New World of Petrochemical
: The Next Challenge over Future Pathway

The 16th PTT Group Petrochemical Outlook Forum
Friday, 1st August 2025

The Winter Before The Spring

THE IMBALANCE IN PETROCHEMICAL INDUSTRIES

Supply Exceeds Demand Like Never Before

Supply

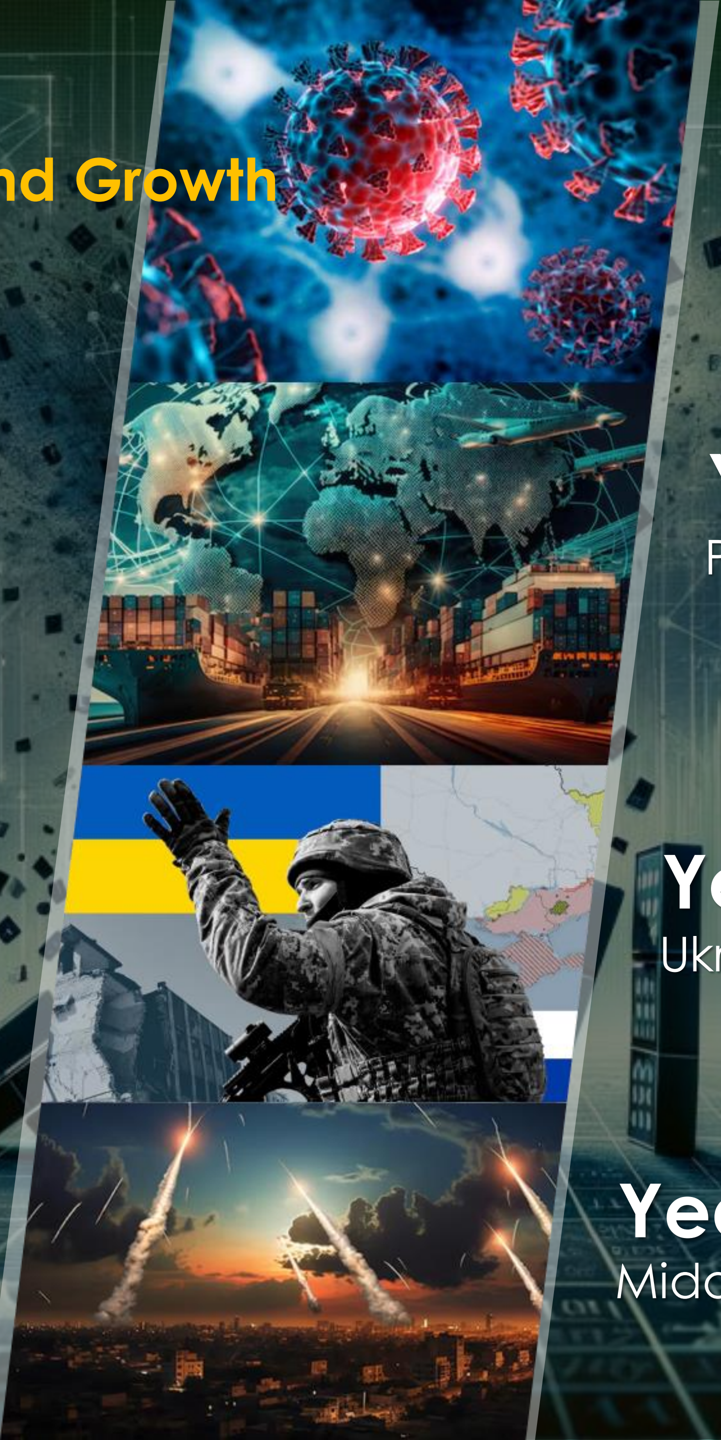
Double Growth

Demand

Slowdown

THE TRIGGER

Challenge Concerning Demand Growth



Year 2020
Covid-19 Pandemic

Year 2021
Porlar Vortex / Global Freight Rise

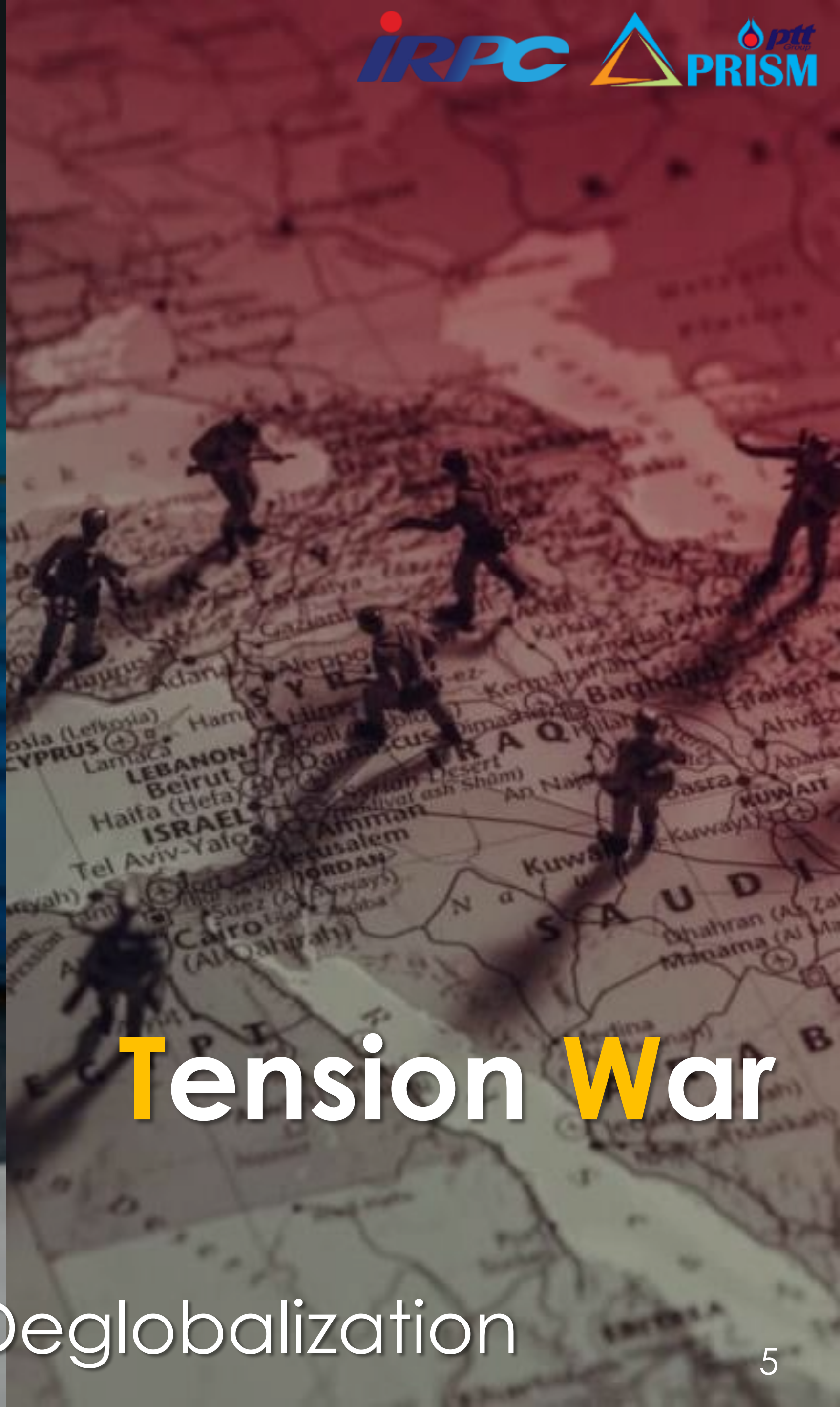
Year 2022
Ukraine War

Year 2023-2024
Middle East Tension

THE TRIGGER

Challenge Concerning Demand Growth

3(TW)



Tech War | **Trade War** | **Tension War**

Year 2025

Combination of Volatility and Deglobalization

TURNING POINT IN GLOBAL INDUSTRY DEMAND

Global Supply Chain Shifting

Global Recession

Global Energy Volatility

Petrochemical Demand Slowdown

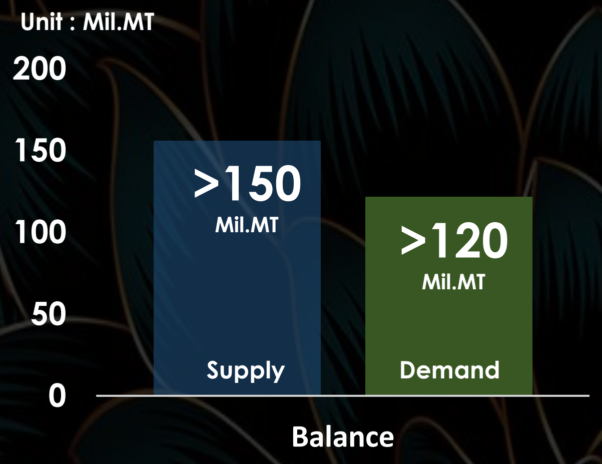
While Demand is Declining,

Petrochemical Supply Continues to Surge.

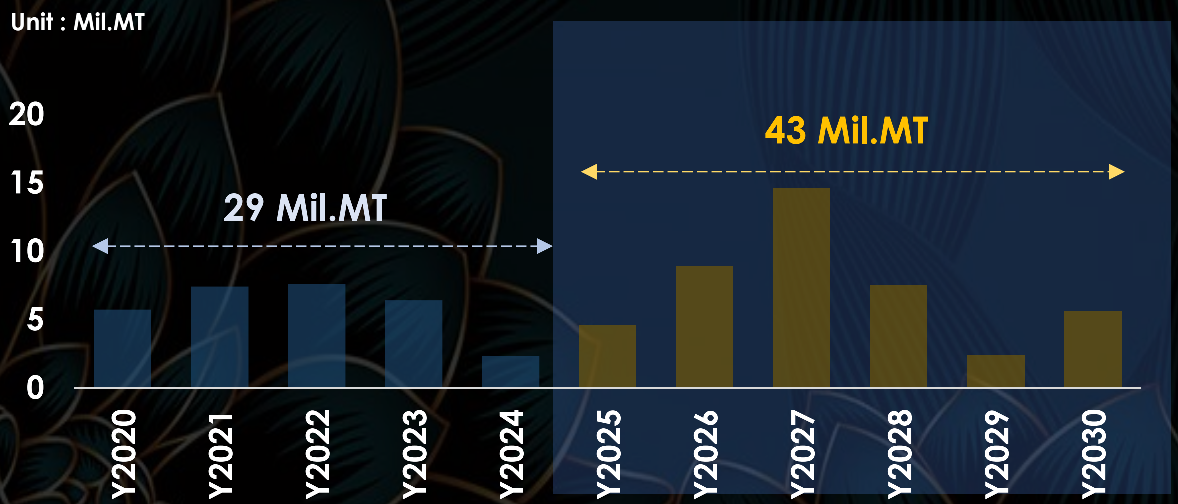
SUPPLY SURGING

Global Petrochemical Markets Face Oversupply Challenges

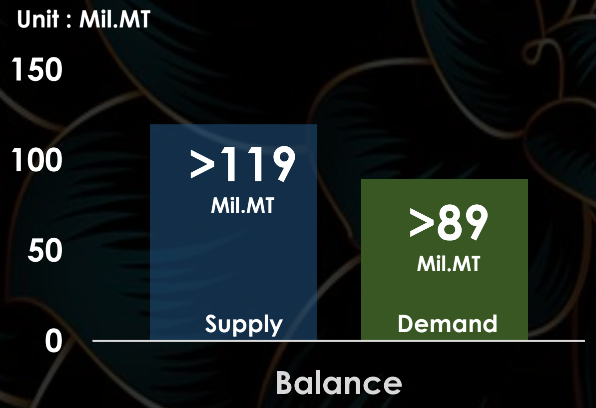
Global PE Balanced



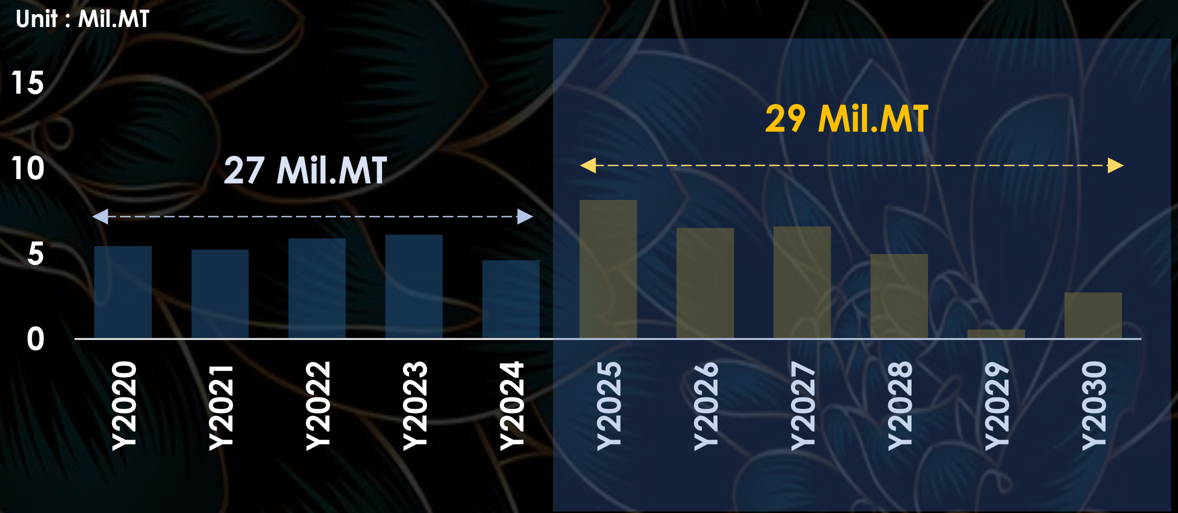
Global PE Additional Capacity



Global PP Balanced



Global PP Additional Capacity



Total Polyolefins Additional Capacity (2025-2030)

>70 Mil.MT

Source : OPIS/CMA and IRPC's Estimation

The Next Battle for Petrochemical Industry

Massive Capacity Overflowing towards Asia and Thailand

THE EVOLUTION OF COMPETITION IN THE PETROCHEMICAL INDUSTRY

Major Producers from Southeast and Northeast Asia

Regional Competition

GLOBAL PLAYERS: 3 GIANTS AWAKEN FROM SLUMBER

From Regional to Global Competition

New Capacity Release

Next 5 Years of Polyolefins

+3 Mil.MT

+9 Mil.MT

+46 Mil.MT

Source : OPIS/CMA and IRPC's Estimation

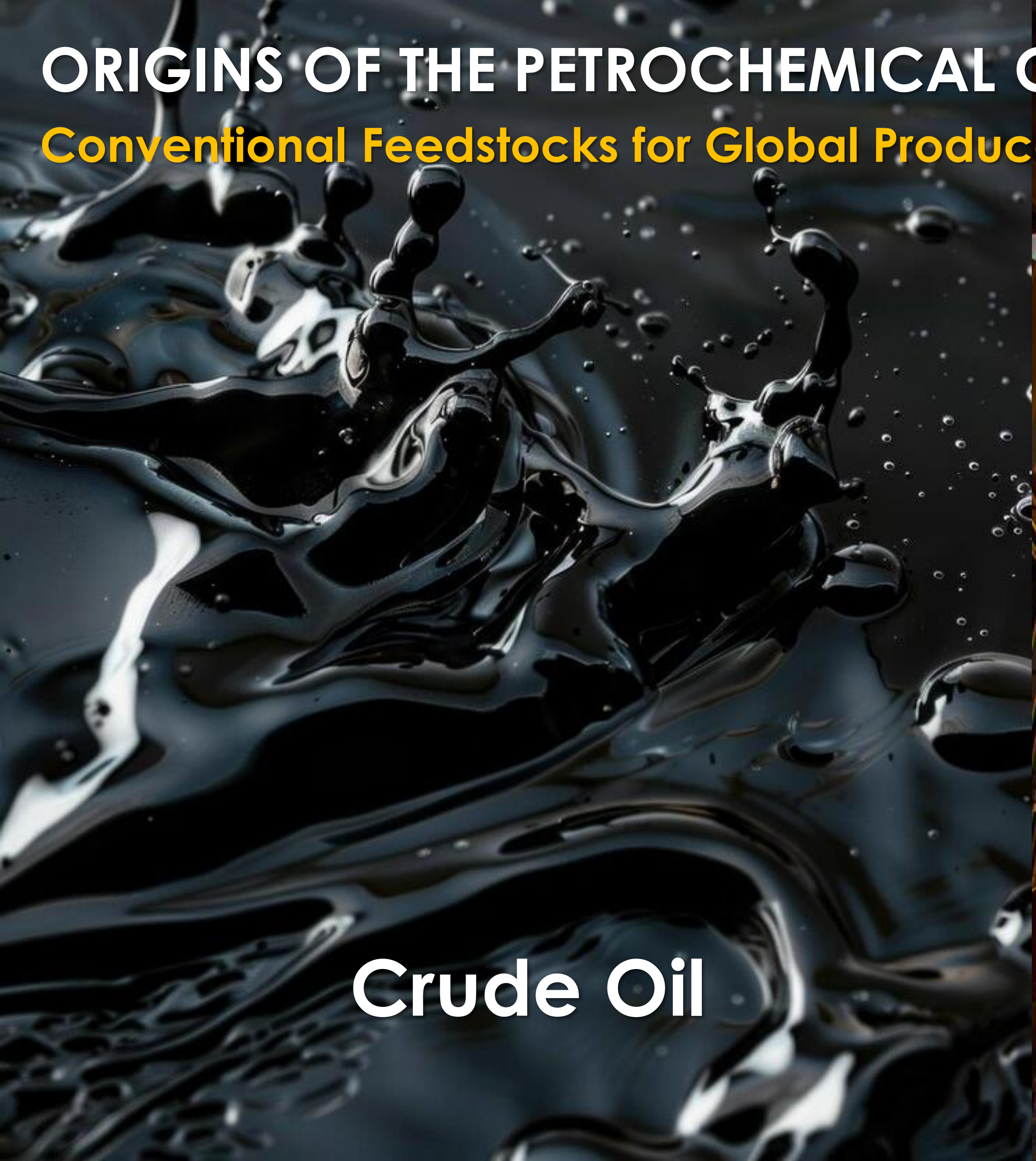
1st Giant

USA

The Eagle Rises Again

ORIGINS OF THE PETROCHEMICAL CHAIN

Conventional Feedstocks for Global Producers



USA PETROCHEMICAL INDUSTRY

Leveraging Feedstock to Enhance Competitiveness

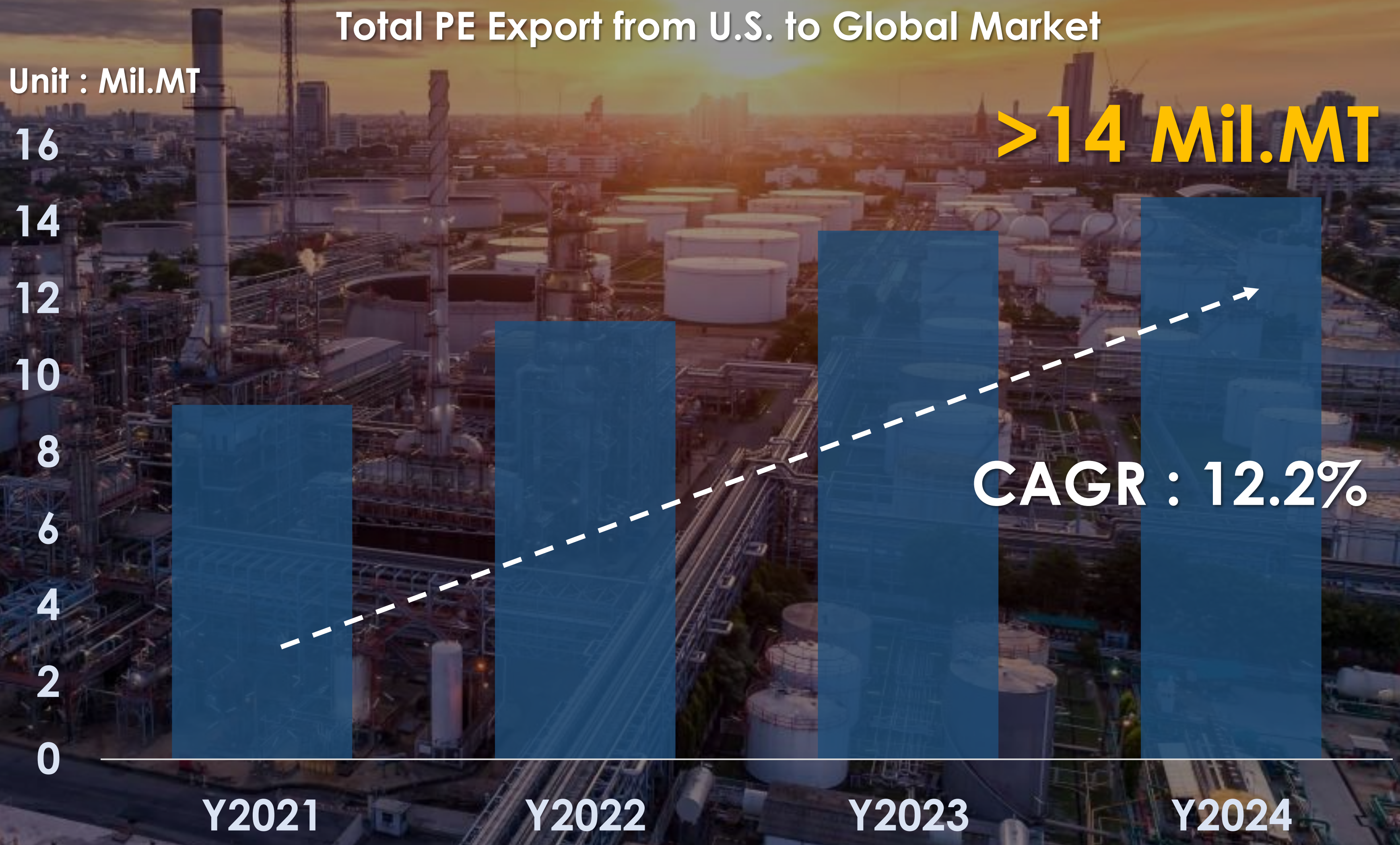
Ethane

C_2H_6

Shale Gas

USA PETROCHEMICAL EXPORTS

Polyethylene Potential Significantly Increased



Source : *International Trade Centre*

USA POLYETHYLENE EXPORT

Strategic Growth in ASEAN Markets

Priority Export Destination for USA Polyethylene

Unit : KTA

ASEAN Markets

- Tier 1 - → - Tier 2 - → - Tier 3 -

Source : OPIS/CMA and IRPC's Estimation

2nd Giant

Middle East

The Genie Moving from West to East

NET ZERO EMISSION MILESTONE

Accelerating Capacity Expansion before 2030

COP Agreement

2030

New Development and Major Renovations to also Achieve Maximum Reduction in Embodied Carbon

2050

VALUE ADDED

Moving toward the Petrochemical Value Chain

Crude Oil

Economic Value Multiplier

1(X)

Petrochemical

Economic Value Multiplier

2 - 5.5(X)

MIDDLE EAST NEW EXPANSION

New Petrochemical Mega Complexes Emerging in the Middle East

1st Quartile Ranking in
Competitive Feedstock and Large-Scale Operations

MOVING TOWARD ASIA

Developing Strategic Partnerships that Can Create more Trade

China

Asean

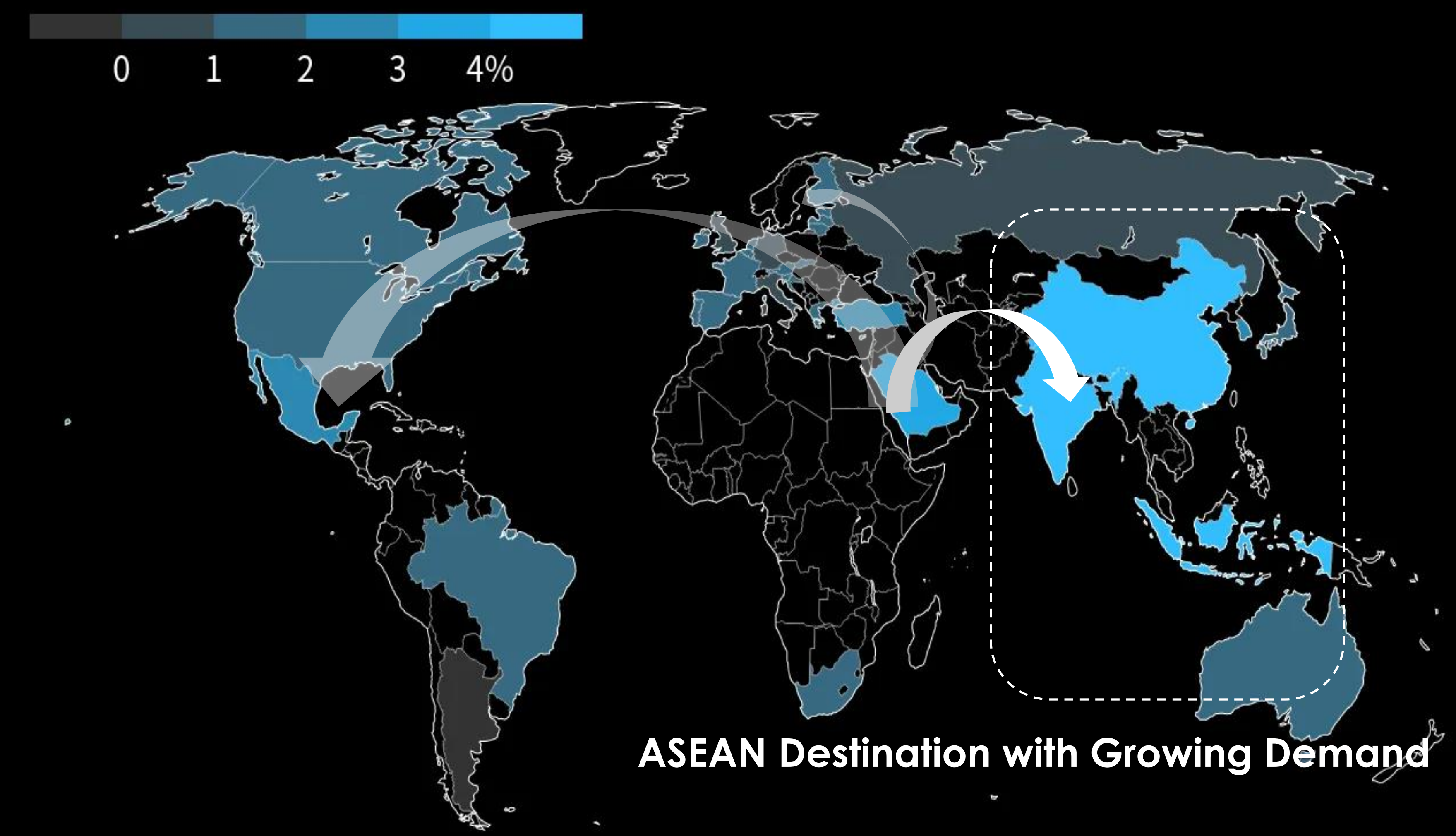
ASIA'S RESILIENCE

Middle East Perspectives on Regional GDP Growth

GCC Producers

Petrochemical Export in 2024

PE	PP
13	6
Mil.MT	Mil.MT

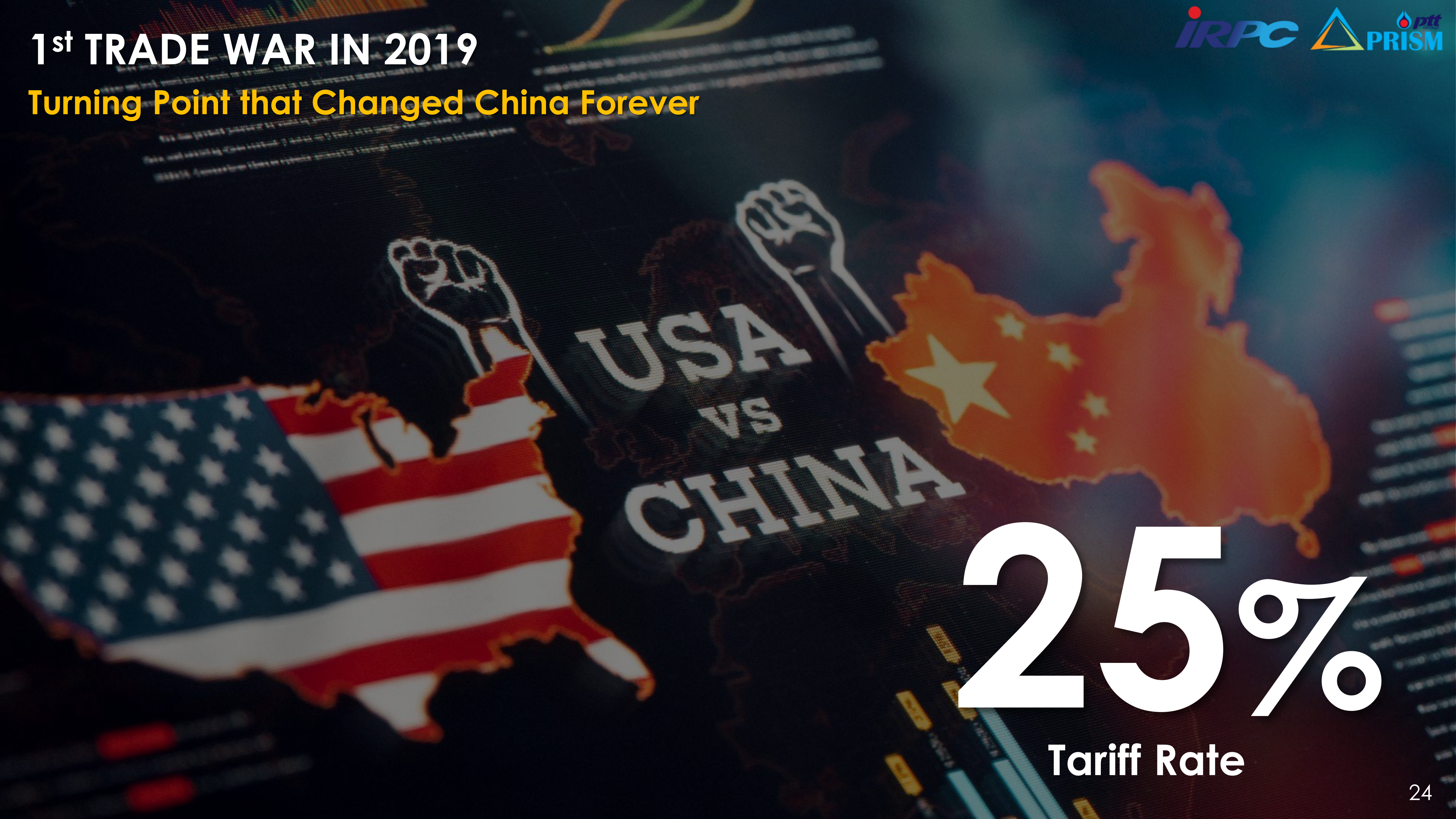


Source : IMF


3rd
Giant
China
The Awakening Dragon

1st TRADE WAR IN 2019

Turning Point that Changed China Forever

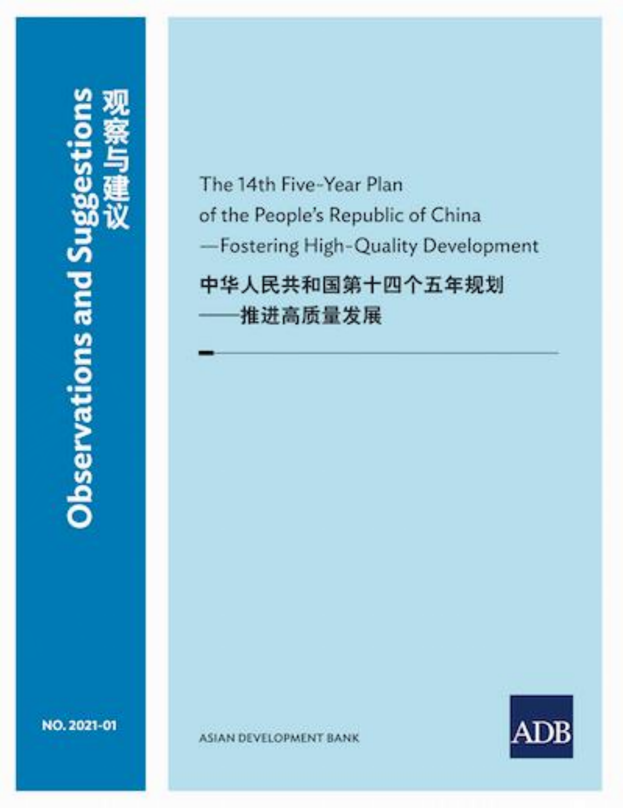


25%

Tariff Rate

DEVELOPMENT STRATEGY AND POLICY OF CHINA

The 14th Five-Year Economic Development Plan



2021 Two Sessions

Major Indicators of Economic and Social Development During the 14th Five-Year Plan (2021-2025) Period

Category		Indicator	2020	2025	Annual / Accumulative	Attribute
Economic Development	1	GDP Growth (%)	2.3	—	To keep within an appropriate range and set annual targets in light of actual circumstances	Anticipatory
	2	Workforce Productivity Growth (%)	2.5	—	Higher than GDP growth	Anticipatory
	3	Urbanization Rate (%)	60.6*	65	—	Anticipatory
Innovative Drive	4	R&D Spending Growth (%)	—	—	>7 / Strive for more than the total of 2016-2020 period	Anticipatory
	5	Number of High-value Invention Patents per 10,000 Population	6.3	12	—	Anticipatory
	6	Added Value of Core Industries in Digital Economy to GDP (%)	7.8	10	—	Anticipatory
Wellbeing	7	Disposable Income per Capita (%)	2.1	—	Basically in line with GDP growth	Anticipatory
	8	Surveyed Urban Unemployment Rate (%)	5.2	—	<5.5	Anticipatory
	9	Years of Education Received by Working-age Population on Average	10.8	11.3	—	Obligatory
	10	Number of Certified (Assistant) Doctors per 1,000 Population	2.9	3.2	—	Anticipatory
	11	Basic Old-age Insurance Coverage (%)	91	95	—	Anticipatory
	12	Number of Nursery School Places for Infants Under Three per 1,000 Population	1.8	4.5	—	Anticipatory
	13	Life Expectancy	77.3*	—	[1]	Anticipatory
Ecology	14	Energy Consumption per Unit of GDP Decrease (%)	—	—	[13.5]	Obligatory
	15	Carbon Dioxide Emissions per Unit of GDP Decrease (%)	—	—	[18]	Obligatory
	16	Percentage of Days with Good Air Quality in Cities at Prefecture-level and Above (%)	87	87.5	—	Obligatory
	17	Percentage of Surface Water Reaching Grade III or Above (%)	83.4	85	—	Obligatory
	18	Forest Coverage Rate (%)	23.2*	24.1	—	Obligatory
Security	19	Overall Grain Production Capacity (hundred million tonnes)	—	>6.5	—	Obligatory
	20	Overall Energy Production Capacity (hundred million tonnes of standard coal)	—	>46	—	Obligatory

Notes:

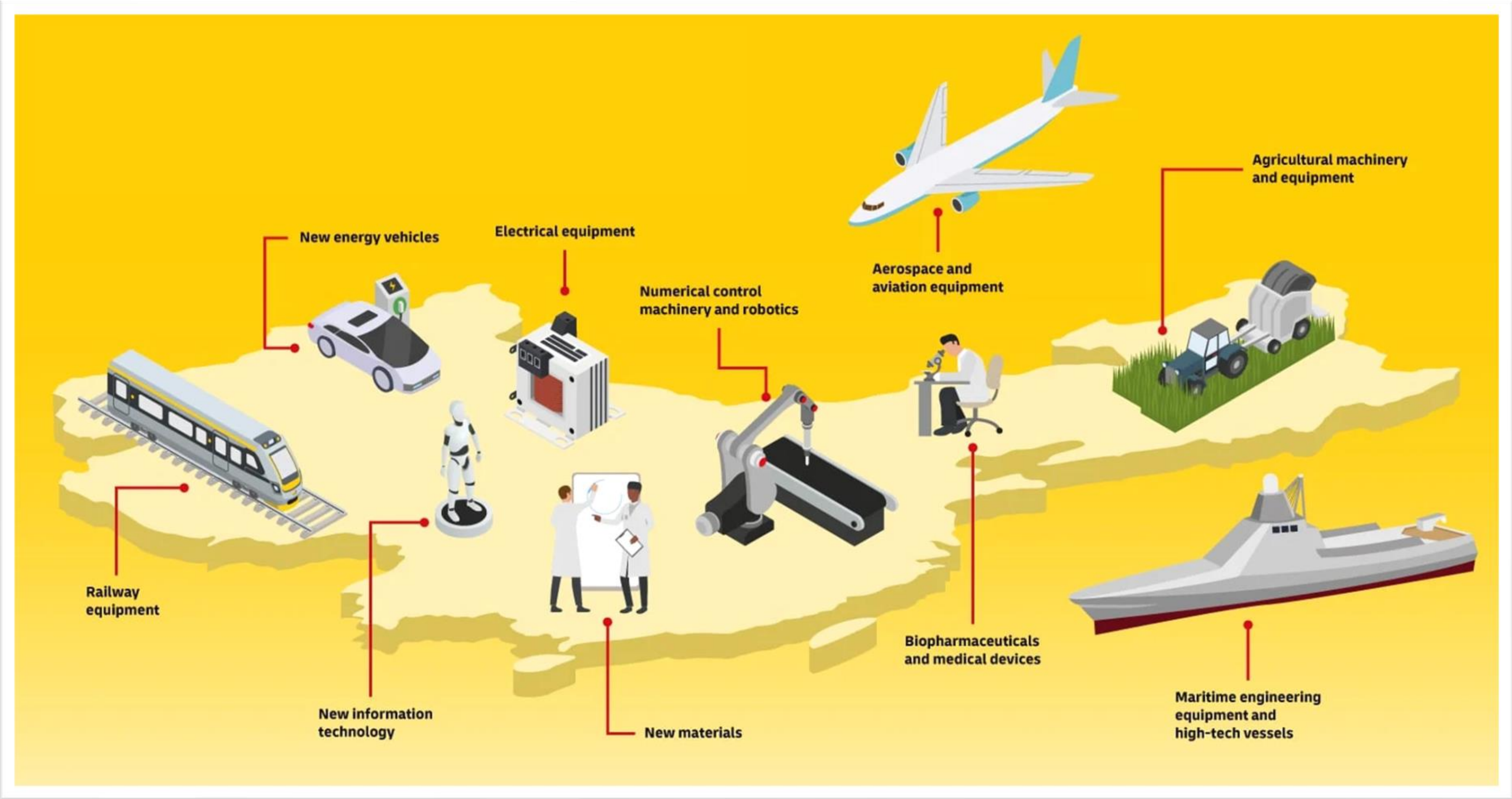
1. Figures in [] are cumulative numbers for five years.
2. Figures with * are of 2019.
3. Overall energy production capacity is the overall capacity of coal, petroleum,natural gas and non-fossil energy production.
4. Due to the COVID-19 pandemic, percentage of days with good air quality in cities at prefecture-level and above and percentage of surface water reaching Grade III or above in 2020 are higher than normal.
5. Workforce productivity growth in 2020 is an estimated number.

Xinhua / Lu Zhe

Create Domestic Own Value Chain from Upstream to Downstream

MADE IN CHINA 2025

New Engine Growth



A Strategic Plan by the Chinese Government to Transform the Country into a Global High-Tech Power House across 10 Key Sectors

CHINA’S ACHIEVEMENTS IN NEW TECH SECTORS

A Growth Engine for Economic Development

Smart Electronics

Electronic Vehicles

Robotic and Automation

CHINA'S GOAL

Becoming the World's Manufacturer According to China Standards 2035

China Standard
2035

Made in China
2025

World's Manufacturer

CHINA’S GOAL

Utilizing the Silk Road Economic Belt to Enhance Economic Growth Power

Modern Silk Road

CHINA'S SIGNIFICANT EXPANSION IN THE PETROCHEMICAL SECTOR

Polyolefins Capacity Growth from 2025 to 2030

Polyethylene (PE)

26 Mil.MT

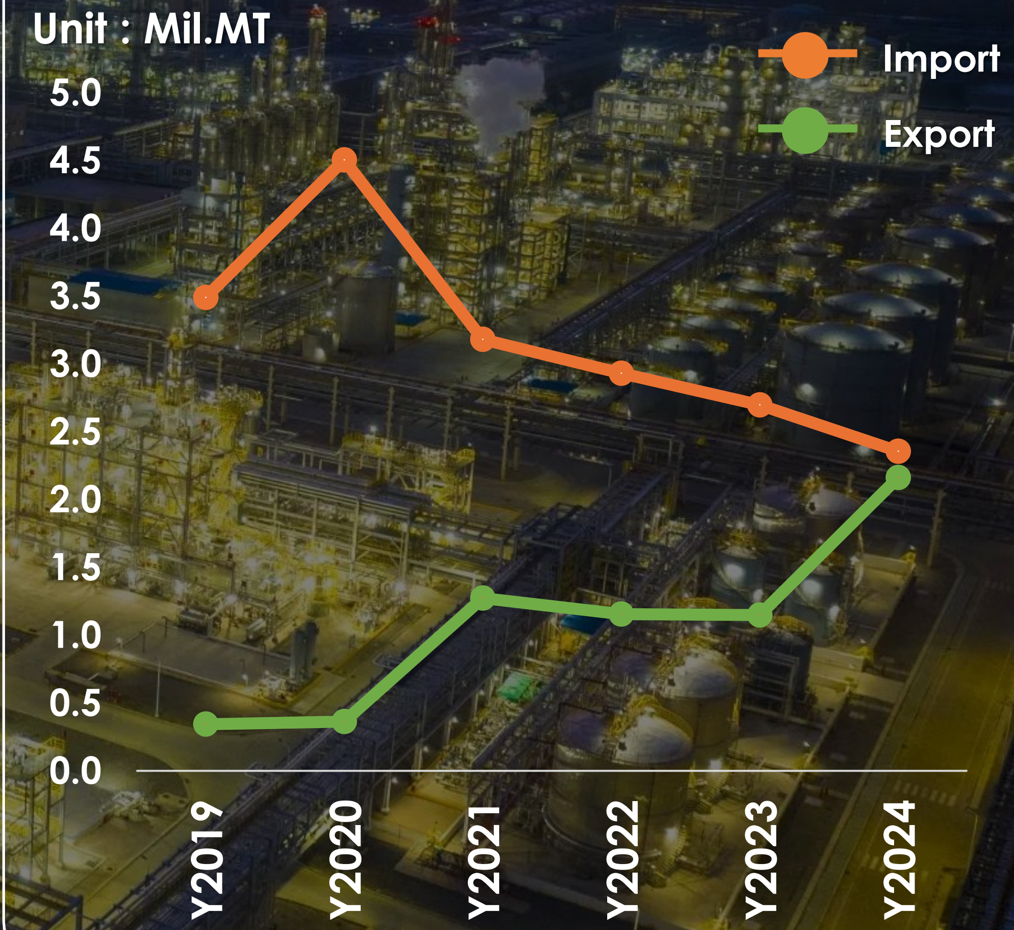
Polypropylene (PP)

20 Mil.MT

Polyolefins (PE + PP)

46 Mil.MT

Chinese PP Homo Polymer
Import/Export Balance



Source : OPIS/CMA and IRPC's Estimation/International Trade Centre

The Next Challenge

of Petrochemical World

1

Intensifying Feedstock Competition

2

Shifts in the Global Value Chain

INTENSIFYING FEEDSTOCK COMPETITION

Enhancing the Competitiveness of Your Operations

Naphtha

LNG

Propane

Ethane

Methanol

Butane

Shifts in the Global Value Chain

Changes in Petrochemical Trade Flows

DEGLOBALIZATION DRIVERS

The Emerging Confrontation between the West and East

Make America

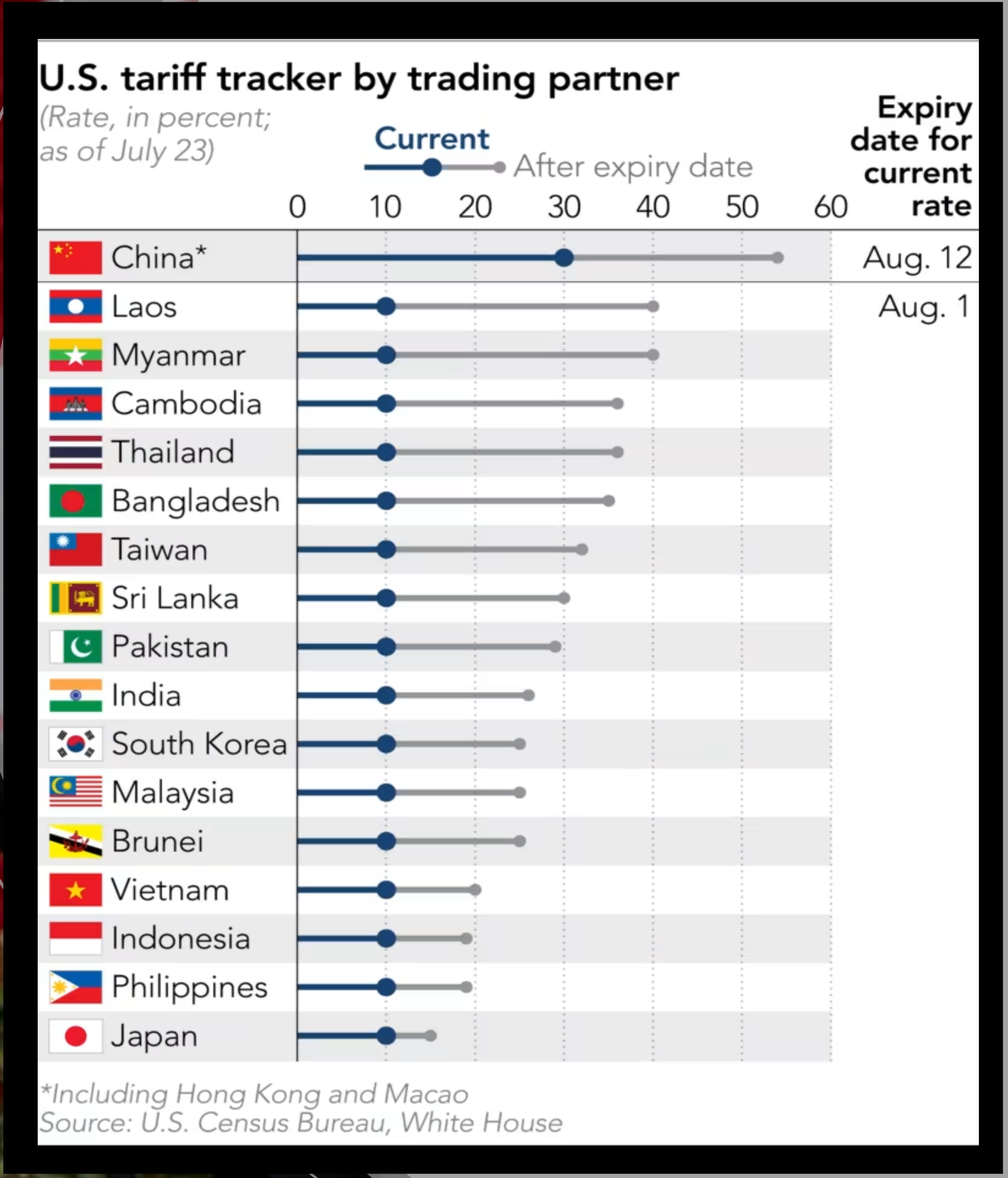
Great Again !!

Chinese

Dream

RECIPROCAL TARIFF

Catalysts Driving Shifts in the Global Value Chains



Source : NIKKEI Asia

TRADE FLOW CHANGED AFTER RECIPROCAL TARIFF IMPLEMENTATION

Shifting Petrochemical Export Destinations to Asia

Export Channel before Reciprocal Tariff Implementation

Possibility of Export Allocation after Reciprocal Tariff Implementation

Asia becomes the next priority target market for major petrochemical producers across the world

COMPETITION FROM OVERSEAS TO THAILAND

The Import Volume will Increase, Challenging Local Producers

Import Volume : PE

39% of Total PE Market Share In **2024**

Import Volume : PP

35% of Total PP Market Share In **2024**

Source : OPIS/CMA and IRPC's Estimation / Thai Customs

THE IMPACT ON THAILAND'S PETROCHEMICAL INDUSTRY

Leading to the Injuries of Local Industry

- Level 1 -

Price Mechanism

- Price Effect
- Price Undercutting

- Level 2 -

Market Share

- Domestic Volume and Value

- Level 3 -

Producers Force Shutdown

- Production Output
- Utilization Rate

A PILLAR OF THAILAND'S ECONOMIC STRENGTH AND INDUSTRIAL LEADERSHIP

The Petrochemical Industry is the Major Contributor to the Total GDP

Petrochemical Product

Production :

28.5 Mil.MT

1,060,301 M.THB

Plastic Conversion

Consumption :

5.77 Mil.MT

970,041 M.THB

Export Products

Consumption :

9.9 Mil.MT

417,292 M.THB

Total Petrochemical and Plastic Value

1,387,330 M.THB

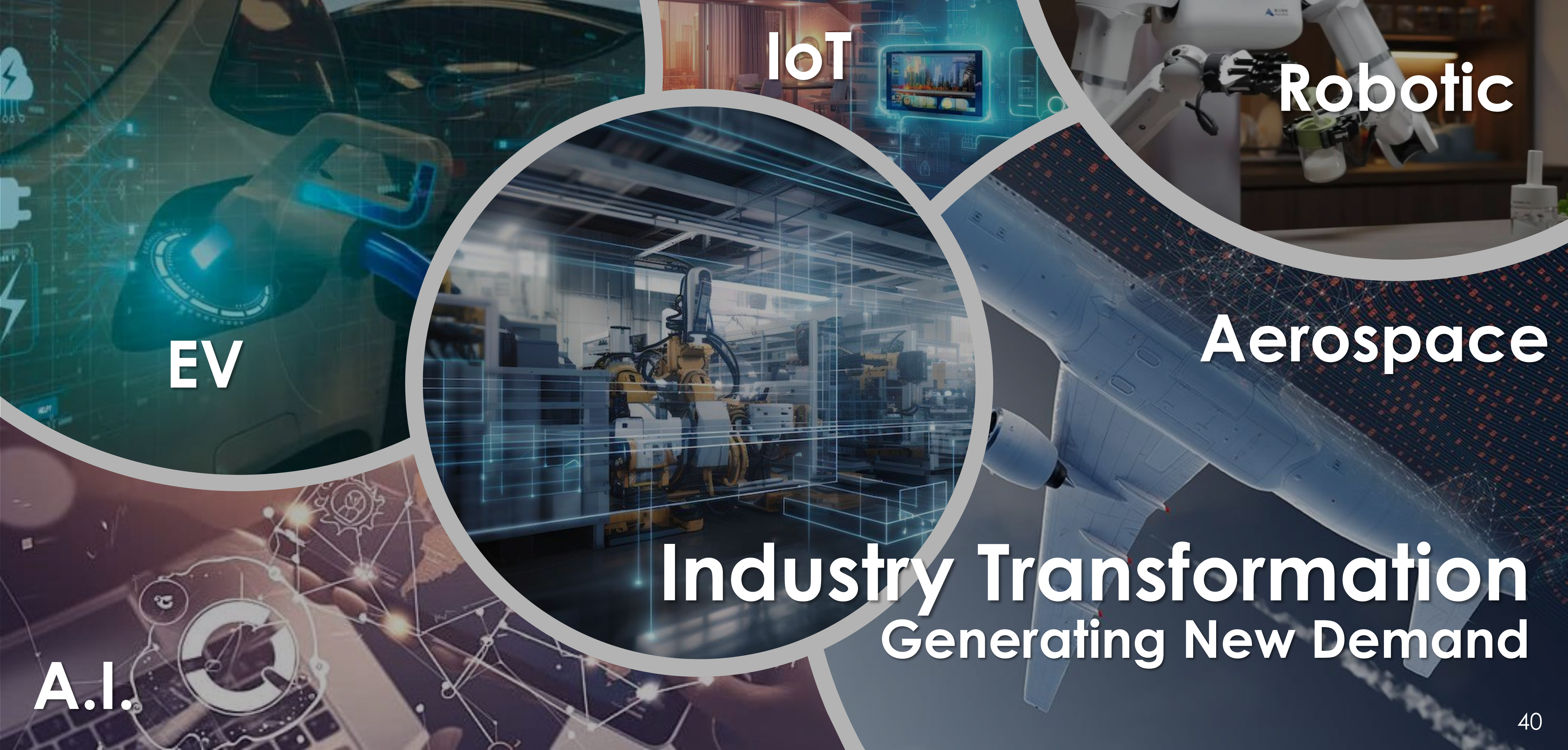
7.7%

of Total GDP

Source : Petroleum and Energy Institute of Thailand

THAILAND'S S-CURVE

The Petrochemical Industry—Essential for Shaping Tomorrow's Industries



PETROCHEMICALS

The Key Strategic Foundation for Industry Growth

THE NEXT SUNRISE: PETROCHEMICAL INDUSTRY RECOVERY

When will it Rebound?

Capacity
Begin to Freeze

Consumption
Start to Recover

Mega Project for Next Phase of Industries Revolution

2028
Supply / Demand Balance

2030
Global Industry Transformation

ADAPTING BEFORE SUNRISE

Strategic Pathways for the Transformation of the Petrochemical Industry to Thrive

1. Product High Value Added

2. Feedstock Secure and Advantage

3. Optimization and Operation

DIRECTION TOWARD THE FUTURE

Balancing Two Key Dimensions to Create a Sustainable Future

2 (E)

Economic

Environment

A Rainbow is a promise

of Sunshine after rain,

of Calm after storms,

of Joy after sadness,

of Peace after pain,