

# Global Methanol Outlook 2021: A Glimpse into the Low Carbon Future

*Prepared for the:*

**2021 International Methanol Conference**  
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# MMSA – Global Insight, Asian Perspective™



- **18<sup>th</sup> Year of Operation, based in Singapore**

- Employee owned, independent advisors
- Over 162 years of methanol industry experience: Singapore, Shanghai, UK, Oslo, Houston, Seattle

- **Multi-Client Services**

- **Methanol & Derivative Analysis**

- Methanol, Formaldehyde, Acetic Acid, MTBE, MMA, Energy Use in global detail – 700+ pages; data updated quarterly since 2005

- **Methanol Notes™**

- One-page topics of relevance, weekly since 2005

- **MMSA Weekly Methanol Analysis**

- Global market analysis and price assessment every Friday Singapore time – limited to 8 pages

- **China Monthly Methanol Analysis (CMMA)**

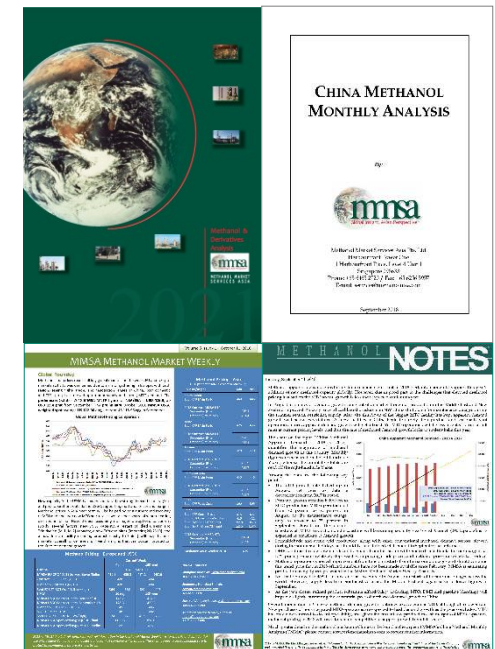
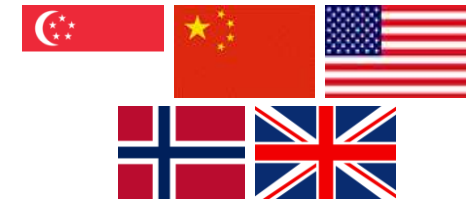
- Quantitative analysis of world's largest methanol market

- **Project Services**

- Market and Technical Due Diligence Support, Bankable Project Assessments, Valuation, other bespoke, proprietary efforts
- Methanol (including “low carbon” meOH), Acetic Acid, Formaldehyde, MMA, MTBE

- **MMSA IMPCA International Methanol Conference – November 2 – 3, 2021 - Virtual**

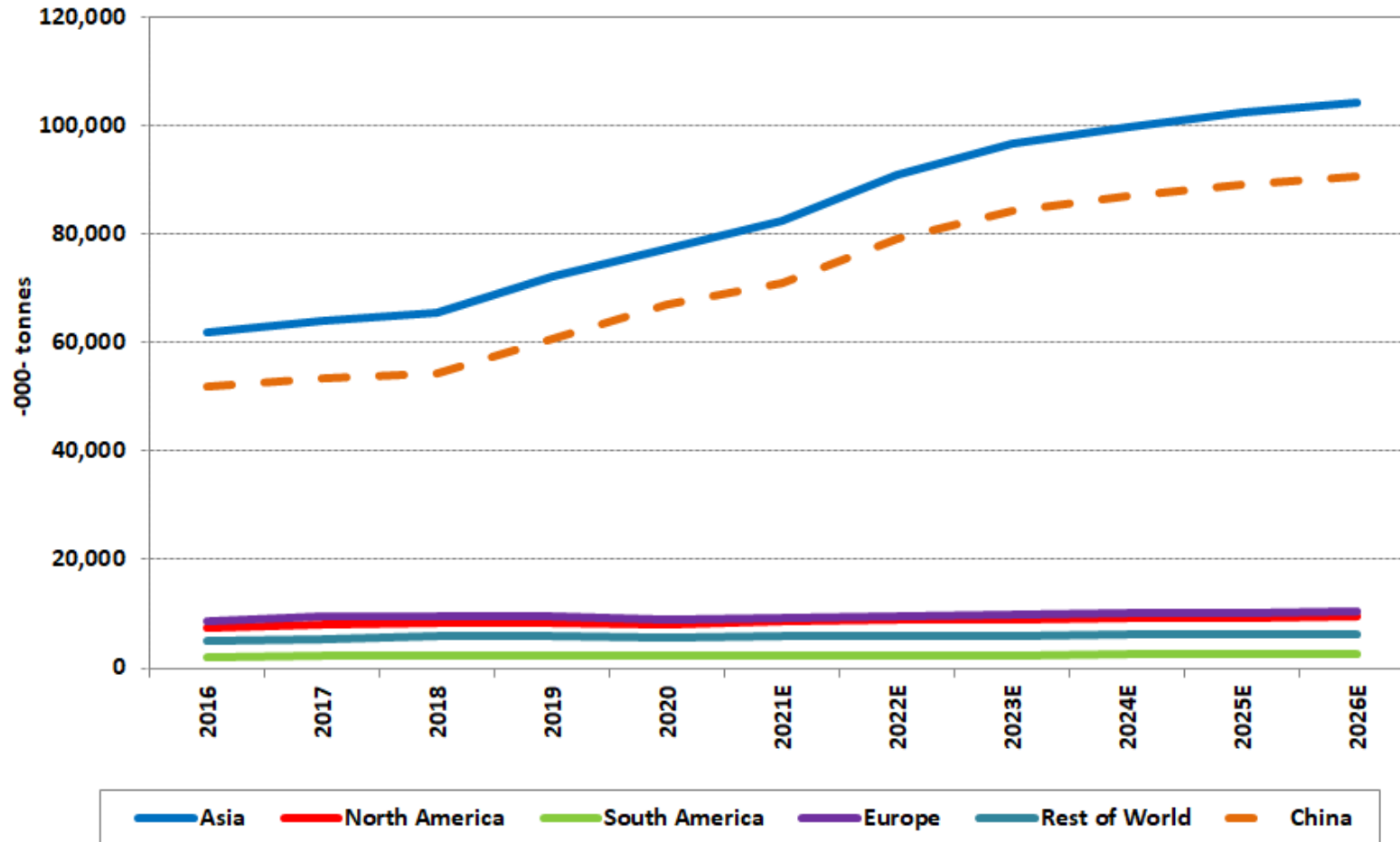
- **MMSA IMPCA Methanol Forum – In-person - Frankfurt – December 1- 2, 2021**



- For a change, events outside China have factored significantly in current global market condition (classic price fly up, led by West, spreading to China)
  - Poor methanol operational performance in Atlantic Basin as US and EU economies grow
    - Many different operational excuses (including technical, economic, weather related)
  - Greening of power supply upsets methanol feedstocks – natural gas, coal runaway pricing
- Future markets will be shaped by Energy, Economics, and Transition
  - Near term
    1. Energy values and impact on cost of methanol feedstocks at marginal supply points (esp coal in China)
    2. Availability of current meOH fleet
    3. Sustainability of economic growth - inflation must be absorbed without derailing economies, downstream meOH markets
  - Longer term
    1. Progress in low carbon transition
    2. Adoption of methanol in those schemes
- After recovery of current methanol supply, next wave of investment is stalled by perceived need for, and costs of decarbonization
  - “Quick wins” with staged, commercially viable decarbonization to make biggest short term impact

# “COVID-proof” methanol demand growth aided (until now) by burgeoning MTO and Chinese deep-sea imports

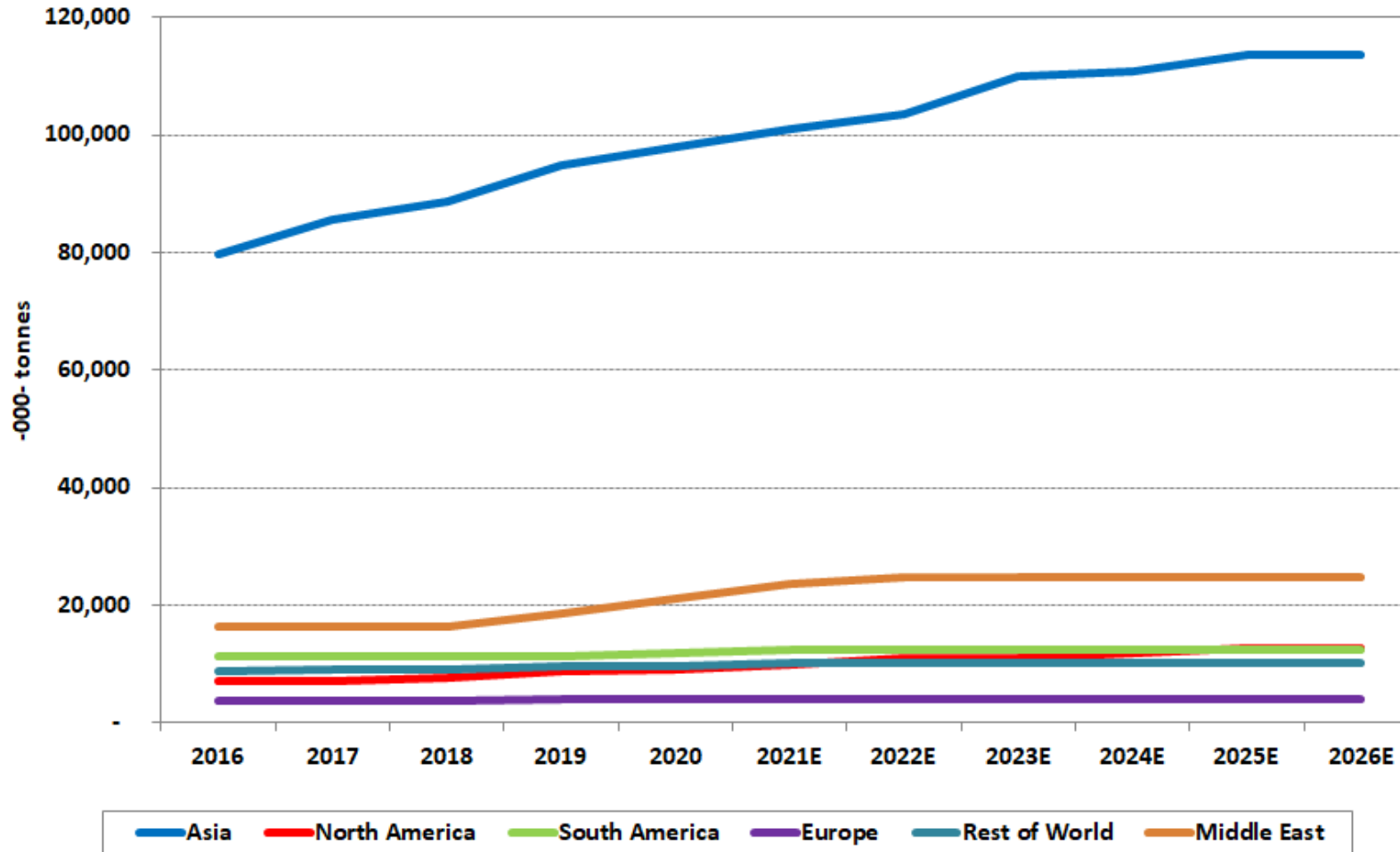
## Demand for Methanol 2016 - 2026E



# China future additions from integrated coal facilities continue, with merchant projects in USGC and Iran running poorly in 2021

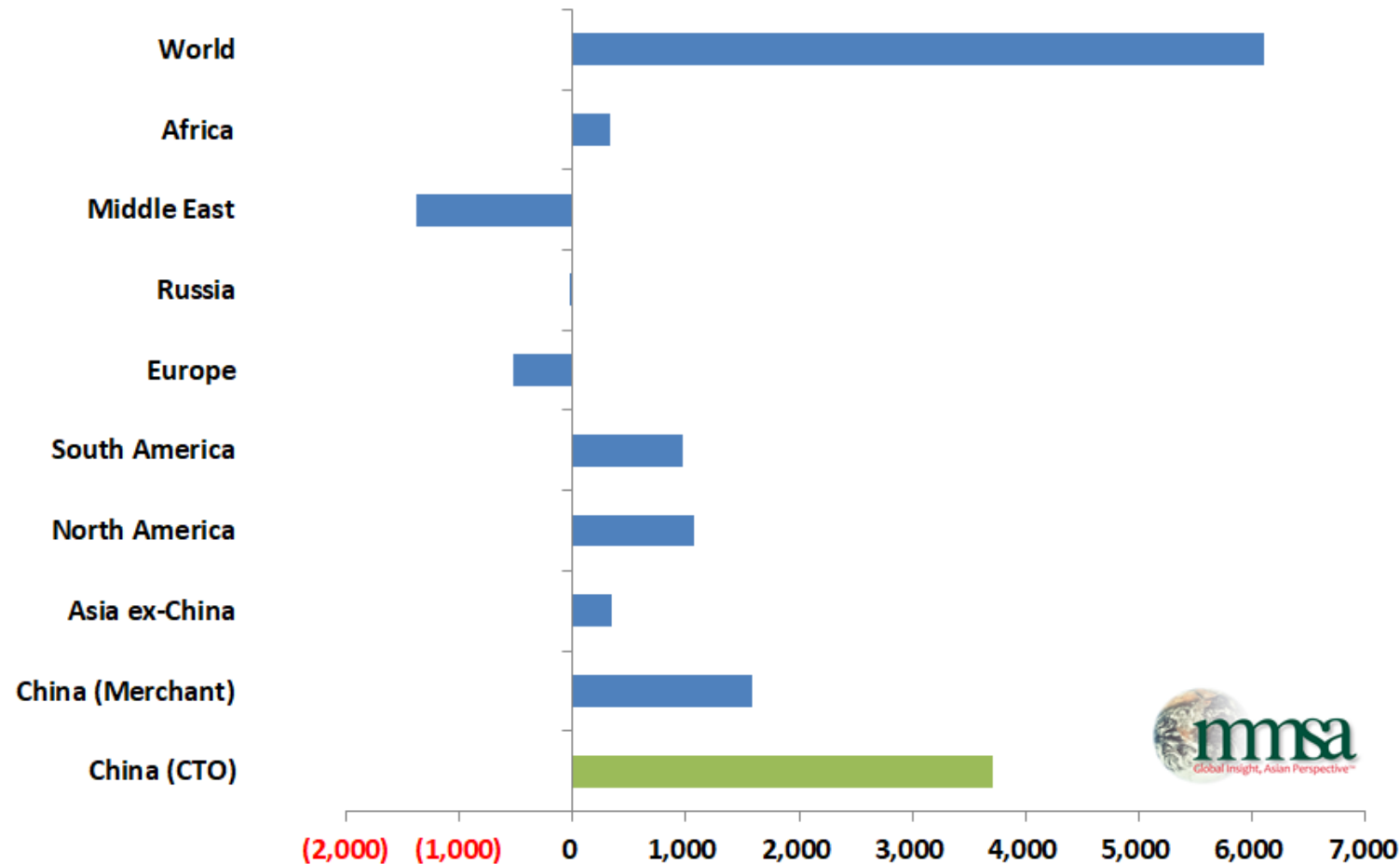


## Supply Capacity for Methanol by Region 2016 - 2026E



# Iran, EU production suffer in 2021 for different reasons; CTO, China merchant, Americas supply expands

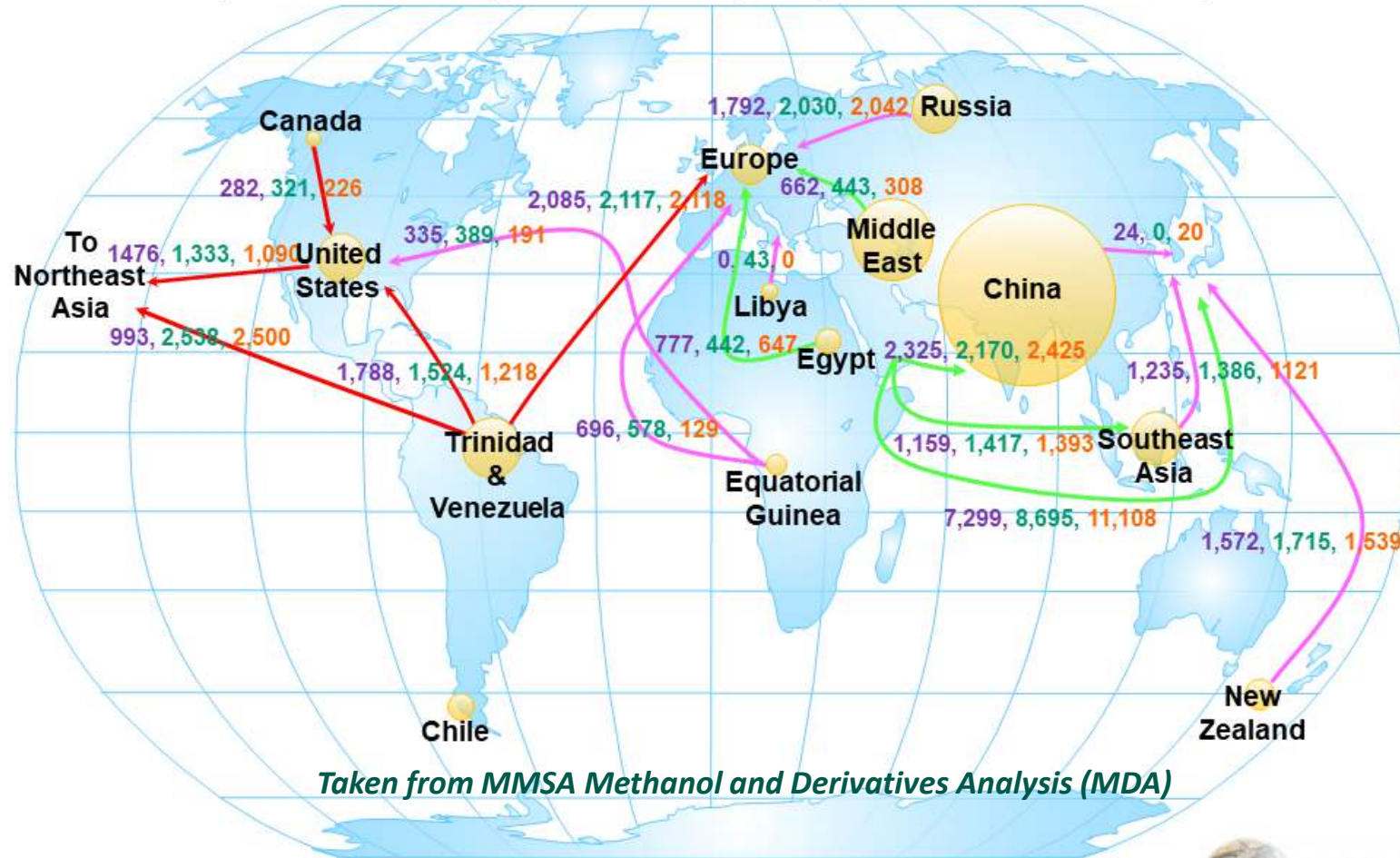
## Methanol Supply Growth, 2021E v 2020, By Region (-000- Metric Tons) - MMSA MDA 2021 Update





# Trade flow evolution continues, with Europe increasing imports, US nearly a next exporter, and Trinidad to Asia trade increasing

## 2018, 2019, 2020 Methanol Trade Flow (Bubble Size Proportional to Capacity to Produce Methanol)



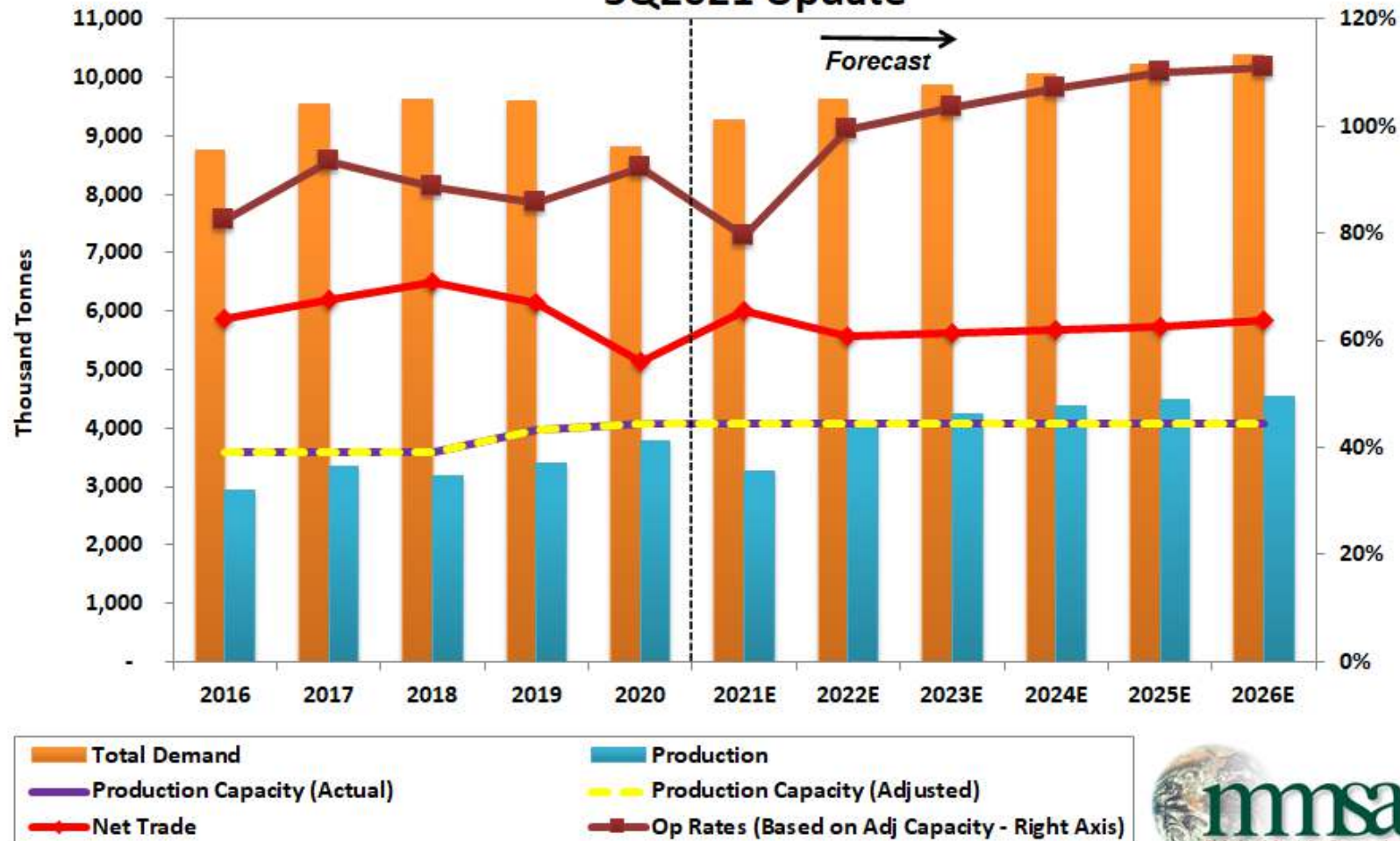
Taken from MMSA Methanol and Derivatives Analysis (MDA)

\* Americas Supply      \* Persian Gulf Supply      \* Other Supply

# European demand recovers as forecast, with imports supplanting local production; “Center of Low Carbon Evolution”



**Methanol Supply and Demand - Europe**  
3Q2021 Update



- Most countries have turned corner after COVID-19; MMSA to host in-person event in Germany Dec 2021
- European demand is steadily growing, with overall demand growth small relative to ROW
- Center of investment in low carbon solutions involving methanol - MMSA to present separately
- Region remains a “battleground” for overseas supply; typically, first choice for US exports
- MMSA to present separately on Europe

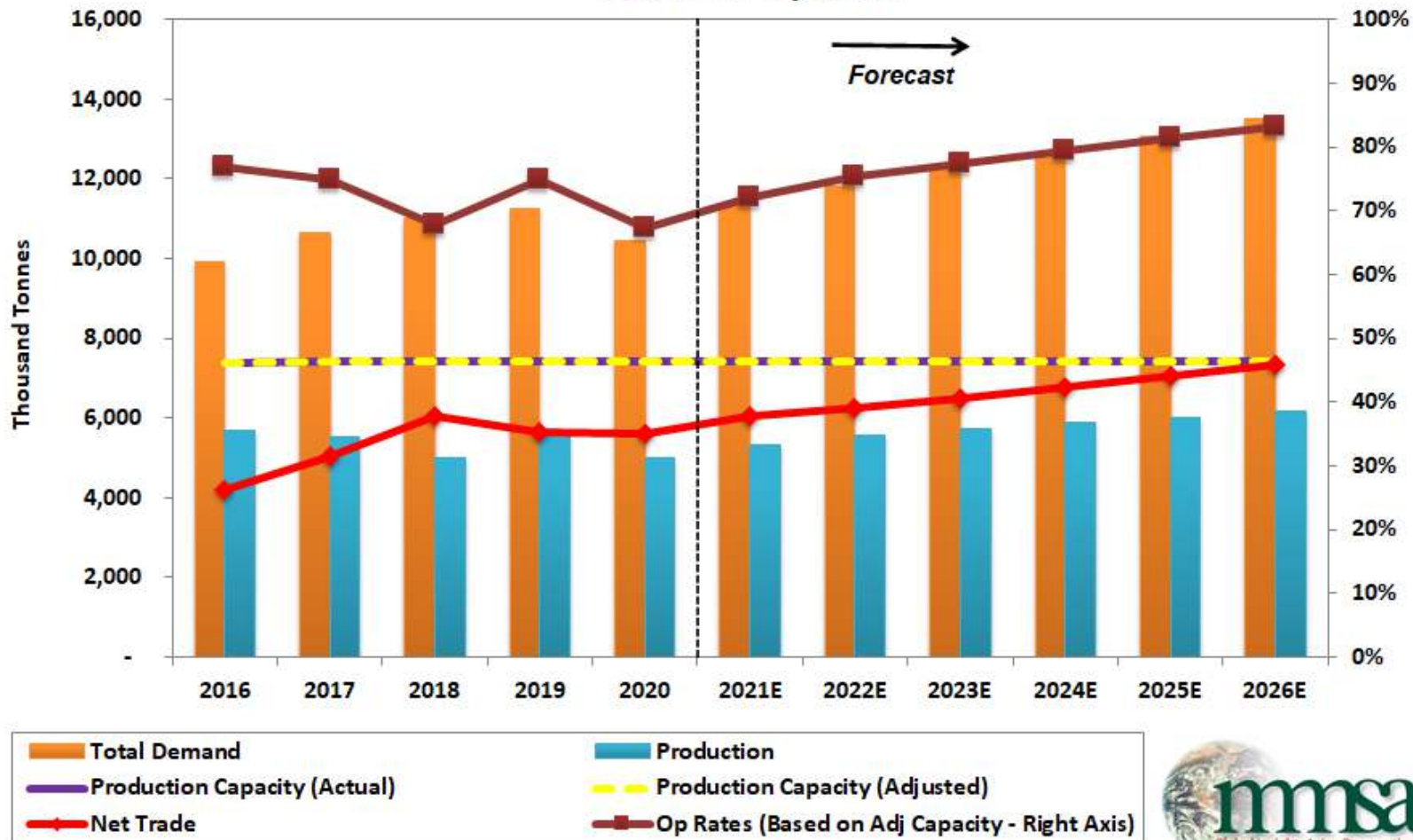




# Broad Asia ex China next largest, highest growing region after China



## Methanol Supply and Demand - Asia (Less China) 3Q2021 Update



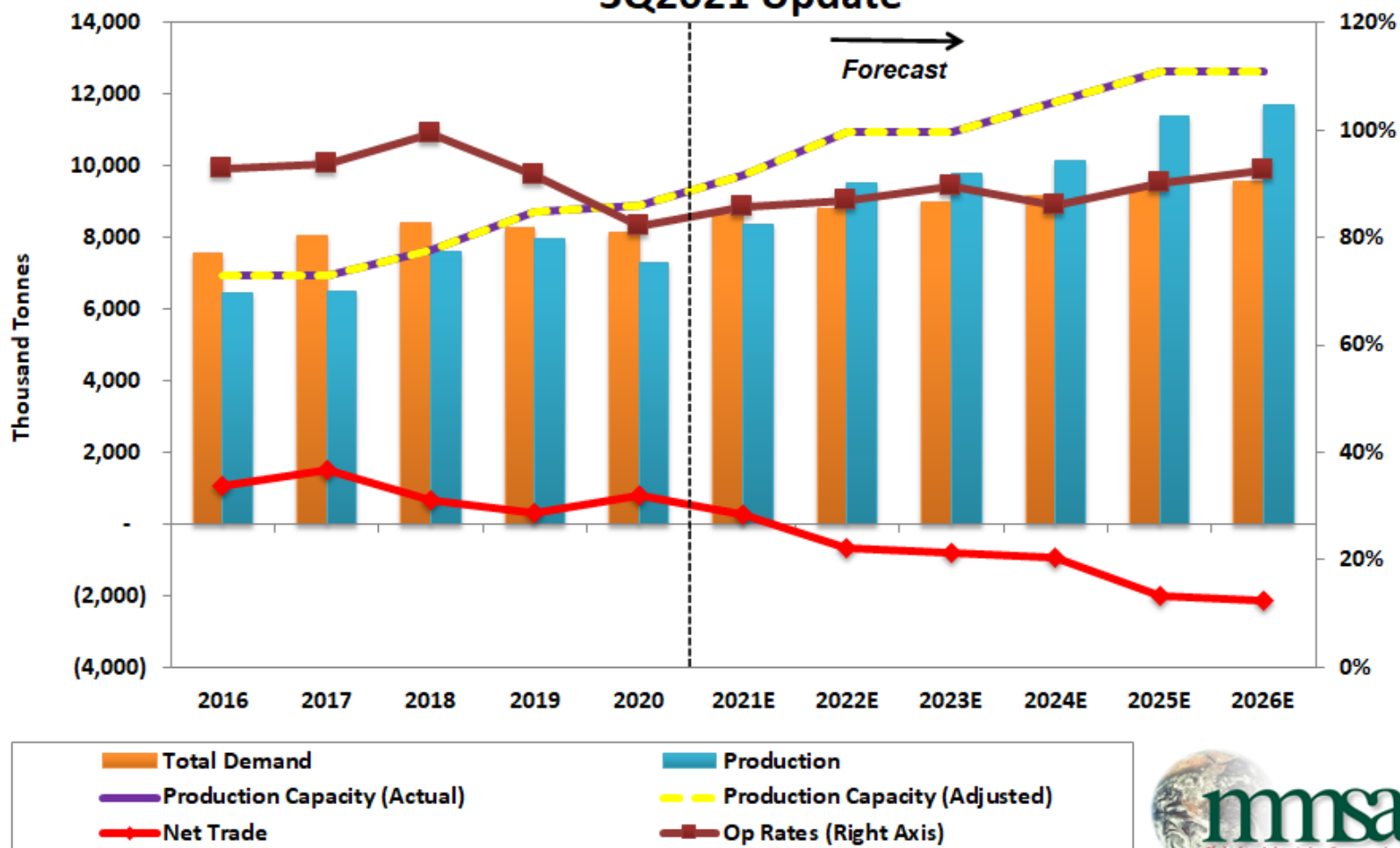
- Growth driven by India, traditional derivatives
- Biodiesel growth in Indonesia, Malaysia slowed by dogged COVID-19 issues
- No serious efforts outside of biodiesel to invest in alternative methanol consumption near term
- Region less self sufficient than China due to higher overall feedstock cost
- Methanol production problems ongoing; to remain a major net importing region



# North America rates suffer despite low feedstock costs; new production will force net exports in 2022

## Methanol Supply and Demand - North America

3Q2021 Update

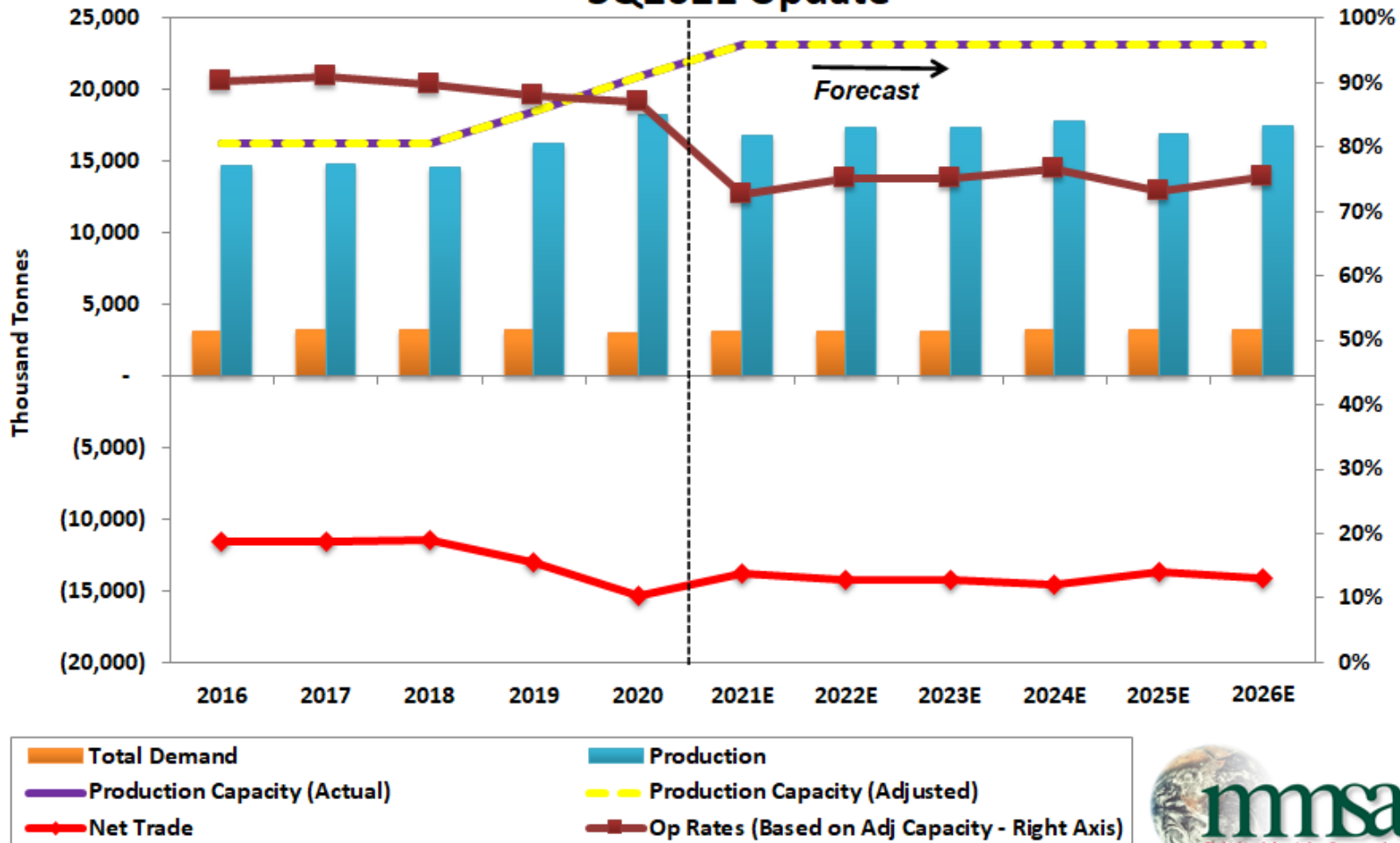


- Operating rates in USGC suffered with weather, operability issues
- Natgasoline (1.8M mtpa) availability planned for return in 4Q 2021
- Koch Methanol (1.7M mtpa) operating at elevated rates
- Methanex G-3 (1.7M mtpa early 2024), Fairway expansion (120K mtpa mid 2024)
- Exports focused on Korea, Europe, South America
- US – China remains “trade of last resort”
- Imports from Trinidad, EG continue
- Downstream investment: Acetic Acid (Celanese), MMA (MRC), MDI (to be determined)

# Middle East to remain exporter, with growing Iran molecules limited to Indian and Chinese consumers



## Methanol Supply and Demand - Middle East 3Q2021 Update

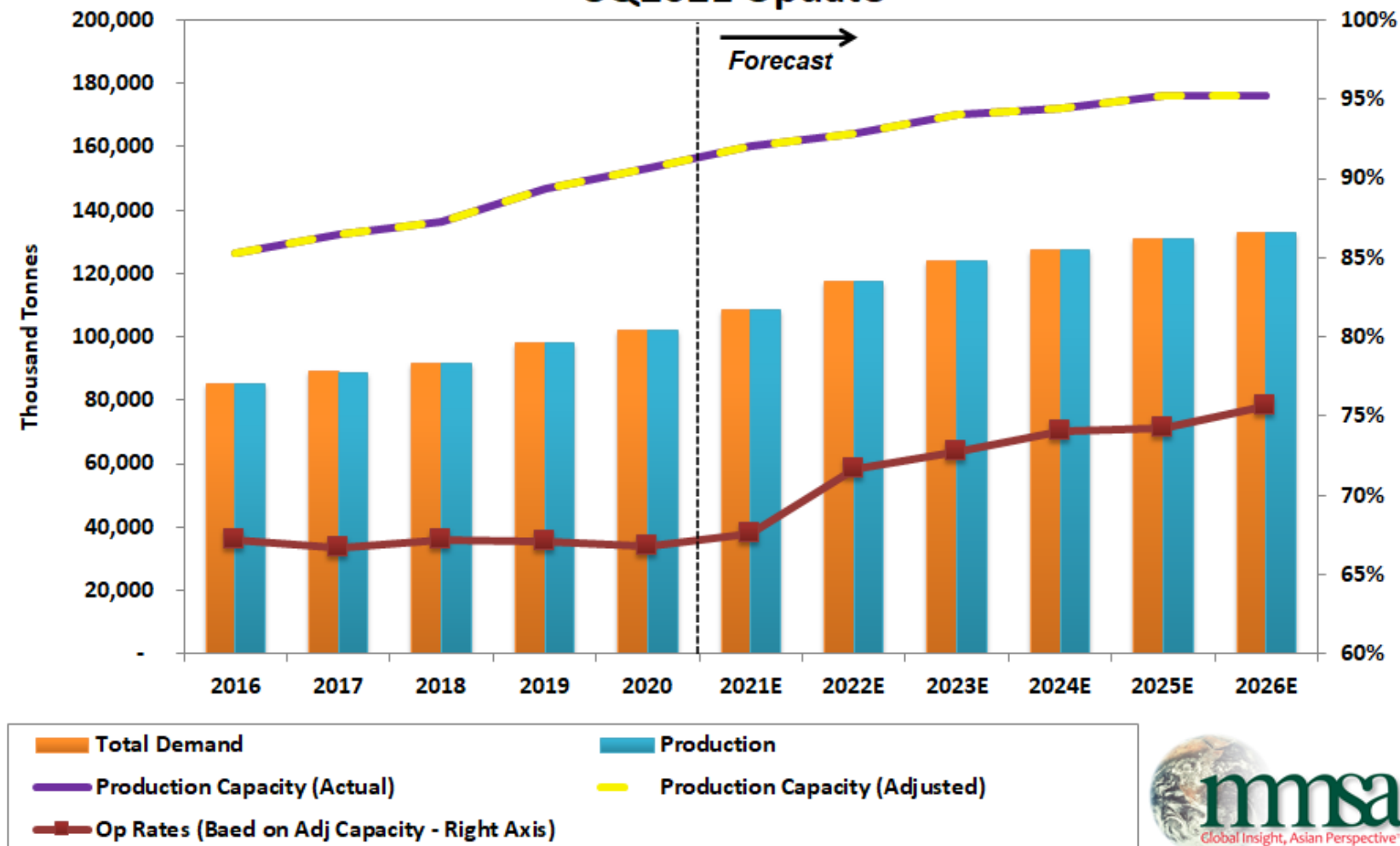


- Tumultuous 2021 for Iran, with low operational rates in massively expanded fleet of production
- Few projects outside Iran; current projects have had poor operational record (see MMWA)
- Iranian continues to have limited access to global markets, mostly at the fate of Chinese MTO producers



# Nameplate operating rates to remain challenged near term, both nameplate and effective rates must increase

## Methanol Supply and Demand - World 3Q2021 Update



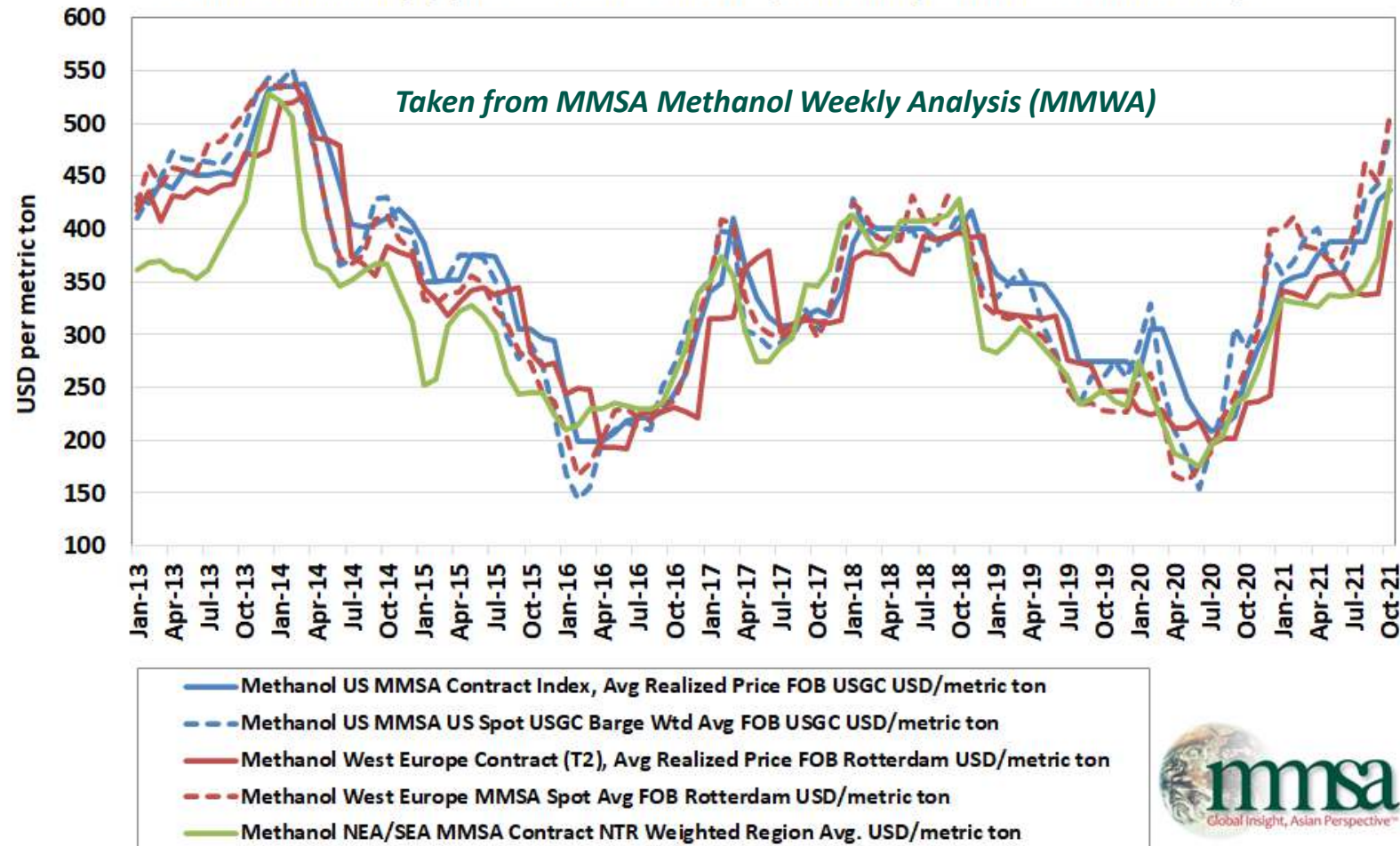
- Prices limited on high side by derivative affordability
  - MTO remains the “marginal buyer” of product; short term exception: China industrial heat
- Prices limited on low side by marginal cost of supply
  - Firmly located in China, based on coal feed
- Methanol affordability into MTO will limit methanol price upside
- Longer term, until more capacity appears, pull from energy, MTO demand will keep supply tight and support prices, margins near reinvestment levels
- Prices are connected globally – optional molecules to remain centered in Middle East until “Methanol Bridge” is fully functional
  - US, EU prices to remain at premium relative to China
  - China will be world’s “relief valve” until more significant US – China trade patterns emerge



# Global methanol pricing: classic fly-up in USGC, Rotterdam, followed by Asia. Demand destruction in China underway.

## Global Methanol Pricing Comparison

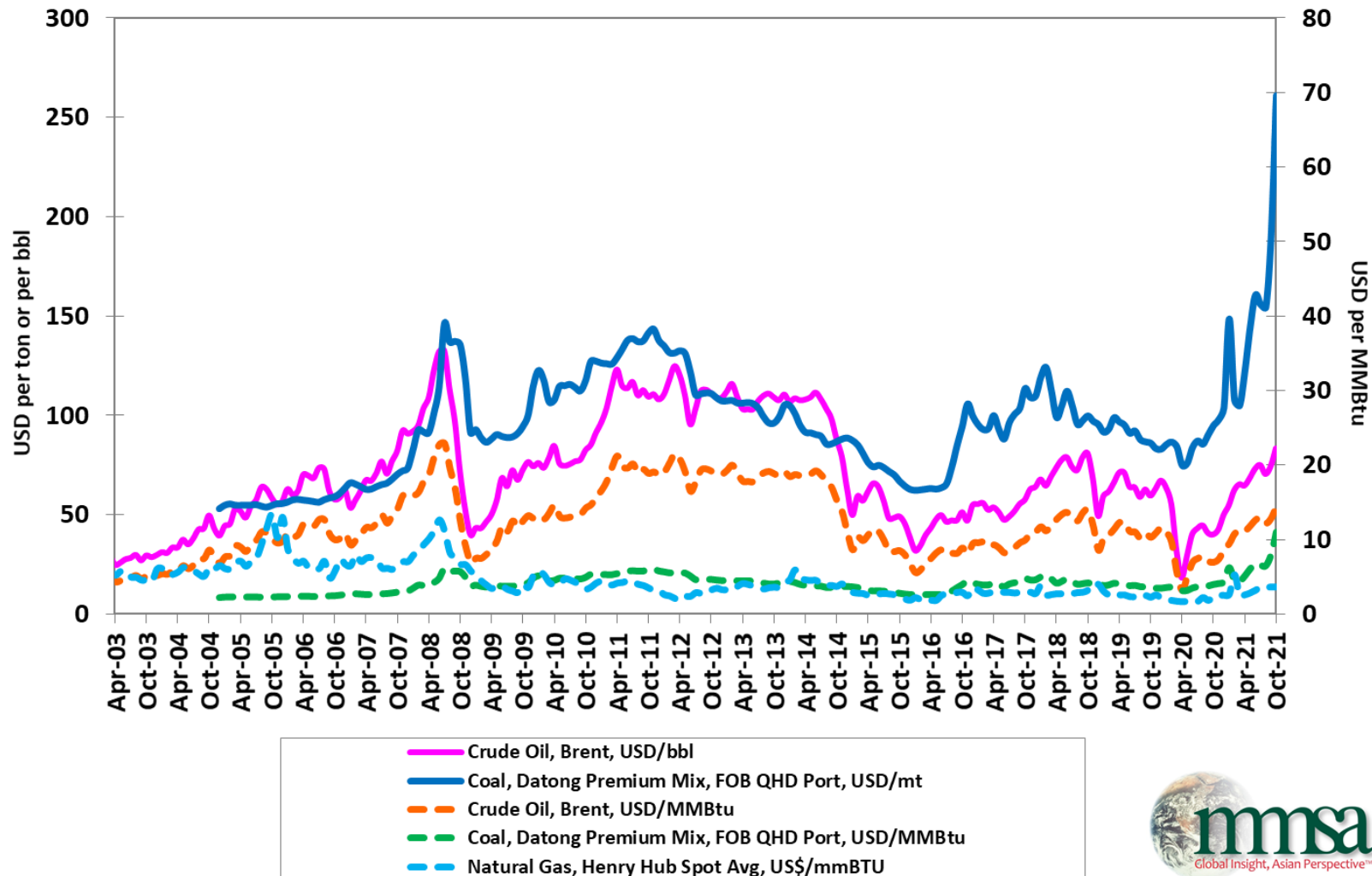
October Preliminary (Spot US and EU, Asia NTR) and Final (US and EU Contract ARP)



# Coal prices fly up as well; spread between coal/refined products on cost / unit energy basis shrinks again

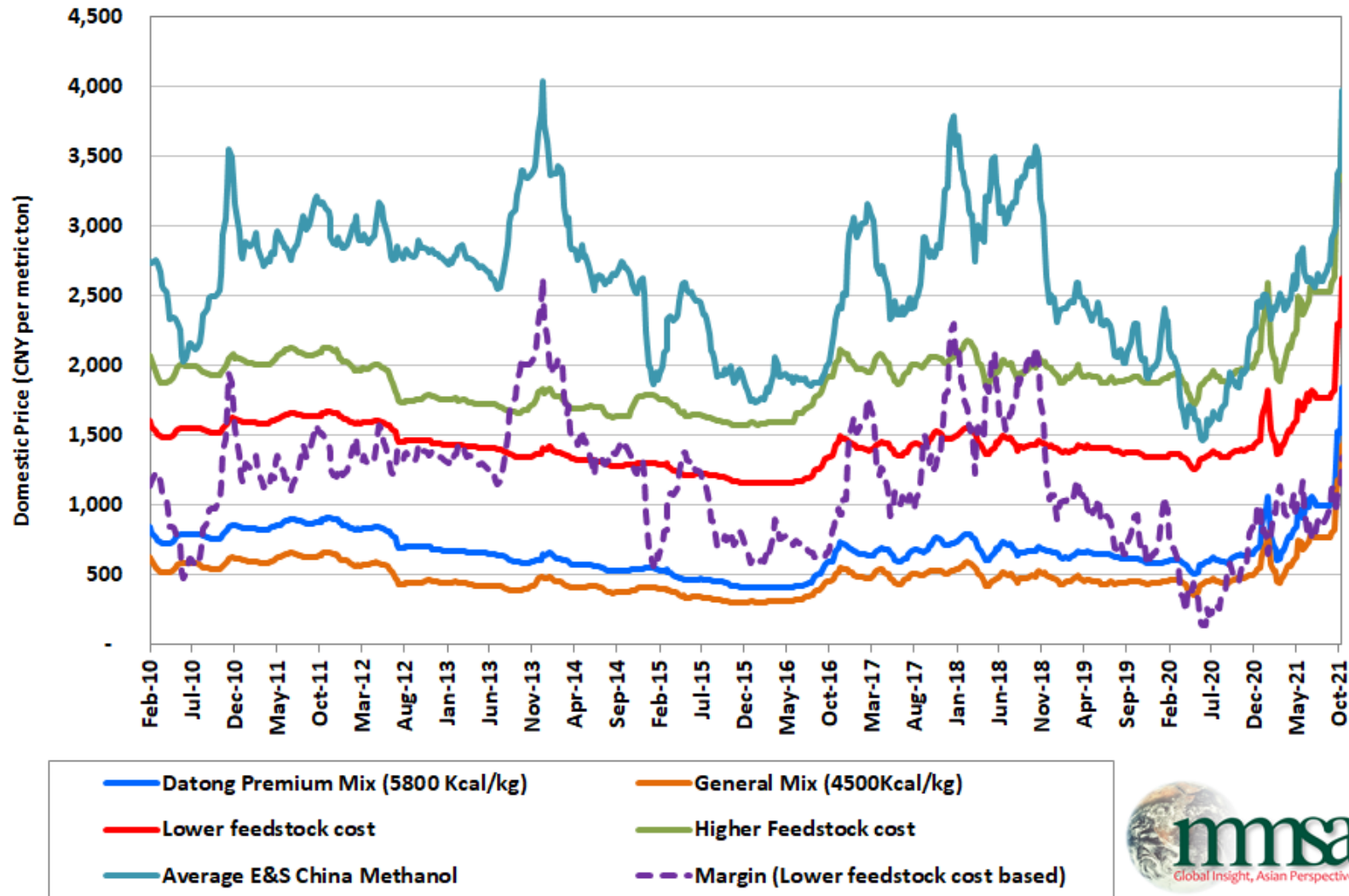


## Premium Coal vs. Crude Oil (Monthly to October '21 (weekly to date))



# Chinese producer cash margins continue to suffer, slowing China operations

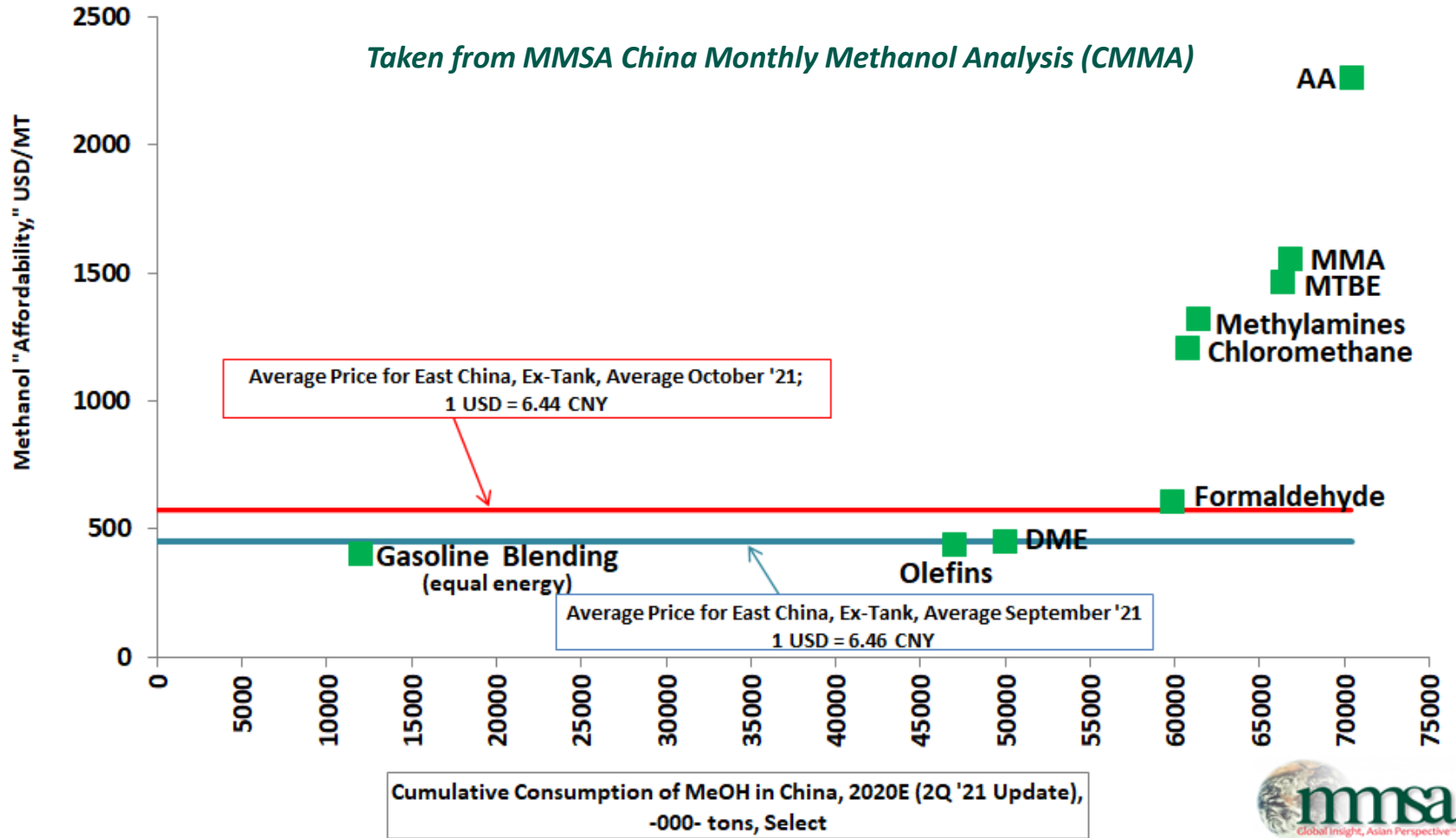
## Coal Cash Cost vs. Methanol Price



# Methanol affordability creating heavy ceiling above prices, most derivatives now benefit from olefins' buying power

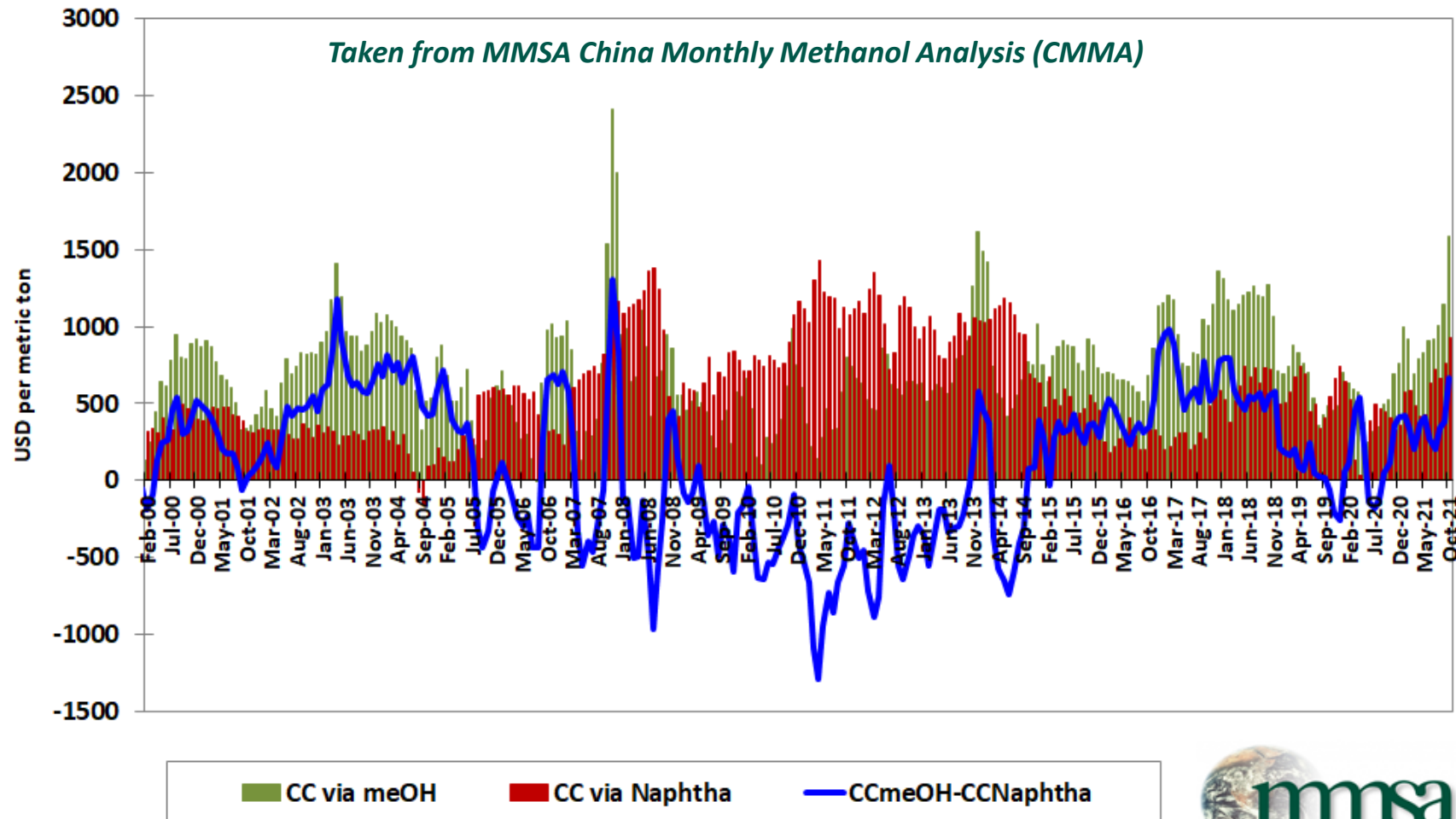


## Methanol Volume vs. Value - China October '21



# Methanol competitiveness vs naphtha for olefins has suffered, limiting desire to invest into the sector

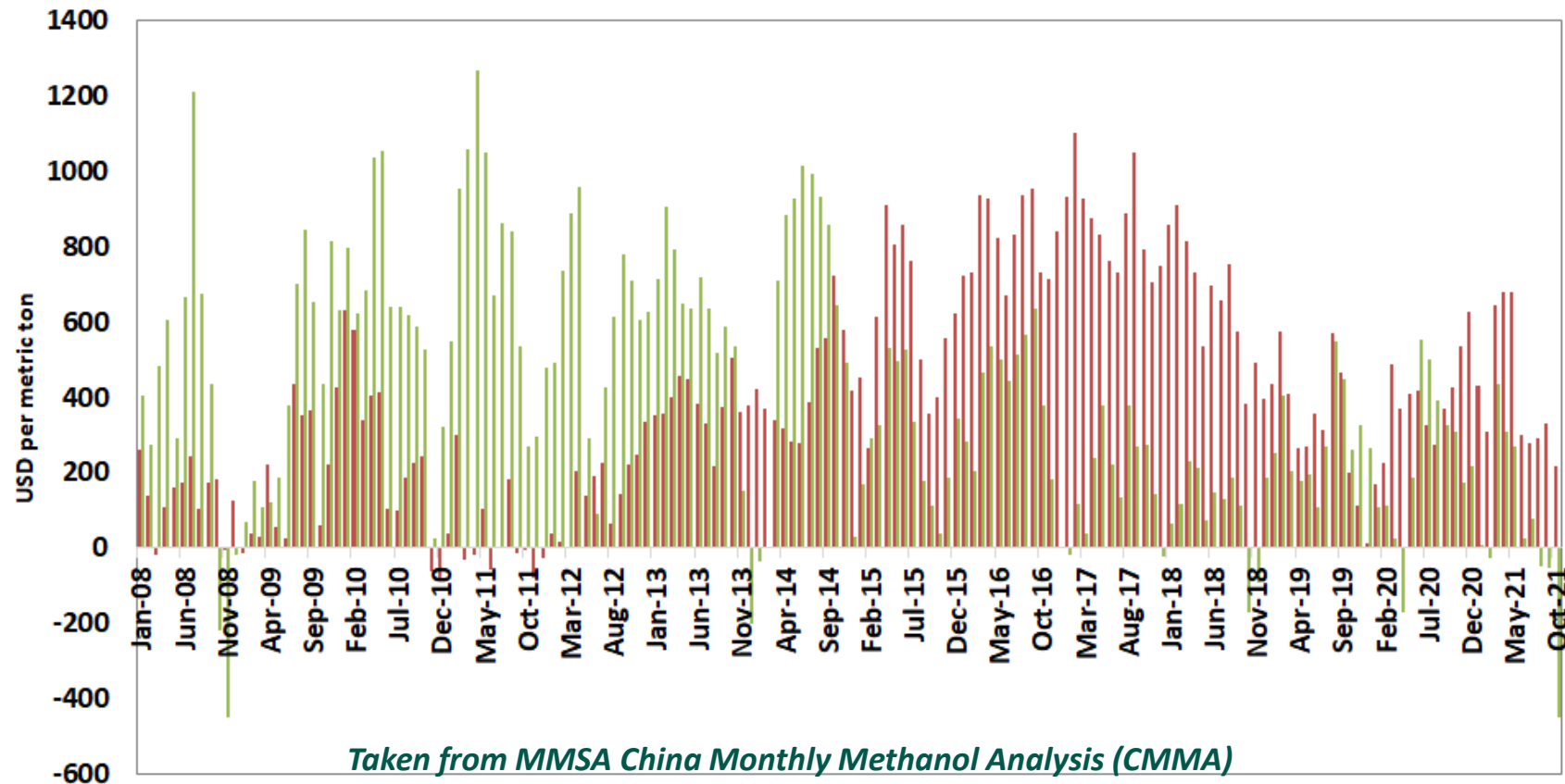
## Ethylene Cash Cost vs. Feed Type Hypothetical Asia, 1.2 tonnes propylene/tonne ethylene





# MTO cash margins on ethylene sales at record negative levels, destroying methanol demand on a massive scale

## Cash Margins on Ethylene, MTO vs Naptha Hypothetical Asia, 1.2 tonnes propylene/tonne ethylene

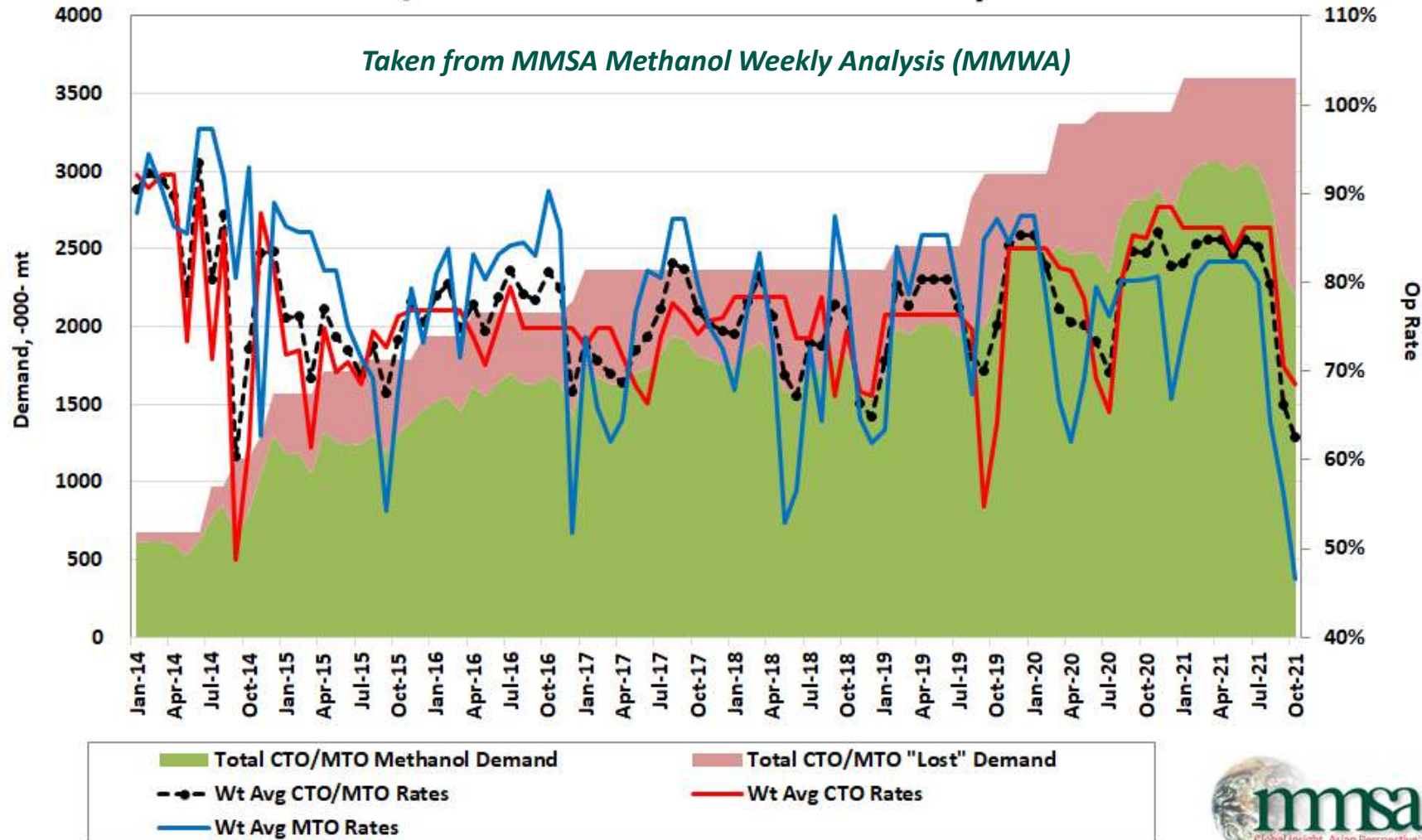


- Cash Margin - Ethylene NE Asia Spot Basis via Naptha
- Cash Margin - Ethylene NE Asia Spot Basis via MeOH

# MTO, CTO operations at record lows; on top of lost demand, spot meOH supply increments from CTO makers, MTO storage



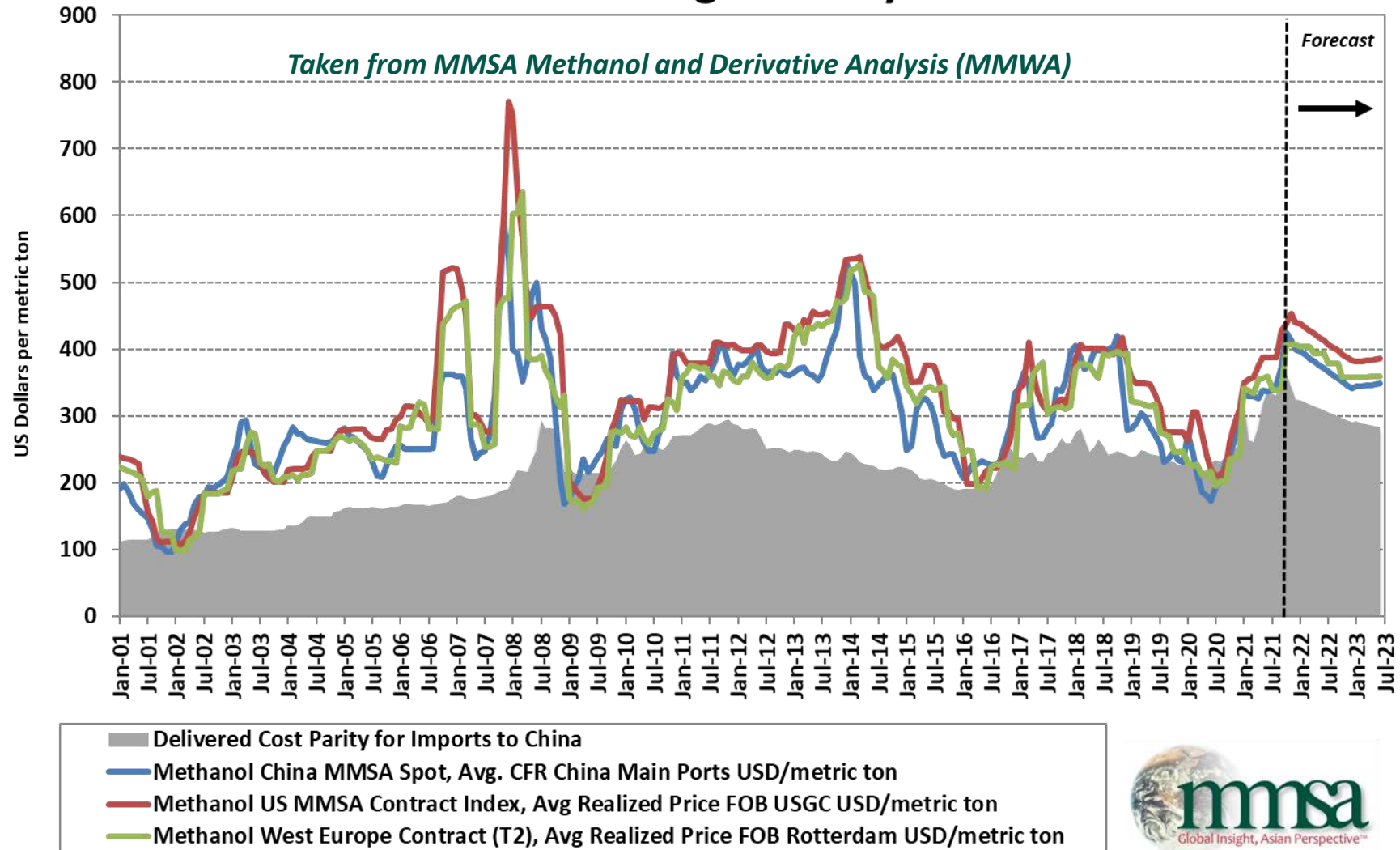
## CTO/MTO Methanol Consumption



# Methanol prices to remain contained at upper ends of affordability in China, Atlantic Basin premium to persist, coal pricing to correct

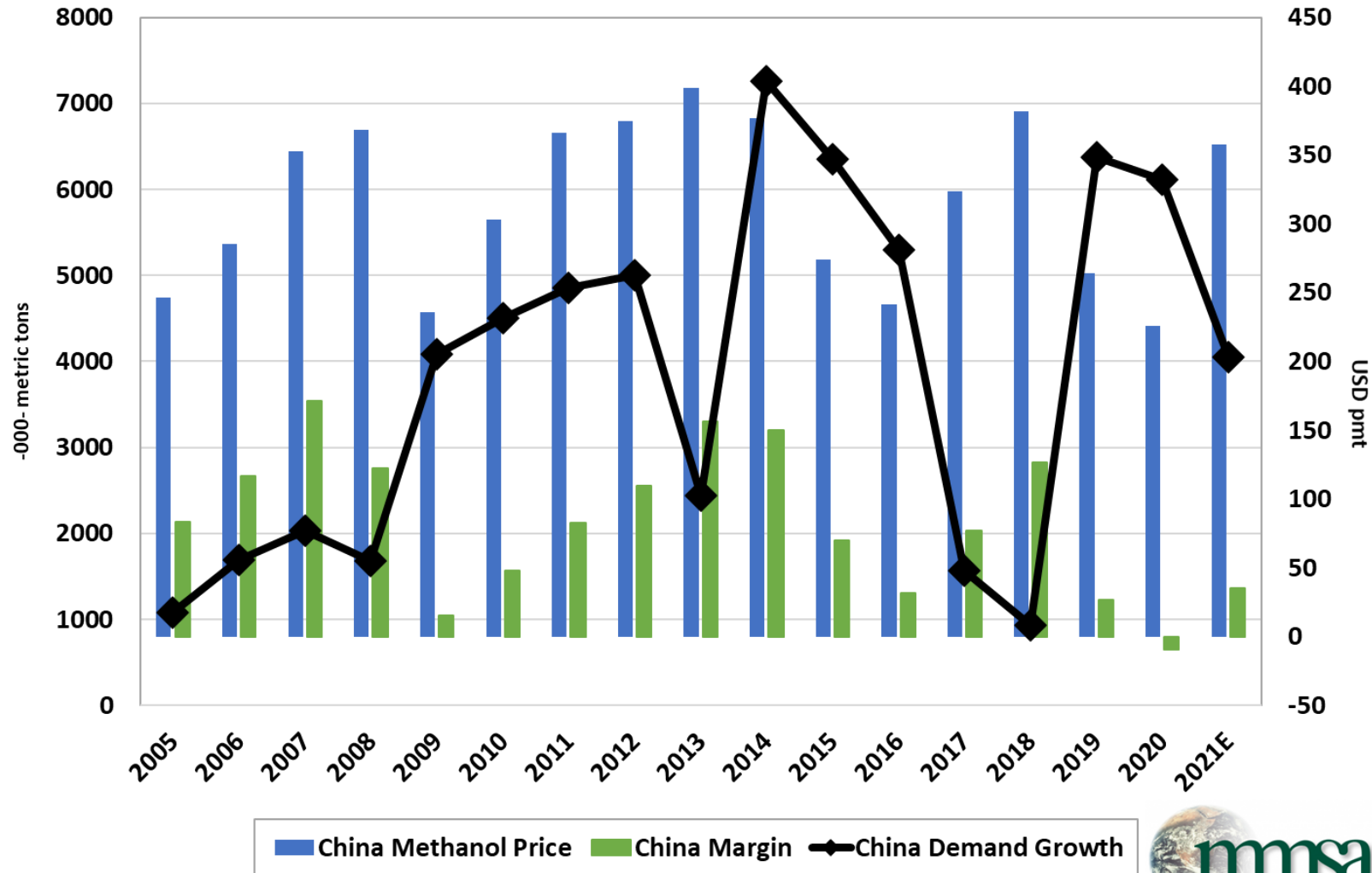


## Global Methanol Pricing - History and Forecast



# Price elasticity of demand in China: demand growth often inversely proportional to margins

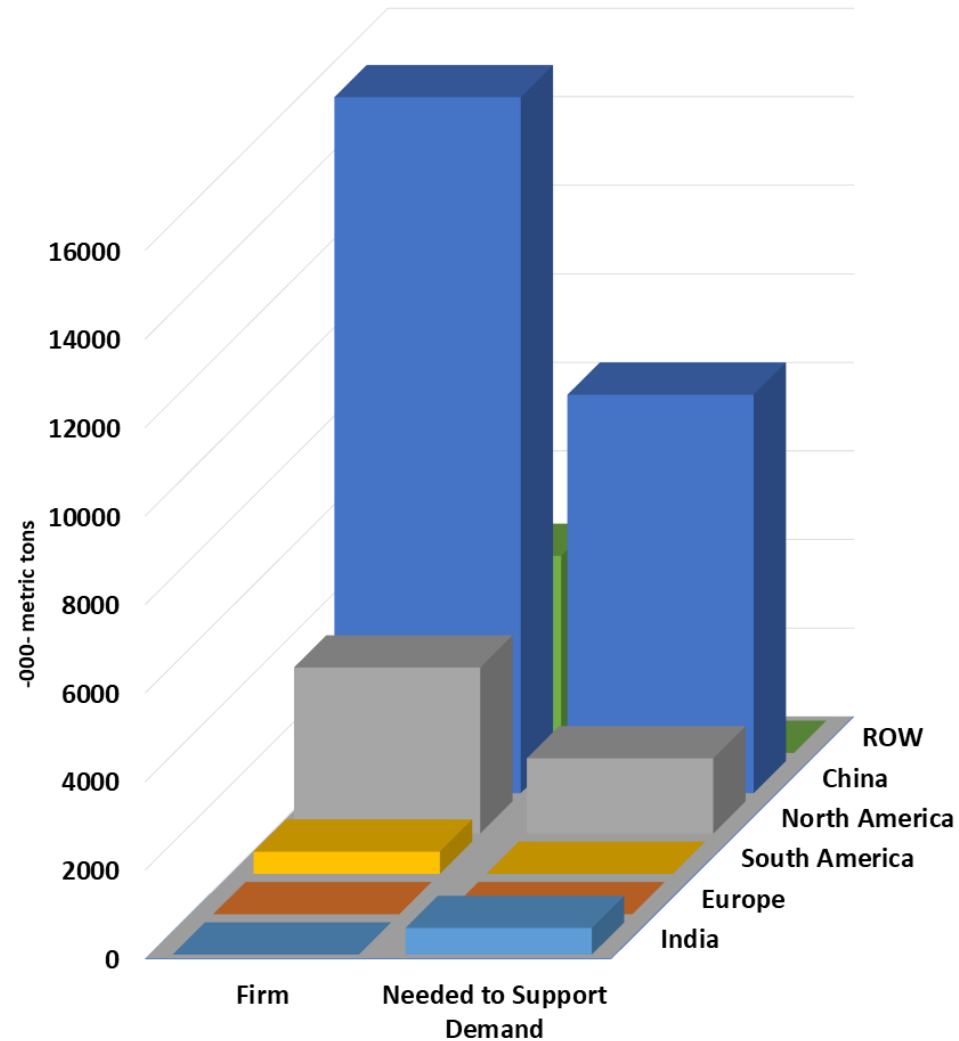
## China Methanol Prices, Margins v Demand Growth



# More “Firm” capacity helps support demand growth, with investment necessary longer term less clear – where and what??

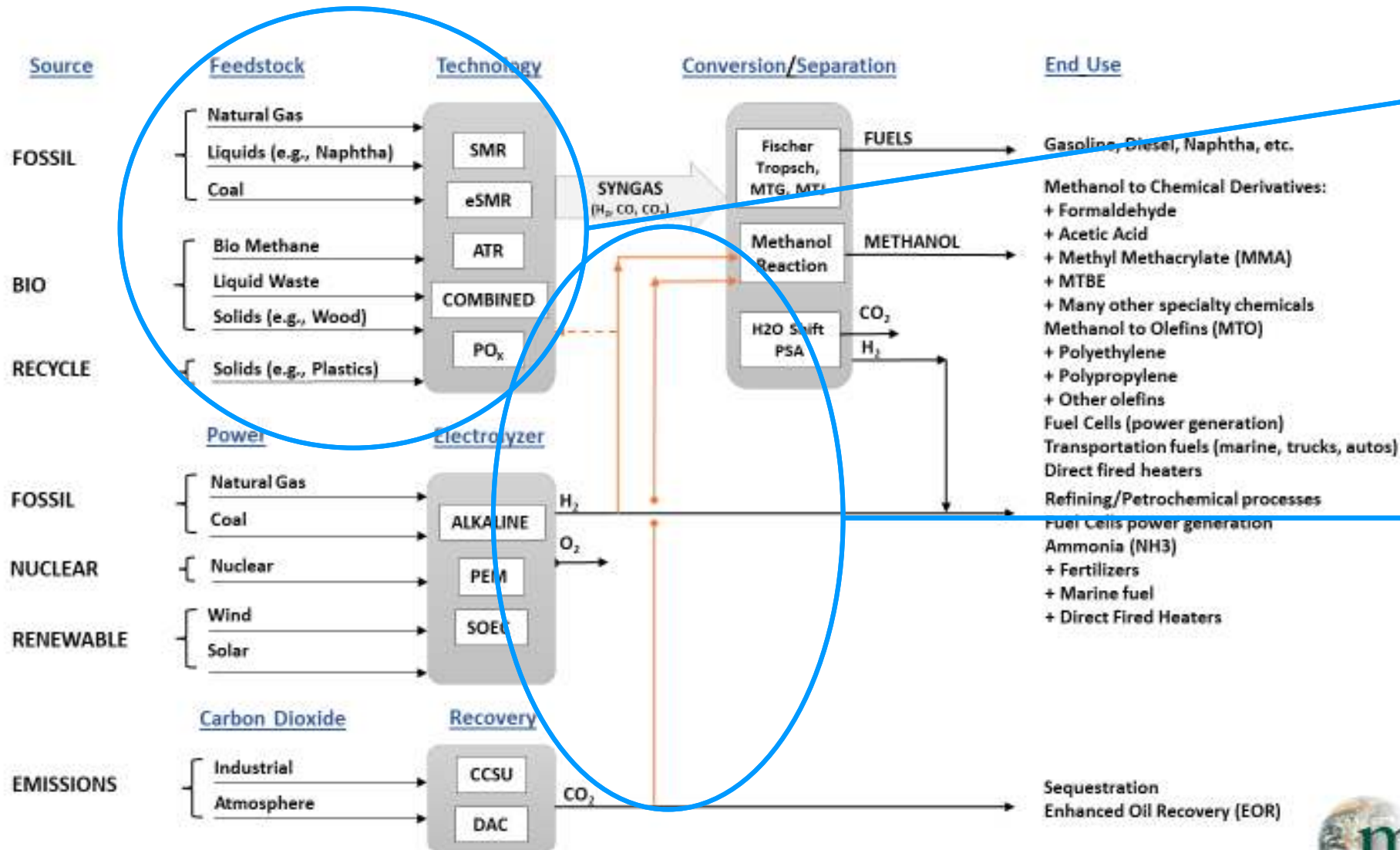


## Estimated Methanol Supply Growth, 2020-2031E





# Methanol is, will be part of global de-carbonization. To what extent is a function of viability of commercially available approaches.



- Investment in higher efficiency syngas operations appears to be “quick win” at manageable cost
- MeOH Biofeeds are limited yet, with policy support, offer rewards (REDII, LCFS, RFS)
- Renewable energy offers chance for very carbon-efficient meOH, with learning curve needed
- With CCSU, significant CO<sub>2</sub> reduction possible

- For a change, events outside China have factored significantly in current global market condition (classic price fly up, led by West, spreading to China)
  - Poor methanol operational performance in Atlantic Basin as US and EU economies grow
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  - Longer term
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- After recovery of current methanol supply, next wave of investment is stalled by perceived need for, and costs of decarbonization
  - Yet there is a clear and potentially massive role for methanol in the energy transition



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