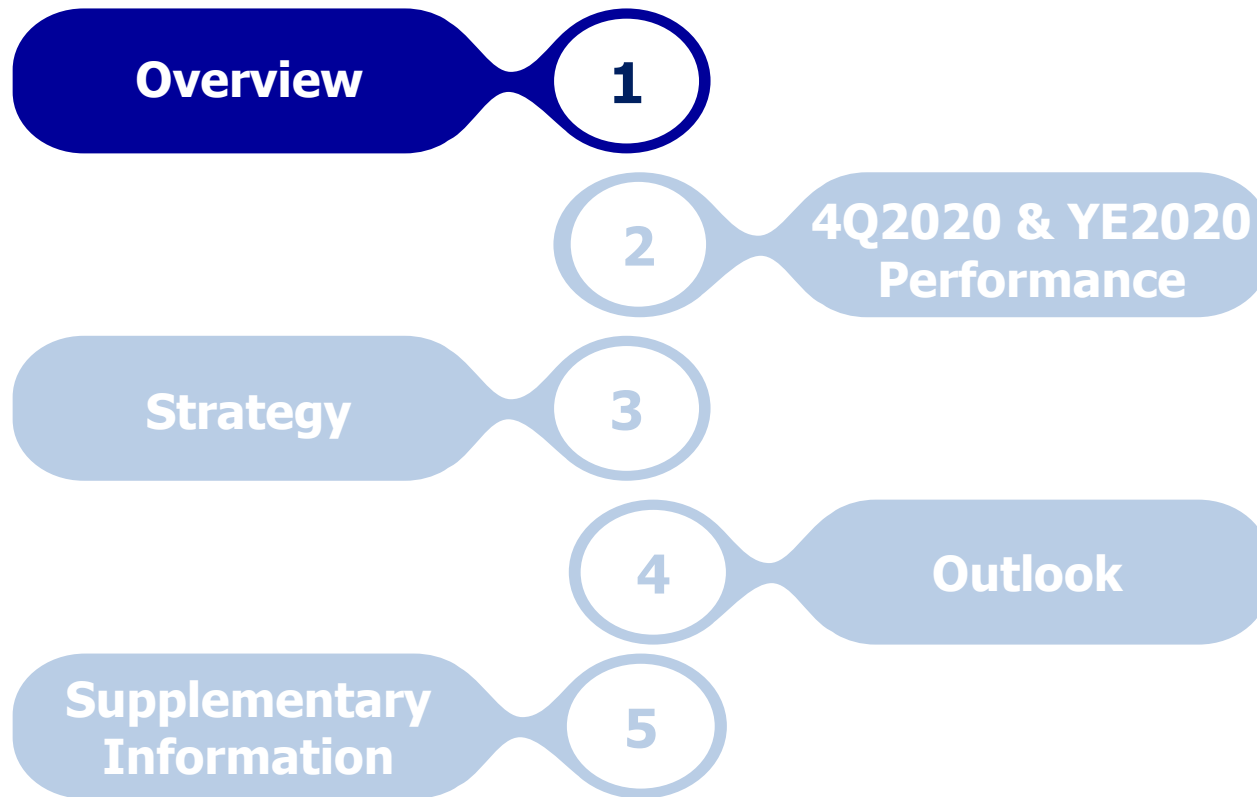




# Investor Update

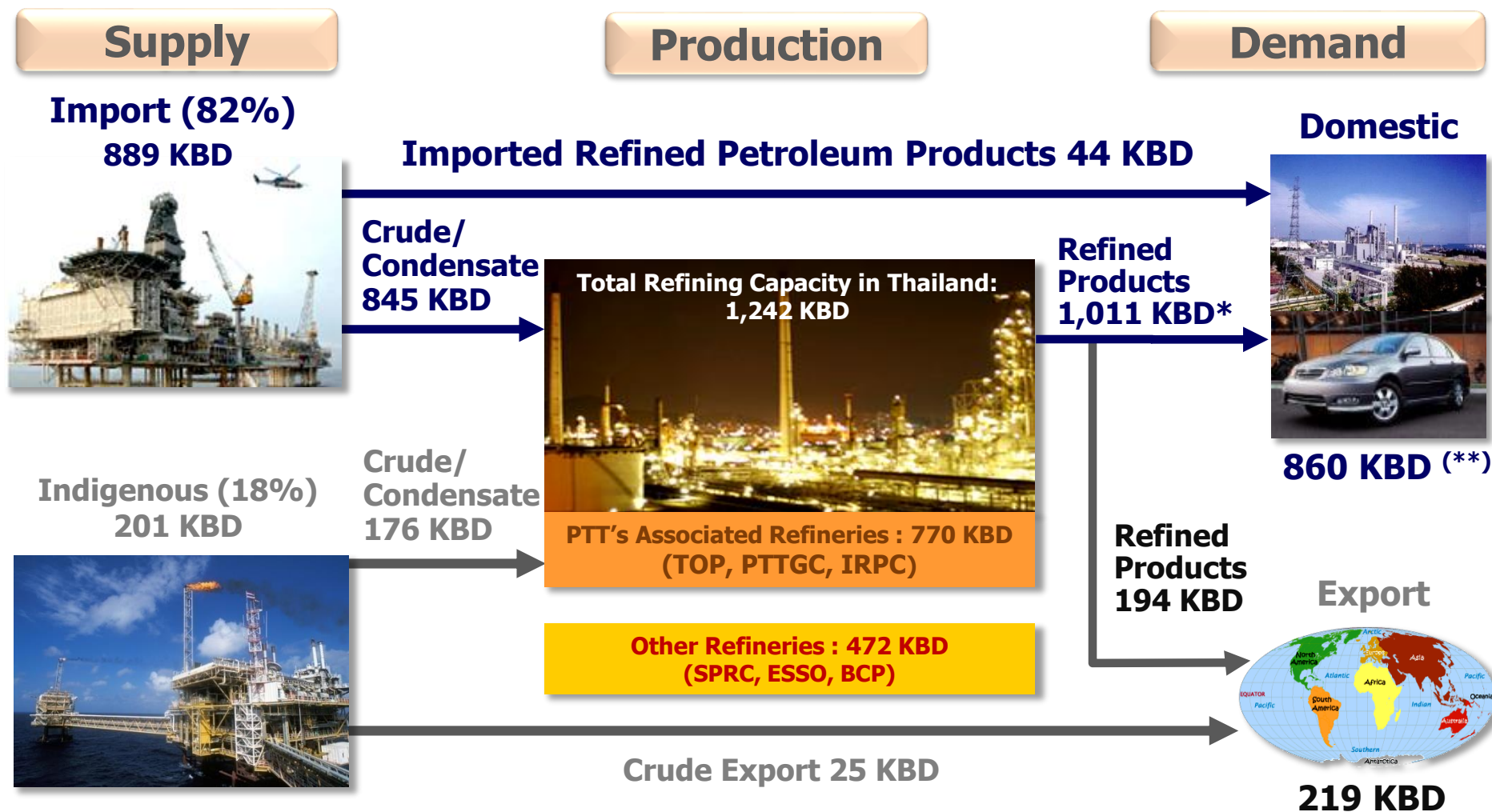
April 2021





# Oil Balance Thailand: Jan – Dec 2020

Adequate refining capacity maintains the stability of country supply



Source: PTIT

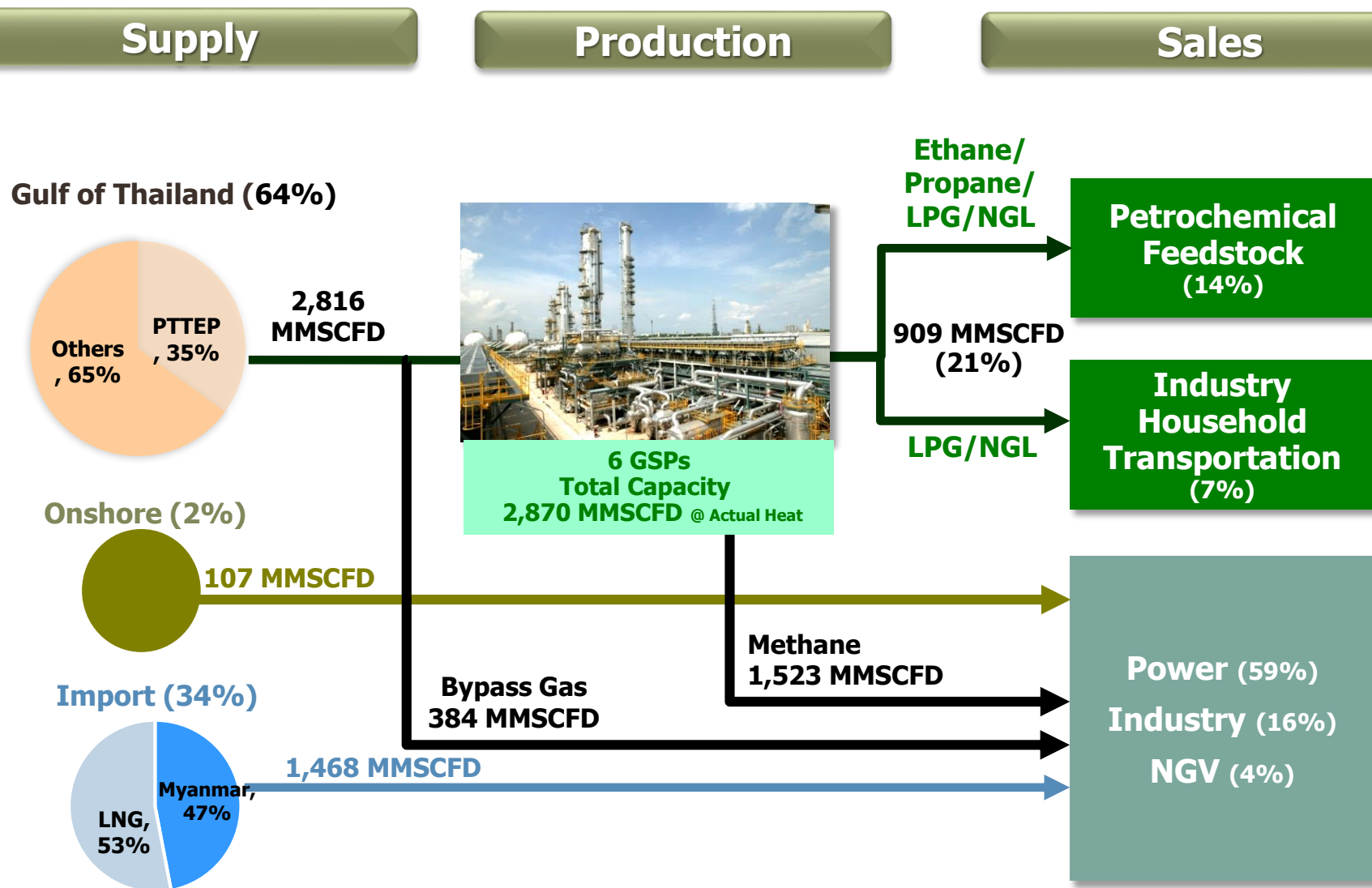
Remark : (\*) Refined product from refineries = 919 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 92 KBD

(\*\*) Not Included Inventory

KBD = Thousand Barrels per day

# Natural Gas Balance: Jan – Dec 2020

Main driver of the Thai economy



Remark: MMSCFD = Million Cubic Feet @ Heating Value 1,000 Btu/ft<sup>3</sup>

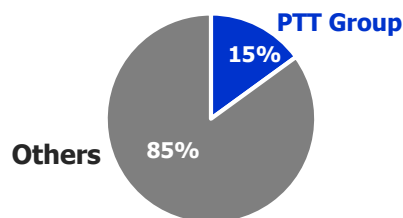
# PTT's Strategic Importance to Thailand

Thai Premier Multinational Energy Company

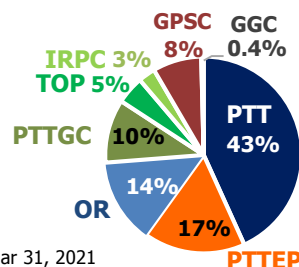


## Market Cap : SET & PTT Group

SET market Cap:  
Bt 18,023 bn (USD 572 Bn)

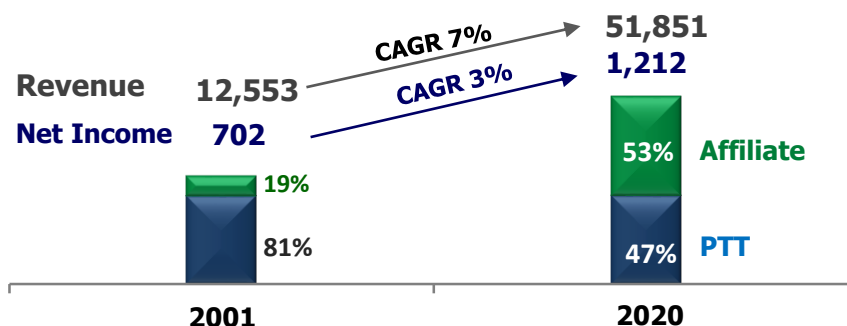


PTT Group:  
Bt 2,743 bn (USD 87 Bn)



Note: As of Mar 31, 2021

## Robust revenue and net income growth since IPO (MMUSD) <sup>1</sup>



## Fully integrated & highly diversified over entire O&G value chain

- International E&P business: **1,074 mmmboe proved reserves or 7 years** in 2020
- Sole operator & owner of gas transmission pipelines and Gas Separation Plants (GSPs)** in Thailand
- Largest refinery group** in Thailand : 3 of 6 refineries
- Largest petrochemical producer group** in Thailand : total capacity of olefins, aromatics and styrenics production of more than 15 mtpa
- Leading oil marketing business** in Thailand : **1,997 retail stations<sup>2</sup>** and **~42%<sup>2</sup> of market share** by sales volume
- International oil trading** business having traded **75.5 bn liters<sup>3</sup>** in 2020
- Power Plant flagship** with committed capacity of **5,055 MW** (equity portion)

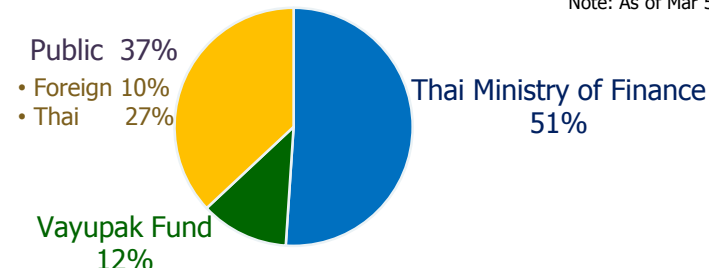
<sup>1</sup> 2020 Annual Avg. BOT selling rate USD/THB of 31.46 (Avg. rate)

<sup>2</sup> As of 31 Dec 2020

<sup>3</sup> For the year 2020

## Ministry of Finance holds majority stake in PTT

Note: As of Mar 5, 2021



## PTT ratings at Thai sovereign level

	MOODY'S	STANDARD & POOR'S	FitchRatings
FC	Baa1	BBB+	BBB+
PTT - FC	Baa1	BBB+	BBB+
PTT - LC	Baa1	BBB+	BBB+

## International and local recognition



**170<sup>th</sup> in 2020**  
165<sup>th</sup> in 2019  
156<sup>th</sup> in 2018  
190<sup>th</sup> in 2017  
337<sup>th</sup> in 2016



**23<sup>rd</sup> in 2020**  
21<sup>st</sup> in 2019  
10<sup>th</sup> in 2018  
12<sup>th</sup> in 2017  
63<sup>th</sup> in 2016



**140<sup>th</sup> Fortune Global 500 in 2020**  
130<sup>th</sup> in 2019  
163<sup>th</sup> in 2018  
192<sup>th</sup> in 2017  
146<sup>th</sup> in 2016  
93<sup>th</sup> in 2015



Best Investor Relations  
Best Environmental Stewardship



Best CEO /Best CFO /Best CSR  
Best Environmental Responsibility  
Best IR Company  
Best IR Professional



ตลาดหลักทรัพย์แห่งประเทศไทย  
The Stock Exchange of Thailand

### SET Awards

- Best Investor Relations Awards 2020**  
(2<sup>nd</sup> consecutive years)
- Best Sustainability Excellence Awards 2019**



Dow Jones Sustainability Index (DJSI)  
DJSI Member 2011-2020  
(9<sup>th</sup> consecutive years)



## Upward Integration (PTT Operate through our subsidiaries)

### E & P



**PTTEP (65.29%)**

- Oil, Gas, Condensate
- > 40 Projects in 15 Countries

### LNG



**(50%)**



**(100%)**

- LNG Value Chain
- LNG Receiving Facilities

### Coal



**Coal Mine in Indonesia**



**(100%)**

- Diversified International portfolio for ensuring long-term energy security

## PTT Own Businesses (PTT's own operation)

### Natural Gas



- 4 gas pipelines
- 6 Gas Separation Plants
- Procurement & Marketing
- NGV

### Trading



- Crude Procurement
- Import/Export
- Commodity Hedging
- Int'l Office: China/ Singapore/ Dubai/ London/ Thailand

### Technology & Engineering



- Engineering & Project Mgt.
- Asset management
- Innovation & Digital

- Infrastructure Business – Create networking of energy that leads to sustainable growth and PTT's S-curve

## Downward Integration (PTT Operate through our subsidiaries)

### Oil & Retail



**(75%-77.5%)**

- Market Share ~ 40%
- Oil & Non-oil Retail
  - Lubricants
  - International Oil & Retail

### Refineries



**GC IRPC (~48%)**

Market Share > 50%

- Integrated Refinery & Petrochemical

### Petrochemicals



**(~48%)**

Market Share > 50%

- Integrated Refineries & Petrochemical

### Power

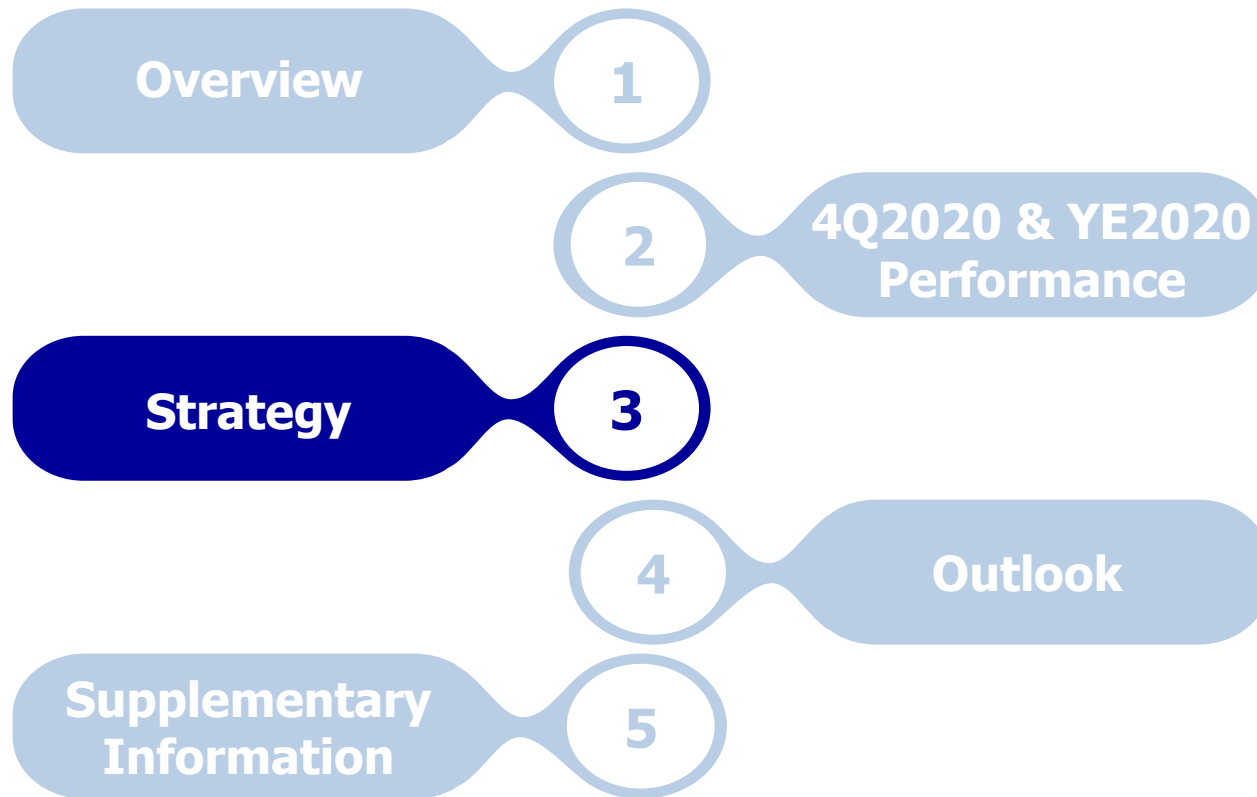


**(31.72%)**

**5,055 MW**

- Electricity
- Steam & Chill Water
- Energy Storage

- Ensuring customer satisfaction and loyalty by products and services
- Create value added thru downstream businesses



# PTT Group's Strategic Framework

## Powering Life with Future Energy and Beyond

**POWERING THAILAND'S TRANSFORMATION** by

**PARTNERSHIP & PLATFORM** **TECHNOLOGY FOR ALL** **TRANSPARENCY & SUSTAINABILITY**

CORE STRENGTHENING

FOUNDATION FOR GROWTH



**Resilience**

Ensure resiliency

- Spend Smarter / Secure liquidity
- Optimize group value chain
- Ensure business continuity
- Safeguard customers & employees



**Restart**

Enhance competitiveness

- Synergize operation
- Maintain financial strength
- Build efficient & agile workforce
- Engage and retain customers



**Reimagination**

Initiate business action  
for the next normal

- Reimagine Upstream
- Reinforce Downstream
- Reignite new business at scale



**Reform**

Reform to enhance  
readiness

- Transform organization & structure for regulatory and environment shift

**Group Synergy - People - Finance - Communication**

**Mindset: Outside in + Inside out**

**Values: S P I R I T**



# PTT Group Strategic Move for Growth

## Reimagination :

Initiate business action: Both in existing businesses and new growth for the next normal

### REIMAGINE Upstream

**“Strategic move in LNG Business to be LNG Portfolio Player”**

- Expand LNG Business overseas
- Globally Investment in upstream related businesses



### REINFORCE downstream

**“Enhance more synergy for group value to create sustainable long-term competitiveness”**

- Strengthen collaboration and trust to maximize value along value chain
- Reduce redundant investment



### REIGNITE new business at SCALE

**“Drive strategic enablers to speed up execution”**

- **Invest in renewables-related businesses**, e.g. Storage/Grid network, EV, Smart energy platform
- **Explore & Expand into New Business** (Life Sciences, Advanced Materials, Mobility & Life Style, Logistics)



**Focus on**

**Productivity Improvement & Operational Efficiency**

# Reignite New Business at scale

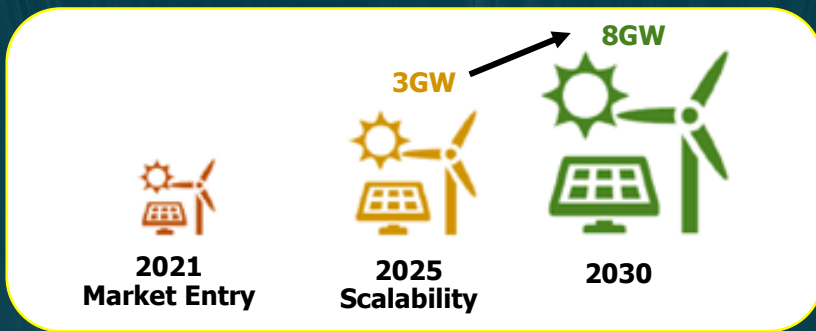


## New Energy

### Opportunities Screening & Alignment

#### • Renewable Energy:

##### Roadmap & Target



Note: Currently, PTT Group's renewable energy portfolio is 200 MW  
: Investment budget is included in the Provisional CAPEX

- **EV Charger:**
  - EV Platform : Currently 30 stations
  - Target: 100 EV chargers in 2021
- **Energy Storage & Smart Energy Platform**
  - Battery Plant & Smart Grid, Artificial Intelligence



New Energy

New Business

## New Business

### Explore & Expand in Life Science projects

#### Pharmaceutical

- Develop Thailand's first cancer pharmaceutical factory
- Explore M&A opportunities

#### Nutrition

- Bringing manufacturing technology
- Focus on natural ingredients.

#### Medical Device

- Develop Bio-Cellulose for Wound Dressing
- Medical masks, Dust mask, and Medical gloves from the situation of the COVID-19



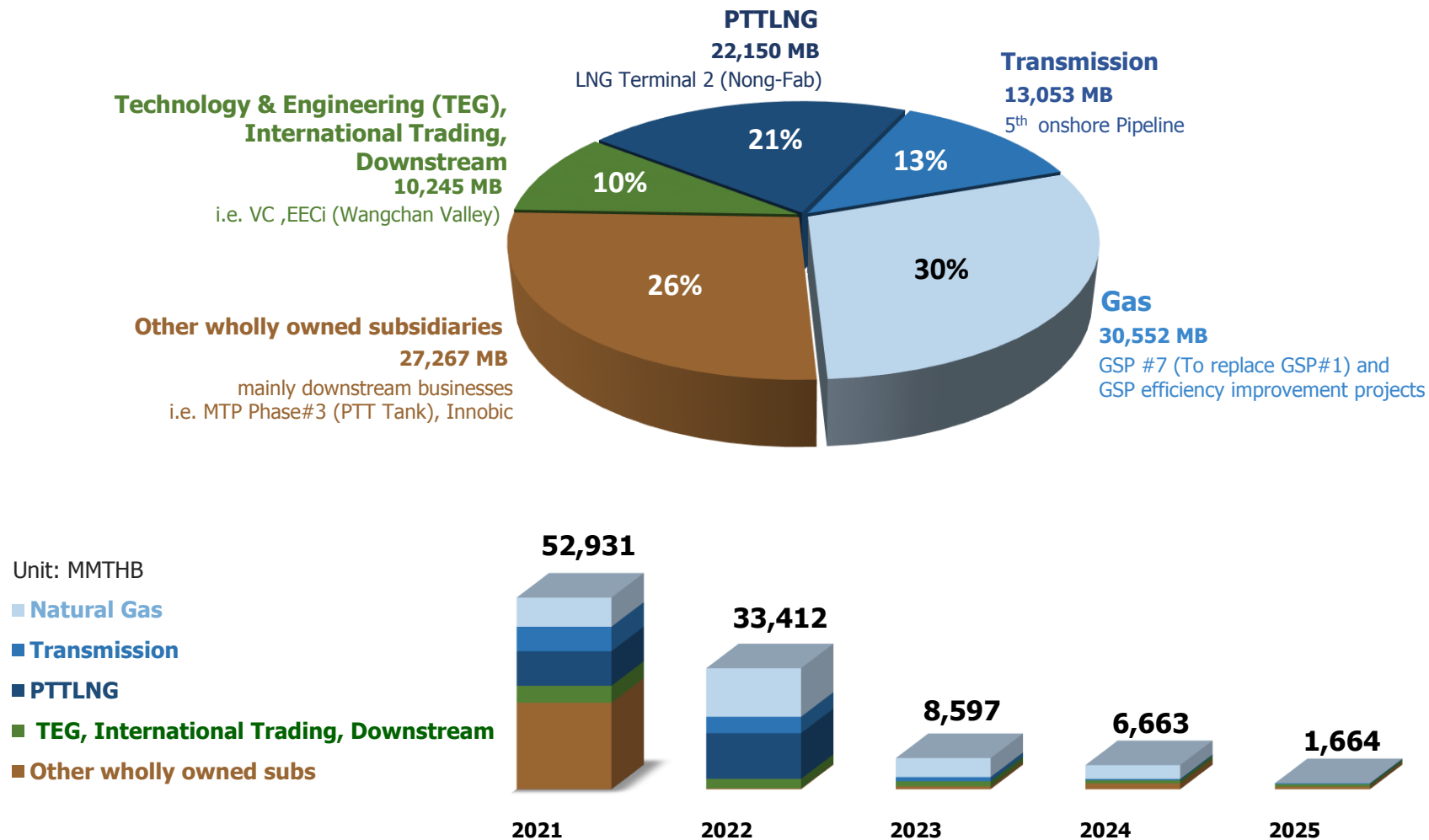
Strategic **PARTNERSHIP**



New **PLATFORM**

# PTT: Committed CAPEX (PTT and Wholly Owned Subsidiaries)

PTT 5-Years (2021-2025) Committed CAPEX Plan totaling Baht 103,267 million or ~ USD 3.3 bn



The Provisional CAPEX ~Bt 332 bn which mainly focus on LNG Value Chain, Southern LNG terminal and pipelines according to PDP 2018, Gas-to-power project, and New Businesses (including Renewable energy, Life sciences, Electricity value chain etc.)

Note: 2021-2025 CAPEX plan approved by BOD on 17 Dec 20

# Committed CAPEX: PTT Group

Total committed CAPEX during 2021-2025\*: ~Bt 851 bn or USD 27 bn



Unit: MMTHB

## Power Business

### Key Projects

- SPP Replacement
- ERU
- Renewable Energy (Solar/Wind)

## PTT Business

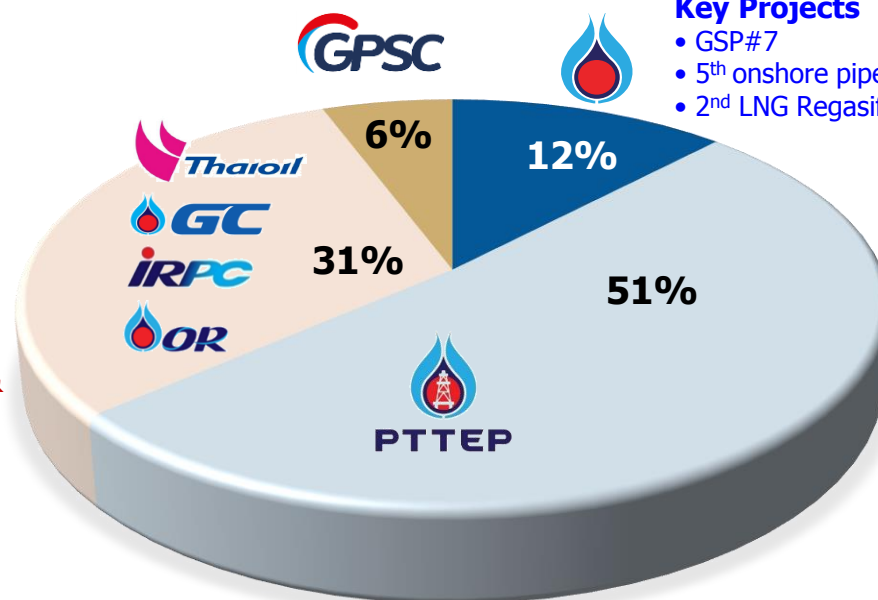
### Key Projects

- GSP#7
- 5<sup>th</sup> onshore pipeline
- 2<sup>nd</sup> LNG Regasification Terminal

## Downstream Business

### Key Projects

- **TOP**: Clean Fuel Project (CFP)
- **GC**: Efficiency improvement projects
- **IRPC**: Ultra Clean Fuel Project (UCF)
- **OR**: Oil & Retail Expansion in domestic & international



## Upstream Business

### Key Projects

- Onshore and Offshore Exploration and Production in Thailand (Bongkot, Erawan etc.)
- Algeria HBR
- Southwest Vietnam
- SK410B
- Mozambique LNG

PTT Group's Provisional CAPEX for 2021 - 2025 ~Bt 804 bn

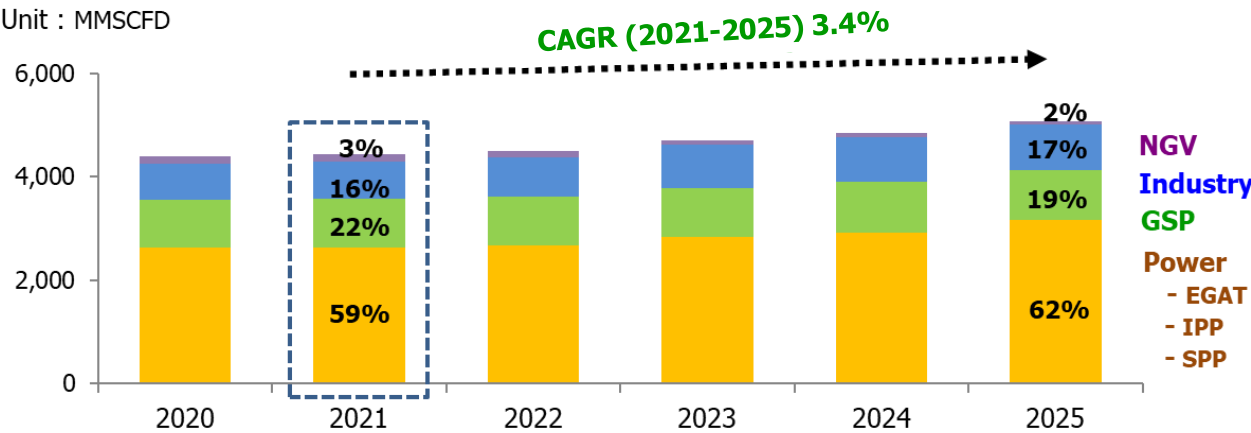


# Gas Business Roadmap

## Short term Gas Demand growth be maintained



### Thailand Gas Demand Outlook (Short Term – 5 year plan)



**New Supply**  
Additional capacity (mmscfd)

**Bongkot Erawan**  
700 800

**Major Project : COD**

5th pipeline  
RA#6 Pipeline

**Cum. Pipeline Length (Km)**

**4,702**

**LNG new project**  
Cum. Capacity (MTA)

LNG Terminal 2 GSP#7\*  
19.0 460 mmscfd

\*Replace GSP#1



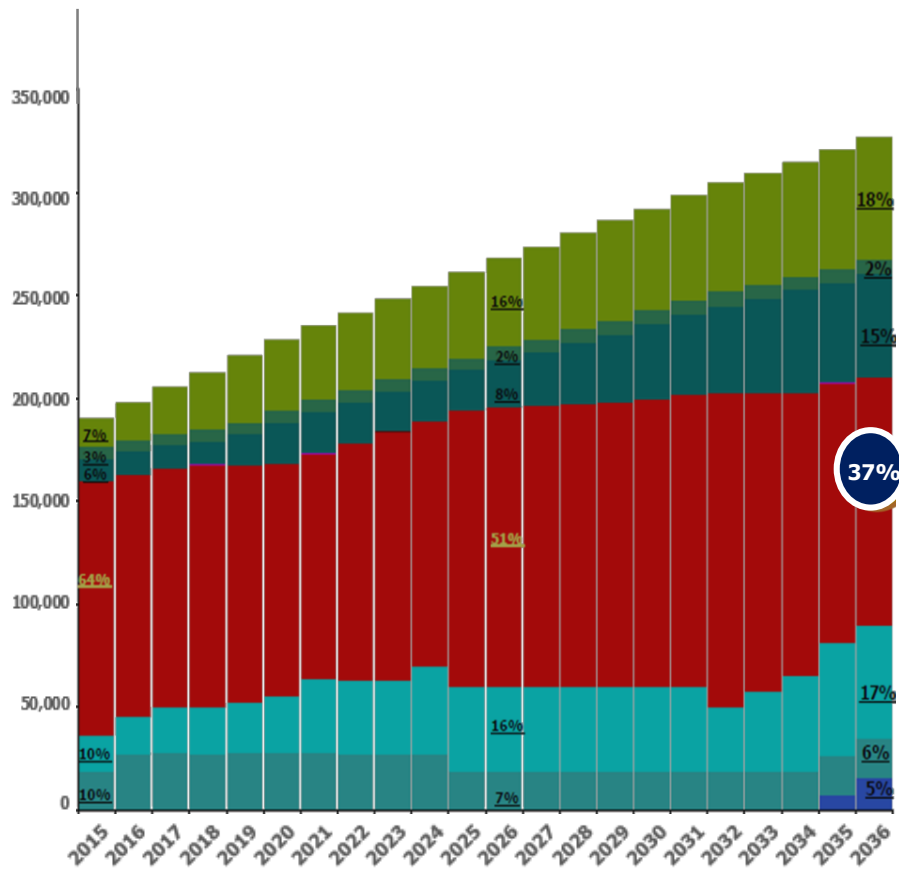
# Newly Thailand Power Development Plan

Stronger demand of NG for power plants

PDP 2015\*

Natural Gas growth upon  
Government fuel diversification policy  
for power generation

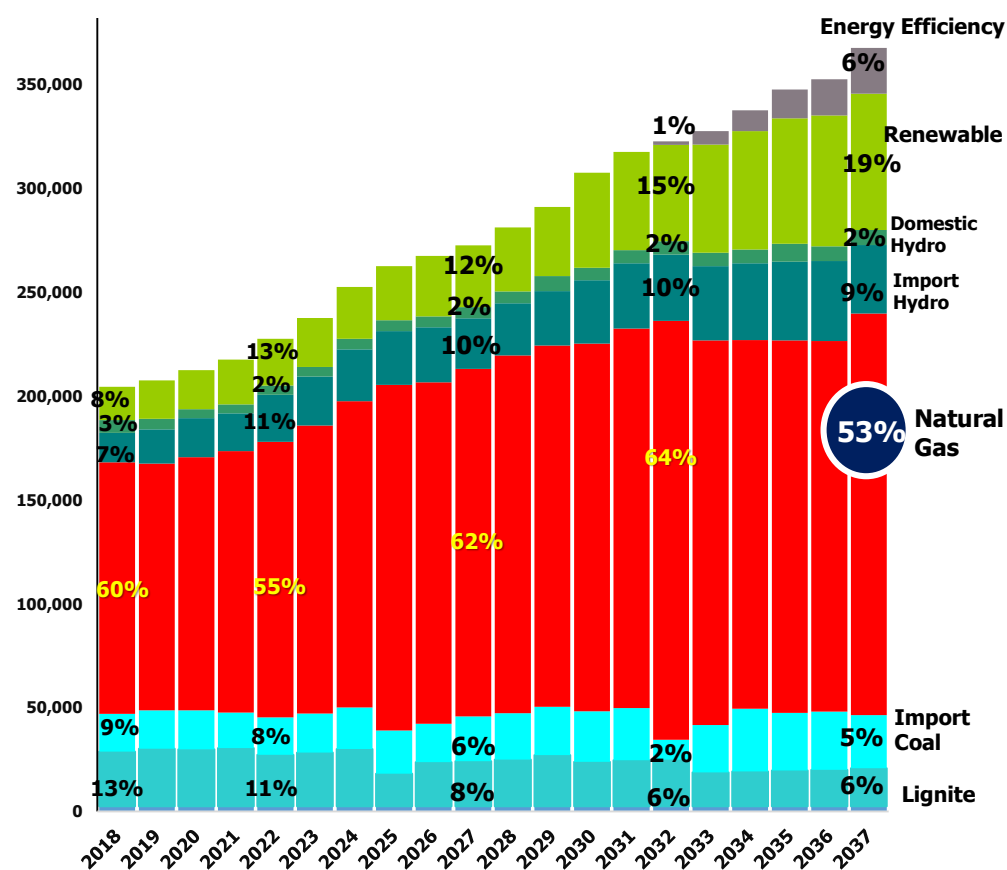
Unit: GWh



PDP 2018 Rev.1\*\*

Natural Gas  
be the most important source of energy  
with highest portion among other fuels

Unit: GWh



\*Source: Ministry of Energy

\*\* Source : EPPO (Public Hearing presentation)

# Natural Gas :

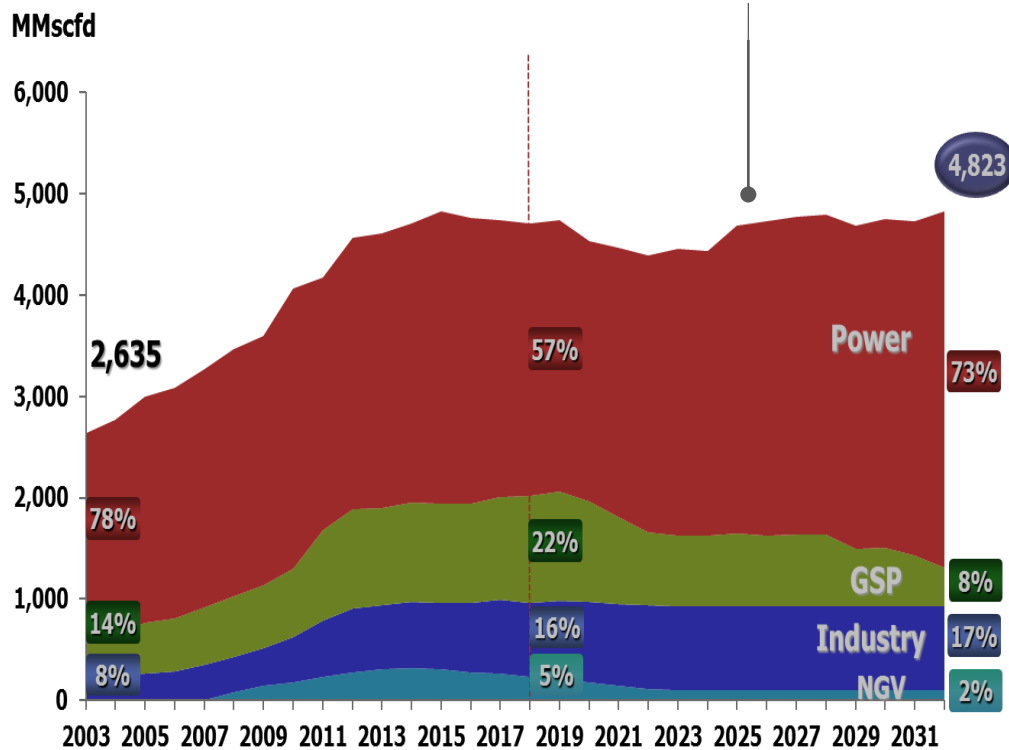
## Growth of natural gas upon Government fuel diversification policy for power generation

Old\*

Thailand Gas demand forecast (CAGR during 2018-2032)

: Total	~	0.1%
: Power	~	2%
: GSP	~	-7%
: Industry	~	1%
: NGV	~	-6%

Thailand Gas Demand  
Replace :  
Coal Krabi (800 MW),  
EE 30%

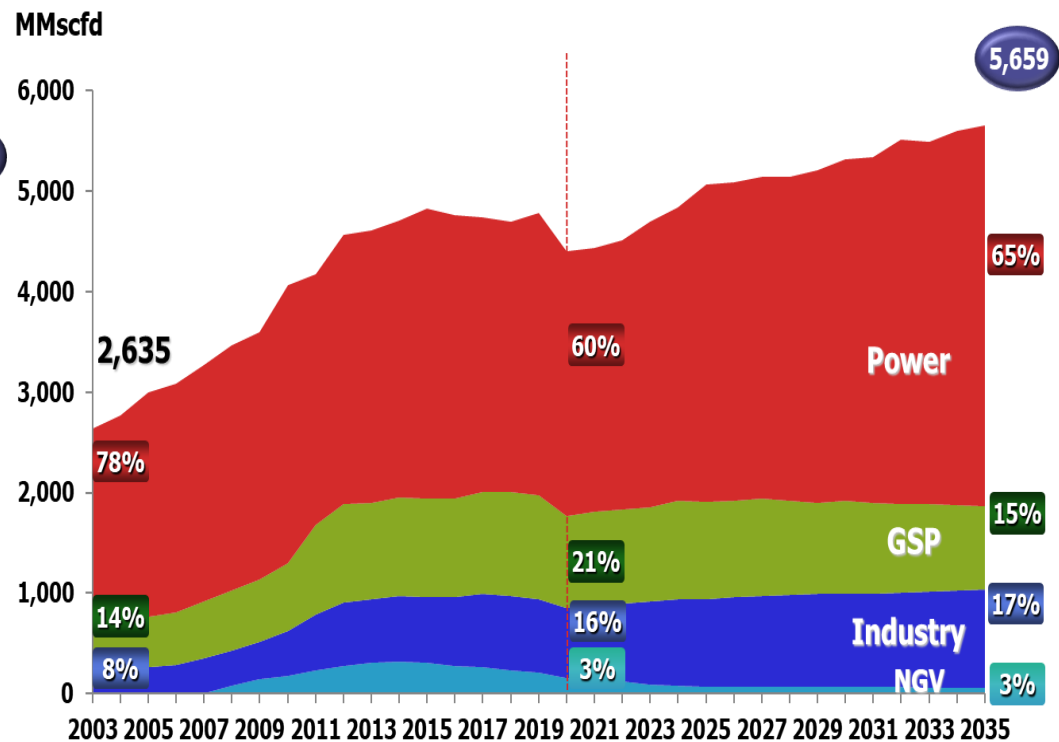


\*Source: Ministry of Energy

NEW\*\*

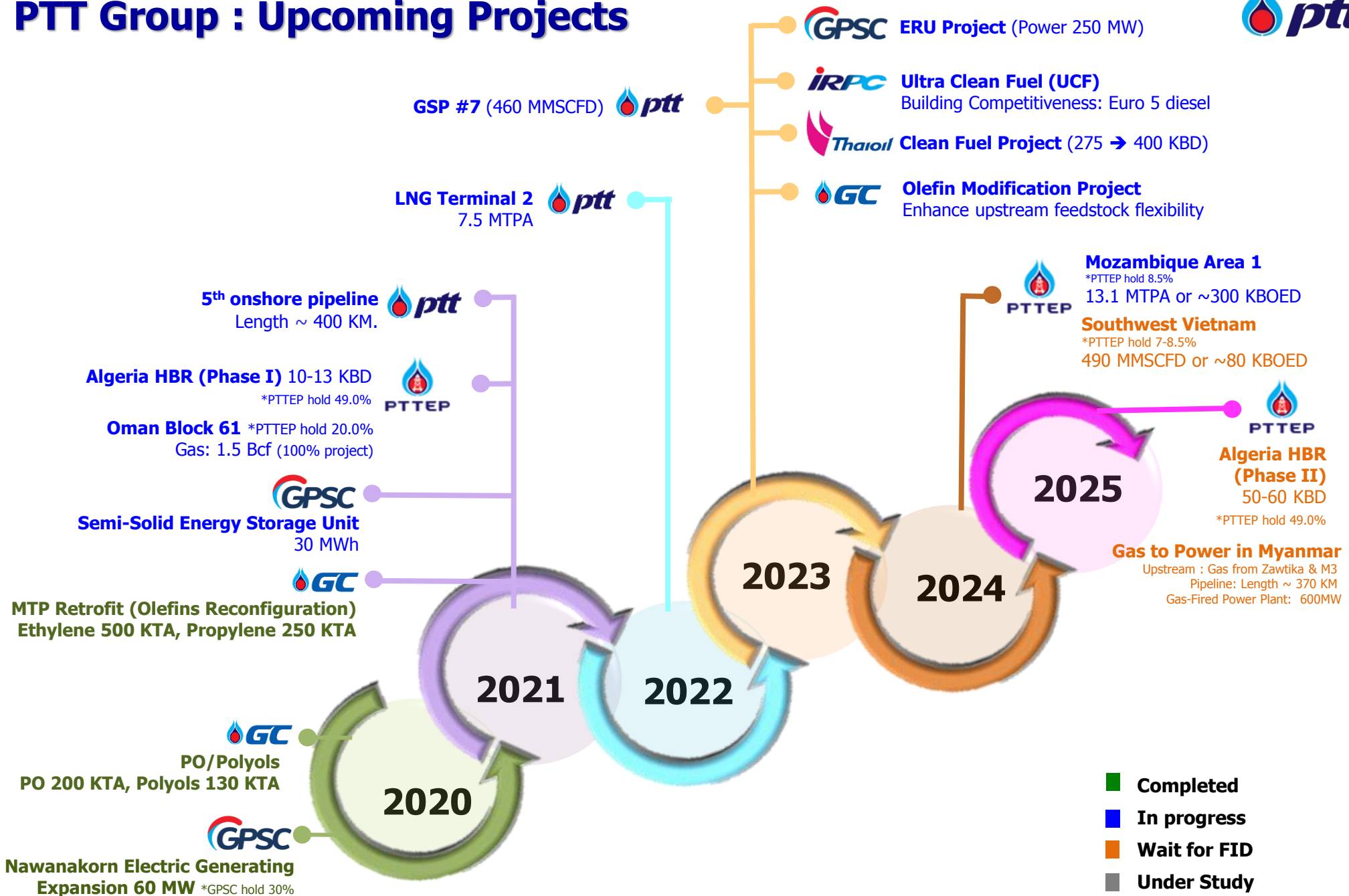
Thailand Gas demand forecast (CAGR during 2020-2035)

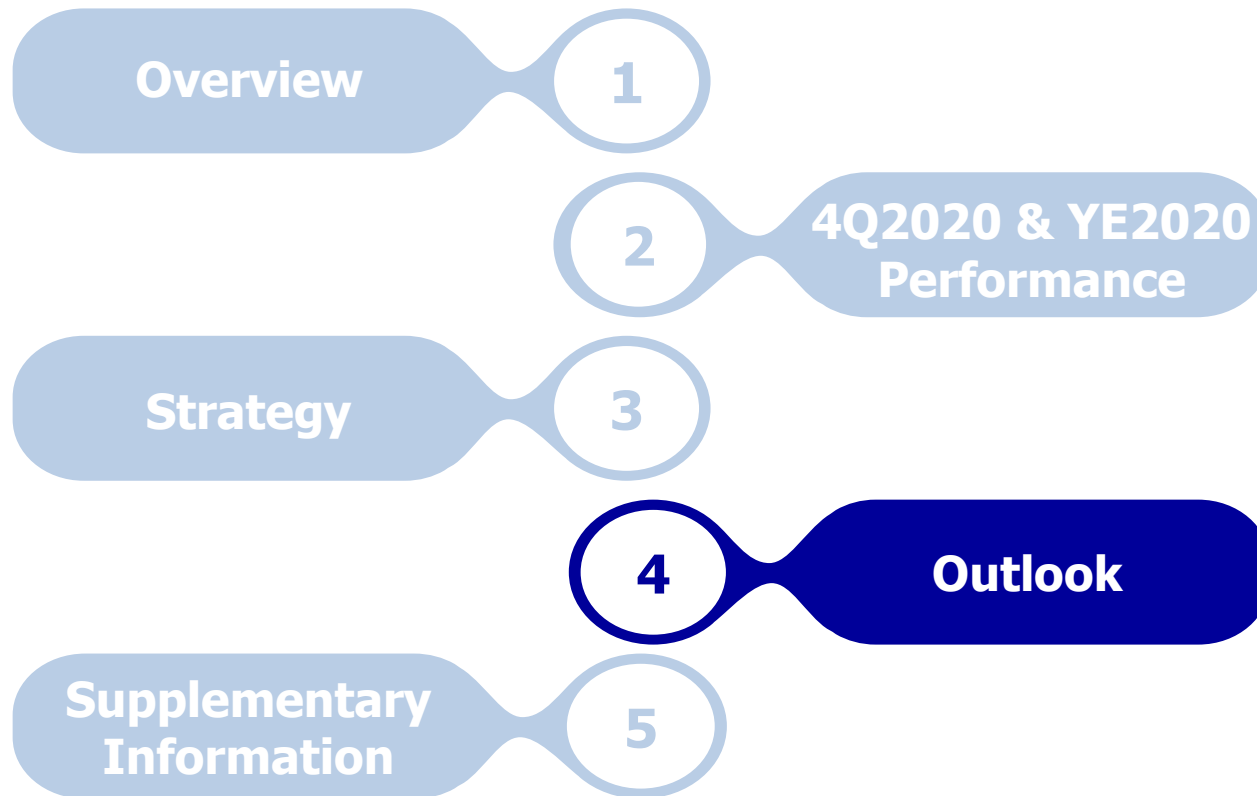
: Total	~	2%
: Power	~	3%
: GSP	~	-1%
: Industry	~	3%
: NGV	~	-7%



\*\* Source : PTT Business plan 2021 approved by BOD on 17 Dec 2020

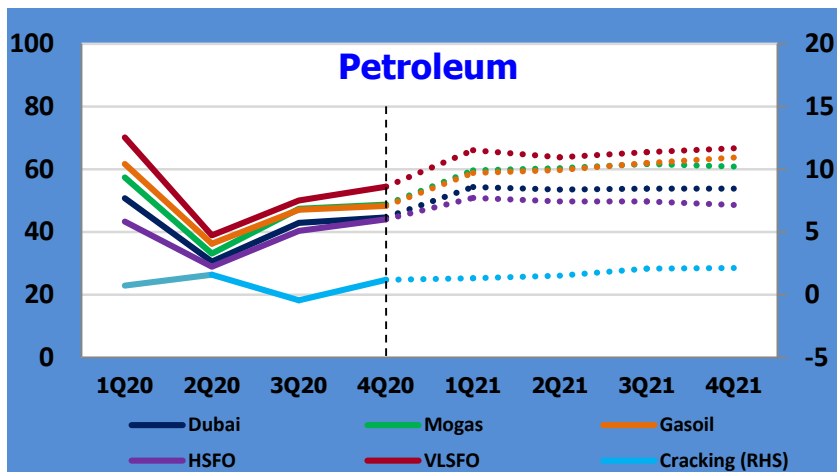
# PTT Group : Upcoming Projects





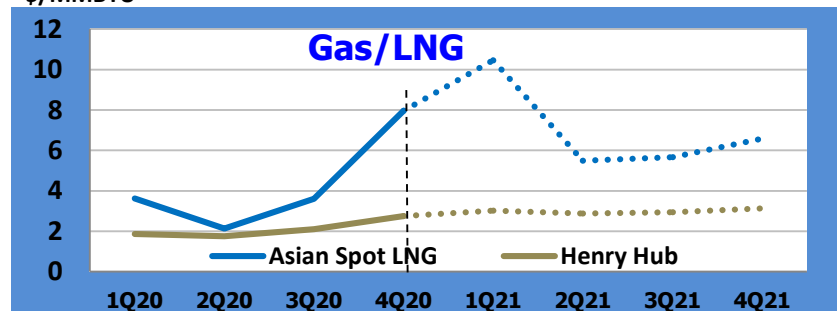
# 2021 Petroleum and Gas Outlook

\$/bbl



Price	Y2020	4Q2020	1Q2021(E)	Y2021(E)
Dubai	42.2	44.6	55-60	55 - 60
Mogas	46.6	48.7	60 - 65	62 - 67
Gasoil	48.4	48.3	59- 64	62 - 67
HSFO (3.5%S)	39.2	44.1	51 - 56	51 - 56
VLSFO (0.5%S)	53.4	54.5	67 - 72	67 - 72
Singapore GRM	0.4	1.2	1.2 - 2.2	1.5 - 2.5

\$/MMBTU



Price	Y2020	4Q2020	1Q2021(E)	Y2021(E)
Asian Spot LNG	4.3	8.0	10.5	6.0 - 8.0
Henry Hub (HH)	2.1	2.8	3.0	2.5 - 3.5

Source: PTT, PRISM Petroleum Rolling as of Jan 2021

## ▲ Dubai

- + **OPEC+ crude oil production cut and Saudi Arabia's additional voluntary cut**
- + **Bullish sentiment from vaccination and economic stimulus package**
- **Market sentiment** was pressured by 2<sup>nd</sup> wave of COVID-19

## ▲ Mogas

- + **Improved demand** on expectation of easing lockdown restrictions from end of 1Q21 onwards
- + **Singapore light distillate inventories** back to normal level
- **More supply** from the ramp-up in refinery runs followed demand recovery

## ▲ Gasoil

- + **Demand expected to recover** in 2H21 due to economic recovery. However, the resurgence of COVID-19 suppressed on industrial activity in the beginning of 2021
- + **Lower supply as refineries shifting gasoil yield to produce more Jet/kerosene** towards the end of the from Aviation sector recovered
- **Singapore middle distillate inventories also remained at high level**

## ▲ High Sulfur Fuel Oil

- + **Lower supply** amid reduced term lifting of medium-heavy sour crude from OPEC+ supports price

## ▲ Low Sulfur Fuel Oil

- + **Healthy bunker and power demand** followed the global trade recovery
- + **Lower supply** owing to crude production cuts by OPEC+

## ▲ Singapore GRM

- + **Improved crack margins** from the recovery of gasoline and gasoil demand

## ▲ Gas/LNG

### Asian Spot LNG:

- + **Bullish winter weather and stock-building demand** from China in 1Q21
- **Downward price pressures** from new supply from 2Q21 onwards

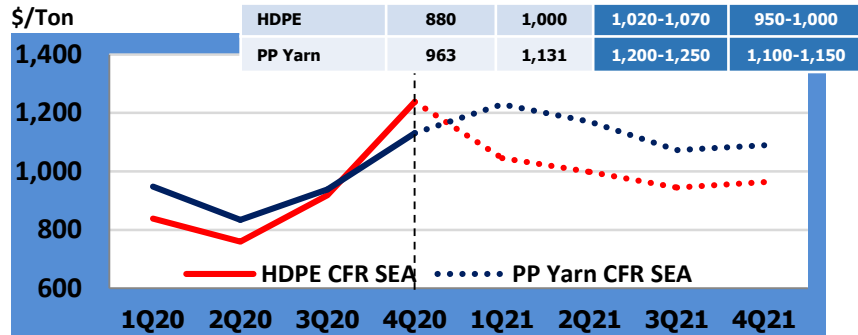
### Henry Hub:

- + **Higher price** due to expectation of strong demand for LNG exports



# 2021 Petrochemical Outlook

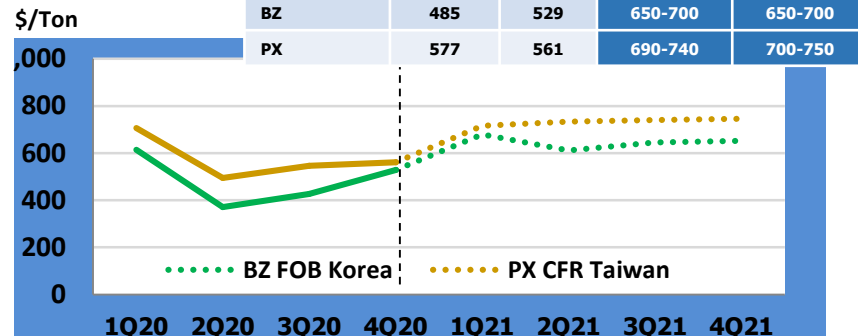
## Olefins



### ▲ Olefins

- + **PE/PP demand improve** relative to expectations of vaccine boosting economic activity and additional stimulus policy in many countries
- + **Strong demand for single-used plastic and medical application** amid ongoing COVID-19 pandemic
- **Incoming additional Asian capacities** from Southeast Asia and Northeast Asia will pressure the markets from 2Q21 onwards

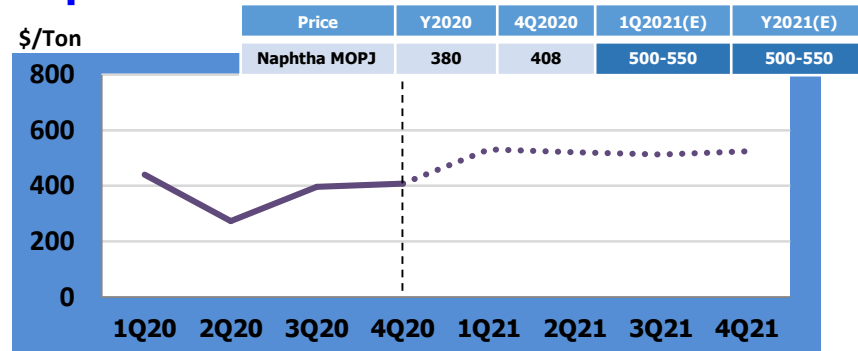
## Aromatics



### ▲ Aromatics

- + **PX/BZ market expected to be more balance** as demand improved after the economic recovery and additional demand from PTA/SM new capacities startup in 2Q21-3Q21
- **Elevated Chinese inventories** to suppress demand growth in 1H21
- **Additional PX/BZ capacities** from Saudi Aramco start-up in 2Q21 and China's Zhejiang PC start-up in 3Q21 will affect market sentiment

## Naphtha



### ▲ Naphtha

- + **New crackers start-up**, particularly in Northeast Asia, to boost demand
- **Eased supply as refinery runs will be higher** following the demand recovery

# PTT Group 2021 Guidance



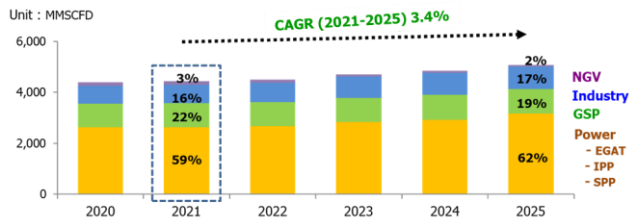
Lower Pooled gas cost:



5-7% VS 2020



**Gas Volume Growth:**  
CAGR 3.4 % during 2021 -2025



**Improve GSP U-Rate**

**GSP's U-Rate**  
92-94% in 2021



**E&P** : + Vol. ↑ ~12%  
+ Unit Cost ↓ ~5%

**OIL** : + Oil Stations ↑ 108 stations/year  
+ Café Amazon ↑ 418 outlets/year

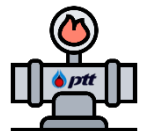
**P&R** : + Refinery ↑ U-Rate ~97-99%  
+ ↑ GRM : SG GRM → \$1.5-2.5 per bbl  
+ ↑ Petrochemical spread

- HDPE \$440-490 per ton
- PP \$590-640 per ton
- PX \$185-235 per ton
- BZ \$110-160 per ton

**Power** : + Power Consumption ↑ ~2%



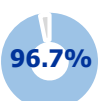
## Upcoming project in 2021



**RA#6 : Ratchaburi - Wangnoi**  
COD: 2Q2021

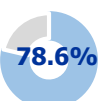
**5th Pipeline**  
With 3 phases

Phase I



COD: 2H2021

Phase II



Phase III

In the process of sourcing contractor  
: To COD in 2022

1Q21

2Q21

3Q21

4Q21



**MTP Retrofit : 750 KTA**  
COD: 1Q2021



**Rayong Waste to Energy**  
COD: 2Q2021



**High-quality Circular Plastic Resin Plant**  
: 45 KTA  
COD: 4Q2021



## Gas Separation Plants 2H21

3Q: **GSP#6** Major TA : 26 days

3Q-4Q: **GSP#3 & ESP** Major TA : 23 days  
ESP TD 60% : 15 days



**2H21: Planned Major TA : Ethane Crackers**

- Oleflex : ~ 1 month
- OLE3 : ~1 month

