



International Petrochemical Industry Forum

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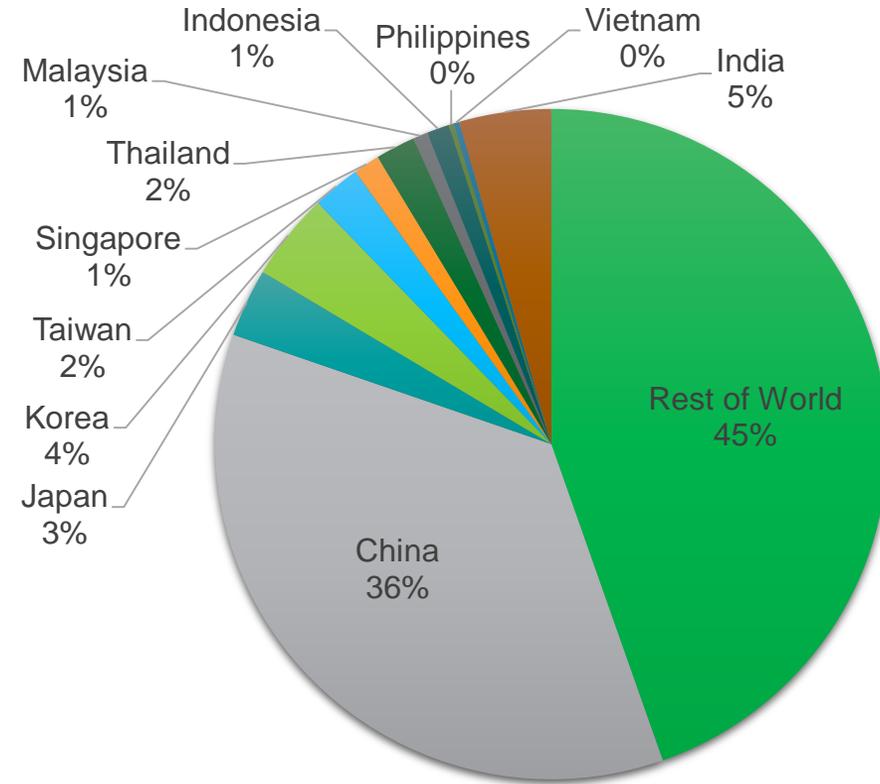
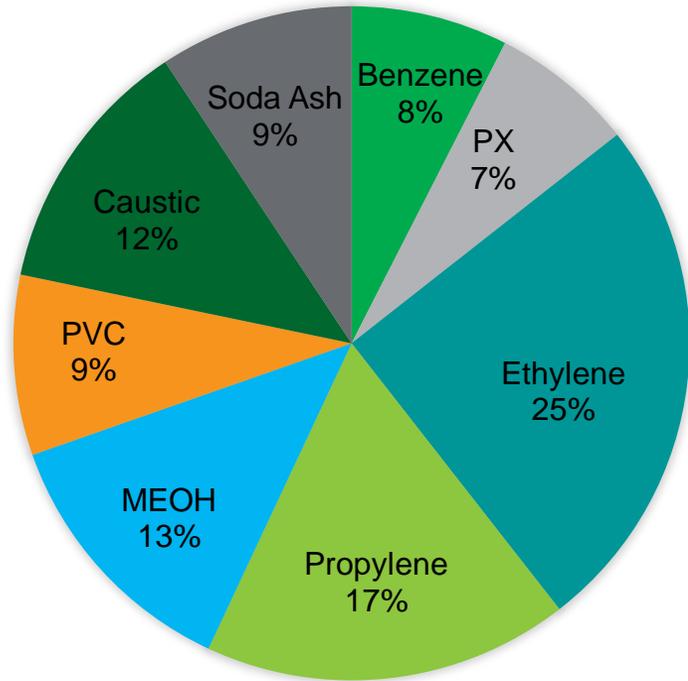
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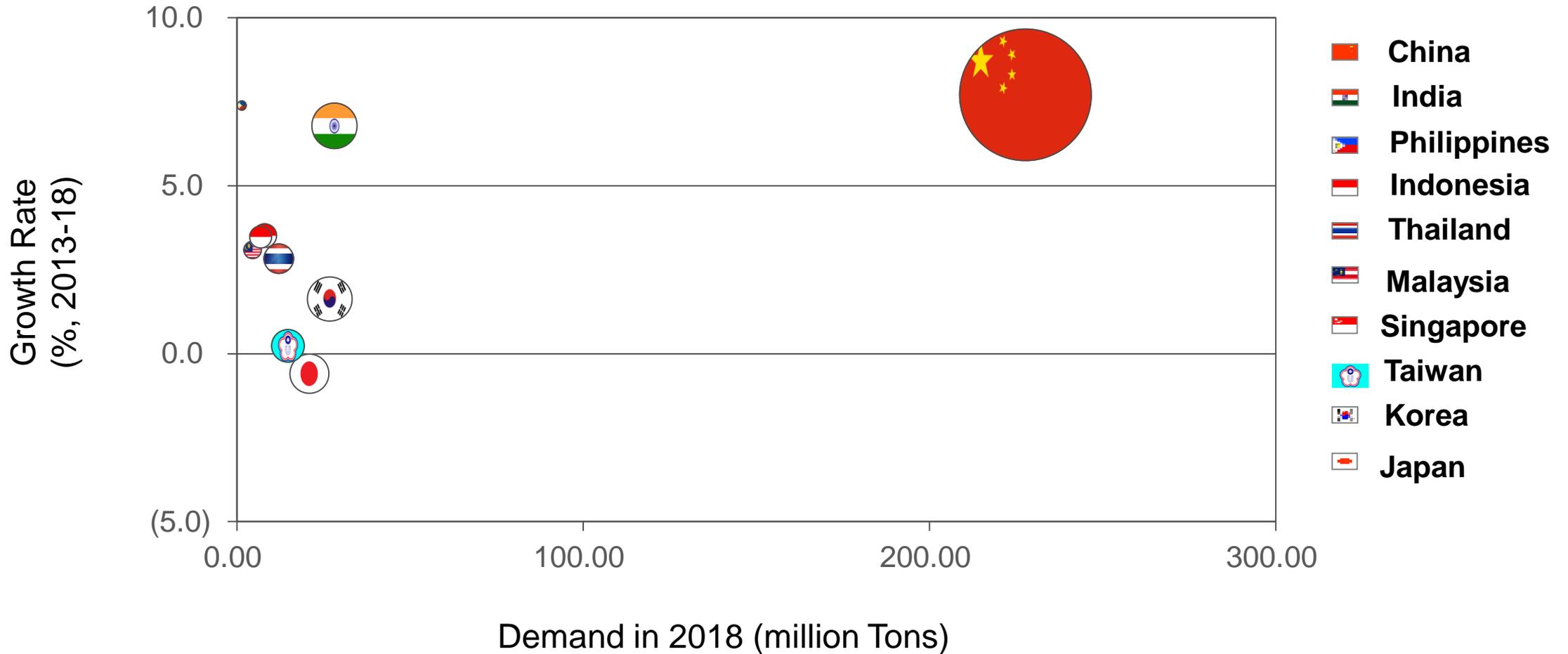
Asia Chemical Industry Overview

Asia is by far the largest market

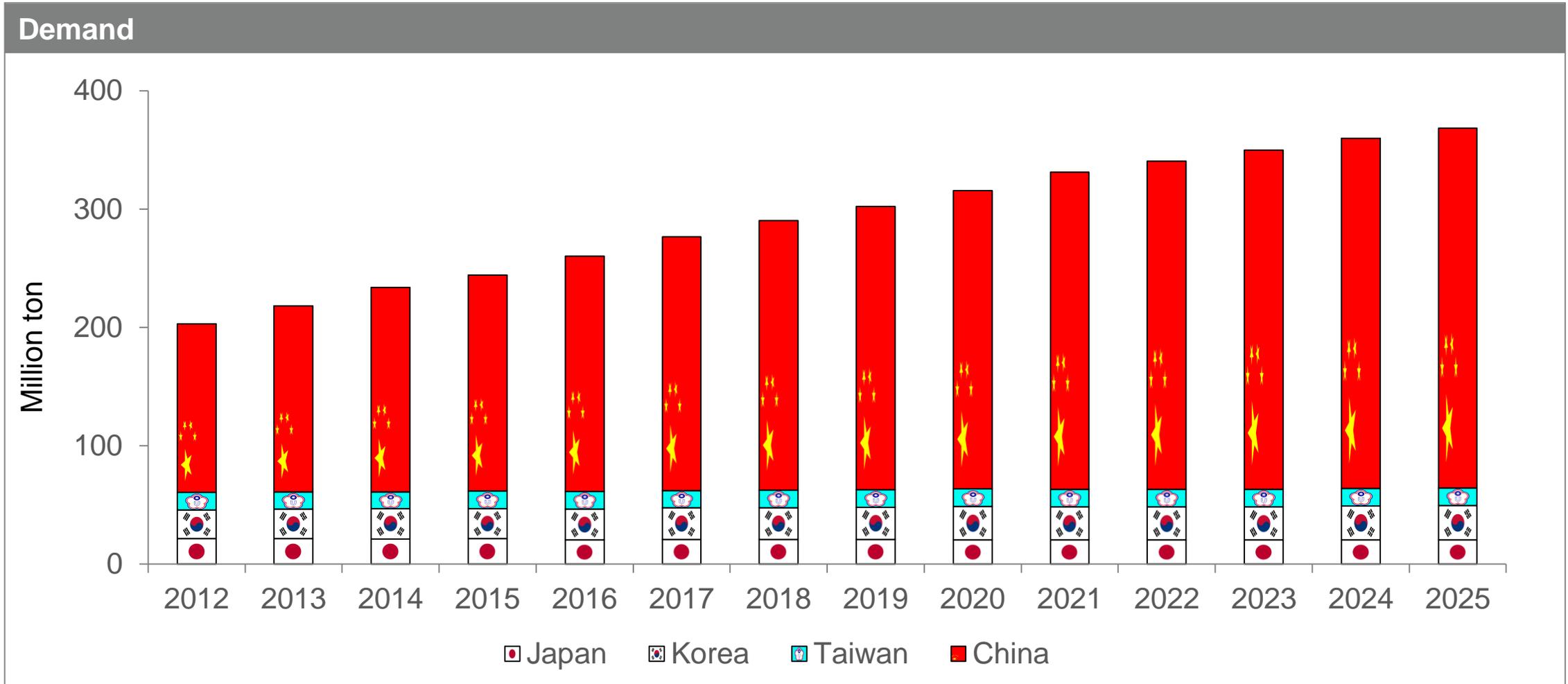
World total demand in 2018 = 639 million tons



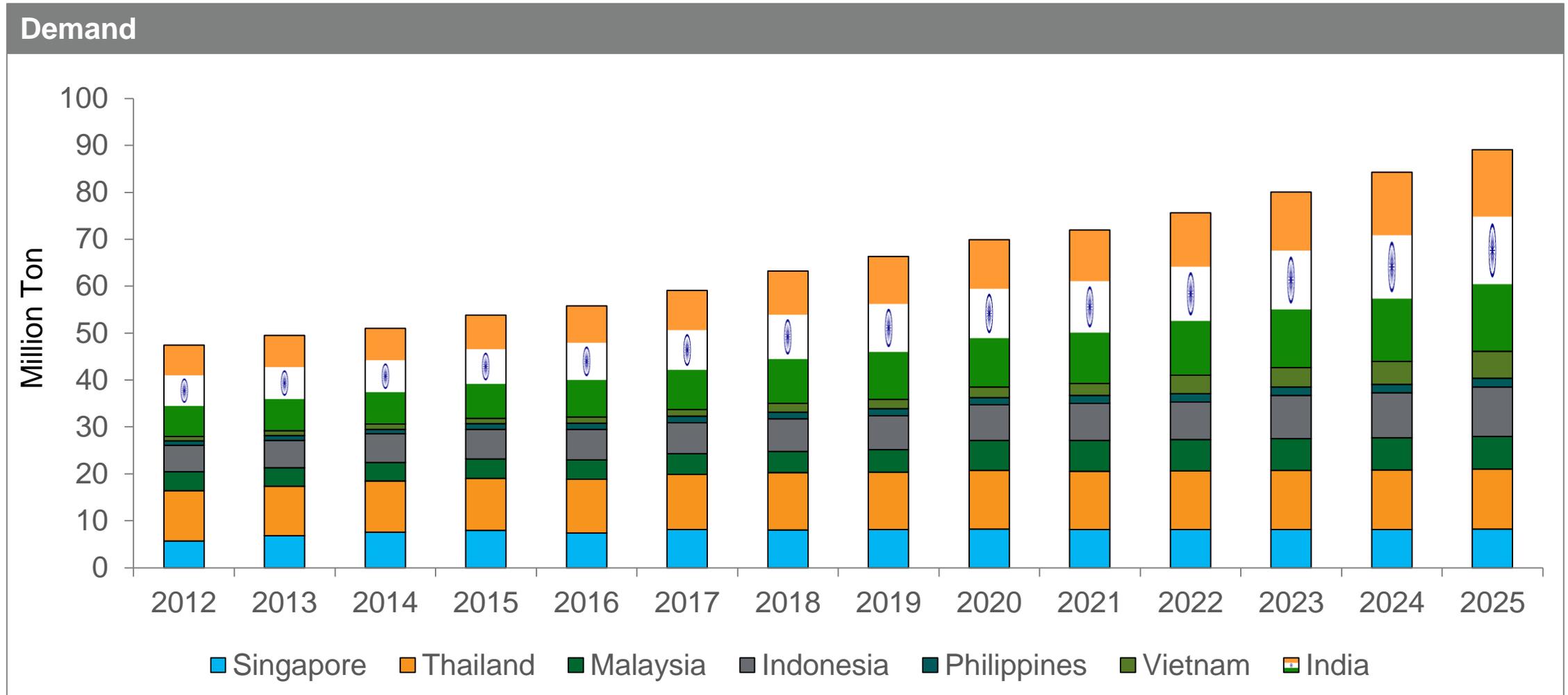
Asia market is a very diversified



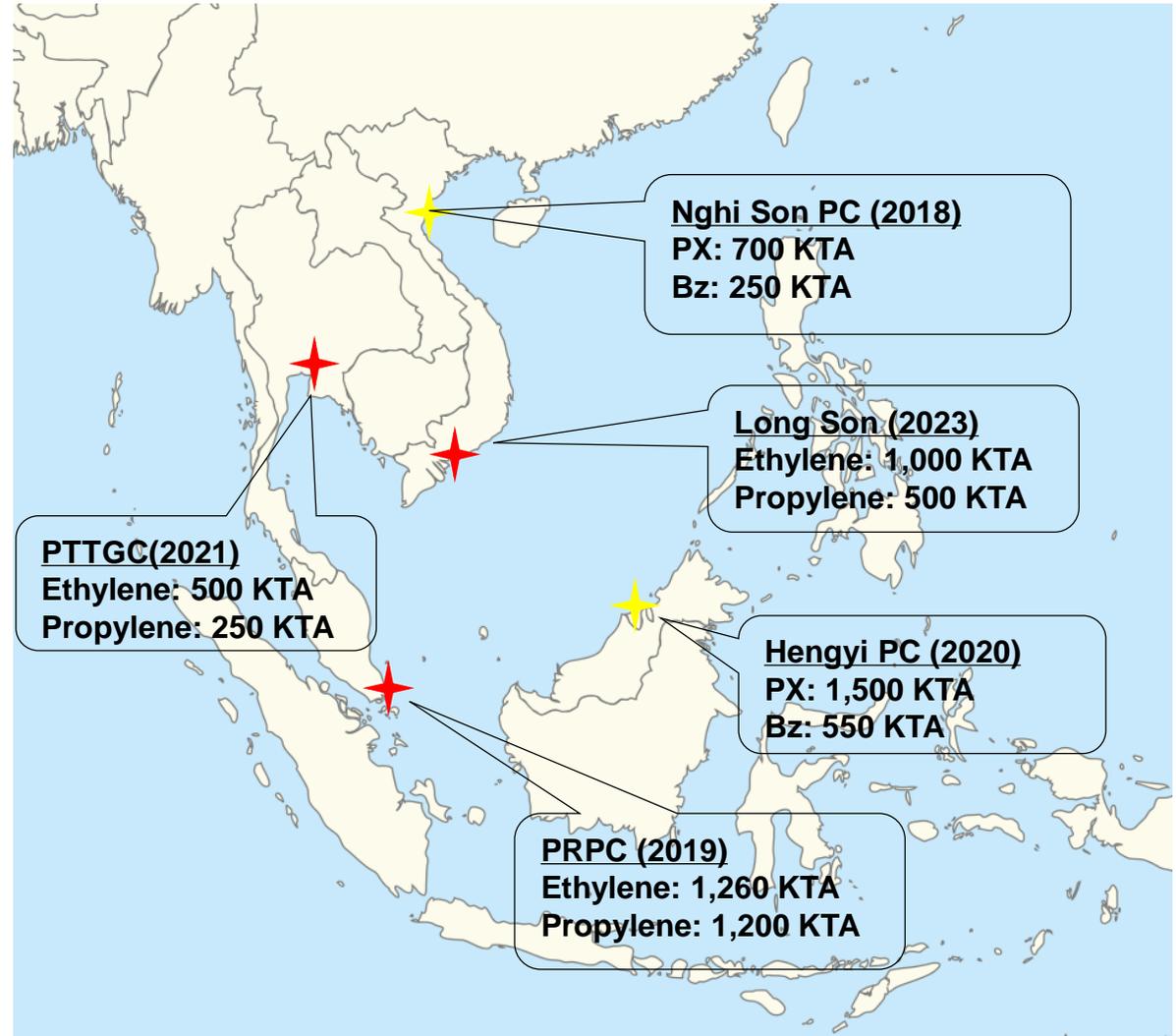
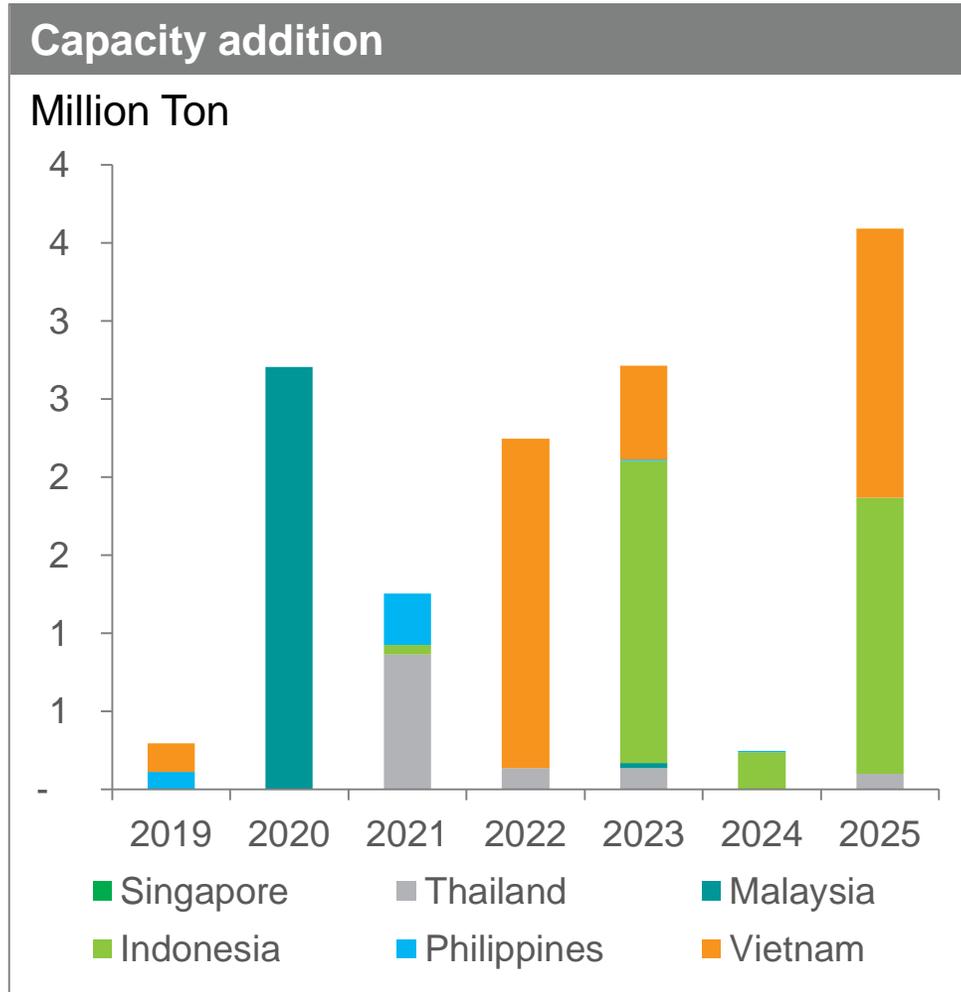
China is the only growing country in Northeast Asia



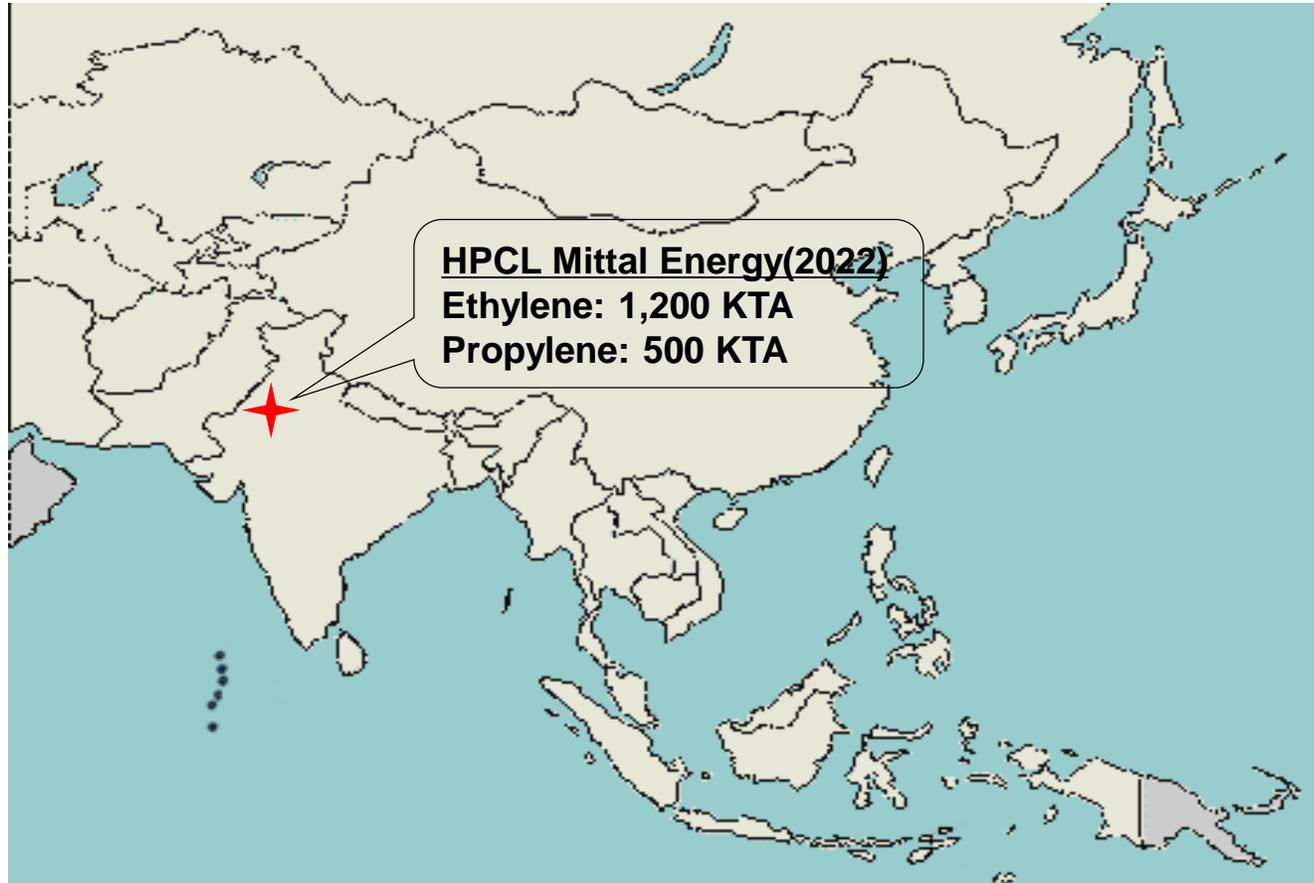
Southeast Asia/India is growing but from a small base



SEA: Multiple projects are constructed or planned

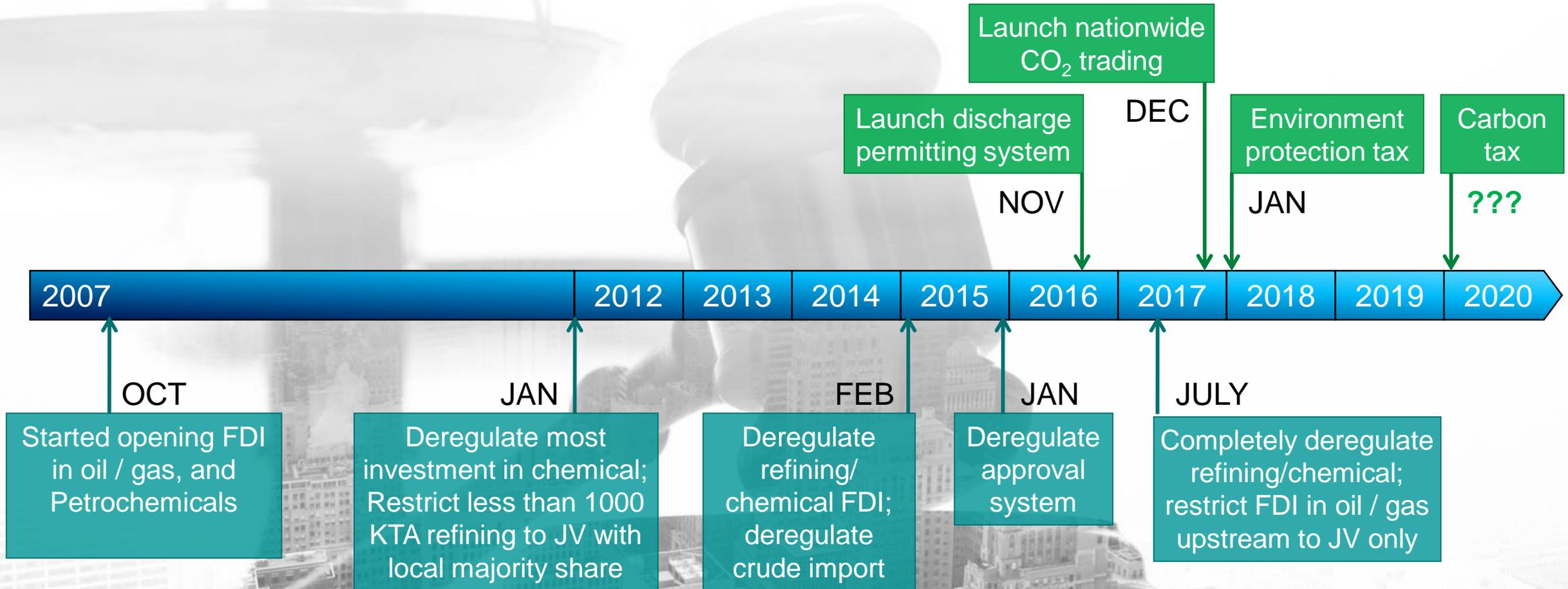


India: quiet but there likely be more projects coming after 2020



China Highlight

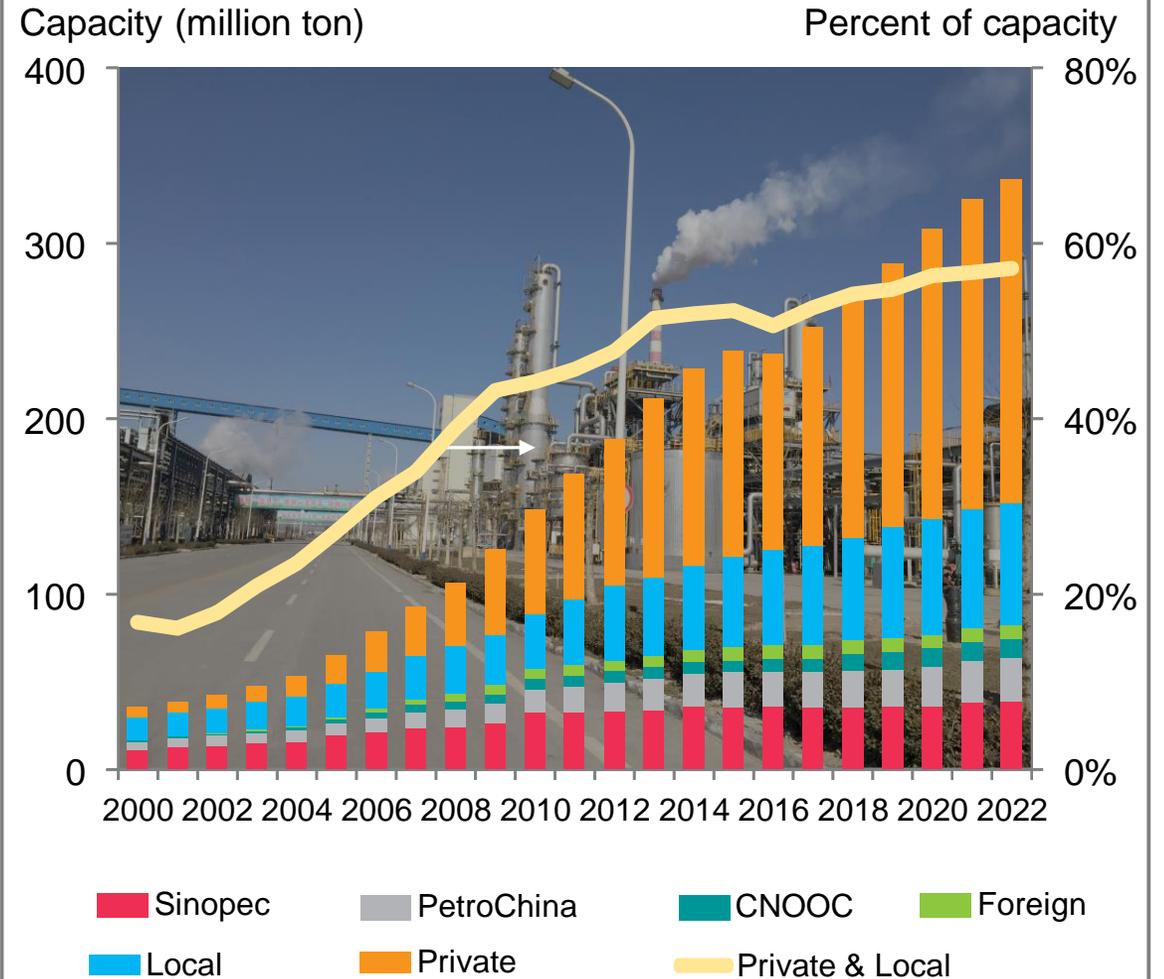
Evolution of policy: opening up but gradual



Private investment is leading the growth

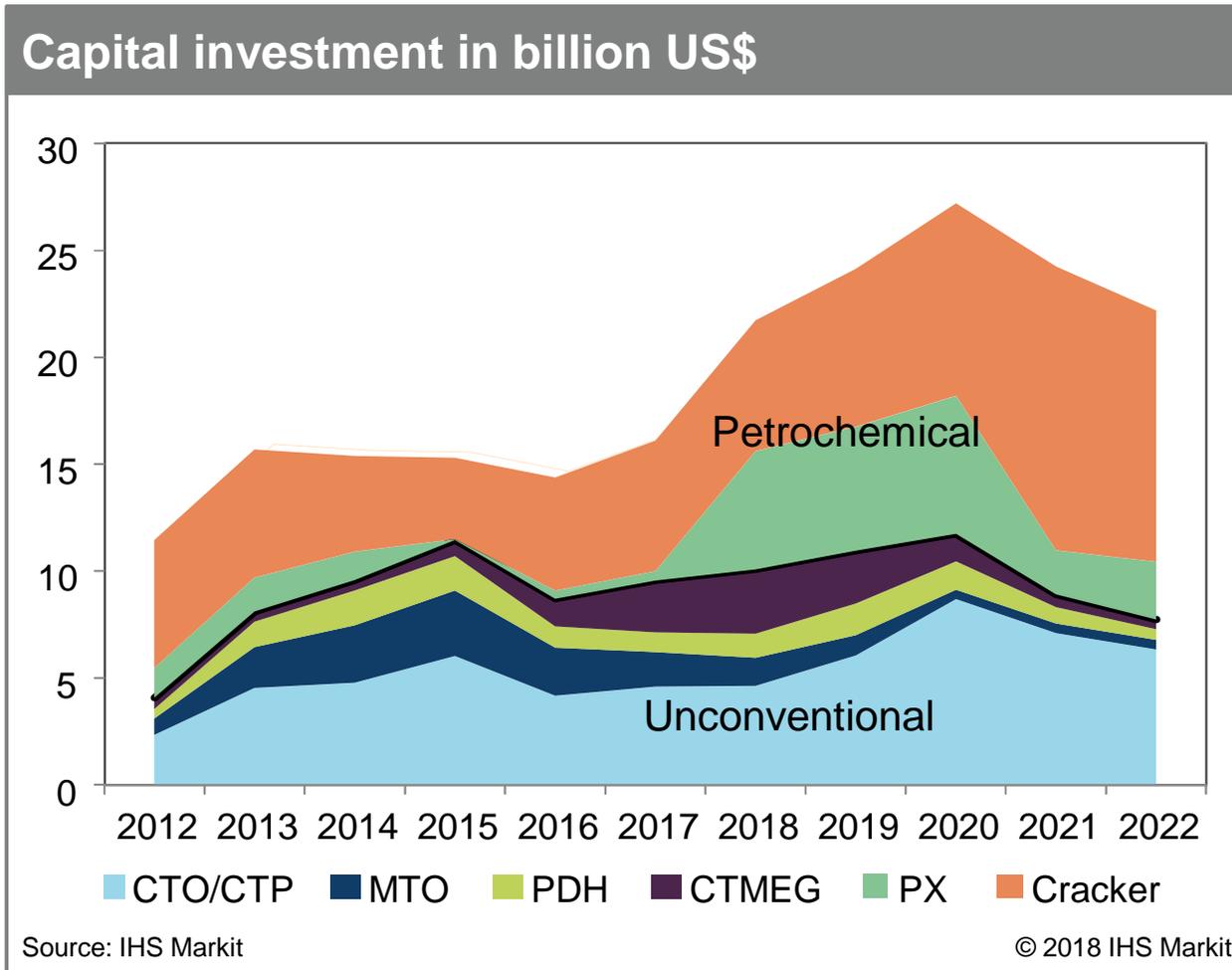
- Policy change paves way for private investment
- Private companies are more nimble and efficient
- Strong entrepreneurship
- Grow big to survive: eat or be eaten

Capacity Comparison between SOEs and Private



Product: olefins, PX, Bz, PTA, MEOH, MEG, Caustic, soda ash

Conventional petrochemical leads growth again

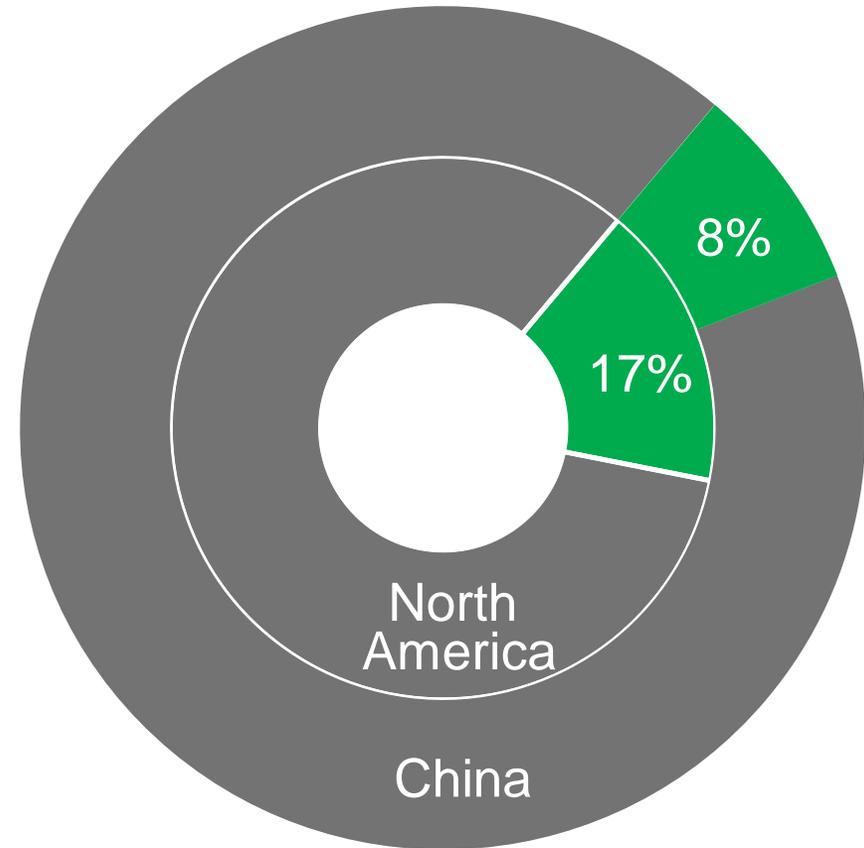


- Coal chemicals
 - High CAPEX
 - High emission
 - Less policy incentives
 - Competitive cash cost
- Conventional
 - High profitability
 - Lowered entry barriers

Commodity versus specialty

- Strong in commodity but weak in specialty
- Short-term focus investment strategy
- Short history in the business
- Insufficient investment into R&D, due to poor IP protection

Commodity and specialty chemicals by value

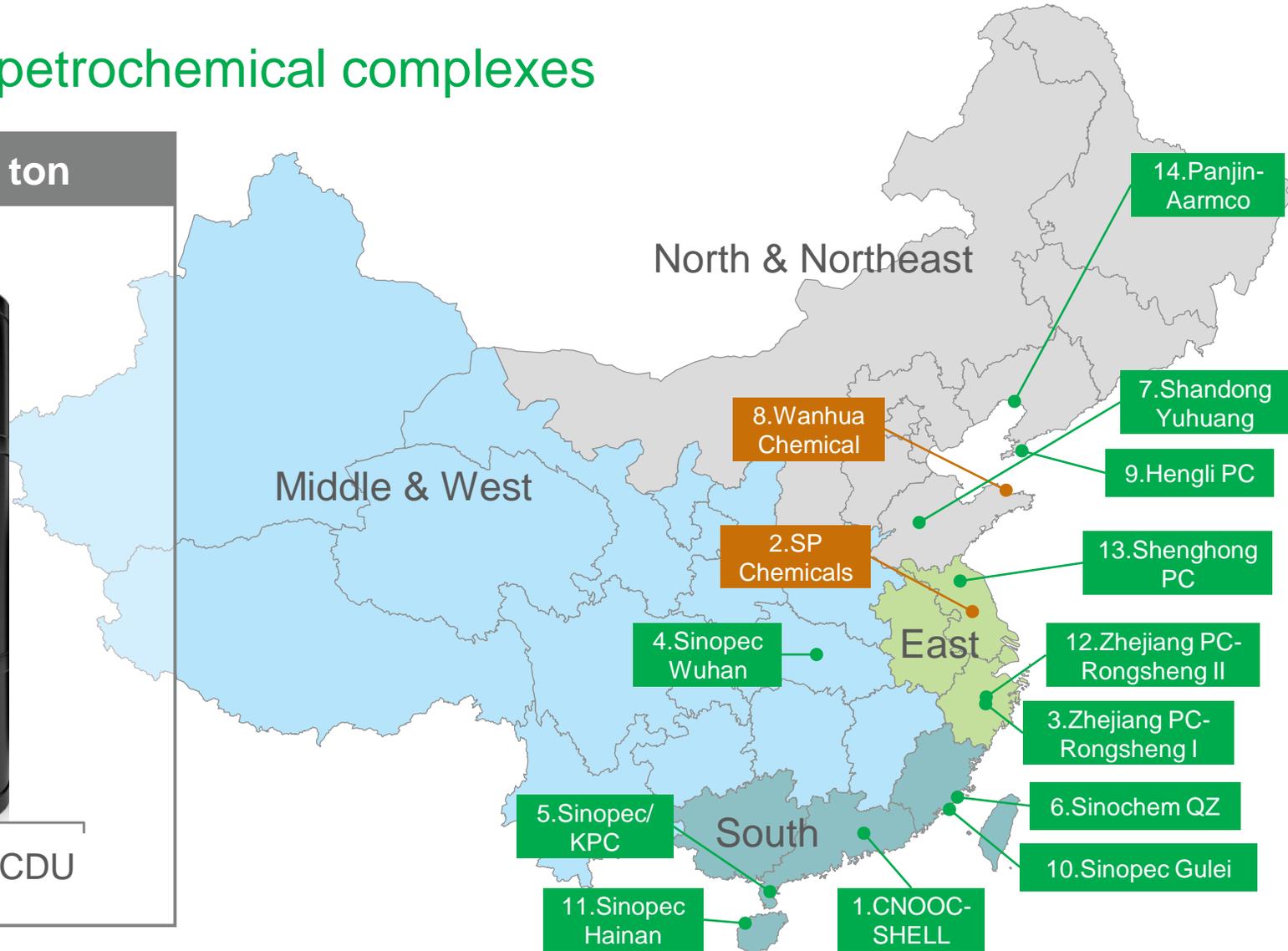
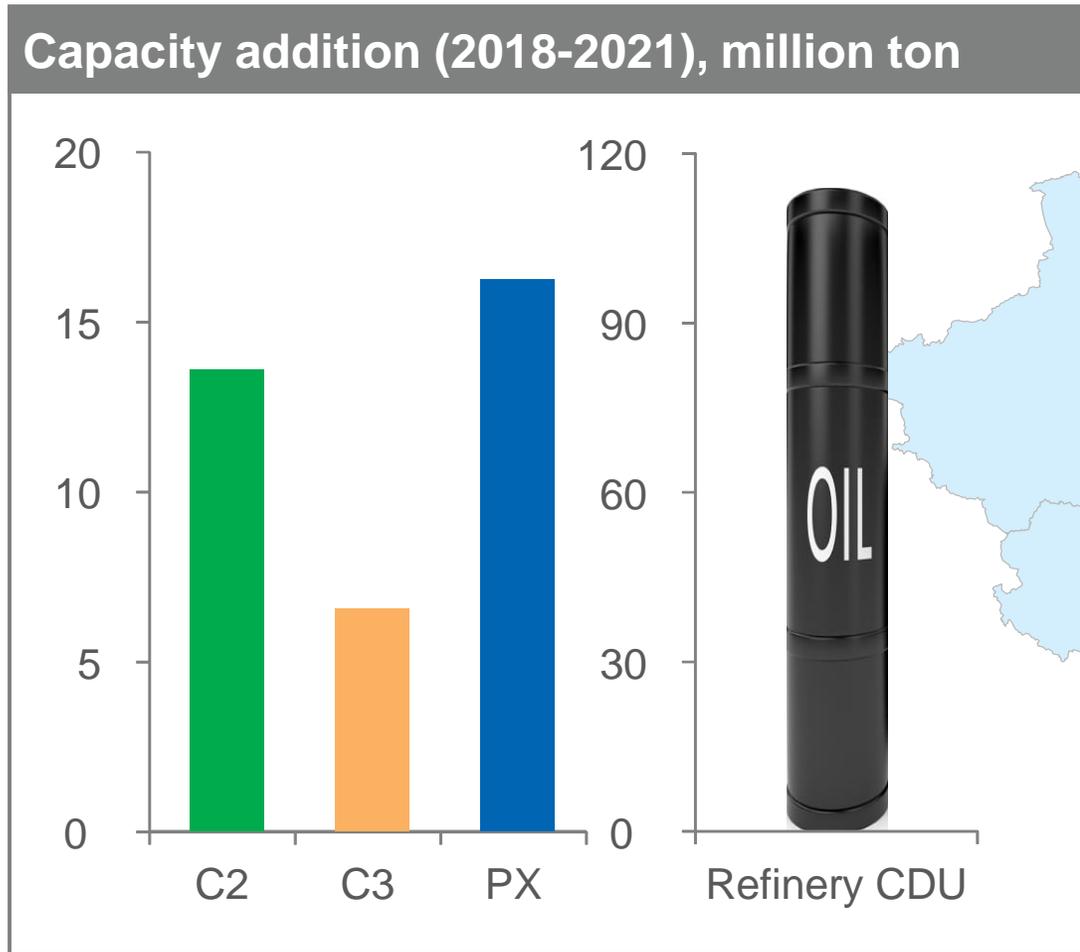


Source: IHS Markit

■ Specialty ■ Commodity

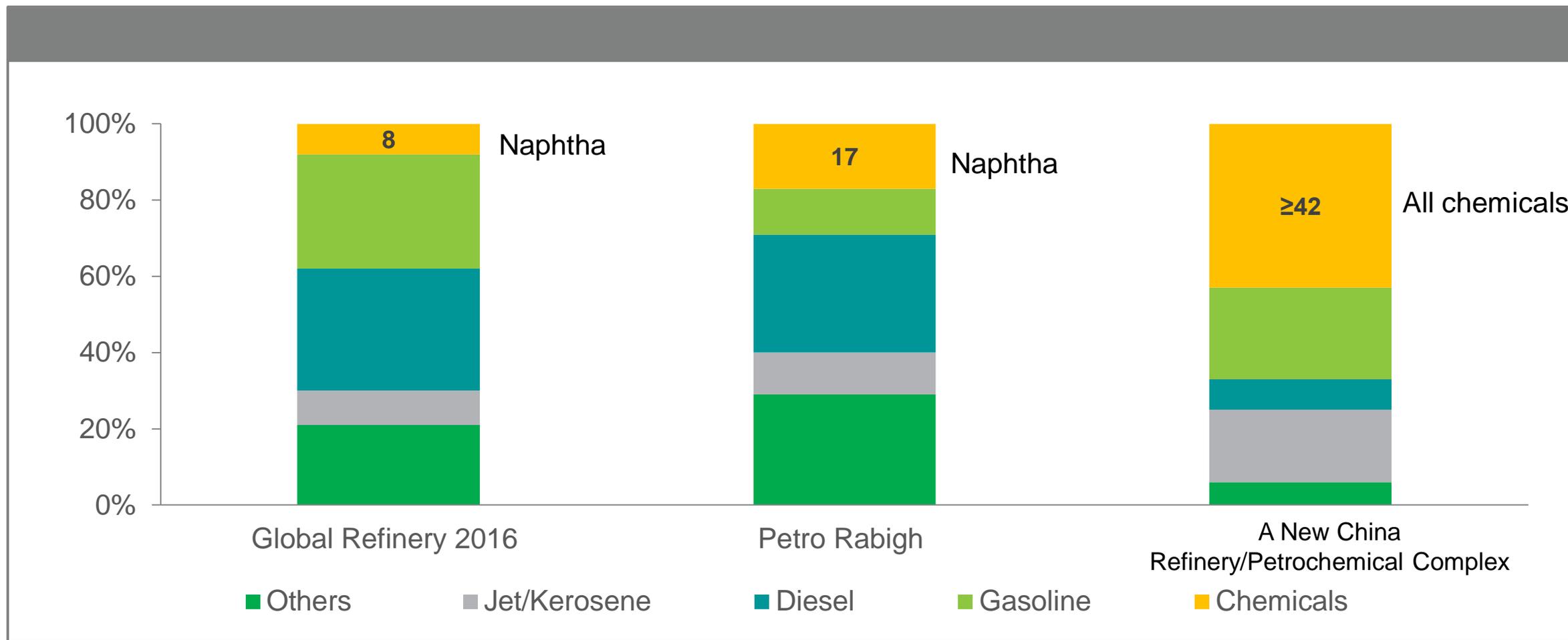
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A wave of integrated refining / petrochemical complexes



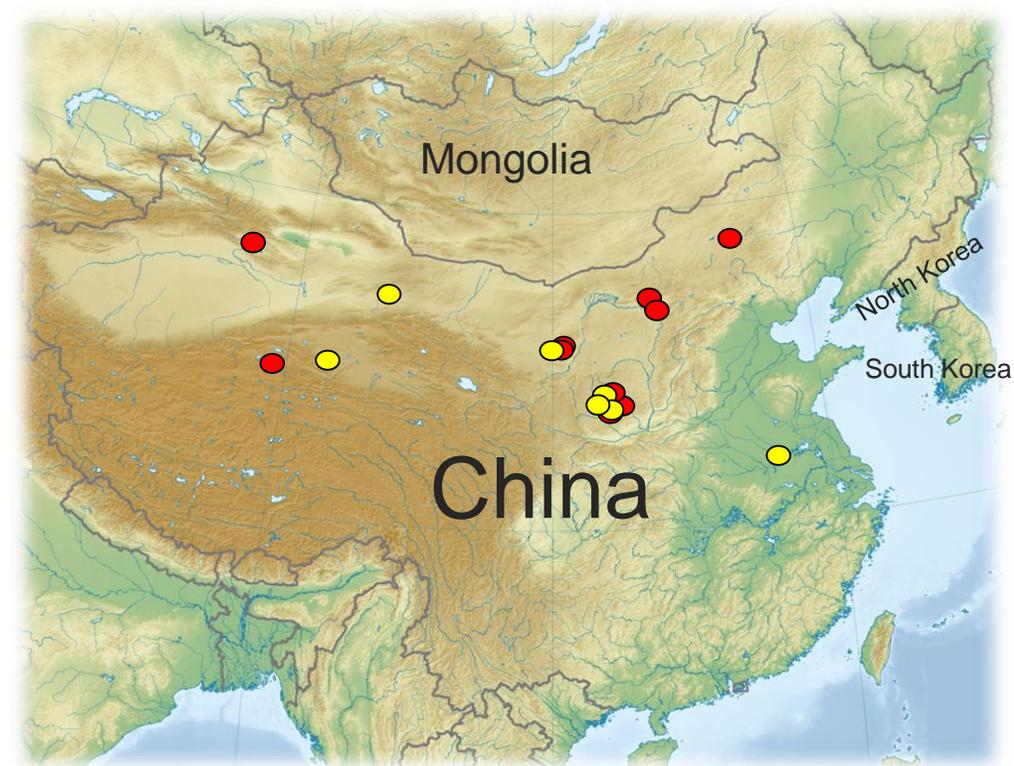
■ Standalone light feed cracker
 ■ Integrated complex

Refinery product yields



CTO projects

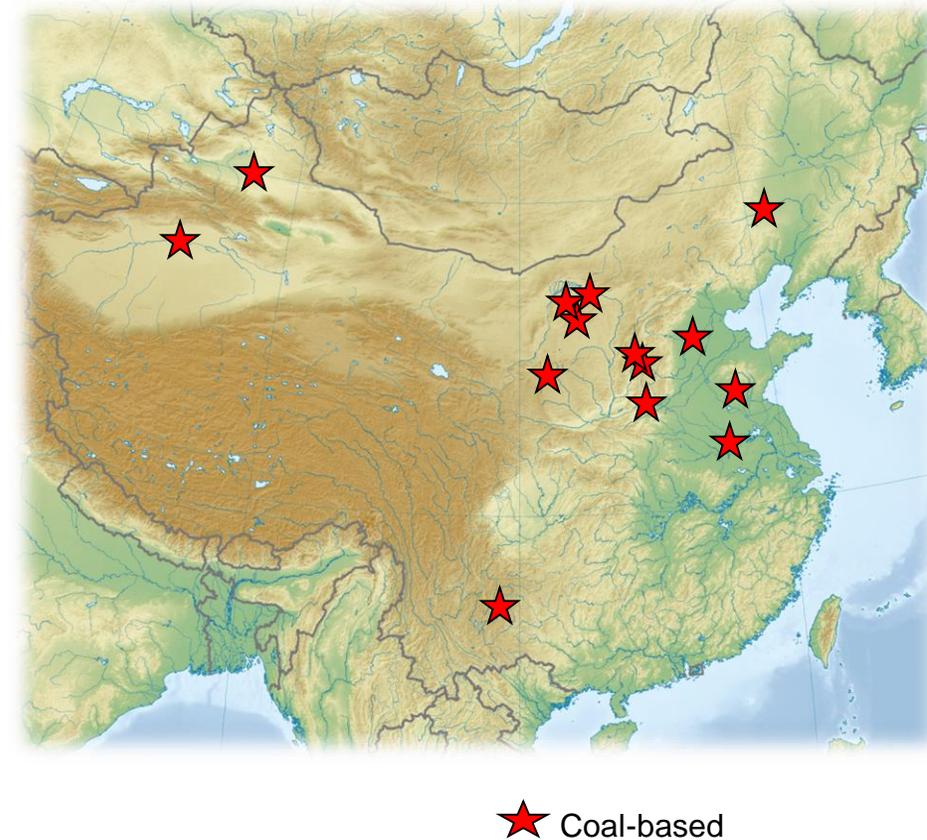
No.	Name	Cap./KTA	Startup	Status
1	SXYCPC-Yan'an E&C	700	Mid-2018	Constructing
2	Huating Coal Group	200	Apr-2018	Constructing
3	Baofeng Energy phase 2	600	Nov-2019	Constructing
4	Zhong'an Coal Chem.	600	Oct-2019	Constructing
5	Shanxi Coking Corp.	600	Apr-2020	Constructing
6	Yulin Energy & Chem.	600	Apr-2020	Constructing
7	Qinghai Damei	600	Mid-2021	Constructing
Total		3,900		
1	Baotou Shenhua	630	Apr-2022	Planning
2	Qinghai Mining	670	Mid-2022	Planning
3	Sinopec Zhijin	600	2022	Planning
4	Shenhua Ningmei&SABIC	700	Jul-2023	Planning
5	China Coal Yuheng	600	Mid-2023	Planning
6	CPI/Total JV	890	2024	Planning
7	Sinopec Hebi	600	2024	Planning
Total		4,690		



- In operation
- Under construction

A wave of CTMEG projects is coming

Existing CTMEG capacity		2,075 KTA	
		Capacity KTA	On stream
1	CNSG Hong Si Fang	300	2018
2	ECO Coal Chemical	240	2018
3	Jiutai	100	2018
4	Yongjin Xinxiang	200	2018
5	Xinjiang Tianye	100	2018
6	Xinhang Energy	100	2018
7	Xinjiang Tianying	150	2018
8	Qianxi	300	2018
9	Hualu Hengsheng	500	2019
10	Huiteng Energy	400	2019
11	Xiangkuang Hongtong	200	2019
12	Binzhou Chem	300	2019
13	Connel	300	2019
14	Xinjiang Tianye	600	2020
Total		3,790	
Planned capacity		> 5,000 KTA	



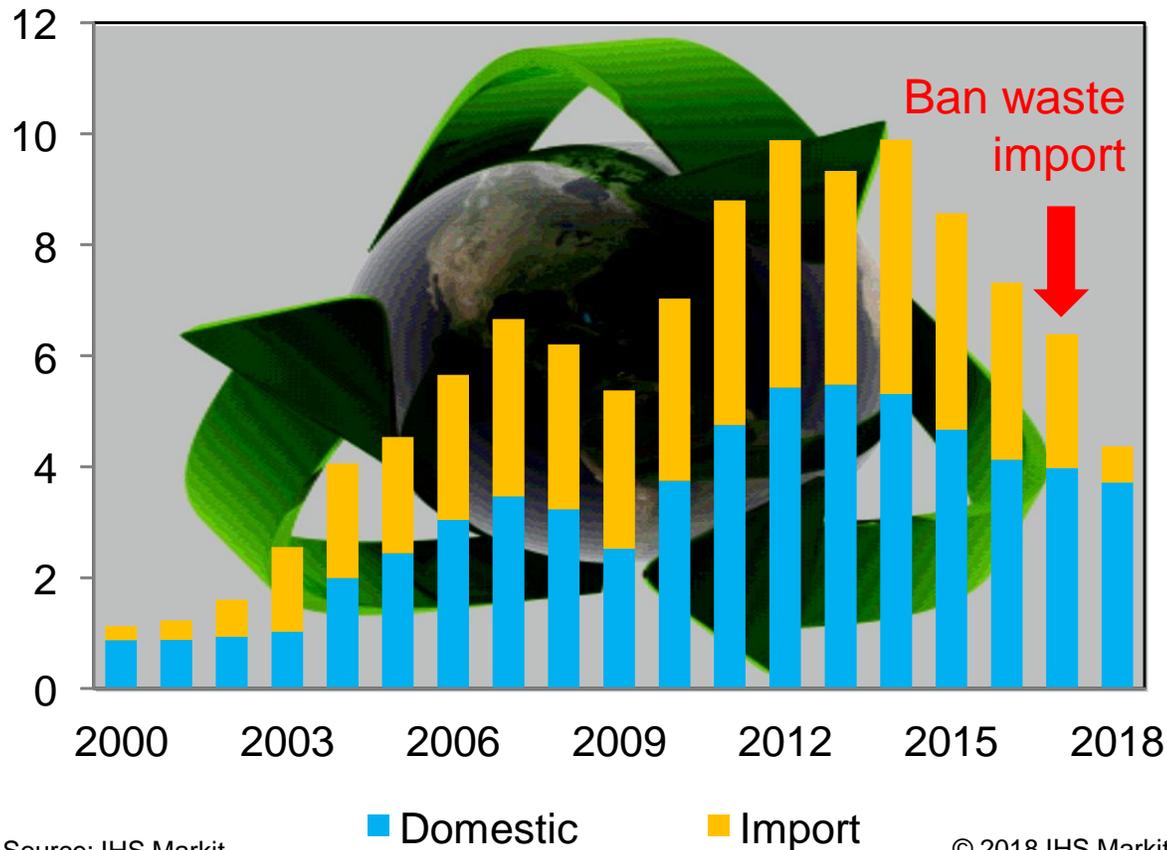
Pollution issue: too serious to be ignored further

- Nation-wide carbon trading
- “Gas for coal” in “2+26” regions
- Enforcement of new regulations
- Ban on waste imports



Ban on waste import: a big impact in recycling materials

China recycled PE/PP consumption, million ton



Source: IHS Markit

■ Domestic

■ Import

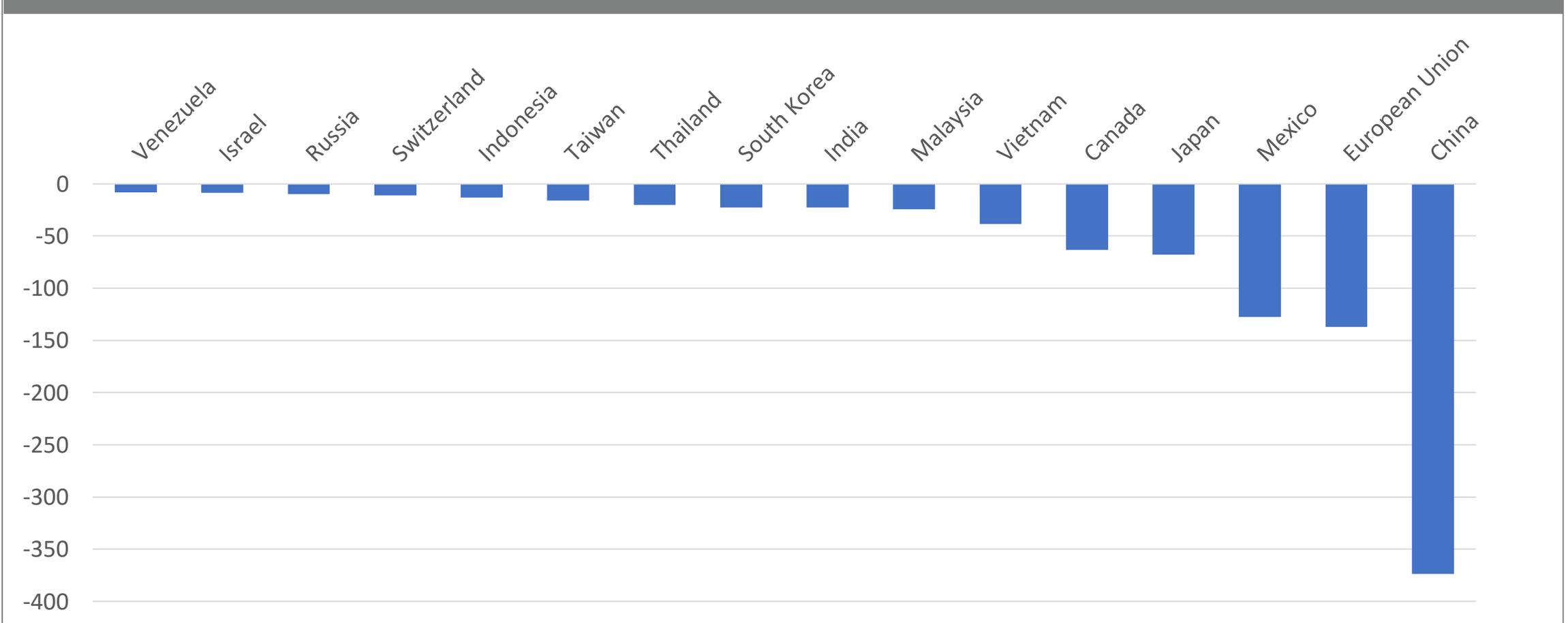
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Trade Friction between China & America

The U.S. has trade deficit with many countries

US merchandise trade balance with selected countries, 2017



China and U.S. trade balance

	China		America	
	Bil. USD	% GDP	Bil. USD	% GDP
GDP	12,217		19,391	
Commodity export	2,280	18.7	1,546	8.0
Commodity import	1,832	15.0	2,343	12.1
Net export	448	3.7	-797	-4.1
Export to US/China	434	3.6	130	0.7

Date sources: Trade data from IMF, GDP data from IHS Markit

Note: Corresponding export and import data between trading partners are frequently inconsistent in the IMF Direction of Trade database, due to “difference in 1) classification concepts and detail, 2) time of recording, 3) valuation, and 4) coverage, as well as 5) processing errors”.

Source: <http://datahelp.imf.org/knowledgebase/articles/484353-why-do-the-exports-of-country-a-to-country-b-not-e>

The impact of trade friction to China

- The direct impact from current tariffs is insignificant.
- However, unpredictability and hostile stand of Trump post a risk of further escalation.
- Escalated trade war will not only impact China, but also these countries in the supply chains.
- In the worst case, China may retaliate with other measures beyond tariff.
- There is a high probability that both countries will make compromises to come to a resolution.

Key takeaway

- Strong margins supporting acceleration in new capacity additions.
- Asia chemical industry is very diversified, and continues to be the fastest growing region.
- China will continue driving global demand and capacity expansion.
- Threats to the positive outlook include escalating protectionist trade rhetoric, geo-politics, rising energy costs....

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