



# Thai Oil Public Company Limited

## Presentation to Investors

### January 2022



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# Presentation Agenda

**TOP GROUP BUSINESS OVERVIEW**

**KEY FINANCIAL HIGHLIGHTS**

**STRATEGIC INVESTMENT PLANS**

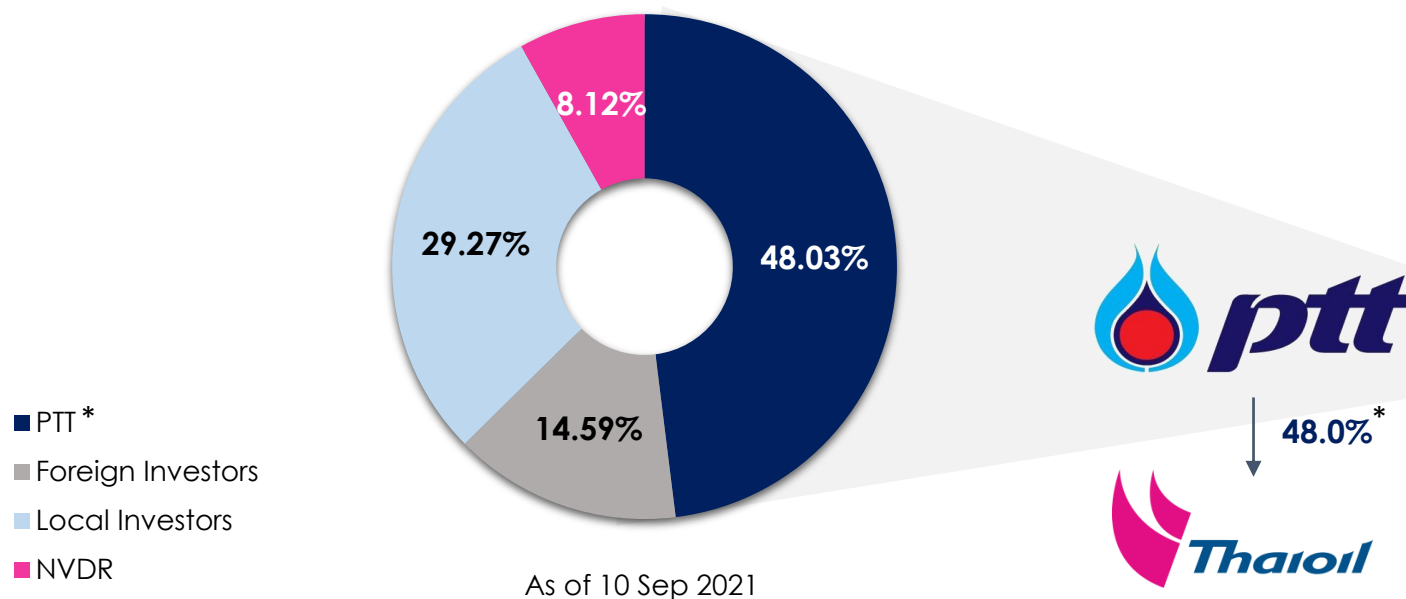
**OLEFINS INVESTMENT**

**OUTLOOK**

**FINAL REMARKS**

# 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

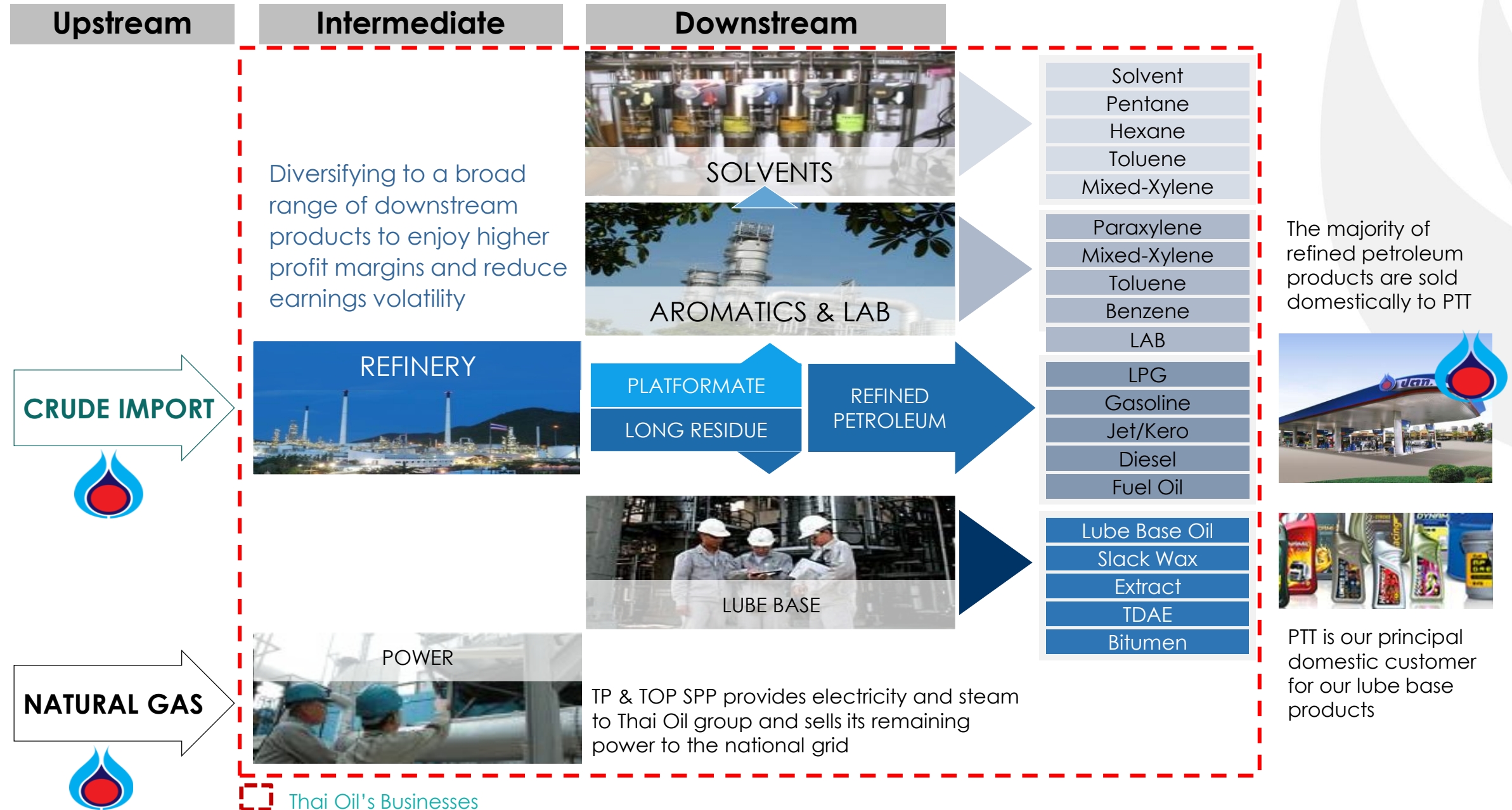
Remark

\* PTT holds total of 48.03 % both direct and indirect



# 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 ~ 4<sup>1</sup>
- 1970**
  - Refining capacity expanded to 65 kbpd
- 1989**
  - Increased refining capacity to 90 kbpd

## 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

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

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

### 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 Record High 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)

### 2021

- Olefins investment in Chandra Asri (CAP) \$1.183 bn

### 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 1<sup>st</sup> VLCC

### 2007

- Increased refining capacity to 275 kbd

### 2008

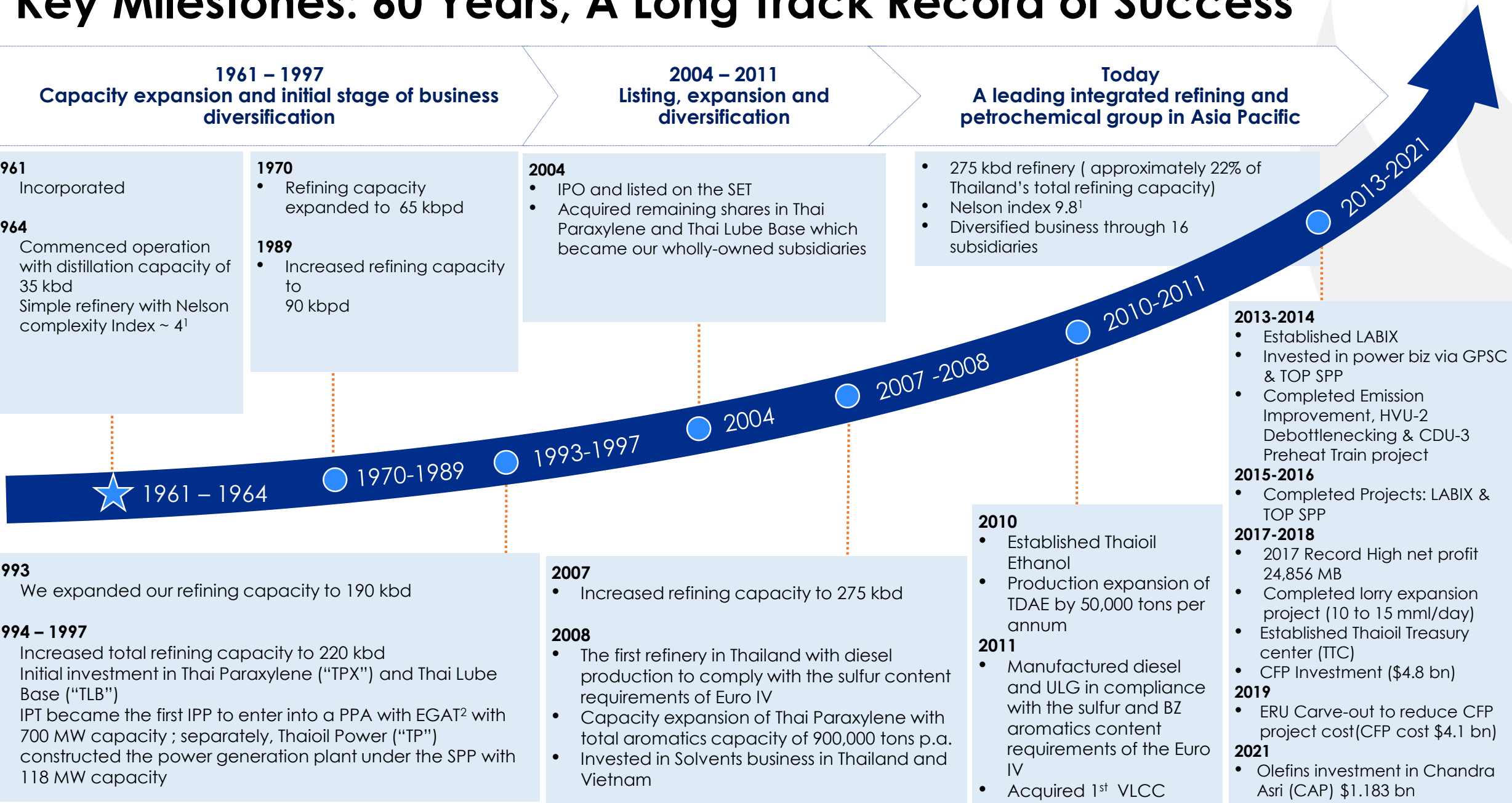
- The first refinery in Thailand with diesel production to comply with the sulfur content requirements of Euro IV
- Capacity expansion of Thai Paraxylene with total aromatics capacity of 900,000 tons p.a.
- Invested in Solvents business in Thailand and Vietnam

### 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<sup>2</sup> with 700 MW capacity ; separately, Thailoil Power ("TP") constructed the power generation plant under the SPP with 118 MW capacity

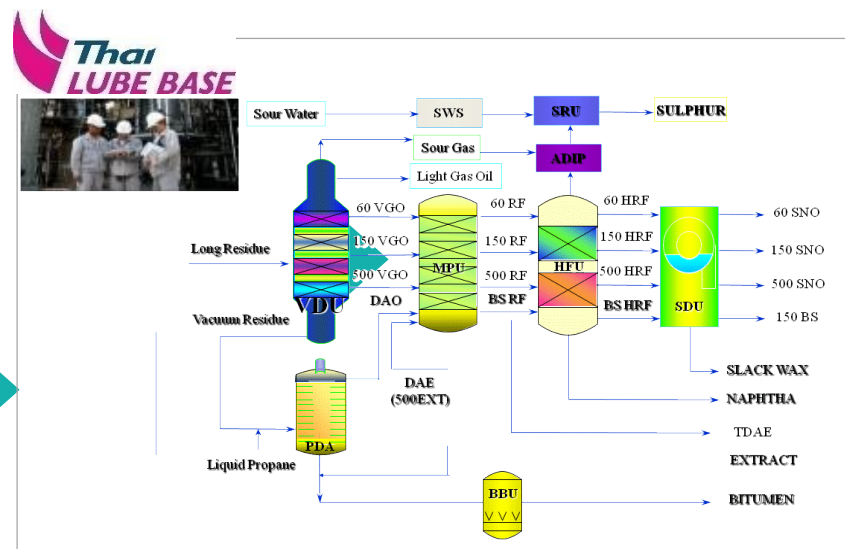
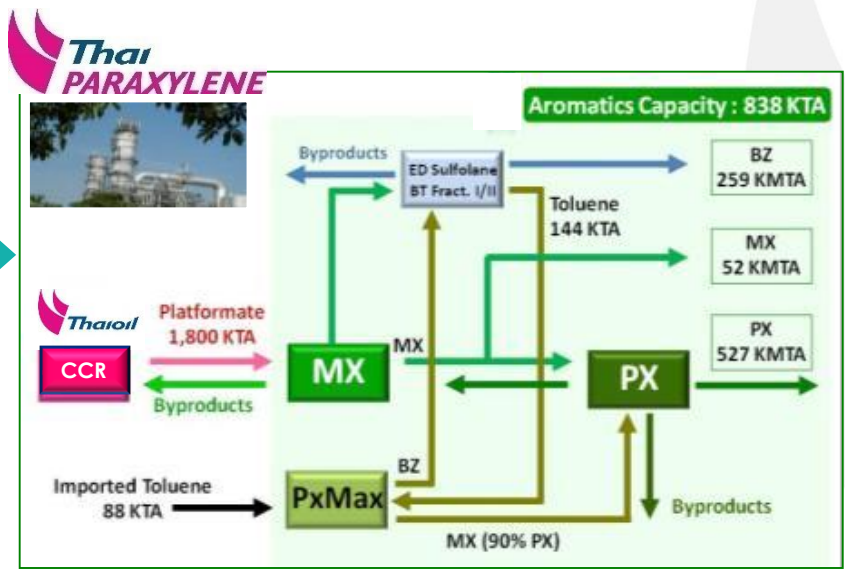
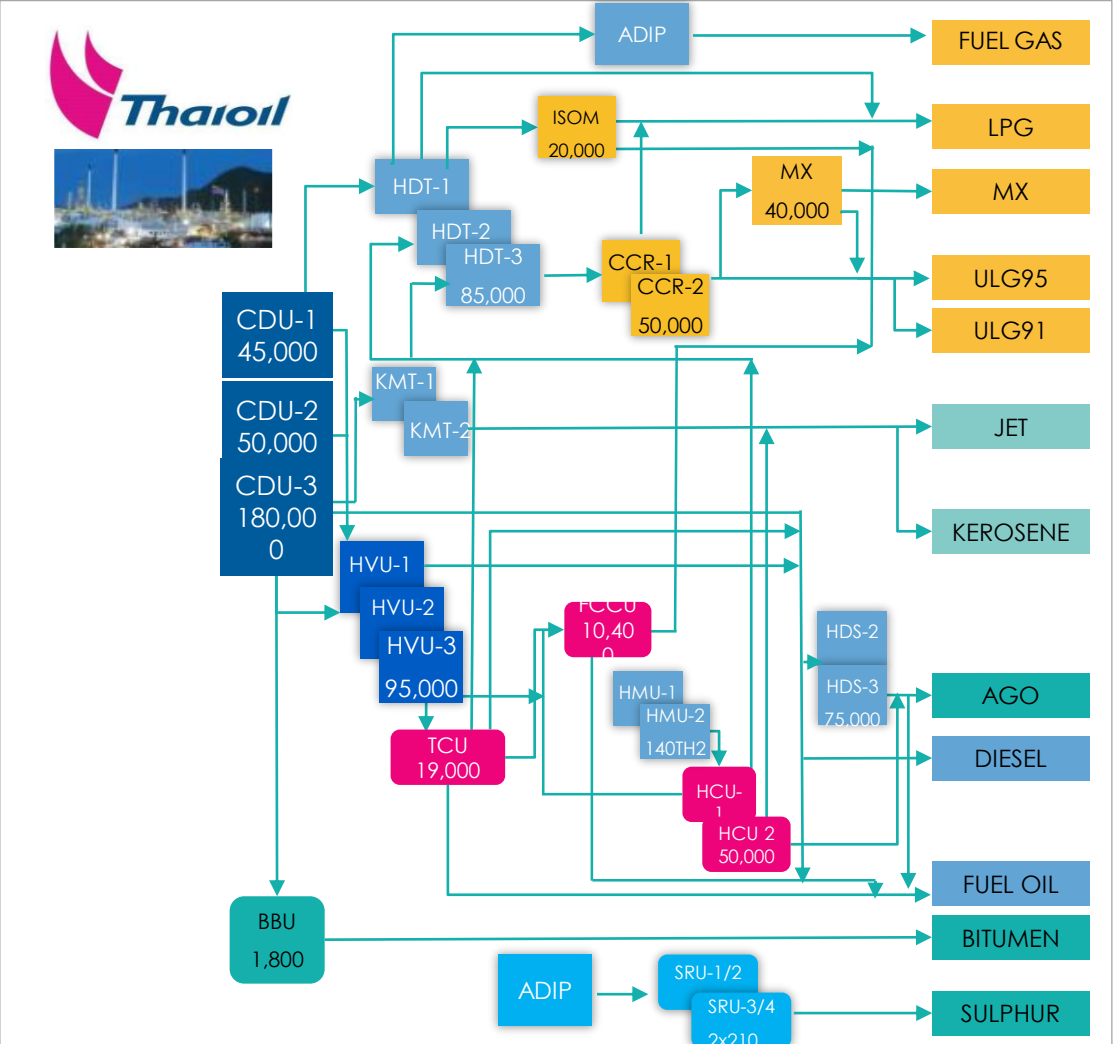


# Thai Oil Group Business Structure



# Process Linkage: Beauty of Integration

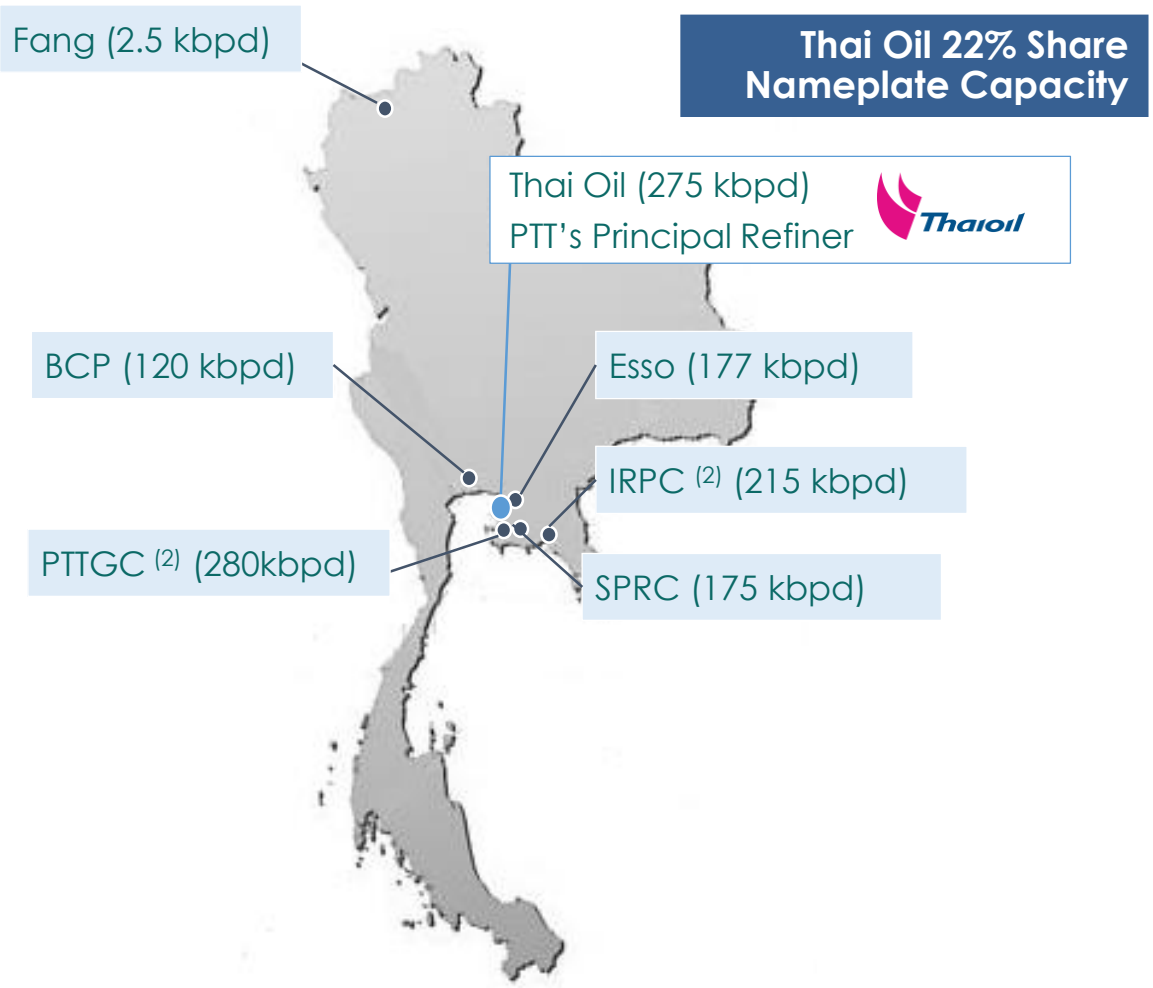
## PROCESS FLOWCHART



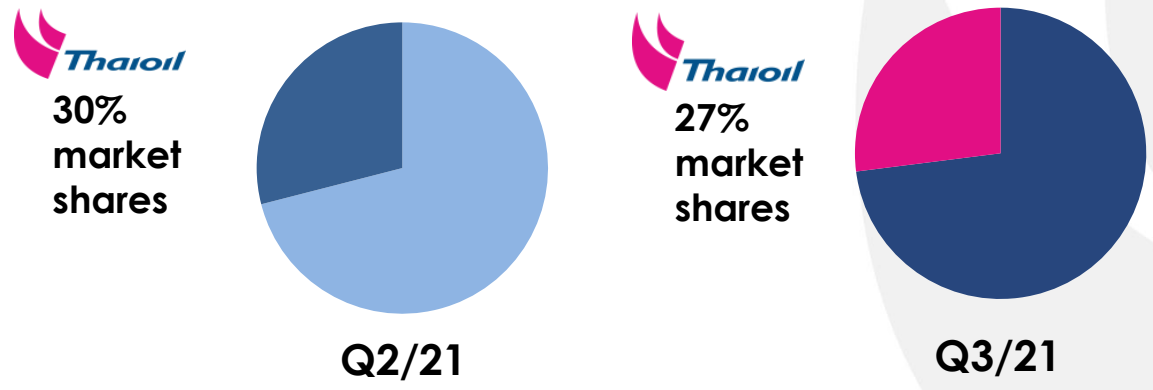


# One of Region's Leading Refineries

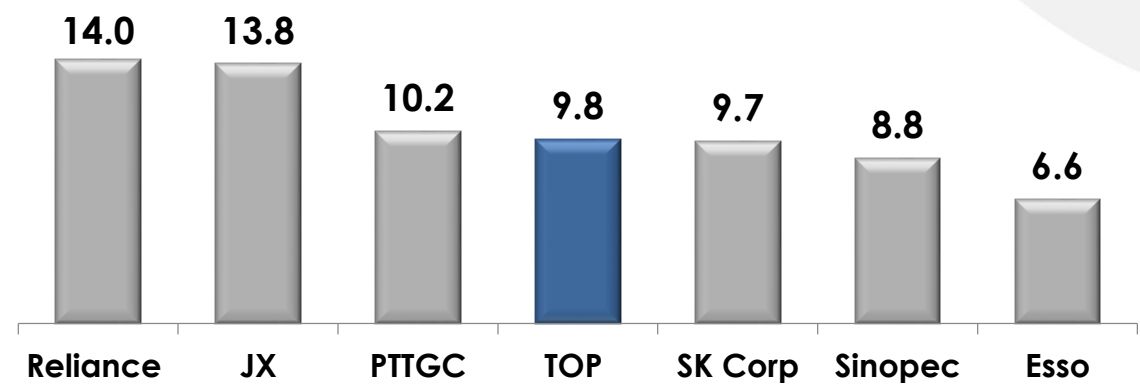
Total Thailand crude refining capacity 1,244.5 kbd <sup>(1)</sup>



Market shares for refined petroleum product <sup>(3)</sup>



Nelson Index - Regional Comparison <sup>(4)</sup>



- 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

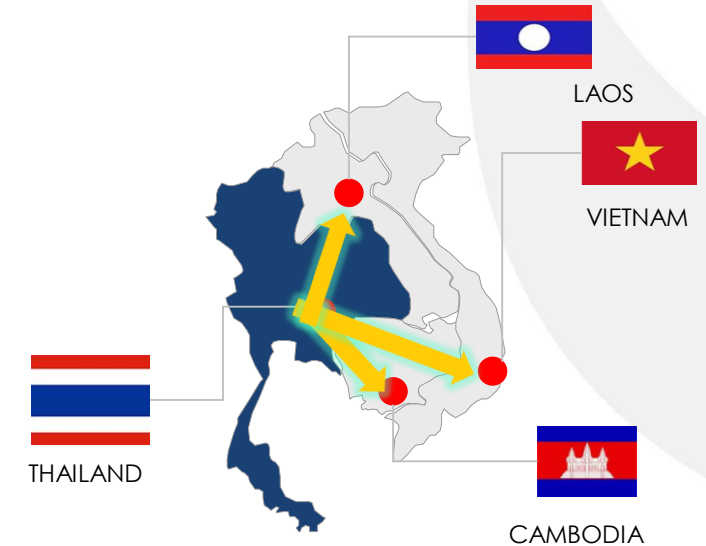
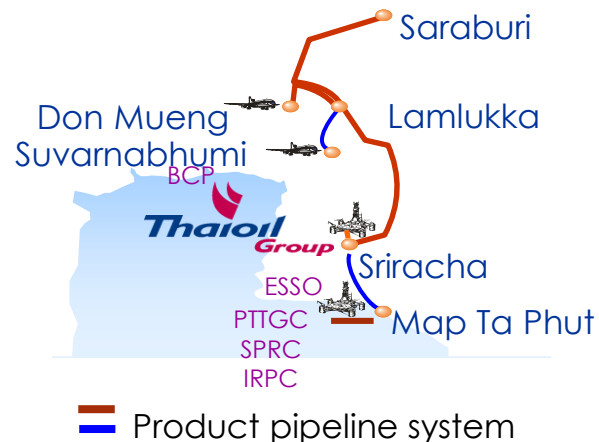
Access to Indochina markets through deep water ports and trucks

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



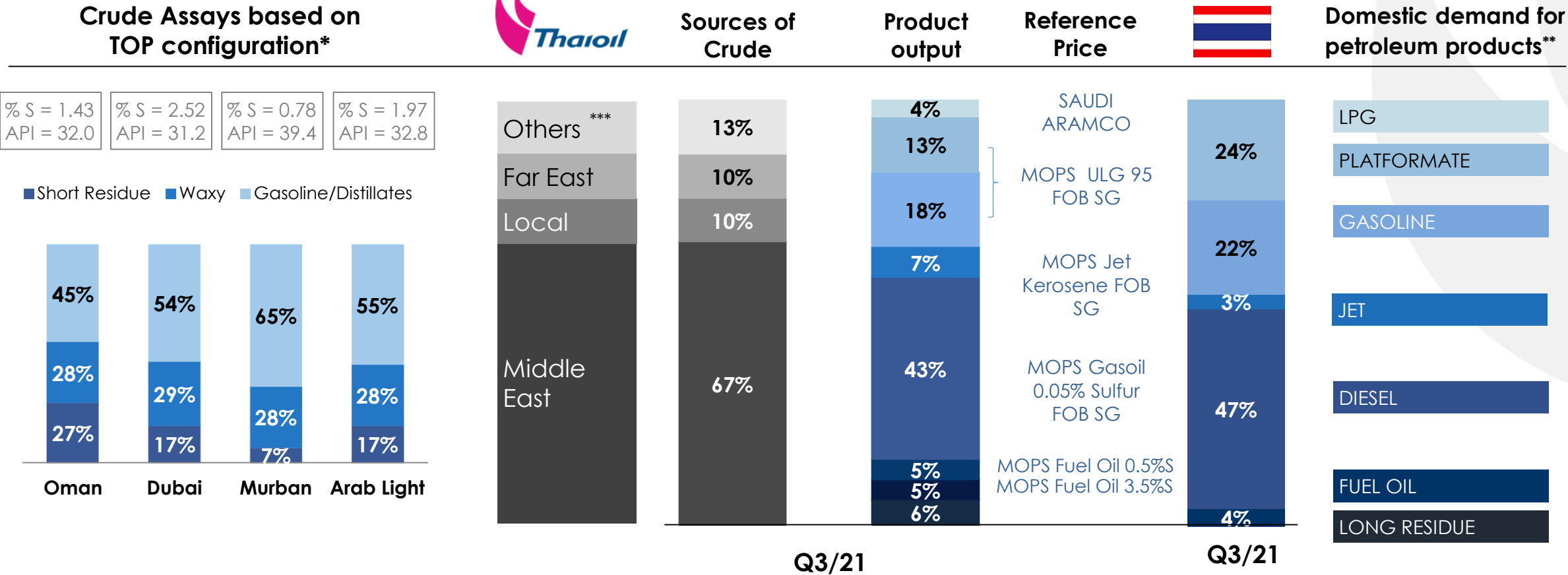
Direct connection with product pipeline system



- ✓ 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

# 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

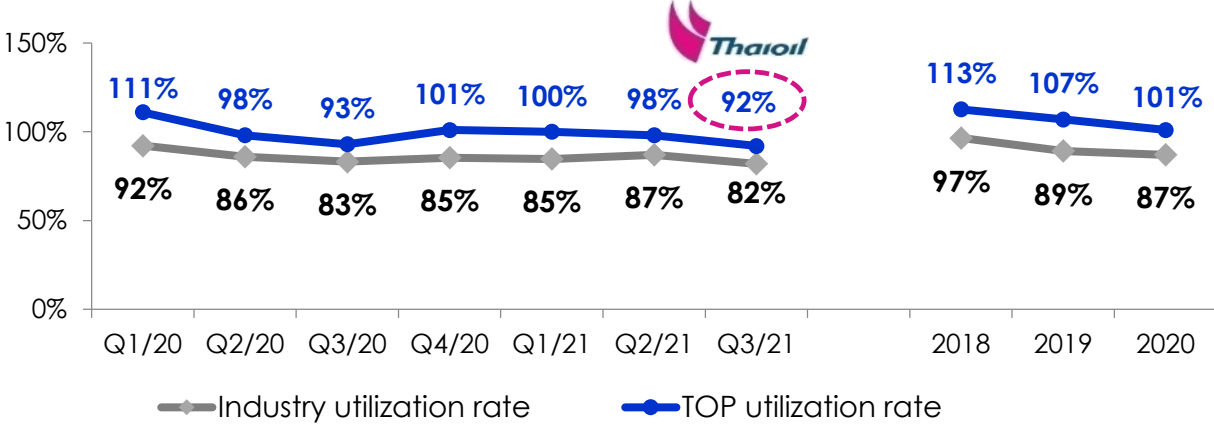
\*\*\* Including Nigeria, Russia and others

- 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

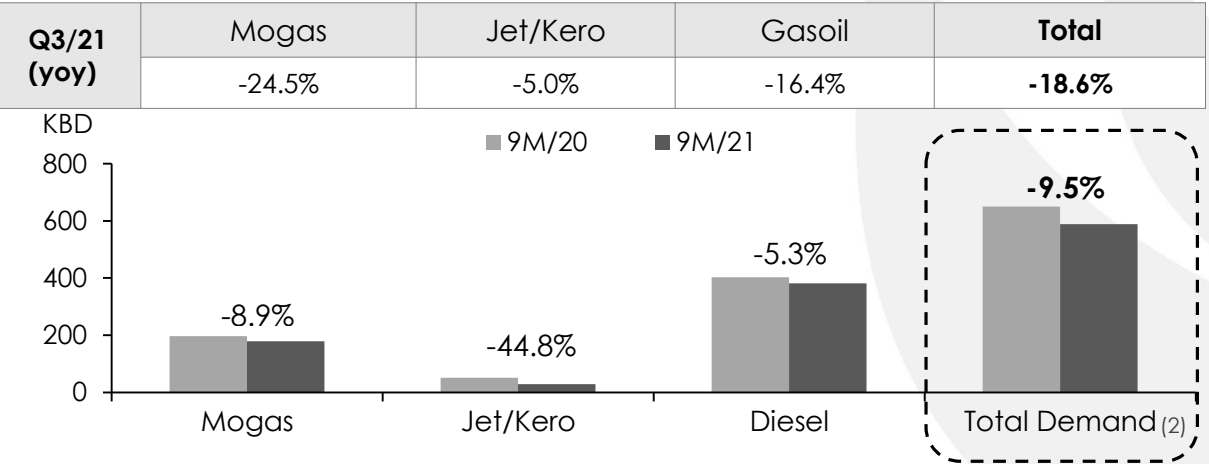
# Refinery: Lower Utilization as Softening Domestic Oil Demand

## TOP/ Domestic Refinery Utilization Rate

Unit: % Utilization Rate

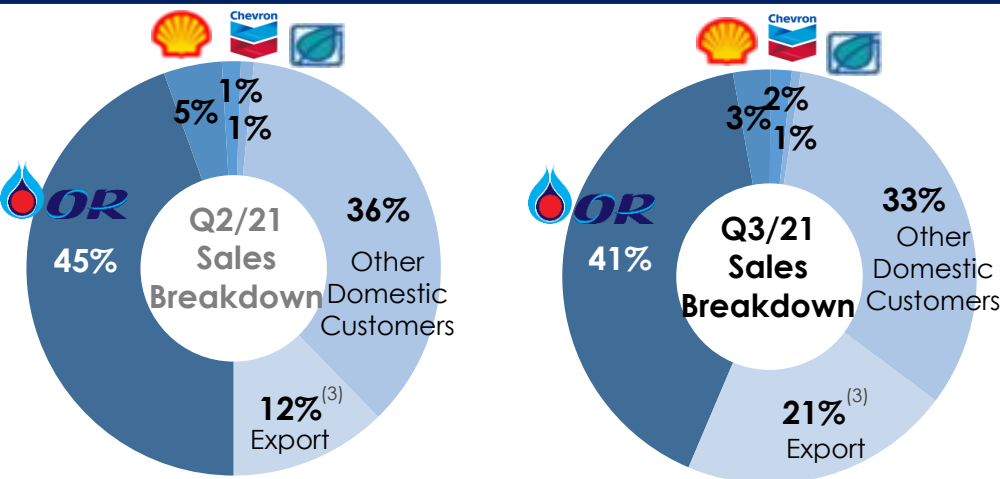


## Domestic Oil Demand



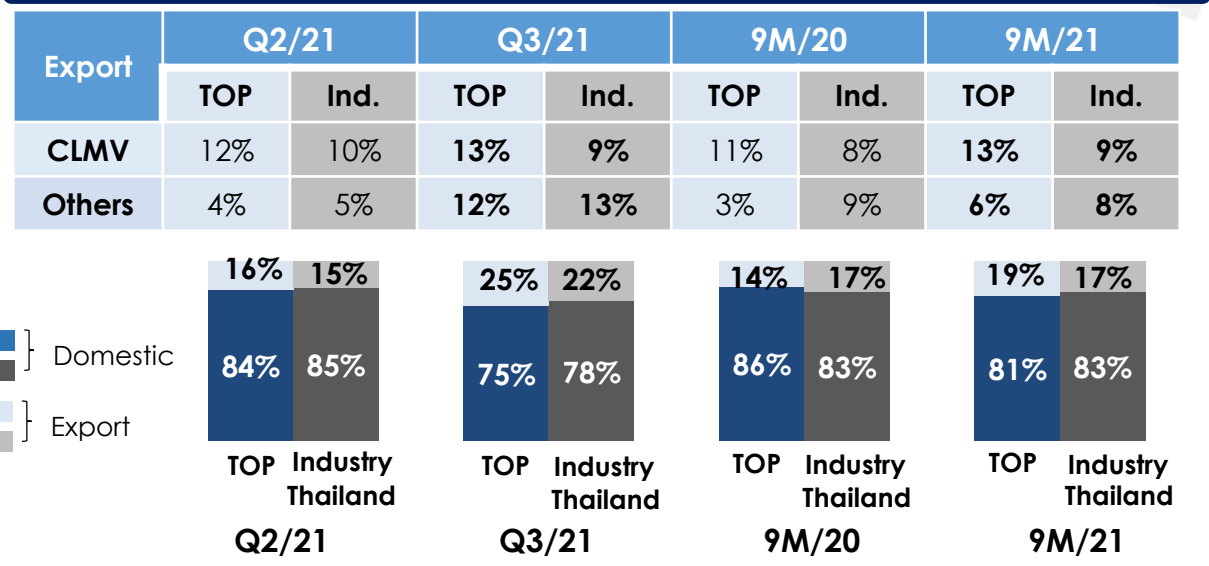
(2) excluding fuel oil & LPG demand

## Sales Breakdown by Customers



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

## TOP's Domestic Sales vs Industry







## KEY FINANCIAL HIGHLIGHTS

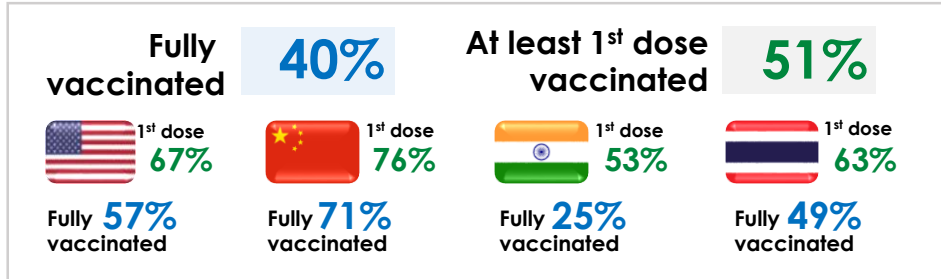
# Pandemic Recovery – The Worst Is Over

## 1 COVID-19 Pandemic Recovery

### Accelerated Widespread Immunization

#### Vaccination rate

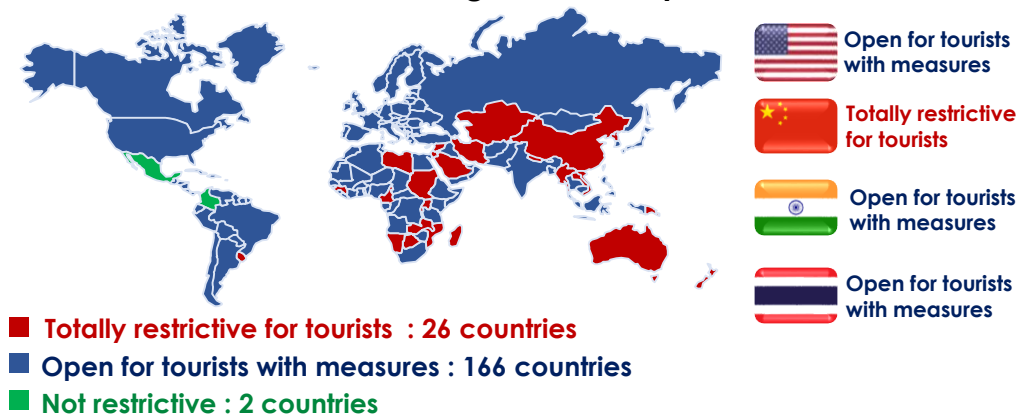
Share of people vaccinated against COVID-19 (Nov 8, 2021)



Source: WHO (Oct'21), OMS & GCDL & University of Oxford (Nov'21)

### Easing COVID Border Restrictions

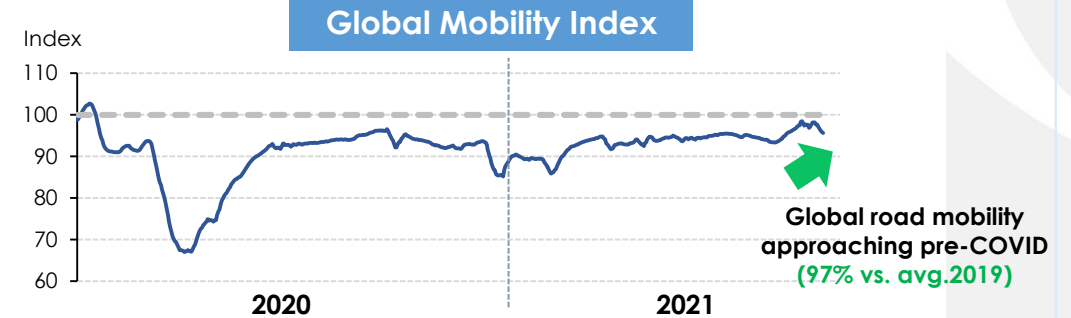
#### COVID-19 Travel Regulations Map



Source: Government Tourism Websites, European Commission, IATA (Oct'21)

## Improving Petroleum Demand

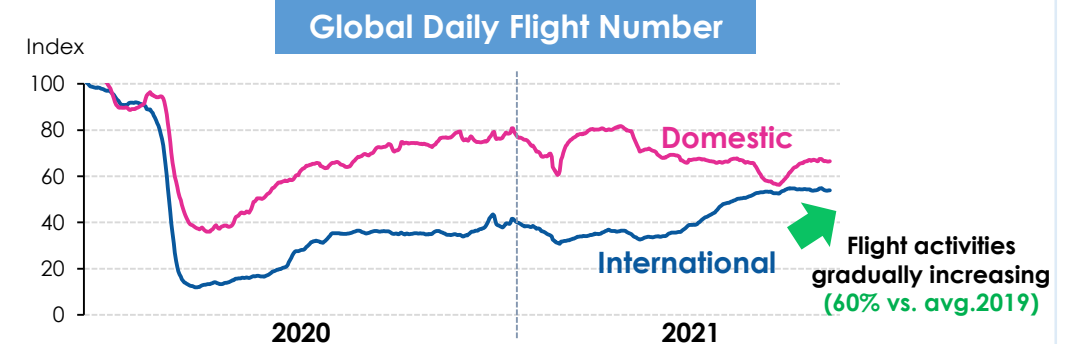
### Improving Gasoline Demand



Source: Rystad (Oct'21) Note: Index 100 = avg.2019

- Improving gasoline demand on higher global mobility after easing lockdown in major economies

### Recovering Jet Demand



Source: Rystad (Oct'21) Note: Index 100 = avg.2019

- Recovering jet demand in Q4/21 on reopening borders

## 2 Energy Crisis

### Shortages of Global Gas & Coal



#### Gas shortage in EU

- Low inventory from less Russia export
- High gas demand from lower renewable energy



#### Coal shortage in China

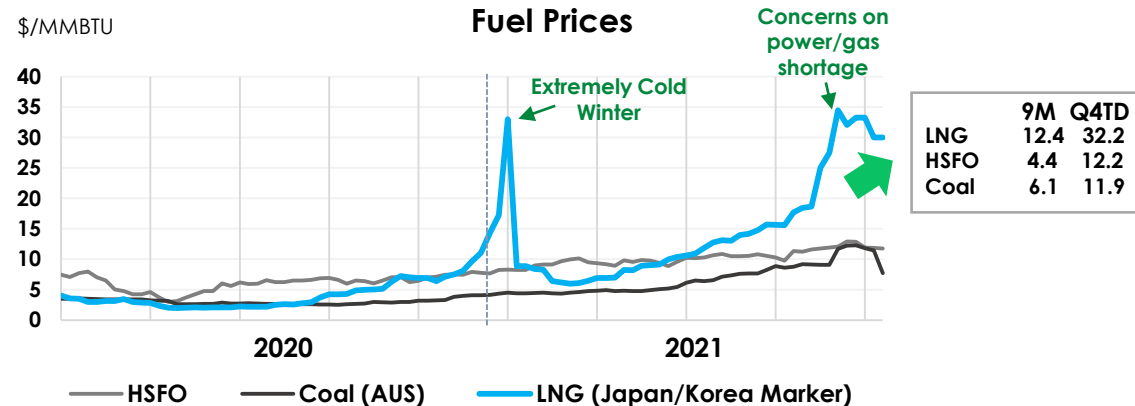
- Low coal production from government policy to reduce energy usage and emission



#### Coal shortage in India

- Low domestic coal production due to flooding

### Skyrocketing Gas Prices

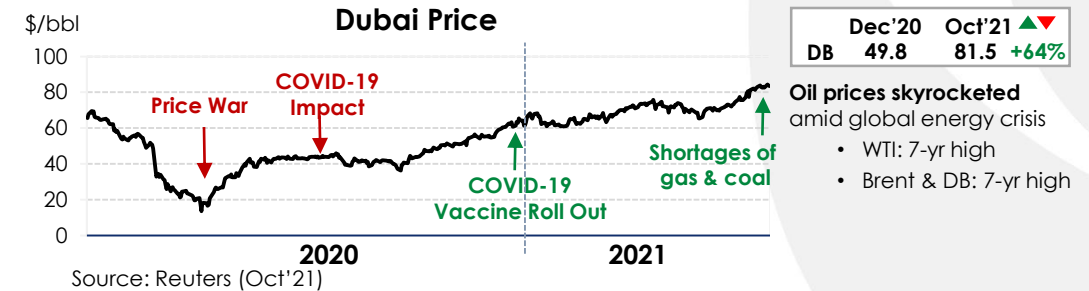


- Europe and China energy crisis driving gas prices higher, resulting high potential for gas-to-oil substitution

## Impact to Oil Prices & Refining Margin



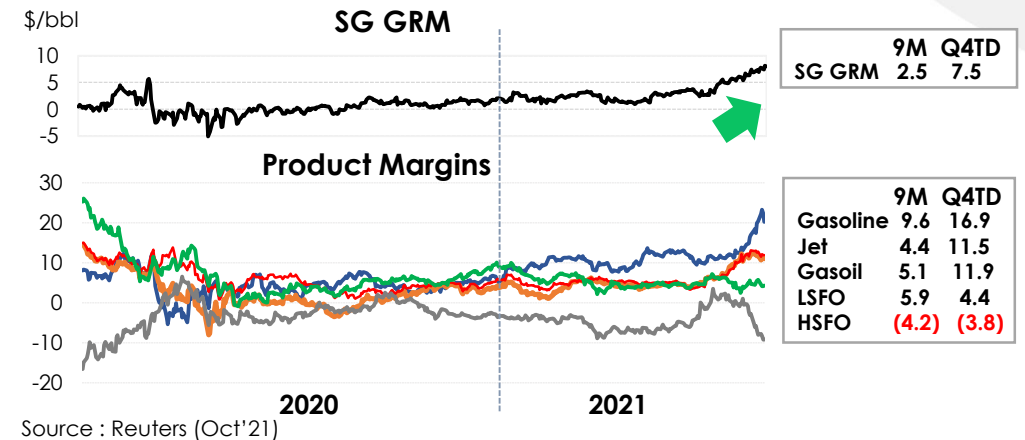
### Crude Oil Prices Hit Multi-Year High



- Crude oil prices gain support from higher gas-to-oil substitution amid gradually increasing OPEC+ supply









### Surging Refining Margin



- Surging refining margin on fast recovery in product demand vs lagging supply
- Recovering gasoil demand on gas-to-oil switching

# Recovery On Its Way

-  **More stock gain** from rising crude oil prices
-  **Higher gasoil & fuel oil sales** on high potential gas-to-oil substitution
-  **Improving domestic sales** from reopening country to fully vaccinated visitors as well as resuming economic activities
-  **Stronger GRM** from improving product margins & recovering petroleum demand, resulting **higher intake**
-  **Higher aromatics demand** from consumption during winter season
-  **Recovering LAB demand in Thailand** after lockdown released



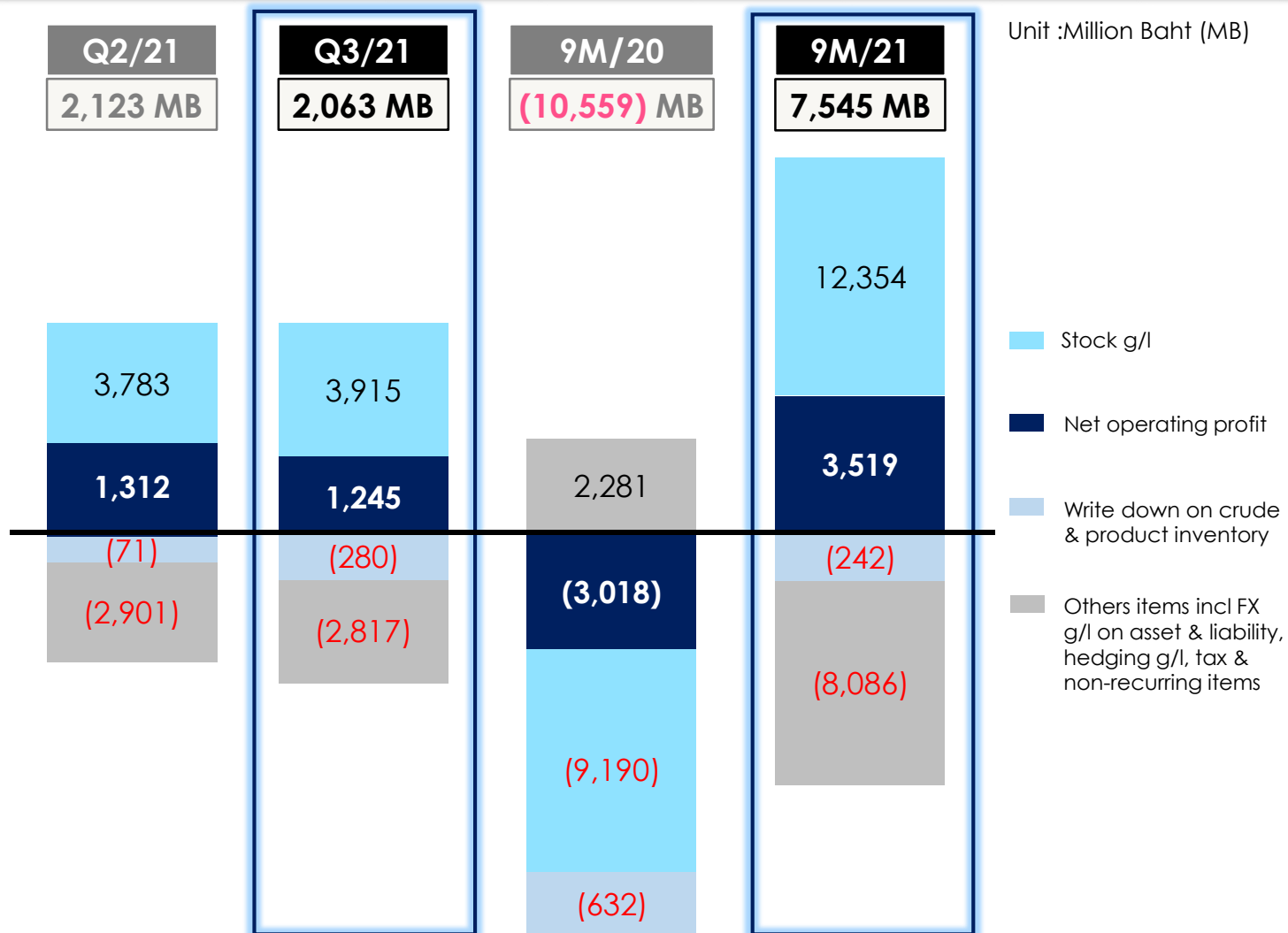
# Q3 & 9M/21 Performance

Crude	<p>QoQ <i>Dubai rose from \$71.6/bbl to \$72.6/bbl</i></p> <p>YoY <i>Dubai rose from \$41.5/bbl to \$72.6/bbl</i></p> <ul style="list-style-type: none"><li>Oil demand recovery from improving COVID-19 situation due to increasing global vaccination rate and easing restriction in major economies</li><li>Supply disruption from Hurricane Ida</li><li>Shortages of natural gas and coal, driving demand for oil in power generation</li></ul>	<p>Dubai (\$/bbl) (ending price)</p> <table><tr><th>Q2/21</th><th>Q3/21</th><th>9M/20</th><th>9M/21</th></tr><tr><td>71.6</td><td>72.6</td><td>41.5</td><td>72.6</td></tr></table>	Q2/21	Q3/21	9M/20	9M/21	71.6	72.6	41.5	72.6																
Q2/21	Q3/21	9M/20	9M/21																							
71.6	72.6	41.5	72.6																							
Refinery	<p>QoQ <i>Mkt GRM improved from \$0.4/bbl to \$1.6/bbl</i></p> <p>YoY <i>Mkt GRM improved from \$0.1/bbl to \$0.9/bbl</i></p> <ul style="list-style-type: none"><li>Improving Gasoline spread due to peak summer driving season demand in the U.S. and supply disruption from Hurricane Ida</li><li>Increasing Middle Distillate spreads due to improving demand from higher economic activities after lockdowns easing in the U.S. and Europe and limited Chinese petroleum export quota</li><li>Improving Fuel oil spreads due to higher demand for power generation during summer in Middle East</li></ul>	<p>Mkt. GRM (\$/bbl) exclude stock G/L</p> <p>Stock G/L (\$/bbl)</p> <table><tr><th>Q2/21</th><th>Q3/21</th><th>9M/20</th><th>9M/21</th></tr><tr><td>0.4</td><td>1.6</td><td>0.1</td><td>0.9</td></tr><tr><td>4.9</td><td>5.1</td><td>(3.8)</td><td>5.4</td></tr></table>	Q2/21	Q3/21	9M/20	9M/21	0.4	1.6	0.1	0.9	4.9	5.1	(3.8)	5.4												
Q2/21	Q3/21	9M/20	9M/21																							
0.4	1.6	0.1	0.9																							
4.9	5.1	(3.8)	5.4																							
Aromatic & LAB	<p>QoQ <i>Contributions softened from \$2.4/bbl to \$2.1/bbl</i></p> <p>YoY <i>Contributions improved from \$1.4/bbl to \$2.1/bbl</i></p> <ul style="list-style-type: none"><li>Improving PX margin following higher crude oil prices due to a recovery of economic activities</li><li>Softening BZ margin due to weakening demand from power rationing in China</li><li>Robust LAB Contribution due to limited supply from LAB plant unplanned SD in China</li></ul>	<p>GIM (\$/bbl)</p> <table><tr><th>Q2/21</th><th>Q3/21</th><th>9M/20</th><th>9M/21</th></tr><tr><td>5.2</td><td>5.5</td><td>2.0</td><td>4.9</td></tr><tr><td>10.0</td><td>10.5</td><td>(1.8)</td><td>10.2</td></tr><tr><td>2.4</td><td>1.8</td><td>0.4</td><td>1.9</td></tr><tr><td>2.4</td><td>2.1</td><td>1.4</td><td>2.1</td></tr><tr><td>5.3</td><td>6.7</td><td>(3.6)</td><td>6.3</td></tr></table>	Q2/21	Q3/21	9M/20	9M/21	5.2	5.5	2.0	4.9	10.0	10.5	(1.8)	10.2	2.4	1.8	0.4	1.9	2.4	2.1	1.4	2.1	5.3	6.7	(3.6)	6.3
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Lube	<p>QoQ <i>Contribution softened from \$2.4/bbl to \$1.8/bbl</i></p> <p>YoY <i>Contribution improved from \$0.4/bbl to \$1.9/bbl</i></p> <ul style="list-style-type: none"><li>Softening Base Oil &amp; Bitumen margins due to higher regional supply from increasing refinery run</li></ul>																									

# Q3 & 9M/21 Performance

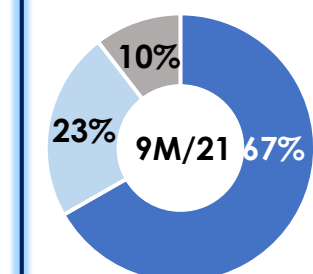
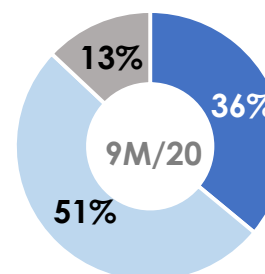
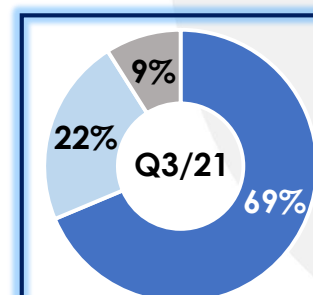
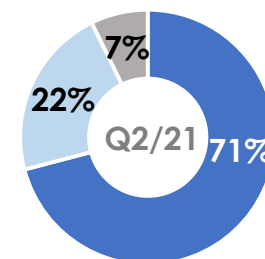
## TOP Group Net Profit

Unit : Million Baht (MB)



## Net Profit Contributions

\*Excluding Stock g/l & one-time items



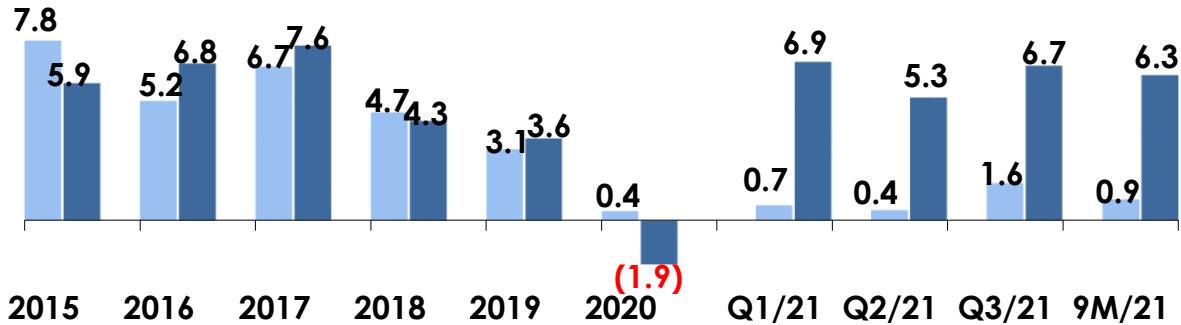
- Petroleum
- Petchem & Lube
- Power
- Others & New Business

# Integrated Margin & Competitive Cash Cost

## Gross Refining Margin

(Unit: US\$/bbl)

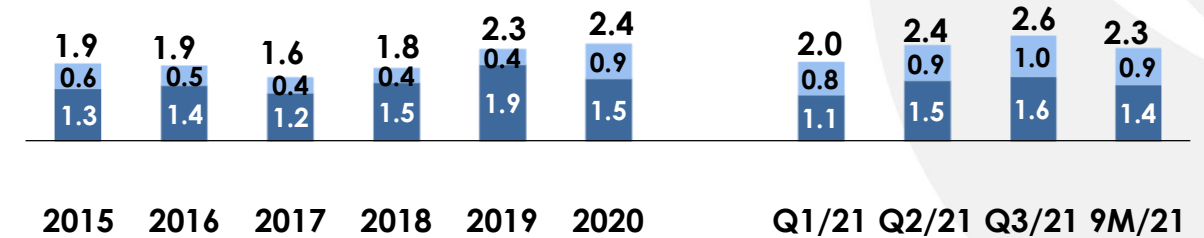
■ Market GRM ■ Accounting GRM (Market GRM + Stock G/L)



## Refinery's Cash Cost

(Unit: US\$/bbl)

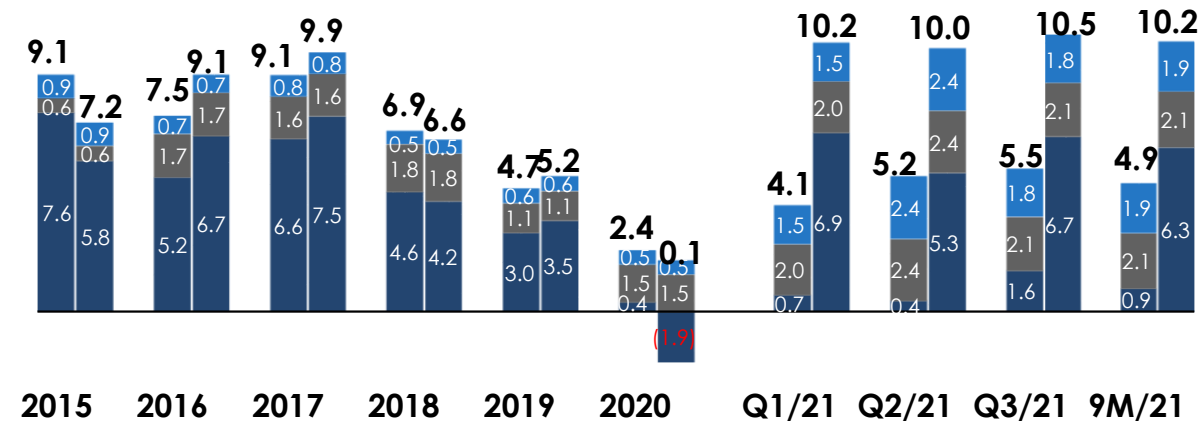
■ Operating Cost ■ Interest Expense (net)  
(excl. one-time non-operating item)



## Gross Integrated Margin

(Unit: US\$/bbl)

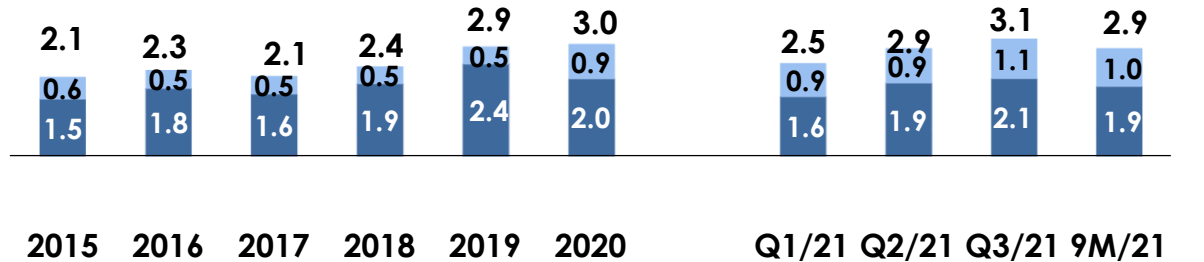
■ Market GRM ■ Accounting GRM (Market GRM + Stock G/L)  
■ Refinery ■ Aromatic & LAB ■ Lube Base



## Group's Cash Cost

(Unit: US\$/bbl)

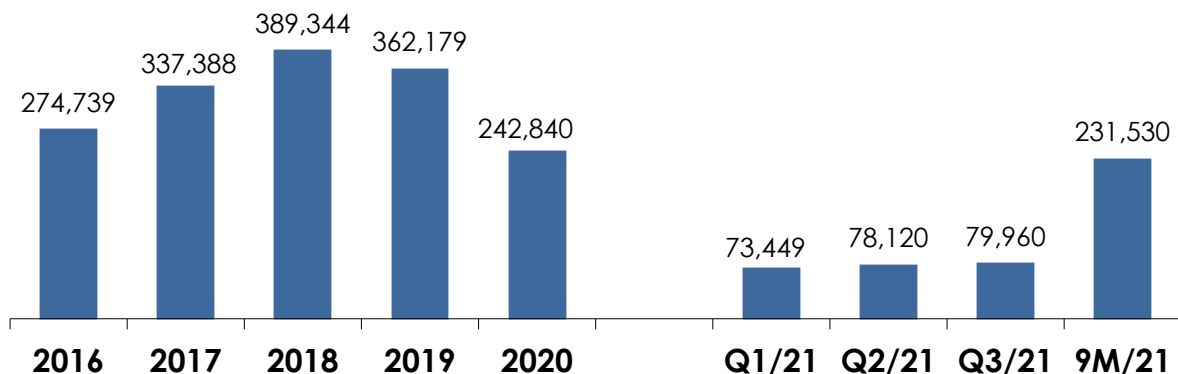
■ Operating Cost ■ Interest Expense (net)  
(excl. one-time non-operating item)



# Financial Performance

## Sales Revenue

Unit: Million THB

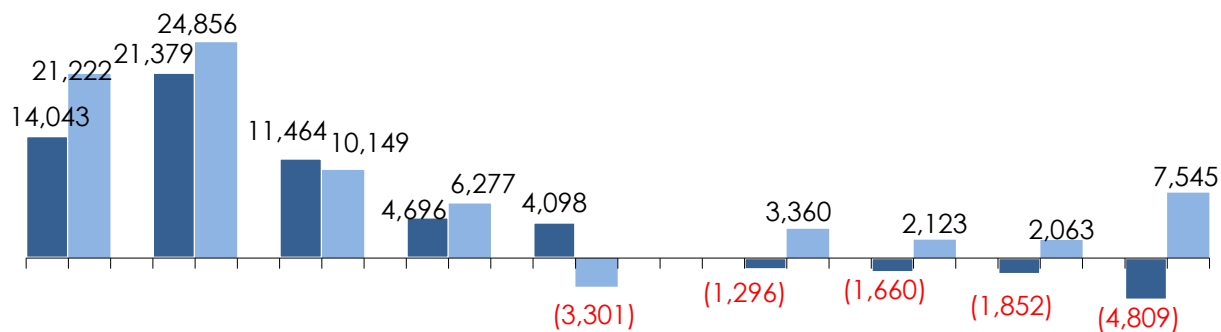


## Net Profit

Unit: Million THB

■ NP (excl stk G/L before tax)

■ NP (incl stk G/L)



<sup>R</sup> Restated financial statement

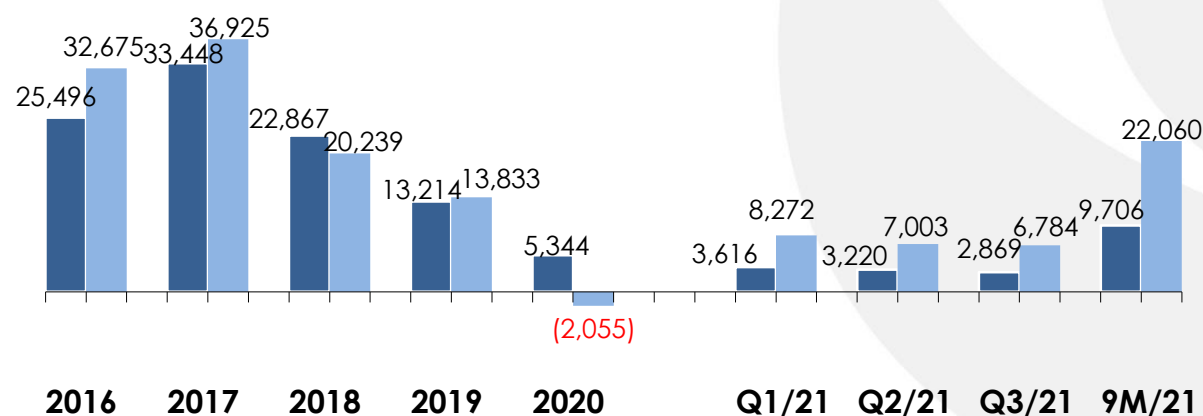
\* Free Cash Flow (FCF) = Operating cash flow – Net CAPEX(PP&E)

## EBITDA

Unit: Million THB

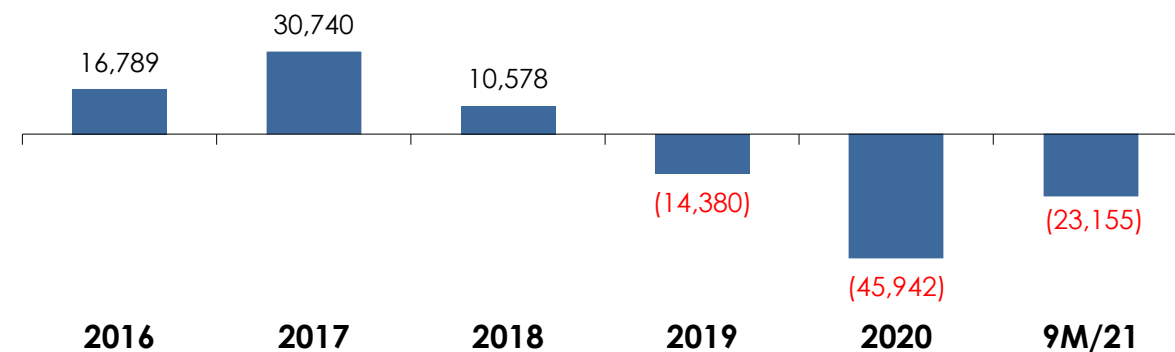
■ EBITDA (excl stk G/L)

■ 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	48,377	27,389
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# TOP Group Strategic Investment Plan

## CAPEX Plan (Unit US\$ million)

Updated as of October 2021

Project	Actual 9M/21	Estimated Budgeting for Investment Plan 2021 - 2024
CFP project *	802	1,902
Total Ongoing CAPEX	37	201
Reliability, Efficiency and Flexibility Improvement	6	48
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 )	20	72
Other Investments ( i.e. Corporate Venture Capital - CVC , Digital Transformation )	11	81
TOP SPP Expansion	27	145
Olefins Investment	913	1,183
Total CAPEX	1,779	3,431

\* 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

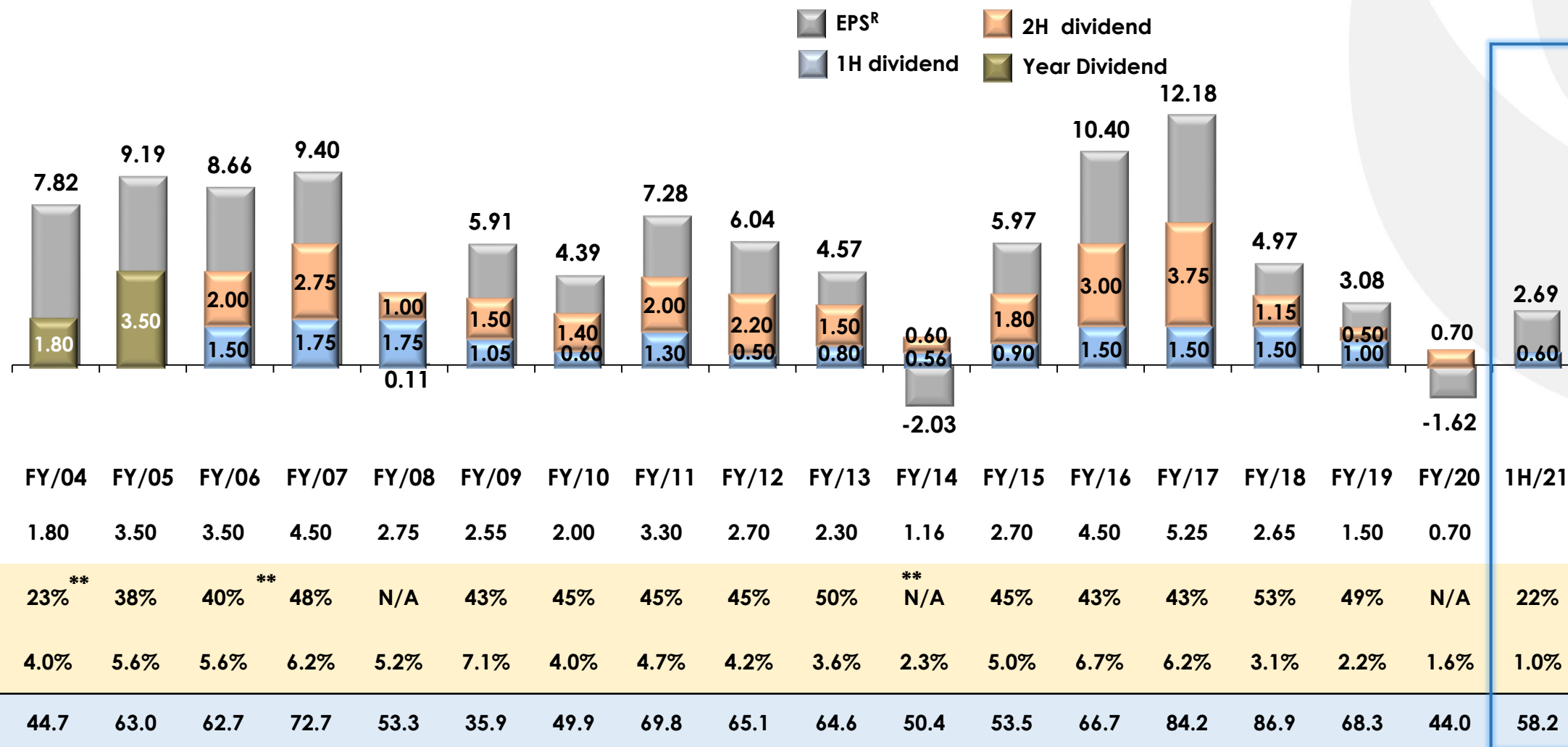
Notes: Excluding approximately 40 M\$/year for annual maintenance

# 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



<sup>R</sup> 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 2021 Strategic Direction : Building on Our Strong Foundation

## Vision



Empowering Human Life  
through Sustainable Energy and Chemicals

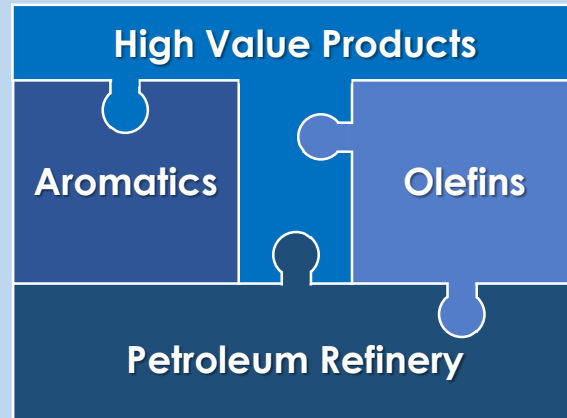
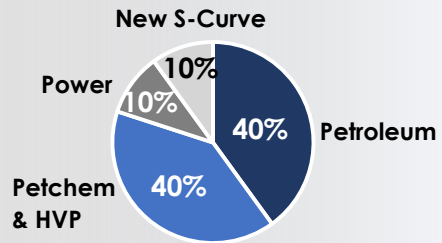
## Strategic Objective

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

People + Patronage + Partnership + Platform

## Drive for Sustainability

Environment + Social + Governance



# 3-Pronged Strategy (3V)



## **V**alue Maximization : Integrated Crude to Chemicals

### “Build on our strong foundation”

- Strengthen core through CFP project
- Speedup growth by building on our strong foundation
- Existing value chain (Aromatics, Lube & LAB) & HVP via revamp/debottleneck & partnership
- Olefins value chain, jumpstart via JV/partnership & bypass to downstream HVP
- Expand product portfolio & develop HVP through customer orientation, technical expertise & partnership



## **V**alue Enhancement : Integrated Value Chain Management

### “Know your customers & knowledge-based”

- ASIAN region as our investment playground & market
- Prepare for CFP & PetChem
- Move closer to customers to promote HVP's



## **V**alue Diversification

### “Stable Earnings & New S-Curve”

- Power to provide stable earnings
- Step up effort on New Ventures
- Window to identify new S-curve opportunities & diversity sources of earnings

# CFP Rationale & Timeline

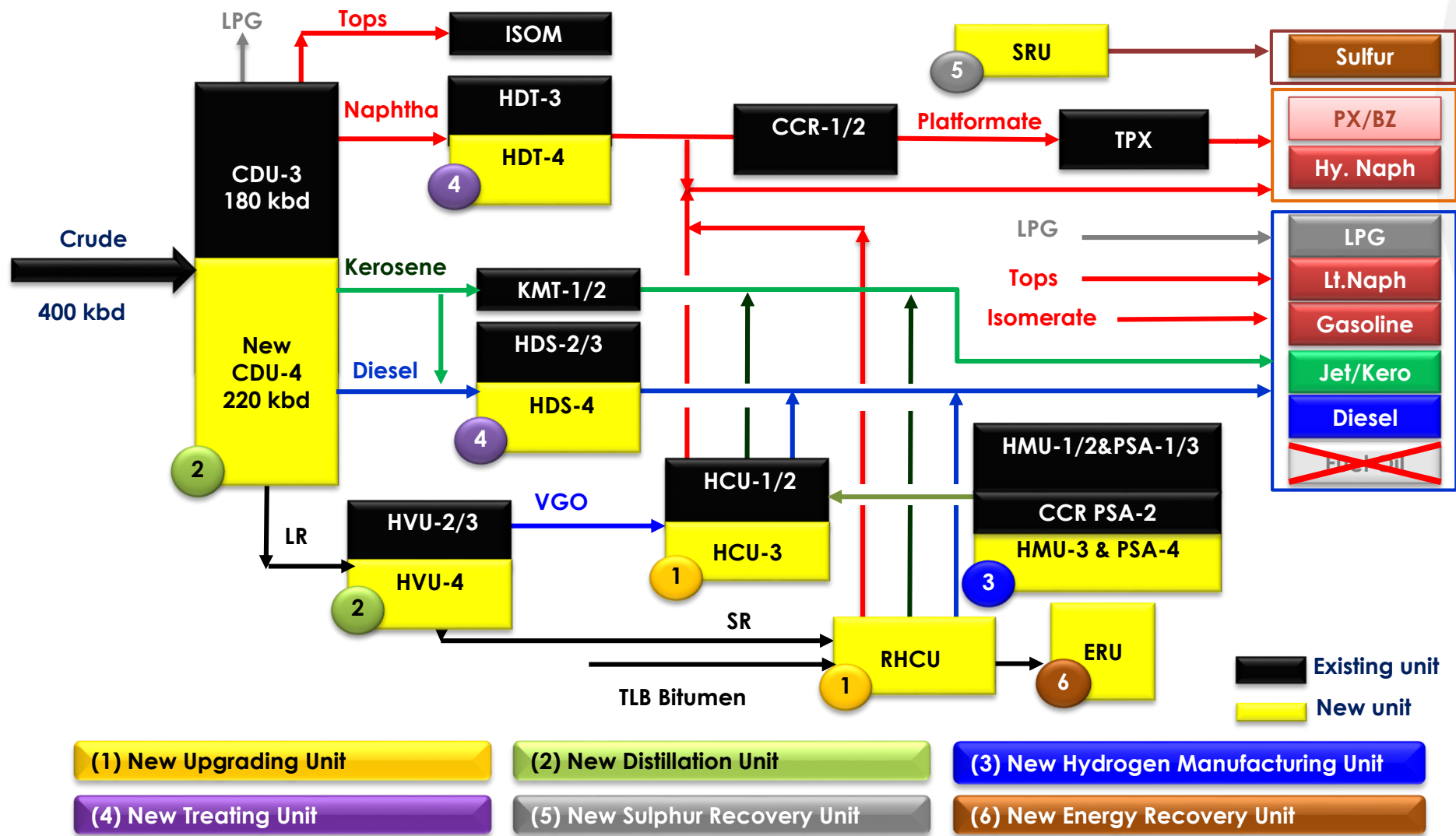
## Project Rationale

- 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



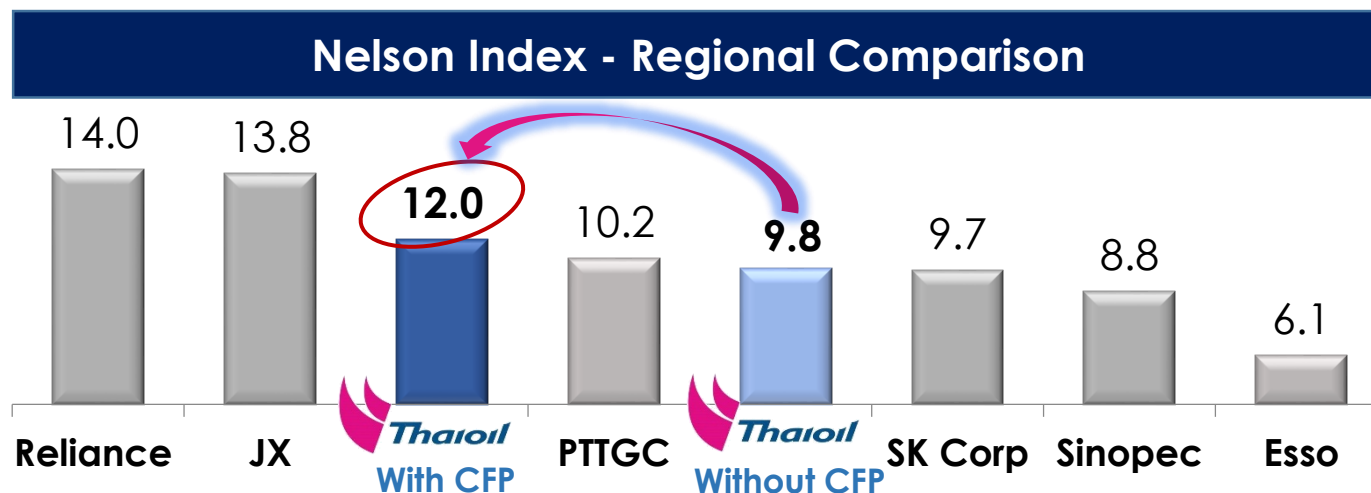
# Scope of CFP & Technical Aspect



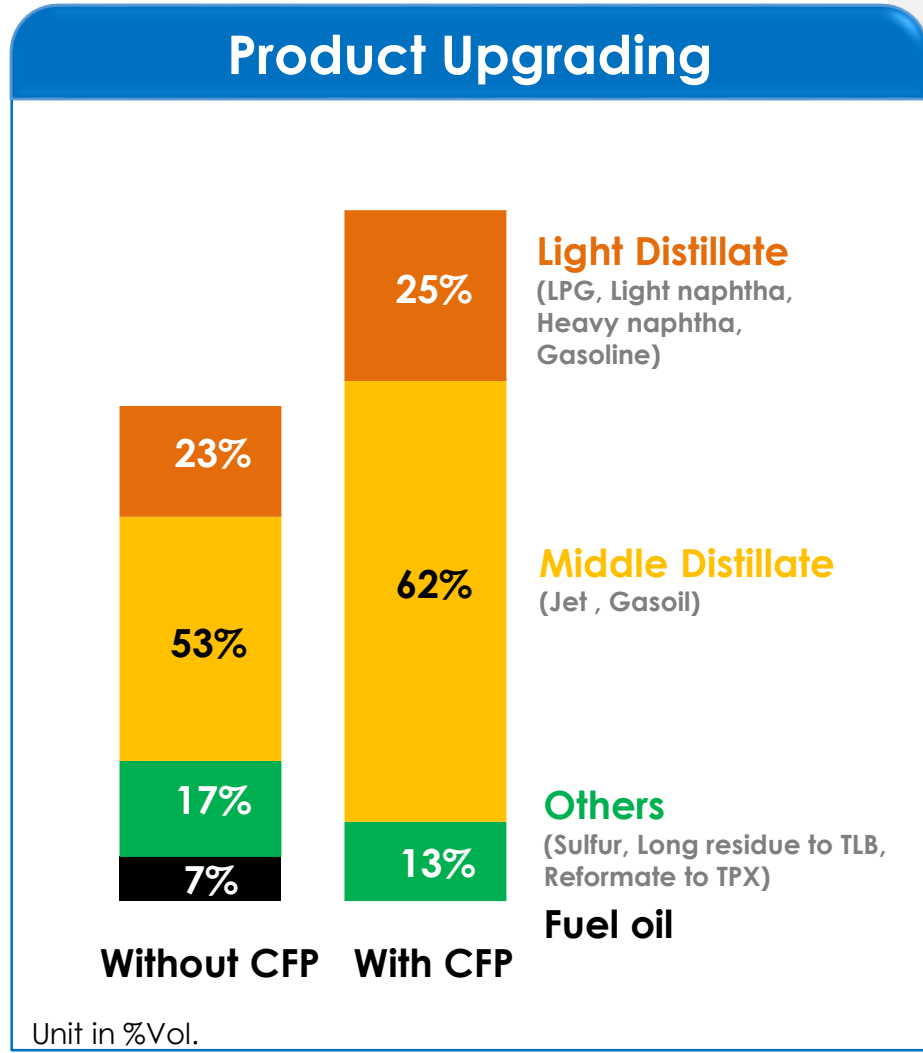
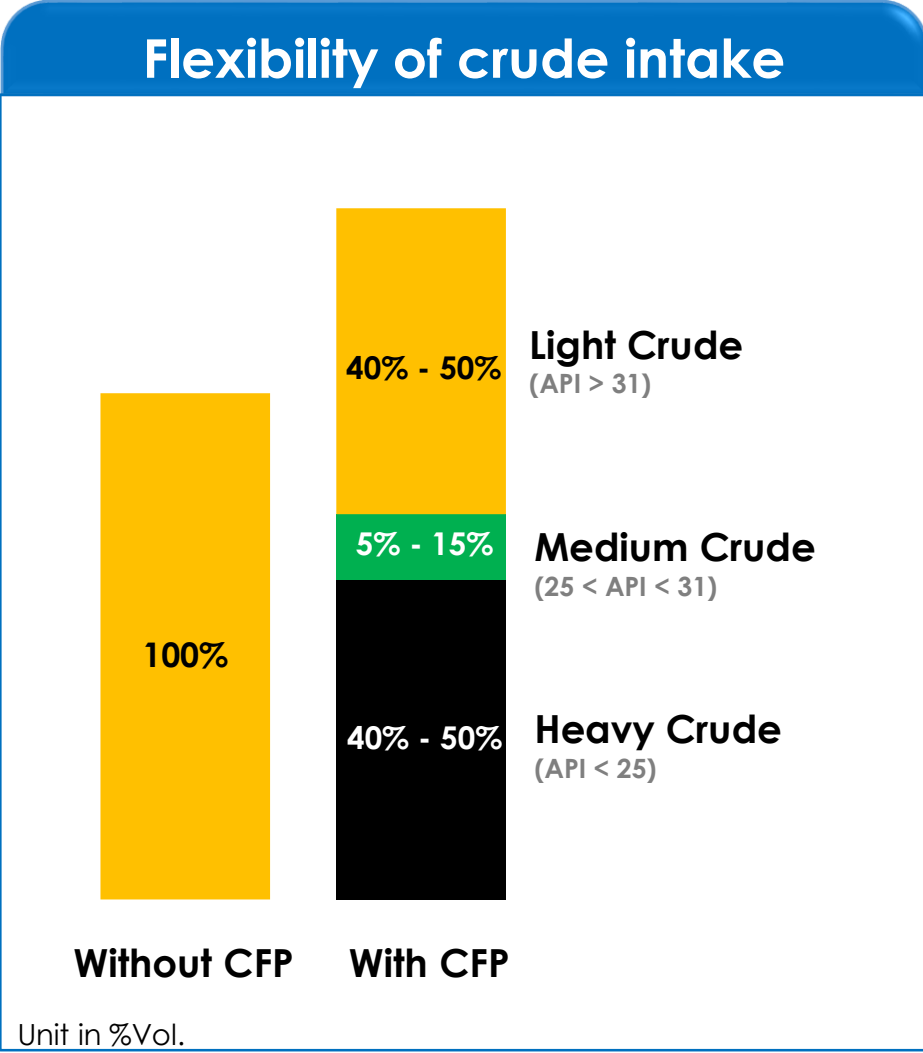
# CFP Competitiveness

Without CFP	With CFP
<ul style="list-style-type: none"> <li>• <b>CDU Capacity</b> 275,000 bbl per day</li> <li>• <b>Upgrading Ratio</b> <b>28 %</b> (upgrading capacity<sup>(1)</sup> over CDU capacity)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>CDU Capacity</b> 400,000 bbl per day</li> <li>• <b>Upgrading Ratio</b> <b>50%</b> (upgrading capacity<sup>(2)</sup> over CDU capacity)</li> <li>• <b>Power Plant</b> <b>250 MW</b></li> </ul>

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



# CFP Value Proposition



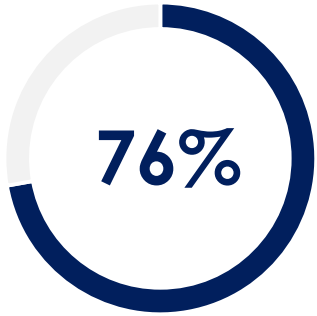
Note : After CFP, all products based on average data 2023-2043



# Clean Fuel Project (CFP)

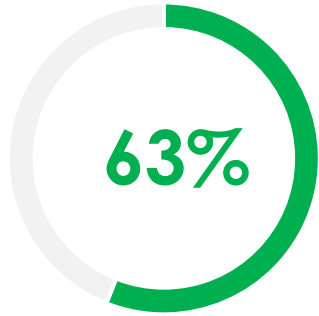
-31-

## Overall CFP Progress



### Project Progress

As of end Sep'21



### Budget Utilization

As of end Sep'21

## 9M/21 Progress

- Continuing equipment and module arrival to Thailand
- Massive progress of heavy lifting work for critical equipment and module installation
- Completed main substation structure construction for energization by 2022
- Maximized manpower in critical construction area and balanced personnel in non critical area to control COVID-19 situation
- Continuing construction at site amid strict COVID-19 control measures

## Going Forward in Q4/21- 2022

- Focus on construction at site i.e. equipment and module installation work
- Most of equipment and module will be arrived Thailand and ready to be installed until next year





# OLEFINS INVESTMENT

# Olefins Investment

## Transaction Summary



15.38% stake in CAP



Chandra Asri



#1

The Largest & Dominant  
Integrated Petrochemical  
Producer in Indonesia



Investment US\$ 1,183 mn

- 1<sup>st</sup> Tranche US\$ 913 mn 15.0%
- 2<sup>nd</sup> Tranche US\$ 270 mn 0.38% on CAP2 FID



Timeline

- Closing date by 30 Sep 21
- Realize contribution in Q4/21 onwards



CAP2

- Expected Final investment decision (FID) in 2022
- Expected COD in 2026



Total capacity

- CAP1 4.2 mtpa
- CAP1+2 8.1 mtpa

## Key Investment Highlight



# Achieving TOP's Strategic Objectives: Integrated Crude to Chemicals



## TOP's Strategic Direction

### Value Maximization



Further extend Hydro-Carbon value chain to Olefins PetChem, in addition to existing Aromatics

### Value Enhancement



Geographic expansion



Platform for international growth

## Strategic Objectives Achieved



A jumpstart into Olefins value chain



Minimum investment in existing facilities & growth plan



Avoid adding new capacity



Instant upgrade of LPG & Naphtha value from CFP



Partner with reputable & experienced local Indonesian & Thai



Strategic market location – supply shortfall & growing



Opportunity to expand to other businesses



Gateway to Indonesia



# CAP2 Expansion is a Transformative Project for CAP

## CAP2 Project Overview



**Approx. USD 5 bn new plant to double CAP's Petrochemical Capacity**



**Flexible Feedstock Configuration**



**Synergy with Existing Plant**

- 93% of Land has been secured adjacent to the existing plant



**Strong Support From the Government**

- 20+2 year Corporate Income Tax Holiday (even pre-FID)<sup>(1)</sup>
- EIA approved



**Rights issue**

- Expected primary proceeds of USD1.1bn
- Doesn't expect another capital increase to develop CAP2

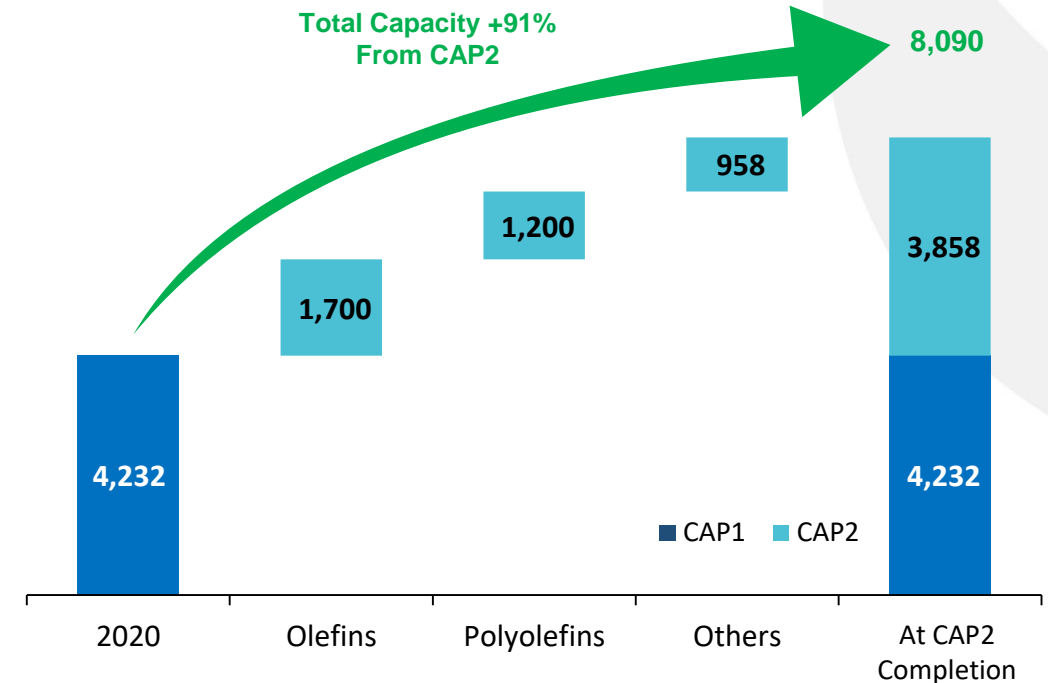


**Expected Final investment decision (FID) in 2022  
Expected COD in 2026**



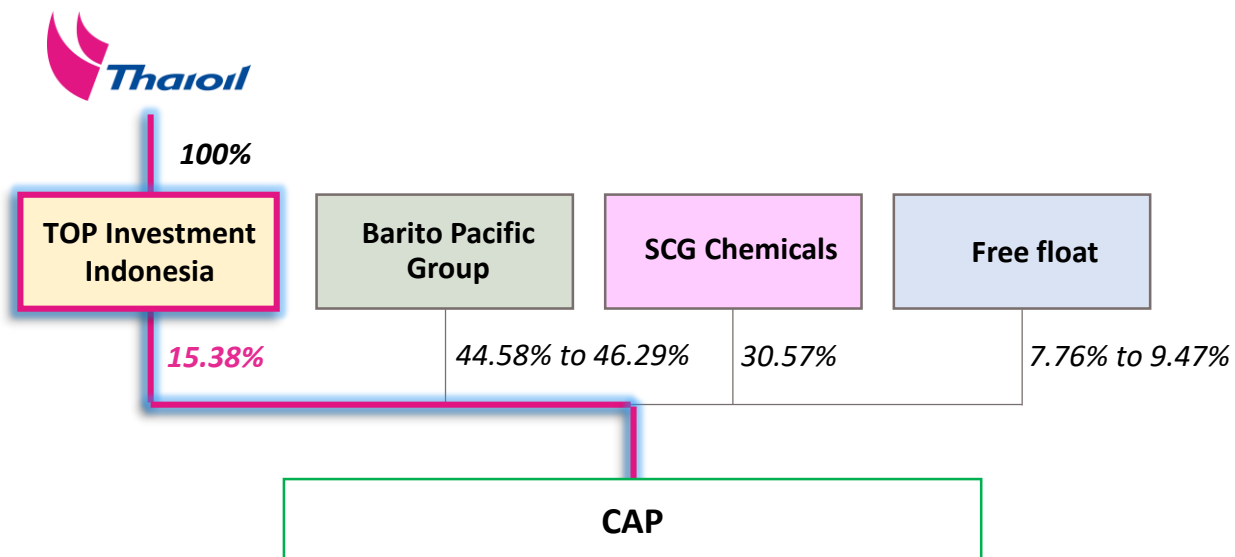
## CAP2 Will Double The Capacity of CAP

Unit '000 tons





# Details of Investment



## Investment for 15.38% in CAP split into 2 tranches

	Payment (US\$ mm)	% Share
1 <sup>st</sup> Tranche	913	15.0%
2 <sup>nd</sup> Tranche (when CAP2 FID in 2022)	270	0.38%
<b>Total</b>	<b>1,183</b>	<b>15.38%</b>

### Use of Proceeds



All primary proceeds to CAP will be used for the development and construction of CAP2 Project

### Condition Precedents



All necessary approvals including approval from the OJK are obtained

### Timing



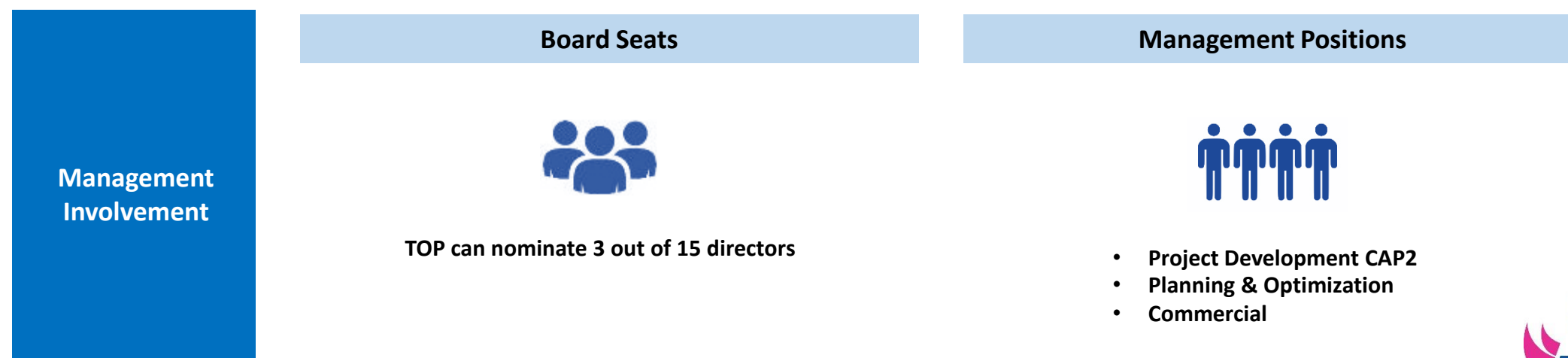
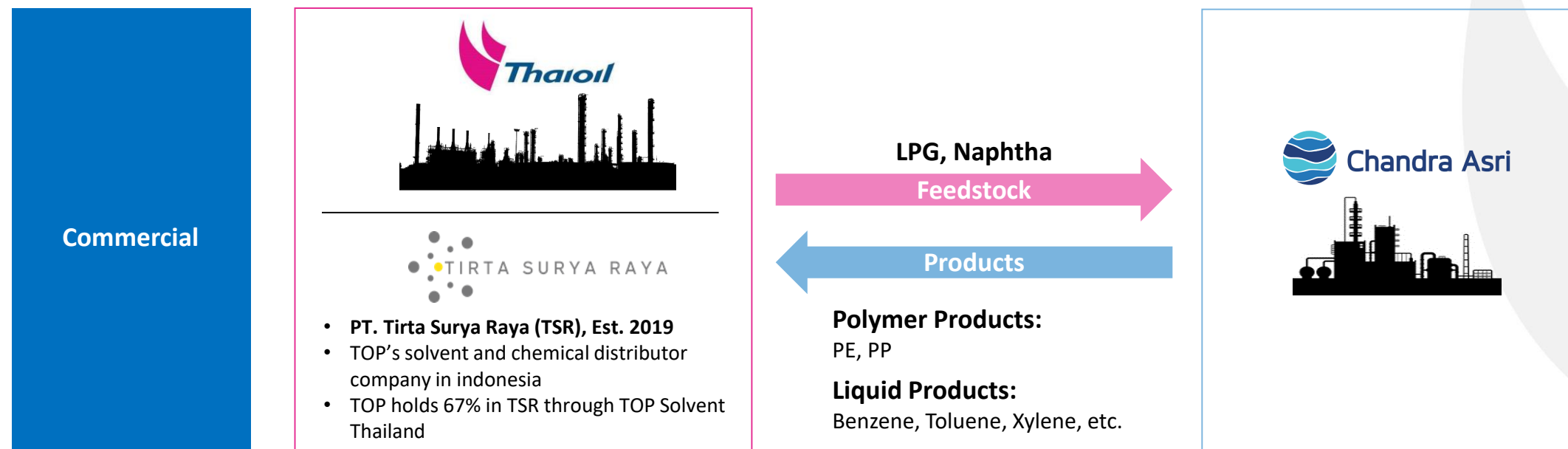
Closing for the 1<sup>st</sup> transaction is expected within 30 September 2021

### Equity Accounting

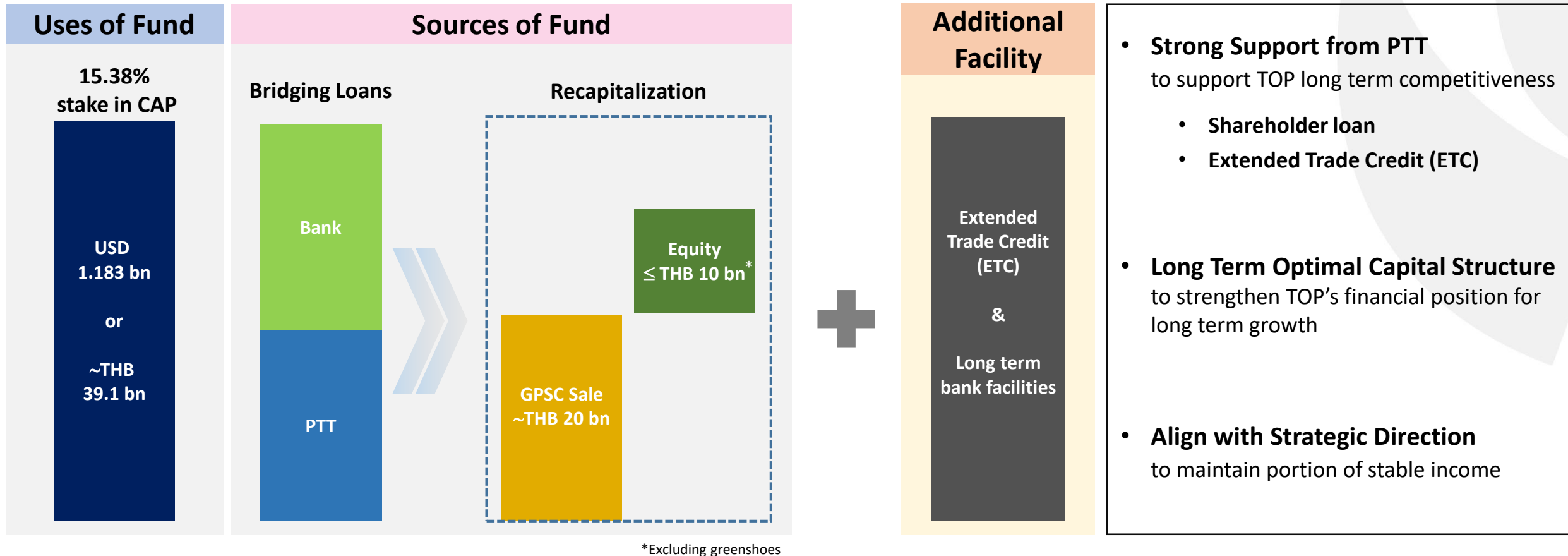


TOP can apply equity accounting method after the 1<sup>st</sup> transaction

# Key Partnership Arrangements



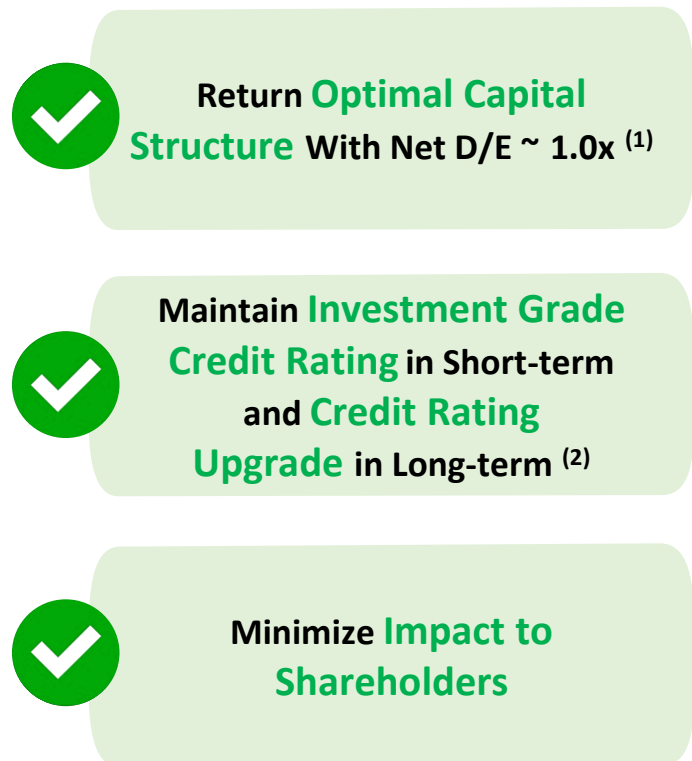
# Funding Plan for the Transaction



- **Strong Support from PTT** to support TOP long term competitiveness
  - Shareholder loan
  - Extended Trade Credit (ETC)
- **Long Term Optimal Capital Structure** to strengthen TOP's financial position for long term growth
- **Align with Strategic Direction** to maintain portion of stable income

# Long-Term Recapitalization Plan and Short-term Liquidity Support

## Objectives



## Recapitalization



## Short-term Liquidity Support



*Recapitalization Plan will Strengthen TOP's Capital Structure and Provide a Strong Foundation for the Next Stage of TOP's Growth Journey*

(1) In line with internal policy and refinery and petrochemical peers

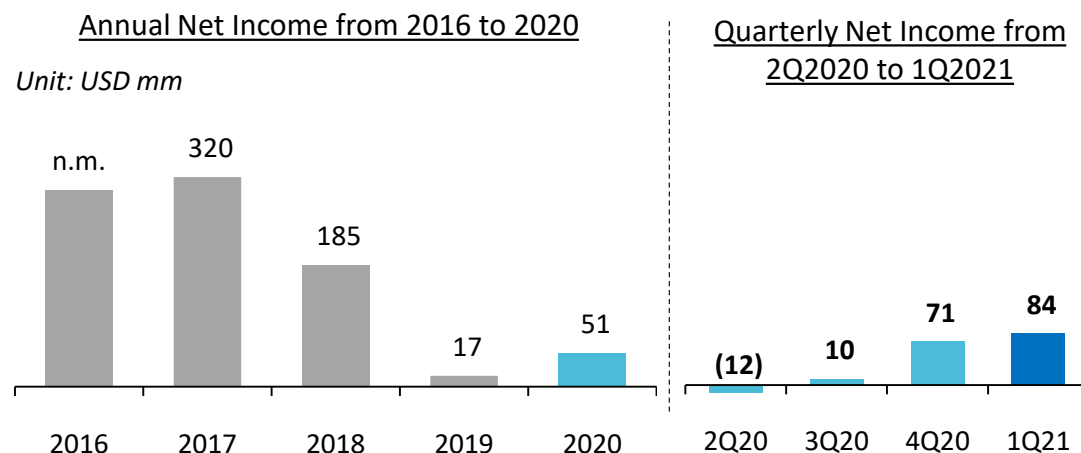
(2) RCF net debt to recover to over 10% after CFP COD

(3) Further details of the transaction to be announced and approved by the board of directors meeting and EGM (if required)

(4) Further details of the offering structure to be announced and approved by the board of directors meeting and EGM

# Expected Financial Benefits From the Transaction

## Share of Profit from CAP to Enhance TOP's Performance



### Higher income stability

from more diversified income source



### ~ USD 40 – 50 mm of annual share of profit

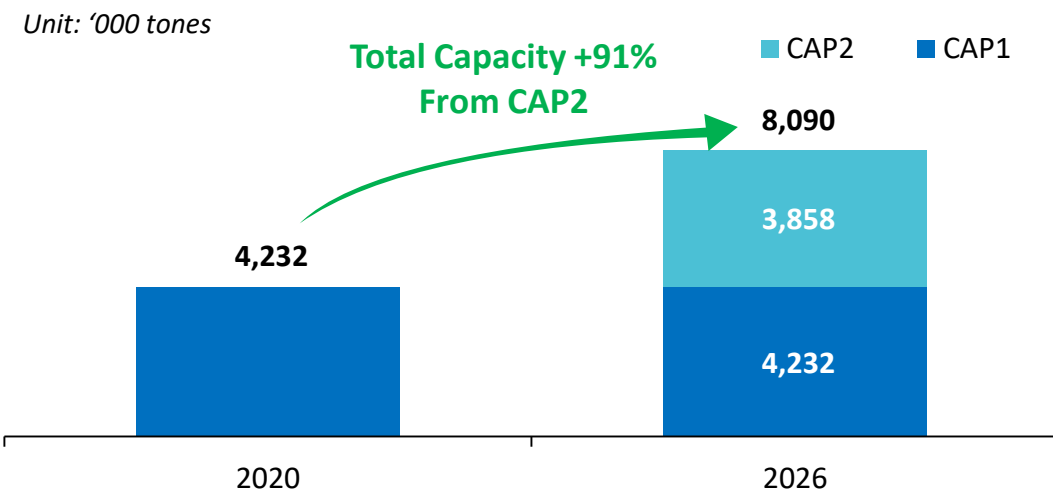
in early years (based on 1Q2021 performance)



### Secured demand

from feedstock supply agreement

## Performance Expected to Increase Significantly From CAP2 Operations



### Production capacity to increase over 90%

from CAP2 operations could result in double share of profit

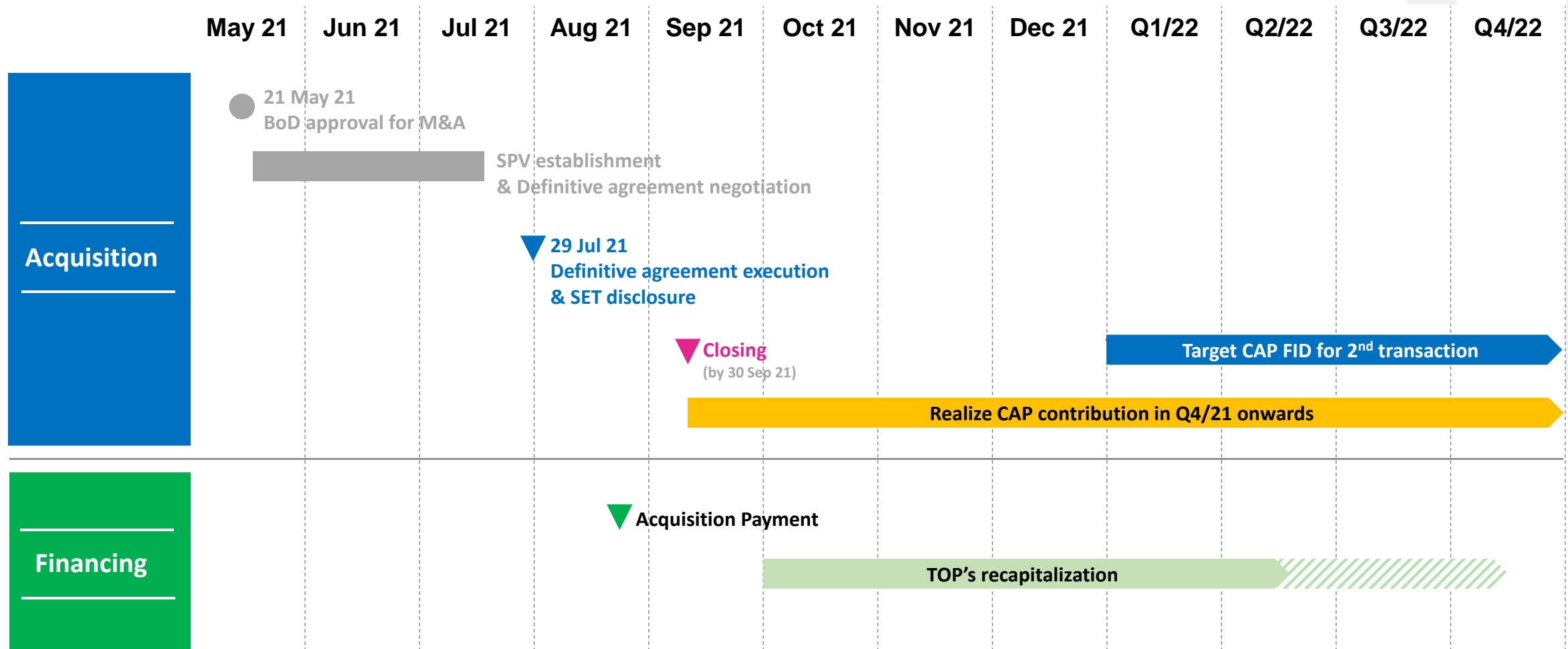


### Expected margin improvement

from operational synergy between CAP1 and CAP2 to enhance share of profit from CAP



# Illustrative Timeline



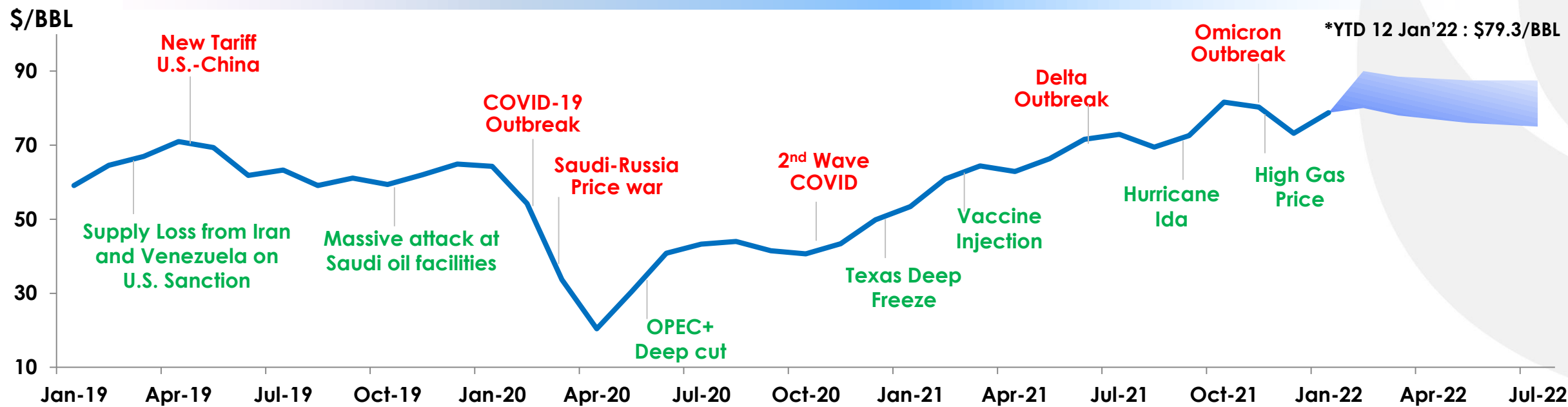


## 2022 OUTLOOK

- Crude Oil
- Refinery
- Petrochemical
- Base Oil & Bitumen

# CRUDE OIL MARKET OUTLOOK

## Dubai Prices Movement

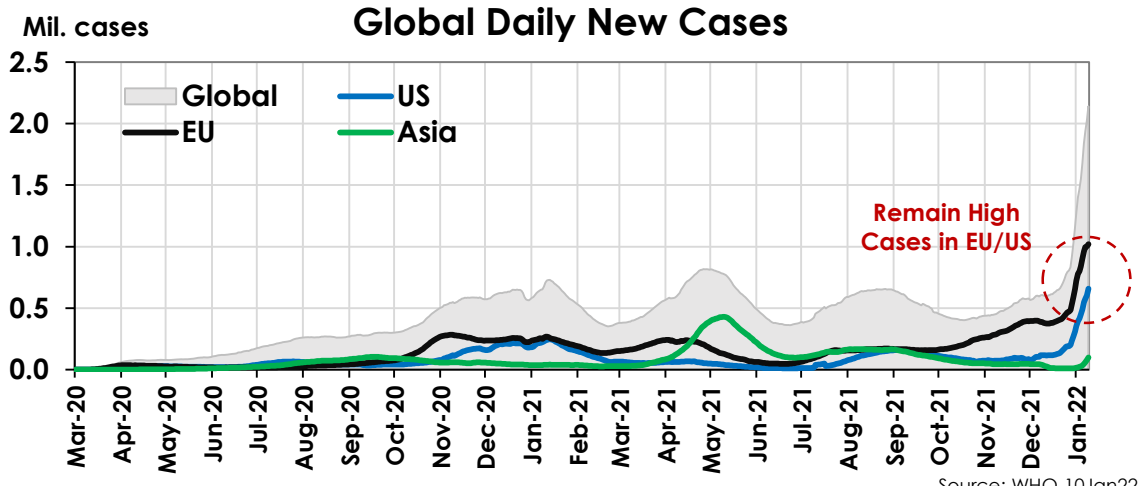


### Key Highlights 2022

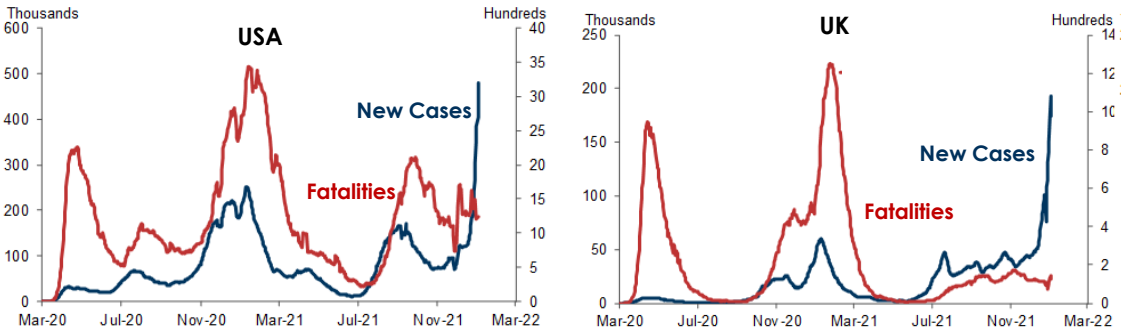
- 1 Oil demand to recover in 2022 on easing concerns about omicron variant
- 2 Major regions return to pre-COVID level amid limited crude import in china
- 3 Slight increase in OPEC+ crude supply to fulfil demand, amid the return of US/iran production
- 4 Firm oil price on demand growth and low inventory

# Oil Demand To Recover In 2022 On Easing Concern About Omicron Variant

## A Higher Spread of Omicron with Less Severity



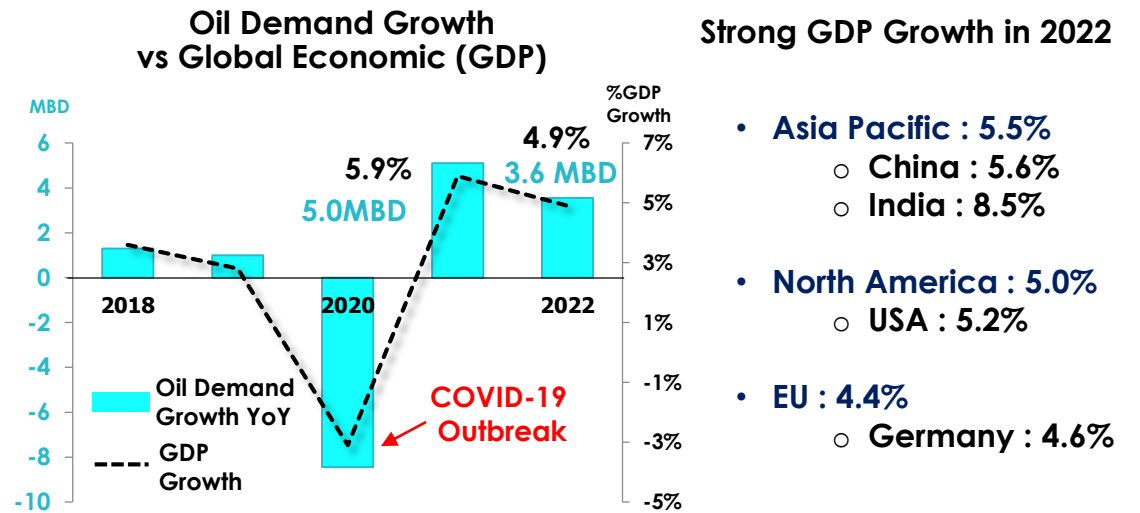
### Omicron Seem to Be Milder than Delta



### Factors to Watch

- ❖ Risks on Virus Mutation
- ❖ 3<sup>rd</sup> vaccine booster to prevent severe symptom

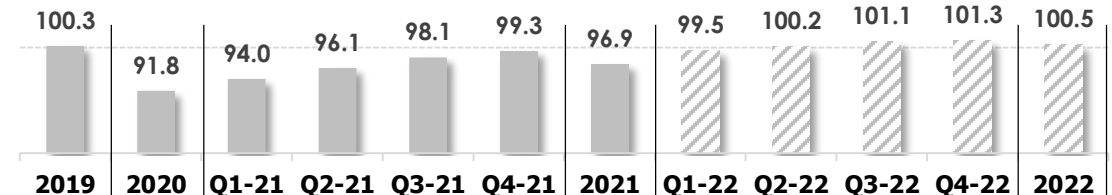
## B Oil Demand to Hit Pre-COVID in Q2-22, Supported by Economic Recovery



### Strong GDP Growth in 2022

- **Asia Pacific : 5.5%**
  - China : 5.6%
  - India : 8.5%
- **North America : 5.0%**
  - USA : 5.2%
- **EU : 4.4%**
  - Germany : 4.6%

### Global Oil Demand (MBD)

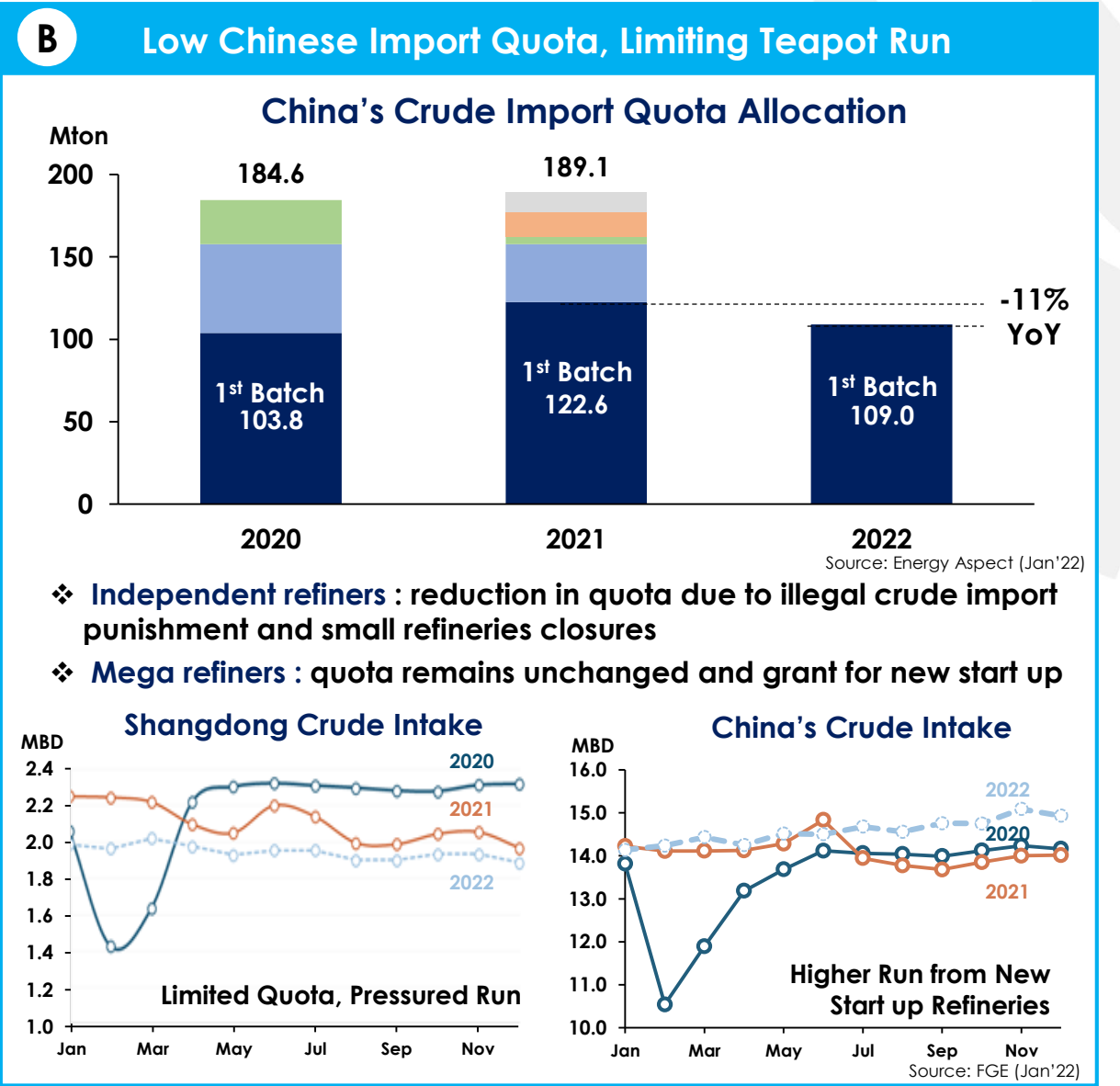
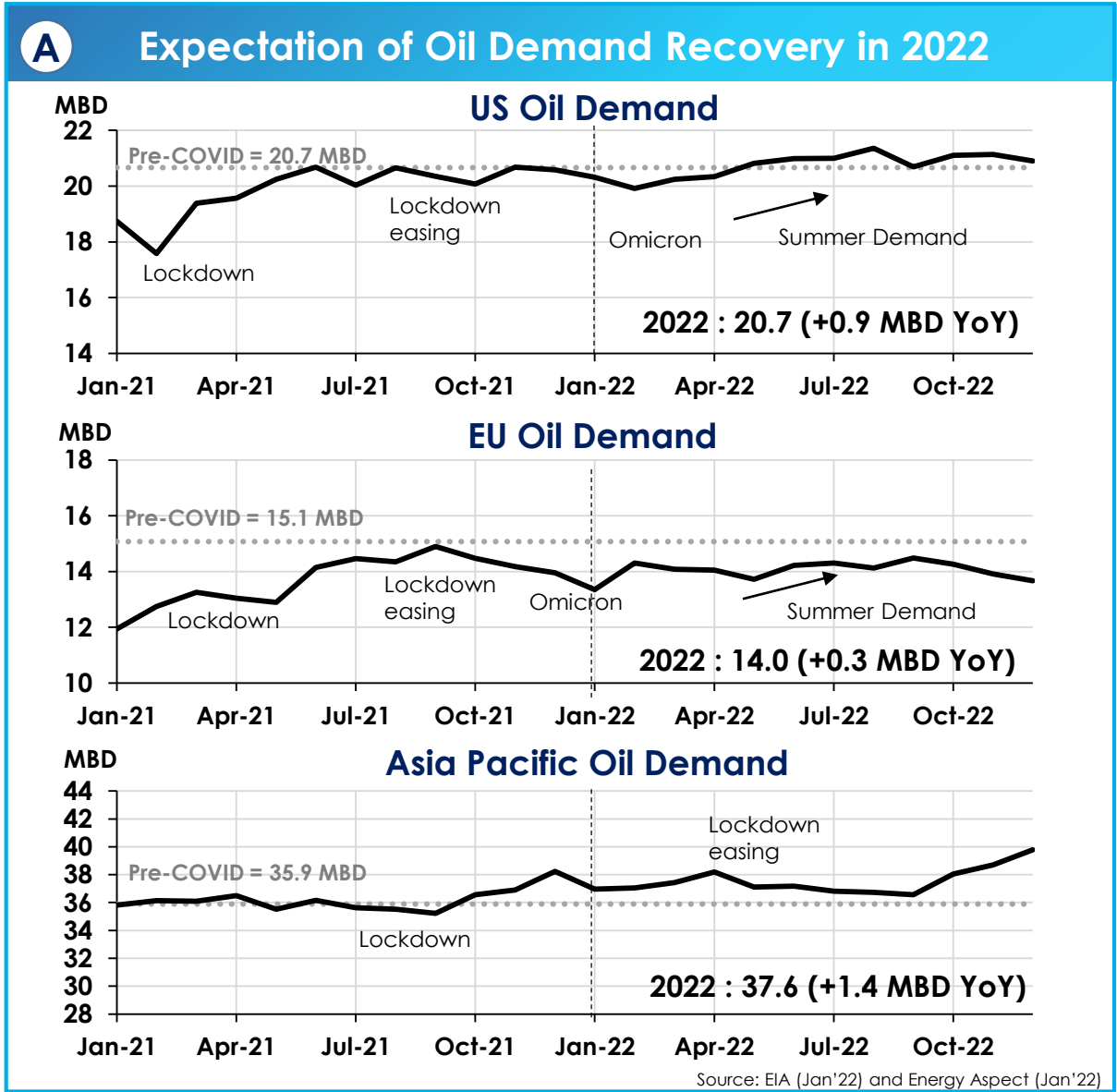


### Factors to Watch

- ❖ Potential Fed rate hike 2022 due to high inflation
- ❖ Tapering QE in Mar'22

Sources: EIA (Jan'22), IMF (Oct'21) and CNBC (Jan'22)

## 2 Major Regions Return to Pre-COVID Level amid Limited Crude Import in China

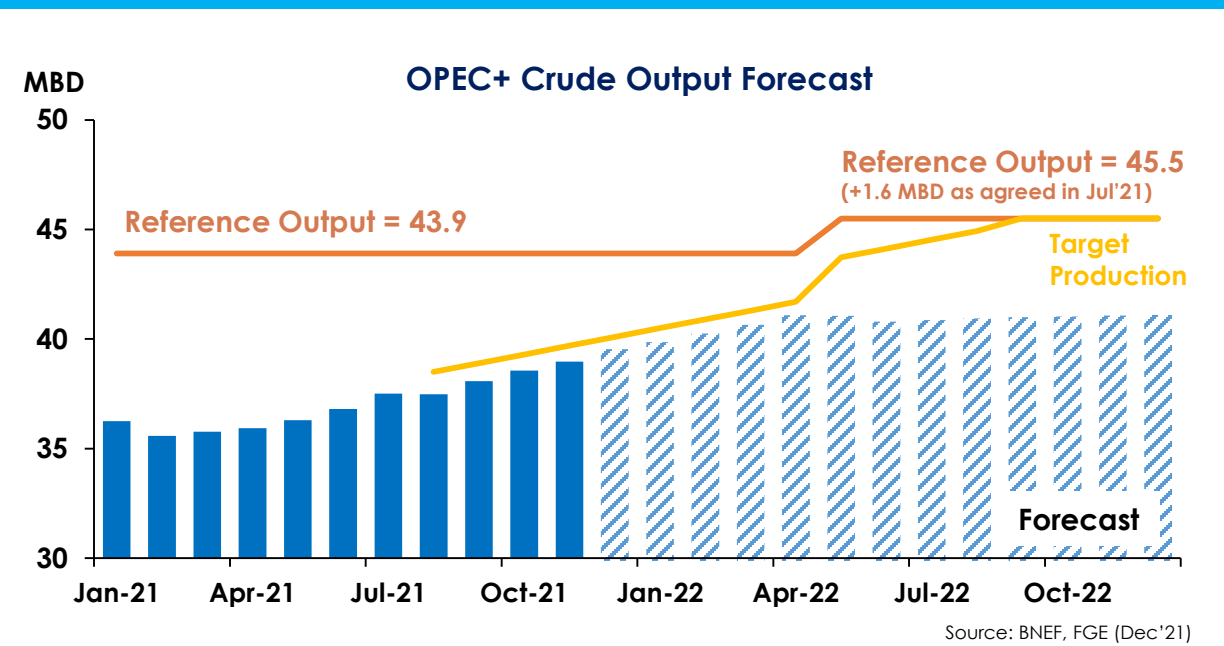


3

Slight increase in OPEC+ Crude Supply to fulfil demand, amid the Return of US/Iran Production

A

Limited OPEC+ Output Due to Low CAPEX and Outage

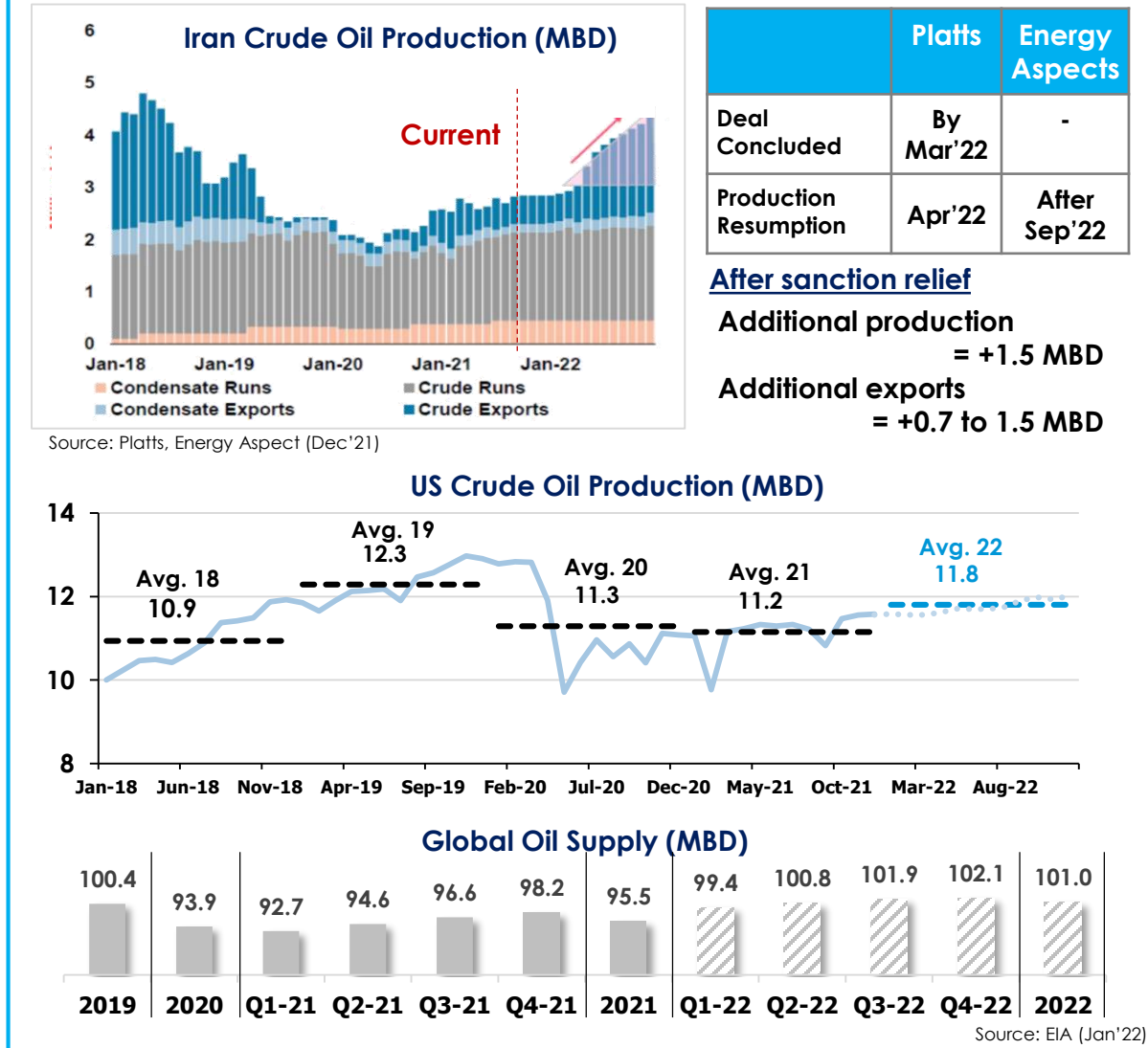


Factors to Watch

- ❖ **Kazakhstan** : Short term impact from unrest situation
- ❖ **Libya** : Remain shut 0.4 MBD and risk on internal protest (0.6-0.7 MBD)
- ❖ **Angola, Gabon, Congo and Nigeria** : Limited CAPEx and Delayed Maintenance
- ❖ **Russia** : Low spare capacity to increase production

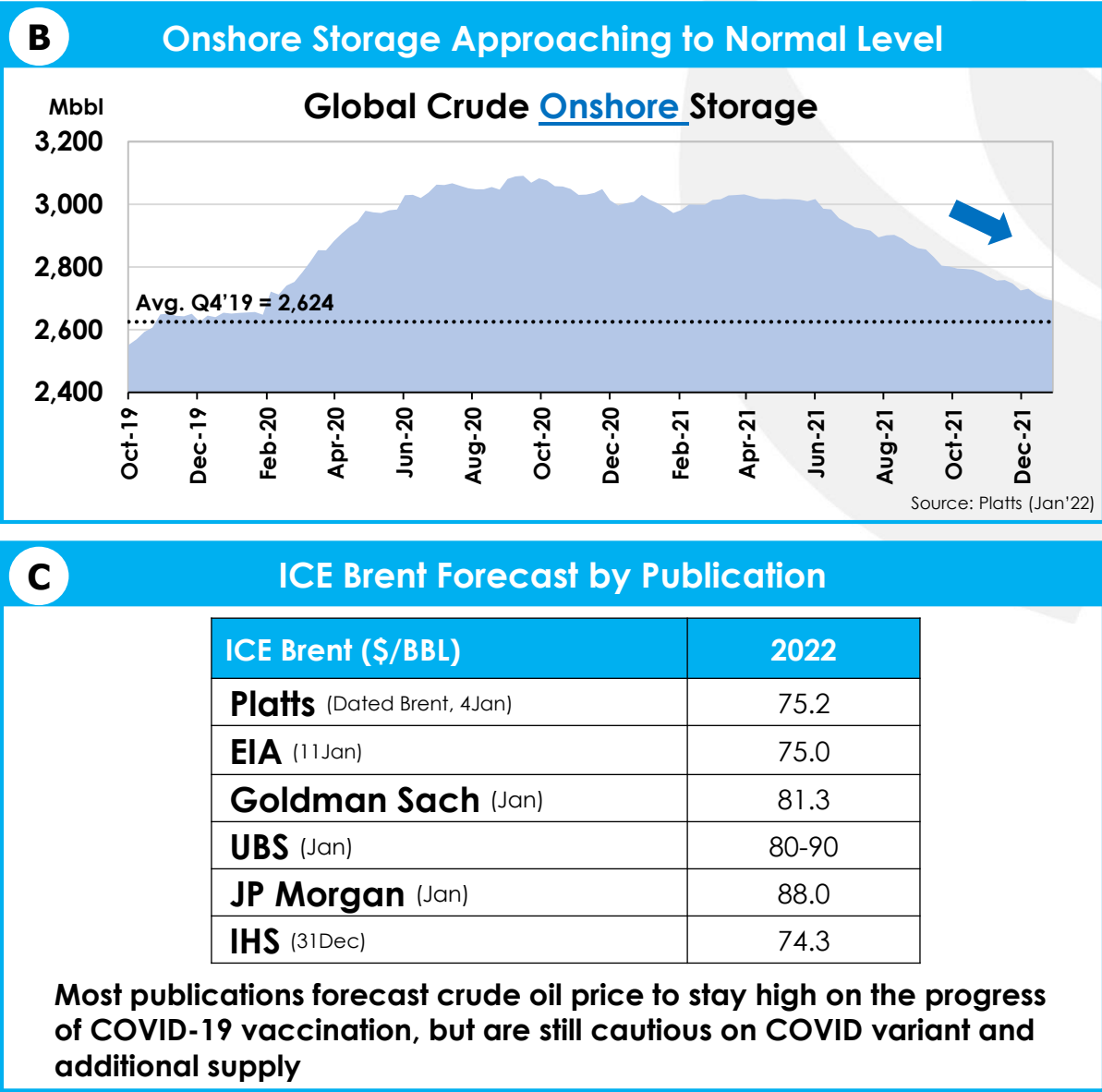
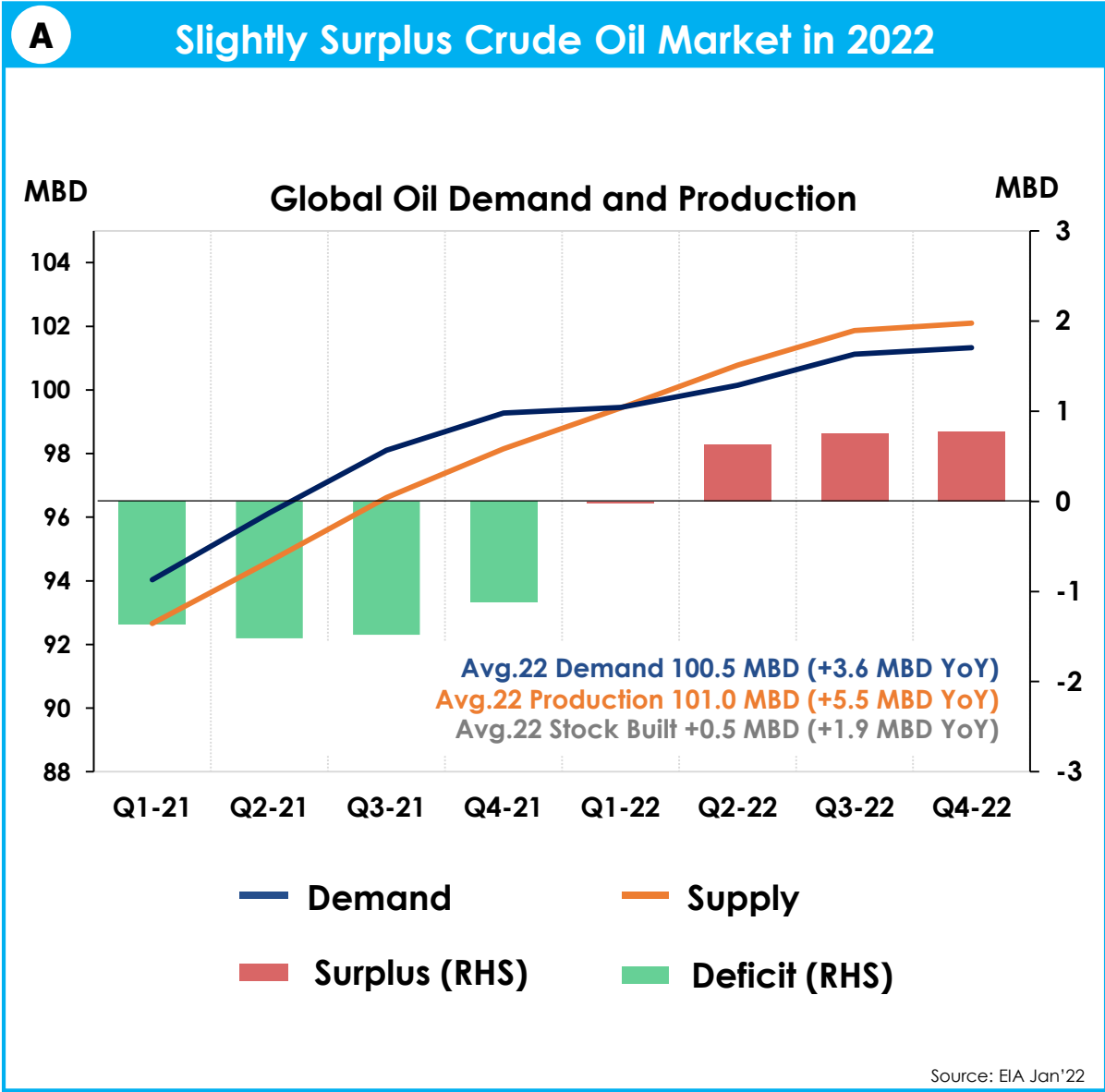
B

Potential Supply to Come from OPEC/Non-OPEC



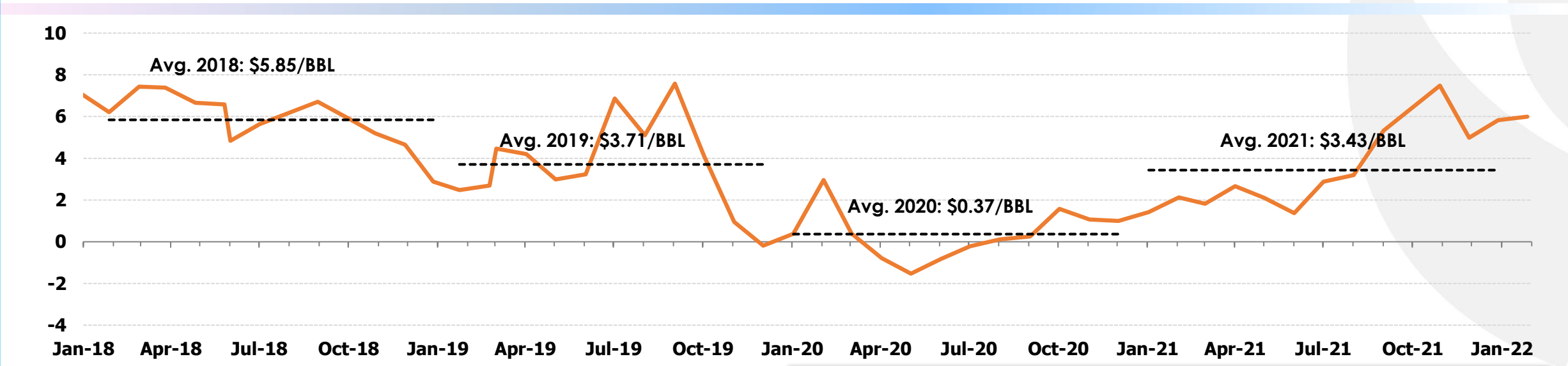


## 4 Firm Oil Price On Demand Growth and Low Inventory



Recovering Demand after COVID-19 Easing Concerns

Singapore Cracking GRM (\$/BBL)



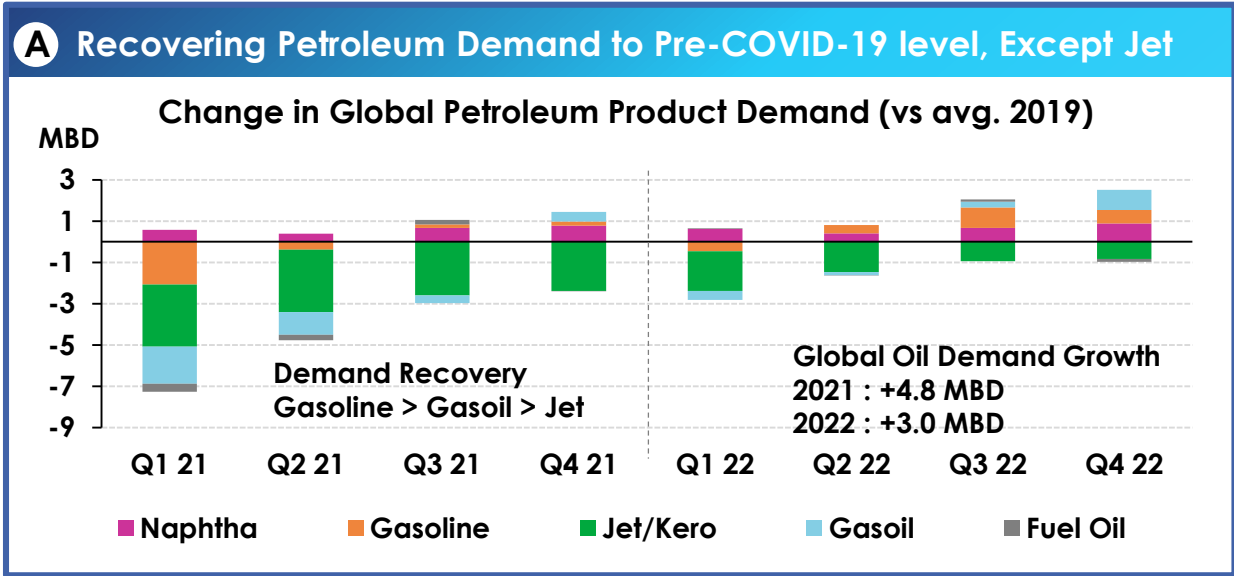
(\$/BBL)	Q1-21	Q2-21	Q3-21	Q4-21	2021	Q1TD-22*
ULG95-DB	7.2	9.9	11.8	15.4	11.1	15.2
JET-DB	3.2	4.5	5.4	10.2	5.9	10.0
GO-DB	4.7	5.2	5.4	11.5	6.7	12.8
HSFO-DB	(3.5)	(5.8)	(3.3)	(6.9)	(4.9)	(7.2)

Remarks: \*Q1TD-22 as of (6 Jan 22)

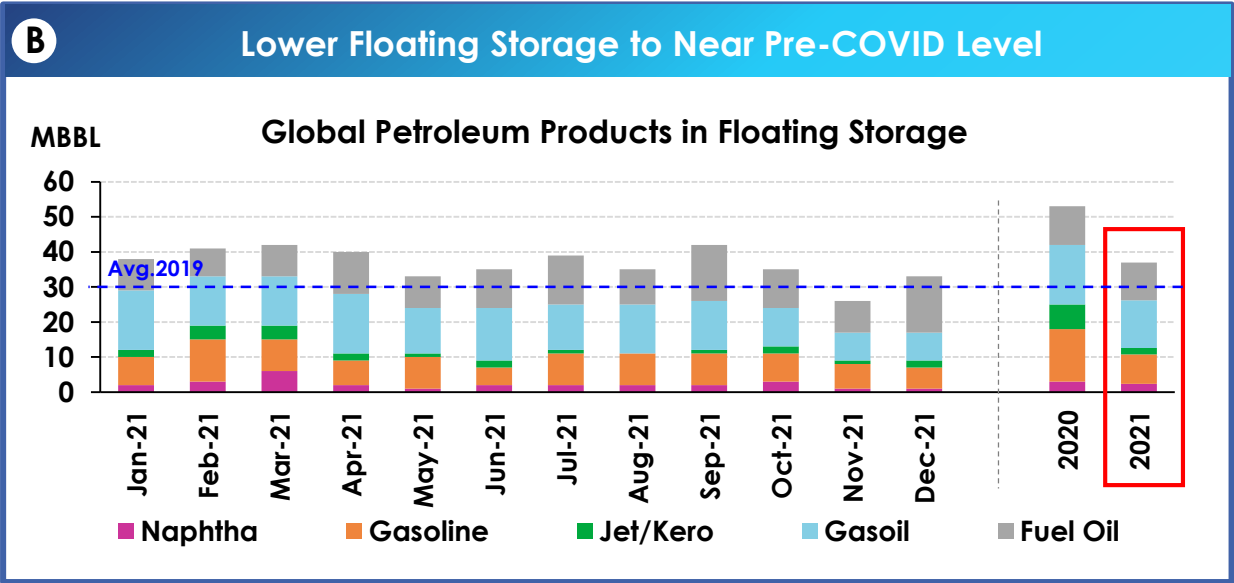
Key Highlight

- Improving Gasoline Market on Rising Asian Demand
- Increasing Jet Demand Driven by Recovering Flights
- Rising Gasoil Demand on Robust Economic Activity
- Increasing Fuel Oil Demand amid Higher Supply

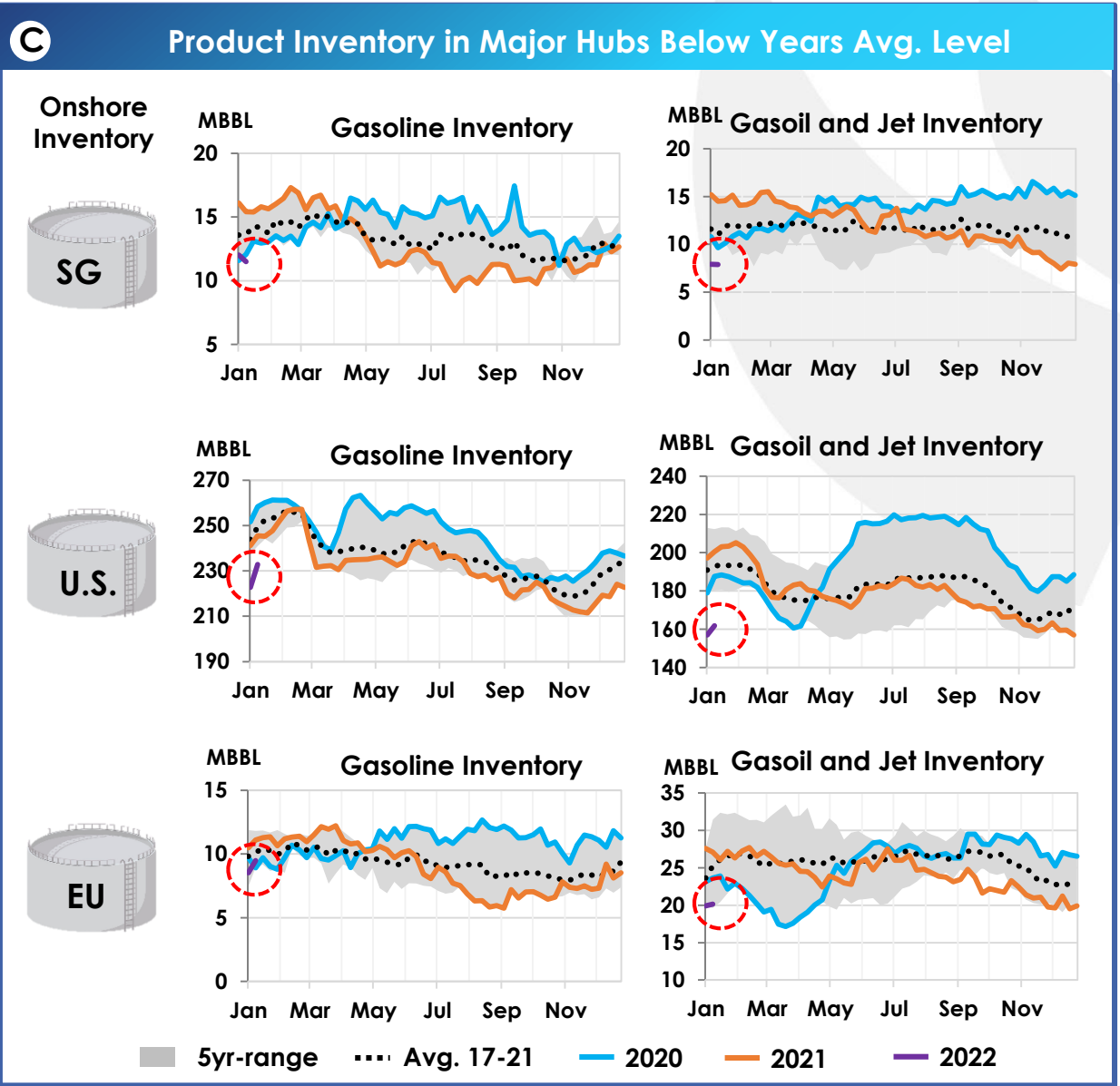
# Improving Product Demand to Drawdown Inventory Levels



Source: Energy Aspect (Dec'21)



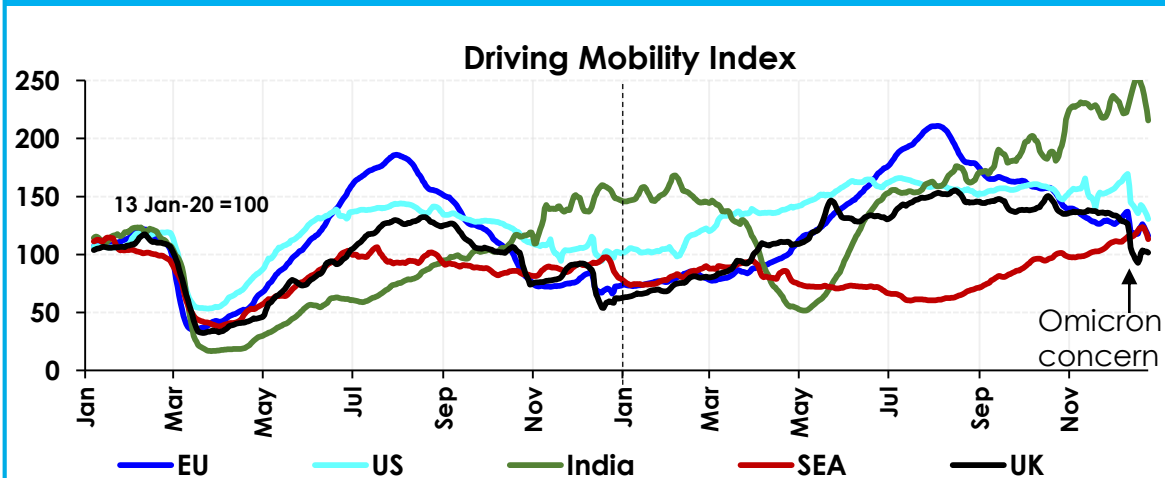
Source: FGE, Vortexa and Platts (Dec'21)



Source: Reuters (Jan'22)

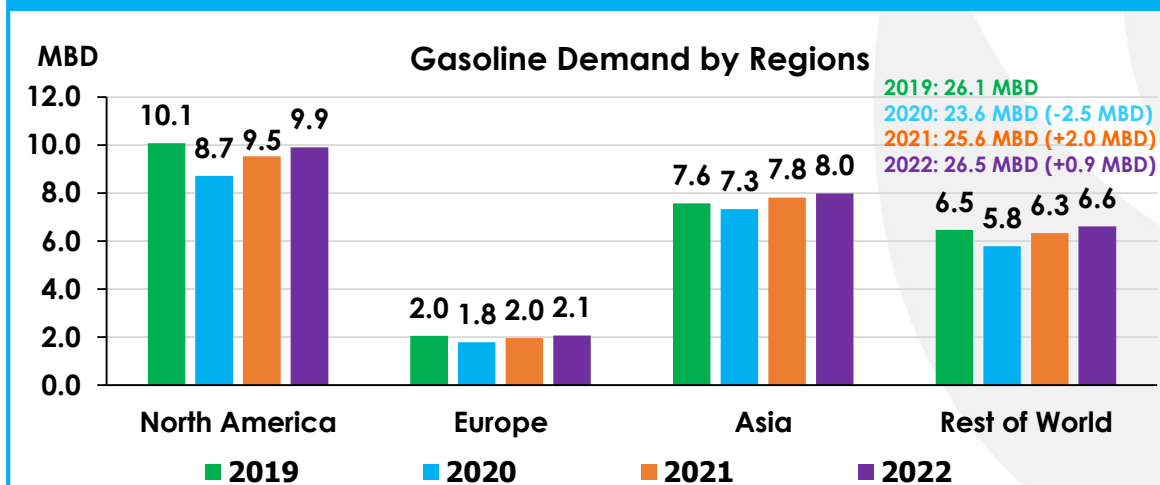
# Improving Gasoline Market Led by Rising Asian Demand but Capped by Tighten Restrictions in Short Term

## A Slower Infection Rate in Asia to Support Demand



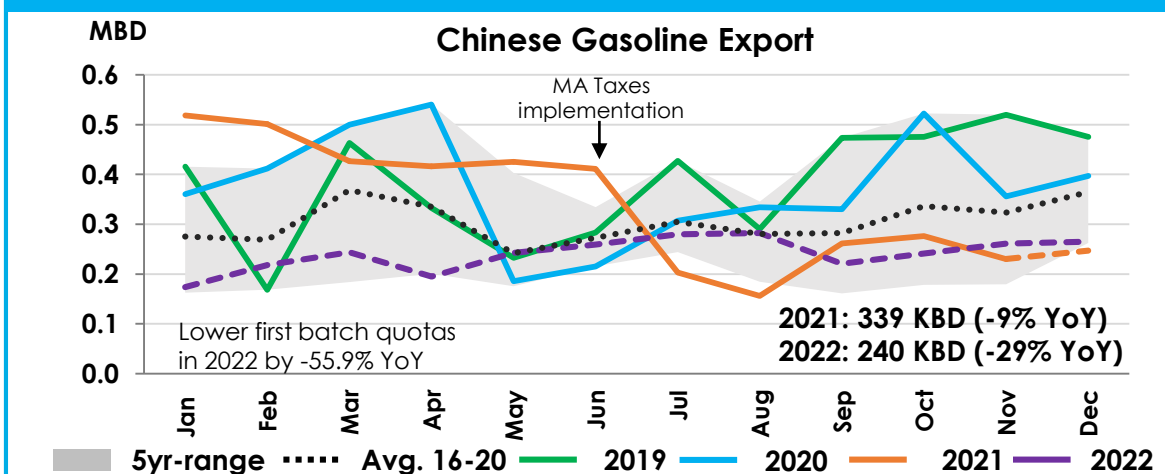
Source : Apple (Jan'22)

## B Increasing Demand Globally to Pre-COVID in 2022



Source: Energy Aspects (Dec'21)

## C Expected Lower Chinese Gasoline Exports on Limited Quotas



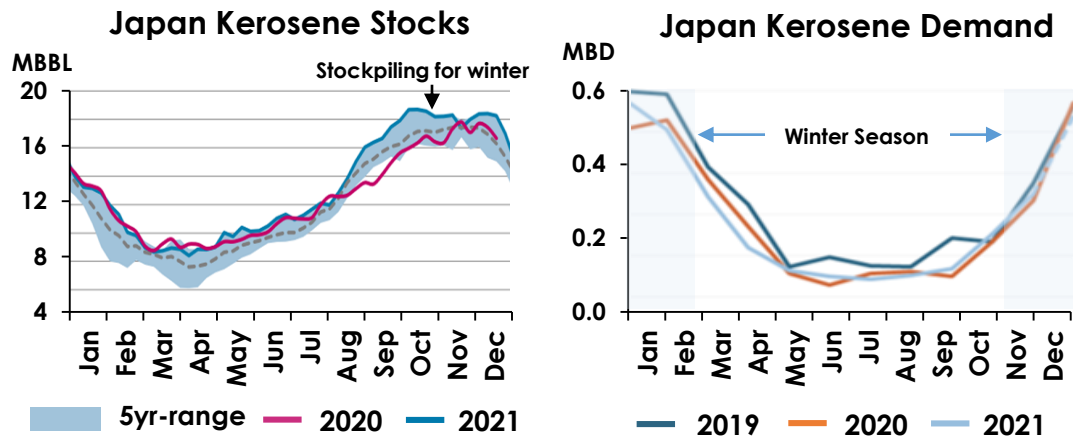
Source: Energy Aspect and FGE (Dec'21)

## Key Highlight

- Recovering global mobility despite risk on re-imposing some restrictions in many region
- Gradually increasing demand to reach Pre-COVID level
- Low Chinese export to keep Asian market tight

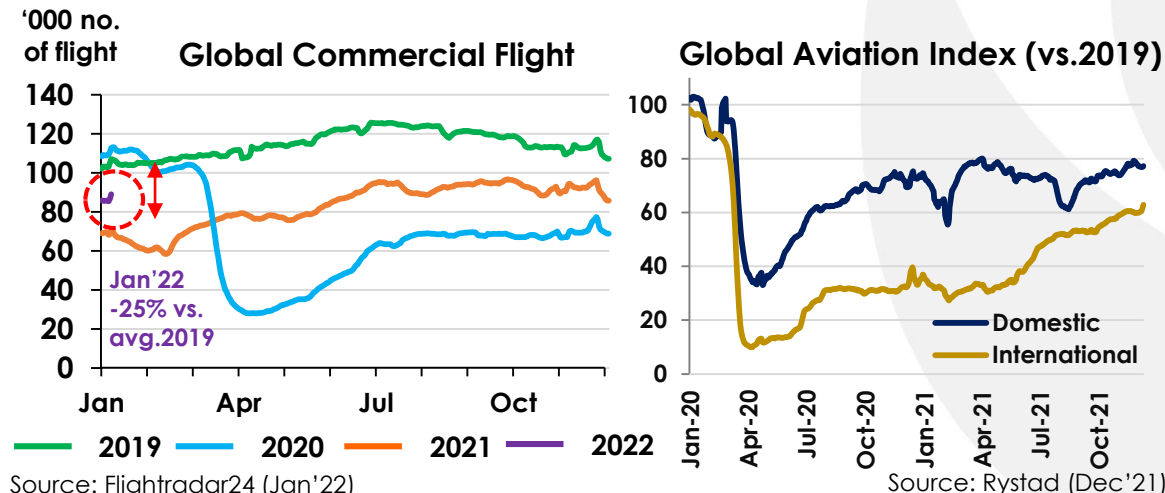
# Recovering Jet/Kerosene Demand Driven by Heating Demand and Increasing Flight Activities

## A Firm Kerosene Demand During Winter to Support the Market



Source: Platts, FGE (Dec'21)

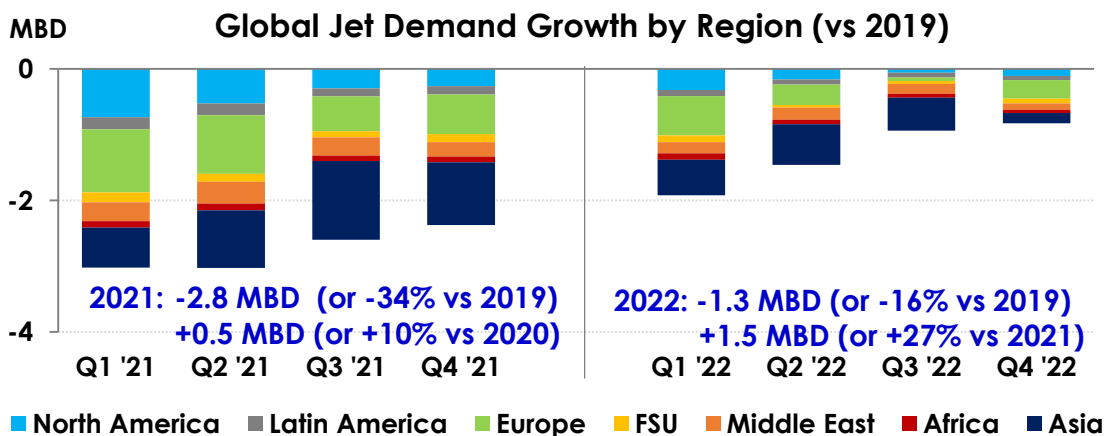
## B Continue Increasing Flight Activities Led by Domestic



Source: Flightradar24 (Jan'22)

Source: Rystad (Dec'21)

## C Gradually Increasing Jet Demand in 2022

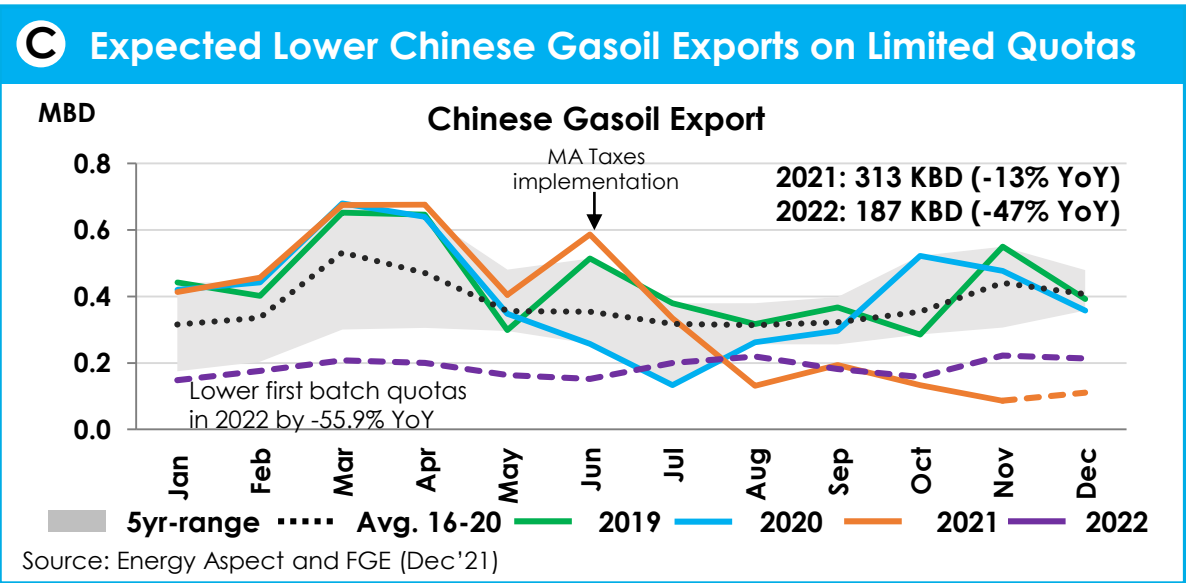
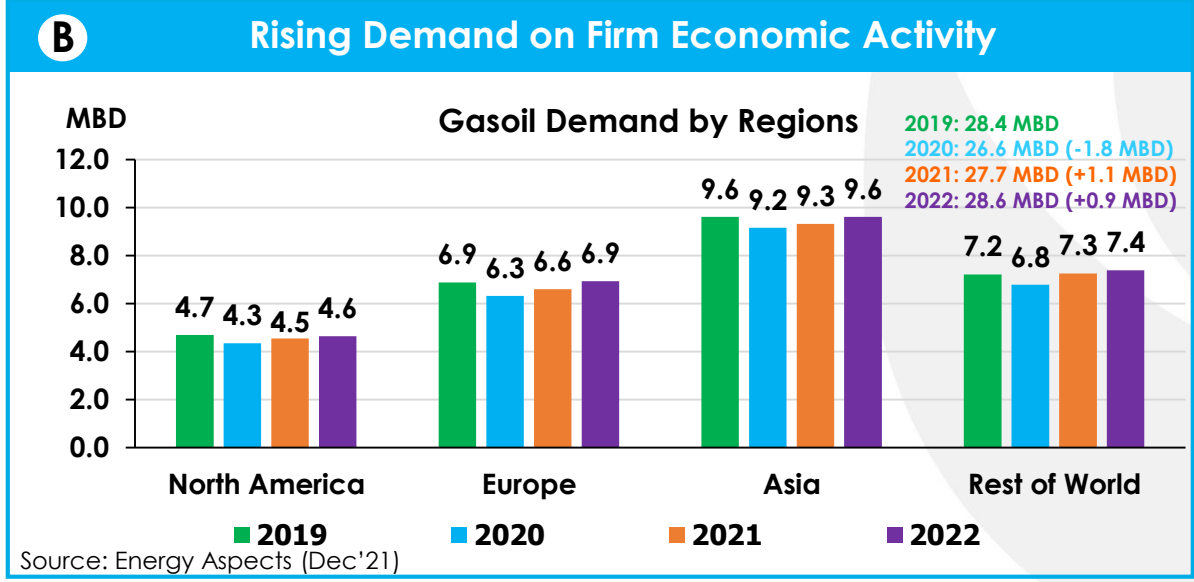
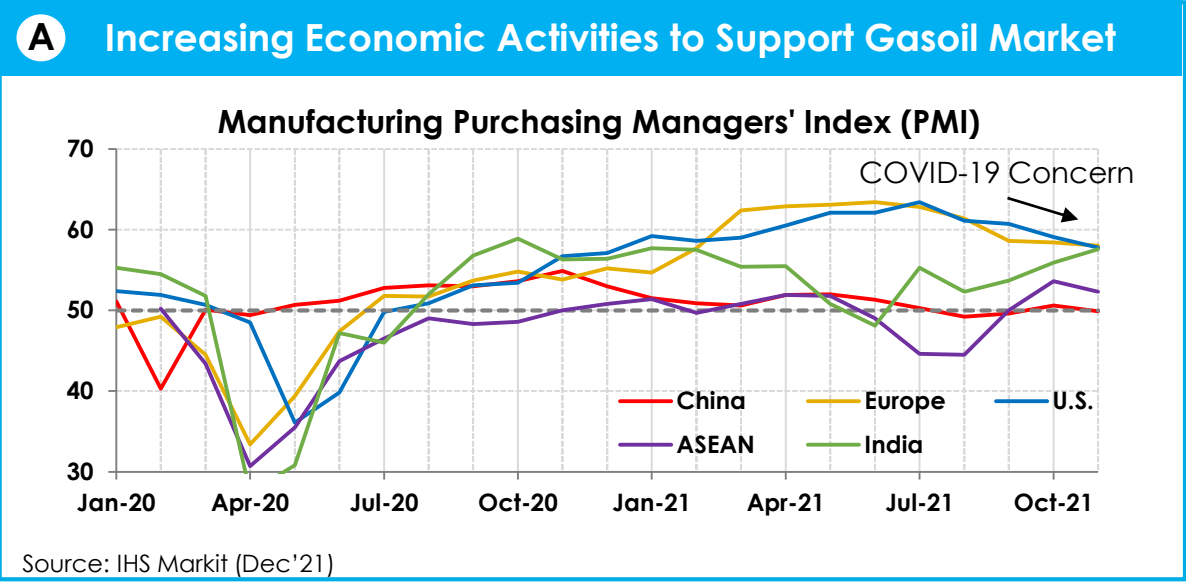


Source: Energy Aspects (Dec'21)

## Key Highlight

- Rising heating oil demand to boost kerosene market in Q4'21-Q1'22
- Continuing recovery in flight movements from easing international restrictions

# Rising Gasoil Demand on Recovering Economic Activity mainly in Asia



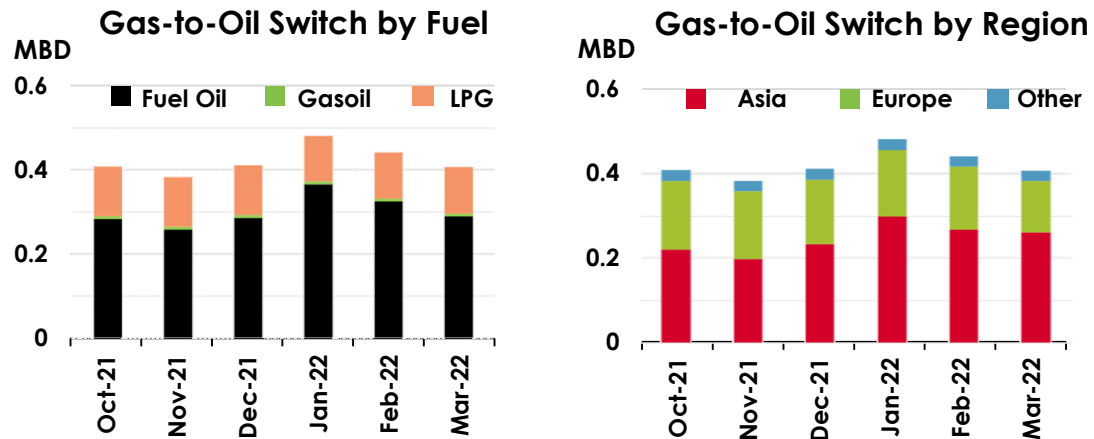
**Key Highlight**

- Recovering PMI in Europe and U.S. due to short term risks on increasing COVID cases
- Robust economic activities in ASEAN and India to support the market
- Low Chinese export to keep Asian market tight



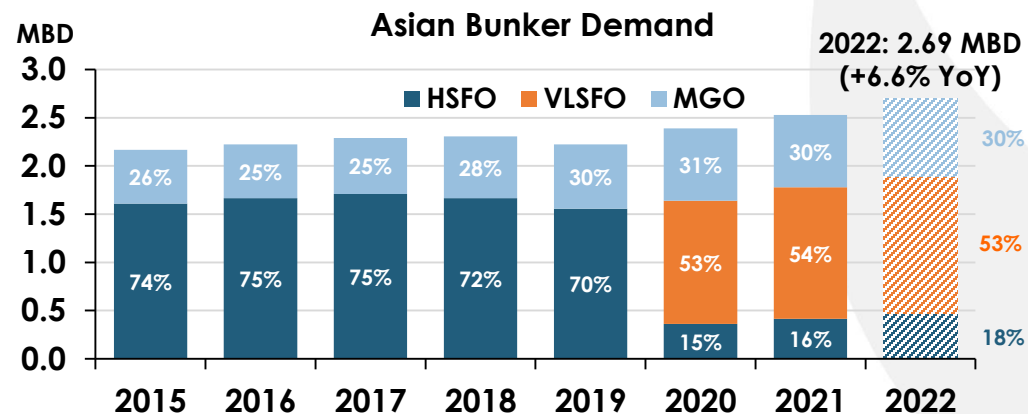
# Gas-to-Oil Switching and Recovering Trading Activity to Support Fuel Oil Market

## A Firm Fuel Oil Demand in Q1'22 on Gas-to-Oil Switching



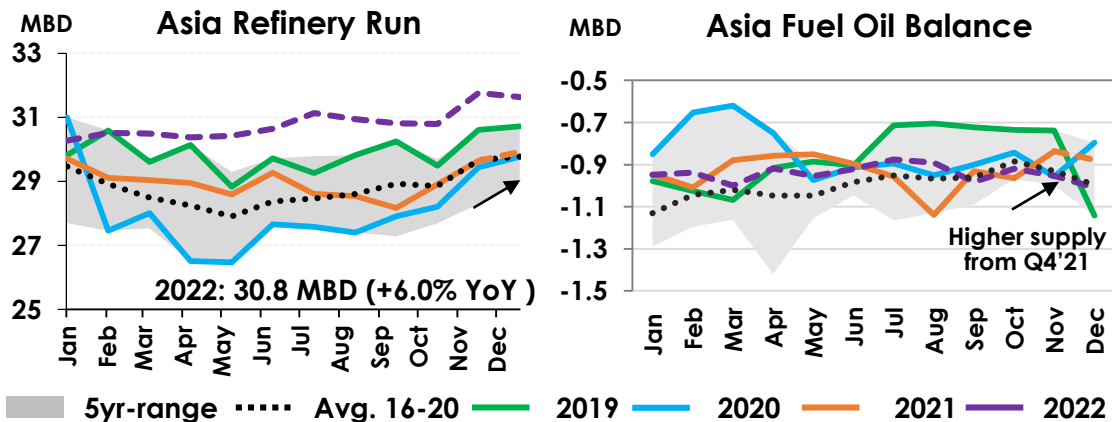
Source: Platts (Dec'21)

## B Higher Asian Bunker Demand on Recovering Trading Activity



Source: FGE (Fall'21)

## C Less Deficit Asian Fuel Oil Market on Higher Supply

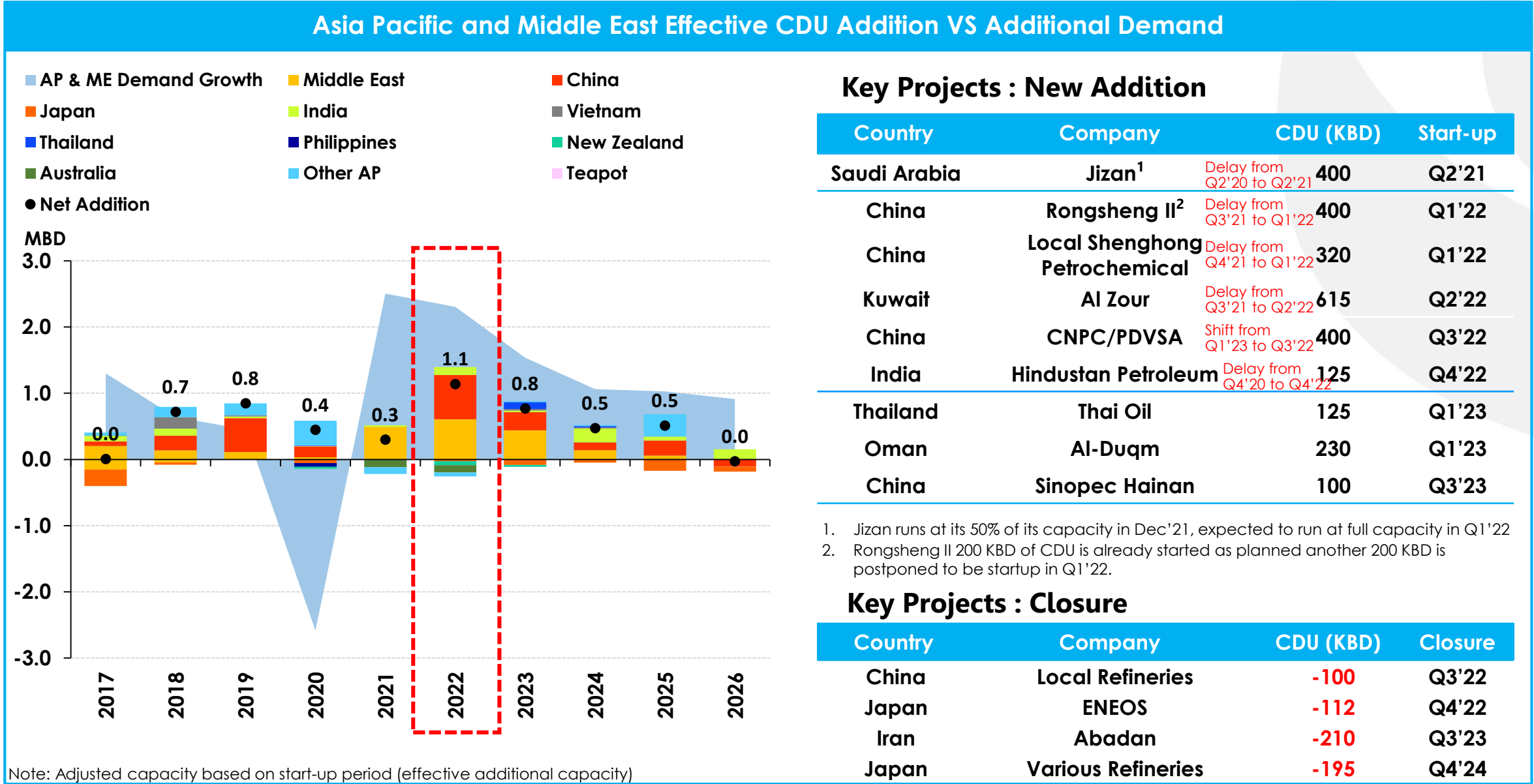


Source: FGE (Dec'21)

## Key Highlight

- High LNG price to support gas-to-oil switching demand during winter
- Improving Asian fuel oil demand on recovering economic activities with VLSFO as major demand portion for bunker
- Higher supply from increasing refinery run

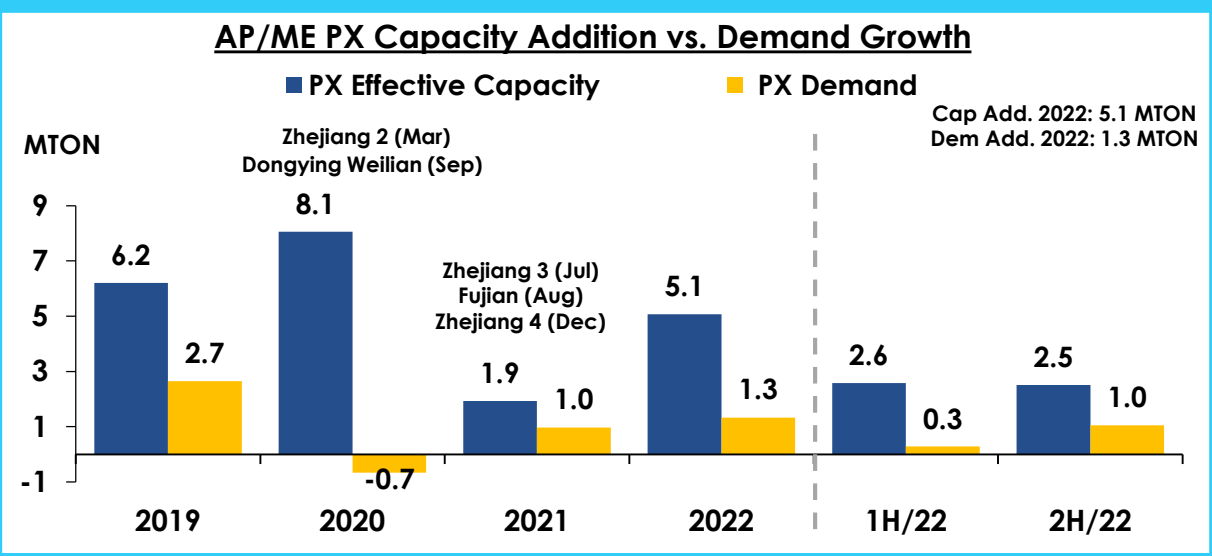
# Demand Growth to Outpace Refining Capacity Addition in Medium Term



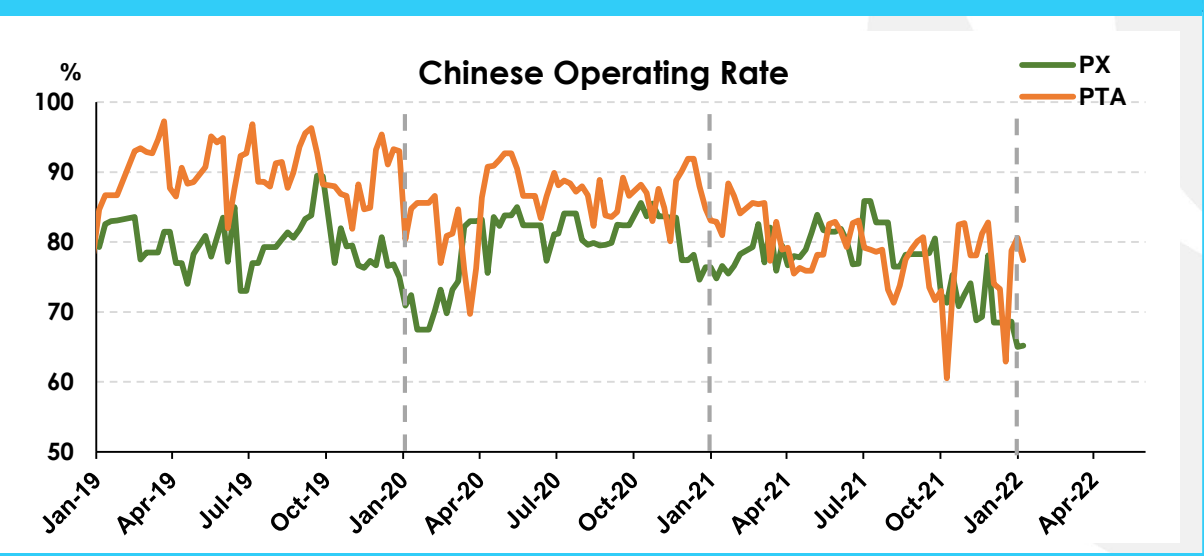
Sources: FACTs Semi Annual Reports, Fall 2021 (Nov'21), Fact Monthly Report (Dec'21), Energy Aspect (Dec'21), Platts (Dec'21) and Reuters (Dec'21)

# High PX Supply Addition in 2022 with Improve Demand especially in 2H/22

## A More New Plants Start-up amid Improve Demand in 2H/22



## B Low PX Production due to Thin Margin



## C Still High PX Plants Start-up during Dec'21 - 2022

Country	PX Company	Nameplate Capacity (KTON)	Startup Period
China	Zhejiang #4	2200	Dec'21
China	Shenghong (Lianyungang)	2800	Apr'22
China	Dongying Weilian #2	1000	Apr'22
China	Sinopec Jiujiang	890	Dec'22

## Key Highlight

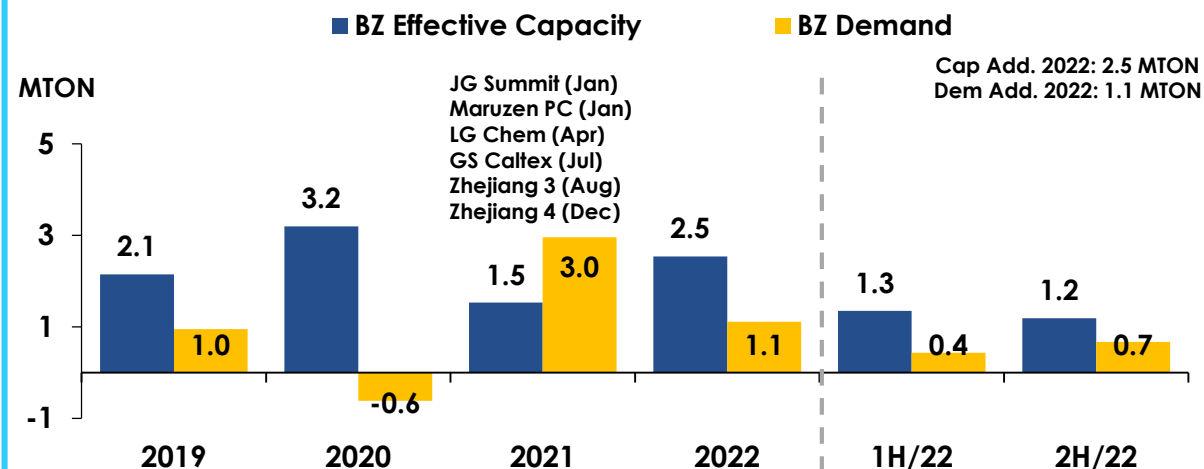
- Limited PX spread on new PX plants in 2022
- Improving demand on easing concern about Omicron in 2H/22 and improving economic growth

Source: IHS Fall 2021, WM Chemicals (Dec-21) and TOP's Estimate

# More BZ Supply mainly from China with Normal Demand Growth

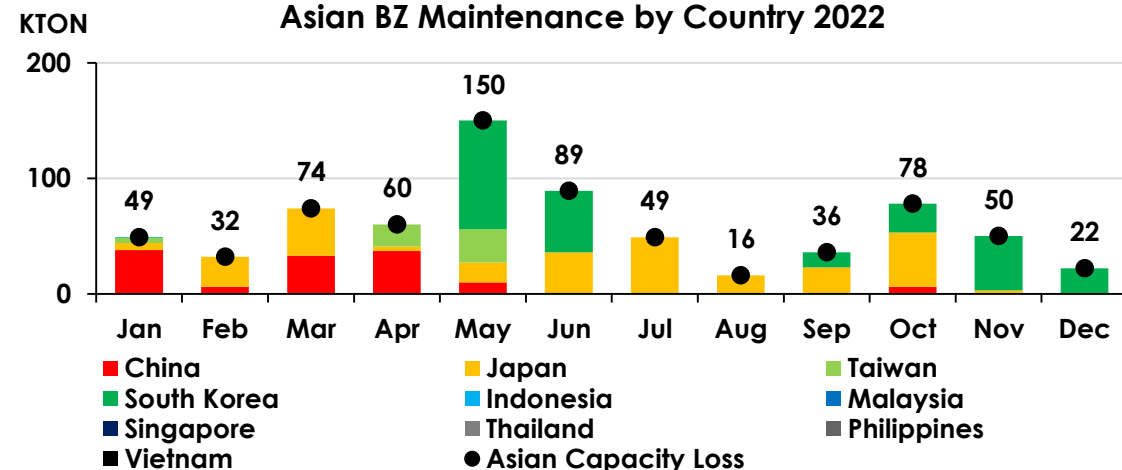
## A More New Plants Start-up amid Soft Demand from Omicron

AP/ME BZ Capacity Addition vs. Demand Growth



## B High BZ Plant Maintenance in Q2 and Decline in 2H/22

Asian BZ Maintenance by Country 2022



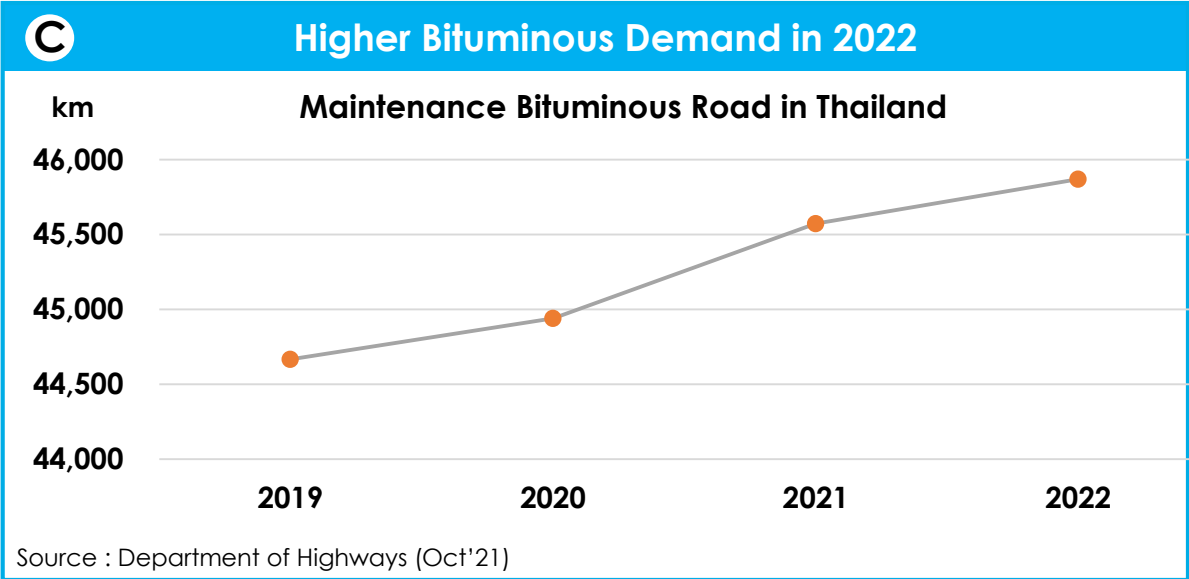
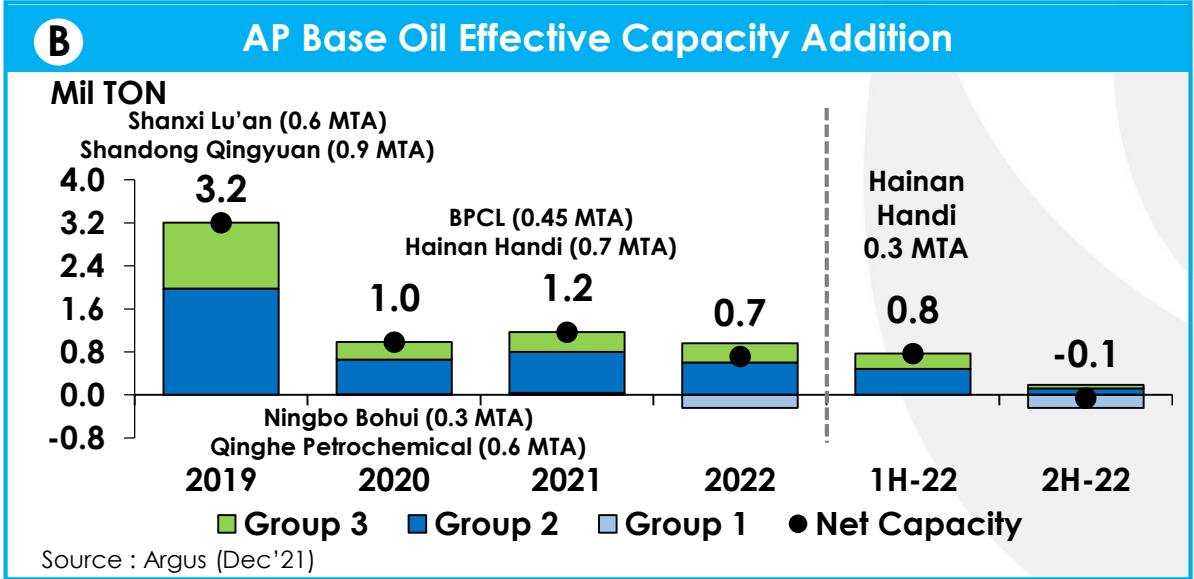
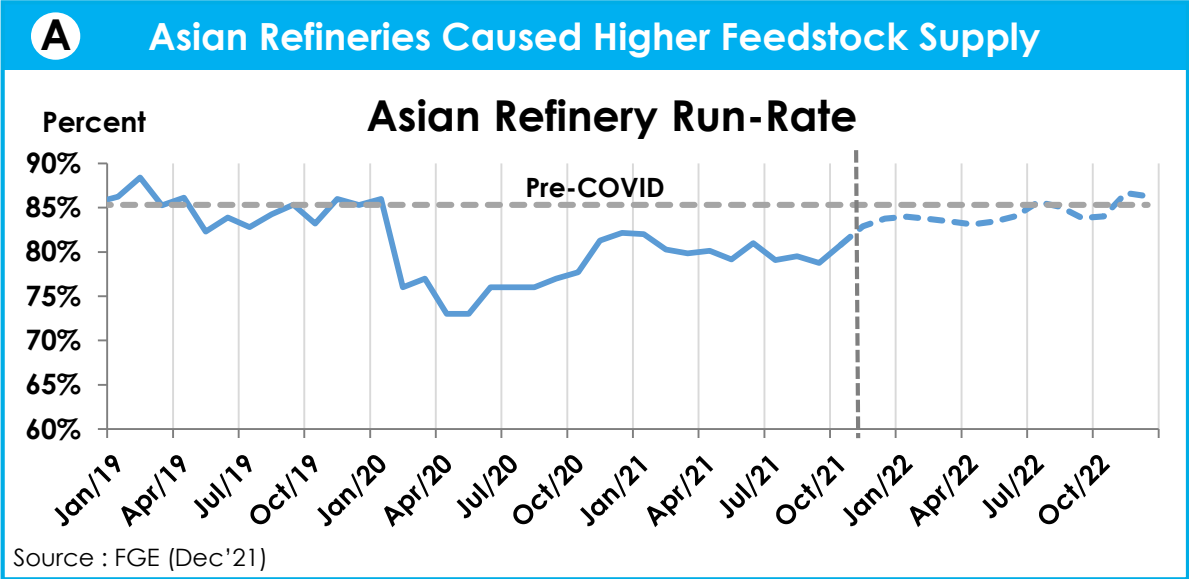
## C Still High BZ Plants Start-up in Dec'21 - 2022

Country	BZ Company	Nameplate Capacity (KTON)	Startup Period
China	Zhejiang #4	790	Dec'21
China	Fujian Gu Lei	200	Jan'22
South Korea	Hyundai Chemical	150	Jan'22
China	Shenghong (Lianyungang)	790	Apr'22
China	Dongying Weilian #2	333	Apr'22
India	HPCL Energy	240	Apr'22
China	Sinopec Jiujiang	100	Dec'22

## Key Highlight

- Softening BZ spread on new BZ plants in 2022
- Supportive downstream demand from vaccine progress and improving economic growth
- Seasonal planned maintenance in Q2 to balance the market

# Pressured Spread on Higher Lube Supply from recovering Refinery Run Rate in Asia



## Key Highlight

- Higher Lube Feedstock Supply from more refinery run rate in Asia
- Base oil plant expansion in 1H-22 from Hainan Handi (Gr.2, 300KTA) in China
- Domestic demand still grows on more distance of bituminous road in Thailand

# 2022 Outlook Conclusion

(vs. 2021)



## Crude Oil

Recovering Demand after COVID-19 Vaccines Progress amid Risks on New Variant and Higher Supply



## Refinery

Recovering Product Demand on Improving Economic Activity Support from COVID-19 Vaccines Progress



## Petchem

More Aromatics Supply mainly from China amid Continually Grow Demand  
More Asian Olefins Capacity Addition amid High Demand Level



## Lube Base

Softer Base Oil Market on Higher Lube Supply from Recovering Refinery Run Rate in Asia



# FINAL REMARKS



# Near-Term Perspective

## Key Market Highlights

- Synchronising recovery from economic re-opening across all regions boosts up demand to pre-COVID levels
- Border re-opening is expected to refuel Jet demand
- Current energy crisis further provides tail-wind to oil prices and product margins
- A sharp improvement in GRM outweighs weakness in Aromatics and Lube margins

## Thaioil's Efforts in Capitalizing on the Rebound

### Operations

- **People readiness** – booster vaccines, regular ATK sampling & universally prevention
- Swift **increase in refinery utilization**
- Strengthen **safety & reliability**

### Commercials

- Capture **more domestic sales**
- Optimize **crude mix & product yield**
- Proactively manage **commodity price risk**

### Financials

- Focus on **cost management & financial discipline**
- **Minimize overall financing costs**
- **Proactively manage FX risk exposure**

## Key Market Highlights

Q4/21 to 1H/22

Promising  
Recovery



- Prolonged weakness in GRM causing **2.3 MBD refinery closure**
- **Resuming product demand to pre-COVID drawing inventory to very low level**
- Current **energy crisis encouraging Gas-to-Oil switching** and providing upside potential

2H/22 to 2023  
Rebalancing to  
Pre-COVID Level



- **Matching demand growth and new capacity** over the period
- **Commissioning of new mega-refineries** in Asia, ME and Africa
- Potential return of **air travelling to normal** level

2024 to 2030  
**Strong Refining  
Margins Period**

Coinciding with  
CFP's completion

- **Limited investment in refinery business** amid weak margins in the past and energy transition
- **No mega-greenfield refineries expected to be built after 2024**
- **Still 10 MBD demand growth** to be met by increasing runs of existing facilities

Source : FGE's Annual World Refining Outlook (Oct'21)

## Thaioil's Efforts in Capturing Opportunities during the Upturn

Long-Term  
Strategic Execution



- Strengthen the core through **CFP project**
- Expedite existing **value chain (Aromatics, Lube & LAB)** via revamp/debottleneck & partnership
- Jumpstart & develop **Olefins** & bypass to downstream HVP
- Expedite **HVP** & rapidly expand **supply chain**
- Explore & expand **new S-curve** ventures

## APPENDIX

- Performance analysis
- Sustainability / ESG
- Refinery capacity addition
- Aromatics
- World GRM / Inventories
- Thailand petroleum demand by products

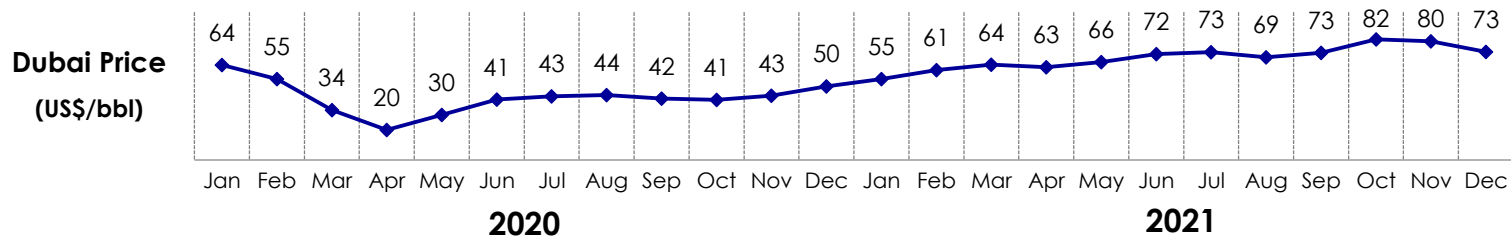


# Refinery: Stronger Mkt GRM On Improving Petroleum Demand

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## Dubai Crude Price & Key Petroleum Product Spreads

	2020				2021					2020
\$/bbl	Q1	Q2	Q3	Q4	Q1	Q2	Q3	9M	Q4	FY
DUBAI (DB)	50.9	30.6	42.9	44.6	60.0	66.9	71.7 ↑	66.2	78.4	42.2
ULG95 - DB	6.7	2.6	4.4	4.1	7.1	9.9	11.8 ↑	9.6	15.5	4.5
JET - DB	8.6	(0.1)	(0.7)	2.4	3.3	4.5	5.4 ↑	4.4	10.2	2.5
GO - DB	11.1	5.7	4.2	3.7	4.7	5.3	5.4 ↑	5.1	11.4	6.2
VLSFO - DB	13.8	5.3	3.2	5.5	7.6	5.0	4.9 ↓	5.9	7.0	7.0
HSFO - DB	(7.5)	(1.6)	(2.5)	(0.6)	(3.5)	(5.8)	(3.4) ↑	(4.2)	(6.9)	(3.0)



## Gross Refinery Margins - GRM

	2020				2021				2020
\$/bbl	Q1	Q2	Q3	Q4	Q1	Q2	Q3	9M	FY
Market GRM	0.1	1.4	(1.1)	1.2	0.7	0.4	1.6	0.9	3.1
Stock G/(L)	(12.3)	(1.8)	4.0	2.3	6.2	4.9	5.1	5.4	0.5
Accounting GRM	(12.2)	(0.4)	2.9	3.4	6.9	5.3	6.7	6.3	3.6

## Refinery Utilization

Q2/21	Q3/21	9M/20	9M/21
98%	92%	101%	97%

## % MB Intake/ MB-DB (\$/bbl)

8%/1.3	8%/2.5	23%/(0.4)	11%/1.5
--------	--------	-----------	---------

## % Middle East crude intake

53%	67%	55%	57%
-----	-----	-----	-----

## Q3/21 Market GRM

- + **Improving Gasoline spread** due to peak summer driving season demand in the U.S. and supply disruption from Hurricane Ida
- + **Increasing Middle Distillate spreads** due to improving demand from higher economic activities after lockdowns easing in the U.S. and Europe and limited Chinese petroleum export quota
- + **Improving Fuel oil spreads** due to higher demand for power generation during summer in Middle East

## Q3/21 Performance

- **Lower refinery run rate to 92%** due to softening domestic oil demand from the severe COVID-19 in Thailand

# Aromatic: Softening Contribution Pressured by BZ Margin

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## Aromatic Spreads and Margins

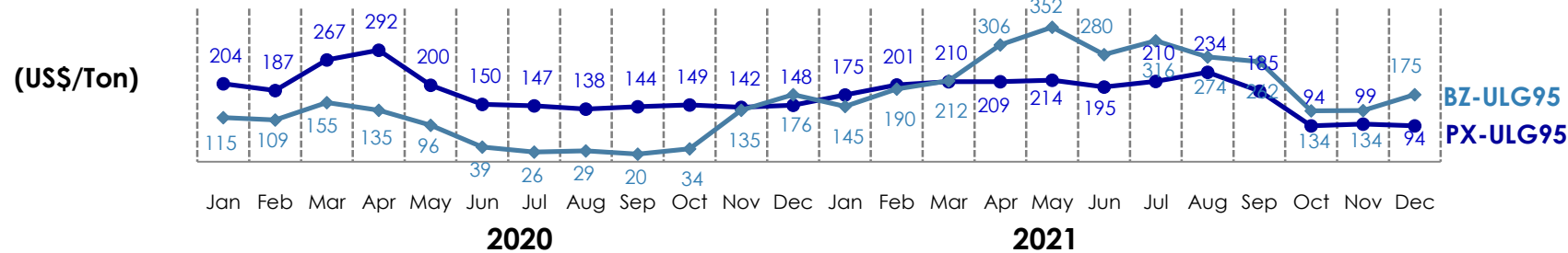
	2020				2021					2020
\$/ton	Q1	Q2	Q3	Q4	Q1	Q2	Q3	9M	Q4	FY
PX-ULG95	218	214	143	146	195	206	212 ↑	204	96	180
BZ-ULG95	126	90	25	115	182	313	287 ↓	260	148	89

## Aromatics Production

Q2/21	Q3/21	9M/20	9M/21
89%	88%	71%	86%

## Q3/21 Market

- + **Improving PX margin** following higher crude oil prices due to the recovery of economic activities
- **Softening BZ margin** due to weakening demand from power rationing in China
- + **Robust LAB Contribution** due to limited supply from LAB plant unplanned SD in China



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

(Unit : KTon)

TL  
BZ  
PX

	2020				2021				2020
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	9M	FY
P2F -\$/ton	85	77	68	76	106	112	90	103	77
P2F -\$/bbl	11.1	10.0	8.9	9.9	13.9	14.8	12.2	13.6	10.0
GIM -\$/bbl <sup>(1)</sup>	1.5	1.6	1.2	1.6	2.0	2.4	2.1	2.1	1.5

(1) Including LAB contribution

## Q3/21 Performance

- + **Maintain high utilization rate at 88%**
- + **Increasing LAB utilization rate to 118%**



# Base Oil: Softening Contribution Pressured by Lower Lube Spread

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## Base Oil & Bitumen Spreads & Margins

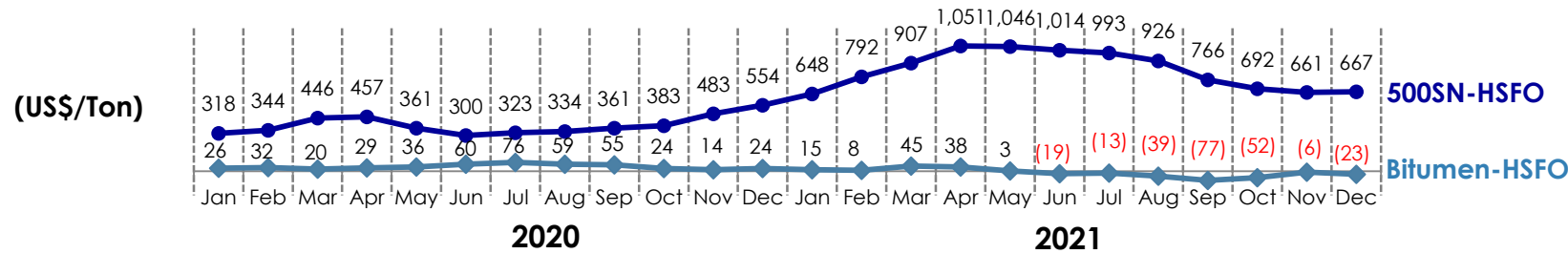
	2020				2021					2020
\$/ton	Q1	Q2	Q3	Q4	Q1	Q2	Q3	9M	Q4	FY
500SN-HSFO	369	372	340	474	783	1,037	896 ↓	905	673	389
BITUMEN-HSFO	26	42	63	21	23	7	(43) ↓	(4)	(29)	38

## Base oil Production

Q2/21	Q3/21	9M/20	9M/21
95%	88%	86%	92%

## Q3/21 Market

- **Softening Base Oil & Bitumen margins** due to higher regional supply from increasing refinery run



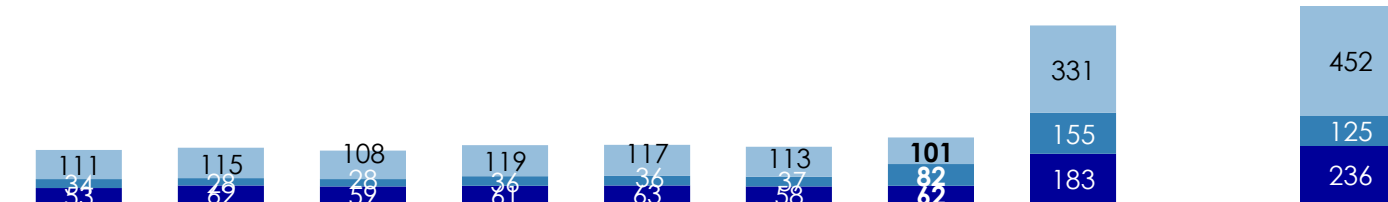
## Q3/21 Performance

- **Lower utilization rate at 88%**

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

(Unit : KTon)

- Bitumen
- Specialty
- Base Oil



	2020				2021				2020
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	9M	FY
P2F -\$/ton	86	24	100	105	170	231	187	197	79
P2F -\$/bbl	13.1	3.6	15.1	15.9	25.7	34.9	28.4	29.8	11.9
GIM -\$/bbl	0.6	0.0	0.8	0.8	1.5	2.4	1.8	1.9	0.5

# Power Sector Performance...Stable Contribution to the Group

## Power Business Sector

SPP



Equity holding in

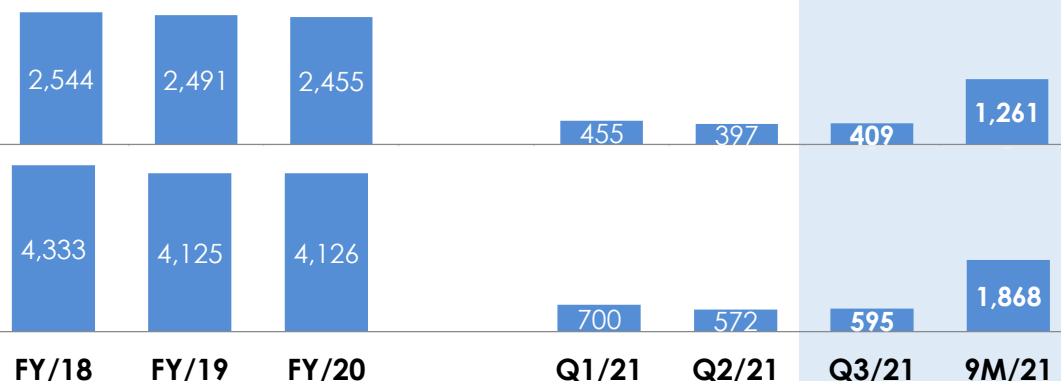


### Power & Steam Sales

Electricity<sup>(1)</sup>  
(GWh)

Steam<sup>(1)</sup>  
(kton)

(1) 100% of TP and TOP SPP



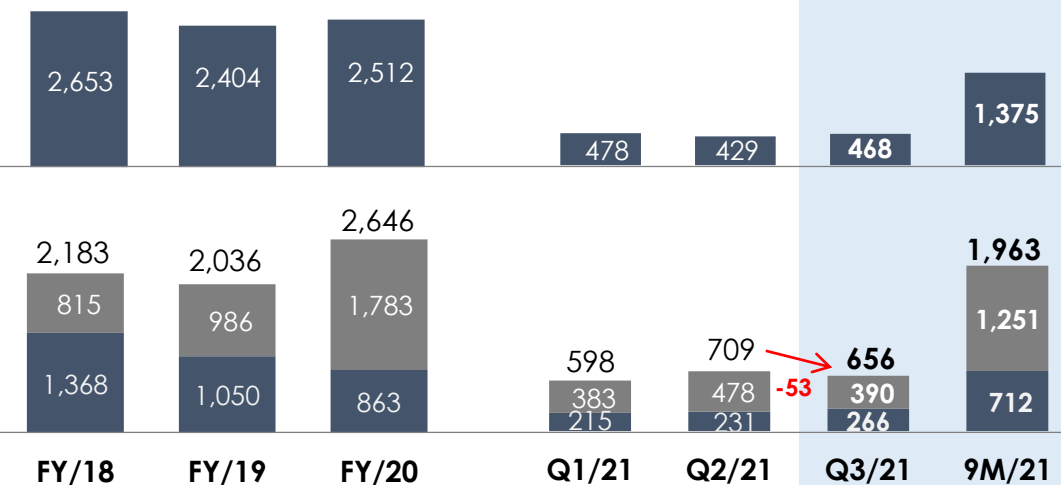
### EBITDA & Net Profit

EBITDA<sup>(2)</sup>  
(THB million)

(2) Consolidated EBITDA of TP and TOP SPP

Net Profit<sup>(3)</sup>  
(THB million)

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



### Q3/21 Performance Highlight

- Slightly lower power business contribution mainly from lower contribution from GPSC

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

(4) Thaioil Power(TP) completely transferred whole business to be under TOP in Feb'21

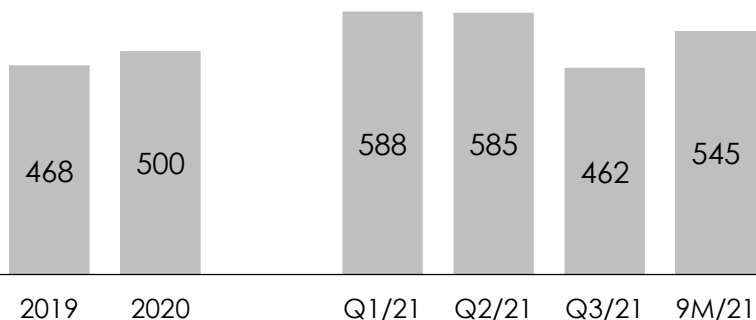
(5) TOP shareholding in GPSC decreased from 24.29% to 15.38% in Nov'20 – Jan'21, and increase to 20.78% in Feb'21 after TP's EBT completion

# Olefins Business : Softening Petrochemical Spreads

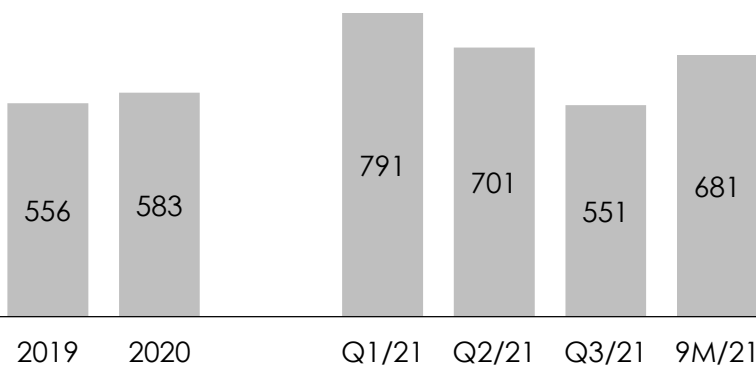
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## Olefins Product Spreads

### HDPE CFR SEA - NaphJ (\$/TON)



### PP CFR SEA - NaphJ (\$/TON)

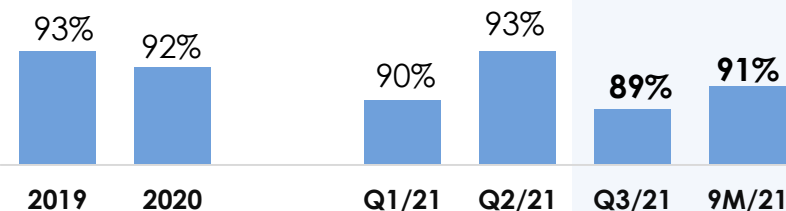


## Q3 & 9M/21 Performance Highlight

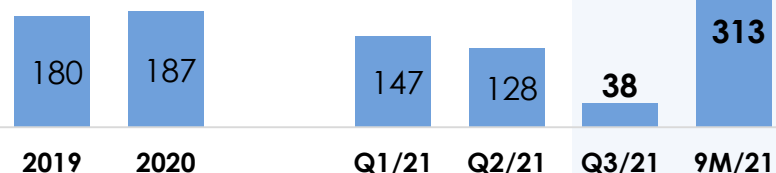
### CAP Performance



#### % Utilization



#### EBITDA (million USD)



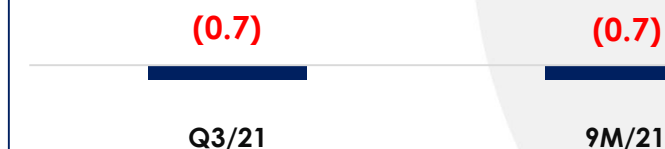
#### Net Profit (million USD)



### TII Performance



#### Net Profit (million USD)



TOP Investment Indonesia (TII) recorded share of gain in associate from Sep'21 onwards (equity method), with net loss of 0.73 M\$ in Sep'21 (0.47 M\$ from 15% equity stake in CAP and 0.26 M\$ from TII sole)

### Q3/21 Performance Highlight

- **Lower contribution** due to
- **Higher naphtha price** on tight supply and firm demand from naphtha-feed steam cracker
- **Softening petrochemical spreads** due to new additional supply in China and weak downstream demand in from the peak of COVID-19 pandemic in South East Asia especially Indonesia

# Performance Breakdown

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	Petroleum	Petrochemical & Lube Base <sup>(1)</sup>	Power <sup>(2)</sup>	Others & New Business <sup>(3)</sup>	Consolidated Net Profit (incl. Stock G/(L))	Stock Gain/ (Loss)	Consolidated Net Profit (excl. Stock G/(L))
Q2/21	(1,014)	2,302	709	260	2,123	3,783	(1,660)
Q3/21	(1,312)	2,017	656	786	2,063	3,915	(1,852)
9M/20	(13,496)	1,509	2,135	658	(10,559)	(9,190)	(1,369)
9M/21	(1,428)	5,751	1,963	1,425	7,545	12,354	(4,809)

## Q3/21 Key Points

### Petroleum

- Lower utilization rate to 92% in Q3/21 from 98% in Q2/21
- Stronger market GRM (from \$0.4/bbl in Q2/21 to \$1.6/bbl in Q3/21)
- Huge stock gain of \$5.1/bbl following rising crude prices

### Power

- Higher contribution from TOP SPP due to higher average selling prices following rising natural gas prices and higher electricity demand from EGAT
- Lower contribution from GPSC mainly from Glow Ph5 incident and lower IU contribution from higher fuel cost

### Petrochemical & Lube

- **Aromatics & LAB** : softening contribution pressured by lower BZ margin due to weakening demand from power rationing in China
- **Olefins** : softening contribution from lower PE, PP margins due to additional capacity and weak demand from the worst of COVID-19 in South East Asia
- **Lube** : softening contribution pressured by weakening lube & bitumen spread from higher regional supply from increasing refinery run

### Others & New Business

- **Solvent** : slightly lower contribution due to narrower gross margin from weak demand from the new wave of COVID-19 in South East Asia
- **Ethanol** : higher contribution from gain on selling UBE shares during IPO and the reclassification of the remaining shares to investment, totaling 624 mn baht

(1) Including Olefin business from 15% of CAP net profit and 75% of LAB net profit

(2) Apply on an equity accounted basis in the consolidated financial statement.

(3) Consisting of Solvent, Ethanol and other business

# Q3 & 9M/21 TOP Group Consolidated P&L

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(Unit : million baht)	Q2/21	Q3/21	QoQ+ / (-)	Q3/20 Represented	YoY+ / (-)	9M/20 Represented	9M/21	YoY+ / (-)
Sales Revenue	78,120	79,960	1,840 <sup>(A)</sup>	57,117	22,843	182,932	231,530	48,598 <sup>(C)</sup>
Net Realized G/(L) on Financial Instrument	(56)	(479)	(423)	144	(623)	80	(654)	(734)
<b>EBITDA</b>	<b>7,003</b>	<b>6,784</b>	<b>(219)</b> <sup>(B)</sup>	<b>3,819</b>	<b>2,965</b>	<b>(5,549)</b>	<b>22,060</b>	<b>27,609</b> <sup>(D)</sup>
<b>EBITDA excl. Stk G/(L)&amp;NRV</b>	<b>3,291</b>	<b>3,149</b>	<b>(142)</b>	<b>455</b>	<b>2,694</b>	<b>4,273</b>	<b>9,948</b>	<b>5,675</b>
Net G/(L) on FV of Financial Instrument	(1,043)	(1,429)	(386)	33	(1,462)	45	(2,256)	(2,301)
FX G/(L) & CCS	(1,286)	(1,228)	58	(458)	(770)	(754)	(5,118)	(4,364) <sup>E)</sup>
Financial cost	(907)	(934)	(27)	(1,155)	221	(3,253)	(2,637)	616
Tax Expense	(358)	(213)	145	(34)	(179)	3,031	(959)	(3,990)
<b>Net Profit</b>	<b>2,123</b>	<b>2,063</b>	<b>(60)</b>	<b>715</b>	<b>1,348</b>	<b>(10,559)</b>	<b>7,545</b>	<b>18,104</b>
EPS (THB/Share)	1.04	1.01	(0.03)	0.35	0.66	(5.18)	3.70	8.88
Stock G/(L) and NRV	3,712	3,635	(77)	3,364	271	(9,822)	12,112	21,934
THB/US\$ - average selling	31.53	33.10	1.57	31.49	1.61	31.68	31.71	0.03
THB/US\$ - ending	32.22	34.09	1.87	31.83	2.26	31.83	34.09	2.26

## Analysis

### QoQ

**(A) Higher sales revenue due to improving average selling prices**

**(B) Lower EBITDA from higher loss on financial instrument**

### YoY

**(C) Higher sales revenue due to higher average selling prices**

**(D) Higher EBITDA from improving MKT GIM and huge stock gain**

# Q3 & 9M/21 Consolidated Cash Flow

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(Unit: MB)

	9M/20 Represent	9M/21
<b>Operating Cash Flow (CFO)</b>	<b>(2,568)</b>	<b>4,234</b>
Net income	(10,092)	7,912
Depreciation & NRV	7,300	5,490
Other adj.	(1,041)	8,084
Change in working capital	1,266	(17,252)

	9M/20 Represent	9M/21
<b>Investing Cash Flow (CFI)</b>	<b>(71,846)</b>	<b>(35,415)</b>
Dividend income	1,489	1,110
ST investments	(40,849)	19,162
Sell / (Invest) in a associate	-	(29,798)
CAPEX (PP&E) & others	(32,486)	(25,888)

<b>Free Cash Flow (CFO + CFI)</b>	<b>(74,413)</b>	<b>(31,181)</b>
-----------------------------------	-----------------	-----------------

<b>Financing (CFF)</b>	<b>23,823</b>	<b>1,425</b>
Loans proceeding	6,044	28,564
Loans repayment	(6,541)	(9,101)
Bond issue	31,120	(3,000)
Interest	(4,306)	(4,749)
Dividend & Lease	(2,495)	(10,290)

<b>Beginning 2021</b>				<b>Ending Q3/21</b>
Cash				Cash
53,244	+	Increase / (Decrease)	Effect of FX changes <sup>(1)</sup>	24,749
		(29,757)	1,262	
Cash + S/T Investment				Cash + S/T Investment
71,681				25,077

(1) Effect of FX changes mainly from the FX gain/loss of FCD



# ESG/Sustainability Highlights

## Environmental

Toward Green Economy

### Greenhouse Gases (GHGs)

- Reduced 4% direct GHG emission from BAU by 2022
- Participated in low emission supporting scheme: LESS and Thailand voluntary mission reduction program: T-VER



### Circular Economy

- **Water and Waste Management**
  - Water Saving: Study pilot projects of "Reverse Osmosis" for seawater and for recycling wastewater



- 3Rs in process: Zero waste to landfill
- **Energy Efficiency**
  - 19 Energy efficiency projects solar cell at engineering building center
- **Green Label Focus**
  - Green procurement: ISO 20400

## Social

Toward Better Quality of Life

### Communities

- Thaioil CSR program supported medical staffs and communities with hygiene equipment including protective suits PAPR, cloth masks, face shields, and alcohol gel hand sanitizer



### Health care

- **Sustainable energy for health care**  
Installed solar roof for 3 hospitals, Leam-Chabang, Panusnikom, Banbueang hospital



## Governance

Toward Transparency

### Structure & Oversight

- **Sustainable Procurement**
  - 100% of strategic supplier signed acknowledge on "Thaioil Group Supplier Code of Conduct"
  - Strengthen ESG practices and performance in supply chain through ISO 20400 : "Sustainable Procurement"



### Transparency

- **Strengthen GRC**
  - Continue with GRC Roadmap Implantation
  - Applying digital technologies in the GRC Process
- **ZERO case non-compliance & fraud incidents**
  - Operated without corruption cases
  - Operated without cases of non compliance with business ethics



**Zero** case of non-compliance & fraud incidents through GRC roadmap

# ESG/Sustainability Highlights 2020 – Q3/2021

Member of  
**Dow Jones  
Sustainability Indices**  
Powered by the S&P Global CSA

**Industry Leader**  
in oil & gas refining and  
marketing industry for 6  
years  
8<sup>th</sup> consecutive year  
recognized as member

**Sustainability Award**  
Gold Class 2021  
**S&P Global**

**Sustainability Award  
(Gold Class)**  
in oil & gas refining and  
marketing industry for 7  
years from 2014 – 2018  
& 2021

**INTEGRATED  
REPORTING** <IR>  
**Leading Practices**

**Leading Practices**  
for Business Model-Value  
Creation disclosed IR 2019



**Platinum Award**



**The Wall Street Journal  
(WSJ)**  
**Most Sustainable  
Companies**



**Sustainability  
Awards of Honor**  
in SET Awards for  
4<sup>th</sup> Consecutive  
Years



**Listed in Thailand  
Sustainability  
Investment as  
sustainable stock**  
in SET THSI index for  
7<sup>th</sup> Consecutive year

## Environment



**Energy Efficiency**  
2020 Certificate of Honor for  
Role Model Organizations in  
Greenhouse Gas Reductions



**LCSi Awards**  
2021 Excellence Awards for the  
Low Carbon and Sustainable  
Business Index (LCSi) project

## Society



**Sustainable Energy for Health Care**  
2020 Prime Minister's Industry Awards  
for outstanding achievements in CSR



**Human rights management**  
2021 Human Rights Awards

## Governance & Economics



**Corporate Governance**  
One of the top 3 Thai listed companies  
with The highest ASEAN CG Score

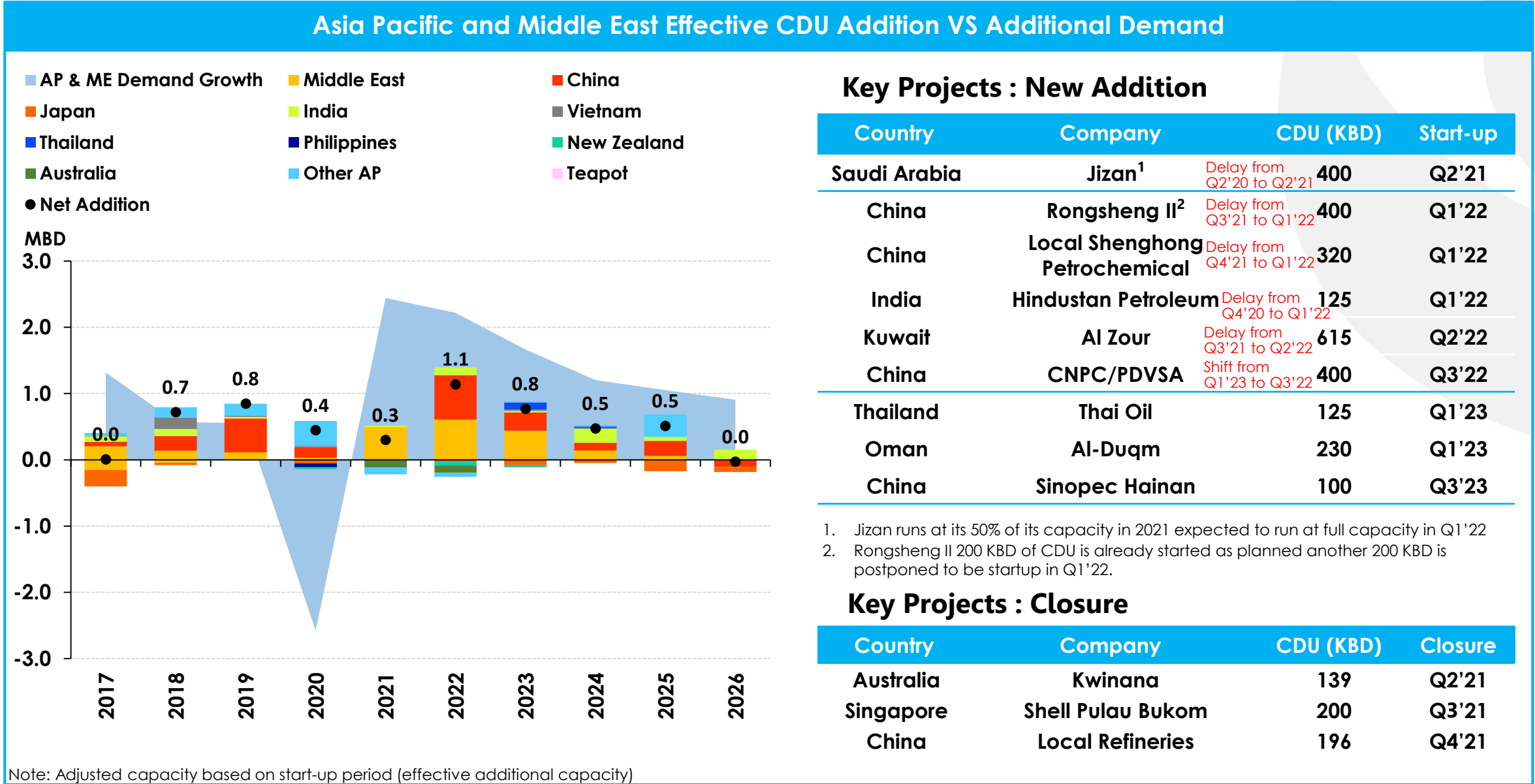


**Corporate Governance**  
Maintains the "Excellence" level of CGR  
Score for 12<sup>th</sup> consecutive year



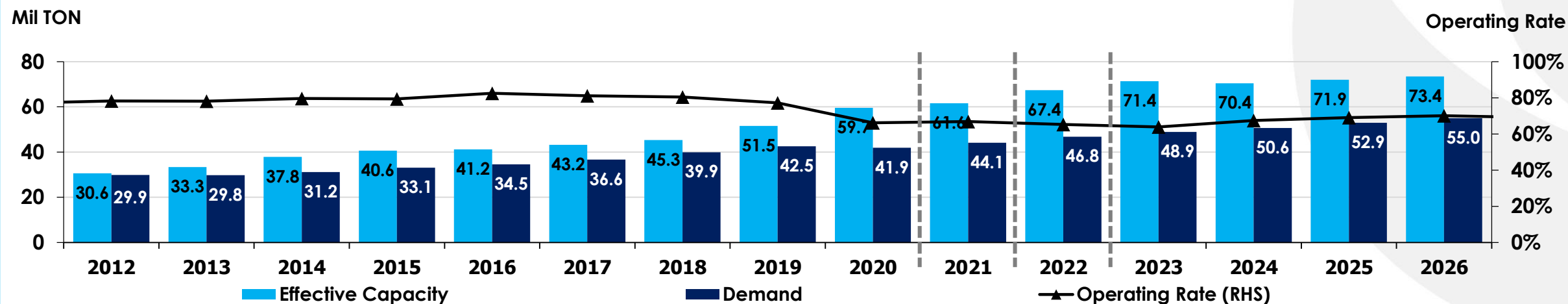
**Sustainable Procurement**  
Accredited by the 3<sup>rd</sup> party for ISO 20400  
for Sustainable Procurement process

# Demand Growth to Outpace Refining Capacity Addition in Medium Term

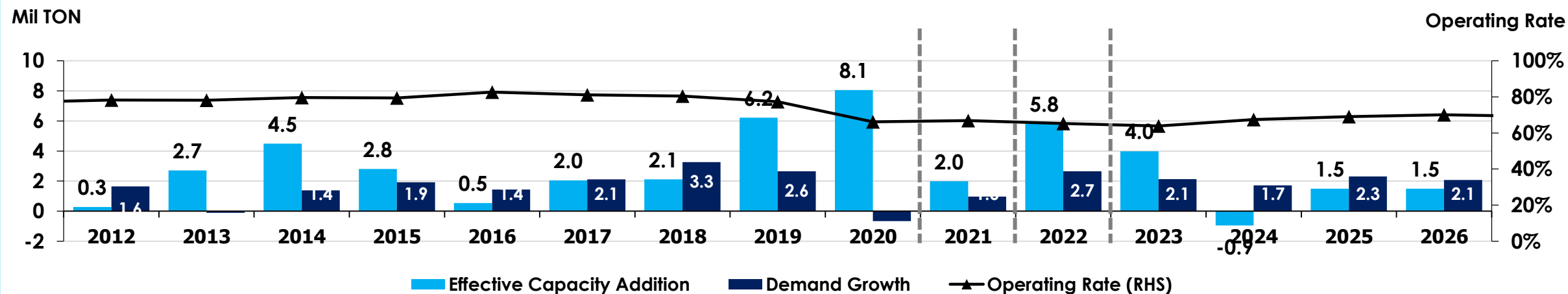


# AP/ME PX Balance

## AP/ME PX Supply Demand Balance

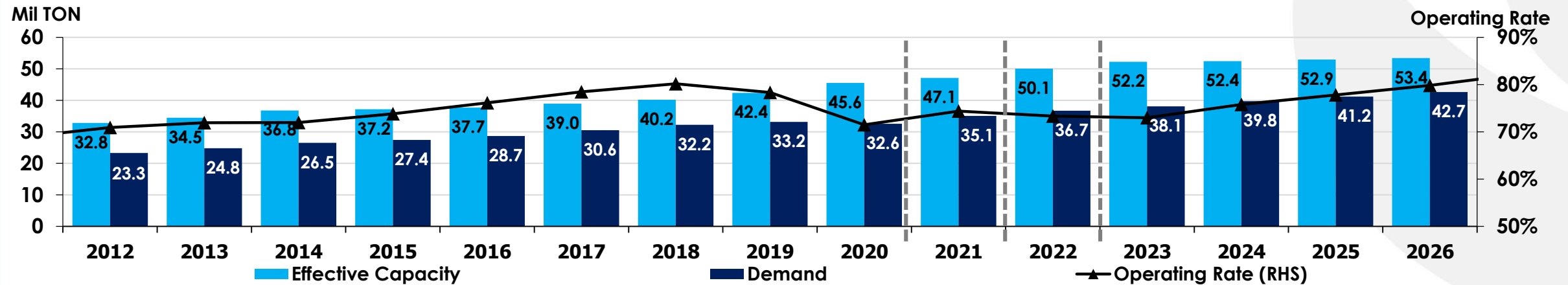


## AP/ME Effective Capacity Addition and Demand Growth

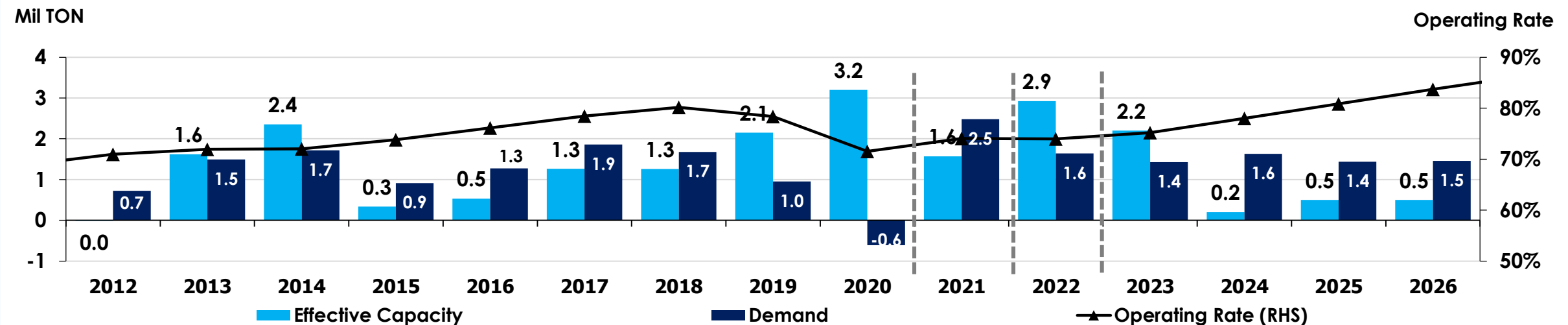


# AP/ME BZ Balance

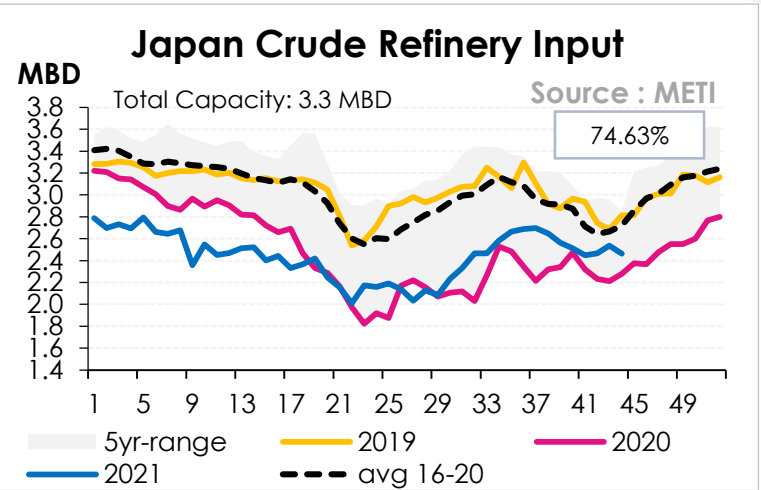
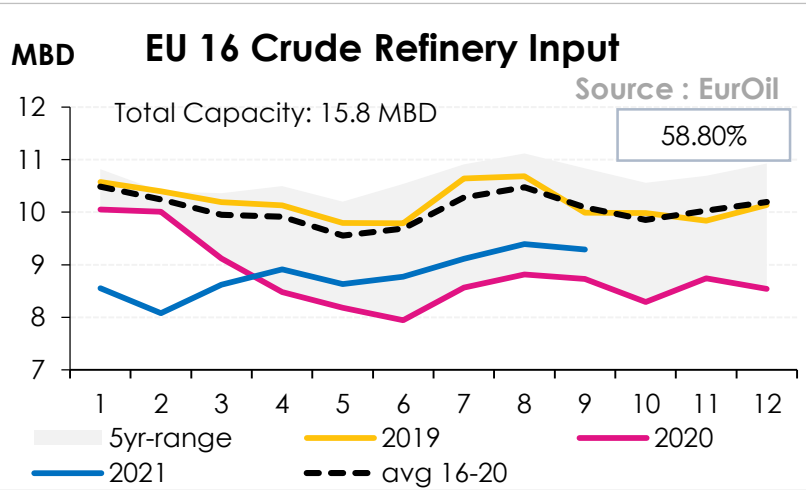
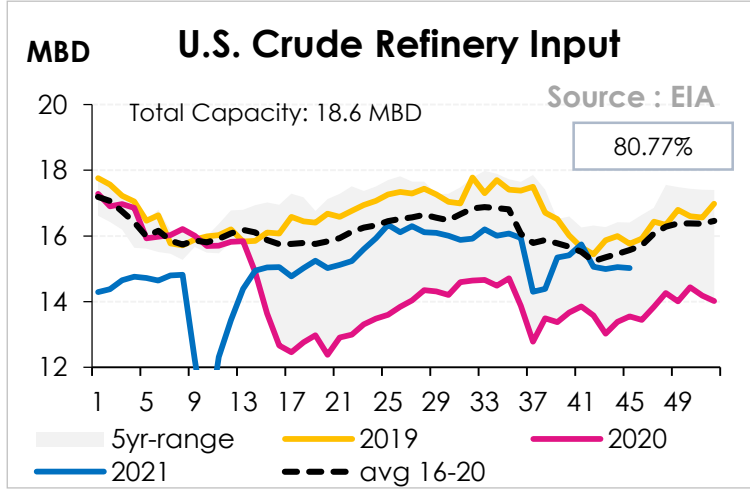
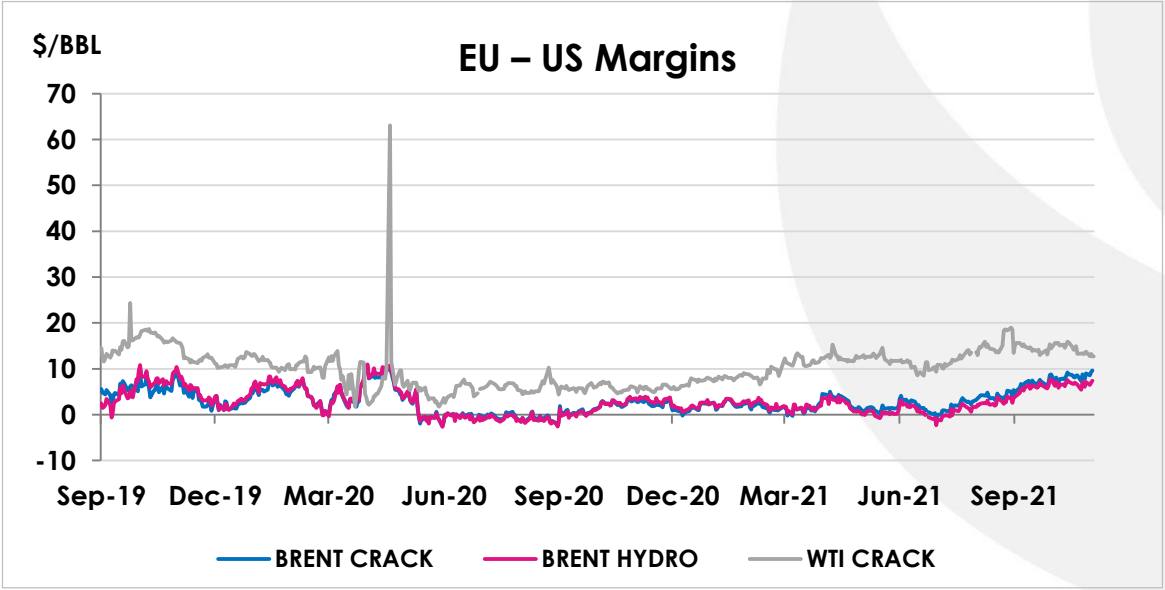
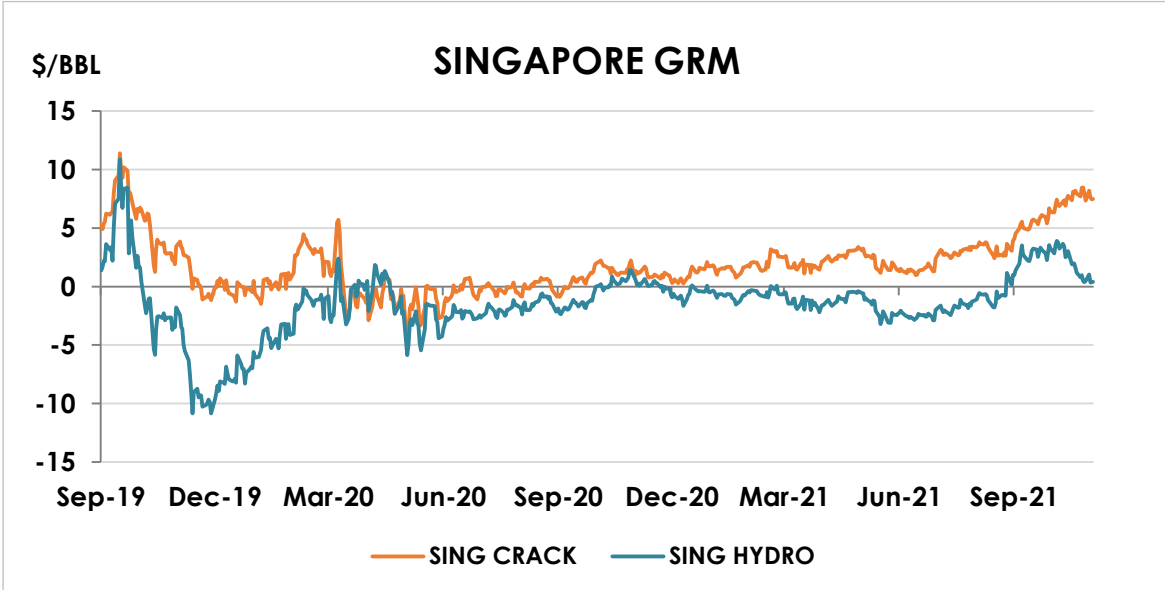
## AP/ME BZ Supply Demand Balance



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

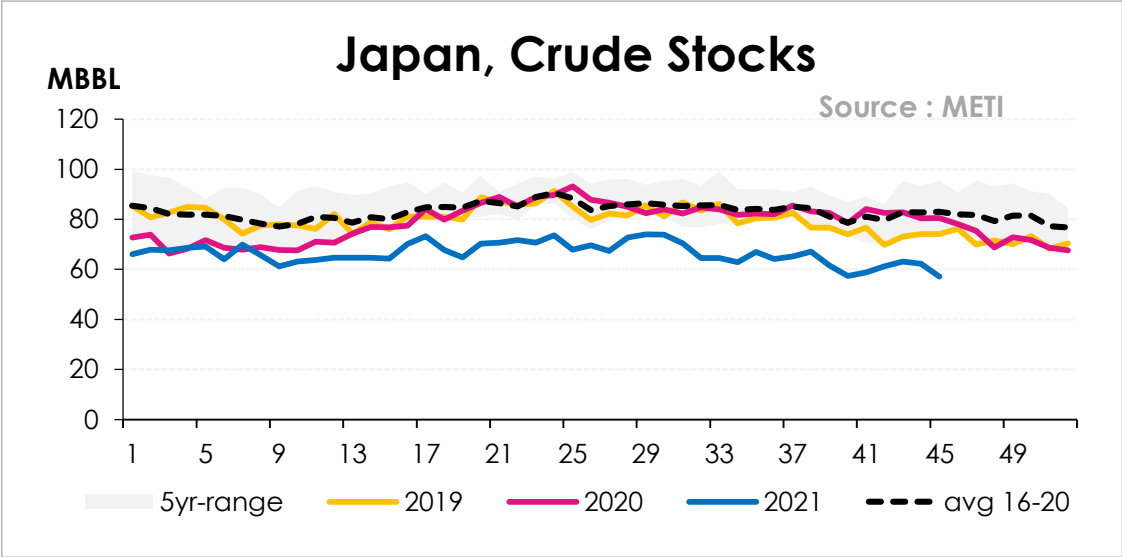
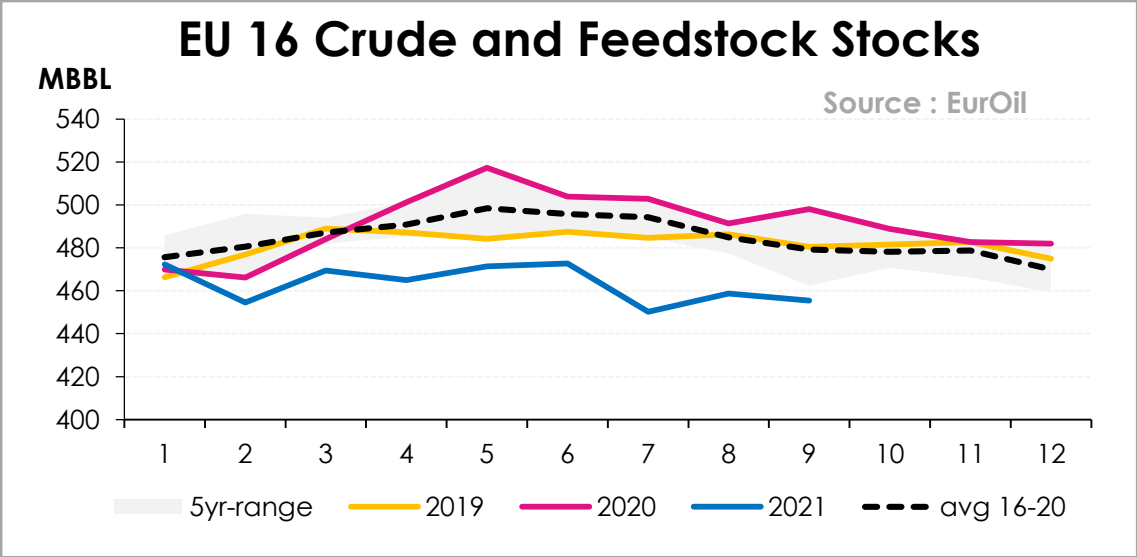
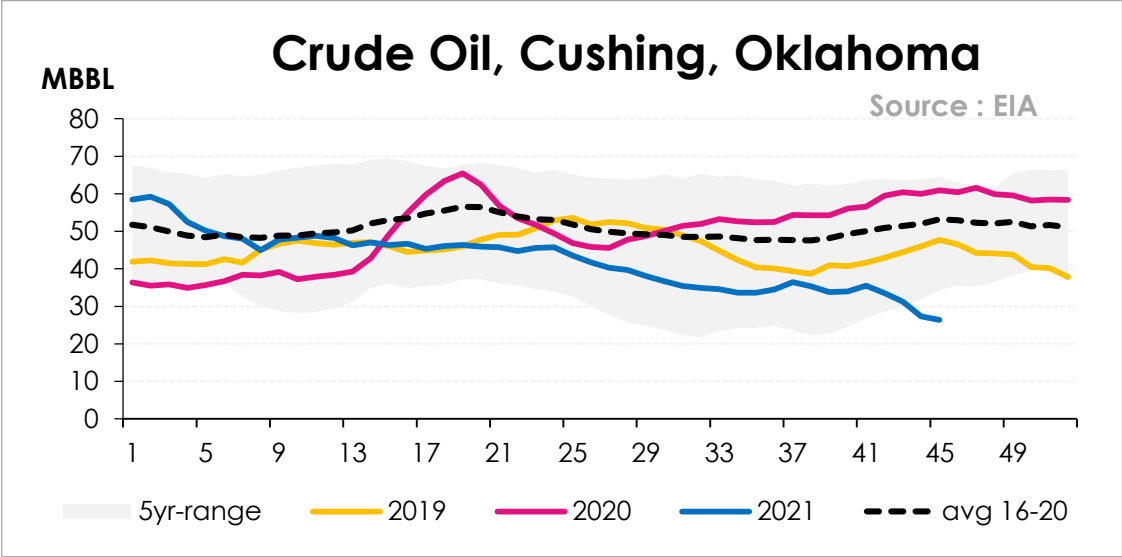
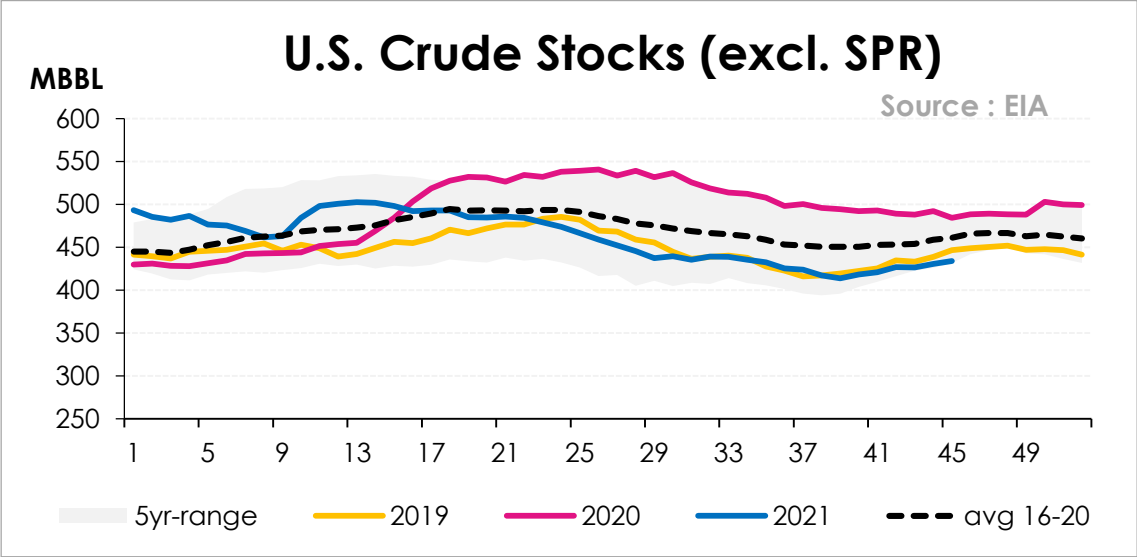


# Asian Margin Vs. US-EU margin

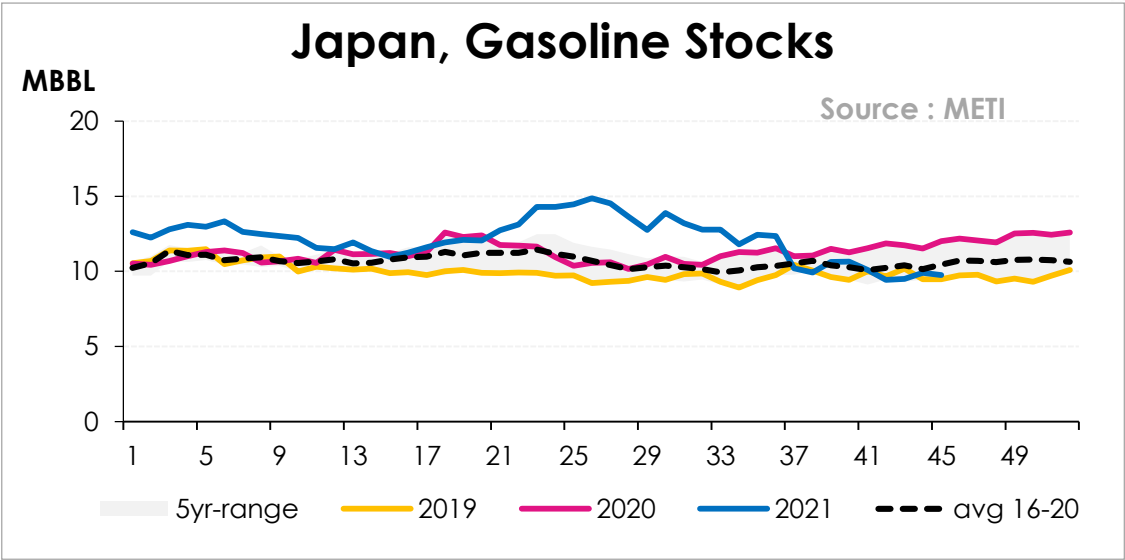
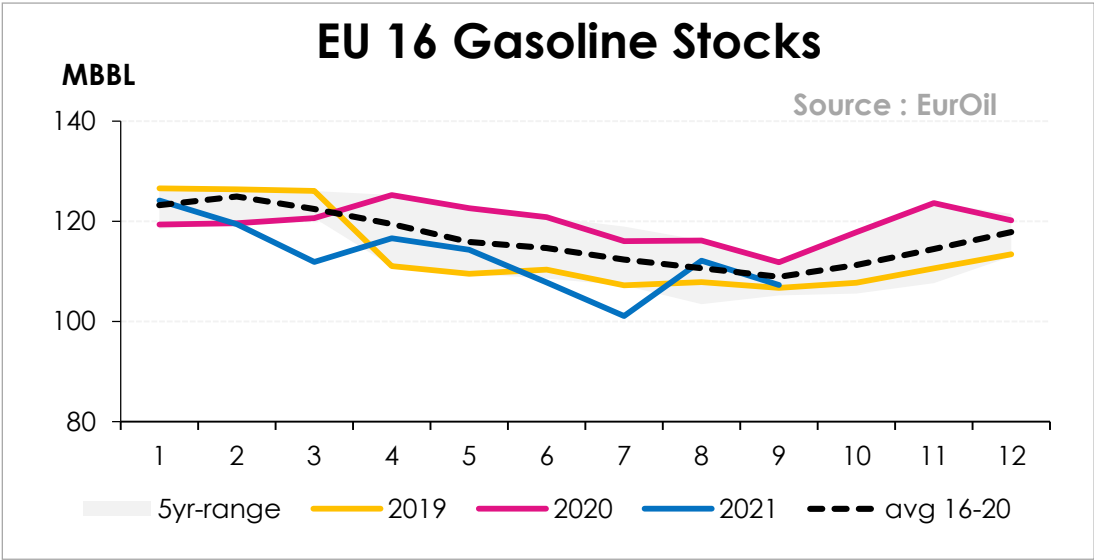
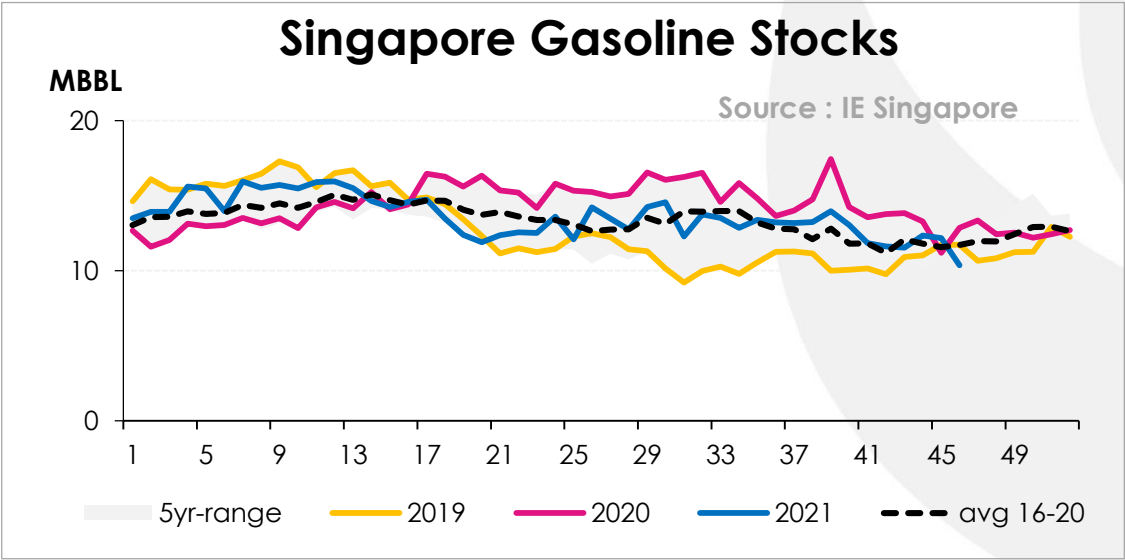
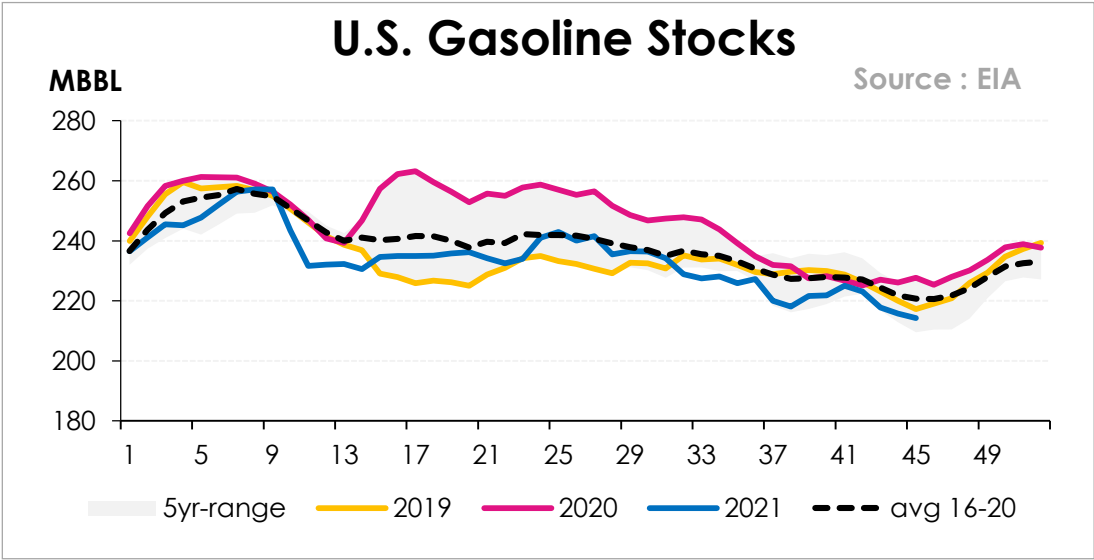




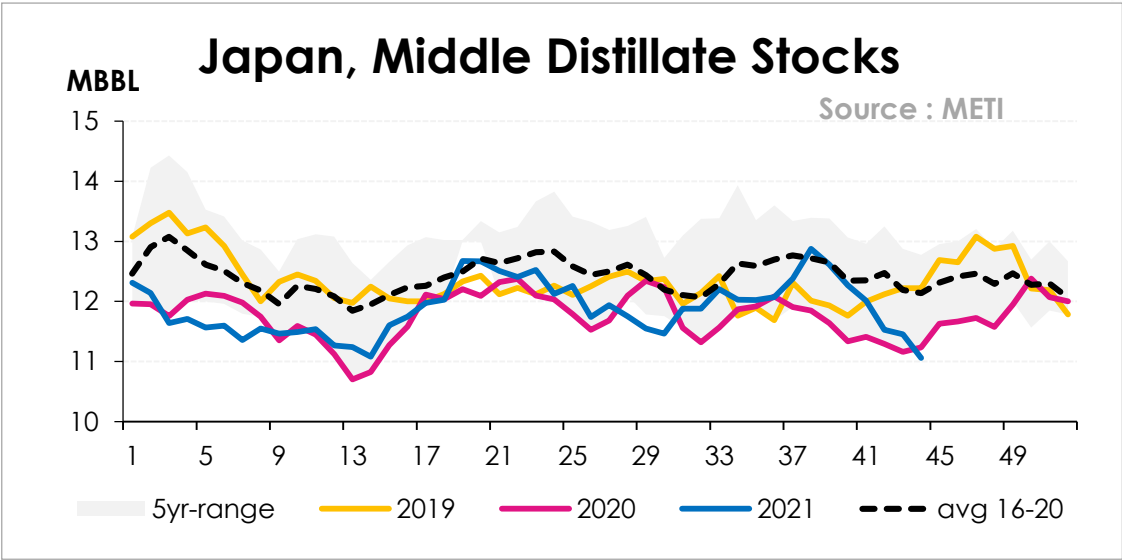
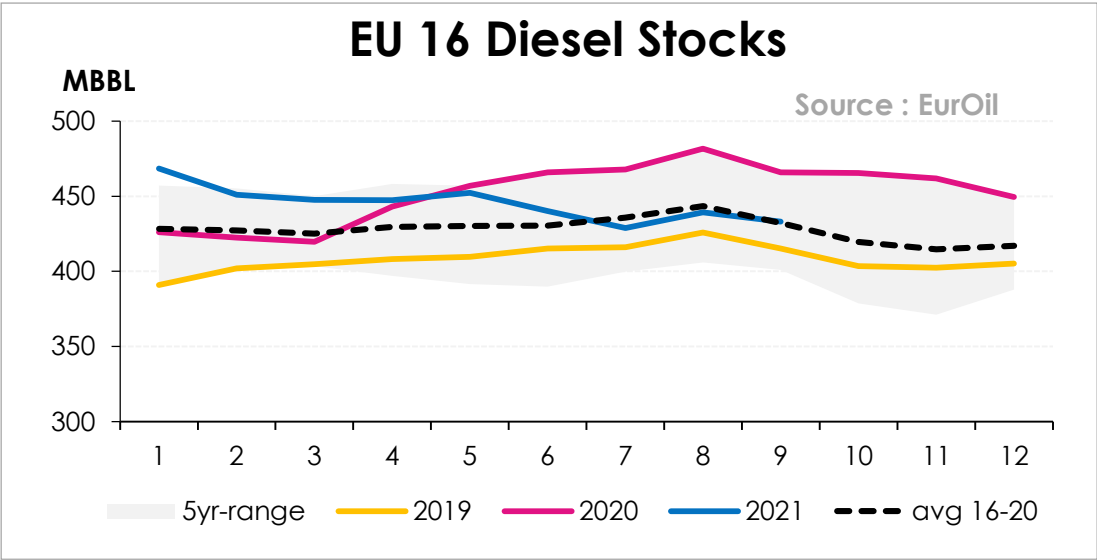
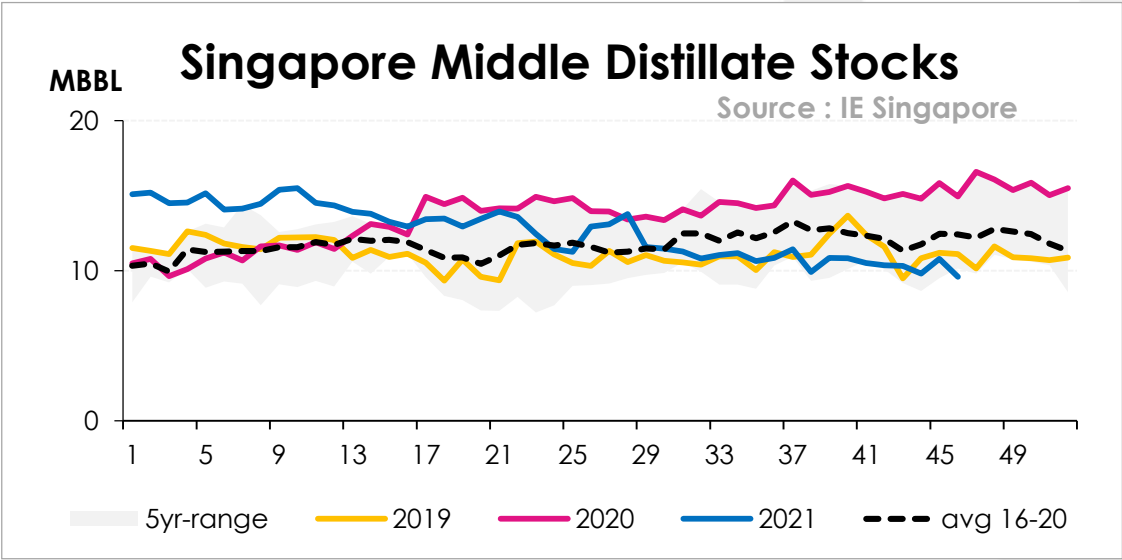
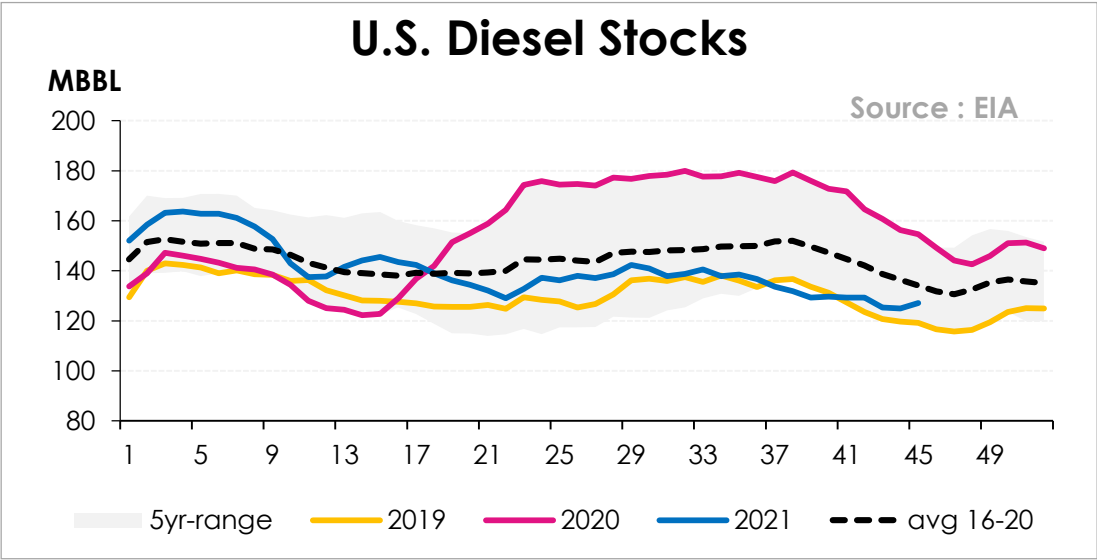
# Global Crude Oil Inventories



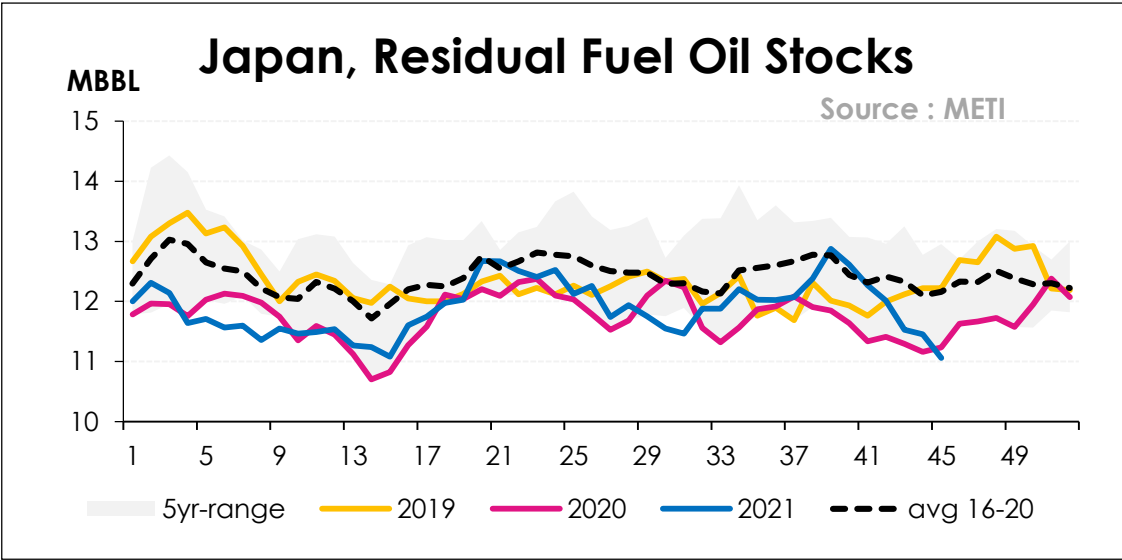
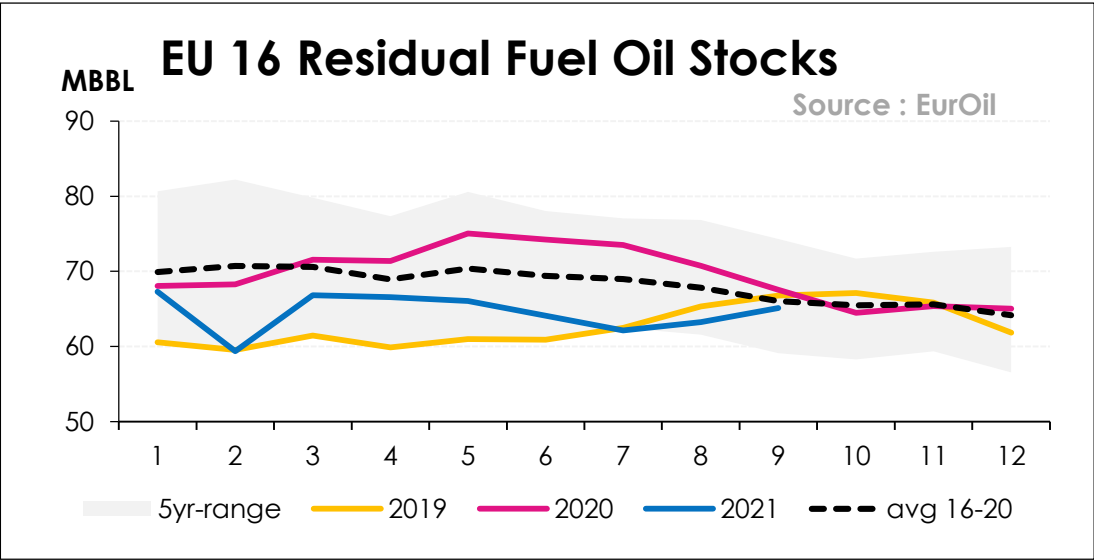
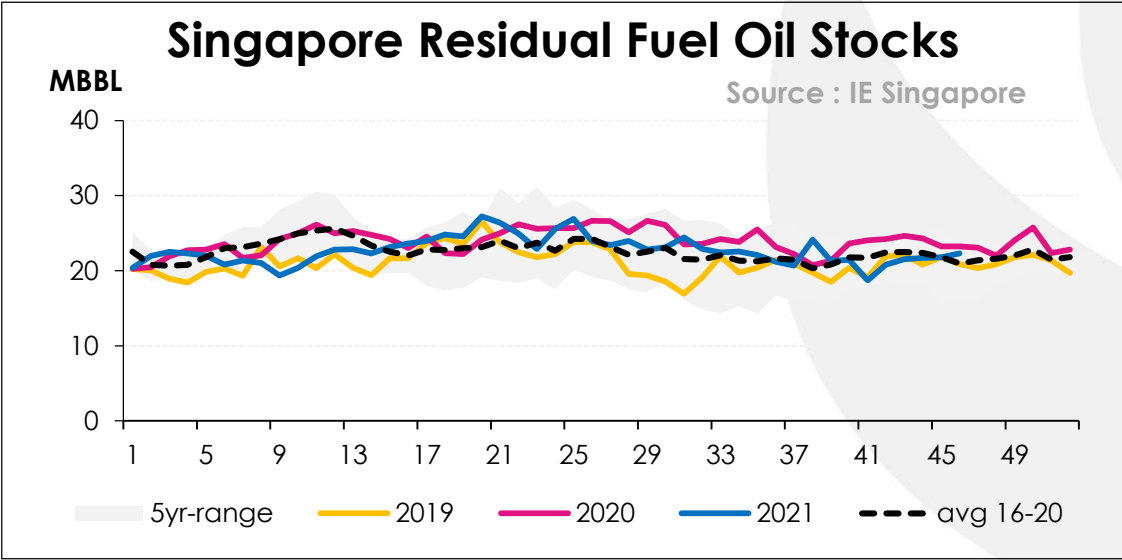
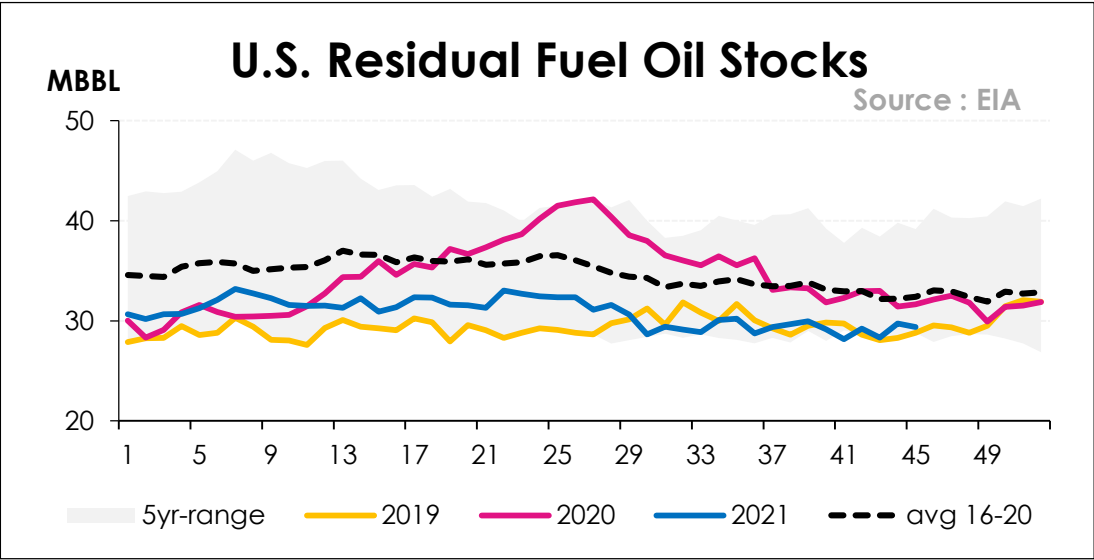
# Global Gasoline Inventories



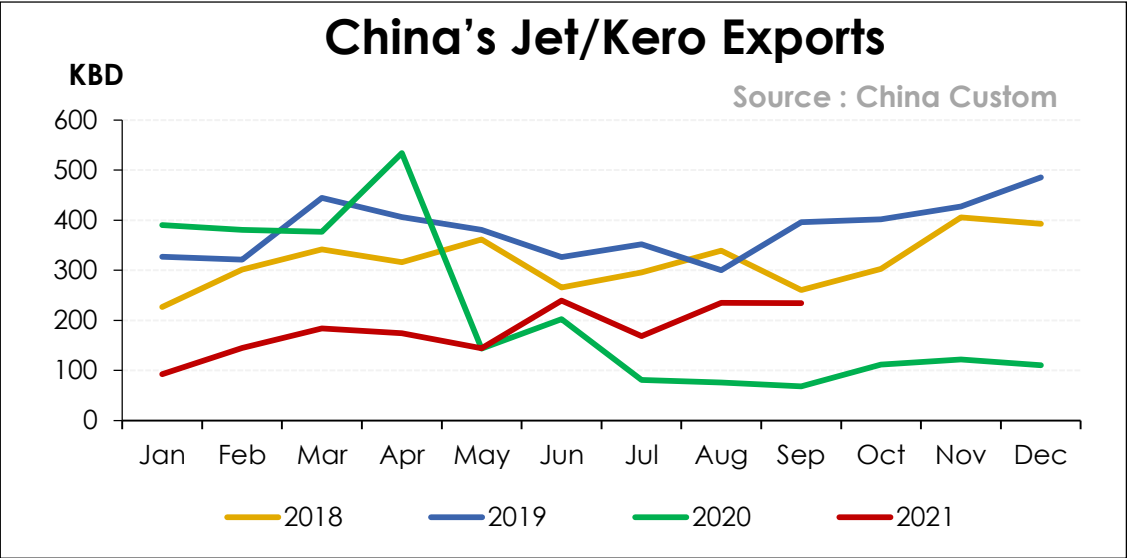
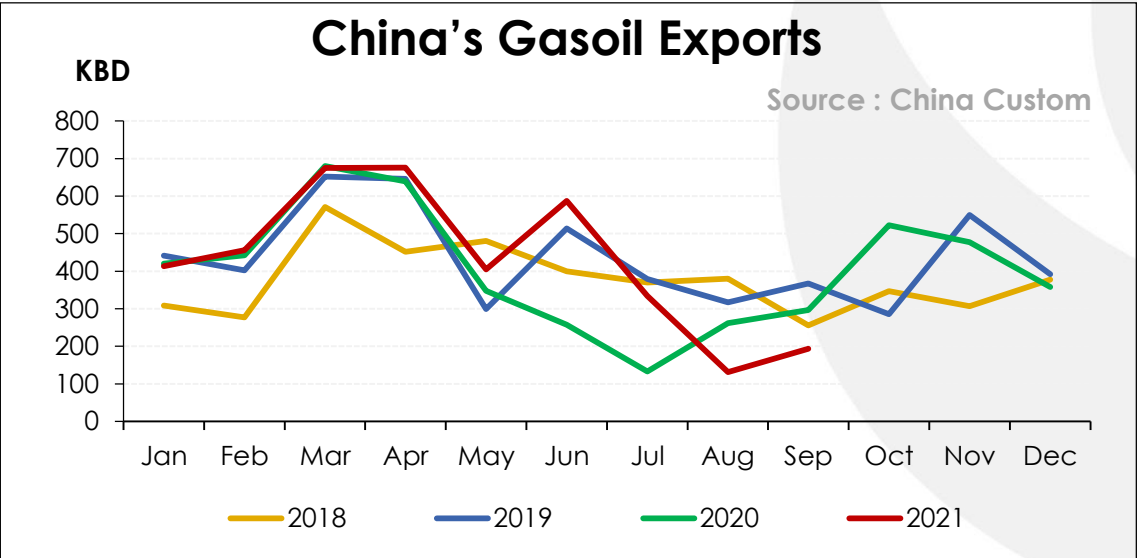
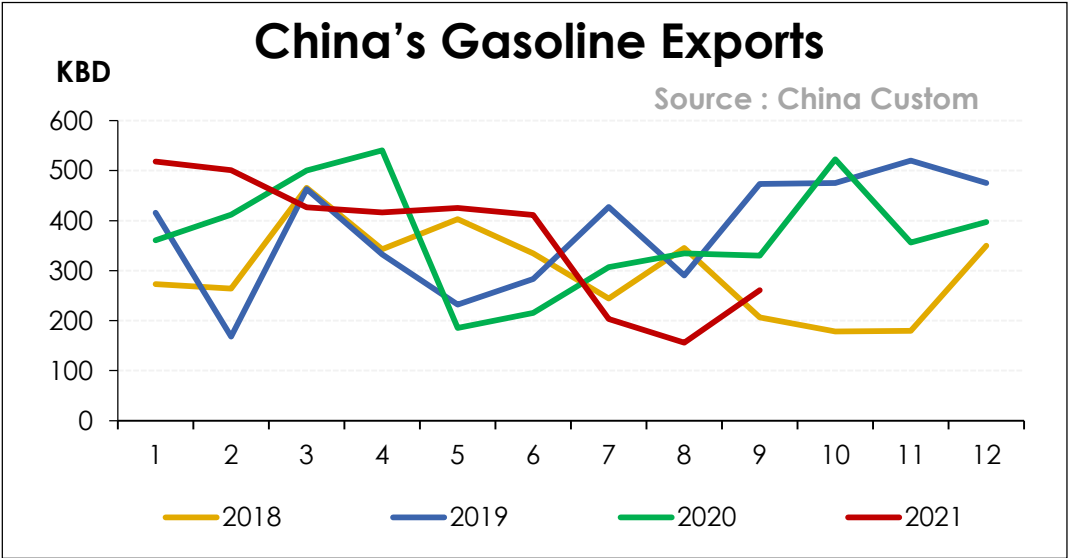
# Global Middle Distillate Inventories



# Global Fuel Oil Inventories

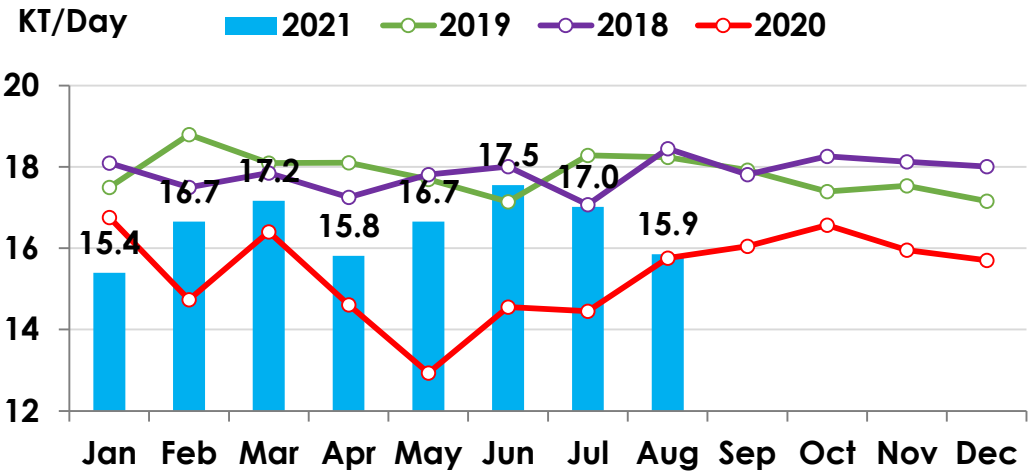


# China's Refined Product Exports



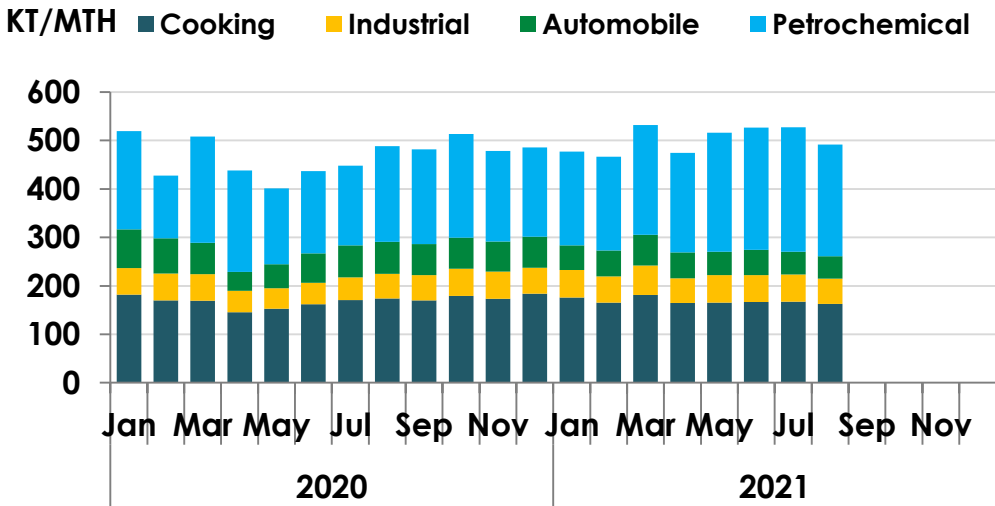
# Domestic LPG Demand

## Thailand LPG Demand



Remark : LPG demand includes Petrochemical consumption

## LPG Demand by Sector



### LPG Demand Highlight

- In 8M'21, LPG demand increased by 9.8% YoY mainly following the increase in industrial and petrochemical sectors. LPG demand in the industry and petrochemical sector rose by 12.8% and 25.0% YoY, respectively as the manufacturing production started to be recovered following the reopening of factories. In addition, cooking demand also increased by 2.2% YoY from last year. However, the demand in the automobile sector still plunged by 16.1% YoY, as the lockdown measures pressured the transportation activities especially in Aug'21.

### Outlook for 2021

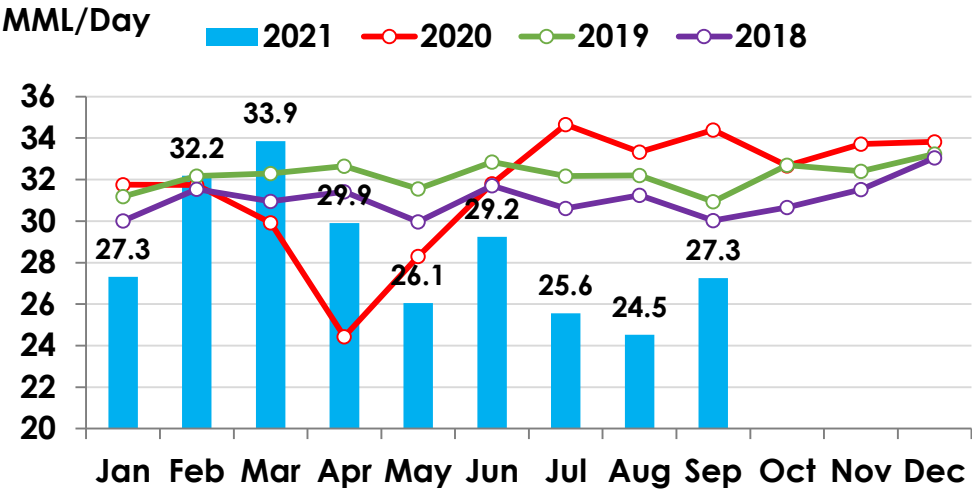
- In 2021, LPG demand is expected to decline by 0.2% YoY, mainly from the automobile demand. Automobile demand tends to decrease by 10.1% YoY as the demand will be pressured by travel restriction measures. Moreover, the registered taxis powered by LPG have gradually expired from 2021 onwards leading to the lower vehicles that run on LPG. However, the Industrial demand tends to increase by 8.5% YoY as the demand will be supported by the reopening of factories as well as the higher production for exporting demand. Besides, Cooking demand tends to increase by 2.1% YoY as the demand would recover from the low base volume effect from the COVID-19 pandemic last year.

Source: EPPO, DOEB (As of Nov 2021)

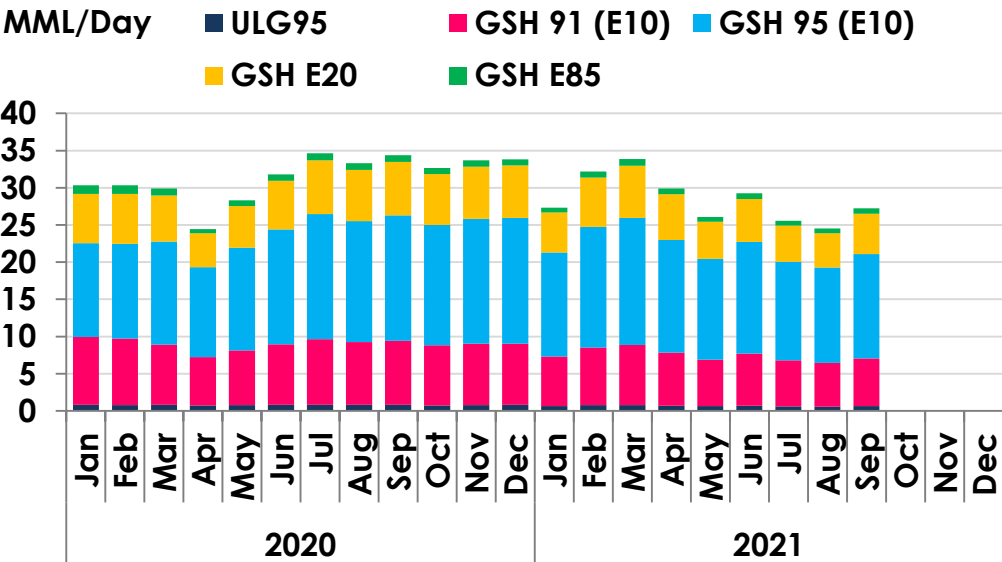


# Domestic Gasoline/Gasohol Demand

## Thailand Gasoline/Gasohol Demand



## Gasoline/Gasohol Demand by Grade



### GASOLINE/GASOHOL Demand Highlight

- In 9M'21, Gasoline demand was decreased by 8.9% YoY to an average of 29.7 MML/day while Gasohol demand decreased by 8.7% YoY, settling at 27.7 MML/day. The demand was mainly pressured by the lower transportation activities in most sectors during the second and the third wave of COVID-19 (Jan and Apr'21) and especially in the fourth wave in Jul'21 which is the delta variant outbreak. Besides the effect of the pandemic, the narrow price gap between GSH95 and E20 partly supported the GSH95 demand to decline only by 1.8% YoY while E20 demand dropped by 11.9% YoY. In addition, E85 demand plunged by 21.1% YoY following the lower oil stations providing E85 compared to last year.

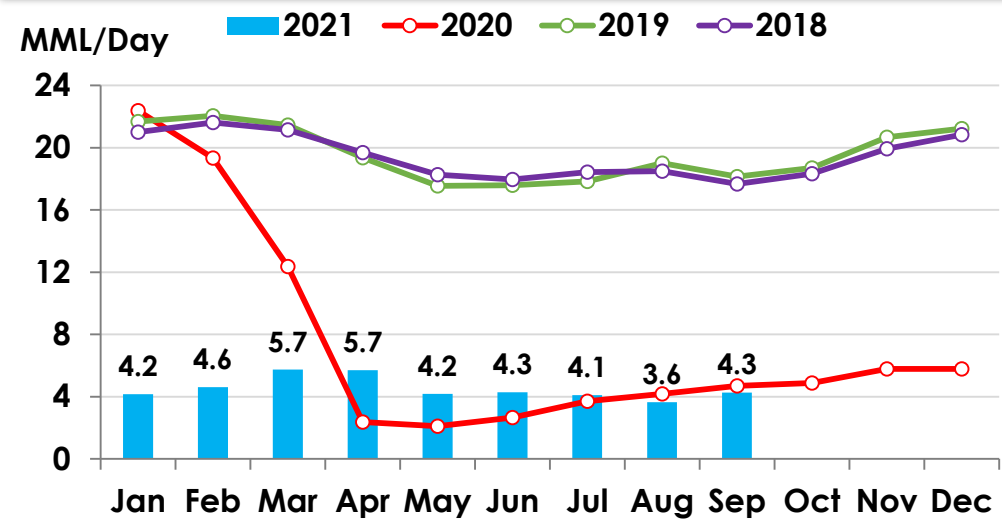
### Outlook for 2021

- Gasoline consumption is expected to decrease by 6.7% YoY which is still mainly pressured by the travel restriction measures for halting the second, the third, and the fourth wave of COVID-19 pandemic from Jan'21, Apr'21, and Jul'21, respectively onwards. Moreover, the stagnant economy would suppress people spending resulting in lower passenger car sales. Luckily, the transportation activities started to recover from Sep'21 amid the lockdown easing.

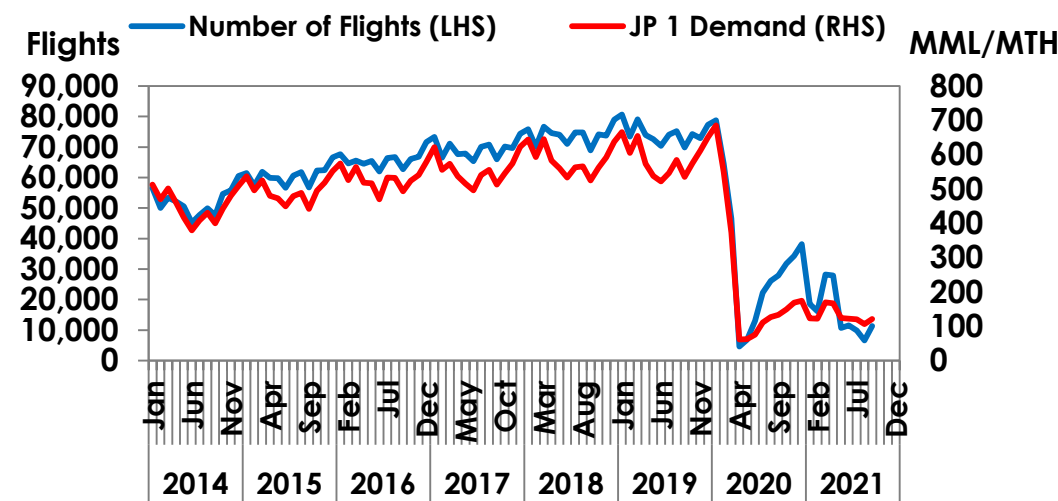
Source: DOEB (As of Nov 2021)

# Domestic Jet Demand

Thailand JET Demand



JET-A1 demand and Number of flights



## JET Demand Highlight

- In 9M'21, Jet consumption decreased by 44.7% YoY. Due to Covid-19 pandemic situation, the demand continually decreased since May'21. The strict control on domestic flight in 13 dark-red zones, led to lower flight movements and lower domestic passengers. However, international flight movements in Q3'21 was still grown at 54.7% YoY. On 1 September, the restriction areas allowed to resume on traveling, which came back to higher in both domestic and international passengers.

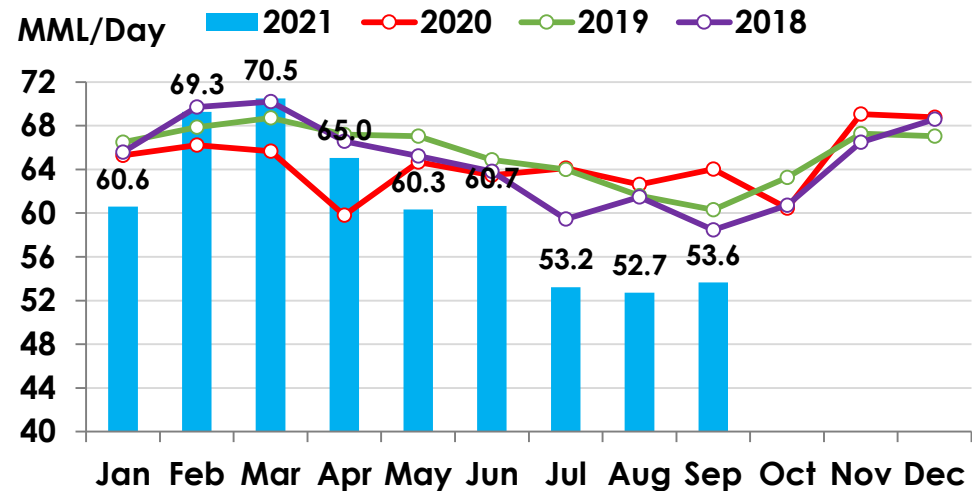
## Outlook for 2021

- Jet-A1 demand growth is expected to declined by 33.6% YoY, as COVID-19 outbreak in Thailand caused longer damage to the Thai tourism than 2020, both in domestic and international sector. However, Thailand allows more vaccinated tourists from more countries for travelling, in order to boost economic and Jet demand, especially in Q4'21.

Source: DOEB, AOT, Department of Tourism (As of Nov 2021)

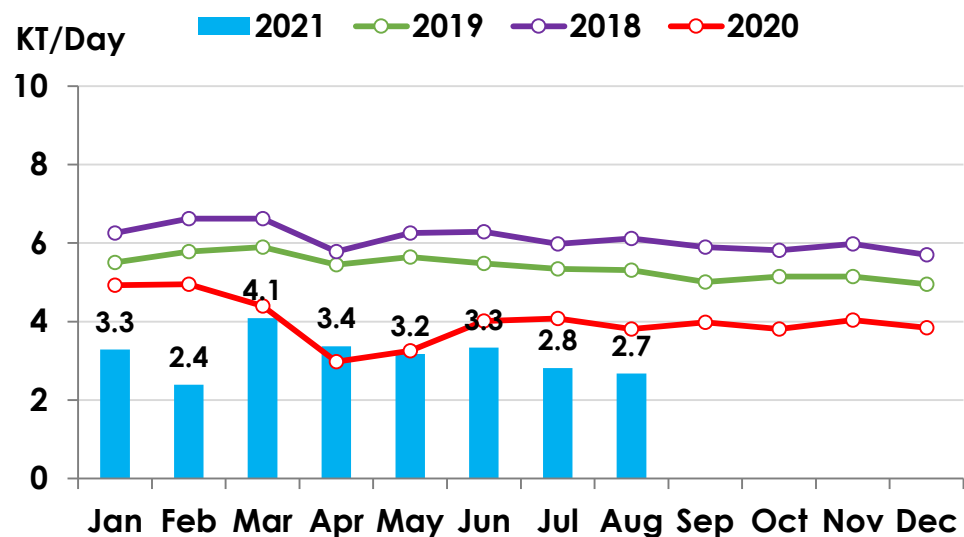
# Domestic Gasoil and NGV Demand

## Thailand Gasoil Demand



\*Exclude Marine Gasoil

## NGV Demand



### Gasoil Demand Highlight

- In 9M'21, Gasoil demand decreased by 5% YoY. The demand was impacted by third and forth wave of COVID-19 pandemic situation. It was resulting to announced lockdown measures by the government which pressured to lower economic activities and drop of logistic movements.

### Outlook for 2021

- Gasoil demand is expected to drop by 5% YoY as the forth wave of the COVID-19 pandemic that still pressured the demand this year. However, the demand is expected to recover after country re-opening since Nov'21 which resulting to higher economic activities and logistic movements.

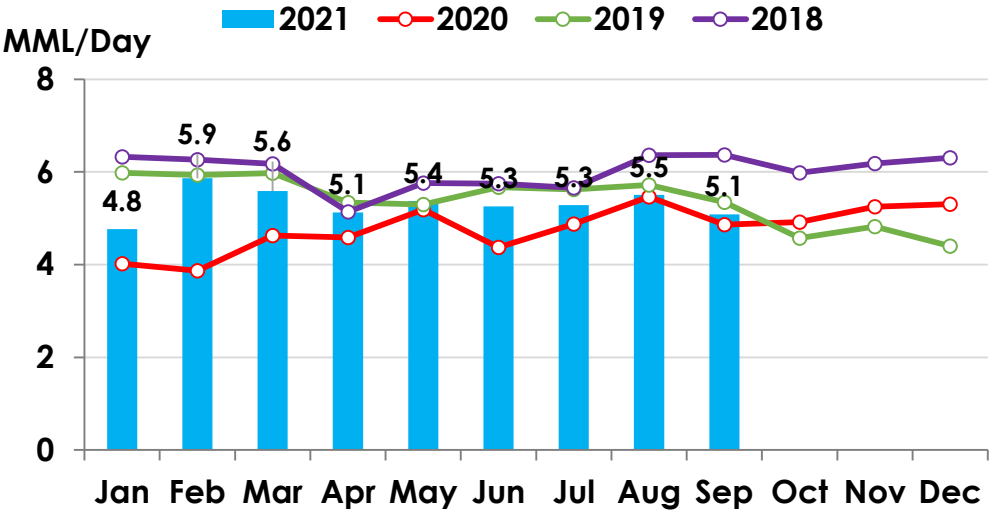
### NGV Demand Highlight

- In 8M'21, NGV demand continually decreased by 22.2% YoY, due to the effect of COVID-19 pandemic since last year. In addition, the demand was also pressured by the uncompetitiveness of the NGV retail price compared to the other fuels. As a result, NGV users have switched to use a substitute for NGV. However, in Sep'21, the Ministry of Energy planned to adjust NGV price to enhance NGV demand, together with PM2.5 reduction.

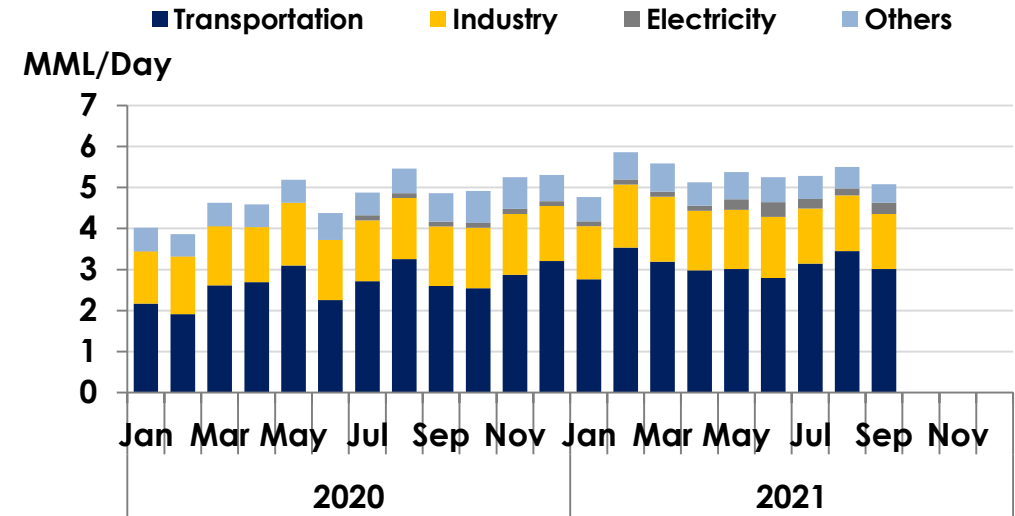
Source: EPPO, DOEB (As of Nov 2021)

# Domestic Fuel Oil Demand

Thailand Fuel Oil Demand



Thailand Fuel Oil Demand by Sector



## Fuel Oil Demand Highlight

- In 9M'21, Fuel Oil consumption rose by 14.1 YoY, as the demand in the transportation sector, which accounted for 58% of total Fuel Oil demand, rose by 20% YoY due to higher import and export volume. Moreover, the demand of the industrial sector accounted for 26.9% of total Fuel Oil demand, which decreased 0.1% YoY due to economic slowdown from COVID-19 pandemic situation.

## Outlook for 2021

- Fuel Oil demand is expected to increase by 15.3% YoY, mainly due to the higher import and export activities. Besides, Thai economy in 2021 tends to increase due to global economic recovery. Also, vaccinations of all over the world would support better the demand.

Source: DOEB (As of Nov 2021)

# Thank You

Any queries, please contact:



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