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Gold Class 2020



Thai Oil Public Company Limited

Presentation to Investors

September 2020



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Presentation Agenda

TOP GROUP BUSINESS OVERVIEW

KEY FINANCIAL HIGHLIGHTS

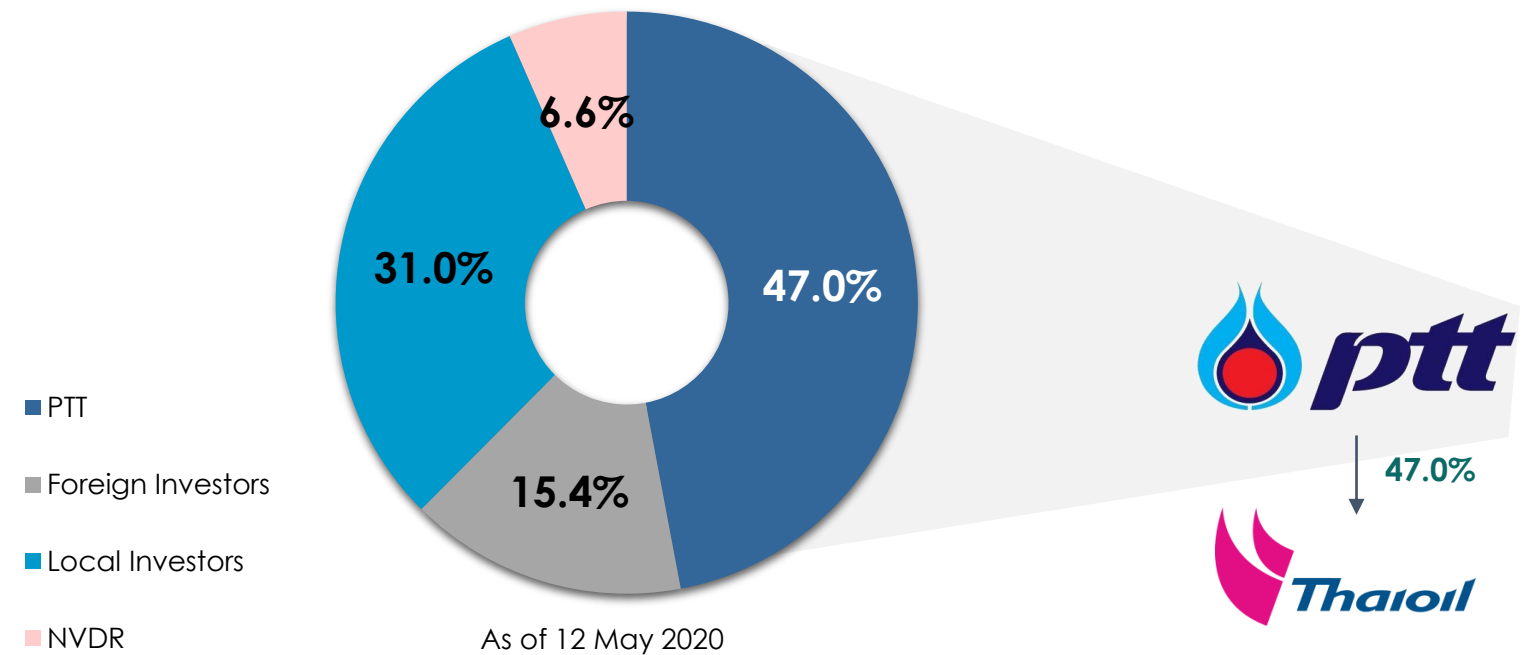
STRATEGIC INVESTMENT PLANS

INDUSTRY OUTLOOK

APPENDIX

Strategic Relationship and Operational Integration with PTT

Thai Oil's strong shareholder base



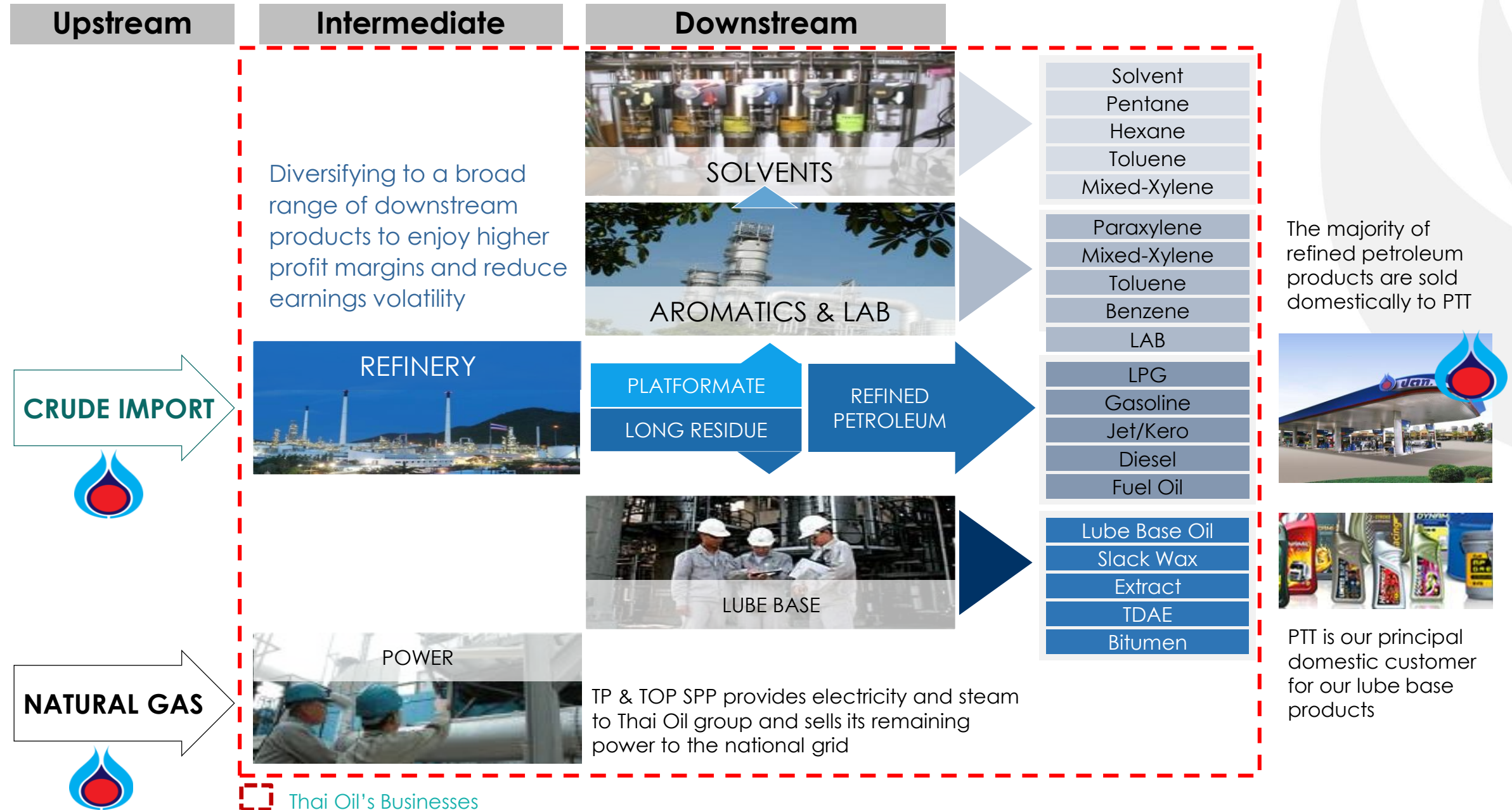
- Benefits from PTT's dual role as our major shareholder and key business partner
- All transactions take place at arm's length and in adherence with strong corporate governance principles

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

-5-



Key Milestones: 60 Years, A Long Track Record of Success

-6-

1961 – 1997 Capacity expansion and initial stage of business diversification

1961

- Incorporated

1964

- Commenced operation with distillation capacity of 35 kbd
- Simple refinery with Nelson complexity Index ~ 4¹

1970

- Refining capacity expanded to 65 kbpd

1989

- Increased refining capacity to 90 kbpd

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 EGAT² with 700 MW capacity ; separately, Thailoil Power ("TP") constructed the power generation plant under the SPP with 118 MW capacity

2004 – 2011 Listing, expansion and diversification

2004

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

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

Today A leading integrated refining and petrochemical group in Asia Pacific

- 275 kbd refinery (approximately 22% of Thailand's total refining capacity)
- Nelson index 9.8¹
- Diversified business through 16 subsidiaries

2010

- Established Thailoil 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 Thailoil 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



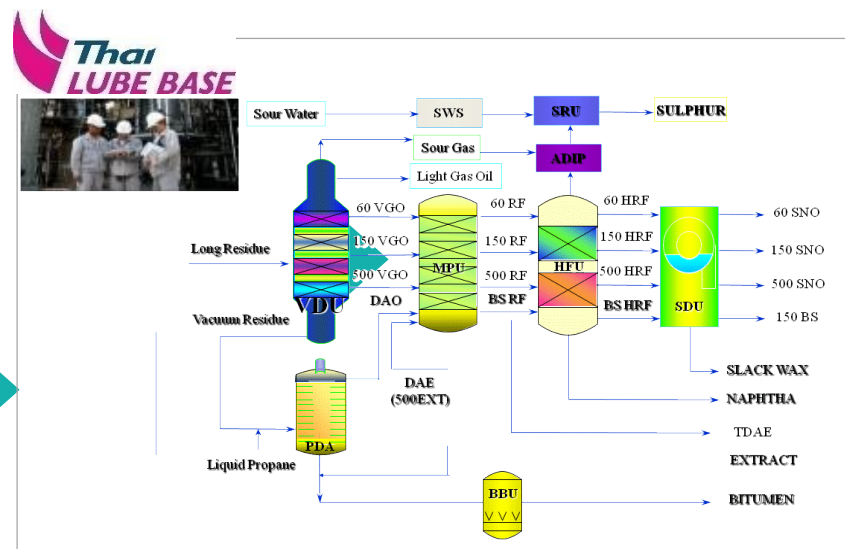
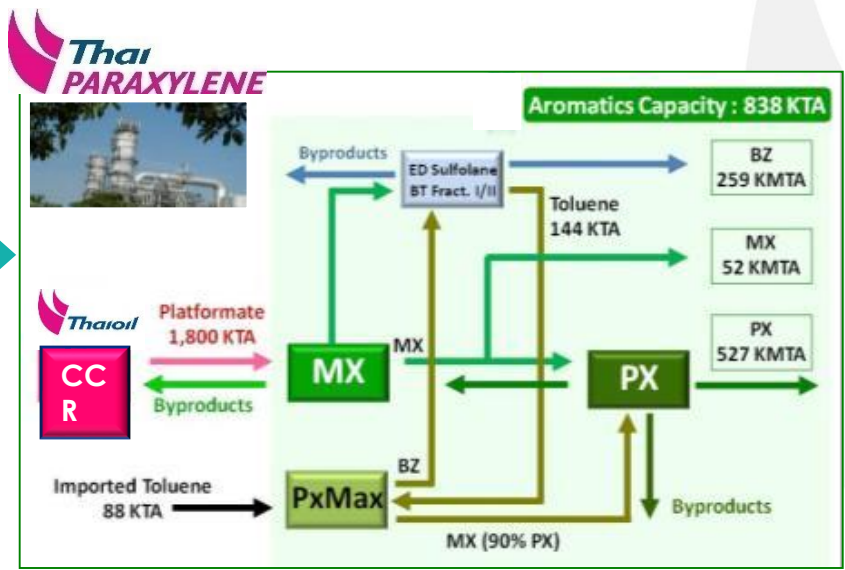
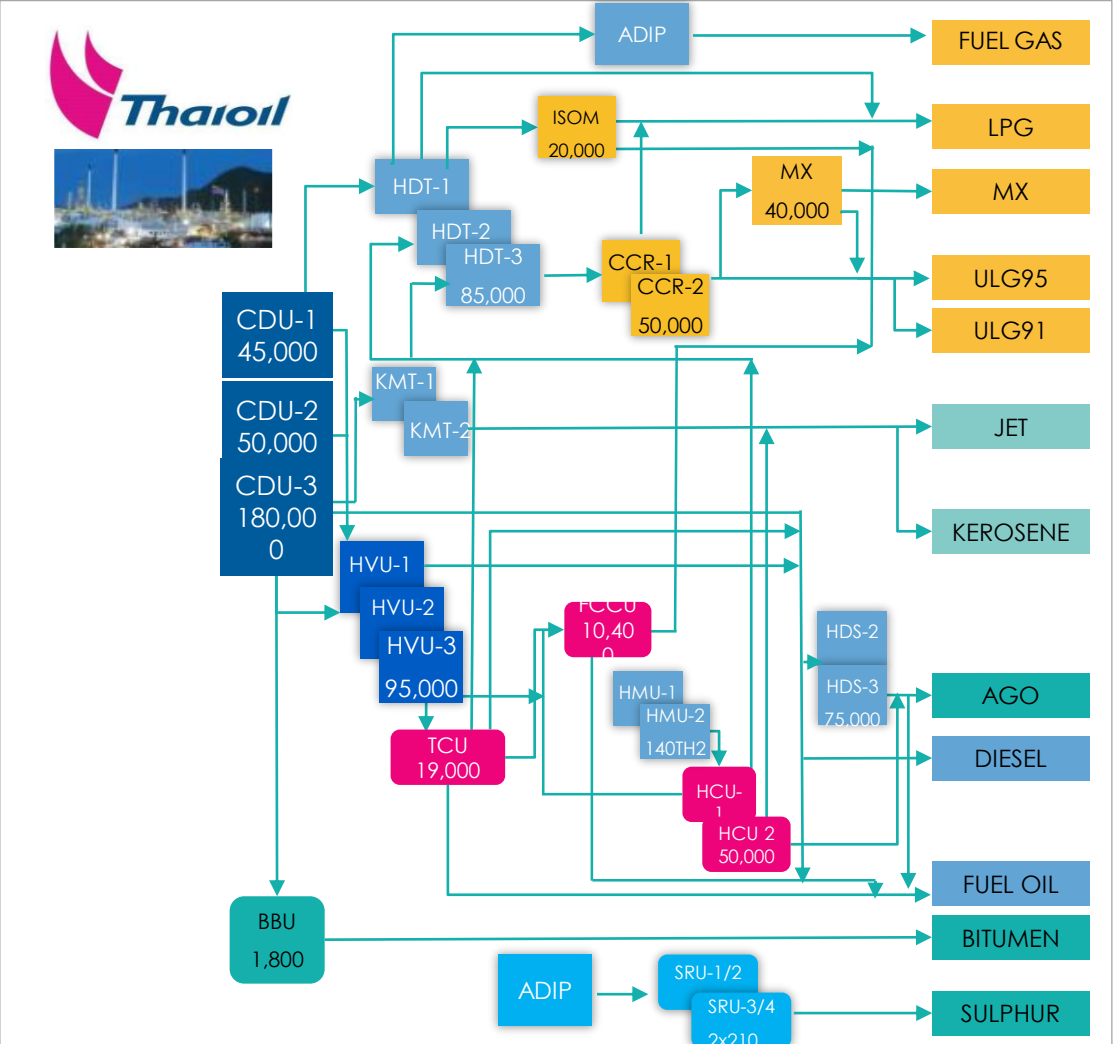
Thai Oil Group Business Structure

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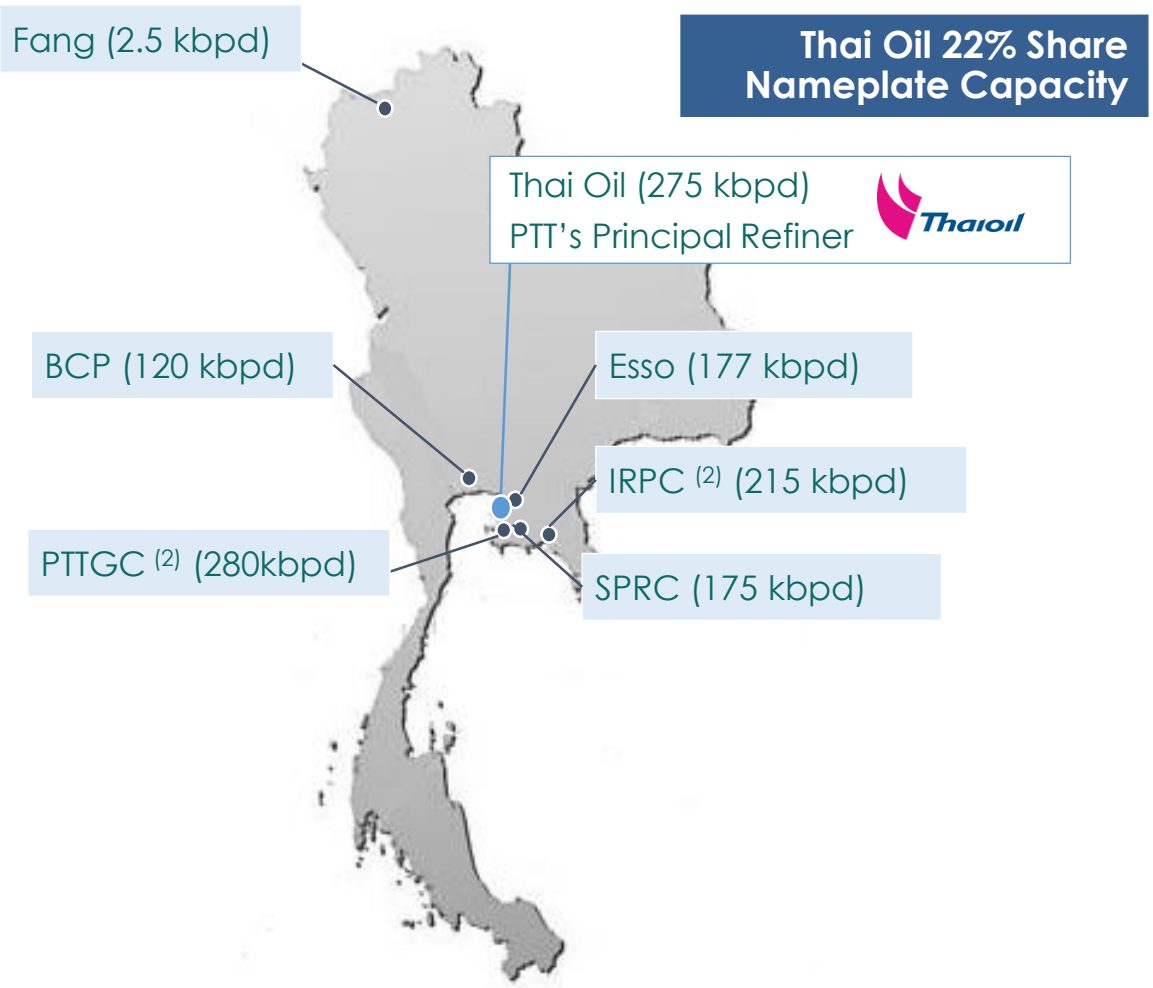
Process Linkage: Beauty of Integration

PROCESS FLOWCHART

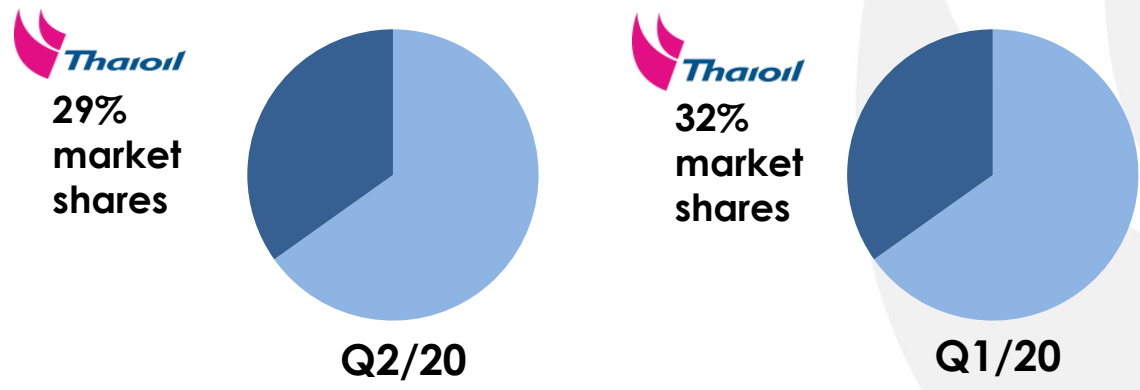


One of Region's Leading Refineries

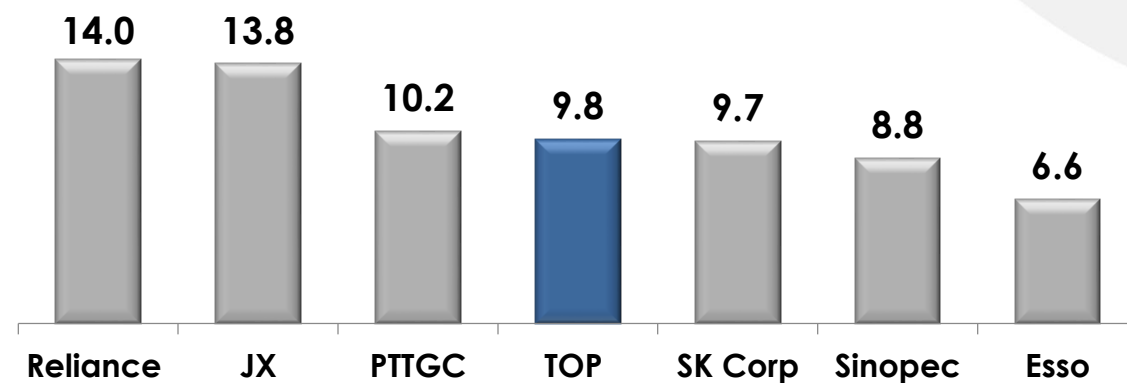
Total Thailand crude refining capacity 1,244.5 kbd ⁽¹⁾



Market shares for refined petroleum product ⁽³⁾



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 Jul 2020
 2. PTT holds a 47.6% interest in IRPC, a 47.7% interest in PTTGC as at 4 Aug 2020
 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 2019 from Oil & Gas Journal and company information

Strategic Location with Competitive Advantages in Access to Key Markets

Close proximity to the key domestic markets

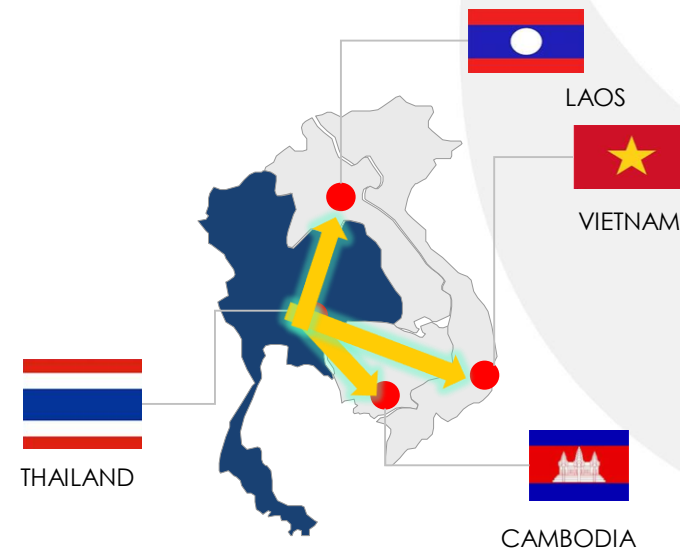
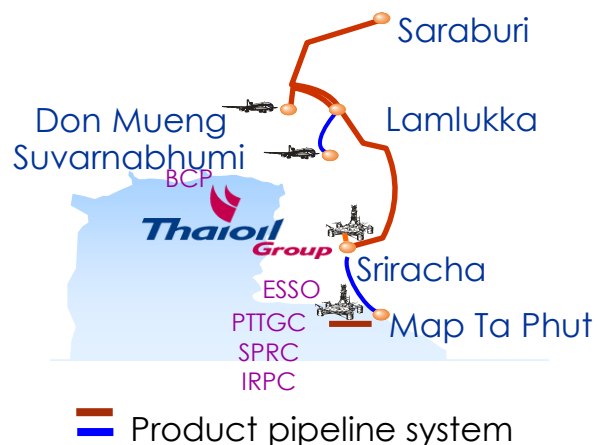
Access to Indochina markets through deep water ports and trucks

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



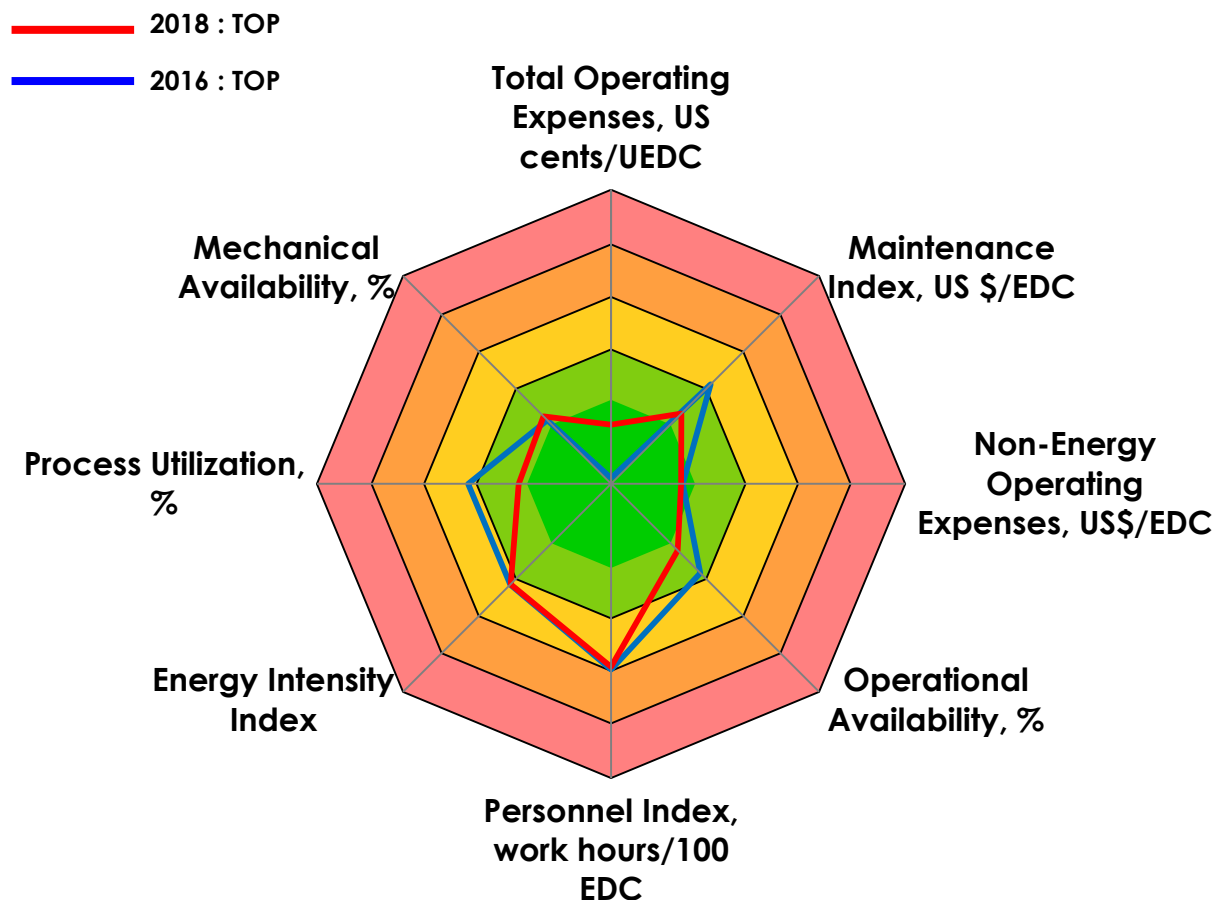
Direct connection with product pipeline system



- ✓ 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 Thapline

Competitive Performance Benchmarking (Yr 2016 vs 2018)

Solomon for GOC 3⁽¹⁾ Category



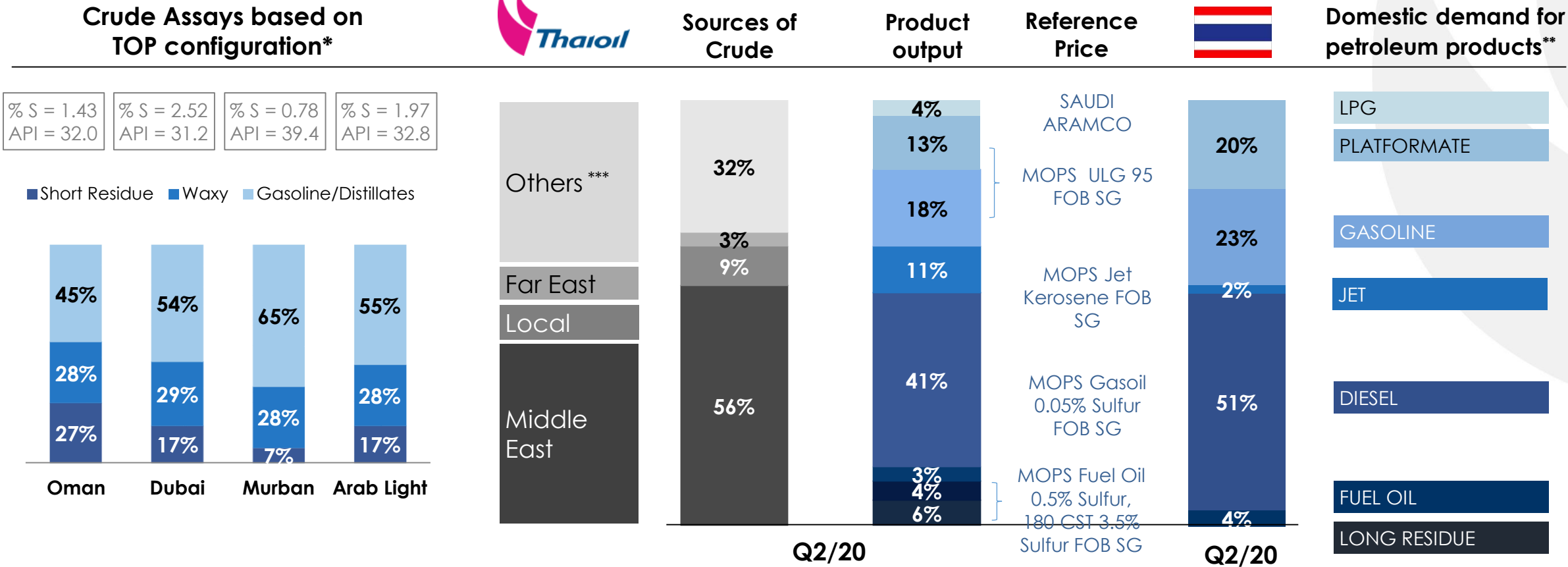
Solomon Associates is the independent 3rd party who applies Comparative Performance Analysis methodology to industry peers in the area of reliability, equipment, utilization, operating expense, gross margin and overall performance range and come up with comparative ranking

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

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 yield as per assay in Spiral as of Feb 2016

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

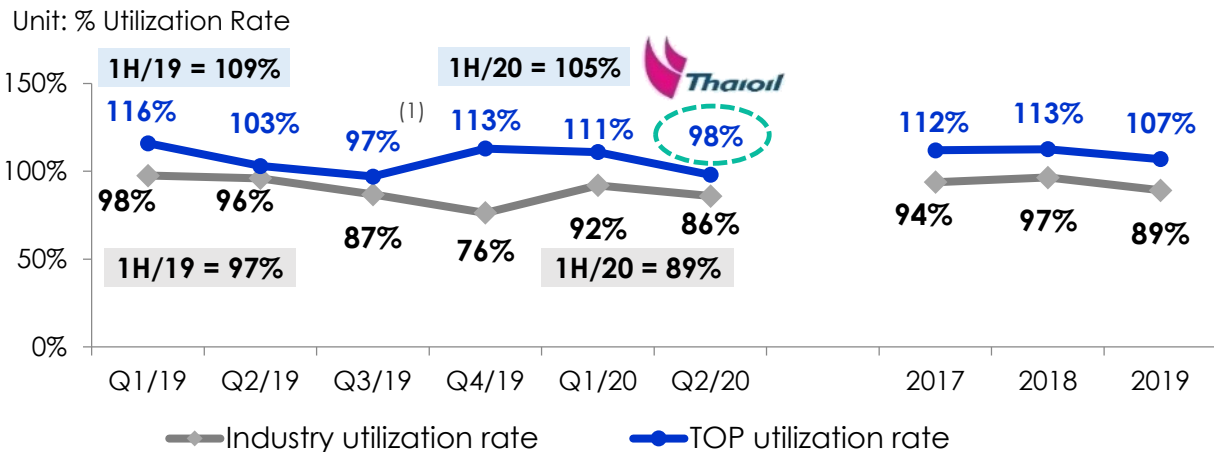
*** Including Nigeria, Russia and others

- 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

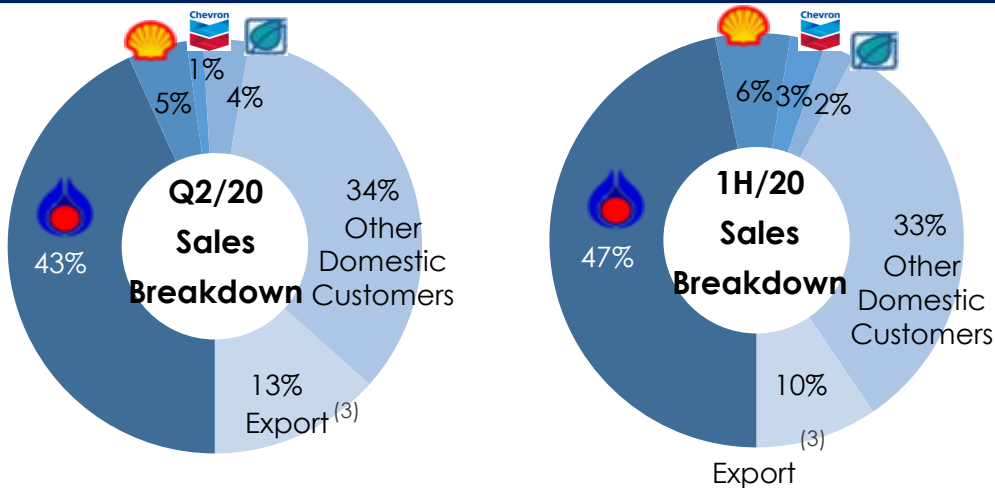
Refinery: Slowdown Utilization Rate as Lower Domestic Demand



TOP/ Domestic Refinery Utilization Rate

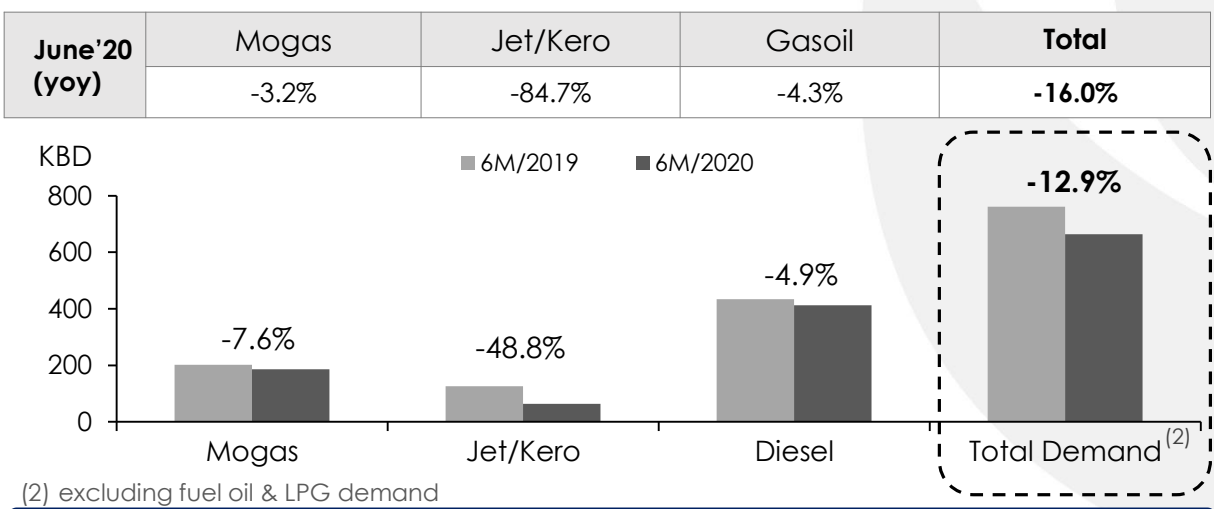


Sales Breakdown by Customers

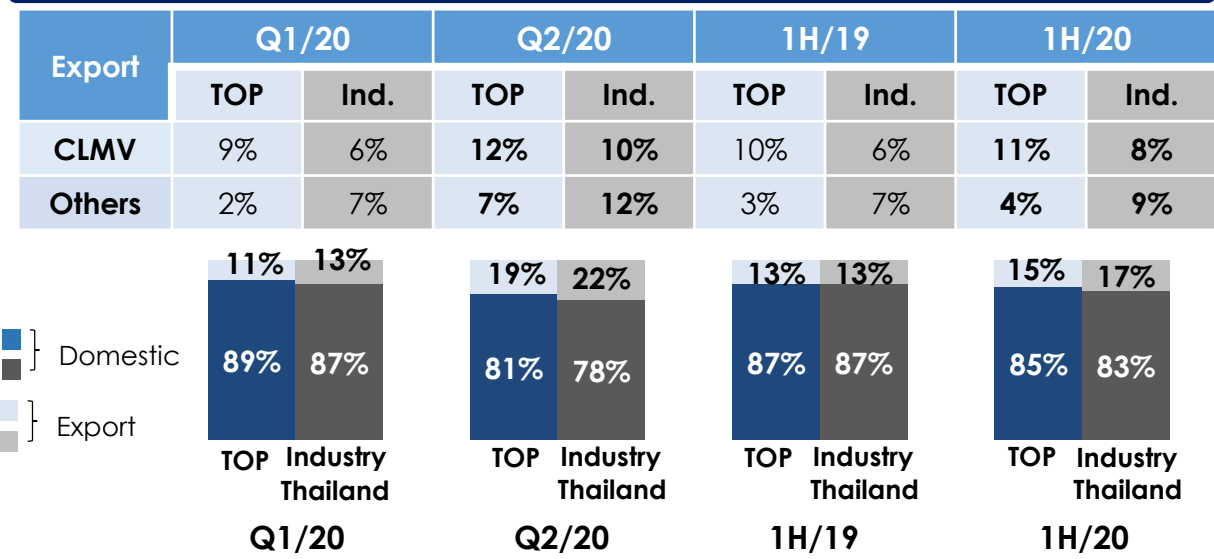


(3) excluding export sale through PTT
 (4) Source: Department of Energy Business, Ministry of Energy

Domestic Oil Demand



TOP's Domestic Sales vs Industry

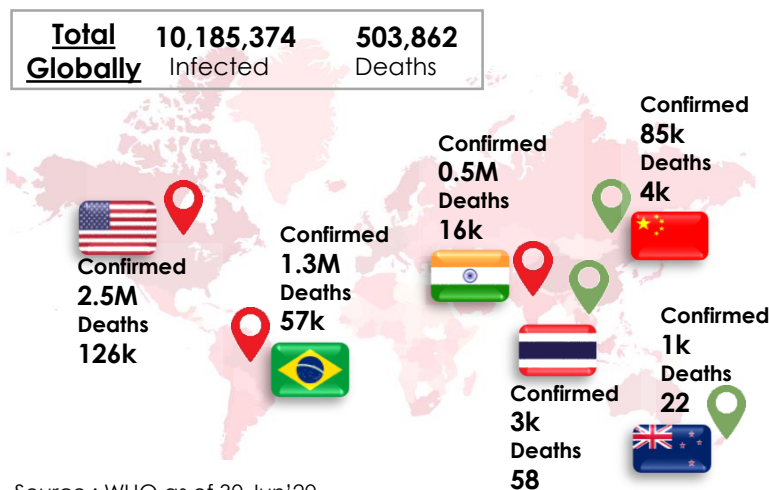




KEY FINANCIAL HIGHLIGHTS

The World in Q2/20

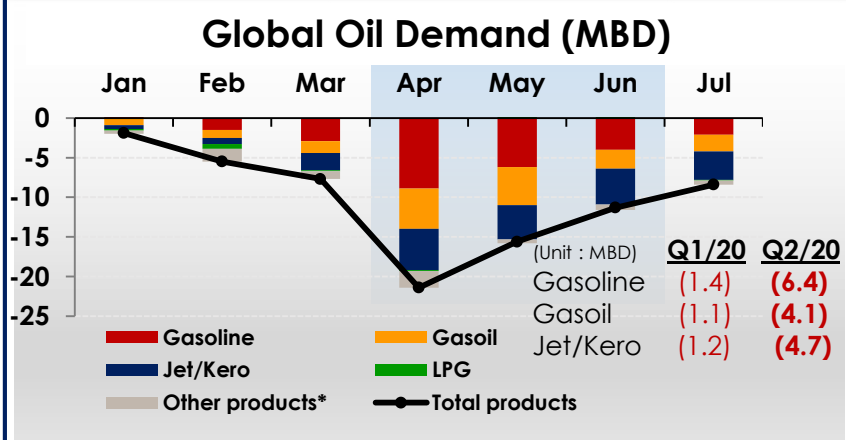
COVID-19 Pandemic



Source : WHO as of 30 Jun'20

- More than 500k people have died and over 10 millions have been infected by the coronavirus worldwide
- Countries, more than a third of the world, have fully implemented lockdown measures to slow the spread of the coronavirus

Unprecedented Global Oil Demand Loss

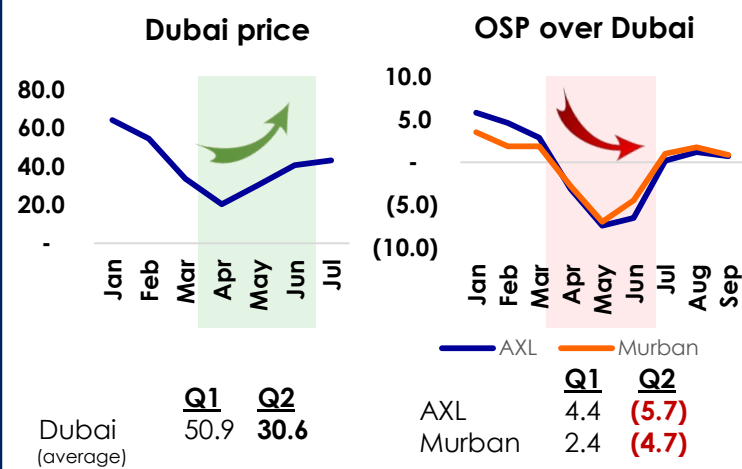


Source: IEA

- Global oil demand significantly dropped by a record 21.4 MBD in April'20
- The recovery in 2H/20 will be gradual

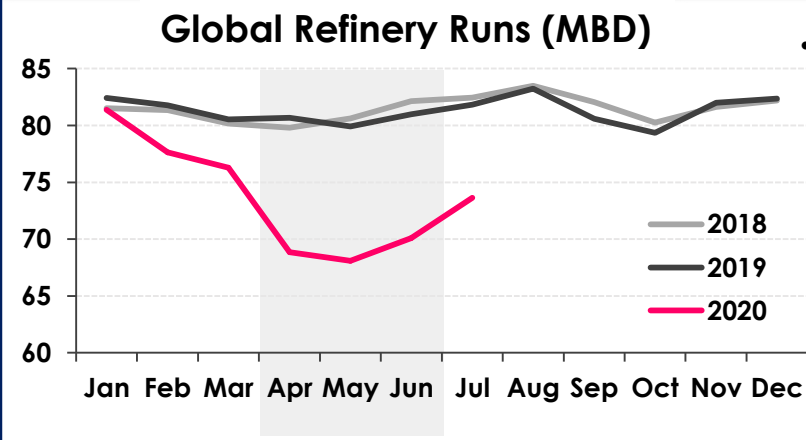
Massive OSP Crude Discount, before seeing Crude Price Rebound

Unit : \$/bbl



- Steep OSP crude discounts triggered an OPEC+ collaboration but helped support Asian GRM
- Quick supply/demand rebalance brought oil prices back to \$40 range

Record Global Refinery Run Cut



Source : FGE

- Global refinery runs dropped significantly in Q2/20 in response to plunging demand as countries worldwide implemented lockdowns

Q2/20 & 1H/20 - Market Highlights

-16-

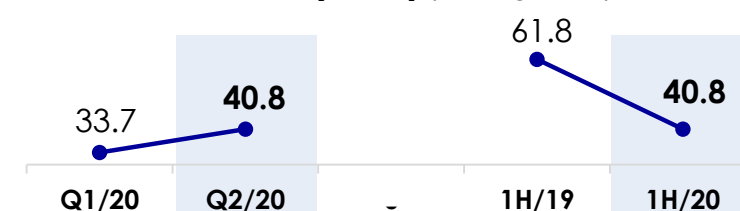
QoQ Crude Oil (Dubai rose from \$33.7/bbl to \$40.8/bbl)

- Strong compliance of OPEC+ cut by 9.7 MBD
- Sharp oil demand recovery from lockdowns easing

YoY Crude Oil (Dubai fell from \$61.8/bbl to \$40.8/bbl)

- A significant drop in global oil demand due to COVID-19 outbreak
- Intensified by Saudi's price war Massive surplus in global crude oil supply

Dubai (\$/bbl) (ending price)



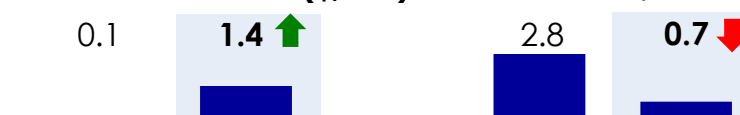
QoQ Refinery (Mkt GRM improved from \$0.1/bbl to \$1.4/bbl)

- Lower crude cost from OSP discount
- Improving HSFO spread due to tight supply from reduced global refinery run and shifted production to VLSFO
- Weak Gasoline and Middle Distillate spreads especially Jet fuel due to flight cancellation and halted airline operation

YoY Refinery (Mkt GRM softened from \$2.8/bbl to \$0.7/bbl)

- Weak Gasoline and Middle Distillate spreads especially Jet fuel due to flight cancellation and halted airline operation
- Weak HSFO spread due to lower demand for bunker from shipping activities during COVID-19 outbreak and fuel switching to VLSFO

Mkt. GRM (\$/bbl) exclude stock G/L



Stock G/L (\$/bbl)



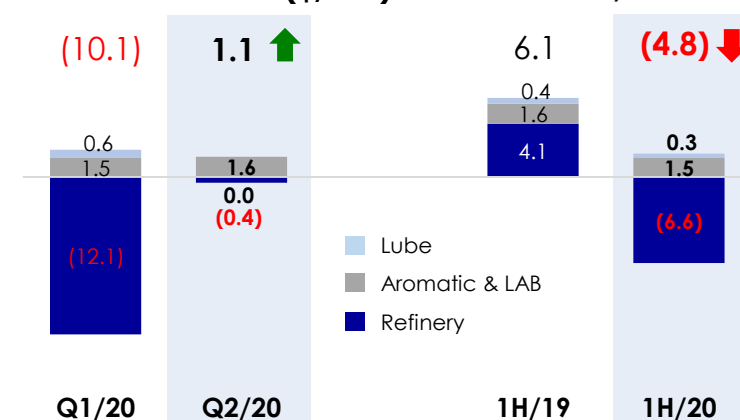
QoQ Aromatics & LAB (Contributions improved from \$1.5/bbl to \$1.6/bbl)

- Slightly softening margins due to falling demand from COVID-19 and high inventory in China
- Better LAB Contribution from lower feedstock cost and resilient demand

YoY Aromatics & LAB (Contributions slightly softened from \$1.6/bbl to \$1.5/bbl)

- Oversupply from new Aromatics plant start-up mainly in China
- Improving LAB contribution

ACC. GIM (\$/bbl) include stock G/L



QoQ Lube & Bitumen (Contribution softened from \$0.6/bbl to \$0.0/bbl)

- Weak Base oil and Bitumen demand from COVID-19 despite improving benchmark spreads
- Lower TDAE sales during COVID-19 outbreak

YoY Lube & Bitumen (Contribution slightly softened from \$0.4 to \$0.3/bbl)

- Softening Base oil and Bitumen demand from COVID-19

Q2/20 & 1H/20 - Key Activities Highlights

People First

COVID-19 Measures

- Staff 1,730 , WFH 67% (excluding operations & engineering)
- CFP manpower 7,850 (only on-site manpower)
- No internal spreading , No business disruption

3P's

Promote

- Self awareness & self protection
- I-COVID Center to monitor & administer

Protect

- Office & refinery entry restriction & controls
- Enforce Physical Distancing
- WFH
- Travelling restrictions
- Quarantine for incomings

Preserve

- For existing operations:
 - Enact BCM
 - MCA (Mission Critical Activities) & safe housing for Operations and Engineering
- For CFP Project:
 - Clustering, testing
 - Contact tracing

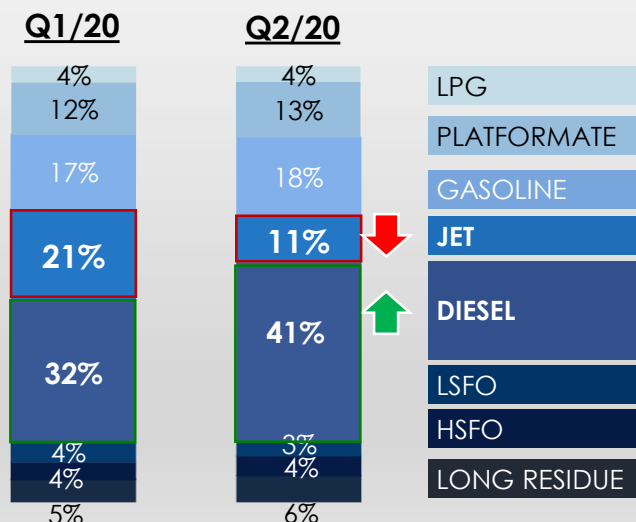
Business Excellence

Operational

- Optimize overall utilization rates to cope with low demand

U-Rate %	Q1/20	Q2/20	1H/19	1H/20
Refinery	111%	98%	109%	105%
Aromatics	81%	75%	78%	78%
LAB	113%	113%	113%	113%
Base Oil	81%	89%	87%	85%

- Minimize Jet & maximize Gasoil production, while optimizing TPX, LABIX & TLB

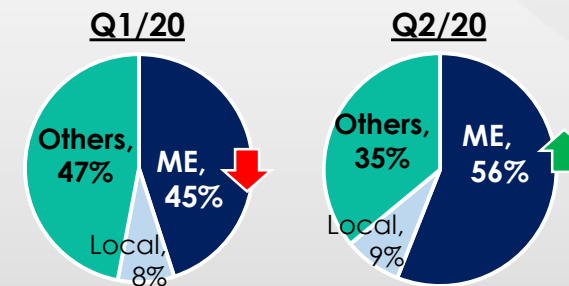


Commercial

- Maximize domestic & Indochina sales

	Q1/20	Q2/20	1H/19	1H/20
Local	89%	81%	87%	85%
Indochina	9%	12%	11%	11%
Other exports	2%	7%	2%	4%

- Capitalize low crude costs as a result of OSP discounts



Profitability Improvement

- **Margin Improvement** : Crude Enhancement, Plant optimization, Energy improvement
- **Cost Management** : Orchestra & Symphony

Q2/20 & 1H/20 - Financial Performance

Financial Management

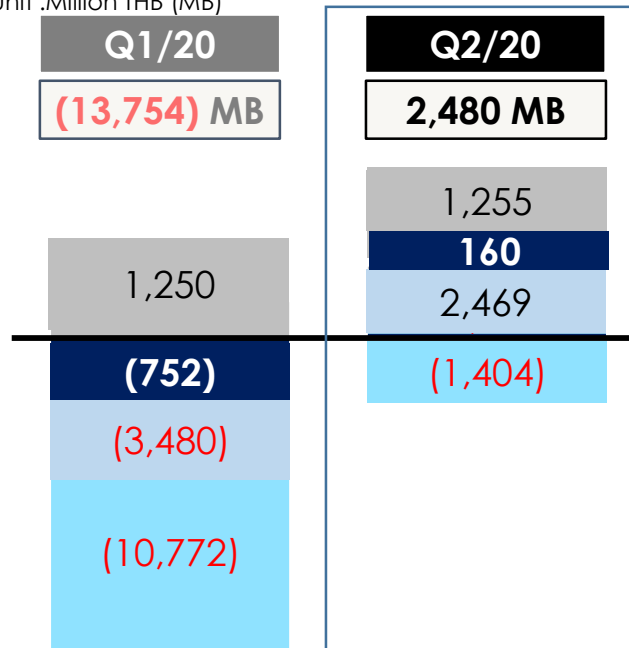
- Successfully issued \$1 bn USD bond, amidst COVID-19 crisis



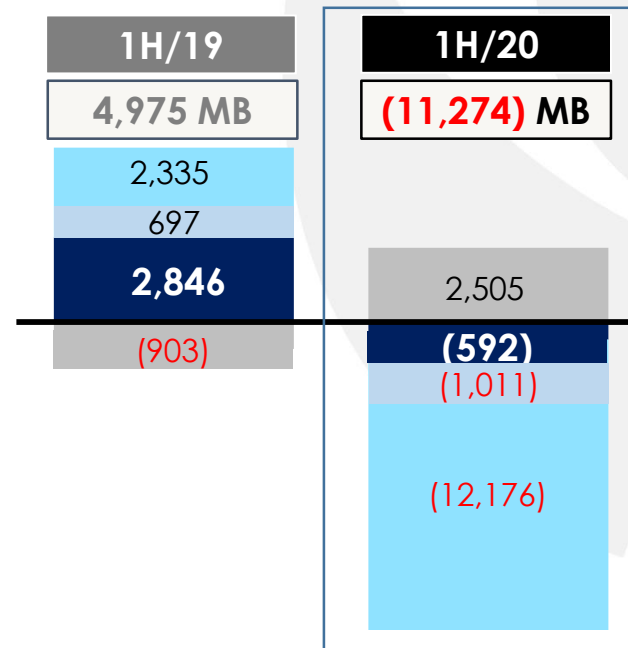
- Order book peaked at 7.5X and fully subscribed in 10 minutes after launch
- Lowest-ever coupon for a 10 yrs bond out of Thai corporates
 - \$400 m, 10 years, 2.50% pa.
 - \$600 m, 30 years, 3.75% pa.
- Funding Readiness with Innovative Instruments
- Investment Discipline & Project Prioritization
- Capital Structure Management
- Stringent Cost Control : Target 25% cost reduction

TOP Group Net Profit

Unit :Million THB (MB)

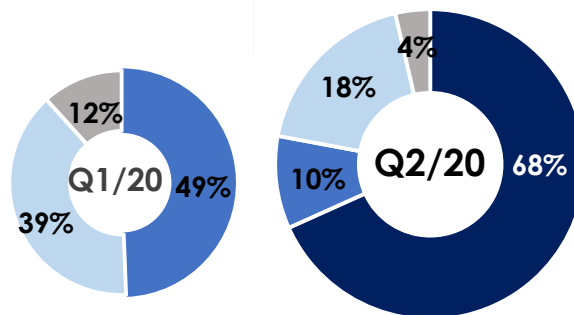


- Others items incl FX g/l on asset & liability, hedging g/l, tax & non-recurring items
- Net operating profit
- Stock g/l
- Write down on crude & product inventory

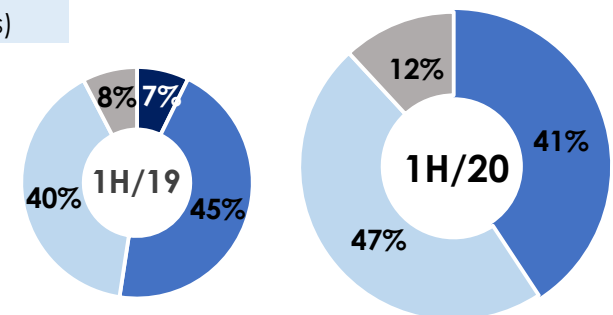


Net Profit Contributions

Excluding Stock gain/(loss)



- Petroleum
- Petchem & Lube
- Power
- Others & New Business

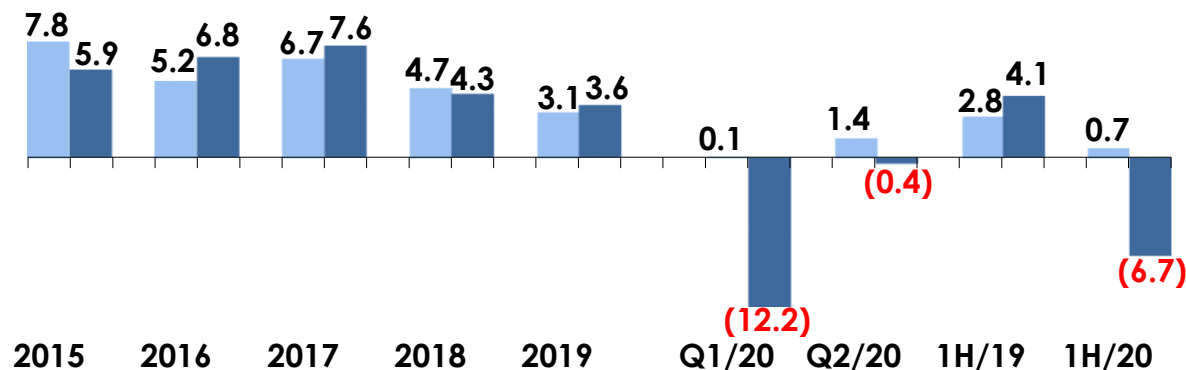


Integrated Margin & Competitive Cash Cost

Gross Refining Margin

(Unit: US\$/bbl)

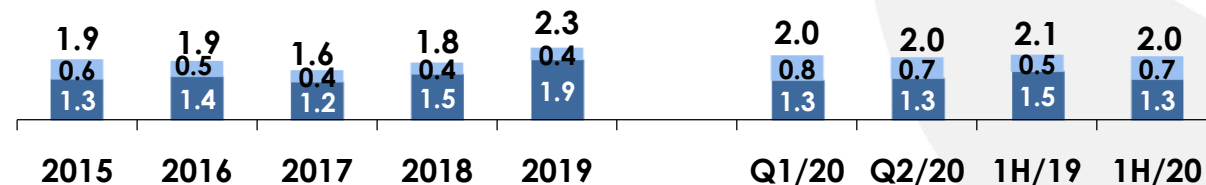
■ Market GRM ■ Accounting GRM (Market GRM + Stock G/L)



Refinery's Cash Cost

(Unit: US\$/bbl)

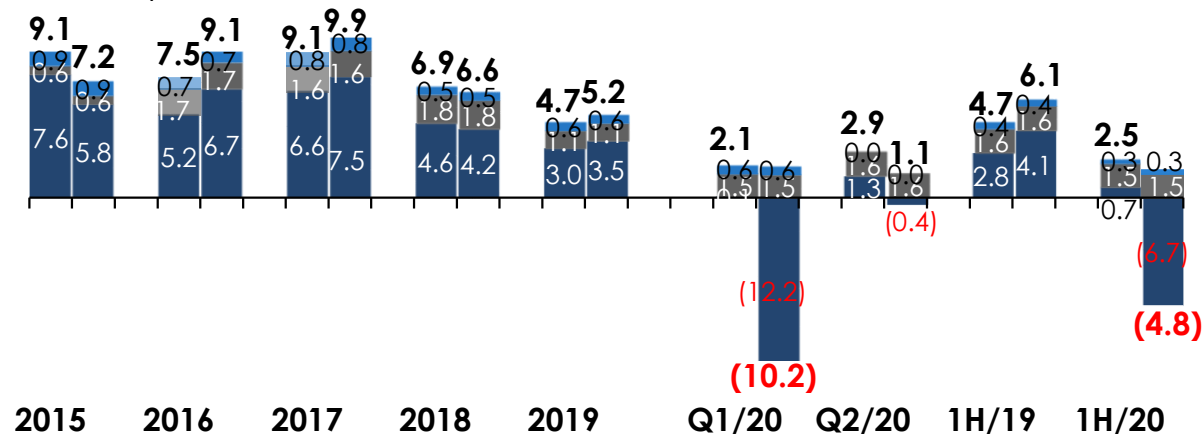
■ Operating Cost ■ Interest Expense (net)
(excl. one-time non-operating item)



Gross Integrated Margin

(Unit: US\$/bbl)

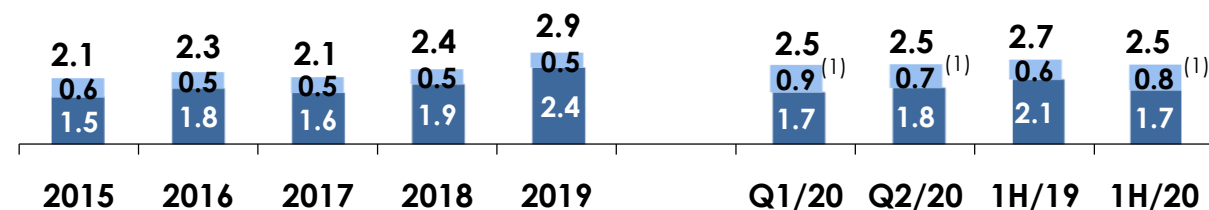
■ Market GRM ■ Accounting GRM (Market GRM + Stock G/L)
■ Refinery ■ Aromatics+LAB ■ Lube Base



Group's Cash Cost

(Unit: US\$/bbl)

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

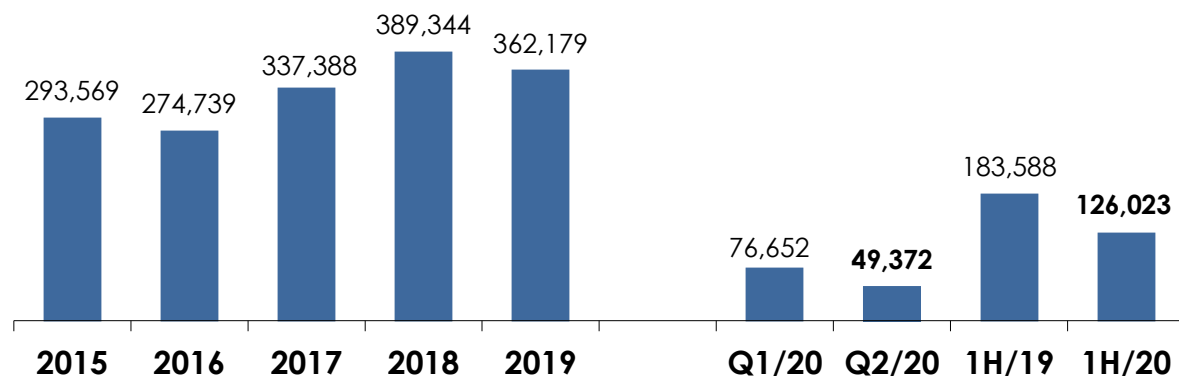


(1) Including Interest expense from impact of TFRS16 : Q1/20 135 MB or 0.2 \$/bbl, Q2/20 133 MB or 0.2 \$/bbl, and 1H/20 268 MB or 0.2 \$/bbl

Financial Performance

Sales Revenue

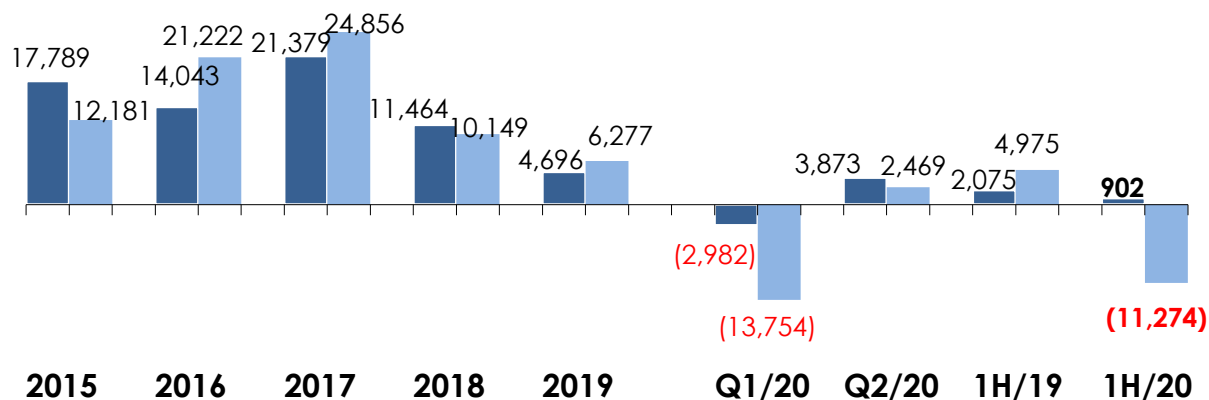
Unit: Million THB



Net Profit

Unit: Million THB

■ NP (excl stk G/L before tax) ■ NP (incl stk G/L)



^R Restated financial statement

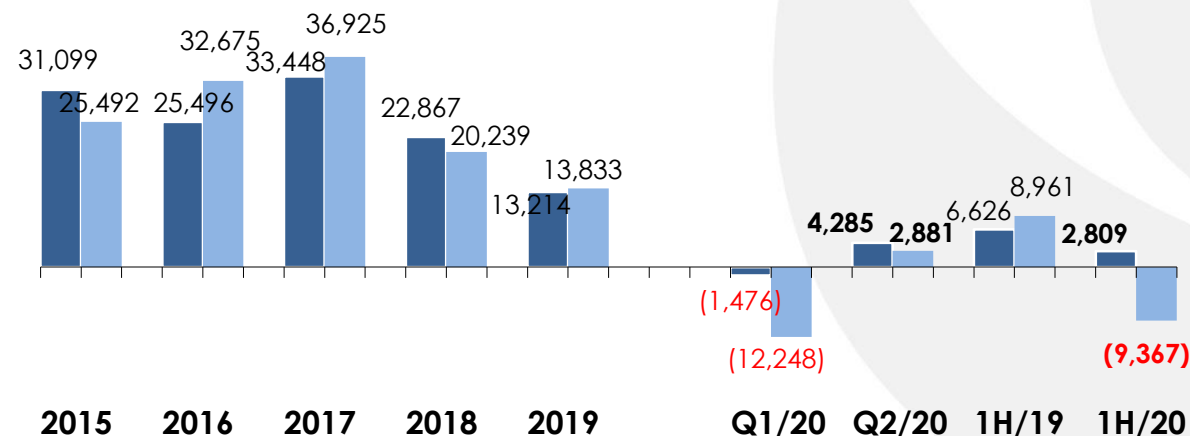
* Free Cash Flow (FCF) = Operating cash flow – Net CAPEX(PP&E)

EBITDA

Unit: Million THB

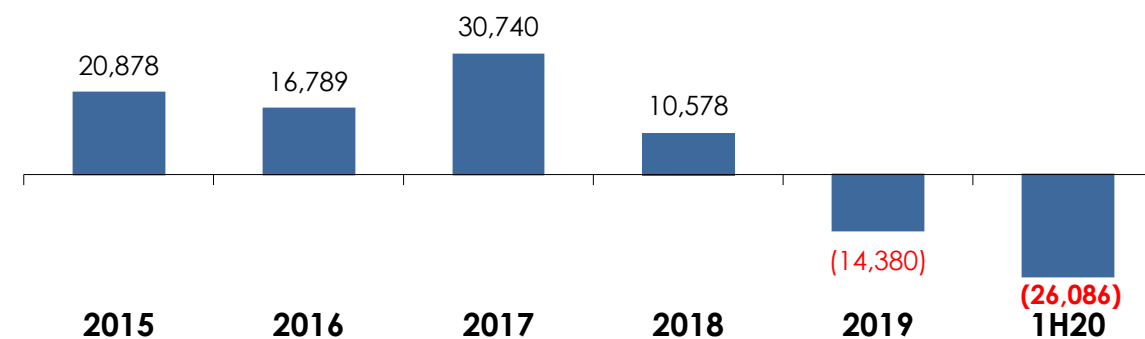
■ EBITDA (excl stk G/L)

■ EBITDA (incl stk G/L)



Free Cash Flow*

Unit: Million THB



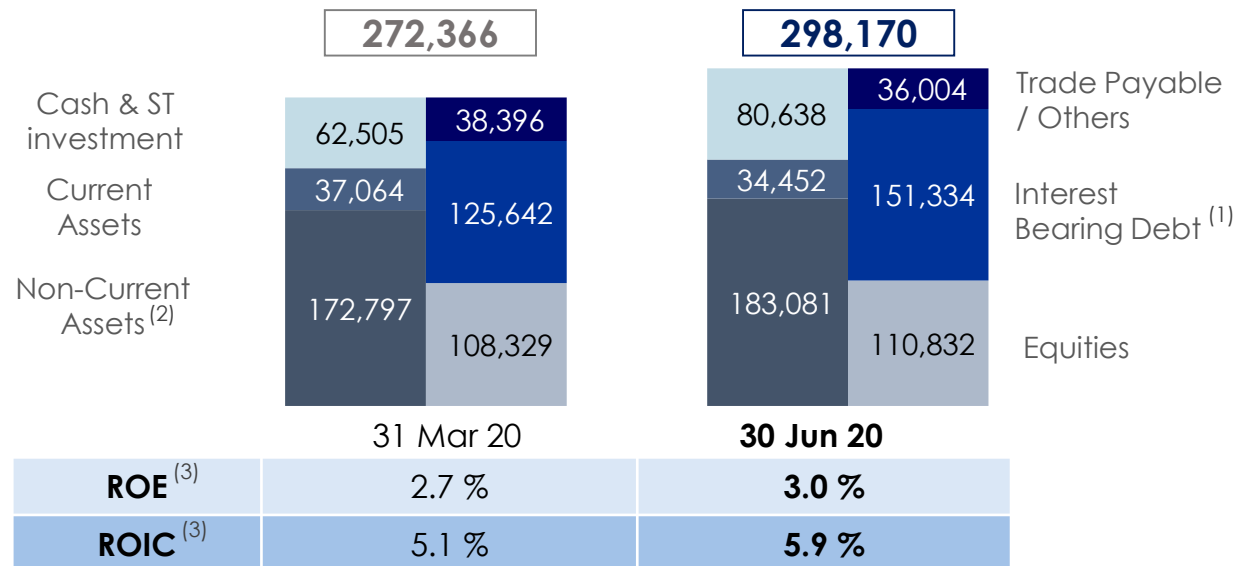
Net CAPEX (PP&E)

10,830	6,392	3,677	7,735	27,467	(25,187)
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Q2/20 TOP Group Strong Financial Position & Financial Ratios

Statements of Financial Position

(Unit: million THB)



(1) Including current portion of Long-Term Debt

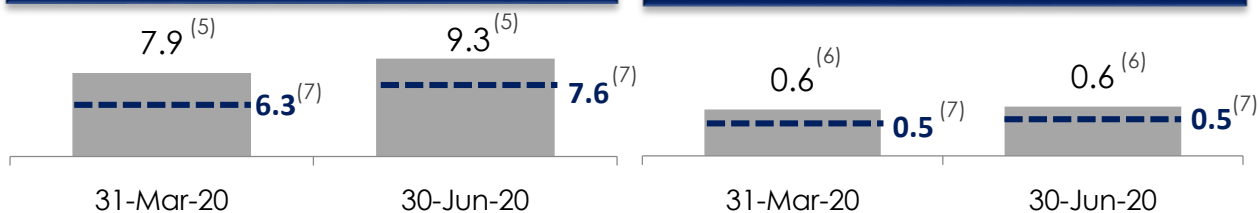
(2) Including investment in EPIF 31 Dec 19 = 361 MB, 31 Mar 20 = 255 MB, 30 Jun 20 = 323 MB

(3) Based on actual performance in the past 12 month and excluding stock g/l & NRV

Financial Ratios

Net Debt / adj. EBITDA

Net Debt / Equity

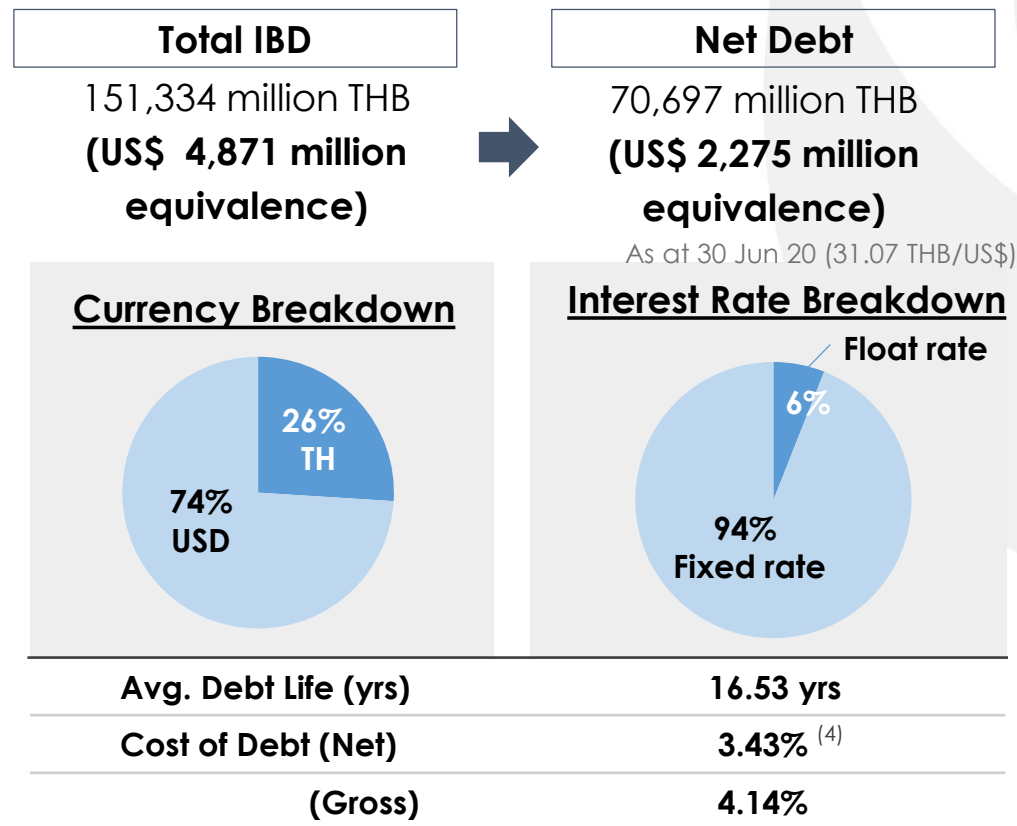


(5) Annualized EBITDA excl Stock G/L and NRV

(6) As of 30 Jun 20 Net Debt 70,697 MB or 2,275 M\$

(7) Adjusted Net Debt excluding Lease Liabilities

Consolidated Long-Term Debt as at 30 Jun 20



(4) Due to yield enhancement

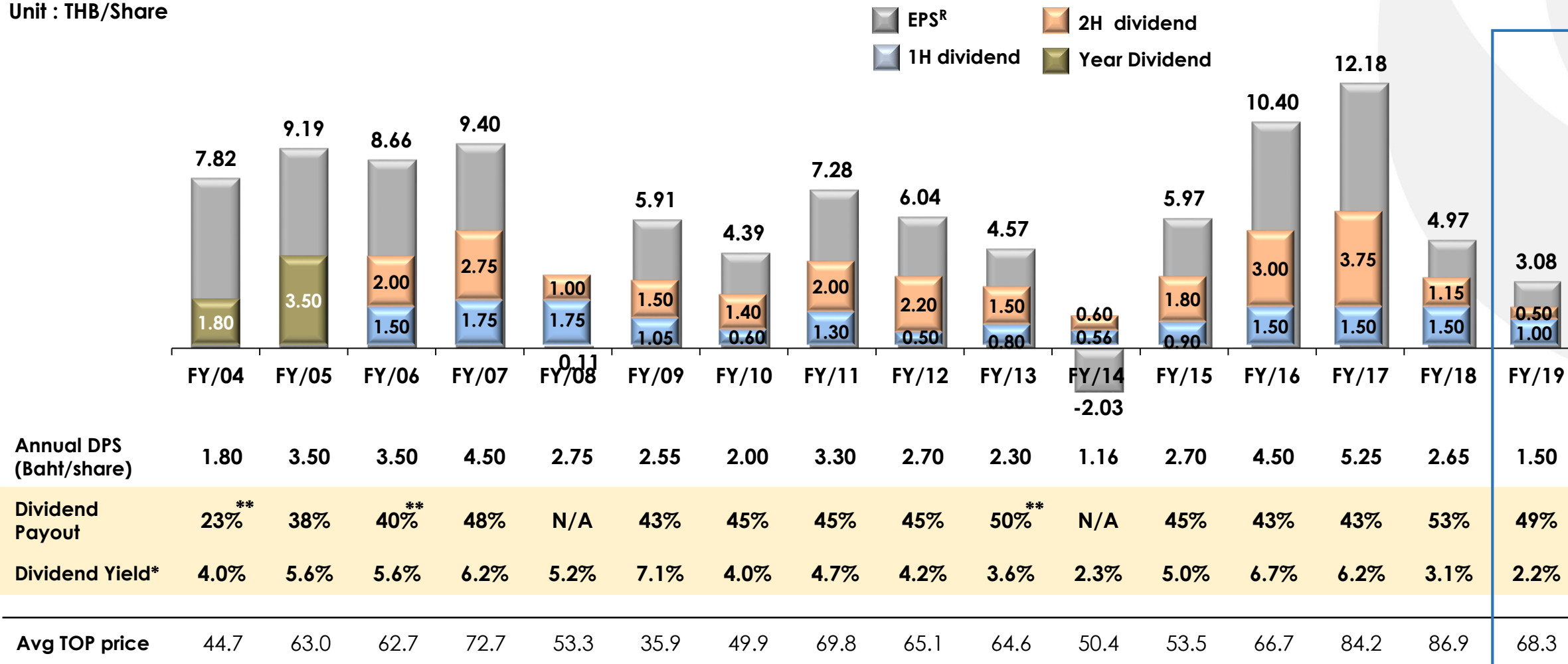
	Moody's	STANDARD & POOR'S	FitchRatings
Final rating	Baa2	BBB+	AA- (Tha)
	Negative Outlook	Negative Outlook	Negative Outlook
SACP*	Ba1	BB-	A

* SACP stands for Stand-Alone Credit Profiles

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



^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 : Accelerate the Transformation

✓ Agility & Nimble

✓ Flexible & opportunistic

✓ Resilience

Vision
2023

Empowering Human Life
through Sustainable Energy and Chemicals

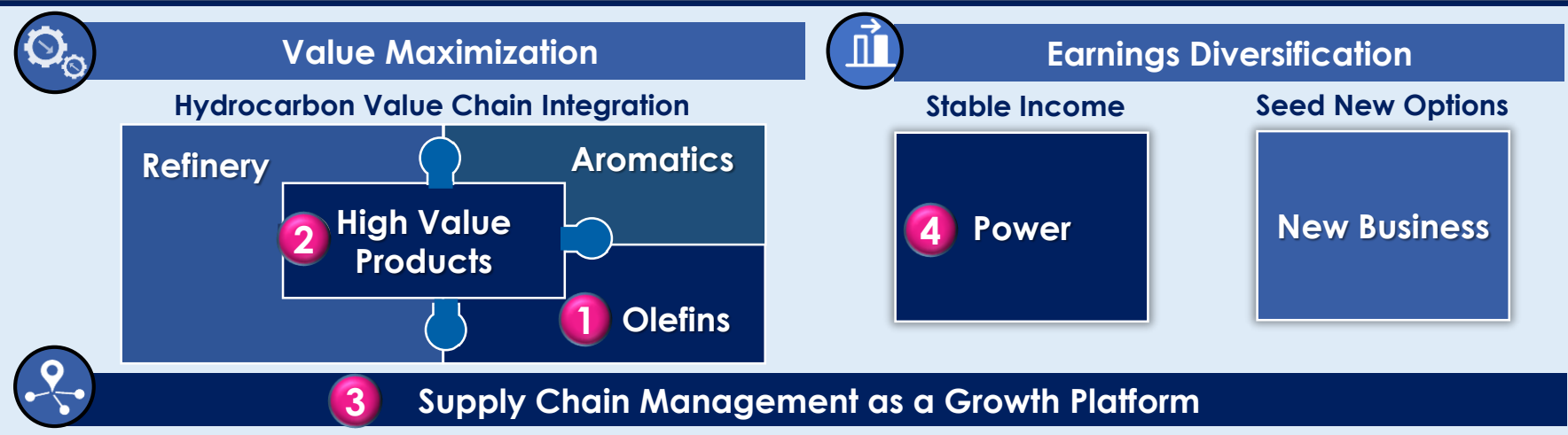
Strategic Objective

To be a competitive Energy & Chemicals company that
delivers sustainable returns & better quality of life to all stakeholders

Measurement

Growth / Earnings Diversity / Returns / Sustainability / Stakeholders

Portfolio Strategic
Direction



Effective Execution

Leverage on 4P's : People + Patronage + Partnership + Platform

Drive for Sustainability

Partner for Life through ESG : Environment + Social + Governance

TOP Group Strategic Investment Plan

CAPEX Plan (Unit US\$ million)

Updated as of July 2020

Project	Total 2020 - 2024	Estimated Budgeting for 5-year Investment Plan				
		2020	2021	2022	2023	2024
CFP project *	<u>3,292</u>	1,547	1,505	554	(314)	
Total Ongoing CAPEX	<u>221</u>	118	65	35	2	1
Reliability, Efficiency and Flexibility Improvement		30	11	2	1	
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)		68	22	2		
Other Investments (i.e. Digital Transformation)		20	32	31	1	1
Total CAPEX	<u>3,513</u>	1,665	1,570	589	(312)	1

* 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

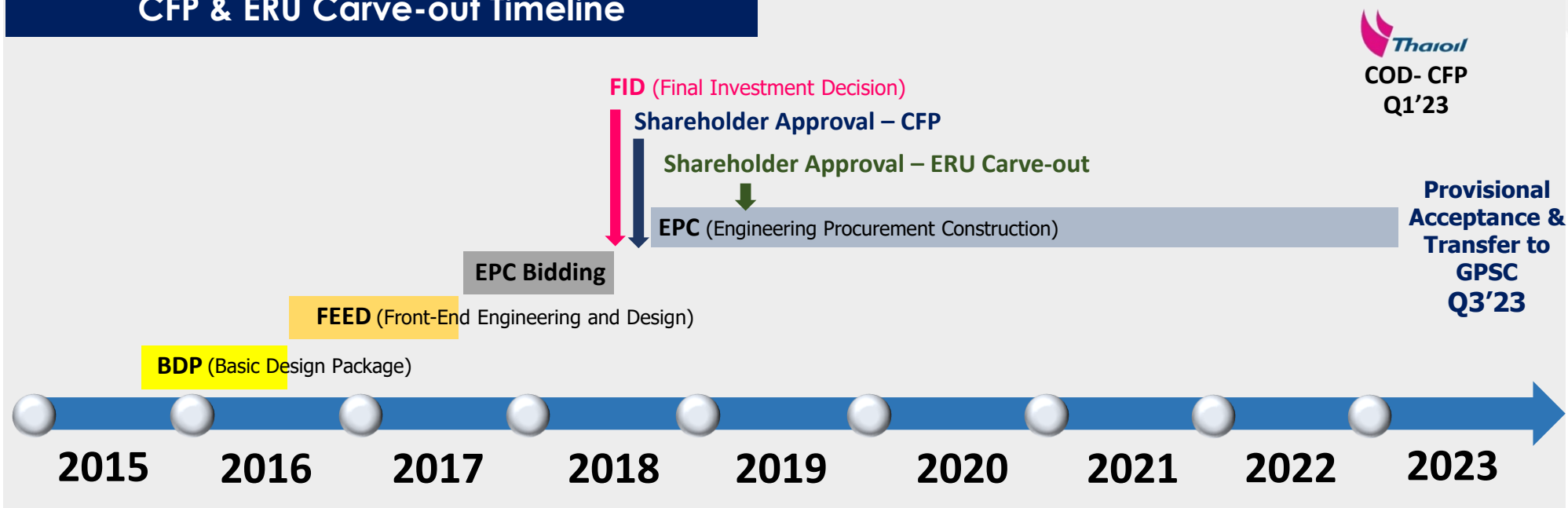
Notes: Excluding approximately 40 M\$/year for annual maintenance

CFP Rationale & Timeline

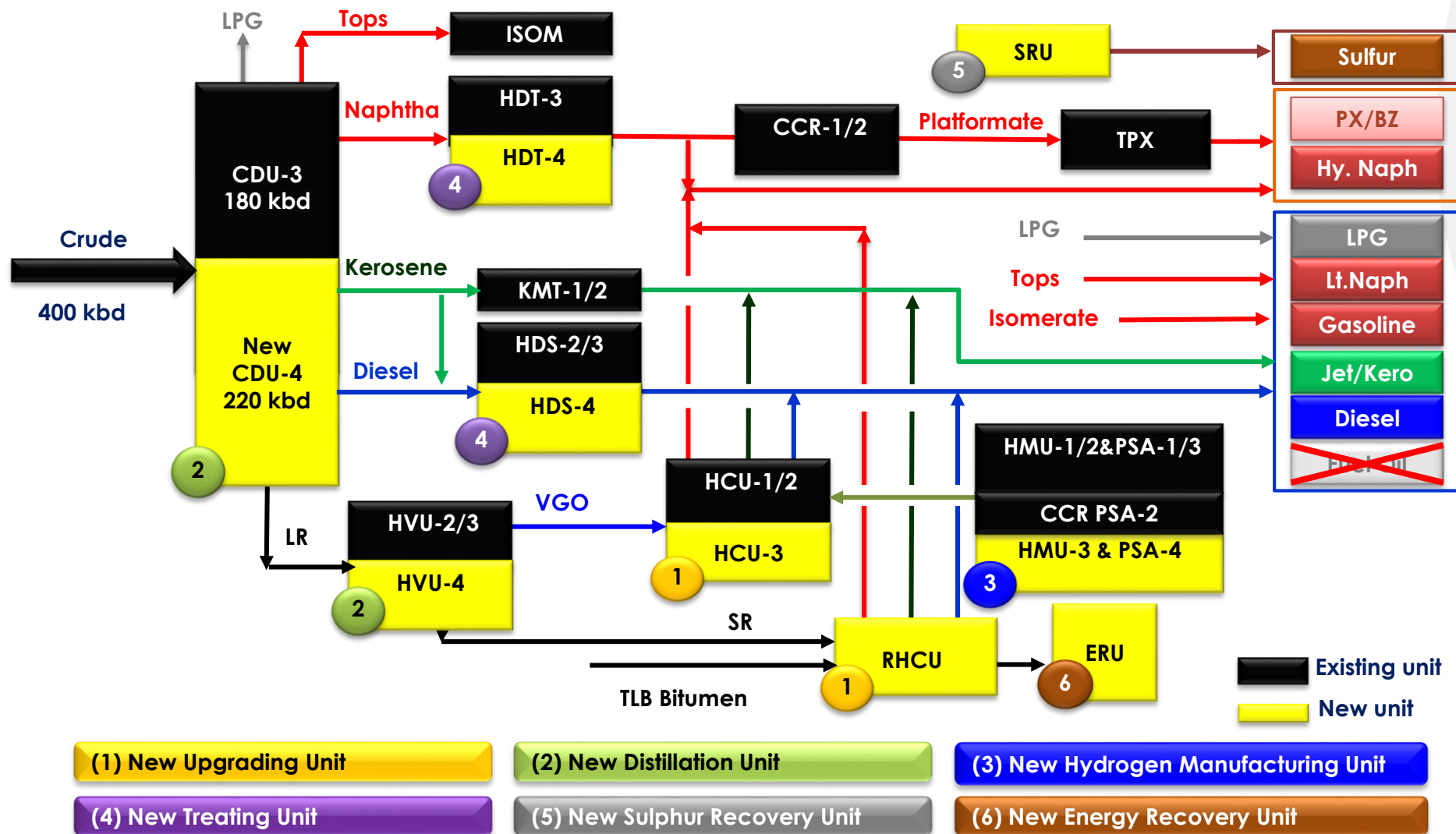
Project Rationale

- 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



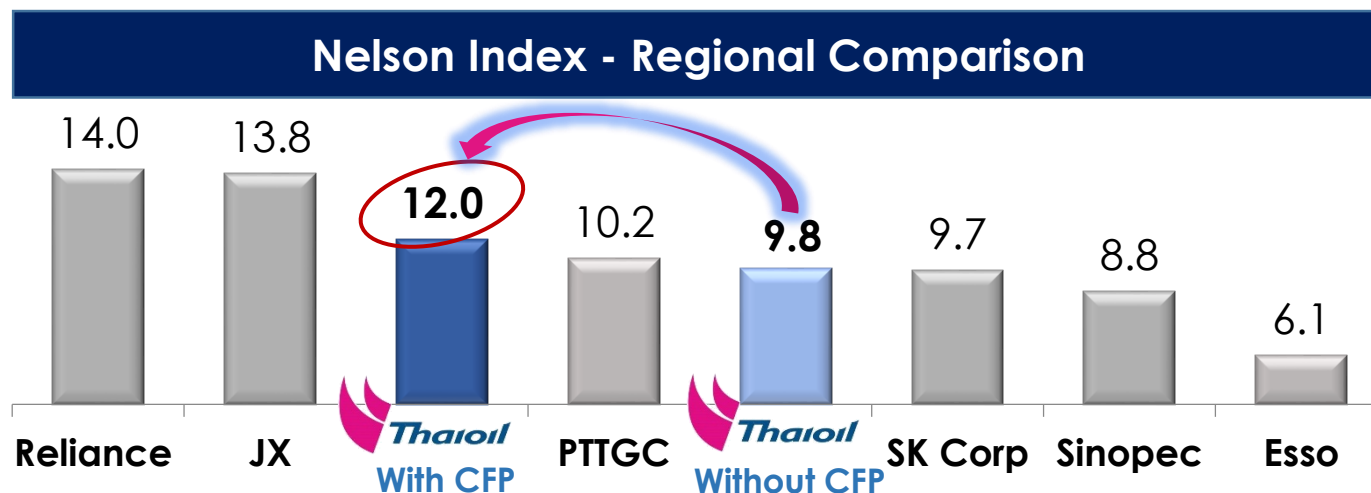
Scope of CFP & Technical Aspect



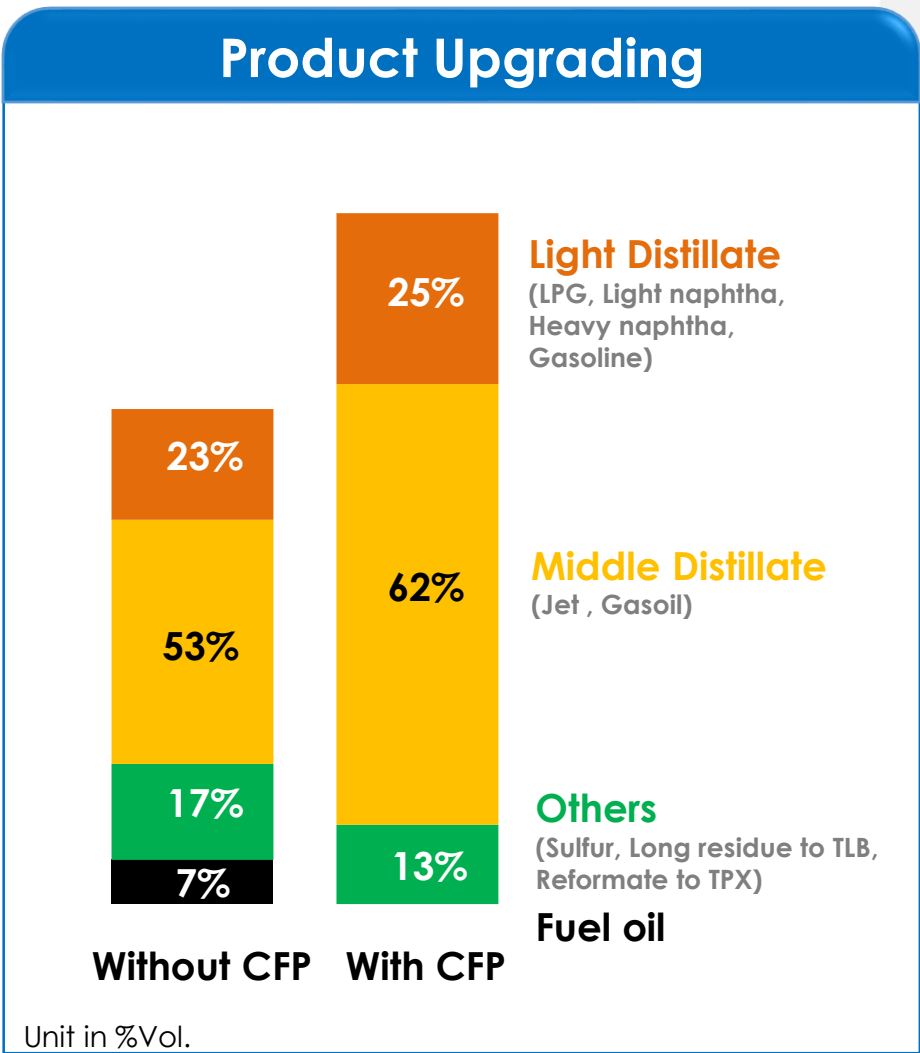
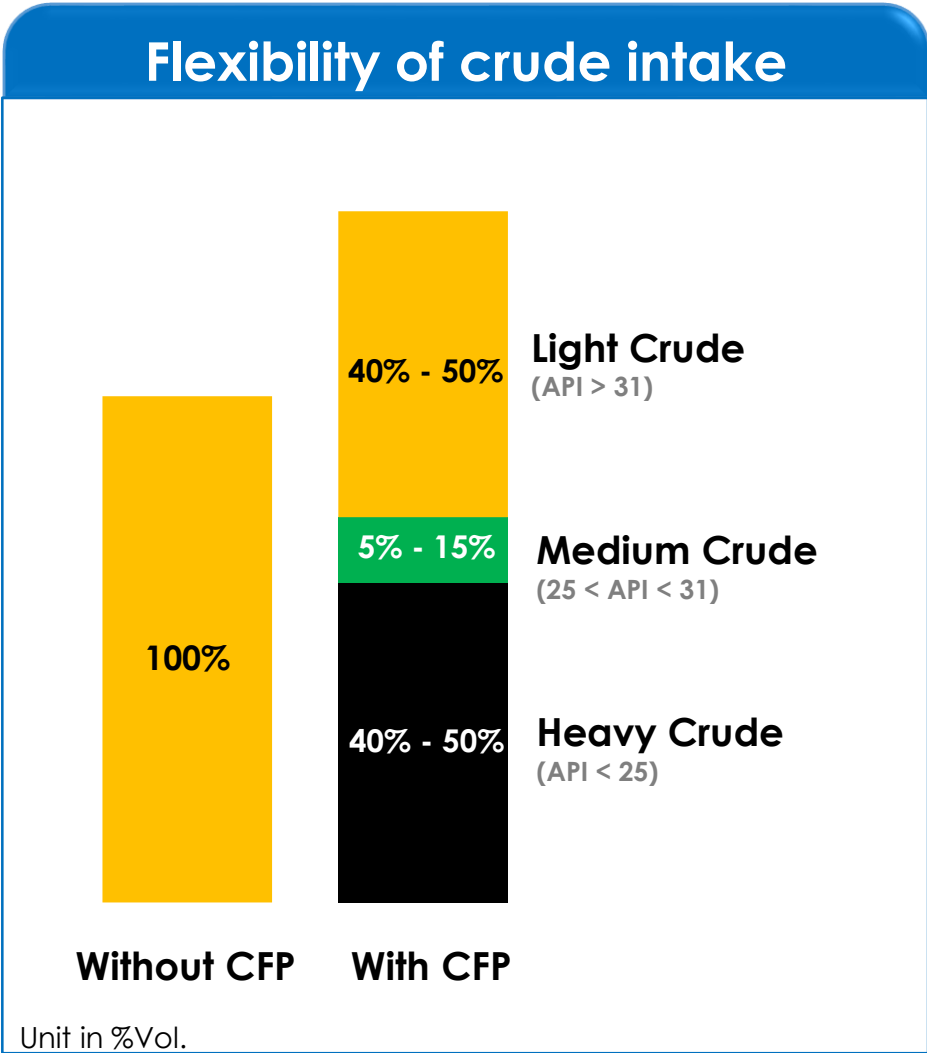
CFP Competitiveness

Without CFP	With CFP
<ul style="list-style-type: none"> • CDU Capacity 275,000 bbl per day • Upgrading Ratio 28 % (upgrading capacity⁽¹⁾ over CDU capacity) 	<ul style="list-style-type: none"> • 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



CFP Value Proposition



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

CFP Key Progress

Key Progress in 1H/20



- COVID-19 has caused lockdown in many project-related countries, impacting project progress in all Engineering, Procurement and Construction works.
- Engineering work has progressed almost 80% of overall, with 3D model review targeted to complete in Sep'20
- First 3 reactors which are part of critical items, were shipped from Italy and will arrive in Thailand on 15 August for pre-dressing before shifting to construction site in Oct'20
- Construction at site has been continuing, amid strict COVID-19 control measures

Impact of COVID-19

Mitigation

Engineering work delay

- Impact to fabrication & construction works
- Increase manpower and utilize alternative engineering offices
- Prioritize engineering work to match with procurement and construction works

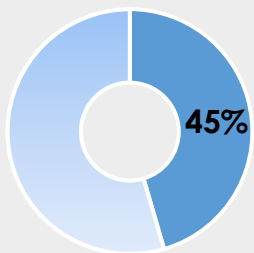
Procurement delay

- Impact to construction sequence
- Reconstruction sequence to align with Engineering and Procurement

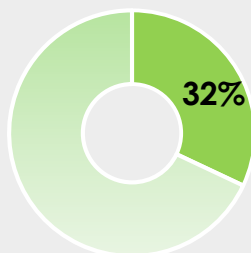
Construction work delay

- Limited workforce mobilization impacts construction progress
- Prioritize focus area & maximize modularization options

Project Progress



Budget Utilization



As of Jul'20

CFP Key Progress

Going Forward in 2H/20



- More EPC team mobilization to site after Thai Government allow foreigners (business men) to enter country.
- 2nd batch of critical items – 4 Reactors to be shipped from load port in Oct'20.
- Commence first group of module installation
- Kick-off commissioning work for crude oil tanks (C-COT) to make all tanks and pipeline system ready for use by early 2021.
- Re-arrange project schedule to align COVID-19 impact to Engineering and Procurement progress with Construction sequence to ensure overall activities will be conducted realistically.
- More actions to accelerate project progress
 - ❖ Increase manpower and extend longer working hours
 - ❖ Maximize off-site prefabrication work
 - ❖ Expedite key vendor work production and enforce for better work efficiency
 - ❖ Rigorous on construction work quality control to avoid rework

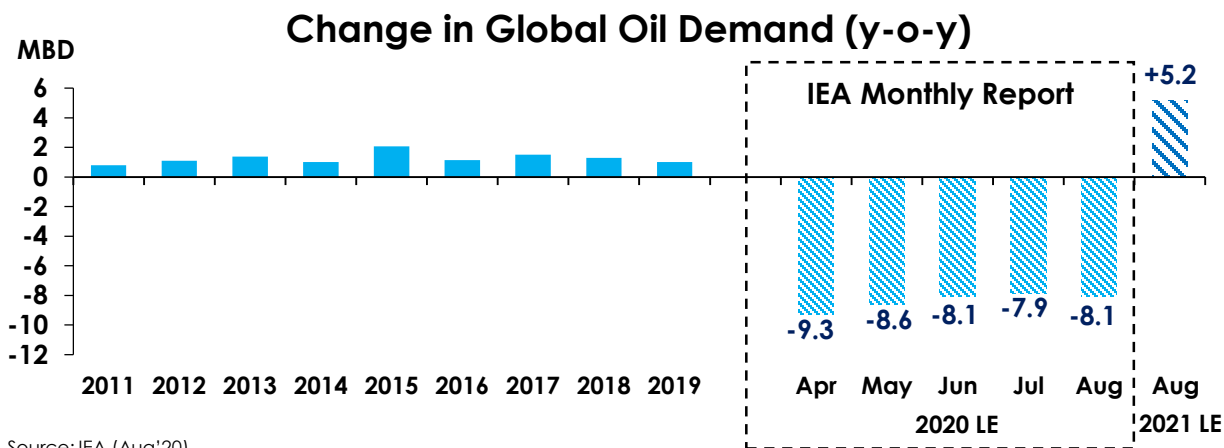


2H/20 INDUSTRY OUTLOOK

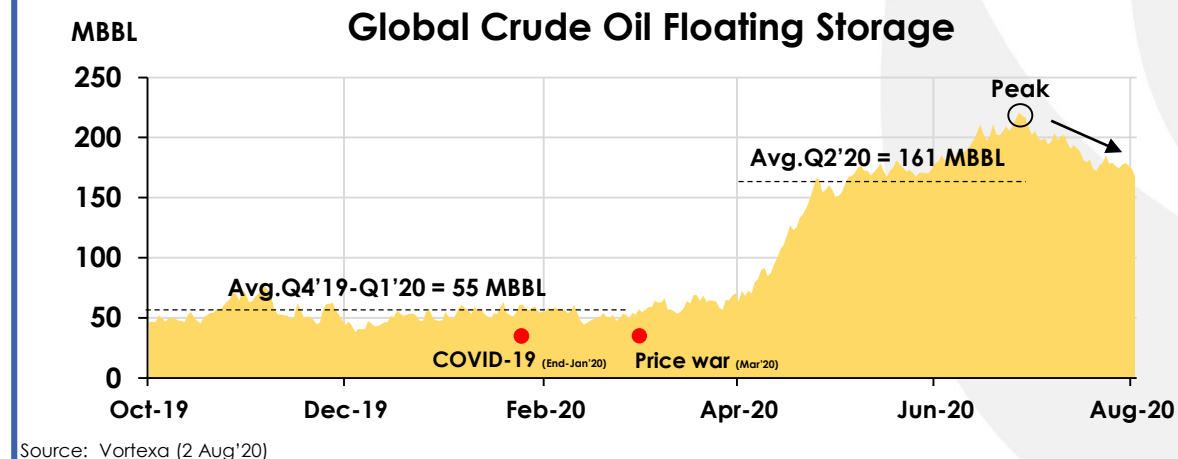
- Crude Oil
- Refinery
- Aromatic
- Base Oil & Bitumen

Improving Demand but Limited Upside by Resuming OPEC+ Supply and High Stock

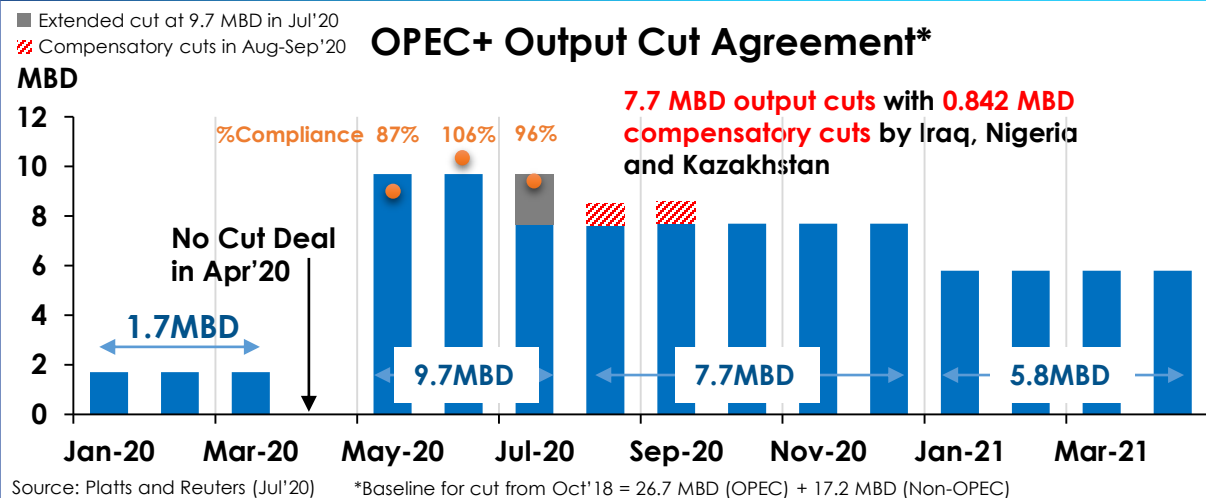
A Improving Oil Demand Growth After Lockdown Easing



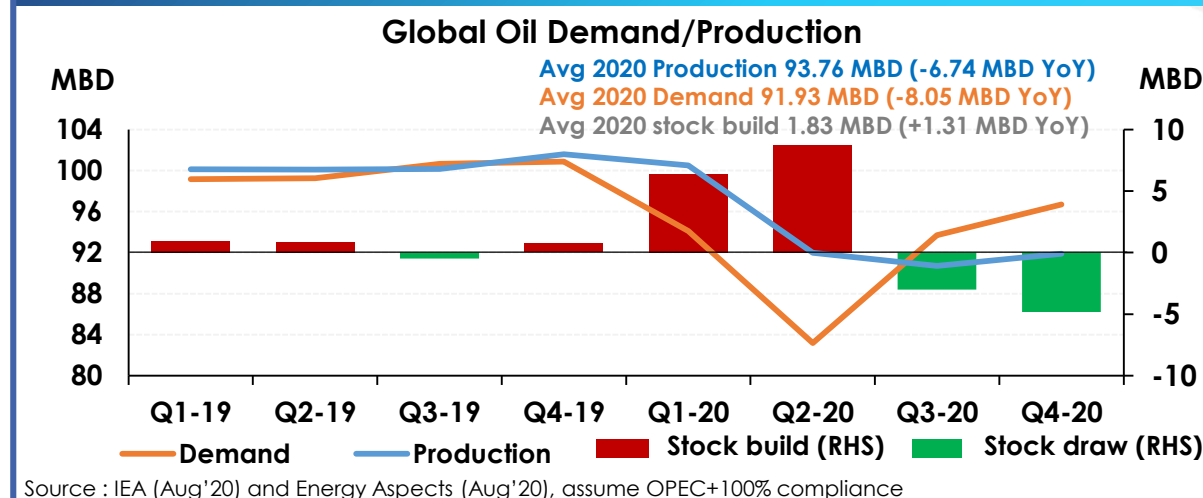
B Drawdown Floating Storage but Remain at High Levels



C Rising Crude Supply from Lower OPEC+ Output Cuts

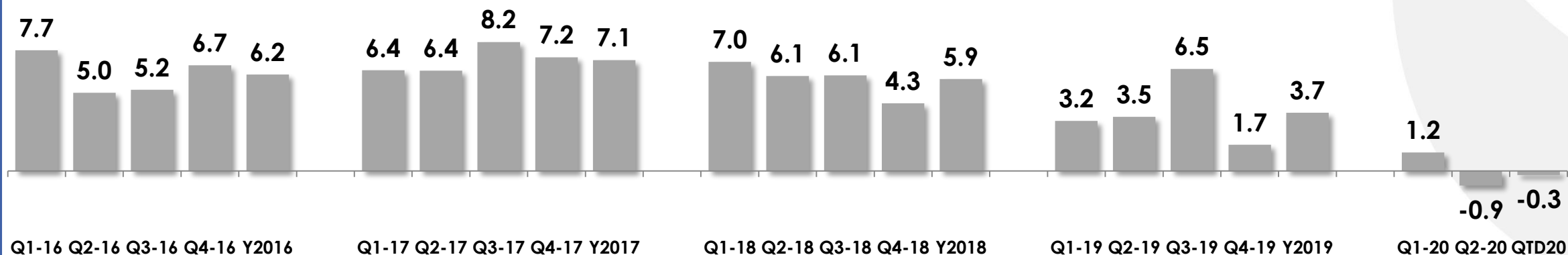


D Recovering Oil Demand amid High Inventory Levels



Recovering Refinery Margin on Improving Demand Despite 2nd Wave COVID Concerns

Singapore Cracking GRM (\$/BBL)



Source : Reuters Jul'20, Exclude Fuel and Loss

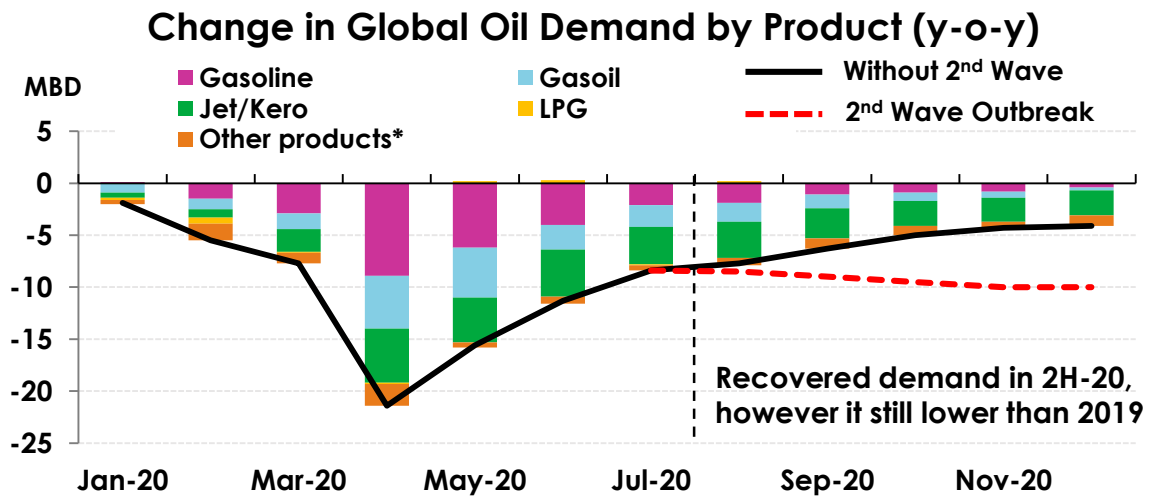
Remark : QTD as of 4 Sep'20

2H-20 Key Highlights: GRM to Recover on Resuming Petroleum Product Demand

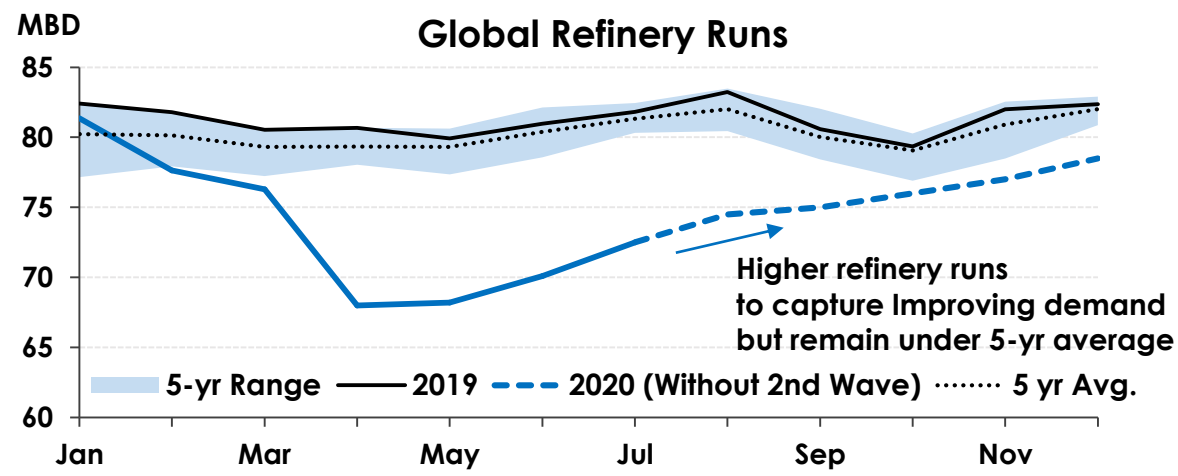
- 1 Improving Product Demand to Drawdown Floating Storage Levels
- 2 Recovering Gasoline Demand after City Lockdown Easing while Jet Remains Under Pressure
- 3 Resuming Gasoil/Fuel Oil Demand on Economic Recovery amid High Supply

Improving Product Demand to Drawdown Floating Storage Levels

A Gradually Increasing in Oil Demand with 2nd Wave Concerns

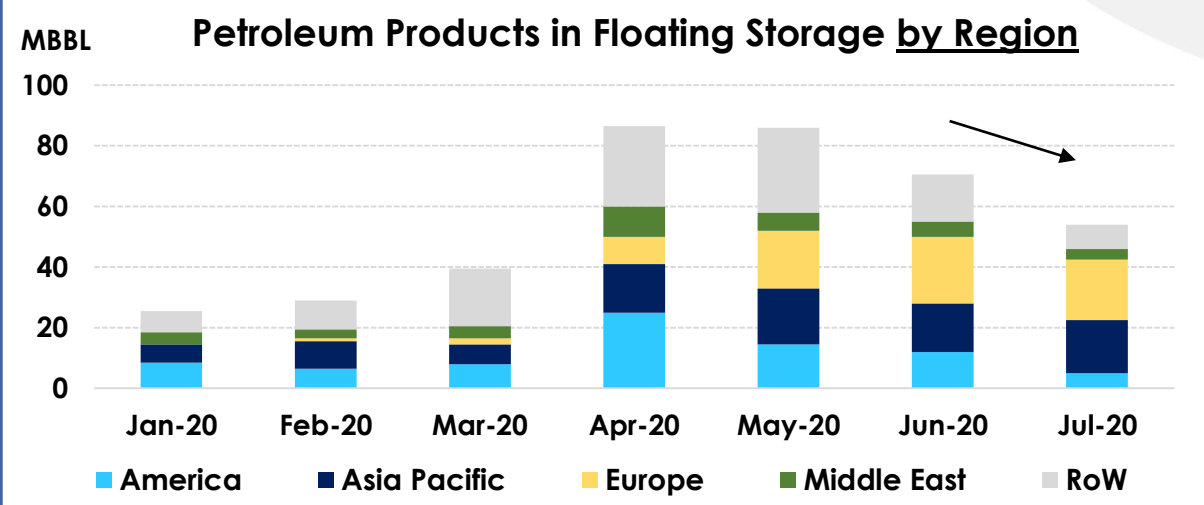
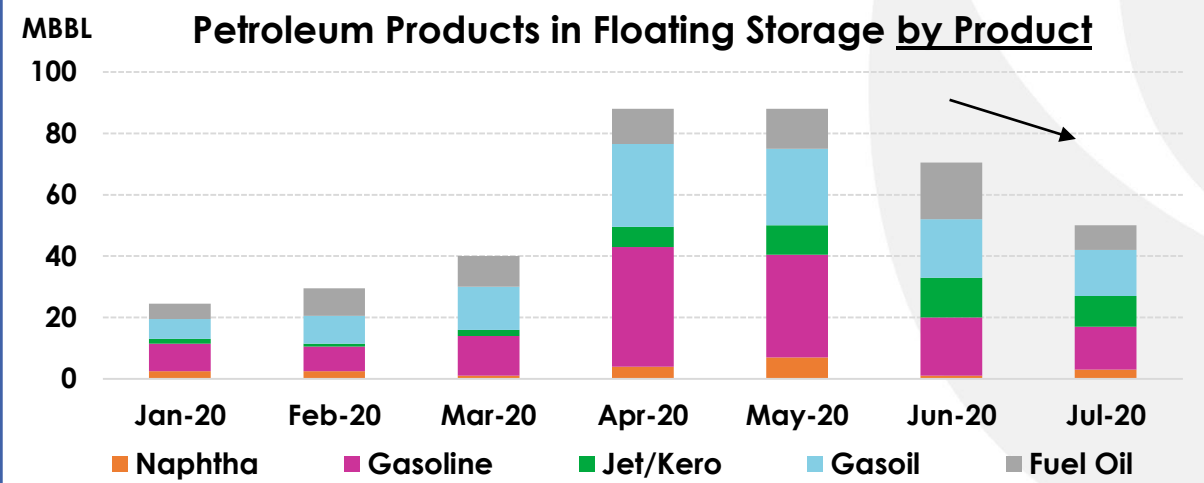


*Other products - white spirit, lubricants, bitumen, paraffin, waxes and petroleum coke



Source: IEA, Platts, FGE and Energy Aspect (Aug'20)

B Falling in Floating Storage but Still Higher than Normal Level



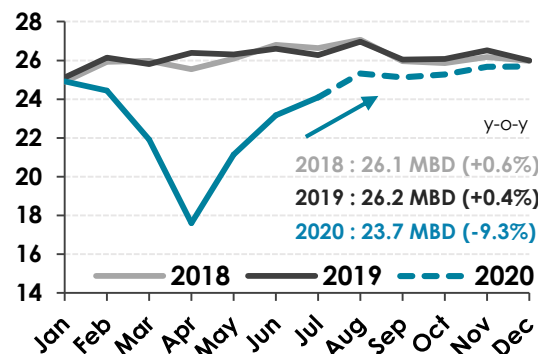
Source: FGE and Vortexa (Jul'20)

Recovering Gasoline Demand after Lockdown Easing while Jet Remains Under Pressure

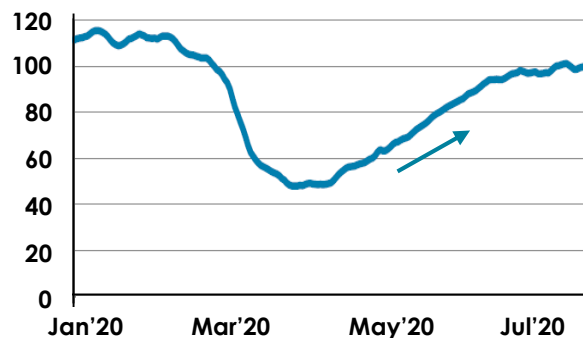
Gasoline Market

A Lifting City Lockdown to Boost Gasoline Demand Globally

MBD Global Gasoline Demand



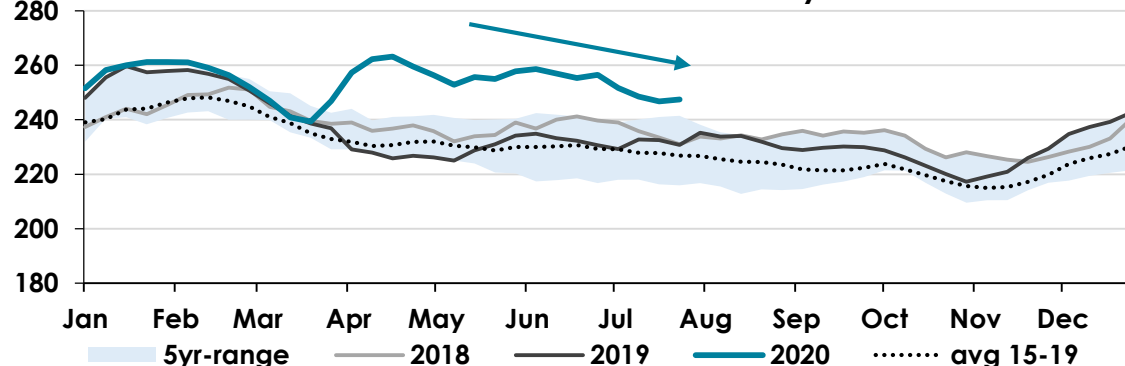
Asia Pacific Driving Mobility Index



Source: Energy Aspects (Jul'20)

B Stock to Remain High but Signs of Demand Recovery

MBD U.S. Gasoline Onshore Inventory



Source: Reuters (Jul'20)

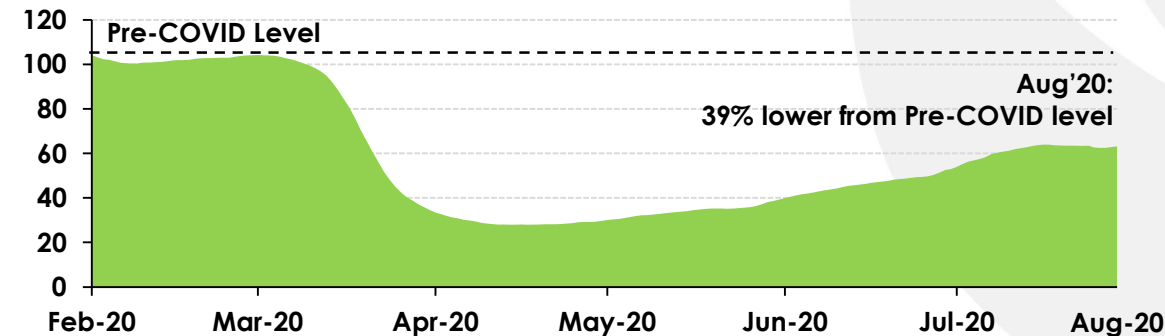
Global gasoline and jet demand forecast base on without 2nd wave of COVID-19

Jet Market

A Improving Jet Demand from Bottom Level in Apr'20

'000 Flights

Number of Global Commercial Flights*

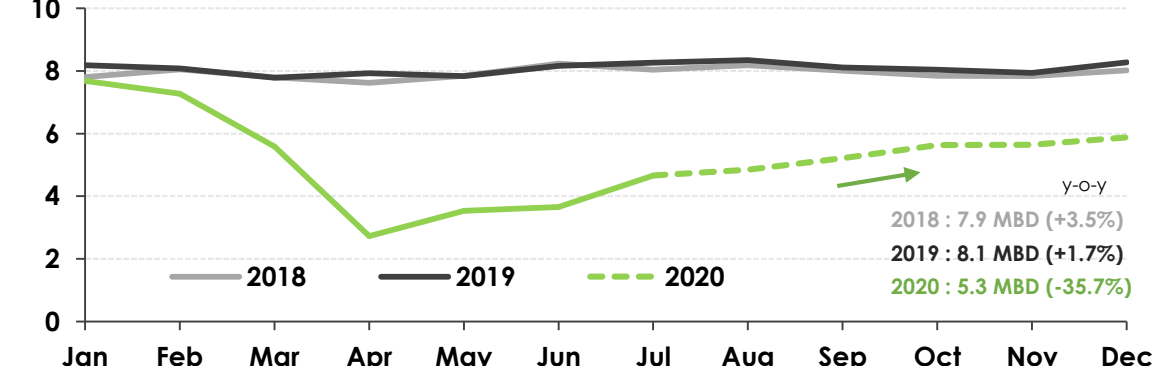


*Commercial flights = Commercial passenger flights + cargo flights + charter flights + some business jet flights

Source: Flightradar24 (Aug'20)

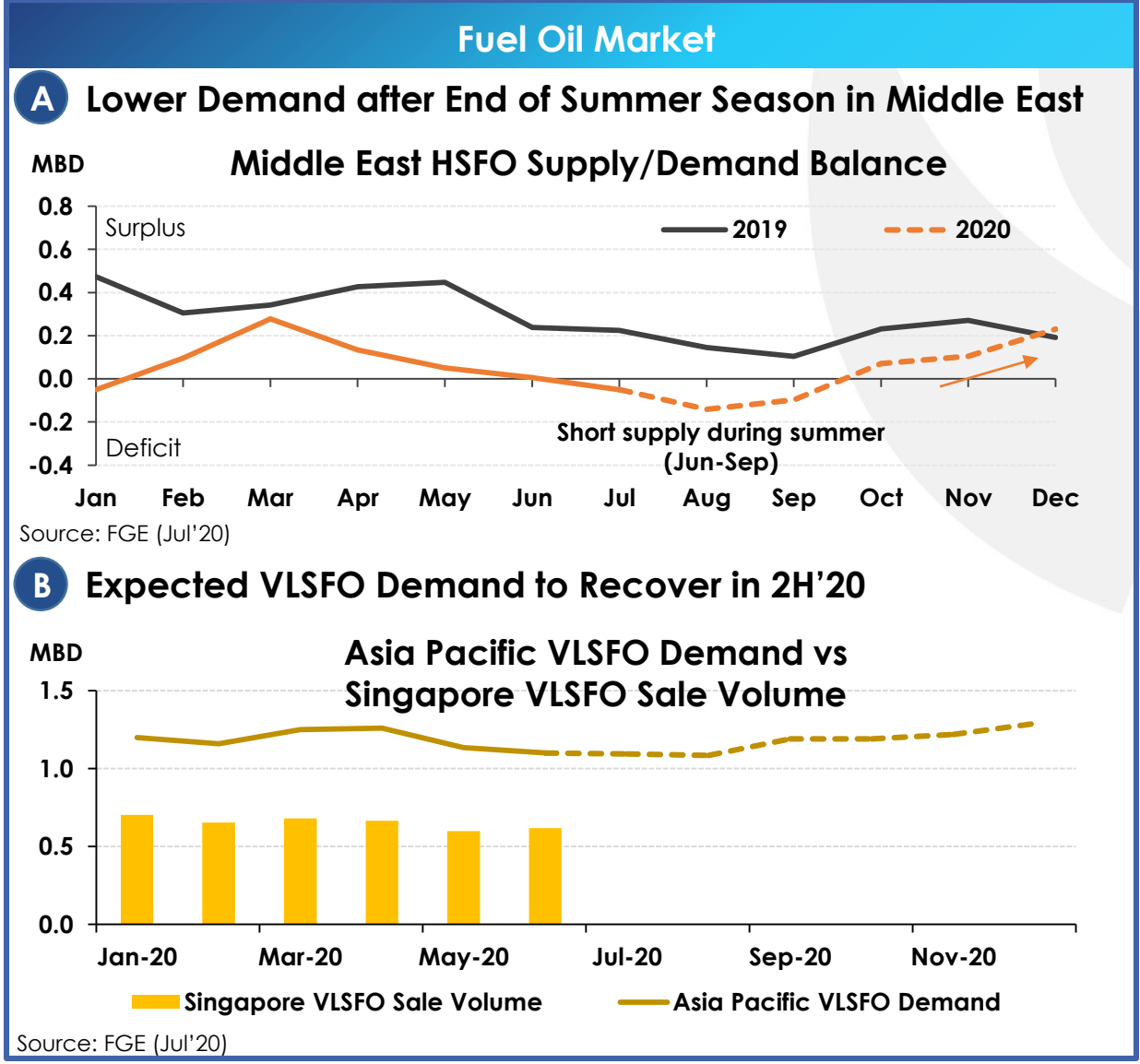
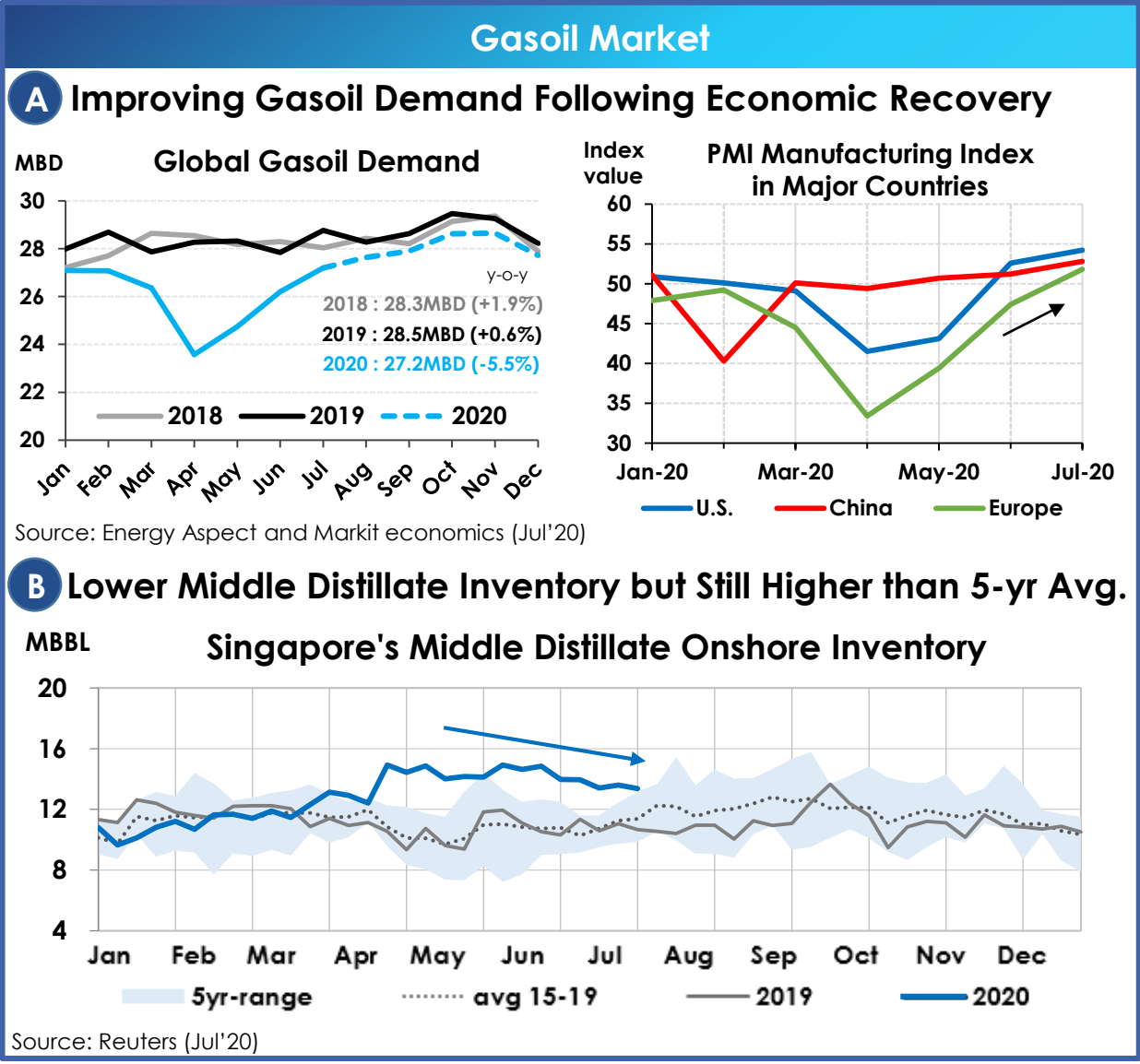
B Global Jet Demand to Remain Under Pre-COVID Levels

MBD Global Jet Demand



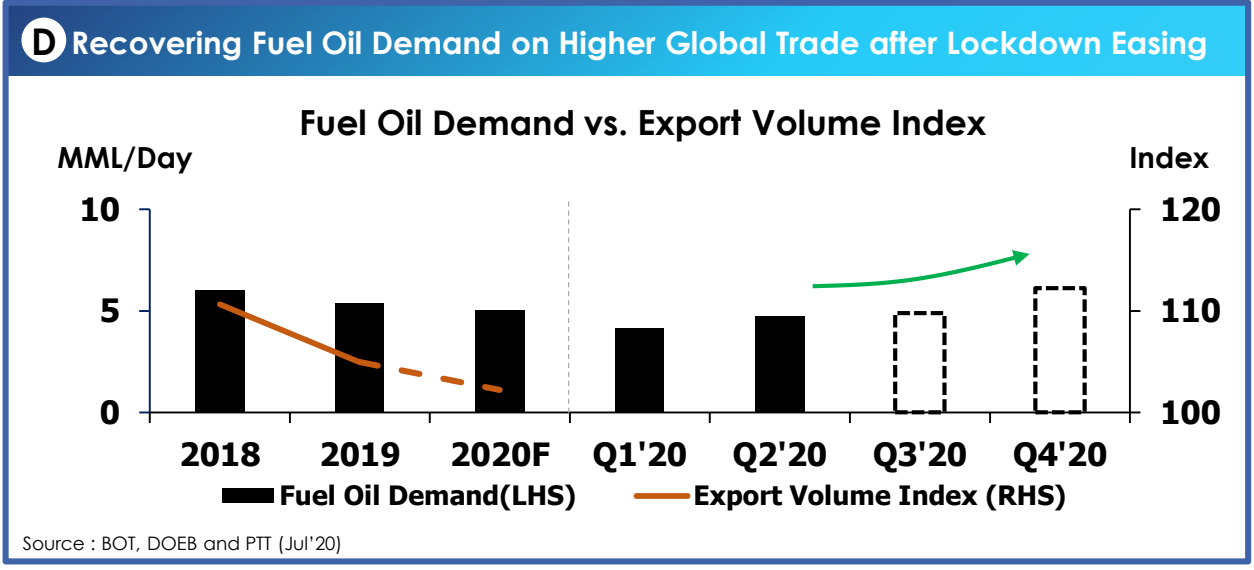
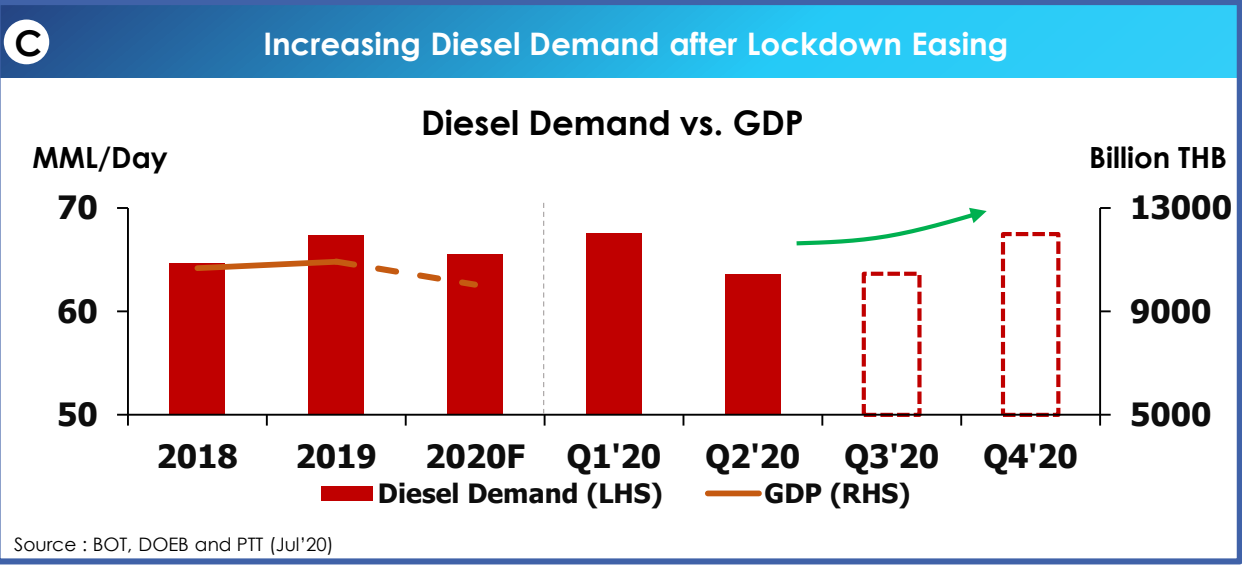
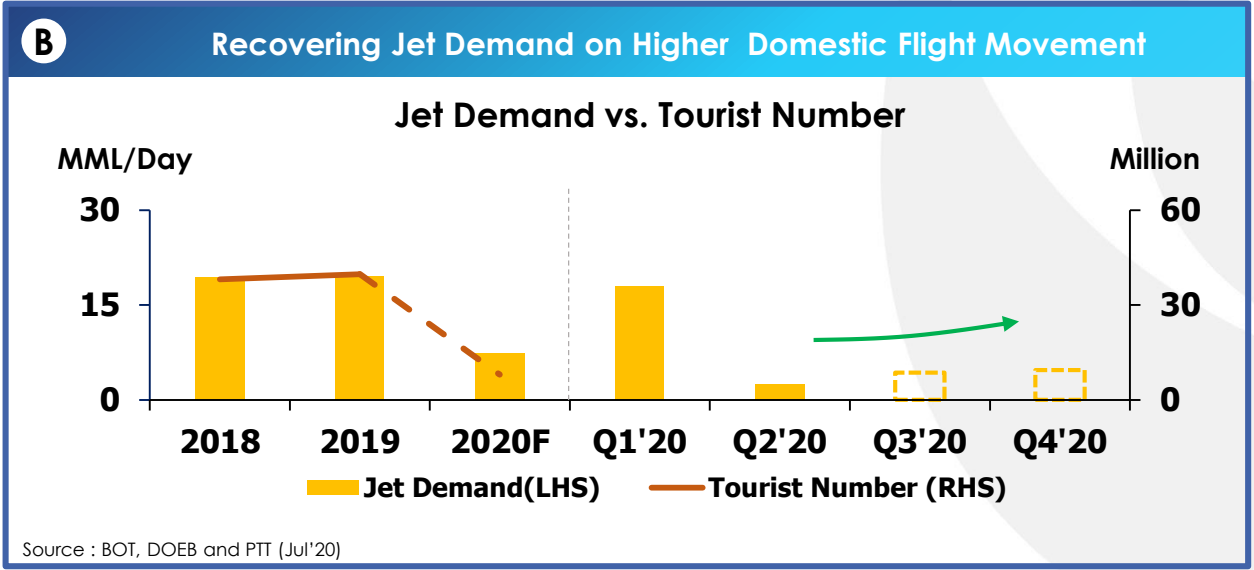
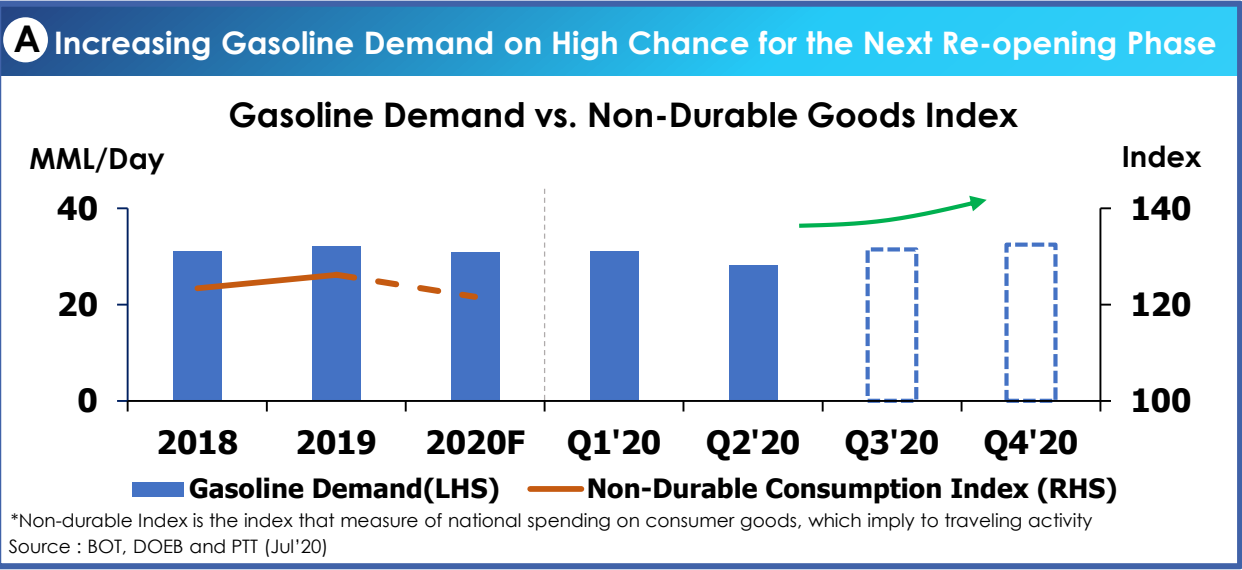
Source: Energy Aspects, IEA (Jul'20)

Resuming Gasoil/Fuel Oil Demand on Economic Recovery amid High Supply



Global gasoil and fuel oil demand forecast base on without 2nd wave of COVID-19

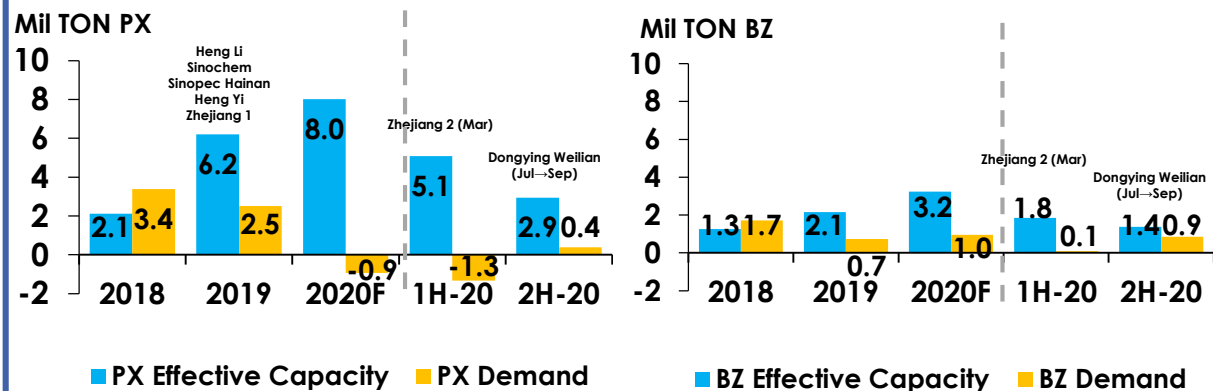
Recovering Domestic Demand Growth after Lockdown Easing



Weaker Aromatics Market on High Inventory and Additional Capacity

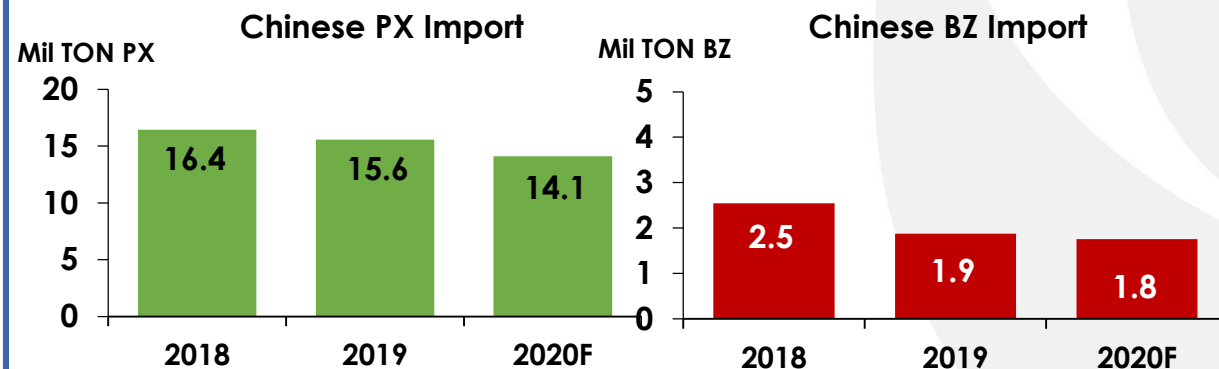
A Slightly Improve Market in 2H-20 due to Expected Recover Demand

AP/ME PX and BZ Capacity Addition vs. Demand Growth



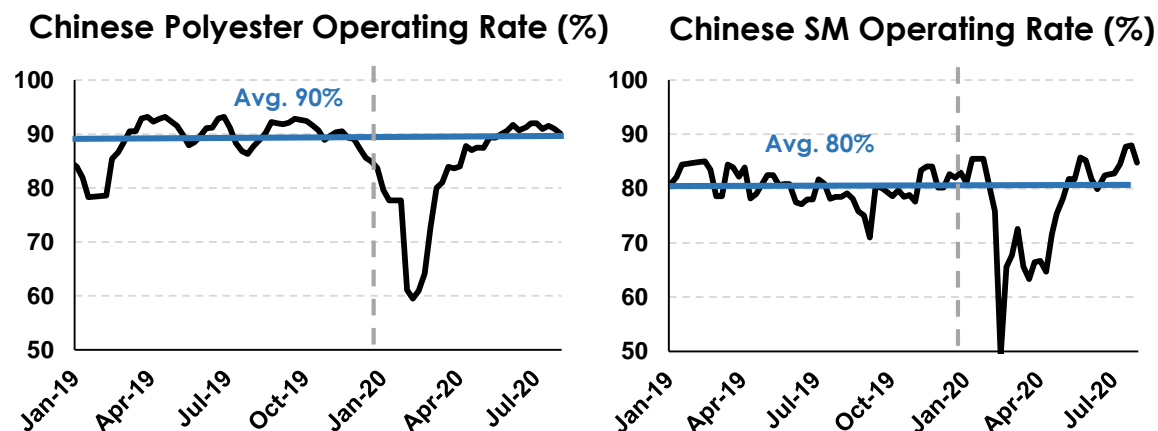
Source : WMChemicals (May-20), IHS Spring 2020 and TOP's Estimate *Saudi Aramco Jizan delayed to Q2-21

B Lower Chinese Import due to Additional Capacity in China



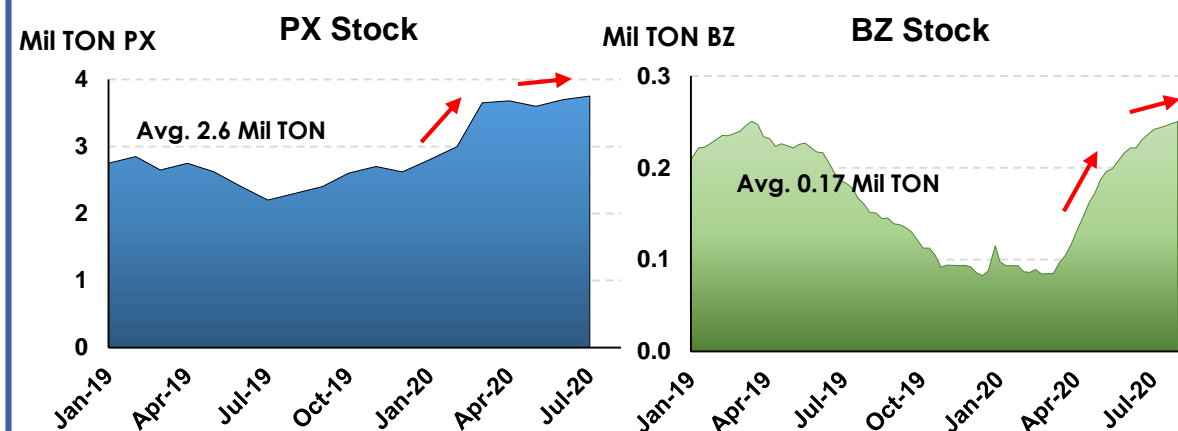
Source : WMChemicals (May-20), and IHS Spring 2020

C Polyester and SM Run Rates to Rebound from Easing Lockdown



Source : CCFGroup (Aug-20)

D Less Chinese Inventory Addition from Higher Downstream Run Rate

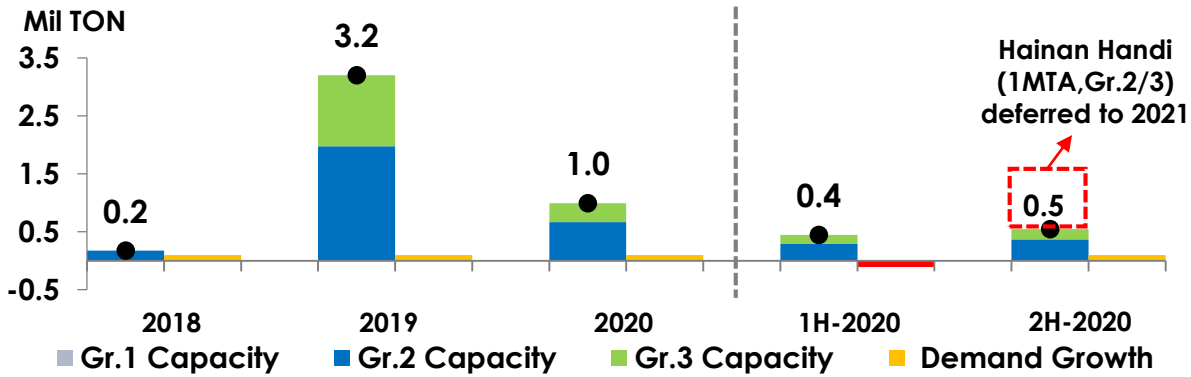


Source : CCFGroup (Aug-20)

Soft Base Oil Market due to New Capacity Addition and Lower Maintenance

A Recovering Demand amid Steady Capacity Addition in 2H-20

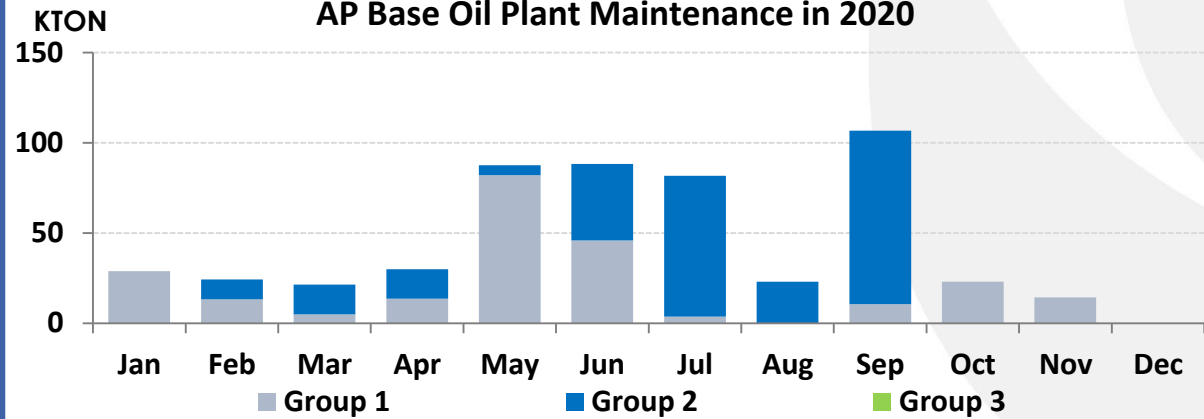
AP Base Oil Effective Capacity Addition vs. Demand Growth



Source : Argus (Jul-20), ICIS (Jul-20) and TOP's Estimate

B Lower Number of AP Plants Maintenance in 2H-20

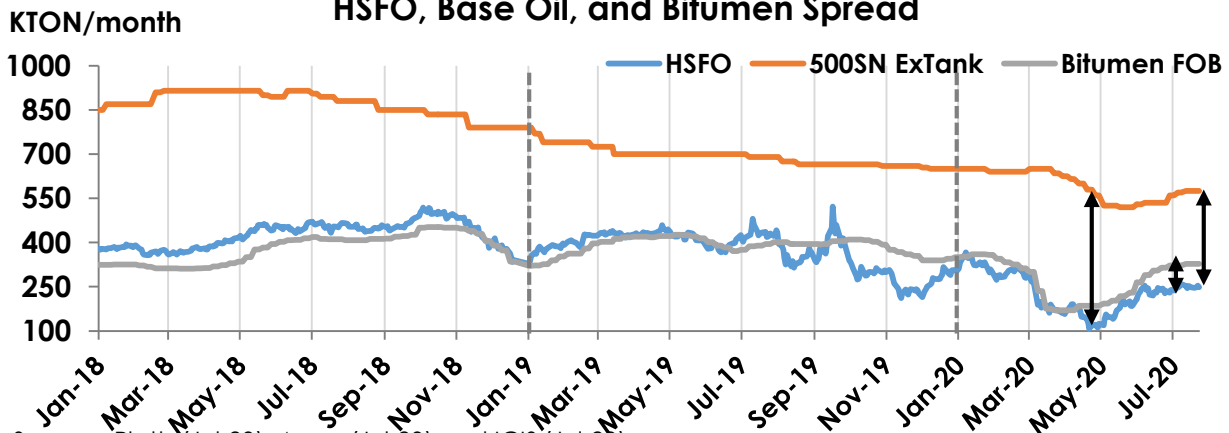
AP Base Oil Plant Maintenance in 2020



Source : Argus (Jul-20), ICIS (Jul-20) and TOP's Estimate

C Higher HSFO Price and Supply Addition to Pressure Base Oil Spread

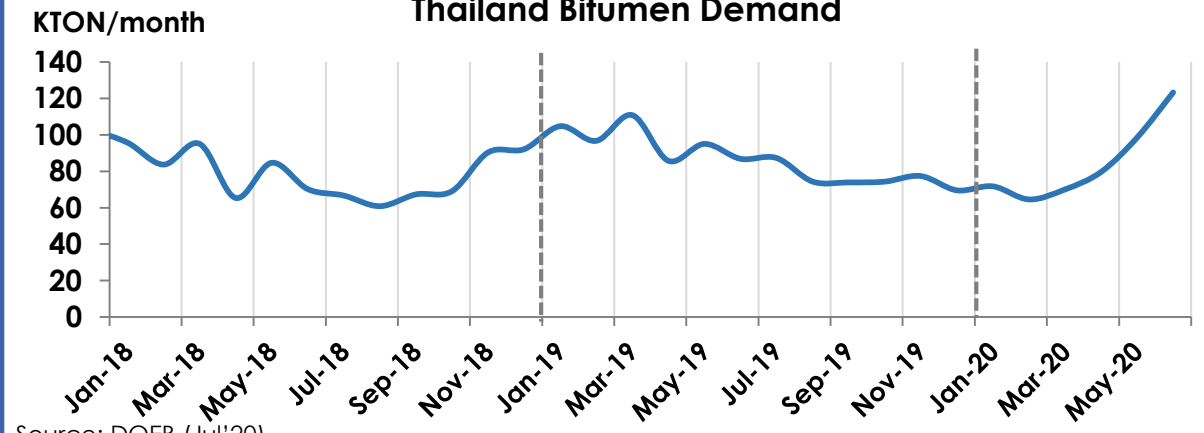
HSFO, Base Oil, and Bitumen Spread



Source : Platts (Jul-20), Argus (Jul-20) and ICIS (Jul-20)

D Thai Bitumen Demand to be Supported by Budget Disbursement

Thailand Bitumen Demand



Source : DOEB (Jul'20)

2H/20 Industry Outlook Conclusion

(vs. 1H/20)



Crude Oil

Demand Recovery but Limited Upside by Resuming OPEC+ Supply and High Stock



Refinery

Recovering Refinery Margin on Improving Demand Despite 2nd Wave COVID Concerns



Aromatic

Weaker Aromatics Market on High Inventory and Additional Capacity



Lube Base

Soft Base Oil Market due to New Capacity Addition and Lower Maintenance

APPENDIX

- Performance analysis
- Sustainability / ESG
- Awards & Recognitions
- World GRM / Inventories
- Thailand petroleum demand by products

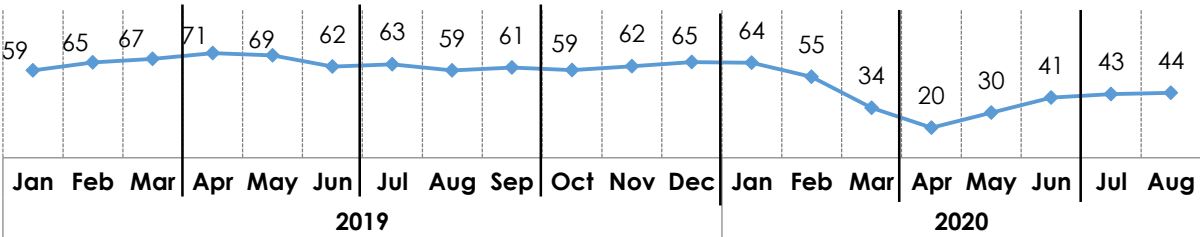
Refinery: Improving Mkt GRM Supported by Lower OSP

Dubai Crude Price & Key Petroleum Product Spreads

	2019				2020				2019
\$/bbl	Q1	Q2	Q3	Q4	Q1	Q2	1H	Q3TD*	FY
DUBAI (DB)	63.5	67.4	61.1	62.1	50.9	30.6 ↓	40.7	43.7	63.5
ULG95 - DB	3.7	7.5	11.7	12.9	6.7	2.6 ↓	4.6	3.7	9.0
JET - DB	13.0	12.2	15.7	13.9	8.6	(0.1) ↓	4.2	(1.1)	13.7
GO - DB	12.8	12.4	15.3	14.3	11.1	5.7 ↓	8.4	4.1	13.7
VLSFO - DB	0.1	3.7	7.8	12.3	13.8	5.3 ↓	9.5	2.8	6.0
HSFO - DB	0.6	(2.3)	0.9	(18.7)	(7.5)	(1.6) ↑	(4.5)	(2.5)	(4.9)

*As of 4 Sep 20

Dubai Price
(US\$/bbl)



Gross Refinery Margins - GRM

	2019				2020			2019
\$/bbl	Q1	Q2	Q3	Q4	Q1	Q2	1H	FY
Market GRM	3.0	2.6	4.1	2.7	0.1	1.4	0.7	3.1
Stock G/(L)	2.7	(0.2)	(1.8)	0.7	(12.3)	(1.8)	(7.3)	0.5
Accounting GRM	5.7	2.4	2.3	3.4	(12.2)	(0.4)	(6.7)	3.6

Refinery Utilization			
Q1/20	Q2/20	1H/19	1H/20
111%	98%	109%	105%

% MB Intake/OSP			
14%/ 2.4	27%/ (4.7)	32%/ 2.2	20%/ (1.1)

% AXL intake/ OSP			
9%/ 4.4	7%/ (5.7)	11%/ 1.5	8%/ (0.6)

Middle East crude intake			
45%	56%	74%	50%

Q2/20 Market GRM

- + Lower crude cost from OSP discount
- Weak Gasoline and Middle Distillate spread especially Jet fuel due to weak demand on flight cancellation and halted airline operation due to COVID-19 outbreak
- + Improving HSFO spread due to tight supply from reduced global refinery run due to COVID-19 and shifted production to VLSFO

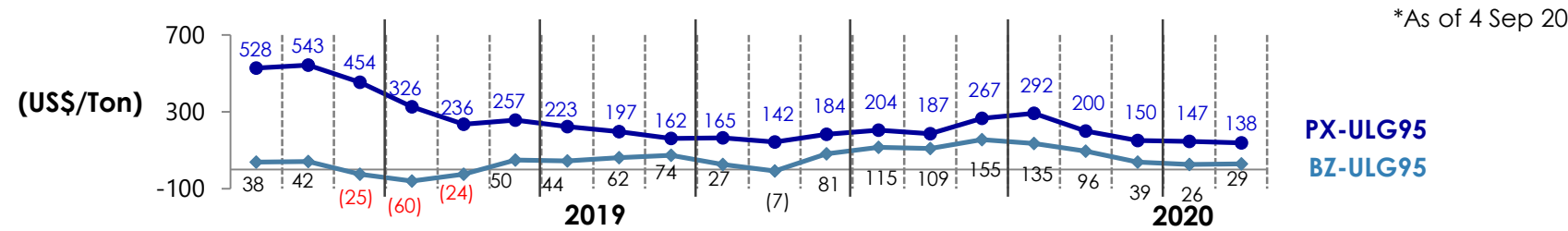
Q2/20 Performance

- Slowdown refinery run rate to 98%

Aromatic: Improving Contribution from LAB

Aromatics Spreads and Margins

	2019				2020				2019
	Q1	Q2	Q3	Q4	Q1	Q2	1H	Q3TD*	FY
\$/ton									
PX-ULG95	508	273	194	163	218	214 ↓	216	145	285
BZ-ULG95	18	(12)	60	33	126	90 ↓	108	28	25



Aromatics Production			
Q1/20	Q2/20	1H/19	1H/20
81%	75%	78%	78%

Q2/20 Market

- **Softening PX and BZ margins** due to falling demand from COVID-19 and high inventory in China
- + **Better LAB contribution** from lower feedstock cost and resilient demand

Q2/20 Performance

- **Lower utilization rate at 75%**

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

(Unit : KTon)

	2019				2020			2019
	Q1	Q2	Q3	Q4	Q1	Q2	1H	FY
P2F -\$/ton	143	76	42	52	85	77	81	81
P2F -\$/bbl	18.8	9.9	5.5	6.8	11.1	10.0	10.6	10.6
GIM -\$/bbl ⁽²⁾	2.0	1.0	0.5	0.8	1.5	1.6	1.5	1.1

Stacked bar chart showing Aromatic's Sales (excluding by product) & Product-To-Feed Margin (P2F) from 2019 to 2020. The chart shows sales for TL⁽¹⁾ (light blue), BZ (medium blue), and PX (dark blue). Data points for TL⁽¹⁾: 60, 47, 12, 8, 8, 22, 30. Data points for BZ: 115, 107, 49, 106, 99, 102, 175. Data points for PX: 115, 107, 49, 106, 99, 102, 378.

Base Oil: Lower Contributions from Weak Lube & Bitumen Demand

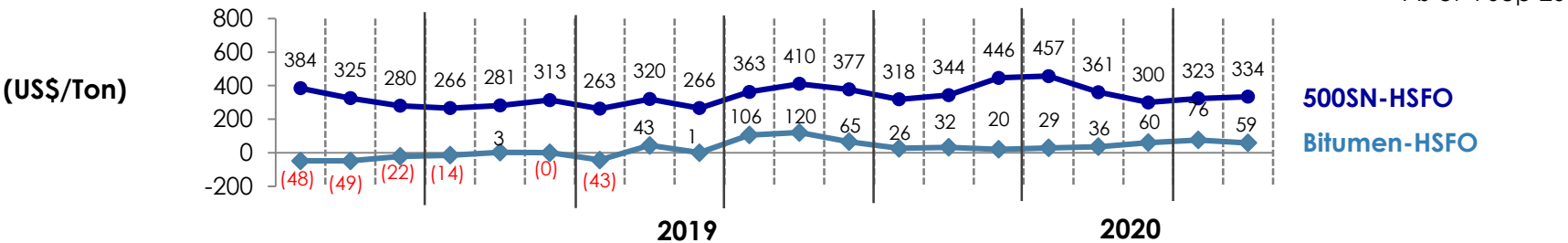
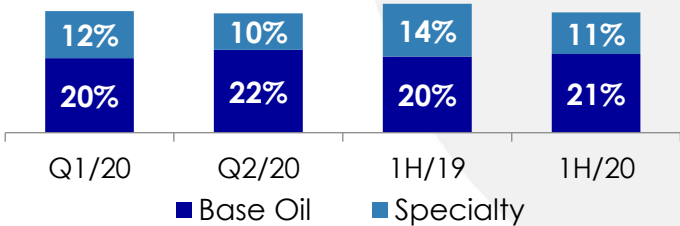
Base Oil & Bitumen Spreads & Margins

	2019				2020				2019
\$/ton	Q1	Q2	Q3	Q4	Q1	Q2	1H	Q3TD*	FY
500SN-HSFO	330	287	283	384	369	372 ↑	371	333	321
BITUMEN-HSFO	(40)	(4)	1	97	26	42 ↑	34	61	14

Base oil Production

Q1/20	Q2/20	1H/19	1H/20
81%	89%	87%	85%

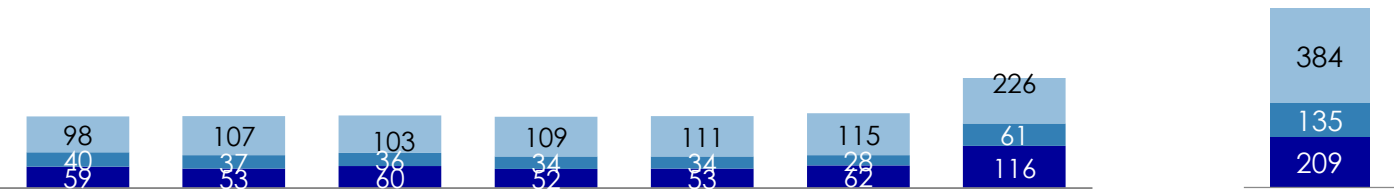
% Base Oil & Specialty Sales Volume



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

(Unit : KTon)

Bitumen
Specialty
Base Oil



	2019				2020		
	Q1	Q2	Q3	Q4	Q1	Q2	1H
P2F -\$/ton	59	94	83	119	86	24	55
P2F -\$/bbl	9.0	14.3	12.6	18.1	13.0	3.6	8.4
GIM -\$/bbl	0.2	0.7	0.5	0.9	0.6	0.0	0.3

2019
FY
89
13.5
0.6

Q2/20 Market

- Weak Base oil and Bitumen demand from COVID-19 despite improving benchmark spreads
- Lower TDAE sales during COVID-19 outbreak

Q2/20 Performance

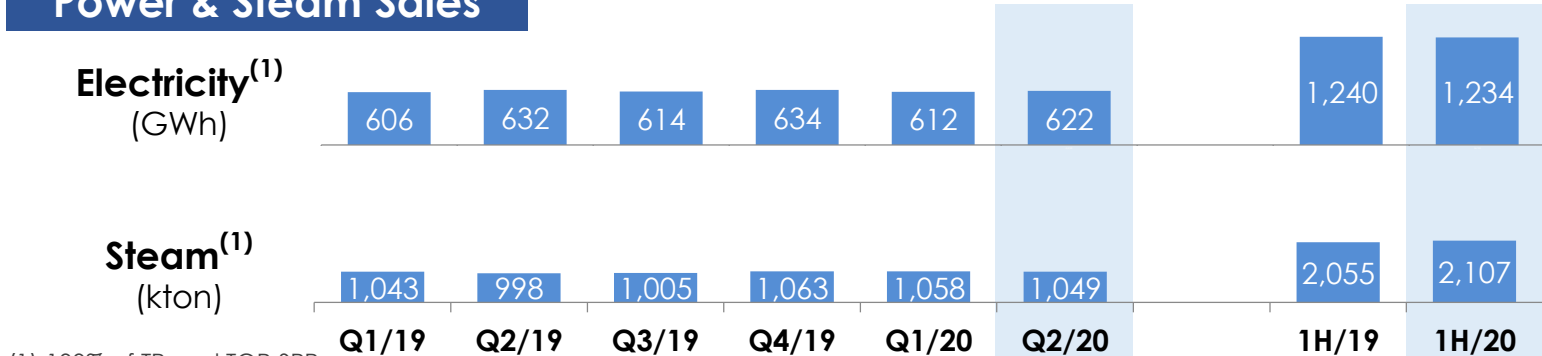
- + Higher utilization rate at 89%

Power Sector Performance...Growing Contribution to the Group

Power Business Sector

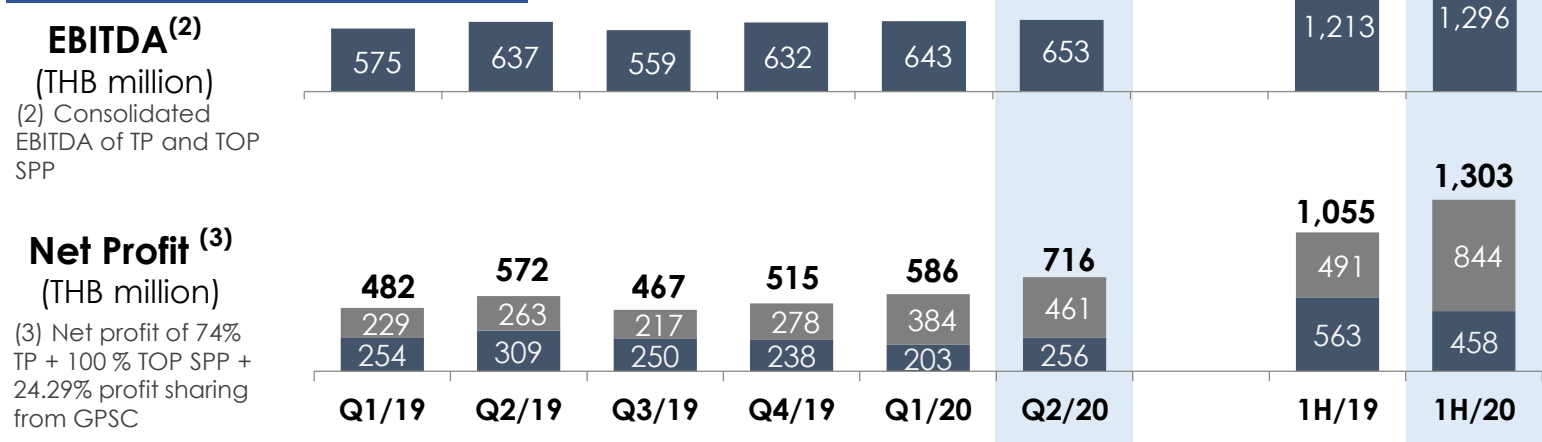


Power & Steam Sales



(1) 100% of TP and TOP SPP

EBITDA & Net Profit



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

■ Equity income from GPSC
■ SPP (TP+TOP SPP)

**** 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)

Performance Highlight

+ **Higher power section contribution** due to an increasing of electricity dispatched from TOP SPP and higher profit-sharing from GPSC

Performance Breakdown

	Petroleum	Petrochemical & Lube Base ⁽¹⁾	Power ⁽²⁾	Others & New Business ⁽³⁾	Consolidated Net Profit (excl. Stock G/(L))	Stock Gain/ (Loss)	Consolidated Net Profit (incl. Stock G/(L))
Q1/20	(4,488)	743	586	177	(2,982)	(10,772)	(13,754)
Q2/20	2,652	375	716	141	3,884	(1,404)	2,480
1H/19	192	1,192	1,054	202	2,640	2,335	4,975
1H/20	(1,836)	1,118	1,302	318	902	(12,176)	(11,274)

Q2/20 Key Points

Petroleum

- Slowdown in refinery utilization to 98%
- Higher contribution due to higher market GRM (from 0.1 \$/bbl in Q1'20 to 1.4 \$/bbl in Q2'20)
- Lower stock loss due to oil demand recovery in mid-Q2

Petrochemical

- **Aromatics & LAB:** higher contribution mainly from improving LAB contribution while lower aromatic utilization following lower refinery run rate
- **Lube:** lower contribution due to weak lube and bitumen demand and lower TDAE sales volume during COVID-19 outbreak

Power

- Higher contribution due to increasing electricity dispatched from TOP SPP
- Higher profit-sharing from GPSC

Others & New Business

- **Marine:** higher contribution due to higher utilization rate of TM fleets
- **Ethanol:** lower contribution due to lower ethanol and alcohol demand after COVID-19

Remark

(1) Includes 75% of LAB net profit, Q1/20 (66) MB, Q2/20 75 MB, 1H/19 (91) MB, 1H/20 9 MB

(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

Q2/20 & 1H/20 TOP Group Consolidated P&L

(MB)	Q2/20	Q1/20	QoQ+ / (-)	Q2/19	YoY+ / (-)	1H/20	1H/19	YoY+ / (-)
Sales Revenue	49,372	76,652	(27,280) ^(A)	91,962	(42,590)	126,023	183,588	(57,565) ^(D)
Net Realized G/(L) on Financial Instrument	(45)	(19)	(26)	90	(135)	(64)	(76)	12
EBITDA	↑ 2,881	(12,248)	15,129 ^(B)	2,072	809	↓ (9,367)	8,961	(18,328) ^(E)
EBITDA excl. Stk G/(L)&NRV	1,816	2,004	(188)	2,008	(192)	3,820	5,929	(2,109)
Net Loss on FV of Financial Instrument	389	(377)	766	-	389	12	-	12
FX G/(L) & CCS	2,045	(2,338)	4,383 ^(C)	594	1,451	(294)	1,246	(1,540)
Financial cost	(1,029)	(1,105)	76	(1,196)	167	(2,134)	(2,410)	276
Tax Expense	(495)	3,558	(4,053)	(116)	(379)	3,063	(1,116)	4,179
Net Profit	↑ 2,480	(13,754)	16,234	567	1,913	↓ (11,274)	4,975	(16,249)
EPS (THB/Share)	1.22	(6.74)	7.96	0.28	0.94	(5.53)	2.44	(7.97)
Stock G/(L) and NRV	1,065	(14,252)	15,317	64	1,001	(13,187)	3,032	(16,219)
Net Profit excl. Stk G/(L)& NRV	1,415	498	917	503	840	1,913	1,943	(30)
THB/US\$ - average selling	32.11	31.45	0.66	31.76	0.35	31.77	31.78	(0.00)
THB/US\$ - ending	31.07	32.83	(1.76)	30.92	0.15	31.07	30.92	0.15
Effective Tax Rate (%)*	16%	N/A	N/A	16%	-	N/A	18%	N/A

Analysis	
QoQ	YoY
(A) Lower sales volume from lower domestic demand	(D) Lower sales volume and avg. selling price
(B) Higher market GIM from lower crude premium and lower stock loss	(E) Lower market GIM from lower product spread and huge stock loss
(C) Greater FX gain from higher THB appreciation	

1H/20 Consolidated Cash Flow

(Unit: MB)

Operating Cash Flow

Net income	(11,076)
Depreciation & NRV	4,724
Other adj.	(1,628) ⁽¹⁾
Change in working capital	7,081

(1) Key Item	6M/20	/	6M/19
Financial Cost	2,134 MB	/	2,410 MB
FX (G)/L	167 MB	/	(792) MB
Share profit	(1,283) MB	/	(703) MB
Tax	(2,457) MB	/	447 MB

1H/20	1H/19
(899)	8,647
(11,076)	5,083
4,724	3,026
(1,628) ⁽¹⁾	1,234 ⁽¹⁾
7,081	(697)

Investments

Dividend income	867
ST investments	(42,009)
CAPEX (PP&E) & other	(25,298) ⁽²⁾

1H/20	1H/19
(66,440)	26,266
867	541
(42,009)	36,259
(25,298) ⁽²⁾	(10,534)

(2) TOP 24,814, TPX 88, LABIX 145, SAP&SGE 69 MB

Financing

Loans proceeding	4,685 ⁽³⁾
Loans repayment	(4,223) ⁽⁴⁾
Bond issue	30,998
Interest	(2,941)
Dividend& Lease	(1,625)

1H/20	1H/19
26,894	(9,097)
4,685 ⁽³⁾	3,979
(4,223) ⁽⁴⁾	(8,080)
30,998	-
(2,941)	(2,482)
(1,625)	(2,513)

(3) ST-loan LABIX 2,318, TS Group 1,399, SAP&SGE, 829, TMS 186 MB
LT-loan LABIX 5, SAP&SGE, 41 MB

(4) ST-loan LABIX 1,975, SAP&SGE 314, TS Group 1,407, TMS 163 MB
LT-loan, TOP SPP 154, LABIX 100, TM 75, TMS 15, TS group 69, SAP&SGE, 44 MB

Free Cash Flow

(67,339)	34,913
----------	--------

Beginning Cash

74,854

↑ / ↓
(40,446) ↓

Effect of FX changes

2,956

Ending Cash

37,364

Cash incl. S/T Investment

76,937

3,701 ↑

Ending Cash incl. S/T Investment

80,638 ⁽⁵⁾

(5) USD Deposit = 65,325 MB (2,127 MUSD)

ESG/Sustainability Highlights 2020



MEMBER OF
**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM



*Industry Leader in Oil & Gas Refining & Marketing Industry (OGR) in 2019**

Member of DJSI Emerging Market For 7 consecutive years in OGR

** Industry Leader in OGR from 2014-2019*

2020
Sustainability Award (Gold Class)

6th year of “Gold Class” position
Oil & Gas Refining & Marketing

Environmental

Greenhouse Gases (GHG)

➤ **Reduce 4%** direct GHG emission from BAU **by 2022**

Waste & Water

➤ **Strengthen 3Rs** through:

- Zero waste to landfill
- Study reverse osmosis for recycling waste water from operation and wastewater treatment units
- Green procurement for operation

Others

➤ Enable **Solar cell** at Engineering Building Center

Social

Communities & Safety Management

-
- **Strengthen community engagement** through Refinery in the City Model and proactive communication
 - Develop **Social Enterprise Programs**
 - Established **CFP support Center** to mitigate impact from CFP construction around refinery

Healthcare & Well-being

-
- **Café Amazon for Chance** at Laem Chabang Hospital where 3 hearing disabilities have been employed
 - **Installed solar roof** for 3 hospitals

Governance

Structure & Oversight

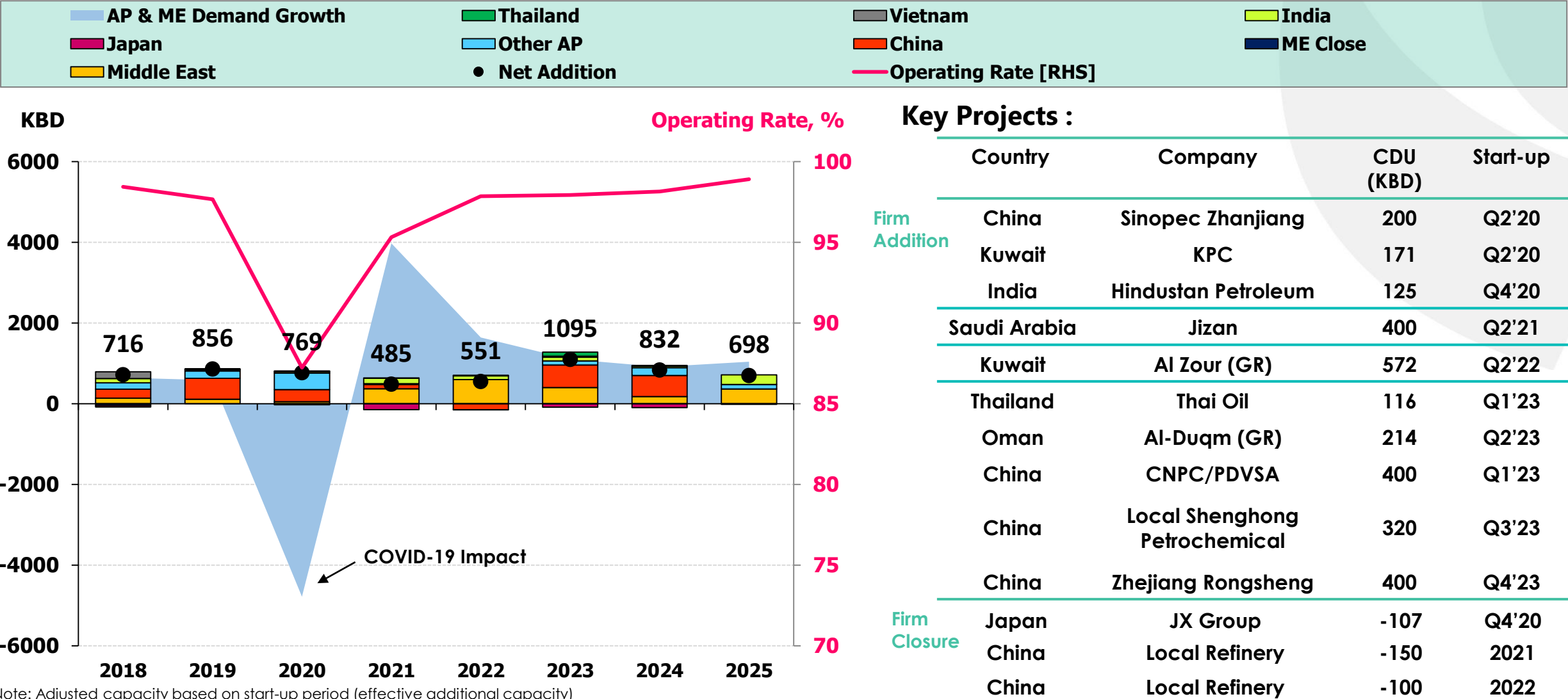
-
- Continue **GRC roadmap**
 - Strengthen ESG practices and performance of suppliers through **ESG Verification Plus Program**

Transparency

➤ **ZERO Corruption** and Fraud Incident

Asia Pacific and Middle East Refinery Addition

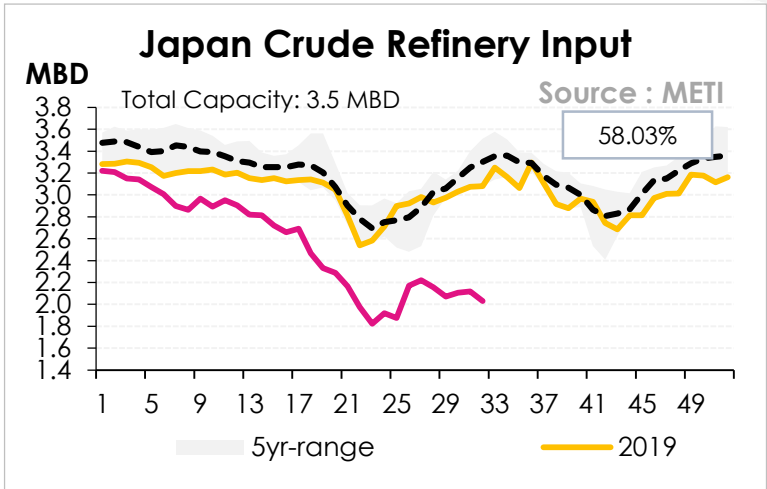
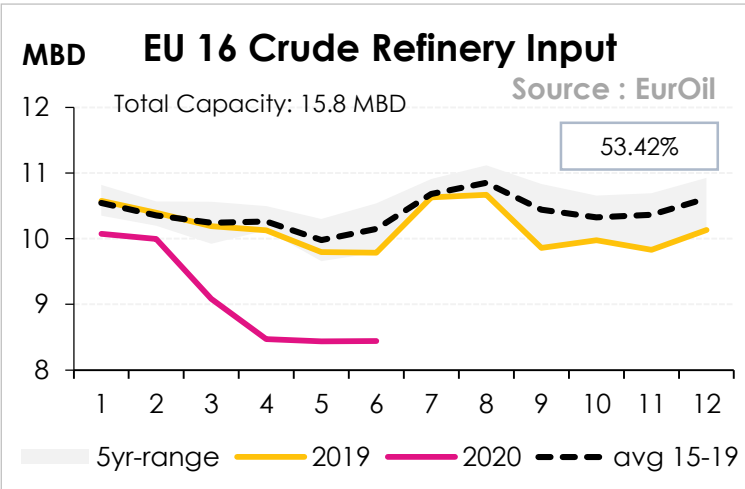
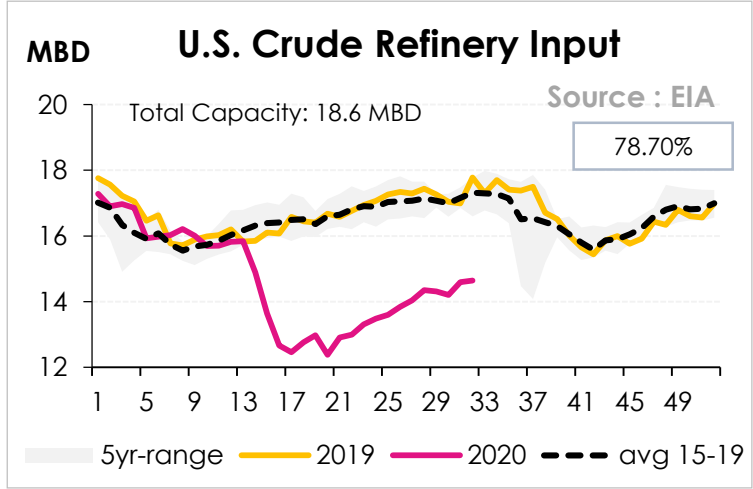
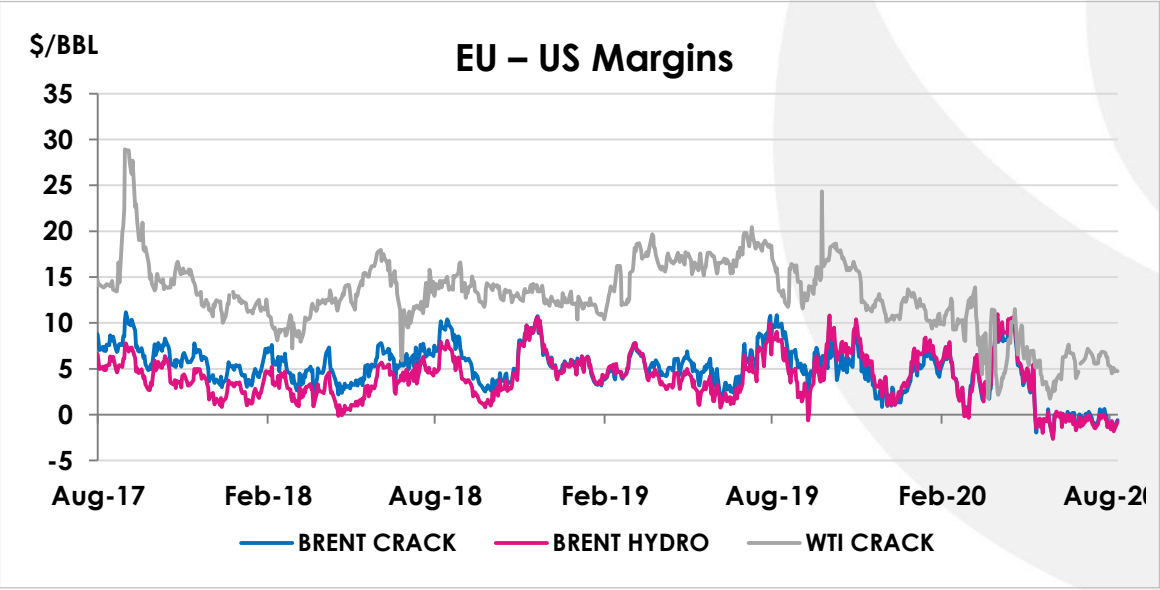
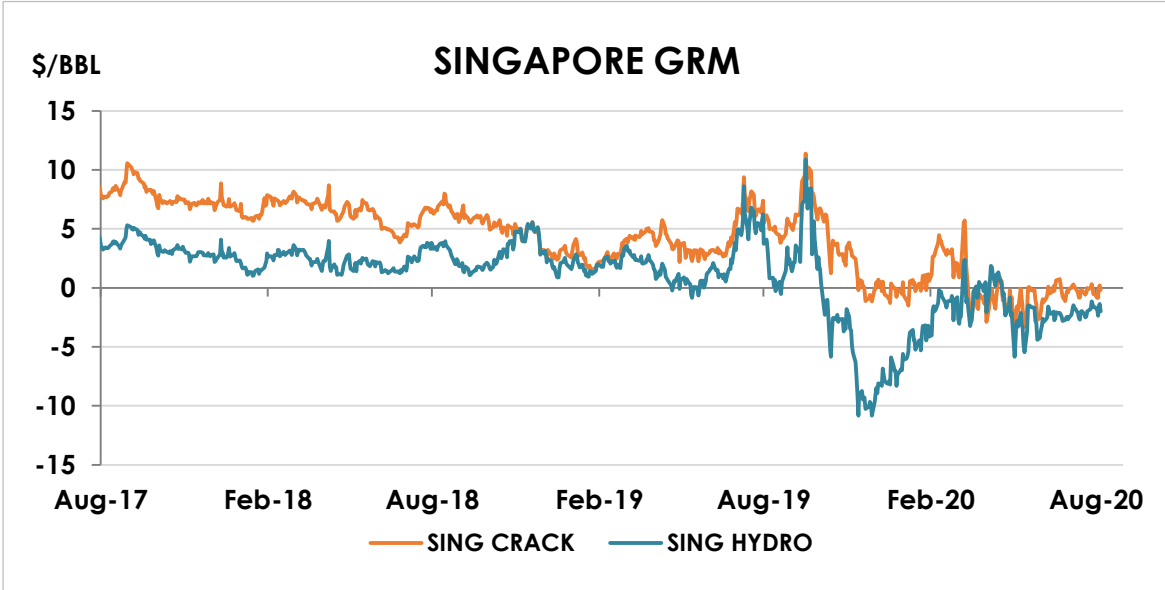
Oil Demand to Outpace Refining Addition amid Firm Projects in 2023



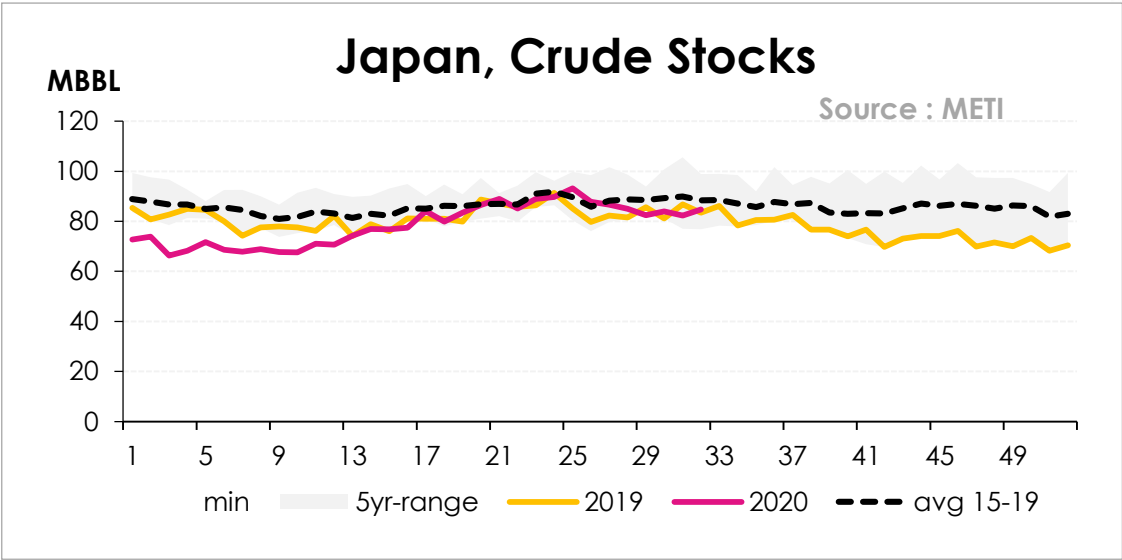
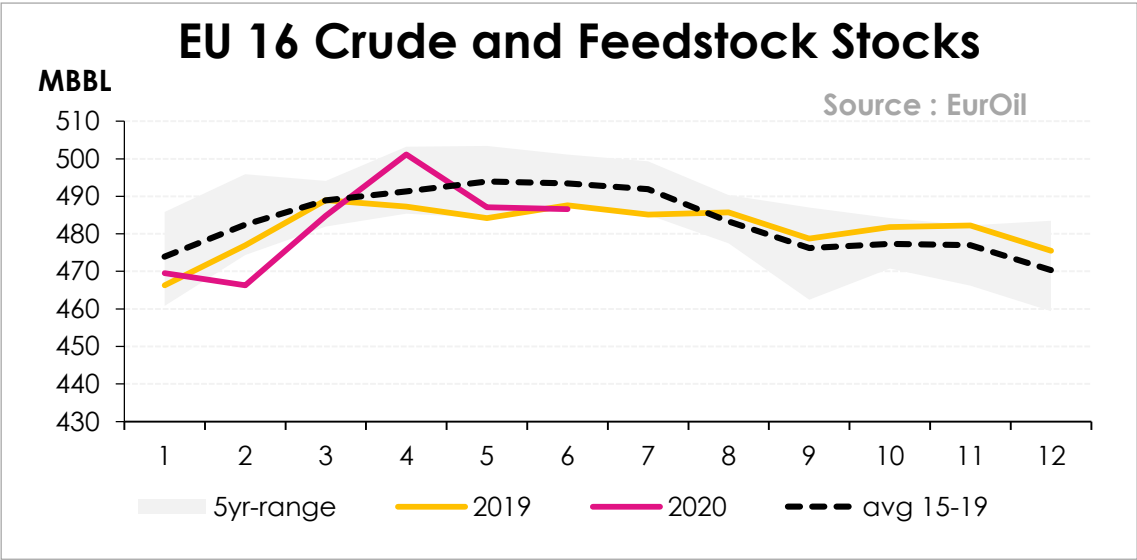
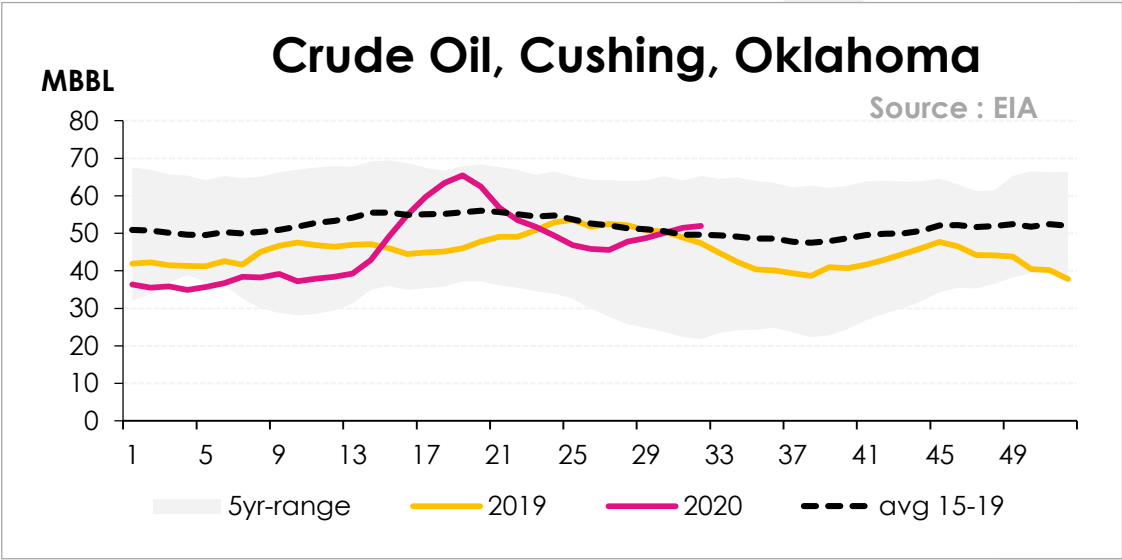
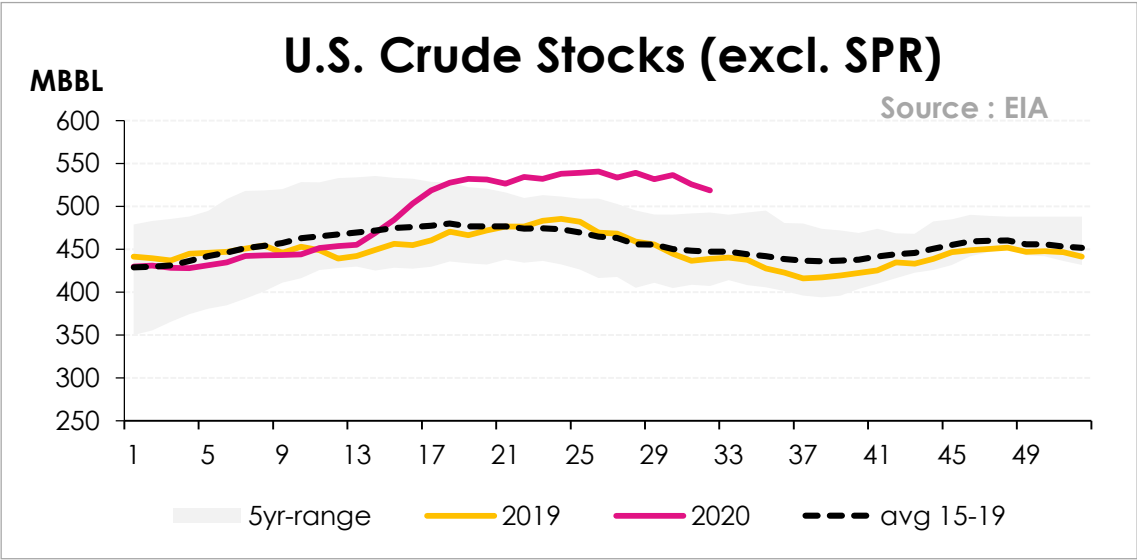
Note: Adjusted capacity based on start-up period (effective additional capacity)

Source : FACTs Semi Annual Reports, Spring 2020 (Jun'20)

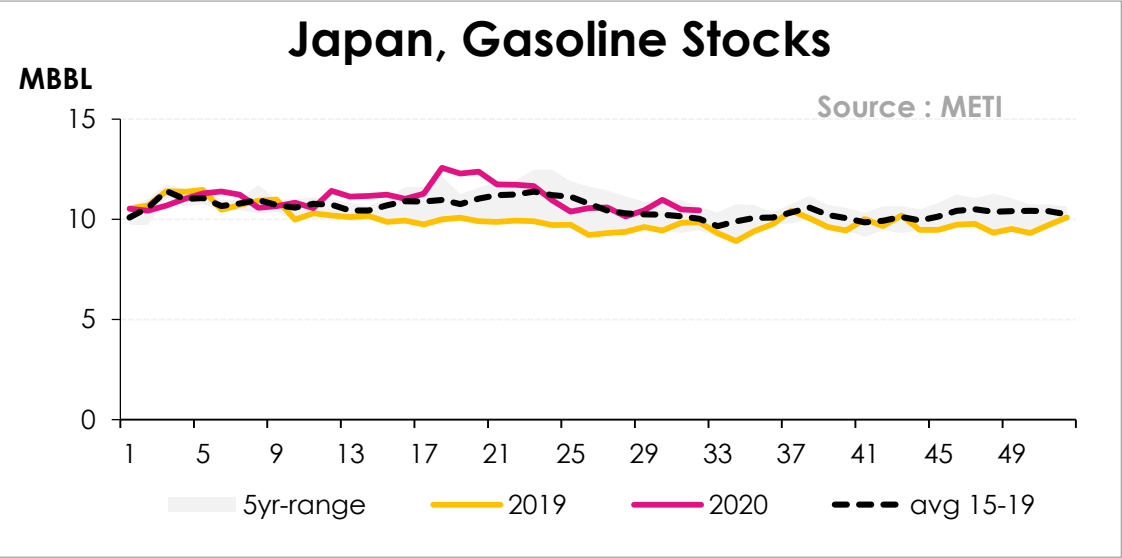
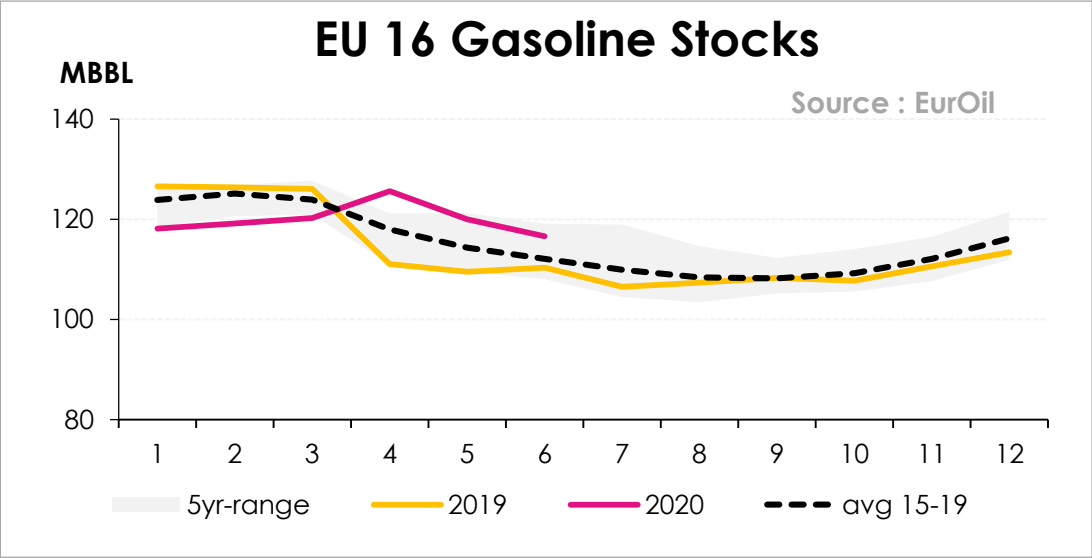
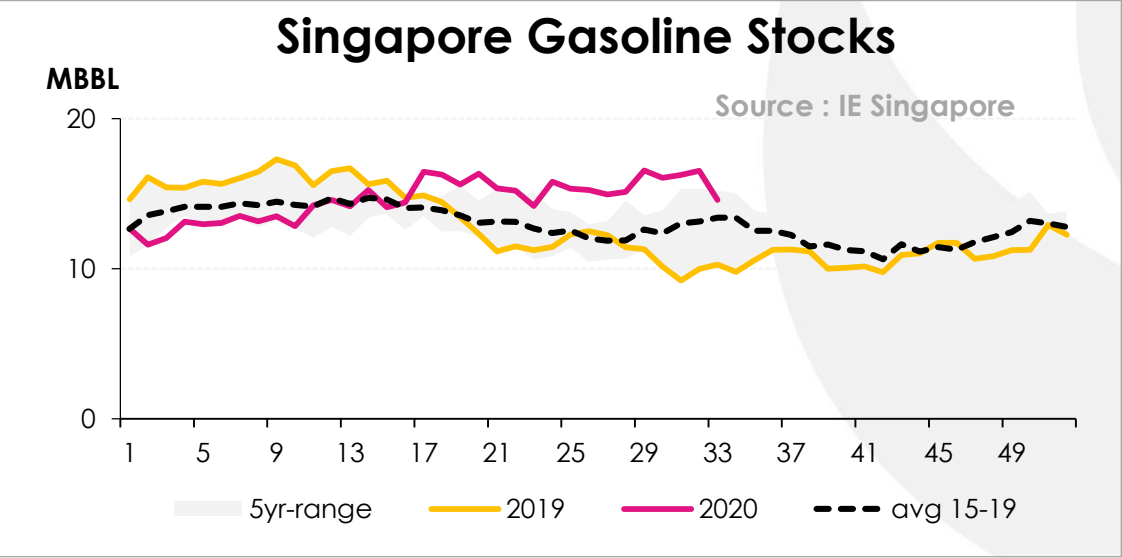
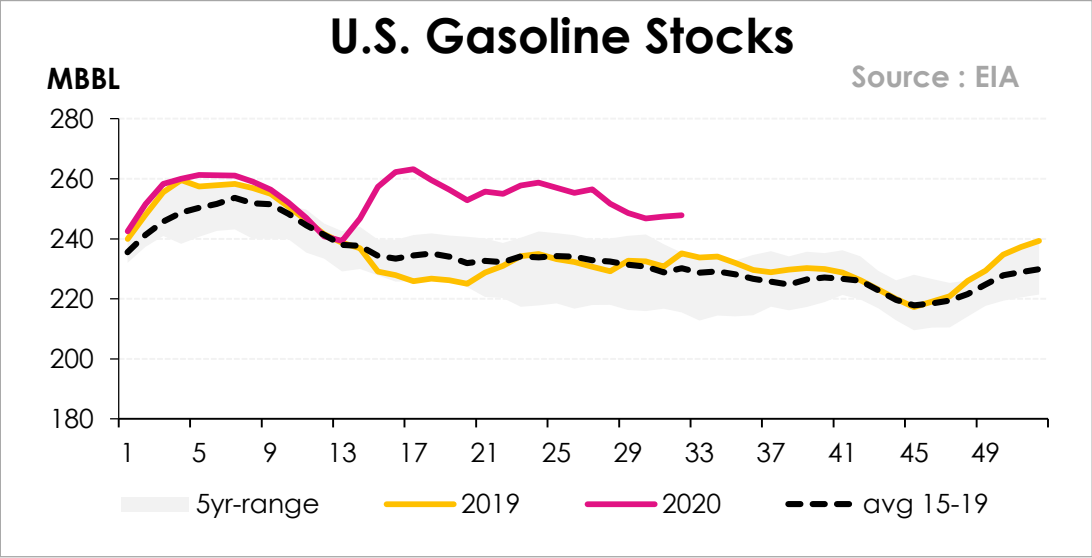
Asian Margin Vs. US-EU margin



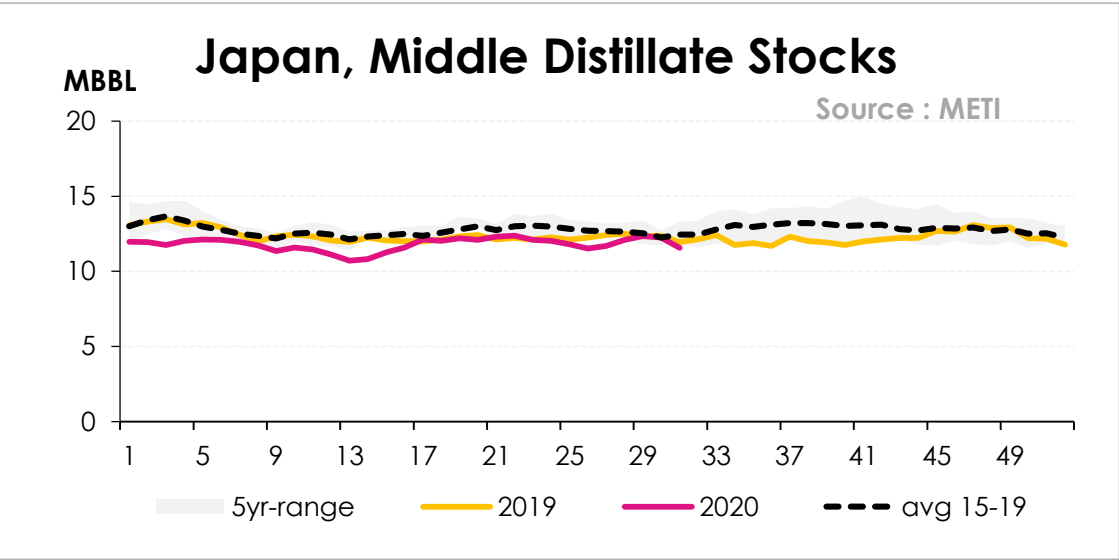
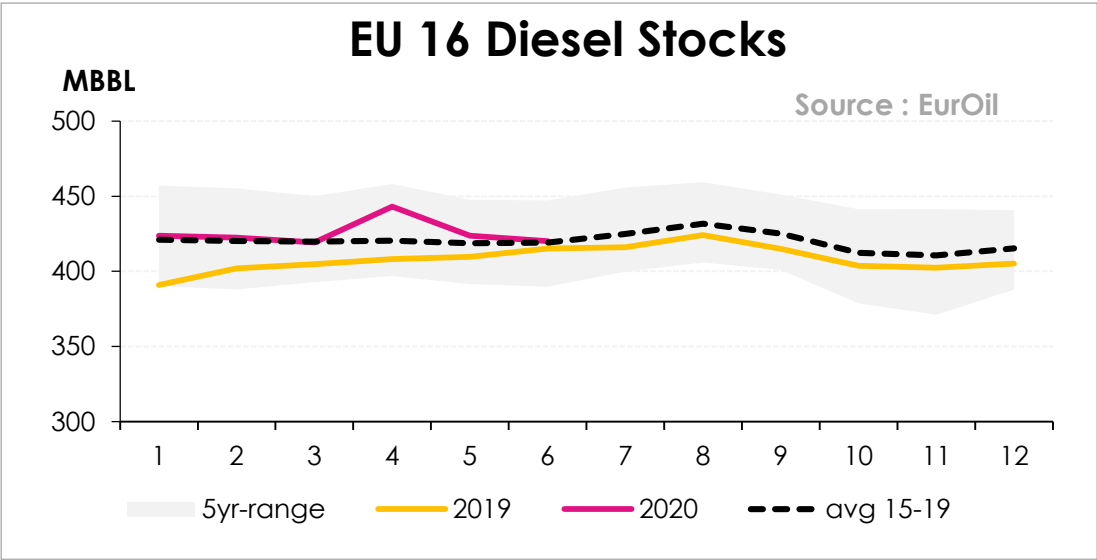
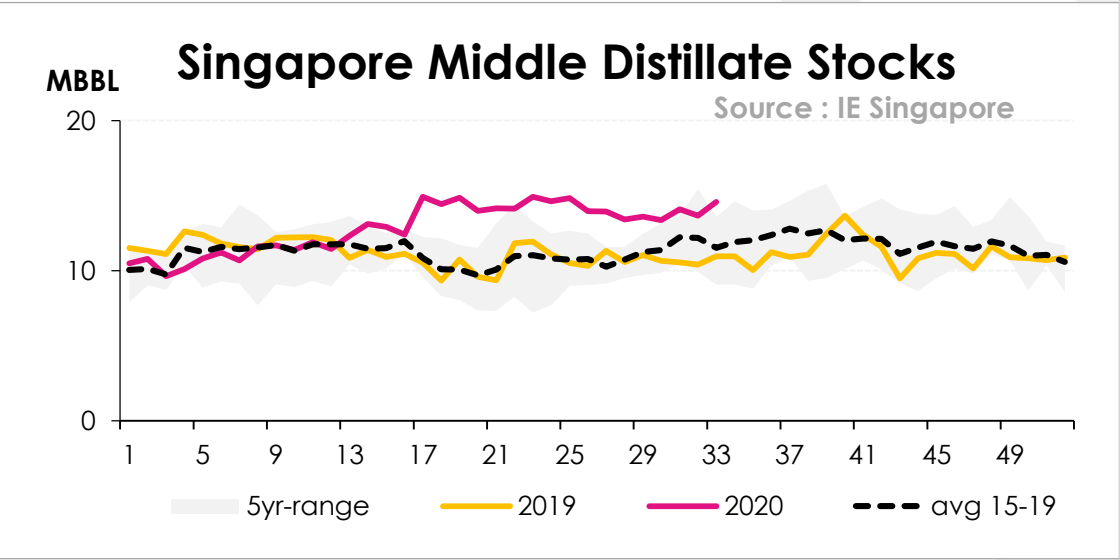
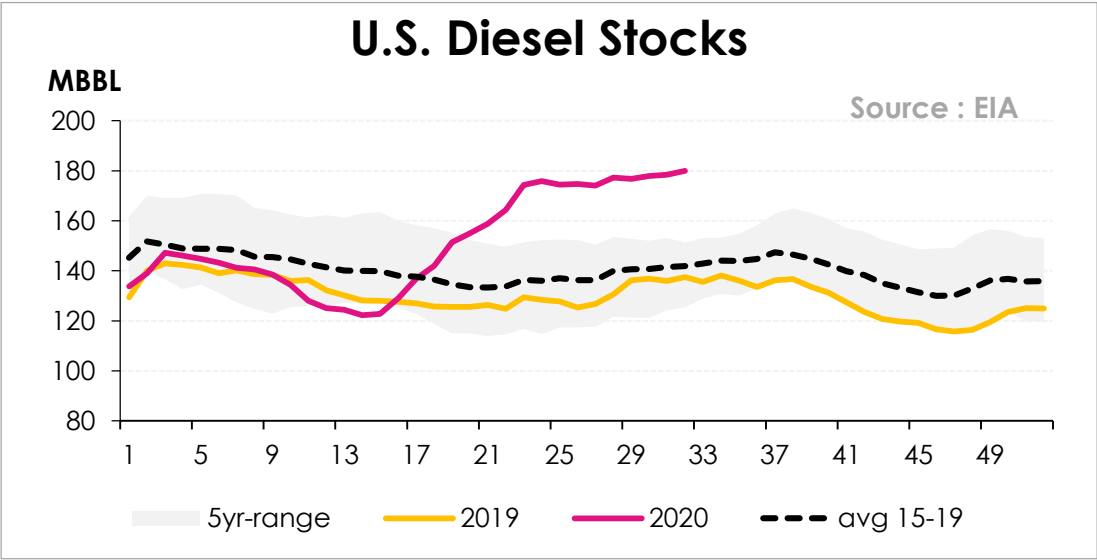
Global Crude Oil Inventories



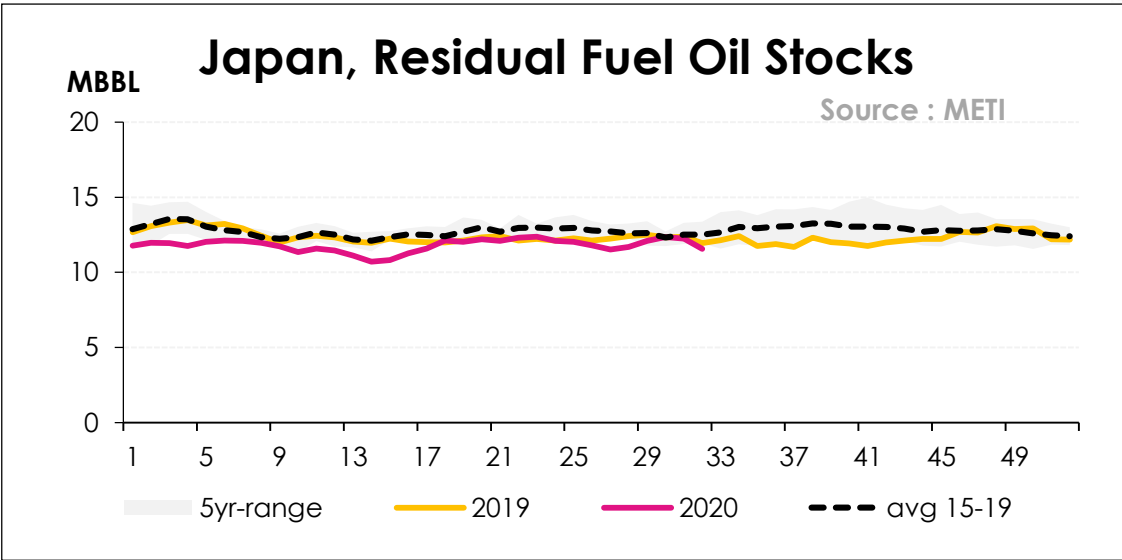
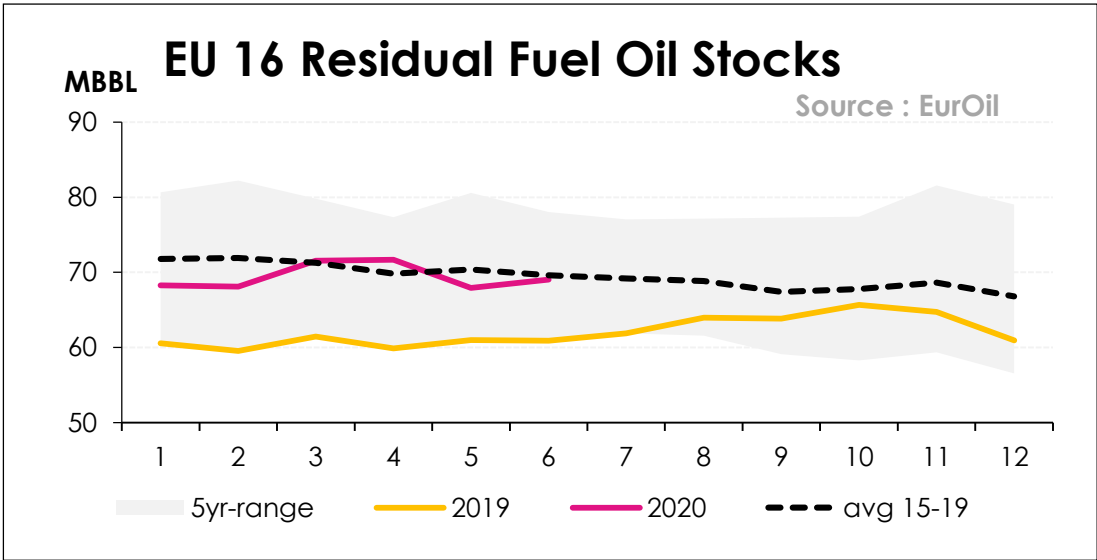
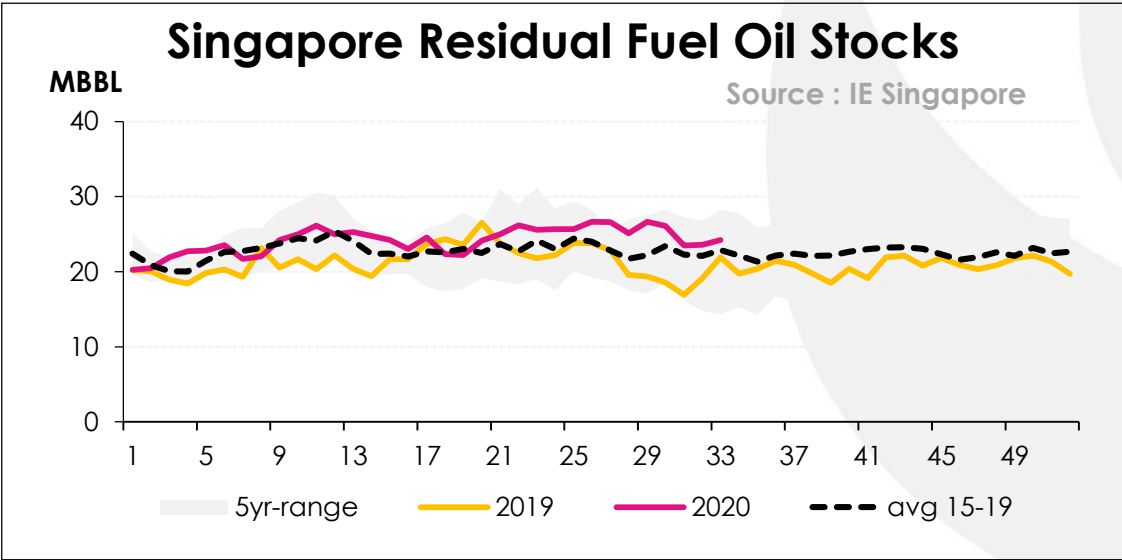
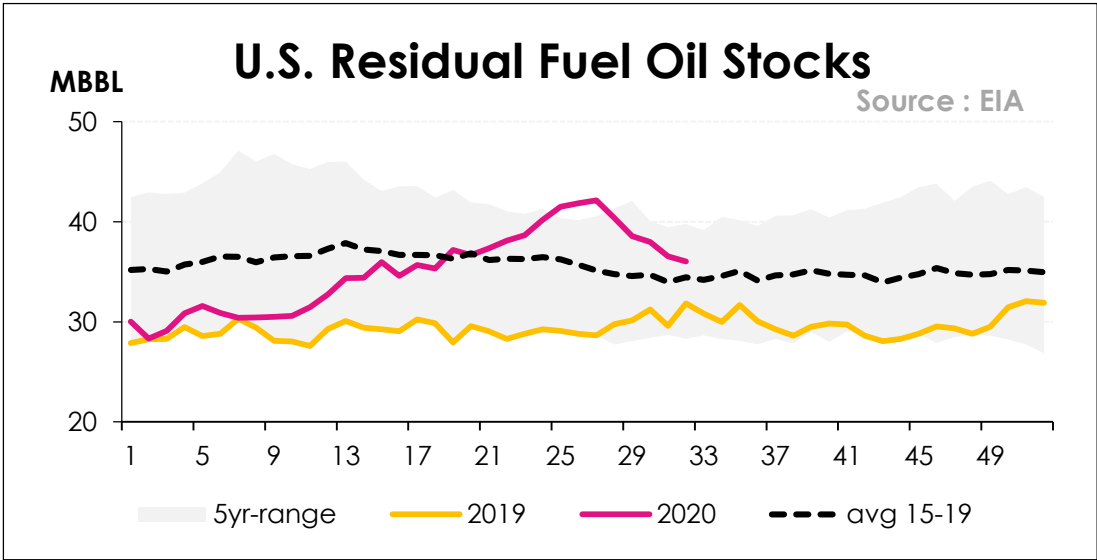
Global Gasoline Inventories



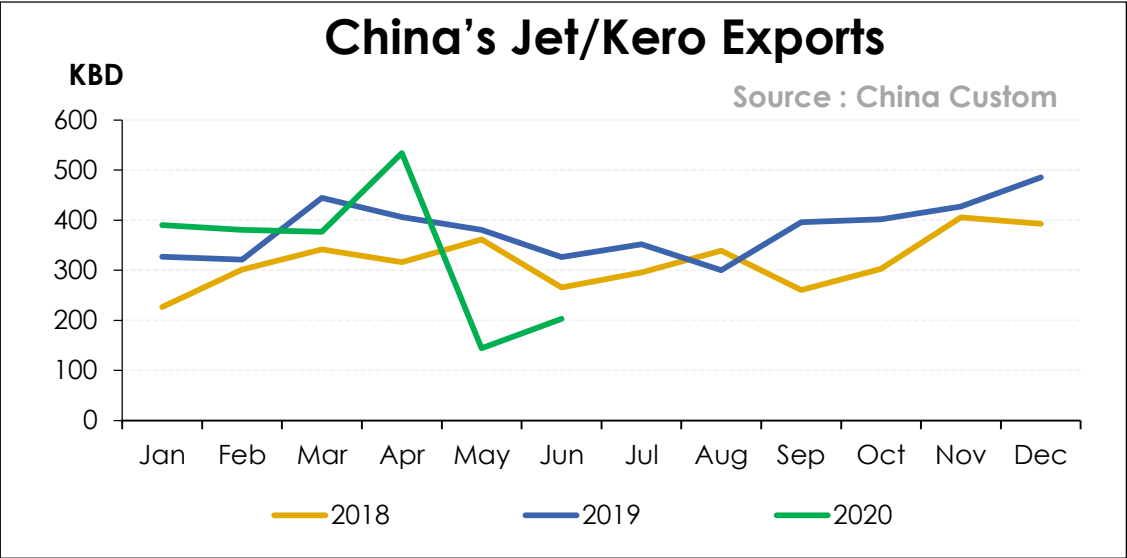
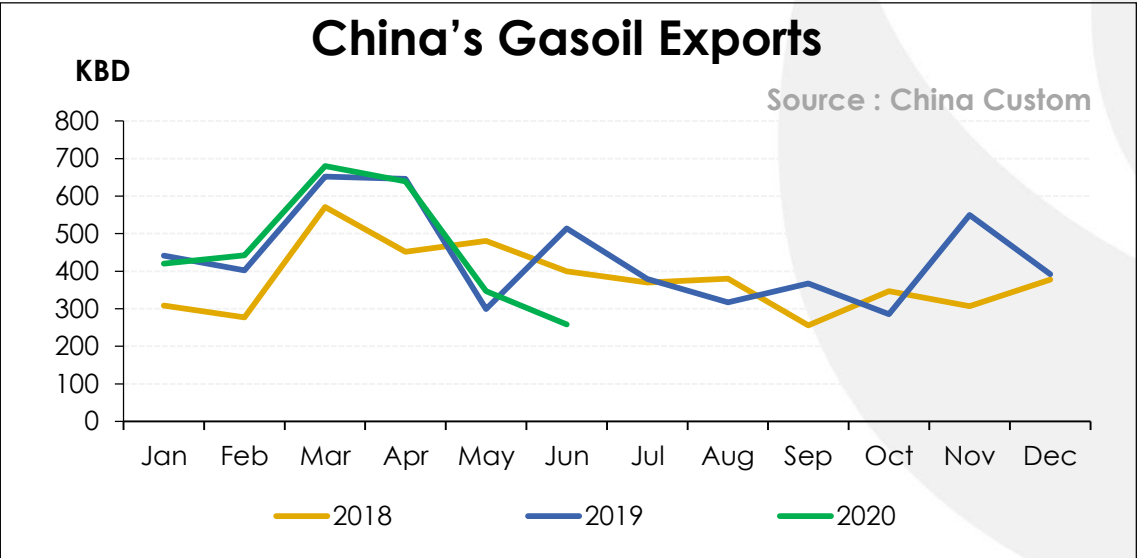
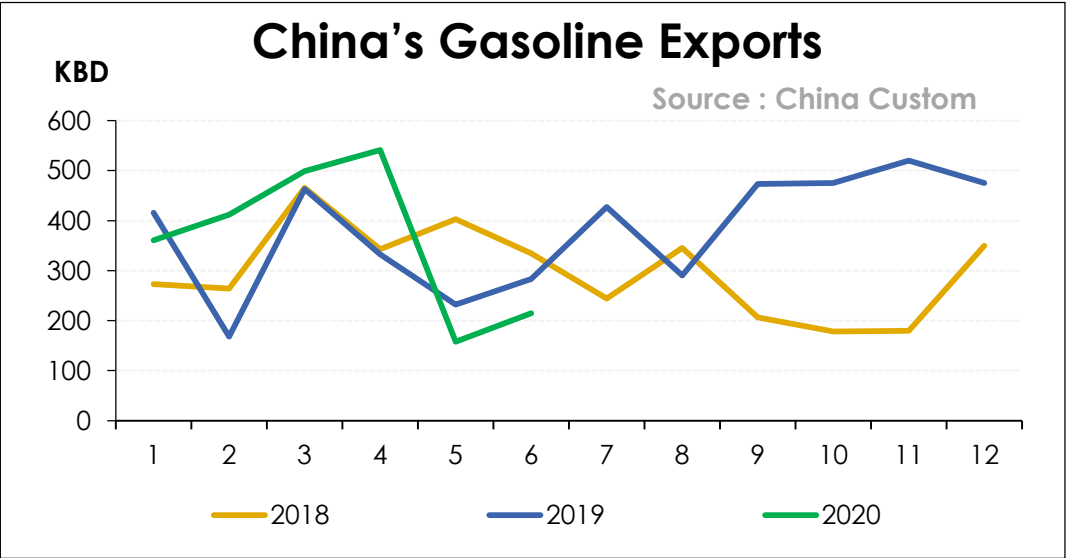
Global Middle Distillate Inventories



Global Fuel Oil Inventories

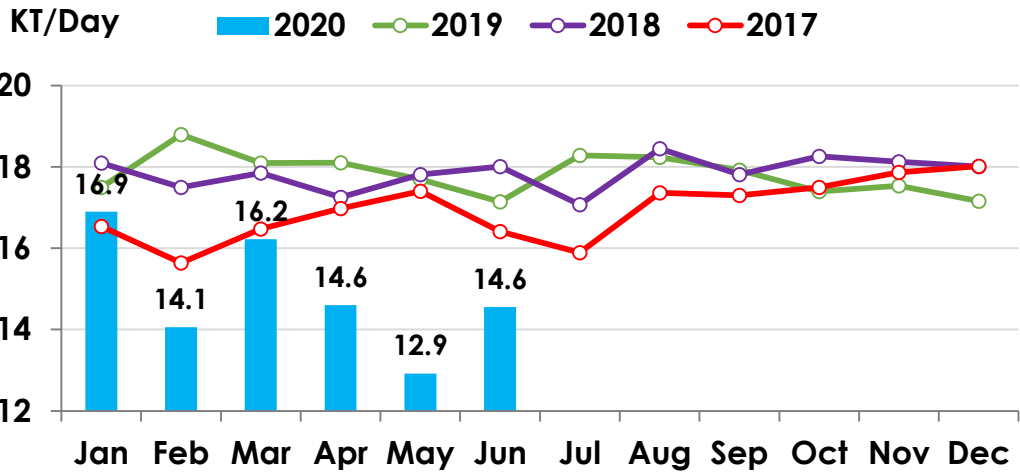


China's Refined Product Exports



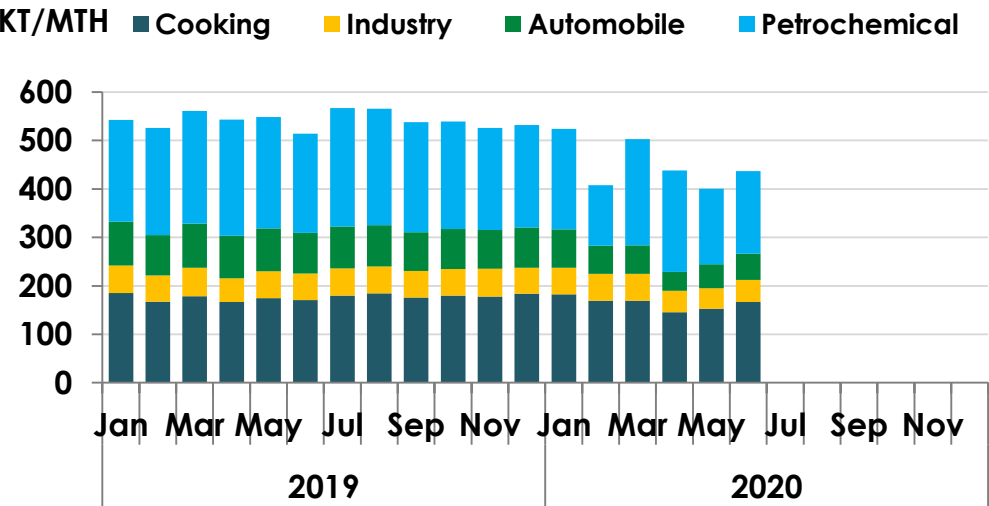
Domestic LPG Demand

Thailand LPG Demand



Remark : LPG demand includes Petrochemical consumption

LPG Demand by Sector



LPG Demand Highlight

- In 6M'20, LPG demand plunged by 16.7% YoY following the decrease in all sectors, especially in the transportation sector. LPG demand in the automobile sector decreased by 35.9% YoY as oil price, which is the substitute fuel, has become lower after it was hammered by COVID-19 pandemic. Moreover, LPG demand in cooking, industrial and petrochemical also decreased by 6.7%, 8.5% and 19.7% YoY, respectively as the price has been higher and become uncompetitive to other feeds.

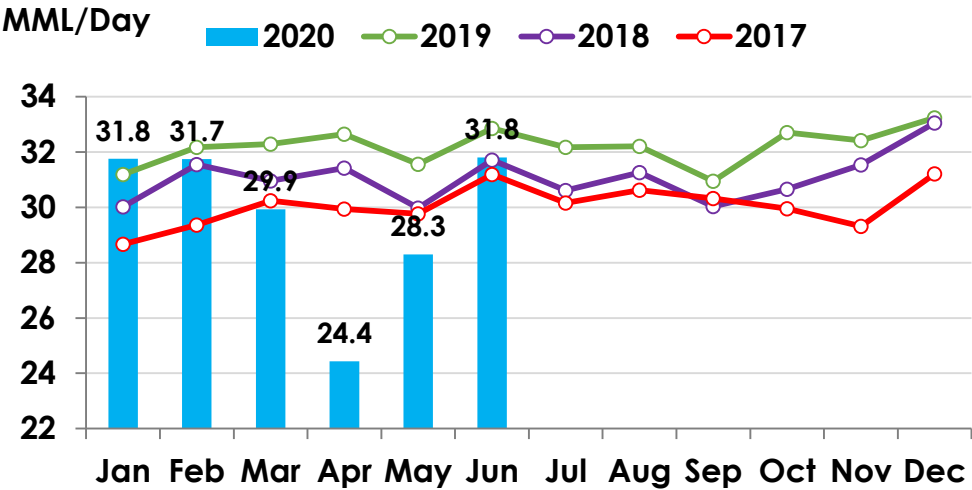
Outlook for 2020

- In 2020, LPG demand is expected to decrease by -12.9% YoY, especially in the automobile. Automobile demand tends to fall by 27.0% YoY as lower gasoline prices could make LPG price uncompetitive and encourage users to switch to oil resulting in a decrease of LPG station in Thailand. Besides, most of the registered taxis powered by LPG are gradually expired in 2020 onwards. The demand in the industrial sector tends to drop by 9.2% as LPG price has become higher than other feedstocks during Feb'20-May'20. Moreover, the demand in the cooking sector is expected to dropped by 7.2% due to COVID-19 pandemic.

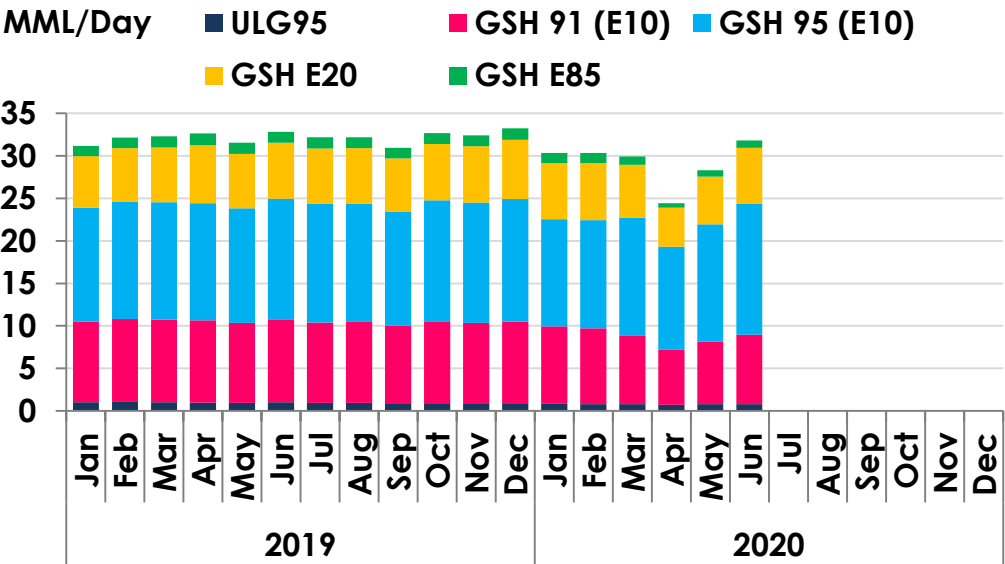
Source: EPPO, DOEB (As of July 2020)

Domestic Gasoline/Gasohol Demand

Thailand Gasoline/Gasohol Demand



Gasoline/Gasohol Demand by Grade



GASOLINE/GASOHOL Demand Highlight

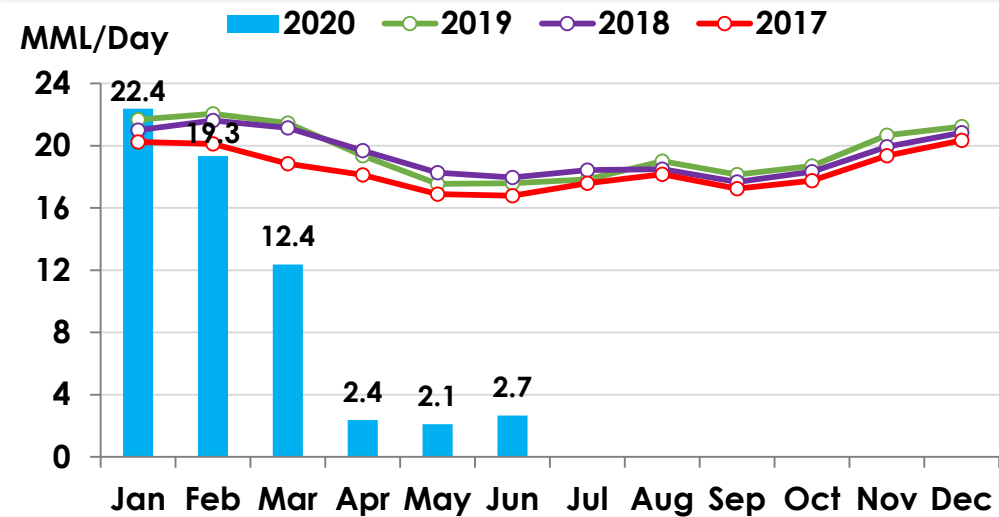
- In 6M'20, Gasoline demand decreased by 7.6% YoY to an average of 29.7 MML/day while only Gasohol* demand decreased by 7.2% YoY, settling at 28.9 MML/day. The demand growth was still mainly pressured by the COVID-19 restriction plan leading to lower transportation activities. Moreover, the pandemic has raised concerns about consumer spending and also put pressure on passenger car sales. However, the easing plans of phases 1-6 have made the demand recover since May. Moreover, the cheaper retail price of Gasoline has been a supporter of the demand amid a stagnant economy. Besides the effect of the pandemic, the narrower of GSH95-GSH91 and E20-E85 price gap making the GSH91, E20 and E85 demand drastically decreased by 16.8%, 6.1% and 29.6% YoY, respectively while GSH95 demand was the only grade which increased by 1.1% YoY compared to last year.

Outlook for 2020

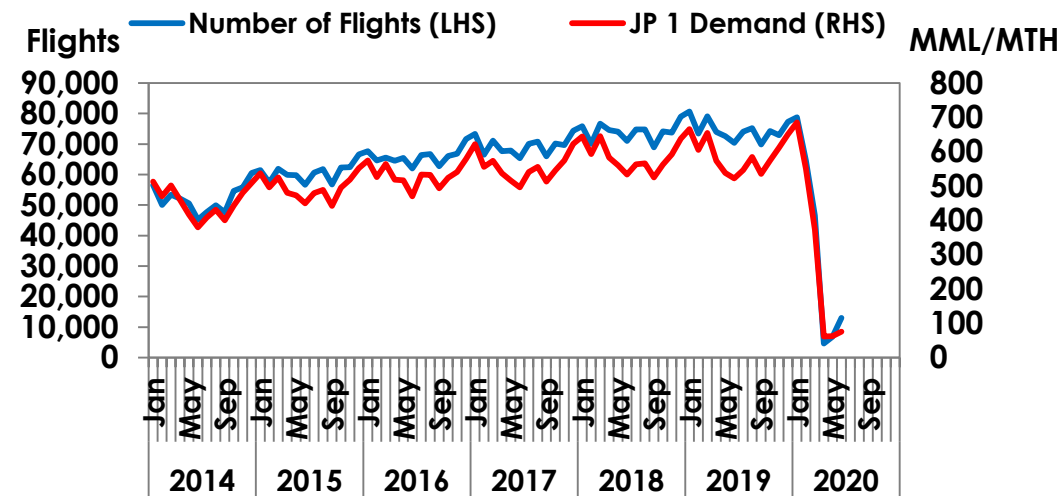
- Gasoline consumption is expected to decrease by 4.0% YoY which are mainly hammered by temporary lockdown measures for halting the COVID-19 pandemic during April to June. Moreover, the stagnant economy would suppress people spending resulting in lower passenger car sales.

Domestic Jet Demand

Thailand JET Demand



JET-A1 demand and Number of flights



JET Demand Highlight

- In 6M'20, Jet consumption decreased by 48.9% YoY, as the flight number slumped from the suspension of domestic and international flights since the end of Mar'20 as well as the temporary ban on all international flights to Thailand on concern over COVID-19 pandemic. In order to control the spread of the virus, the Civil Aviation Authority of Thailand (CAAT) extended ban on international passenger flights until 30 Jun. As a result, Thailand experienced with zero tourists in Apr-Jun'20, resulting in 66.2% slump in the number of tourist arrivals during the first half of this year.

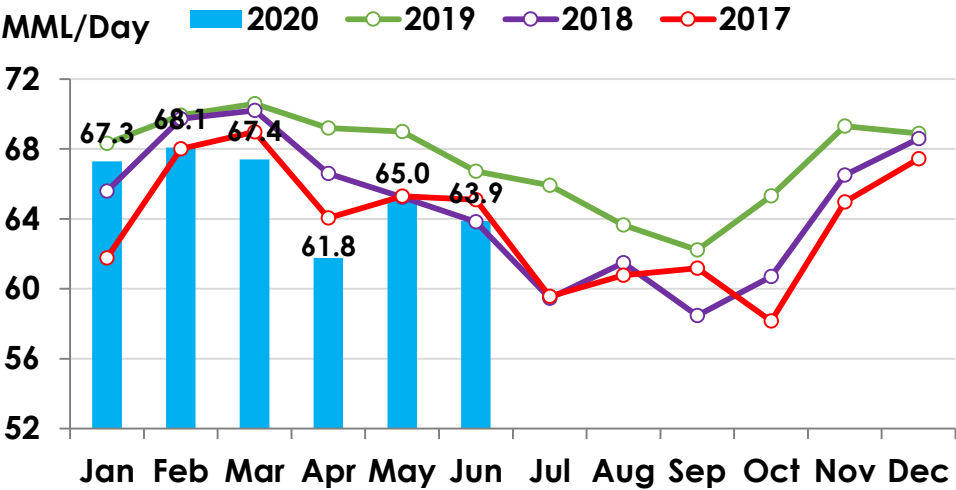
Outlook for 2020

- Jet demand growth is expected to decline significantly by 62.4% YoY, as the COVID-19 pandemic have highly negative effects on flight movements especially the international flights since CAAT extends the temporary ban on all international flights to Thailand with exception only certain categories of foreigners and returning Thai residents. Moreover, the low and long recovery of tourism and economies will pressure demand.

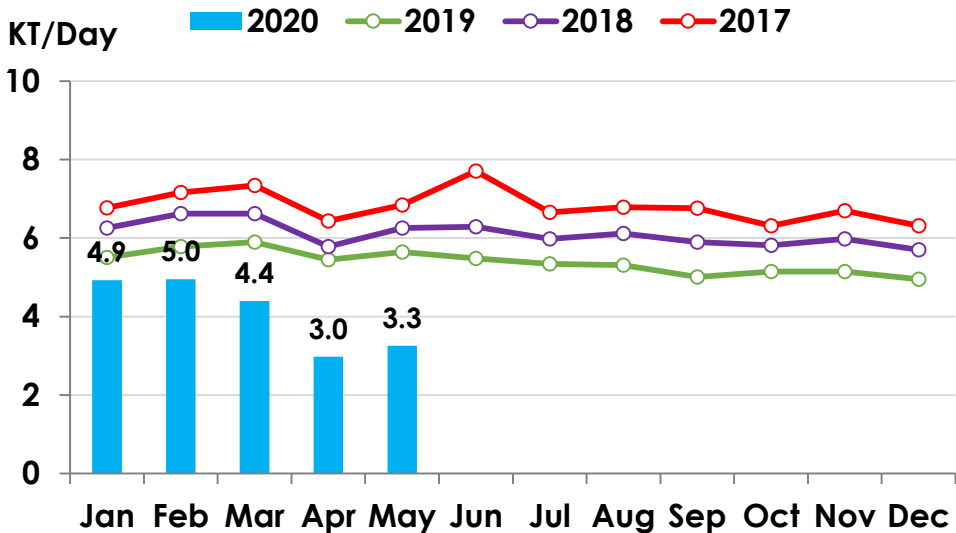
Source: DOEB, AOT, Department of Tourism (As of July 2020)

Domestic Gasoil and NGV Demand

Thailand Gasoil Demand



NGV Demand



Gasoil Demand Highlight

- In 6M'20, Gasoil demand decreased by 4.9% YoY, as the logistic activities was limited by slower manufacturing and agricultural production from economic slowdown and COVID-19 pandemic. Moreover, the demand was also pressured by lower logistic movements after the Thai government declared an emergency decree and curfew measures.

Outlook for 2020

- Gasoil demand is expected to drop by 2.5% YoY as the demand is pressured by lower logistic movement from the economic slowdown and COVID-19 pandemic. However, demand started to recover since May'20 after the Thai government has eased the lockdown and curfew measures

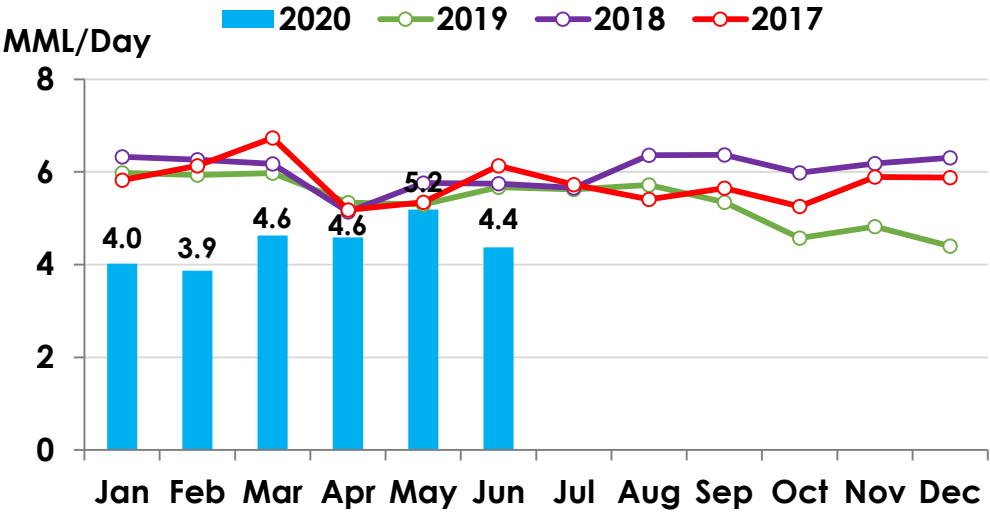
NGV Demand Highlight

- In 5M'20, NGV demand fell significantly by 27.6% YoY, as the retail prices have been raised to reflect the actual costs and become uncompetitive. As a result, NGV users have switched to use the other fuels instead of NGV.

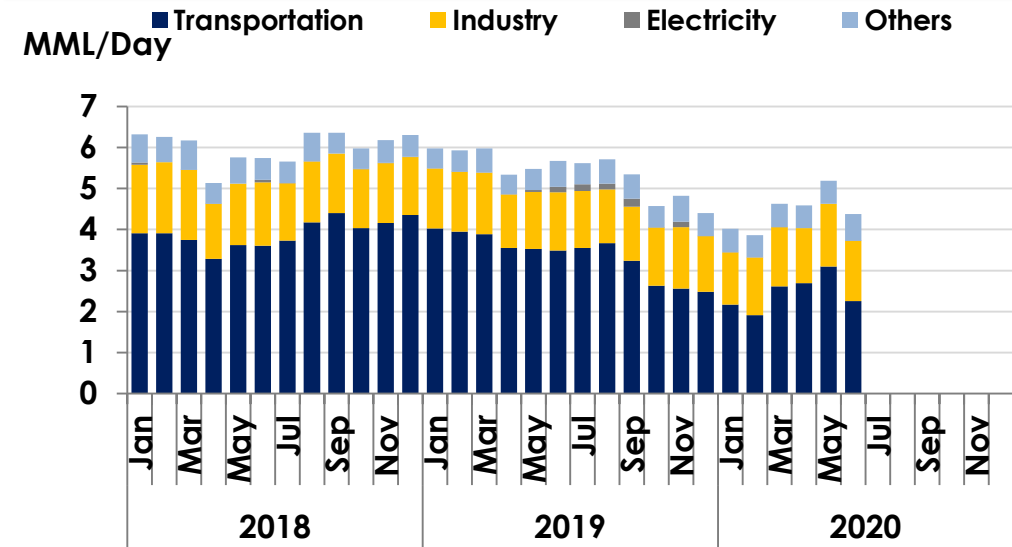
Source: DOEB (As of July 2020)

Domestic Fuel Oil Demand

Thailand Fuel Oil Demand



Thailand Fuel Oil Demand by Sector



Fuel Oil Demand Highlight

- In 6M'20, Fuel Oil consumption fell by 21.9% YoY, as the demand in the transportation sector, which accounted for 55.3% of total Fuel Oil demand, dropped by 34.3% YoY due to lower import and export volume following stagnant economy. Moreover, demand in the industrial and electricity sectors, which accounted for 31.8% of total Fuel Oil demand, also decreased due to uncompetitive prices comparing to the other alternative fuels.

Outlook for 2020

- Fuel Oil demand is expected to decrease by 6.5% YoY, mainly due to lower demand in the transportation sector from the economic slowdown and COVID-19 impact. However, the lower Fuel Oil price is expected to support the demand in the industrial sector.

Source: DOEB (As of July 2020)

Thank You

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