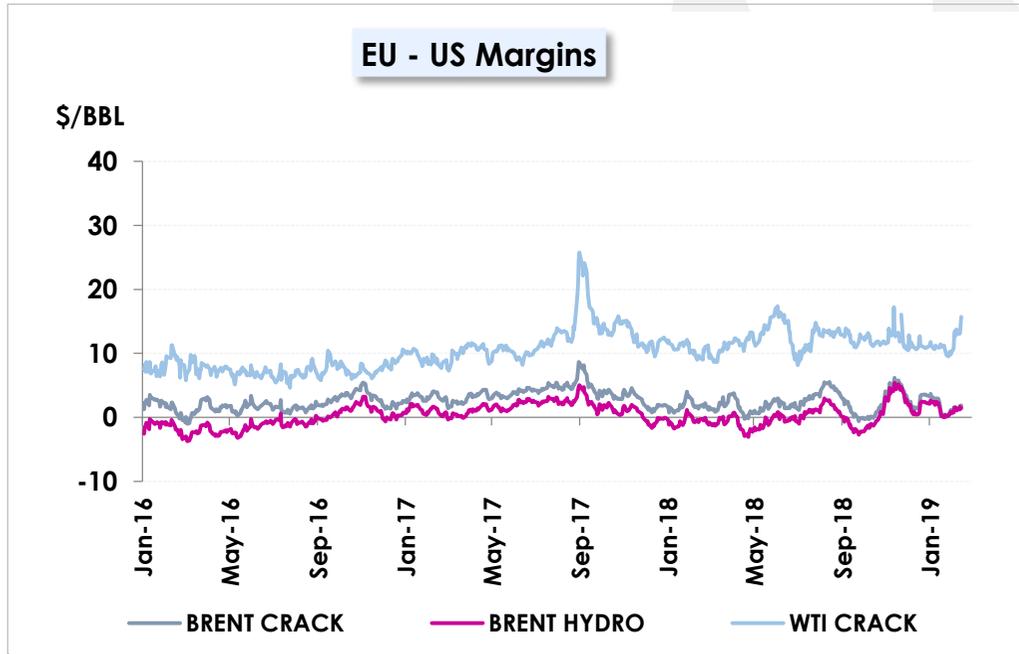
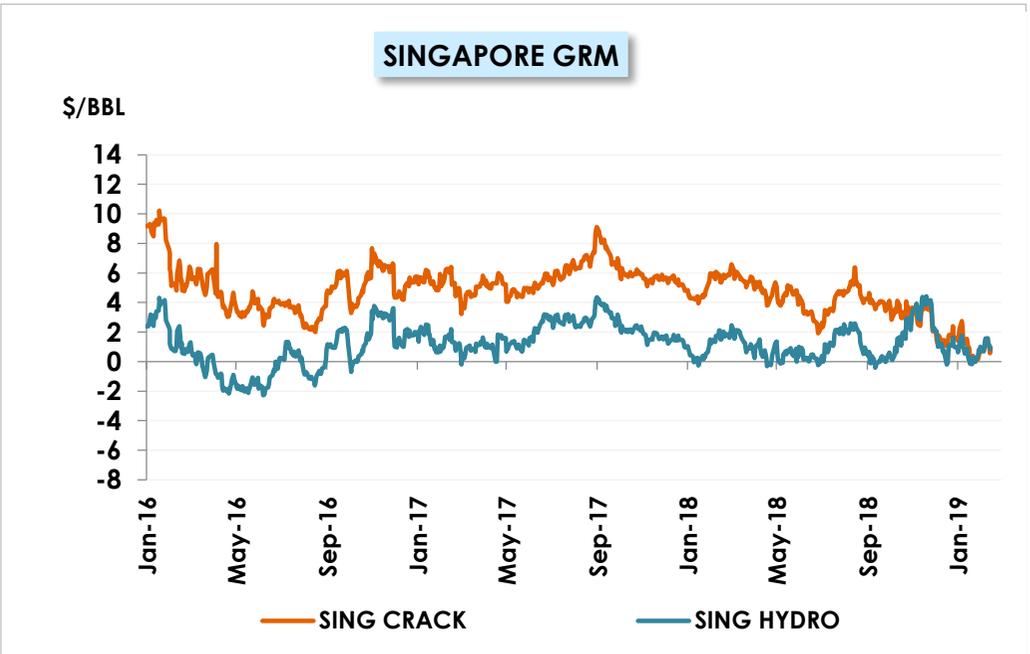
Asia Pacific and Middle East Refinery Addition



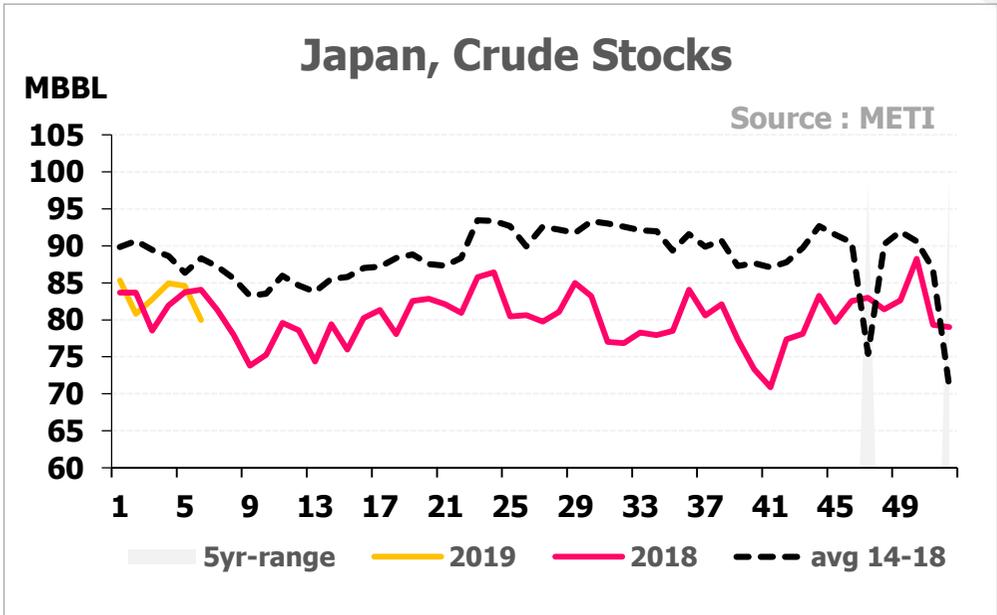
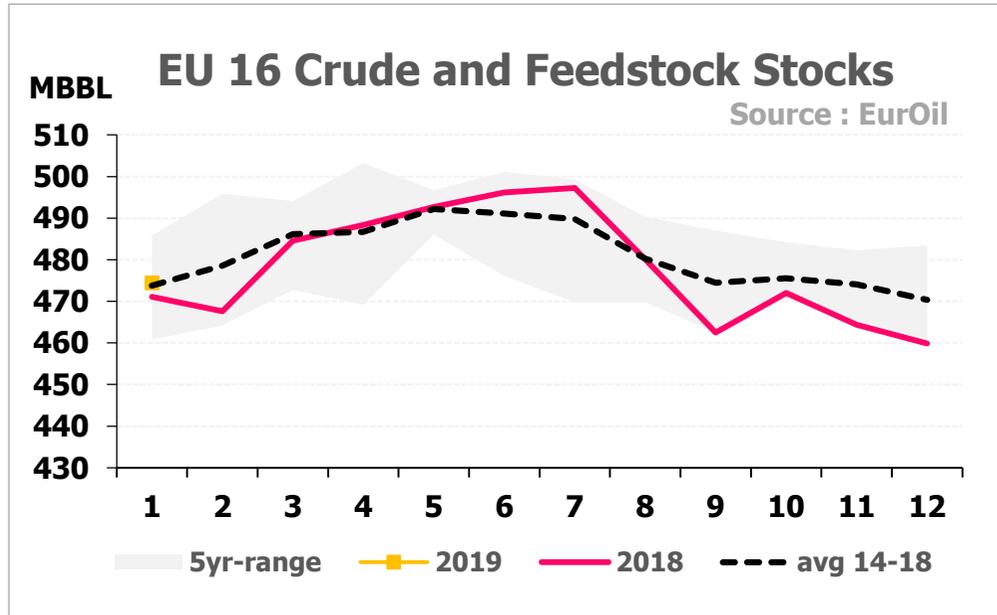
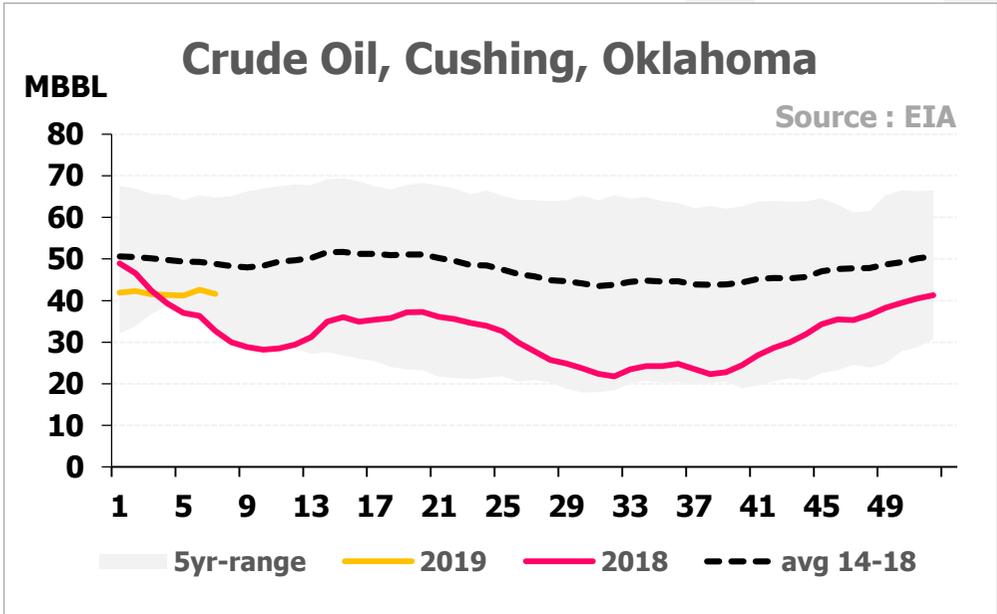
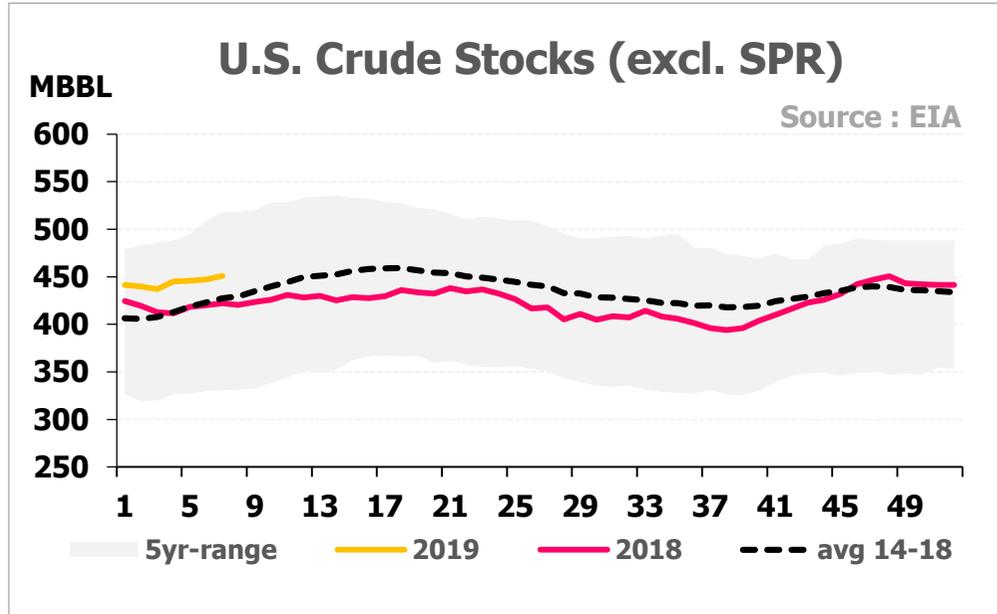
Note: Adjusted capacity based on start-up period (effective additional capacity)

Start-up period)	Country	Nameplate (KBD)	Company
Q1-18	Iran	120	Bandar Abbas - PGSOC/1 (Phase 2)
	Vietnam	186	Nghi Son
Q3-18	China	100	Petrochina Huabei
Q4-18	India (Aug'18 > Oct'18)	36	Bharat - Bina
	Iran	120	Bandar Abbas - PGSOC/1 (Phase 3)
	South Korea	82.8	Hyundai Oilbank – Daesan
Q1-19	China	70	CNOOC/Local Zhonghai Dongying
	Iraq	66	North Refining Company – Baiji
Q2-19	Malaysia (Jul'19 > May'19)	300	Petronas Pengerang (RAPID)
Q4-19	China	400	Hengli Petrochemical Dalian
	Saudi Arabia (Oct'19 > Nov'19)	400	Jizan
	China	60	Sinochem Quanzhou – Fujian
	Iraq	66	North Refining Company – Basra
	Kuwait (Dec'18 > Dec'19)	171	KPC - Mina Al-Ahmadi
Closures			
Q2-18	China	-75	Local refineries
Q4-19	China	-100	Local refineries
	Kuwait (Dec'18 > Dec'19)	-112	KPC - Mina Al-Ahmadi

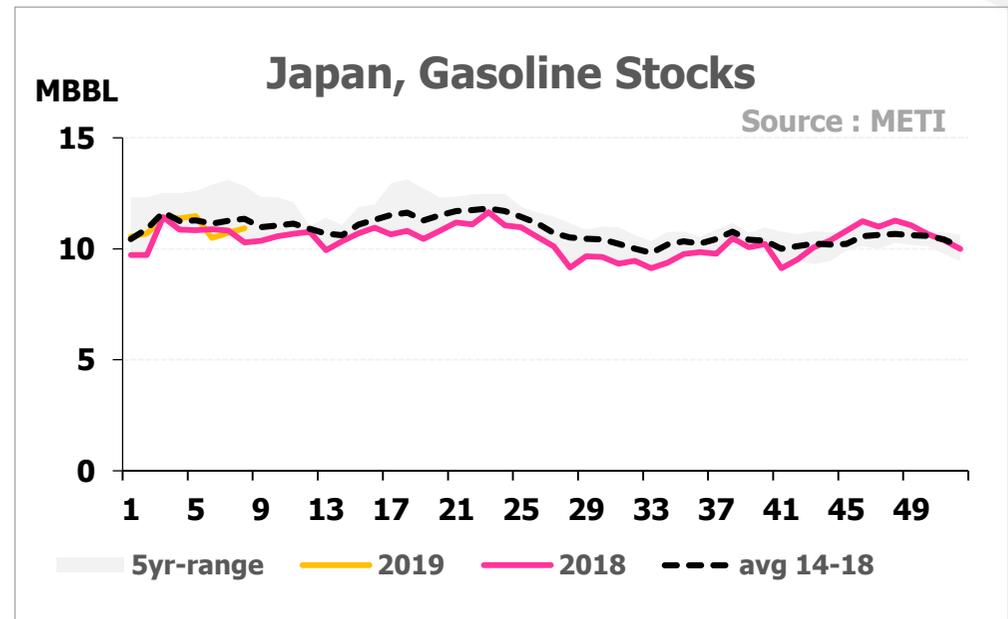
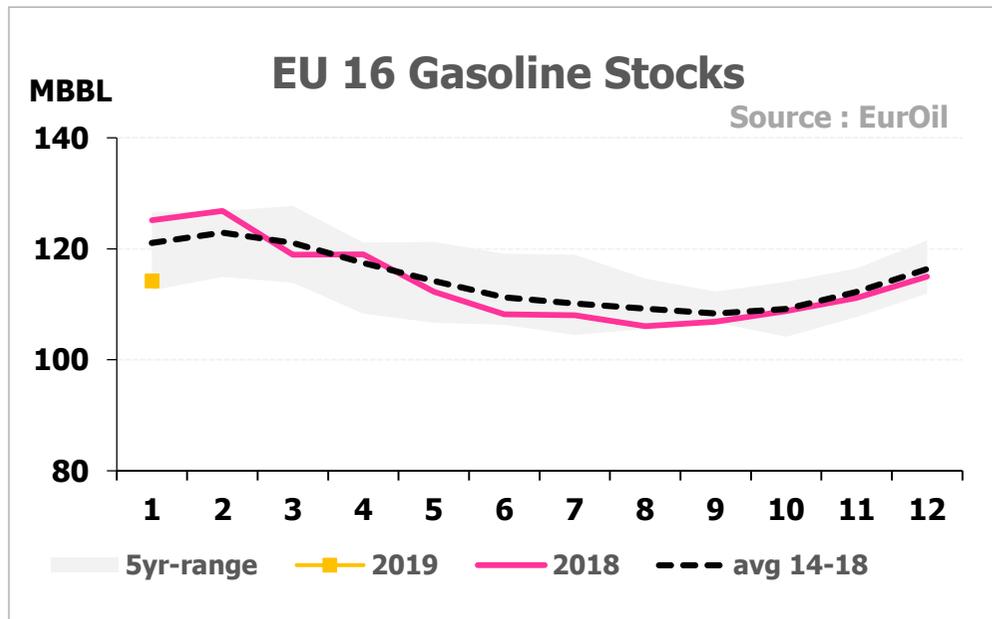
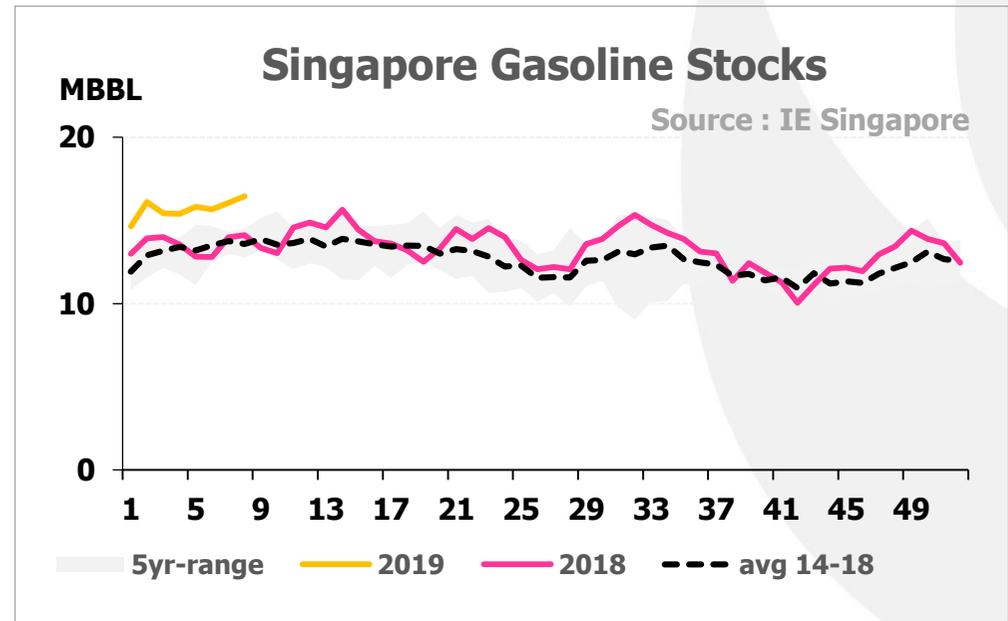
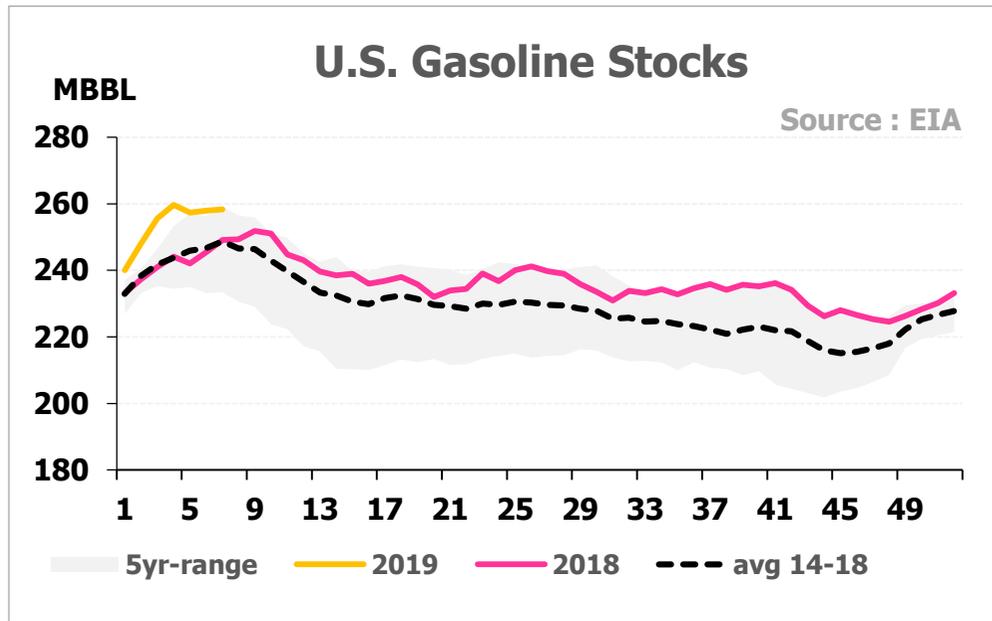
Asian Margin Vs. US-EU margin



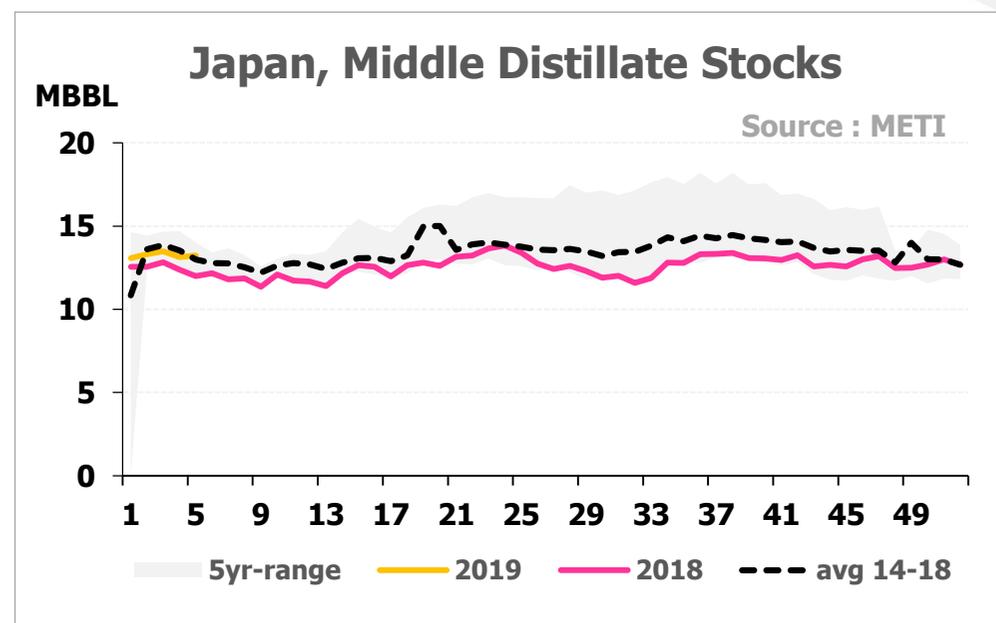
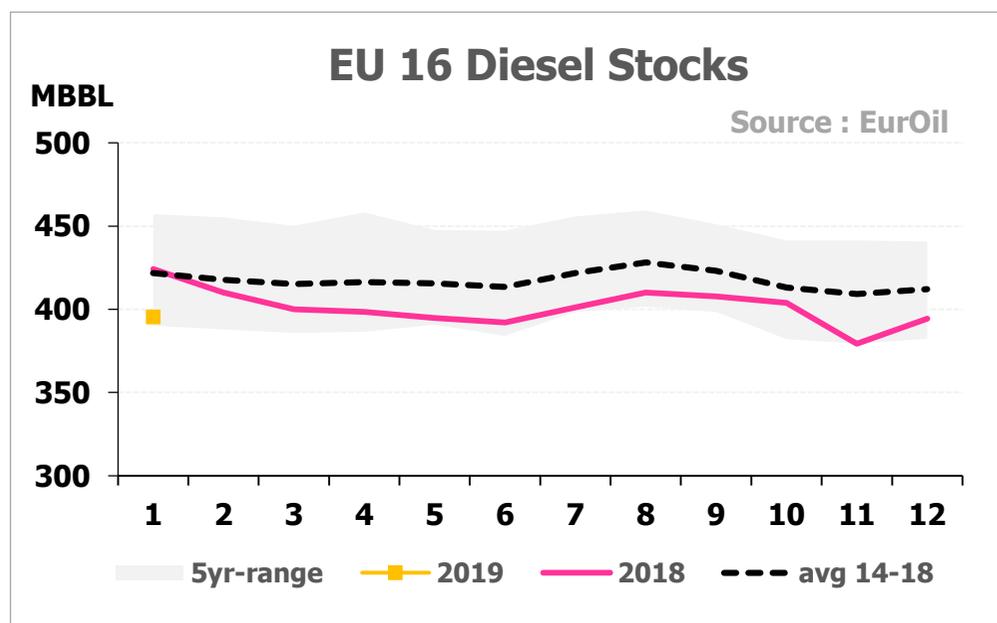
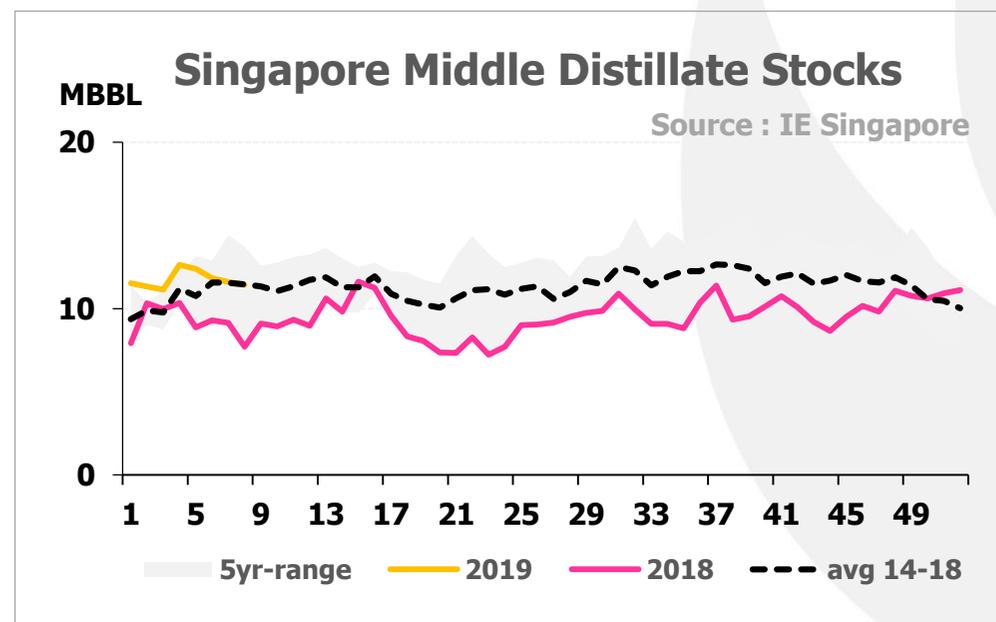
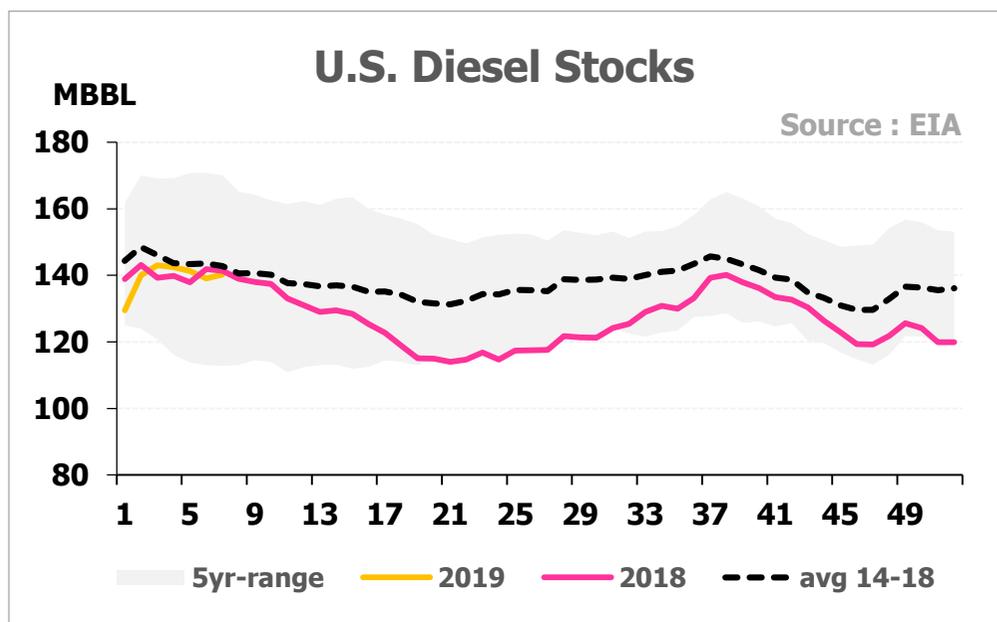
Global Crude Oil Inventories



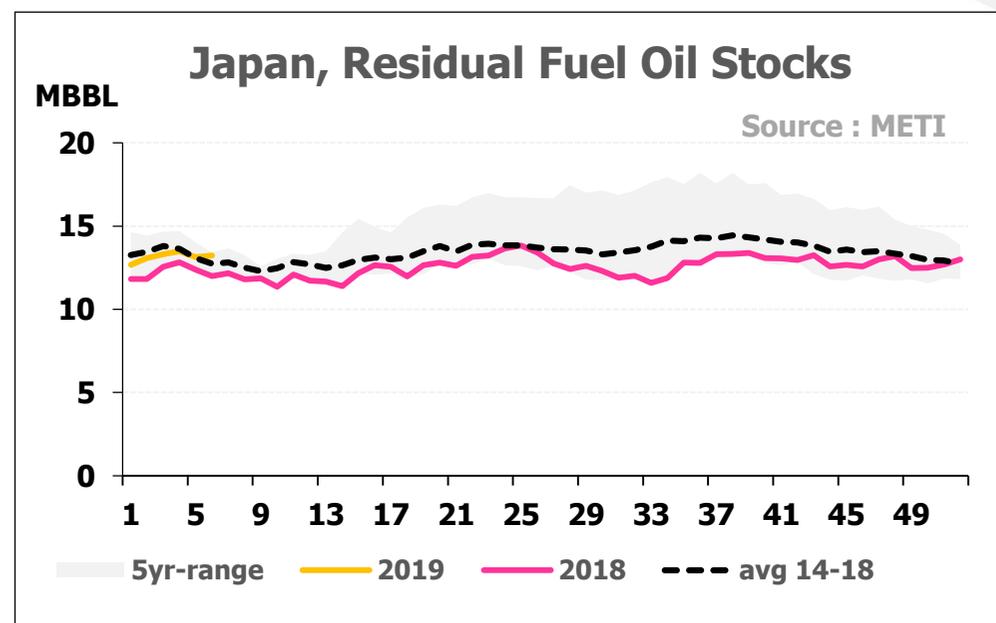
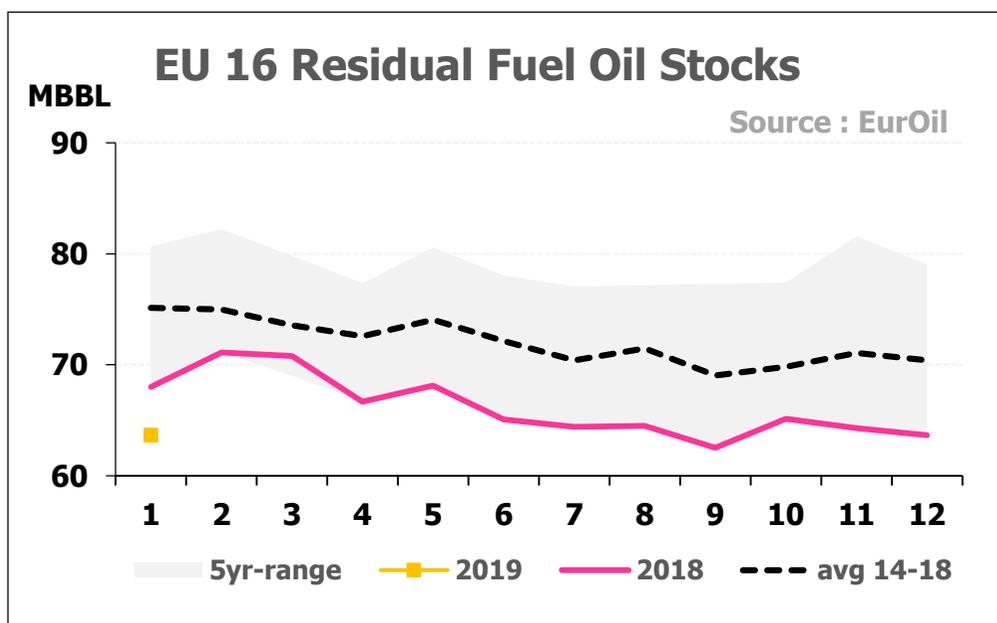
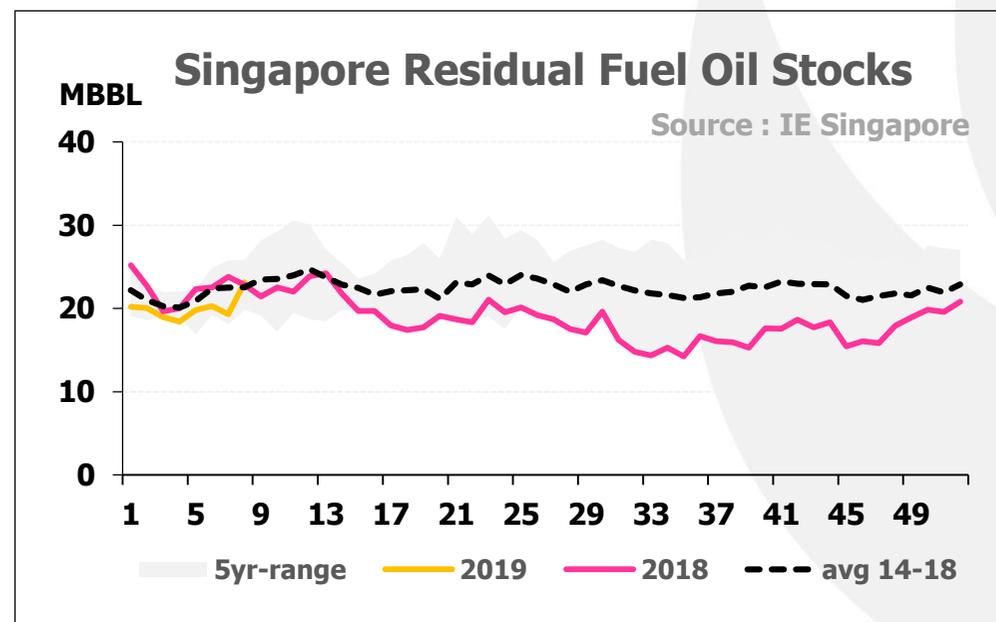
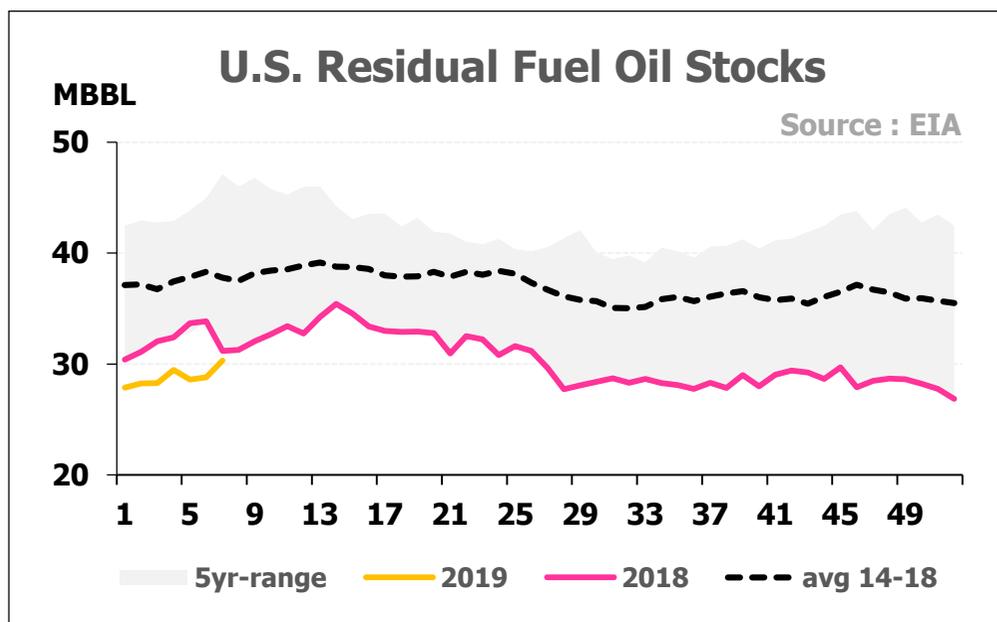
Global Gasoline Inventories



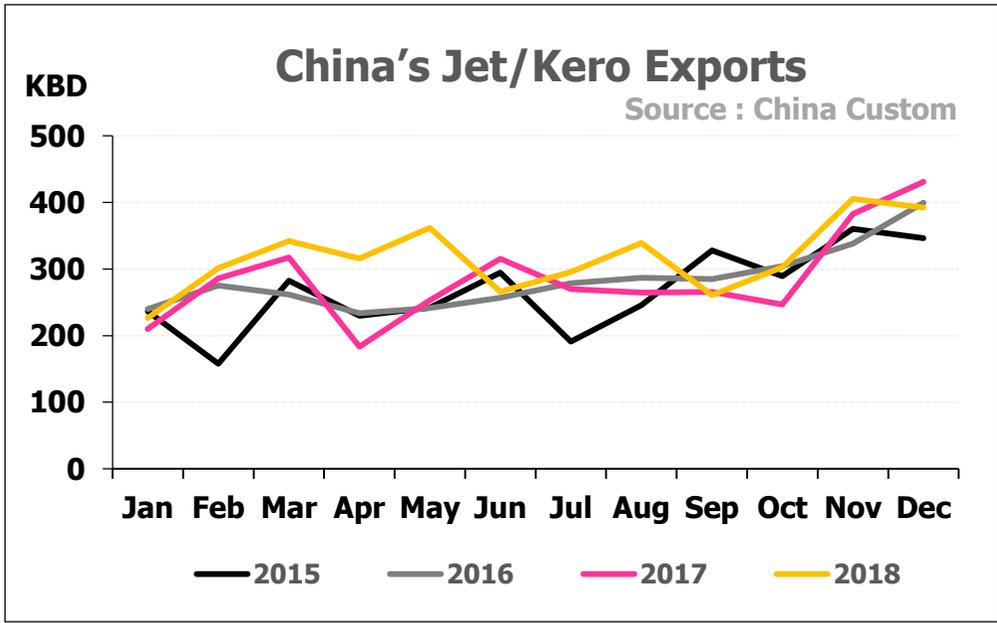
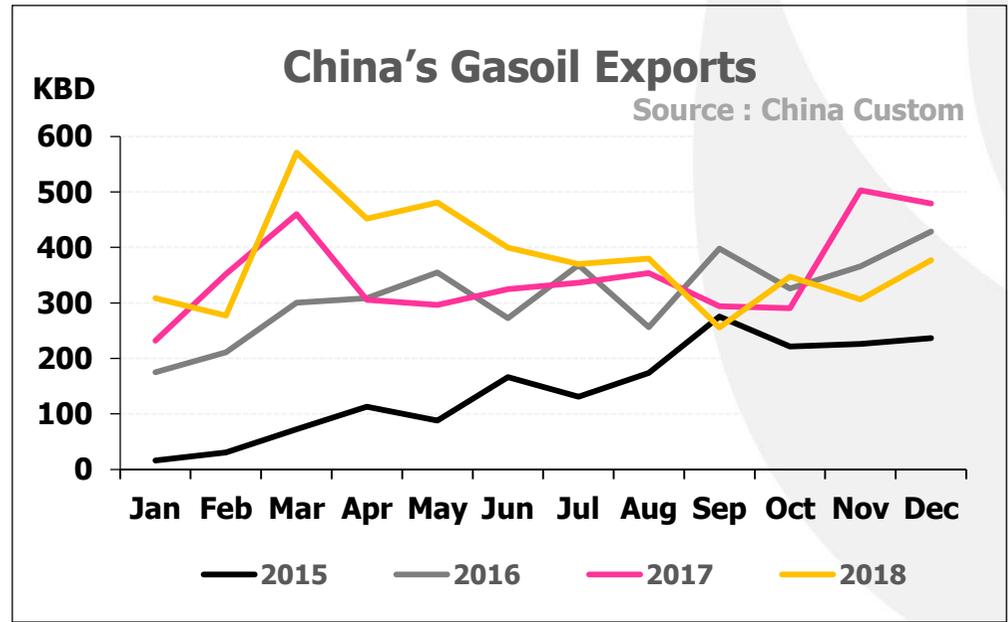
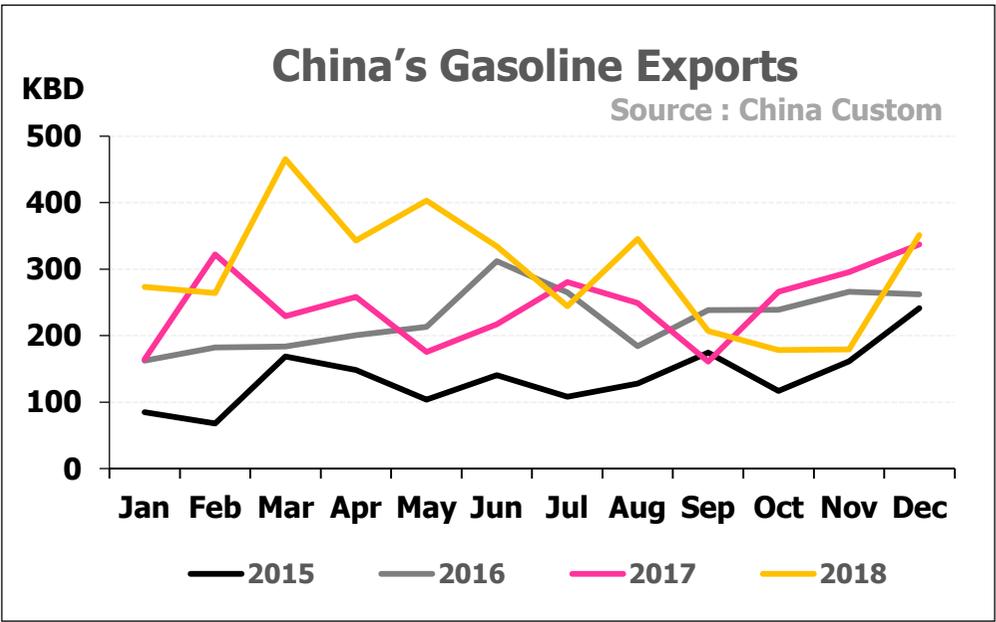
Global Middle Distillate Inventories



Global Fuel Oil Inventories

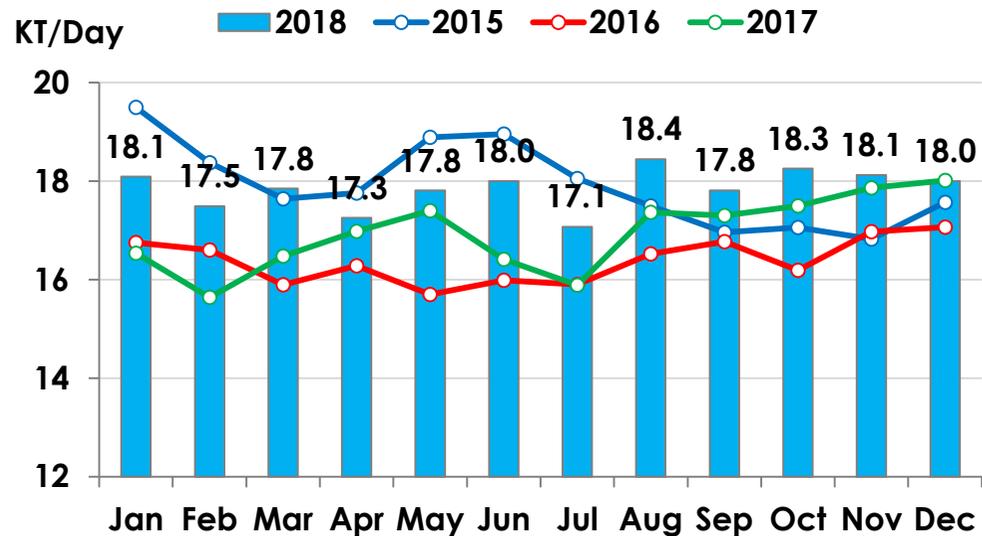


China's Refined Product Exports



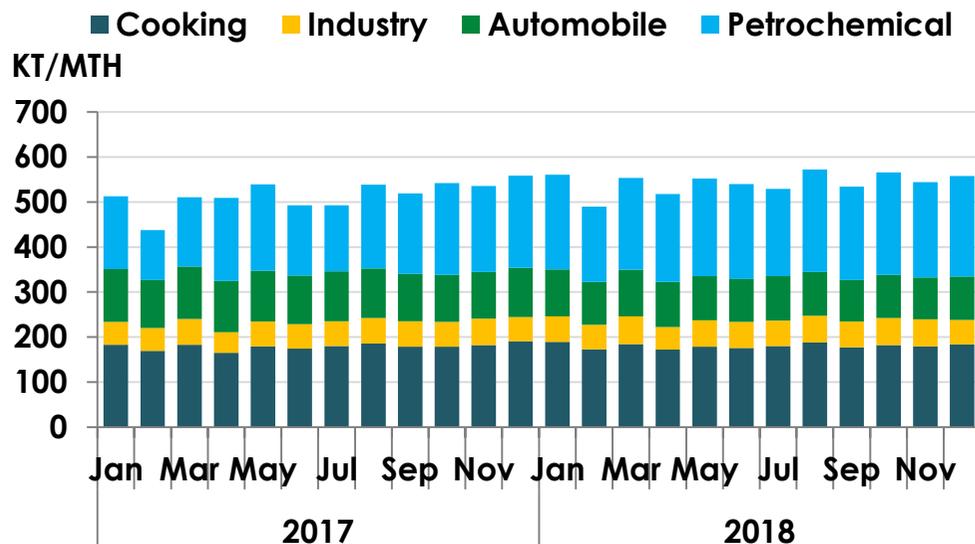
Domestic LPG Demand

Thailand LPG Demand



Remark : LPG demand includes Petrochemical consumption

LPG Demand by Sector



LPG Demand Highlight

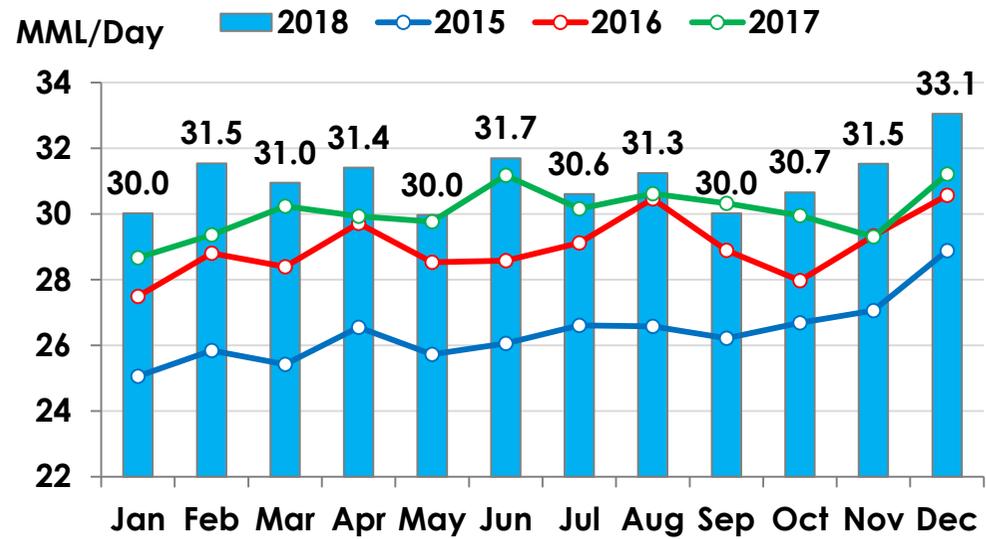
- In 2018, LPG demand jumped by 5.3% YoY on the back of 20.7% YoY higher demand from petrochemical sector, as a result of higher substitute feedstock price. Moreover, LPG demand was also supported by 0.6% YoY, and 5.7% YoY higher demand of cooking sector, and industrial sector, respectively. However, LPG demand in automobile sector persisted falling by 11.3% YoY, according to less availability for LPG station and less LPG compatible cars in the market.

Outlook for 2019

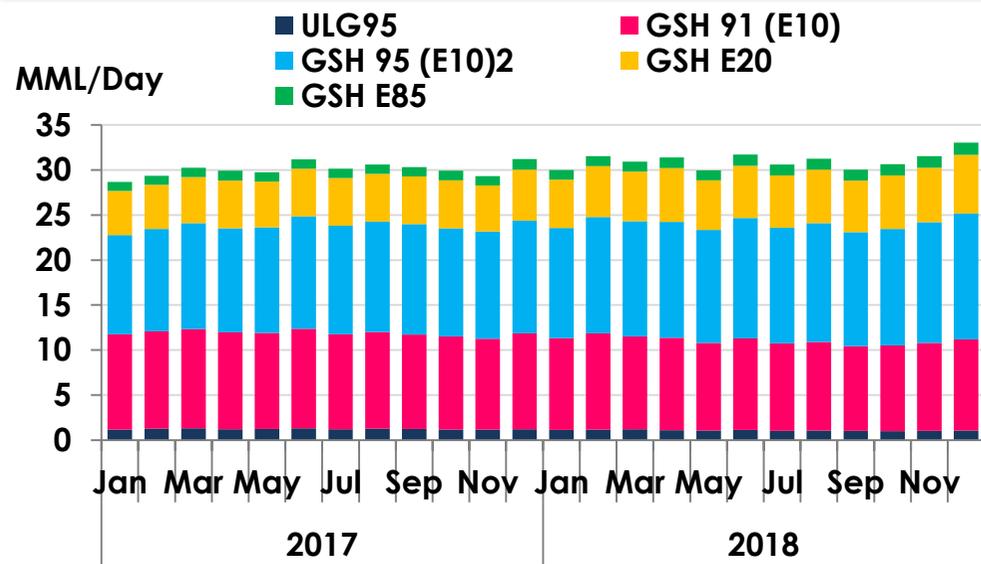
- LPG demand is expected to contract 1.1% YoY as consumption in transport sector is expected to decline at 10.0% YoY due to fuel switching. Despite gasoline price being relatively high, LPG station in Thailand is decreasing hence limiting access to fuelling station for LPG vehicle users. Moreover, the registered number of pure LPG vehicle in Thailand during 2010-2017 fell at a rate of 11.2% per year, which means LPG vehicle has become significantly less popular among automobile users over time.

Domestic Gasoline/Gasohol Demand

Thailand Gasoline/Gasohol Demand



Gasoline/Gasohol Demand by Grade



GASOLINE/Gasohol Demand Highlight

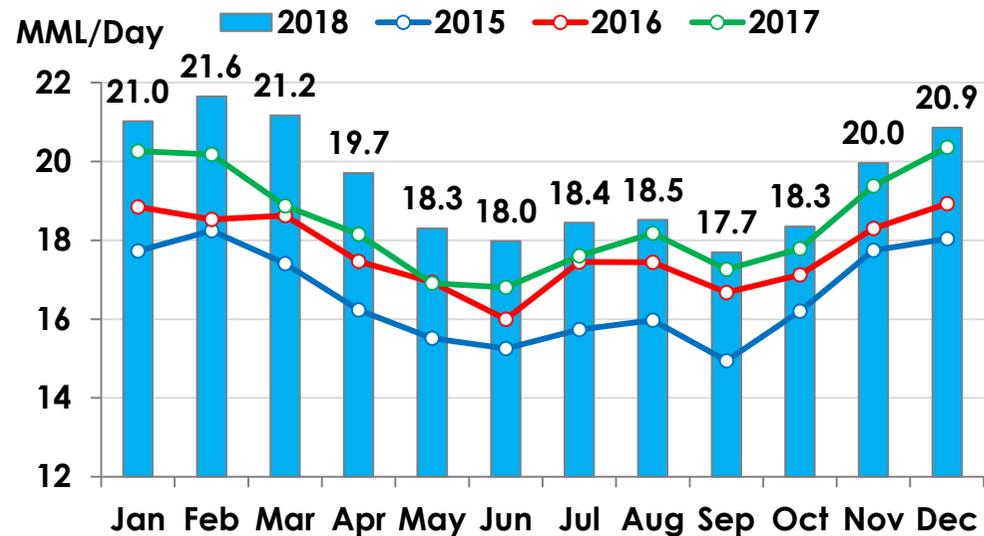
- In 2018, Mogas demand rose moderately by 3.3% YoY to an average 31.1 ML/day. Although, the retail price of Mogas is higher, Mogas demand was still supported by consumer preference for using personal cars rather than public transit. Moreover, Mogas demand is also supported by fuel switching from LPG.
- The level of domestic ethanol demand, in 2018, rose significantly by 6.4% YoY from 3.94 mml/day to 4.19 mml/day following the rising of Mogas demand. Additionally, this was also because of higher demand in GSH95, E20, and E85 which increased by 9.0% YoY, 11.5% YoY, and 13.9% YoY, respectively, backed up by increasing in the number of new E20 vehicle, higher E20 gas station, and attractive GSH95-E20 and E20-E85 price gap.

Outlook for 2019

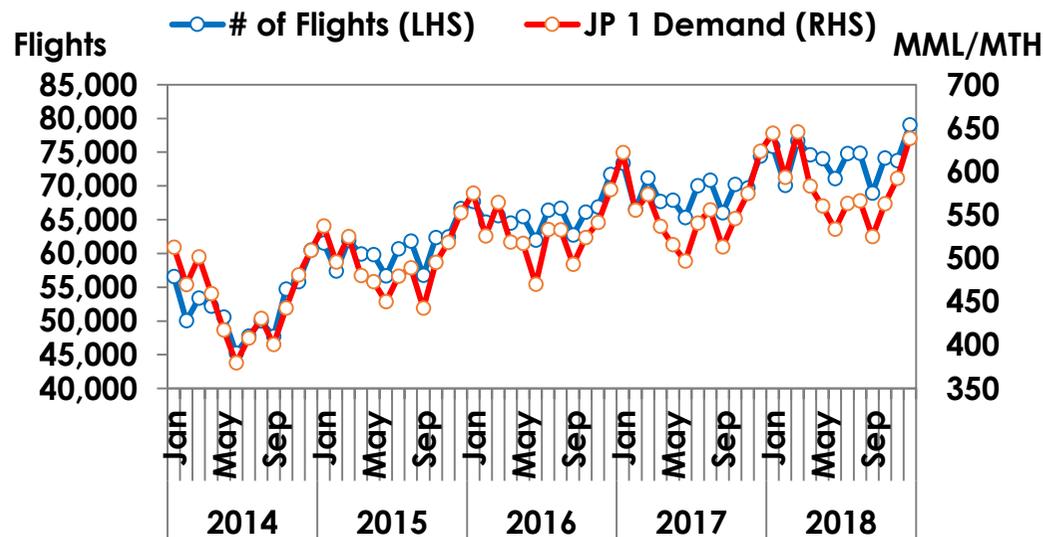
- Mogas consumption is predicted to grow by 2.9% YoY supported by expectation of growing of new passengers cars from return of private consumption. However, the demand growth is limited by higher oil price.

Domestic Jet Demand

Thailand JET Demand



JET-A1 demand and # of flights



JET Demand Highlight

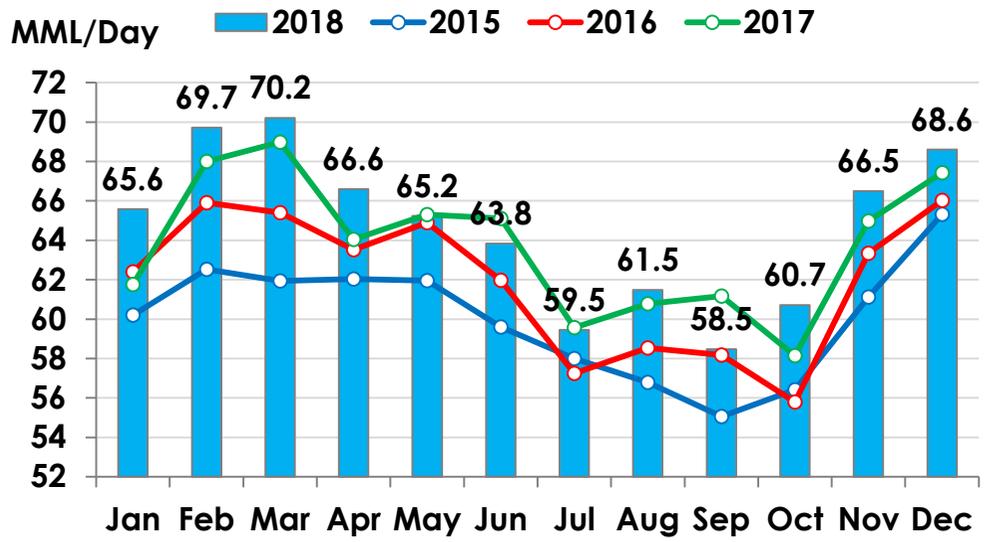
- In 2018, Jet consumption increased significantly by 5.4% YoY owing to strong tourism industry which leads to 6.5% YoY higher aircraft movement. The 7.1% YoY expansion of tourism sector was a result of increasing number of Chinese, Russian, and ASEAN tourists, pushing the number of flight movements higher both international and domestic aircrafts.

Outlook for 2019

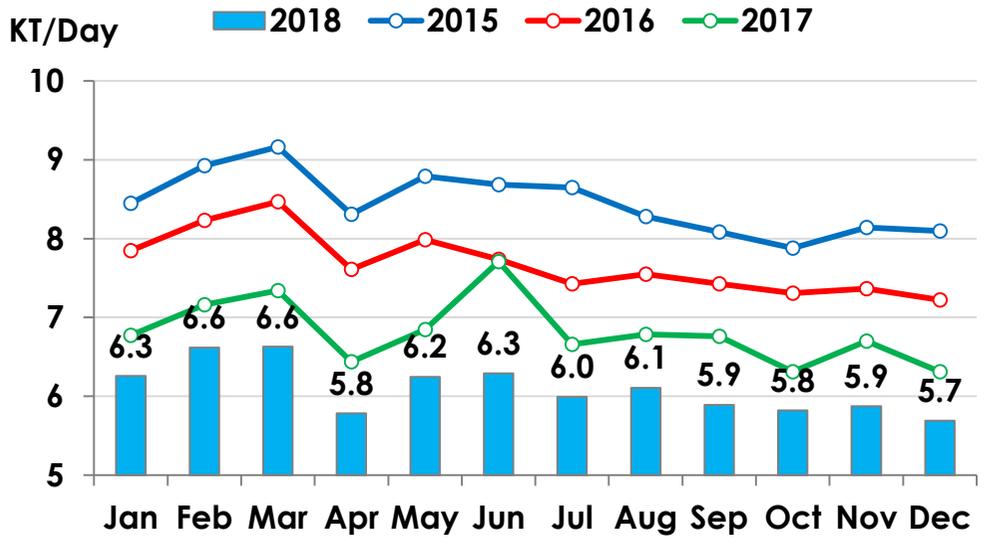
- Jet demand growth is expected to grow by 3.7% YoY as a result of rapid tourist number growth, especially from ASEAN. Furthermore, the demand is also supported by the return of European and Russian tourists. However, since the Phuket accident back in Jul'18, we have seen the undesirable decline in Chinese tourist figure which could potentially continue to be the major threat to Thailand tourism sector in the first quarter of 2019.

Domestic Gasoil and NGV Demand

Thailand Gasoil Demand



NGV Demand



Diesel Demand Highlight

- In 2018, Diesel demand rose moderately by 1.5% YoY as a result of the growth of Thai economic, according to higher Manufacturing Production Index (MPI) by 2.9% YoY. Moreover, the demand is also supported by 6.7% YoY higher Thai Agricultural Production Index, which increased agricultural product transportation activity.

Outlook for 2019

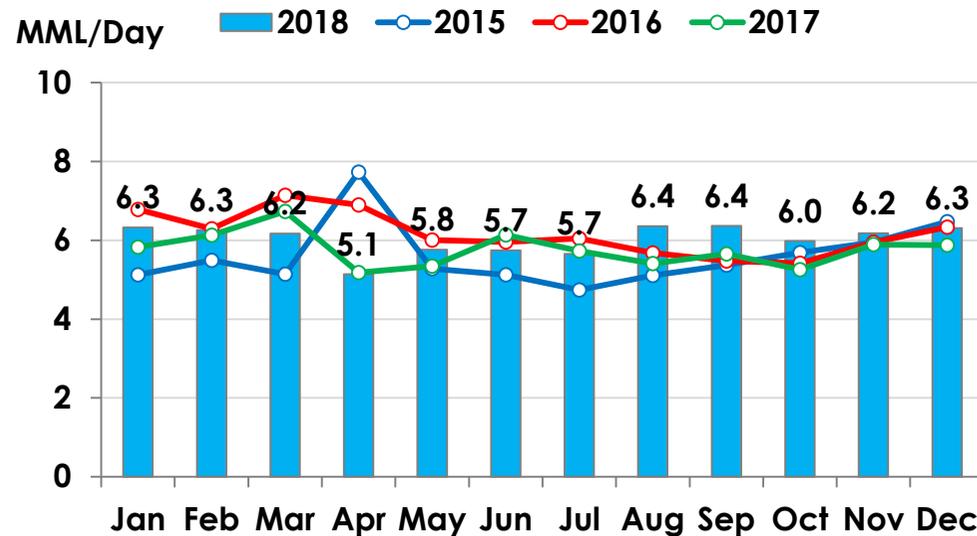
- Diesel demand is expected to expand by 1.7% YoY supported by economic activity. Moreover, NOAA (National Oceanic and Atmospheric Administration) predicts less rainfalls as El Nino is more likely to occur than La Nina.

NGV Demand Highlight

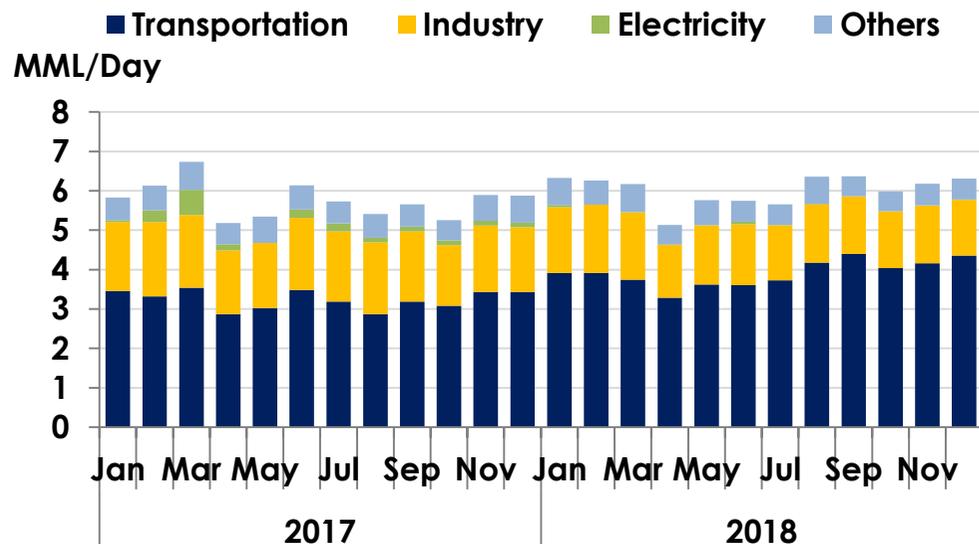
- In 2018, NGV demand fell significantly by 10.5% YoY. The major pressuring factor was the unforgettable hike in retail price as it has inclined for more than 20.0% from the beginning of 2018. Furthermore, gasoline price dropped significantly in the latter year, making gasoline more popular among consumers.

Domestic Fuel Oil Demand

Thailand Fuel Oil Demand



Thailand Fuel Oil Demand by Sector



Fuel Oil Demand Highlight

- In 2018, Fuel Oil consumption rose by 4.5% YoY, as a result of 20.8% YoY higher demand from transportation sector which takes approximately 66.1% of total Fuel oil demand. Transportation demand has accelerated since Aug-18 due to Singapore's Fuel oil off-spec issue which shifted demand to Thailand. However, the Fuel oil demand was pressured by 12.9% YoY lower demand from industrial sector, as a result of higher price of fuel oil, comparing to other fuel. Furthermore, the Fuel oil demand was also pressured by 92.5% YoY lower demand from electricity generation sector.

Outlook for 2019

- Fuel oil demand is expected to increase by 0.6% YoY, supported by transportation demand from economic activity. However, demand growth will continue to be limited by weak consumption for industrial and electricity purposes.

Thank You

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