



# Opportunity Day Presentation – Third Quarter Performance

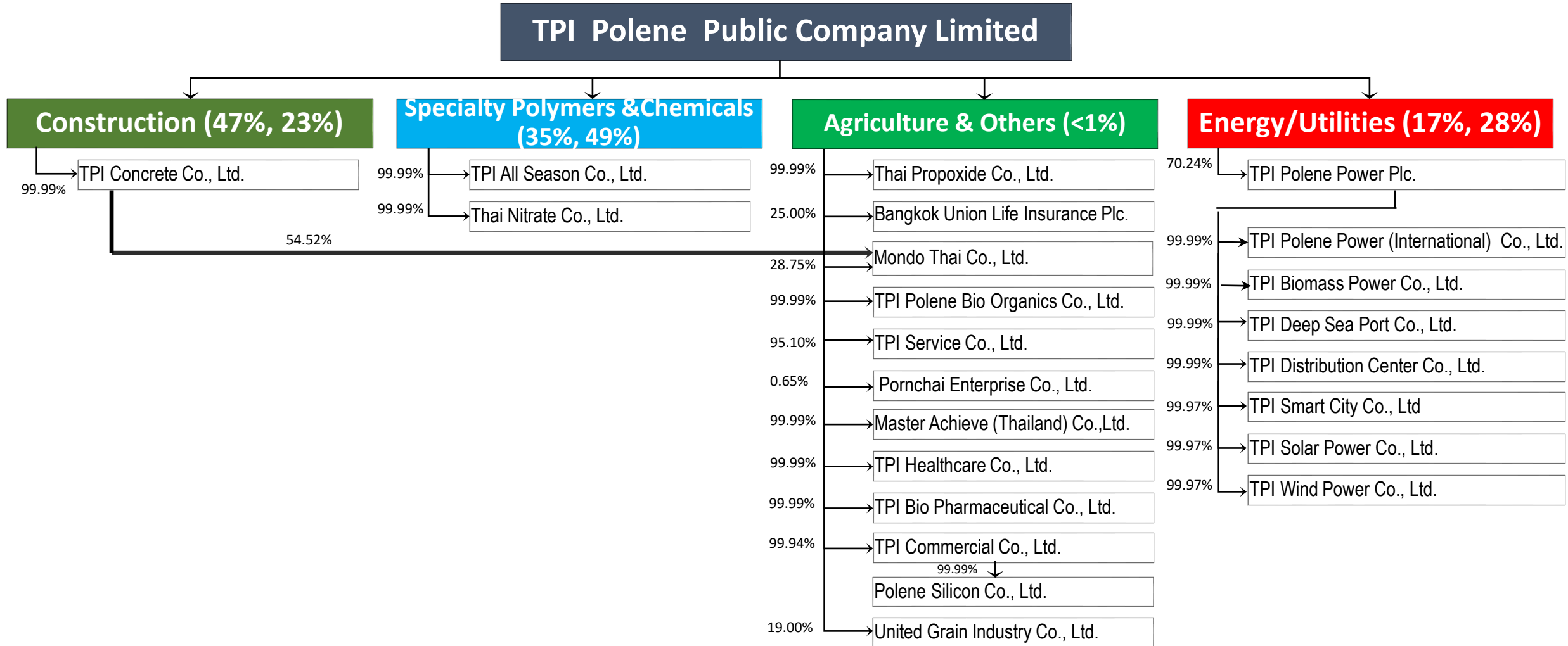
25 November 2022

SET Opportunity Day Presentation



# Topics

- Business Overview**
- Financial Performance & Position**
- Outlook**
- Sustainability and Other Matters**
- Spotlight On The Specialty Polymer Segment**



Based on 9H22 Sales, EBITDA



# Key Assets and Features

## Construction Materials

- **Cement** - 4 lines totaling 13.5 MT capacity
  - Largest single location Cement plant with **unmatchable cost advantage** due to scale
  - First **pioneer on Green Cement** path with using MSW as Fuel
- **Mortar** - 4 plants with 3 MT capacity
  - **Largest mortar producer** in Thailand
- **Ready Mix Concrete & Light Weight Concrete**
  - Leading with 3.9 million cubic meter RMC and 300K cubic meter Light weight
- **Concrete Roof Tiles**- 4m sq. meter or 45m pieces
  - customized with roofing system, **heat-resistant coating** etc.
- **Fiber Cement**- 380K 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
- **Adhesives-Paints**

## Specialty Polymers/Chemical Segment

- **Specialty Polymers** – 158k tons capacity
  - HVA, customized with in-house proven R&D
- **EVA Emulsion & Powder** – 20k tons capacity
  - HVA, customized with in-house proven R&D
- **Nitrate**- 95k tons Ammonium Nitrate & 24.5k tons Nitric Acid for quarrying and cleaning hi-tech gadgets, respectively
- **Solar Sheets** - 10 lines with 20.1k tons capacity
  - Marketed under leading trade Names Polene Solar® and Vistasolar®
- **Agriculture**
  - **Bio Organic** fertilizer and compounds for Plants
  - Probiotic & Product for Livestock Farming and Aquaculture
- **Wellness & Healthcare Products**
  - Bio Knox – **natural calcium & Vitamin C**
  - Bio San –**suppresses** pathogenic bacteria, viruses & Bad smell in the toilets
  - Printemp Marie Rose Mouthwash **kills** Viruses and Bacteria
  - EESY Clean
- **Other Promising ventures**
  - All Solid and Liquid waste disposal
  - Drinking water, Packaging & Insurance

## Energy & Utilities

- **Total current capacity 440 MW** as below comprising >65% Green power and target to **100% green by 2024-25**
- **Alternative Fuels MSW Power Plant** – 180MW
  - Largest in Thailand
  - 11 pre-sorting facilities in key provinces – 2,400 tpd capacity
- **Waste Heat Recovery Power Plant** - 40MW
- **Coal/MSW Power Plant** - 220MW
  - Target to 100% MSW by 2024
- **MSW power plant projects** – 20MW, Songkhla (10MW) & Nakhon Ratchasima (10MW) - COD 2024
- **Solar Farm** – 60MW - COD 2024
- **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 station

# Our Products – over 5,000 SKUs



## WE BUILD THE FUTURE.

TPI Polene's policy is to manufacture high quality products and cement that meet our customers expectation and continuously improve our quality control process.



**Cement Products**



**TPI Plastic Products**



**TPI Polene Power**



**TPI Super Special Armour Nano Paint**



**Concrete Roof tile and Fiber Cement**



**TPI Healthcare Products**



**TPI Agricultural Products**



**TPI Livestock Products**



**TPI Aquaculture Products**

# Highlights in 3Q22

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- The positive momentum seen in 2Q22 mostly continued into the 3Q22
- The weak seasonality that we tend to see from 2Q to the monsoon season in 3Q was not very evident in sales value due to programmed price adjustments
- Of the many product groups Mortar, Nitrate and Concrete posted strongest growth in volume sales, +45%, +33% and 22%, respectively on a year on year basis.
- The strong volume growth in Mortar and Concrete was mainly because of the low base effect on the lingering effect of covid mobility measures in 3Q last year. As for Nitrate, the volume growth was driven by disruptions due to covid lockdowns in China as well as the war in Russia-Ukraine
- Product groups that saw very high increases in selling prices were Nitrate, Cement and Specialty Polymers – in excess of 50% - compared to the same period last year
- The price of nitrate tracks the rising prices of ammonia that was affected by the Russia-Ukraine war
- The higher price of cement was due to successive price adjustments reflecting the rising cost of inputs especially coal and electricity
- The higher price in Specialty Chemicals during the quarter was driven by strong buying at the beginning of the quarter though momentum fizzled by the tail-end of the quarter
- The Energy & Utility division performed poorly due to expiry of adder in 55MW power plant as well as disruption in production in relation to the ongoing plant improvement to increase the intake of MSW feed stock



# Highlights in 3Q22

## Performance snapshot

THB m	3Q22	3Q21	% YoY	2Q22	% QoQ	9M22	% YoY
<b>Sales</b>	<b>12,523</b>	<b>9,013</b>	<b>39%</b>	<b>12,476</b>	<b>0.4%</b>	<b>37,434</b>	32%
COGS	(9,095)	(6,260)	45%	(8,904)	2%	(27,032)	41%
Gross profit	3,428	2,753	25%	3,572	-4%	10,401	14%
SG&A	(1,392)	(1,162)	20%	(1,450)	-4%	(4,356)	11%
Finance costs	(480)	(487)	-1.4%	(473)	1.5%	(1,437)	-9%
Taxes	(67)	(170)	-61%	(61)	9.8%	(153)	-53%
FX gains (loss)	133	153	-13%	421	-68%	600	56%
<b>Core operating profit</b>	<b>2,122</b>	<b>1,506</b>	<b>41%</b>	<b>2,321</b>	<b>-9%</b>	<b>6,477</b>	<b>26.7%</b>
Reported net profit (excl minorities)	2,029	1,208	68%	2,426	-16%	6,255	50%
Reported net profit (incl minorities)	2,189	1,489	47%	2,680	-18%	6,924	35%
<b>EBITDA</b>	<b>3,579</b>	<b>2,926</b>	<b>22%</b>	<b>4,075</b>	<b>-12%</b>	<b>11,102</b>	<b>19%</b>
Gross profit margin	27%	31%		29%		28%	
EBITDA margin	29%	32%		33%		30%	

Based on 9M22 performance, TPIPL is on track to meet the guided FY EBITDA target of THB14-15b



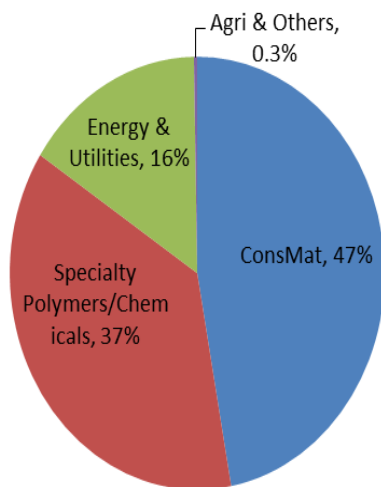
# Financial Performance & Position



# Segment performance

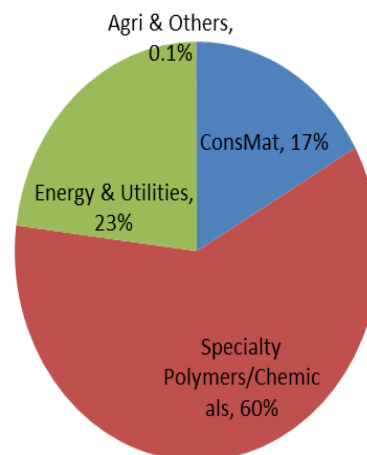


## 3Q22 breakdown and margins



Sales = 12,523m

YoY Growth
61%
56%
-16%
-12%
<b>39%</b>



EBITDA = THB3,579m

YoY Growth
11%
91%
-33%
-90%
<b>22%</b>

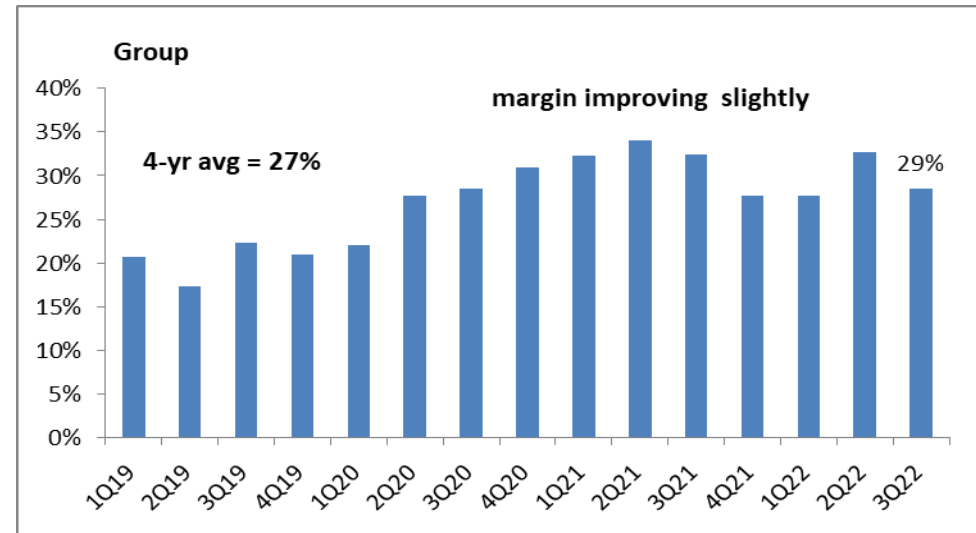
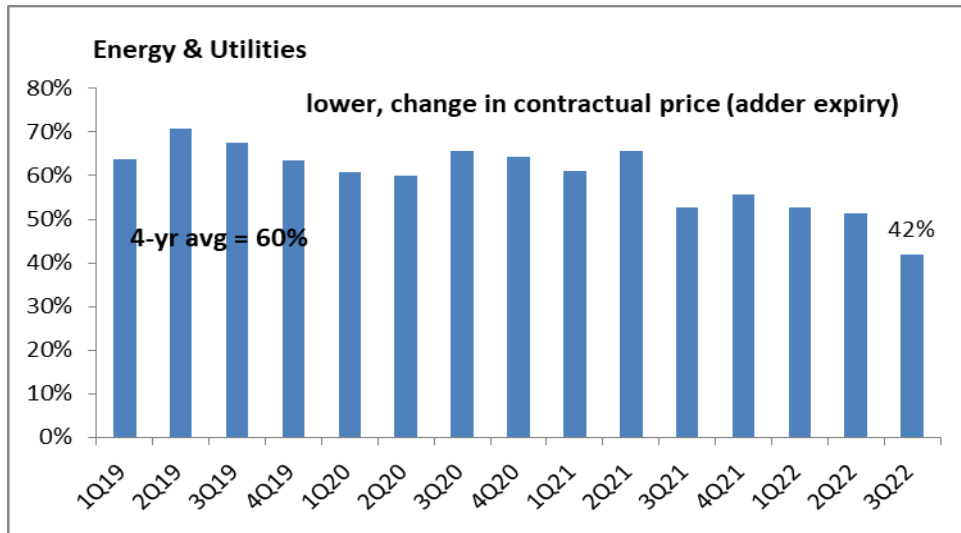
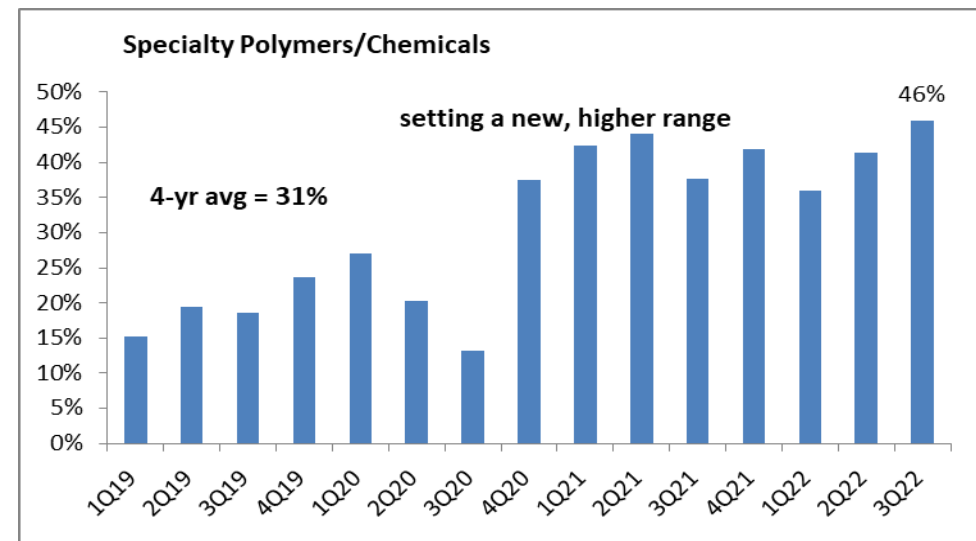
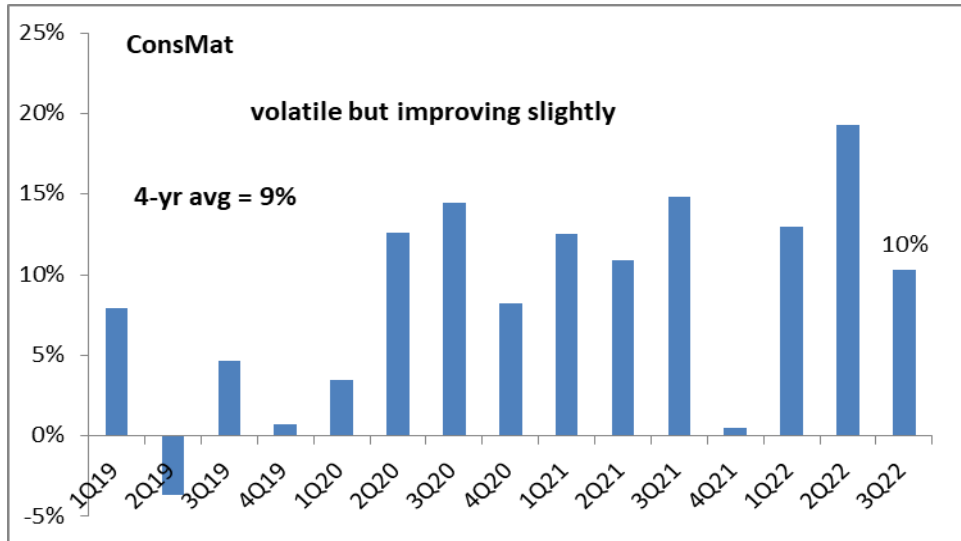
Segment	EBITDA margin
ConsMat	10%
Specialty Polymers/Chemicals	46%
Energy & Utilities	42%
Agri & Others	6%
<b>Overall</b>	<b>29%</b>

## 9M22 breakdown

Segment Breakdown	Sales	YoY Growth	EBITDA	YoY Growth	EBITDA margin	Total Assets	YoY Growth
ConsMat	47%	40%	23%	58%	14%	56%	6%
Specialty Polymers/Chemicals	35%	53%	49%	53%	41%	9%	-1%
Energy & Utilities	17%	-9%	28%	-26%	49%	34%	8%
Agri & Others	0.3%	-5%	0.2%	5%	24%	2%	-2%
<b>Total</b>	<b>37,434</b>	<b>32%</b>	<b>11,102</b>	<b>19%</b>	<b>30%</b>	<b>137,675*</b>	<b>6%</b>

\* Not including unallocated and intragroup assets

# EBITDA margin mostly improving





## Peer comparison – how the EBITDA performance stacks up?

Peer comparison EBITDA margins						
	1Q22	2Q22	1H avg	3Q22	9M avg	Remarks
<b>ConsMat</b>						
No 1	12.0%	9.8%	10.9%	7.7%	9.8%	Has significant operations overseas
No 2	22.0%	25.0%	24.0%	16.0%	21.0%	Has significant operations overseas
<b>TPI Polene</b>	<b>13.0%</b>	<b>19.3%</b>	<b>16.1%</b>	<b>10.3%</b>	<b>14.2%</b>	
<b>Petrochemical</b>						
No 1 - operating only	6.7%	2.0%	4.4%	3.4%	4.0%	Has significant operations overseas
No 2 - olefins & derivatives	11.0%	9.0%	10.0%	10.0%	10.0%	Excluding cash from JVs/affiliates under equity
Specialty Chemicals 1*	19.6%	17.3%	18.5%	13.0%	16.6%	Hybrid petroleum/petchem; partly integrated to monomer feedstock
<b>TPI Polene</b>	<b>36.0%</b>	<b>41.4%</b>	<b>38.7%</b>	<b>46.0%</b>	<b>41.3%</b>	PE compounds and films

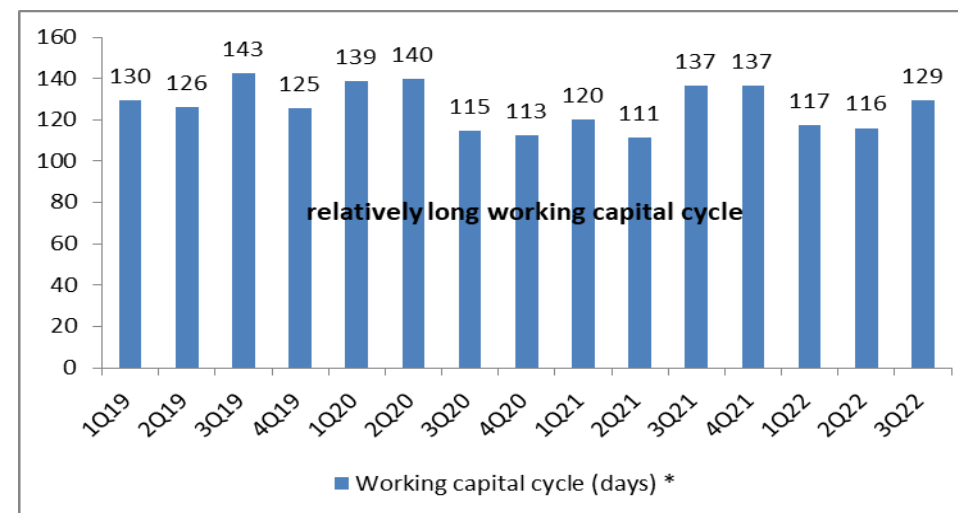
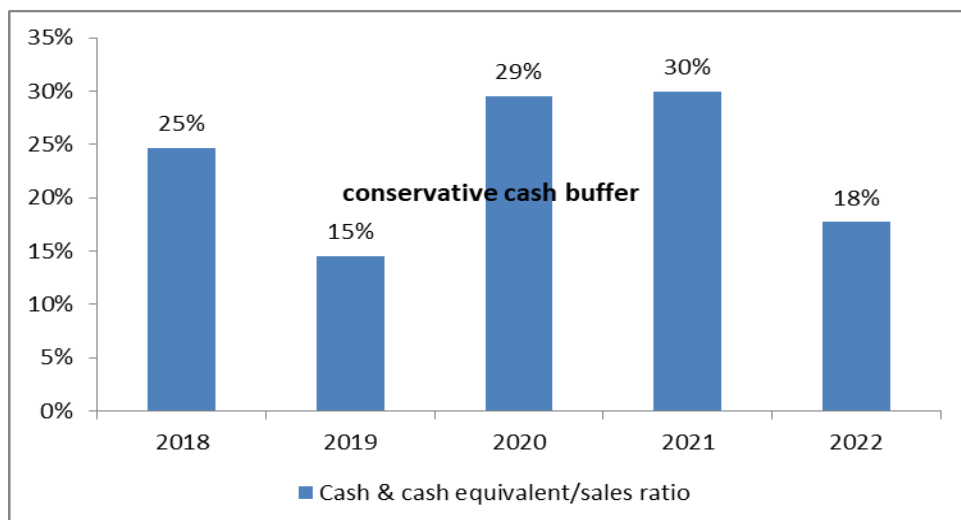
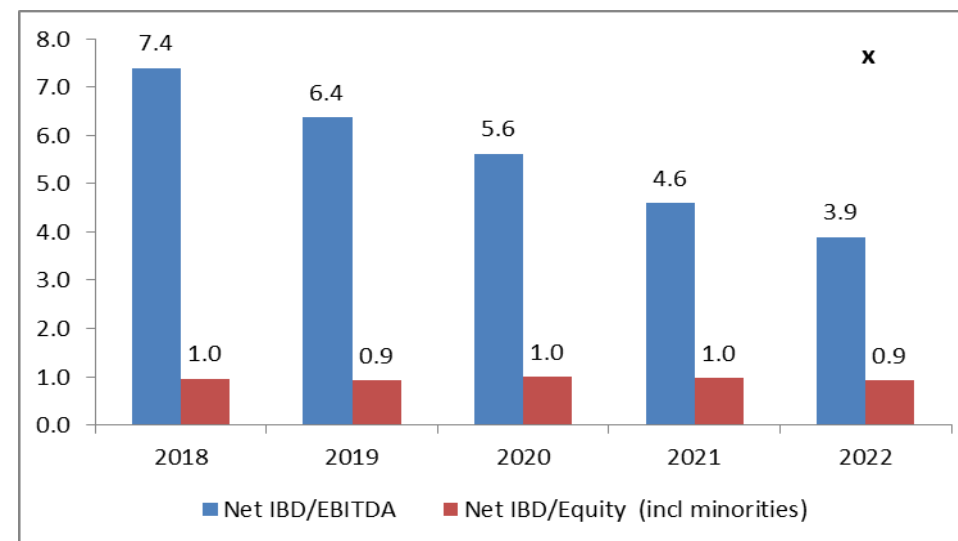
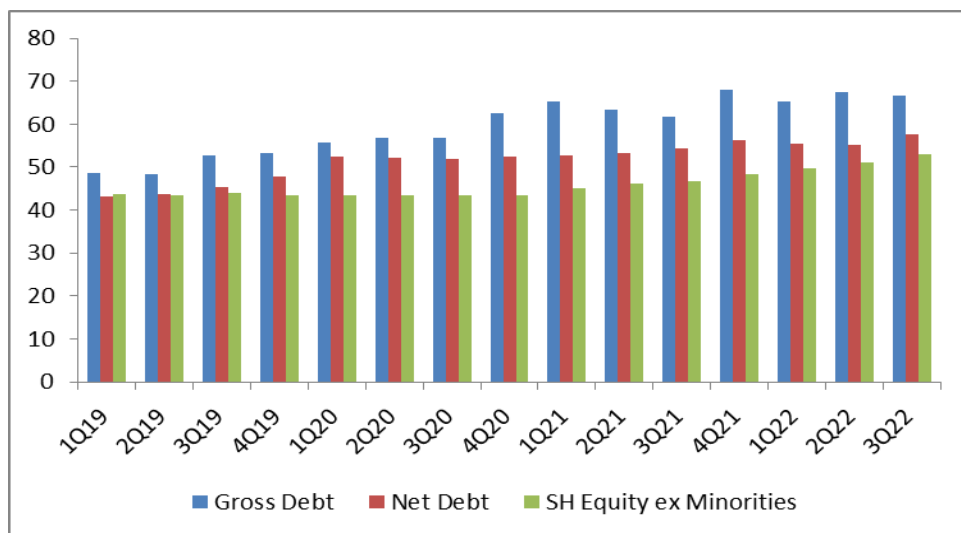
\* FY ends in March

Source: SET, Companies

### 3Q22/9M22 comparative highlights

- In the ConsMat segment, TPIPL's EBITDA margin is **in between** that of No 1 and No 2 players.
- On installed and operating capacity basis TPIPL is No 2 but the two other players have operations overseas that are captured in their respective segment EBITDA.
- In the petrochem segment, TPIPL 's EBITDA margin is the best among closest Thai peers, even comparing with another listed **downstreamer** that can be classified as a Specialty Chemical producer. **The main reason for this outperformance will be explained by Dr Virat.**

# Financial Position – falling leverage ratio; defensive cash positioning



\* Based on 1) Accounts & other receivables 2) Inventories 3) Accounts & other payables



# Outlook

## Key Drivers:

**Increased real estate development activities especially on the back of improving tourism**

**Infrastructure spending to improve slightly on election spending**

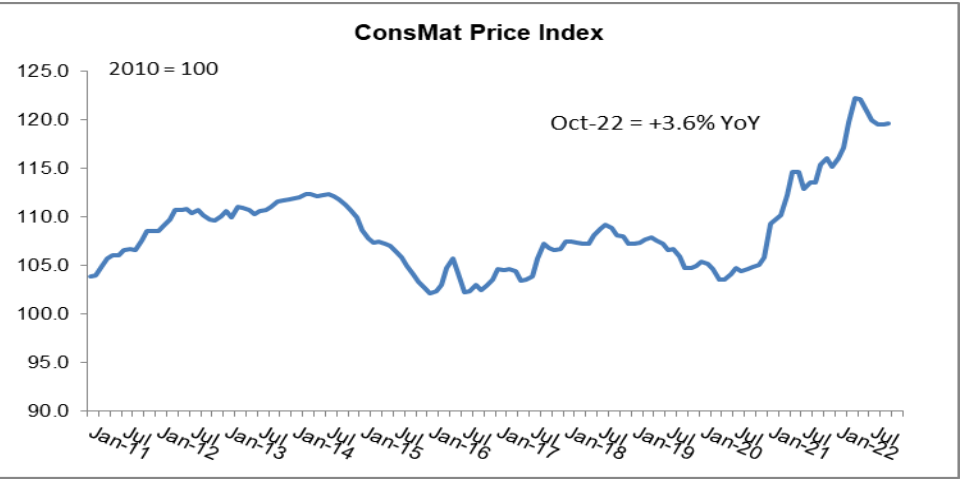
**Continued product price adjustments on higher energy cost; another round of Ft adjustment to hit electricity costs**

**Higher demand for specialty polymers due to demand for PV and hotmelt – (*see Spotlight on Specialty Polymers*)**

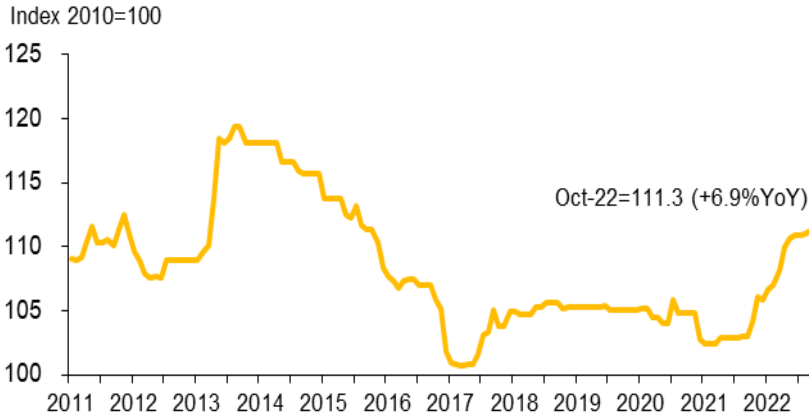
**Fiscal stimulus to combat recession will underpin global demand**

# Demand outlook positive

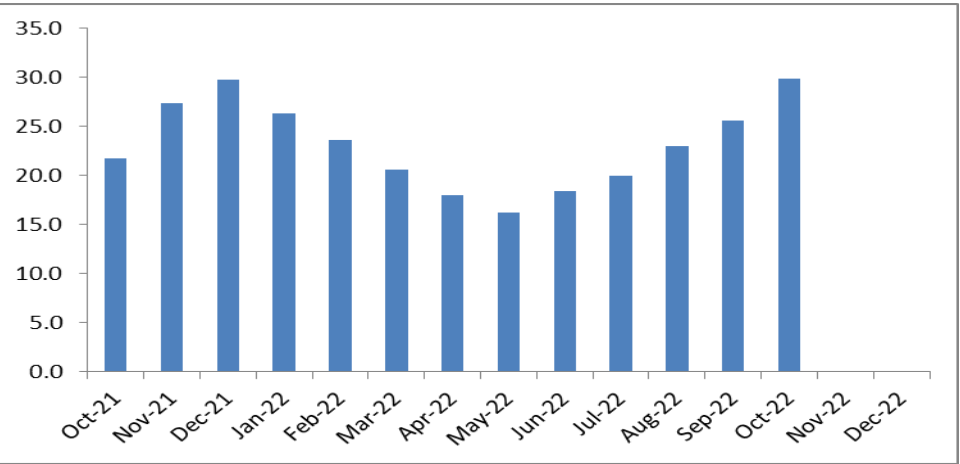
**Overall ConsMat price index plateauing in monsoon season but still high**



**Cement price index show higher cement prices**



**CCI – Buying a house is improving**



**Major listed property developers achieving high presales**

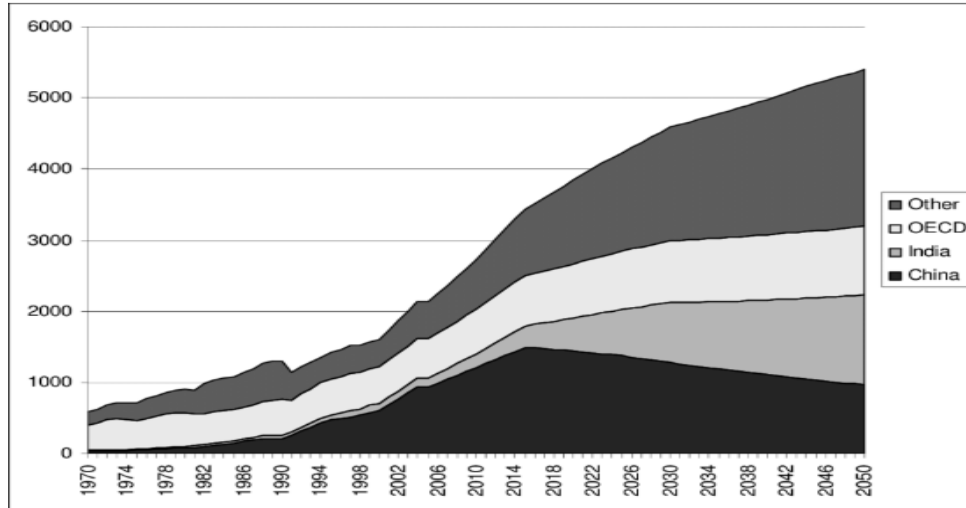
THBm	1Q22	2Q22	3Q22	YoY	QoQ	9M22	YoY%	2022E	9M22 to 2022E
ANAN	2,191	3,910	4,168	74%	7%	10,269	6%	15,680	65%
LPN	2,134	2,623	2,007	-7%	-23%	6,764	8%	13,000	52%
ORI	8,100	9,672	11,626	61%	20%	29,398	29%	35,000	84%
SC	5,285	6,736	5,161	8%	-23%	17,182	7%	22,000	78%
SIRI	5,973	7,325	15,451	152%	111%	28,749	43%	35,000	82%
AP	12,959	12,572	11,924	27%	-5%	37,455	38%	50,000	75%
SPALI	8,852	9,364	6,809	50%	-27%	25,025	43%	28,000	89%
QH*	2,035	2,084	2,350	70%	13%	6,469	23%	9,200	70%
PSH*	5,300	6,342	4,750	-19%	-25%	16,392	-18%	31,000	53%
LH*	7,996	7,412	9,350	42%	26%	24,758	12%	31,000	80%
<b>Total</b>	<b>60,825</b>	<b>68,040</b>	<b>73,596</b>	<b>46%</b>	<b>8%</b>	<b>202,461</b>	<b>21%</b>	<b>269,880</b>	<b>75%</b>

Source: MOC, UTCC, MST research

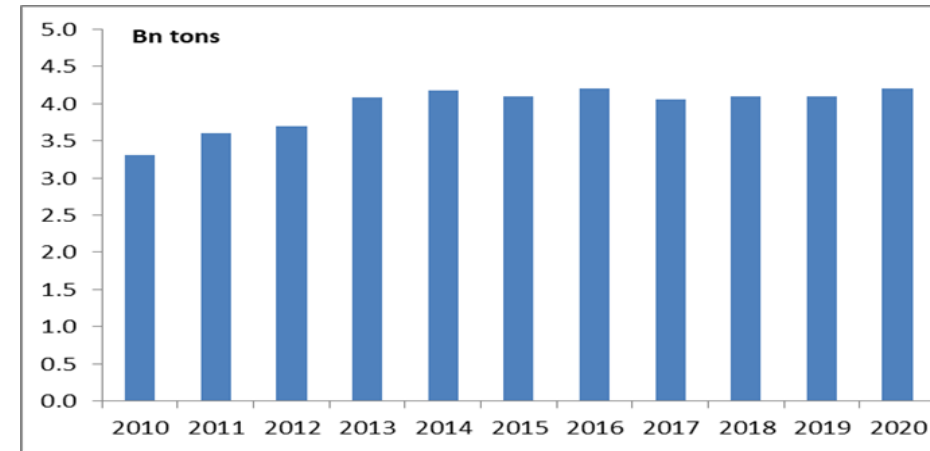
# Global cement demand rising; export market healthy



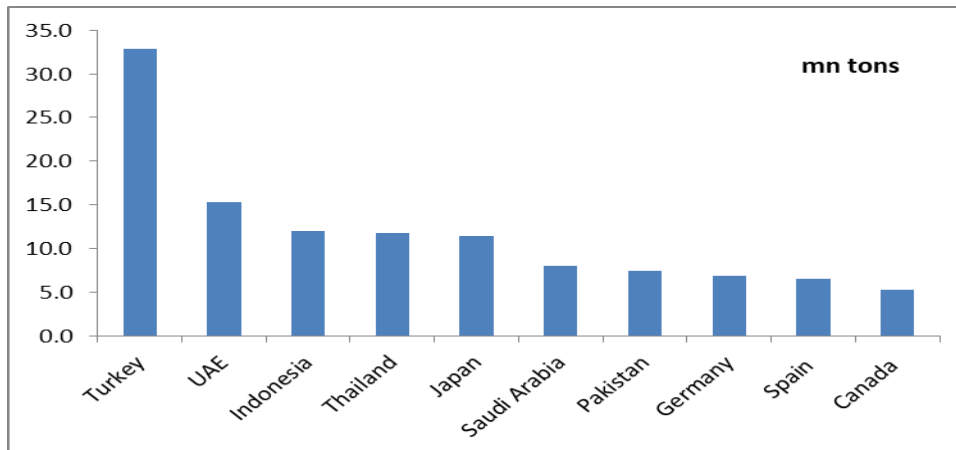
Global demand CAGR of 5.1% during 2022-2027



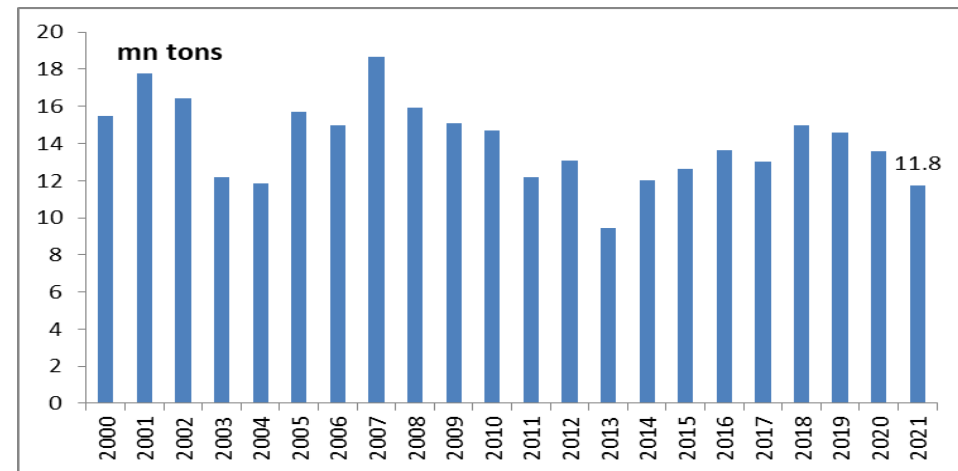
Production indicates low capacity addition; environmental cost is a factor



Top Ten Global Exporters of Cement



Thailand has the capacity to export – TPIPL is among the top



# ConsMat Prices likely to remain high – cost push inflation



Higher energy prices is likely to be a medium term trend; Ft adjustments may revisit the 2008-2015 positive cycle

Year	Unit : Stang/kWh											
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
2022	1.39	1.39	1.39	1.39	24.77	24.77	24.77	24.77	93.43	93.43	93.43	93.43
2021	-15.32	-15.32	-15.32	-15.32	-15.32	-15.32	-15.32	-15.32	-15.32	-15.32	-15.32	-15.32
2020	-11.6	-11.6	-11.6	-11.6	-11.60	-11.60	-11.60	-11.60	-12.43	-12.43	-12.43	-12.43
2019	-11.6	-11.6	-11.6	-11.6	-11.6	-11.60	-11.60	-11.60	-11.60	-11.60	-11.60	-11.60
2018	-15.9	-15.9	-15.9	-15.9	-15.90	-15.90	-15.90	-15.90	-15.90	-15.90	-15.90	-15.90
2017	-37.29	-37.29	-37.29	-37.29	-24.77	-24.77	-24.77	-24.77	-15.90	-15.9	-15.90	-15.90
2016	-4.8	-4.8	-4.8	-4.8	-33.29	-33.29	-33.29	-33.29	-33.29	-33.29	-33.29	-33.29
2015	58.96	58.96	58.96	58.96	49.61	49.61	49.61	49.61	46.38	46.38	46.38	46.38
2014	59	59	59	59	69	69	69	69	69	69	69	69
2013	52.04	52.04	52.04	52.04	46.92	46.92	46.92	46.92	54	54	54	54
2012	0	0	0	0	0	30	30	30	48	48	48	48
2011	86.88	86.88	86.88	86.88	95.81	95.81	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
2010	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55
2009	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55	92.55
2008	66.11	68.86	68.86	68.86	68.86	62.85	62.85	62.85	62.85	77.7	77.7	7

Energy Charge	
First 150 kWh (1st – 150th)	3.2484 Baht/ kWh
Next 250 kWh (151st – 400th)	4.2218 Baht/ kWh
Over 400 kWh (up from 401st)	4.4217 Baht/ kWh
Charges reported by press	
Current electricity rate	4.72 Baht/kWh
Projections after next Ft adjustments	Jan-Apr
Case 1 - EGAT burden THB122.25 b	5.37 Baht/kWh
Case 2 - EGAT burden THB101.88 b	5.70
Case 3 - EGAT burden THB81.45 b	6.03

Gas prices off recent peak but higher than historic range, more volatile



Crude oil and coal prices off recent peak but likely to remain elevated



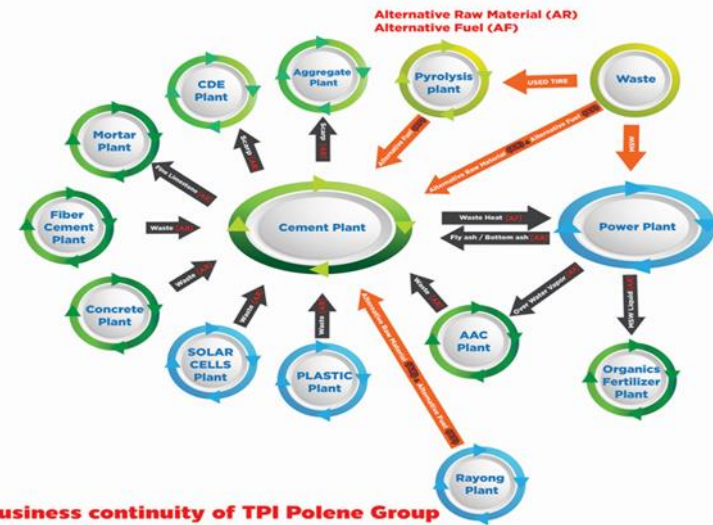
Source: Electricity Authority, Bangkok Post, tradingeconomics





# Sustainability and Other Matters

# Our Bio-Circular-Green (BCG) Economy Proposition



Business continuity of TPI Polene Group

Capex 2021-2026	Investment	EBITDA pa	ROCE	Payback
Internal projections	THB m	THB m	%	Years
<b>Specialty Polymer</b>				
- Efficiency & expansion	1,082	318	29	3.41
<b>Power Business</b>				
- ESG capex - TG7, TG8, Prepol, Modifications	5,820	2,910	49	2.00
- Expansion in green power and others	5,926	980	17	6.05
<b>Consmat Business</b>				
- ESG capex (MSW intake)	4,000	1,233	31	3.24
- ESG capex (conveyor belts w/mobile crushers)*	1,500	990	66	1.52
- Expansion (mortar)	300	99	33	3.03
<b>Total</b>	<b>18,628</b>	<b>6,530</b>	<b>35</b>	<b>2.85</b>

## Projects in the implementation pipeline

- EVA powder and new HVA product
- Power plant modification from coal to MSW
- 2 MSW power plants (Songkhla and Korat)
- Increased MSW processing for use in the clinker plant
- Expansion of mortar capacity by 660k tons
- 62 MW solar farm, Saraburi
- 5 MW wind turbines Saraburi

# Achievements in 9M22

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## **TPIPP progress :**

- 1) used 2.1m tons of MSW, +40% YoY reducing GHG emissions by an equivalent of 4.88m tons CO2 based on MSW dumped into the landfill that emits 3.49m tons of CO2 equivalent per ton of landfill waste
- 2) reduced water consumption by 11% YoY (or 840k m3 ) and was able to recycle 36% of that volume
- 3) TPIPP used 15k tons of recycled materials, 100% of the generated waste adhering to zero-waste policy

## **TPIPL progress:**

- 1) achieved 25% MSW replacement in the three cement kilns,
- 2) 31 of our trucks are now EVs
- 3) reduced industrial waste by 36% to 6,644 tons
- 4) hit 99.8% recycling ratio on the remaining industrial waste

## **Citations**

### **TPIPP**

- Thaipat's Gold ESG Standard 2022 based on 30 indicators of WFE ESG metrics
- Inclusion into SET's list of Thailand Sustainability Investments (THSI)
- Inclusion in the ESG100 Emerging list of Thaipat ESG Emerging Private Fund
- "Most Innovative Green Practices Towards ESG – Waste Management" Thailand 2022 by International Finance Magazine
- "Best Product Innovation for Sustainable Development in Thailand 2022 by Global Economics evaluated in 19 definitive criteria set by Global Economics

### **TPIPL**

- \* Inclusion into SET's list of Thailand Sustainability Investments (THSI)
- \* Inclusion in Thaipat Institute's ESG Emerging List of 2022.
- \* "Most Socially Responsible Conglomerate – Thailand 2022" by Global Economics evaluated in 19 definitive criteria set by Global Economics



# Litigation Cases

Case	Case Date	Plaintiff	Charge/Offense	The Court ordered the Company by Environmental Acts B.E. 2535 to either		status
				Refill Rocks (Mil. Tons)	OR Pay (Mil. Baht)	
Sor Vor 4/2559	8/7/2015	Department of Primary Industry and Mines, Ministry of Industry (has no authority in Environmental Acts B.E. 2535)	The violation in mining activity (under Mineral Acts B.E. 2510 and Environmental Acts B.E. 2535)	31.52	4,047	Pending the Supreme Court Consideration
Sor Vor 5/2559	24/3/2016			12.48	1,603	Pending the Supreme Court Consideration
Sor Vor 6/2559	24/3/2016			2.45	314	Pending the Supreme Court Consideration
Sor Vor 1/2560	2/3/2017			1.22	326	Pending the Supreme Court Consideration
Sor Vor 2/2561	21/6/2018			0.25	67	Pending the Supreme Court Consideration
<b>Total</b>				<b>47.92</b>	<b>6,357</b>	

The Company did not commit any offense as accused by the Plaintiff and is of opinion that

- The disputed lands (buffer zones) sued by the Department of Primary Industry and Mines, Ministry of Industry, who has no authority in the Enhancement and Conservation of National Environmental Quality Act, B.E. 2535. (Environmental Acts B.E. 2535) were legally belonging to the Company as they were within concession areas.
- The Company had approx. 600 million tons of industrial mineral rock in the concession area, and by the end of such concession period, the Company still had approx. 400 million tons of industrial mineral rock left and forfeited. Therefore, the Company had no reason to commit any illegal act as accused. At the moment, the concession for all these areas have been renewed including the disputed buffer zones.

From December 2021 until Q2 2022, the Company has been granted limestone and shale concession for the manufacturing of cement industry from the Department of Primary Industries and Mines, including the disputed lands, with long-term concession period of 27 years for limestone and shale reserves total 415.58 million tons.



# Litigation Cases (cont'd)

Case Date	Plaintiff	Charge/ Offense	Court ordered	status
			Value (Mil. Baht)	
2/6/2017	Tham Phra Phothisat Temple	The court called the Company to be an interpleader for the claim that the Defendants' issuance of Prathanabat to the Company is done in contradiction to regulation of Ministry of Interior	Depend on the value of rock used	The Central Administrative Court dismissed the lawsuit  Pending in the Supreme Administrative Court
20/6/2019	Tham Phra Phothisat Temple	The application for Prathanabat of the Company is unlawful	unspecified	Pending in the Central Administrative Court
16/12/2019	222 individuals	Sue requesting for revocation of the approval of EHIA report for the 150 MW power plant, the license to operate the business and the construction approval of the subsidiary.	-	Pending in the Central Administrative Court



# Spotlight On The Specialty Polymer Segment



## TPI Polene – Specialty Polymer Business

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- TPIPL Specialty Polymer Recapitulation**
- EVA Market Highlights & Outlook**
- TPIPL Strategic Updates**



- TPIPL Specialty Polymer Recapitulation**
- EVA Market Highlights & Outlook
- TPIPL Strategic Updates



# TPI Polene – Specialty Polymer Recapitulation

## Products and Applications :

<b>LDPE</b>	Film / Coating & Lamination / Injection
<b>EVA</b>	Foam / Shoes / Lamination / Wire & Cable / Hot-melt Adhesive / PV Encapsulant / Binder
<b>PV Encapsulant</b>	Solar panel production
<b>VAE Emulsion</b>	Adhesive application
<b>VAE Powder</b>	Construction

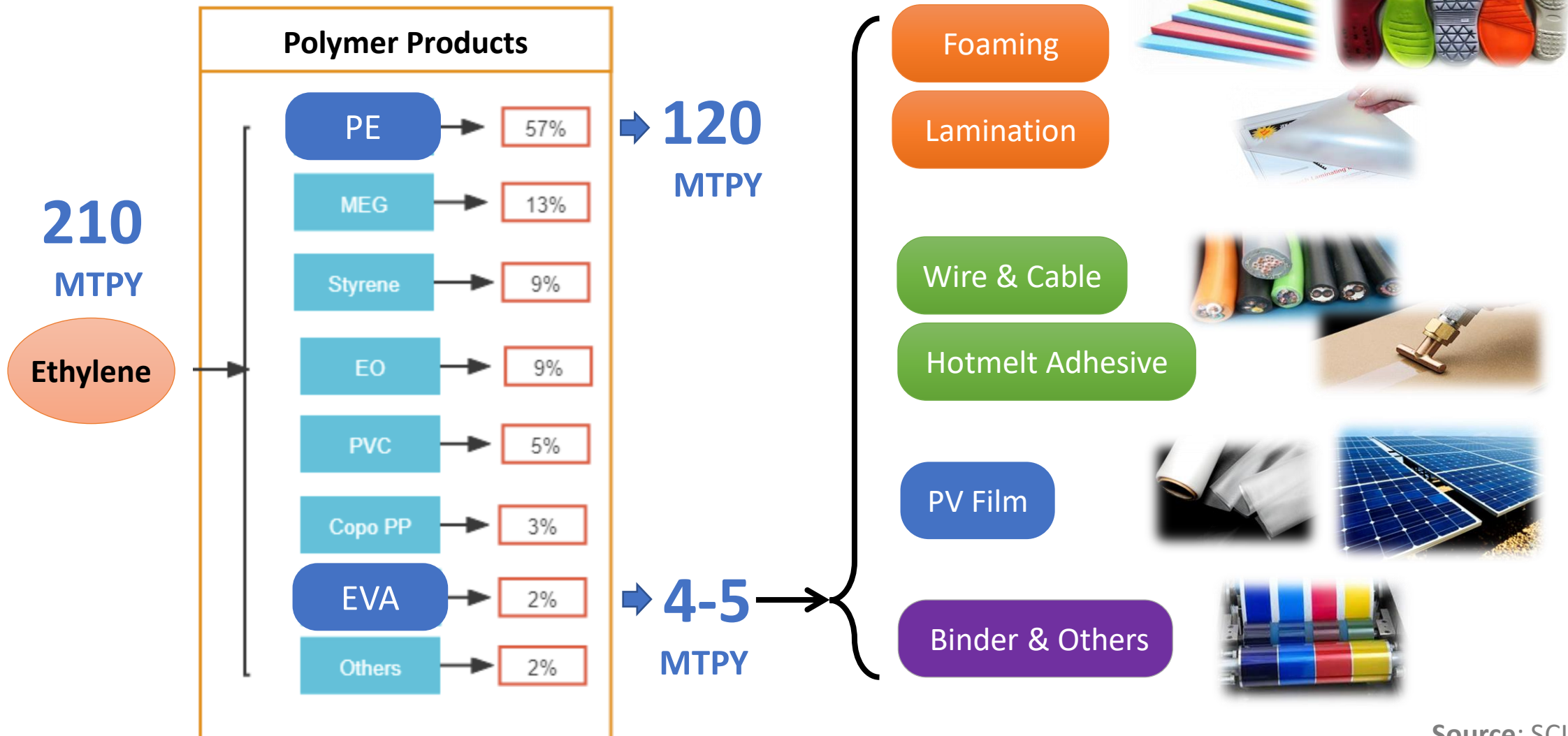


Rayong



# TPI Polene – Specialty Polymer Recapitulation

## Ethylene Industry Chain & EVA Applications





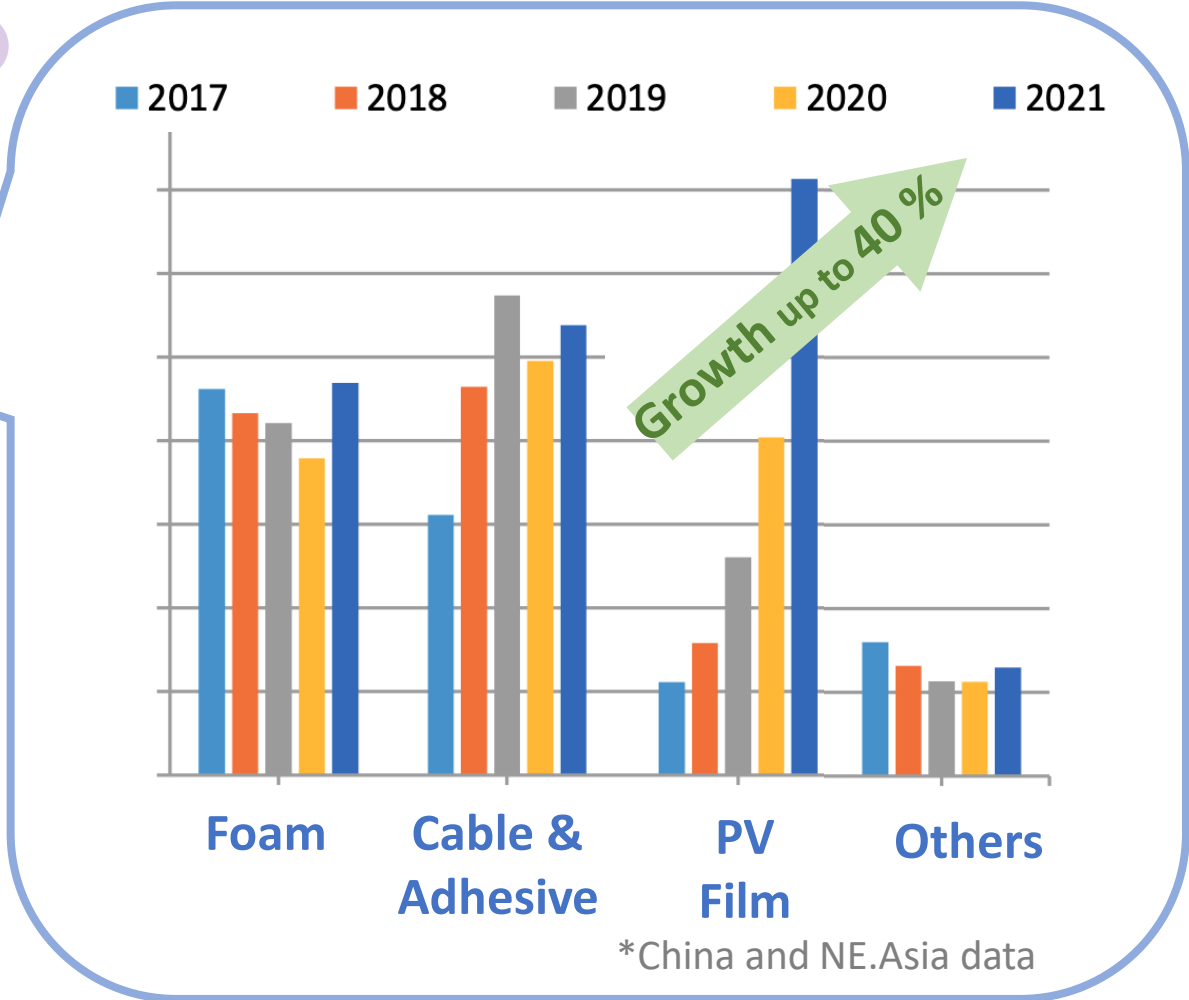
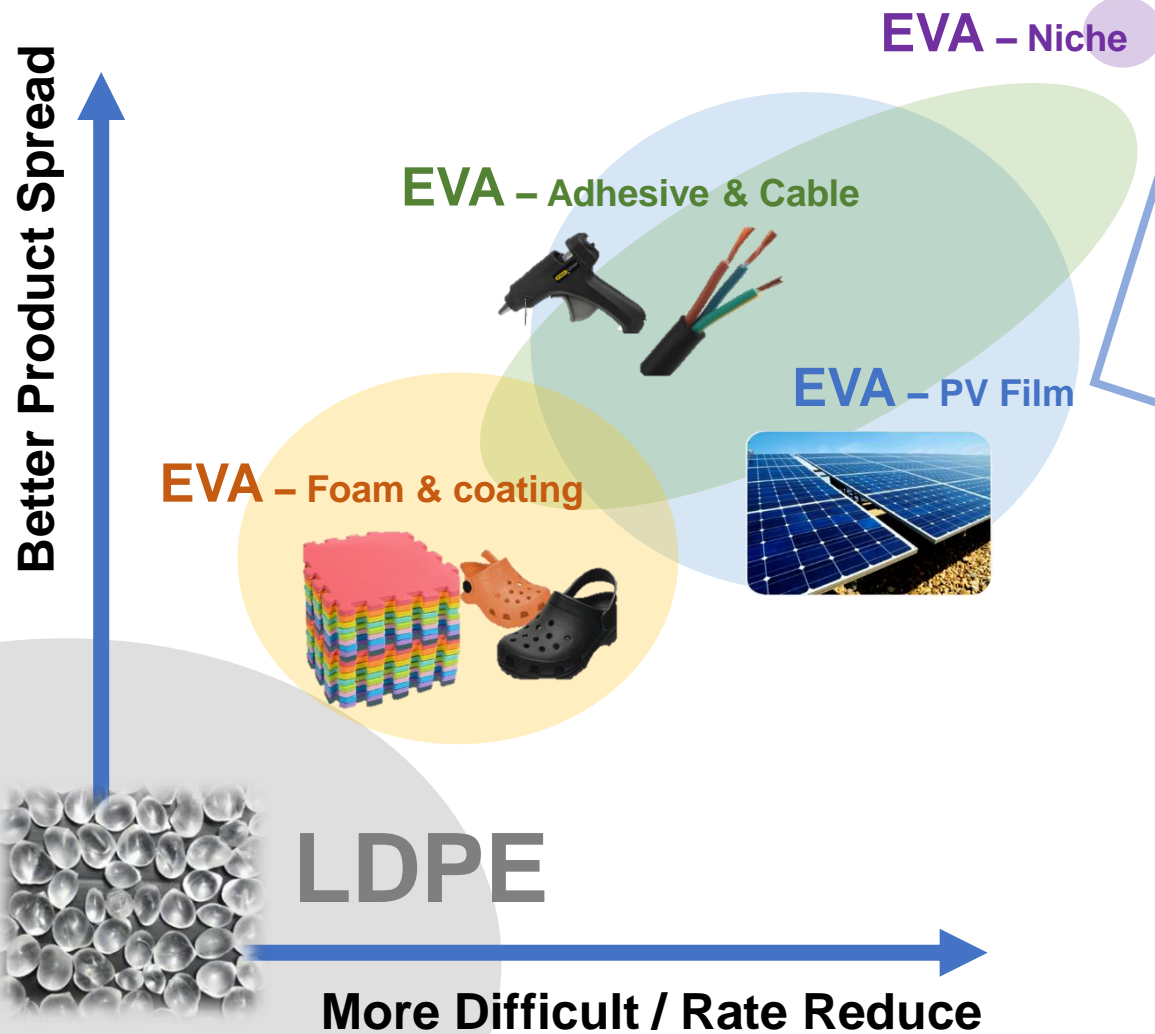
## TPI Polene – Specialty Polymer Business

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- TPIPL Specialty Polymer Recapitulation
- EVA Market Highlights & Outlook**
- TPIPL Strategic Updates

# EVA Market Highlights and Outlooks

## EVA Demand and Growth by Applications



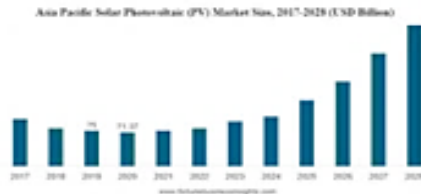
# EVA Market Highlights and Outlooks

## Solar Photovoltaic Market Size [2021-2028] Worth USD 1,000.92 Billion **Exhibit a CAGR 25.9%**


**Fortune Business Insights**  
 April 25, 2022 · 7 min read

According to Fortune Business Insights, the global solar photovoltaic market size to hit USD 1,000.92 billion, at CAGR of 25.9% by 2028; Increasing Demand for Renewable Energy Resources to Bolster Market Growth.

### Solar Photovoltaic Market Size



### Solar Photovoltaic Market Size

Pune, India, April 25, 2022 (GLOBE NEWSWIRE) -- The global [Solar Photovoltaic Market](#) size is projected to reach USD 1,000.92 billion by 2028, exhibiting a CAGR of 25.9% during the forecast period. Rising demand for renewable energy resources and dependence upon electricity is likely to fuel market progress. Fortune Business Insights™ presents this information in its report titled "Solar Photovoltaic (PV) Market, 2021-2028." The global solar photovoltaic (PV) market size was USD 154.47 billion in 2020.

## Global solar photovoltaic (PV) market expected to increase **~5x by 2028**

The strong rising demand of Solar energy with a CAGR 26% underpins the resiliency of our Specialty Polymers

Report Coverage	Details
Forecast Period	2021-2028
Forecast Period 2021 to 2028 CAGR	25.9%
2028 Value Projection	USD 1000.92 billion
Base Year	2020
Market Size in 2020	USD 154.47 billion
Historical Data for	2017-2019
No. of Pages	220
Segments covered	By Technology, By Installation, By Grid Type, By Application, and By Region
Growth Drivers	Rising Investments in Solar Power and Increasing Off-grid Areas to Boost Market Growth Raw Material Shortage and Closure of Industries to Negatively Affect Market Growth

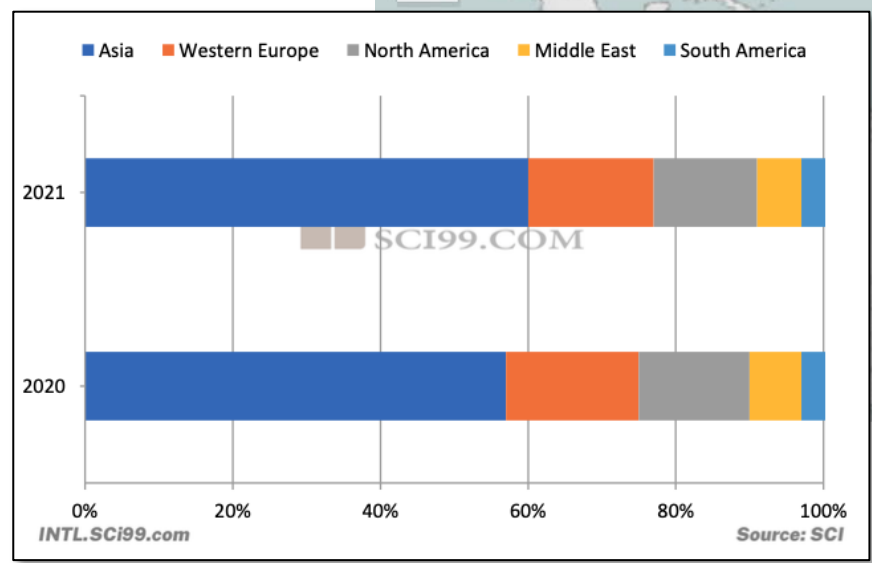
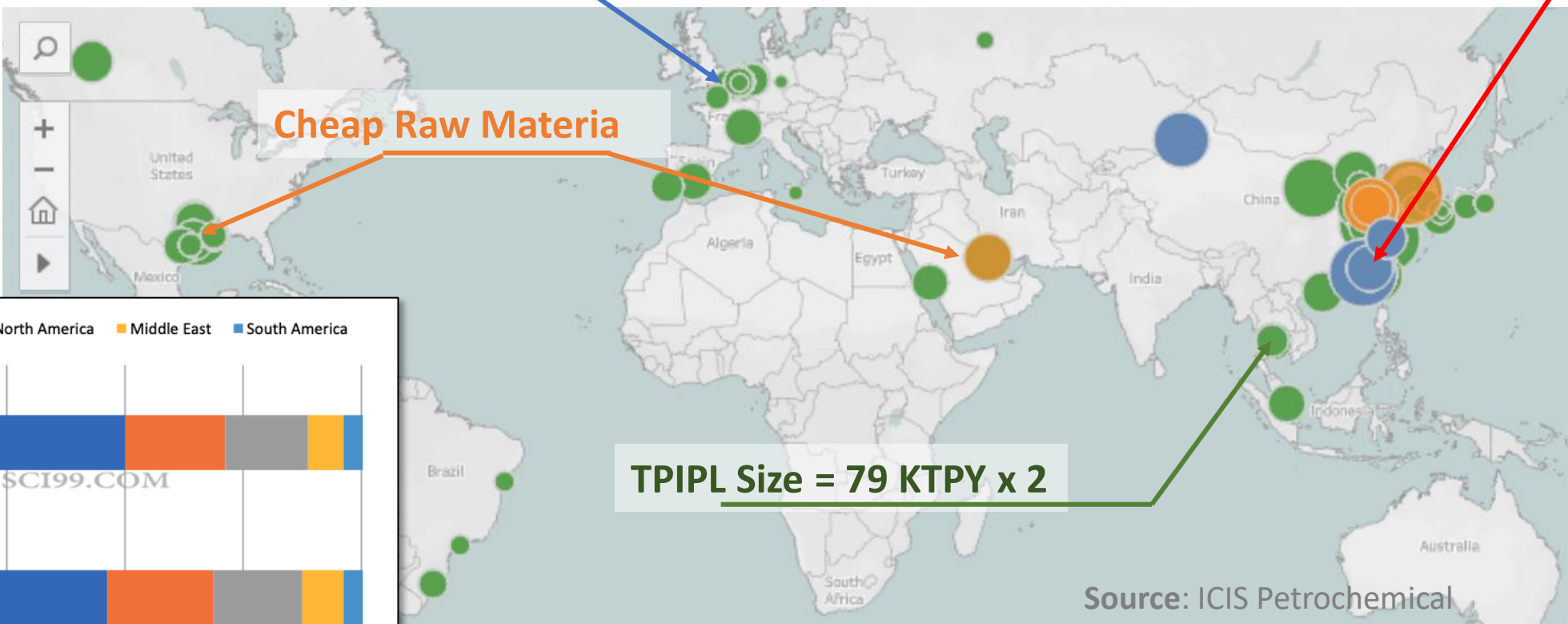
**Fossil fuel crisis caused by Ukraine war is a Game Changer for Renewables – Solar etc.**

# EVA Market Highlights and Outlooks

## EVA Supply & Global Producers

smaller plants ~ 40-50 KTPY

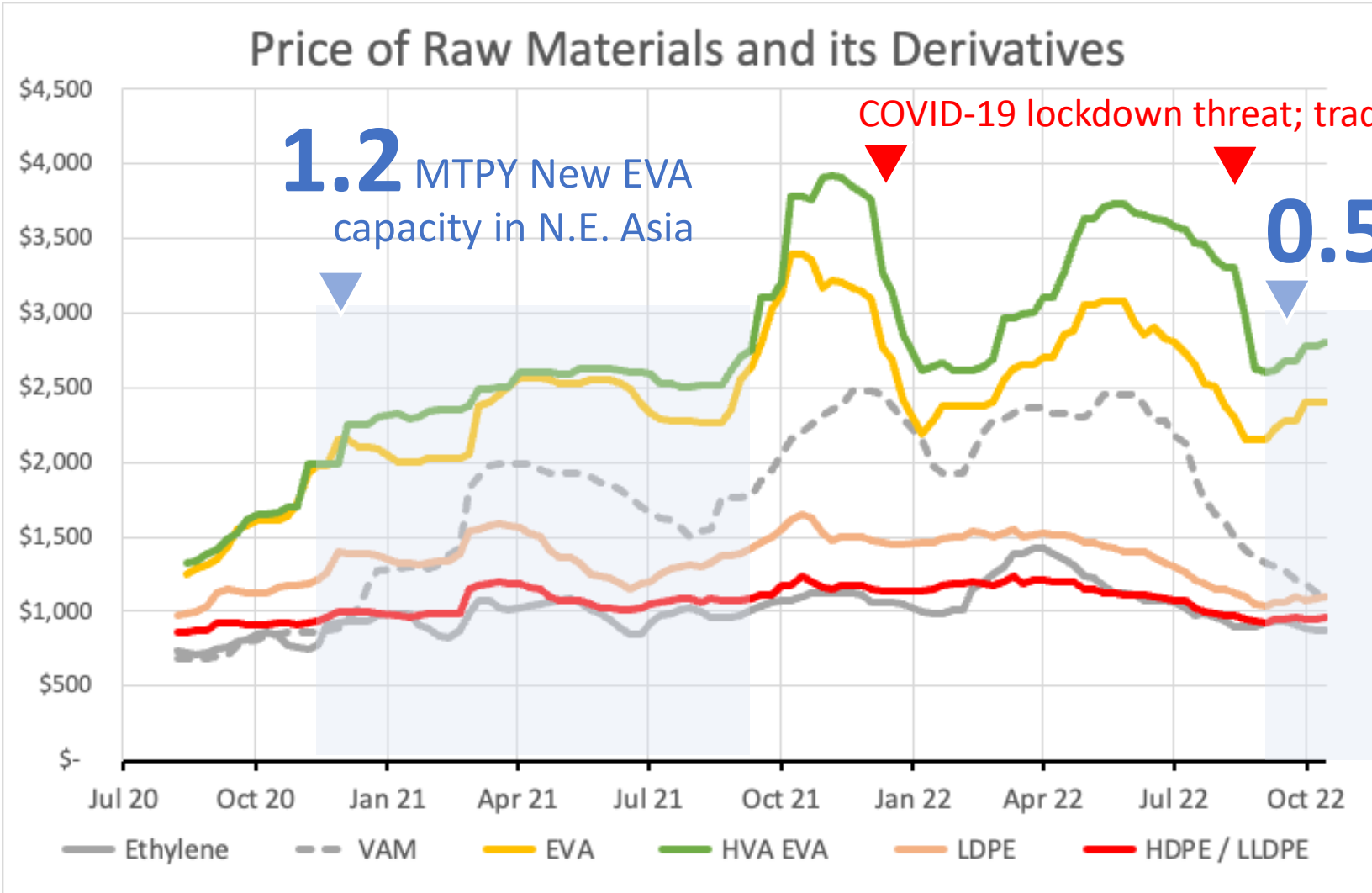
**Biggest plant size = 300 KTPY**  
**Mostly in NE. Asia**



**Newly added EVA/LDPE capacity ~ 1.5-1.7 MTPY in 2021-2022**

# EVA Market Highlights and Outlooks

## Ethylene & its Downstream Price (Asia) & Events



**No** new capacity until

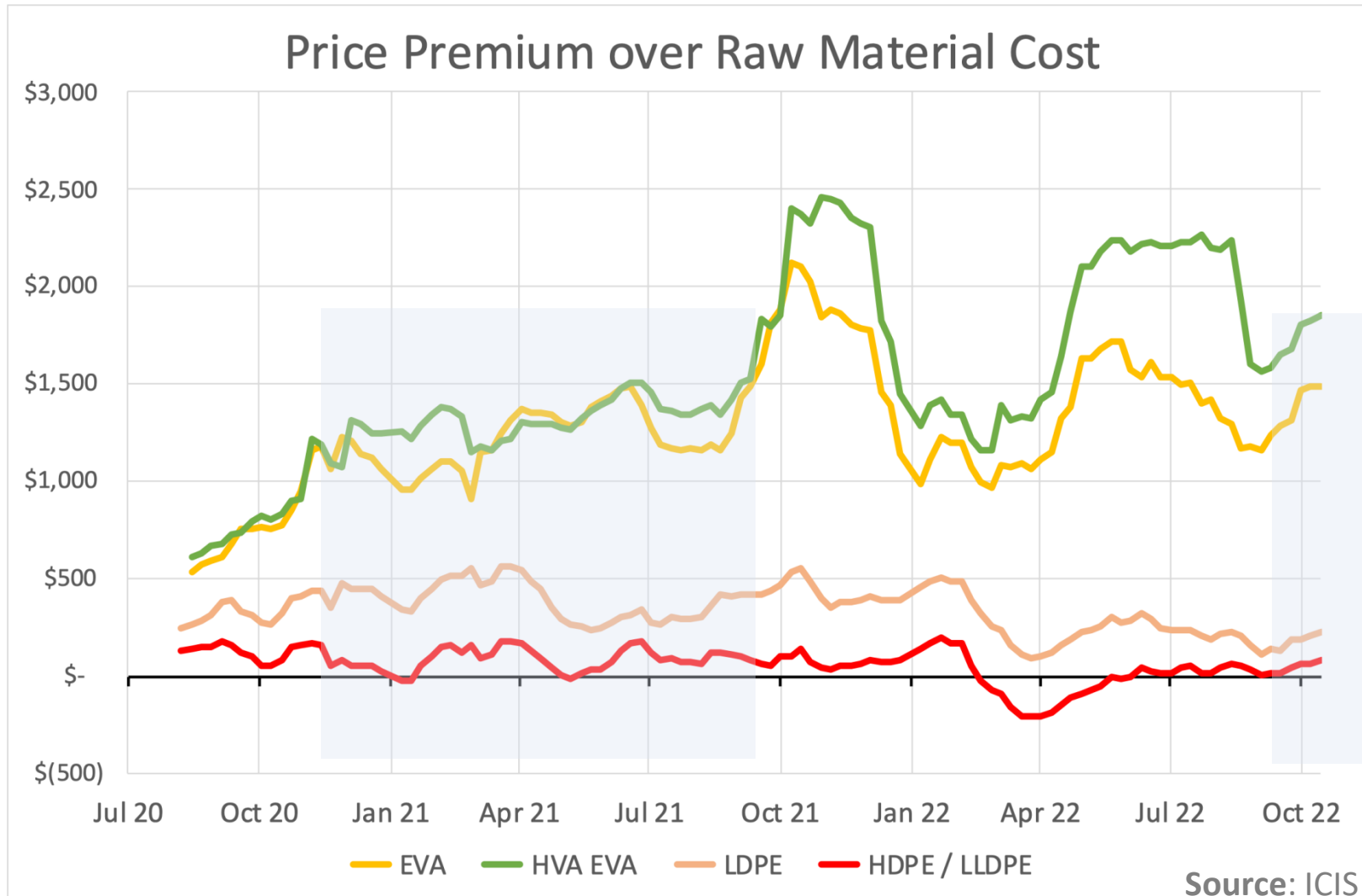
- 2024 : 0.2 MTPY
- 2025 : 0.4 MTPY in N.E.Asia

But the demand is still expected to grow at a high rate. Thanks to high oil & gas price, renewable energy preference, and spike in EV adaptation rate worldwide.

Source: ICIS Petrochemical

# EVA Market Highlights and Outlooks

## EVA vs PE – Product Spread & Outlooks



- End of the year de-stocking activities from producers and traders
- Slowdown in PV industry in 4Q22 due to high silicon price
- New EVA capacity in early 1Q23
- ▲ Continuously high energy price and demands in renewable energy boosts PV
- ▲ Higher price for competitive products to replace EVA
- ▲ About 2 years period of no new significant EVA capacity expansion

Estimated spread may retract to ~ \$1,000 with similar price gap between product groups.





## TPI Polene – Specialty Polymer Business

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# TPI Polene Strategic Updates

## Increase High Value-Added EVA Sales

EVA – Niche

EVA – Adhesive & Cable

EVA – PV Film

EVA – Foam & coating

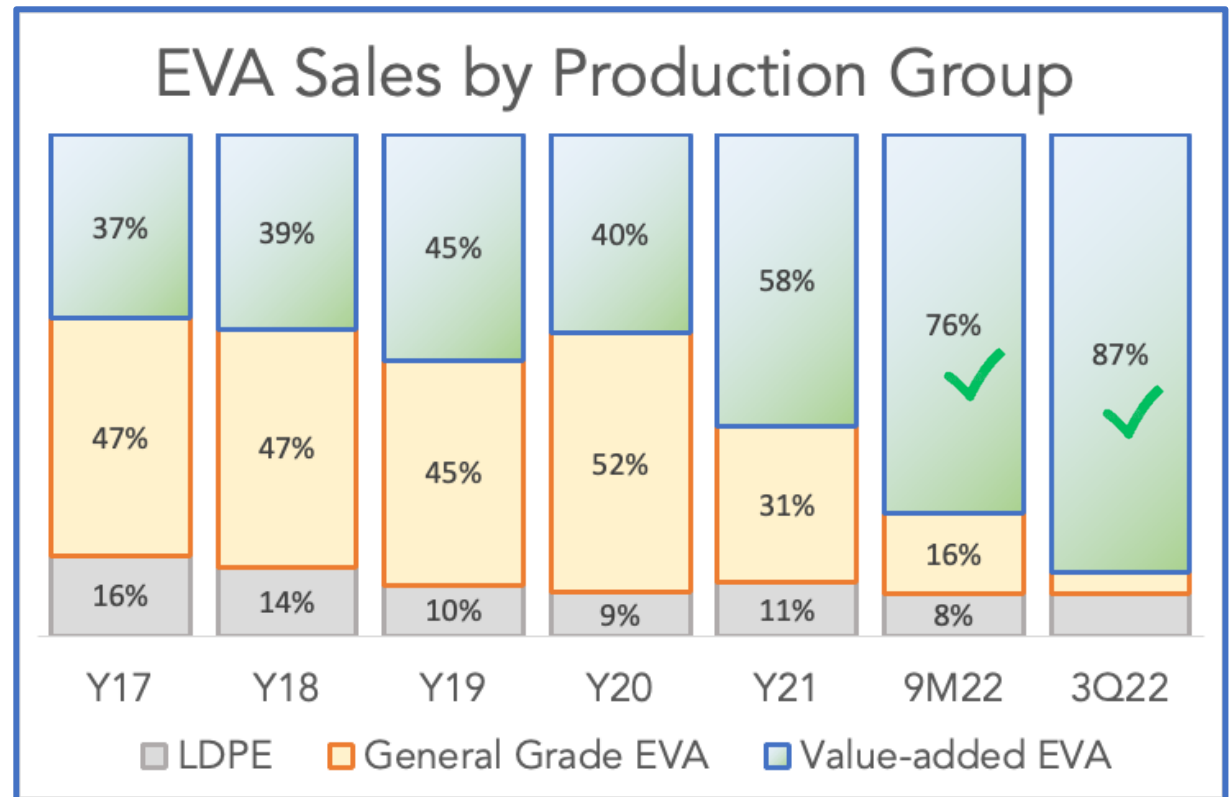
LDPE

Better Product Spread

More Difficult / Rate Reduce

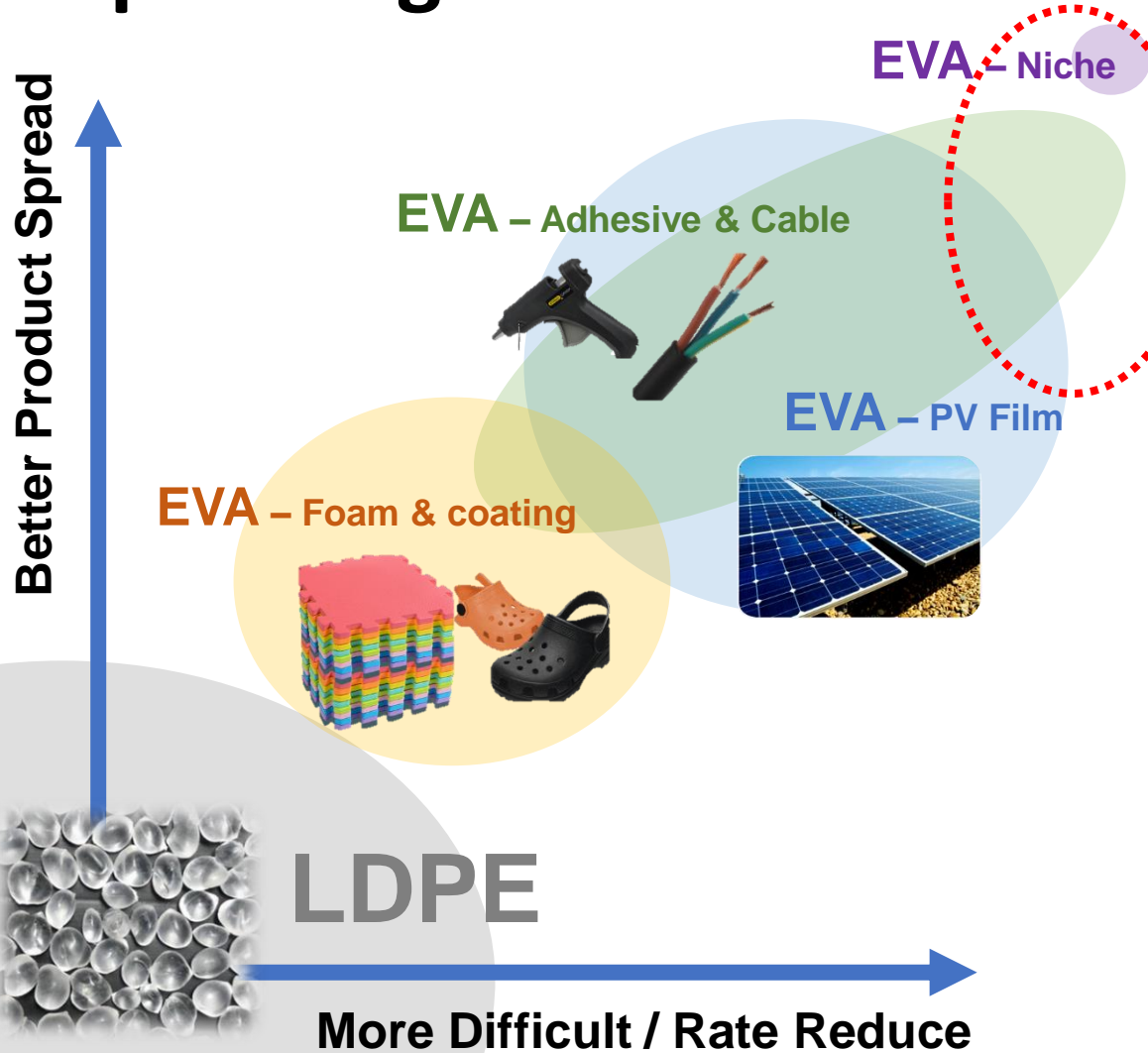
TPIPL focus on HVA EVA product applications which provide higher spread. **In 3Q2022, 87% of sales were HVA products.**

EVA Sales by Production Group



# TPI Polene Strategic Updates

## Expand High Value-Added EVA Portfolio



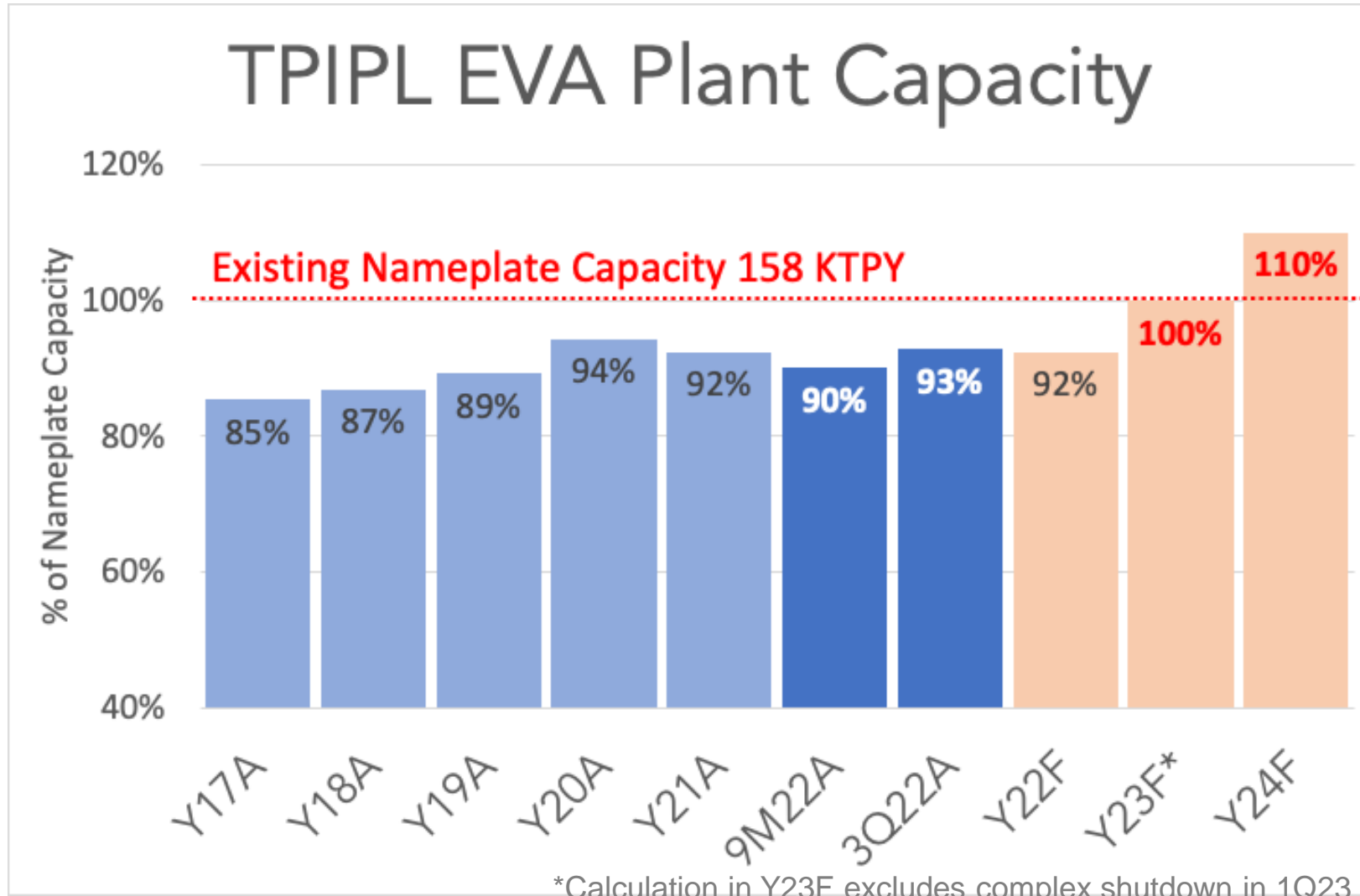
TPIPL will expand EVA portfolio to include most of HVA EVA applications. Currently, 6 new grades are in the pipe-line, including a new **ZV1055 high MFI adhesive grade** commercialized in **3Q 2022**.

Application	# Product	Grade	Launch Target
High MFI adhesive	1	ZV1055	3Q 2022
High MFI & high strength adhesive	2	WV1042 YV1042	4Q 2022 to 1Q 2023
High VA & low MFI adhesive	2	To be determined	2Q 2023
High strength PV grade	1	To be determined	



# TPI Polene Strategic Updates

## Increase High Value-Added EVA Production Rate



Although, HVA EVA grades has better price premium over foaming grades, most plants suffer rate reduction trade-off.

**TPI** has successfully recovered those penalties and will further improve to surpass the original capacity. We expect total **capacity of HVA EVA products will increase around 10%**.

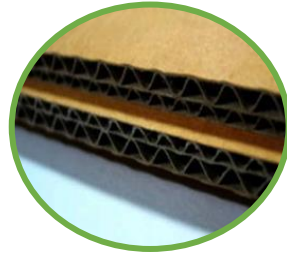
A potential **EBITDA lift of 200-300 million Baht** on annualized basis at current product spread is expected in 2023 onward.

# TPI Polene Strategic Updates

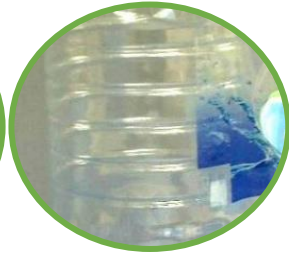
## Add Synergetic VAE Products



18,000 TPY



Corrugated Paper



Label



Furniture



Paper Core



Parquet



2,000 TPY



Tile Adhesive



Pasturing



Skim Coat

+ 5,000 TPY newly install capacity in 3Q22

- Equipment Installation completed 3Q 2022
- Commissioning & plant start-up 4Q 2022



## Synergy

of having EVA Resin, VAE Emulsion, and VAE Powder:

- Share infrastructure, raw materials
- Utilized waste steam and waste Ethylene purge gas from EVA high pressure process
- **Reduce** raw material and processing **cost**
- **Improve environment**

Potential EBITDA increase of 40-60 million Baht on annualized basis at current margins will be realized in 2023.

# TPI Polene Strategic Updates

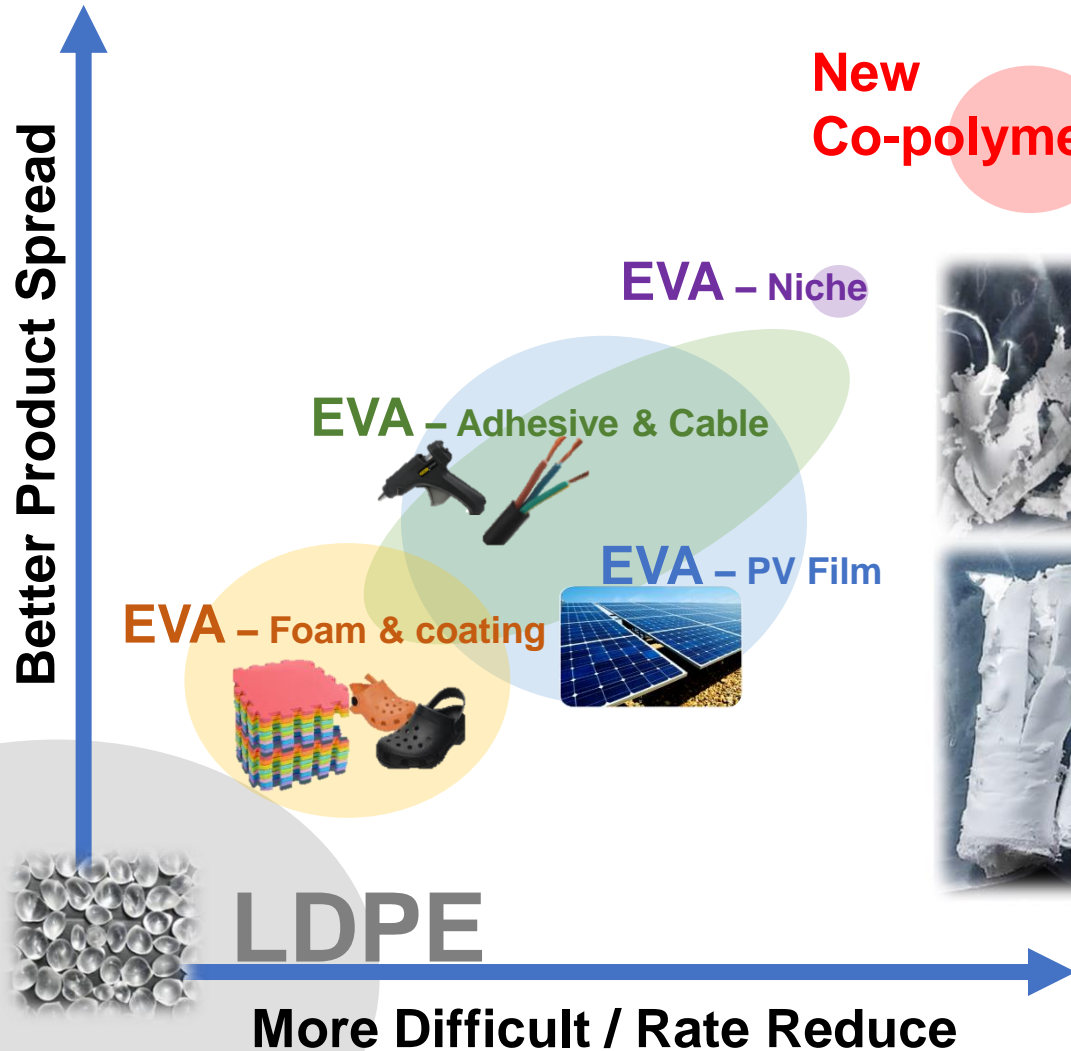
## R&D on New Ethylene Copolymer Products

### VHP Pilot Reactor



**TPI** has successfully installed a pilot reactor for "very high-pressure" pilot reactor and been experimenting with new co-polymer products. We are the only Asian producer capable of testing polymerization with copolymer at **3,000 bar+**.

**New Co-polymer**



Action	Target	Status
Install VHP Pilot Reactor	2Q 2022	Done
Experiment with new Co-polymer product	3Q 2022 onward	In progress
Procurement of new commercial equipments	1H 2023	
Installation & Commissioning new products	2H 2024	



End of Presentation

Q&A

Thank You