



IHS Markit™

After Rain Comes Sunshine, and Storm Awaits after Calm

Is the Next Tide Turner for Styrene Coming?

May 2017

Alan Lu

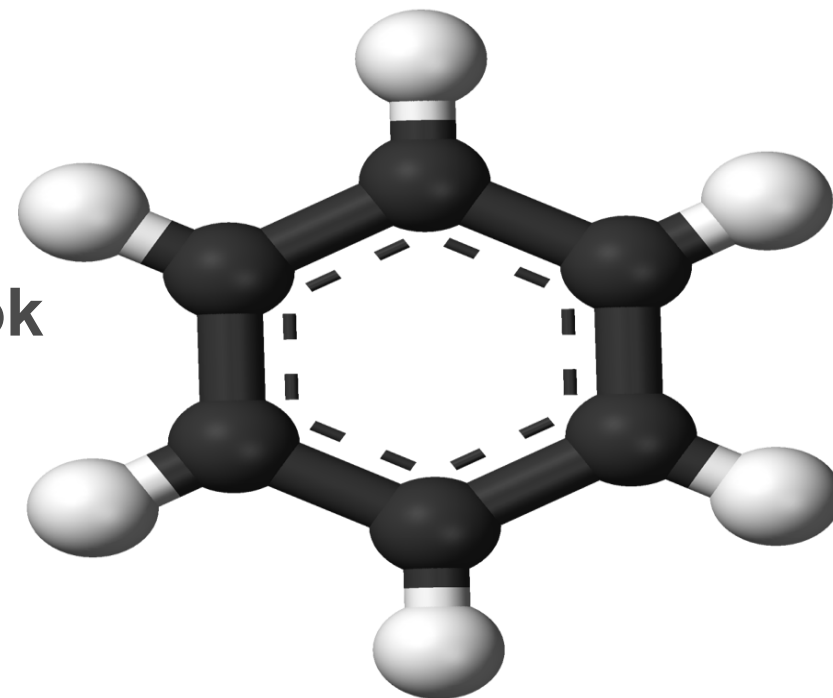
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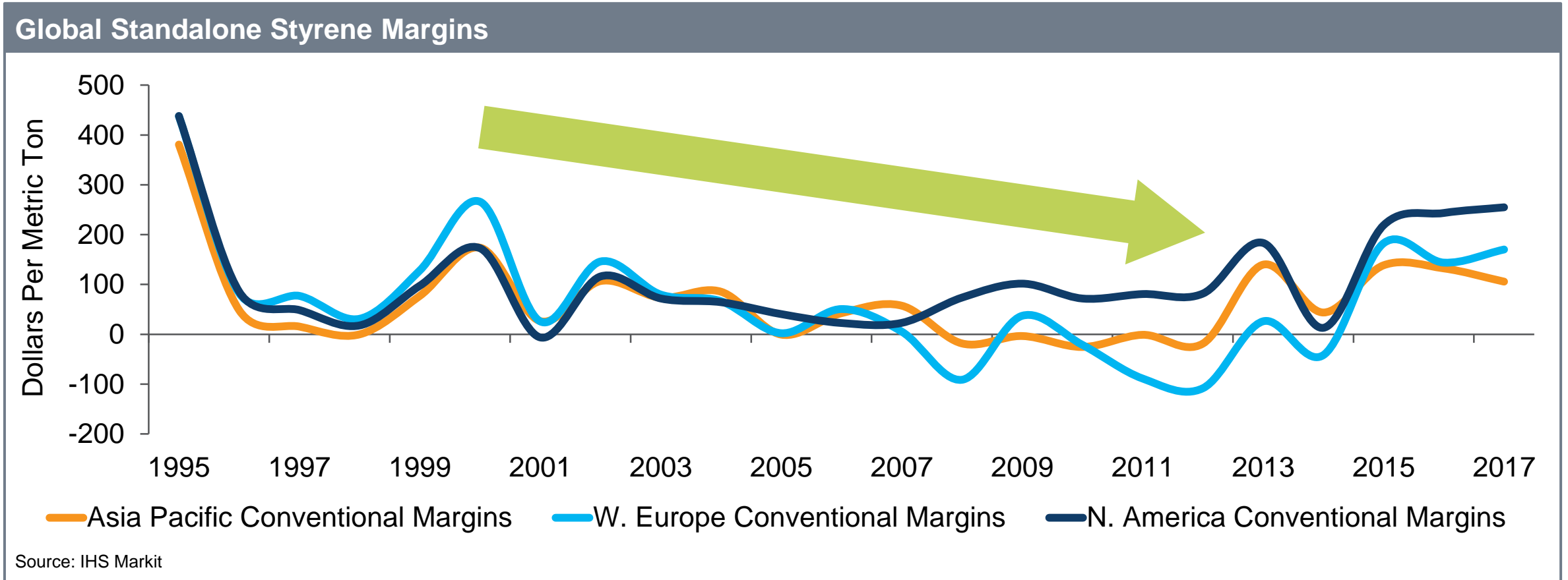
Alan.Lu@ihsmarkit.com

Agenda

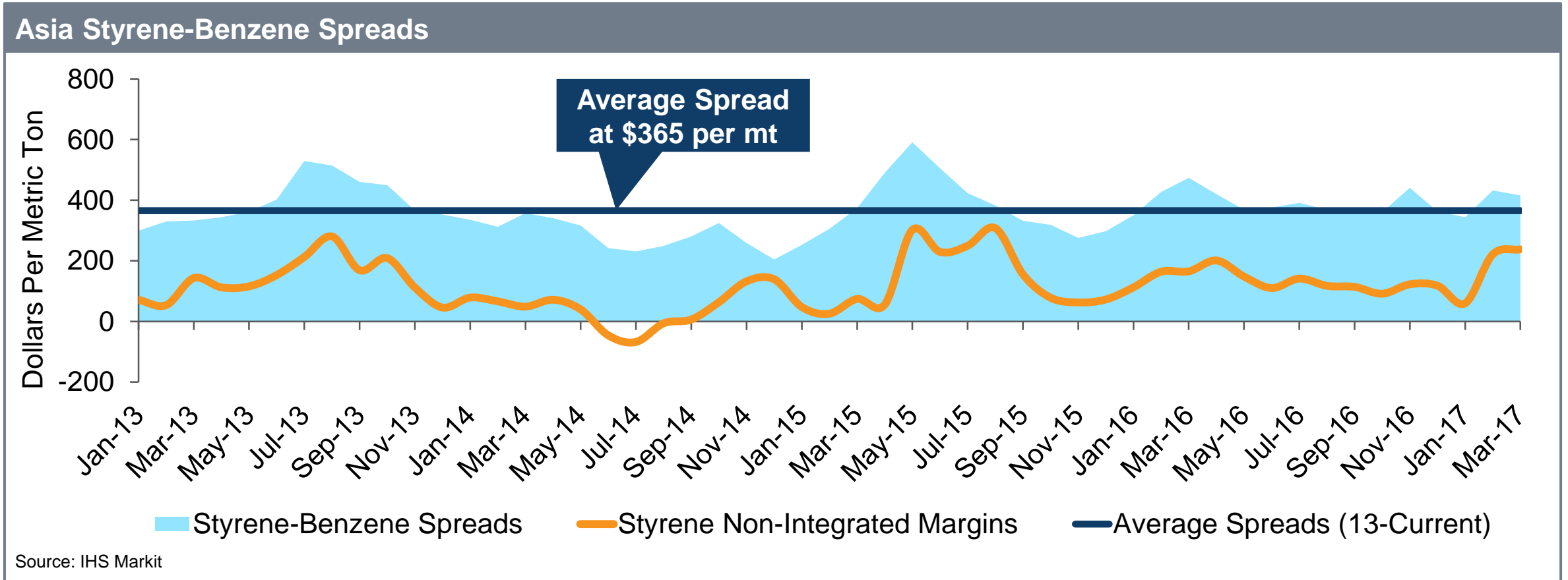
- **1 What brings the return of margin**
- **2 How China will change the future supply outlook**
- **3 Trends in the downstream markets**
- **4 Strategic implications**



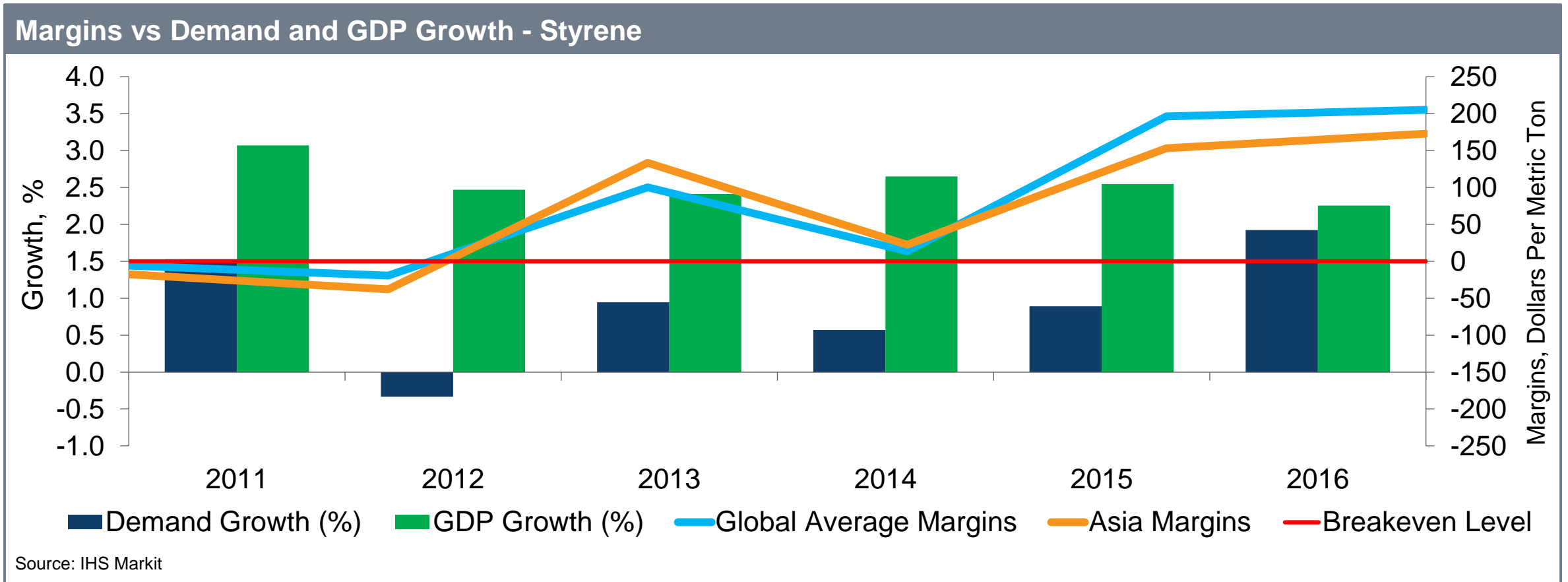
Historically, Styrene Margins Have Been Squeezed....



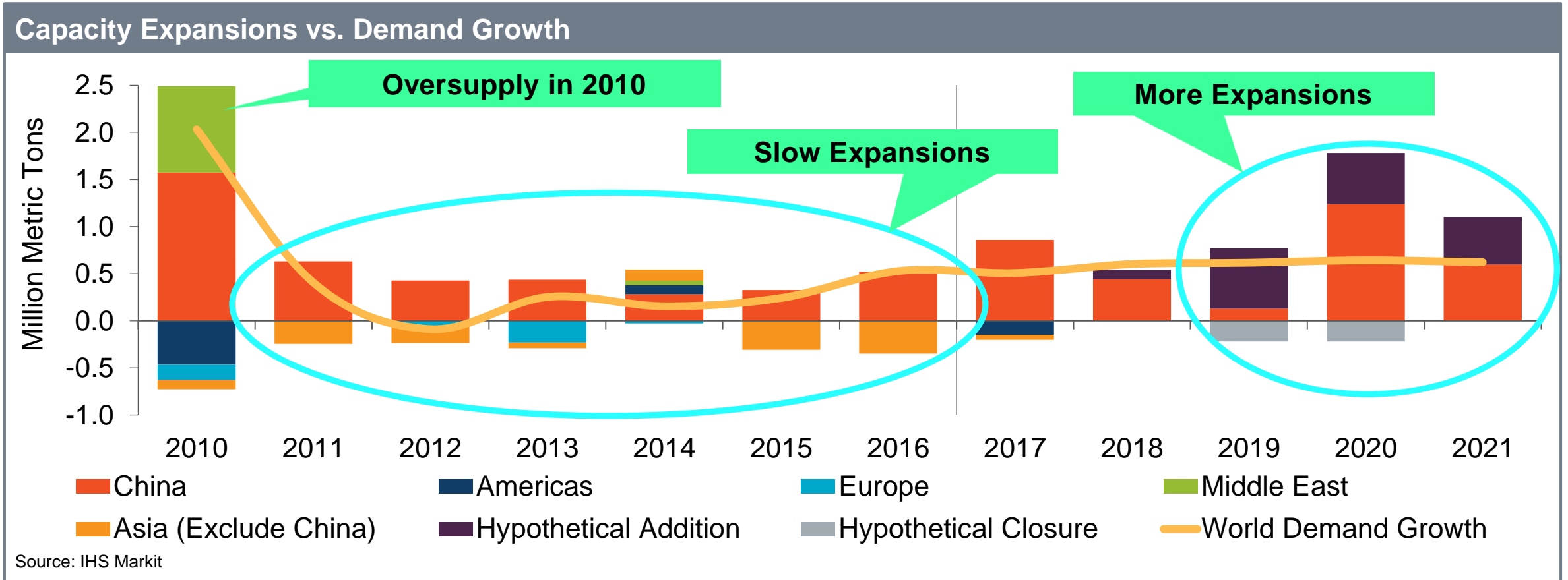
.... But Recently There Has Been a Change



Styrene Margins Have Been Improving Despite Poor Demand Growth...

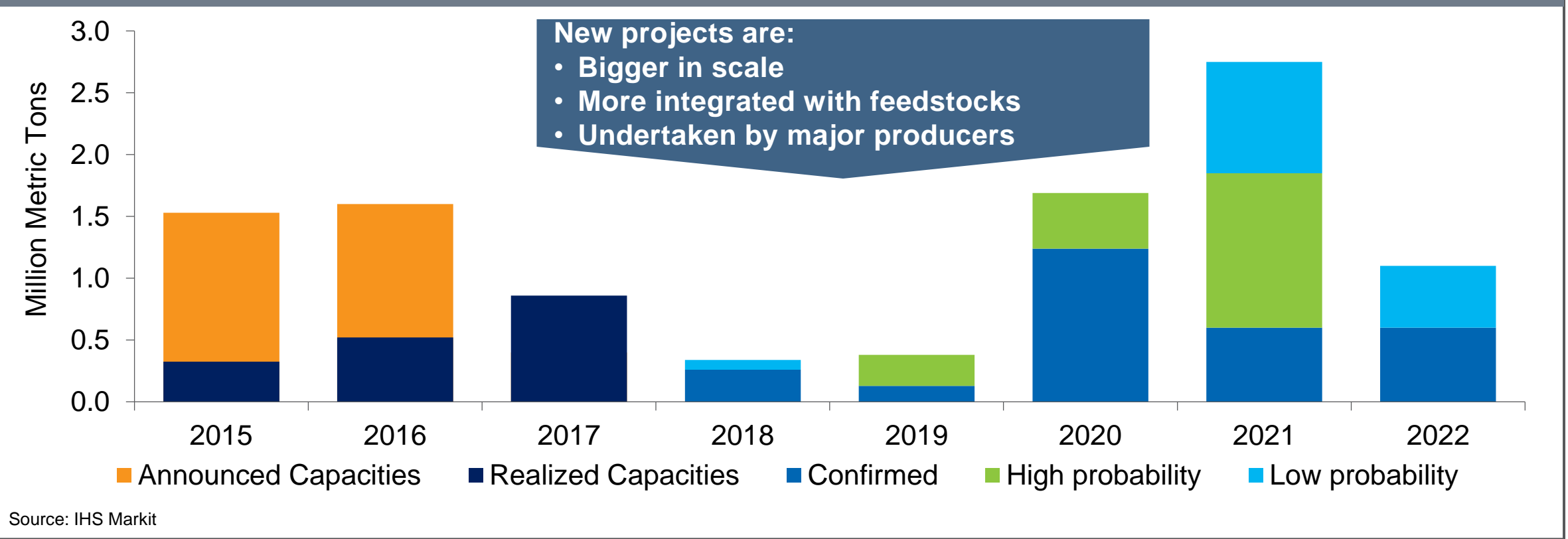


Styrene Market Has Rebalanced with Slower Expansions

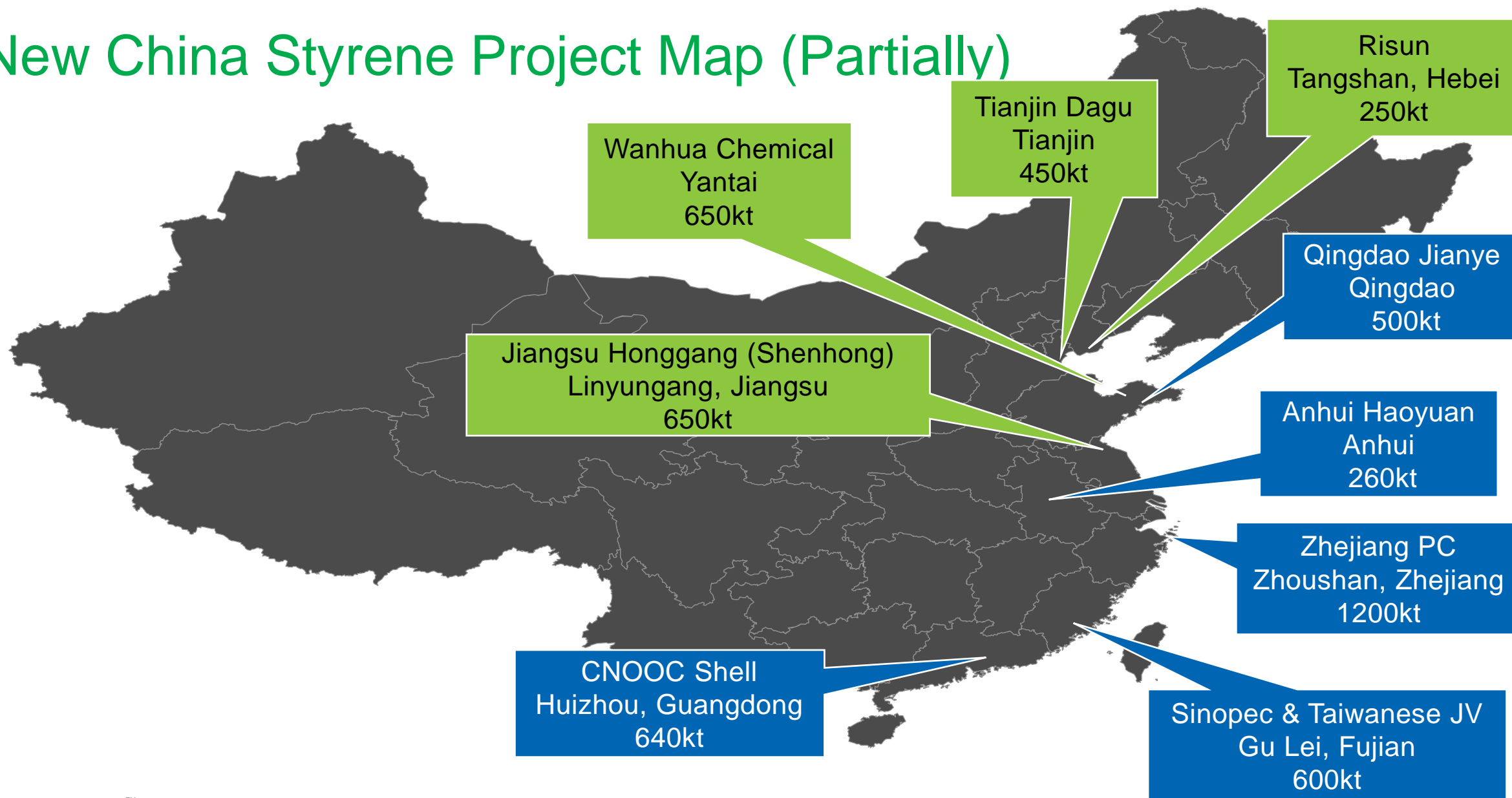


Not All Capacities Announced in 2013 in China Have Been realized, But...

Announced vs. Realized Capacities in China

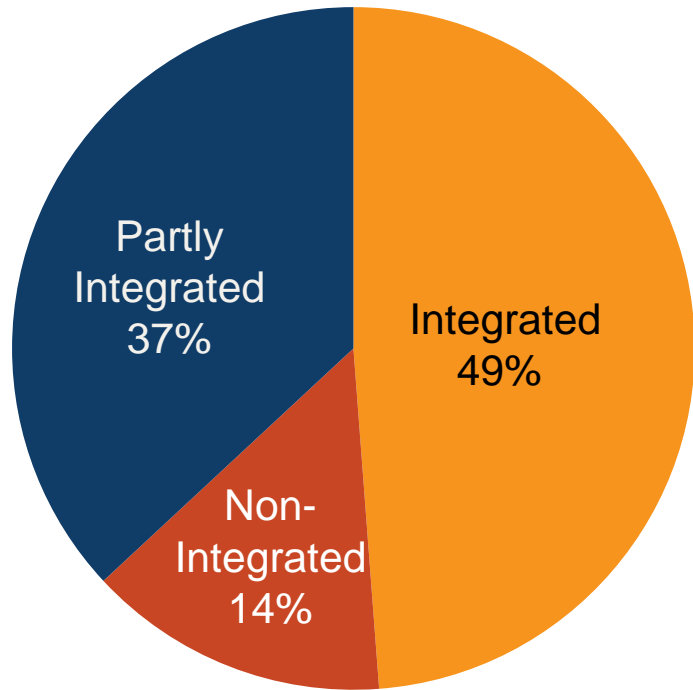


New China Styrene Project Map (Partially)



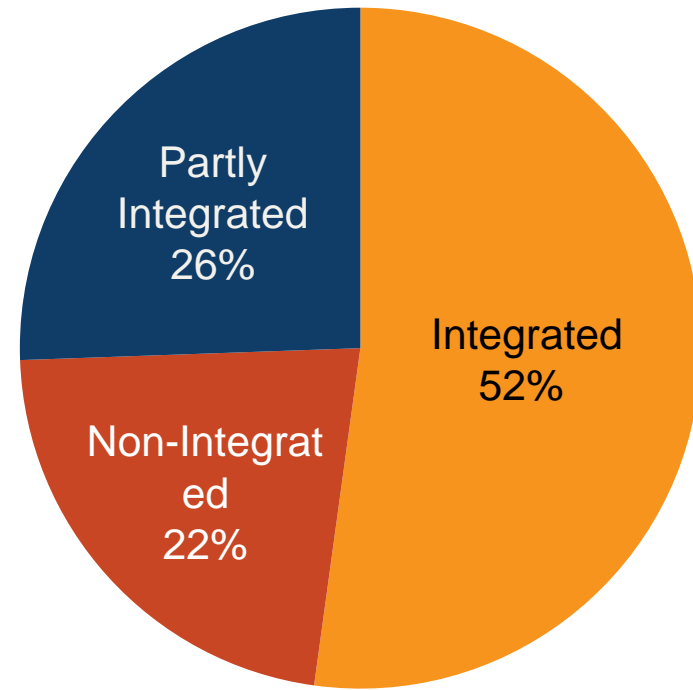
China Market Less Integrated...

Asia ex China Upstream Styrene Integration - 2016



Source: IHS Markit

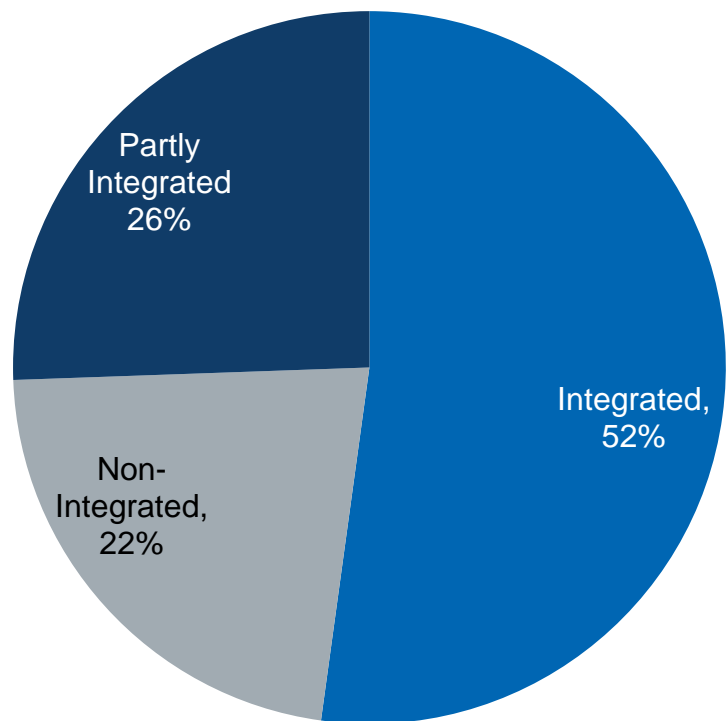
China Upstream Styrene Integration - 2016



Source: IHS Markit

Integration Shall Improve in China

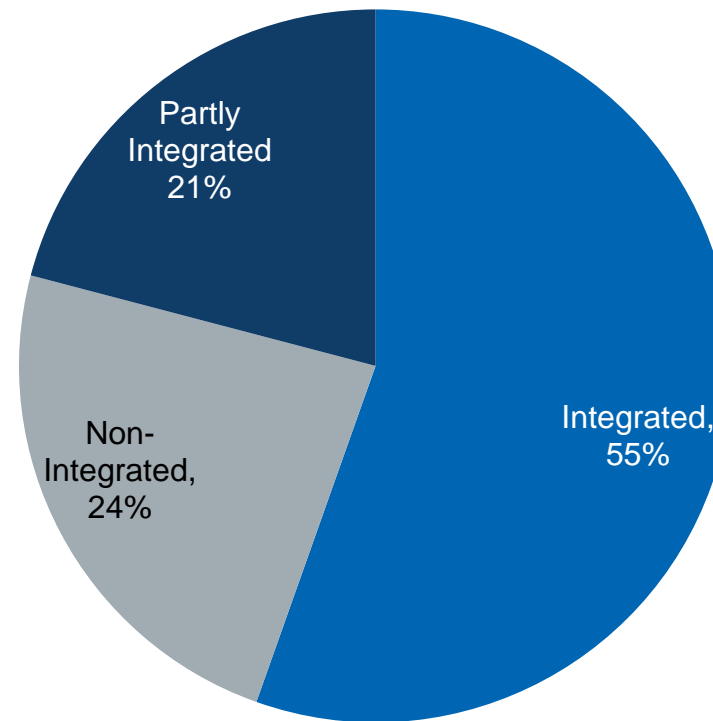
China Upstream Styrene Integration - 2016



Source: IHS

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China Upstream Styrene Integration - 2021

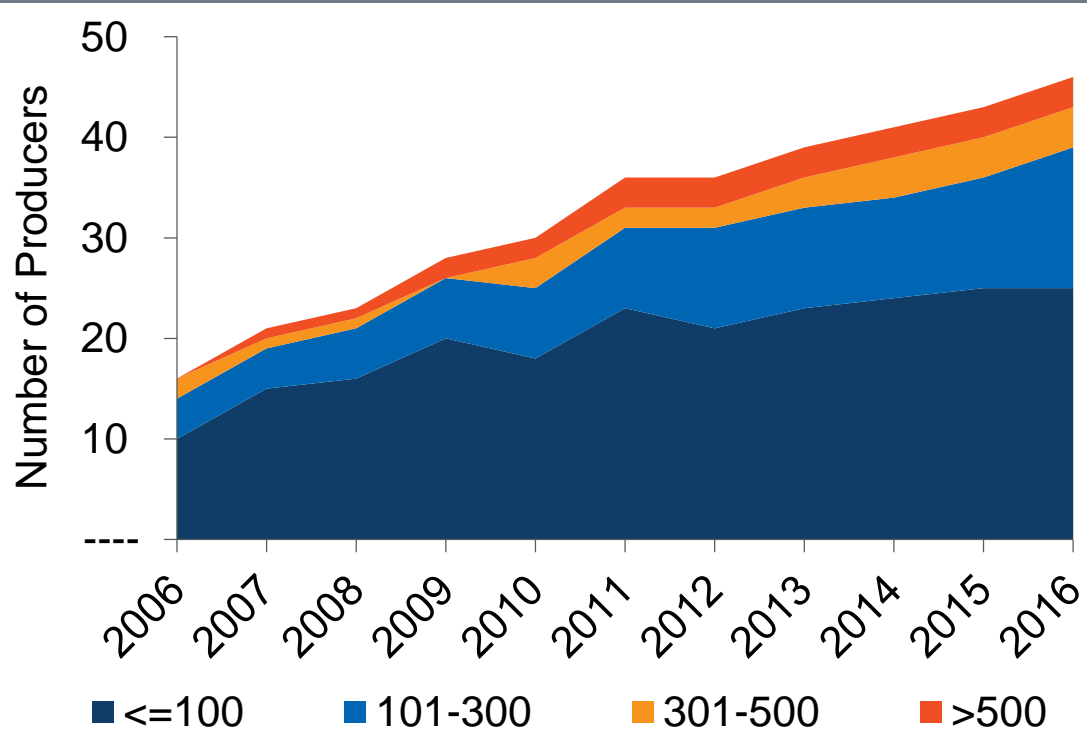


Source: IHS

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China Has Many Small Units Dragging Operating Rate Lower

Number of Chinese Producers by Scale (KiloTons)



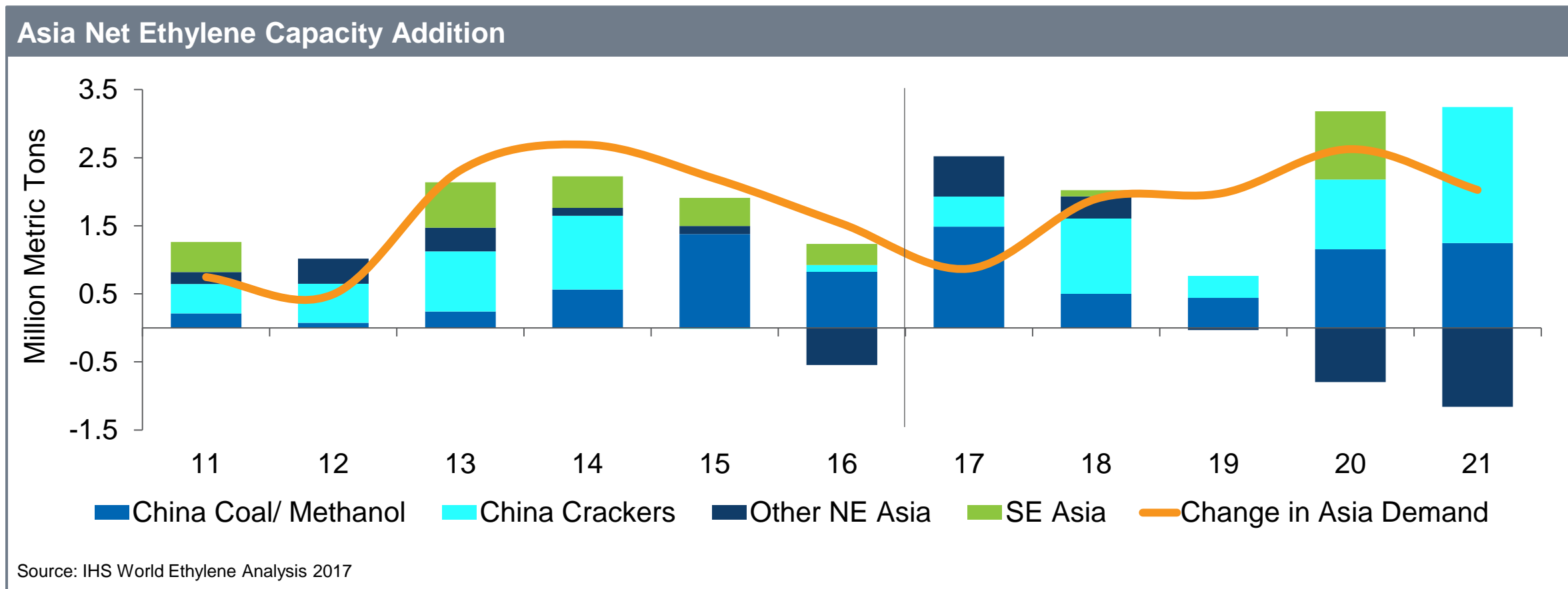
Source: IHS Markit

Average SM Plant Capacity - China



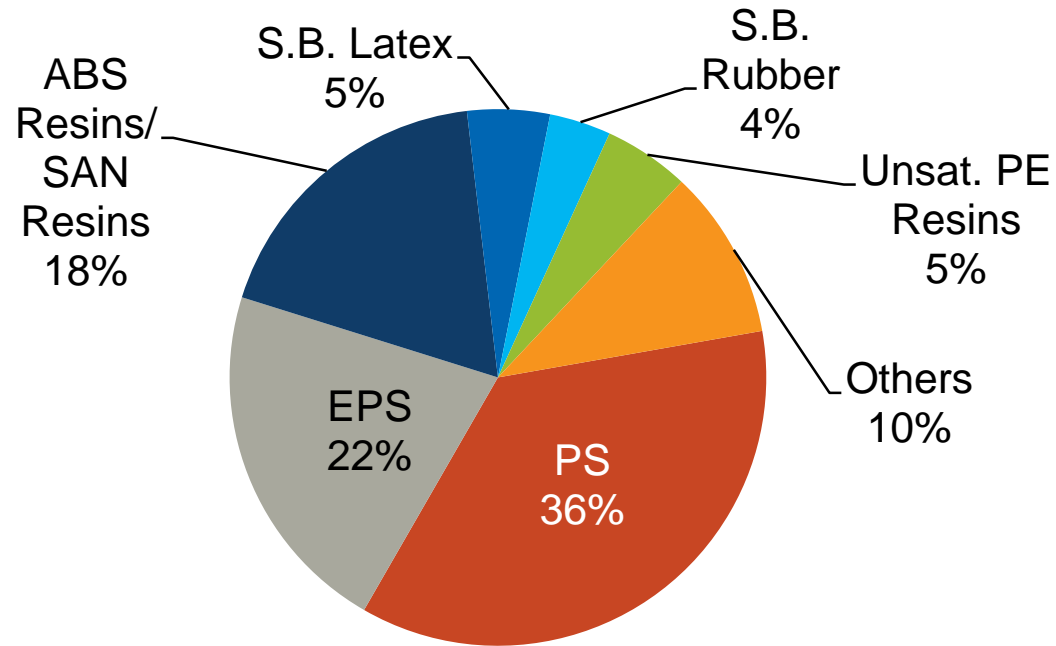
Source: IHS Markit

Net Ethylene Capacity Addition Rises Beyond 2016



Where Is Styrene Consumed?

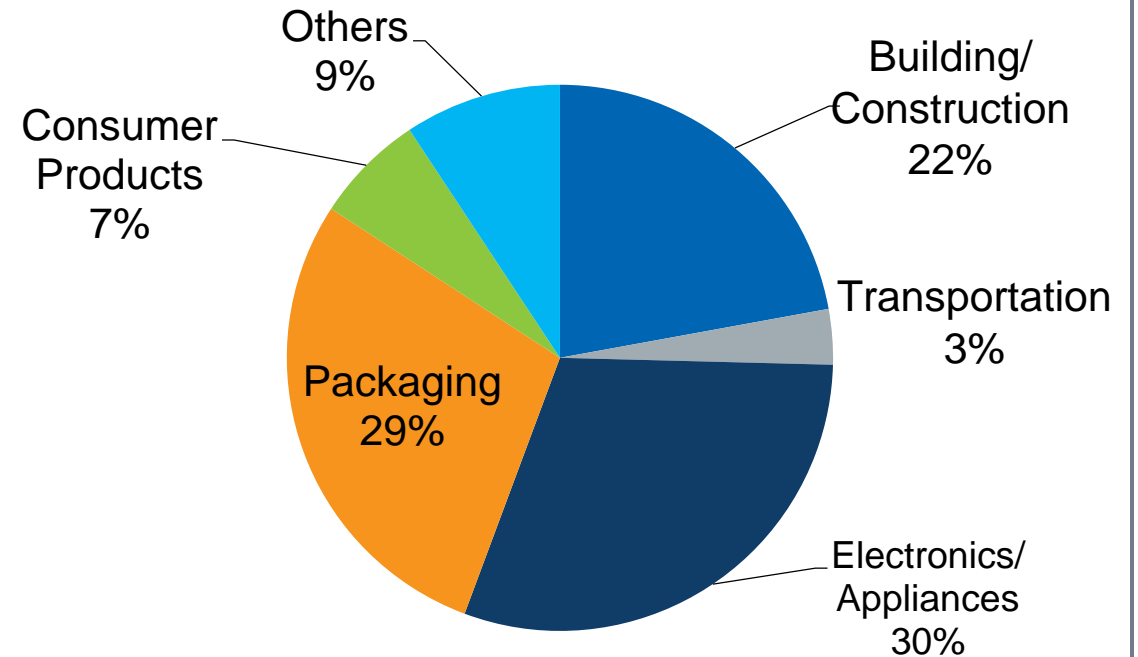
World: 2016 Styrene Demand



2016 Demand = 27.9 Million Metric Tons

Source: World Analysis Styrene

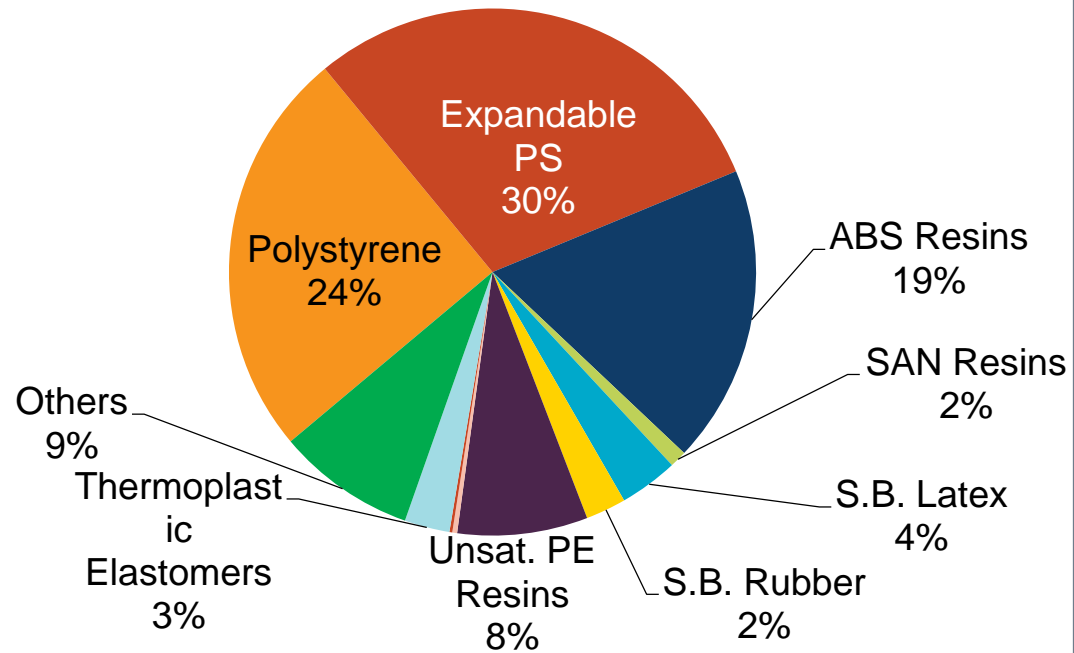
World: 2016 Styrene Demand by End Use



Source: World Analysis Styrene

China Demand More Evenly Distributed

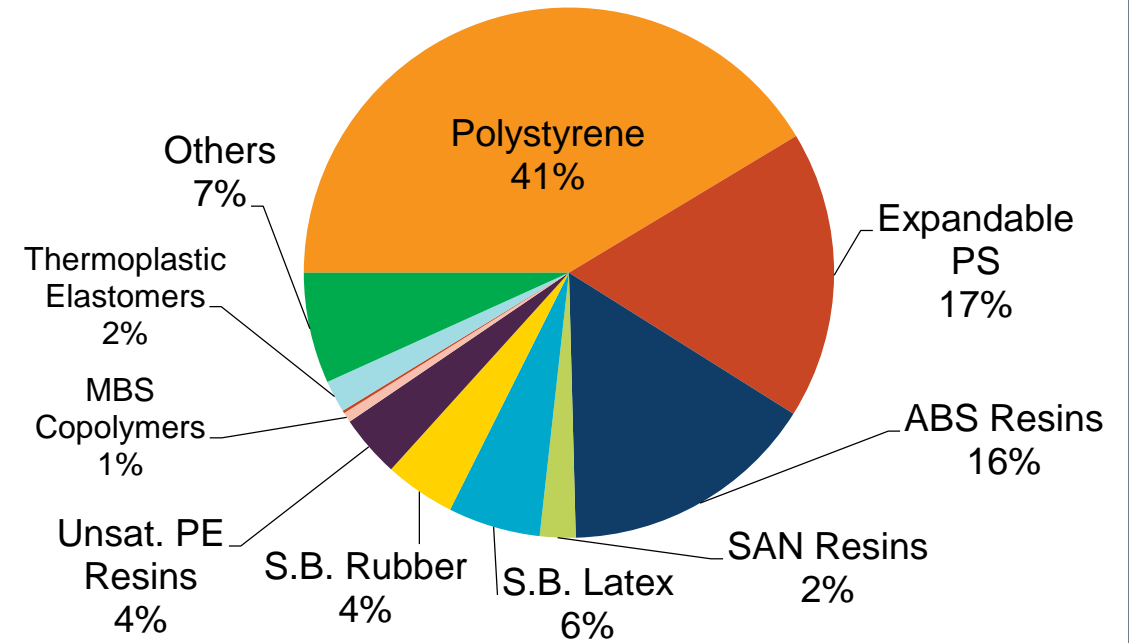
China Styrene Demand - 2016



9.1 Million Metric Tons

Source: World Analysis Styrene

Rest Of World Styrene Demand - 2016

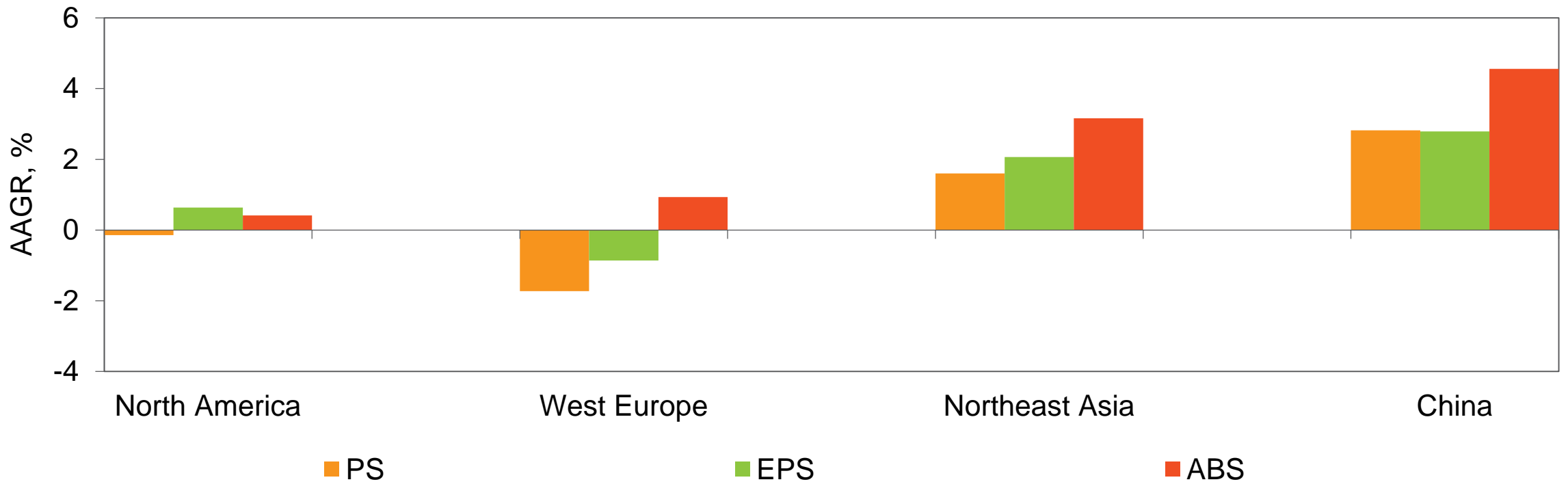


18.8 Million Metric Tons

Source: World Analysis Styrene

Asia, Including China, Will Lead Demand Growth

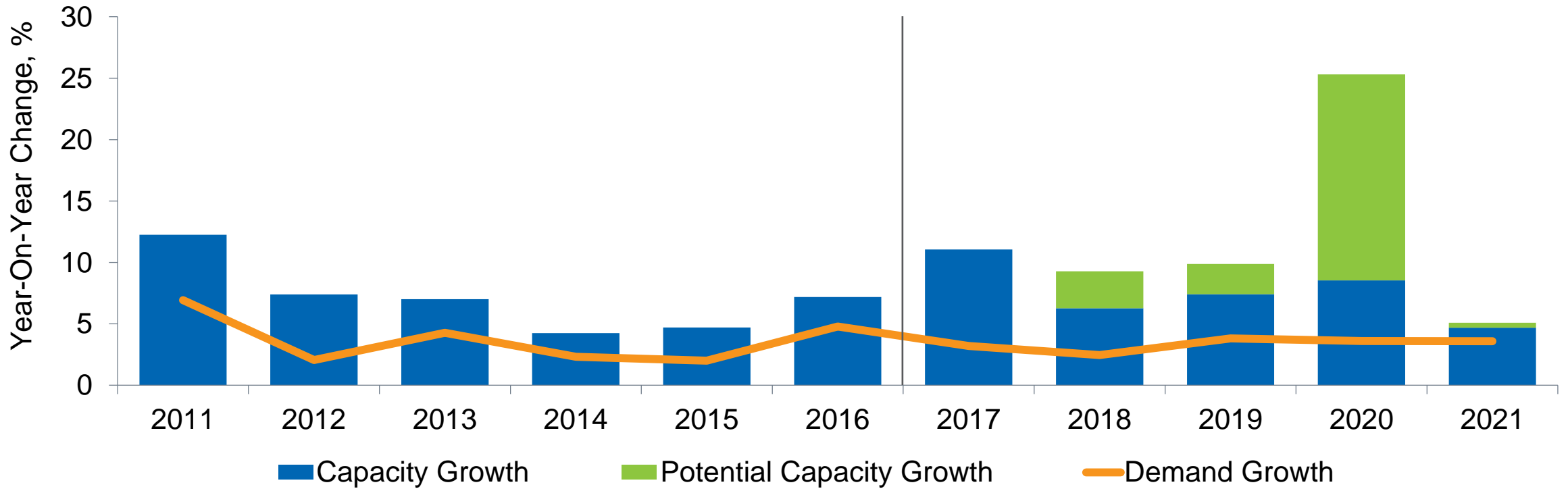
Derivative Demand Forecast Growth Rates 2016 - 2021



Source: IHS Markit

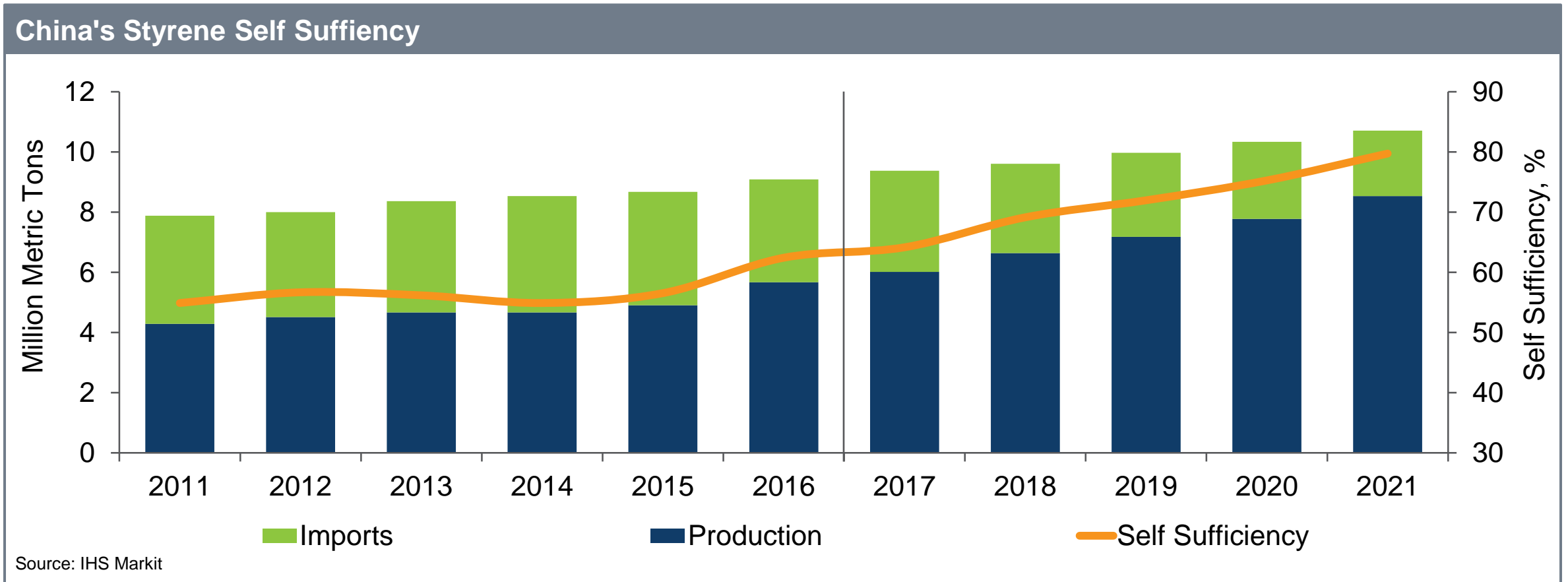
China Capacity Additions Are Faster Than Demand Growth

China Demand vs Potential Capacity Growth

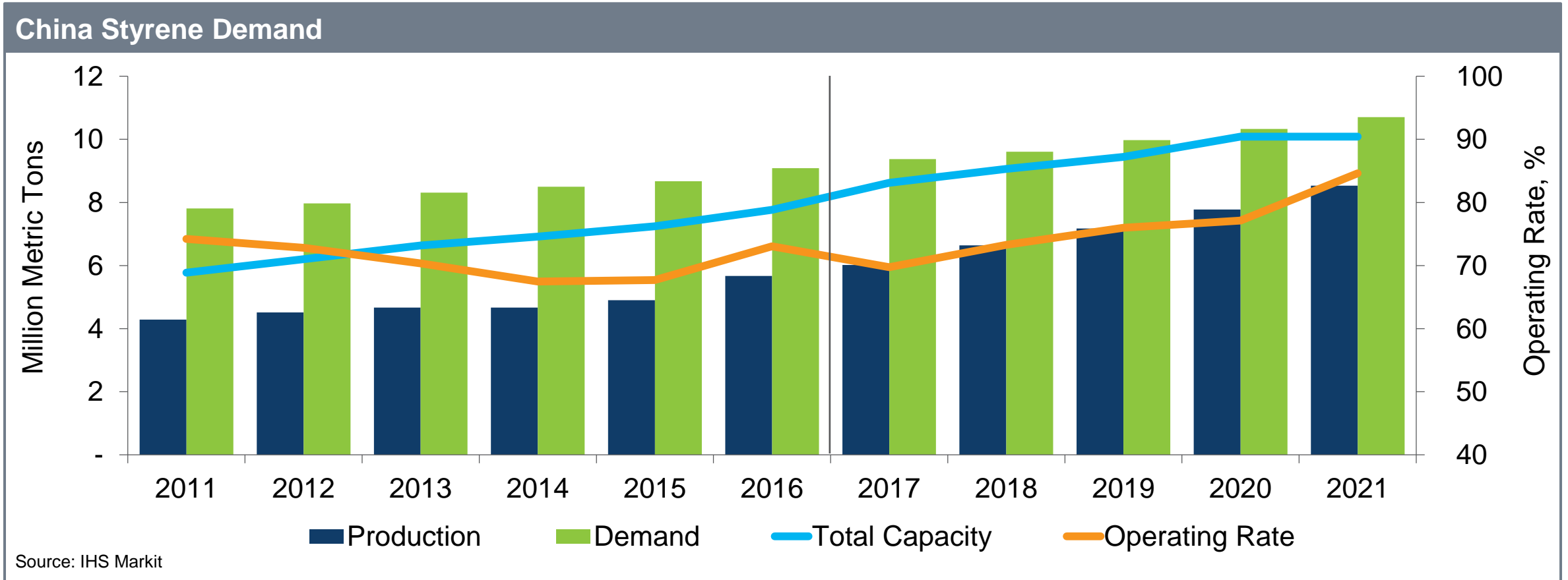


Source: IHS Markit

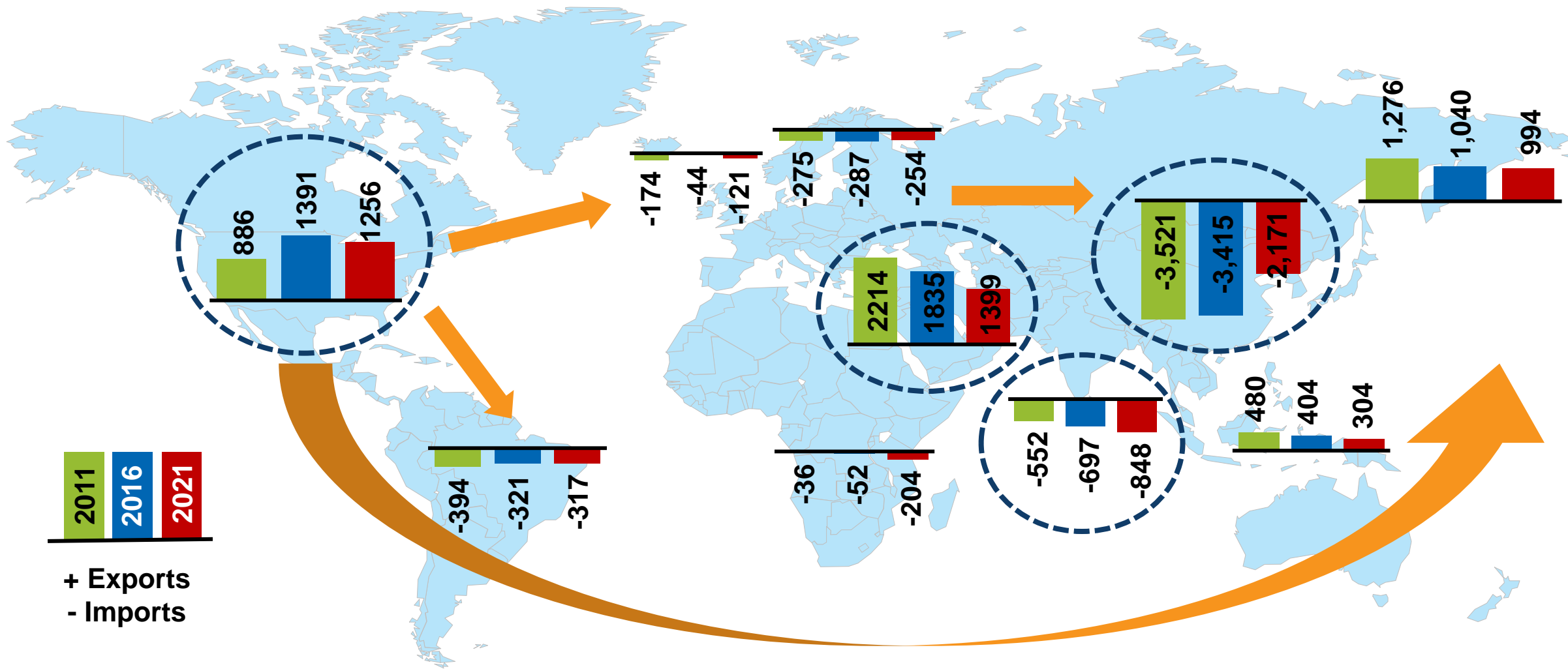
Increasing China's Styrene Self-Sufficiency



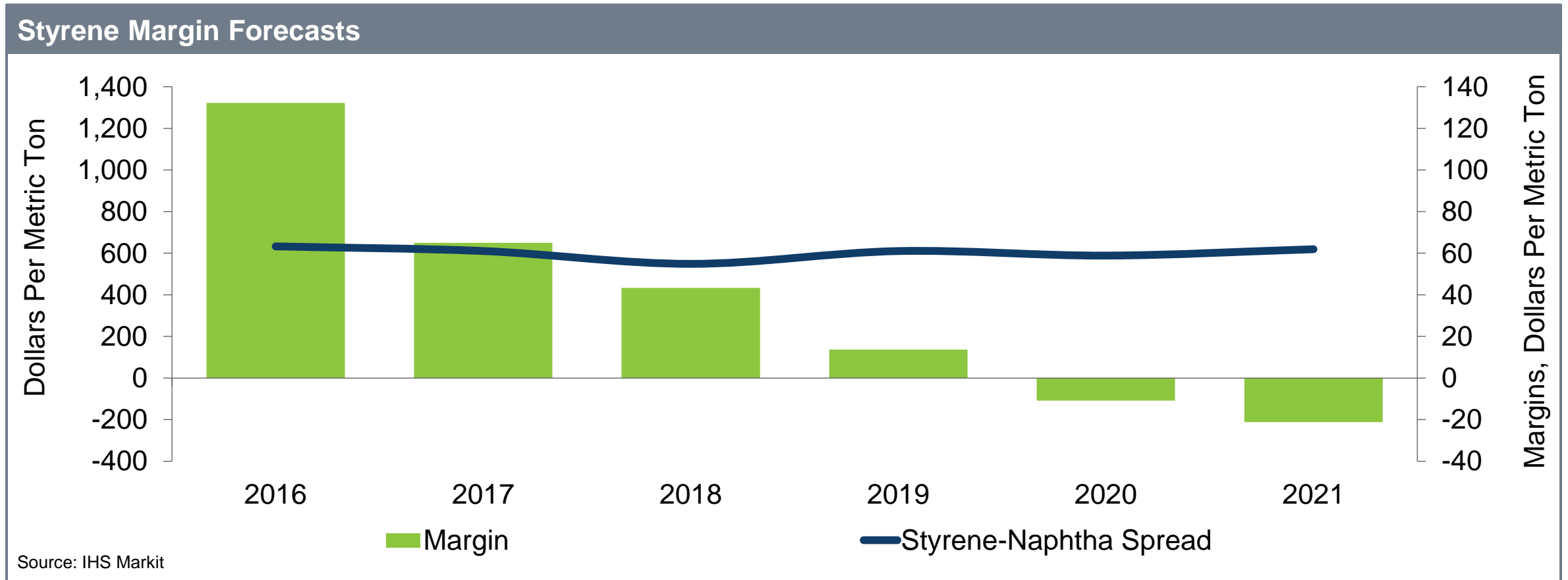
China's Styrene Operation Will Stay at Low Level



Global Styrene Trade



Margin Forecast (Naphtha-Based vs Ethylene/Benzene)



Strategic Implications

- Styrene markets rebalanced after a long period of difficulties
- China will lead new capacity building with larger scale and higher integration level projects underway
- Capacity additions will outpace demand growth particularly beyond 2019
- Higher self-sufficiency by China exerts influence on global trade flow and accelerates rationalization.



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