Investor Update

March 2023

Contents

Oil Balance Thailand: Jan – Dec 2022

Adequate refining capacity maintains the stability of country supply

Supply	Production	Demand

Supply

Import (88%)
984 KBD

Crude/ Condensate 913 KBD

Indigenous (12%)
131 KBD

Crude/ Condensate 119 KBD

Crude Export 12 KBD

Production

Imported Refined Petroleum Products 71 KBD

Total Refining Capacity in Thailand: 1,242 KBD

PTT's Associated Refineries : 770 KBD
(TOP, PTTGC, IRPC)

Other Refineries : 472 KBD
(SPRC, ESSO, BCP)

Refined Products 1,046 KBD*

Refined Products 162 KBD

Demand

Domestic

944 KBD (**)

Export

174 KBD

Source: PTIT

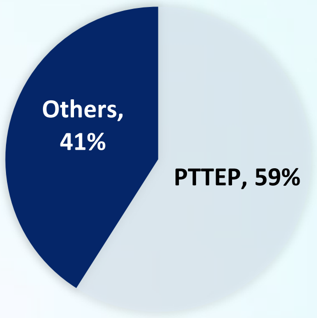
Remark : (*)Refined product from refineries = 968 KBD, including domestic supply of LPG from GSPs and Petrochemical Plants = 78 KBD
(**) Included Inventory
KBD = Thousand Barrels per day

Natural Gas Balance: Jan – Dec 2022

Main driver of the Thai economy

Supply

Gulf of Thailand (53%)

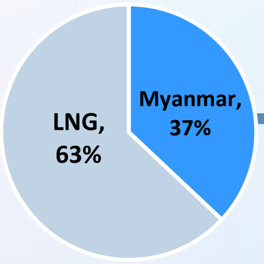


2,224 MMSCFD

Onshore (3%)

109 MMSCFD

Import (44%)



1,839 MMSCFD

Production

6 GSPs
Total Capacity
2,870 MMSCFD @ Actual Heat

Ethane/ Propane/ LPG/NGL

780 MMSCFD (18%)

LPG/NGL

Methane
1,231 MMSCFD

Bypass Gas
213 MMSCFD

Sales

Petrochemical Feedstock (11%)

Industry Household Transportation (7%)

Power (59%)
Industry (20%)
NGV (3%)

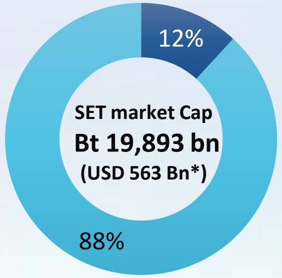
Remark: MMSCFD = Million Cubic Feet @ Heating Value 1,000 Btu/ft^3

PTT's Strategic Importance to Thailand

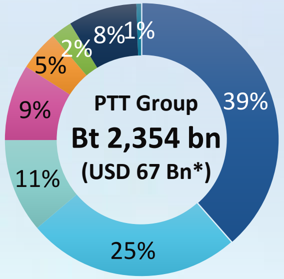
Market Cap : SET & PTT Group

Unit: MB

Note: As of Feb 28, 2023



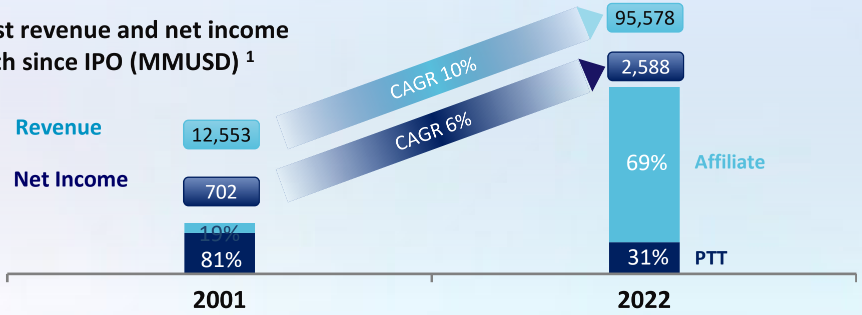
- PTT Group 12%
- Others 88%



PTT	39%
PTTEP	25%
OR	11%
PTTGC	9%
TOP	5%
IRPC	2%
GPSC	8%
GGC	1%

* As of Feb 28, 2023, BOT selling rate USD/THB of 35.3155 (End rate)

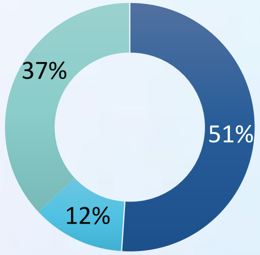
Robust revenue and net income growth since IPO (MMUSD) [1]



[1] 2022 Annual, BOT selling rate USD/THB of 35.23 (Avg. rate)

Ministry of Finance holds majority stake in PTT

Note: As of Sep 29, 2022



Thai Ministry of Finance	51%
Vayupak Fund	12%
Public	37%
Foreign	9%
Thai	28%

PTT Ratings at Sovereign Level

	Moody's	Standard & Poor's	Fitch Ratings
FC	Baa1	BBB+	BBB+
PTT-FC	Baa1	BBB+	BBB+
PTT-LC	Baa1	BBB+	BBB+

International and local recognition

Forbes 2022 GLOBAL 2000 WORLD'S LARGEST PUBLIC COMPANIES
#232nd
in 2022
234th in 2021
170th in 2020

S&P Global Commodity Insights
TOP 250 GLOBAL ENERGY COMPANY RANKINGS
#36th
in 2022
45th in 2021
23rd in 2020

FORTUNE GLOBAL 500
#177th
in 2022
206th in 2021
140th in 2020

Dow Jones Sustainability Indexes
DJSI Member
2011-2022
(11th consecutive years)

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

+ International **E&P** business
1,442 mmboe proved reserves
or 6.8 years in 2022

+ **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 **>17 mtpa**

+ **Leading oil marketing business** in Thailand
2,551 retail stations[2]
and **~43%[2]** of market share by sales volume

+ **International oil trading** business having traded
127.1 bn litters [1] in 2022

+ **Power Plant flagship with equity power capacity of**
7,225 MW[2]

[2] As of Dec 2022

PTT Group Businesses and Activities

Upward Integration
(PTT Operate through our subsidiaries)

E & P

PTTEP (65.29%)
- Oil, Gas, Condensate
- > 50 Projects in 15 Countries
- 1,442 mmboe proved reserves or 6.8 years in 2022

LNG

ptt GLOBAL LNG (100%)[1] ptt LNG (100%)

- LNG Value Chain
- LNG Receiving Facilities

Coal

Coal Mine in Indonesia — ptt GM (100%)

(Completely divestment in Feb'23)

PTT Own Businesses
(PTT's own operation)

Natural Gas

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

Trading

- Crude Procurement
- Import/Export
- Commodity Hedging
- Int'l Office: China/ Singapore/ Abu Dhabi/ London/ USA/ Thailand
- Traded 127.0 bn liters

New Business and Infrastructure

- Innovation & New business
- Engineering & Infrastructure
- Innovation Institute

Downward Integration
(PTT Operate through our subsidiaries)

Oil & Retail

OR (75%)
Market Share ~ 43%[2]
- Oil (2,158 stations in Thailand[2])
- Non-oil Retail
- Lubricants
- International Oil & Retail

Refineries

Thaioil, GC, IRPC (~48%)
Market Share > 50%
- Largest refinery group in Thailand : 3 of 6 refineries

Petrochemicals

GC, IRPC (~48%)
Market Share > 50%
- Integrated Refineries & Petrochemical

Power

GPSC (~ 75%[3])
7,227 MW (equity portion)
- Electricity
- Steam & Chill Water
- Energy Storage

New Business

Future Energy

- Renewable Energy — GRP (50%), GPSC (~75%) — PTT Group's renewable energy portfolio is ~2.8 GW[2]
- EV Chain — ARUN+ (100%), EVme (100%), SWAP&GO (100%), HORIZON+ (60%), NUOVO+ (51%), OR (75%), GPSC (~75%)
  - EV Service platform & Electric Vehicles/ Batteries
  - 131 EV Charging stations

Beyond Energy
- Life Sciences
- AI Robotics

Innobic (100%)
- Pharmaceutical
- Medical device
- Nutrition

Lotus — Direct & indirect target 37%[4]
Inno Polymed — JV with IRPC (PTT 40 : IRPC 60)
NRF — JV with NRF (50:50)

- AI / Robotics — PTTEP, RAISE (50%)
- Cloud service, Data center — MEKHA TECH (100%)
- Digital platform — ECOSYS (100%), re&cc (100%)

Remark: Percentage holding as of Dec 2022

[1] Increase stakes to 100% in Jun 2022 / [2] As of Dec 2022 / [3] Holding portion of PTT Group (direct & indirect) / [4] Target stakes (start to recognize income since Apr 2022)

Contents

Key Activities in 2022

Core Businesses

Fully COD LNG Map Ta Phut Terminal 2 with capacity 7.5 MTPA, resulted in total LNG Receiving terminal at 19 MTPA

PTTGL signed 20-year LNG contracts with Cheniere for 1 MTPA beginning offtake in 2026

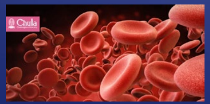
PTT-PTTEP: Signing of Gas, Condensate and Crude Sale Agreement of G1/61 and G2/61 Projects

Completely divestment of coal business on 15 Feb 2023

Future Energy & Beyond

Pharmaceutical

- Acquire additional stakes in Lotus Pharmaceutical to be 37%. Profit contribution started in 2Q22



- R&D with Chulalongkorn on an innovation against aging cells 'Molecule Manee Daeng'

Nutrition

- Building Innobic Nutrition Brand & Expand portfolio
- Investing 20% in Interpharma to cover full range of health care products
- The first plant-based food community store to present future lifestyle
- JV with Plant and Bean to construct plant-based factory which will complete construction in 2Q23

Medical device

- Start commercial production of non-woven fabric capacity 5.6 KTA by Innopolymed in 1Q23
- Investing 17.65% in Namwiwat for medical products in the healthcare market

EV Value Chain

- Start construction of the EV manufacturing facility, and progress with collaboration in battery business

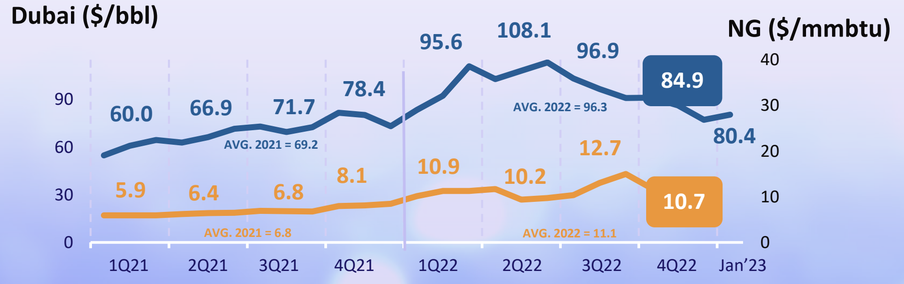
Logistics & Infrastructure

- Setup a logistic business by Global Multimodal Logistics Co.,Ltd.

Key Drivers

AVG. Dubai Prices ($/bbl)
- ▼ 12% QoQ
- ▲ 8% YoY
- ▲ 39% 2022 vs 2021

AVG. Pool Prices ($/mmbtu)
- ▼ 16% QoQ
- ▲ 32% YoY
- ▲ 64% 2022 vs 2021



HDPE ($/ton)
- ▼ 6% QoQ
- ▼ 17% YoY
- ▲ 2% 2022 vs 2021

PX ($/ton)
- ▼ 10% QoQ
- ▲ 10% YoY
- ▲ 28% 2022 vs 2021

Key Performance

Net income
17,872 MB
▲ >100% QoQ

NI improved mainly from gain on FX & lower stock loss despite soften operating performance

PTT
- **Gas:** Lower pool gas cost result in the increase performance in S&M and NGV
- **Trading :** Lower margin per unit from downward trend of global oil price as well as mark to market of inventory

PTTEP

Higher recognition loss of non-recurring item including impairment loss despite strong operating performance

Thaioil / GC / IRPC
- Higher gain on FX
- Petrochemical : Lower product spreads and sale vol.
- Refinery: Lower sales vol.

OR
- Squeezed oil margin
- Higher non-oil sales revenue

NBI / Innobic / GPSC

Lower revenue from pharmaceutical business and Lower contribution from Xayaburi and SPP profit margin

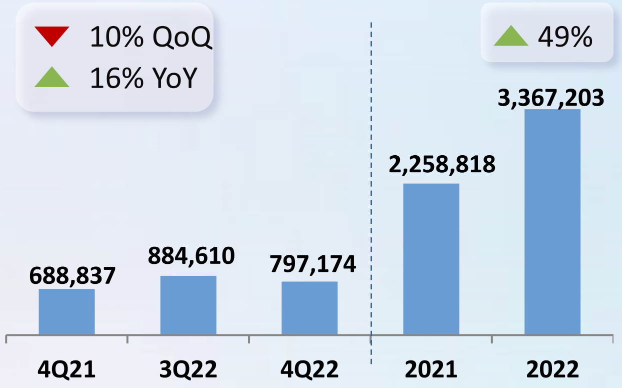
PTT Consolidated Performance: 4Q22 & 2022

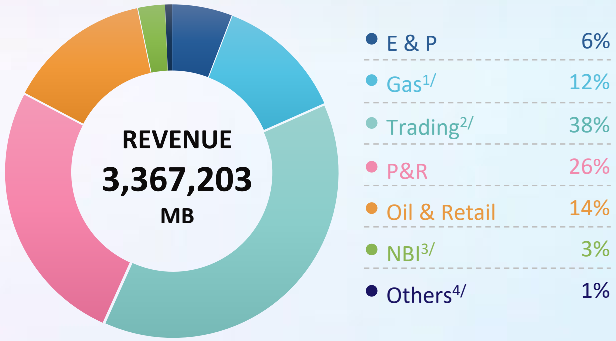
QoQ NI improved mainly from gain on FX and lower stock loss, despite soften operating performance

2022 vs 2021 Soften NI due to higher derivatives loss, despite improved operating performance

REVENUE

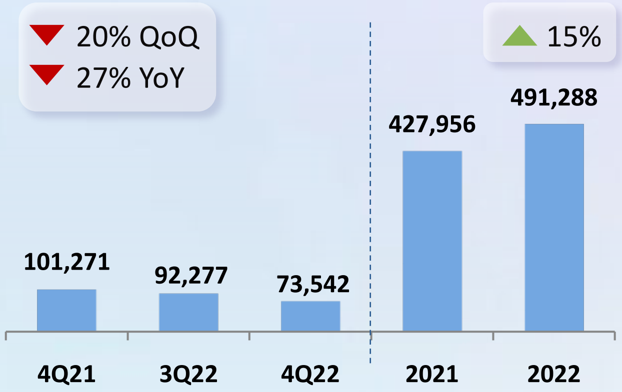
Unit: MB

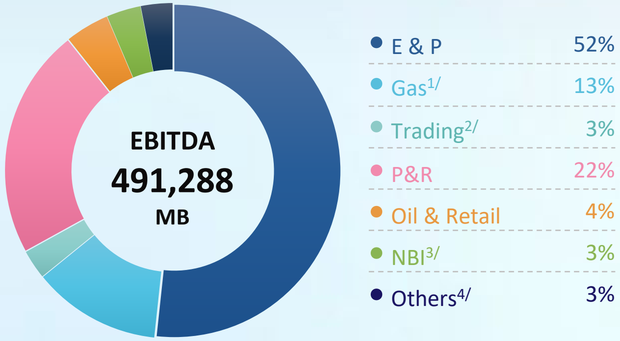




EBITDA

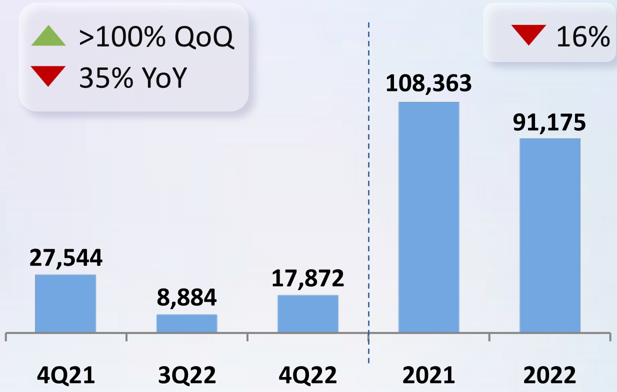
Unit: MB

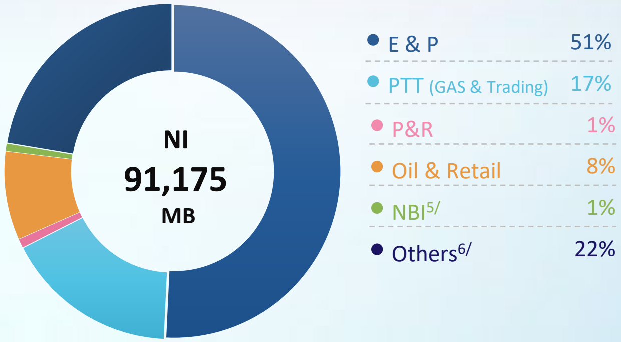




Net Income

Unit: MB



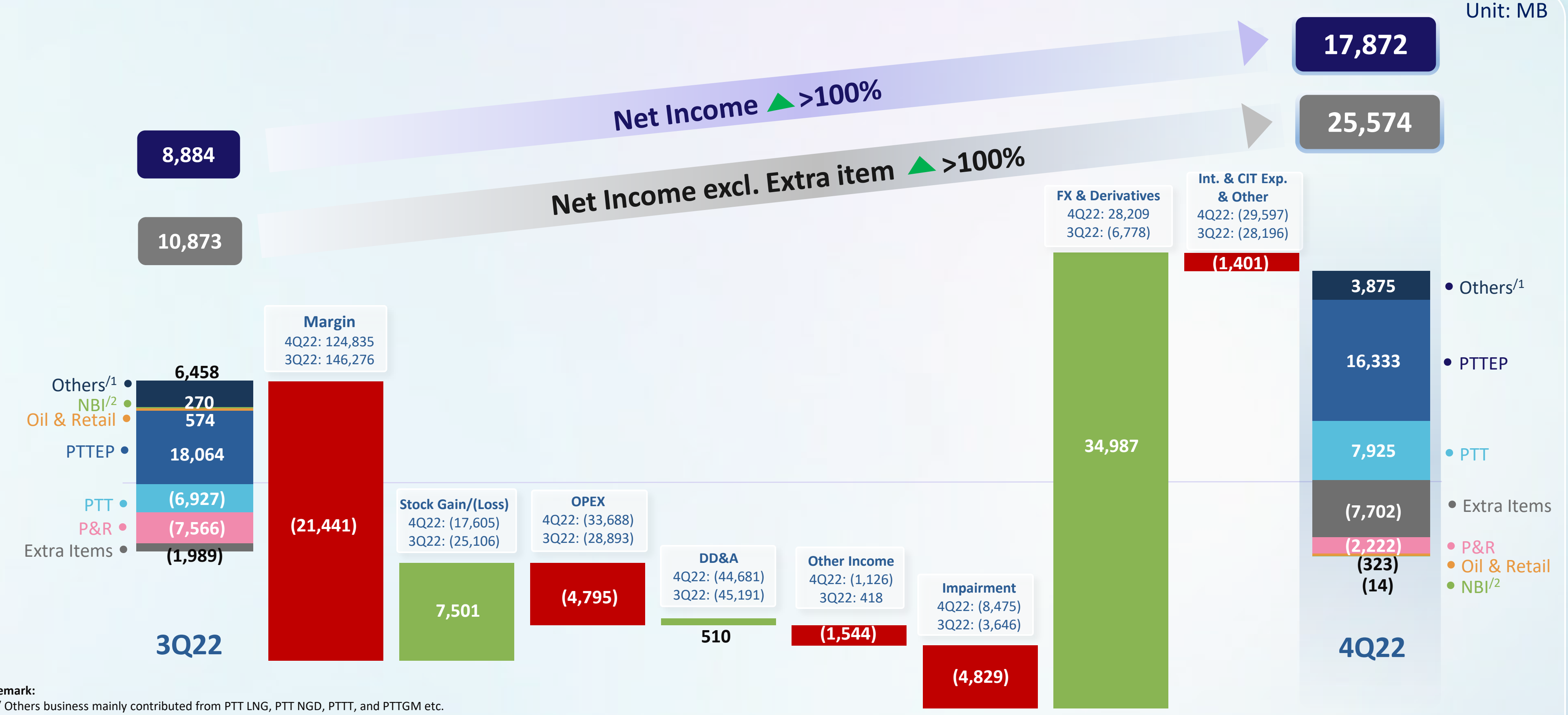


Remark:
1/ PTT Gas business and affiliates
2/ PTT Trading business and affiliates
3/ New Business and Infrastructure mainly contributed from power business
4/ Others business mainly contributed from coal business

Remark:
5/ New Business and Infrastructure mainly contributed from power business
6/ Others business mainly contributed from PTT LNG, PTT NGD, PTTT and PTTGM etc.

4Q22 vs 3Q22 PTT Consolidated Performance (QoQ):

NI improved mainly from gain on FX lower stock loss, despite soften operating performance



Remark:
1/ Others business mainly contributed from PTT LNG, PTT NGD, PTTT, and PTTGM etc.
2/ New Business and Infrastructure business mainly contributed from power business

▲ >100% Higher gross margin and gain on FX — ptt

▲ Gas

+ S&M
+ Lower pool gas cost
- Overall gas sales vol. decreased

– GSP
- Soften avg. selling prices
- Lower sales vol.
- Higher feed gas cost

▼ Trading

- Lower margin per unit from downward trend of global oil price and spreads as well as higher loss from mark to market on inventory
- Lower sales vol. from crude and LNG import (Out-in trading)

▼ 10% E&P

– Higher recognition loss of non-recurring item including impairment loss
+ Strong operating performance

▼ >100% Oil & Retails

– Squeezed oil margin from higher import during refinery turnaround
+ Higher non-oil sales revenue

▲ 71% P&R

Gain on FX, despite loss on operation

▼ Petrochemical
– Lower product spreads
– Lower sales vol.

▼ Refinery
– Lower sales vol.
+ Lower stock loss
+ Improved Market GRM

▼ >100% NBI

– **Innobic**: Lower revenue from pharmaceutical business
– **GPSC**: Lower contribution from Xayaburi and SPP profit margin

▼ 40% Others

– PTTT: Dropped in spread margin and sales vol.

▼ 38% Extra Items*

4Q22: Net loss ~-7,700 MB mainly from
- PTTEP's impairment loss on Mozambique's goodwill ~-4,300 MB
- PTTEP's expense for the mediation on lawsuit brought by Indonesian seaweed farmer ~-3,000 MB
- PTT's donation to oil fund -2,000 MB
- PTTEP's adjusted of Oman Block 61 ~+1,600 MB

3Q22: Net loss ~-2,000 MB mainly from
- PTTEP's impairment loss on assets held-for-sale ~-2,300 MB
- PTT's donation to oil fund -1,000 MB
- PTT's discounted benefit from gas shortfall ~+900 MB

(*PTT's portion net tax amount)

Gas Key drivers

QoQ

Gas pool price dropped from lower LNG import despite NG sales vol. decreased

- ➕ Avg. pooled gas price dropped from lower vol. & price of imported LNG despite increased gulf & Myanmar gas costs following higher referenced price
- ➖ Decreased overall NG sales vol. mainly from power producers due to seasonal demand and switching of fuels to use diesel

Lower GSP's avg. selling prices and higher feed cost

- ➖ Decreased avg. GSP's selling prices following referenced global petrochemical prices together with higher feed gas cost
- ➖ Lower GSP sales volume following lower demand of petrochemical customers

2022 vs 2021

Surging pool gas cost and lower NG sales vol.

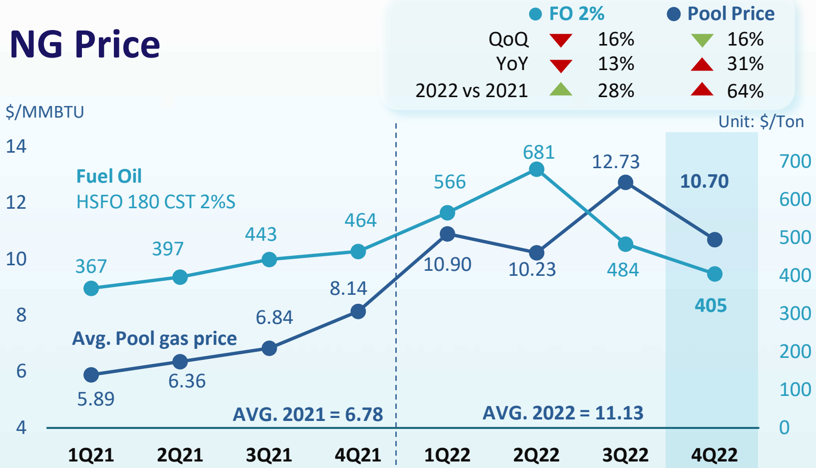
- ➖ Avg. pool gas price significantly increased from higher LNG import during global energy crisis due to lower supply of gulf gas
- ➖ NG sales vol. dropped due to lower gas supply from the gulf gas field and the switching of fuels for power generation

Higher avg. selling prices of GSP amid higher feed cost

- ➕ Increased GSP's selling prices following global petrochemical prices amid increased feed gas cost
- ➖ Lower GSP sales volume following lower gulf gas supply

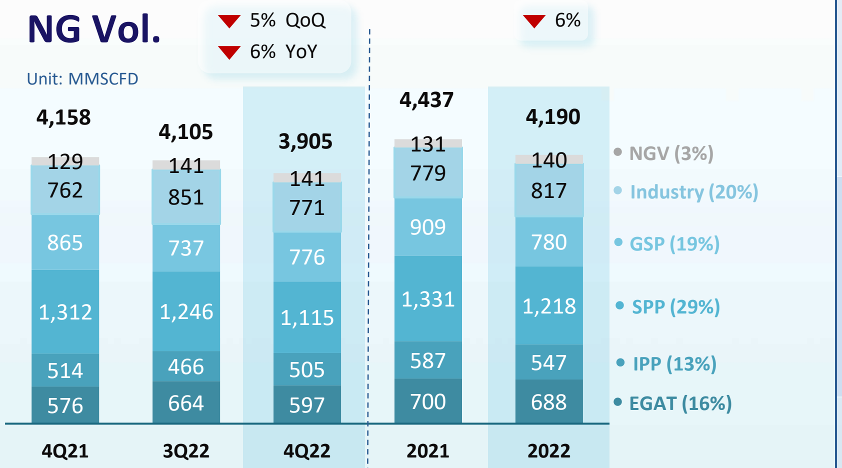
NG Key drivers

NG Price



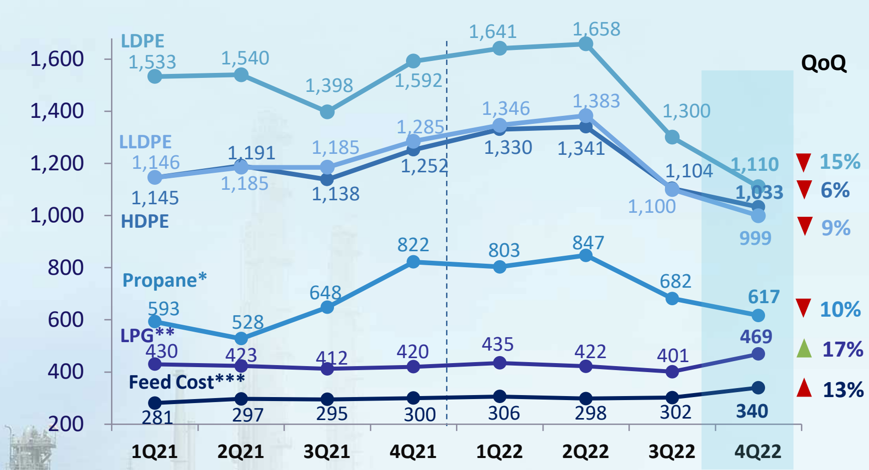
* Energy pool price effective from May 2022, Avg. price in 2Q22 = 380.95 THB/MMBTU , 3Q22 = 550.52 THB/MMBTU , 4Q22 = 485.12 THB/MMBTU

NG Vol.



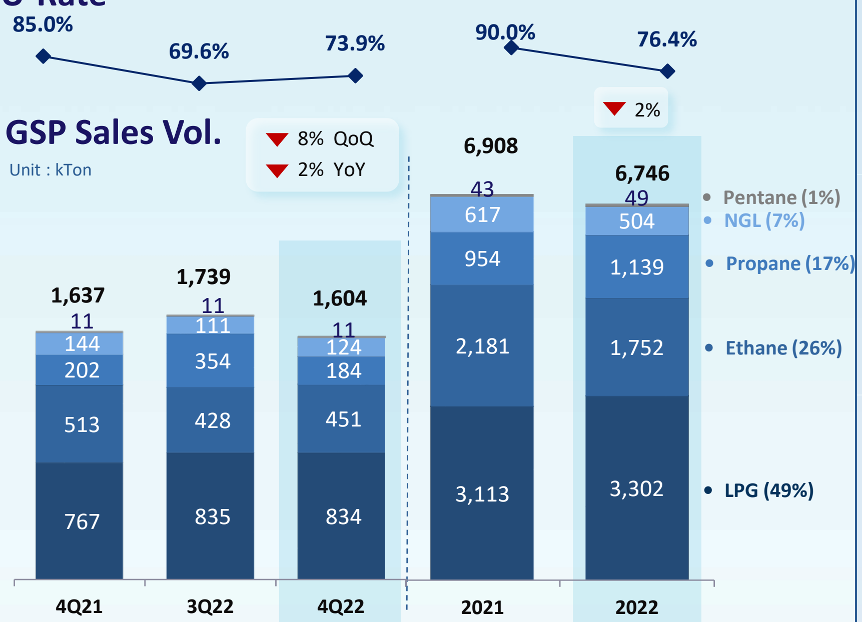
GSP Key drivers

GSP Feed Cost vs Petchem. Prices



* LPG price selling to Petro customers close to propane **LPG Domestic ***feed cost calculation per GSP production volume

U-Rate
GSP Sales Vol.



GAS – EBITDA

QoQ

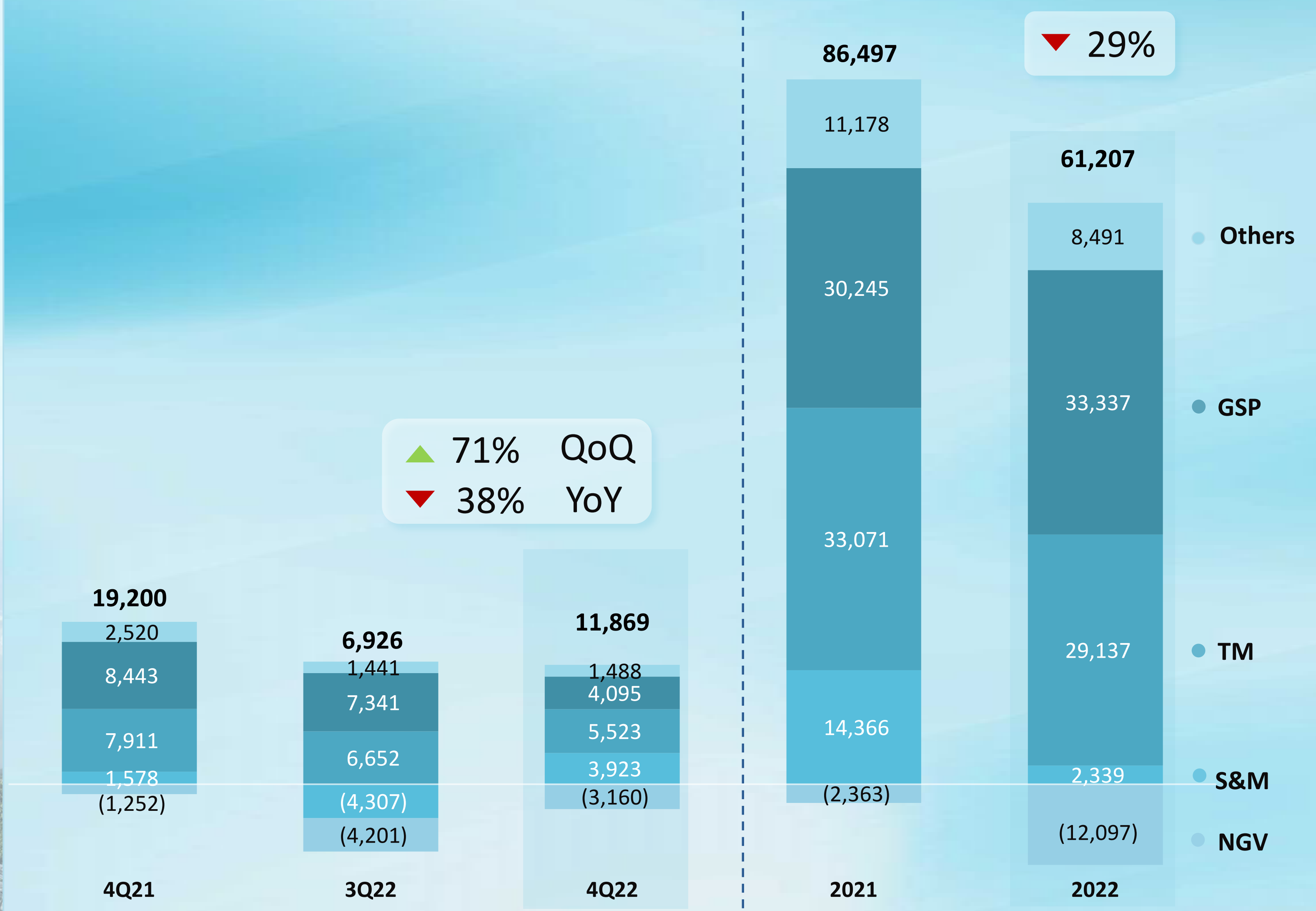
EBITDA increased from S&M and NGV mainly from lower avg. pool gas cost

- \+ S&M increased from lower avg. pool gas cost and higher avg. selling price to industrial customer
- \+ NGV increased mainly from lower gas cost and price uplifted
- – GSP dropped from higher feed gas cost and lower avg. GSP's selling prices following referenced global petrochemical prices
- – TM dropped from revised gas pipeline tariff and higher maintenance expense
- \+ Others slightly increased from lower avg. pool gas cost

2022 vs 2021

EBITDA dropped from S&M and NGV from higher avg. pool gas cost

- – S&M decreased from higher avg. pool gas cost and lower sales volume
- – NGV dropped following higher gas cost together with the capped NGV retail price
- – TM decreased from revised gas pipeline tariff rates since August 2022
- \+ GSP increased due to higher avg. selling prices despite higher feed cost
- – Others decreased from higher avg. pool gas cost



Note : NGV price for private and other vehicles uplifted to 17.59 baht/kg since 16 Dec 2022

Trading Business

QoQ

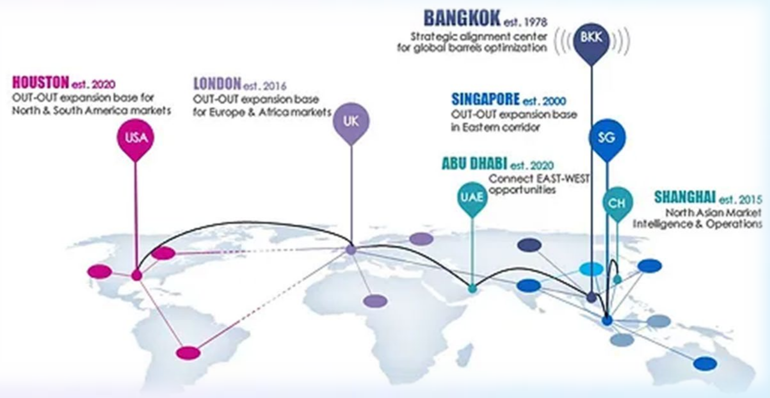
Significantly dropped in EBITDA from lower margin and sales volume

- (–) Margin decreased due to lower product spread and mark to market loss following lower crude oil price in 4Q22 together with higher condensate discount
- (–) Decreased sales vol. from lower LNG and crude import

2022 vs 2021

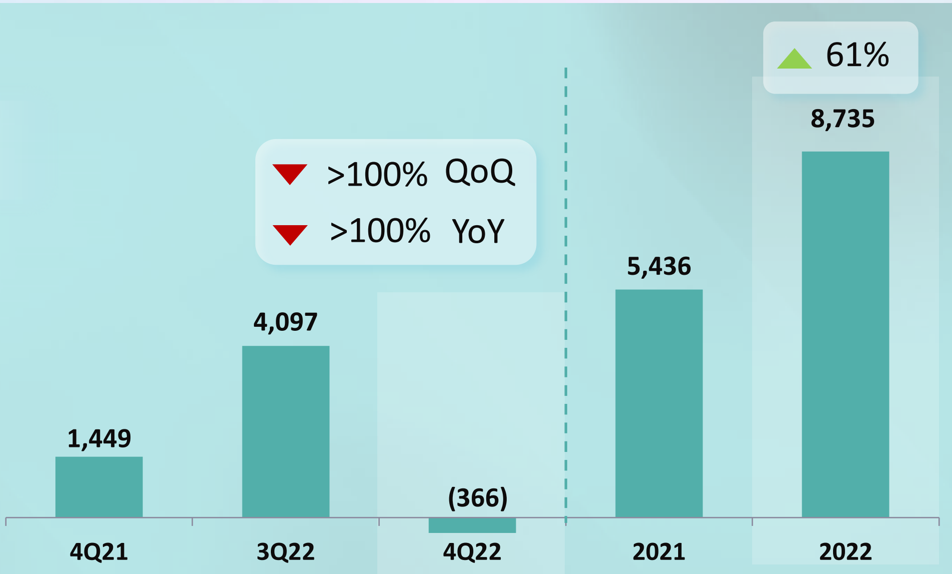
Enhanced EBITDA owing to improved sales volume

- (↔) Margin maintained from higher spread of crude oil, LPG, gasoline, and LNG, while higher condensate discount
- (+) Volume increased due to higher imported LNG & LPG as a result of lower domestic gas supply and crude import following recovered domestic demand



Trading – EBITDA[1/]

Unit: MB



[1/] PTT Trading BU + trading subsidiaries: FX Adjusted + gain/loss on derivatives + Joint Trade Agreement (JTA)

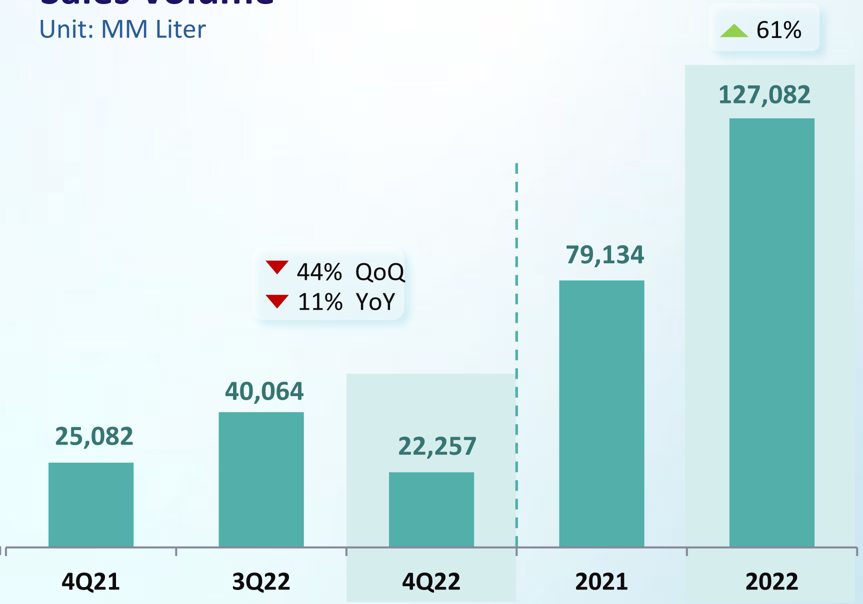
Key Drivers

Gross Margin[2/]

Unit: THB/Liter

Sales Volume[3/]

Unit: MM Liter



[2/] PTT Trading BU + trading subsidiaries: FX Adjusted + gain/loss on derivatives

[3/] PTT Trading BU + trading subsidiaries + JTA

Financial Position

Strong Balance Sheets and credit ratings maintained

Assets

- Increase in Inventories and accounts receivable from higher product prices and inventory volume
- Increase in Others Non-current Assets from increased investment in associates from GPSC, GC, PTTGM as well as right-of-use assets from PTTEP
- PPE increased mainly from exploration and evaluation assets of PTTEP and Clean Fuel Project (CFP) of TOP

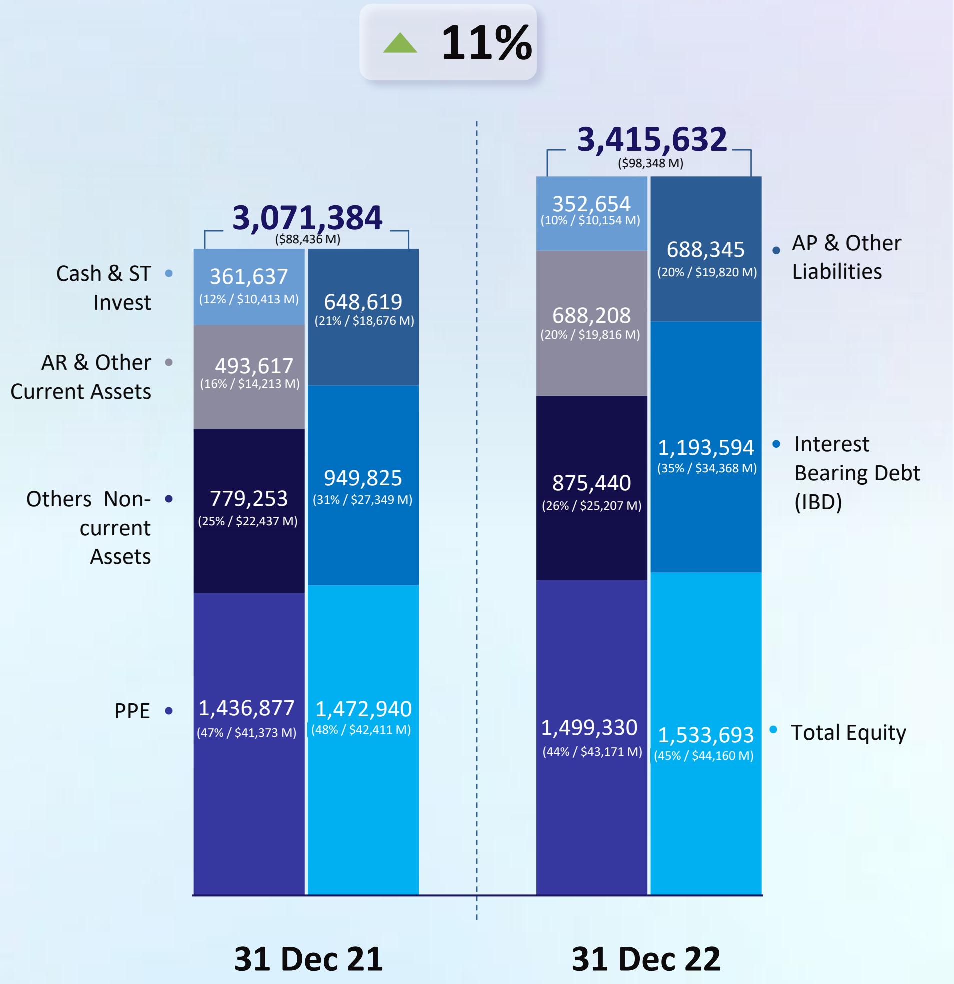
Liabilities & Equity

- Increase in IBD from long-term loans and bonds issuances from GC, PTT and TOP as well as short-term loans mainly from TOP, IRPC, and GC
- Increase in Equity due to PTT group's net profit net off with dividend payment

* As of Dec 31, 2022, BOT selling rate USD/THB of 34.73 (End rate)

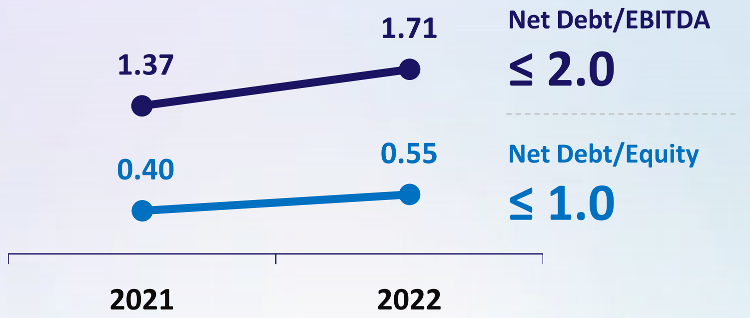
Consolidated Balance Sheets

Unit: MB



Key Financial Ratios

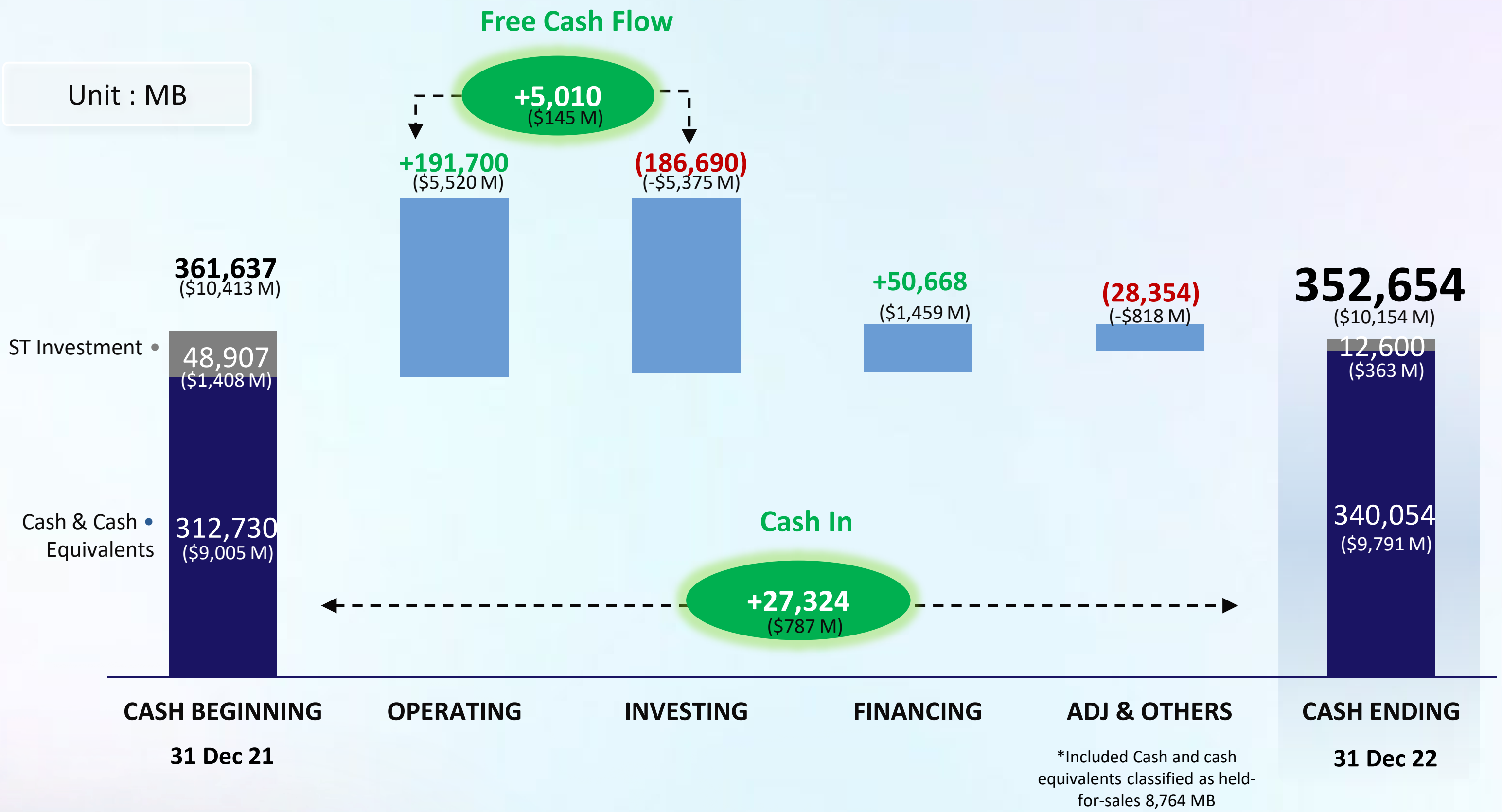
Unit: MB



PTT Ratings at Sovereign Level

Moody's	S&P Global Ratings	Fitch Ratings
Foreign & Local Currency	Foreign & Local Currency	Foreign & Local Currency
Baa1	**BBB+**	**BBB+**

PTT Consolidated Cash Flows 2022



Operating 191,700 MB

Non-Cash Adjustment	364,977
Net Income	91,175
Changes in assets & liabilities	(178,970)
Income Tax	(85,482)

Investing (186,690) MB

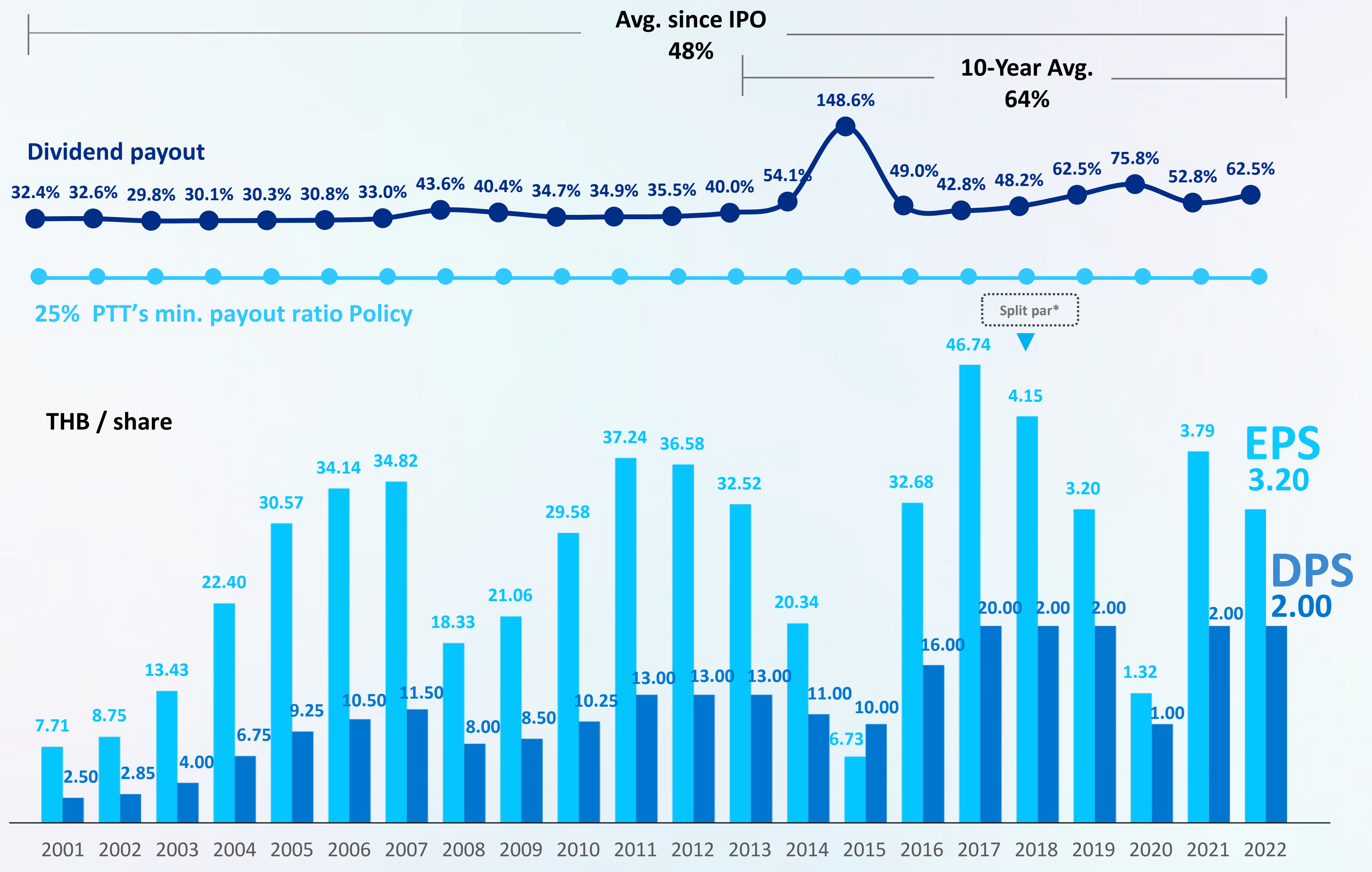
CAPEX (PPE, Intangible asset)	(171,813)
Investment (Sub. & Affiliates)	(60,905)
Others	(1,266)
Current investment	37,031
Dividend/Interest Received	10,263

Financing 50,668 MB

Received from loans/Bonds	171,139	Received from share issue	9,034	Dividend paid	(85,923)
Finance cost paid	(36,198)	Repayment Subordinated Bond	(4,988)	Others	(2,396)

* As of Dec 31, 2022, BOT selling rate USD/THB of 34.73 (End rate)

Dividend Policy & Historical Payments



* Split par value from 10 to 1 Baht/share since 24 Apr 2018

DPS

2.00 THB/Share

(1H22: 1.30, 2H22: 0.70)

Payout Ratio

62.5%

Payment Date

28 April

Contents

PTT's vision is revised to set aspirations along with future trends

PURPOSE

Conduct business that powers the ways of life

Powering Life

with Future Energy and Beyond

STRATEGIC POSITIONING

By expanding into the business of future energy and new business beyond energy industry

Powering life with

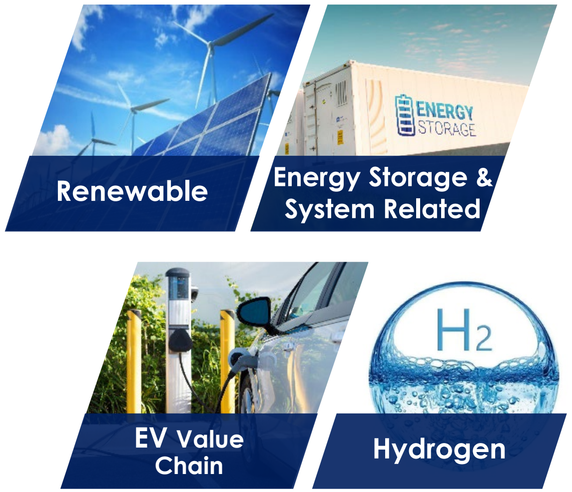
Future Energy and Beyond

Strategic Positioning

focus more on future energy trend

and new businesses that have potentials to grow

Future Energy



Beyond

Moving toward future energy and energy technologies which are clean and environmental friendly as well as stepping into new potential businesses that support people live and drive people well-being

Overall Strategic Direction to achieve purpose of New Vision

Long-term target (2030) for new vision

1 New growth

NI from Future Energy and Beyond > 30%

2 Business growth

LNG*	9 MTA
Power (Conventional)	8 GW
Renewable energy	12 GW

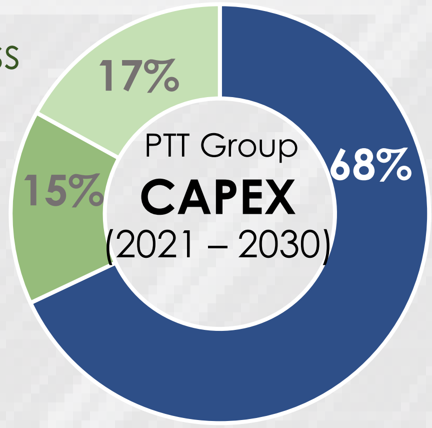
3 Clean growth

15% GHG reduction from 2020

Future Energy & Beyond 32%

New business

Future Energy (RE, ESS, EV)



Hydrocarbon Business (E&P, Gas, LNG, Power, P&R, Oil)

* LNG Equity and controlling of portfolio volume

Strategic Direction by Business

Business	Direction
E&P	• Expand growth for high return asset & mainly invest in gas assets
Gas	• Build global LNG portfolio
P&R	• Supply chain integration • Move to high value business
Oil & Retail	• Grow in retail with customer-oriented • Move to mobility & lifestyle
Power	• Accelerate growth in Thailand & region
New Energy	• Expedite growth in new energy e.g. renewable, energy storage & system related and EV value chain
New business	• Scale up potential business e.g. life science, logistics & infrastructure

At A GLANCE : PTT Group Business Plan 2023-2027

Upstream

"Sustainable Growth through **Integrated Gas Value Chain**"

Downstream

"**Lasting legacies** and **Go beyond** Downstream Business"

New Business & Infrastructure

"**Move PTT Forward**"

ESG

NET ZERO 2050

3P Decarbonization Pathways

Pursuit (~30 %)	Portfolio (~50 %)	Partnership (~20 %)
of Lower Emission เร่ง **ปรับ** กระบวนการผลิต	Transformation เร่ง **เปลี่ยน** สู่ธุรกิจที่เป็นมิตรต่อสิ่งแวดล้อม	With Nature and Society เร่ง **ปลูก** ป่าเพิ่มอีก 1 ล้านไร่
Clean Growth **15%** GHG reduction from 2020 by 2030	**Business Growth** **RE 12 GW** by 2030	**Reforestation** PTT **1,000,000** Rai by 2030
GHG Reduction Initiatives Carbon Offset/ RECs	**Green Portfolio** Future Energy and Beyond **32%** of CAPEX 2021 - 2030	**PTT's Existing** **1,115,185** Rai

Remark: 1 Rai = 0.4 Acre

Upstream Business Growth

- Sustainable Growth through Integrated Gas Value Chain -

E&P strengthen to ensure gas supply continuity

Maximize production from existing assets
- G1, G2, Arthit, Contract4, MTJDA

Expedite development projects
Mozambique Lang Lebah

Increase more gas supply from regional
OCA Vietnam

Ensure competitive gas supply security

Secure natural gas from Gulf of Thailand and regional to maintain GSP Operation as well as National security
Thailand Myanmar Vietnam OCA Malaysia

LNG Acquire additional spot and term contract of LNG

Develop facility to create LNG Reserve model for security and commercialize

Enhance competitiveness

Optimize Gas & NG Products supply
GSP7, GSP8 & C2 Tank | Propane, LPG Supremacy | C3/ LPG Storage Tank

LMPT-1 + LMPT-2
Synchronize facilities between LMPT-1 and LMPT-2
- Interconnecting Pipeline

LNG Sourcing supply to support Thailand partially regulated market and international market

Expand commercial portfolio in domestic

Expand LNG Business to international
CLMV China

Enhance infrastructure to support LNG Hub activities

Downstream Business

Transforming Downstream Business along with Energy Transition

LASTING LEGACIES

Enhance Energy Resilience
Collaboration Platform

Ensure Supply Stability through Digitalization
Hydrocarbon Value Chain Collaboration Tower

Enable Energy Transition by Group Synergy
Synergy between Upstream & Downstream

Expedite Downstream Portfolio Transformation for Sustainable Growth
Reshaping PTT's refinery portfolio

GO BEYOND WITH DOWNSTREAM

Moving forward with HVB
Sale & Marketing Collaboration of GC Group

Empowering All Toward Inclusive Growth in Mobility & Lifestyle
Seamless Mobility & All Lifestyle Ecosystem

Establish ABI as SPRINGBOARD to go BEYOND
13 Chemical Segments Prioritization for Value Chain Linkage in PTT Beyond Business

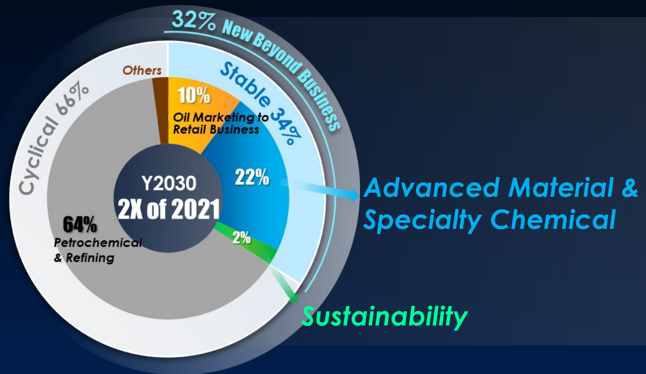
Stepping into Sustainability

1 WATER MGMT. BUSINESS

2 SAF collaboration

3 De-Carbonization
(CCUS, Green chemical/fuel)

Establish ABI as SPRINGBOARD to go BEYOND



D-GA's ROLE

- **Build 10% Downstream EBITDA** portfolio from new business
- **Build Synergies & Accelerate** PTT Group Supply Chain Linkage and Complete Value Chain in PTT Beyond Business

Lasting Legacies

Thaioil – **Refinery Flagships**

IRPC – **Integrated Refinery & Petrochemical**

GC – **Petrochemical Flagship**
Global Chemical for better living

Advanced Business Integration (ABI)

OR – **Mobility & Lifestyle Business**
Empowering All toward Inclusive Growth

ptt TANK – **Tank & Terminal**
Southeast Asia Preferred Tank Terminals Operator & Logistic Solutions Provider

- Enhance **operational excellence**
- **Optimization &** build up **synergy**
- Keep **Resilience**

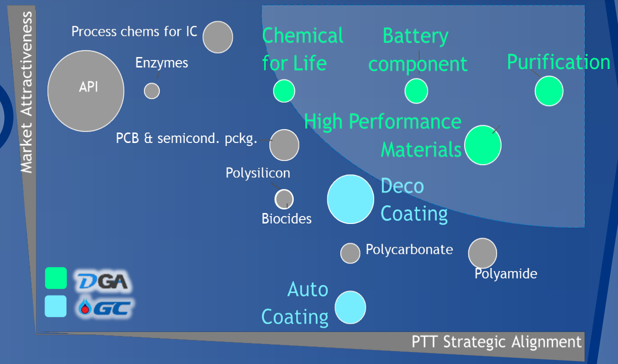
Industries Focus

Construction
Electronics
Automotive
Aerospace

Segment of Focus

Coating & Adhesive Resins
HPPs & Composites

13 Chemical Segments Prioritization for Value Chain Linkage in PTT Beyond Business



End Use

Automotive Part
EV Battery
Membrane
Hygiene & Healthcare

Chemical & Components → **End Application**

Future Energy & Beyond
Move PTT Forward

Renewable Energy (RE)

Focus invest in RE domestic & Expand more in target countries

Now	2026	2030
≈ 2.7 GW	7 GW	12 GW

Hydrogen

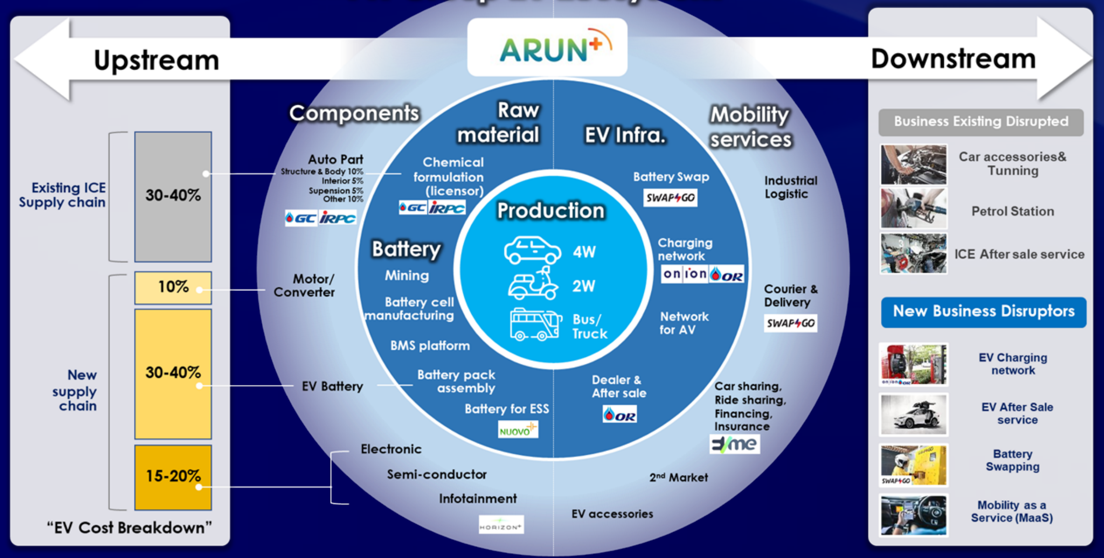
- Green H_2/ammonia production in Thailand
- Demand outreach (PTT Group & External)
- Policy and regulatory driven
- Financial support exploration


Plan to establish Green H_2 & derivative production facilities in Thailand (with ACWA Power)


Launch Thailand's first H_2 fueling prototype station


Study H_2 blending on industry gas turbine

EV Value Chain & Energy Storage System



Battery

Battery cell manufacturing

EV Production

Horizon+ COD in 2024
Capacity: 50,000 Unts/year

EV Infra.

Boost up EV infrastructure

Mobility Services

Expand fleet service (B2C & B2B)

Move from startup to commercial

Future Energy & Beyond
Move PTT Forward

Life Science

Realize Value & Strengthen Business

for creating a wellness ecosystem through INNOBIC

Pharmaceutical

Leverage Lotus/ Alvogen TH as growth platform

Rebrand to "Innobic Pharma" & Establish local presence (Bring know how R&D to TH)

Lotus | Alvogen

Strengthen across Pharma value chain

- Set up local manufacturing (API*) — Chemical Generic
- Identify product & explore opportunity — Biologic / Biosimilar
- Collaborate local & international R&D — Personalized / advanced medicine

Medical Technology

Strengthen production of Medical Supply/ Consumable

Speed up product launch

Medical Supply Consumable / HVPs & Implant / Medical Device / Digital Device / Diagnostic

Nutrition

NRPT → Production: PLANT&BEAN — Complete Construction 2Q2023

R&D & Product

Marketing: alt. — Opening 6 Stores in 3 years

→ **Building Innobic Nutrition Brand & Expand portfolio**

Future Energy & Beyond

Move PTT Forward

Logistic and Infrastructure

Powering Thailand to be Global Logistics Hub
by Developing Modernize Infrastructure and
Total Solution Services with Leading Technology

RAIL & TERMINAL

Integrated international rail transport through Thailand as a gateway

Maximize asset utilization (Container Yard) & Seek potential customers to utilize rail transportation

Sea Port Connection : Lam Cha Bang Phase 3

AIR LOGISTICS

Co-develop air logistics business with partner

Air Cargo

Smart Warehouse Business

COLD CHAIN

Fully integrated cold chain solutions provider

- Cold chain warehouse for fruit & Seafood
- Fruit & Seafood processing
- Logistics Related Trading Platform

ASSET SHARING

Develop smart & modern logistics solution business

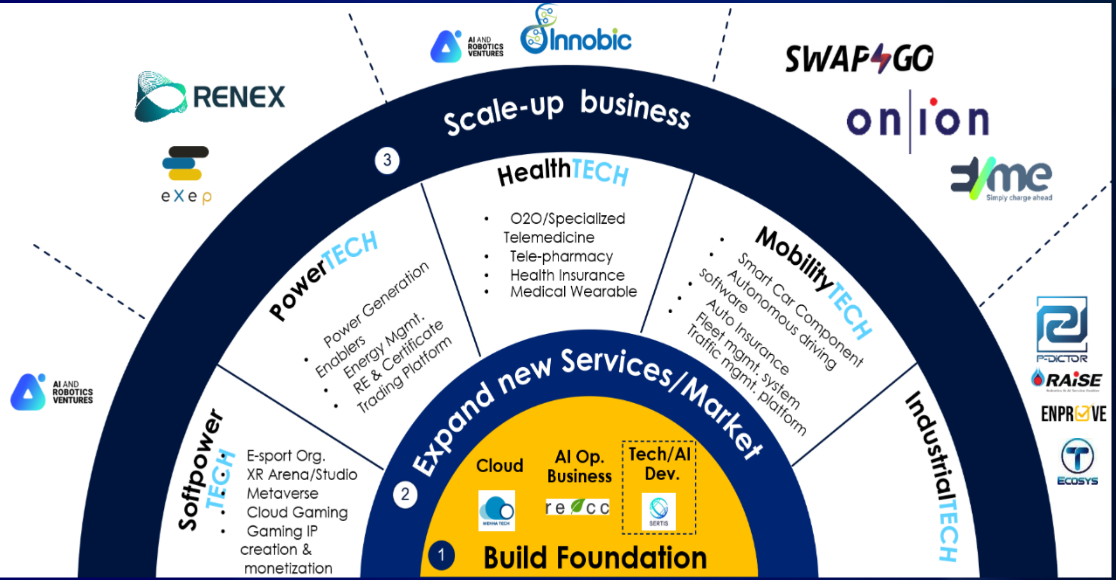
Reefer Container Rental service

Pallet Rental Service & Manufacturing

LNG ISO tank & Dangerous Goods Transportation service

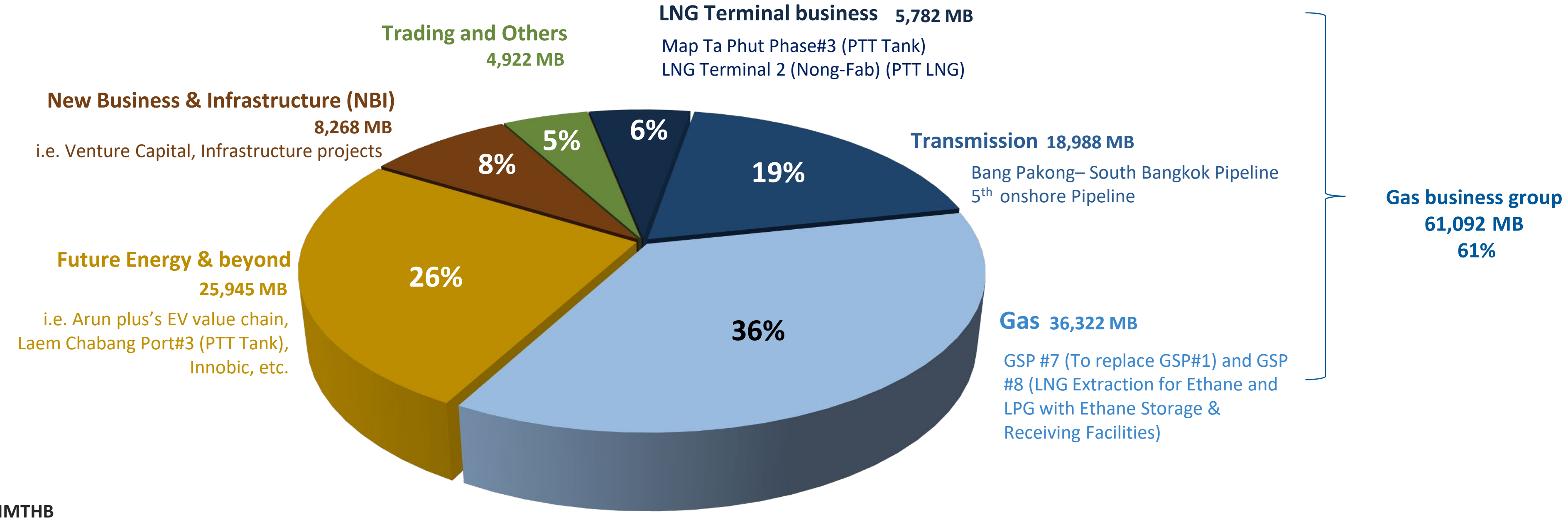
AI Robotic & Digitalization

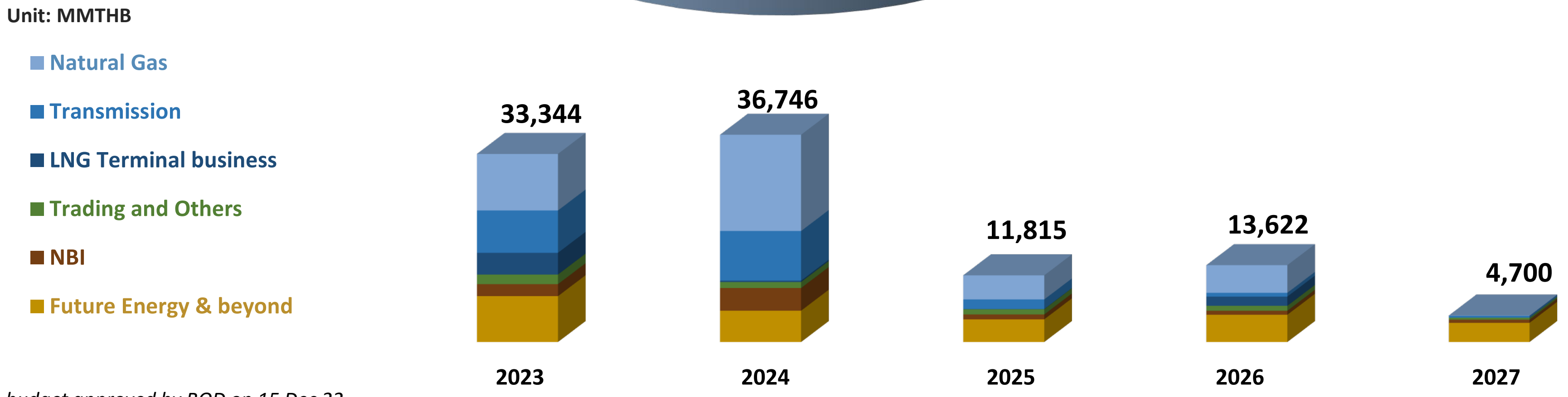
Transform existing business and create new s-curve focus on 5 areas



PTT: Committed CAPEX (PTT and Wholly Owned Subsidiaries)

PTT 5-Years (2023-2027) Committed CAPEX Plan totaling Baht 100,227 million or ~ USD 2.8 bn[1/]





Note: 2023-2027 budget approved by BOD on 15 Dec 22

[1/] FX rate (avg.) 35.5Baht/USD

The Provisional uncommitted CAPEX ~Bt 302 bn mainly focus on Future Energy and Beyond Businesses including Electricity value chain, Logistics & Infrastructure, Life sciences (Pharmaceutical, Nutrition, Medical devices), Renewable energy, as well as existing gas and LNG value chain businesses.

Committed CAPEX: PTT Group

Total committed CAPEX during 2023-2027 : ~Bt 1,075 bn or USD 30 bn

Power Business

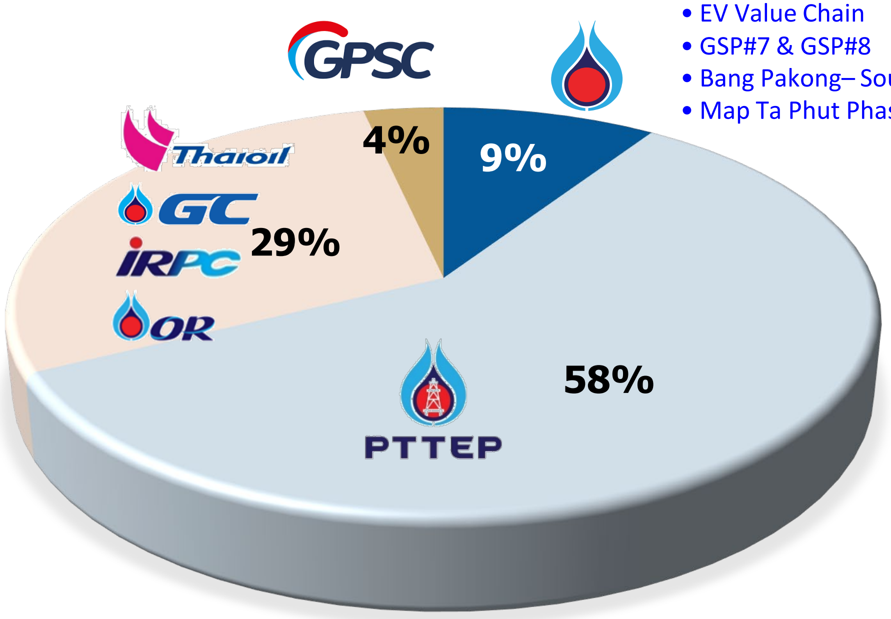
Key Projects
- ERU
- SPP Replacement

PTT Business

Key Projects
- EV Value Chain
- GSP#7 & GSP#8
- Bang Pakong– South Bangkok Pipeline
- Map Ta Phut Phase#3 , Laem Chabang Port#3

Downstream Business

Key Projects
- **TOP**: Clean Fuel Project (CFP), CAP
- **OR**: Oil & Retail Expansion in domestic & international
- **IRPC:** Ultra Clean Fuel Project (UCF)
- **GC**: Olefins 2 Modification Project (OMP)



Upstream Business

Key Projects
- Onshore and Offshore Exploration and Production in Thailand (G1/61 etc.)
- SK410B
- Mozambique LNG
- Algeria HBR
- Southwest Vietnam

PTT Group's Provisional CAPEX for 2023 – 2027 ~Bt 1,094 bn

Contents

PTT Group Guidance

Econ & Price outlook 2023

GDP (IMF)		Gas ($/mmbtu)		Oil ($/bbl)			PetChem ($/ton)			
Global	Thai	Henry Hub	JKM	Dubai	HSFO	SG GRM	HDPE	PP	PX	BZ
+ 2.9%	+ 3.7%	− 45%	− 26%	− 13%	− 14%	− 21%	− 5%	− 3%	− 3%	− 6%
2022: +3.4%	2022: +2.6%	2023: 3.3-3.9	2023: 22-28	2023: 81-86	2023: 68-73	2023: 8-9	2023: 1,120-1,170	2023: 1,150-1,200	2023: 1,040-1,090	2023: 940-990

Business outlook 2023

Upstream

E&P

+ Vol. increase

− Soften Average selling price from new PSC

GAS

+ NG Demand increase

+ Improve domestic gas production

+ GSP's U-Rate increase in 2023

− Pressure on gas cost from volatile Spot LNG price

Downstream

Oil

+ Increasing Demand in line with the GDP

P&R

Refinery

− Pressure from soften Singapore GRM

+ Higher PTT Group Refinery U-Rate

Petchem

− **Pressure** from tighten petrochemical spreads

− **Lower demand** following weak-purchasing power

Power

+ Recovering **domestic electricity** consumption

− High energy price pressure on feed costs

Future Energy & Beyond

Future Energy ▲

ARUN+

+ Expansion of EV chargers

Target EV chargers within 2023

Arun Plus 3,850 units ~ OR 800 stations

Beyond ▲

Innobic

Life Sciences

Recognize higher contribution from upcoming project

PTT Group Guidance

Upcoming Projects

Core Biz

5th Pipeline

Phase I — On Schedule

Phase II & III — Postpone

COD: 2023

GSP#7

Replace GSP#1

460 MMSCFD

COD: 1Q2024

Ole 2 Modification Plant Project

Feed flexibility (propane)

COD: 1Q2023

Kuraray GC Advanced Materials

PA9T 13 KTA HSBC 16 KTA

COD: 1Q2023

New Biz

Non-Woven Fabric products

~ 5.6 KTA

COD in 1Q2023

Plant-based manufacturing Plant

3 KTA

COD: 2Q2023

Module Battery Production Plant

1,000 MWh

COD: 4Q2023

EV Manufacturing Plant in Thailand

50,000 cars/year

COD: 1Q2024

Avaada Solar Power Platform in India

4,634 MW

COD: 4Q2021-2024

GPSC hold 42.9% (3,842 MW in operating / 792 MW in progress)

CFXD Offshore windfarm in Taiwan

595 MW

COD: 1Q2024

GPSC hold 25%

Maintenance schedule in 2023

Gas Separation Plants

GSP#2 & GSP#3 Major TA

15-20 days

ESP TD 50%

~ 60 days

Petrochemical & Refinery Plants

Ole 1/2 & Ole 2/2 Major TA

~1-2 months

Oleflex TA

65 days

ARO II TA

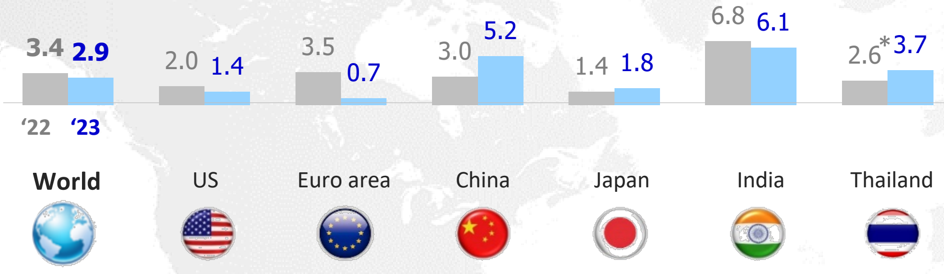
37 days

ECONOMIC OUTLOOKS

World

Inflation Peaking amid Low Growth

IMF Forecast – GDP Growth (%)



Tailwinds

- Pent-up travel demand
- China's re-opening
- Still-tight labor markets in advanced economies
- Better-than-expected adaptation to energy crisis in Europe

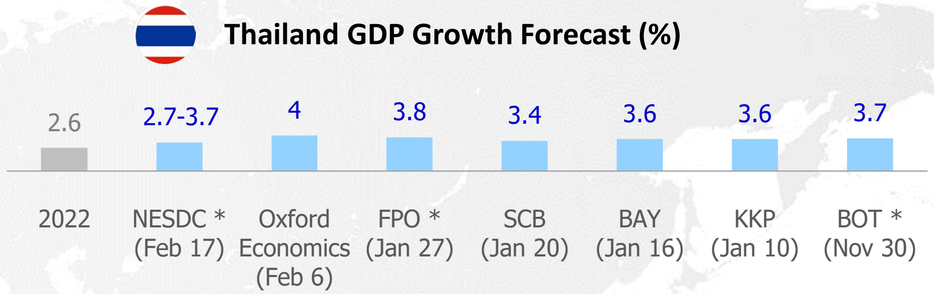
Headwinds

- Inflation persisting
- Interest rates to remain high
- Unwinding fiscal stimulus
- Russia's ongoing war in Ukraine

Thailand

Higher 2023 Growth Reflects Better Tourism Prospects

Thailand GDP Growth Forecast (%)



* NESDC = The Office of the National Economic and Social Development Council/ FPO = The Fiscal Policy Office/ BOT = Bank of Thailand

Tailwinds

- Recovery in tourism amid China's early reopening
- Improving domestic consumption
- Easing inflation
- Election stimulus and spending

Headwinds

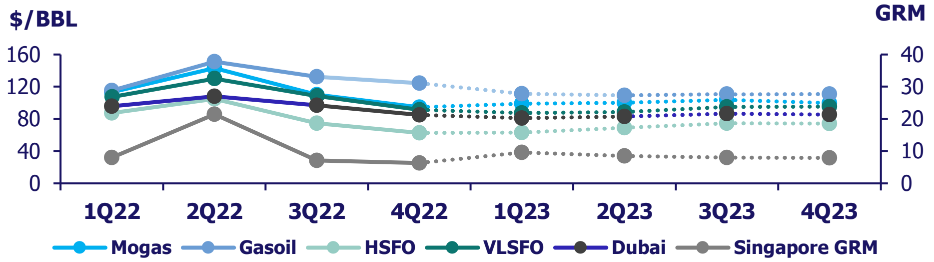
- Softening goods exports
- Higher interest rates
- Political uncertainty

Note: * Real GDP in 2022 from The Office of the National Economic and Social Development Council (NESDC)

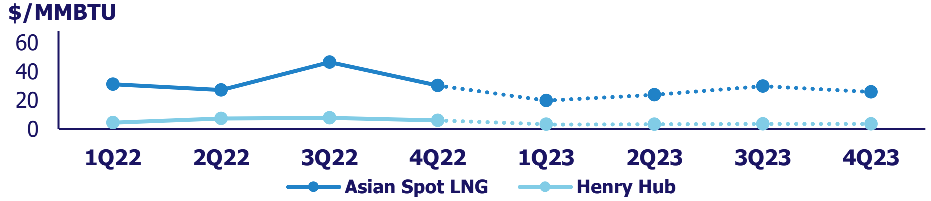
Sources: IMF WEO (Jan 30, 2023), Blog by Pierre-Olivier Gourinchas, International Industry Research and Economics Department

Economic & Product Prices Outlook:

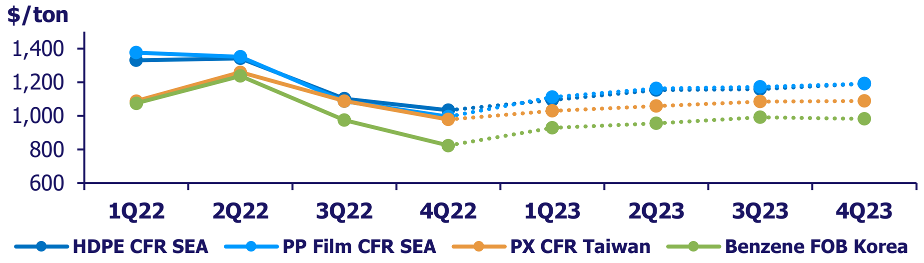
Petroleum



Gas/LNG



Petrochemical



Price	3Q22	4Q22	1Q23(E)	2022	2023(E)
Dubai	97	85	79-84	96	81-86
Mogas	110	94	96-101	115	98-103
Gasoil	132	124	109-114	131	108-113
HSFO (3.5%S)	75	62	61-66	82	68-73
VLSFO (0.5%S)	109	91	85-90	109	89-94
Singapore GRM	7.1	6.3	8.0-9.0	10.7	8.0-9.0
Asian Spot LNG	46.6	30.4	17-23	34.0	22-28
Henry Hub (HH)	7.9	6.1	3.2-3.8	6.5	3.3-3.9
HDPE	1,102	1,033	1,070-1,120	1,204	1,120-1,170
PP Film	1,085	995	1,105-1,155	1,207	1,150-1,200
BZ	974	823	900-950	1,027	940-990
PX	1,087	978	1,000-1,050	1,103	1,040-1,090

MARKET FACTORS

	Bullish	Bearish
Petroleum	**Recovery of oil demand** from China's reopening and economic recovery in 2H23 **Maintained OPEC production cut** to balance crude oil market in 1H23 **Low gasoline and gasoil inventory level** in the U.S.	**Increased Non-OPEC Production mainly from the U.S.** (US 2023E=12.5 MBD, 2022A=11.9 MBD) **Market sentiment** pressured by concern on economic slowdown in 1H23
Gas/LNG	**Higher European LNG imports as Russia further reduced gas supply to Europe** (In 2022, Russia supply gas via pipeline to EU at 46 MTA and it is expected to fall to 26 MTA in 2023.) **China's economic recovery** from reopening.	**U.S Freeport LNG (15 MTA) reoperated after maintenance.** (Freeport announced force majeure since 8 Jun'22) **Weaker heating demand** due to mild weather in Europe and Asia **High gas storage in Europe** (Current storage is twice comparing with the previous year)
Petrochemical	**Expected downstream demand recovery after Lunar New Year** **Lower spot supply in Asia** amid scheduled maintenance in Q1-2 and lower production rates **Healthy gasoline blending** to support aromatics demand from tourism sector.	**Additional regional supply, especially from China** to pressure on global operating rate to be bottom-out at 80% for olefins and 70% for aromatics **Concern on economic slowdown in 1H23** to pressure on overall market sentiment

Source: PTT, PRISM Petroleum Rolling as of 7 February 2023, PRISM Petrochemical Rolling as of 9 February 2023, TBU Analyst as of 8 February 2023

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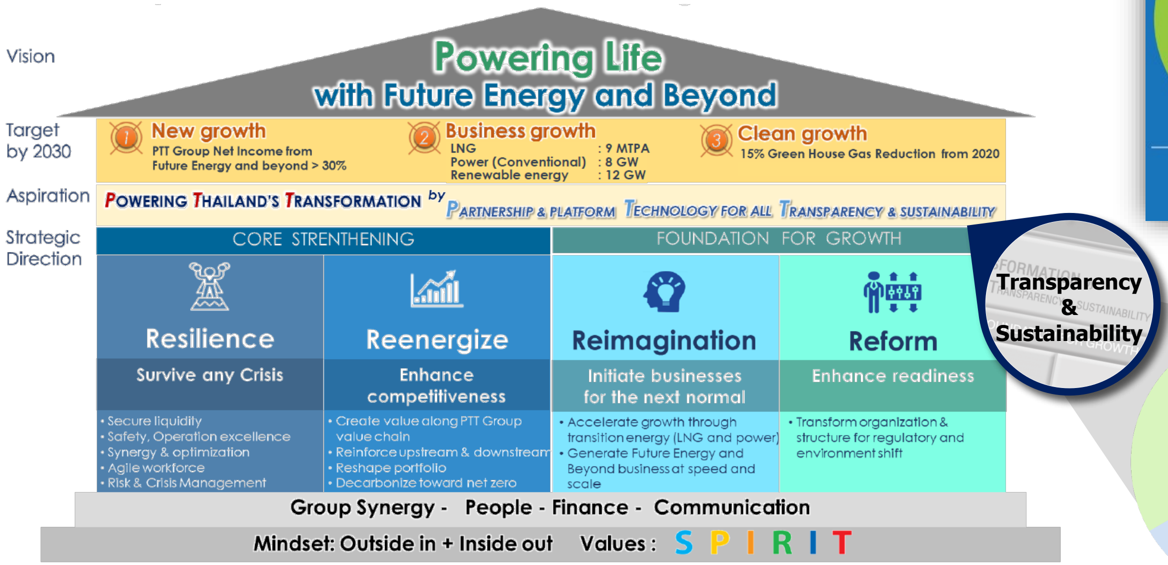
PTT's Sustainability Strategic Direction



PTT contributes to and is fully aligned with all 17 goals

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

Sustainability Award
Gold Class 2021
S&P Global

Industry Leader in the Oil & Gas Upstream & Integrated (OGX) Sector

Environmental:
Sustainable Production and Consumption

- Low Carbon Society
- Circular Economy

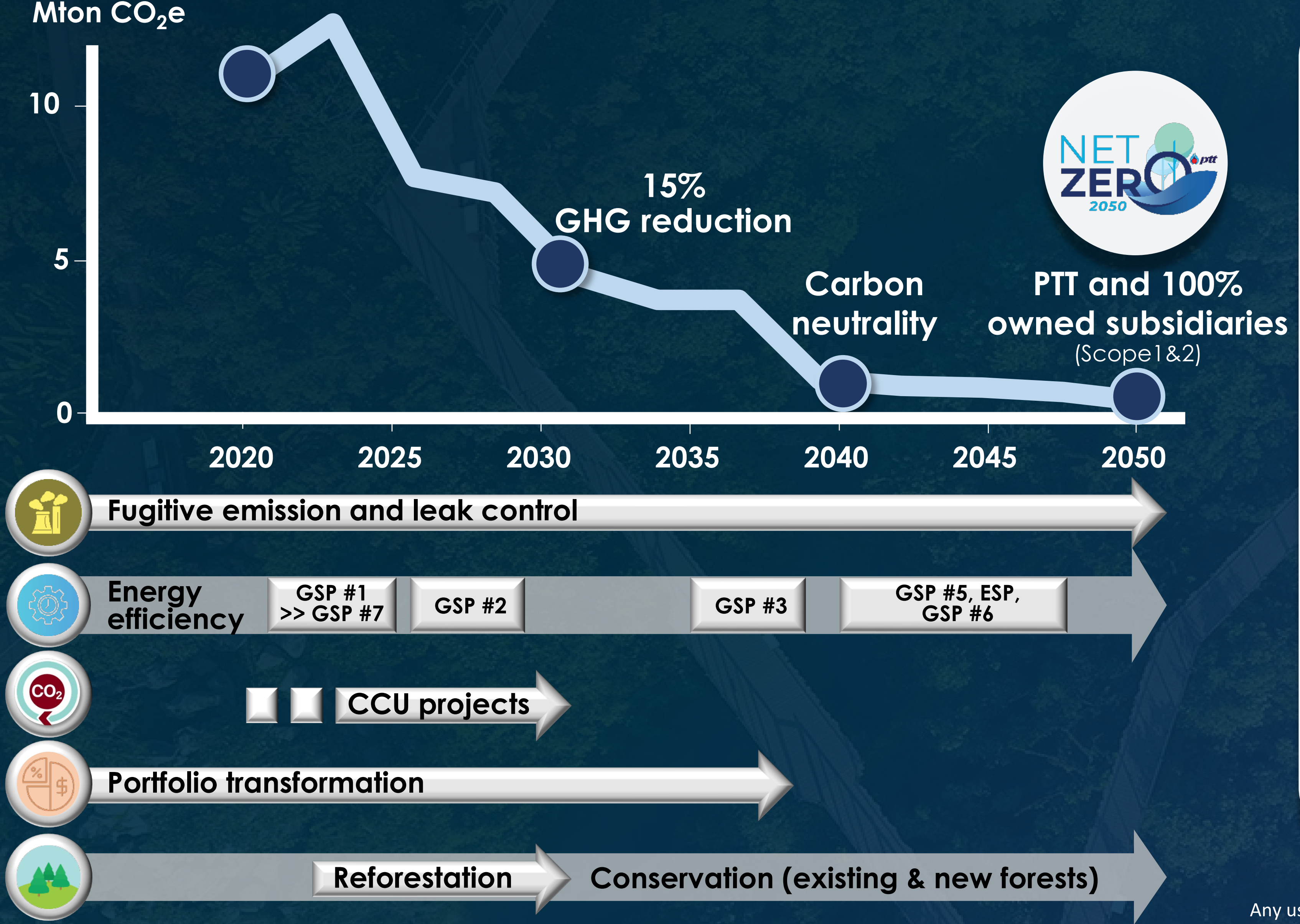
Social:
People's Well-being

- Safe Working Environment and Respect for Human Rights
- Social Shared Value
- Workforce for New Growth

Governance:
Corporate Governance and Performance Excellence

- Operate with Integrity
- Performance Excellence

PTT Moving Forward to Carbon Neutrality by 2040 and Net Zero Emissions by 2050



3P Decarbonization Pathways

~30 %

Pursuit of Lower Emissions

(Clean Growth)
15% GHG reduction from 2020 by 2030

GHG Reduction Initiatives

Carbon Offset/ RECs

~50 %

Portfolio Transformation

(Business Growth)
RE 12 GW by 2030

(Green Portfolio)
Future Energy and Beyond 32% of CAPEX 2021 - 2030

~20 %

Partnership with Nature and Society

(Reforestation) PTT: 1,000,000 Rai by 2030

(PTT's Existing): 1,115,185 Rai

Remark: 1 Rai = 0.4 Acre

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PTT Group Decarbonization Initiatives

Net Zero Emissions

2050 — 2060 — 2065

CCS

Thailand CCUS Consortium

PTT Group CCS Hub Model

ARTHIT CCS Project

The 1st CCS pilot project in Thailand by 2027

CCU

Select potential products and technology for CO_2 utilization, and conduct a feasibility study for commercialization of new products

- Sodium Bicarbonate
- Animal Protein
- Methanol
- Nano Calcium Carbonate

Renewable Energy

Install solar/wind power generators in the building and in/near the operation areas

(350 MW by 2030)

Hydrogen

3 focus areas

H_2 Turbine & Burner

Partial H_2 turbine/burner by 2026

H_2/NG blending

Pilot H_2 blending in NG pipeline by 2025

Fuel cell electric vehicle (FCEV)

Prototype by 2030

Reforestation

Planting additional **2 million rai** of forests and mangroves by 2030, and continuously implementing conservation plans

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Contents

Supplementary Information

PTT Group Performance : 4Q22 (QoQ & YoY)

Unit : MB		Performance 100%					% PTT holding	Equity Method % PTT				
		4Q21	3Q22	4Q22	QoQ	YoY		4Q21	3Q22	4Q22	QoQ	YoY
PTT Net Operating Income		7,683	(6,566)	6,149	>100%	(20%)		7,683	(6,566)	6,149	>100%	(20%)
E&P	- PTTEP	10,646	24,172	15,610	(35%)	47%	65.29%	6,950	15,768	10,219	(35%)	47%
Petrochemical		3,278	(13,241)	(875)	93%	<(100%)		1,064	(5,968)	(410)	93%	<(100%)
	- GC	3,247	(13,384)	(968)	93%	<(100%)	48.18%	1,033	(6,110)	(503)	92%	<(100%)
	- Other	31	143	93	(35%)	>100%		31	142	93	(35%)	>100%
Refining		7,228	(2,537)	(7,002)	<(100%)	<(100%)		4,070	(1,602)	(1,241)	23%	<(100%)
	- TOP	5,033	12	147	>100%	(97%)	48.00%	3,000	(432)	2,171	>100%	(28%)
	- IRPC	2,195	(2,549)	(7,149)	<(100%)	<(100%)	48.05%	1,070	(1,170)	(3,412)	<(100%)	<(100%)
Oil	- OR	2,353	701	(744)	<(100%)	<(100%)	75.00%	1,699	577	(552)	<(100%)	<(100%)
NBI	- GPSC/TP/DCAP/PTTES/PTTDIGITAL/ENCO/PTTGM[2/]	1,535	586	(110)	<(100%)	<(100%)		645	270	(142)	<(100%)	<(100%)
Others Business		5,705	6,377	3,572	(44%)	(37%)		5,423	6,424	3,849	(40%)	(29%)
Inter	- PTTER/PTTGM[2/]	3,298	2,325	2,193	(6%)	(34%)	100.00%	3,348	2,461	2,682	9%	(20%)
Gas	- PTTLNG/PTTNGD/PTTGL/TTM(T)/TTM(M)	2,316	1,508	1,258	(17%)	(46%)		1,971	1,440	1,149	(20%)	(42%)
Other	- PTTT/Others[1/]	91	2,544	121	(95%)	33%		104	2,523	18	(99%)	(83%)
Shared of Net Income from Affiliates		30,745	16,058	10,451	(35%)	(66%)		19,851	15,469	11,723	(24%)	(41%)
Tax Adjustment for Gain on Disposal of Investment and Asset		10	(19)	-	100%	(100%)		10	(19)	-	100%	(100%)
PTT Consolidated Net Income		38,438	9,473	16,600	75%	(57%)		27,544	8,884	17,872	>100%	(35%)

1/ Including PTTGE,BSA, and PTT TCC

2/ Currently PTTGM has 2 main businesses including coal & NBI (Pharma)

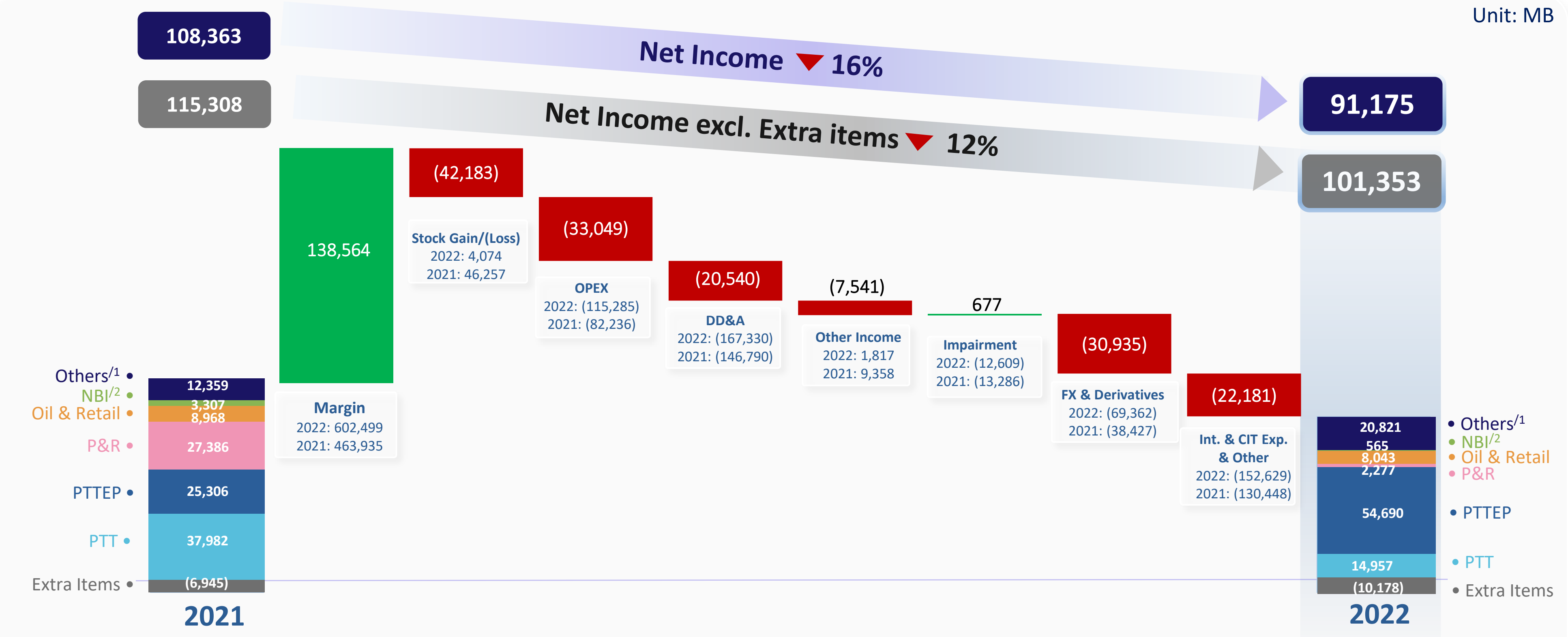
PTT Group Performance : 2022 vs 2021

Unit : MB		Performance 100%			% PTT holding	Equity Method % PTT		
		2021	2022	2022 vs 2021		2021	2022	2022 vs 2021
PTT Net Operating Income		34,024	15,271	(55%)		34,024	15,271	(55%)
E&P	- PTTEP	38,864	70,901	82%	65.29%	25,369	46,279	82%
Petrochemical		45,253	(8,337)	<(100%)		10,753	(3,832)	<(100%)
	- GC	44,982	(8,752)	<(100%)	48.18%	10,482	(4,247)	<(100%)
	- Other	271	415	53%		271	415	53%
Refining		27,083	28,304	5%		12,170	4,608	(62%)
	- TOP	12,578	32,668	>100%	48.00%	5,284	6,734	27%
	- IRPC	14,505	(4,364)	<(100%)	48.05%	6,886	(2,126)	<(100%)
Oil	- OR	11,474	10,370	(10%)	75.00%	8,987	7,819	(13%)
NBI	- GPSC/TP/DCAP/PTTES/PTTDIGITAL/ENCO/PTTGM[2/]	23,537	2,139	(91%)		3,307	653	(80%)
Others Business		15,358	22,663	48%		13,441	20,315	51%
Inter	- PTTER/PTTGM[2/]	4,712	9,366	99%	100.00%	3,880	8,085	>100%
Gas	- PTTLNG/PTTNGD/PTTGL/TTM(T)/TTM(M)	9,265	7,737	(16%)		8,157	6,766	(17%)
Other	- PTTT/Others[1/]	1,381	5,560	>100%		1,404	5,464	>100%
Shared of Net Income from Affiliates		161,569	126,040	(22%)		74,027	75,842	2%
Tax Adjustment for Gain on Disposal of Investment and Asset		312	62	(80%)		312	62	(80%)
PTT Consolidated Net Income		195,905	141,373	(28%)		108,363	91,175	(16%)

1/ Including PTTGE, BSA, and PTT TCC
2/ Currently PTTGM has 2 main businesses including coal & NBI (Pharma)

2022 vs 2021 PTT Consolidated Performance (YTD):

Decreased NI from lower stock gain and higher loss on derivatives despite improved operating performance



Remark:
1/ Others business mainly contributed from PTT LNG, PTT NGD, PTTT, and PTTGM etc.
2/ New Business and Infrastructure business mainly contributed from power business

▼ 61% Lower gross margin despite gain on FX

▼ Gas

S&M
+ Higher pool gas cost
- Overall gas sales vol. decreased

GSP
+ Increased avg. selling prices
- Higher feed gas cost
- Lower sales volume

▼ Trading

- Lower margin from mark to market inventory and higher condensate discount

▲ >100% E&P
+ Higher avg. selling price
+ Higher avg. sales volume
- Provision for Montara incident
- Higher Impairment loss on Mozambique project

▼ 10% Oil & Retails
- Squeezed oil margin
- Higher SG&A expense

▼ 92% P&R

▼ Petrochemical
- Lower product spread
- Lower sales vol. (soften demand)

▲ Refinery
+ Higher Mkt GRM
+ Higher sales vol.
- Lower stock gain

▼ 83% NBI
(mainly from power)
Lower profit margin due to higher fuel costs

▲ 68% Others
+ Coal: Higher avg. selling prices and sales vol.
+ PTTT: Higher margin and sales vol.

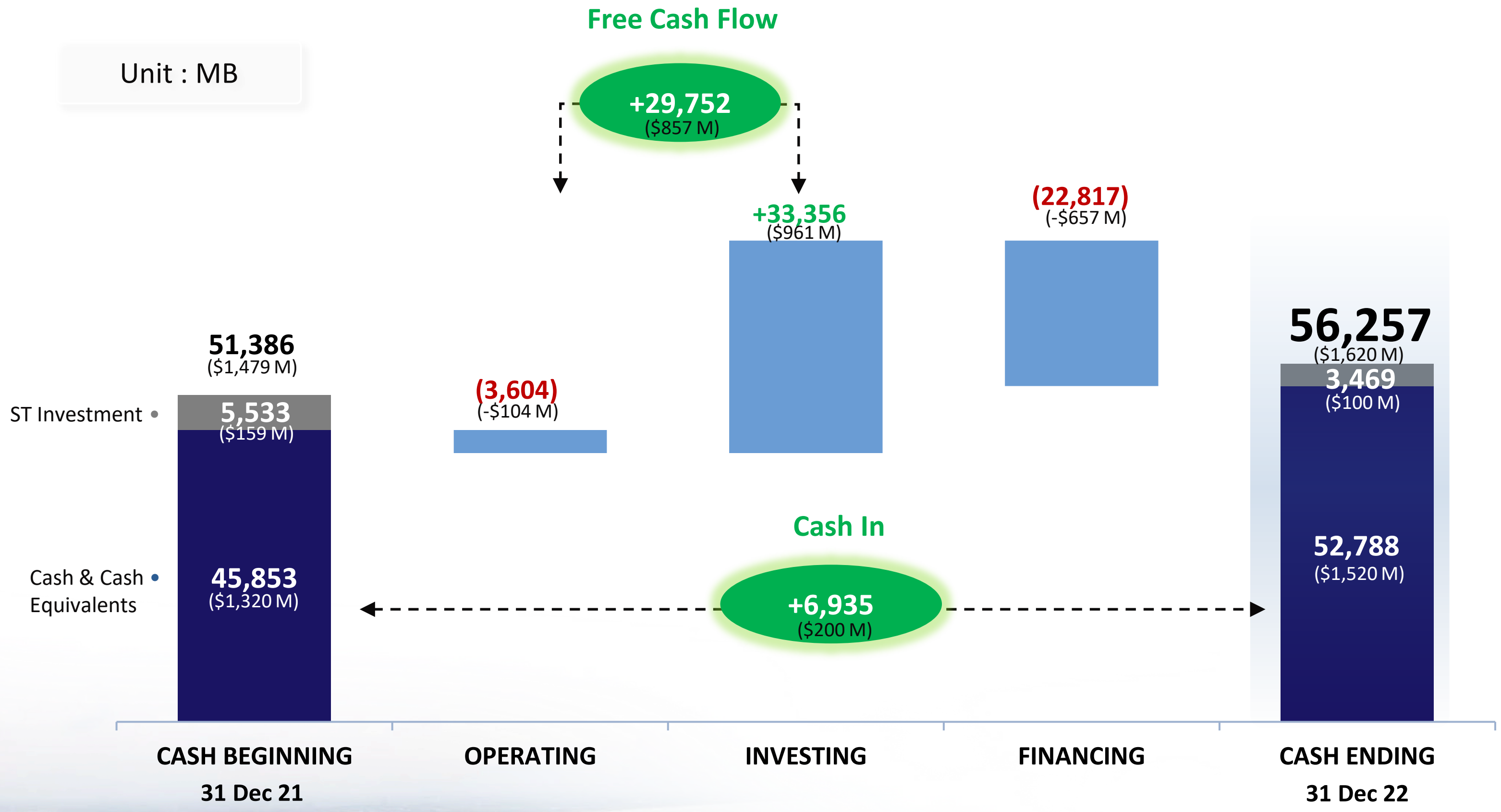
▼ 47% Extra Items*

2022: Net loss ~-11,000 MB
- PTTEP's asset impairment loss ~-6,600 MB
- PTTEP's provision for Montara ~-3,000 MB
- PTTEP's adjusted of Oman Block 61 ~+1,600 MB
- PTT's donation to oil fund -3,000 MB
- PTT's discounted benefit of gas shortfall ~+3,400 MB

2021: Net loss ~– 6,900 MB
- PTTEP's asset impairment loss & write-off ~-6,900 MB
- PTTEP's gain from bargain purchase ~7,000 MB
- PTT's impairment loss ~-3,500 MB
- PTT's return of take or pay benefit ~-2,700 MB
- PTT's discounted benefit of gas shortfall ~+1,700 MB
- GC's impairment loss ~-1,000 MB

(*PTT's portion net tax amount)

PTT Only Cash Flows 2022



* As of Dec 31, 2022, BOT selling rate USD/THB of 34.73 (End rate)

Operating (3,604) MB	Changes in assets & liabilities	(46,609)
	Income Tax	(7,198)
	Non-Cash Adjustment	(2,378)
	Net Income	52,581
Investing 33,356 MB	Short / Long-term lending loans & others	65,919
	Dividend/Interest Received	40,075
	Current investment	2,903
	Investment (Sub. & Affiliates)	(60,181)
	CAPEX (PPE, Intangible asset)	(15,360)
Financing (22,817) MB	Dividend paid	(59,977)
	Finance cost paid	(7,871)
	Derivatives	(20)
	Received from loans/bonds	45,051

Debt Profile : Control Cost & Manage Risk

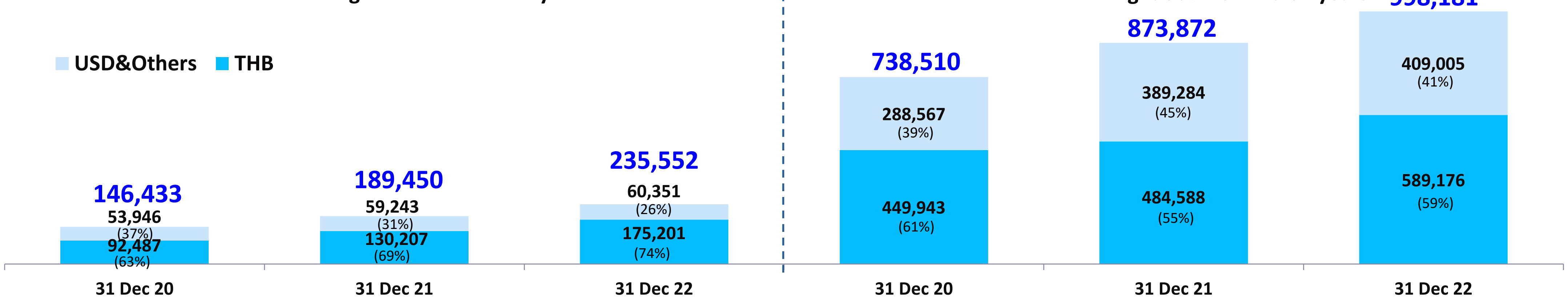
Managed debt according to financial risk and policy

Debt Portfolio

Unit : MB

PTT Only : Cost of debts ~ 3.74%
: % fixed-rate ~ 70.02%
: Avg. debt life ~ 12.72 years

Consolidated : Cost of debts ~ 3.63%
: % fixed-rate ~ 68.79%
: Avg. debt life ~ 10.67 years



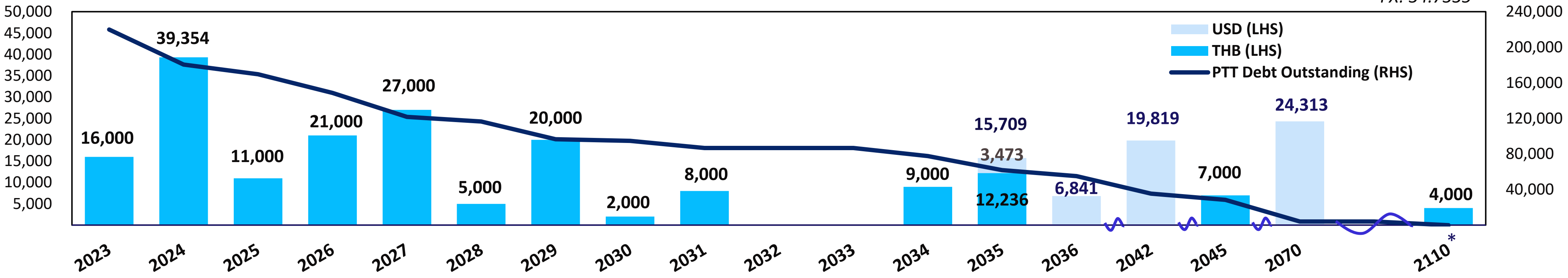
Note : 1. PTT Data as of 31 Dec 22 (THB/USD = 34.7335 THB/JPY = 0.2645) excluding liabilities from finance leases.
2. Debt Outstanding represents amount and portion before derivative swaps and reconciled with accounting.
3. Cost of debts, % fixed rate, and avg. debt life took into account the derivative transactions, including withholding tax (update as of 31 Dec 22).

PTT Only : Debt Outstanding and Repayment Profile

Unit : MB

As of 31 Dec 22

FX: 34.7335



Note: 1. Debt Outstanding for Repayment Profile represents financial data and portion after derivative swaps.
2. Bond repayment amounting 6,236 MB in 2035 is USD swaps to THB.

*PTTC10DA (Century Bonds) is due on 2 Dec 2110

PTT Group Accounting Structure

Data as of 31 Dec 2022

E&P and Gas Business Group

Subsidiaries		Consolidate
PTT Exploration & Production Plc.	PTTEP	65.29% [2/]
PTT Natural Gas Distribution Co., Ltd.	PTTNGD	58.00%
PTT LNG Co., Ltd.	PTTLNG	100.00%

Joint Ventures		Equity
Trans Thai-Malaysia (Thailand) Co., Ltd.	TTM (T)	50.00%
Trans Thai-Malaysia (Malaysia) Sdn. Bhd.	TTM (M)	50.00%
Map Ta Phut Air Products Co., Ltd.	MAP	51.00% [2/]

International Trading Business Group

Subsidiaries		Consolidate
PTT International Trading Pte.	PTTT	100.00%
PTT International Trading London Ltd.	PTTT LDN	100.00%
PTT International Trading USA Inc.	PTTT USA	100.00%

Oil Business Group

Subsidiaries		Consolidate
PTT Oil & Retail Business Co., Ltd.	OR	75.00%

Petrochemicals & Refining Business Group

Petrochemical Subsidiaries		Consolidate
PTT Global Chemical Plc. [1/]	GC	48.18% [2/]
PTT Tank Terminal Co., Ltd.	PTT TANK	100.00%

Refining Subsidiaries		Consolidate
Thai Oil Plc. [1/]	TOP	48.00% [2/]
IRPC Plc. [1/]	IRPC	48.05% [2/]

New Business and Infrastructure Business Group

Subsidiaries		Consolidate
Global Power Synergy Plc. [1/]	GPSC	75.23% [2/]
PTT Digital Solutions Co., Ltd. [1/]	PTT DIGITAL	20.00%
PTT Energy Solutions Co., Ltd. [1/]	PTTES	40.00%
Energy Complex Co., Ltd.	EnCo	50.00%

Joint Ventures		Equity
District Cooling System and Power Plant	DCAP	35.00%

Others		Fair value
Baania (Thailand) Co., Ltd.	Baania	2.73%
HG Robotics Plc.	HG Robotics	9.47%
Innospace (Thailand)	Innospace	13.61%
Sunfolding, Inc.	Sunfolding	5.81%
Luminar Technologies, Inc.	Luminar Technologies	0.07%
Ample, Inc.	AMPLE	1.13%
Shenzhen Immotor Technology Co., Ltd.	IMMOTOR	3.05%
NTG Holding Pte. Ltd.	NT	14.51%

International Investment Business Group

Subsidiaries		Consolidate
PTT Energy Resources Co., Ltd.	PTTER	100.00%
PTT Green Energy Pte. Ltd	PTTGE	100.00%
PTT Global Management Co., Ltd.	PTTGM	100.00%

Others

Subsidiaries		Consolidate
Business Service Alliance Co., Ltd. [1/]	BSA	25.00% [3/]
PTT Treasury Center Co. Ltd	PTT TCC	100.00%

Joint Ventures		Equity
Veolia Sustainable Solution (Thailand) Co.,Ltd.	VSS	40.00%

Others		Fair value
Sarn Palung Social Enterprise Co., Ltd.	SPSE	20.00%
Dhipaya Group Holdings Pub Co., Ltd.	TIPH	13.46%

Remark : [1/] Subsidiaries that PTT holds less than 50.00% but being consolidated because PTT has the power to control the financial and operating policies.
[2/] Holding portion of PTT Group (direct & indirect)
[3/] PTT holds 100.00% of BSA's ordinary shares, PTT's ownership interest in BSA is 100.00%

E&P Performance

QoQ

Soften performance from lower selling price as well as the recognition of provision on Montara incident and impairment loss

- Normal operation: increased due to higher sales volume and lower exploration expenses despite decreasing selling prices.
- Non-operating items: primarily from administrative expenses from the recognition of provision on Montara incident and impairment loss on Mozambique Area 1 Project and loss on assets in Angola.

2022 vs 2021

NI improved due to higher selling prices & sales volume

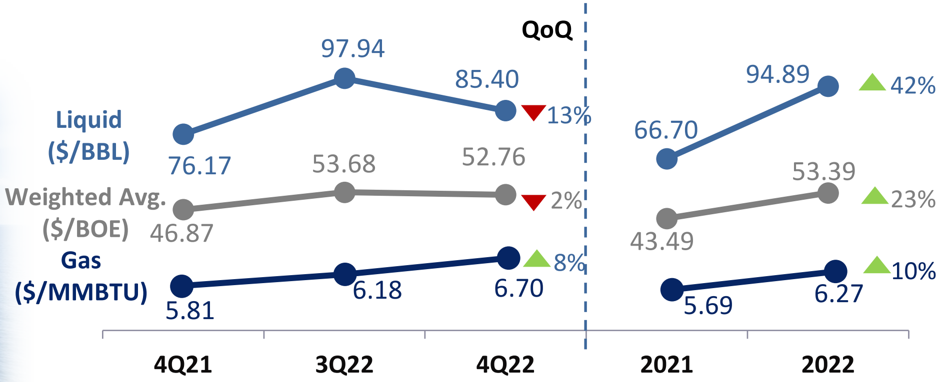
- Normal operation: significantly increased from higher selling prices & sales volume
- Non-operating items: mainly from the recognition of provision on Montara incident and impairment loss on Mozambique Area 1 Project and loss on assets in Angola. While in 2021, there was recognition of gain on a bargain purchase of Oman Block 61.

Net Income

* Includes Gain/(Loss) on FX, Deferred tax from Functional currency, Current Tax from FX Revaluation, Gain/(Loss) from Financial Instruments, Impairment loss on assets and etc.
NOTE: Net income 100% of OR

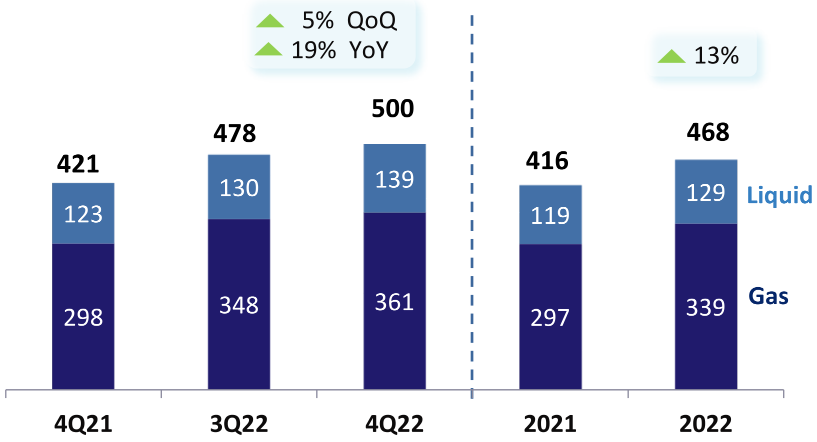
Key Drivers

Product Prices



Sales Volume

Unit: KBOED



E&P: Guidance & Strategy

Strategy Refinement

Key Focus Areas 2023

Strategic alignment with UNSD Goals

PTTEP

Drive Value

- Max. Production & Energy Security
- G1/61 Ramp-up and GOT Synergy
- SK410B LLB FID
- MY Discovery Monetization
- Competitive Unit Cost

Decarbonize

- EP Net Zero 2050
- Arthit CCS FID
- GOT CCS Hub Study
- Emission Offsetting & Ocean for Life

Diversify

- Scale-up AI & Robotics Venture
- Power and Renewable Opportunity
- Explore CCUS
- Future Energy

2023 Guidance

Outlook	Q1 2023	FY 2023
Sales Volume (KBOED)	~472	~470
Gas Price (US$/MMBTU)	~6.7	~6.1
Unit Cost (US$/BOE)	~27-28	
Profitability (EBITDA Margin)	70-75%	

* Based on average Dubai oil price in 2023 at 88 $/BBL

Business Update (E&P)

THAILAND

G1/61 Erawan Currently producing at 210 MMSCFD. In 2022, drilled additional 77 wells and installed 8 WHPs. 1st ramp-up to 400 MMSCFD target mid 2023.
G2/61 Bongkot Currently producing at 200 MMSCFD. Preparing for remaining transition Block B16 and B17 in Mar-23 to PSC.
MTJDA Granted additional exploration area and PSC extension to 2039. Currently supplying 33 MMSCFD to Thailand.
Participating in 24th Gulf of Thailand Bid Round
Seeking progress in OCA

MALAYSIA

SB412 New block awarded from MBR 2021 - Started seismic processing.
SK410B LLB FEED in progress. Estimated production rate ~1000 MMSCFD. FID plan in 2023. Additional discovery in the area from Paprika-1 well.

MYANMAR

Yadana Operate normally. Possibility to extend PSC beyond 2028.
Zawtika Operate normally. Maintain production with new phase 1D.

UAE

Sharjah Onshore Area A and C acquired 25% stake
Offshore 1 and 3 currently being evaluated for petroleum potential
Offshore 2 made sizable gas discovery approx. 2.5-3.5 TCF

ALGERIA

HBR 1st Oil production commenced with daily production ~13 KBPD.

MOZAMBIQUE

MZA1 Site re-access pending security situation.
1st Cargo is estimated in 2027.

BRAZIL / ANGOLA

Portfolio Rationalization
Divestment from Brazil and Angola

Business Update (Beyond E&P)

AI AND ROBOTICS VENTURES

- Received "The National Innovation Awards" from Thailand's National Innovation Agency (NIA).
- MOU with AEROTHAI to develop and test data connectivity between ARV's unmanned aircraft systems, flight-operations and fleet-management systems and AEROTHAI's UAS traffic management system

ROVULA

- ZEAQUEST delivered subsea pipeline maintenance and exploration projects in the Gulf of Thailand and the Gulf of Martaban.
- The NAUTILUS technology is now ready for commercial services and was awarded "The Spotlight on New Technology" award from OTC Asia 2022 in Malaysia.

SKYLLER

- Signed an agreement with HMC Polymers for the inspection of flares and confined spaces (silo) for plastic pellets, using UAV technology and digital platforms
- Created and developed Digital Twin technology

varuna

- Cooperated with PTT in research and development of carbon stock assessment technologies for the forestry sector
- Aims to collect 1 million tons of carbon credits by 2030.

CARIVA

MoU with Thammasat University Hospital to provide CARIVA's digital health screening tools and digital data collection solution.

bind

Successfully developed and deployed National Digital Corporate Identity (NCID) solution, which leverages innovations in Digital-ID and e-documents

bedrock

MoU with more than 10 agencies to accelerate the development and dissemination of City Data Digital Platform and lead to integration of city data analytics into the forecasting, planning, monitoring, and problem solving of the cities

Gas To Power

The project is currently on the preparation process. Timeline is delay due to local situation in Myanmar.

Green e-methanol

MoU with 5 multinational companies on a 'Green Methanol Value Chain Collaboration' which will explore the feasibility of establishing a green e-methanol pilot plant.

CCS for PTT Group's GHG Reduction

MoU with PTT Group companies to conduct a feasibility study on the application of CCS under the concept of CCS Hub Model.

CCS as a Service

Collaborates with INPEX and JGC to explore the potential development of a CCS project in Thailand

Oil Business : OR Group

QoQ

Declined performance

- Oil – Squeezed oil margin due to higher cost from importing products during domestic main oil refinery turnaround period despite increased sales volume.
- Non-Oil – Slightly increased revenue as the higher demand from economic recovery and seasonal factor

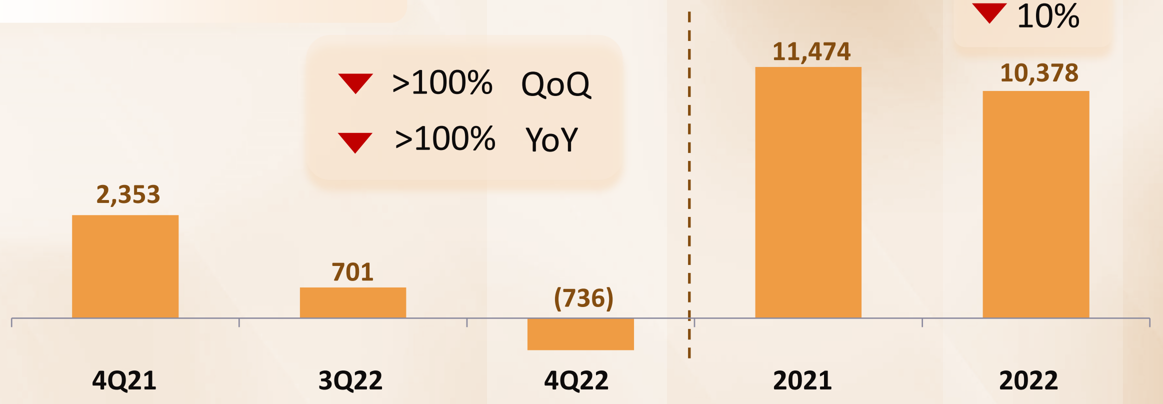
2022 vs 2021

Declined performance

- Oil – Squeezed oil margin due to higher cost from importing products despite increased sales volume from power plant sector
- Non-Oil - Improved performance due to increased sales volume from economic recovery and outlet expansion

Net Income

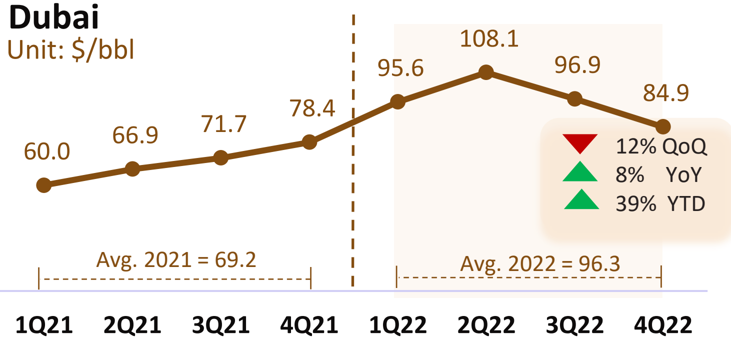
Unit: MB



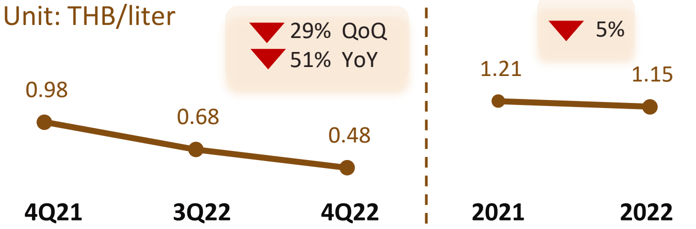
NOTE: Net income 100% of OR

Oil Business

Dubai
Unit: $/bbl

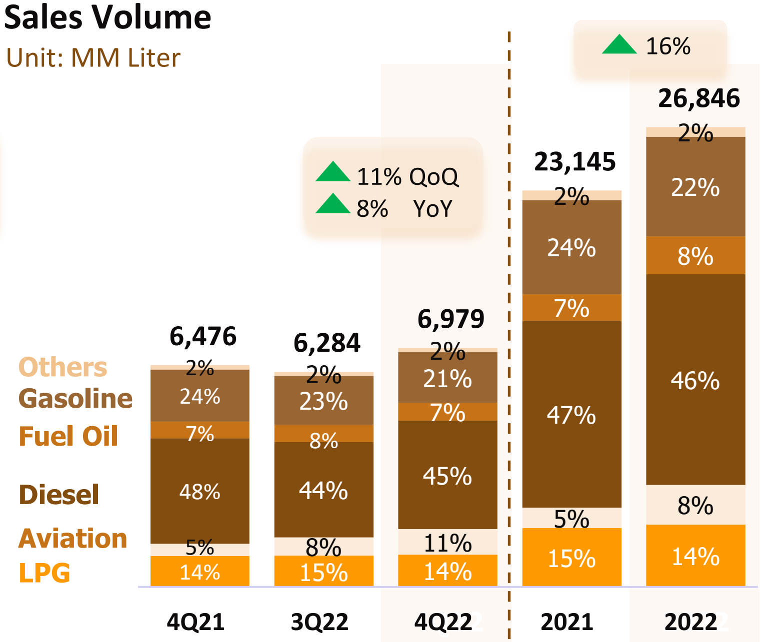


Margin*
Unit: THB/liter



*Gross margin included stock gain/(loss)

Sales Volume
Unit: MM Liter



Non - Oil Business

	4Q21	3Q22	4Q22	2021	2022
Amazon (MM Cups)[1/] (4Q22: 3% QoQ ▼, 3% YoY ▲; 2022: 20% ▲)	87	93	90	298	357
Amazon (Outlet) (4Q22: 3% QoQ ▲, 8% YoY ▲; 2022: 8% ▲)	3,607	3,786	3,895	3,607	3,895
C-Store (Outlets)[2/] (4Q22: 2% QoQ ▲, 3% YoY ▲; 2022: 3% ▲)	2,075	2,095	2,147	2,075	2,147

[1/] Thailand, Japan, Oman, Myanmar, and Malaysia
[2/] Thailand

P&R Business

QoQ

Performance increased due to the significant increase in gain on exchange rates despite the increase in operating loss.

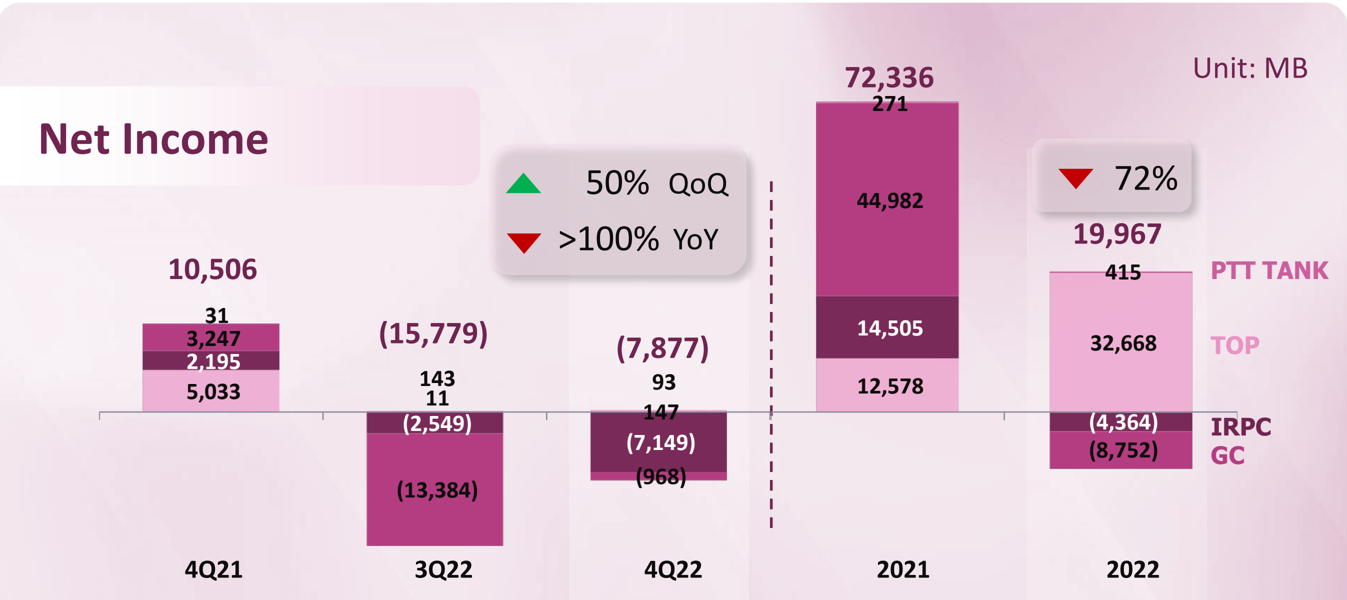
- Petrochemical performance decreased mainly from both Olefins business and Aromatics business due to the decrease in petrochemical product spreads and the decrease in sales volume.
- Refinery performance decreased due to the decrease in sales volume due to major turnaround of refinery plants. Conversely, Market GRM increased.

2022 vs 2021

Performance decreased mainly from operating performance, and loss on oil price hedging instruments.

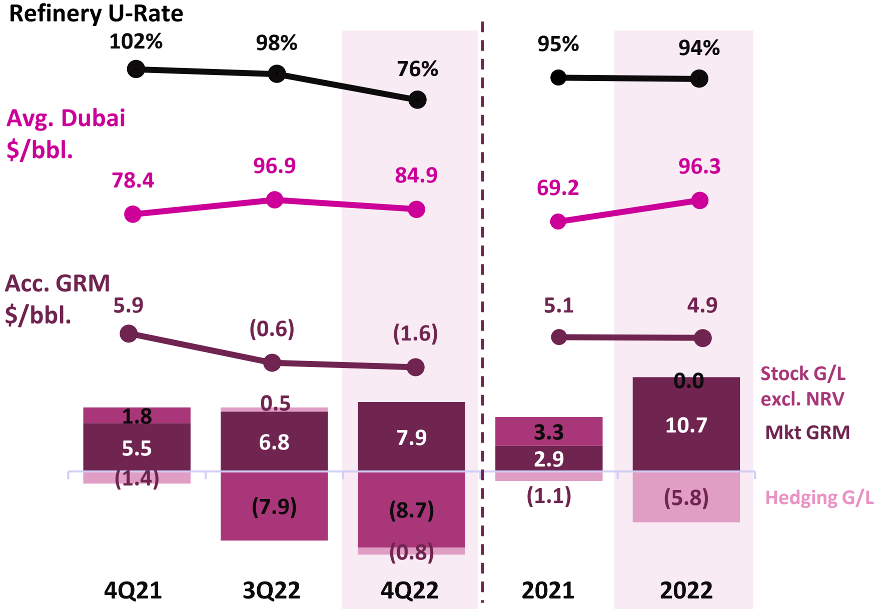
- Petrochemical performance decreased mainly from both Olefins business and Aromatics business due to the decrease in most of product spreads and the decrease in sales volume.
- + Refinery performance increased due to the higher Market GRM as well as the increase of sales volume. However, there is lower stock gain in this year.

Net Income

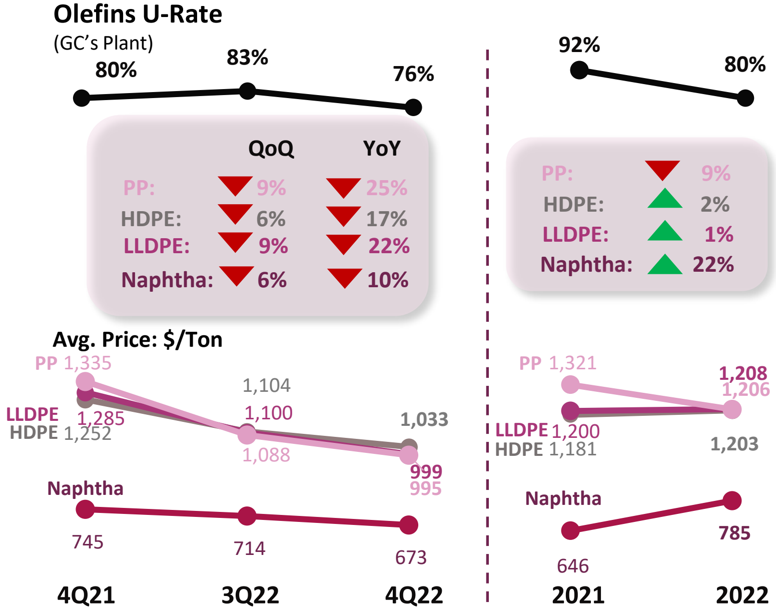


NOTE: Net income 100% of TOP, IRPC, GC, and PTT TANK

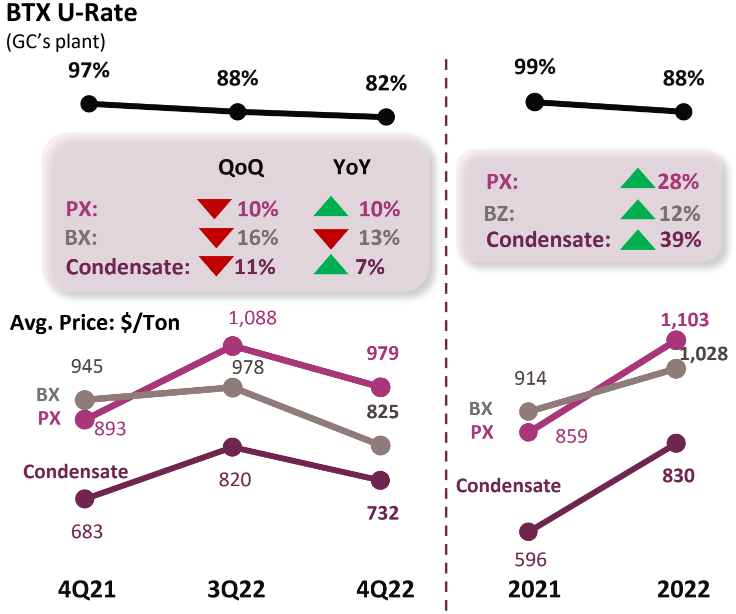
Refinery



Olefins



Aromatics



P&R : Projects Update

GC — HVB (Allnex)

2022

ptt, IRPC — Non-Woven Fabric products

Thaioil — Olefins investment

2023

GC — Ole 2 Modification plant project

2024

IRPC — Ultra Clean Fuel

Thaioil — CFP

	High value business (HVB) Acquired 100% share of Allnex	The establishment of Innopolymed	Olefins investment (Investment in PT Chandra Asri: CAP)	Ole 2 Modification plant project	Ultra Clean Fuel	CFP (Clean Fuel Project)
Objective/ Capacity	• To diversify geographic targets in specialty chemical and expand global footprint (Basic chemical ➔ Performance Chemicals & Green Chemicals) • Global producer of industrial coating resins and additives • Total capacity around 1,297 KTA *Expected closing deal in 4Q21	• 40% stake held by Innobic and 60% stake held by IRPC with a registered capital of Baht 260 million. • to manufacture and sell Non-Woven Fabric products as well as medical consumables • Total capacity around 5.6 KTA *The Company completed its registration in 2Q21	• Further extend Hydro- Carbon value chain to Olefins • Use excess feedstock from CFP project (Naphtha) to create more flexibility and competitiveness. • Investment 15.38% in petrochemical producer (Olefins) in Indonesia with total capacity around 4,232 KTA *Realized CAP contribution in 4Q21 onwards *CAP2 : expected FID in 2022	• To increase Propane usage as feedstock • To enhance feedstock flexibility and long-term competitiveness	• To increase refinery plant's efficiency and upgrade diesel quality to meet the Euro 5 standard • Increase 75 KBD of diesel capacity in Diesel hydro-treating Unit	• Upgrade lower value products ➔ higher value products • Ability to process heavier (cheaper) crude oil • Refining capacity 275 ➔ 400 KBD
CAPEX	€4,002 million or equivalent to 148,417 MB	260 MB	not exceed 1,183 M.USD or equivalent to 39,116 MB	165 MMUSD or equivalent to 5,198 MB	13,300 MB	4.8 Bn.USD incl. ERU unit 757 MMUSD
COD	4Q2021 (Dec)	4Q2022	CAP2 : 2026 (FID 2022)	1Q2023	Jan'2024	2024 (FID Jul'18)

NBI: Power-GPSC

QoQ

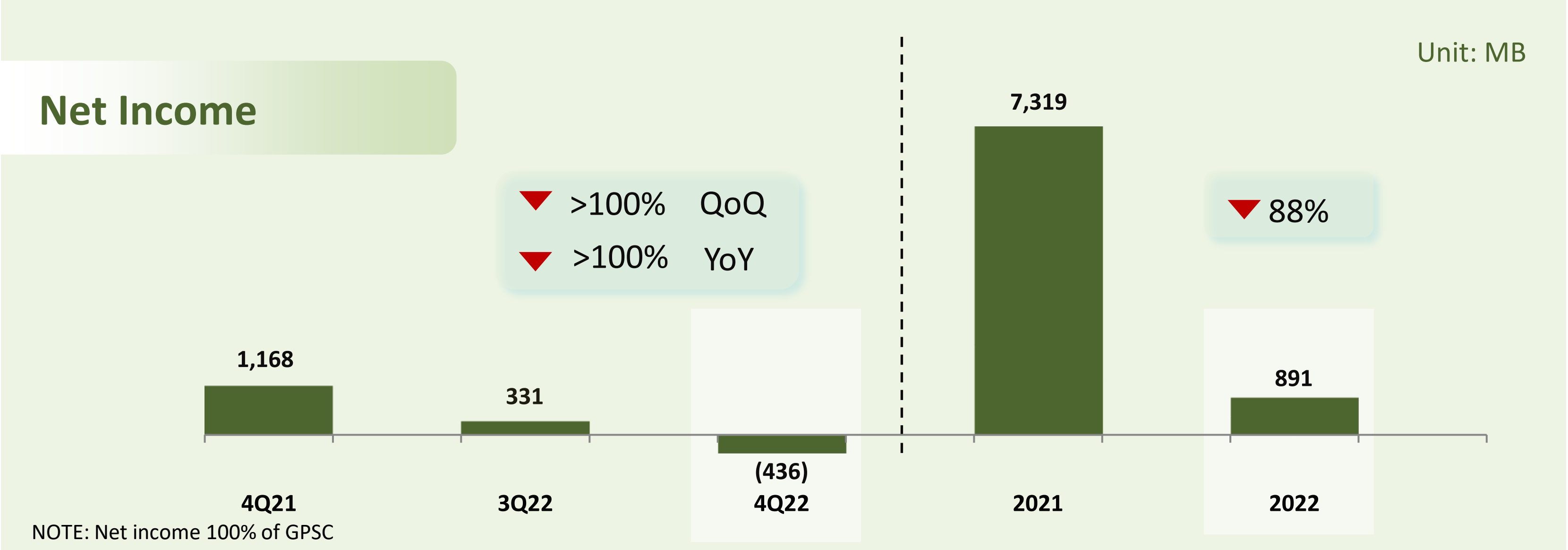
Declined performance from lower contribution from Xayaburi and SPP's margin

- Lower share of profit from Xayaburi power plant due to lower water level compared to 3Q22 according to seasonality
- Lower SPP's margin due to increase in natural gas and coal costs together with lower sales volume to industrial customers

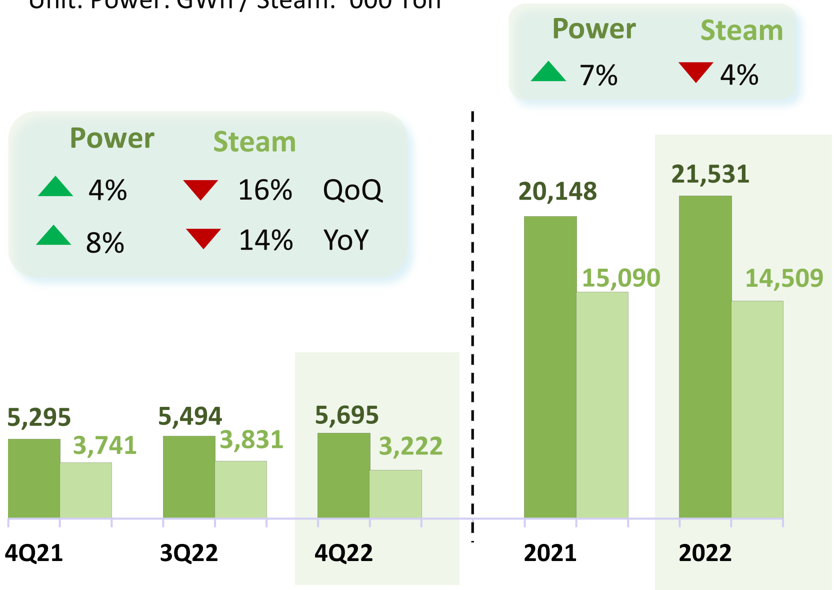
2022 vs 2021

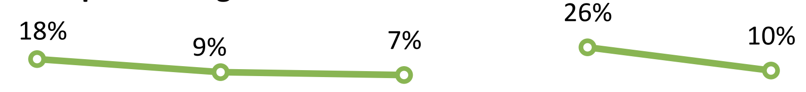
Significantly dropped in NI due to higher fuel costs despite higher contribution from Xayaburi

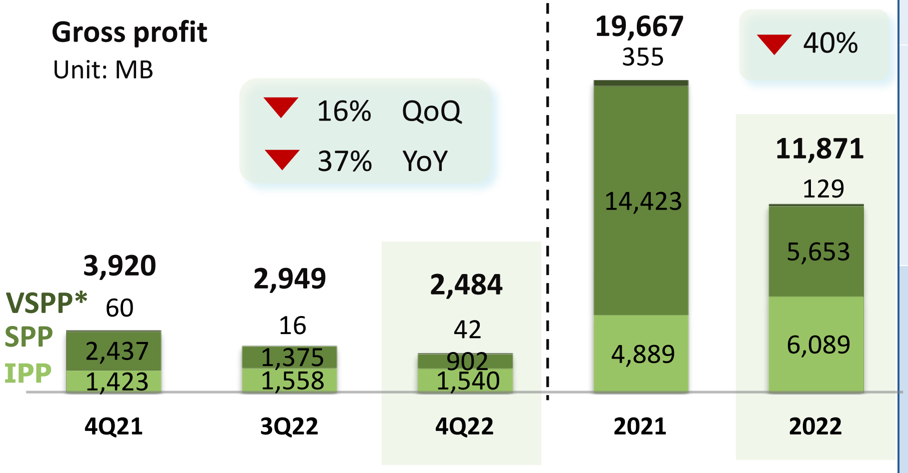
- Significantly dropped in SPP's margin from the increase in fuel costs together with the Ft has yet to adequately catch up with the rising fuel costs
- + Higher share of profit from Xayaburi power plant due to higher water level compared to 2021



Key Drivers







*VSPP and others

NBI: Power-GPSC

Upcoming Projects to Bolster Future Growth

Avaada Energy Private Limited (AEPL)

SCOD | 2021-2024

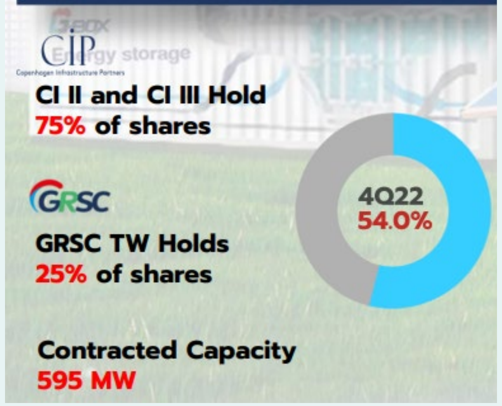
GPSC Hold 42.93% of shares

Contracted Capacity 4,634 MW

Project	Electricity Capacity (MW) as of 13 Jul 21	Electricity Capacity (MW) as of 31 Dec 23	COD
Operating	1,392 (13 projects)	3,842 (28 projects)	-
Under construction	2,352 (8 projects)	792 (7 projects)	2023 – 2024
Total	3,744	4,634	

CFXD : Progress of offshore wind in Taiwan

SCOD | 2022-2024



CI II and CI III Hold 75% of shares

GRSC TW Holds 25% of shares

4Q22 54.0%

Contracted Capacity 595 MW

AXXIVA : Battery manufacturing business

SOP | 2023

NUOVO

100%

GPSCSG

10.31%

AXXIVA

GPSC holds Axxiva's shares though Nuovo Plus

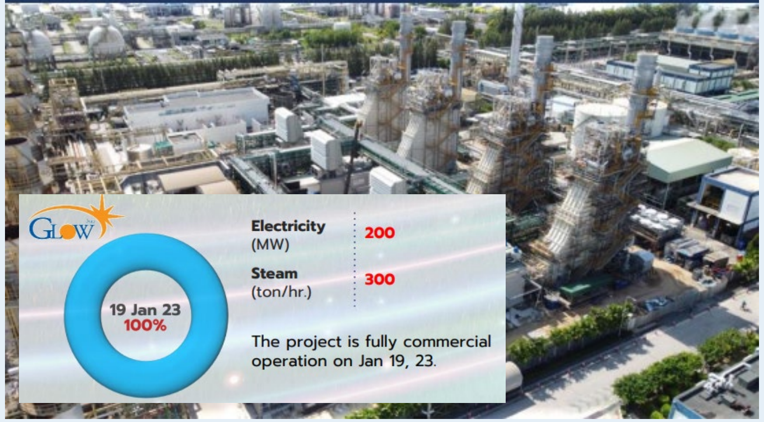
AXXIVA operates a battery manufacturing business in China at production capacity of 1 GWh per annum by 24M Technologies

Project Update: Complete installation in 1H2023

Glow Energy Phase 2

SCOD | Q1/2023

Unit 1 : 29 Nov 2022 / Unit 2 : 19 Jan 2023



19 Jan 23 100%

Electricity (MW)	200
Steam (ton/hr.)	300

The project is fully commercial operation on Jan 19, 23.

Glow SPP2

SCOD | Q2/2024

Unit1 : Mar 2024 / Unit2 : Apr 2024

4Q22 36.07%

Projects	Electricity Capacity (MW)	Steam Production Capacity (t/h)	Contracted PPA with EGAT (MW)
GLOW SPP2 Replacement			
• Glow SPP2	98	230	60 (2 PPAs)

Energy Recovery Unit (ERU)

SCOD | 2025[1]

ERU

4Q22 87.06%

Electricity (MW)	250
Steam (ton/hr.)	175

Project updates:

- The project is in the process of the construction of foundation
- Overall, the project has reached 87.06%.

Other Business : Coal business (SAR)

QoQ

Strengthen performance owing to higher avg. selling prices

- (+) Higher avg. selling prices from more export sales despite lower Newcastle price
- (−) Higher cash cost following an increase in royalty expense as well as the rising in dumping distance
- (−) Lower avg. sales volume

2022 vs 2021

NI increased due to the increase in avg. selling prices following Newcastle price despite higher cash cost

- (+) Avg. selling prices significantly enhanced following the rising Newcastle price
- (−) Cash cost rose due to higher Newcastle, gas oil prices and higher royalty expense

Net Income

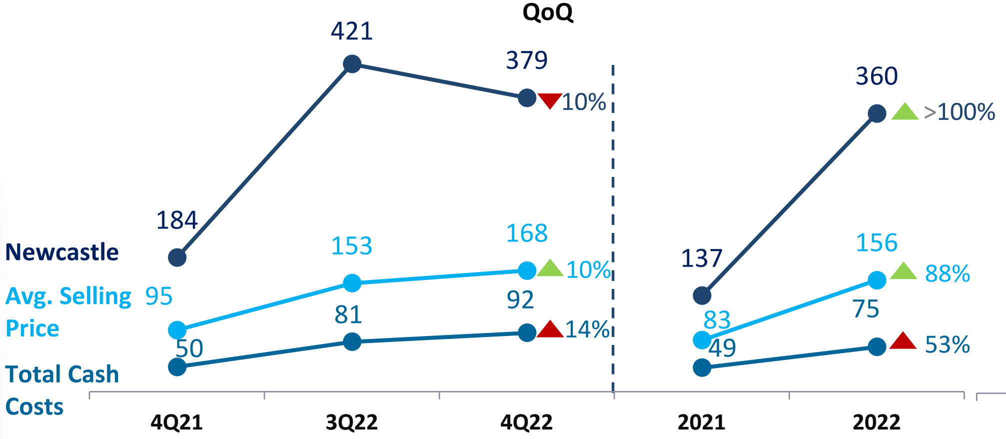
Unit: MUSD

NOTE: Net income 100% of SAR

Key Drivers

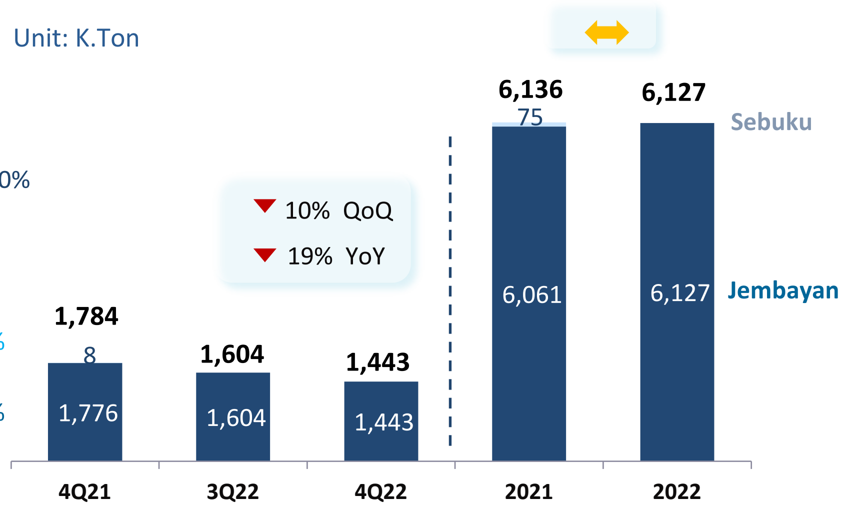
Avg. Selling Price[1/] & Cash cost[1/]

Unit: $/Ton



Sales Volume

Unit: K.Ton



[1/] Avg. Calorific value ~ 5,400 kcal/kg

PTT Group : Upcoming Projects

2022

LNG Terminal 2
7.5 MTPA (ptt)

Increased stake in Lotus pharmaceutical
Entering into pharma business
PTT hold ~37%

Algeria HBR (Phase I) (PTTEP)
oil:13 KBD
*PTTEP hold 49.0%

Innopolymed Company Limited (ptt, IRPC)
Manufacture and sell Non-Woven Fabric
(5.6 KTA)

2023

Battery module & pack assembly plant (NUOVO)
*Nuovo+ holds 51%
Total Capacity 1Gwh by 2024 / 2 Gwh by 2025

5th onshore pipeline (Phase I, II & III) (ptt)
Length ~ 430 KM.

Plant-based manufacturing
(3 KTA)

Ole 2 Modification Plant Project (GC)
Feed flexibility (propane)

2024

GSP #7 (460 MMSCFD) (ptt)
Replace GSP #1

EV manufacturing (JV with Foxconn)
*Arun+ holds 60%
Total Capacity 50,000 units/year

IRPC
Ultra Clean Fuel (UCF)
Building Competitiveness: Euro 5 diesel

GPSC
Changfang & Xidao Project in Taiwan
Offshore Wind power: 149 MW equity capacity *GPSC hold 25%

Thaioil
Clean Fuel Project
(275 → 400 KBD)

2025

ptt **Bang Pakong– South Bangkok Pipeline**
Length ~ 80 KM.

GPSC **ERU Project**
(Power 250 MW)

2026

ptt
8th Gas Separation Plant
Produce & Import Ethane (1.07 MTA)

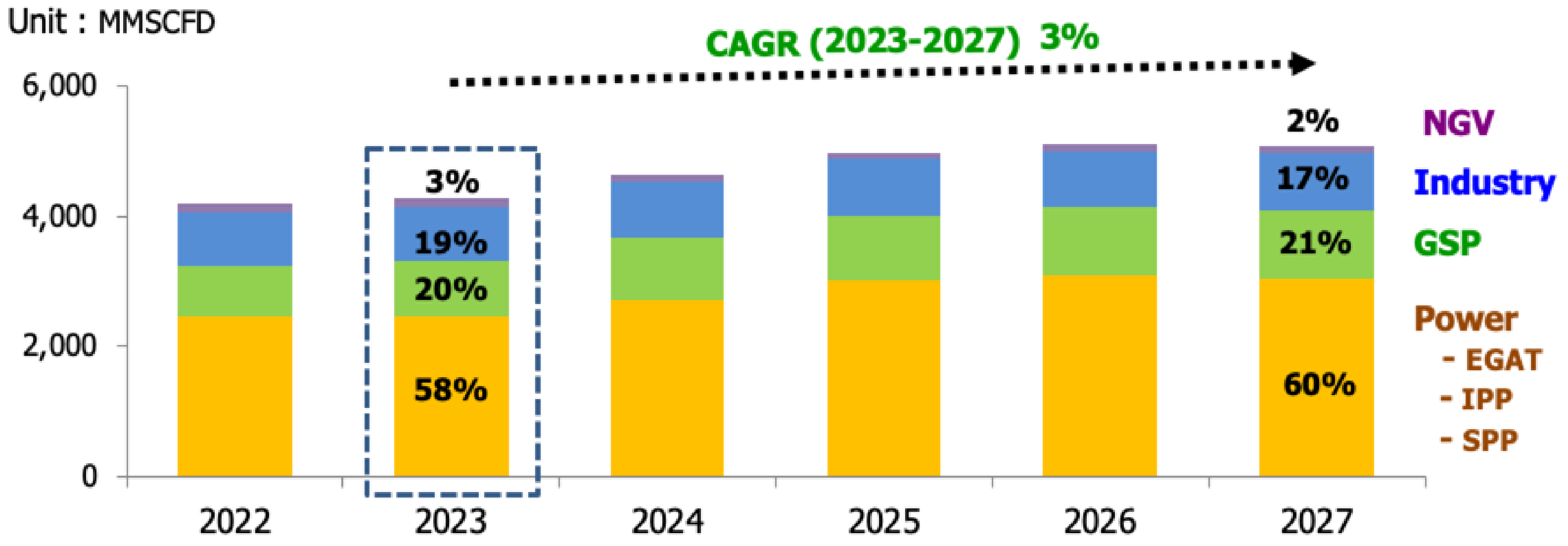
PTTEP
Southwest Vietnam
*PTTEP hold 7-8.5%
490 MMSCFD or ~80 KBOED

- Completed
- In progress
- Wait for FID

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** **700**	**Erawan** **800**	**L-T LNG contract 1 MTPA**

Major Project : COD & Capacity/	**LNG Terminal 2** **+7.5 MTA**		**GSP#7*** **460 mmscfd**	**GSP#8** *(Ethane 1.07 MTA, LPG 0.11 MTA)*
Accumulate Pipeline distance		**5th pipeline** **4,702 KM**		**BPK-SB** pipeline** **~ 56KM** **4,758 KM**

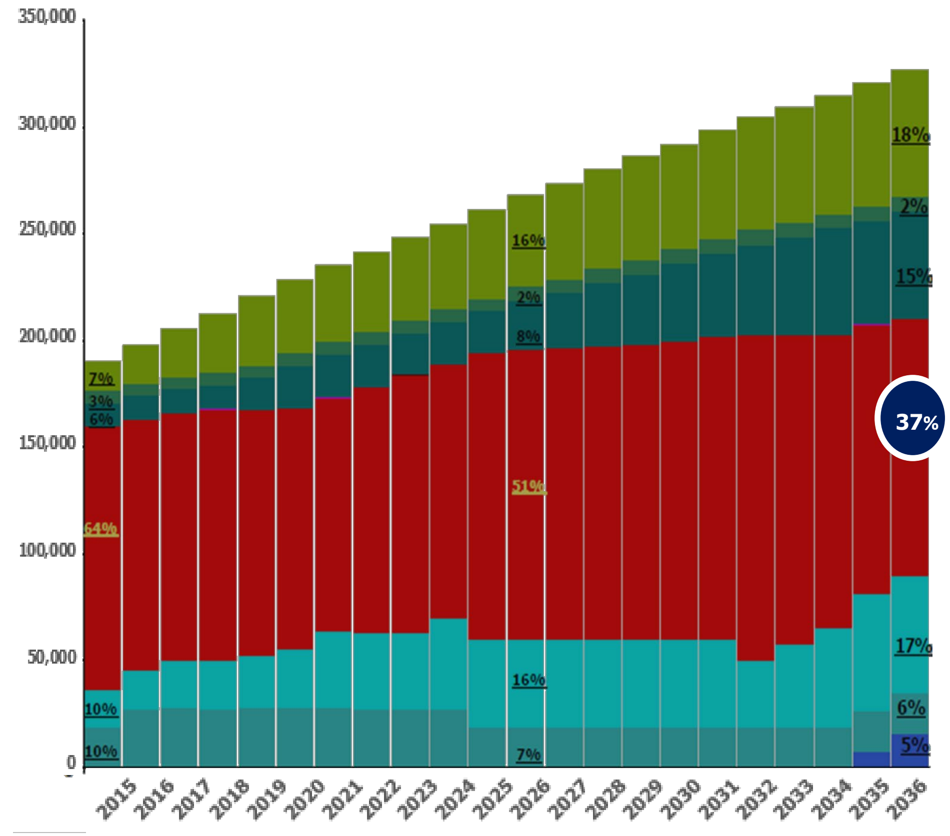
**Replace GSP#1* ***Bang Pakong– South Bangkok Power Plant*

Newly Thailand Power Development Plan

Stronger demand of NG for power plants

PDP 2015*

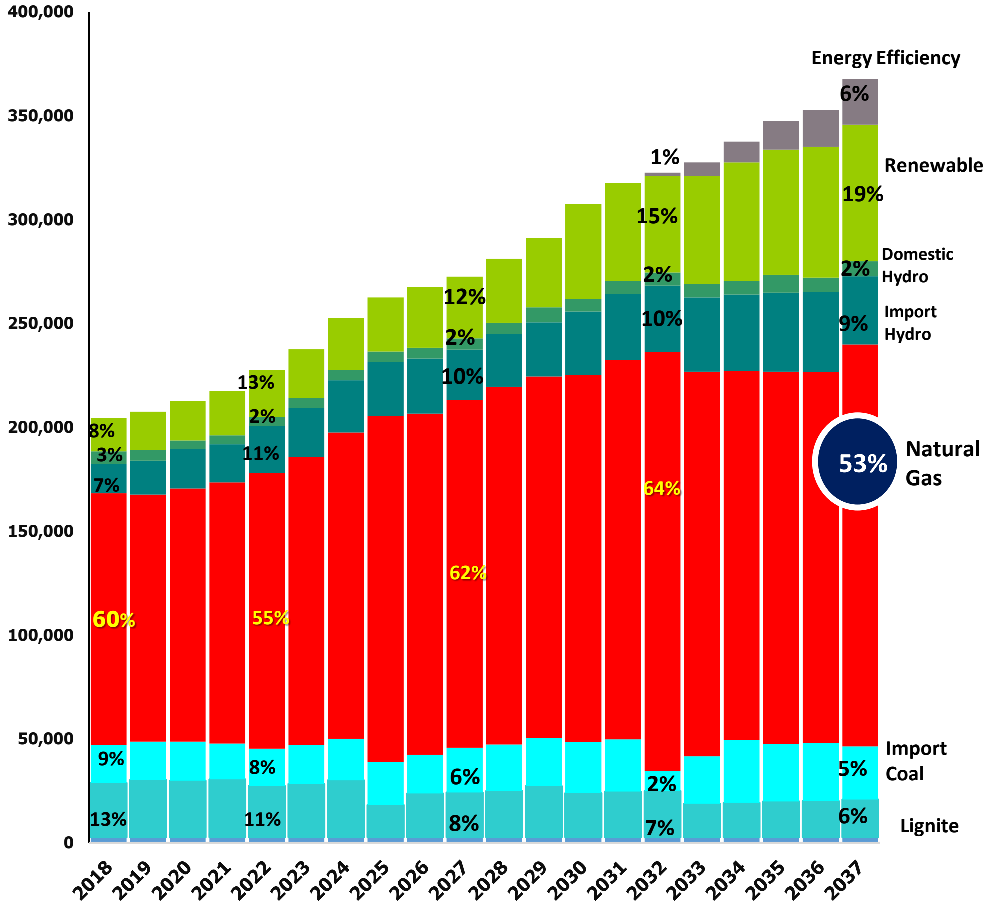
Natural Gas growth upon Government fuel diversification policy for power generation



*Source: Ministry of Energy

PDP 2018 Rev.1**

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



** Source : EPPO (Public Hearing presentation)

Natural Gas Demand

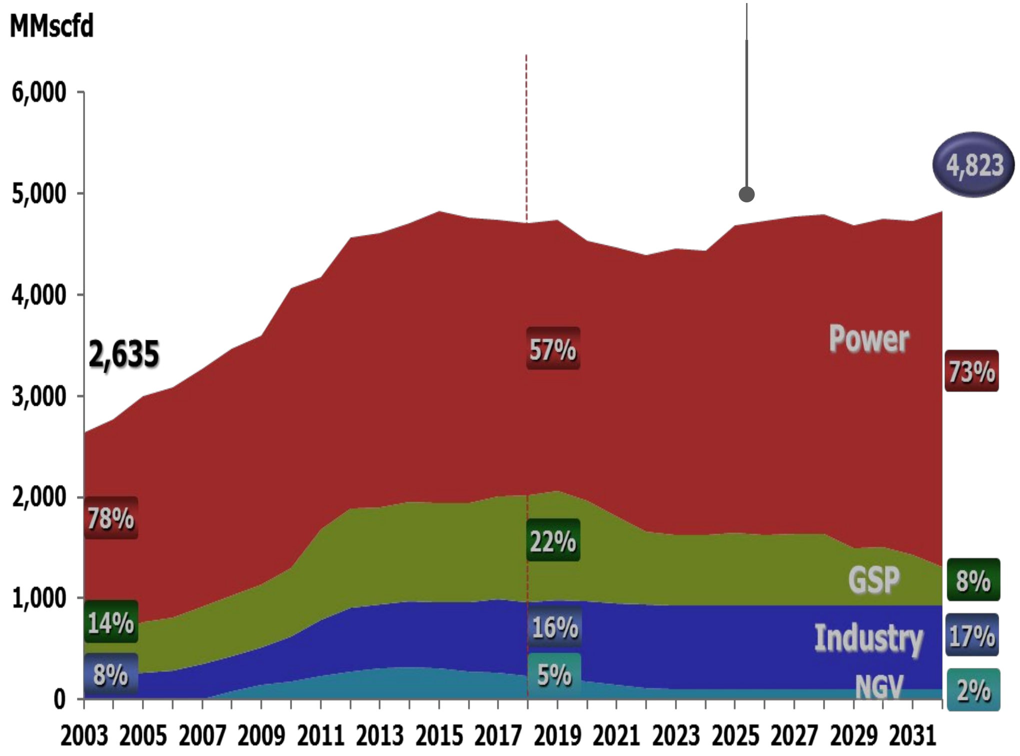
Growth of natural gas upon Government fuel diversification policy for power generation

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%

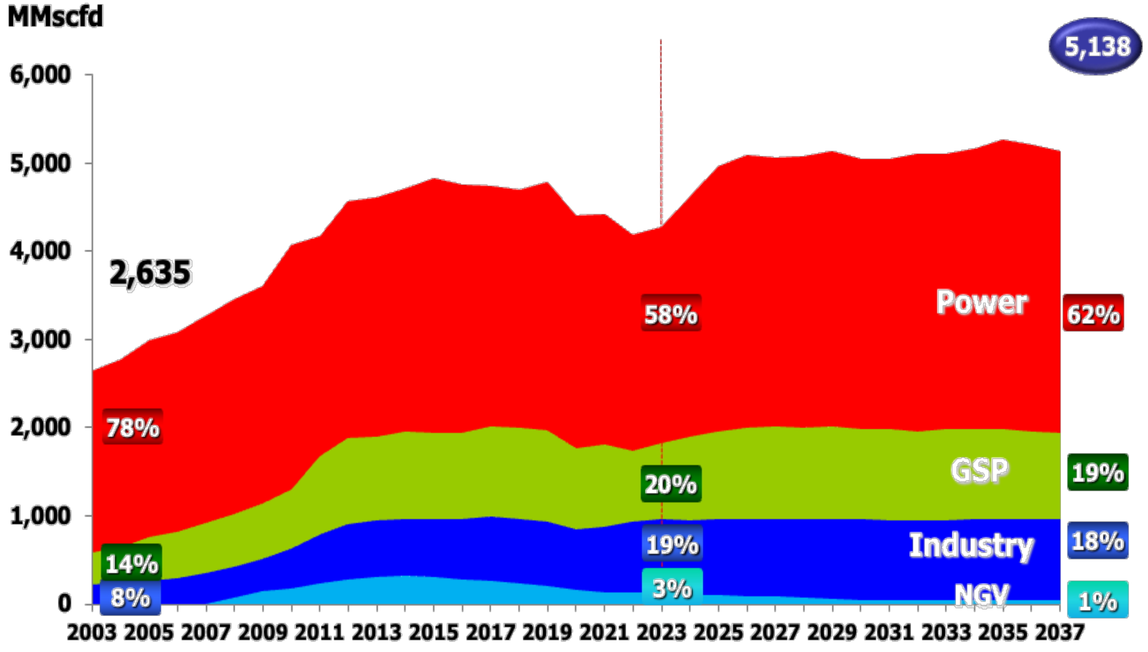


*Source: Ministry of Energy

NEW**

Thailand Gas demand forecast (CAGR during 2023-2037)

: Total	~	1%
: Power	~	2%
: GSP	~	1%
: Industry	~	1%
: NGV	~	-8%



** Source : PTT Business plan 2023 approved by BOD on 15 Dec 2022

Natural Gas Price Structure : As of Dec 2022

Gas prices are mostly agreed under long term contracts and volatility pass-through to ensure stable returns

Customers	Sales Price Structure: Gas Pool Price (Pool Gas + Zone 1 tariffs + LNG Tariff)	+ Supply Margins	+ Pipeline Tariffs
Power Producers 58%	Average Purchased Gas Price		13.1 Bt/MMBtu**
: EGAT 16%		1.75% *	
: IPP 13%		1.75% *	
: SPP 29%		9.33% *	

* EGAT IPP and SPP Supply Margins not more than 2.1525 and 11.4759 bt/mmbtu respectively

** Zone 3 tariffs

Customers	Sales Price Structure
GSP 19%	Charged at the same price structure of power producers
Petrochemicals Feedstocks	
Ethane, Propane, LPG	Profit-sharing mechanism based on market prices of petrochemicals
NGL	Reference to Naphtha market price
Local Cooking Gas	At GSPs cost (adjusted every 3 months)
Export Cooking Gas	Reference to a bi-weekly average of Platt's FOB Arub Gulf price
Industry 20%	Charged at prices comparable to fuel oil
NGV 3%	Charged at Avg. gas cost + Operating cost (3.892 bt/kg) for both Public & Private vehicles

NGV's selling price reflects the natural gas cost and operating cost* (including gas quality adjustment)

* The allowed operating cost is still regulated and not fully cover PTT's operating cost

**A cap of NGV price for taxi at 13.62 baht/kg from 1 Nov 21 until 15 Mar 23 and retail price for private and other vehicles had gradually uplift from 15.59 baht/kg from 16 Nov 21 - 15 Sep 22 , 16.59 Baht/Kg. from 16 Sep – 15 Dec 22 and 17.59 Baht/kg. from 16 Dec 22 onwards.

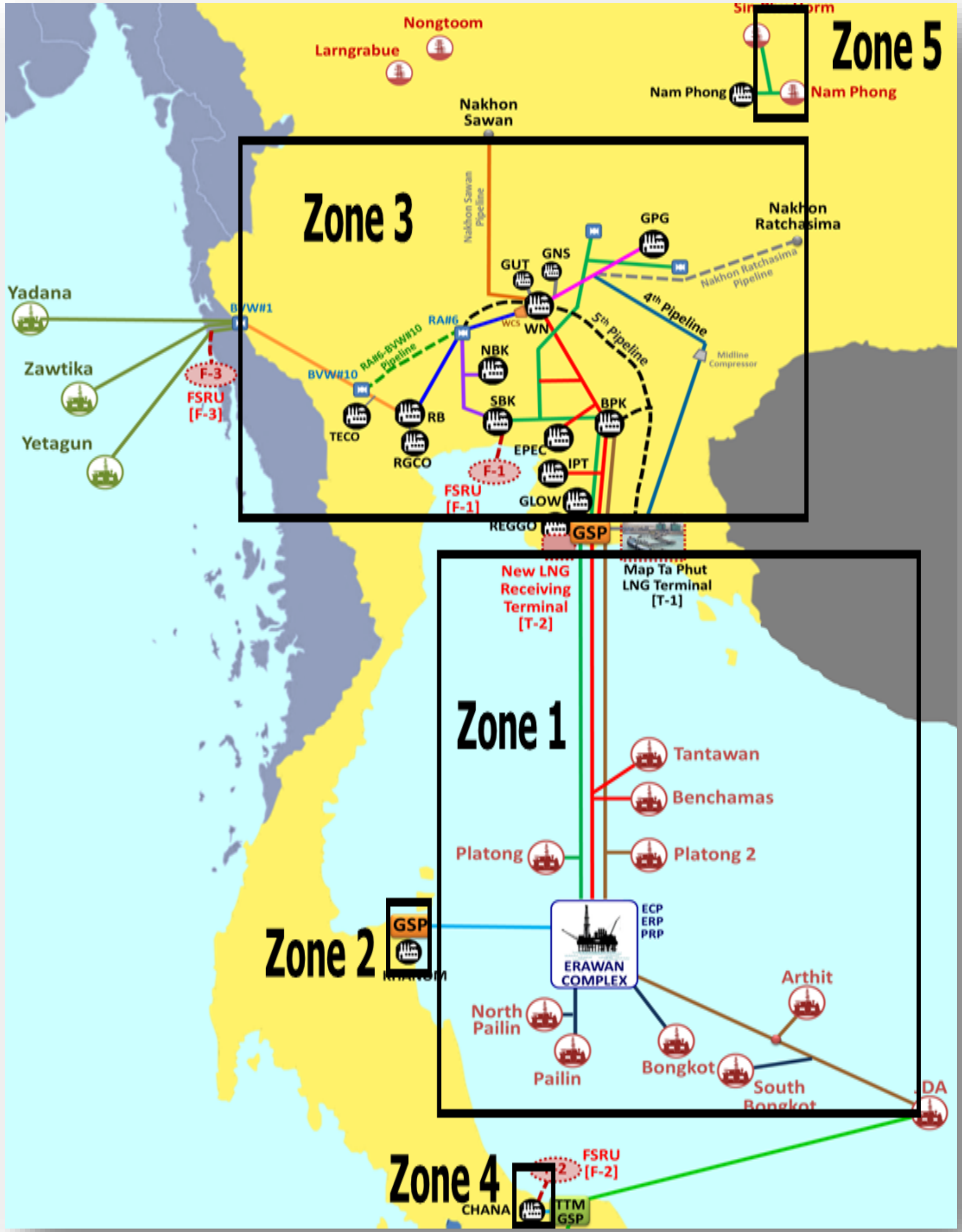
Public transportation vehicles : regulated and capped to minimize the impact from the rising global crude prices on end-users

- Since 16 May 2018 : Allowance to adjust NGV public price from 10.62 Baht/Kg. to 13.62 Baht/Kg. by every 4 month (16 May 19, 16 Sep 19 and 16 Jan 20)
- Since 1 Jan 2021 : Use the same pricing as private vehicles

Private vehicles: reflect the natural gas cost, gas quality adjustment and operating cost (not fully cover PTT's operating cost)

- Since 16 Jul 2016 : The retail price is set to reflect the natural gas cost but operating cost is still regulated
- Since 5 Sep 2017 : Allowance to adjusted +0.46 Baht/Kg. to 3.8920 Baht/Kg. for gas quality improvement cost

Gas Transmission Tariff



Zone 1	Offshore pipeline network (Gas separation plant)
Zone 2	Offshore pipeline network in Khanom area
Zone 3	Onshore pipeline network
Zone 4	Onshore pipeline network in Chana area
Zone 5	Onshore pipeline network in Nam Phong area

Gas Transmission Tariff calculation

Zone	Tariff (Old)			Tariff (New)		
	Td	Tc	Total	Td	Tc	Total
1	8.59	1.04	9.63	12.89	0.19	13.08
2	14.22	1.04	15.26	5.90	0.06	5.96
3 : Pool gas	20.66	1.04	21.70	15.48	1.45	16.93*
3 : LNG Import	12.07	1.04	13.11	11.69	1.39	13.08
4	7.08	0.10	7.18	4.79	0.15	4.94
5	1.13	0	1.13	0.27	0	0.27
Tariff calculation	Discounted Cashflow : IRROE			Building Block : WACC ~ 6.48 - 7.31%		

*Estimated by including Zone 1 tariffs

Gas Business Generates Stable Returns

Overview

- Sole owner and operator of entire gas transmission pipelines in Thailand (~ 4,000 km), a regulated business
  - WACC ranges between 6.5% - 7.3% for transmission pipeline investment
- Supply & marketing of natural gas provides fixed margin with long-term contracts of 25-30 years
- 6 Gas Separation Plants; Total production 6.7 MTA; are on petrochemical market price-linked profit sharing basis

Gas Separation Plant Capacity	
Unit 1	420 MMcf/d
Unit 2 and 3	820 MMcf/d
Unit 4	170 MMcf/d
Unit 5	580 MMcf/d
Unit 6	880 MMcf/d

Gas transmission pipeline capacity

Thank you

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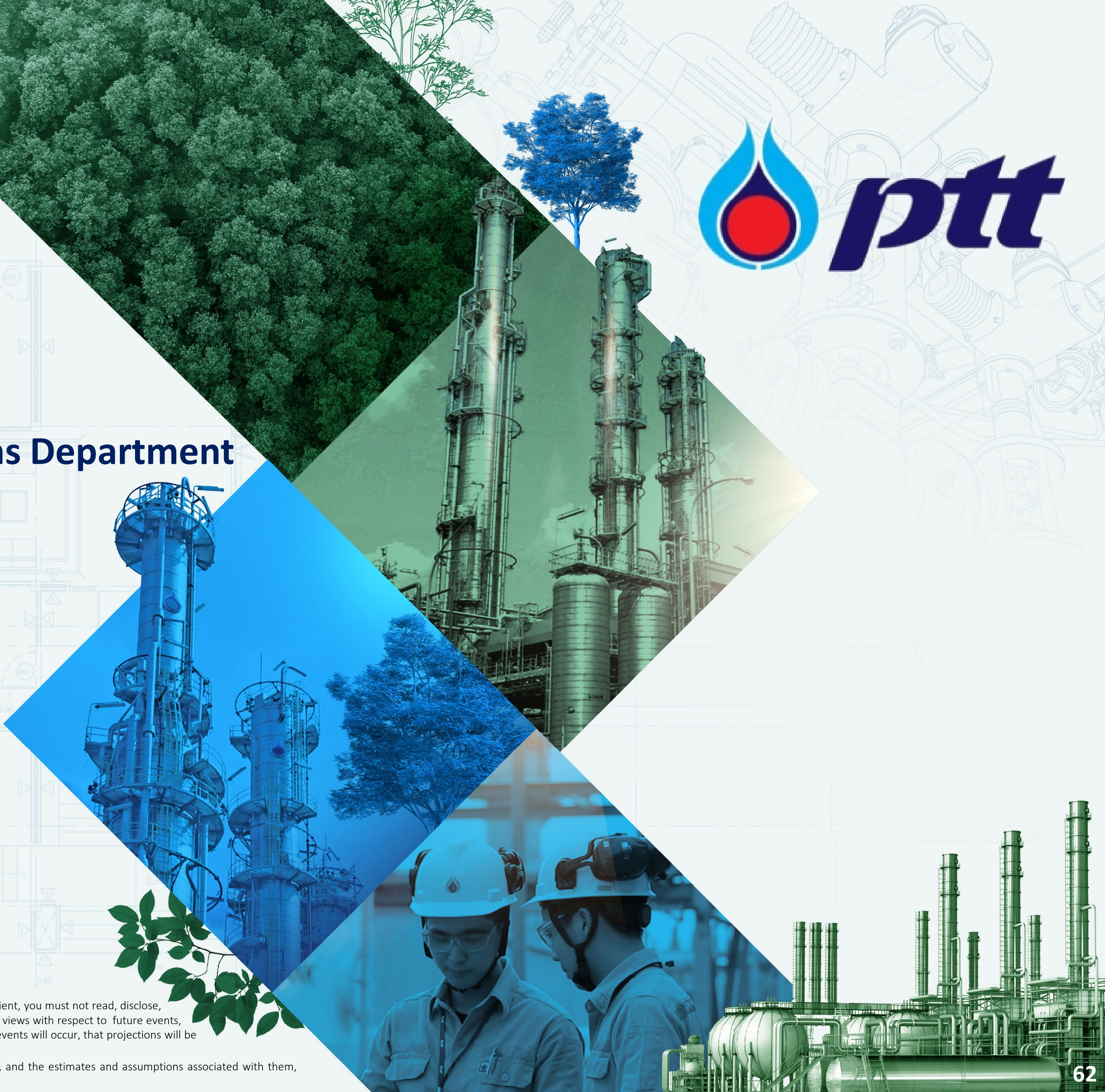

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