MEMBER OF
Dow Jones
Sustainability Indices
In Collaboration with RobecoSAM

SAM Sustainability Award
Silver Class 2019

Thaioil

# Thai Oil Public Company Limited

## Presentation to Investors

### December 2019

# Disclaimer

The information contained in this presentation is intended solely for your personal reference. Please do not circulate this material. If you are not an intended recipient, you must not read, disclose, copy, retain, distribute or take any action in reliance upon it.

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.

# Presentation Agenda

TOP GROUP BUSINESS OVERVIEW

KEY FINANCIAL HIGHLIGHTS

STRATEGIC INVESTMENT PLANS

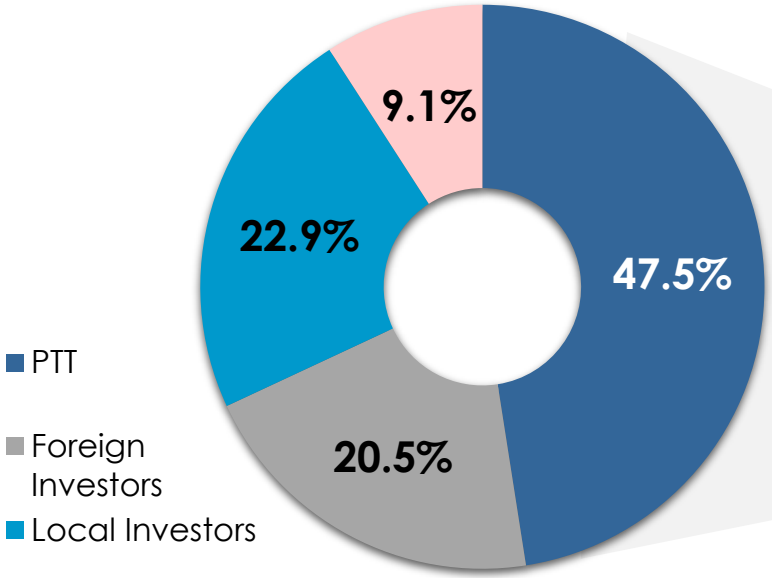
MARKET OUTLOOK

APPENDIX

# TOP GROUP BUSINESS OVERVIEW

# Strategic Relationship and Operational Integration with PTT

## Thai Oil's strong shareholder base




As of 13 Sep 2019

ptt

47.5%

Thaioil

- 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

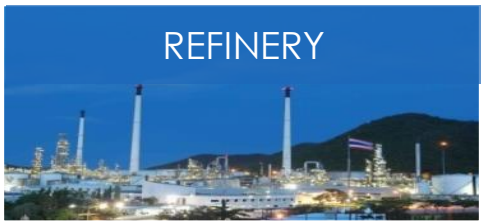
# TOP Group Synergy & Strategic Role in PTT Group Value Chain

| Upstream | Intermediate | Downstream |
|---|---|---|

Diversifying to a broad range of downstream products to enjoy higher profit margins and reduce earnings volatility

CRUDE IMPORT

NATURAL GAS



- Solvent
- Pentane
- Hexane
- Toluene
- Mixed-Xylene

- Paraxylene
- Mixed-Xylene
- Toluene
- Benzene
- LAB

PLATFORMATE

LONG RESIDUE

REFINED PETROLEUM

- LPG
- Gasoline
- Jet/Kero
- Diesel
- Fuel Oil

- Lube Base Oil
- Slack Wax
- Extract
- TDAE
- Bitumen

TP & TOP SPP provides electricity and steam to Thai Oil group and sells its remaining power to the national grid

The majority of refined petroleum products are sold domestically to PTT

PTT is our principal domestic customer for our lube base products

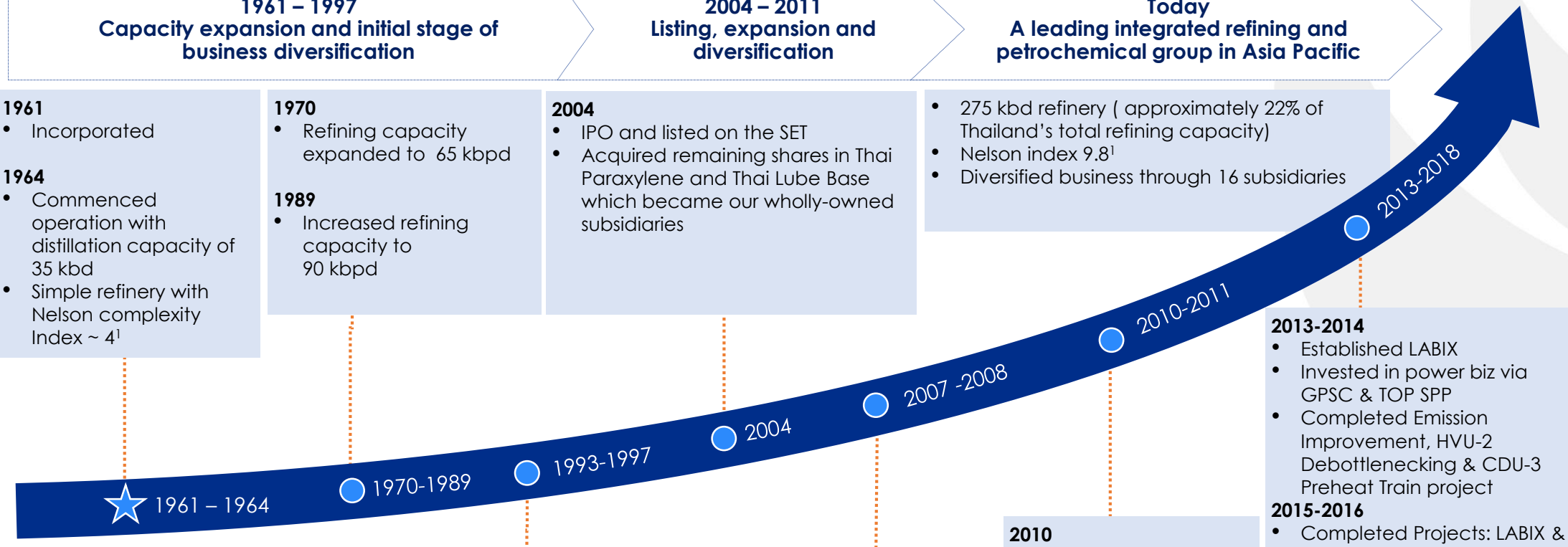
Thai Oil's Businesses

# Key Milestones: 58 Years, A Long Track Record of Success

**1961 – 1997**
**Capacity expansion and initial stage of business diversification**

**2004 – 2011**
**Listing, expansion and diversification**

**Today**
**A leading integrated refining and petrochemical group in Asia Pacific**




**1961**
- Incorporated

**1964**
- Commenced operation with distillation capacity of 35 kbd
- Simple refinery with Nelson complexity Index ~ 4[1]

**1970**
- Refining capacity expanded to 65 kbpd

**1989**
- Increased refining capacity to 90 kbpd

**2004**
- IPO and listed on the SET
- Acquired remaining shares in Thai Paraxylene and Thai Lube Base which became our wholly-owned subsidiaries

- 275 kbd refinery ( approximately 22% of Thailand's total refining capacity)
- Nelson index 9.8[1]
- Diversified business through 16 subsidiaries

**1993**
- We expanded our refining capacity to 190 kbd

**1994 – 1997**
- Increased total refining capacity to 220 kbd
- Initial investment in Thai Paraxylene ("TPX") and Thai Lube Base ("TLB")
- IPT became the first IPP to enter into a PPA with EGAT[2] with 700 MW capacity ; separately, Thaioil Power ("TP") constructed the power generation plant under the SPP with 118 MW capacity

**2007**
- Increased refining capacity to 275 kbd

**2008**
- The first refinery in Thailand with diesel production to comply with the sulfur content requirements of Euro IV
- Capacity expansion of Thai Paraxylene with total aromatics capacity of 900,000 tons p.a.
- Invested in Solvents business in Thailand and Vietnam

**2010**
- Established Thaioil Ethanol
- Production expansion of TDAE by 50,000 tons per annum

**2011**
- Manufactured diesel and ULG in compliance with the sulfur and BZ aromatics content requirements of the Euro IV
- Acquired 1st VLCC

**2013-2014**
- Established LABIX
- Invested in power biz via GPSC & TOP SPP
- Completed Emission Improvement, HVU-2 Debottlenecking & CDU-3 Preheat Train project

**2015-2016**
- Completed Projects: LABIX & TOP SPP

**2017-2018**
- 2017 Revenue 337,388 MB
- 2017 Net profit 24,856 MB
- Completed lorry expansion project (10 to 15 mml/day)
- Established Thaioil Treasury center (TTC)
- CFP Investment ($4.8 bn)

**2019**
- ERU Carve-out to reduce CFP project cost(CFP cost $4.1 bn)
- Set up TOP Venture Co.,ltd under TTC

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

## OIL REFINERY

Thaioil (TOP)

Capacity :
275,000 barrels/day

## PETROCHEMICAL & LUBE BASE

100.0%

Thai Paraxylene (TPX)

**Aromatics Capacity:**
Paraxylene
527,000 tons/annum
Mixed Xylene
52,000 tons/annum
Benzene
259,000 tons/annum
**Total** 838,000 tons/annum

100.0%

Thai Lube Base (TLB)

**Lube Base Oil**
Capacity :
Base Oil
267,015 tons/annum
Bitumen
350,000 tons/annum
TDAE
67,520 tons/annum

75.0% — Mitsui 25.0%

LABIX Company Limited (LABIX)

LAB producer and distributor
Capacity: 120 KTA COD: 2016

100.0%

Thaioil Solvent Through TOP Solvent (TS)

80.5%

Production

Sak Chaisidhi (SAKC)

Solvent manufacturer
Capacity : 141,000 tons/annum

Sales & Distribution

100.0% Top Solvent Thailand

100.0% Top Solvent Vietnam

67.0% PT. Tirta Surya Raya (TSR)

## POWER GENERATION

74.0% — PTT 26.0%

Thaioil Power (TP)

Sells Electricity/Steam to Group

**Small Power Producer Program**
3-on-1 Combined Cycle
Electricity 118 MW
Steam 216 tons/hour

100.0%

TOP SPP

2 Small Power Producers
Total capacity: 239 MW
Steam capacity 497 T/H
COD 2016

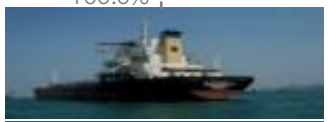
Thaioil & TP 29.7%
PTT 22.6%
PTTGC 22.7%

Global Power Synergy Public Company Limited

Principal power plant of PTT
Total Equity Capacity
5,026 MW of electricity
2,876 tons/hour of steam
7,372 Cu.m./hour of Industrial water
15,400 RT of Chilled water

## TRANSPORTATION & OTHER

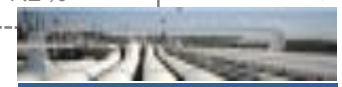
100.0%



Thaioil Marine (TM)

- 5 Oil & Chemical Tankers Capacity : 22,800 DWT
- Crude Tankers: 3VLCCs Capacity: 881,050 DWT
- 14 crew & utility boats (120 DWT each)
- 2 Large vessels for crude, feedstock & product storage and transportation services capacity: 200,000 DWT
- Ship management services

9.2 % — PTTOR 40.4% — Others 50.4%



Thappline (THAP)

Multi-product Pipeline
Capacity:26,000 m.lts/y

PTT Group 85.0% — 15.0%

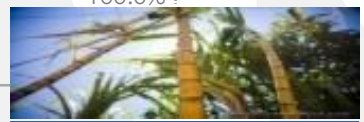
Sarn Palung Social Enterprise

Supports execution of social enterprise of PTT group

PTT Group 80.0% — 20.0%

PTT Digital Solutions (PTT Digital)

100.0%



Thaioil Ethanol (TET)

50.0%

Sapthip (SAP)

Cassava Based Ethanol
Capacity : 200,000 lts/day

21.3% — Others 57.4% — BCP 21.3%

Ubon Bio Ethanol (UBE)

Cassava/Molasses Based Plant
Capacity : 400,000 lts/day

100.0%

Thaioil Energy Services (TES)

Proceeds the business on various professional of management services

100.0%

Thaioil Treasury Center (TTC)

Enhance financial efficiency, Investment in CVC/Start-up

PTT 40.0%
PTTGC 20.0%
IRPC 20.0%

20.0%

PTT Energy Solutions (PTTES)

Provides engineering technique consulting services

---

Core Business | Value Enhancement | Earning Stability | Marketing / IT Support

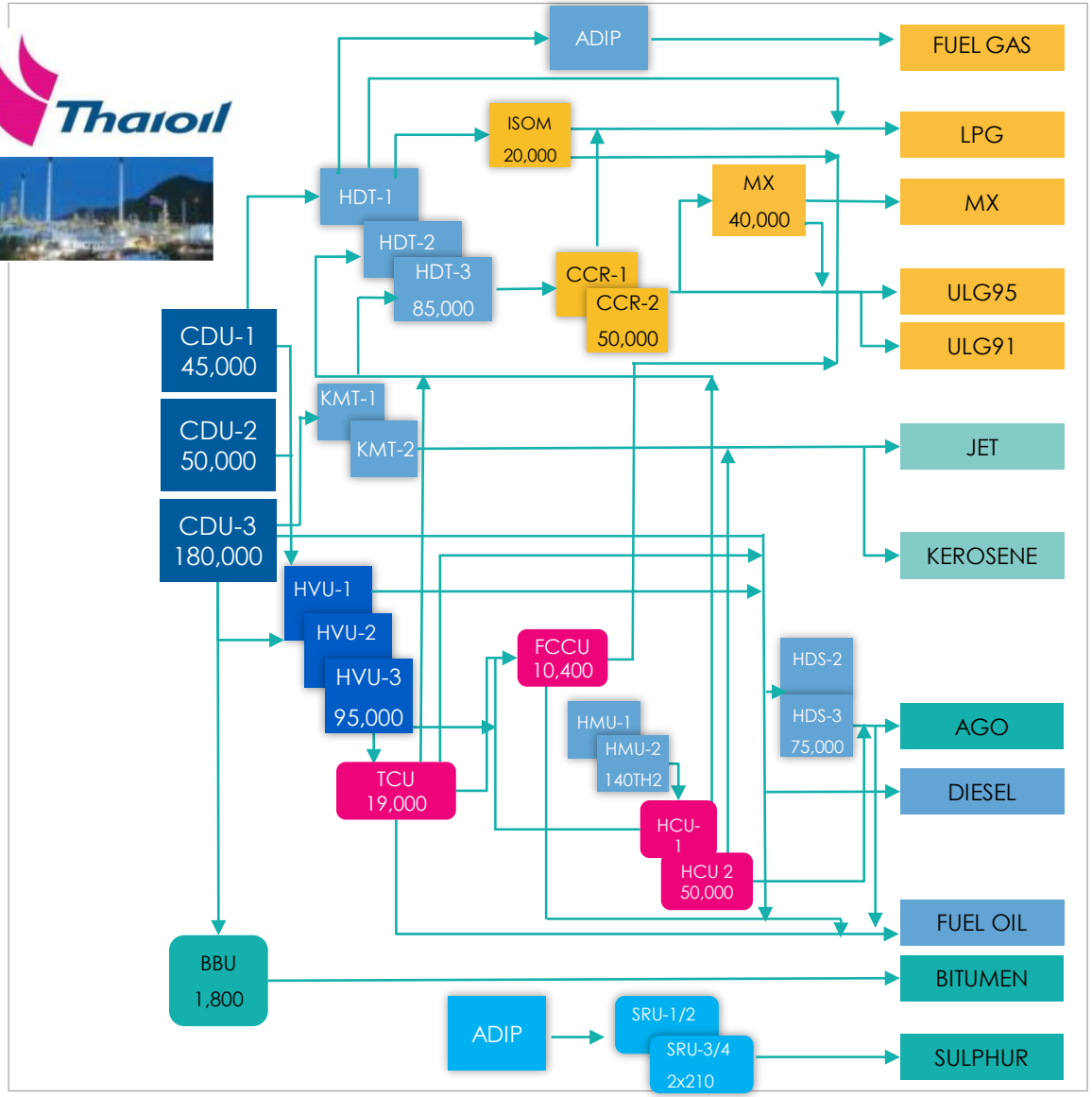
## Net Profit Contribution

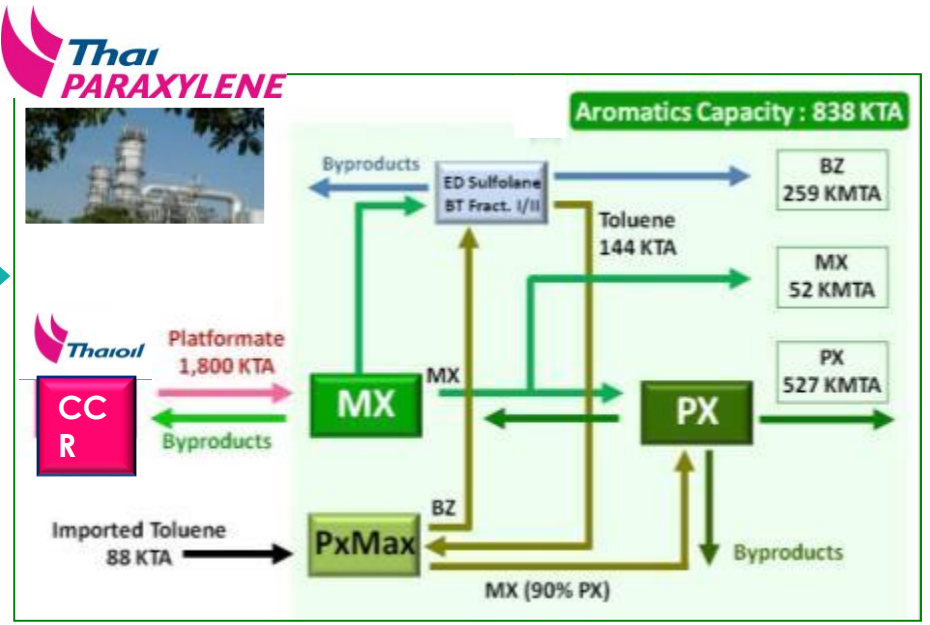
(Avg. from 2006 – Q3/19)

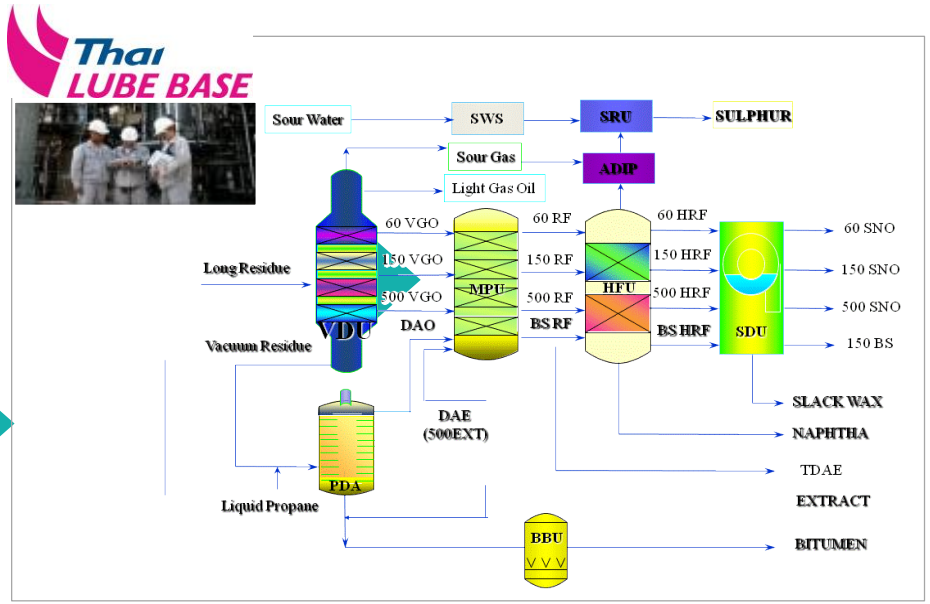
- Refinery
- Aromatics
- Lube Base
- Others

# Process Linkage: Beauty of Integration

## PROCESS FLOWCHART

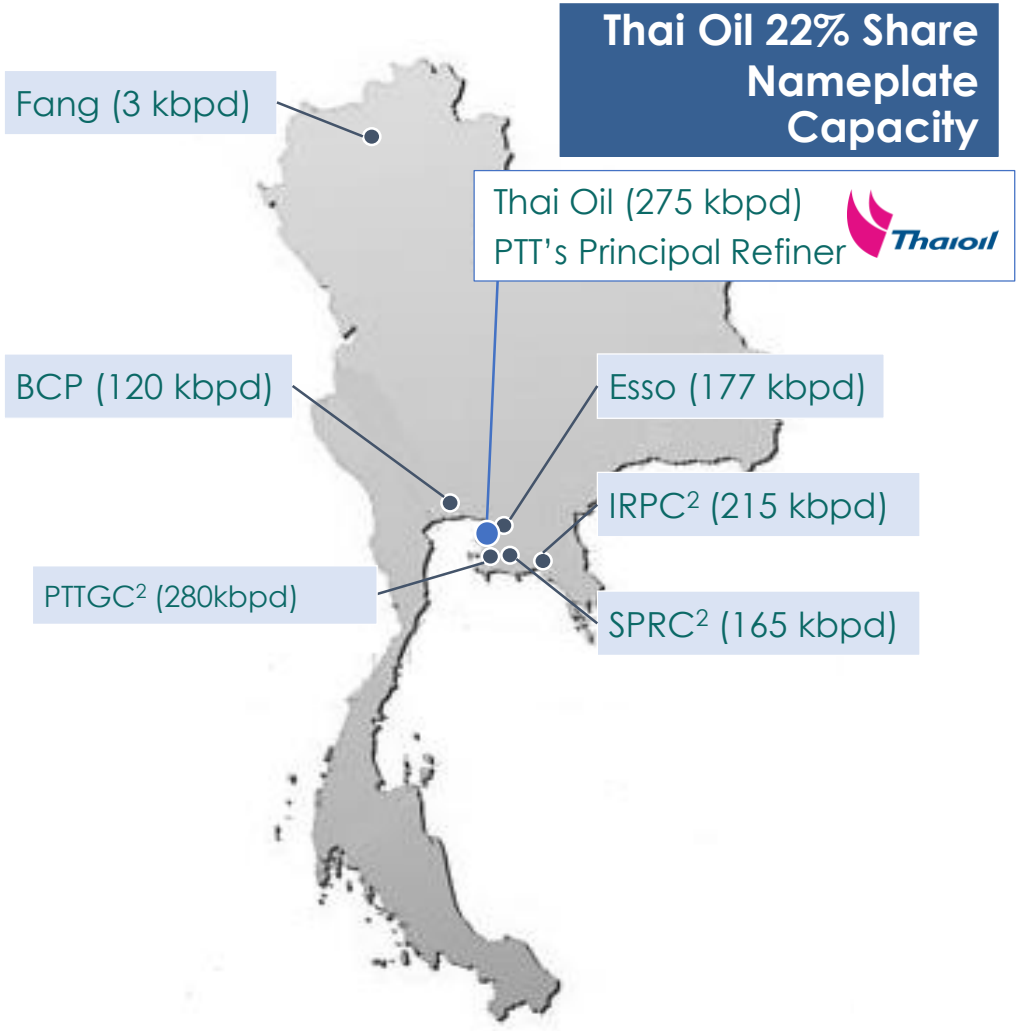


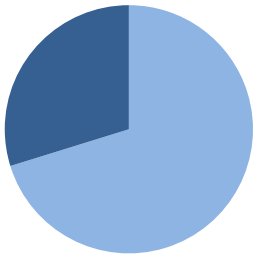
# One of Region's Leading Refineries

## Total Thailand crude refining capacity 1,235 kbd



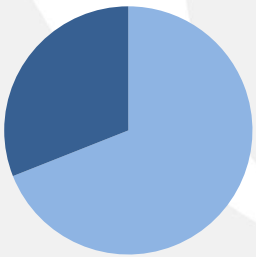

## Market shares for refined petroleum product[3]

Thaioil 30% market shares



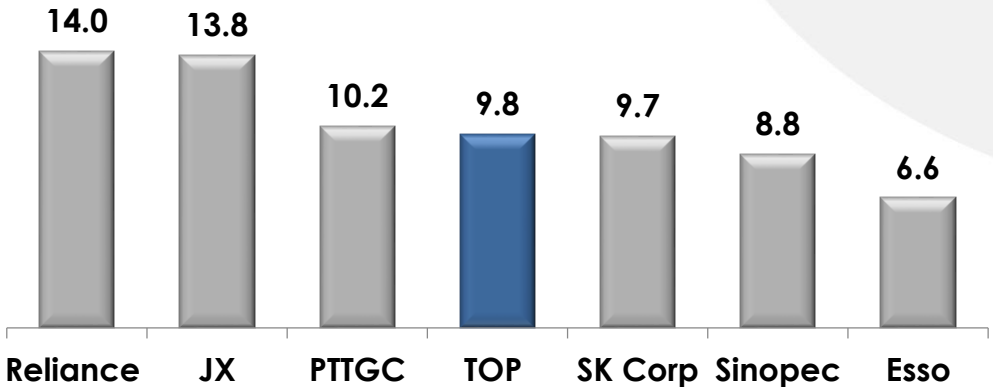
Q3/19

Thaioil 31% market shares



Q2/19

## Nelson Index - Regional Comparison[4]




Remarks:

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

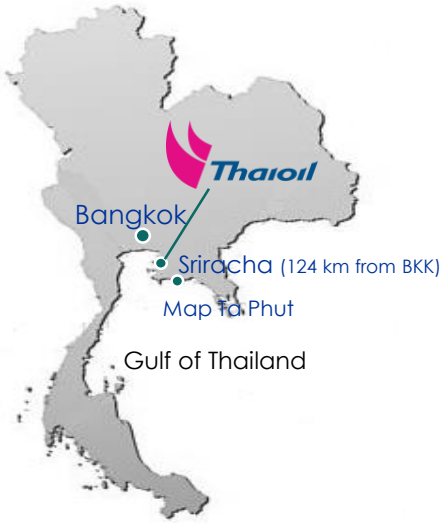
Note: 1. Source: Energy Policy and Planning Office (EPPO), Ministry of Energy Thailand as of March 2018
2. PTT holds a 48.1% interest in IRPC, a 48.8% interest in PTTGC as at 31 Mar 18
3. Calculate by total domestic sales of refined petroleum products (excluding by product & LPG) of Thai Oil divided 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

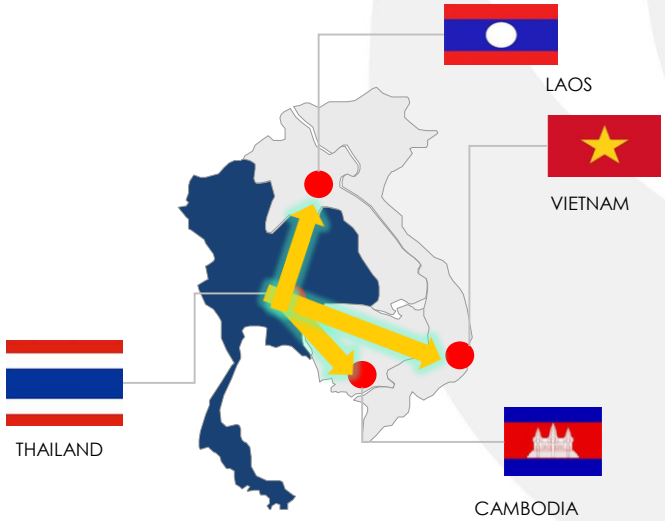
**Our strategic location provide us with**

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

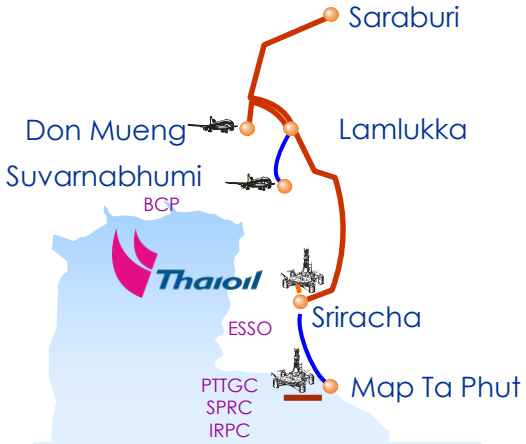
## Close proximity to the key domestic markets




## Access to Indochina markets through deep water ports and trucks




## Direct connection with product pipeline system



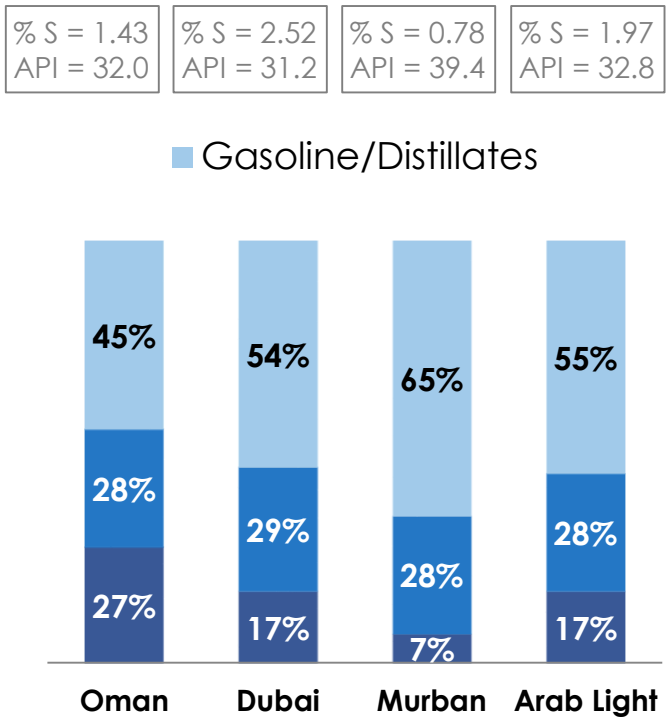

Product pipeline system

- ✓ 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

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

**Crude Assays based on TOP configuration***



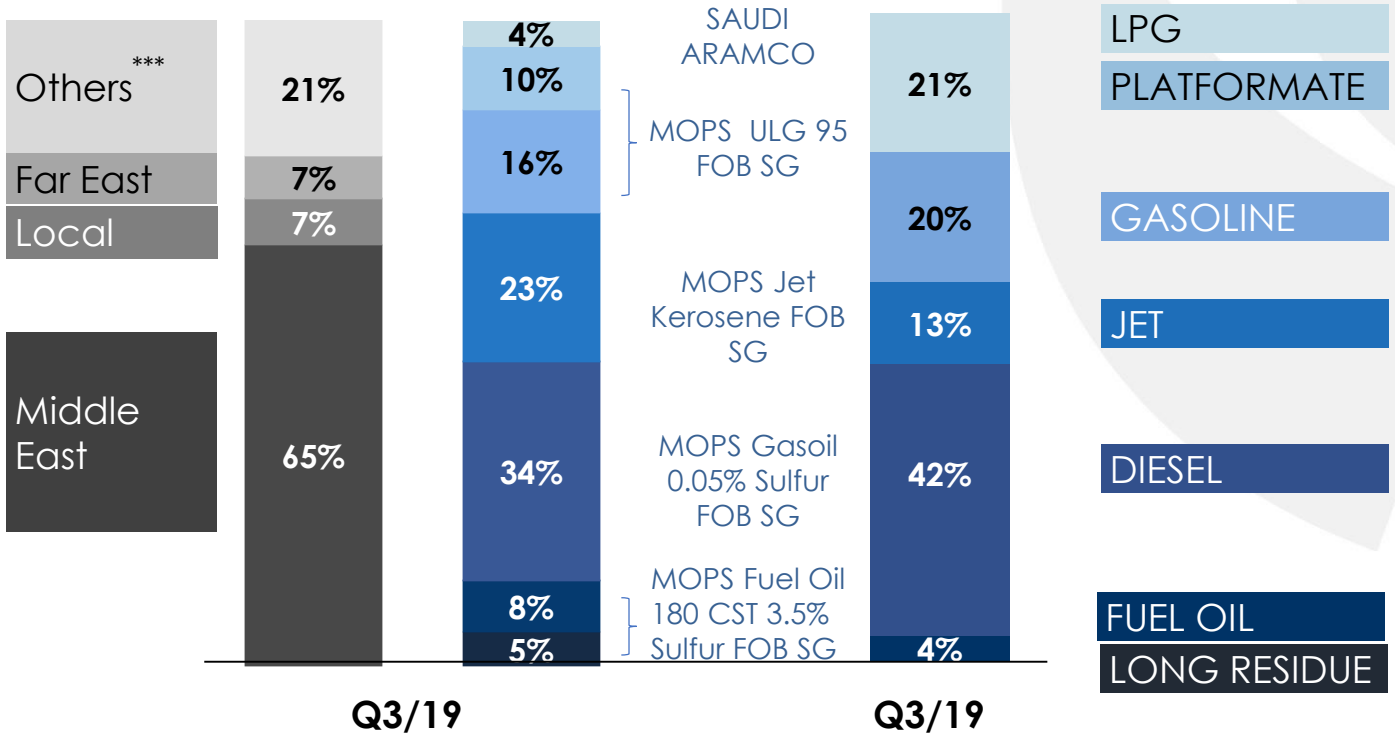

Thaioil

Sources of Crude

Product output

Reference Price

Domestic demand for petroleum products**




- 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

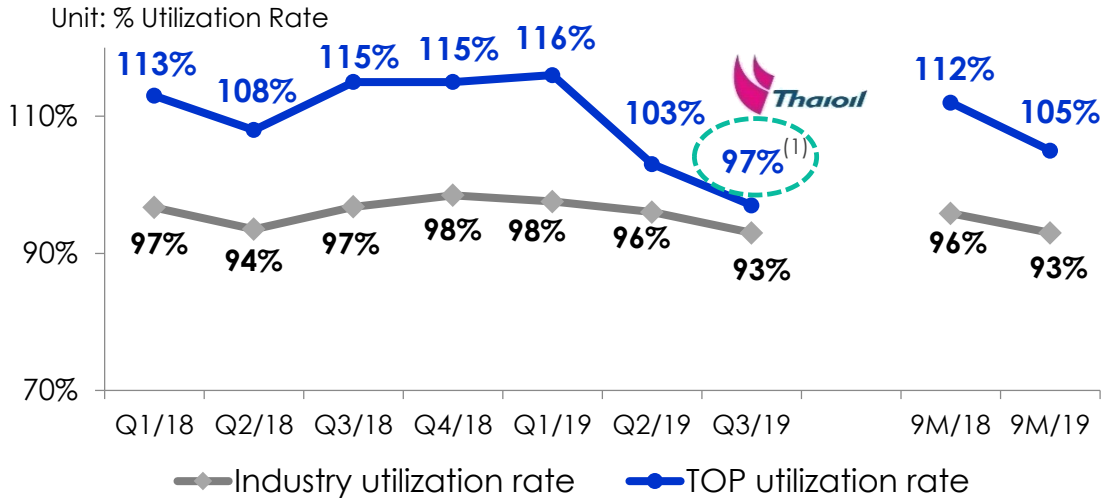
*Crude yield as per assay in Spiral as of Feb 2016

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

*** Including Nigeria, Russia and others

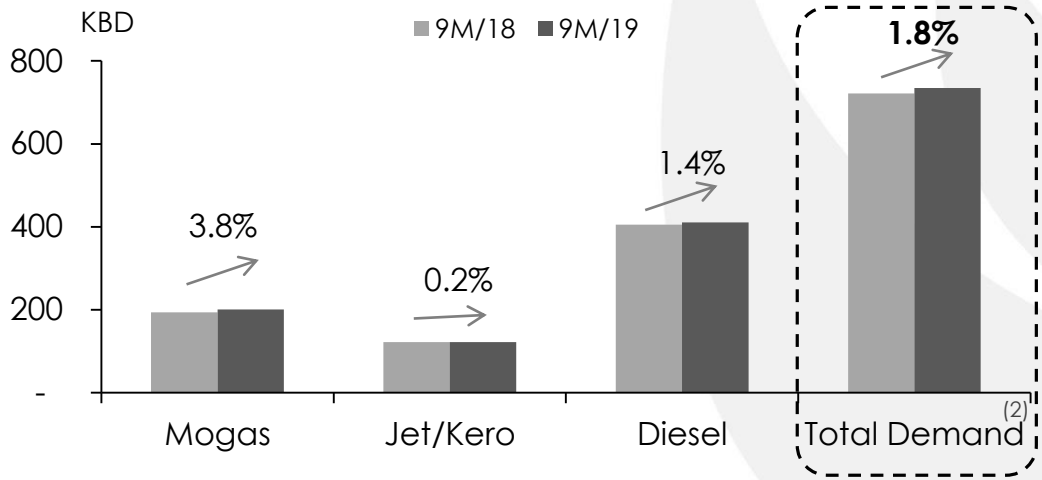
# Refinery: Lower U-Rate, while Robust Domestic & CLMV Sales

## TOP/ Domestic Refinery Utilization Rate



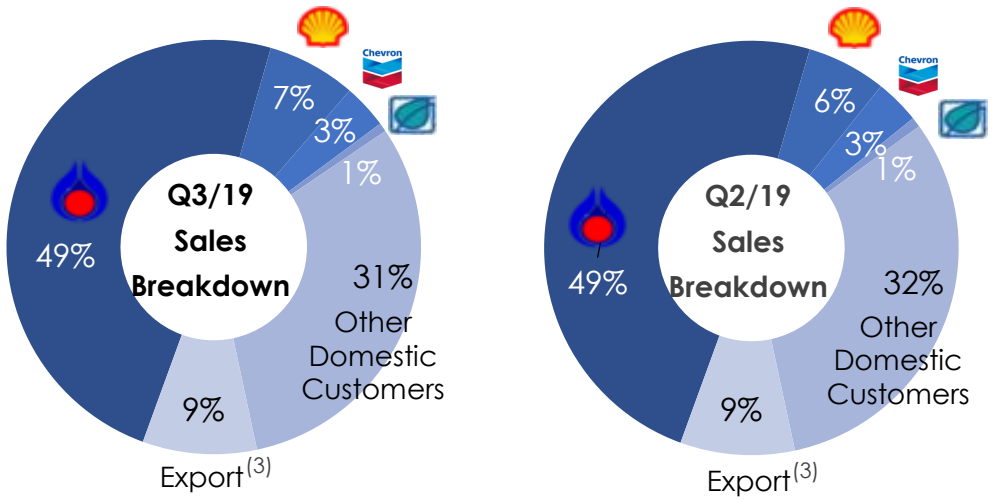

(1) TOP's CDU-3 MTA (Mid June – July 2019)

## Domestic Oil Demand




(2) excluding Fuel Oil & LPG demand

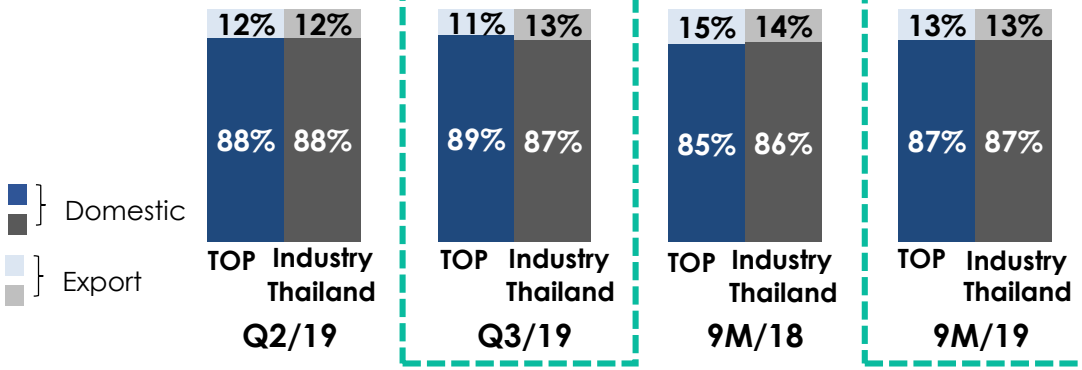
## Sales breakdown by customers




(3) excluding export sale through PTT
(4) Source: Department of Energy Business, Ministry of Energy

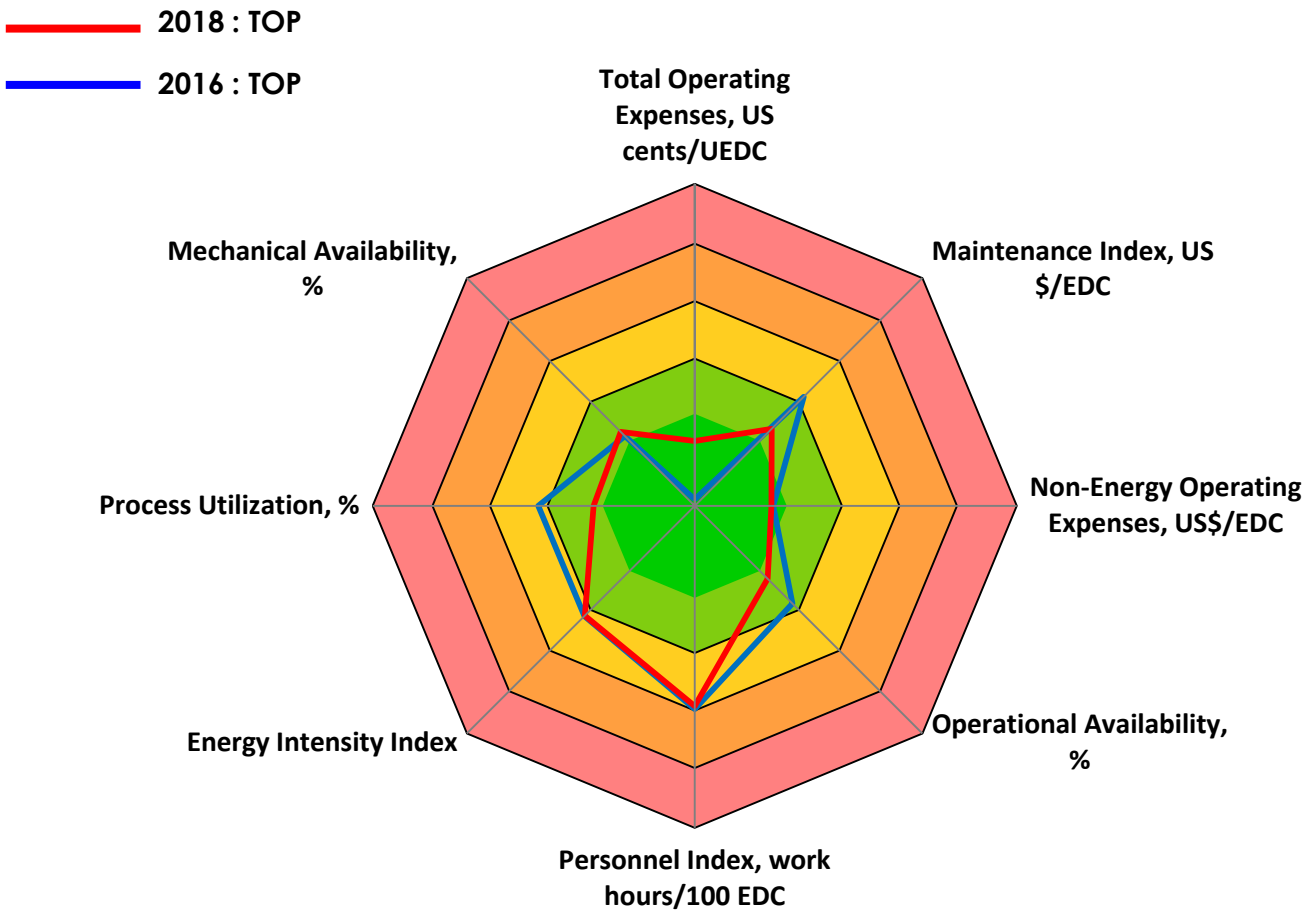
## TOP's Domestic Sale vs Industry (4)

| Export | Q2/19 | | Q3/19 | | 9M/18 | | 9M/19 | |
|---|---|---|---|---|---|---|---|---|
| | TOP | Ind. | TOP | Ind. | TOP | Ind. | TOP | Ind. |
| CLMV | 10% | 6% | **8%** | **6%** | 9% | 6% | **11%** | **6%** |
| Others | 2% | 6% | **3%** | **7%** | 6% | 10% | **2%** | **7%** |



# Competitive Performance Benchmarking (Yr 2016 vs 2018)

## Solomon for GOC 3[(1)] Category




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

# TOP Group Key Highlights

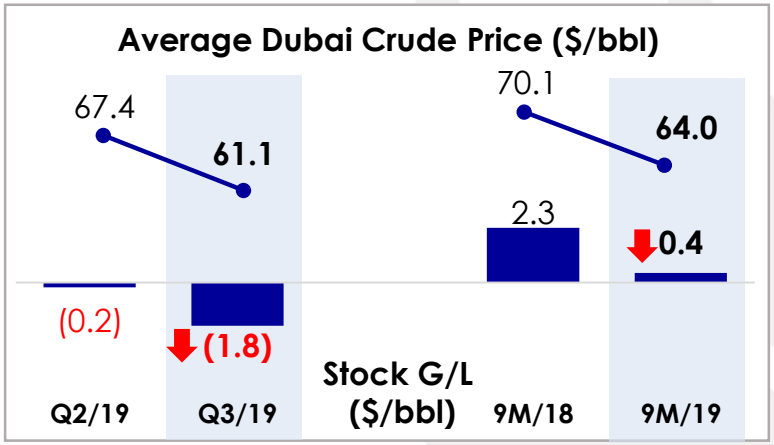
1. Thailand's largest and one of the region's most advanced and competitive refineries
2. Diversified earnings through integration with, and significant contribution from, our subsidiaries
3. Strategic relationship and operational integration with PTT as the Group's principal refiner
4. Strategic location with competitive advantages in access to key markets
5. Industry with high barriers to entry and strong market positioning
6. Technological superiority, logistical advantages & cost leadership
7. Highly experienced management team
8. Strong financial profile

# KEY FINANCIAL HIGHLIGHTS

# Key Market Highlights

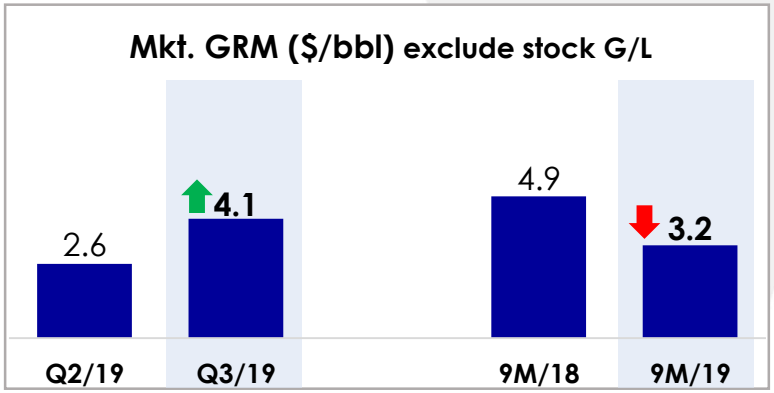
## Crude Oil *(Dubai soften to $61/bbl from $67)*

- **M.E. crude supply disruption** due to drone attack in Saudi Arabia. (Disrupted 5.7 MBD or 5% of global crude supply)
- **Increased crude supply from US** (140 kbd QoQ)
- **IEA lower global oil demand growth 2019** to 1.0 MBD in Oct'19, compared to 1.5 MBD in Jan'19.
- **Stock loss of $1.8 $/bbl**, compared to 0.2 in Q2/19, mainly as a result of MTA.




## Refinery *(Mkt GRM improved to $4.1/bbl from $2.6)*

- **Reduced run of Saudi's refineries** ~1 MBD as a result of crude supply disruption/drone attack.
- **Improved MOGAS spread from firm US driving seasons demand** and tight supply from unplanned shutdowns, e.g., PES Refinery closure (335 KBD) in the US.
- **Better Middle Distillate spread from tight supply** as a result of Saudi's incident and below 5-years average global stock level. While FO spread was strong due to rising ME power demand in the summer and refineries' preparation for IMO.

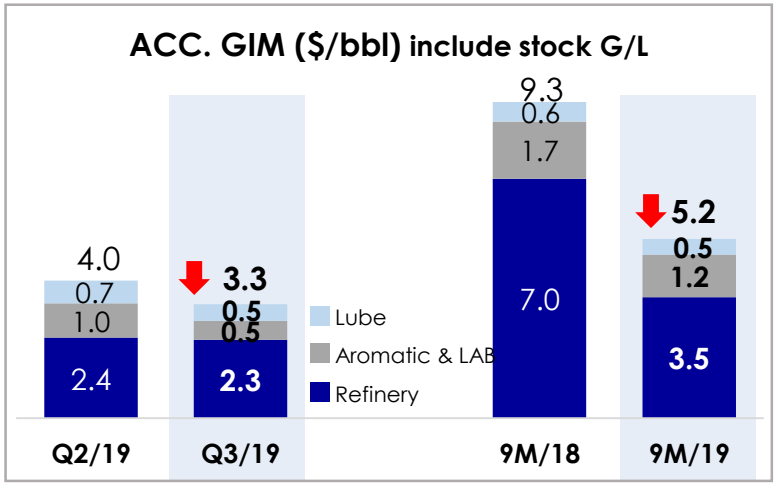



## Aromatics & LAB *(Contributions soften to $0.5/bbl from $1.0)*

- **New Aromatics plants** continue to pressure PX/BZ margins (Chinese plant -phase I/II combined of 4.5 MTA or 8% of global supply).
- **Stable LAB contribution** as a result of seasonal maintenance of Chinese plants & disruption in India.

## Lube & Bitumen *(Slightly soften lube contribution to $0.5/bbl from $0.7)*

- **New Base Oil Group II plants pressured Lube margins.**(Singapore 0.1 MTA & China 0.1 MTA or ~ 1% of global supply)
- **Improving Bitumen spread due to limited regional supply** as plants were under seasonal maintenance.



# Key Business Highlight

## Operational

- Completion of MTA in Jul'19 - CDU-3 & Aromatics Complex of 30 & 45 days respectively
- One-time MTA expenditure in Q3/19 of 444 MB
- Temporary drop in U-rate due to MTA

| U-Rate % | Q2/19 | Q3/19 |
|---|---|---|
| Refinery* | 103 % | **97 %** |
| Aromatics* | 64 % | **54 %** |
| Base Oil | 85 % | **81 %** |

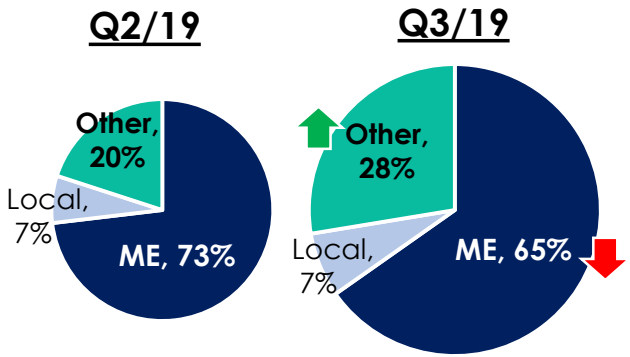
* Planned MTA CDU-3, TPX Complex (Jun-Jul'19)

## Commercial

- Captured higher domestic & Indochina sales

| | Q2/19 | Q3/19 |
|---|---|---|
| Local | 88 % | **89%** |
| Indochina | 10 % | **8%** |
| Other exports | 2 % | **3%** |

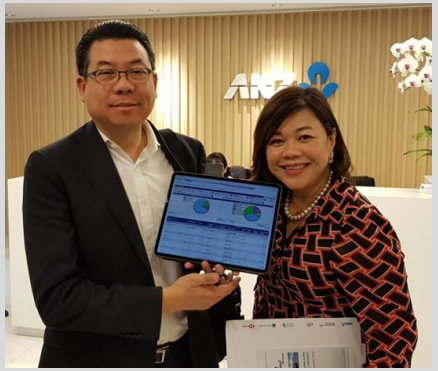
- Diversified crude sources to capitalize on market opportunities




- Limited impact from Q3's abnormal but extraordinarily high freight costs as 3/4 of TOP's freight cost is hedged through Thaioil Marine's owned VLCC's

## Financial

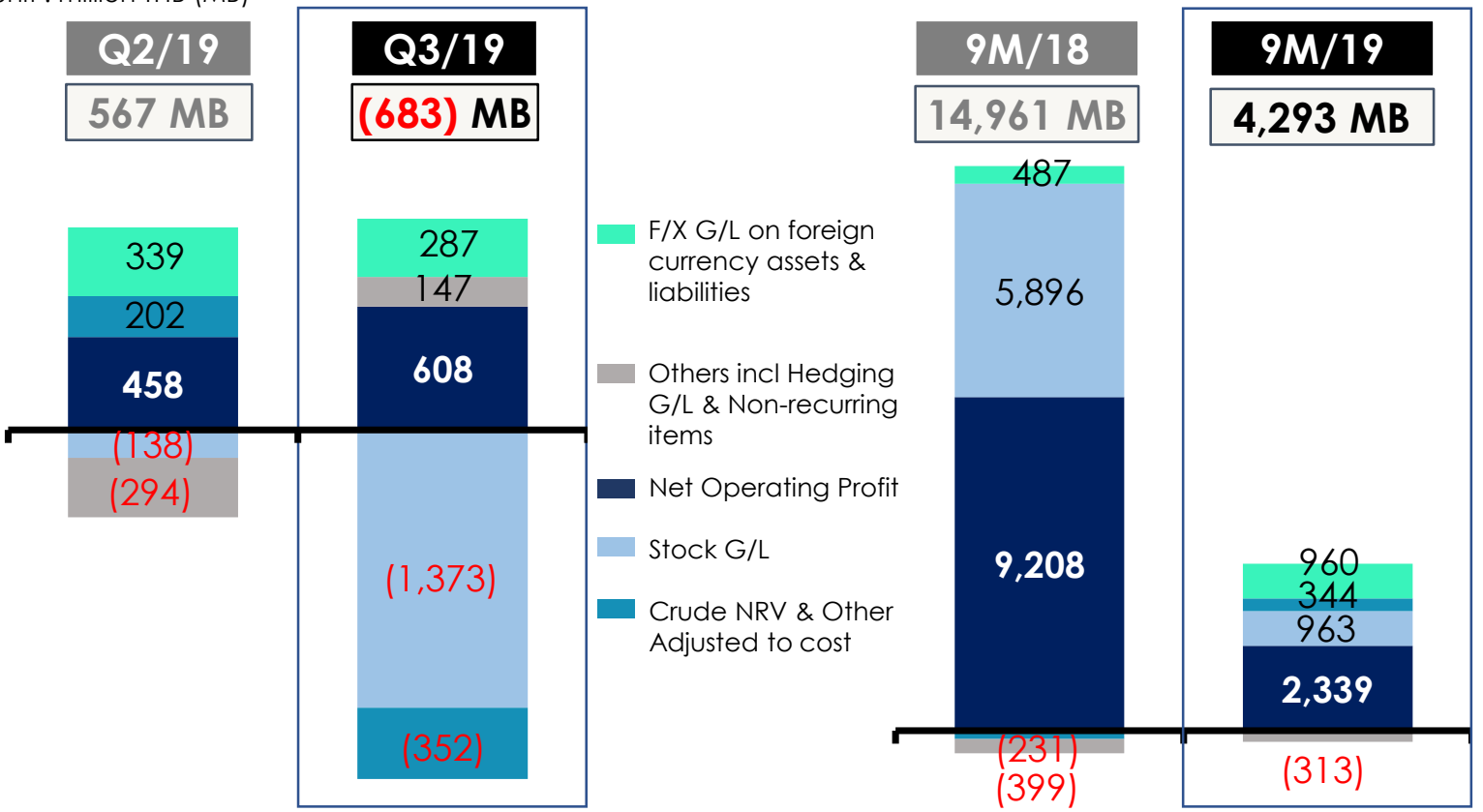
- Interim Dividend 2019 at 1.00 Baht per share
- Tremendously successful $565 mn USD bond issuance – 30 years w/ coupon rate of 3.5% pa. (Lowest-ever 30-years coupon out of Thailand and of Asian's BBB ratings)
- Successful completion of GPSC capital fund raising to maintain 24.29% shareholding (17,973 MB)
- Implemented Blockchain on bank guarantee (BG) to support customers' sales



# Net Income Performance

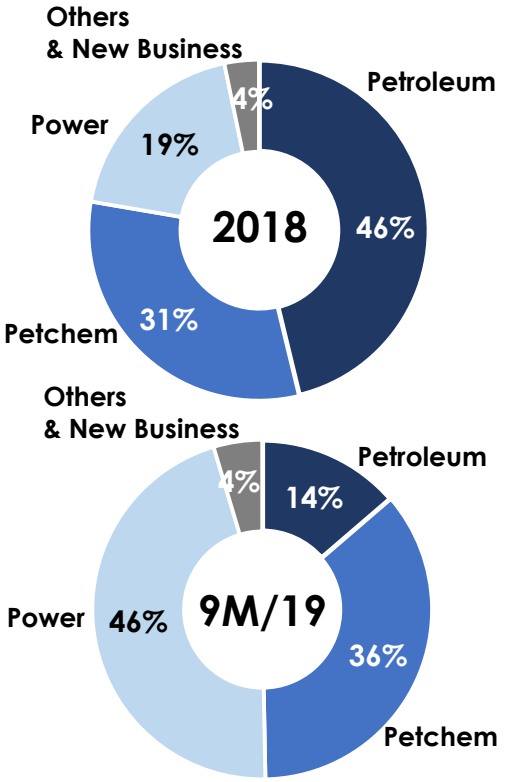
## TOP Group Net Profit

Unit : million THB (MB)




### Net Profit Contributions

Excluding Stock Gain/(loss)




**QoQ**

- **Lower crude intake from MTA** (5.7% of vol. or 234MB)
- **Higher MTA expenses** (352 → 444 MB)
- **Higher stock loss** (1,235 MB)
- **Better market GIM** (22.2% or 763 MB)

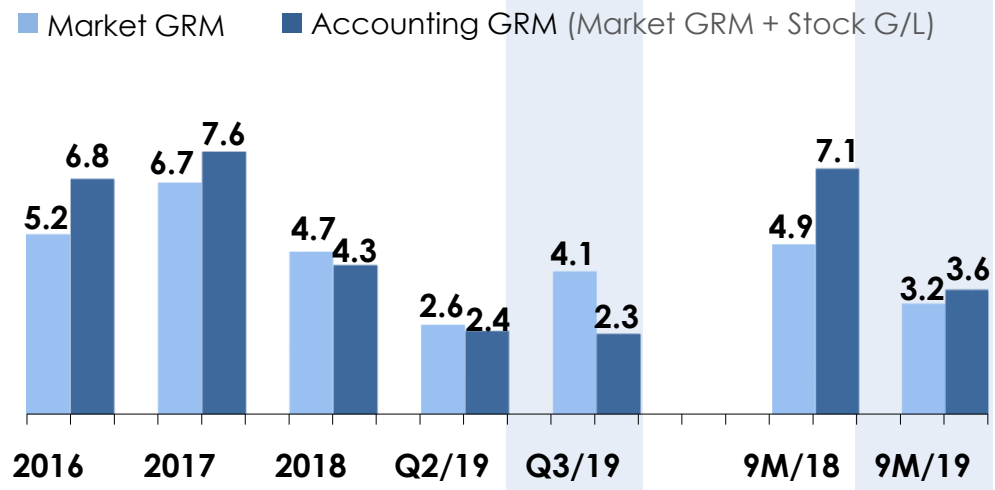
**YoY**

- **Lower crude intake from MTA** (5.7% of vol. or 731MB)
- **One-time MTA expenses** (879 MB in 9M/19)
- **Lower market GIM** (31.6% or 5,997 MB)
- **Lower stock gain** (4,933 MB)

# Integrated Margin & Competitive Cash Cost

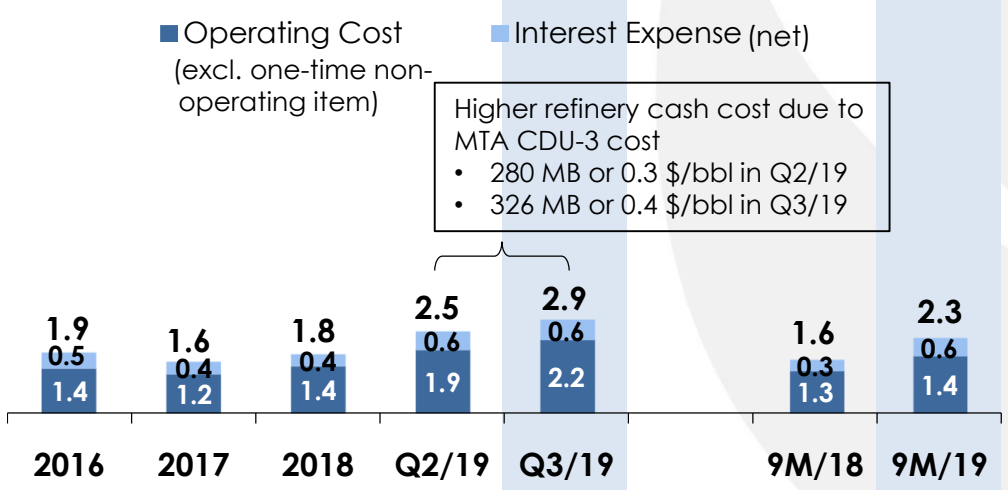
## Gross Refining Margin

(Unit: US$/bbl)



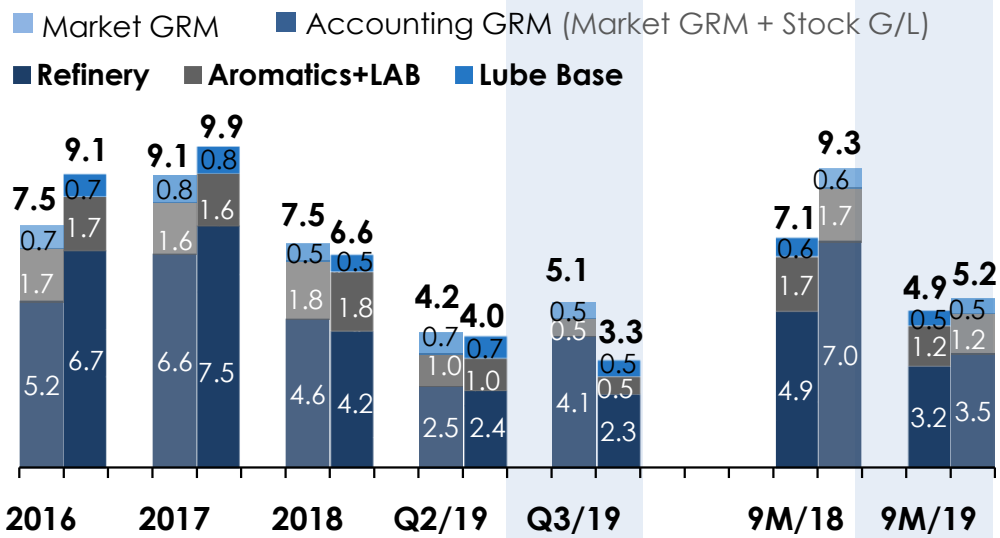

## Refinery's Cash Cost

(Unit: US$/bbl)



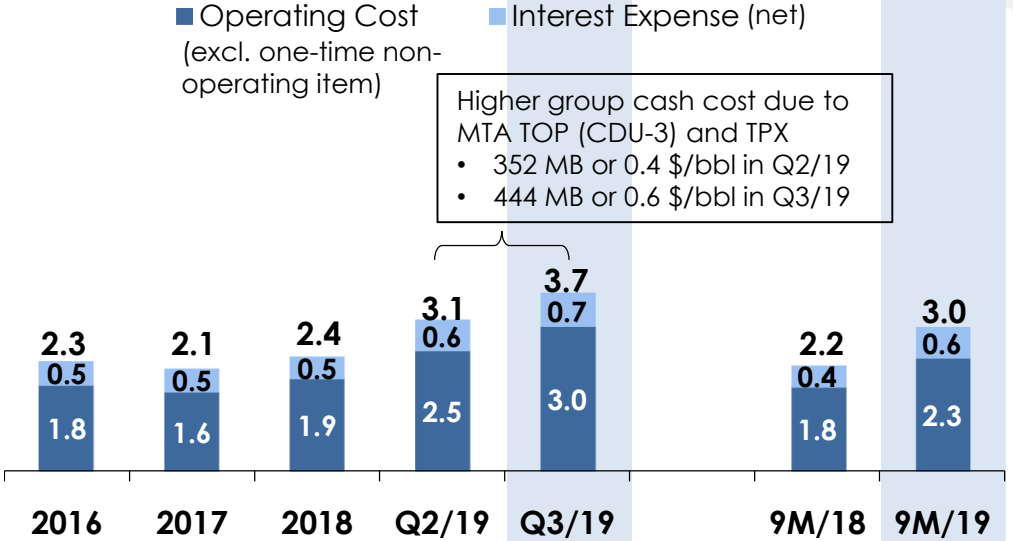

## Gross Integrated Margin

(Unit: US$/bbl)




## Group's Cash Cost

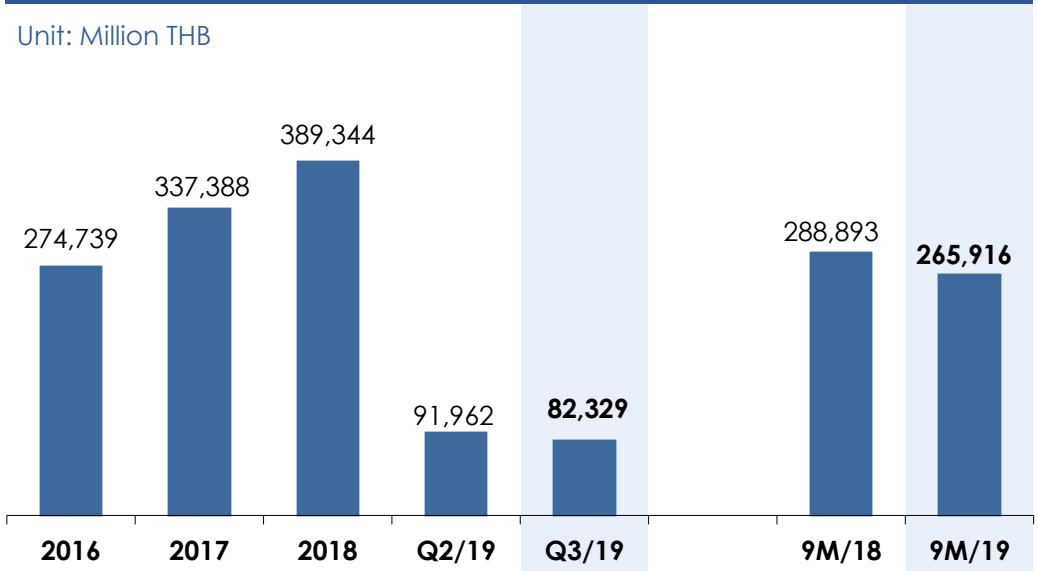
(Unit: US$/bbl)



# Financial Performance

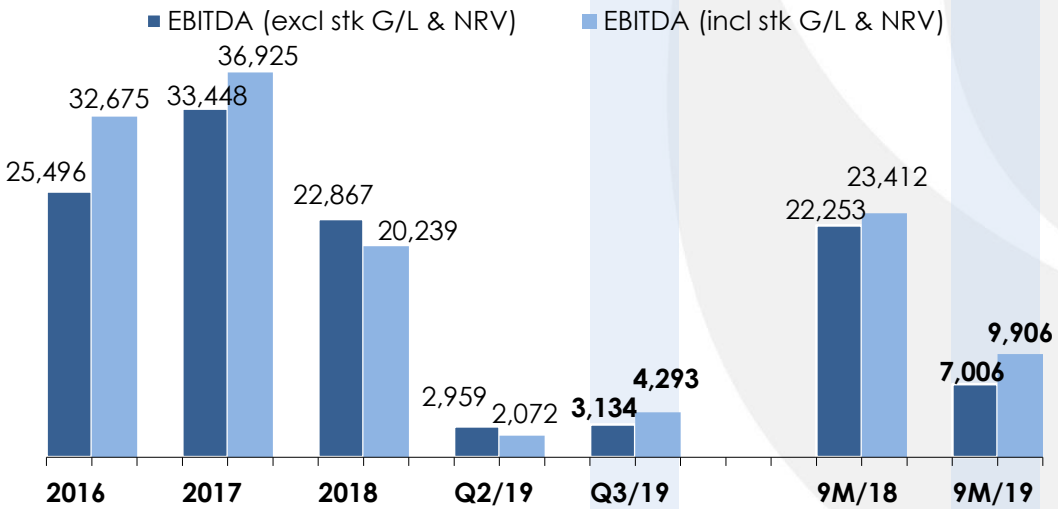
## Sales Revenue

Unit: Million THB



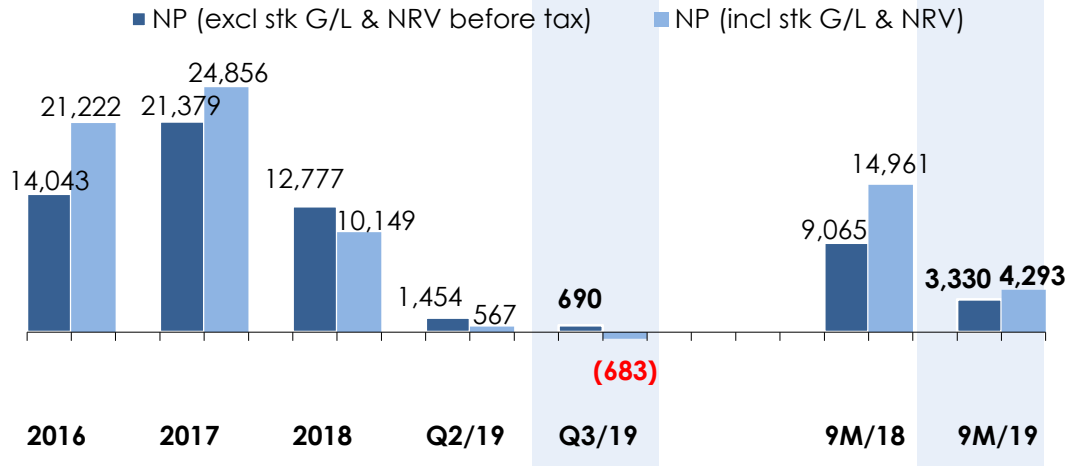

## EBITDA

Unit: Million THB



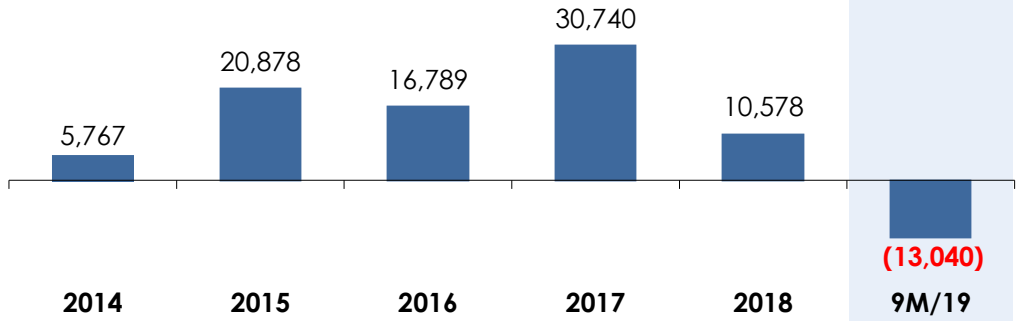

## Net Profit

Unit: Million THB




## Free Cash Flow*

Unit: Million THB




| Net CAPEX (PP&E) | | | | | |
|---|---|---|---|---|---|
| 18,666 | 10,830 | 6,392 | 3,677 | 7,735 | **19,878** |

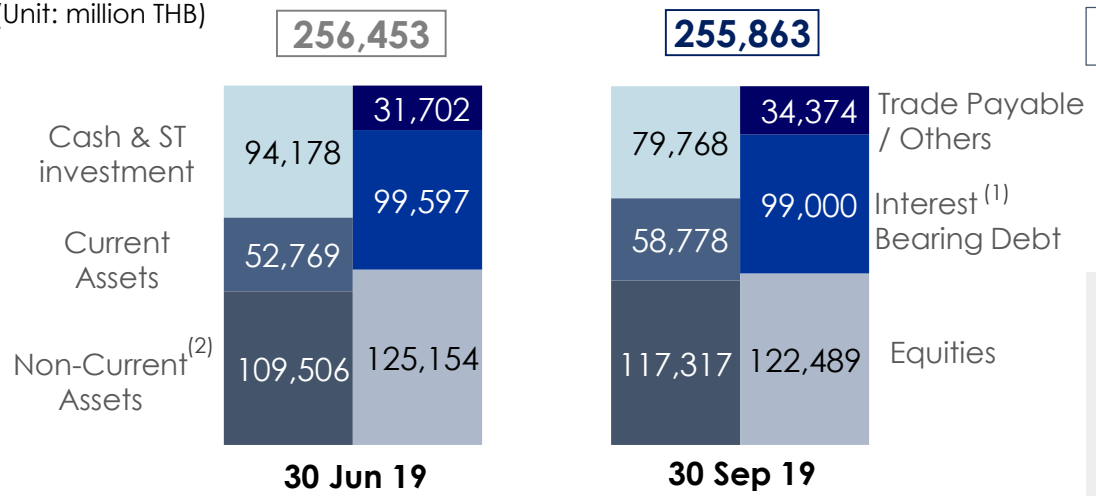
R Restated financial statement

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

# Q3/19 TOP Group Strong Financial Position & Financial Ratios

## Statements of Financial Position

(Unit: million THB)

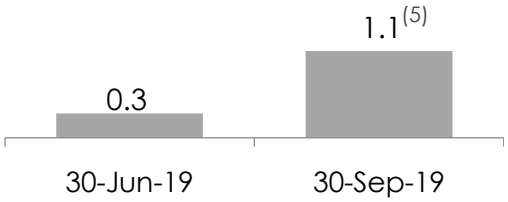



| | 30 Jun 19 | 30 Sep 19 |
|---|---|---|
| ROE (3) | 3.7 % | 2.2 % |
| ROIC (3) | 5.1 % | 1.4 % |

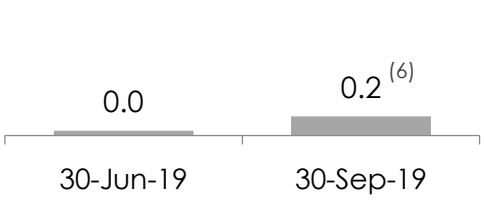
(1) Including current portion of Long-Term Debt
(2) Including investment in EPIF 30 Jun 19 = 397 MB, 30 Sep 19 = 381 MB
(3) Based on actual performance in the past 12 months

## Financial Ratios

### Net Debt / adj. EBITDA




### Net Debt / Equity



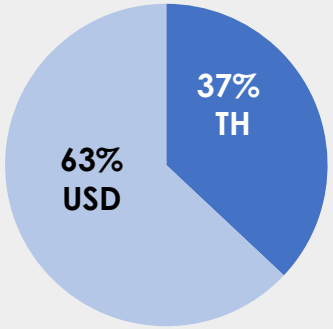

(5) Annualized EBITDA (exclude stock gain/loss & Reversal of NRV/(NRV))
(6) As of 30 Sep 19 Net Debt 19,232 MB or 625 M$

## Consolidated Long-Term Debt as at 30 Sep 19

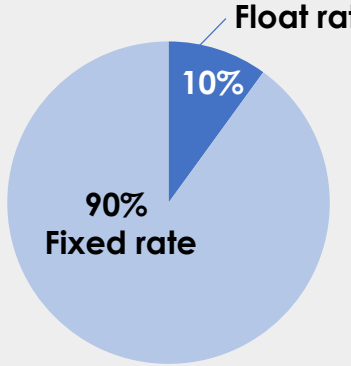
| Total IBD | Net Debt |
|---|---|
| 99,000 million THB **(US$ 3,217 million equivalence)** | 19,232 million THB **(US$ 625 million equivalence)** |

As at 30 Sep 19 (30.76 THB/US$)

### Currency Breakdown




### Interest Rate Breakdown




| | | After 565 $M USD Bond Issuance in Oct/19 |
|---|---|---|
| Avg. Debt Life (yrs) | 13.48 yrs | ~16 yrs |
| Cost of Debt (Net) | 2.60% (4) | 2.37% (4) |
| (Gross) | 4.75% | 4.55% |

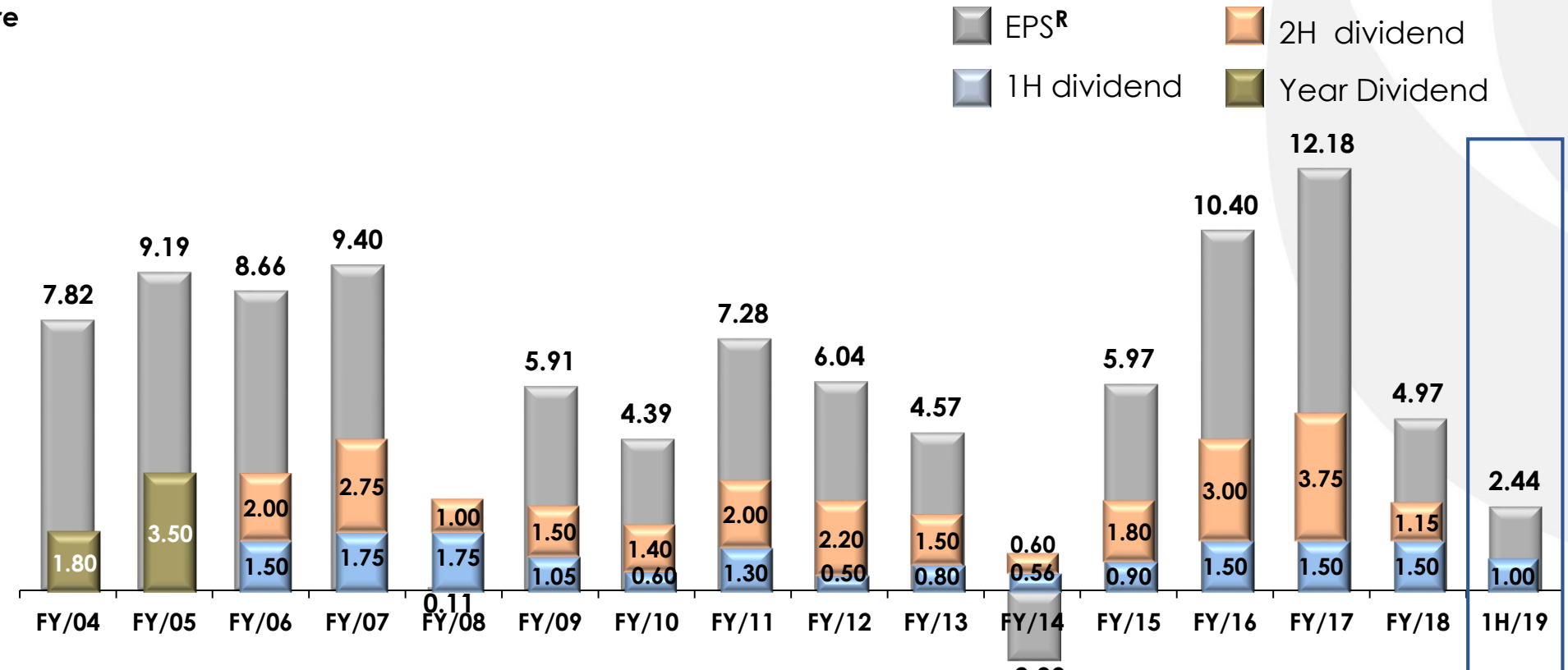
(4) Due to yield enhancement

| Moody's | S&P | Fitch Ratings |
|---|---|---|
| Baa1 Stable Outlook | BBB+ Stable Outlook | AA (Tha) Stable Outlook |

# 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**




| | FY/04 | FY/05 | FY/06 | FY/07 | FY/08 | FY/09 | FY/10 | FY/11 | FY/12 | FY/13 | FY/14 | FY/15 | FY/16 | FY/17 | FY/18 | 1H/19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Annual DPS (Baht/share) | 1.80 | 3.50 | 3.50 | 4.50 | 2.75 | 2.55 | 2.00 | 3.30 | 2.70 | 2.30 | 1.16 | 2.70 | 4.50 | 5.25 | 2.65 | |
| Dividend Payout | 23%** | 38% | 40%** | 48% | n.a. | 43% | 45% | 45% | 45% | 50%** | n.a. | 45% | 43% | 43% | 53% | 41% |
| Dividend Yield* | 4.0% | 5.6% | 5.6% | 6.2% | 5.2% | 7.1% | 4.0% | 4.7% | 4.2% | 3.6% | 2.3% | 5.0% | 6.7% | 6.2% | 3.1% | 1.5% |
| Avg TOP price | 44.7 | 63.0 | 62.7 | 72.7 | 53.3 | 35.9 | 49.9 | 69.8 | 65.1 | 64.6 | 50.4 | 53.5 | 66.7 | 84.2 | 86.9 | 68.5 |

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%

# STRATEGIC INVESTMENT PLANS

# Thaioil's Strategic Direction 2030

**Vision**

Thaioil

**Empowering Human Life through Sustainable Energy and Chemicals**

**Measurement**

Growth | Diversity | Returns | Sustainability | Stakeholder

**Portfolio Strategic Direction**

To transform TOP to a World-Class refinery with competitive & comprehensive Petchem portfolio

**Strengthen the Core** (Energy)

- Refinery (CFP)
- Power

**Value Chain Enhancement** (Chemicals)

- Aromatics & Olefins
- Lube & Chemicals Specialties
- Chemical Distribution
- Supply Chain Optimization

**Seed the Options** (Innovation)

- Manufacturing Technology
- Green & Human
- Hydrocarbon Disruption

**Enhance Capabilities**

Capability Uplifting through People and Technology

**Drive for Sustainability**

Strong License to Operate through Environment, Social & Governance (ESG)

positive

# Key Focused Areas

## *S* trengthen Refinery & Power

- **CFP** – on time & on budget
- Emphasize **healthy profitability** thru Biz transformation
  - Operations & Commercial Excellence
  - Strengthen market positioning & distribution (regional market expansion)

## *P* etrochemical & Hydrocarbon Value Chain Extension

- Maximize value by **expanding petrochemical** chain (Olefins & Aromatics)
- Focus on **high-value products**, i.e. more specialties in Lube
- **Asset rationalization** (Investment & Divestment)

## *E* xploring New Ventures

- **Invest** in VC and start up in 3 focus areas for new business opportunities

## *E* nhance Capabilities

- **People & Organization** (MIND strategy, prepare future WORKFORCE for change in portfolio strategic direction)
- **Technology / Digitalization** (Integrated in Business & Process for better productivity and efficiency)

## *D* rive for Sustainability [through ESG & Corp. branding]

- **Environment** (Top Quartile Performance for Eco-Efficiency & Green Products)
- **Social** (Social investment for CSR, SE and CSV)
- **Governance** (zero corruption & fraud incident thru integrated GRC framework)

# TOP Group Strategic Investment Plan

## CAPEX Plan (Unit US$ million)

| Project | Total 2019 - 2023 | Estimated Budgeting for 5-year Investment Plan | | | | |
|---|---|---|---|---|---|---|
| | | 2019 | 2020 | 2021 | 2022 | 2023 |
| **CFP project *** | **4,015** | **935** | **1,920** | **1,080** | **463** | **(383)** |
| **GPSC's Equity Injection** | **574** | **574** | | | | |
| **Total Ongoing CAPEX** | **325** | **162** | **116** | **35** | **8** | **4** |
| Reliability, Efficiency and Flexibility Improvement | | 46 | 36 | 16 | 2 | - |
| Infrastructure Improvement ( i.e. Jetty 7&8, Office Relocation & New Crude Tank, Site office preparation for fire water & fire water improvement, New Bangphra Raw Water Line ) | | 106 | 39 | 12 | 3 | 1 |
| Other Investments ( i.e. Digital Transformation ) | | 10 | 41 | 7 | 3 | 3 |
| **Total CAPEX** | **4,914** | **1,671** | **2,036** | **1,115** | **471** | **(379)** |

Updated as of November 2019

* CAPEX of CFP Project including the disposal of asset to transfer ownership in the Energy Recovery Unit (ERU) which is a part of the CFP Project

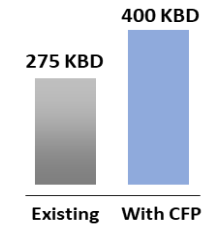
Notes: Excluding approximately 40 M$/year for annual maintenance

# Clean Fuel Project (CFP) Project Update

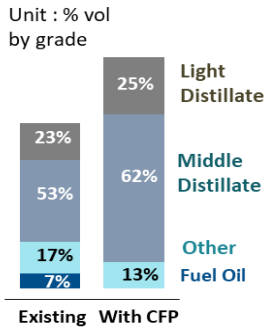
## Project Description

- **Investment Size** (4,825 $M)
- **Technical / Construction Magnitude & Features**
  - 15,000 – 20,000 labor force at peak
  - Total man-hour > 100 million man-hour
  - Proved / Cutting edge tech. (RHCU)
  - **COD:** Q1 / 2023

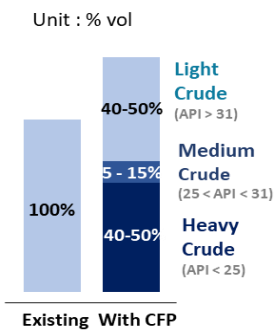
## Capacity




## Product Yield




## Crude Intake

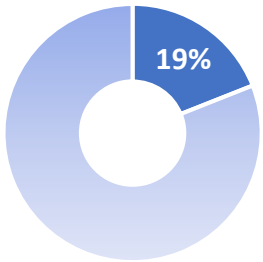



## Benefit to Thaioil

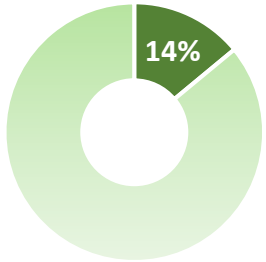
- Rejuvenate our facilities
- Capacity growth
- Upgrading product mix
- Feedstock flexibility
- Stepped improvement in GIM
- Pathway to value chain enhancement

## Key Progress update as of Nov / 19

**Overall Project Progress**




**Budget Utilization**




## CFP Ground Breaking Ceremony

## Q3/19

- Conclusion of process design
- Procurement of high critical equipment
- Site preparation & groundbreaking
- Commencement of civil work in some areas

## Q4/19 & 2020

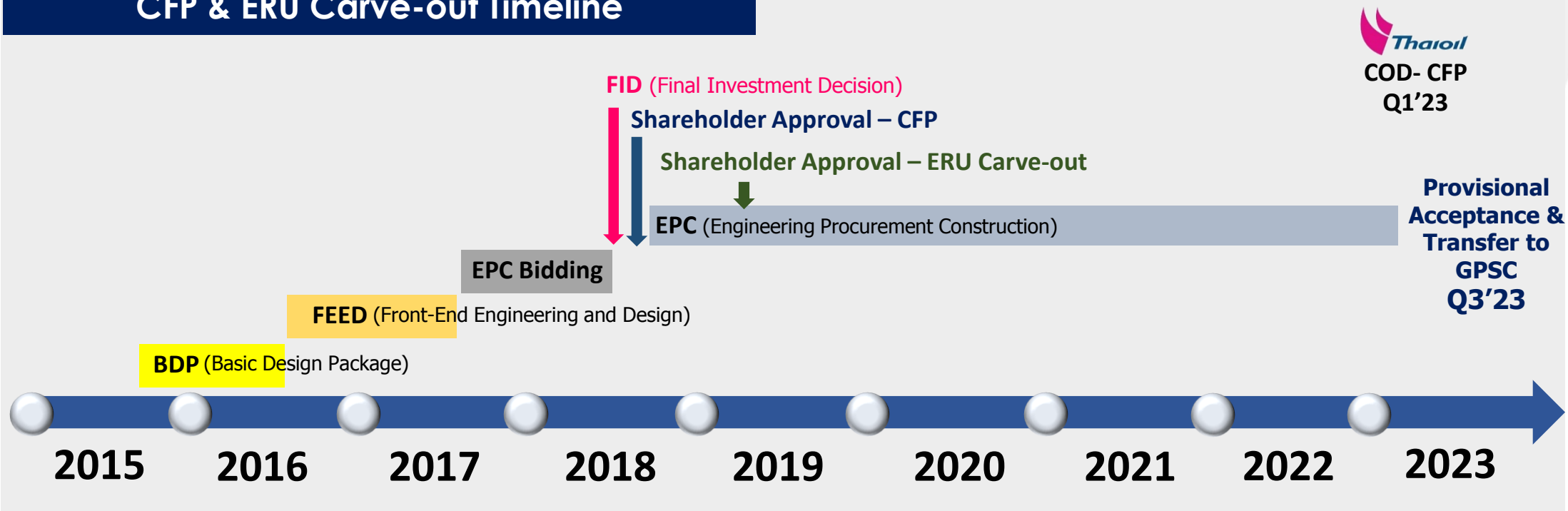
- Procurement of critical / non-critical equipment / material
- Completion of detailed design phase
- Completion of early civil work and commencement of steel work on-site
- Fabrication work at outside construction yard
- Assembly of priority equipment on-site

# Clean Fuel Project (CFP) : Rationale & Timeline

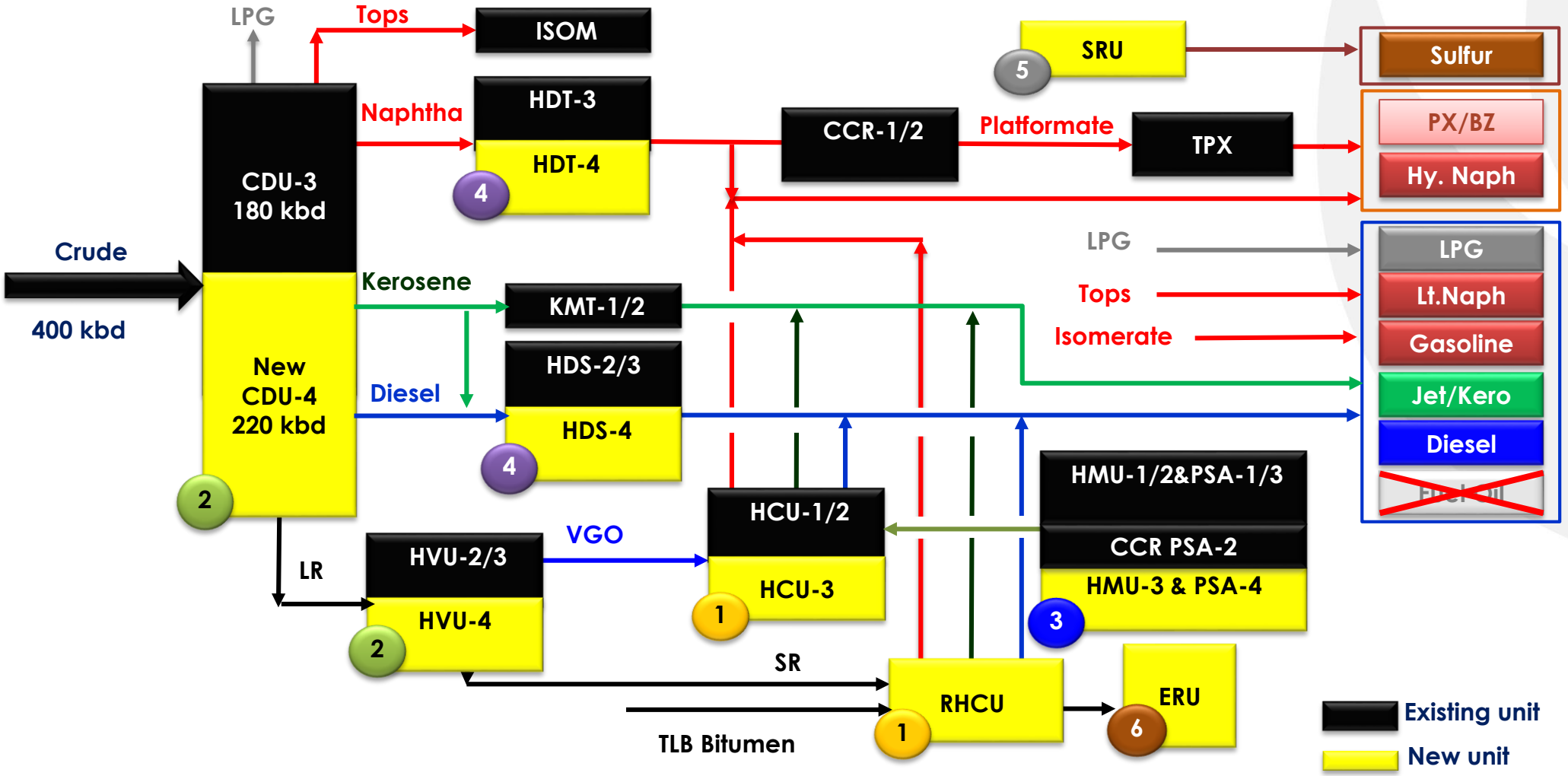
## Project Rationale

- 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.

## CFP & ERU Carve-out Timeline



# 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

Thaioil

# CFP Competitiveness

## Without CFP

- **CDU Capacity**

  275,000 bbl per day

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

## With CFP

- **CDU Capacity**

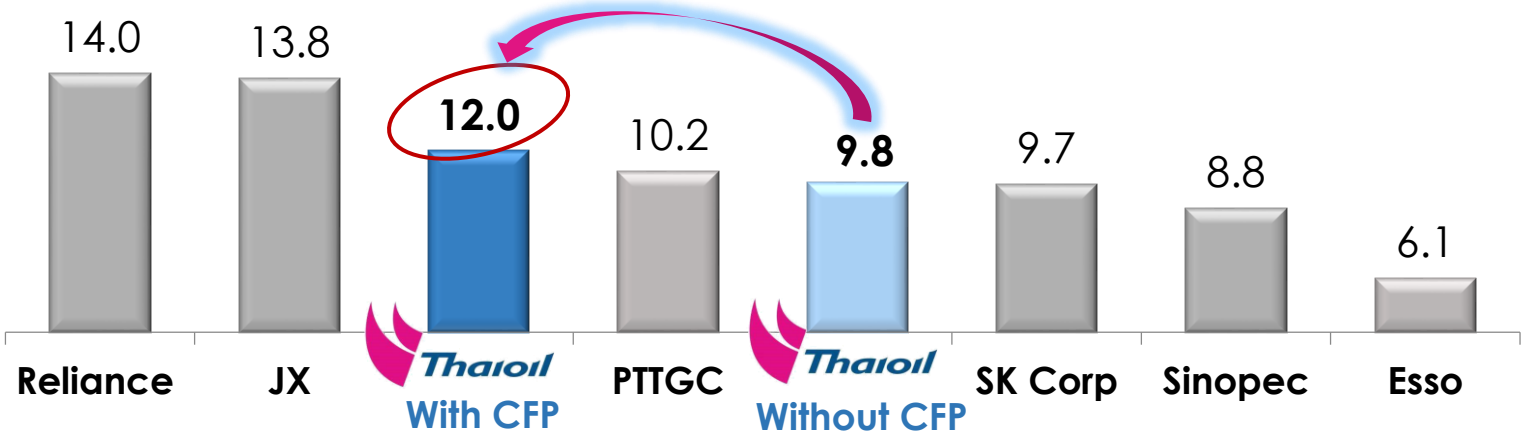
  400,000 bbl per day

- **Upgrading Ratio** **50%**
  (upgrading capacity(2) over CDU capacity)

- **Power Plant** **250 MW**

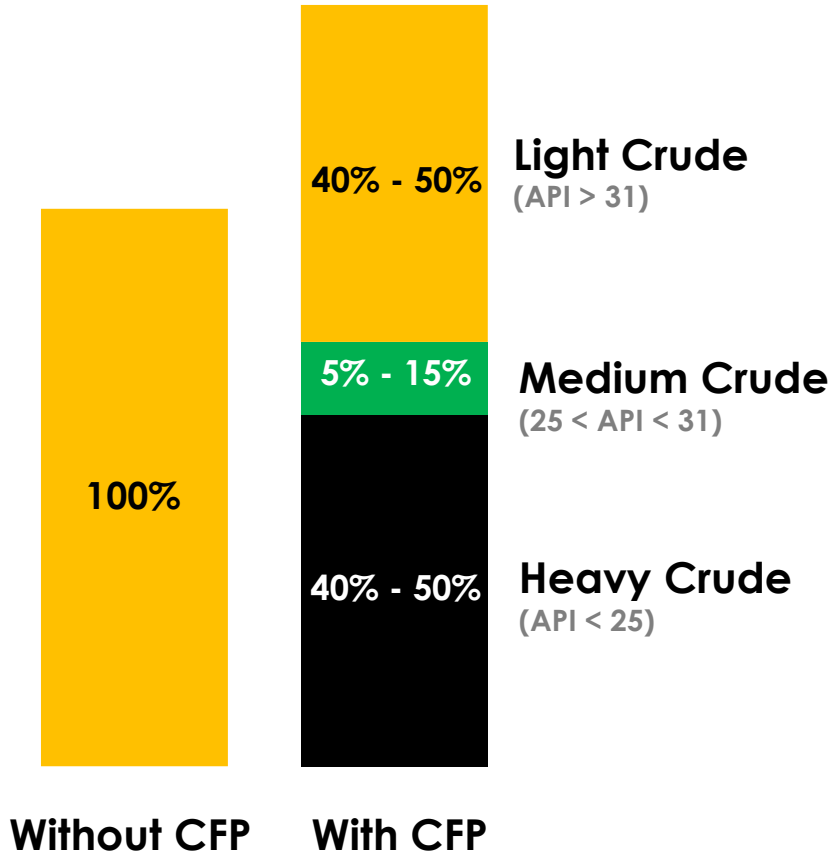
Remark : (1) including HCU 1/2, FCCU, TCU (2) including HCU 1/2/3, RHCU

## Nelson Index - Regional Comparison



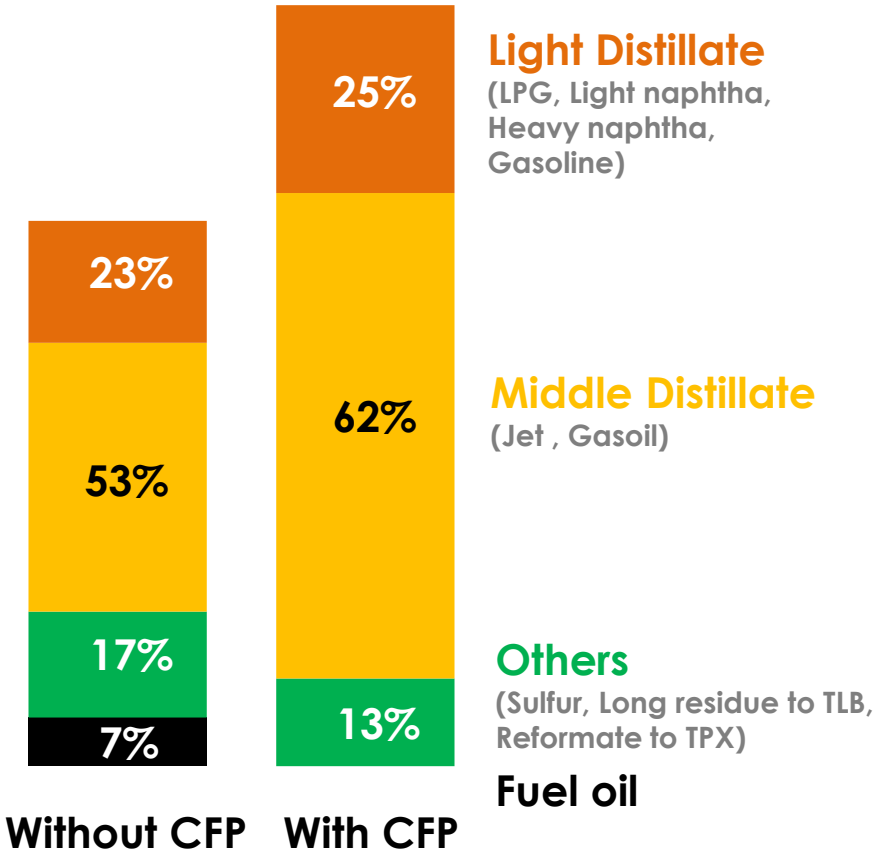
# CFP Value Proposition

## Flexibility of crude intake




Unit in %Vol.

## Product Upgrading




Unit in %Vol.

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

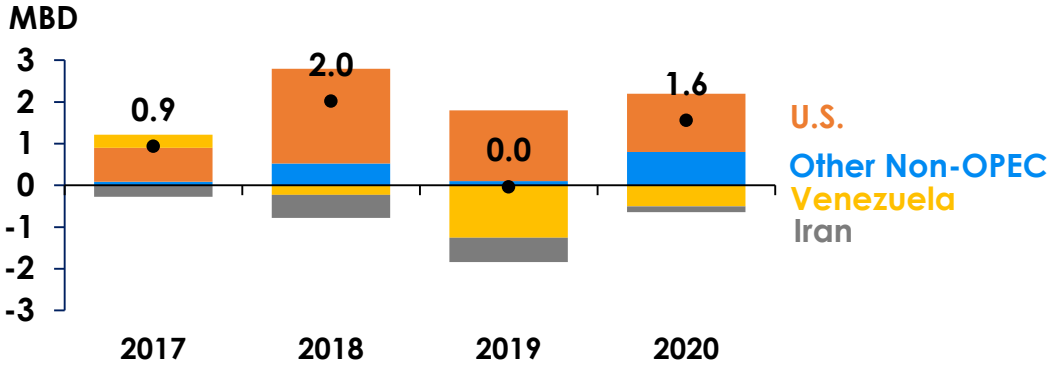
# INDUSTRY OUTLOOK (2020 & Beyond)

- Crude Oil
- Refinery
- Aromatic
- Base Oil & Bitumen

# OPEC Balancing Oil Market amid Uncertain Oil Demand Growth

## A Higher Supply led by Non-OPEC

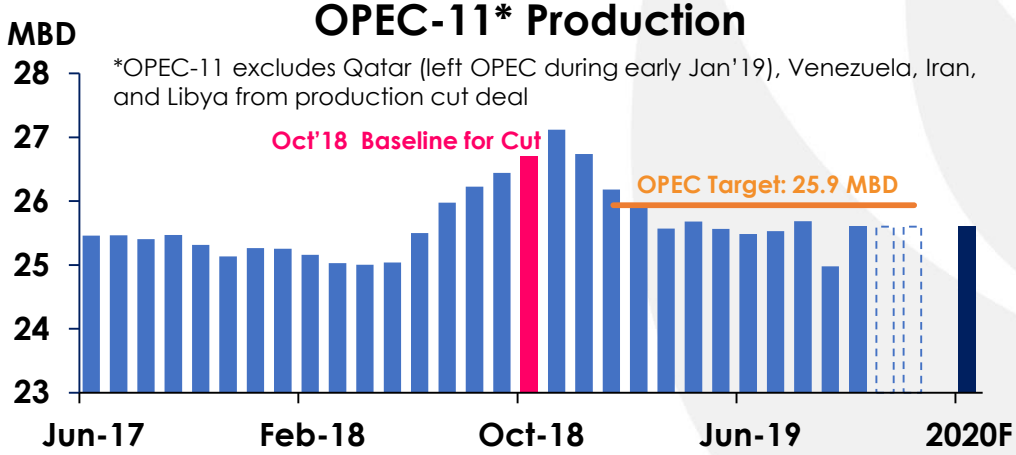
### Non-OPEC and Iran/Venezuela Supply Growth




Source : IEA (Oct'19), OPEC (Oct'19), Energy Aspects (Oct'19) and TOP's Estimate

## B OPEC Cuts to Reduce Market Surplus

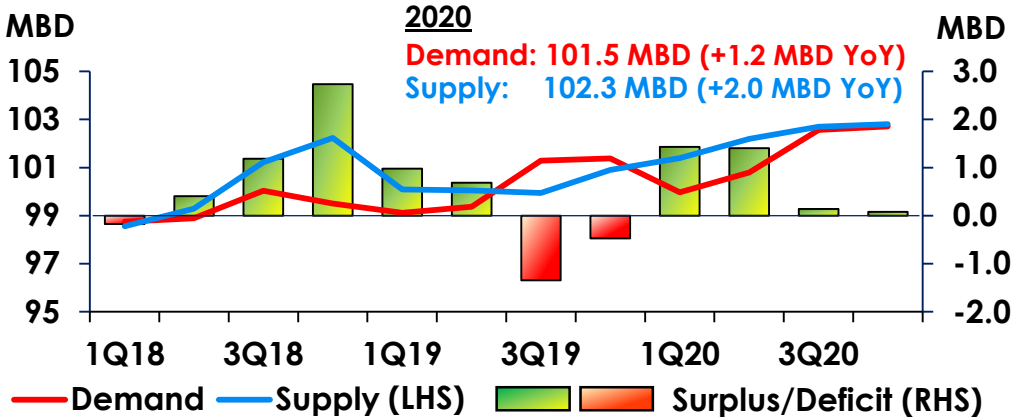
### OPEC-11* Production




Source : Reuter's Poll (Oct'19), OPEC (Oct'19) and TOP's Estimate

## C Oil Market Slightly Surplus on Higher Non-OPEC

### Global Oil Demand/Supply Balance



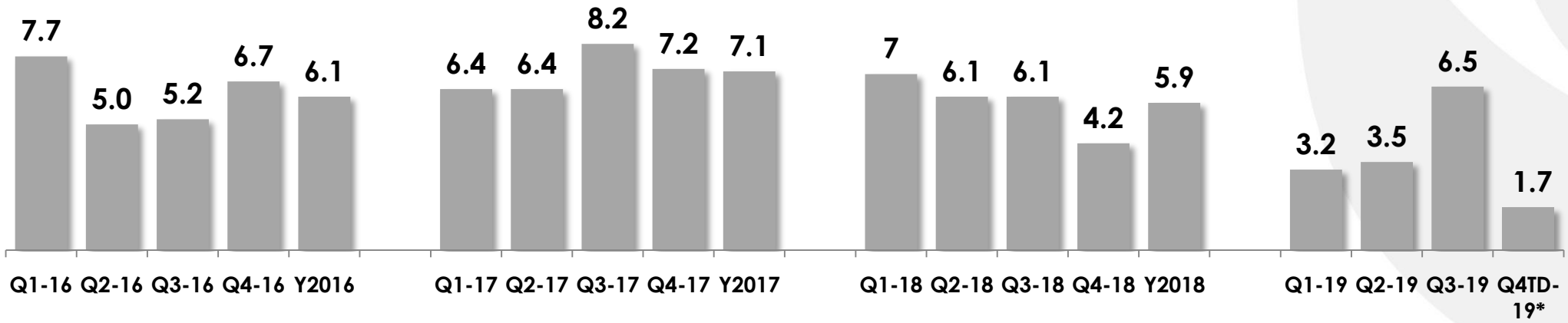

Source : IEA (Oct'19), OPEC (Oct'19) and TOP's Estimate

## INDUSTRY IMPLICATION

- Softer to stable crude price on over supply
- OPEC to play output cut policy to balance global oil market
- Uncertainty on U.S. - China trade war to limit oil demand growth

# Refining Margins Boosted by Higher Demand from IMO

## Singapore Cracking GRM ($/BBL)




Remark : *QTD as of 13 Dec 19

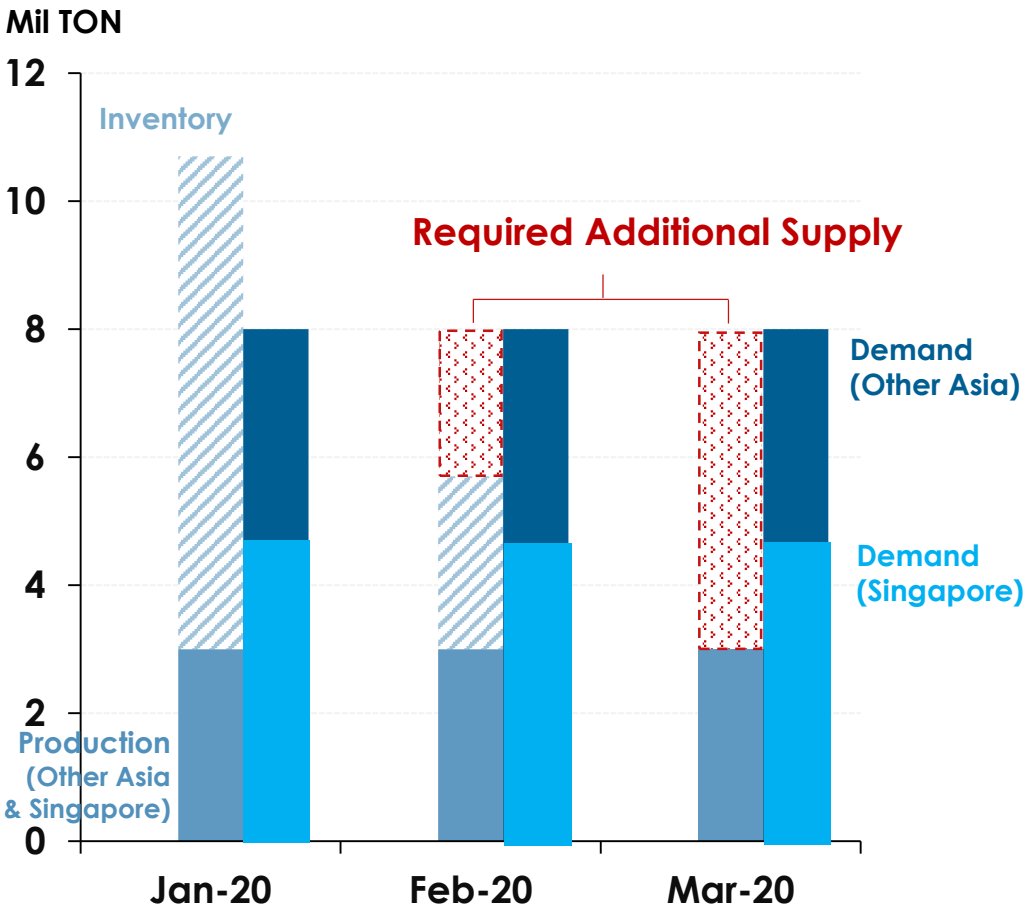
## Key Highlights - 2020 (vs 2019)

1. Stronger Middle Distillate Cracks due to IMO 2020 Implementation
2. Higher Gasoline Cracks Driven by Switching Yield from Gasoline to Middle Distillate

# IMO 2020 Drives Light Crude and Middle Distillate Demand

## A Required Additional Low Sulphur Fuel Supply

### Asian 0.5% Bunker Fuel Supply and Demand



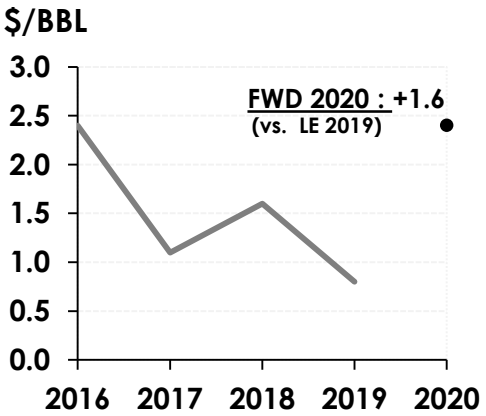

Source : Reuters (Nov'19)

## INDUSTRY IMPLICATION

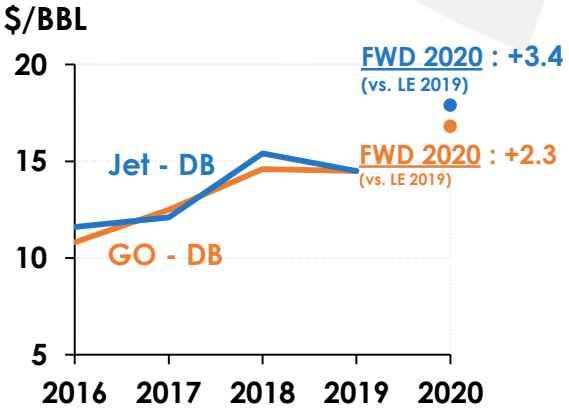
### IMO impacts on Refinery

| Crude | Product |
|---|---|
| Heavy sour crude | Gasoline |
| ⇩ | ⇩ |
| Light sweet crude | Middle Distillate & VLSFO |

### Brent-DB




### Middle Distillate-DB

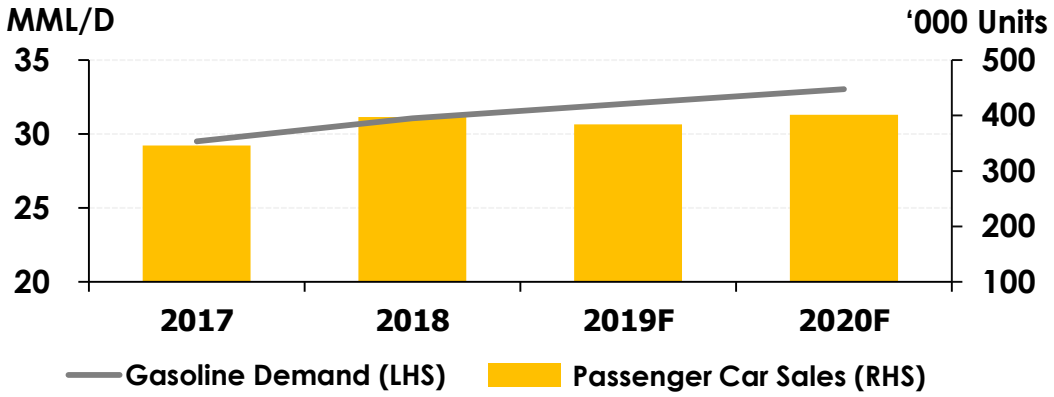



Note : Forward price as of 8 Nov 19

# Higher Domestic Demand Growth Aligning with Economic Expansion

## A Steadily High Car Sales to Support Gasoline

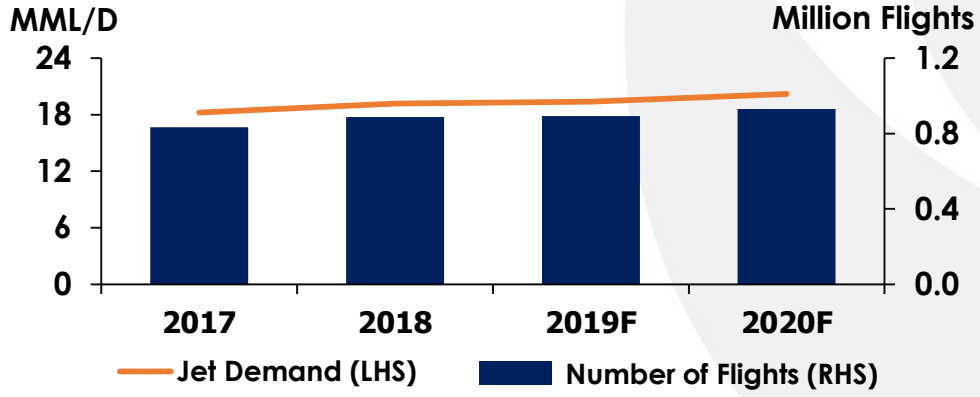
### Gasoline Demand vs. Passenger Car Sales




Source : FTI (Oct'19) and Toyota estimation

## B Higher Jet Demand Following Flight Movement

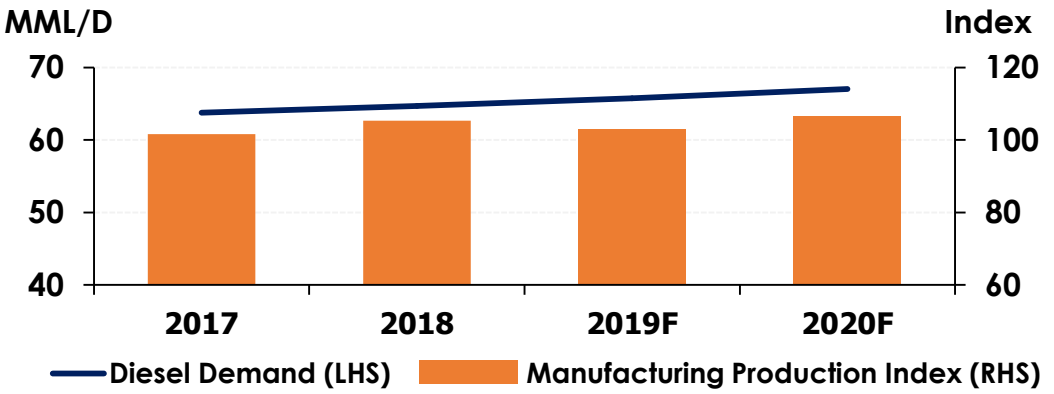
### Jet Demand vs. Number of Flight Movement




Source : DOEB, AOT, Department of Tourism (Oct'19)

## C Higher Diesel Demand on Improving Economy

### Diesel Demand vs. Manufacturing Production Index




*Manufacturing Production is an indicator that implies for economic growth.
Source : DOEB (Oct'19) and OIE (Oct'19)

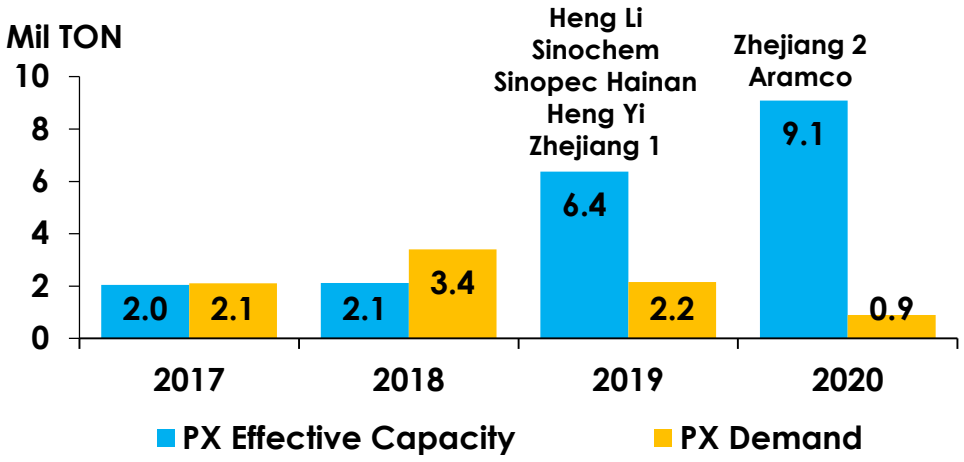
## INDUSTRY IMPLICATION

- Higher Gasoline demand from increasing passenger car sales
- Higher Jet/Kero demand from increasing flight number
- Higher Gasoil demand from increasing economic growth

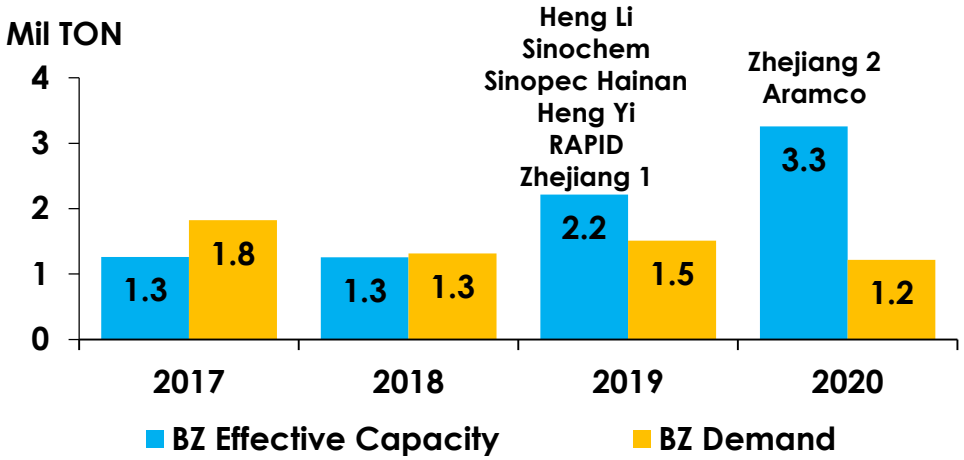
# Weak Aromatic Market from New Capacity Addition

## A Market Pressured by New Capacity Addition

### AP/ME PX Capacity Addition vs. Demand Growth



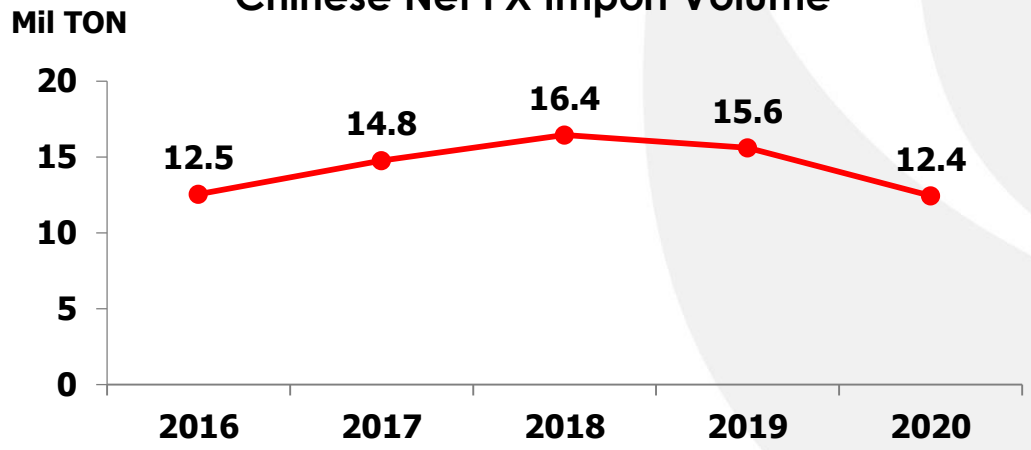

### AP/ME BZ Capacity Addition vs. Demand Growth




Source : WMChemicals (Oct-19), IHS (Feb-19) and TOP's Estimate

## B Lower Chinese Import due to New Plant Startup

### Chinese Net PX Import Volume




Note: China remains the global biggest PX importer

## INDUSTRY IMPLICATION

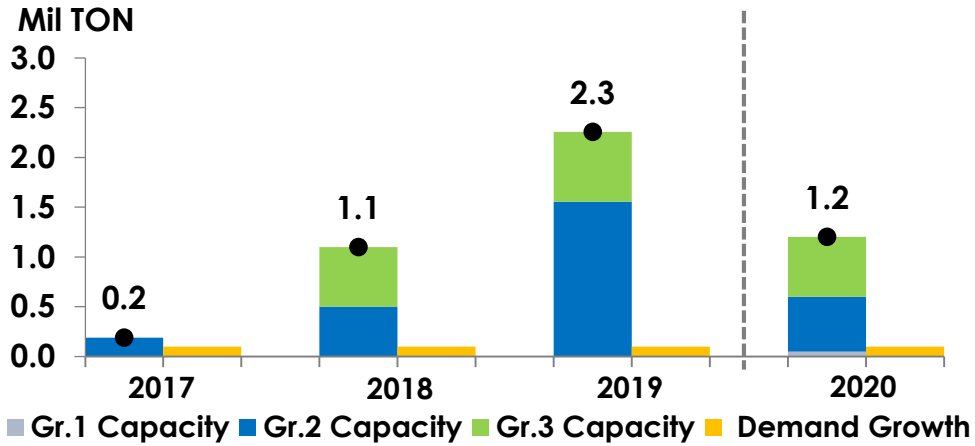
- Slowdown operating rate for high-cost plant
- Optimize production between Gasoline and Aromatics

Note : STDP = Selective toluene disproportionation

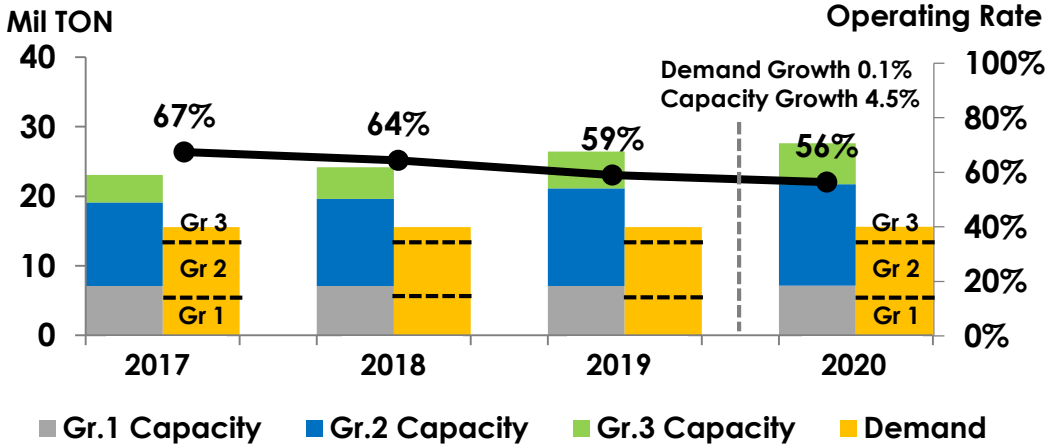
# Weak Base Oil Market from High Supply amid Steady Demand

## A Market Pressured by New Capacity Addition

### AP Base Oil Capacity Addition vs. Demand Growth



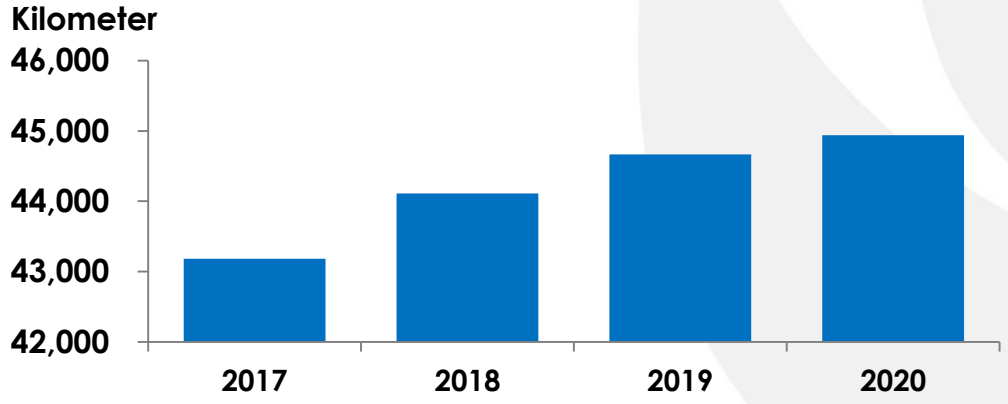

### AP Base Oil Capacity vs. Demand




Source : Argus (Oct-19), ICIS (Oct-19) and TOP's Estimate

## B Higher Domestic Bitumen on New Road Projects

### Bitumen road distance in Thailand

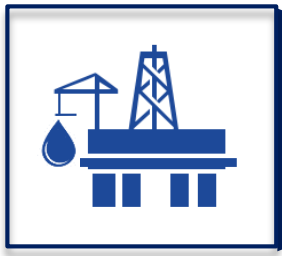



Source: Maintenance Bureau (Nov'19)

## INDUSTRY IMPLICATION

- **Optimize production between Lube Base and Petroleum Products**

# 2020 Industry Outlook Conclusion
(vs. 2019)



**Crude Oil**

Softer to Stable Crude Price on Higher Supply despite OPEC Production Cut

**Refinery**

Higher Refining Margins Supported by Rising Middle Distillate Demand post IMO Implementation

**Aromatics**

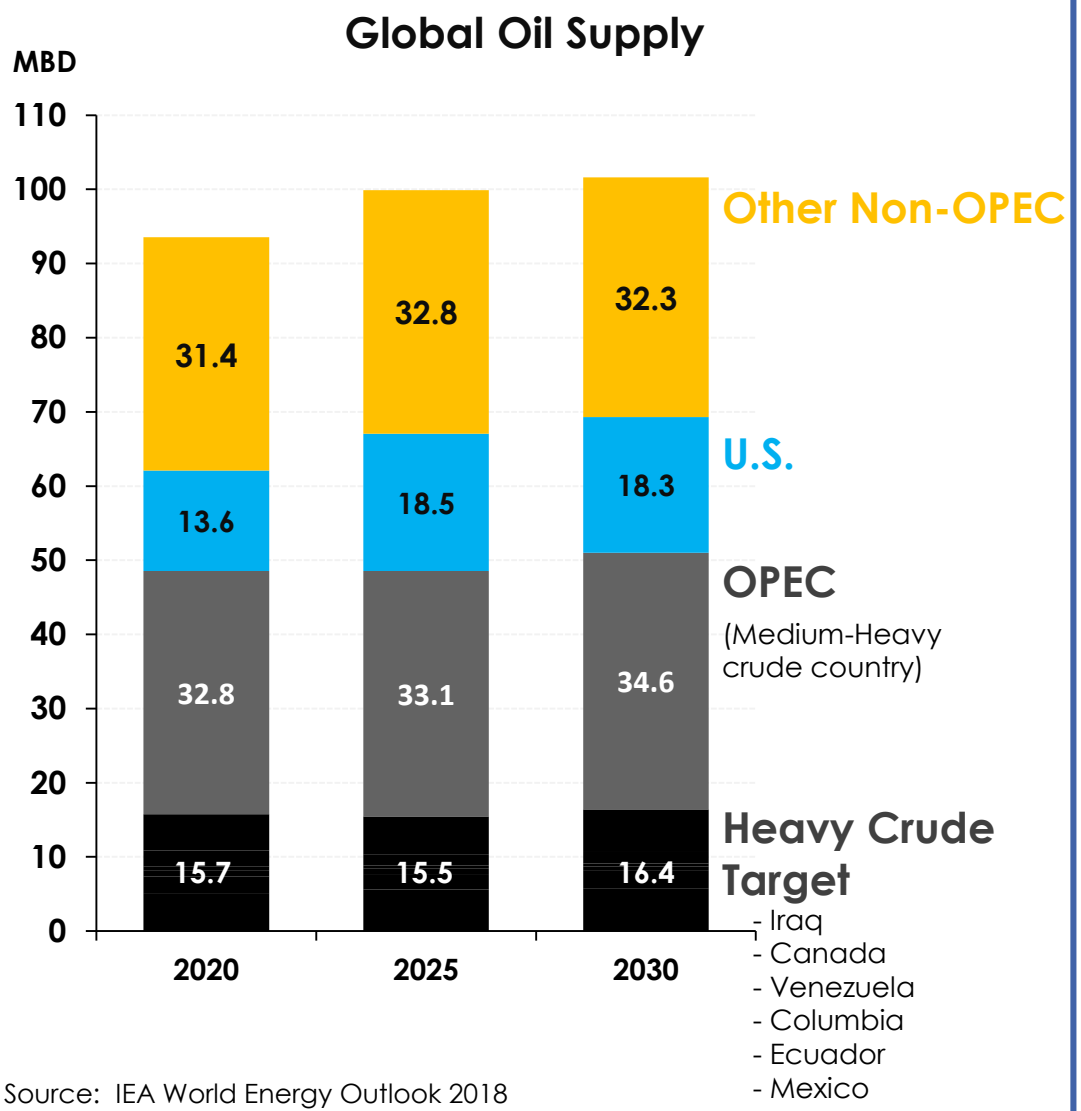
Weak Aromatics Market from New Mega Capacity Addition

**Lube Base**

Weak Base Oil Market from High Supply amid Steady Demand

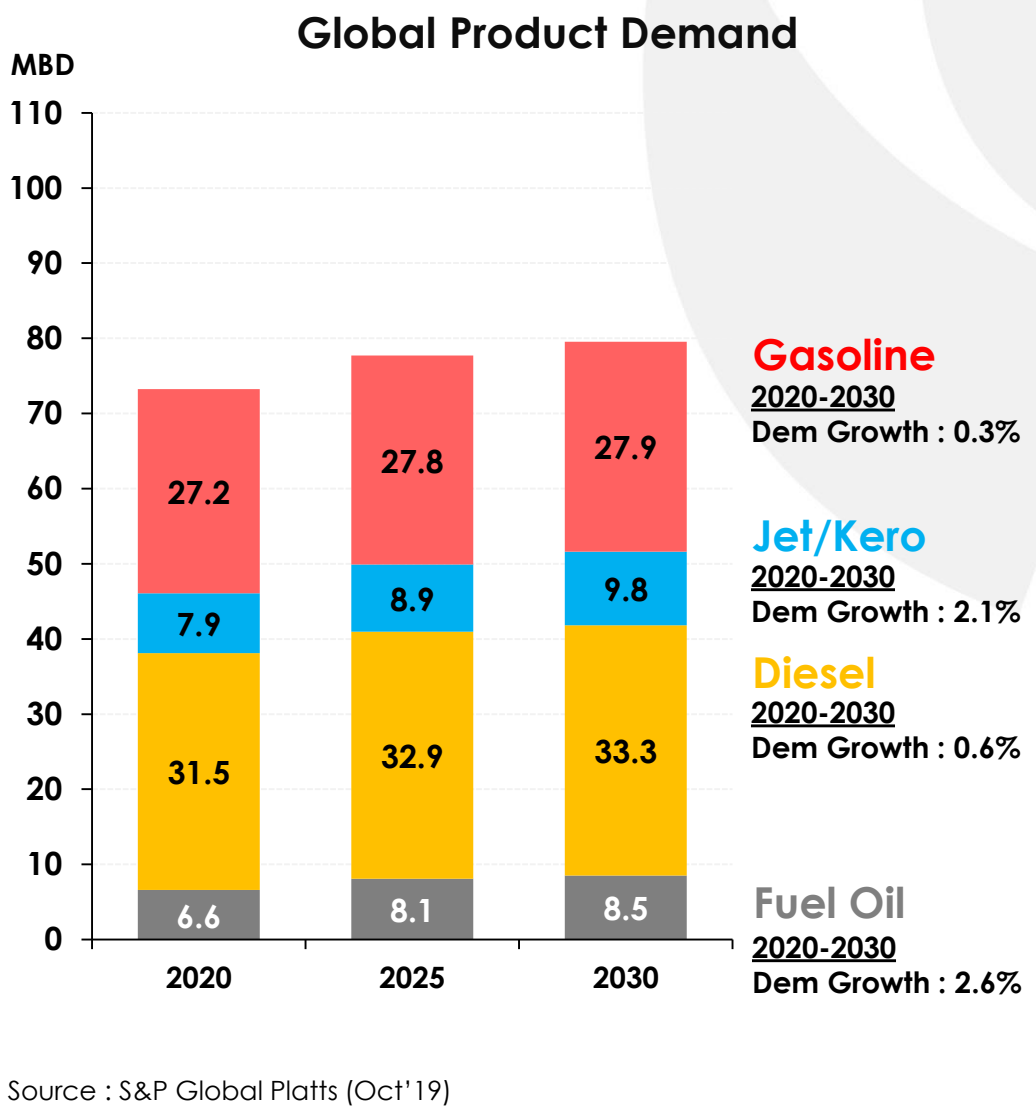
# Beyond 2020 Industry Outlook

## A Higher Oil Supply Led by Medium and Heavy Crude




Source: IEA World Energy Outlook 2018

## B Higher Oil Demand Led by Middle Distillate

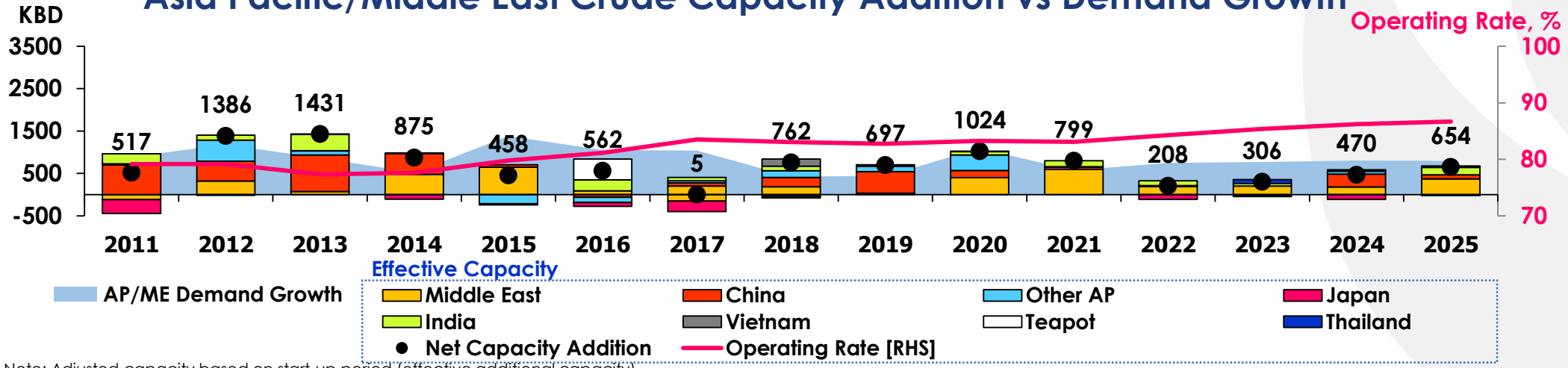



Source : S&P Global Platts (Oct'19)

# Beyond 2020 Industry Outlook (2)

## Oil Demand Growth Outpaces Refinery Addition in Medium-term

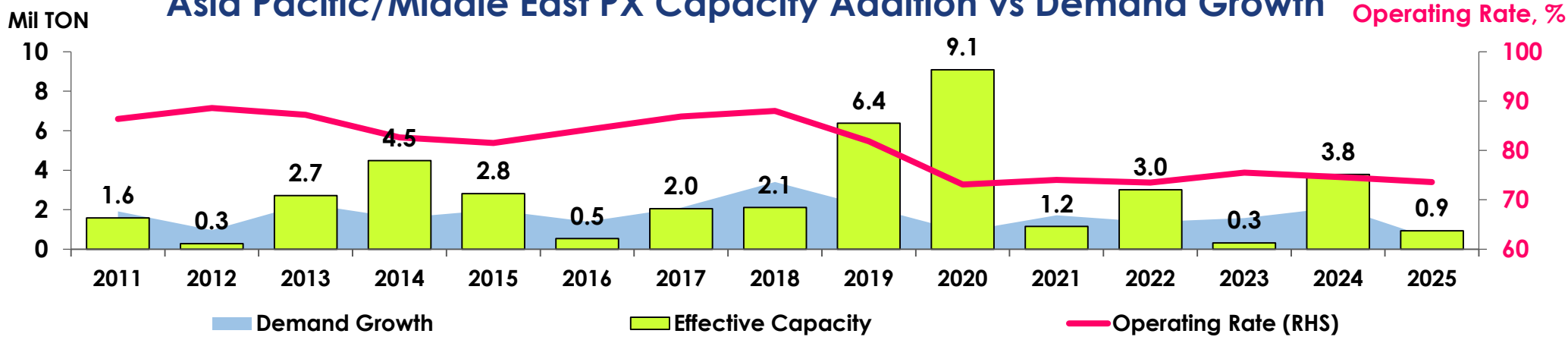
### Asia Pacific/Middle East Crude Capacity Addition vs Demand Growth




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

## Recovered Market due to Slower Capacity Addition after 2020

### Asia Pacific/Middle East PX Capacity Addition vs Demand Growth




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

Source : FACTs Semi Annual Reports, Fall 2019, WMChemicals (Oct-19) and TOP's estimate

# Thank You

Any queries, please contact:

at email: ir@thaioilgroup.com

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

Fax: 662-797-2976

# APPENDIX

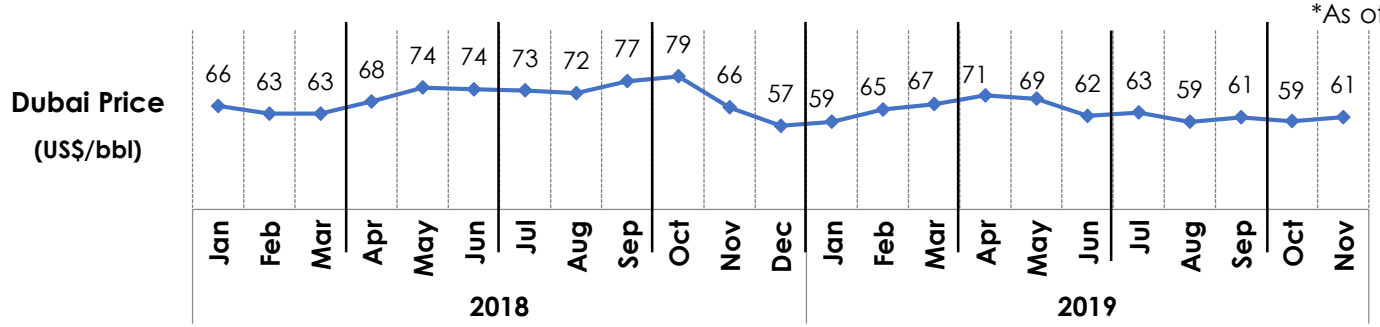
- Performance analysis
- Sustainability / ESG
- Refinery & Aromatics Addition VS Additional Demand – AP & ME
- World GRM / Inventories
- Thailand petroleum demand by products

# Refinery: Improved Mkt GRM Supported by Higher Product Spread

## Dubai Crude Price & Key Petroleum Product Spreads

| | 2018 | | | | 2019 | | | | | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| $/bbl | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | 9M | Q4TD* | FY18 |
| DUBAI (DB) | 63.9 | 72.1 | 74.3 | 67.4 | 63.5 | 67.4 | **61.1** ↓ | **64.0** | **61.4** | 69.4 |
| ULG95 - DB | 13.7 | 12.1 | 11.6 | 4.7 | 3.7 | 7.5 | **11.7** ↑ | **7.6** | **13.5** | 10.5 |
| JET - DB | 16.1 | 15.3 | 14.5 | 15.6 | 13.0 | 12.2 | **15.7** ↑ | **13.6** | **13.8** | 15.4 |
| GO - DB | 14.8 | 14.6 | 14.4 | 14.8 | 12.8 | 12.4 | **15.3** ↑ | **13.5** | **14.2** | 14.6 |
| HSFO - DB | (4.9) | (4.4) | (2.5) | 1.4 | 0.6 | (2.3) | **0.9** ↑ | **(0.3)** | **(19.2)** | (2.6) |

*As of 13 Dec 19




## Gross Refinery Margins - GRM

| | 2018 | | | | 2019 | | | | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| $/bbl | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | 9M | FY18 |
| Market GRM | 5.7 | 4.0 | 5.0 | 3.9 | 3.0 | 2.6 | **4.1** | **3.2** | 4.7 |
| Stock G/(L) | 0.4 | 5.0 | 1.2 | (7.5) | 2.7 | (0.2) | **(1.8)** | **0.4** | (0.4) |
| Accounting GRM | 6.2 | 9.0 | 6.2 | (3.6) | 5.7 | 2.4 | **2.3** | **3.6** | 4.3 |

### Refinery Utilization

| Q2/19 | Q3/19 | 9M/19 |
|---|---|---|
| 103% | **97%** | **105%** |

### % MB Intake/OSP*

| | | |
|---|---|---|
| 28%/ 2.7 | **26%/ 3.4** | **26%/ 2.6** |

*Murban OSP over Dubai ($/bbl)

### Q3/19 Market GRM

+ **Improved gasoline spread** supported by increasing demand in driving season and tight supply from unplanned shutdowns i.e. PES refinery closure in U.S.
+ **Better middle distillate spread** supported by Saudi's refineries reduced run and low global stock level. While **strong FO** propped by rising M.E. power demand in summer and refineries' preparation for IMO
- **Higher crude premium** due to drone attack in Saudi Arabia
- **Lower crude price** as increasing supply from U.S.

### Q3/19 Performance

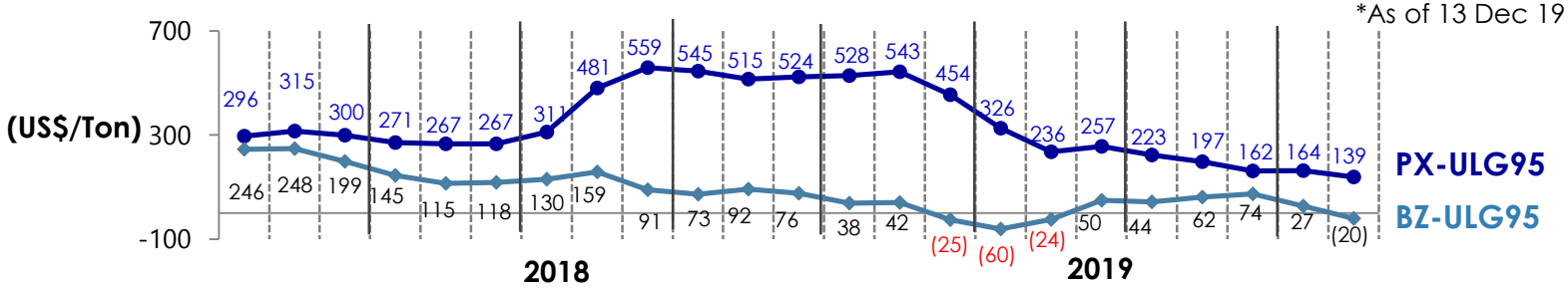
- **Lower refinery run rate at 97% due to CDU-3 MTA**

# Aromatic: Weak PX Spread pressured Aromatic Contribution

## Aromatics Spreads and Margins

| | 2018 | | | | 2019 | | | | | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| $/ton | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | 9M | Q4TD* | FY18 |
| PX-ULG95 | 304 | 268 | 451 | 528 | 508 | 273 | **194** ↓ | **325** | **159** | 388 |
| BZ-ULG95 | 231 | 126 | 126 | 81 | 18 | (12) | **60** ↑ | **22** | **30** | 141 |

*As of 13 Dec 19




## Aromatics Production

| Q2/19 | Q3/19 | 9M/19 |
|---|---|---|
| 64% | **54%** | **70%** |

## Q3/19 Market

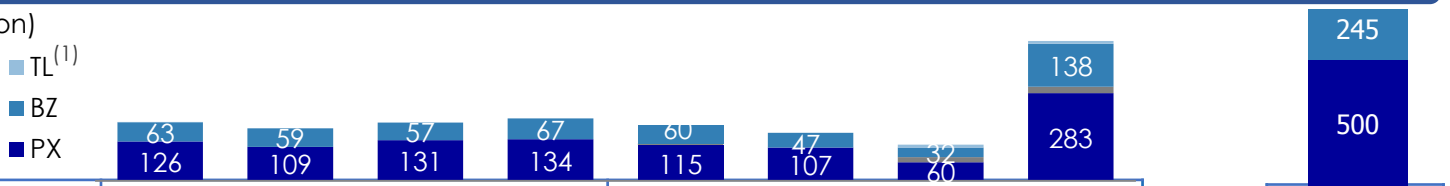
- **Soften PX spread** pressured by over supply situation (Chinese plant - phase I/II combined of 4.5 MTA)
+ **Improved BZ spread** due to less BZ supply coming into the market from lower aromatic run rate since Q2

## Q3/19 Performance

- **Lower utilization rate** due to MTA – TPX's complex (45 days) and soften product margins

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

(Unit : KTon)




| | 2018 | | | | 2019 | | | | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | 9M | FY18 |
| Aromatic P2F - $/ton | 110 | 87 | 129 | 151 | 143 | 76 | **42** | **93** | 121 |
| Aromatic P2F - $/bbl | 14.5 | 11.6 | 16.9 | 20.2 | 18.8 | 9.9 | **5.5** | **12.1** | 15.9 |
| GIM contribution(2) | 1.7 | 1.3 | 2.0 | 2.2 | 2.0 | 1.0 | **0.5** | **1.2** | 1.8 |

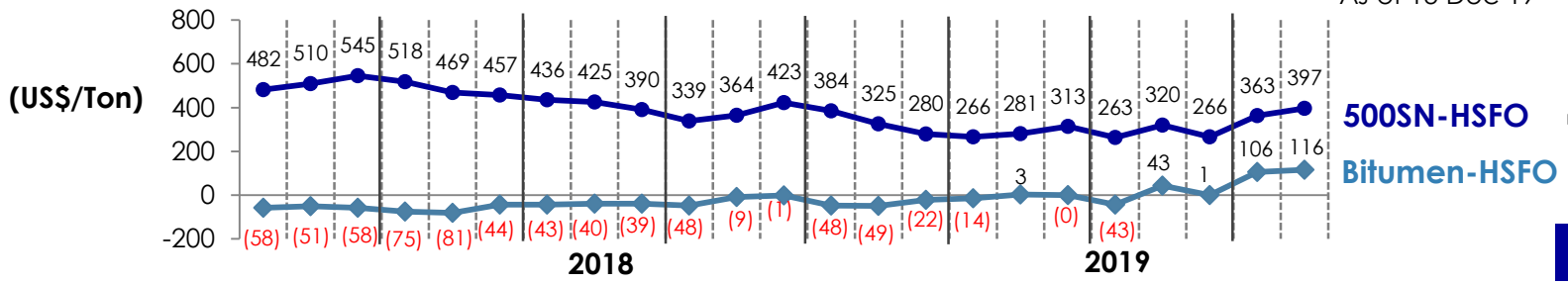
(1) TOL –ULG95 : Q2/19 = 13 $/ton, Q3/19 = 38 $/ton, 9M/19 = 31 $/ton
(2) including LAB contribution since 25 Feb 2016

# Base Oil: Lower Contribution pressured by Lower Lube Spread

## Base Oil & Bitumen Spreads & Margins

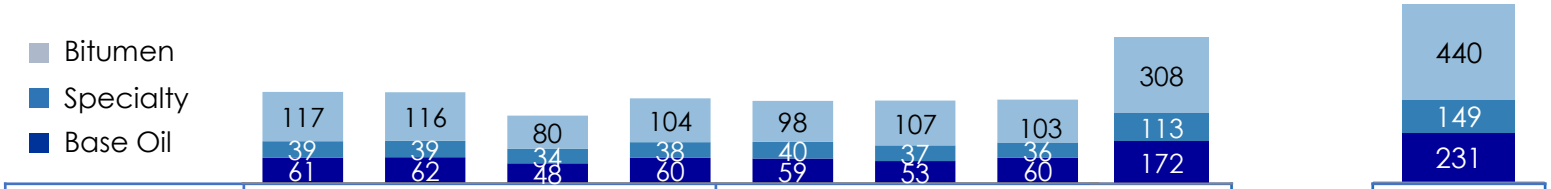
| | 2018 | | | | 2019 | | | | | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| $/ton | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | 9M | Q4TD* | FY18 |
| 500SN-HSFO | 512 | 481 | 417 | 376 | 330 | 287 | 283↓ | 300 | 391 | 447 |
| BITUMEN-HSFO | (56) | (67) | (41) | (19) | (40) | (4) | 1↑ | (14) | 104 | (46) |

*As of 13 Dec 19




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

(Unit : KTon)




| | 2018 | | | | 2019 | | | |
|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | 9M |
| P2F -$/ton | 105 | 97 | 66 | 73 | 59 | 94 | **83** | **79** |
| P2F -$/bbl | 16.0 | 14.8 | 9.9 | 11.1 | 9.0 | 14.3 | **12.6** | **12.0** |
| GIM contribution | 0.7 | 0.7 | 0.4 | 0.4 | 0.2 | 0.7 | **0.5** | **0.5** |

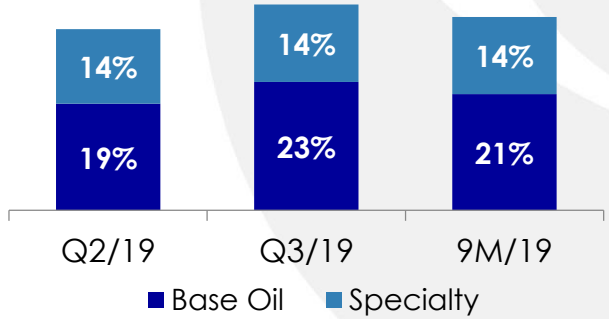



| 2018 |
|---|
| FY18 |
| 84 |
| 12.8 |
| 0.5 |

## Base oil Production

| Q2/19 | Q3/19 | 9M/19 |
|---|---|---|
| 85% | 81% | 85% |

## % Base Oil & Specialty Sales Volume




## Q3/19 Market

– **Soften lube spread** pressured by new base oil supply (gr II) (capacity (Singapore 0.1 MTA, China 0.1 MTA)

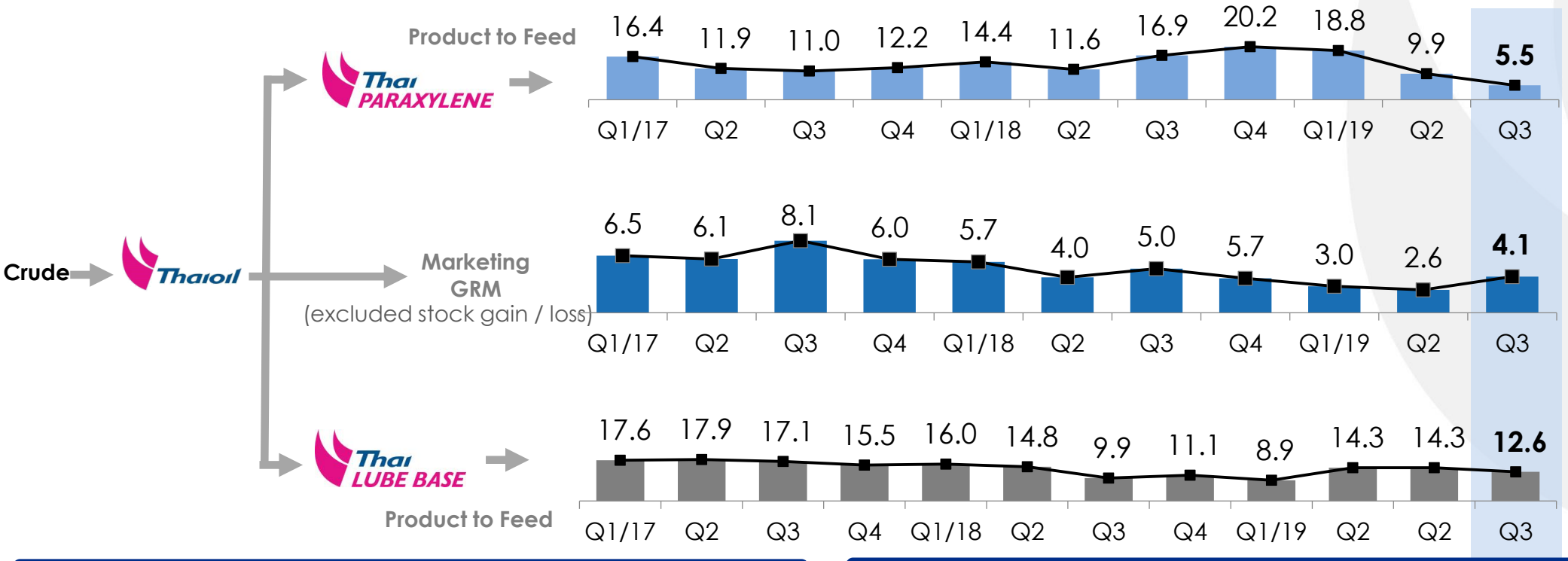
\+ **Improved bitumen spread** due to limited regional supply as plants were under seasonal maintenance and lower feedstock cost (HSFO)

## Q3/19 Performance

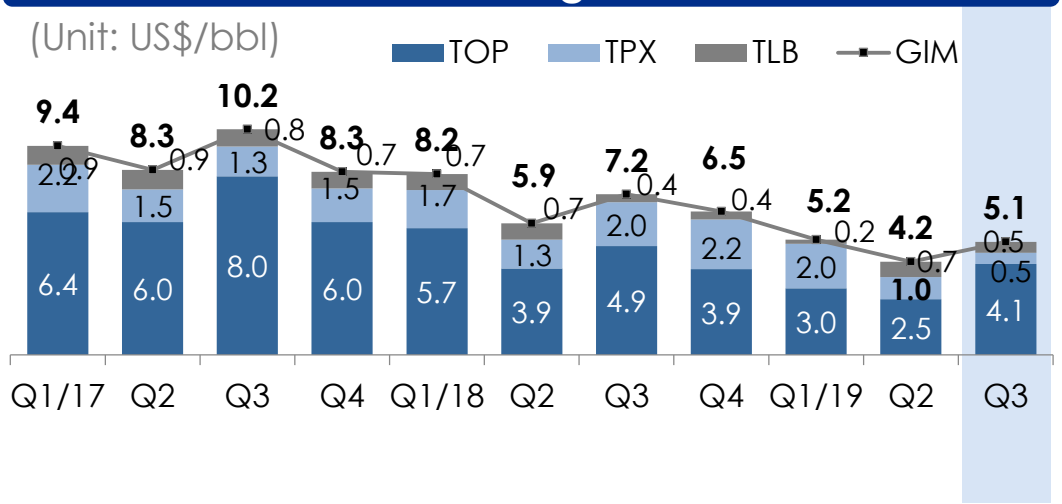
\- **Slightly soften utilization rate** at 81% due to soften lube spread

# Beauty of Integration…Sustainable GIM

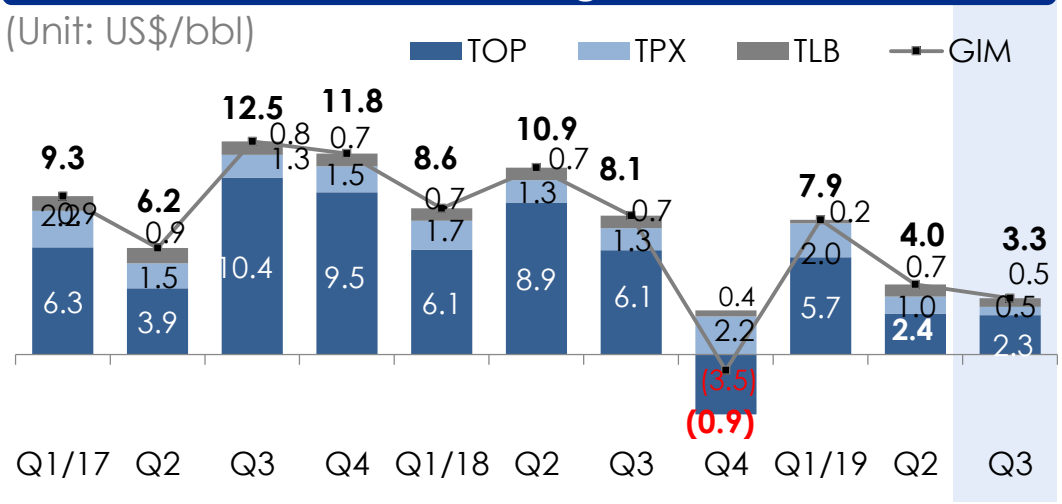
(Unit: US$/bbl)




## Marketing GIM




## Accounting GIM



# Power Sector: Stable Contribution to Group

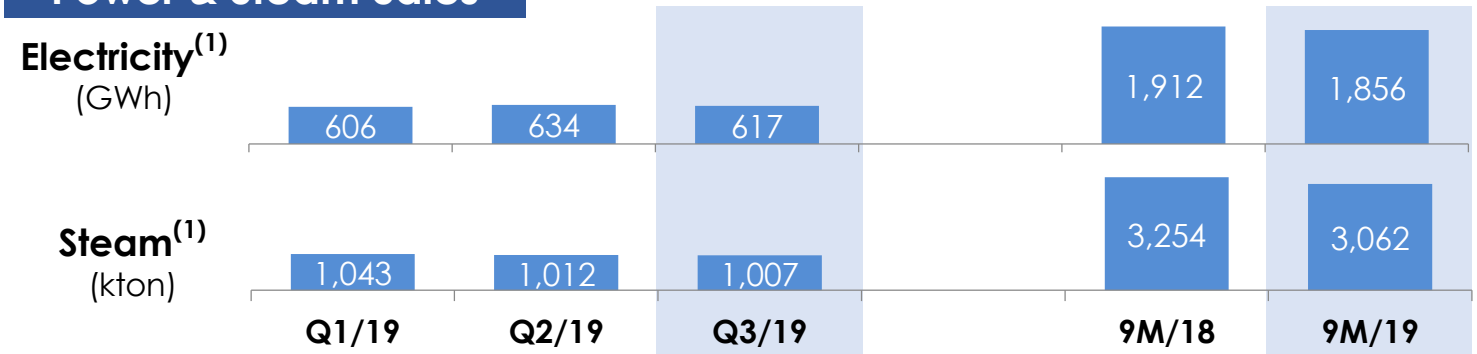
## Power Business Sector

**SPP** — Thaioil POWER 74% | TOP SPP 100%

**Equity holding in** GPSC ****

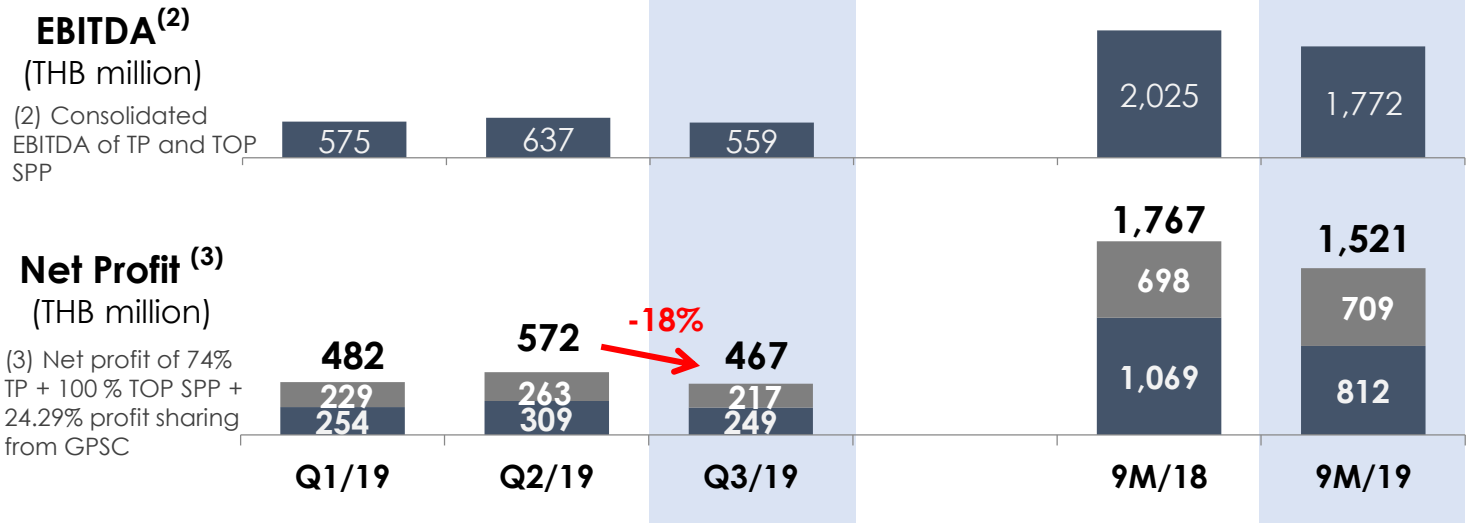
**** TOP shareholding 24.29% (8.91% via TOP and 20.79% via TP)
GPSC is an associate company of TOP. Equity method is applied to recognize share of profit. (EBITDA calculation excludes profit sharing from GPSC)

### Power & Steam Sales




(1) 100% of TP and TOP SPP

### EBITDA & Net Profit




(2) Consolidated EBITDA of TP and TOP SPP

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

### Performance Highlight

- **Lower electricity sale volume** due to TOP maintenance period
- **Lower GPSC equity income** due to lower contribution from GLOW

Equity income from GPSC
SPP (TP+TOP SPP)

# Performance Breakdown



| | Petroleum | Petrochemical (1) | Power (2) | Others & New Business (3) | Consolidated Net Profit (exclude stock gain/loss) | Stock Gain/ (Loss) | Consolidated Net Profit (include stock gain/loss) |
|---|---|---|---|---|---|---|---|
| Q2/19 | (303) | 362 | 572 | (38) | 705 | (138) | 567 |
| **Q3/19** | **265** | **6** | **467** | **(41)** | **690** | **(1,373)** | **(683)** |
| 9M/18 | 4,174 | 2,719 | 1,767 | 228 | 9,065 | 5,896 | 14,961 |
| **9M/19** | **456** | **1,199** | **1,521** | **35** | **3,330** | **963** | **4,293** |

## Key Points

### Petroleum

Lower utilization due to MTA CDU-3 for 30 days (Mid Jun'19 – Mid Jul'19)

### Petrochemical

- **Aromatic & LAB:** lower utilization due to maintenance TPX's complex for 45 days (Mid Jun'19 – End of Jul'19)
- **Lube:** lower contribution pressured by new lube supply into the market

### Power

Lower contribution mainly from lower electricity sales due to TOP & TPX maintenance period and low GPSC's equity income

### Others & New Business

**Solvent:** lower contribution from weak gross sale margins due to high competitive market

Remark

(1) Includes 75% of LAB net profit, Q2/19 (39) MB, Q3/19 (6) MB, 9M/18 (28) MB, 9M/19 (109) MB and Lube business
(2) 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%)
(3) Consisting of Solvent, Marine, Ethanol and other business

# Q3 & 9M/19 TOP Group Consolidated P&L



| Unit : million Baht (MB) | Q3/19 | Q2/19 | QoQ+/(-) | Q3/18 | YoY+/(-) | 9M/19 | 9M/18 | YoY+/(-) |
|---|---|---|---|---|---|---|---|---|
| Sales Revenue | 82,329 | 91,962 | (9,633) (A) | 100,720 | (17,391) (D) | 265,916 | 288,893 | (22,977) (F) |
| Hedging gain/(loss) | 147 | 90 | 57 (B) | (140) | 287 | 71 | 32 | 39 |
| **EBITDA** | **945** | **2,072** | **(1,127) (C)** | **7,124** | **(6,179) (E)** | **9,906** | **23,820** | **(13,914) (G)** |
| Financial cost | (1,041) | (1,196) | 155 | (844) | (197) | (3,452) | (2,864) | (588) |
| FX G/(L) & CCS | 303 | 594 | (291) | 548 | (245) | 1,549 | 860 | 689 |
| Tax Expense | 222 | (116) | 338 | (1,008) | 1,230 | (895) | (3,298) | 2,403 |
| **Net Profit** | **(683)** | **567** | **(1,250)** | **4,558** | **(5,241)** | **4,293** | **14,961** | **(10,668)** |
| EPS (THB/Share) | (0.33) | 0.28 | (0.61) | 2.23 | (2.56) | 2.10 | 7.33 | (5.23) |
| THB/US$ - average selling | 30.88 | 31.76 | (0.88) | 33.15 | (2.27) | 31.47 | 32.33 | (0.86) |
| THB/US$ - ending | 30.77 | 30.92 | (0.15) | 32.58 | (1.81) | 30.77 | 32.58 | (1.81) |
| Effective Tax Rate (%)* | N/A | 16% | N/A | 18% | N/A | 17% | 18% | (1%) |

## Analysis

### Q3/19 VS Q2/19

**(A) TOP and TPX: Lower sales volume from MTA**

**(B) Mainly from PX-ULG95 hedging gain**

**(C) Mainly from larger stock loss** (Stock loss (1.8) $/bbl in Q3/19, Stock loss (0.2) $/bbl in Q2/19)

### Q3/19 VS Q3/18

**(D) TOP and TPX: Lower sales volume from MTA and lower average selling price**

**(E) Mainly from weakened GIM** (GIM 5.1$/bbl in Q3/19, GIM 7.2$/bbl in Q3/18) **and stock loss in Q3/19** (Stock loss (1.8) $/bbl in Q3/19, Stock gain 1.5 $/bbl in Q3/18)

### 9M/19 VS 9M/18

**(F) TOP and TPX: Lower sales volume from MTA and lower average selling price**

**(G) Mainly from weakened GIM and lower stock gain** (Stock gain 0.4 $/bbl in 9M/19, Stock gain 2.2 $/bbl in 9M/18)

# 9M/19 TOP Group Consolidated Cash Flow

(Unit: Million THB)

| Operating Cash Flow | 9M/19 | 9M/18 |
|---|---|---|
| | 6,838 | 7,213 |
| Net income & non-cash adj. | 10,920 | 25,478 |
| Change in working capital | (4,082) | (18,265) |

+

(Unit: Million THB)

| Investments | 9M/19 | 9M/18 |
|---|---|---|
| | 35,896 | 3,816 |
| Dividend income | 763 | 768 |
| ST investments | 55,177 | 4,257 |
| Available for sale | - | 2,287 |
| CAPEX (PP&E) & other | (20,020) (1) | (3,497) |

(1) TOP 18,394 MB, TPX 1,192 MB

| Free Cash Flow | 42,734 | 11,029 |
|---|---|---|

+

| Financing | (12,565) | (6,349) |
|---|---|---|
| Loans proceeding | 5,739 (2) | 53,503 |
| Loans repayment | (10,153) (3) | (45,723) |
| Interest | (3,526) | (3,124) |
| Dividend | (4,626) | (11,006) |

(2) ST-loan TMS 240, LABIX 2,085, TSTH 2,160, TSV 552, SAP&SGE, 625 MB
LT-loan TSV 42, SGE 35 MB

(3) ST-loan LABIX 2,375, SAPTHIP 660, TMS 18, TSTH 2,130 ,TSV 719, and TLB 540 MB
LT-loan TOP 3,000, TM 150, LABIX 270, TOP SPP 143, SAKC 108, SAPTHIP 20, TSV 19 MB

| | Beginning | Changes | Effect of FX changes | Ending |
|---|---|---|---|---|
| Cash | 34,041 | 30,192 | (2,080) | 62,154 |
| S/T investment | 73,221 | (55,606) (4) | | 17,614 |
| Investment in EPIF | 361 | 20 (5) | | 381 |
| | 107,623 | | | Ending Cash incl. S/T Investment & EPIF: 80,149 (6) |

+ +

=

non-cash transaction :
(4) Unrealized loss from FCD 414 MB
(5) MTM EPIF 20MB in 9M/19

(6) USD Deposit = 48,476 MB (1,594 MUSD)

# Sustainability / ESG



**Goals:** Sustainability through ESG / DJSI & Credit Rating
To maintain DJSI Industry Leader as Global Recognition

MEMBER OF Dow Jones Sustainability Indices In Collaboration with RobecoSAM

SAM Sustainability Award Silver Class 2019

## Environmental

- Operate with ECO – Efficiency (GHG reduction target of 4% of BAU by 2022)
- Create Circular Economy
- Develop Green Products / Services (i.e. Solvent Green Product, TDAE, bio – ethanol, renewable power (thru GPSC))

**Example of activities**

- TOP SPP - Thailand Voluntary Emission Reduction Program (Combined-Cycle Co-Generation Power Plant) reduce GHG ~335,674 tons of $CO_2$ equivalence p.a.
- TOP Group - Low Emission Support Scheme (LESS) from energy efficiency improvement projects (reduction of GHG around 33,121 tons of $CO_2$ equivalence p.a.)

TGO

## Social

- Deliver positive social impact to improve quality of life
- 4 Focus areas

**1) Education** (i.e. KVIS, VISTEC)
- VISTEC's 2019 Commencement Ceremony by Her Royal Highness Princess Maha Chakri Sirindhorn
- TOP is one of the founding member of KVIS & VISTEC and committed to support on both finance and operation (i.e. R&D / Innovation)

KVIS KAMNOETVIDYA SCIENCE ACADEMY
VISTEC VIDYASIRIMEDHI INSTITUTE OF SCIENCE AND TECHNOLOGY

**2) Healthcare & Well-being**
(i.e. Laem Chabang Hospital)

**3) Energy Saving & Environmental**
(i.e. Solar Power for Life, Sustainable Energy for Health Care )

**4) Religious / Culture / Tradition**
(i.e. religious activities)

## Governance

- Integrated governance, risk and compliance (GRC)
- ZERO Corruption and Fraud Incident

ZERO TOLERANCE CORRUPTION

**Zero Corruption and Fraud Incident**

**People**
- Culture Strengthening
- Reward Recognition Penalty

**Process**
- 3 Lines of Defense
- Integrated GRC

# Key Milestones / Recognitions



## Thaioil's 58th Anniversary

- 58th Anniversary of the establishment of Thai Oil Public Company Limited on August 3, 2019

## 2019 Sustainability Award

By RobecoSAM

- 7 - consecutive year as DJSI Emerging Market member & industry leader in oil & gas sector
- 2019 Sustainability Award (Silver Class)

## Drive Awards 2019 Excellence

by the MBA Chula Alumni Association

- Drive Award 2019 Excellence – Resource Sector, determined from company performance, CG Score, and Thailand Sustainability Investment

## Asian Excellence Award

By Corporate Governance Asia

- Asia's Best CEO (Investor Relations)
- Asia's Best CFO (Investor Relations)
- Best Investor Relations by Company

## IR Magazine Global Forum & Award

By IR Magazine

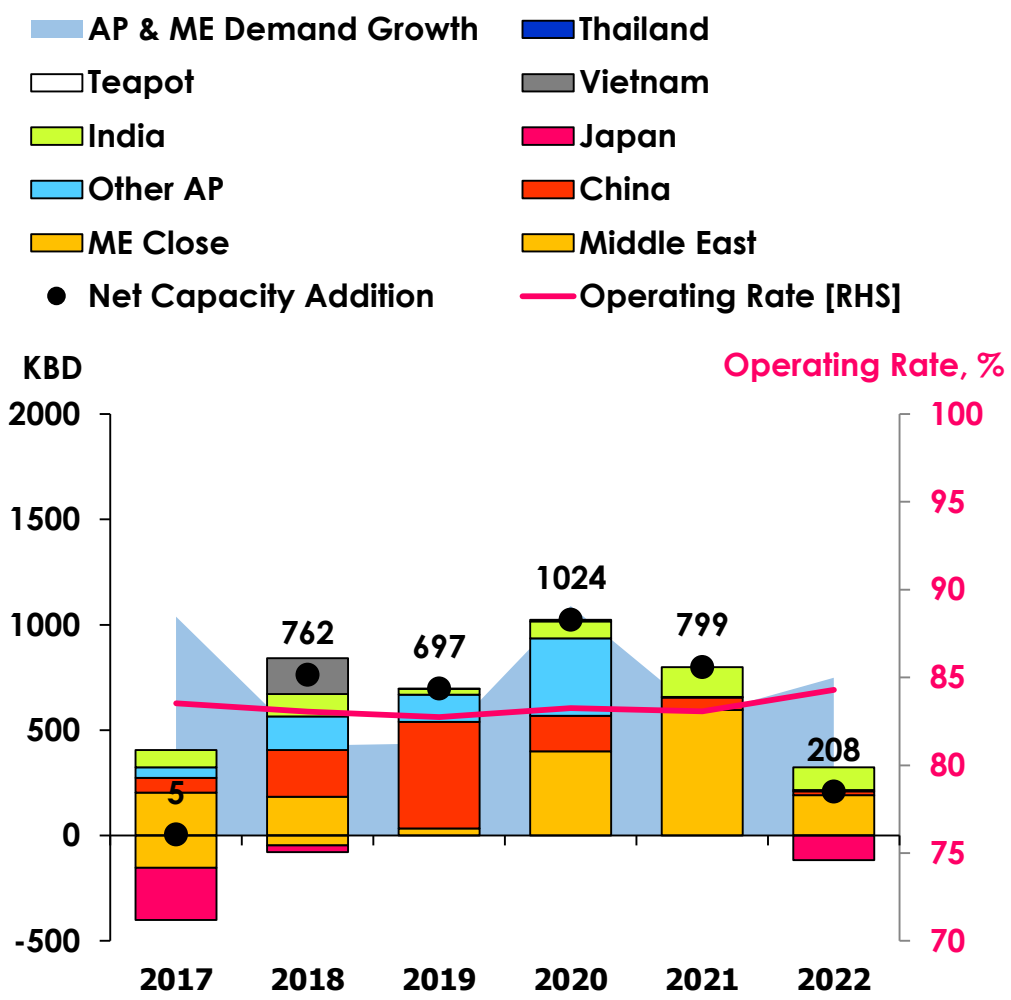
- Shortlisted TOP Five Global Best IR in Energy Sector

## Alpha Southeast Asia Award

By Alpha Southeast Asia Magazine

- The Strongest Adherence to CG
- Best Strategic CSR
- The Best Senior Management IR Support

# Asia Pacific and Middle East Refinery Addition



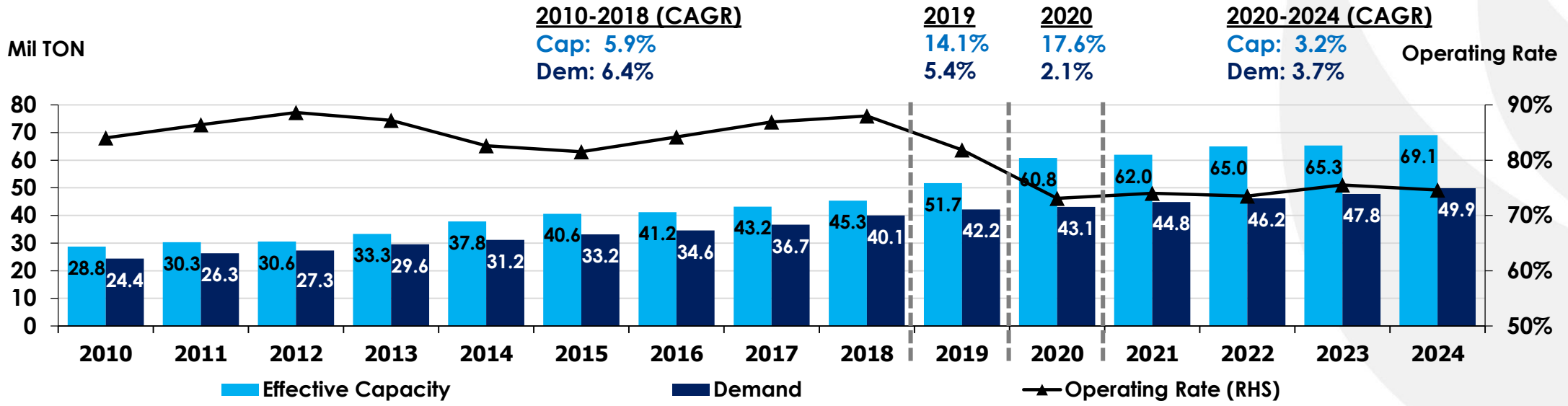

Note: Adjusted capacity based on start-up period (effective additional capacity)

| Start-up period) | Country | Nameplate (KBD) | Company |
|---|---|---|---|
| Q2-19 | China | 400 | Hengli Petrochemical Dalian |
| | South Korea | 37 | Hyundai Lotte - Seosan |
| | China | 400 (Q4'19 > Q2'19) | Zhejiang Rongsheng Group, ZPC |
| Q3-19 | Iraq | 66 | North Refining Company – Baiji |
| Q4-19 | Brunei | 175 | Hengyi Petrochemicals - Pulau Muara Besar |
| | Malaysia | 300 (Q1'20 > Q4'19) | Petronas Pengerang (RAPID) |
| Q1-20 | India | 56 | BPCL Mumbai |
| Q2-20 | Saudi Arabia | 400 | Jizan |
| | Iraq | 66 | North Refining Company – Basra |
| | Kuwait | 171 | KPC - Mina Al-Ahmadi |
| | UAE | 65 | ENOC – Jebel Ali |
| Q3-20 | India | 56 | HPCL Mumbai |
| **Closures** | | | |
| Q4-19 | China | -100 | Local refineries |
| Q2-20 | Kuwait | -112 | KPC - Mina Al-Ahmadi |
| Q4-20 | China | -75 | Local refineries |

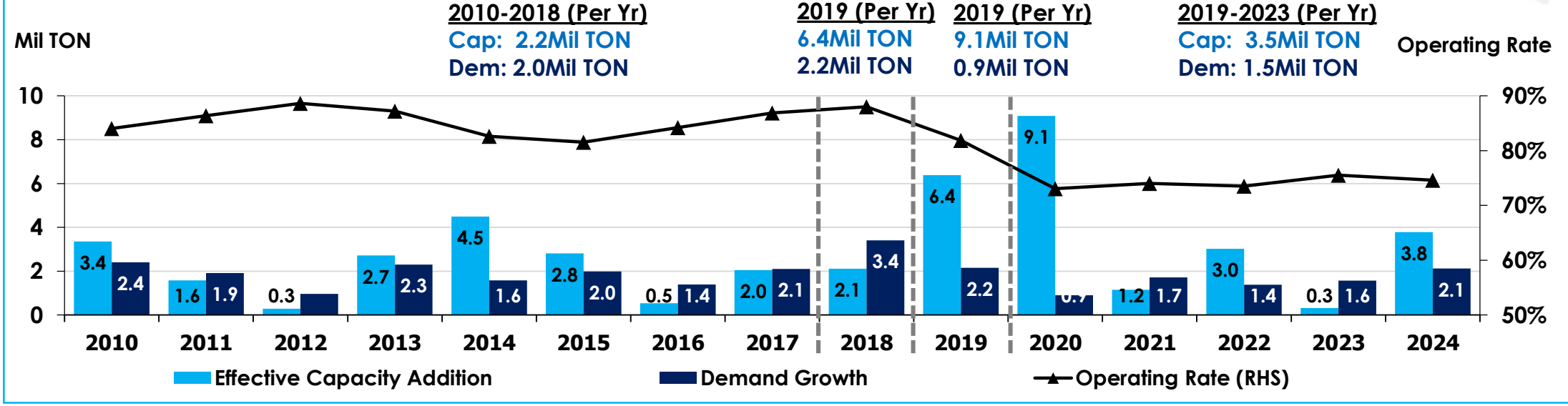
Sources: FGE Energy Semi Annual Reports, Fall 2019, Reuters (Oct'19) and TOP's estimate

# AP/ME PX Balance

## AP/ME PX Supply Demand Balance



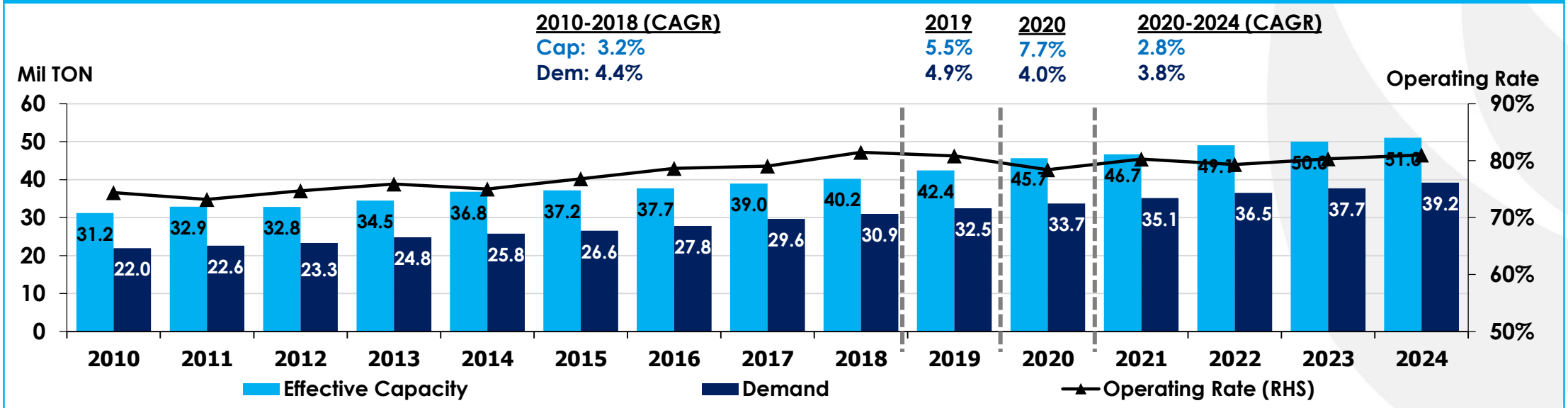

## AP/ME Effective Capacity Addition and Demand Growth



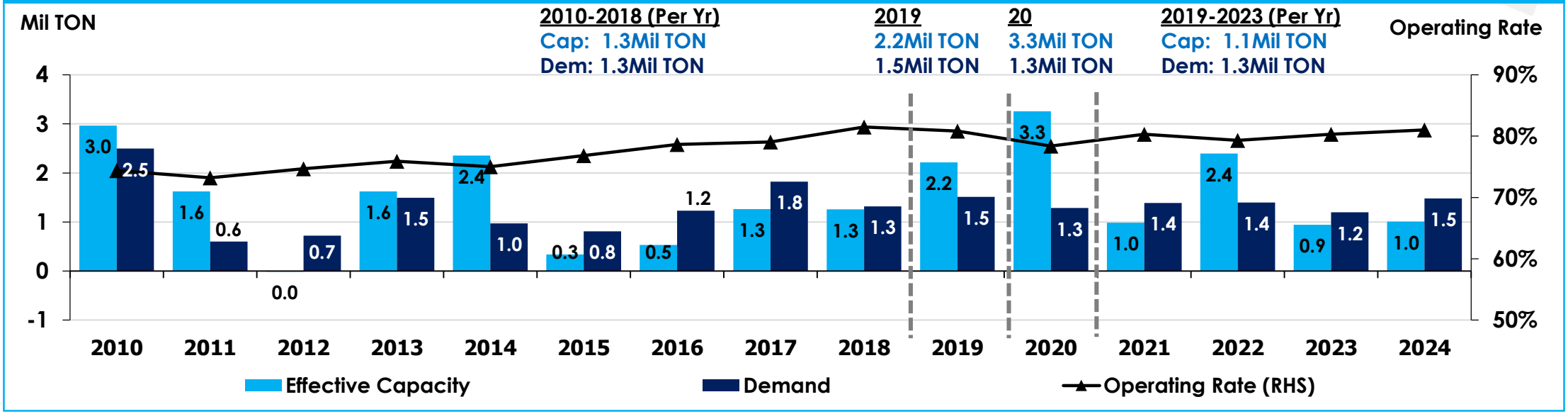

Sources: WM Chemicals (Feb'19) and TOP's Estimate

# AP/ME BZ Balance

## AP/ME BZ Supply Demand Balance

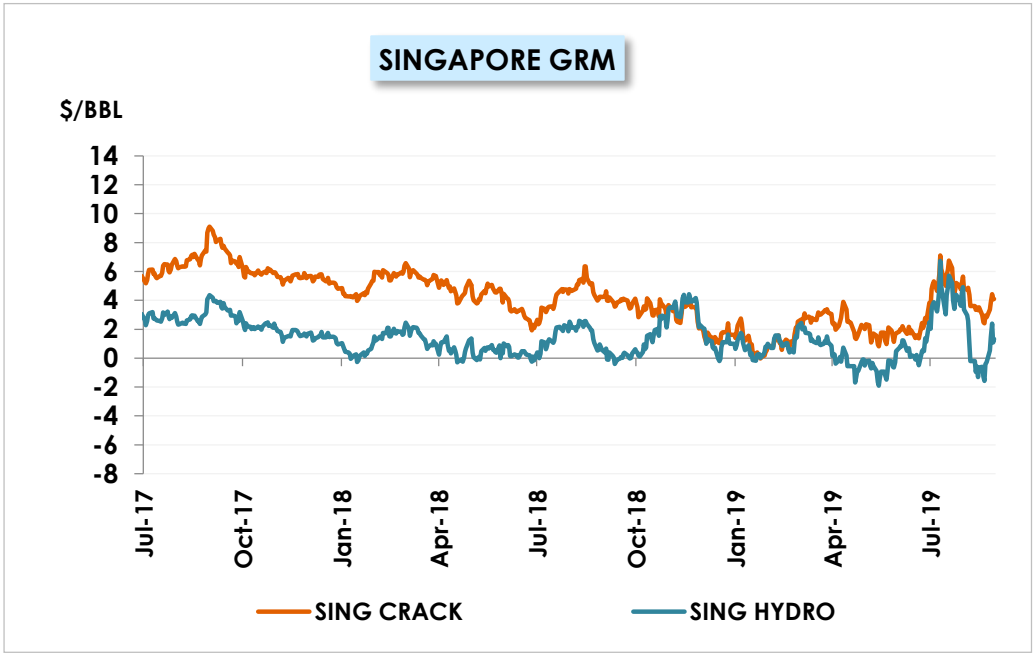


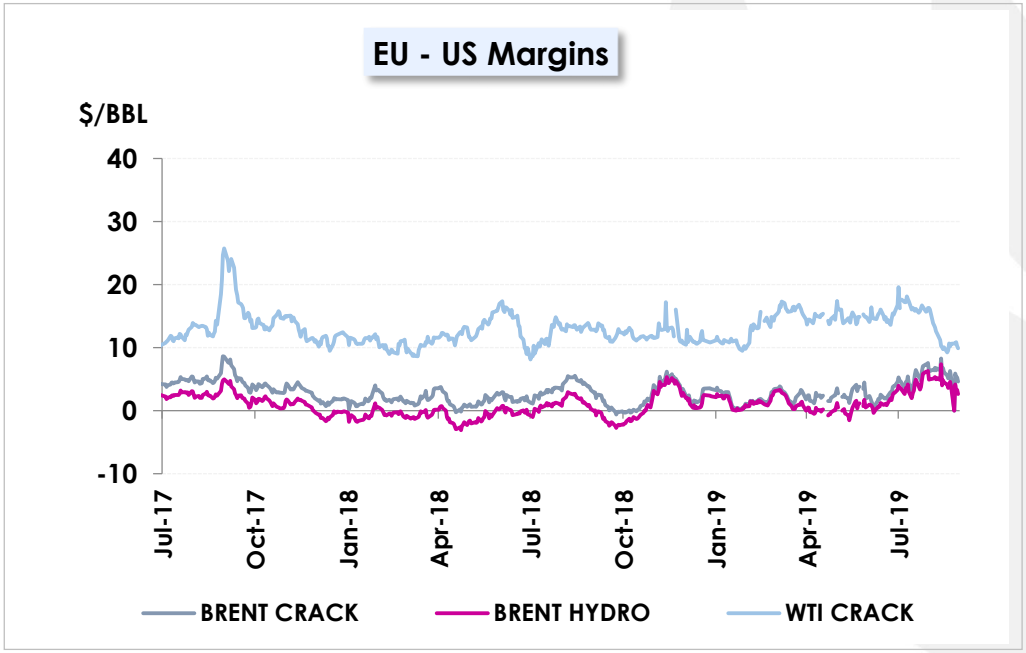

## AP/ME BZ Effective Capacity Addition and Demand Growth

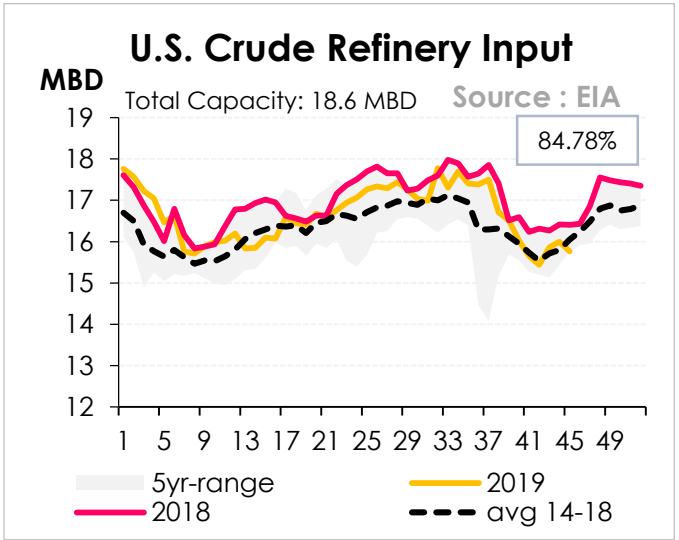


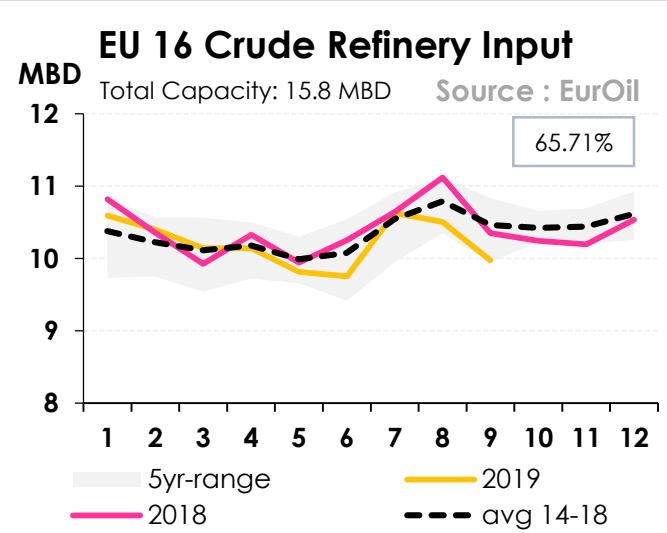

Source: IHS (Feb'19) and TOP's Estimate

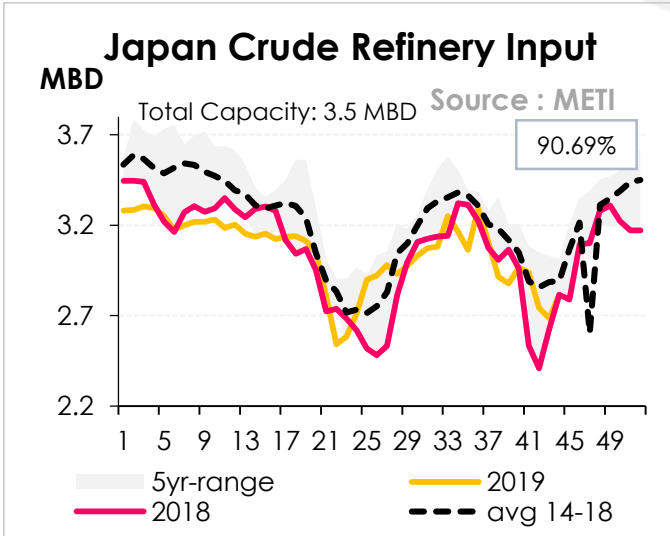
# Asian Margin Vs. US-EU margin



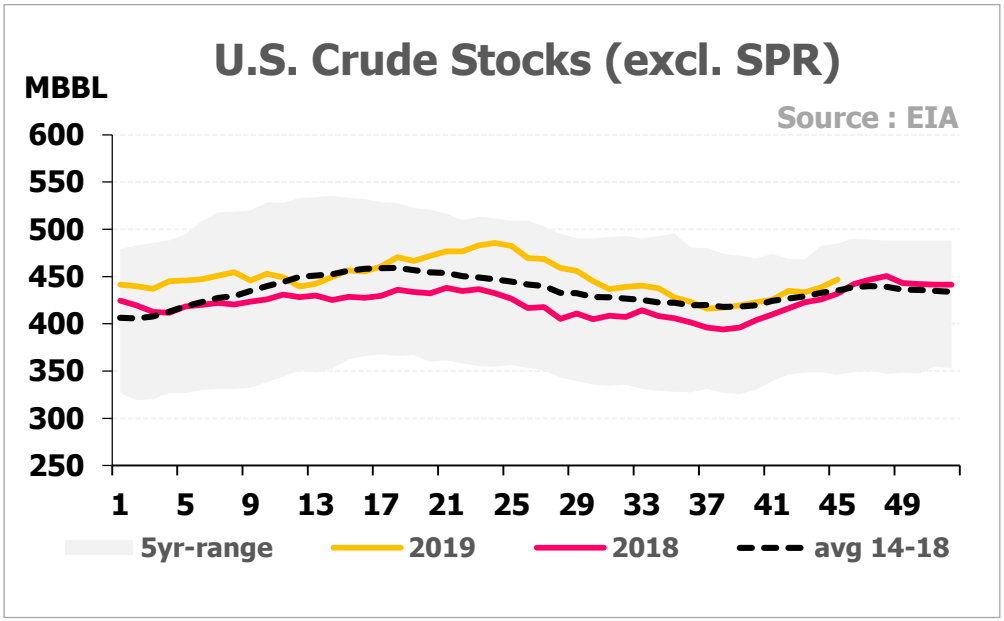



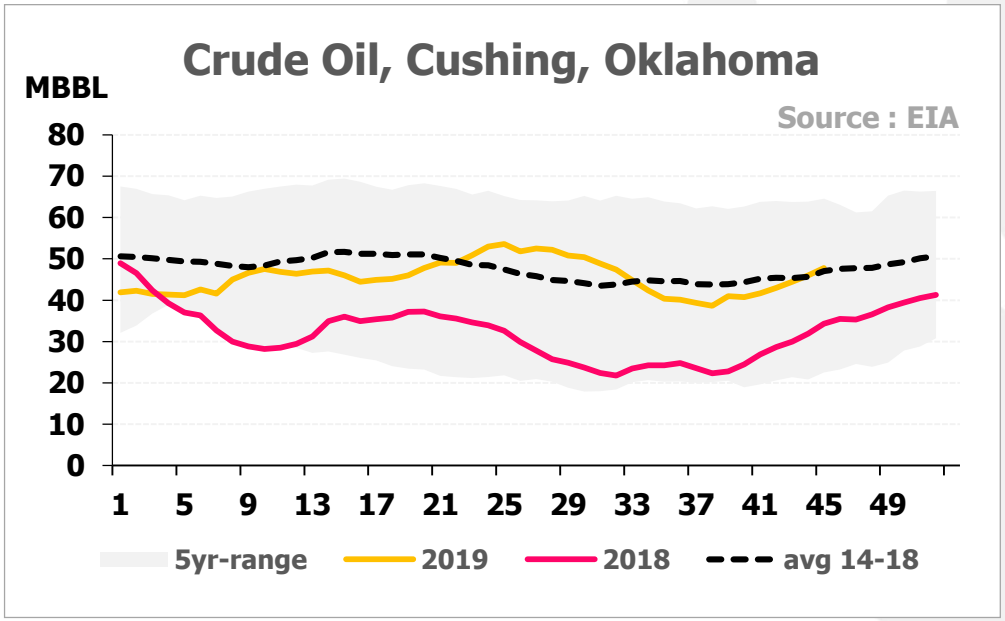



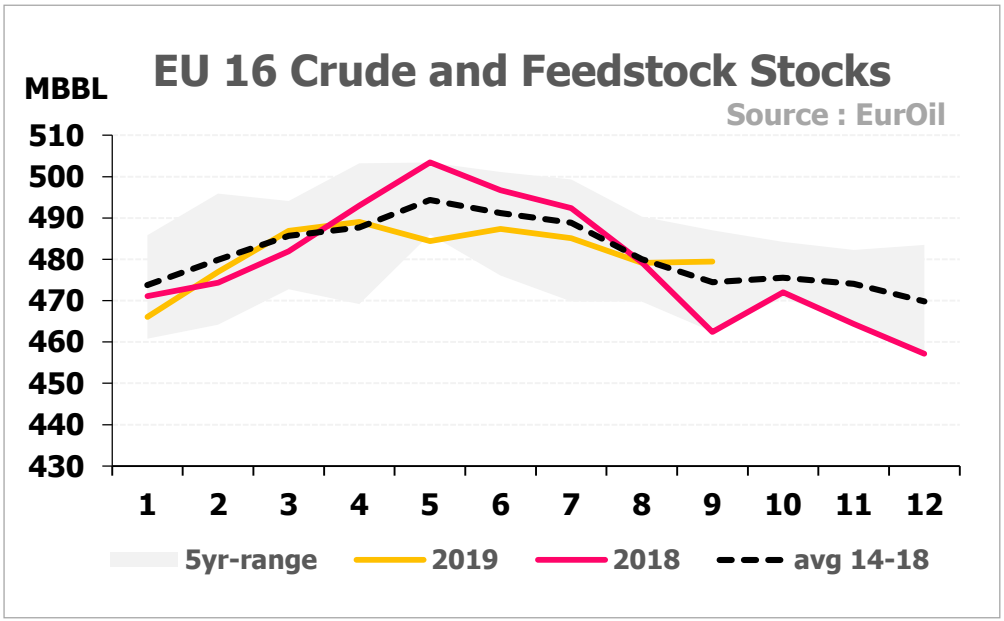



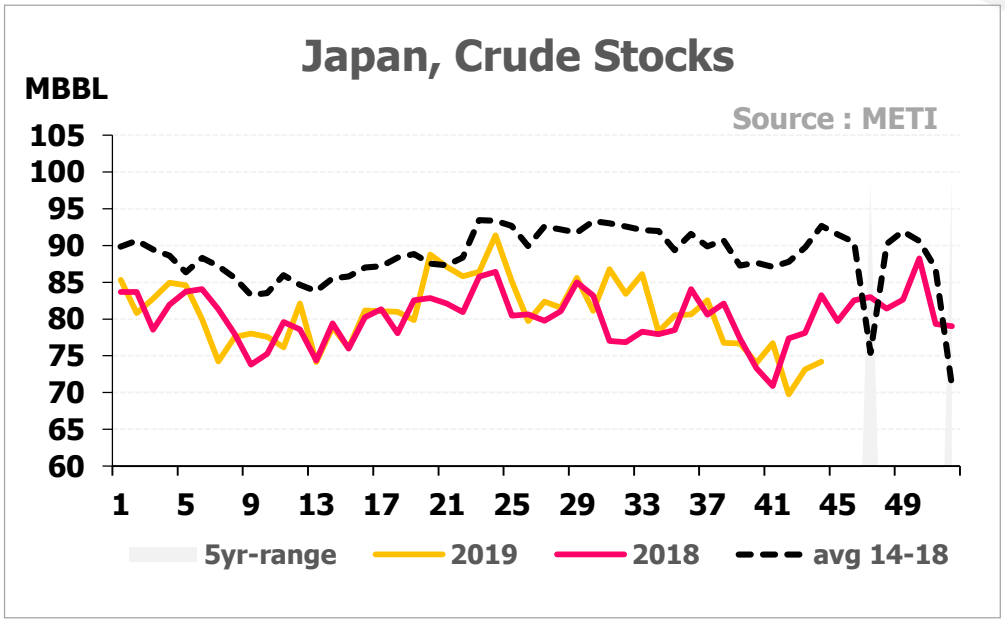



# Global Crude Oil Inventories

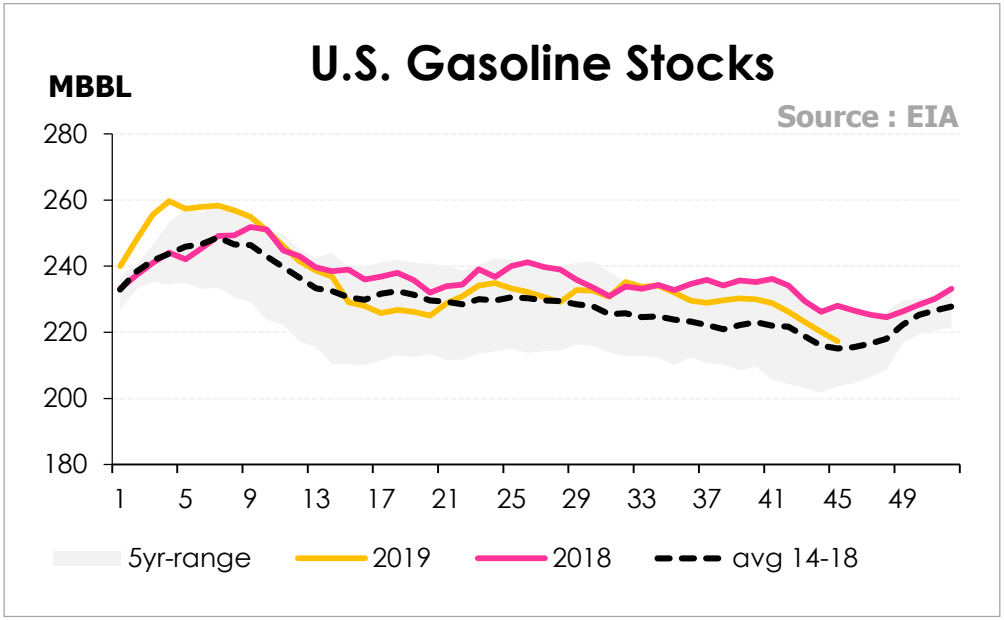


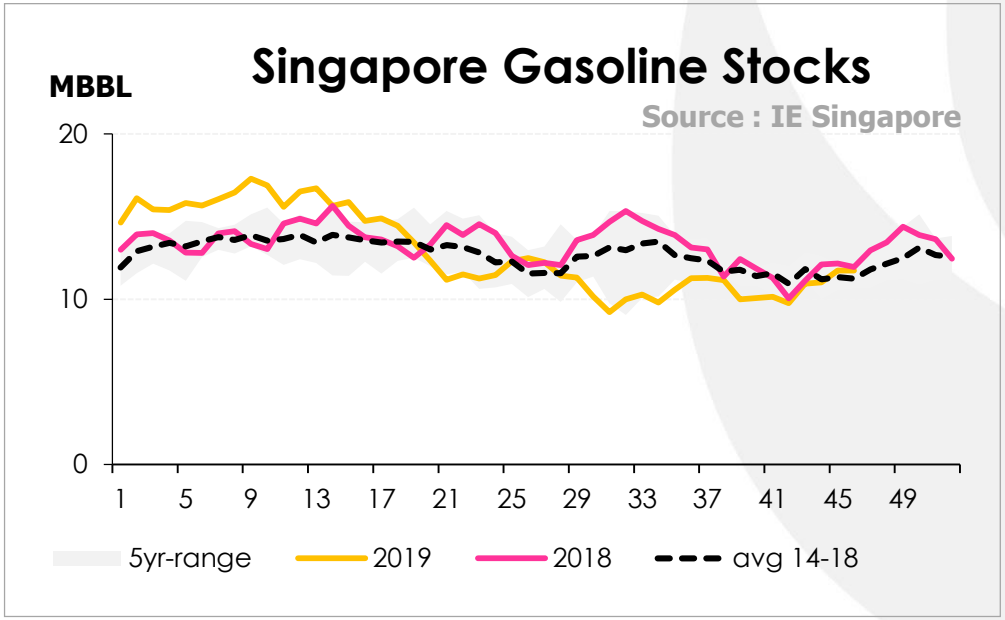



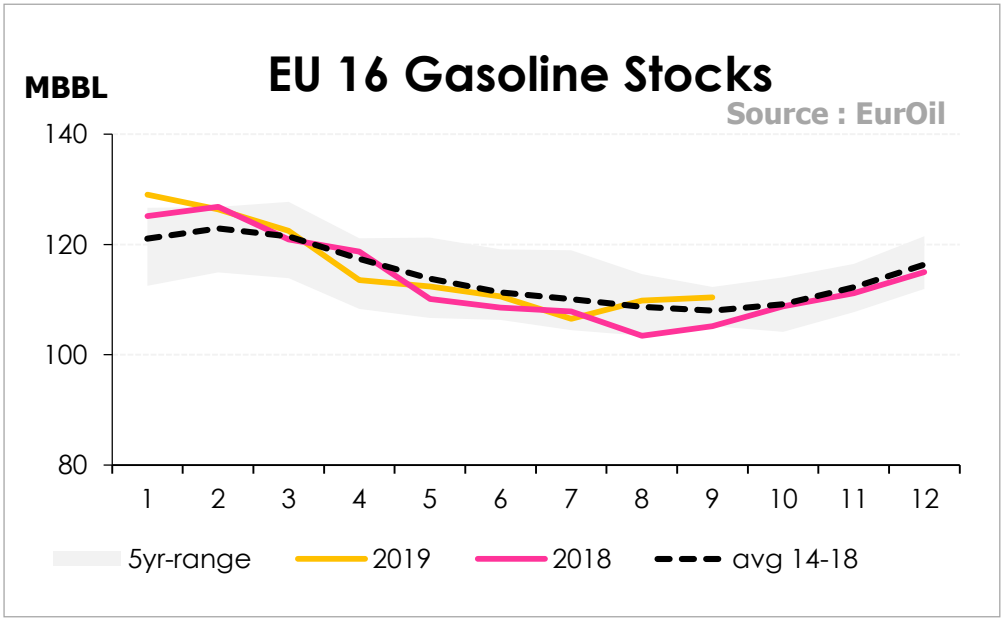



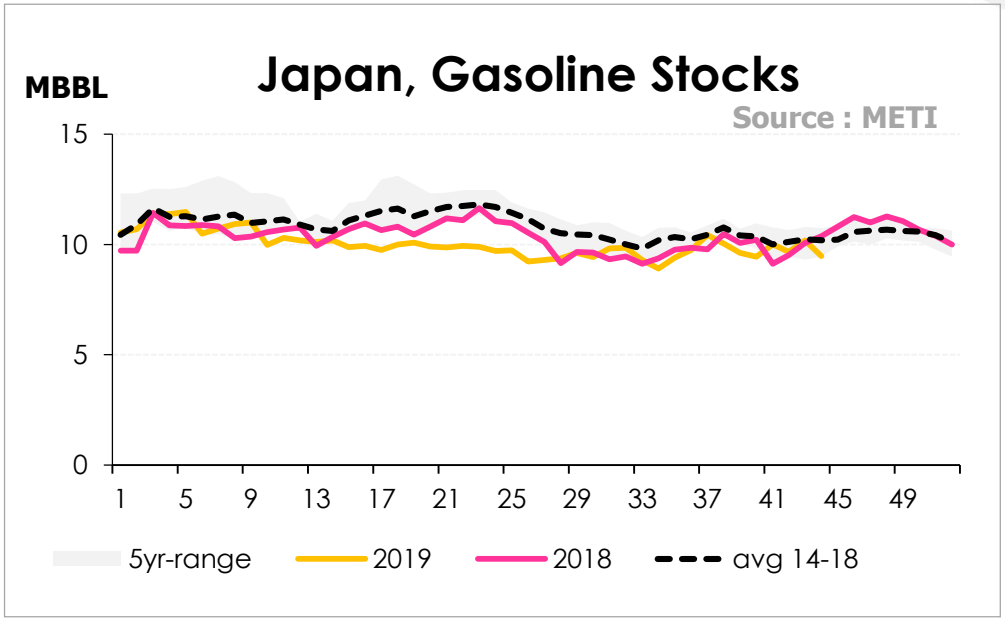



# Global Gasoline Inventories

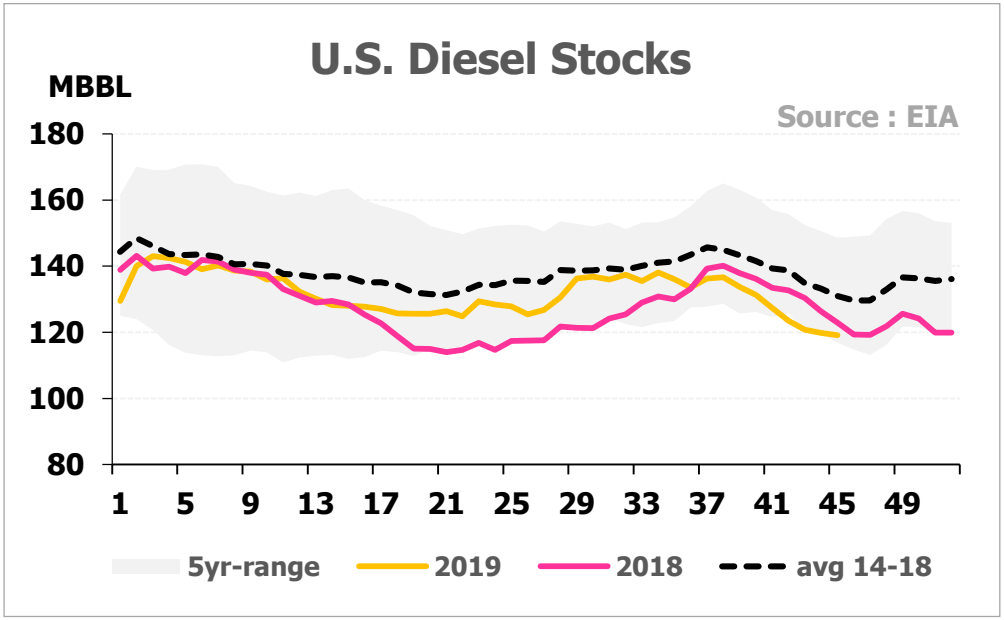


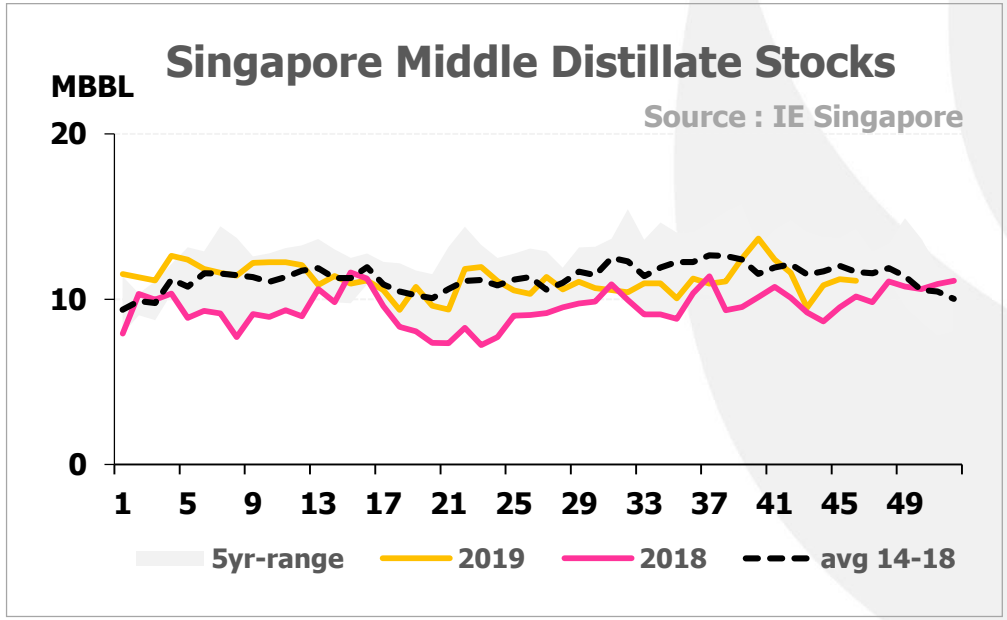



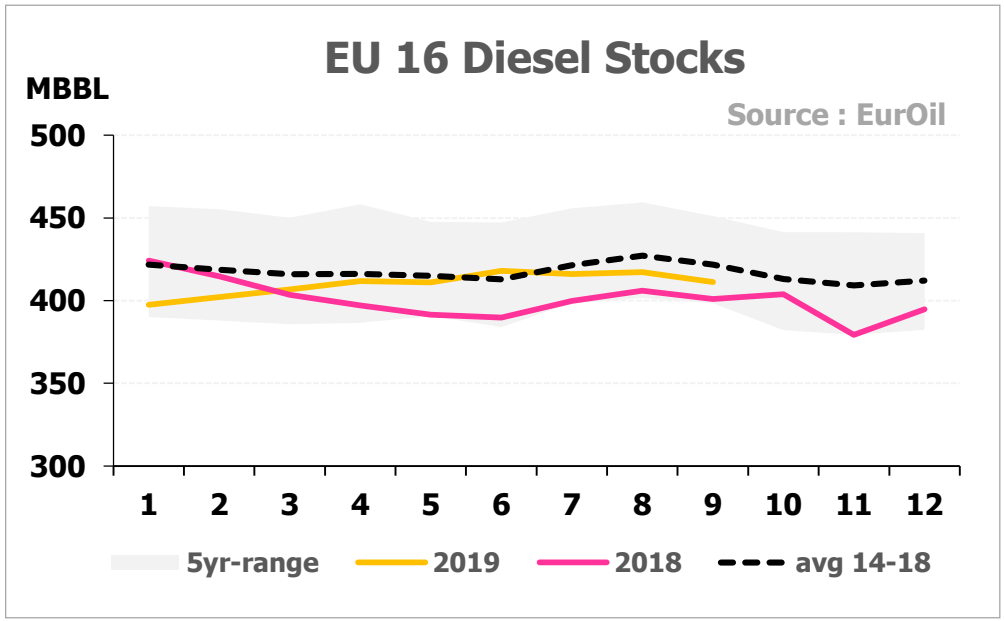



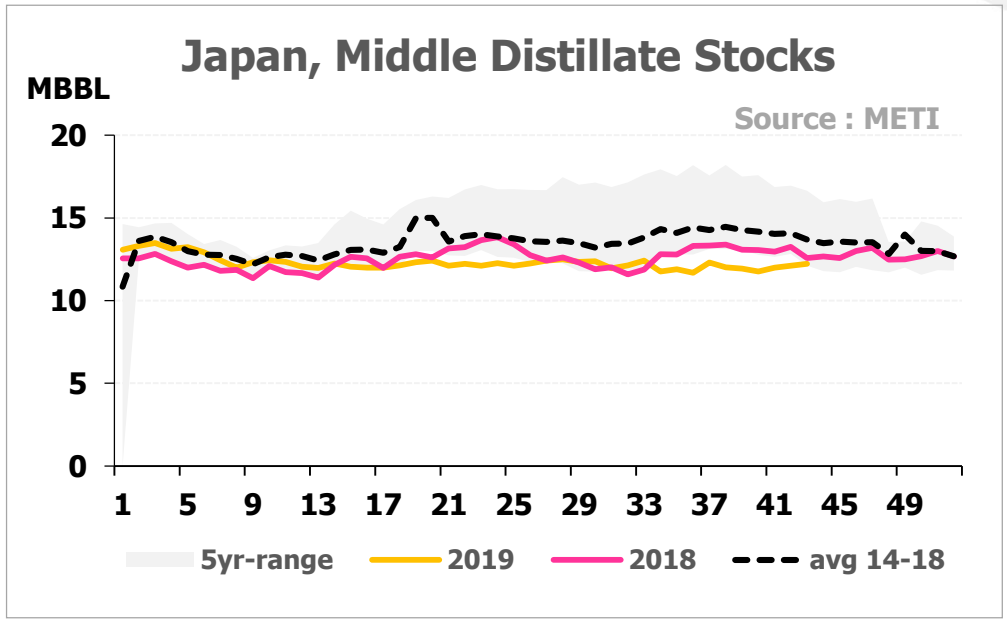



# Global Middle Distillate Inventories

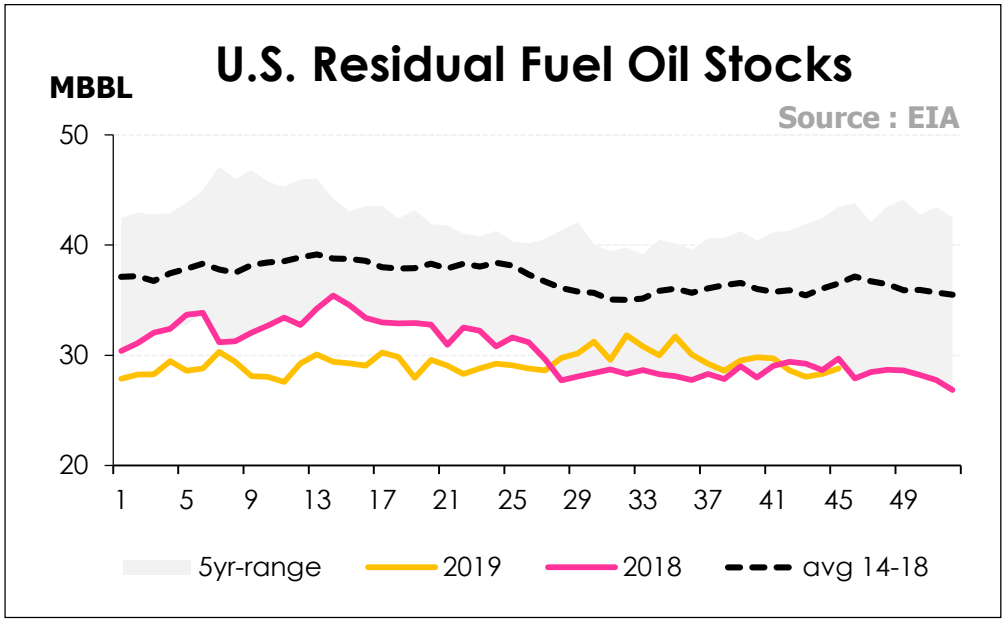


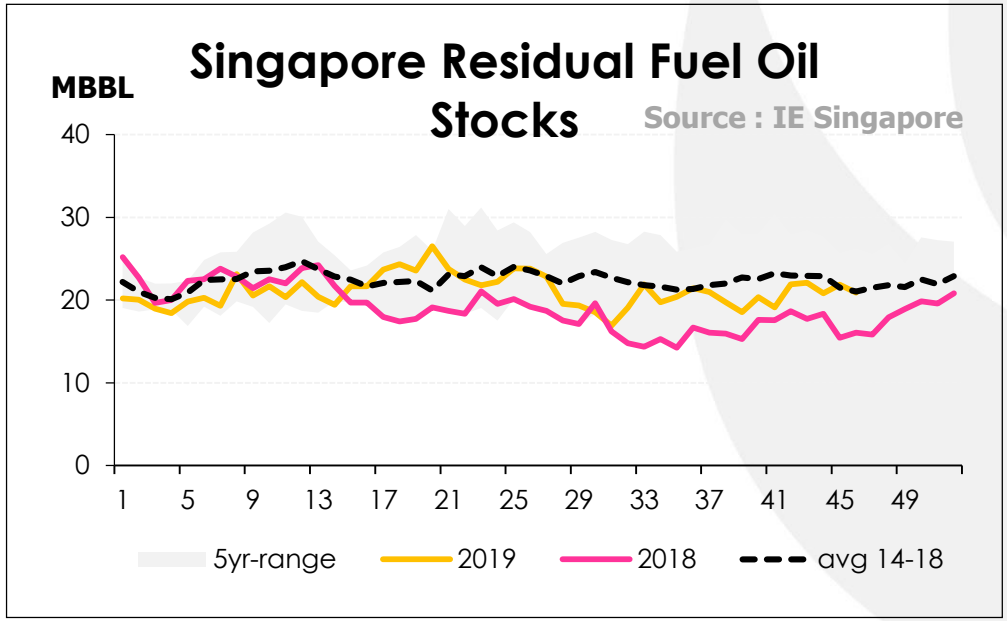



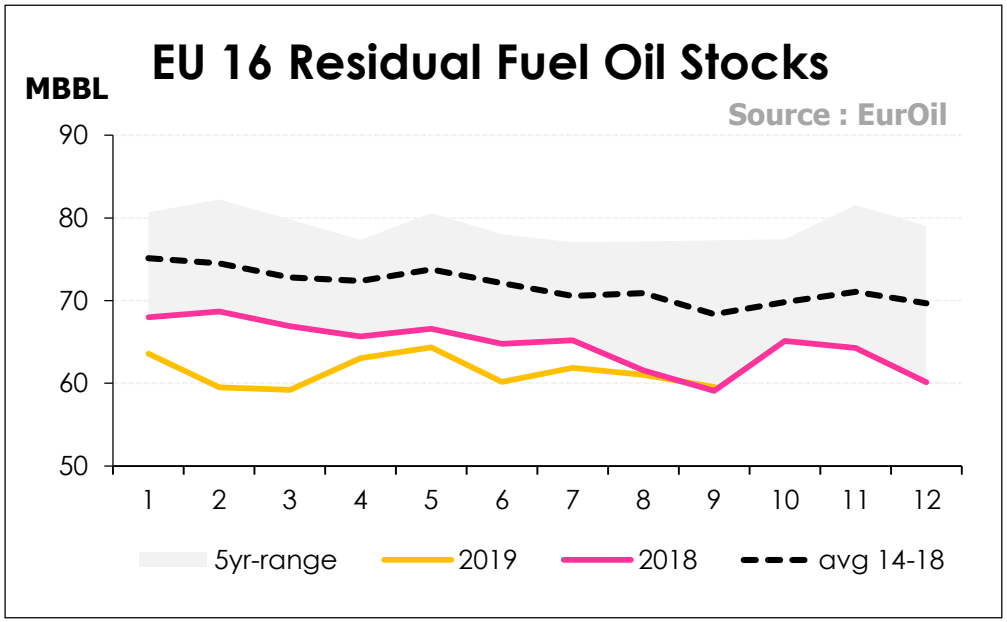



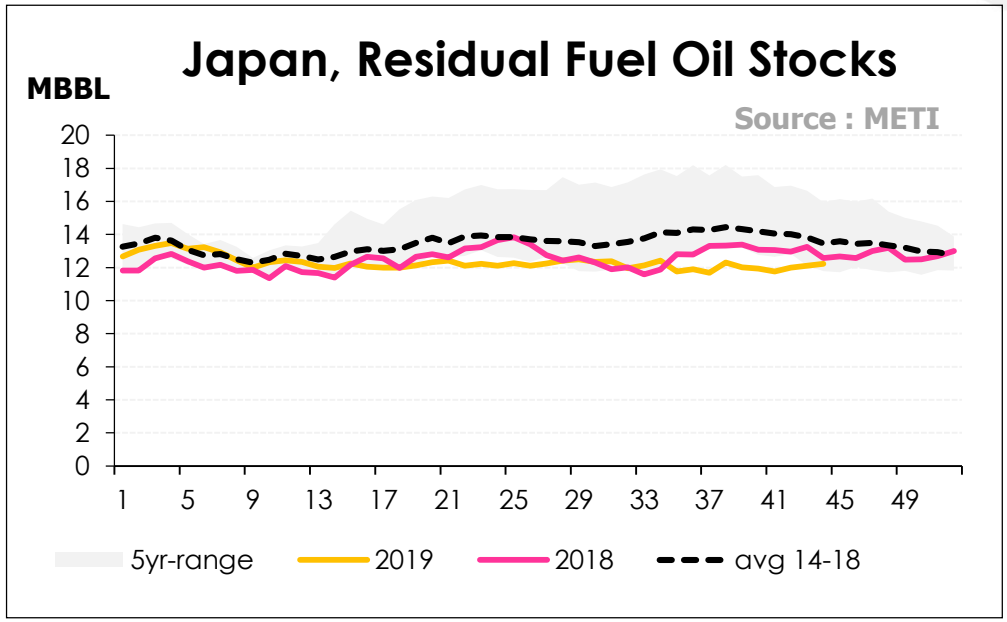



# Global Fuel Oil Inventories

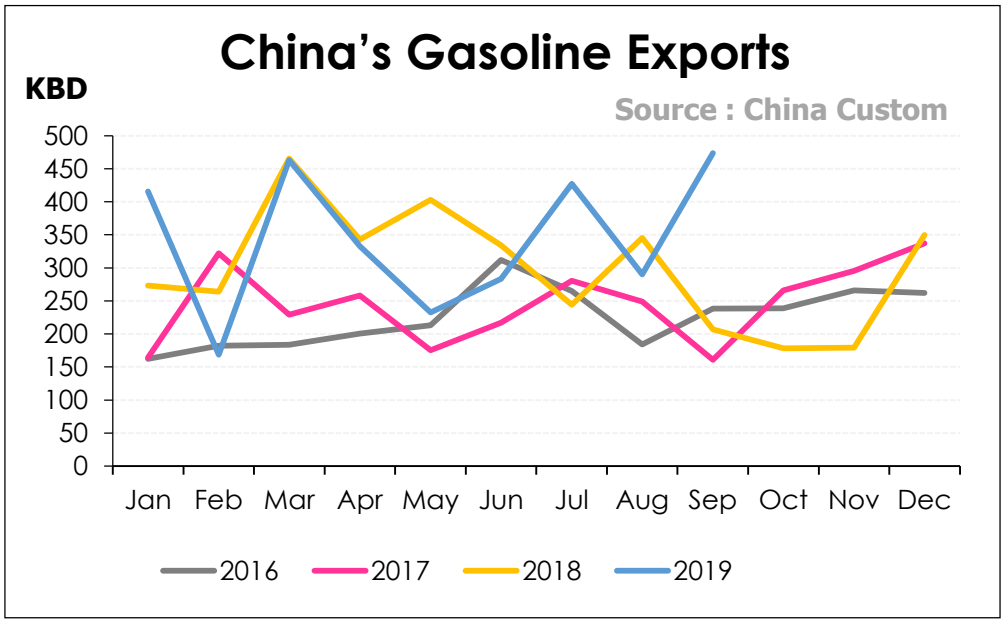


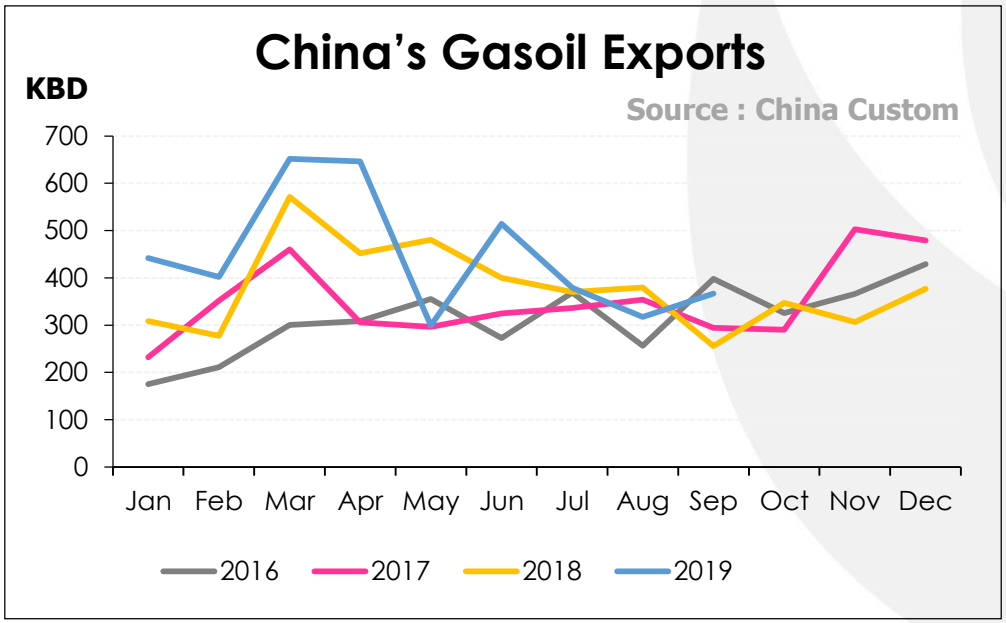



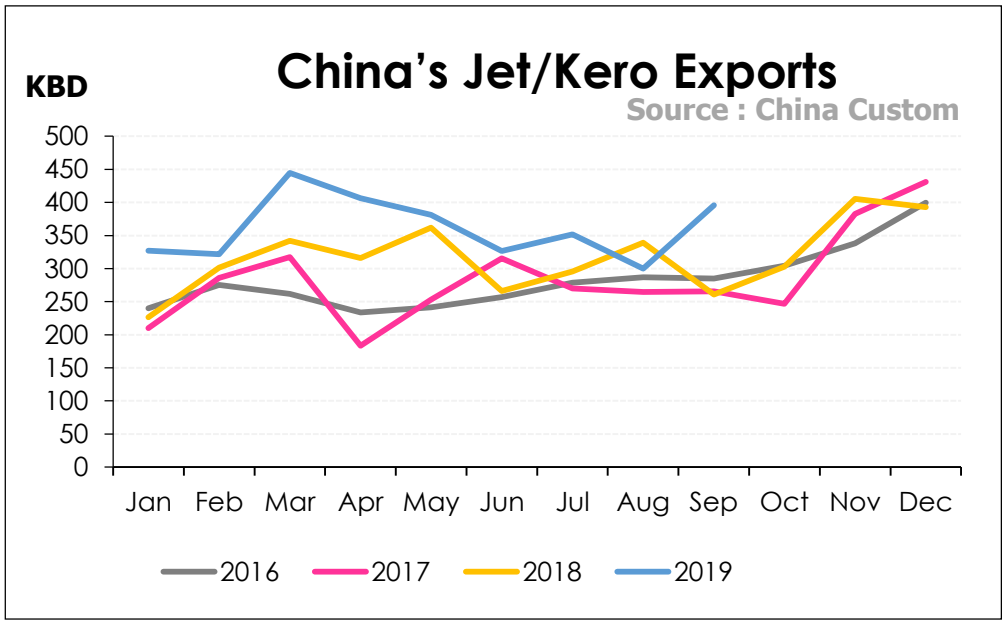



# China's Refined Product Exports

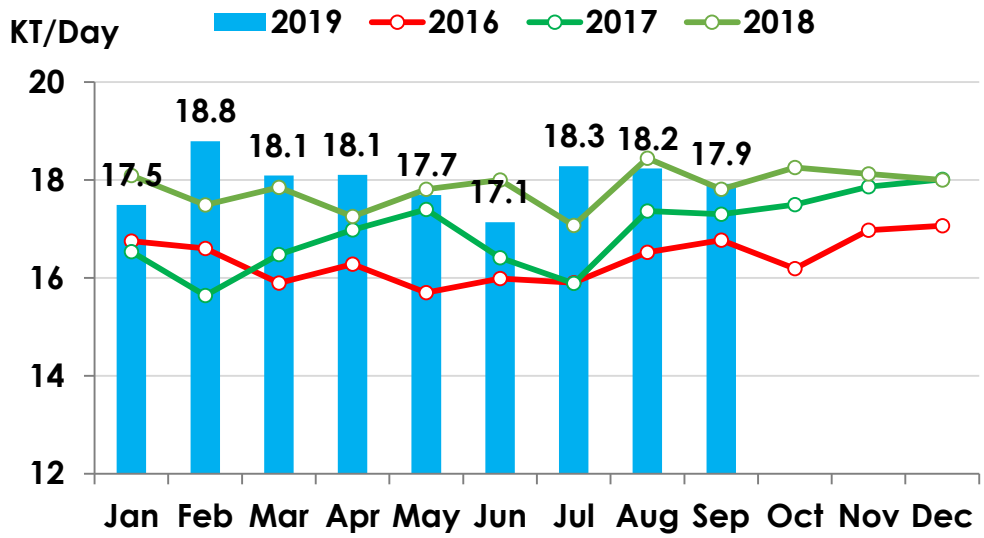


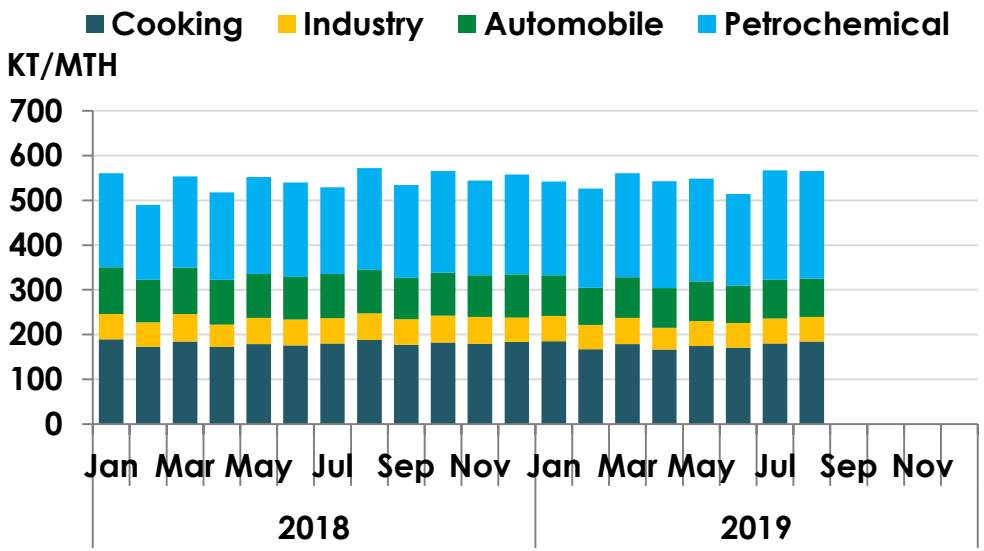
# Domestic LPG Demand

## Thailand LPG Demand




*Remark : LPG demand includes Petrochemical consumption*

## LPG Demand by Sector




## LPG Demand Highlight

- **In 9M2019, LPG demand expanded 1.2% YoY.** on the support of 12.1% YoY increasing from petrochemical sector, due to higher substitute feedstock price. However, LPG demand in cooking sector, industrial sector and transport sector decreased by 2.3% YoY, 3.4% YoY and 12.0% YoY, respectively.

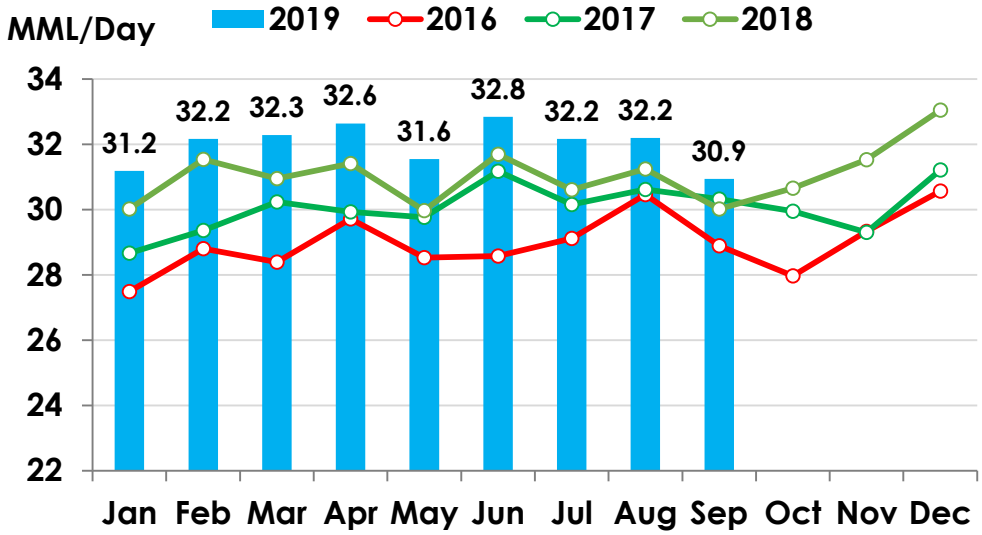
## Outlook for 2019

- LPG demand is expected to increase 0.9% YoY mainly supported by the demand for petrochemical sector which is expected to grow by 13.3%. While transport sector tend to decline at 12.4% YoY due to fuel switching. Moreover, LPG station in Thailand was decreased limiting access to fuelling station for LPG vehicle users. Moreover, the accumulated registered of pure LPG vehicles in Thailand during 2014-2019 fell at a rate of 5.5% per year, which implies LPG vehicle has become significantly less incentive for automobile users over time.

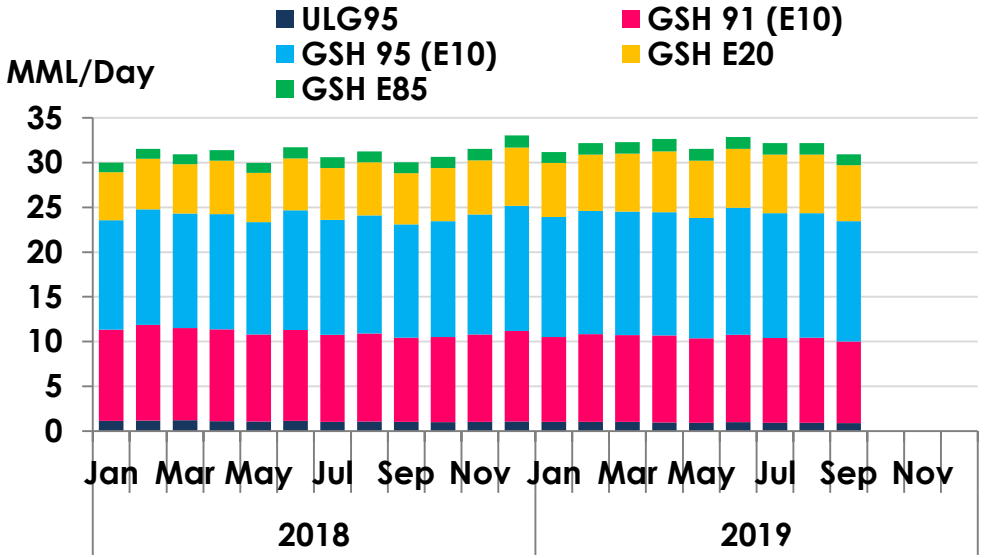
Source: EPPO, DOEB (As of Aug 2019)

# Domestic Gasoline/Gasohol Demand

## Thailand Gasoline/Gasohol Demand




## Gasoline/Gasohol Demand by Grade




## GASOLINE/Gasohol Demand Highlight

- **In 9M2019, Gasoline demand rose by 3.9% YoY to an average 32.1 ML/day.** Besides the retail price of Gasoline was lower, Gasoline demand was mainly supported by increasing amount of personal cars which are still more popular than public transit. Moreover, Gasoline demand is also advocated by fuel switching from LPG.

- **The level of domestic ethanol demand, in 9M2019, rose significantly by 6.4% YoY** from 4.14 to 4.40 mml/day following the growth of Gasohol demand as GSH95, E20, and E85 increased by 7.0% YoY, 11.7% YoY, and 10.9% YoY, respectively. Ethanol demand was also supported by increasing in the number of new E20 vehicle, higher E20 gas station, and magnetized GSH95-E20 and E20-E85 price gap.

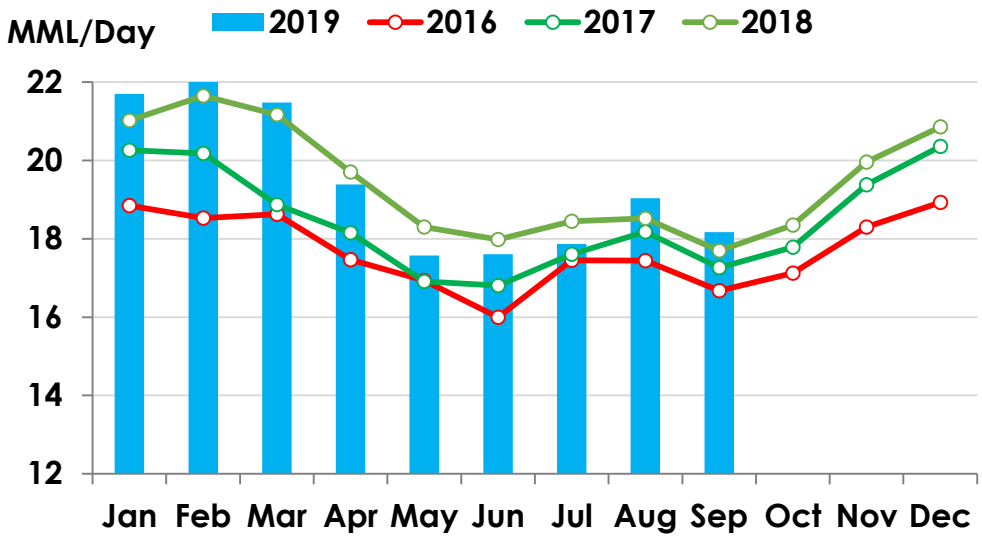
## Outlook for 2019

- Gasoline consumption is predicted to grow by 2.8% YoY supported by expectation of growing of new passengers cars and lower Gasoline retail price.

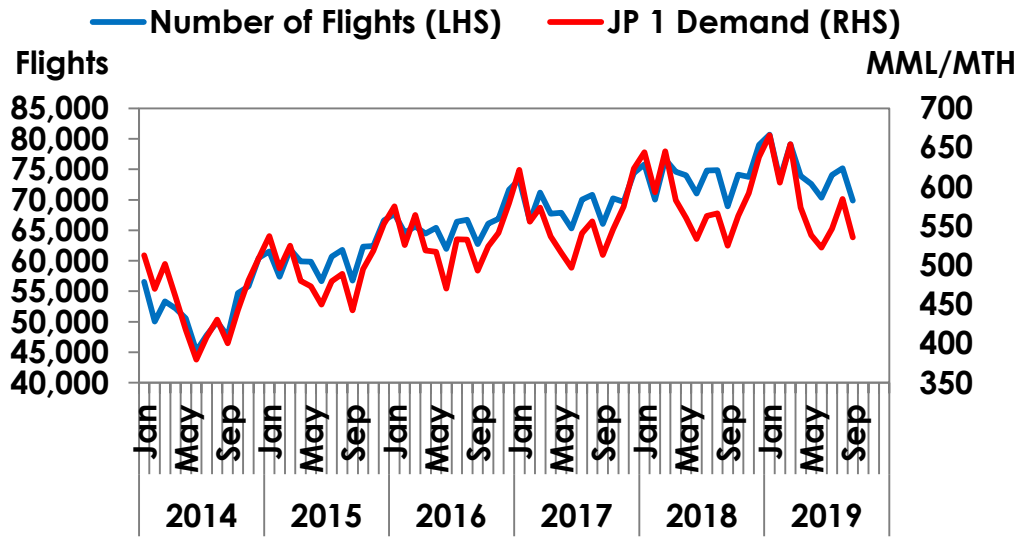
Source: DOEB (As of Nov 2019)

# Domestic Jet Demand

## Thailand JET Demand




## JET-A1 demand and Number of flights




## JET Demand Highlight

- **In 9M2019, Jet consumption slightly increased by 0.2% YoY.** Despite of economic slowdown and strengthening of Thai Baht, flight number which is a main support of Jet demand still grew by 1.2% YoY. An exemption of visa on arrival fee for tourists have been impelling tourism sector since Nov'18 resulting in 1.7% YoY growth of Chinese tourist number and 3.5% YoY growth of total tourist number.

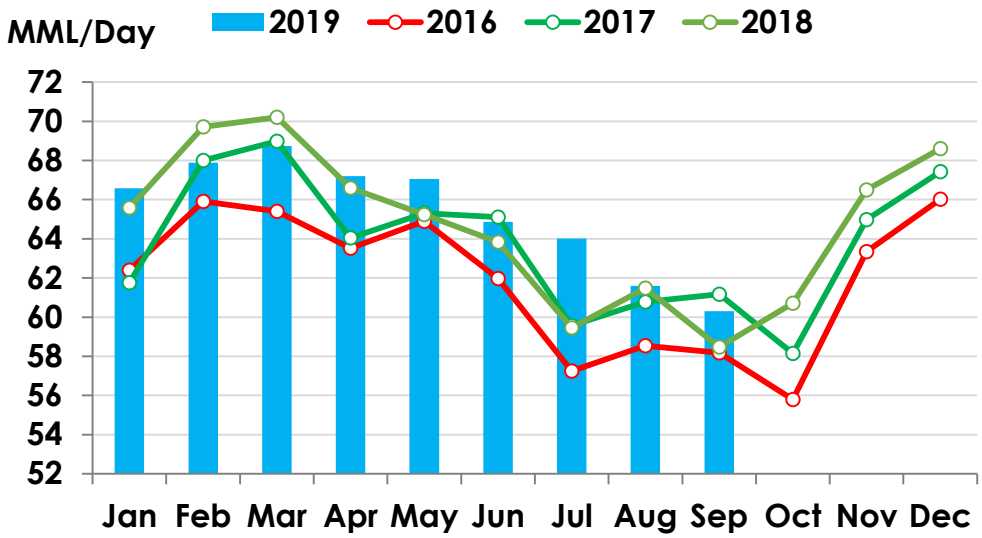
## Outlook for 2019

- Jet demand growth is expected to accelerate to 1.0% YoY as a result of tourism high season in Q4'19, especially from India, Malaysia and Laos. An expansion of a visa fee waiver for another six-month would boost an incentive for foreigners to travel to Thailand. Together with government policies could also help stimulating domestic travel. However, strengthening of Thai Baht and concerns of economic slowdown could be pressured traveling activities.

Source: DOEB, AOT, Department of Tourism (As of Nov 2019)

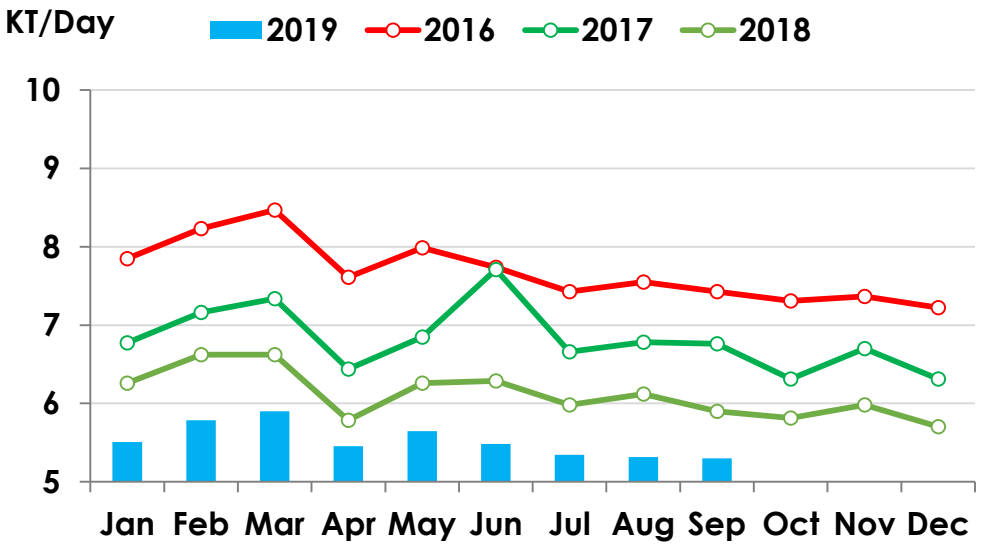
# Domestic Gasoil and NGV Demand

## Thailand Gasoil Demand




*Marine Diesel Excluded

## NGV Demand




## Diesel Demand Highlight

- **In 9M2019, Diesel demand slightly increased by 1.4% YoY** due mainly to 4.7% YoY increasing amount of accumulated registered diesel cars. However, the decrease of logistic activities from weak agricultural and manufacturing production activities by 0.3% and 2.4% YoY, respectively still pressured the demand.

## Outlook for 2019

- Diesel demand is expected to grow by 0.9% YoY supported by higher logistic activities in Q4/19. As the logistic activities would increase following higher expected Thailand manufacturing and agricultural production.

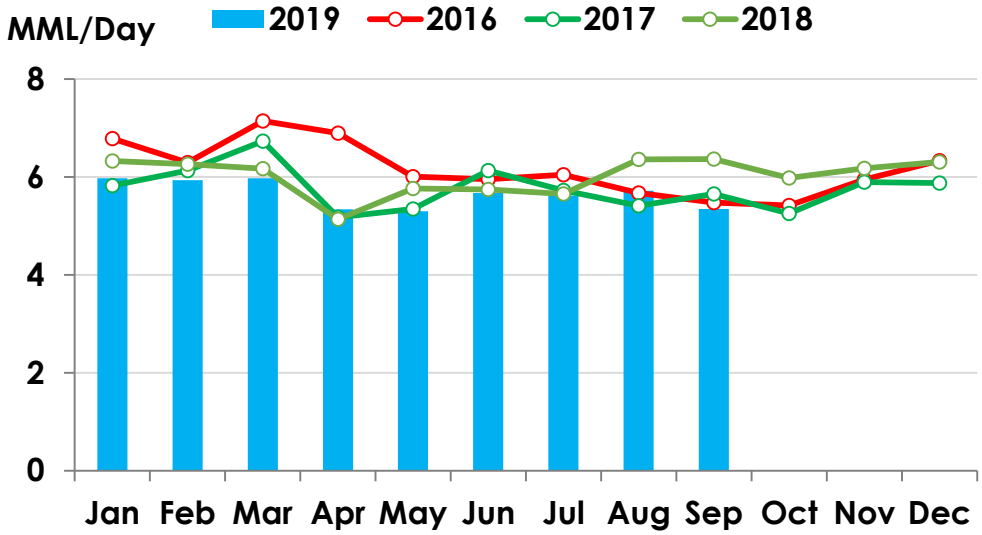
## NGV Demand Highlight

- In 9M2019, NGV demand fell significantly by 11.0% YoY. As NGV price for personal cars have been adjusted to reflect the actual costs making the price increased. Moreover, the B20 incentive policy for large-size of trucks also pressured the demand. These turned NGV users to use other fuels resulting in decrease of NGV service stations.

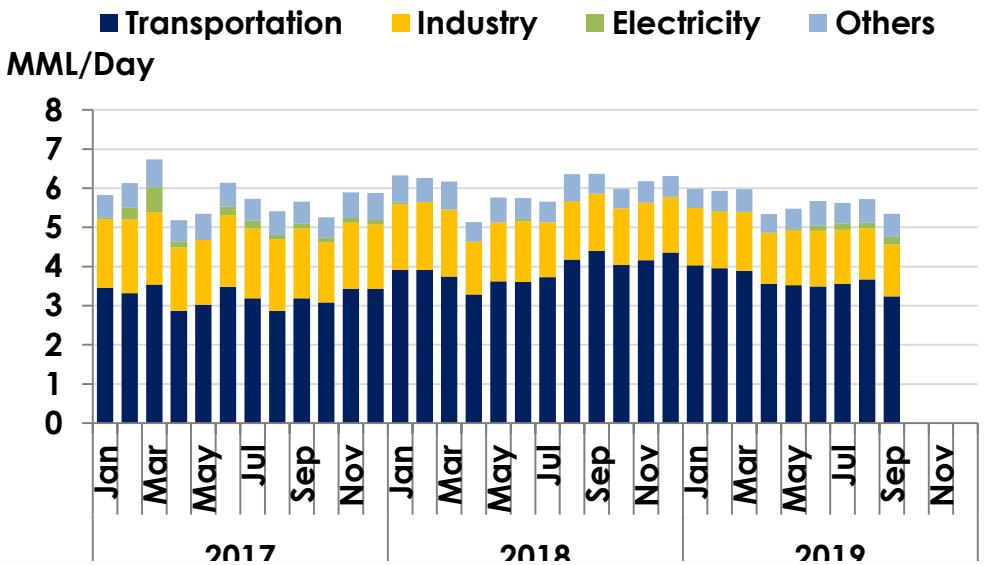
Source: DOEB (As of Nov 2019)

# Domestic Fuel Oil Demand

## Thailand Fuel Oil Demand




## Thailand Fuel Oil Demand by Sector




## Fuel Oil Demand Highlight

- **In 9M2019, Fuel Oil consumption fell by 5.4% YoY,** as a result of the decrease in industrial sector by 9.5% to using environmental friendly fuel. Together with the demand for bunker still dropped by 4.7% YoY due to no off-specification Fuel Oil from Singapore. While the demand for electricity which is less than 1% of overall Fuel Oil demand remained low level but still increased from lower price than other feeds.

## Outlook for 2019

- Fuel Oil demand is expected to dropped by 6.4% YoY, mainly pressured by lower bunker demand. Moreover, demand growth will continue to be limited by weaker consumption for industrial sector.

Source: DOEB (As of July 2019)

# Thank You

Any queries, please contact:

at email: ir@thaioilgroup.com

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

Fax: 662-797-2976