

**SET** **AA**  
ESG Ratings 2024



**TPI Polene Public Company Limited**  
**Opportunity Day Presentation**  
**March 3, 2025**



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# Topics

**Background**  
**Performance Review 2024**  
**Trends and Outlook**  
**ESG & Sustainability**

# Key Assets Featuring ESG Ventures for Sustainability



## Construction Materials

- **Green Cement** - 4 lines totaling 10.8m tons clinker capacity (13.5m tons cement basis)
  - Largest single location Cement plant with high **cost advantage** due to scale
  - First **pioneer on Green Cement** path with using MSW as Fuel
- **Mortar** - 4 plants with 3m tons capacity
  - **Largest mortar producer** in Thailand
- **Ready Mix Concrete & Light Weight Concrete**
  - Leading with 3.9 million cubic meters RMC and 300K cubic meters LWC capacity
- **Concrete Roof Tiles**- 4m sq. meters or 45m pieces
  - customized with roofing system, **heat-resistant coating** etc.
- **Fiber Cement**- 380,000 tons capacity
  - Environmentally friendly and asbestos-free and **confirming international standards**, comprising of board sheets, **substitute for wood product category**, digital board and wall & floor decoration
- **Pyrolysis & WTE-MSW** – 30,000 tons per year, 10m liters of pyrolysis oil per year.
- **Adhesives-Paints**
- **Other Promising ventures**
  - **All Solid & Liquid waste disposal** including hazardous materials
  - **Life and Non-life Insurance**

## Specialty Polymers/Chemical Products Bio-Organic Products For Agriculture /Livestock and Healthcare Products for Humans

- **Specialty Polymers** – 158,000 tons capacity
    - HVA, customized with in-house proven R&D
    - EVA Emulsion & powder – 25,000 tons capacity
  - **Nitrate** - 92,700 tons Ammonium Nitrate, 21,750 tons Nitric Acid
  - **Solar Sheets** - 10 lines with 20,100 tons capacity
- ### Food Safety and Food Security
- **Agriculture / Livestock/Aquaculture**
    - **Bio Organic** fertilizer & compounds for plants; **Wood Vinegar**-insect prevention liquid replacing chemical insecticides
    - **Probiotic & Synbiotics** for livestock farming and aquaculture to reduce Feed to Meat conversion ratios and methane gas emission from animals
    - **MicromKnox**, viruses killers of Foot & Mouth Disease and Bird Flu for livestock & poultry farming
  - **Wellness & Healthcare Products**
    - **Bio Knox** – RNA and DNA virus killer
    - **Bio San** – suppresses pathogenic bacteria, viruses and bad smell in the toilets and garbage piles
    - **Printemp Marie Rose Mouthwash** kills viruses and bacteria
    - **EESY Clean** dishwashing Liquid
    - **Drinking water**
    - **TPI Green** – fruit and vegetable cleanser
    - **Microme Knox solution** – bacteria and virus killer
    - **Provita** - Encapsulated probiotic drink to help digestive systems and suppress pathogenic E. coli bacteria to avoid food poisoning

## Energy & Utilities

### Waste to Power Plants

- **Current capacity 440 MW:** >65% Green power and target to **100% green by end 2025**
- **Alternative Fuels MSW Power Plant – 250 MW**
  - Largest in the World (privately-owned)
  - 15 pre-sorting facilities in key provinces
  - Nine new sorting facilities under construction
- **Waste Heat Recovery Power Plant - 40 MW**
- **MSW Power projects in two provinces** (under implementation)
- **Coal to MSW Power Plant – 150 MW**
  - Target 100% MSW by 2025; 1 broiler COD 8/24; Phase 1 will be online Jan-25
  - **MSW power plant**

### Power from Green Energy

- **Solar Farm – 71.4 MWdc** (61.226 MWac basis). 37.2MW online, completed by June 2025. PPA signed
- **5 MW solar roof capacity**
- **Owns over 15,000 rai of land in strategic locations** across the country that can accommodate **up to 4,000 MW solar farms**
- **Petrol and Gas stations** - 8 petrol, 1 gas and 3 combo-petrol and gas stations



## 2024 Initiatives

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**Green Cement**

**Green Building Products**

**Innovative Specialty Polymers**

**Bio-organic Products for Food Safety & Food Security**

**Green Energy**

**Power Capacity**

**Cost efficiency**



**Waste to Energy & Solar Farms**

# 2024: Initiatives – Sustainability Products

## Green Cement/ Green Building Products\*

TGO Certified

1	47.2 kgCO <sub>2</sub> e
2	59.9 kgCO <sub>2</sub> e
3	50.7 kgCO <sub>2</sub> e
4	40.4 kgCO <sub>2</sub> e
5	50.1 kgCO <sub>2</sub> e
6	34.6 kgCO <sub>2</sub> e
7	37.9 kgCO <sub>2</sub> e
8	30.1 kgCO <sub>2</sub> e
9	30.1 kgCO <sub>2</sub> e
10	30.1 kgCO <sub>2</sub> e
11	7.53 kgCO <sub>2</sub> e
12	7.53 kgCO <sub>2</sub> e

Synergistic VAE products: certified



- Corrugated paper
- Labels
- Furniture
- Paper core
- Parquet

### Green Cement – basis for Green Building Products



Nearly 70% of segment sales

## Green Innovation: HVA Products

**TPI WOOD**  
ไม้ลามิเนตพรีเมียม

**TPI MARBLE**  
หินอ่อนเทียม

US Patent – US 11 739 026 B2 (29/8/23)

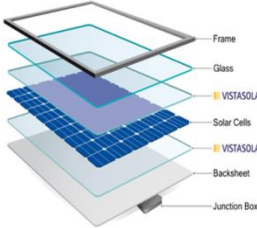
TPI Digital Printing Board

- Beautiful, Classy
- Able to use both indoors and outdoors
- Termites-free
- Water Resistance

Volume sales GR >10%, Q/Q, Y/Y

“Reduce the use of real wood And help deforestation”

VISTASOLAR EVA encapsulant for photovoltaic module (PV)



- VISTASOLAR:**
- Improves module durability
  - Suitable for conventional PV panels & building integrated PV (BIPV) systems

**VISTASAFE**  
HIGH PERFORMANCE THERMOSETTING RESIN RESIN FOR ARCHITECTURAL AND DESIGN LAMINATION

## Food Safety/Food Security ...towards regenerative agriculture

**TPI Bio-Organics Agricultural Products**  
For plants and animals

Stop Global Warming, Improve Quality of Food, Support Farmers with TPI Bio-Organics

TPI Polene Bio Pharmaceutical is among the few companies in the world capable of halting Foot & Mouth Disease (FMD) & African Swine Fever (ASF) in pigs. Early Mortality Syndrome (EMS) in shrimps, and Avian Influenza (AI) in poultry. ALL antibiotic free

TPI animal probiotics – Disease-free, Chemical-free, Antibiotic-free – Promoting quality of life in animals

- TPI Wood Vinegar
- TPI Purple Fertilizer
- TPI Green Fertilizer
- Tham Khang khao bio-organic fertilizer
- TPI Hoof Guard
- TPI Bio Pets
- TPI Yellow Powder
- TPI Synbiotics and Probiotics
- TPI Bio San
- TPI Microme Knox

Sales growing in 105% Y/Y & growing 10-fold Q/Q

\* Launched June 2023

## 2024 Initiatives: Green Energy (power capacity)

**Solar farms in Saraburi - 663.195 rai, 61.225MWac**



**Long term PPA with TPIPL**

- \* raising electricity self-sufficiency
- \* raising the ratio of **Green Energy** in cement production

**Solar roofs at plants**



# 2024 Initiatives – Green Energy (Solar Roofs & Waste to Energy)

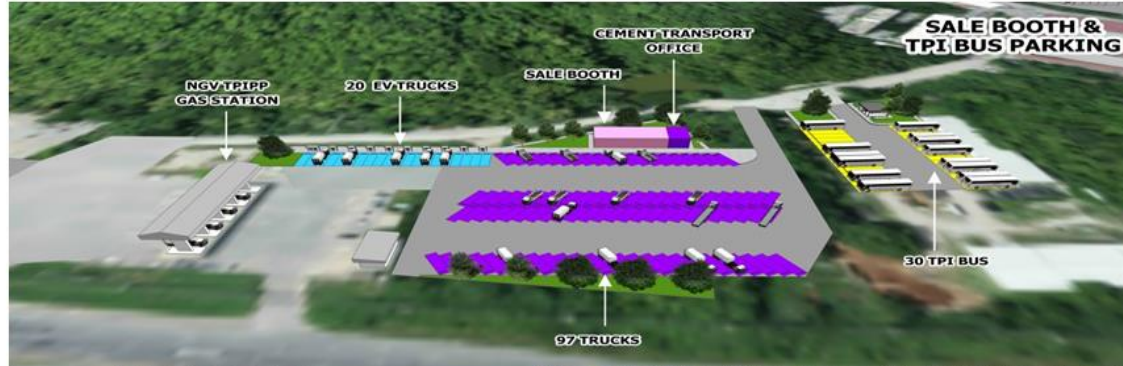
**The solar roofs in DCs** Lower day-time off take from the grid



**MSW as AFR in the calciner – up to 25% coal replace-ability (installed basis)**



# 2024 Initiatives – Cost Efficiency/Cost Savings




Has begun converting the 12 petrol stations into a hybrid petrol + EV stations  
 Has begun converting delivery trucks and executives' cars to EV or hybrid




60 Tons Electric Dump Trucks  
 41 Trucks needed to transport raw materials from mining sites



15 pick-ups and 25 Forklifts used in distribution of products



Transform all mining equipment that use fossil fuels, such as driller, loader and Backhoe, totaling 100 vehicle into electric vehicle . The group saves Diesel oil by 15,000,000 liters and saves NGV by 657,000 kg, reducing the carbon emission by 42,395 tons of CO<sub>2</sub>/year

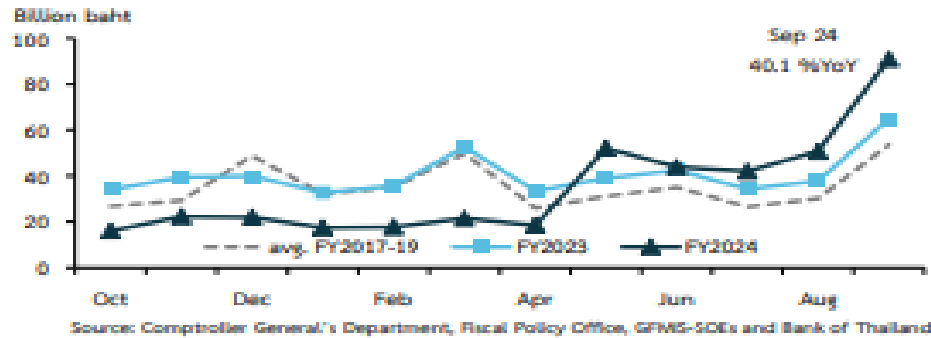
**Overall, consumption of diesel has dropped significantly**



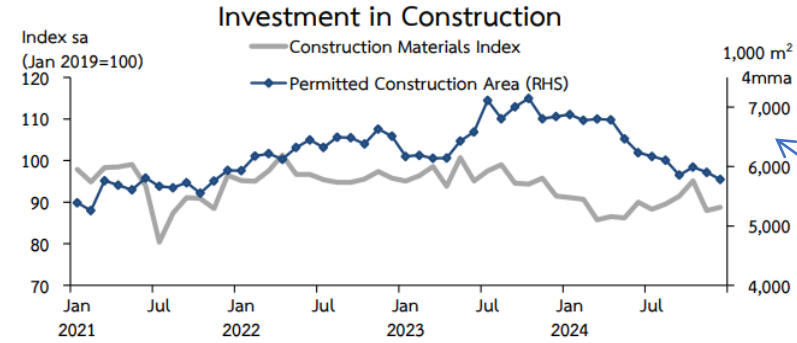
# 2024 in Review

# Begin with the big picture – delay in TH budget caused slowdown

Central Government Capital Expenditure  
(Excl. Subsidies/Grants and Other)

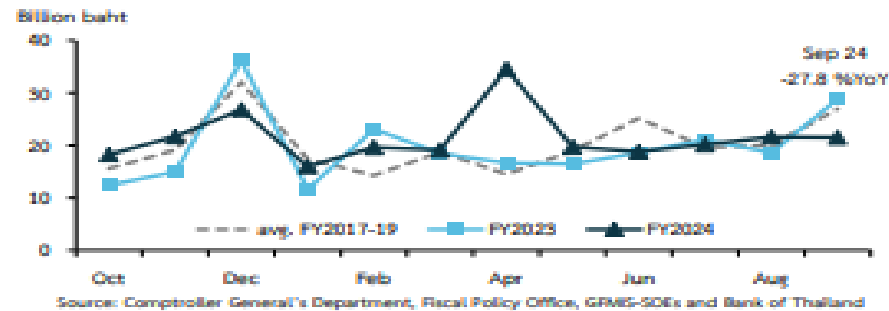


**Late disbursement in the Fiscal Budget negatively affected public sector works until 3Q 2024, and spilled over into the private sector**

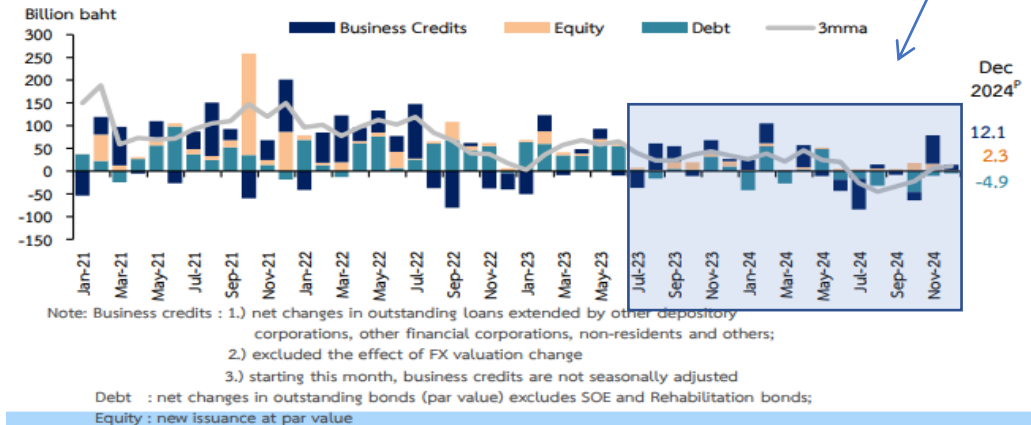


**Slow down is seen in economic activity & financing**

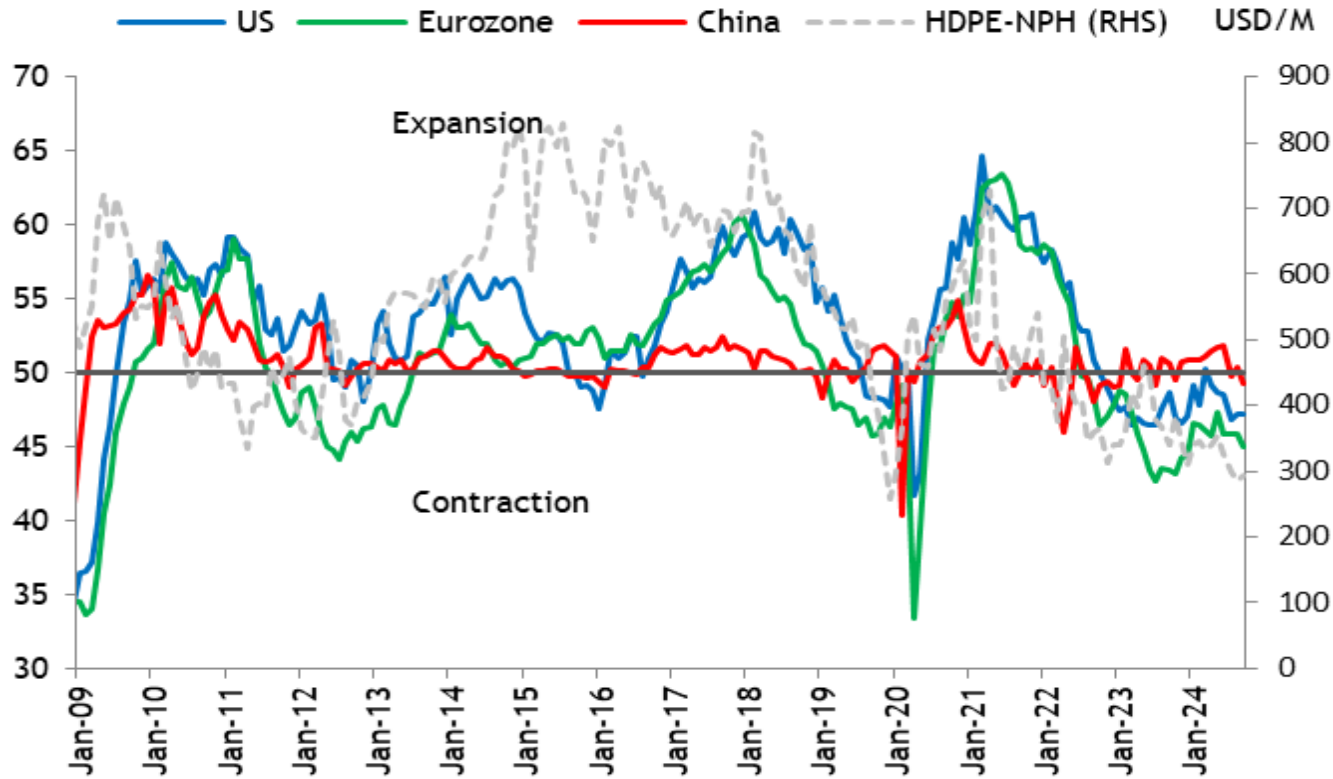
State Owned Enterprises Capital Expenditure



Changes in Total Corporate Financing



# Globally, manufacturing activity was also slow



- **The Producers Manufacturing Index (PMI) stayed at below 50 indicating contraction**
- **The expected recovery in China did not happen despite the stimulus program launched in the 2H of last year**
- **Slow manufacturing depressed prices of many commodity grade materials thus exacerbating the effect of new supply.**
- **This is most evident in the petrochemical sector resulting in shutdowns in Europe and price dumping in the region**



# Overall Profitability

THB million	FY23	FY24	YoY	Common Size	
				2023	2024
Sales	42,807	35,770	-16.4%	100	100
COGS (inc dep'n)	(32,900)	(27,945)	-15.1%	(76.9)	(78.1)
<b>Gross Profit</b>	<b>9,907</b>	<b>7,825</b>	<b>-21.0%</b>	<b>23.1</b>	<b>21.9</b>
SG&A	(5,416)	(4,656)	-14.0%	(12.7)	(13.0)
<b>Operating Profit</b>	<b>4,491</b>	<b>3,169</b>	<b>-29.4%</b>	<b>10.5</b>	<b>8.9</b>
Net other income (incl FX)	2,155	2,092	-3.0%	5.0	5.8
Net interest	(2,076)	(2,381)	14.7%	(4.8)	(6.7)
Income from associates	27	30	12.5%	0.1	0.1
<b>Pretax profit</b>	<b>4,598</b>	<b>2,910</b>	<b>-36.7%</b>	<b>10.7</b>	<b>8.1</b>
Income Tax	(292)	(485)	65.9%	(0.7)	(1.4)
<b>Profit after tax *</b>	<b>4,305</b>	<b>2,425</b>	<b>-43.7%</b>	<b>10.1</b>	<b>6.8</b>
EBITDA **	10,055	8,830	-12.2%	<b>23.5</b>	<b>24.7</b>

\* Before minority interests \*\*net of intragroup transaction

\* **Cement gross margin benefitted from cost savings, higher plant efficiency**

\* **Specialty polymer gross margins low due to significant drop in spread**

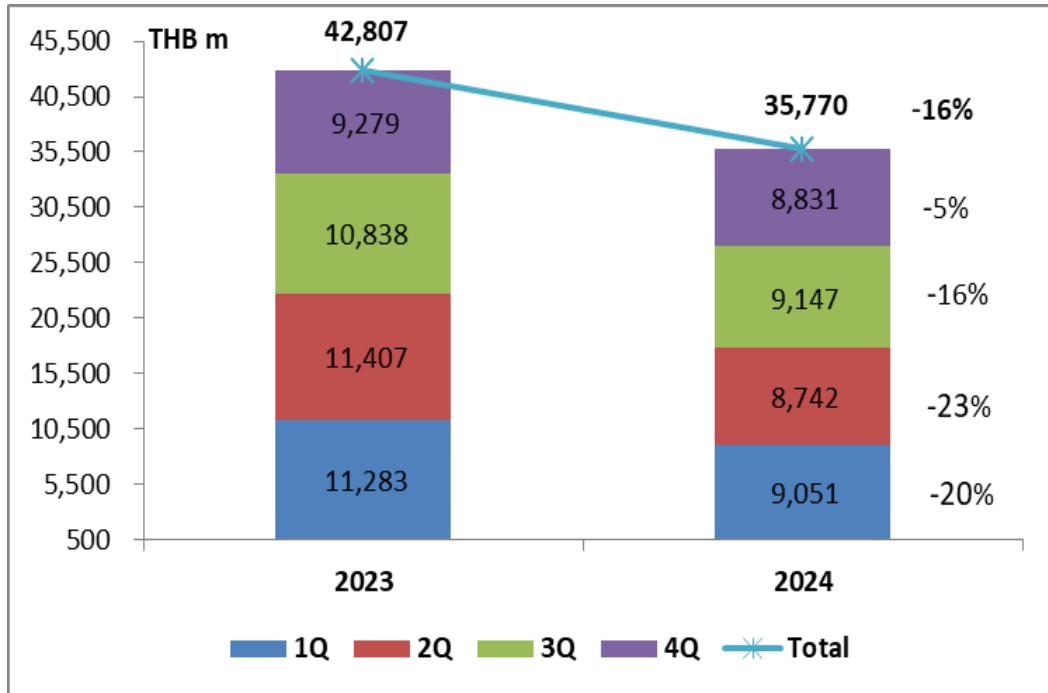
\* **Nitrate continues to deliver high gross margins due to lower production costs**

\* **Gross margins in Power benefitted from higher efficiency, cost saving and higher utilization rate**

Key Product Groups	2023	2024	% YoY
<b>Revenues</b>			
Cement	21,563	17,229	-20%
Specialty	8,321	5,347	-36%
Nitrate	2,464	1,850	-25%
Power	11,171	10,935	-2%
Concrete	4,806	4,359	-9%
<b>Gross Profit</b>			
Cement	3,384	3,285	-3%
Specialty	2,031	462	-77%
Nitrate	1,175	987	-16%
Power	5,181	5,167	0%
Concrete	349	384	10%
<b>Gross margin</b>			
Cement	16%	19%	
Specialty	24%	9%	
Nitrate	48%	53%	
Concrete	7%	9%	

**Note: Before Depreciation & Amortisation Before intersegment**

# Sales Performance – slow due to economic conditions



Sales showed improvement in the second half of 2024 after the budget was released in late second quarter

## Sales generation of construction materials - soft

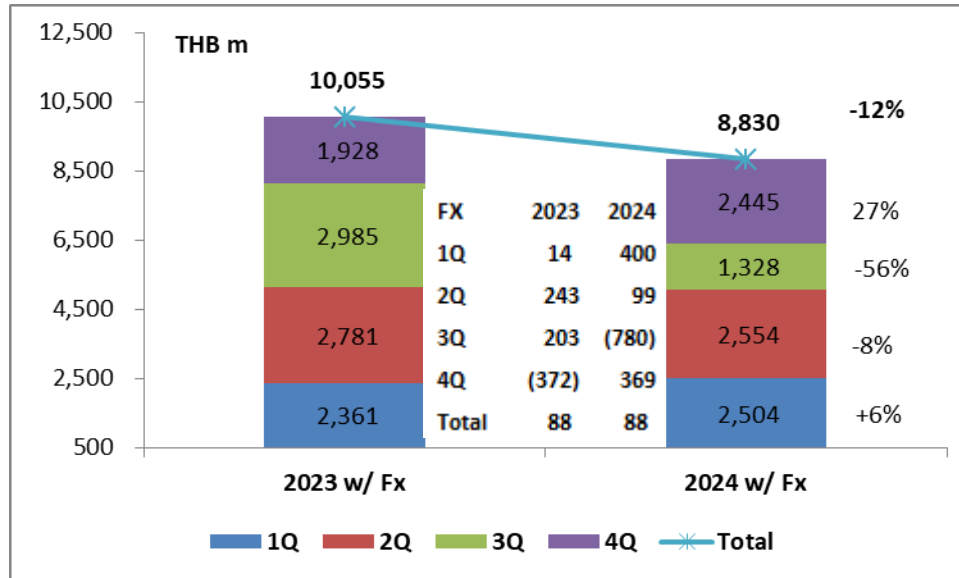
- Poor domestic demand is due to slow release of government budget release
- Clinker price dumping in the region from Vietnam and China dragged down prices and this is worsened by the strongest Thai foreign exchange rate, against the weakest Vietnamese foreign exchange rate in the region
- Domestic OPC and export clinker sales were lower: both price and volume
- The effect was partially offset by strong sales of hydraulic cement (our Green Cement) rising >40% YoY

## Sales generation of Specialty Polymer was low due to oversupply

- Producers are dumping, depressing polymer prices
- Strong THB also affected competitiveness of TH polymers vs Asian and Saudi Arabian producers
- Switching to LDPE and diversifying to higher quality specialty plastics help stabilize the operation



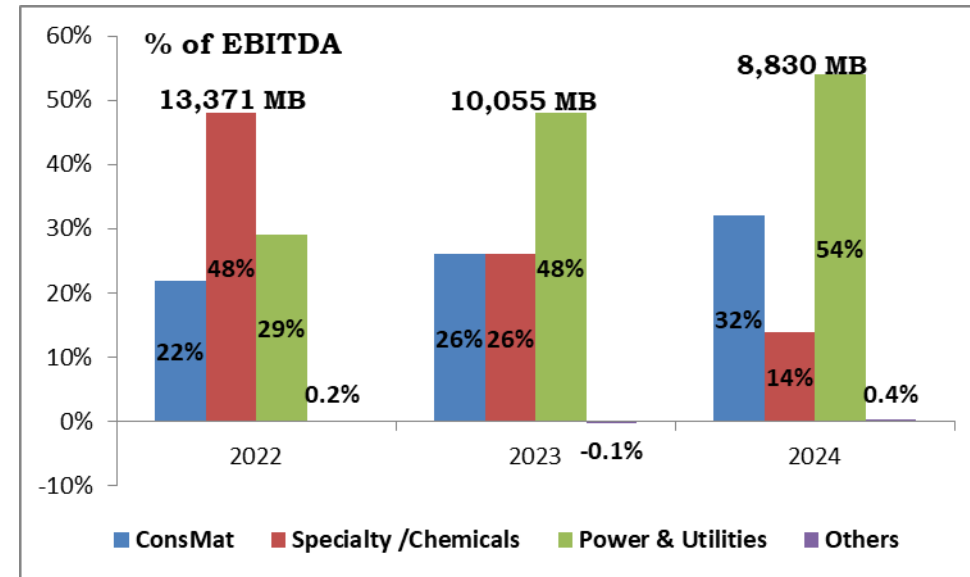
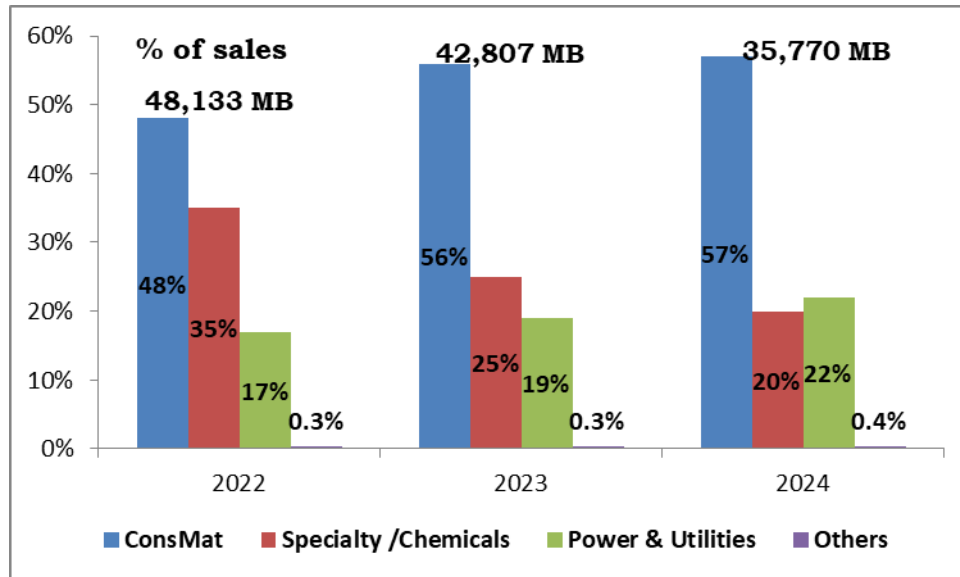
# EBITDA - Relatively resilient, thanks to cost benefits



## EBITDA generation was relatively resilient in 2024

- TPIPL’s business has high degree of operating leverage (DOL), thus when business slows profitability drops more than the rate of decline in sales.
- However, we can see EBITDA resilience of TPIPL most evident in the first half of 2024, when volumes were weak due to delay in the budget release. In the 1Q and 2Q sales dropped 20% and 23% respectively, EBITDA **excluding forex elements** dropped only 10% and 3%, respectively. The resilience was thanks to cost savings, plant efficiency and product innovation invested in the recent years
- In 3Q and 4Q EBITDA performance was influenced by forex losses/gains. Excluding the forex elements, EBITDA has dropped more than sales, and this is because of plant shut downs/lower operating rates for maintenance and/or capacity hook ups.
- Plant shutdowns/reduction of operating rates results in increased unit fixed costs.
- During the shut downs sales were not affected because we were drawing down on the inventory.

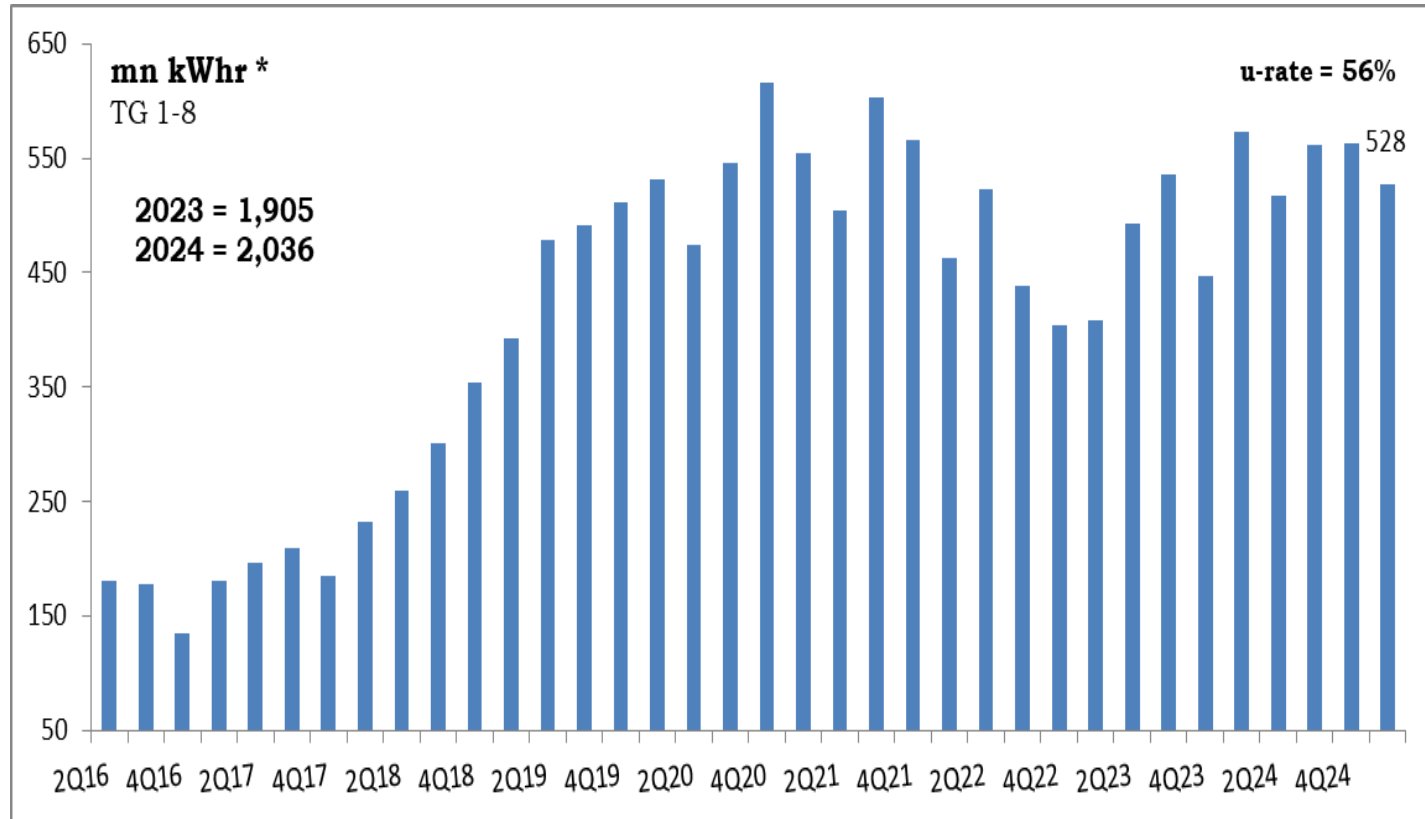
# Closer look on segment participation in Sales and EBITDA



- ConsMat remains the largest sales generator ranging around 40-60% for the group but it is not the highest EBITDA contributor
- Specialty Polymers/Chemicals had a good run in the recent years. In 2022 it contributed to over 30% in sales and EBITDA. In 2023 performance began reverting to the long term mean and by 2024 it is close to the historical low in terms of contribution to sales and EBITDA generation
- Sales and EBITDA contribution from the Nitrate business supported the segment
- Power & Utilities is the group's staple in 2024, generating near 22% of sales and 54% of the Group's EBITDA.



# Solid contribution by the Power/Utilities is due to plant efficiency



## Solid power performance:

**Higher plant efficiency and generally higher throughput naturally lowers per unit fixed cost**

**Production cost was also declining due to recent investments in cost savings, plant efficiency and fuel substitution from coal to MSW**



# Geographic footprint

<b>THB million</b>	<b>2023</b>	<b>% Share</b>	<b>2024</b>	<b>% Share</b>	<b>% YoY</b>
Thailand	31,149	73%	29,788	83%	-4%
China	6,167	14%	2,539	7%	-59%
Bangladesh	1,976	5%	244	1%	-88%
Australia	1,126	3%	1,215	3%	8%
India	391	1%	475	1%	22%
Philippines	730	2%	797	2%	9%
Others	1,270	3%	712	2%	-44%
	<b>42,807</b>		<b>35,770</b>		

## **Highly Thailand centric:**

**All operating assets are in Thailand**

**Largest share in sales**

**China is second largest in sales**

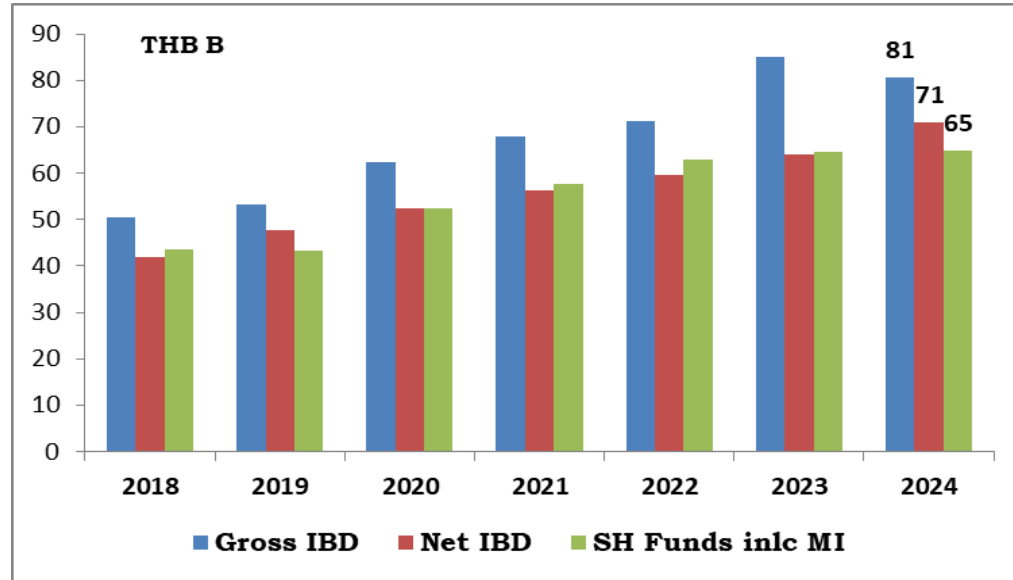
**Decline in sales to China is related to Specialty Polymer prices**

**Decline in sales to Bangladesh is mainly clinker**

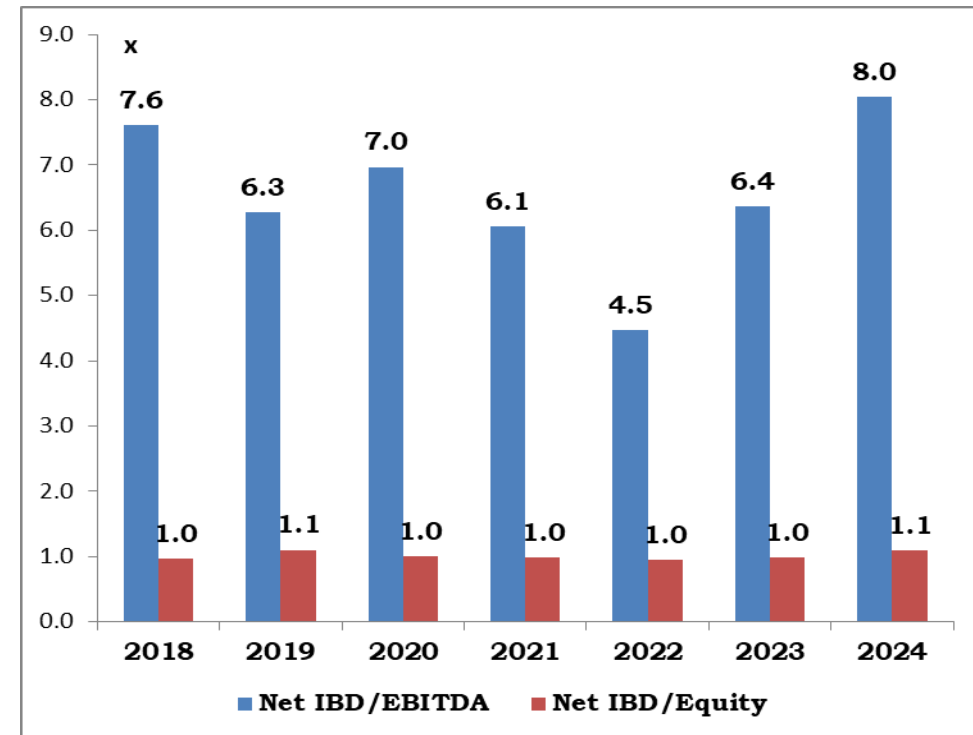
**Growing markets are India, Philippines and Australia**



# Financial Position – leverage manageable



**TPIPL TRIS rating A-; Outlook Negative**  
**TPIPP TRIS rating A-; SCAP “a”**



Cash/cash equivalents down from THB20.7 billion in 2023 to THB9.6 billion in 2024

Cash was used to retire short term loan

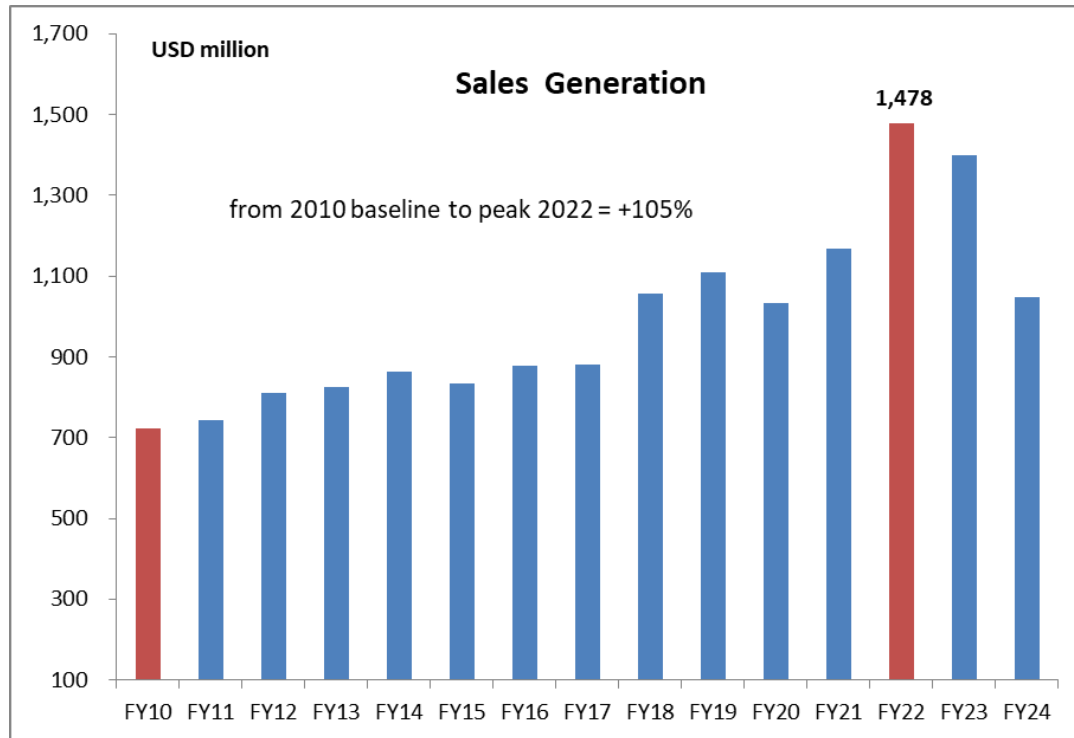
Cash/sales ratio remains good at 27%, still a defensive stance



# Trends

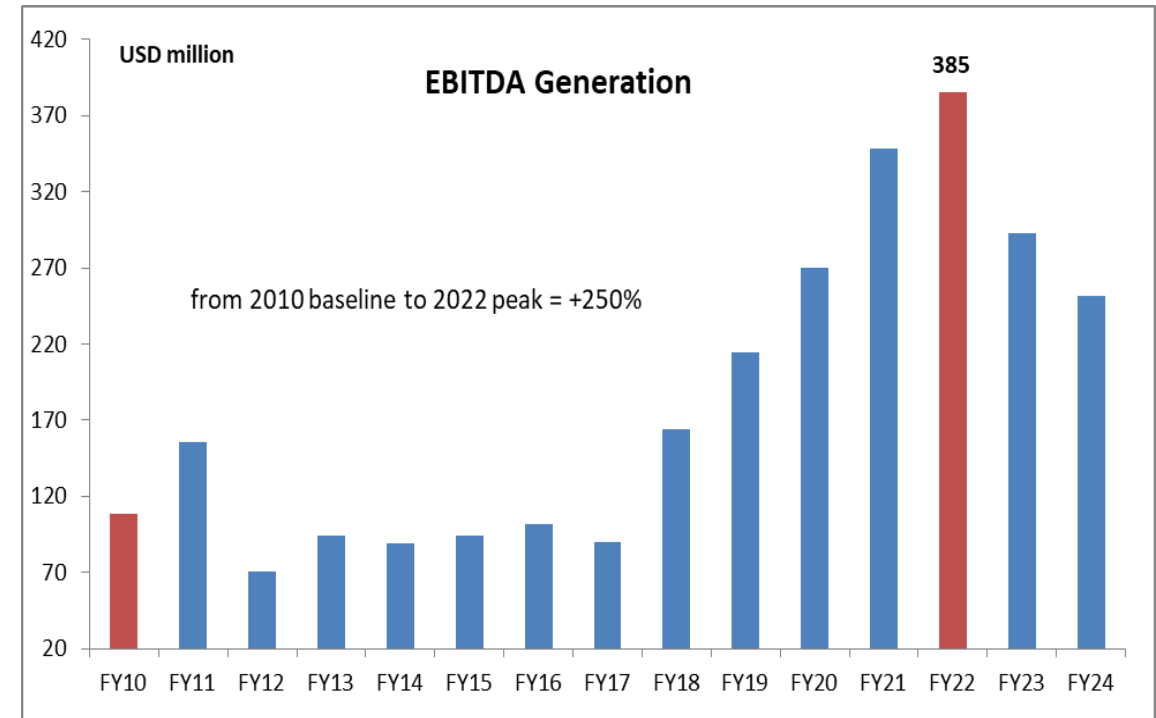


# How about the long cycle? TPIPL has evolved progressively



**Unlike peers TPIPL deployed capex in ESG investments improving both efficiency and product quality but no acquisition in the last decade – except in the waste-to-power capacity expansion. However, sales generation has been growing significantly starting 2018 due to benefits from ESG investments.**

**From the baseline year of 2010 – a decade or so ago - sales have grown 105% to the peak of 2022**



**And, in just over a decade its EBITDA generation more than doubled the rate of sales growth, by a whopping 250%**

**The enhanced capability to yield more profits is largely due to a series of investments in plant efficiency, cost savings and innovations under the precepts of ESG and bio-circular-green economy**

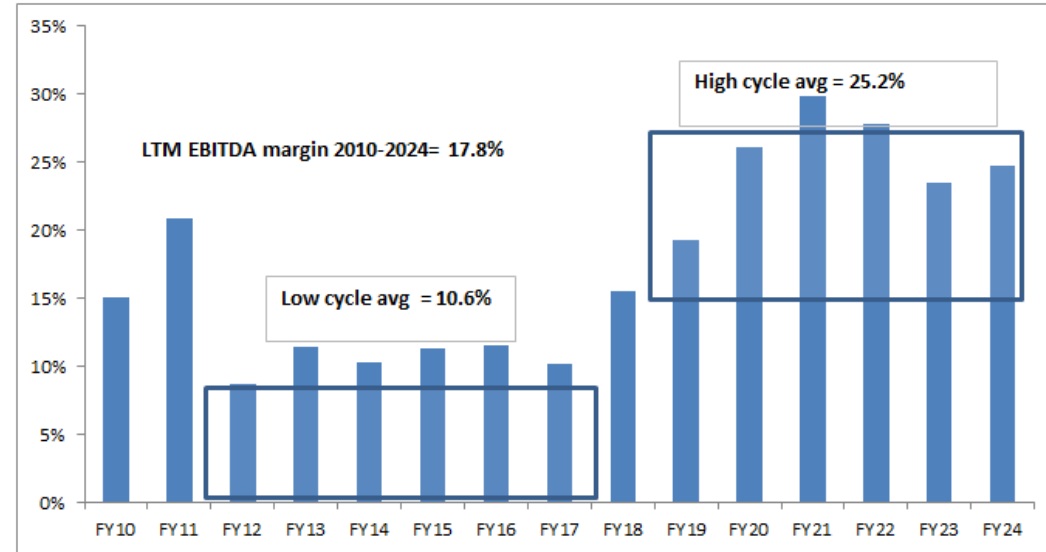
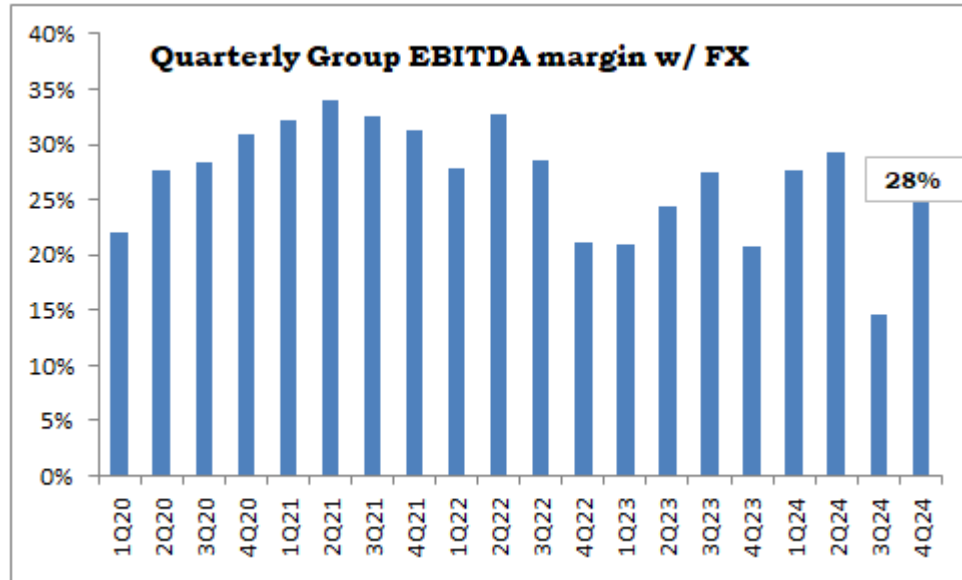


# The Long Cycle

LTM EBITDA margin – break out:

Long term mean = 17.8 %  
High cycle mean = 25.2%  
Low cycle mean = 10.6%

F/C >26-30%  
2025-27  
Base Case



**Group’s EBITDA margin has been rising since 2019 driven by :**

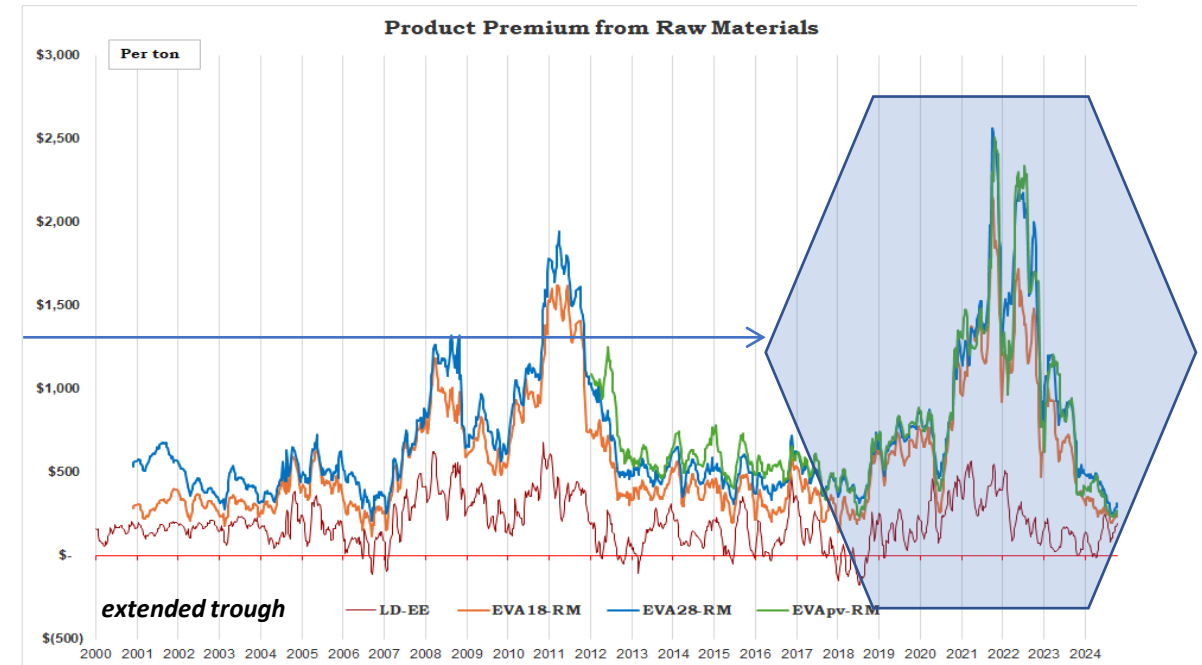
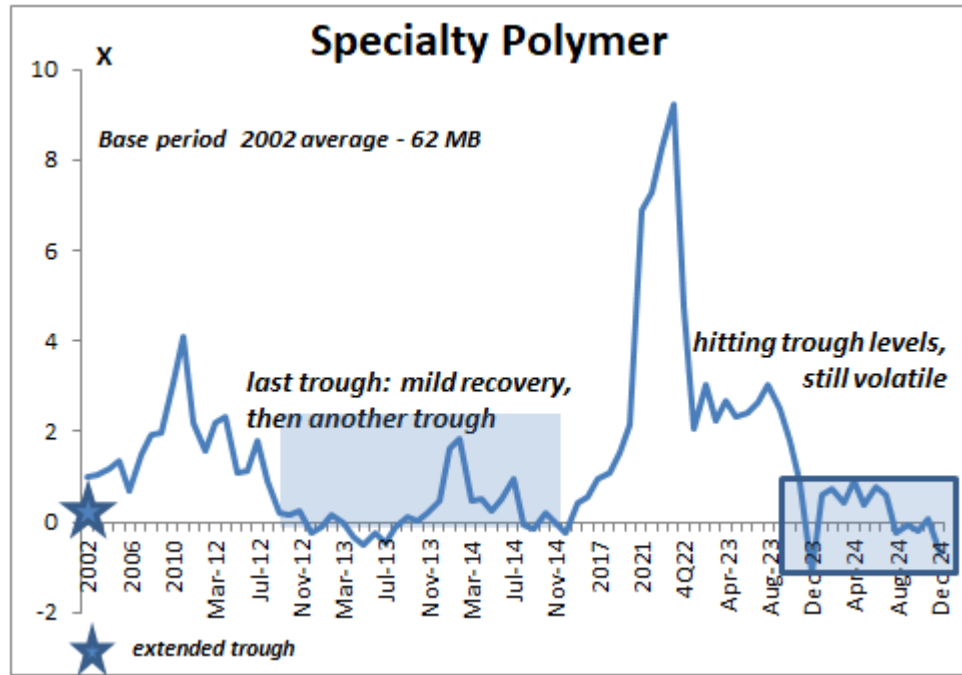
- 1) Contribution from cost efficiency, cost savings program, process & product innovation
- 2) Contribution from power

**Both drivers are still continuing;** Ongoing capex is now more focused in advancing the long term agenda ESG and Sustainability goals

TPIPL Carbon Neutrality Target = **2047**

TPIPP Carbon Neutrality Target = **2037**

# Highlighting Specialty Polymer – spreads on mean reversion



## Petrochemical trends is a boom-bust cycle

- It takes a long time to build a plant and when capacity comes it is a big bulk that takes time for demand to catch up
- There have also been integrations backwards and forwards that exacerbates weak trend. As an example: producers of solar modules integrated upstream to polysilicon and the new capacity begin flowing in 2023

## Quick explanation in the collapse of EVA case

- PV panel boom trebled the polysilicon price making EVA as attractive substitute; EVA price spiked so LDPE swung to EVA
- Solar panel prices, for many reasons, collapsed as demand slows, installations matured in Europe, subsidies removed, product specification changed & tariff on Chinese products. In China demand slowed by a third from the high of 30% and subsidy was removed in 2024

# The Big Picture: growth penciled in the FY24/25 fiscal budget

For FY24/25 budget, Thai Government priorities in areas that are coincidentally relevant to TPIPL

1. Implementing a budget deficit policy considering the monetary and fiscal disciplines and necessity of the public spending to support economic recovery and promote economic expansion to be above average and potential growth rates.

2. Focusing on implementing important government policies in the short, medium and long term by generating income, expanding opportunities, enhancing quality of life and stability with appropriate welfare, as well as increasing the government efficiency by using technology innovation or new practices in operations to increase the efficiency and effectiveness of the bureaucracy.

**Budget Structure  
FY 2024 - 2025**

*(in million baht)*

Budget Structure	FY 2024		FY 2025	
	Amount	+/- %	Amount	+/- %
<b>1. Expenditures</b>	<b>3,602,000.0</b>	<b>13.1</b>	<b>3,752,700.0</b>	<b>4.2</b>
(% of the GDP)	19.4		19.4	
- Current expenditures	2,564,868.6	6.8	2,680,436.6	4.5
(% of the total budget)	71.2		71.4	
- Capital expenditures	807,680.5	17.1	932,362.1	15.4
(% of the total budget)	22.4		24.8	

**THB million**

**Capital Expenditure Overall**

**Agencies with significant construction activities**

Ministry of Agriculture and Cooperatives

Ministry of Transport and Communications

Local Administrative Organizations

Province

\* assume 100% budget utilization ratio (BUR)

Source: Budget Bureau

**FY23/24 Budget**

**807,680.50**

**FY23/24 Actual**

**444,637.69**

**BUR**

**55%**

**FY24/25 Budget**

**932,362.10**

**% YoY \***

**110%**

59,940.14

71%

87,684.73

46%

126,723.07

74%

180,876.92

43%

11,955.35

67%

44,021.90

268%

5,637.08

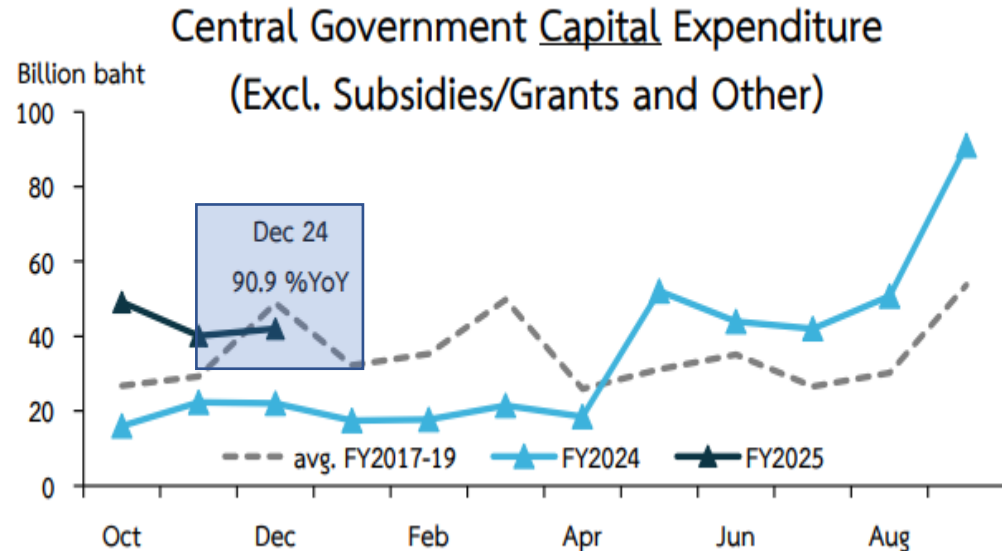
29%

19,894.37

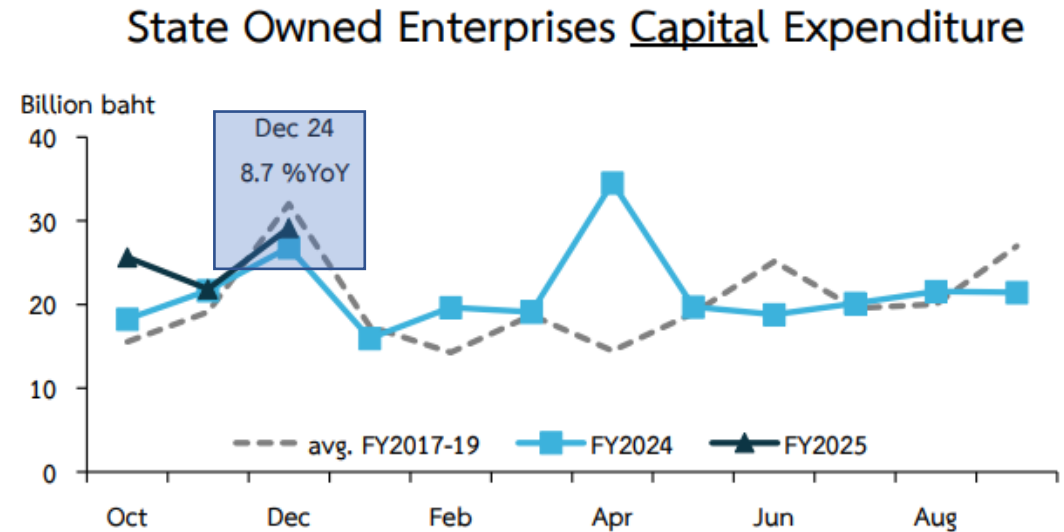
253%

**Very Late Release  
Slowdown Momentum Firm**

# The Big Picture: government capex spending has improved



Source: Comptroller General's Department, Fiscal Policy Office, GFMS-SOEs and Bank of Thailand



Source: Comptroller General's Department, Fiscal Policy Office, GFMS-SOEs and Bank of Thailand

**Government's capital expenditure in the first three months of the fiscal year showed significant increase, more than double the spending in the same period of the previous fiscal year**

**Capex spending by state-owned agencies has also improved, but a slightly slower pace compared to government**

**Improved capex spending by the government may lift up the sentiment in the private sector and could resume investment provided funding is available and viable – this could start a virtuous cycle**

# Partial list of TH infrastructure projects in the pipeline

**TH Infrastructure - The Next THB200 billion - to stimulate the economy and boost competitiveness**

<b>Details</b>	<b>THB million</b>	<b>Remarks</b>
Bangkhuntian-Bangbuathong	56,035	Cabinet approved 25 Dec 2024
Bangbuathong-BangPaIn	15,936	**
Rangsit-BangpaIn Don Muang Extension	31,358	Cabinet approved 3 Dec-2024
Red Line Extension - Rangsit	6,473	**
<b>Sub-Total (1)</b>	<b>109,802</b>	
High Speed Railway Thailand - China: 607 kms		Laos-China segment complete
Thailand Section: 357 kms	276,500	Phase 1- 2027; Last Phase - 2030
<b>Sub-total (2)</b>	<b>276,500</b>	
<b>Overall Total (1+2)</b>	<b>386,302</b>	
<i>One km of motorway needs about 6,000 m<sup>3</sup> of concrete or c. 2,100 tons of cement</i>		<i>The High Speed Railway will use 7.0 million m<sup>3</sup> of concrete</i>

**As the Thai-Chinese High Speed Railway approaches completion, it is expected to trigger real estate development in the areas along the route, as usually the case – multiplier effect**

**Not included in the list of projects is the One Stop Entertainment Complex as the Law on Casino has not yet been passed. Based on early estimates the complex could cost THB100 billion and will take five years to finish. To compare: The One Bangkok cost THB107 billion and The Dusit Central Park cost THB46 billion**

# The World: stable growth; Stronger growth in the ASEAN

%	Estimate		Projections	
	2023	2024	2025	2026
<b>World</b>	<b>3.3</b>	<b>3.2</b>	<b>3.3</b>	<b>3.3</b>
Advanced Economies	1.7	1.7	1.9	1.8
Euro Area	0.4	0.8	1.0	1.4
Emerging Market & Developing Economies	4.4	4.2	4.2	4.3
Emerging & Developing Asia	5.7	5.2	5.1	5.1
Middle East and Central Asia	2.0	2.4	3.6	3.9
<b>Selected Countries</b>				
United States	2.9	2.8	2.7	2.1
Japan	1.5	-0.2	1.1	0.8
United Kingdom	0.3	0.9	1.6	1.5
Australia	2.1	1.2	2.1	2.2
China	5.2	4.8	4.6	4.5
India (fiscal year basis)	8.2	6.5	6.5	6.5
South Korea	1.4	2.2	2.0	2.1
<b>ASEAN - average</b>	<b>3.8</b>	<b>5.0</b>	<b>4.6</b>	<b>4.5</b>
Indonesia	5.0	5.0	5.1	5.1
Malaysia	3.6	5.0	4.7	4.4
Philippines	5.5	5.8	6.1	6.3
Singapore	1.9	4.4	2.5	2.4
Thailand	1.9	2.7	2.9	2.6
Vietnam	5.0	7.1	6.1	6.3

Sources: IMF and World Bank

**Strong growth** in Thailand's proximity markets – **the ASEAN** averaging at **4.6%**

**India** is the fastest growing economy in Developing Asia, at **6.5%**

In the ASEAN 6, the **Philippines** and **Vietnam's** GDP is projected to grow at over **6%**

**Construction GDP** in the **ASEAN-6** is estimated to grow by **6.8%** in 2024 and forecast to grow by **7.2%** onwards – should help soak up oversupply

NESDC projects **Thailand's** economy to grow 3.1-3.5%

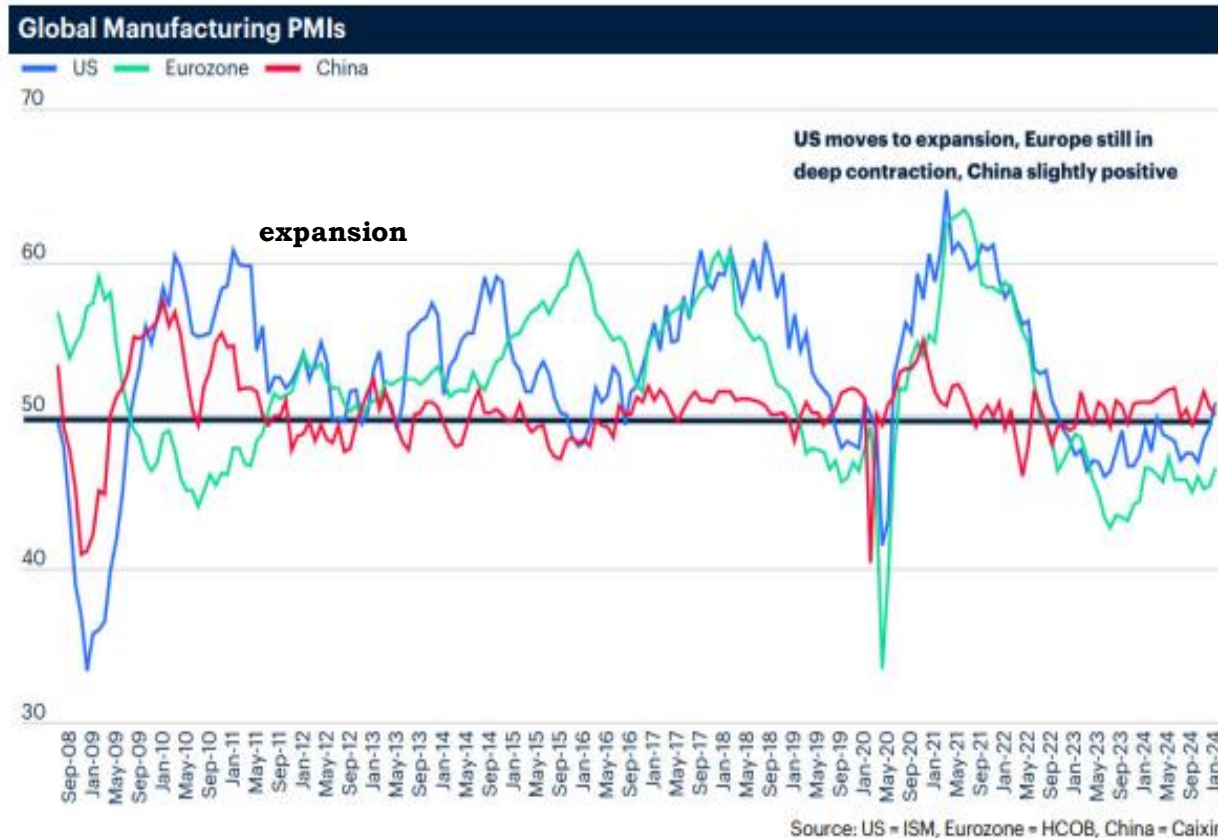
# Some ongoing construction in the ASEAN

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## Short Term Potential Drivers **Help Absorb Excess Capacity In the Region**

- **Seawall to save Jakarta from sinking** - Groundwater levels in the northern coast of Java have decline 1 - 25 cm per year while the sea levels rise 1-15 cm per year, causing tidal floods of c. 5-200 cm. The sea wall project also aims to address the water supply problem in Jakarta, which relies on groundwater extraction. The estimated cost is **USD50-60 billion**
- **New capital city Indonesia (Nusantara)** – currently on roll-out valued at USD35 billion the implementation has been slowed in 2024 but this is expected to accelerate this year as the government have already revised the funding plan with more participation by the private sector
- **Build Better More Program in the Philippines** – comprised of many projects including road networks, highways, mass transits is budgeted to cost PHP 9 trillion (**USD 16 billion**). Of particular interest is the Pan-Guimaras Bridge spanning over 30 kms, breaks ground in mid 2025 and scheduled to be operational by 2028 before Marcos' term is over. PH imports close to 7.0 million tons of cement and Vietnam is the largest supplier
- **Industrial expansion in the Philippines** - Commercial real estate consultancy, PRIME Philippines, projects that Philippines may need **50 million sqm** of industrial space by **2035** up from **37.6 million sqm** at the end of 2024. In 2025, the total space is projected to reach **40 million sqm**; expansions in Rizal, Cavite, Laguna, Pampanga, Cebu and Davao. About a third of the projected demand would come from data centers with **100 data centers** expected to go live in the next three years.

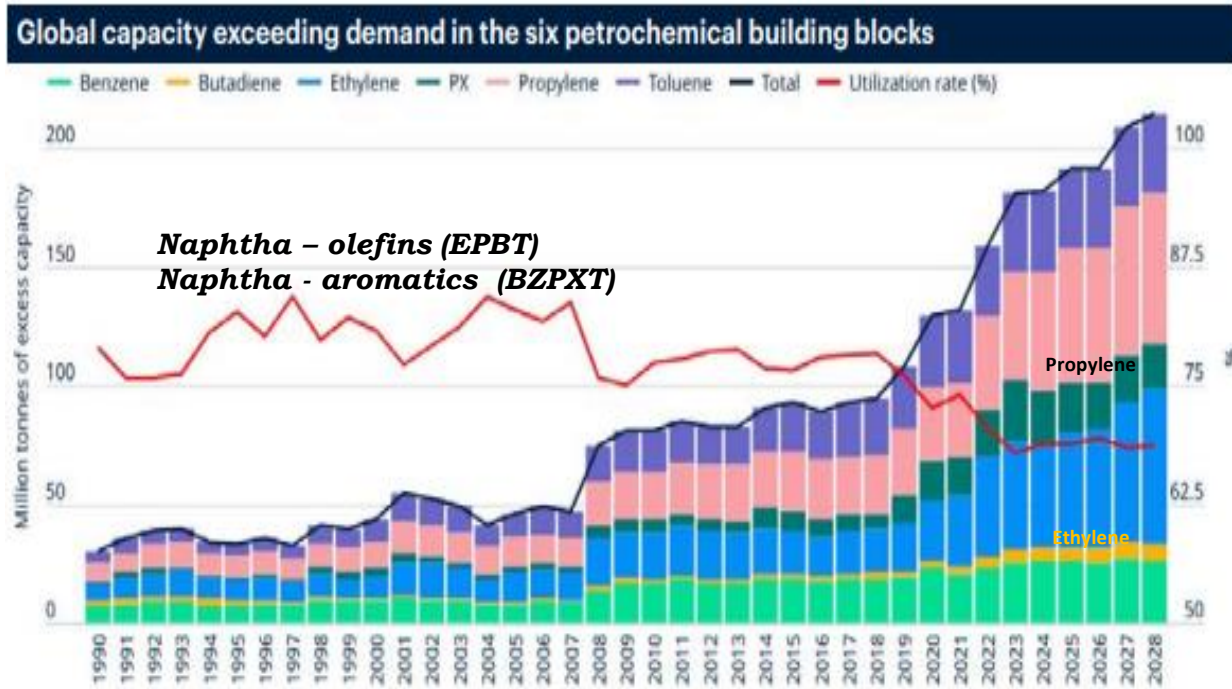
# Globally, manufacturing has improved slightly in the US



- Year-to-date, the Producers Manufacturing Index (PMI) is still mostly below the 50-line
- However, the US PMI has improved significantly and is now on expansionary mode. This is a good sign because this is the world's largest economy
- China is above the break-even line of 50 but expansionary trend is still very feeble. The government has announced another major stimulus program to boost local economy and offset the potential negative effect of the US tariffs
- Manufacturing in the Eurozone area though still in the contraction territory has also begun to improve. If the Gaza ceasefire results in the full reopening of the the Suez some excesses in Asia will have a destination market thus resulting in better prices

# Globally, polymer outlook remains poor due to new capacity

192 million tons total- excess capacity in six polymer building blocks



- **Six petrochemical building blocks are added together making the surplus look so daunting**
- **Ethylene & propylene has the largest addition**
- **ETHY/PROP product tend to be in one cracker, so if the price is bad there is high chance that COD of new capacity will be delayed**

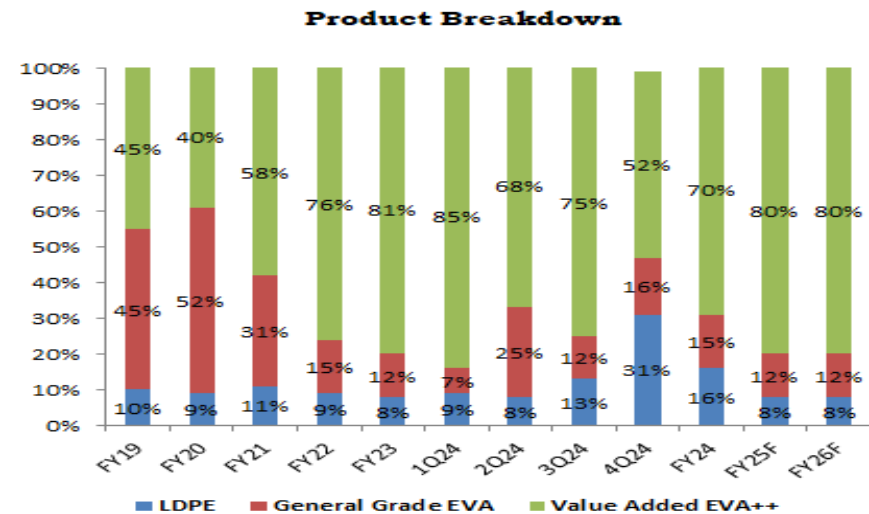
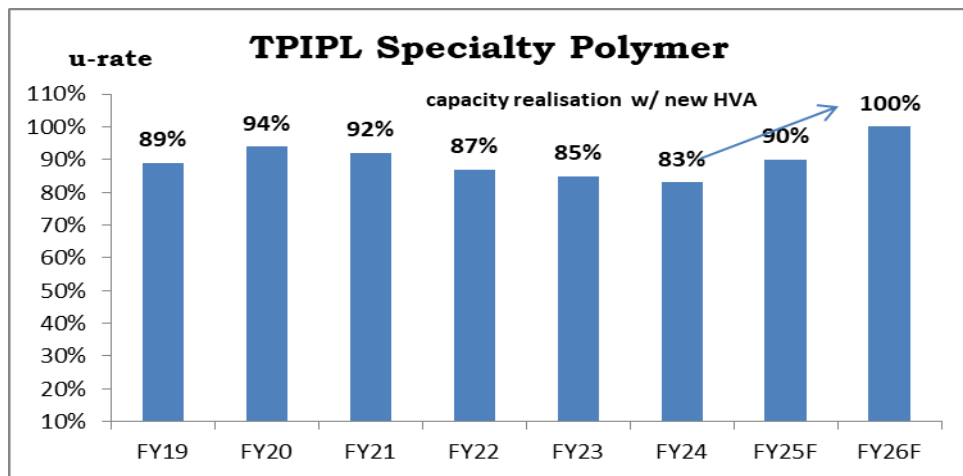
## Evolving trends

- **McKinsey** says that the cycle may have bottomed but looks to a modest improvement in market conditions
- According to **ICIS**, waves of closures will continue to grow in 2025, due to sustained overcapacity; for the first time China will account for over 50% share of the excess capacity
- Following the Gaza/Israel ceasefire, Asian polymer products can supply Europe if the Suez canal re-opens and no longer deemed a risky shipping lane
- **Thanks to its highly nimble operations and market network, TPIPL can pick up any slack created by shutdowns and supply dislocations**
- In **2024**, the average operating rate of the **industry** \* was around **69%** and will be around this level in the next few years: ICIS – **79%**
- **TPIPL's operating rate 83% and is forecast to hit 100% by 2026**

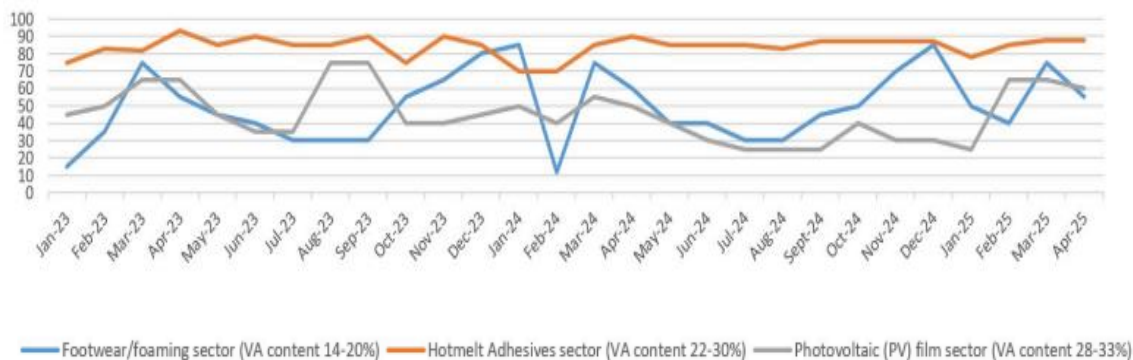


# TPIPL's strategy – product and market positioning

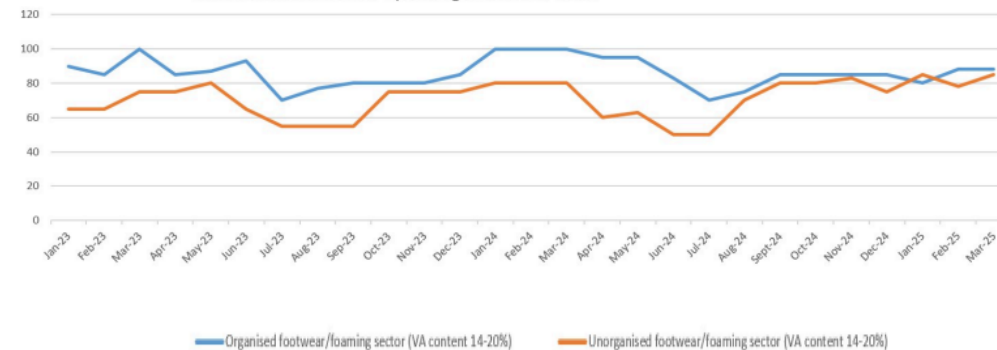
Ad hoc strategy: give more weight on LDPE and on markets offering favorable net back margins



China EVA Downstream Plant Operating rates 2023-2025

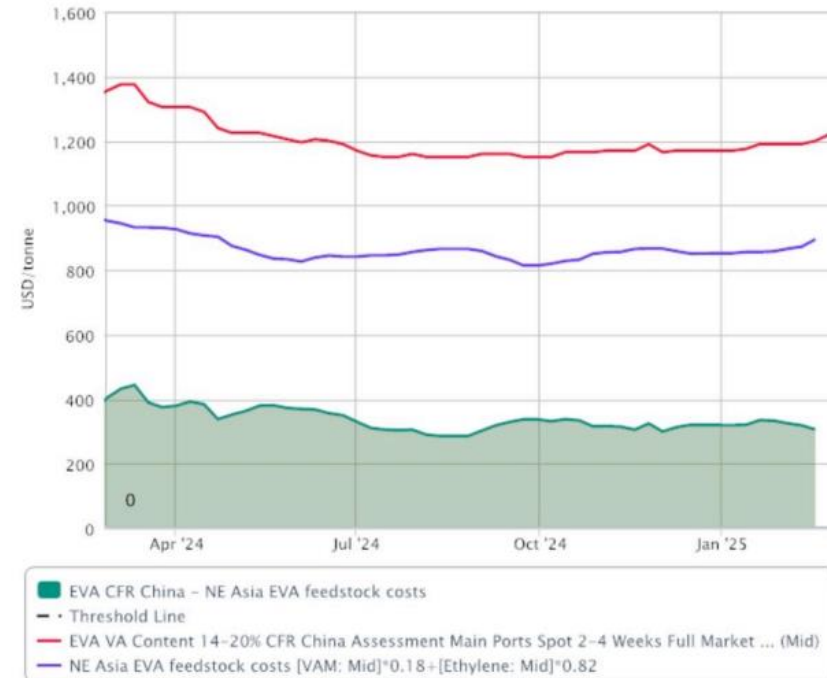


India Downstream Plant Operating Rates 2023-2025



# Price situation in LDPE and EVA

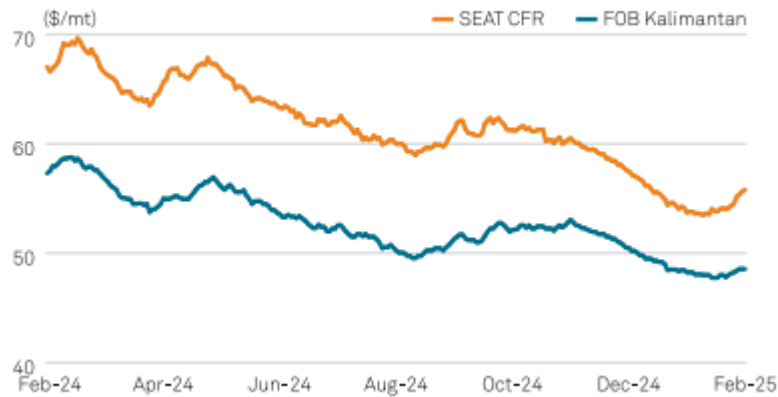
## L-LDPE doing better



# Key energy variables

## Coal prices off the 2021/22 highs...

SEAT vs FOB Kalimantan (Basis 4,200 kcal/kg GAR)



## ... and volatile gas prices may influence Ft



Source: Investing.com

Coal prices is seeing some uptick ahead of Ramadan but overall outlook is likely to subdued on slow demand and China expanding domestic production in 2025

Gas price trend is constructive to higher Ft but wholesale electricity pricing has been politicized and the formula may no longer work



# 2025 Guidance



# Guidance – key performance variable

<b>THB million</b>	<b>2023</b>	<b>2024</b>	<b>2025 Base Case Growth Target</b>
<b>Sales - net</b>	<b>42,807</b>	<b>35,770</b>	<b>+8-10%</b>
<b>Segment EBITDA</b>			
ConsMat	2,604	2,789	+50-60%
Specialty Polymer/Chemicals	2,635	1,223	flat
Energy, Utilities	4,822	4,783	-10-12%
Agriculture/others	(6)	35	flat
<b>Group EBITDA</b>	<b>10,055</b>	<b>8,830</b>	<b>12-16%</b>

## **Notes:**

*Forex assumption THB35/USD*

*Base case – some price increase in cement*

*TPIPP EBITDA will drop due to adder expiry in April, but the drop is not much due to cost savings, new capacity and higher throughout*



# Guidance – capex plan

THB m	Program 2021-2025	Deployed	Remaining	2025	2026	2027	2028
TPIPL	8,504	7,079	1,425	1,425	-	-	-
TPIPP	13,637	8,941	4,696	4,011	443	173	68
<b>Group</b>	<b>22,141</b>	<b>16,020</b>	<b>6,121</b>	<b>5,436</b>	<b>443</b>	<b>173</b>	<b>68</b>

## Additional Capacities

### Saraburi solar farms 1-3 = 71.4 MWac

Farm 1 test run

Farm 2 COD 2Q2025

Farm 3 under construction; COD 2026

### Battery storage = 20 MW

COD April 2025

### MSW Power Plant

Two locations in the provinces, with tipping fee

## Additional expectations:

Expected ROCE = >20%

Expected Payback period average on all projects < 5 years



# Guidance – key leverage metrics

<b>Financials</b>	<b>Net IBD</b>	<b>Net IBD /Equity</b>	<b>Net IBD/EBITDA</b>	<b>EBITDA/Interest</b>
<b>Key Metrics</b>	<b>THB b</b>	<b>x</b>	<b>x</b>	<b>x</b>
2023A	64	1.0	6.4	3.5
2024A	71	1.1	8.0	2.7
2025G	72	1.1	7.1	3.0
2026G	66	0.9	5.7	3.5
2027G	58	0.8	4.5	4.1

Notes: EBITDA, Equity projections are based on base case assumptions

As current capex program goes off ramp starting 2026, there is scope for faster deleveraging as we begin to reap increasing sustainability benefits from our heavy ESG investments in the recent past years, particularly during 2023-2026.



# ESG and Sustainability

# On The Path To Net Zero In TPI Green Cement and Mortar

## 1. Use of Alternative Energy

- 1.1 uses 15-25% of alternative energy i.e. Municipal Waste to replace coal
- 1.2 uses of Municipal Waste to generate electricity
- 1.3 uses of solar cell to generate electricity
- 1.4 uses pyrolysis oil produced from waste tyres and rubber to replace coal/fuel oil

## 2. Use of decarbonized raw materials to reduce clinker factor and cement factor

- 2.1 uses copper slags, gypsum
- 2.2 uses of ashes from burning municipal waste boilers
- 2.3 uses of CDE limestone, sand, shale

## 3. Waste-heat-recovery (W-H-R) and improved efficiency measures

- 3.1 operates W-H-R to electricity
- 3.2 improves the heat recovery and filter systems

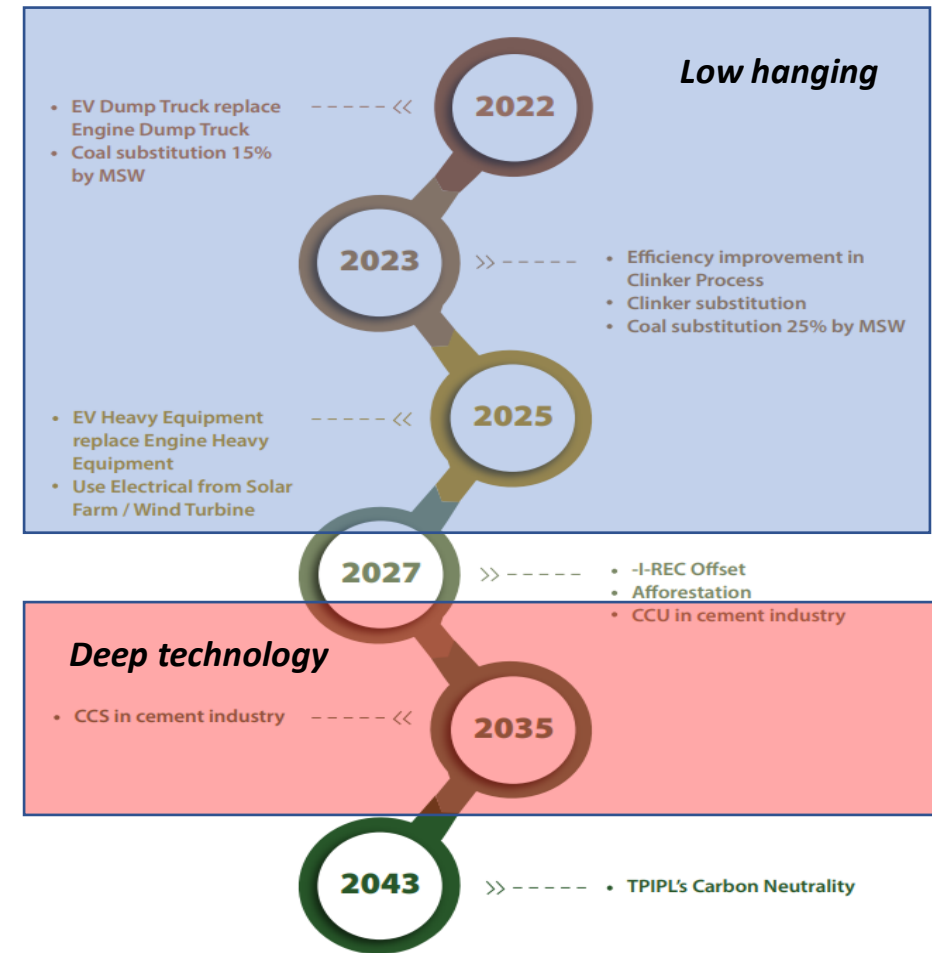
## 4. Increase the CO<sub>2</sub> capturing capacity of the environment

- 4.1 manufactures FCB to replace wood and eventually increases the capacity to absorb more CO<sub>2</sub> by increased forest area
- 4.2 produces organic fertilizer to accelerate the plant growth thus increasing the CO<sub>2</sub> capturing capacity of the environment
- 4.3 produces symbiotic for animals to reduce the waste from animal turning the animal feeds to meat reducing the methane gas from fermentation of the waste
- 4.4 produces Biosan to reduce fermentation of waste into a bad smell of CH<sub>4</sub> and sulfide

## 5. Electrification to replace fossil fuel vehicles

- 5.1 Changes to conveyor belt to replace trucks, and
- 5.2 Charges from fossil fuel trucks and mining equipment, forklifts to electric motor-driven trucks, equipment, cranes, etc

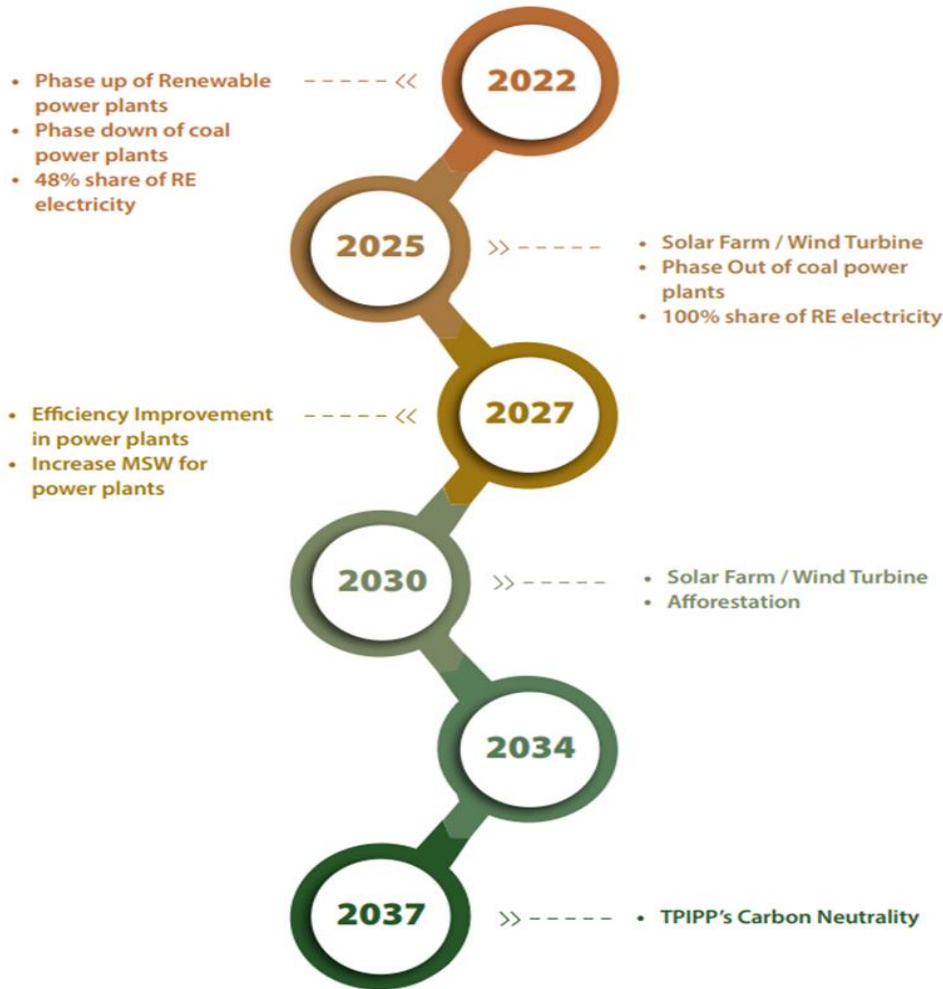
## TPIPL's (Cement) GHG Reduction Strategies



TPIPL's Task Force on Climate-Related Financial Disclosure 2023

# On The Path To Net Zero: TPIPP

## TPIPP's GHG Reduction Strategies



## TPIPP – T-Ver Certificates

### Carbon Credit T-VERs Registered by TGO

#### MSW Received

1. July 2015 – May 2016	13,483 tCO <sub>2</sub> eq
2. May 2016 – Apr 2017	68,573 tCO <sub>2</sub> eq
	82,056 tCO <sub>2</sub> eq
3. Sold out to Zukunft des Konzentoffmarktes	- 34,690 tCO <sub>2</sub> eq
4. Remain	47,366 tCO <sub>2</sub> eq
5. Approval Credit 2022	717,931 tCO <sub>2</sub> eq
6. Approval Credit 2023	793,932 tCO <sub>2</sub> eq

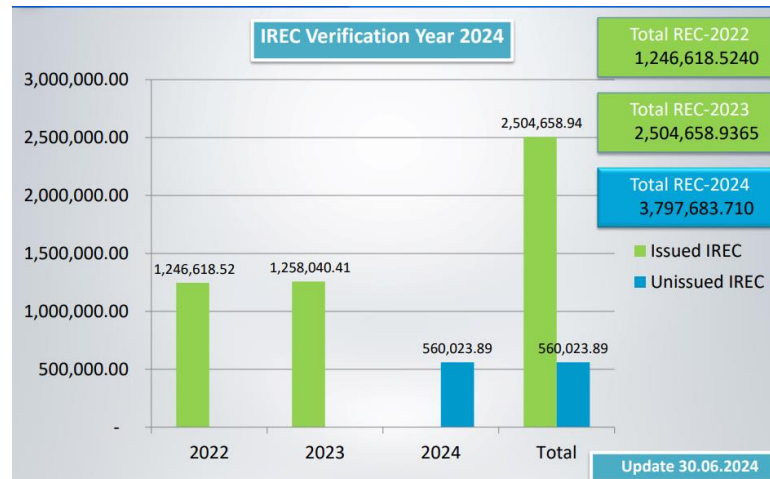
<b>Total Carbon Credit 2023</b>	<b>1,559,229 tCO<sub>2</sub>eq</b>
7. In the certification process	463,356 tCO <sub>2</sub> eq
<b>Total Carbon Credit 2024</b>	<b>2,022,585 tCO<sub>2</sub>eq</b>

**Monetization**  
potential looks promising:

**IDXCarbon** has been created

**SETCarbon** may follow this year

## TPIPP – Renewable Energy Certificates



# Validation and Corporate Merits

## Highly Rated in SET ESG and CG by IOD

### SET ESG Rating



**Maintained from 2023**



**Moved higher from 2023  
“AAA” is the highest SET ESG  
rating**

### Corporate Governance Rating



# TPIPL and TPIPP Are Constituents of ESG100 of Thaipat

## ESG Emerging 2024

Environmental • Social • Governance

Bloomberg Ticker : THAIESGT

The Thaipat ESG Index is designed to represent the performance of the selected Thai listed companies that are constituents of the ESG100 Universe, the 100 outstanding performers in terms of Environmental, Social and Governance (ESG) listed in Thai stock market (Both SET and mai), assessed by ESG Rating company, a whole subsidiary of Thaipat Institute.

### Historical Performance

Depending on index launch date, all charts below may include back-tested data.



■ Thaipat ESG Index TR



# Certified Products – Various Agencies



กรมส่งเสริมอุตสาหกรรม  
DEPARTMENT OF INDUSTRIAL WORKS



'Circular Economy' Certificate



Green Industry Level 4 : Green Culture Award for the years 2021 - 2024  
TPIPL and TPIPP received the Green Industry Level 4 Green Culture Award for the cement production plant: Line 1, 2, 3, Total Waste Quality Adjustment Plant (Waste Disposal Plant) and TG Power Plants 1, 2, 3, respectively from the Ministry of Industry.

# Certification: IS 13601 (India) only one in five worldwide



Bureau of Indian Standards  
The National Standards Body of India



IS 13601 (1993)

Certified in May 2024

ETHYLENE VINYL ACETATE (EVA) COPOLYMERS  
SPECIFICATION FOR SAFE USE IN CONTACT WITH  
FOODSTUFFS, DRINKING WATER and PHAMACEUTICALS  
(18%-50%VA CONTENT)



***TPIPL, is the only IS 13601:1993 certified company in Southeast Asia and one of only Five companies worldwide... proudly joining an elite global group***

***...in unlocking new opportunities in the Indian market***



# Corporate Merits

We Build  
The  
Future



*Multiple citations for its innovative, pioneering products/processes leveraging on homegrown R&D talents*



*For its engagement in deploying of advanced and high technologies:*

**TPI Polene CEO receives the highest order of decoration for a civilian from the King of Belgium**



# Corporate Merits

We Build  
The  
Future



**30 Fabulous**  
SR 2024  
**Companies of the Year**

**The Silicon Review®**

**GREEN  
Raw Material**

**GREEN  
Energy**



Prachai Leophairatana, CEO, TPI PL

Innovating the Future: **TPI PL** is Reshaping Industries, Enhancing Lives, and Paving the Path to a Greener Tomorrow in Thailand and Beyond

**GREEN  
Product  
Innovation Technology**

**GREEN  
Environment**





## TPI Polene Group Helping Raise Awareness On Pathway(s) to a Low Carbon Society



### Afforestation – Is Part of the Way of Life



To encourage the Thai society to be aware of low carbon society, TPI Polene Plc and TPI Polene Power Plc undertake afforestation. This is a continuing effort. In 2023, the Group planted 3,000 saplings of Lagerstroemia (*Lagerstroemia indica*), Teak (*Tectona grandis*) and Neem (*Azadirachta indica*) in a 100 rai (16 hectares) area. All these tree species produce beautiful, scented flowers that can support many insect populations especially bees and can be harvested for lumber.

TPIPP received six awards from the Foundation of Thai Society; two of which are individual honors for the "Organizational Leader of the Year" and the "Creative Thinking & Innovation of the Year" presented to Mr. Prachai Leophairatana, Chairman of TPI Polene Power Plc. The four other awards are organizational honors: Goodness Award, Creative Thinking & Innovation of the Year, Service of the Year, and the Company of the Year.

# Corporate Merits

We Build  
The  
Future



"Top Agri Biotech Company  
in Thailand 2023"



Best Corporate Governance Company  
in Thailand 2023  
International Business Magazine



# Corporate Social Engagements

We Build  
The  
Future



Experience/Knowledge sharing, crucial to advance industry and society

Exposure to new ideas

Higher levels of inspiration



Improved relationships

Sharing of good practices



Better decision making



More effective communication





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**End of presentation  
Thank you  
Q&A**