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23 Septiembre

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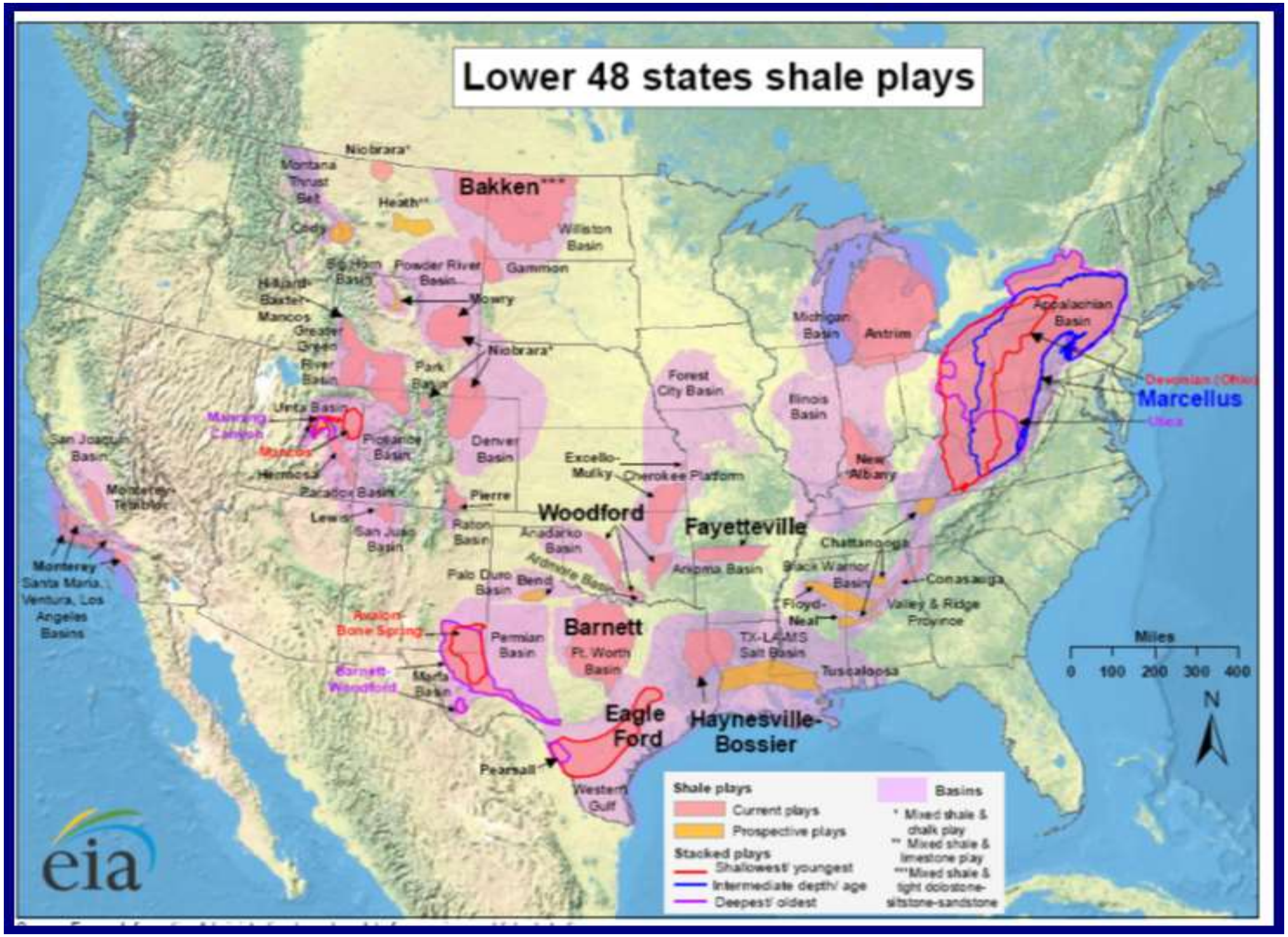
How will the methanol industry absorb expanding US (shale driven) capacity?

Dave McCaskill
VP Methanol & Derivative Services
Argus JJ&A
Houston, TX

Agenda

- Shale Gas Overview
  - NGL's, LPG's, Ethane, Propane, Naphtha
- Methanol Industry Perspective/Relationship
  - Global Overview
  - North American Market Review
    - Industry Perspective/Relationship
    - US Methanol Demand/Supply
    - Mexico Derivative Demand
  - US Methanol Industry & Capacity "shake-up"
    - Demand/Supply
    - Capacity – Global and US
    - Drastic Change in the US Market
    - Methanol Industry Capacity Additions (US Focus)
- Methanol Industry Cost Structure
- Methanol Price Trends/Outlook

The Shale Revolution in the US has/is Changing Global Market Dynamics



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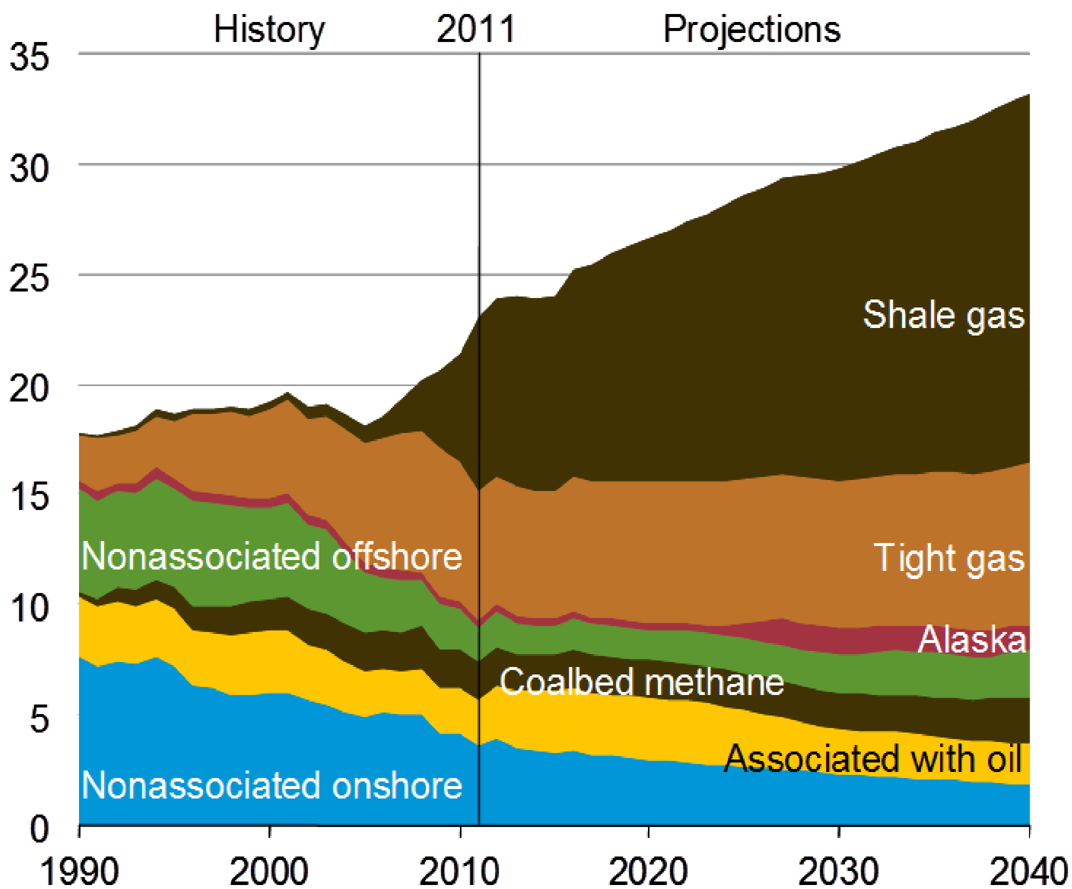
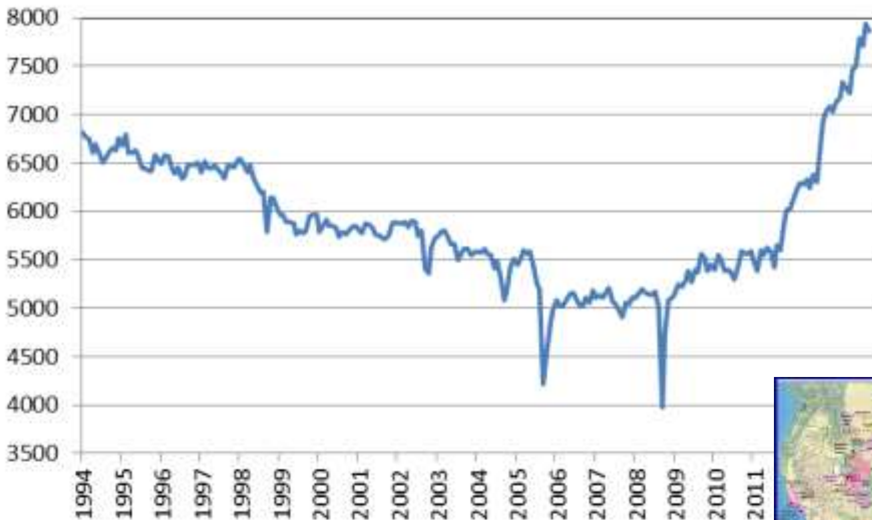
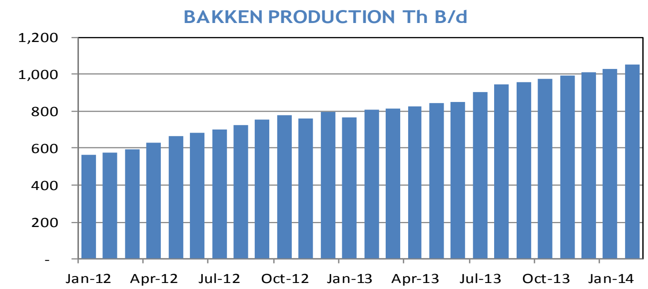
EIA projection for lower 48 states gas production, TCF/Y

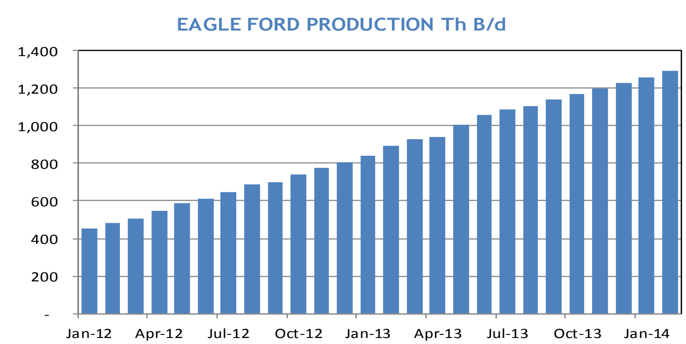


- EIA, in their latest Annual Energy Outlook, sees lower 48 natural gas production rising 44 % between 2011 and 2040
- Shale/Tight Gas production is responsible for all of the growth, offsetting the decline in the conventional gas plays

US Oil Production is up 60% in 60 Months as a Result of Increased Shale Oil Production







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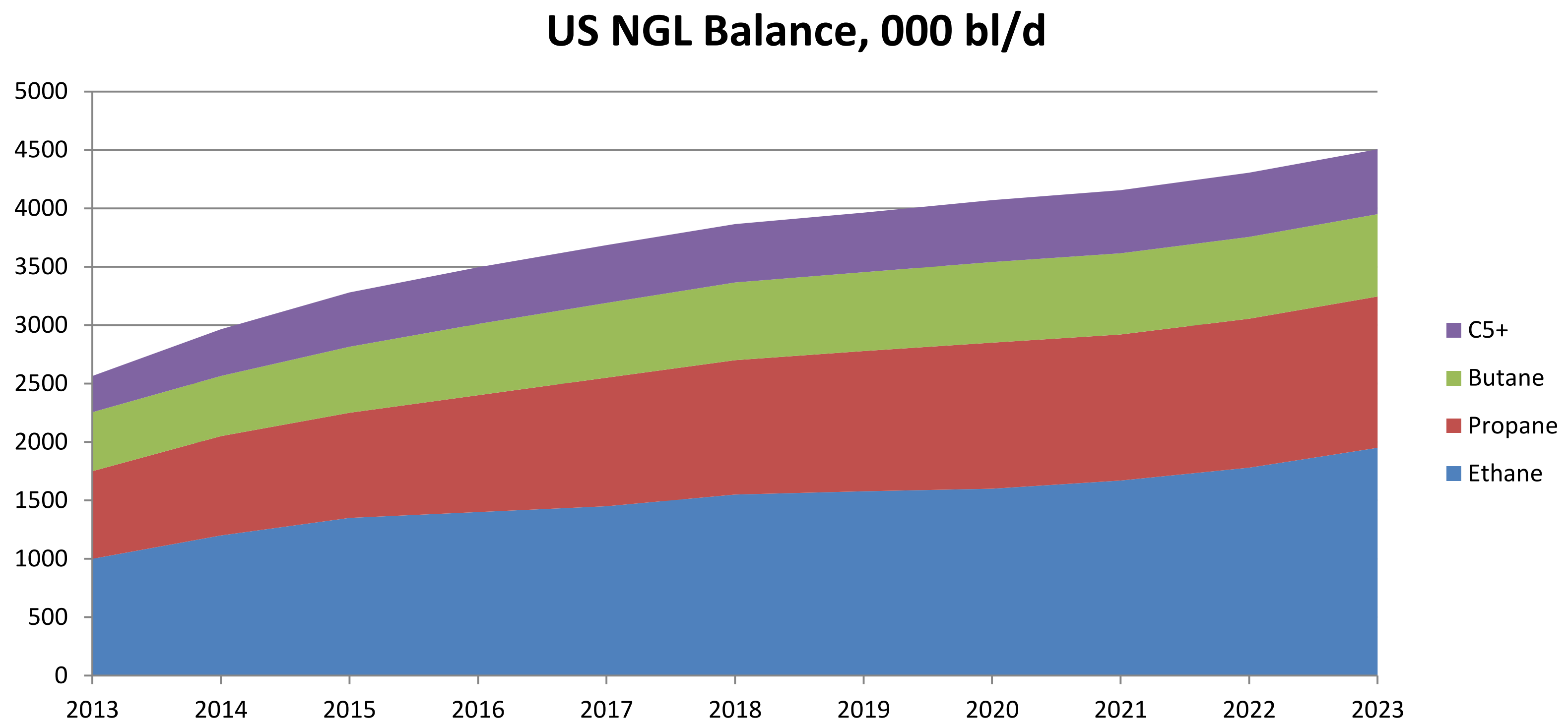
NGL Supply from Natural Gas Forecast, Kbl/day

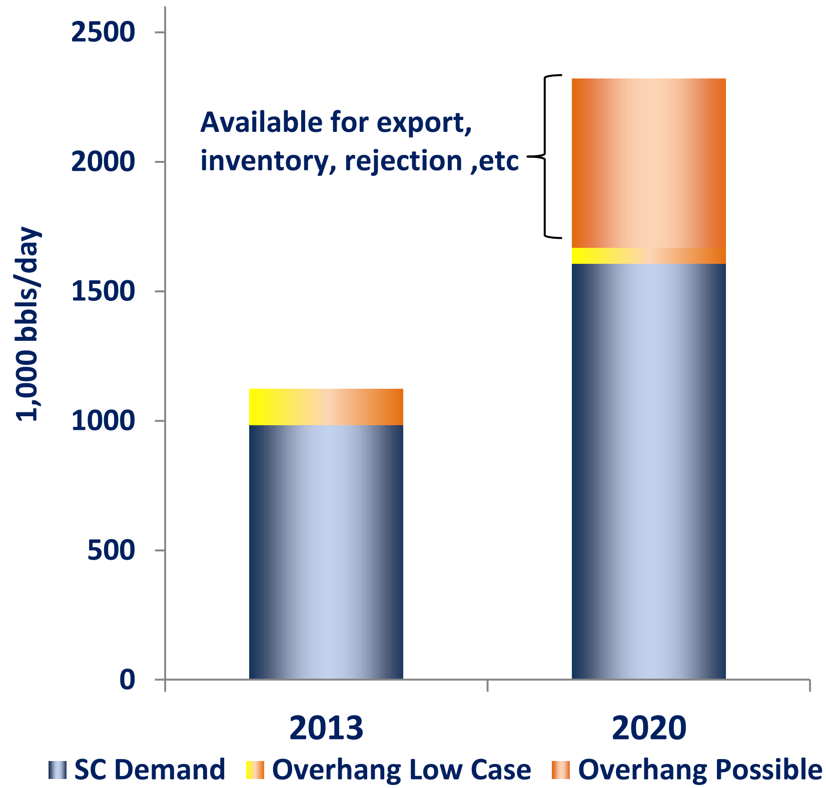


- Ethane supplies adequate, even with planned exports
- More than adequate propane to supply new PDH units
- Butane exports will need to increase

Ethane will be plentiful….Propane is a Similar Story

- Ethane supply estimates vary widely
- Steam cracker demand could jump from 1 million b/d to >1.6 million
- Exports expected
- *PDH units will be plentiful*

US ethane supply



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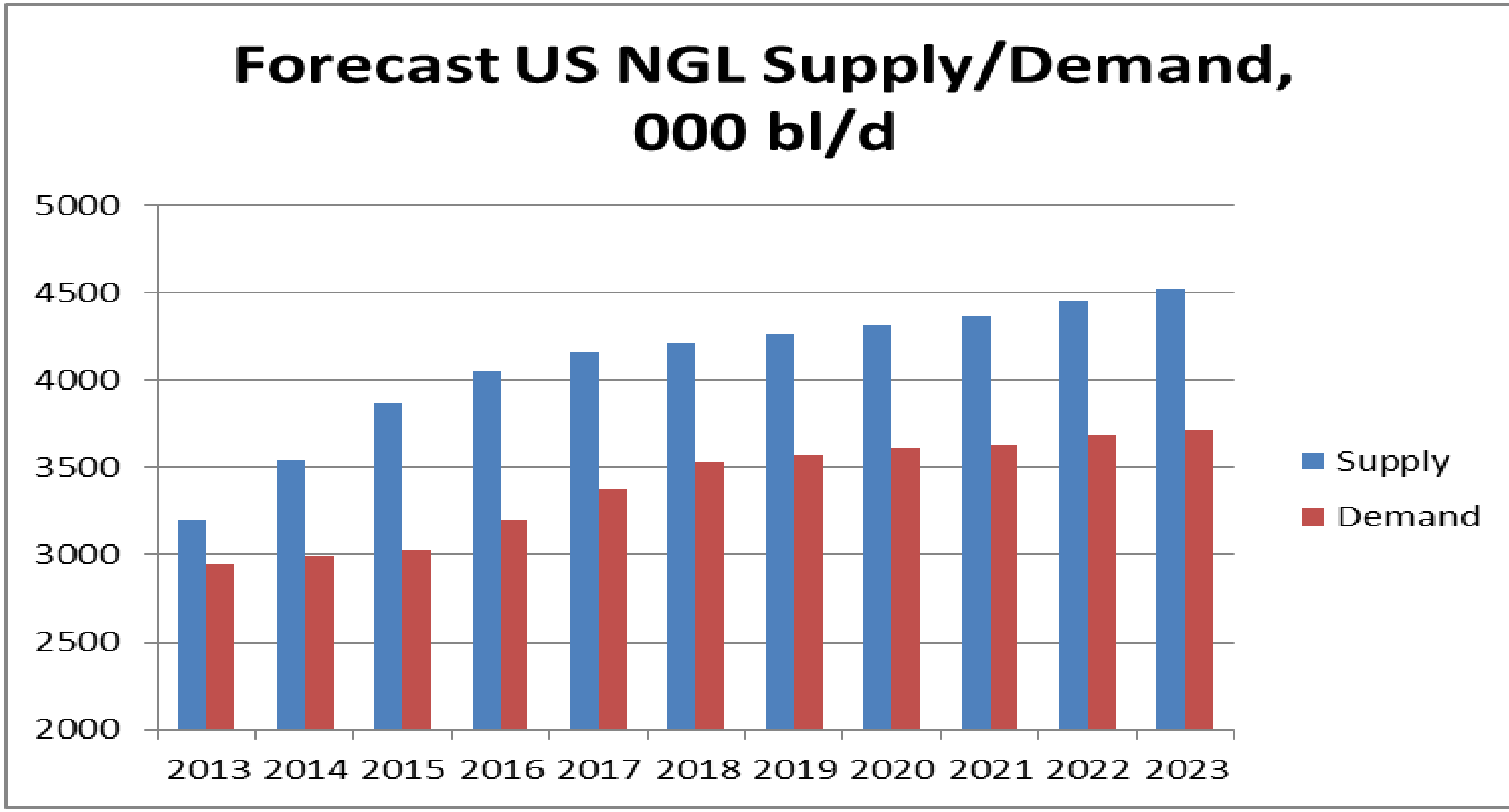
US NGL Supply/Demand – '000 Bbl/d



- Includes LPG from refineries
- Exports could top 800kbl/day on average; over 1mm bbl/d in summer
- With gasoline demand faltering, even more butane could be available

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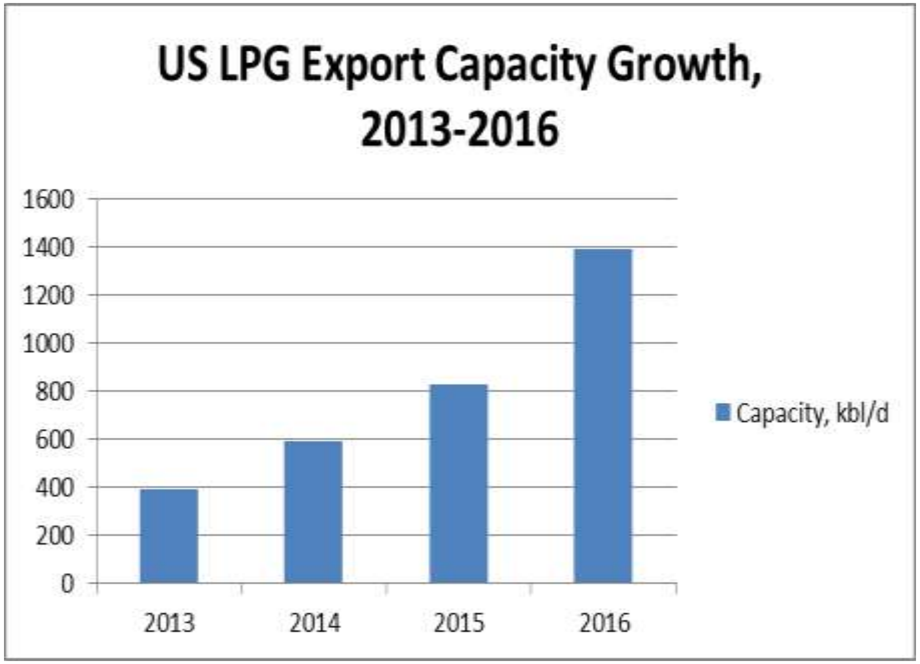
US Adding LPG Capacity….

- US now no. 1 exporter
- Announced projects will result in almost 1.4 mmbl/day of capacity by 2016
- Utilization high in the summer, but could hit low 70's on average if all projects are developed



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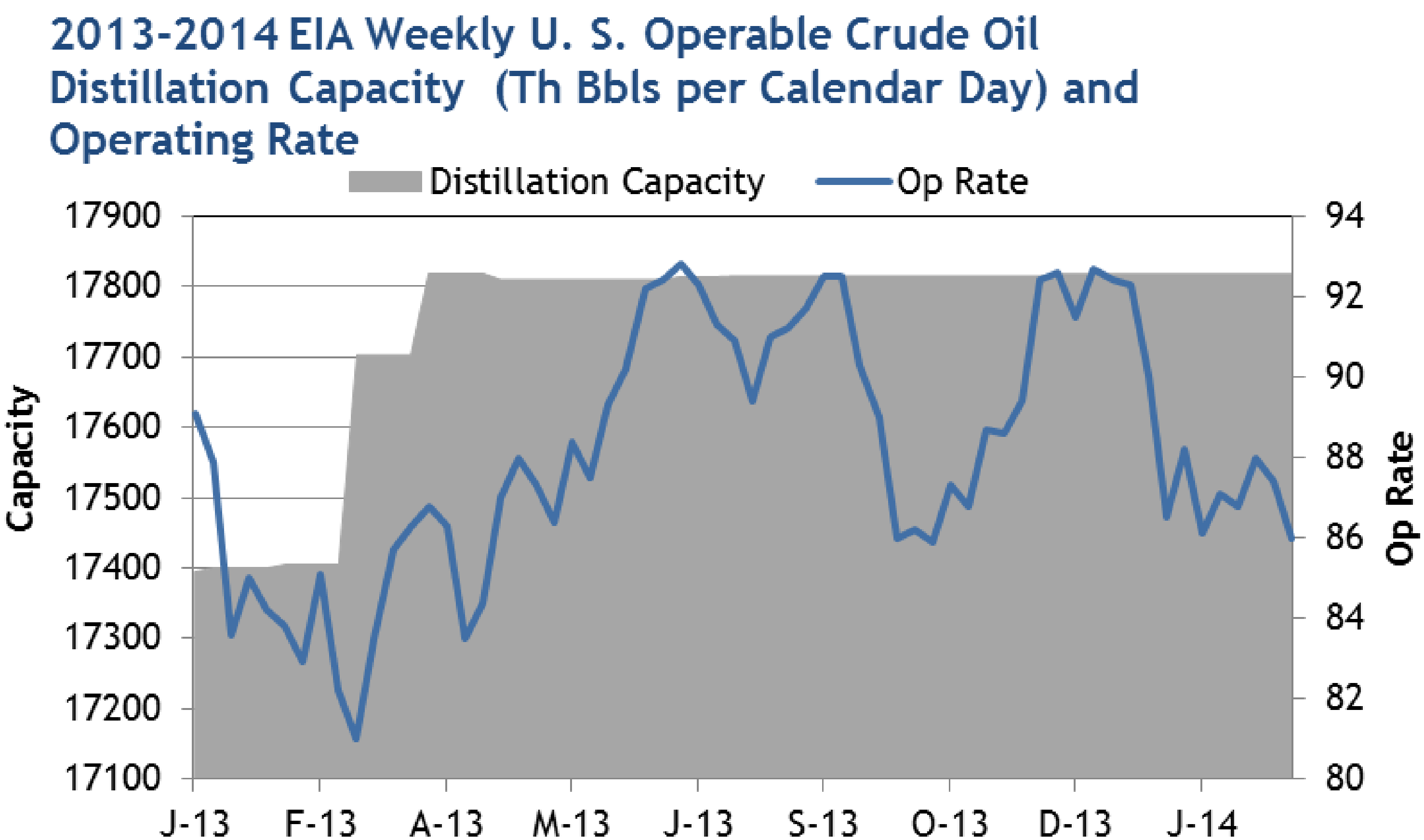
US Crude Distillation Capacity is Expanding, and Utilization Rates are High….



- Valero and Marathon are adding distillation capacity to process more shale crudes

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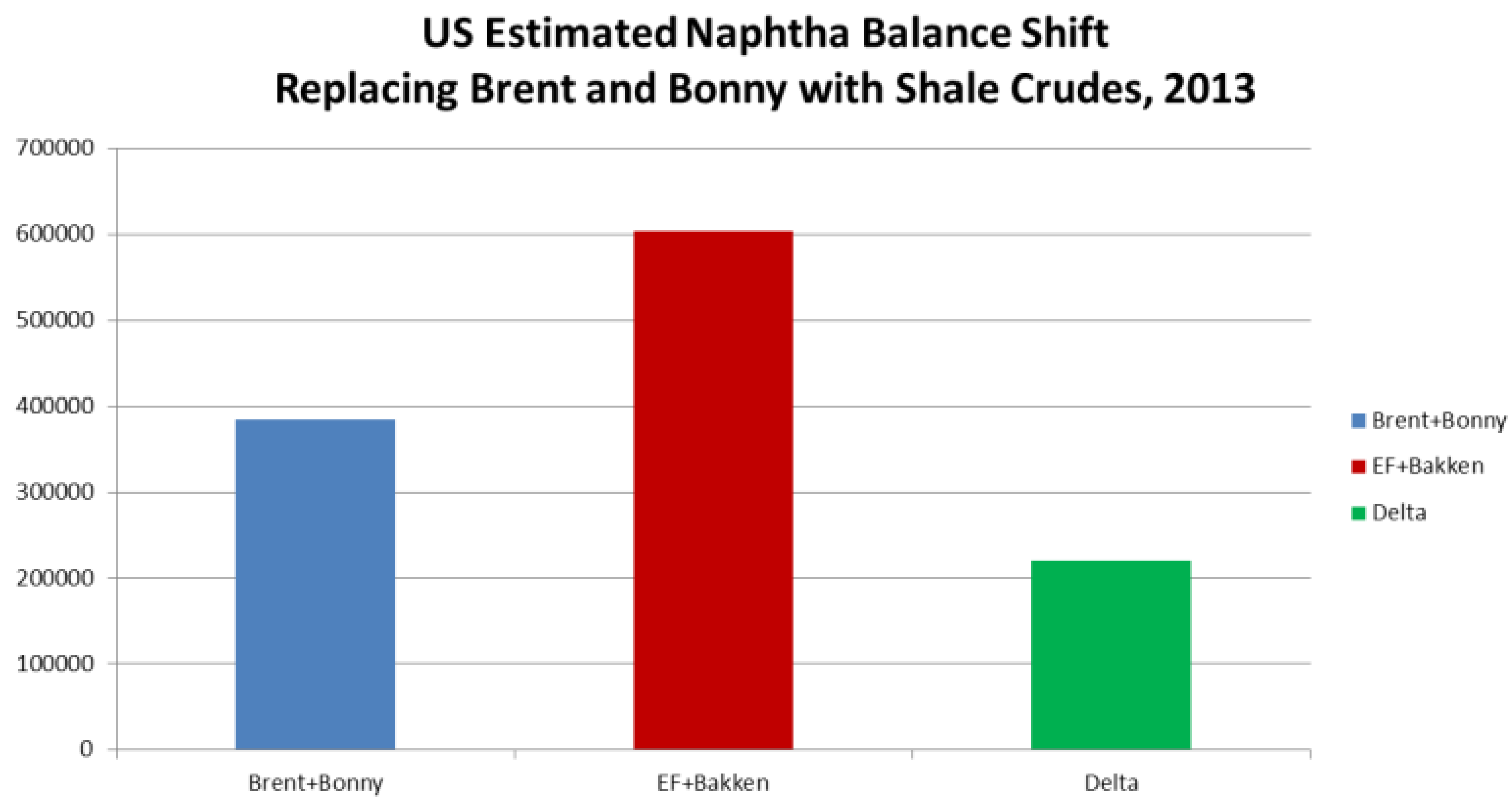
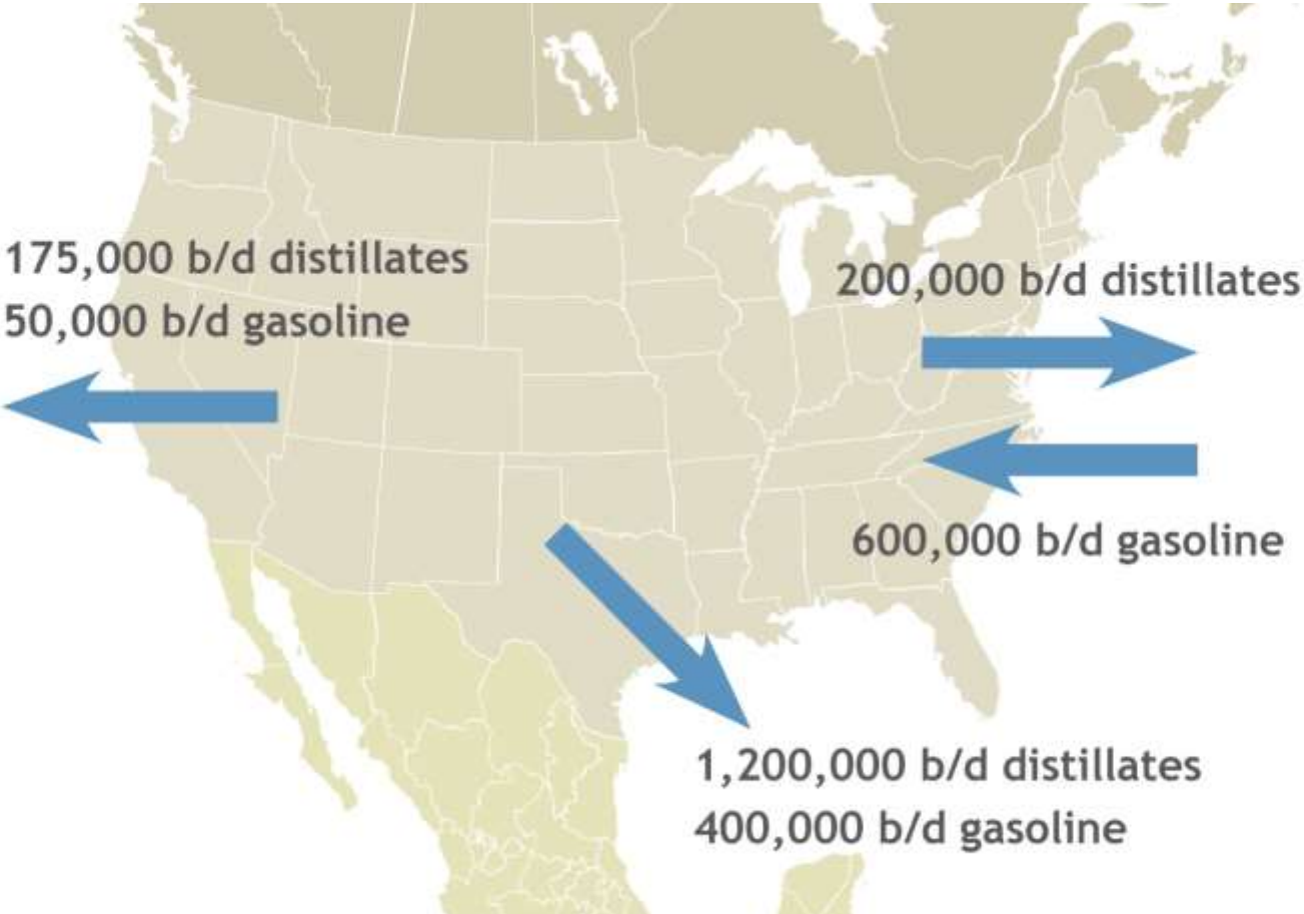
… and as a Consequence of the Quality of US Shale Crudes, Much More Naphtha is being Produced



- Based on replacing 1.6mmbbls per day of Brent/Bonny with Eagle Ford and Bakken
- With forecast production growth of shale crudes (up to 4.0MM bbls per day by 2020)

The US has Sought to Manage this Naphtha Length by Increasing its Exports of Gasoline



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Shale Gas/Oil Summary

- Shale Gas is the Topic of Discussion, but Shale Oil is Perhaps More Important
- The US Moves to an Energy Exporter
  - NGL's
  - Gasoline's
  - Naphtha's
  - Crude Oil ???
- Abundant Ethane/Propane
  - Ethylene Production Soars
  - Propylene Follows - PDH
- *A Huge Mix of Petrochemicals Become Available for Aggressive Export Opportunities*

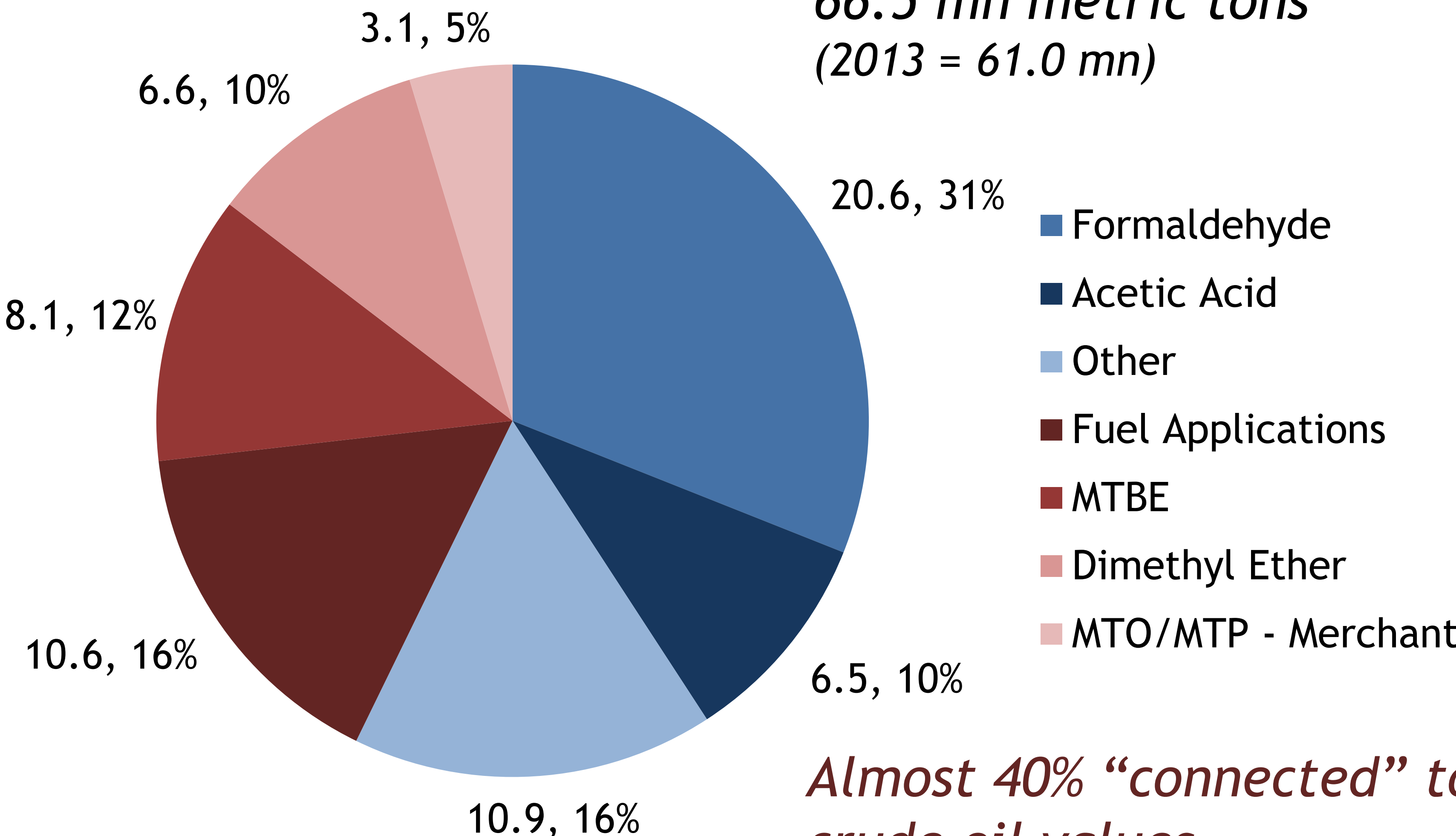
Moving to the Methanol Industry

- *With abundant shale gas….*
- *US methanol capacity could increase 10-fold by 2020.*
- *From today's 2 million metric tons capacity to over 20 million metric tons of capacity*
  - *MTO – Methanol to Olefins*
  - *MTG – Methanol to Gasoline*
- *The US is on a pace to become a large net exporter of methanol within the next 5 years*
- *Methanol price levels will come under pressure*

Global Methanol Industry Demand – 2014

excluding CTO/CTP

66.5 mn metric tons
(2013 = 61.0 mn)



Almost 40% "connected" to crude oil values

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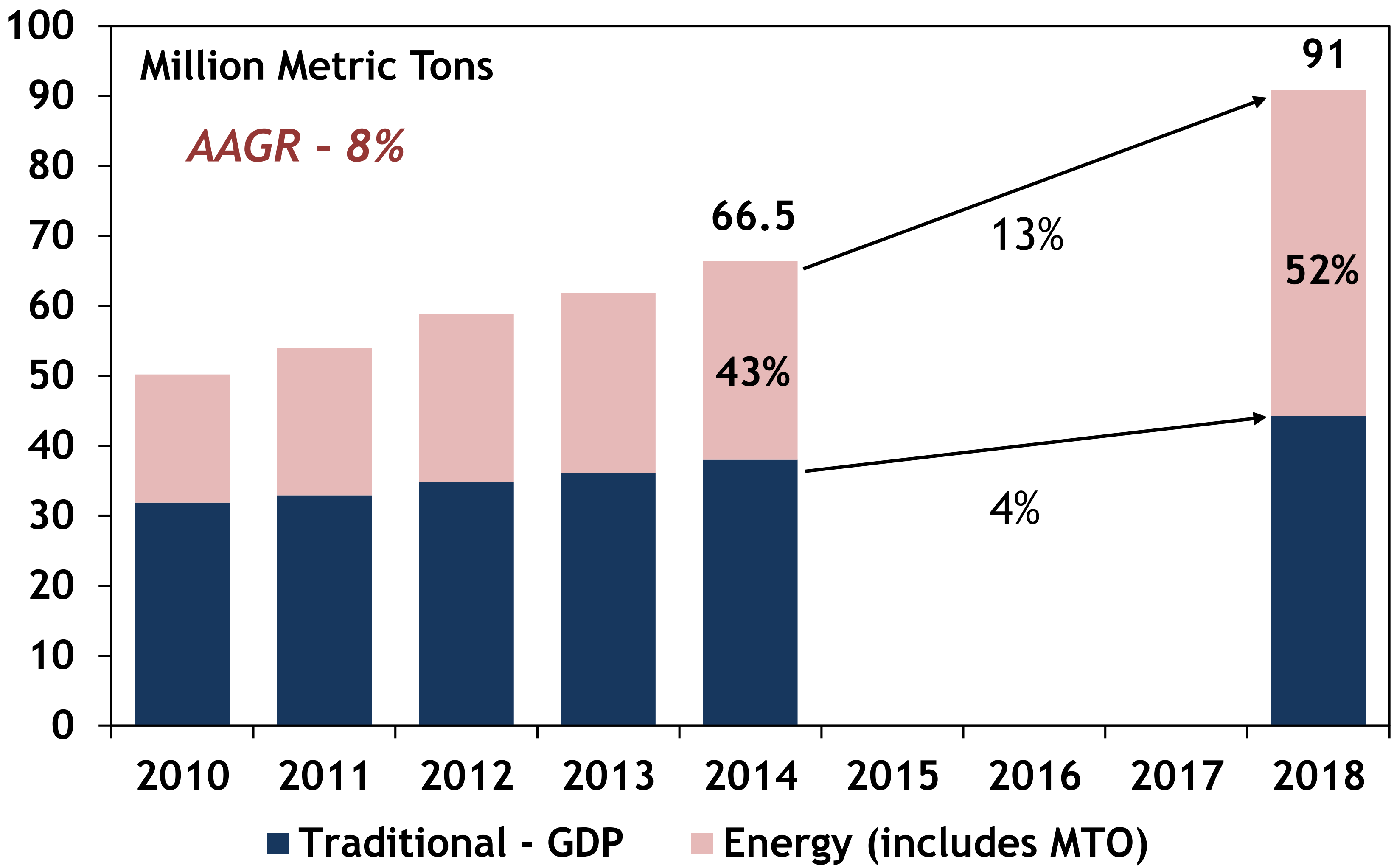
Global Methanol Industry Demand



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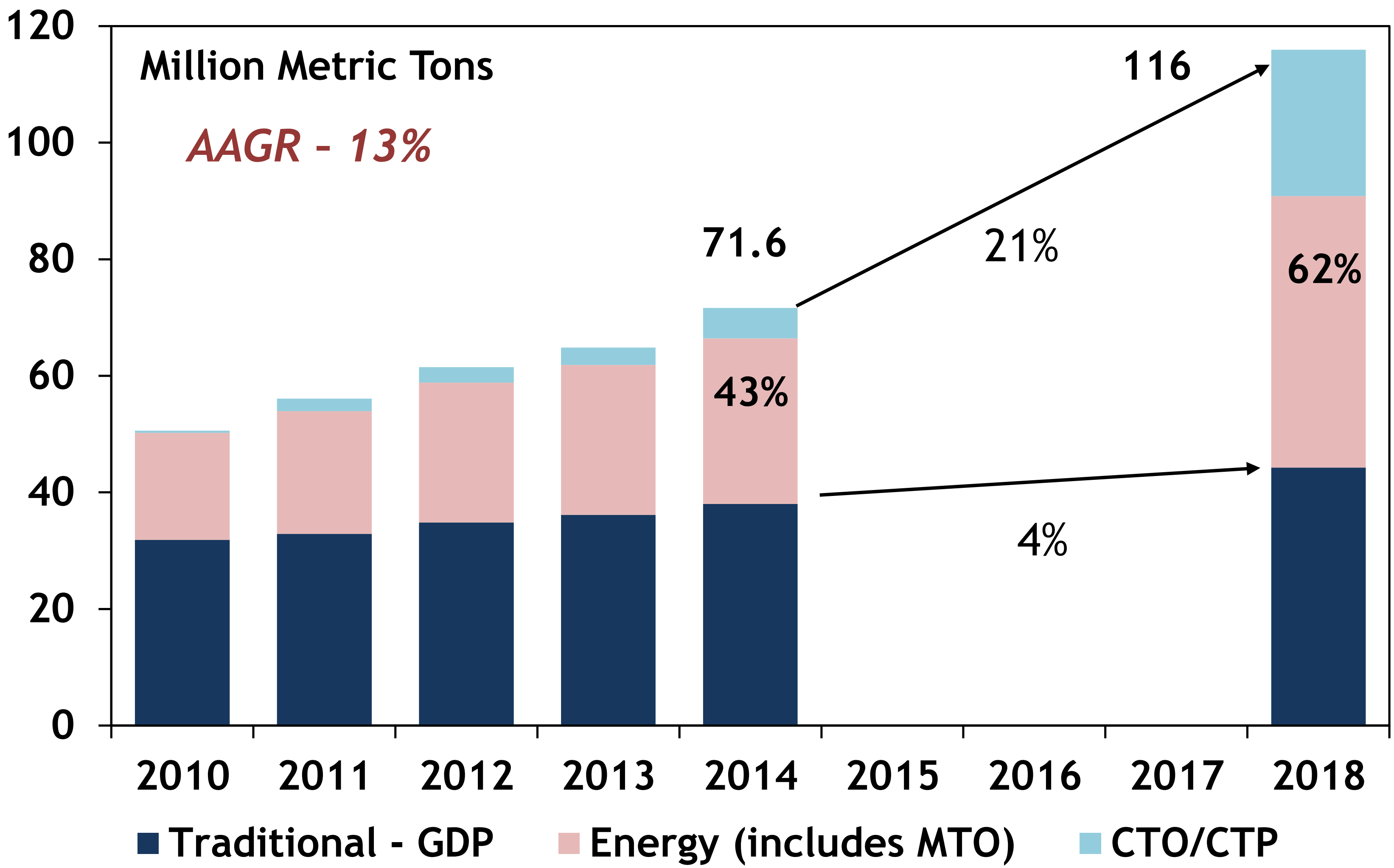
Global Methanol Industry Demand – *with CTO/CTP*



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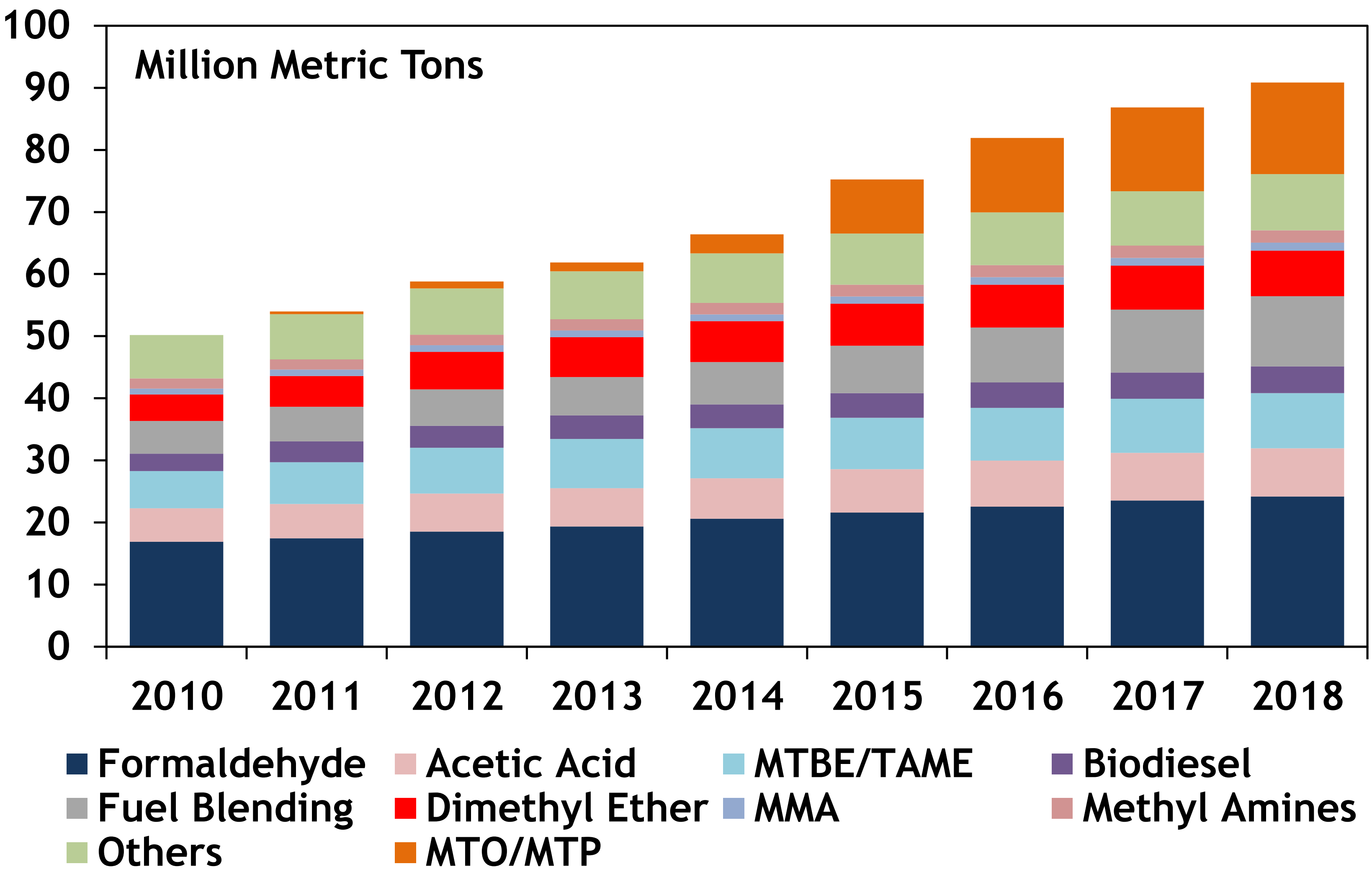
Global Methanol Industry Demand



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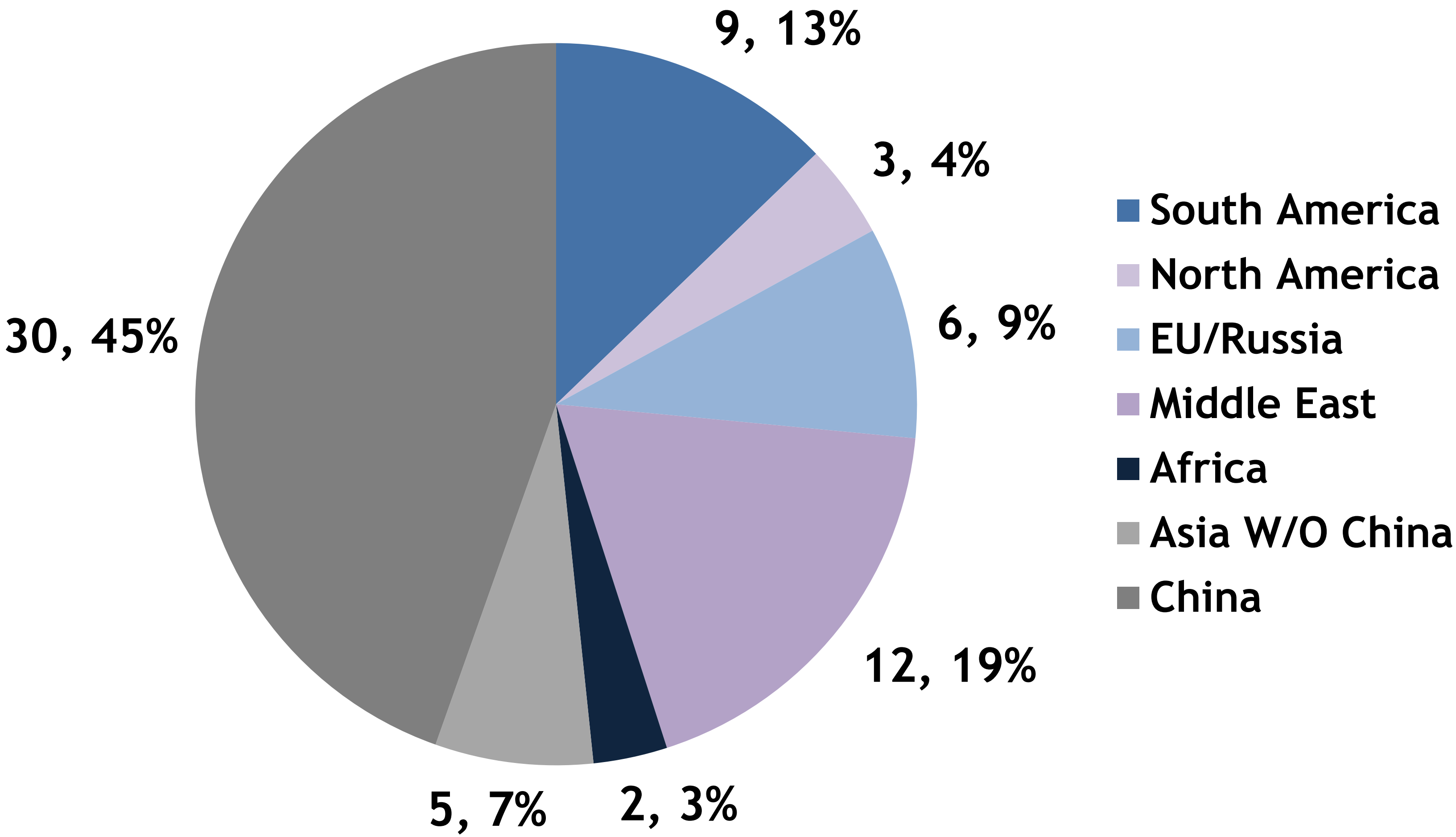
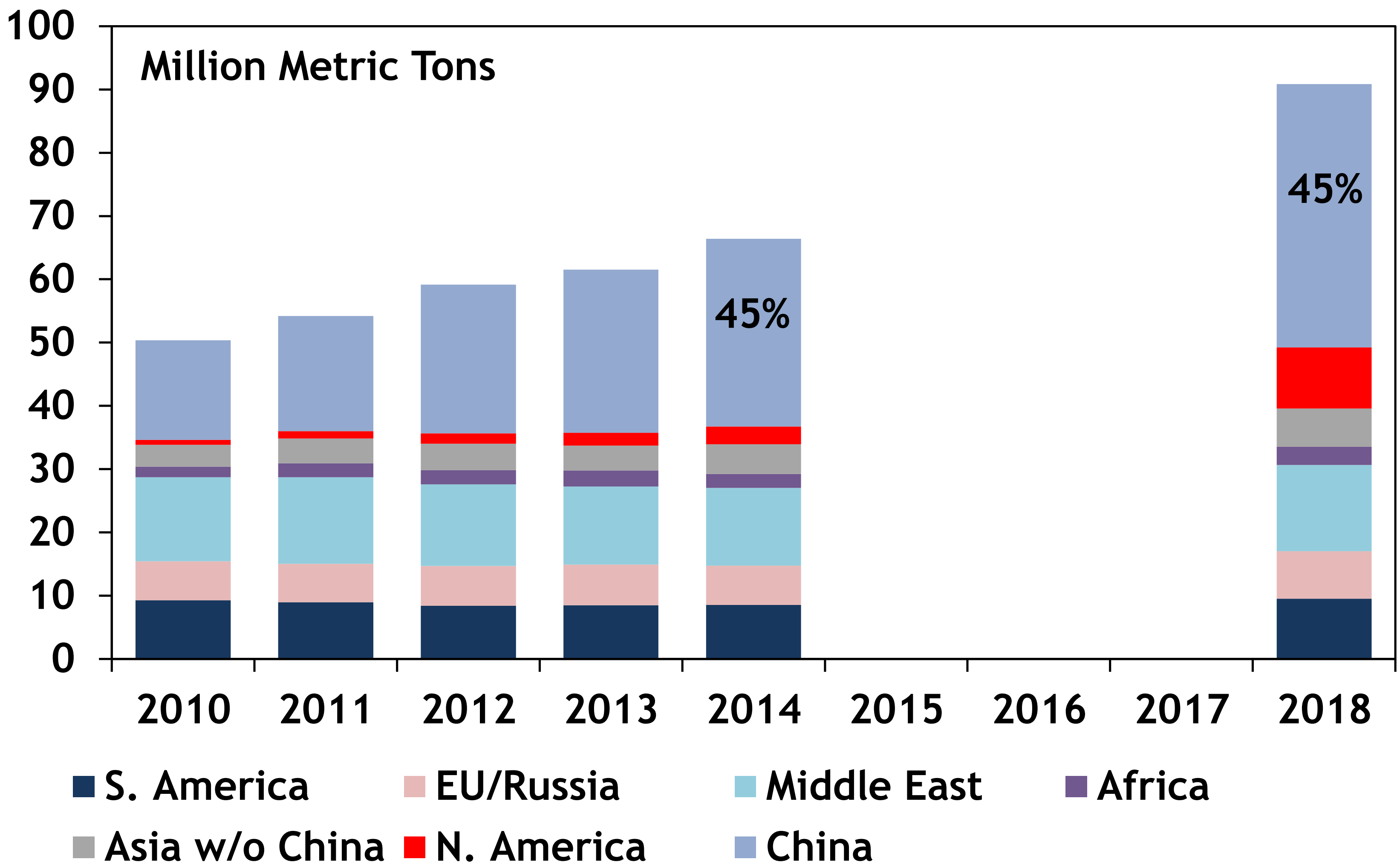
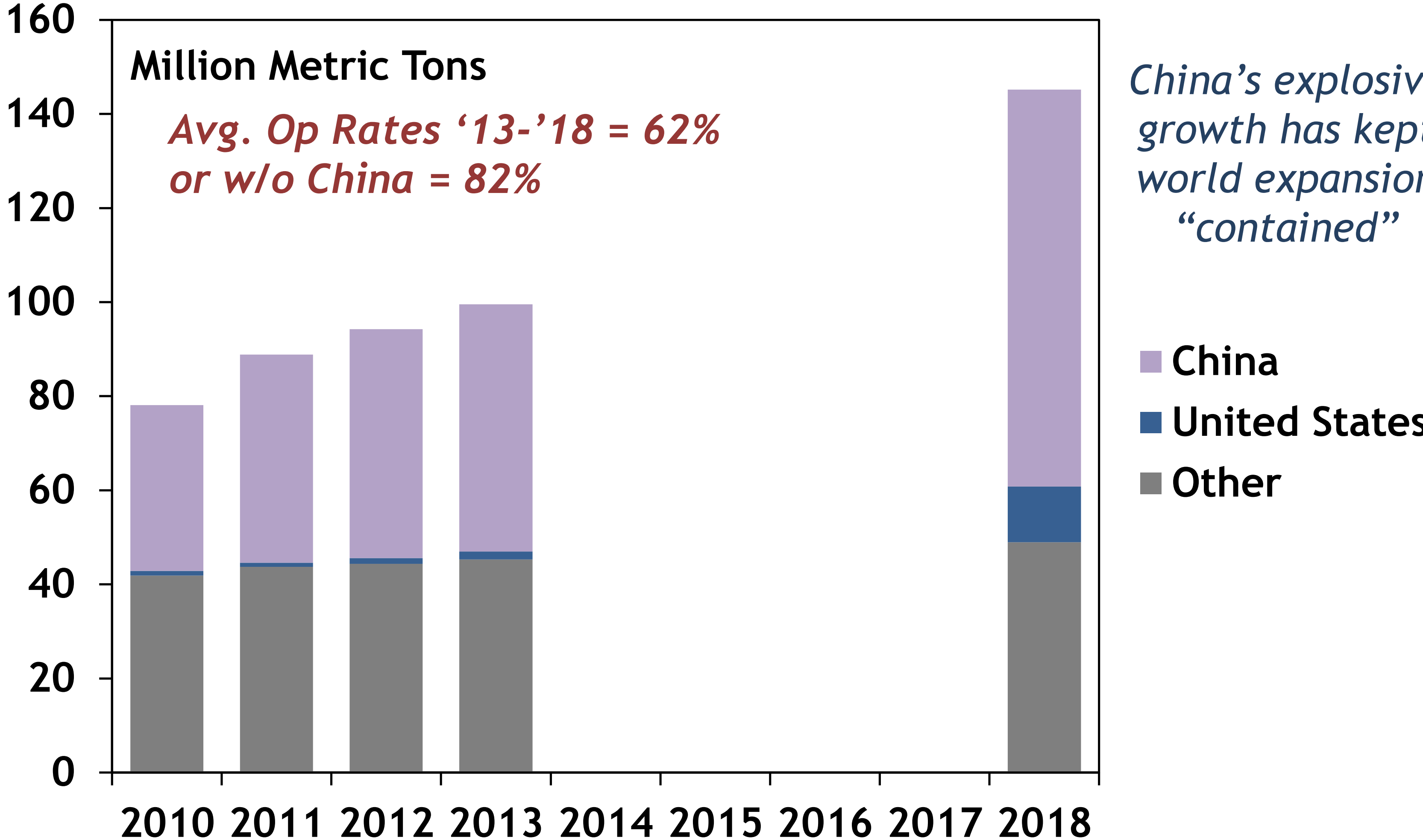
Global Methanol Industry Production – 2014



Global Methanol Industry Supply

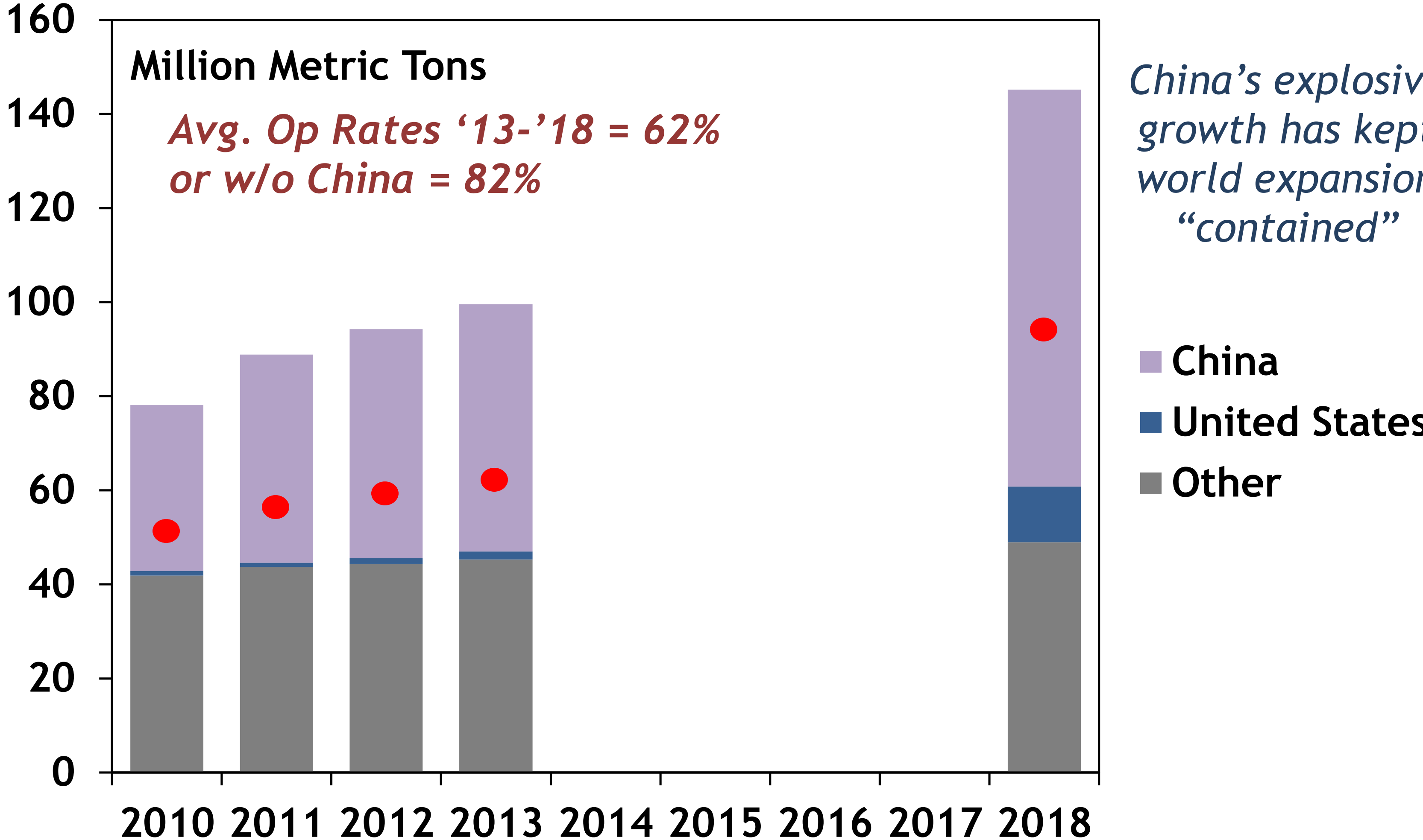


Global Methanol Capacity – *w/o CTO/CTP*



China's explosive growth has kept world expansion "contained"

Global Methanol Capacity – *w/o CTO/CTP*



China's explosive growth has kept world expansion "contained"

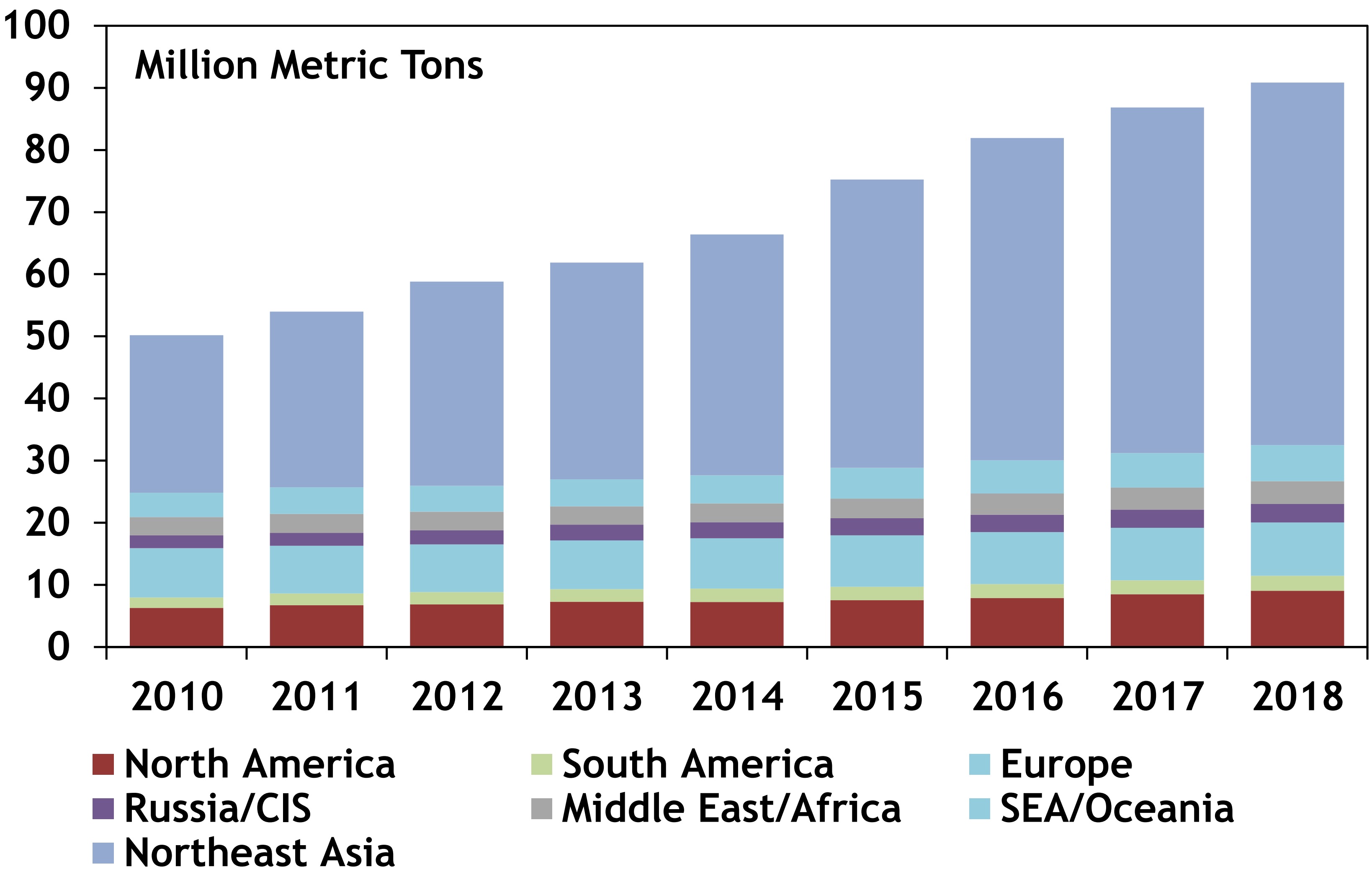
Global "Wrap-up"

- Methanol demand remains robust
  - Core GDP products see 4% growth
  - Fuel applications near 10%
  - Near term capacity growth continues in China and the US
    - Small additions elsewhere

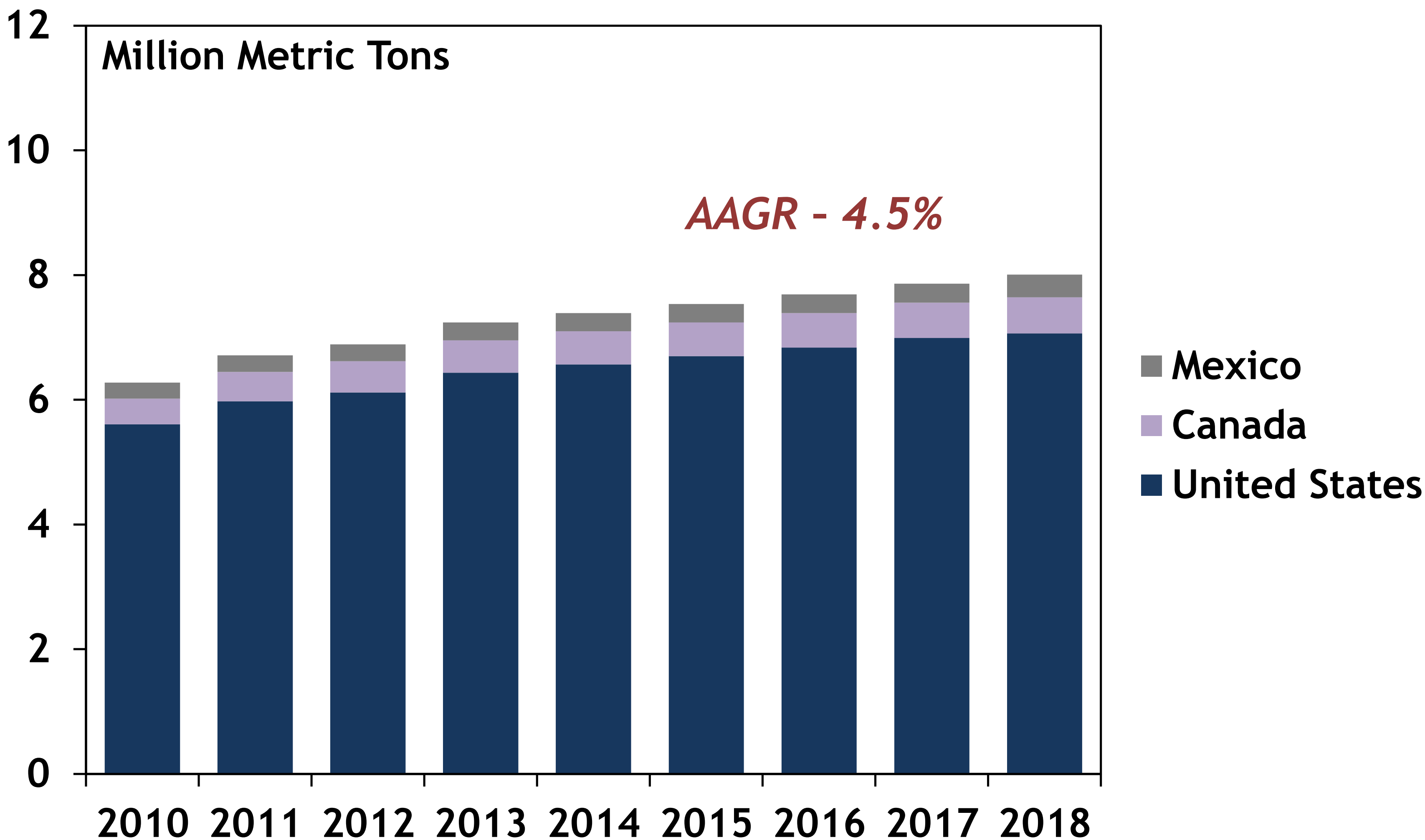
- *Methanol capacity additions will be absorbed*

- *The North America Market – US Capacity Explosion*

Global Methanol Industry Demand



North America Methanol Demand



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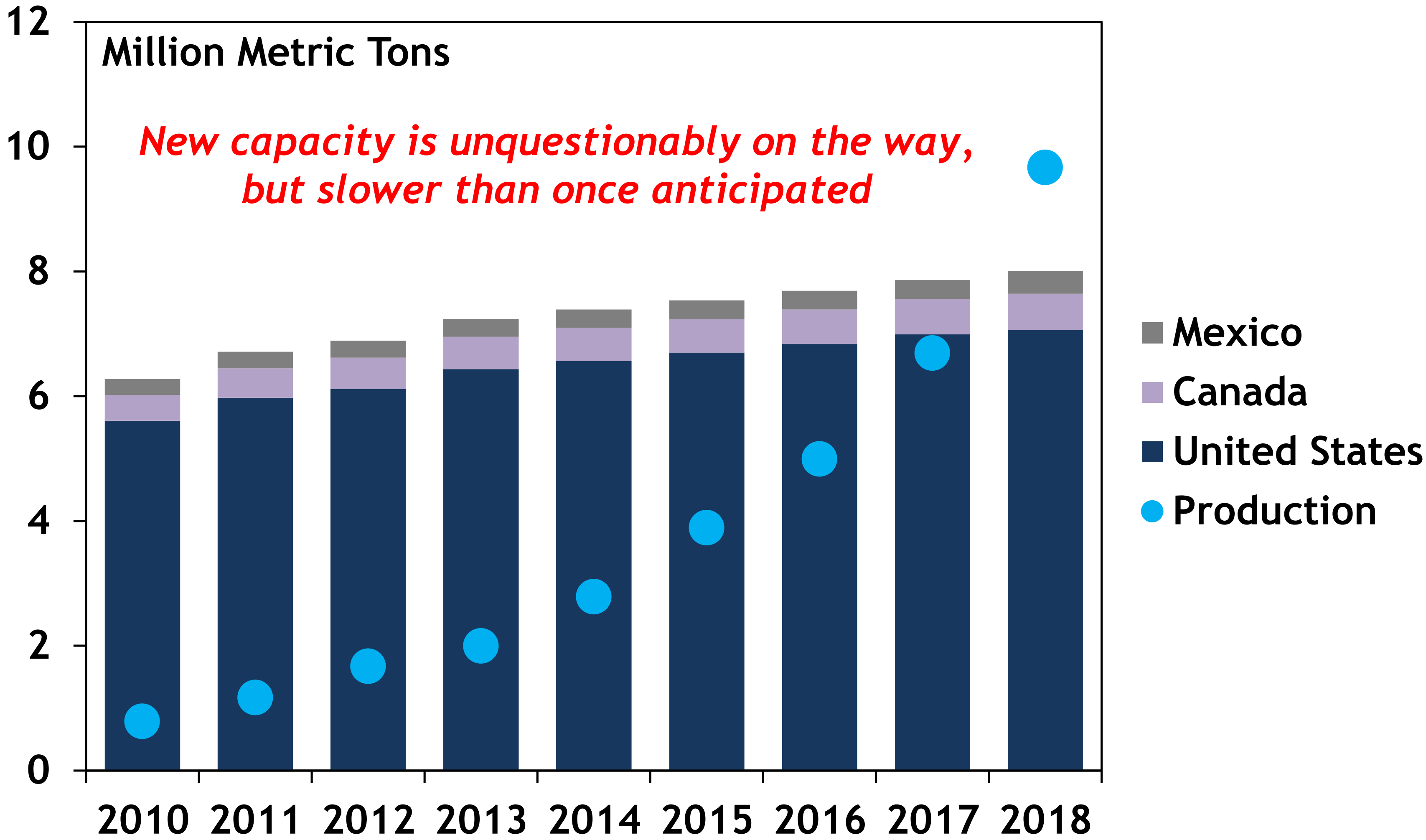
North America Methanol Demand



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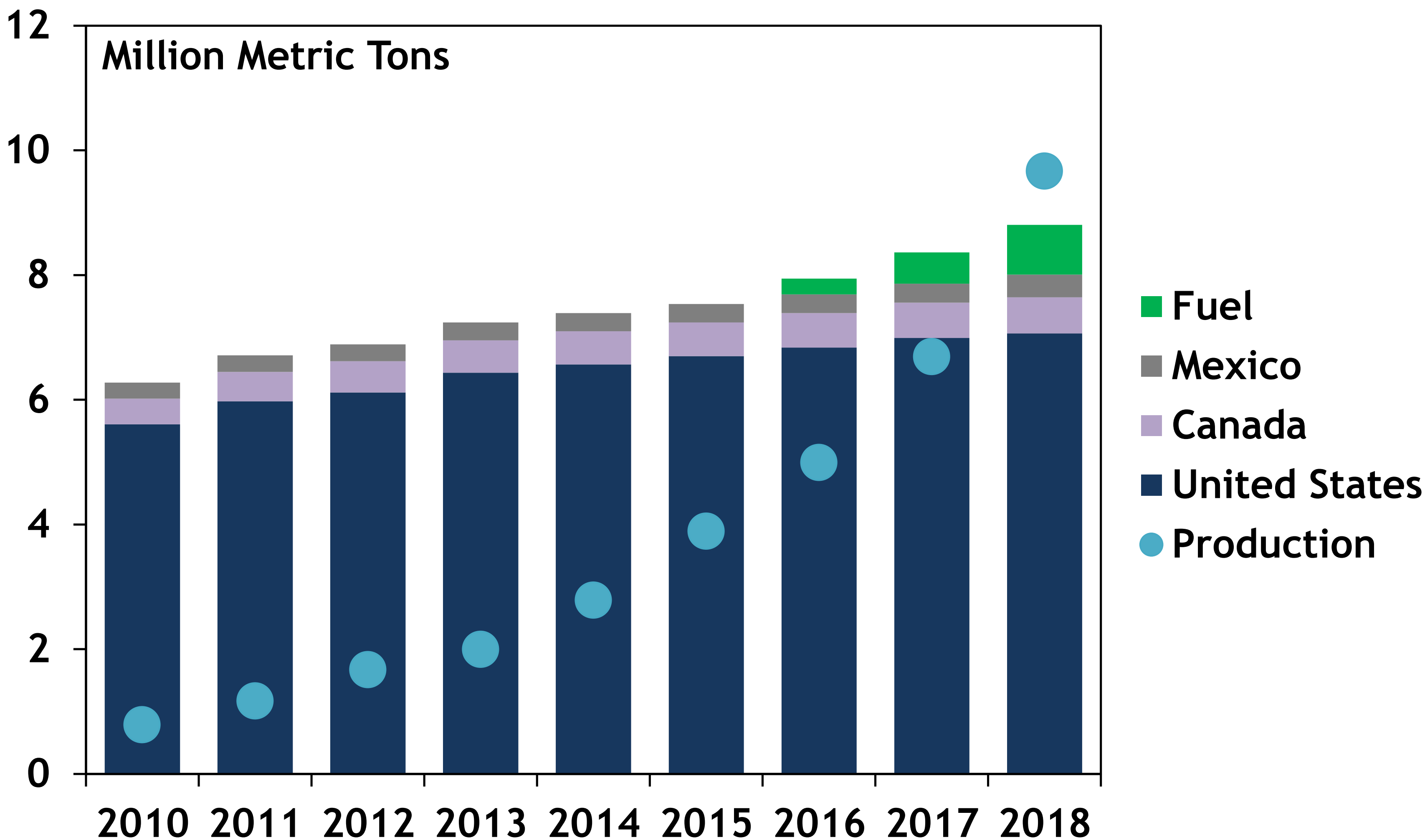
North America Methanol Demand



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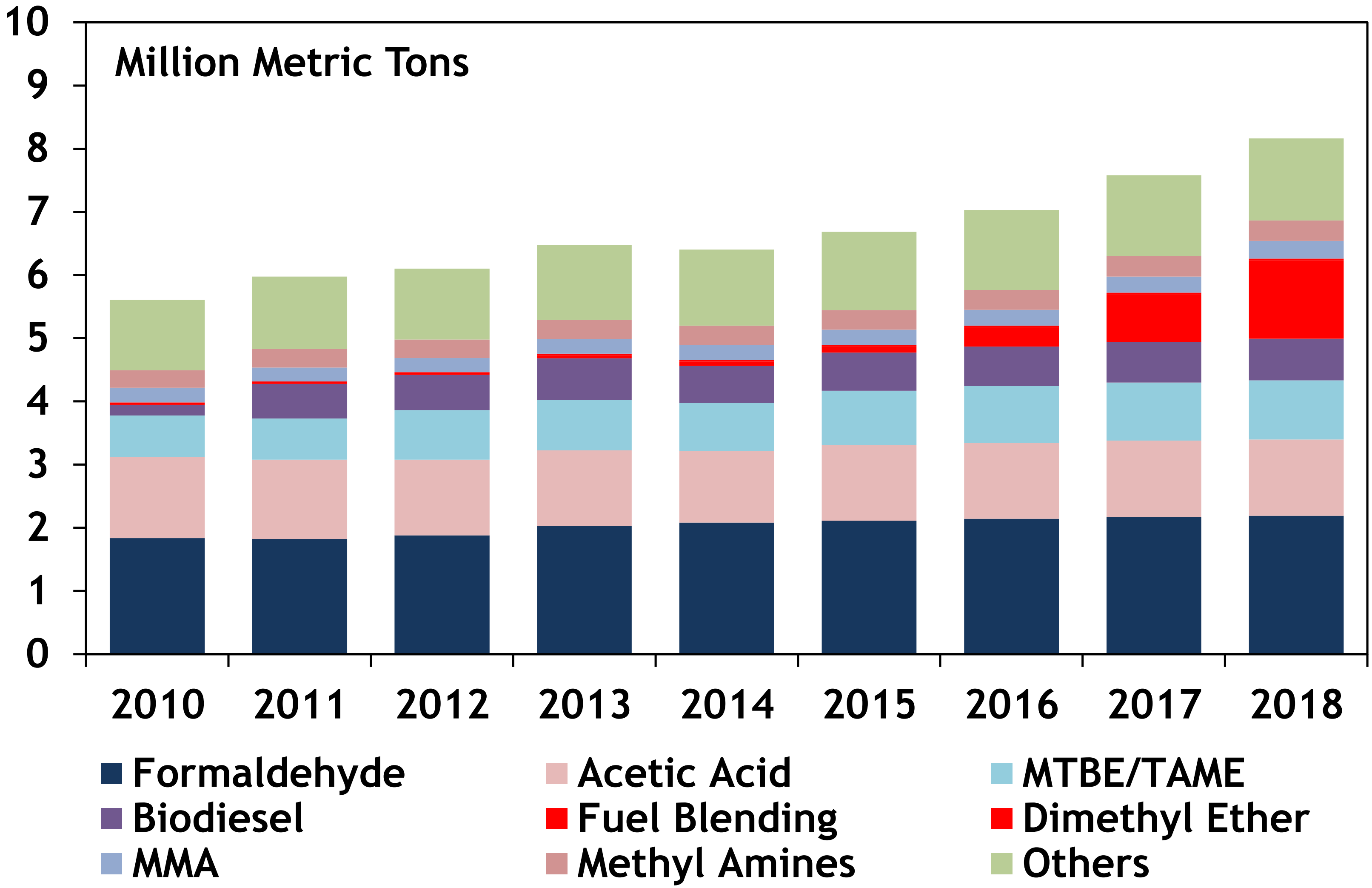
US Methanol Industry Demand



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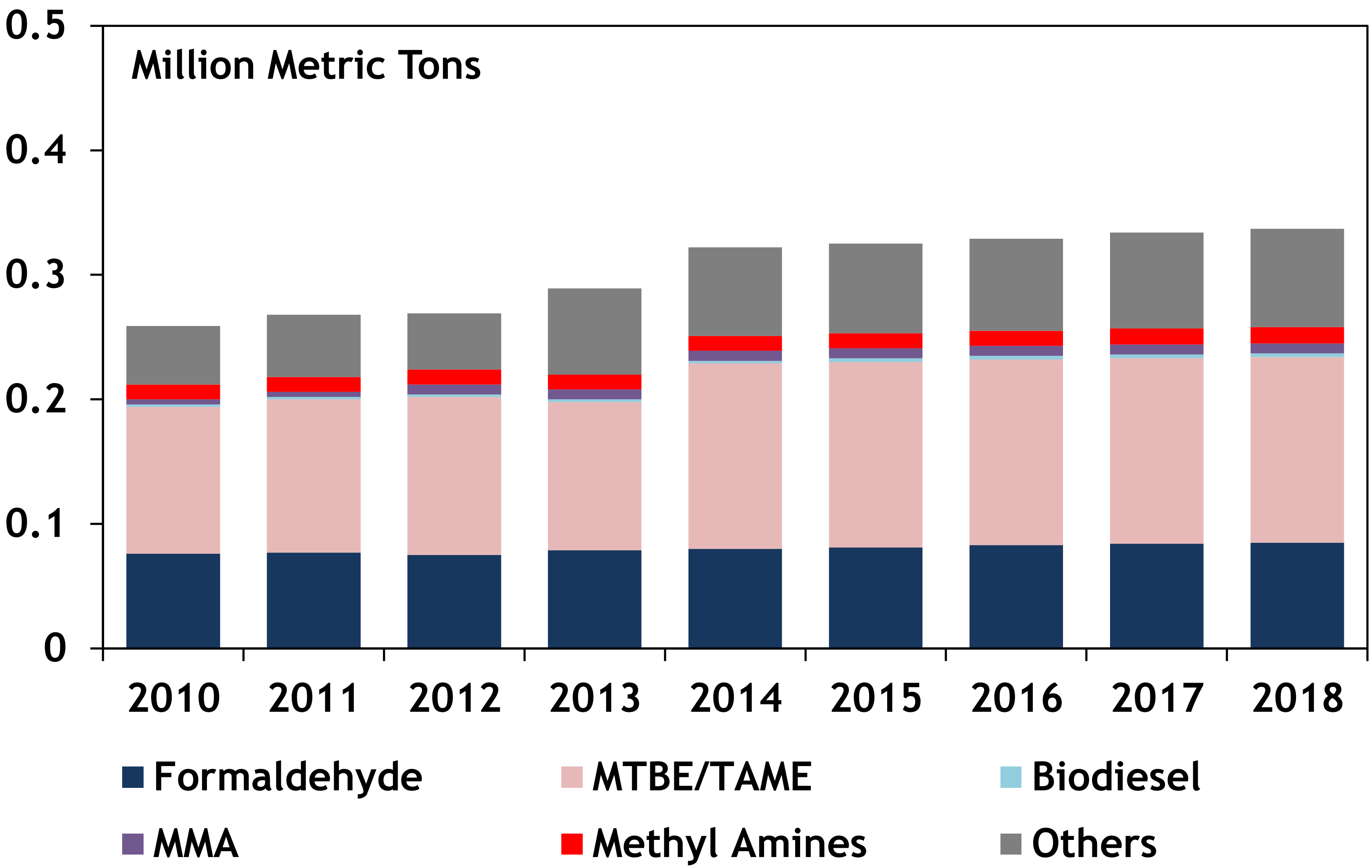
Mexico Methanol Industry Demand



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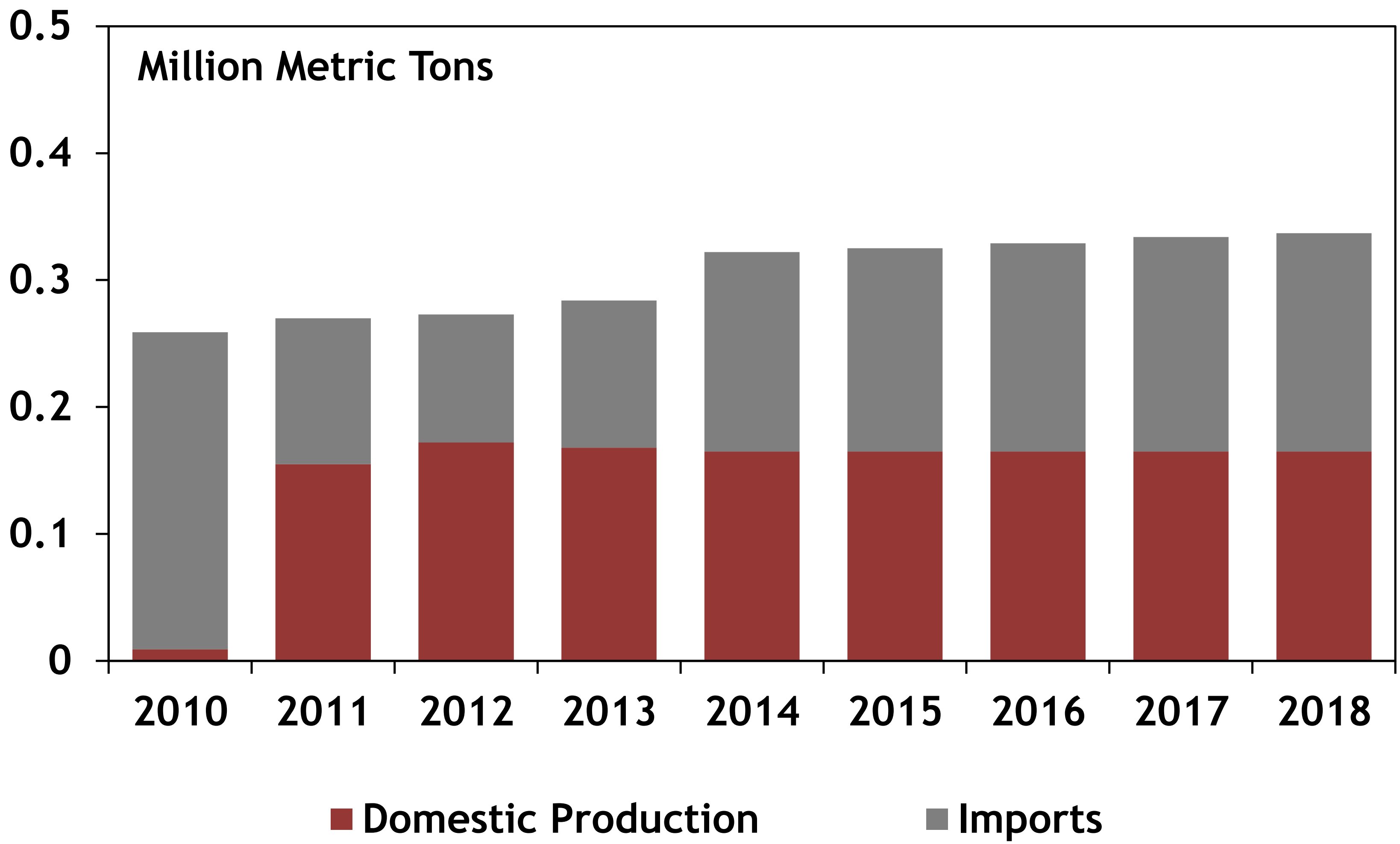
Mexico Methanol Industry Supply



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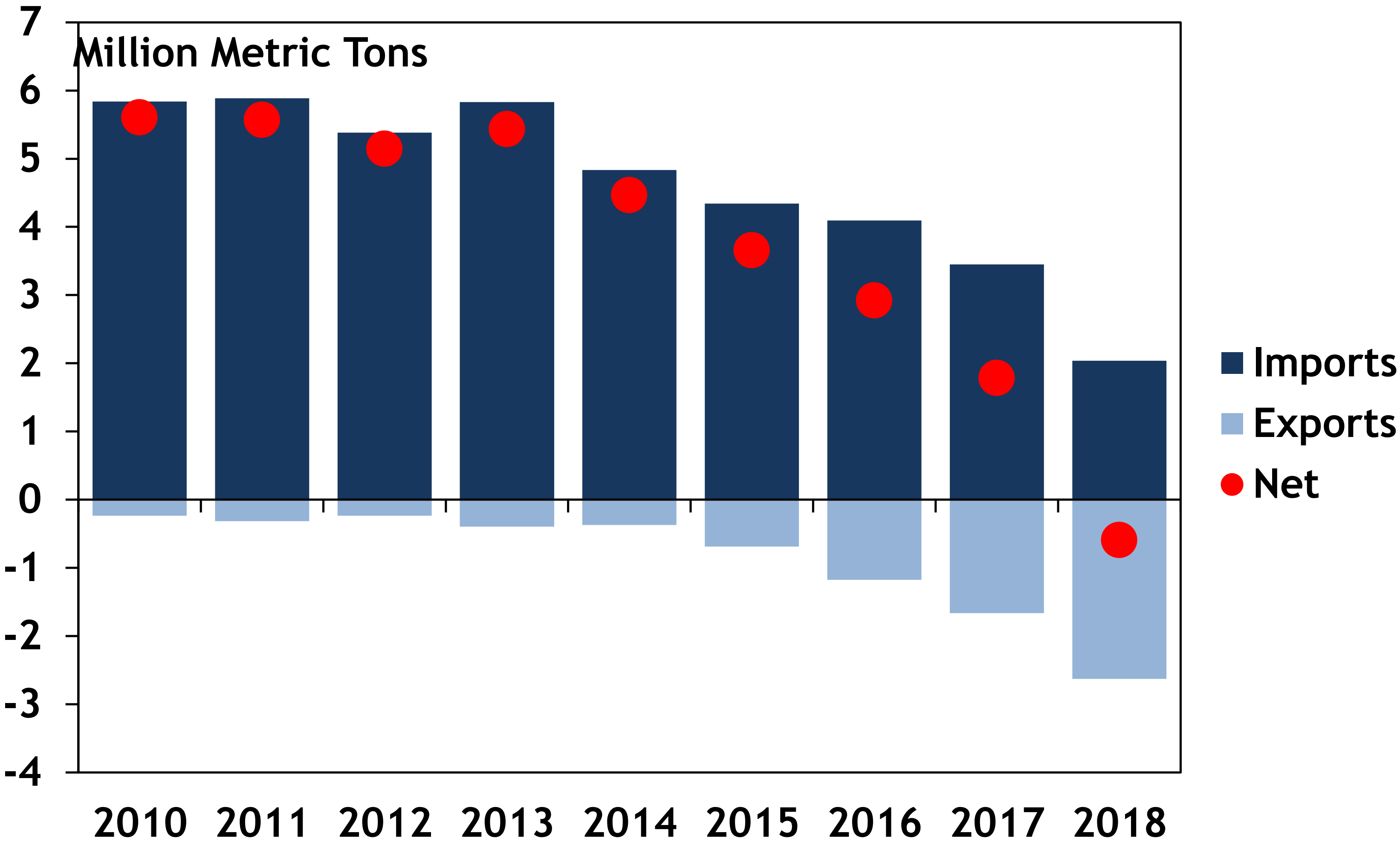
North America Trade Flow



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US Methanol Industry Capacity Additions

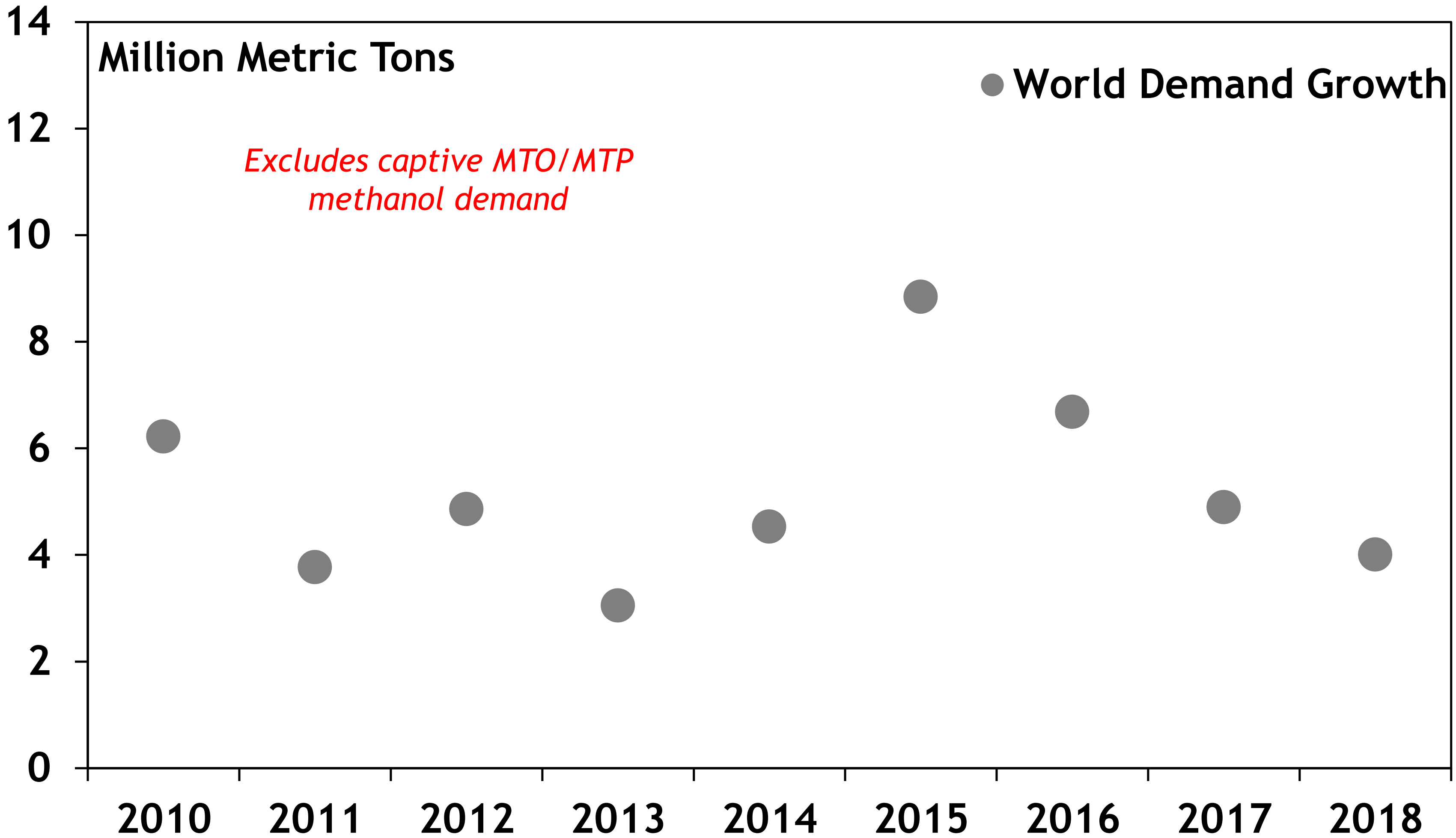
2012:	OCI	730 Kt	Mid year
2013:	Lyondell/Basell	780 Kt	December
2014:	Pampa Fuels LLC	65 Kt	Q4
	OCI Debottleneck	185 Kt	Q4
2015:	Methanex Geismar 1	1,000 Kt	Q1
	Celanese/Mitsui	1,300 Kt	Q3/Q4
2016:	Methanex Geismar 2	1,000 Kt	Mid year
2017:	OCI	1,600 Kt	1H
2018:	South LA Methanol	1,600 Kt	
	Lk Charles Clean Energy	1,000 Kt	
	Valero	1,600 Kt	

US Methanol Industry Capacity Additions

Certainly not to be counted out……….

• Celanese/Bishop	1,300 Kt	Just need partner
• G2X Energy - MTG	1,200 Kt	Multiple units planned
• Mississippi Gasification	1,000 Kt	
• NW Innovation	3,600 Kt	China
• Fund Connell	7,200 Kt	China
• Yuhuang Chemical	1,800 Kt	China
• TBD/Kentucky	1,000 Kt	Coal Based
• TBD/Northeast	1,800 Kt	

Methanol Capacity vs World Demand Growth (YOY)



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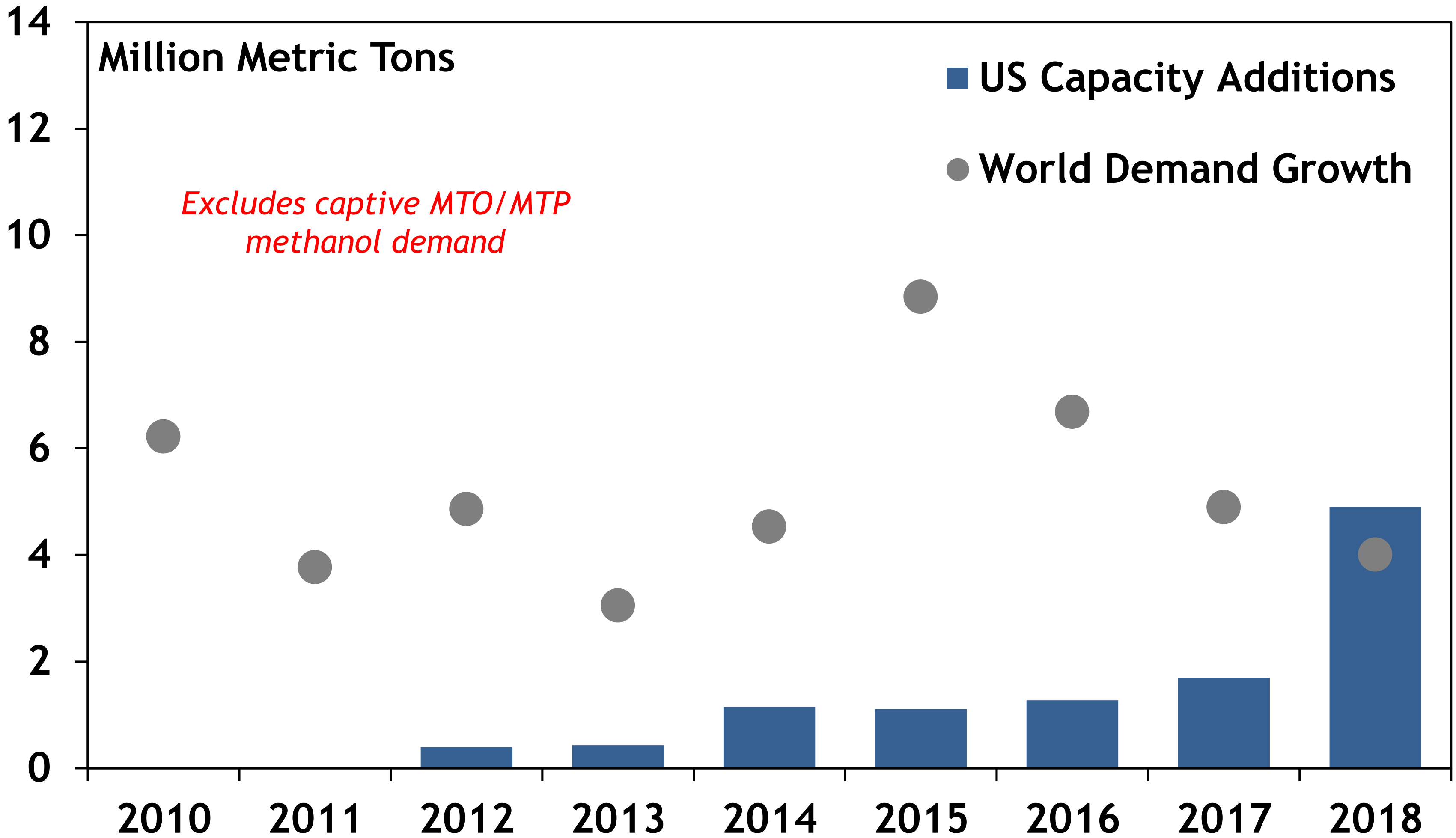
Methanol Capacity vs World Demand Growth (YOY)



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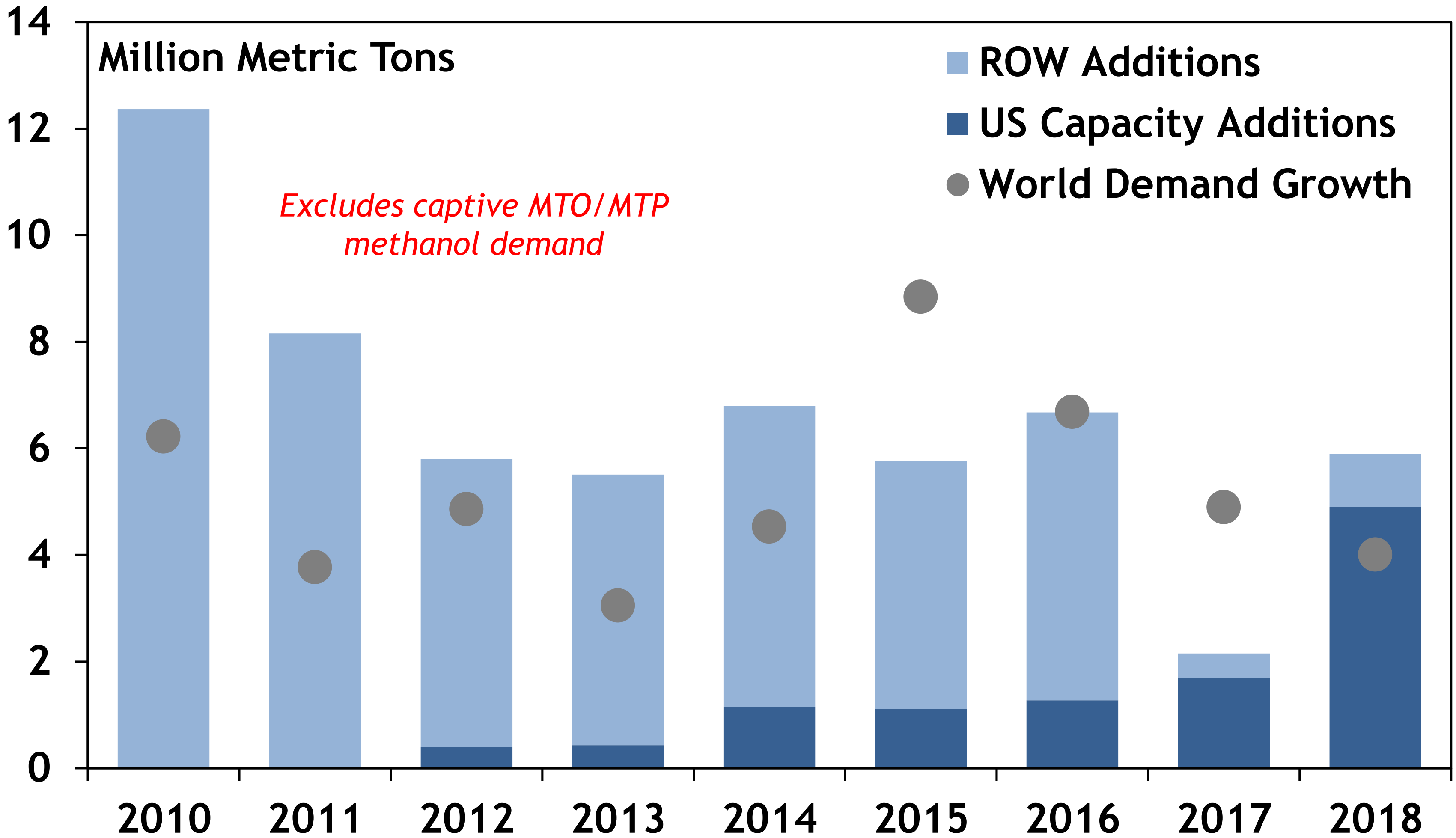
Methanol Capacity vs World Demand Growth (YOY)



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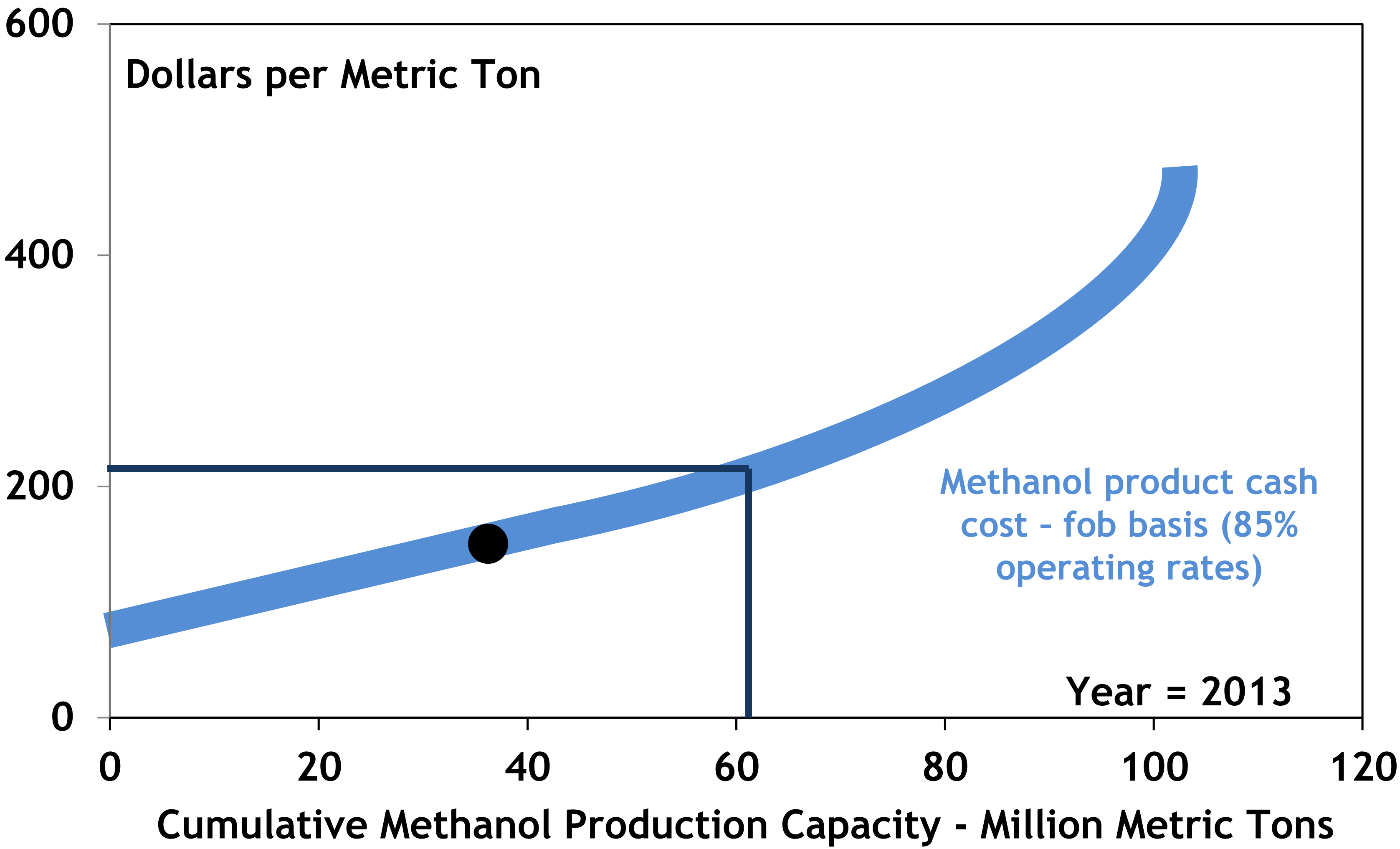
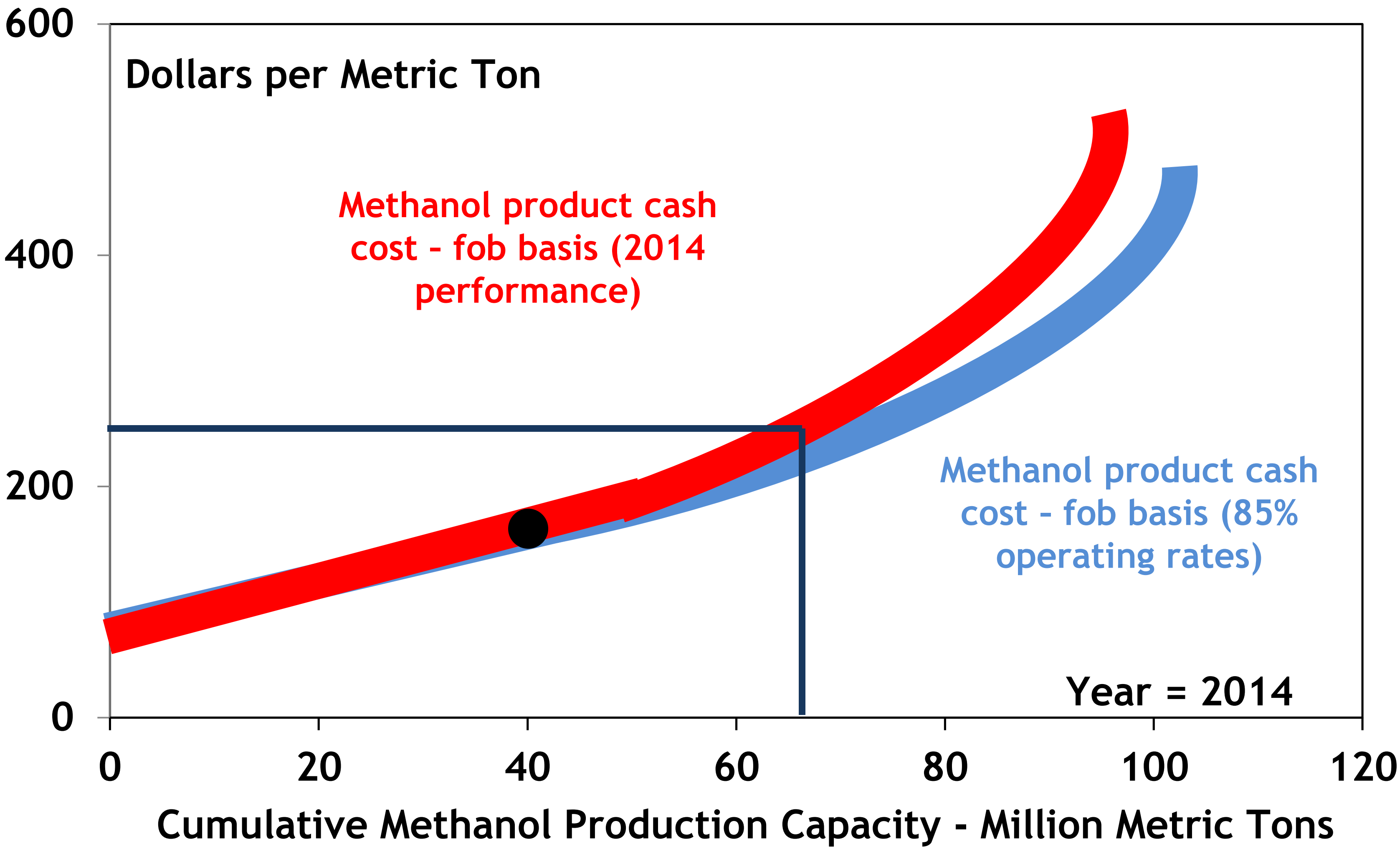
Methanol Industry Cash Cost Structure



Methanol Industry Cash Cost Structure



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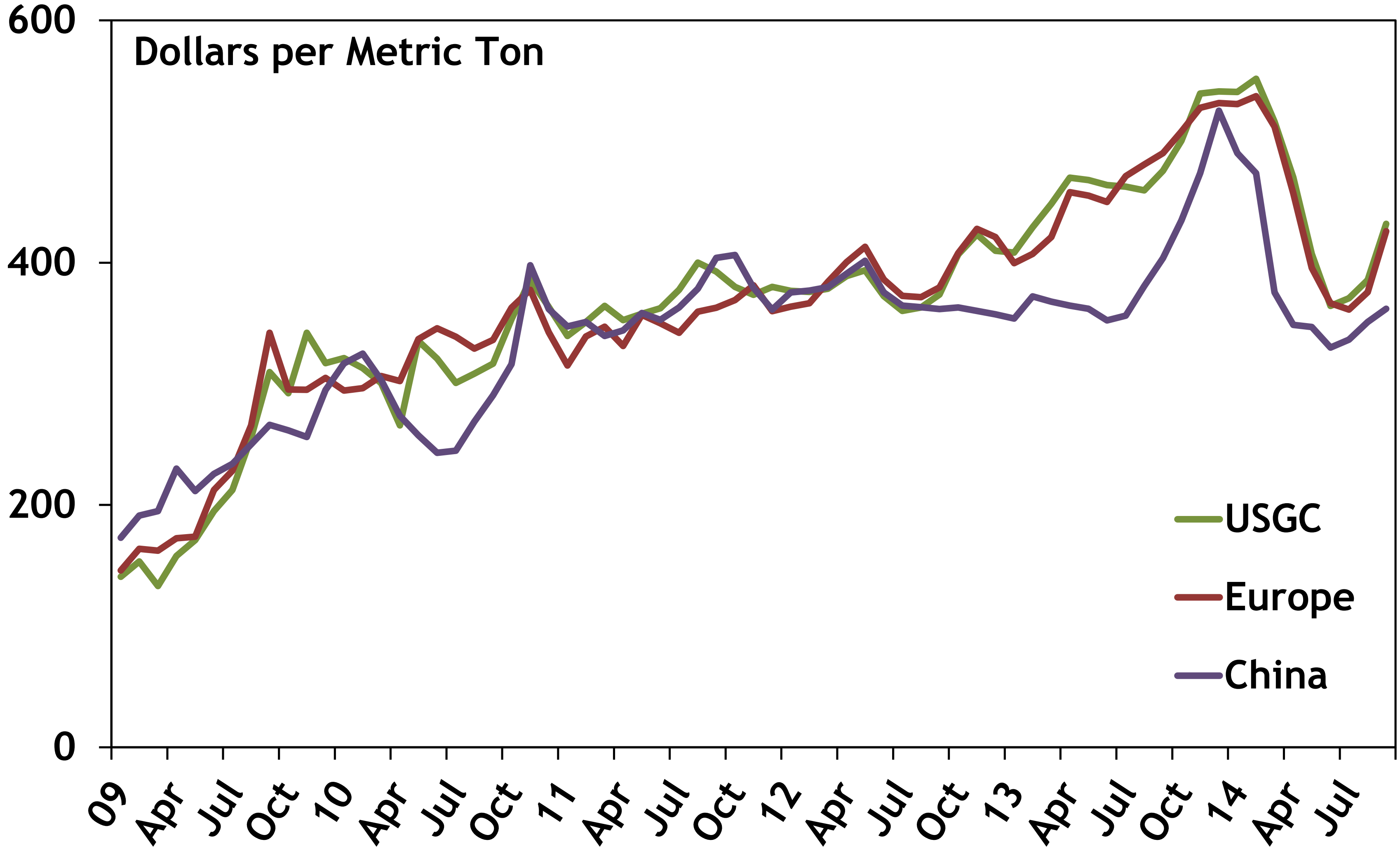
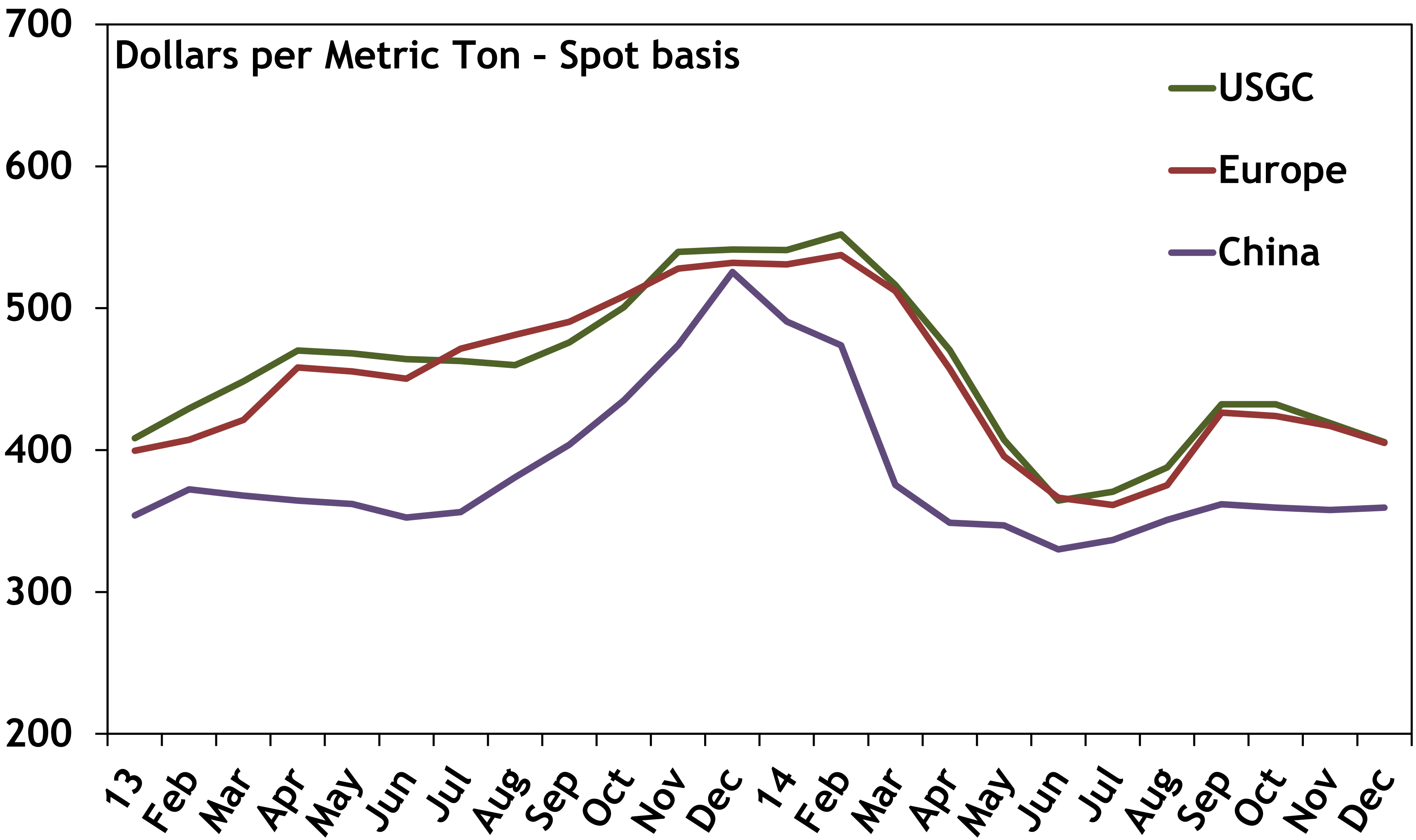
Historic Methanol Pricing – Spot



Methanol Pricing – 2014 Outlook



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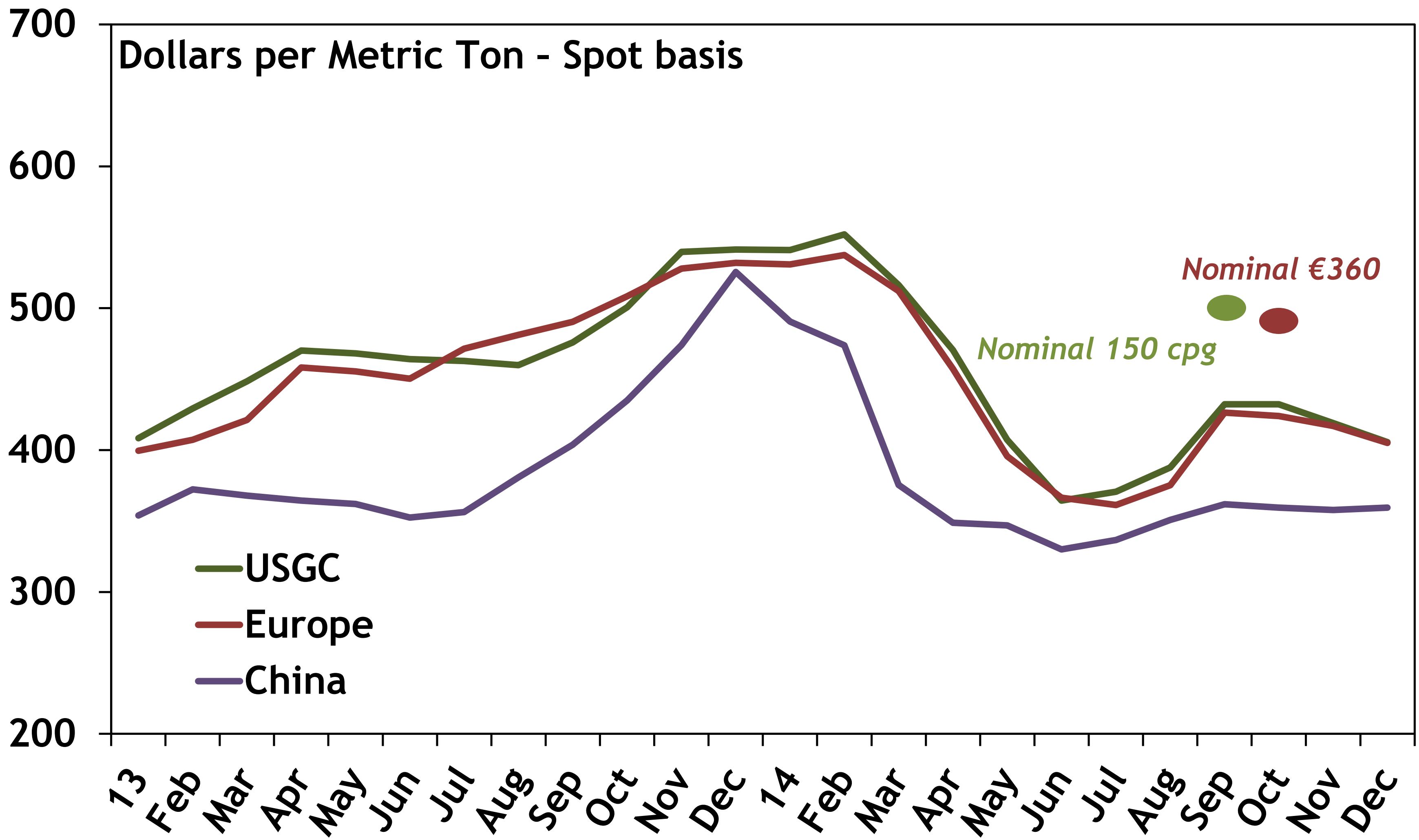
Methanol Pricing – 2014 Outlook



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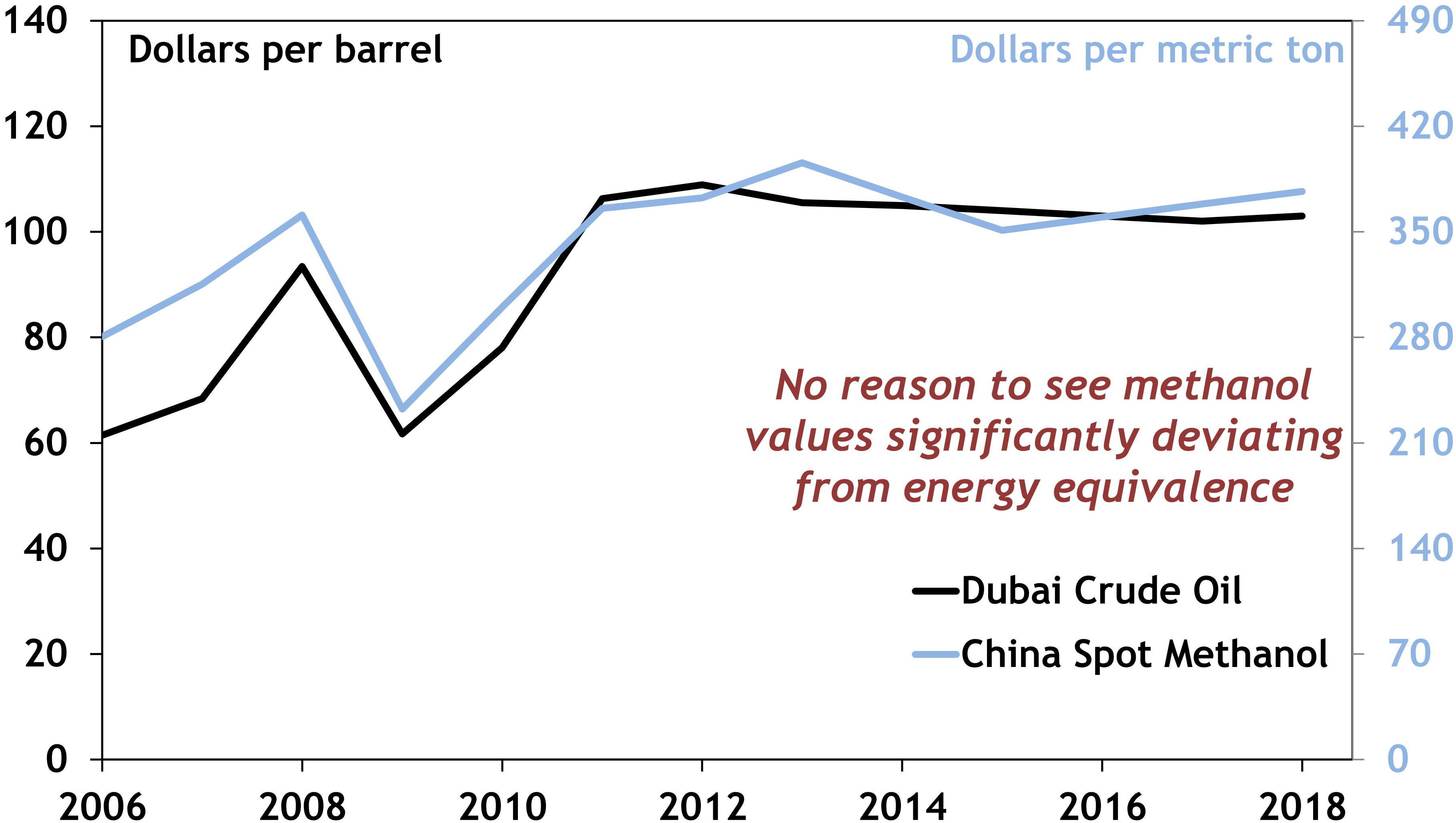
Methanol vs Crude Oil Pricing



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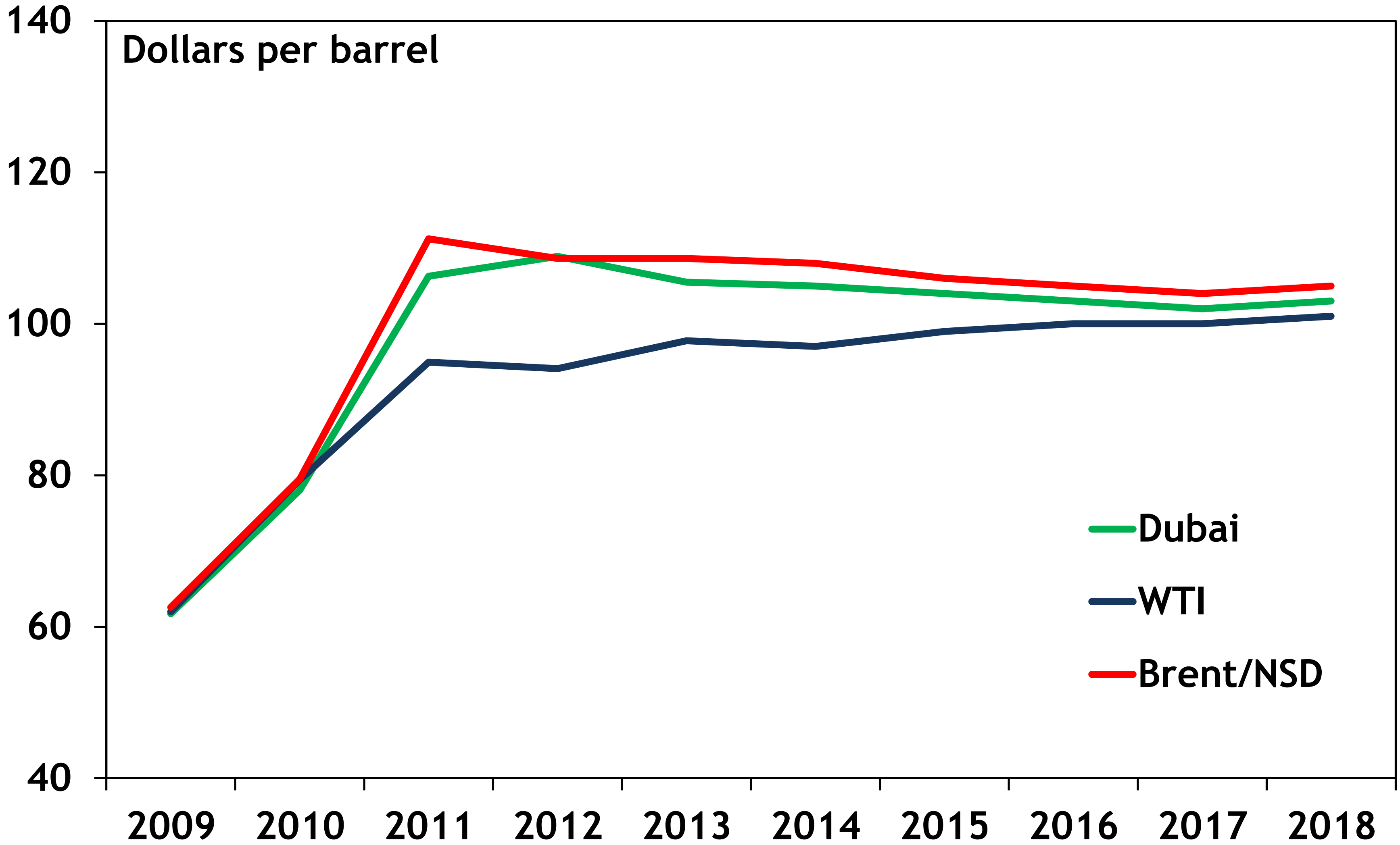
Crude Oil Pricing History/Outlook



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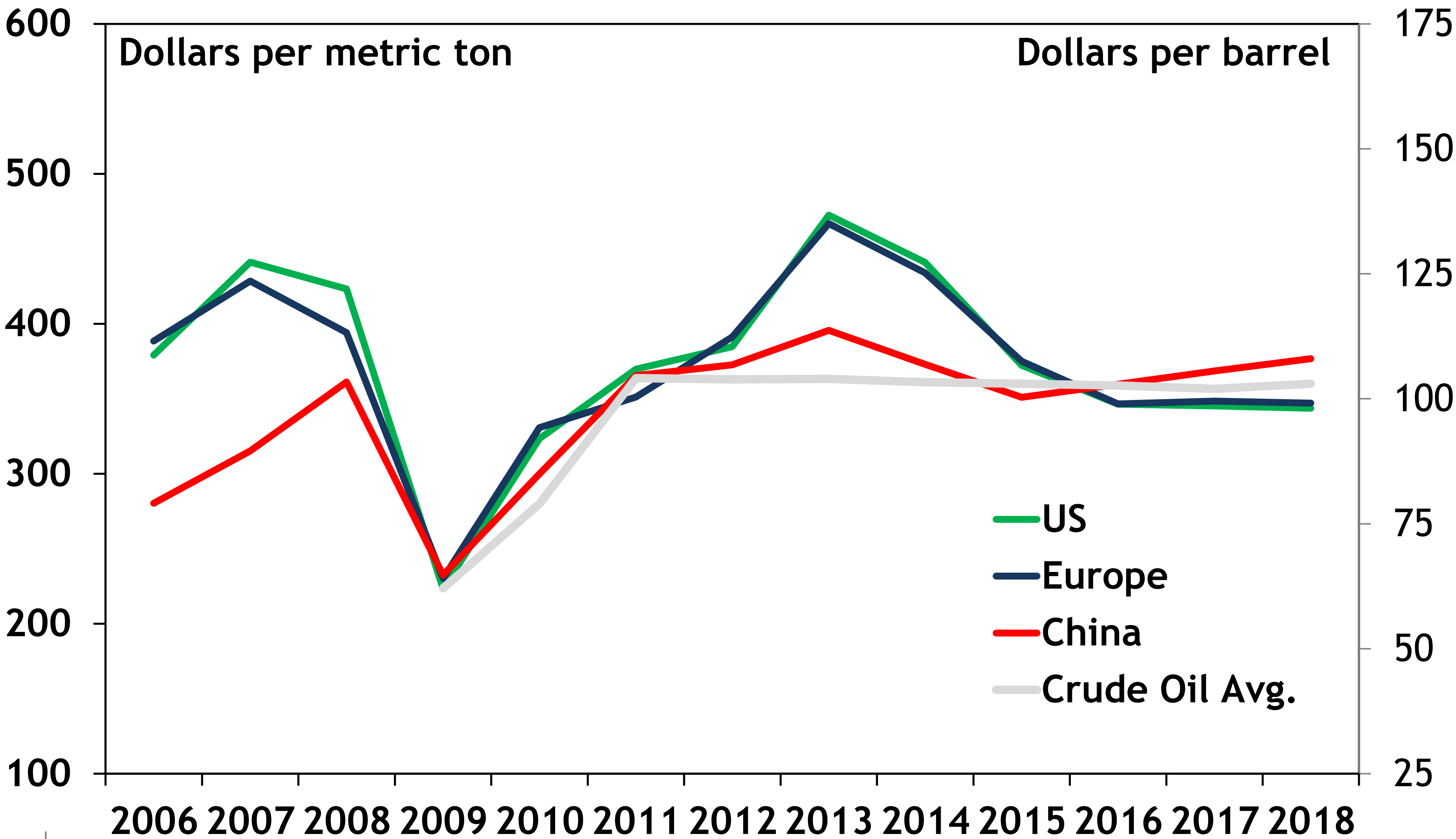
Methanol Industry Spot Pricing Outlook



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Conclusions

- Methanol Demand Remains Robust – China Dominates
- US Capacity Returns – Easily Absorbed Globally
  - US becoming a methanol surrogate for China
- US Production Costs are "Competitive"
- 5 Million Tons of US Imports Must Find a New Home
  - But, the industry is growing in excess of 3 MM tons per year
- Methanol Pricing Will Come Under "Temporary" Pressure
  - And could become more "region-centric"
  - We look for "growing" fuel use applications

Dave McCaskill
VP Methanol & Derivative Services
dave.mccaskill@argusmedia.com
+1 713 360 7524
Houston, TX