North American Natural Gas Outlook

The Fertilizer Institute Technology & Outlook Conference

November 15 , 2017

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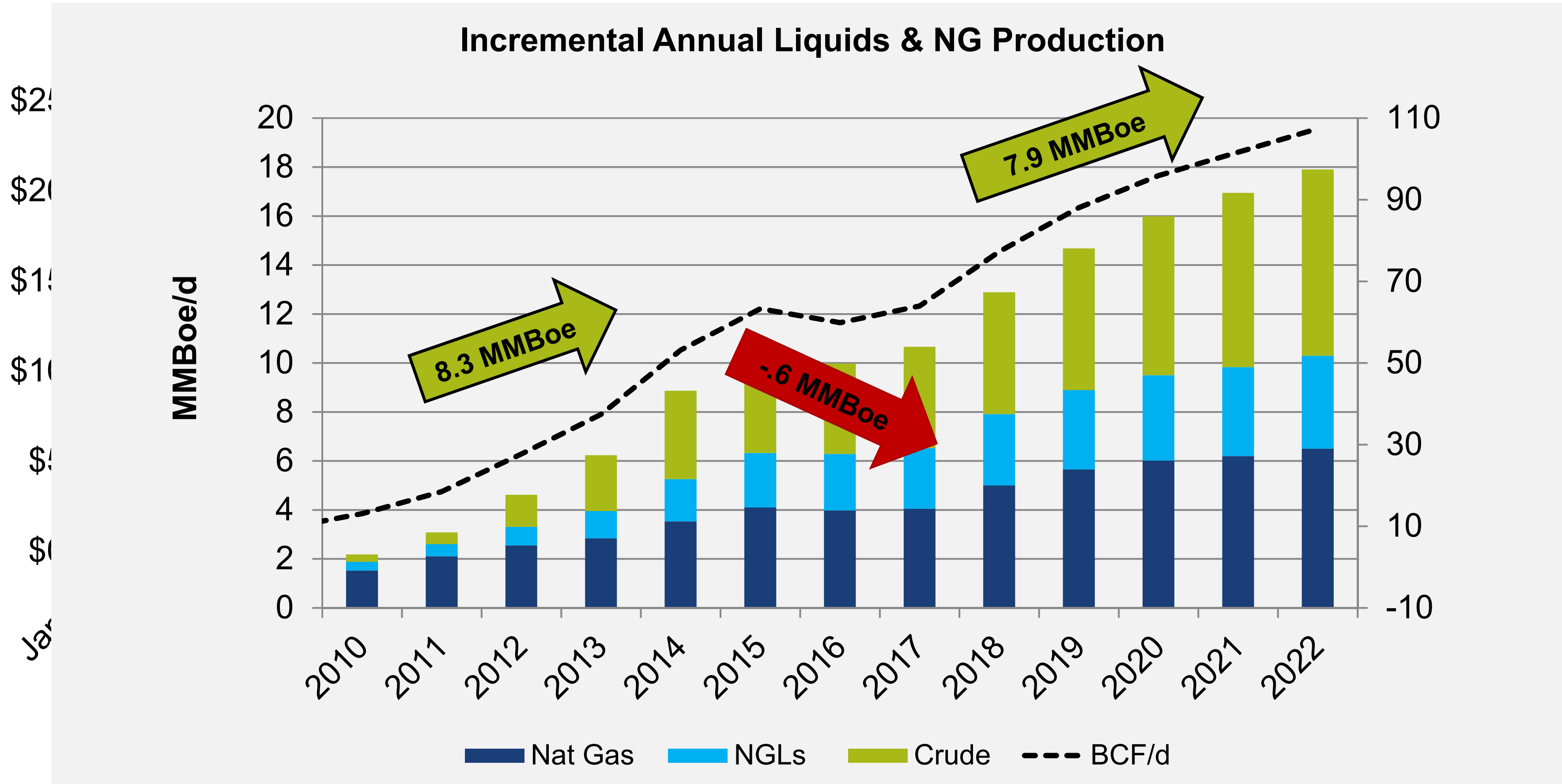
The Evolution Of The Value Gap



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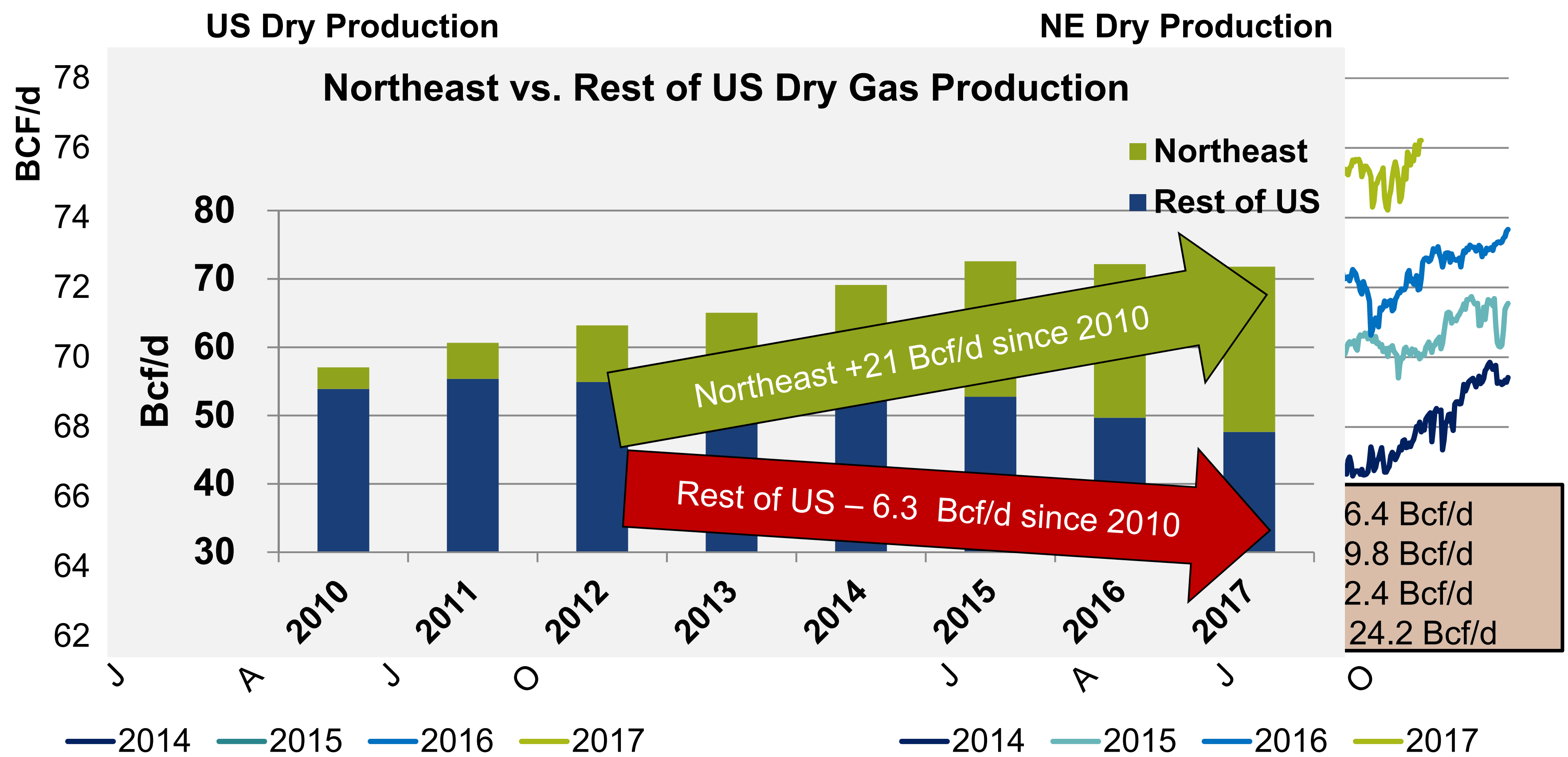
Source: Platts / ICE

Another Record Year - US Production Tops 75 BCf/d
NE Production Tops 26 Bcf/d - Up 1.8 Bcf/d YOY



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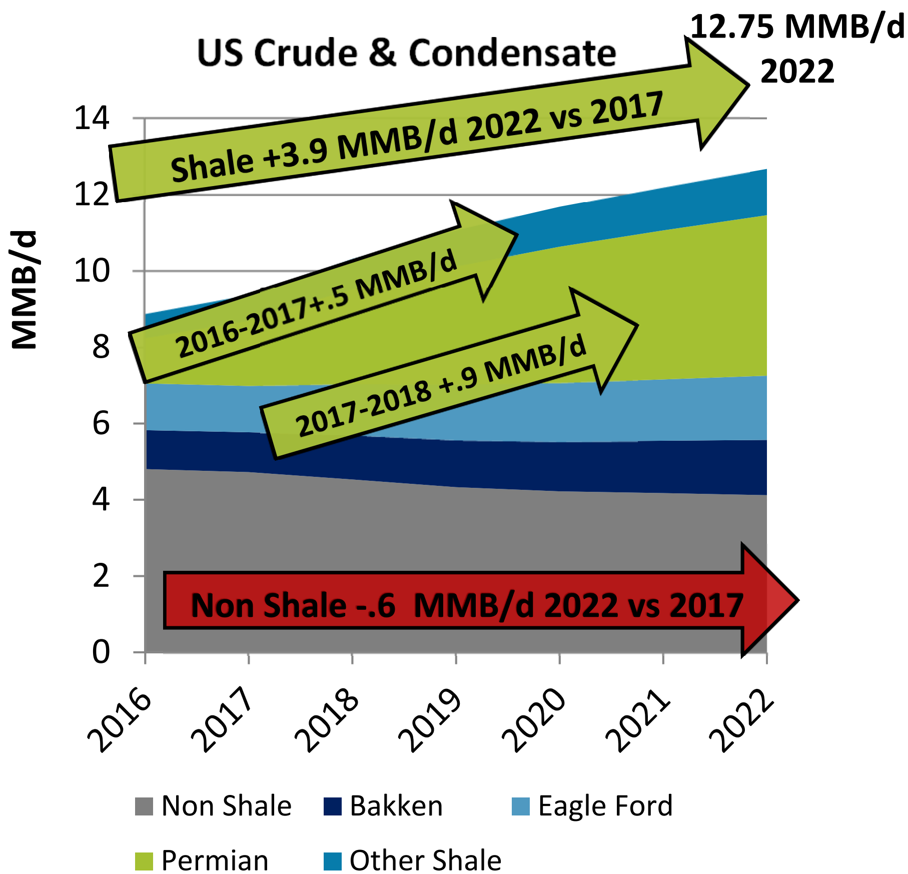
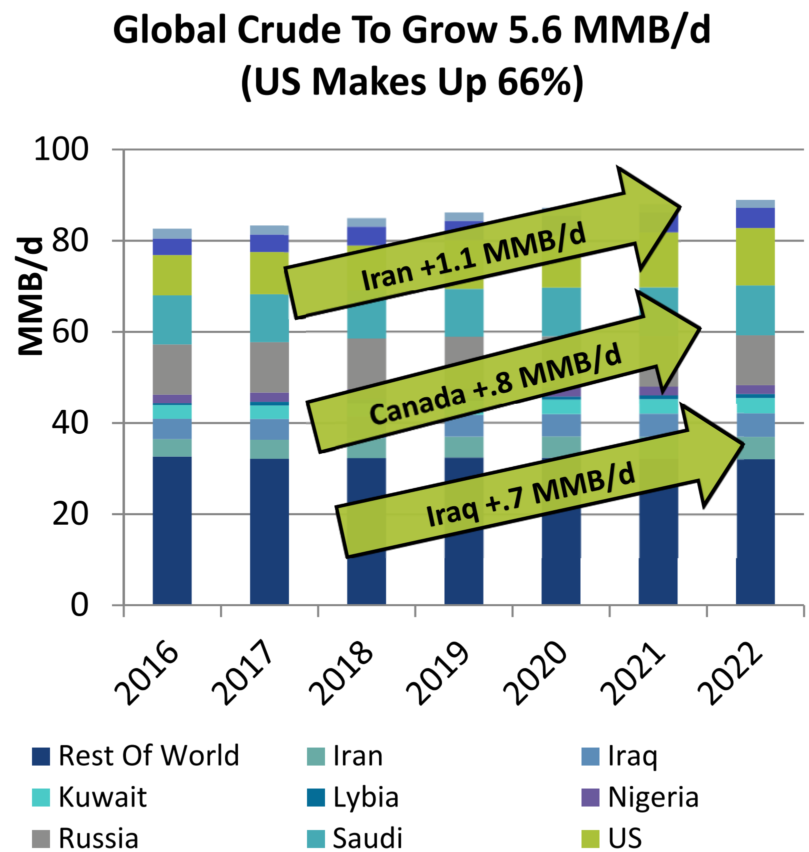
Source: Platts Analytics

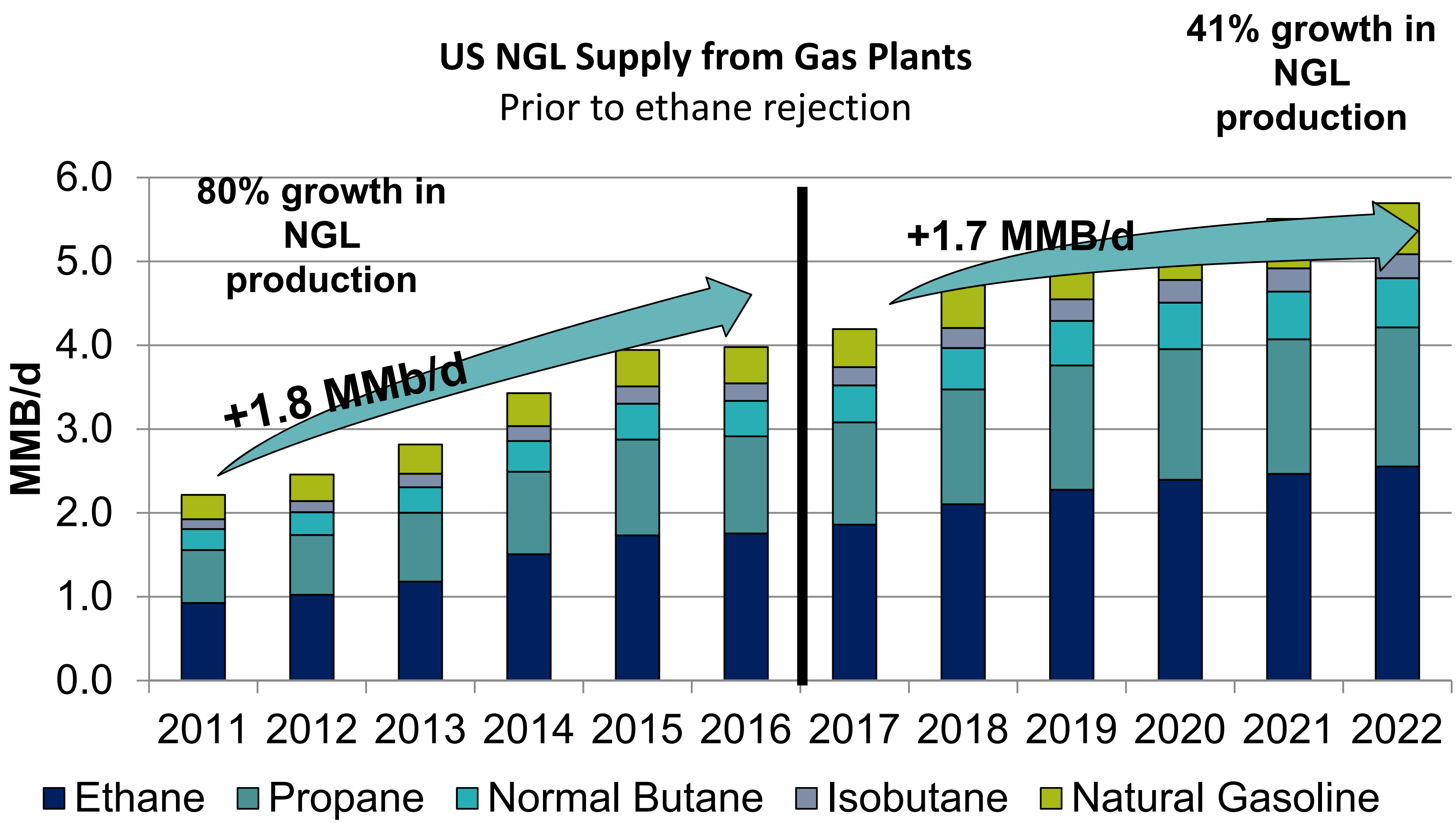
US Light Sweet Growth Leads The Story – US Grows 3.3 MMB/d Of Global 5.6 MMB/d Forecasted 2017 - 2022





Source: Platts Analytics

NGL Production From Gas Plants Expected To Grow An Incremental MMB/d



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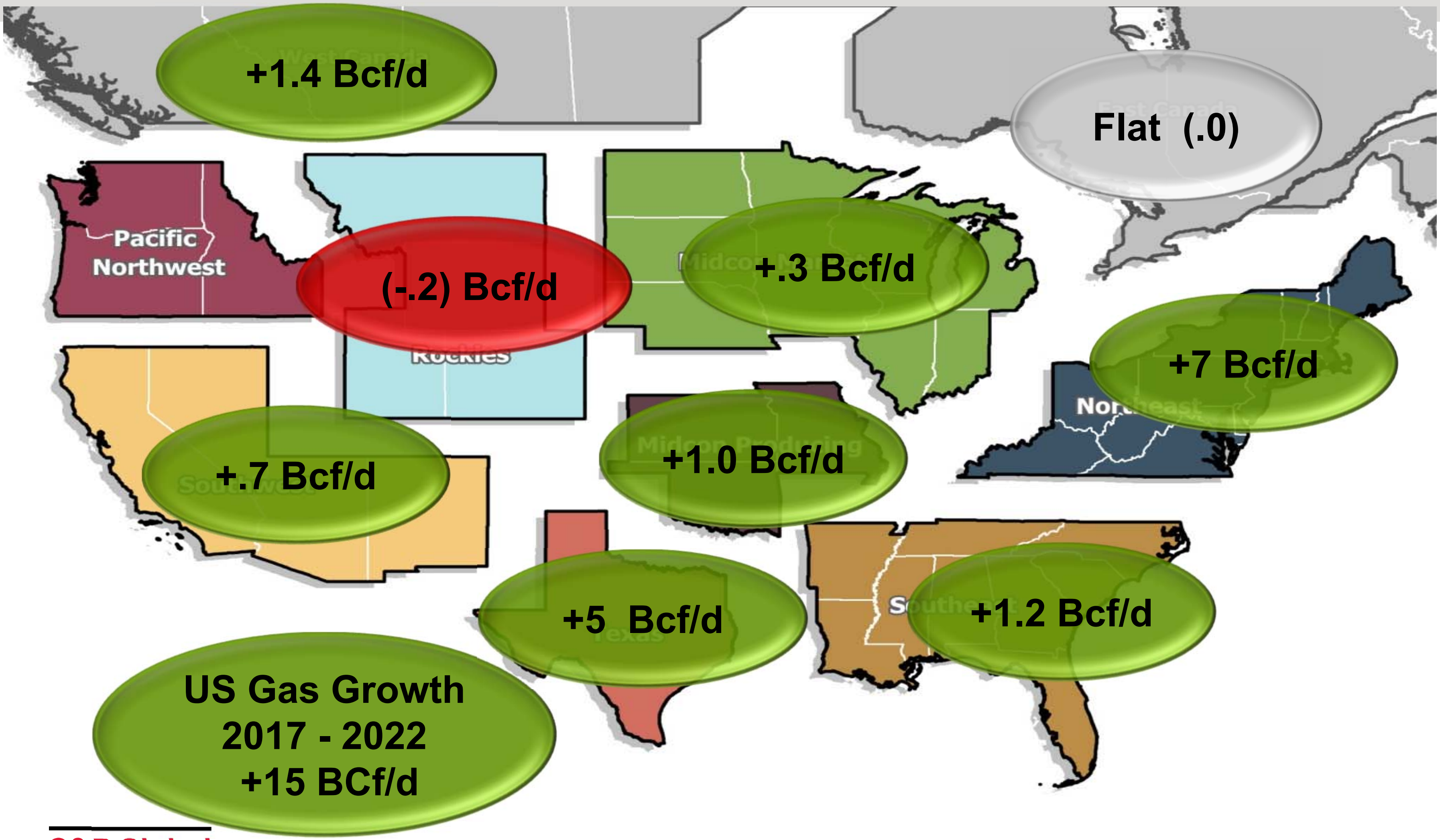
Source: Platts Analytics PIRA NA NGL Monthly Forecast November 2017

Current Forecast Looks For 87 Bcf/d By 2022
NE Is Still Forecasted As Primary Driver



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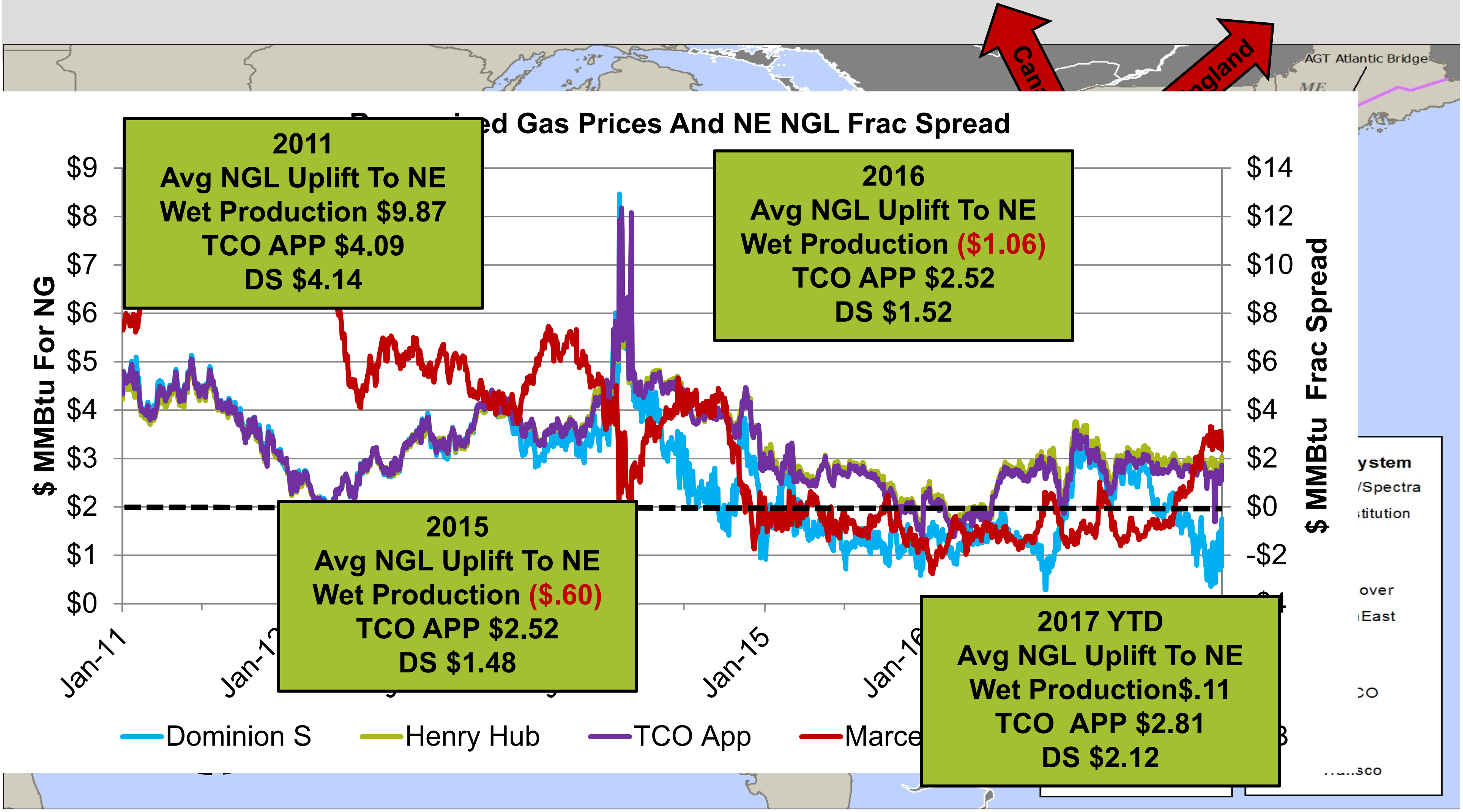
Source: Bentek CellCast November 2017

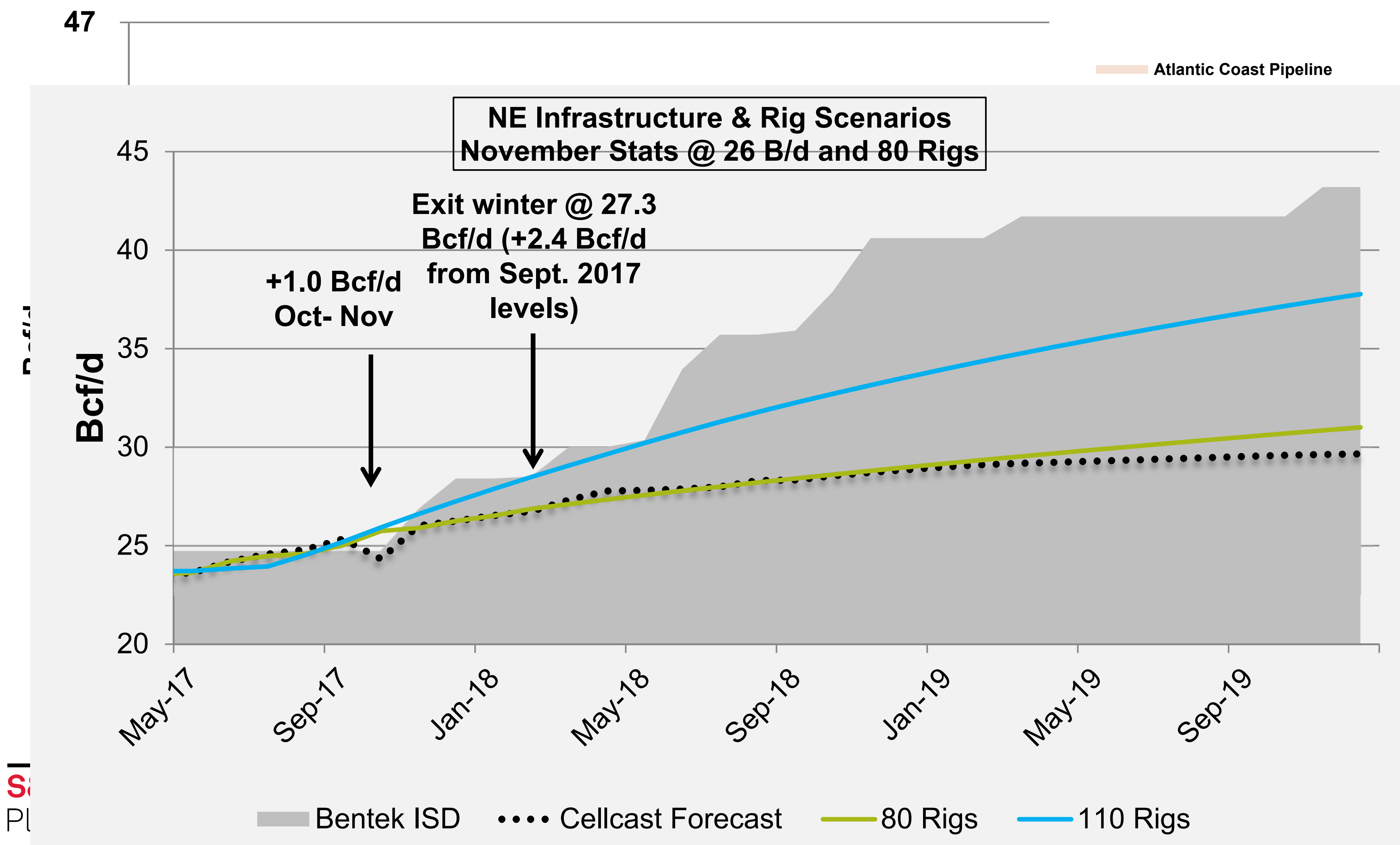
NE Wet and Dry Windows Service Two Distinct Markets With Minimal Interconnectivity –



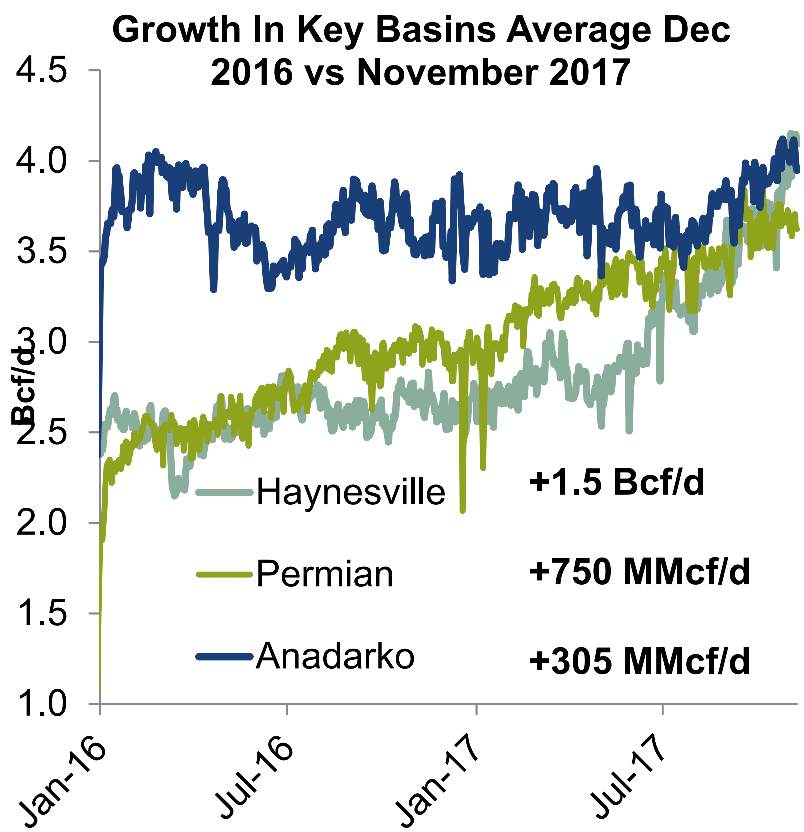
Natural Gas

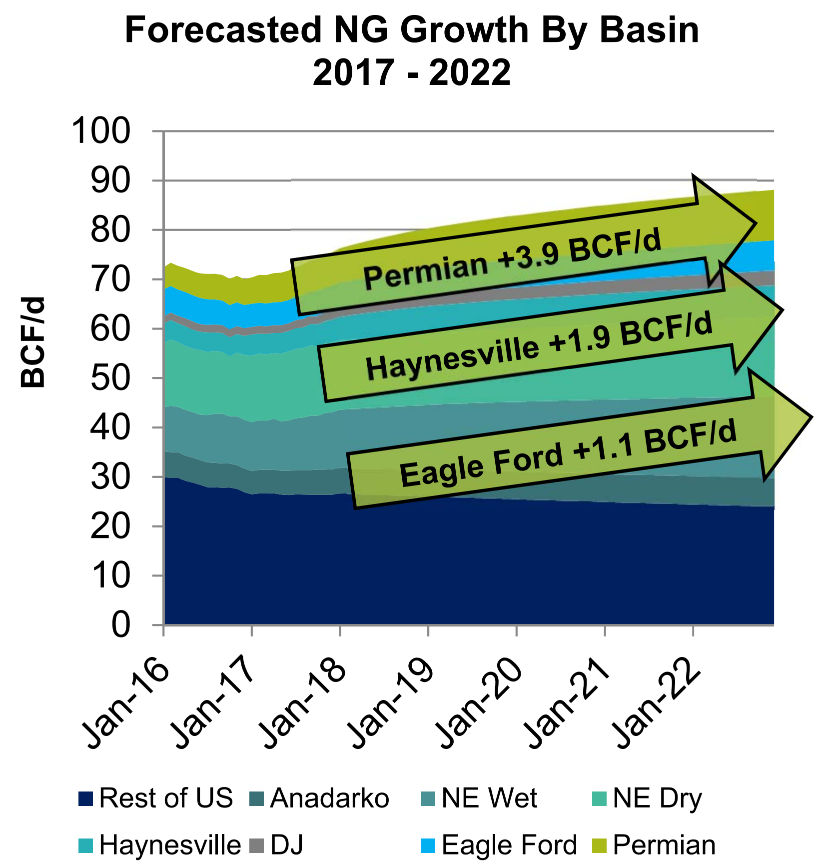
Production Takeaway Expansions – Were Producers Overzealous With Their Capacity Obligations?

Scheduled vs. estimated IS's & production forecast



Other Key Basins Add To 2.5 BCF/d To 2017 Supply – Associated Gas From Oil Basins & Haynesville Forecast To Continue Growth





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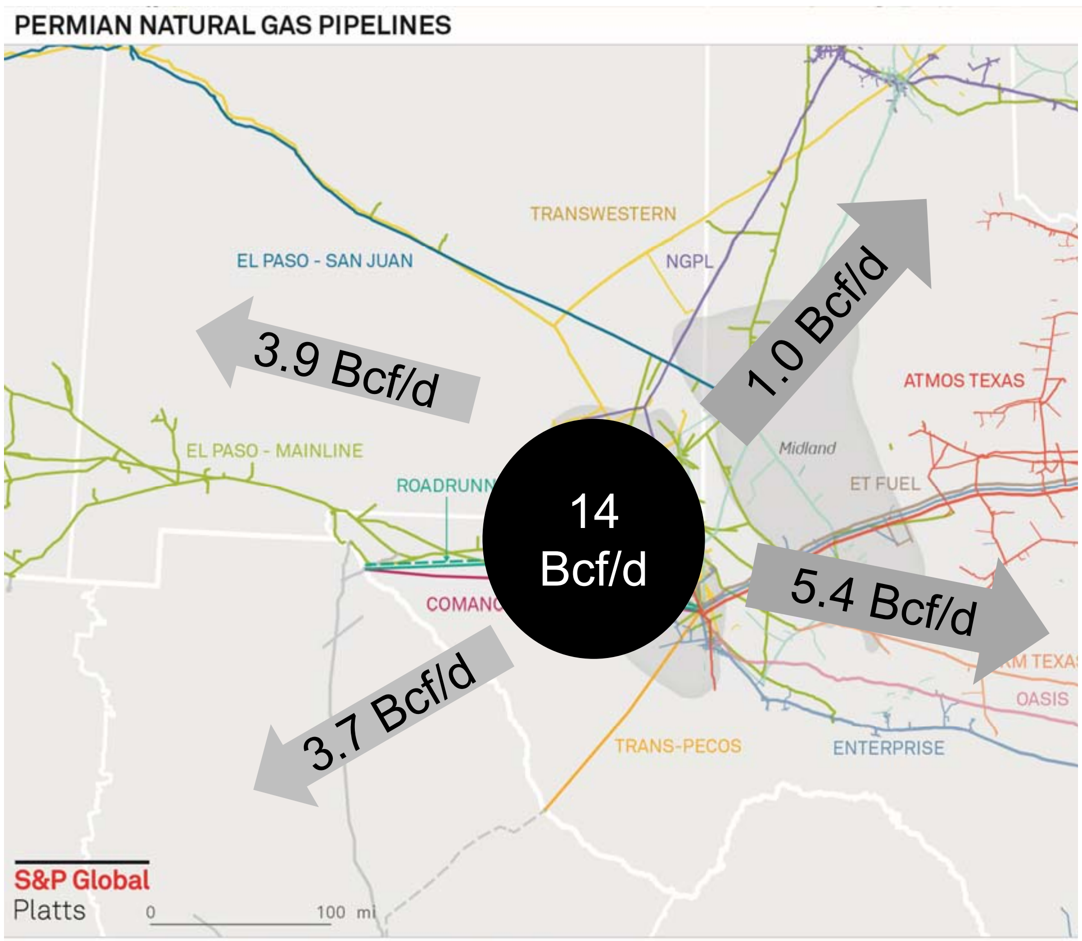
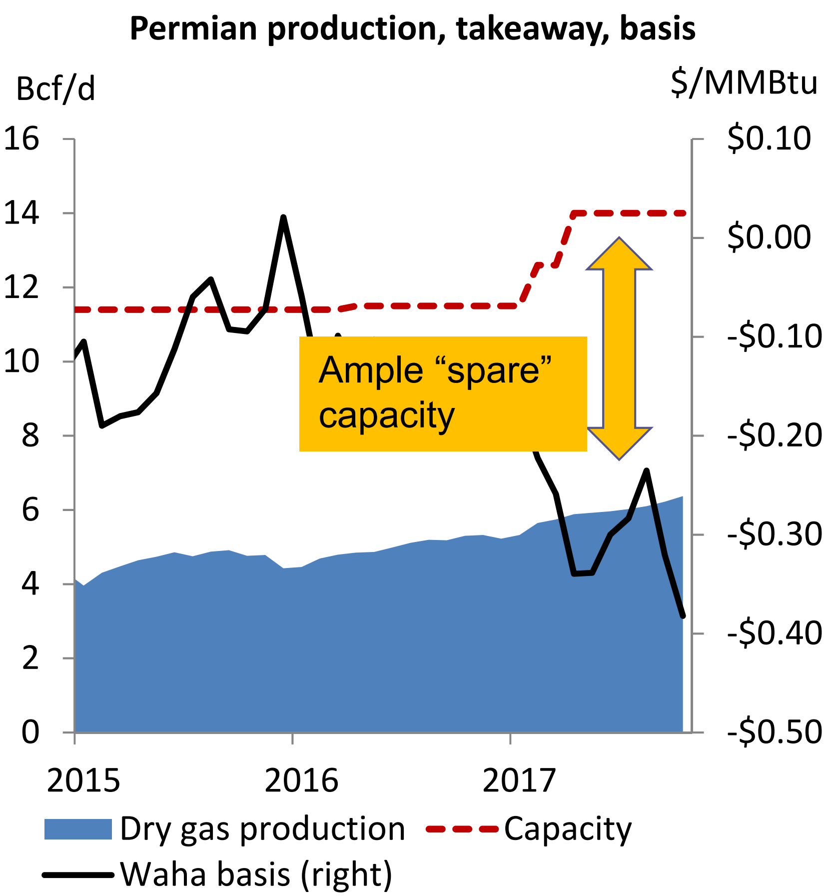
Source: Platts Analytics

Permian Is Well Piped But Faces Considerable Downstream Constraints





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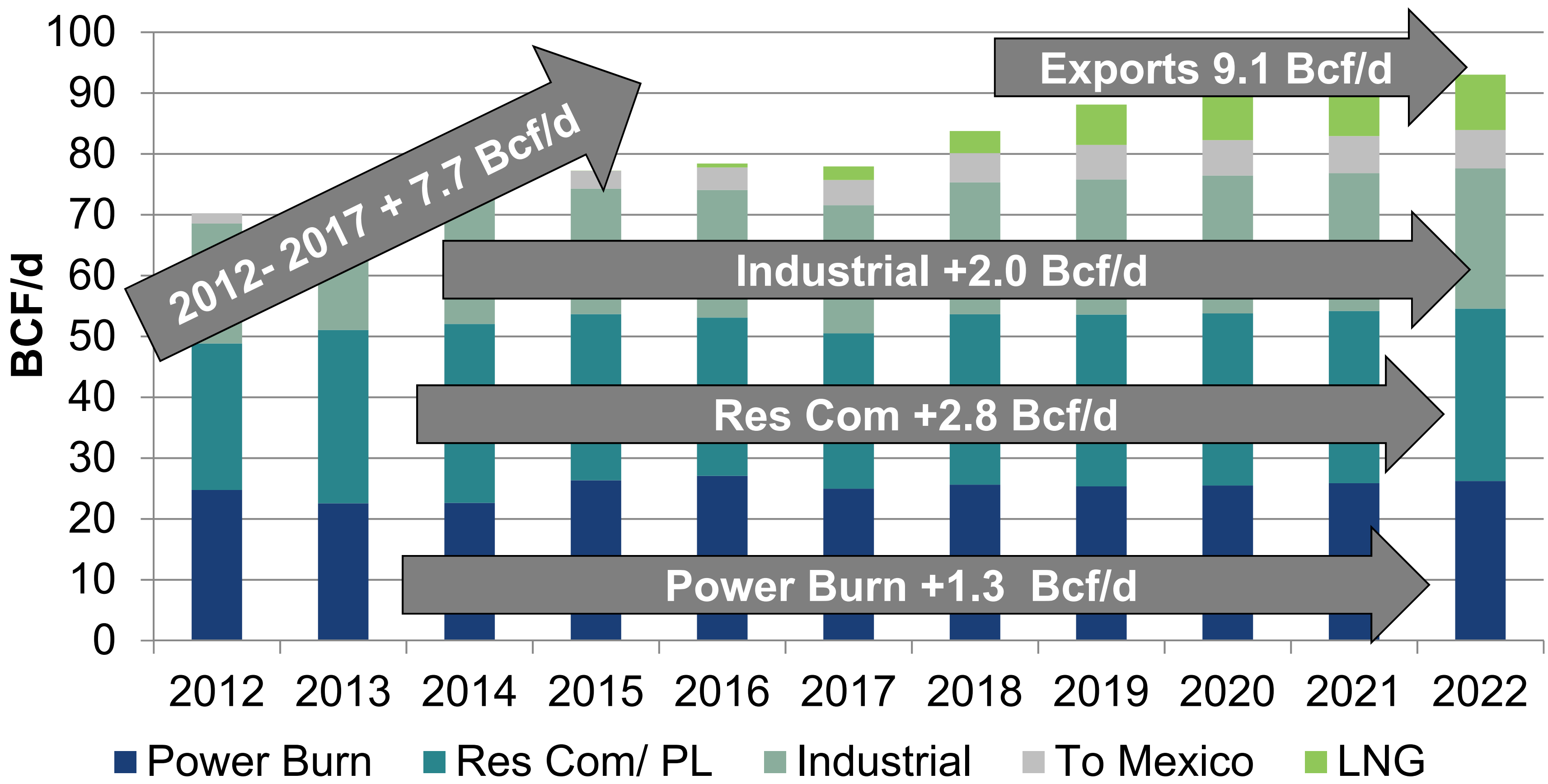
Demand

Longer Term Exports Key To Demand Growth – Incremental Demand of 15.1 Bcf/d 2017-2022



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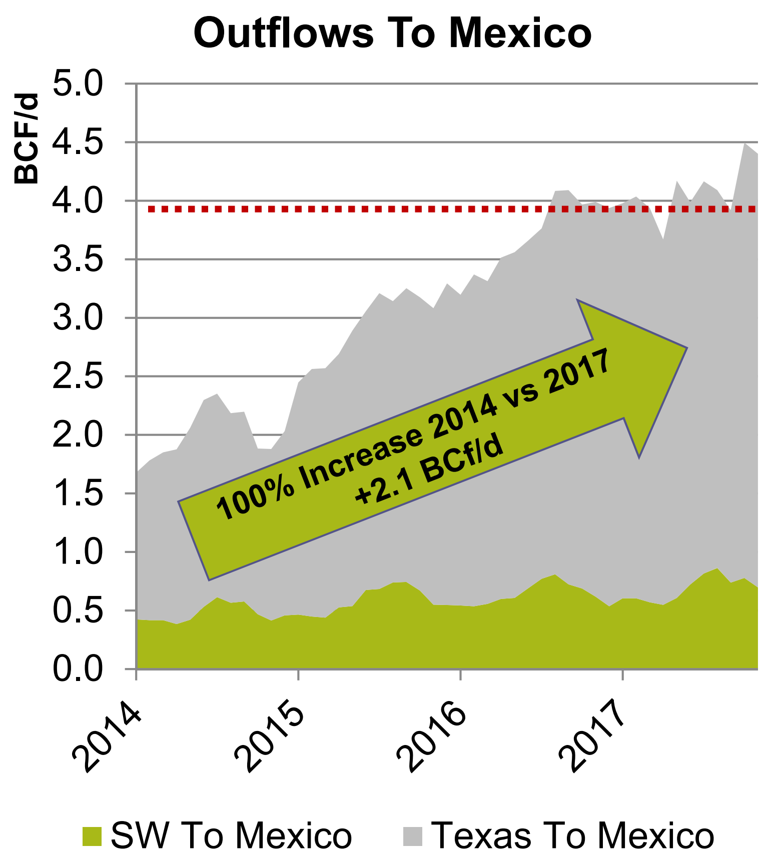
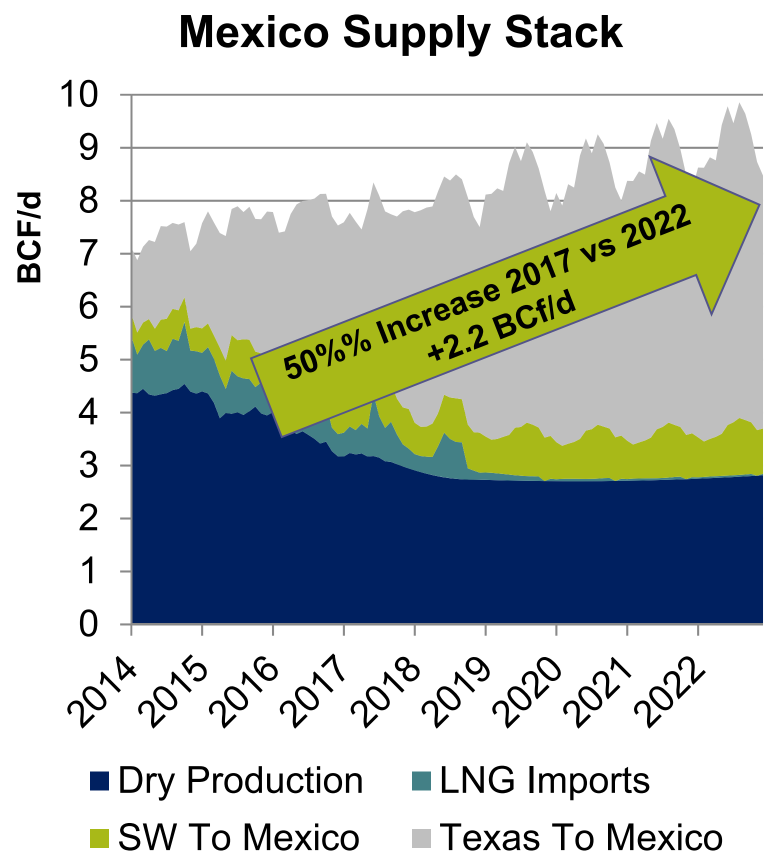
Source: Platts Analytics
Cell Cast November 2017

US Exports To Mexico Stall For Now – Look For Increase of 50% to 6.3 BCF/d By 2022





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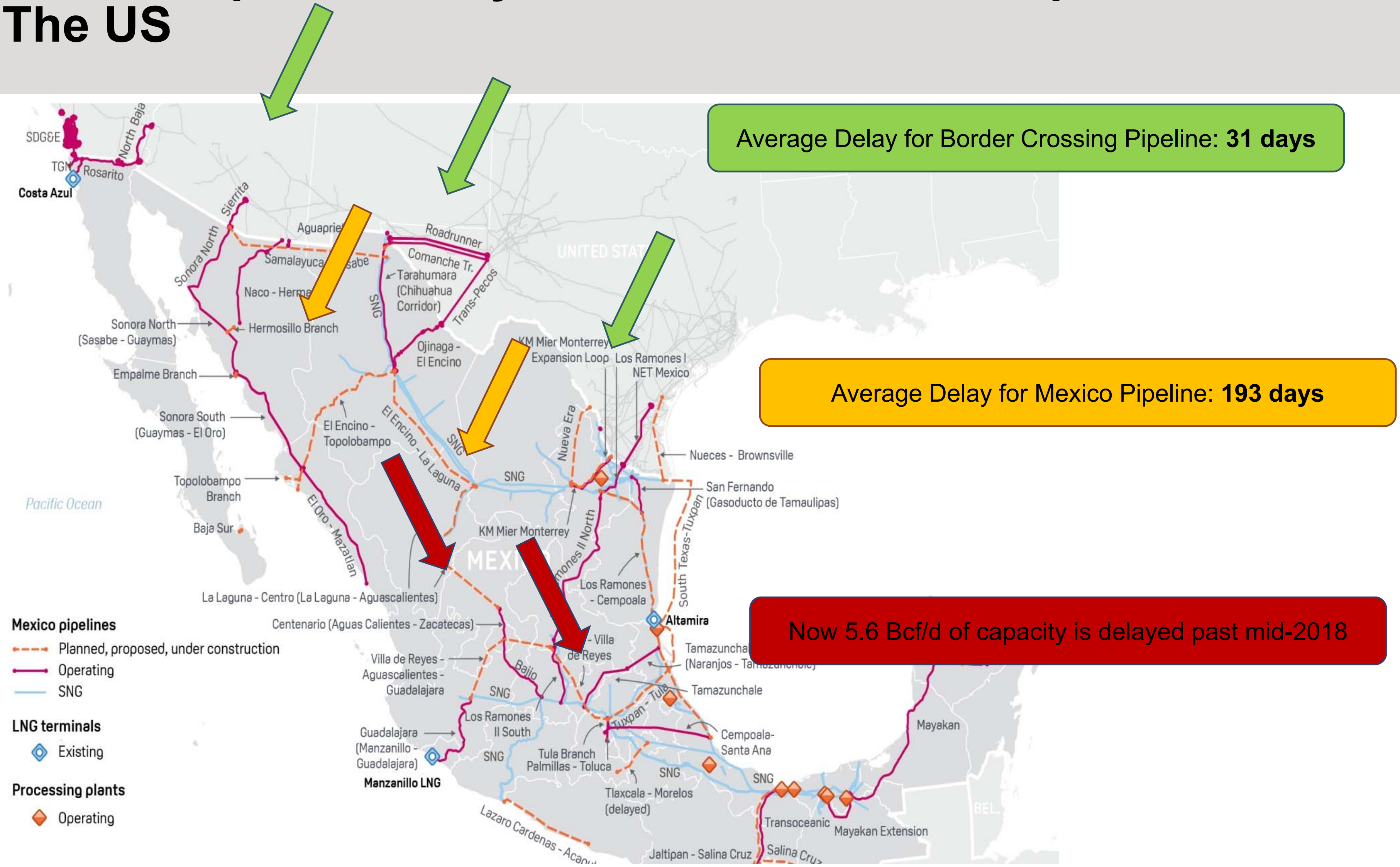
Source: Platts Analytics

Mexico Pipeline Delays Continue To Limit Exports From The US



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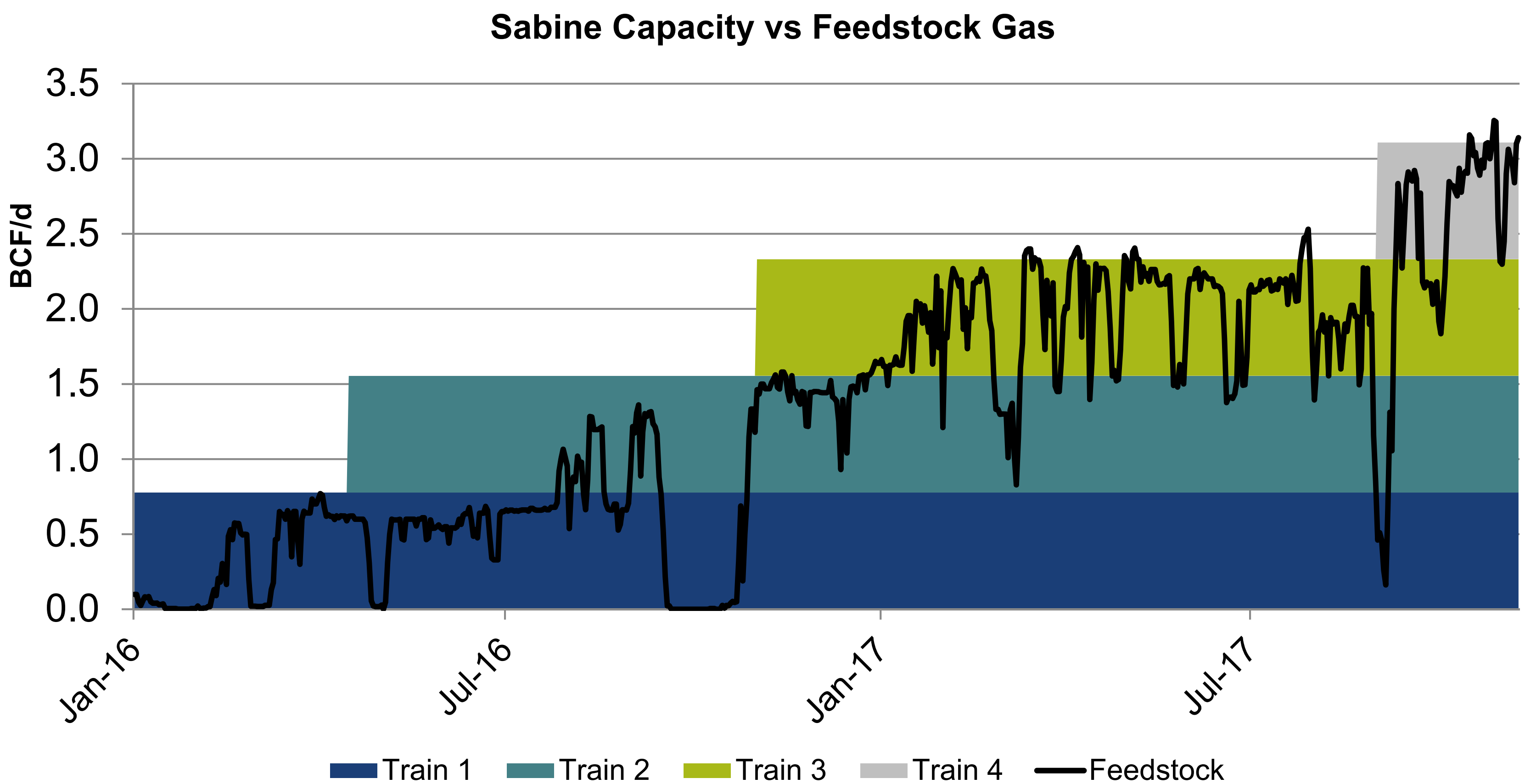
Source: Platts Analytics

Sabine Exports See Volatility



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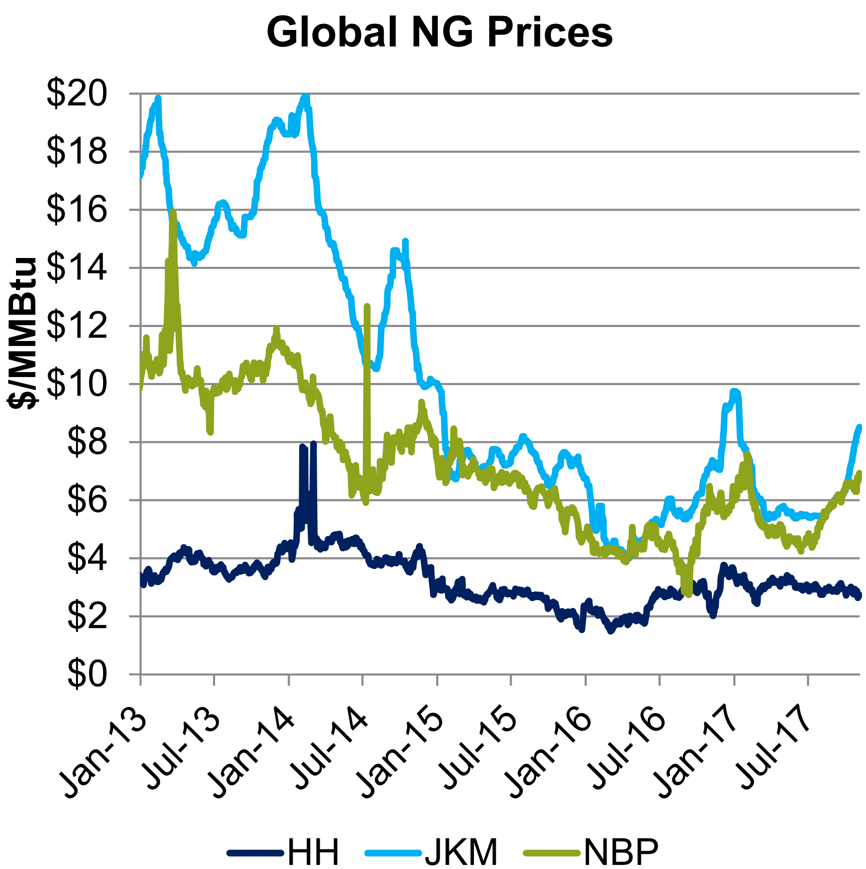
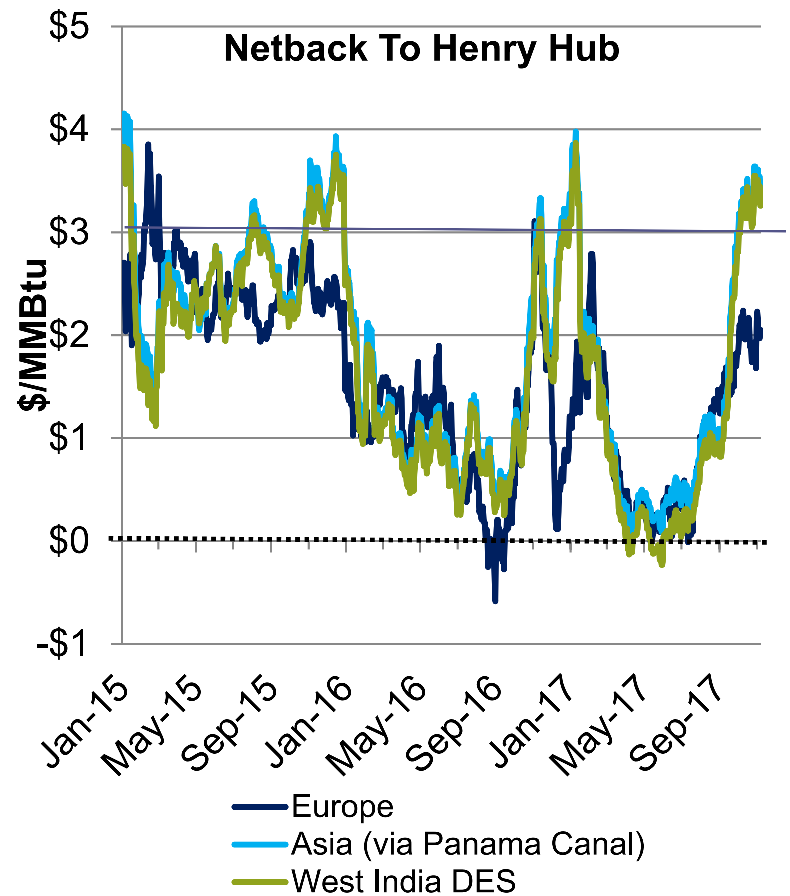
Source: Platts Analytics

Exports Show Seasonal Viability Assuming Contract Costs As Sunk Cost





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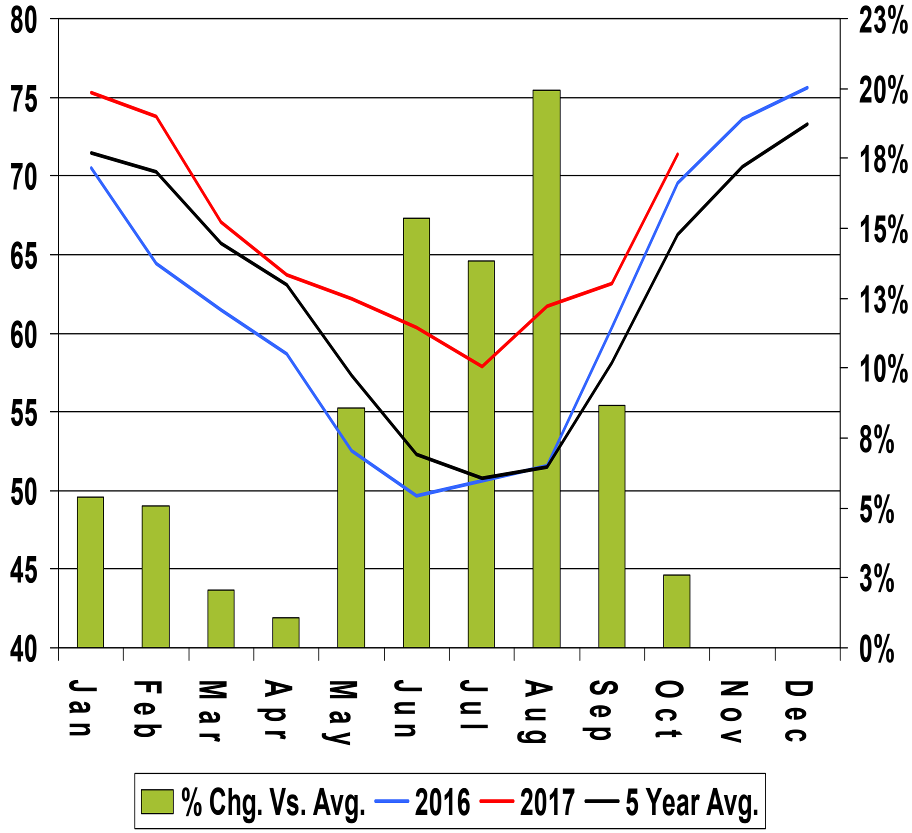
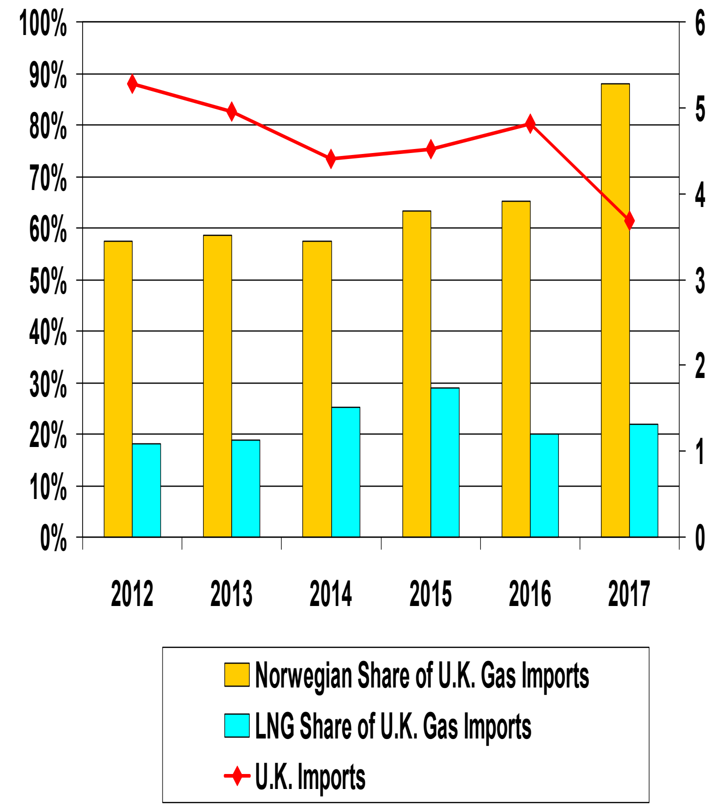
Source: Platts Analytics

Pipeline Gas Pushes Its Way Into Europe – Pushes Back On LNG

Russian NG Production



Norwegian NG vs LNG To UK



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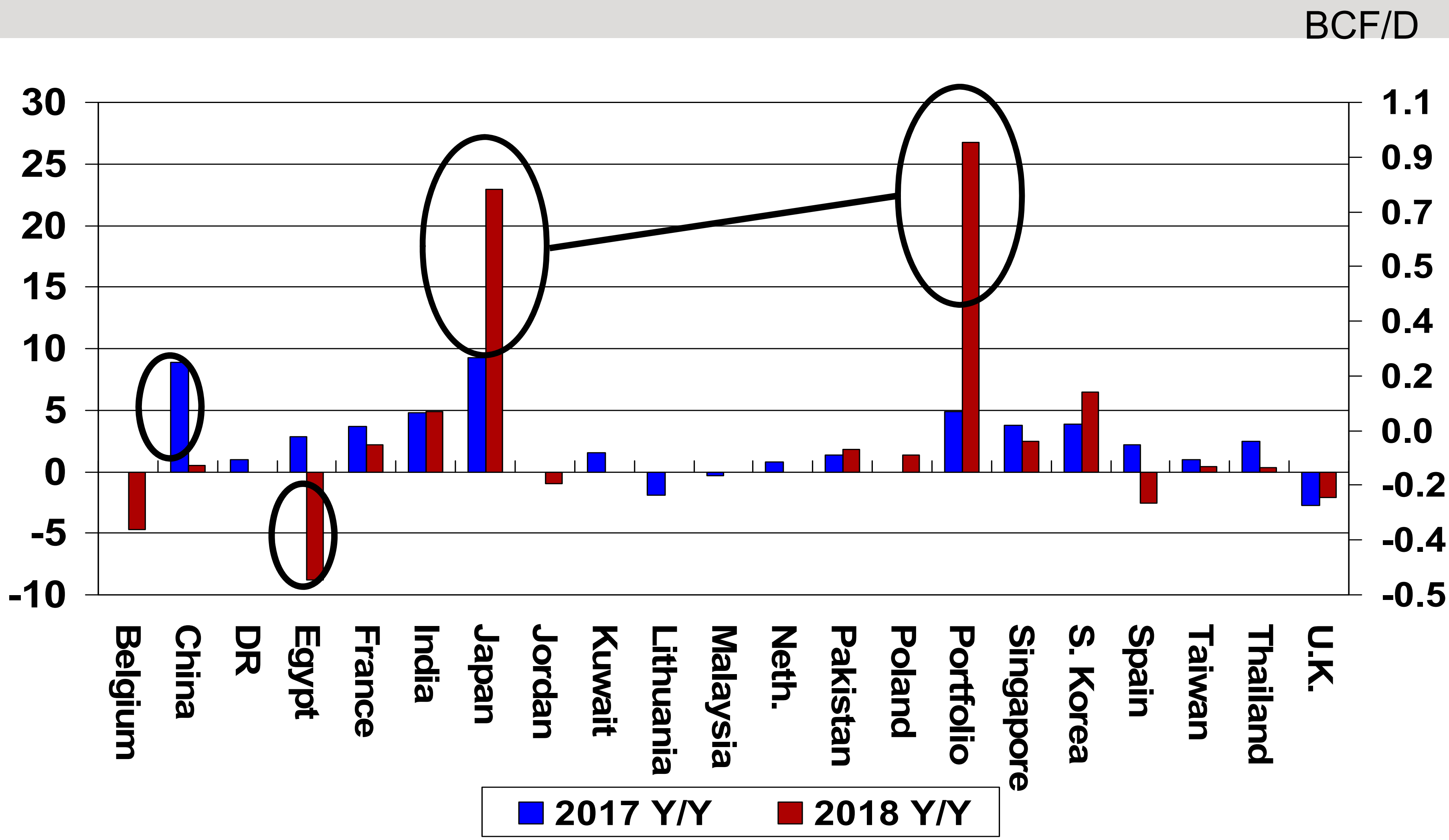
Source: Platts Analytics

Bearish Spot Price Outlook Tied Contract Outlook: Less China, More Portfolio, and Shaky Japan



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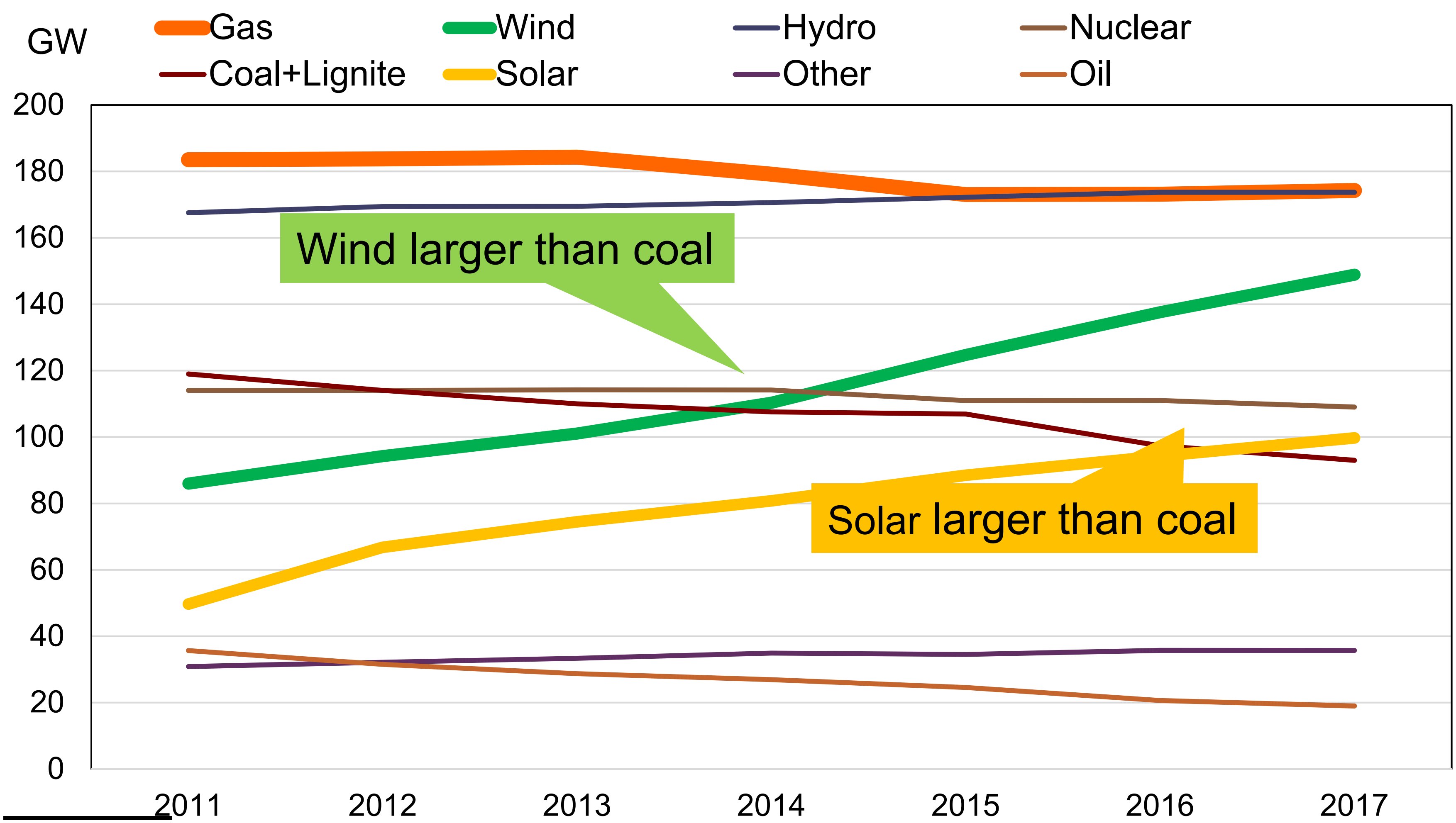
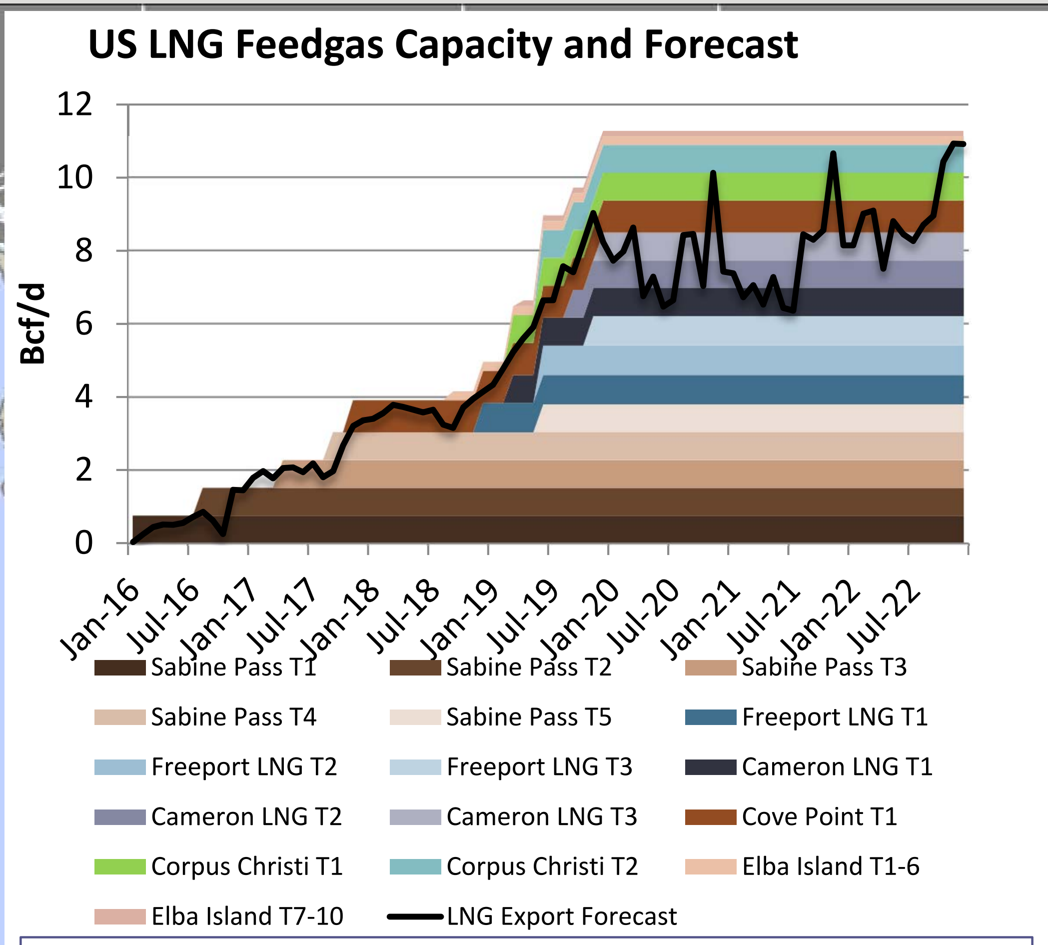
Asian Preview in Western Europe: NG Greatest Market Share But Challenged by Wind/Renewables



Natural Gas

US LNG Exports Make Up Largest Forecasted Demand Component



Note, capacities shown reflect feedgas capacities, which include boil-off volumes and capacity to run the facility

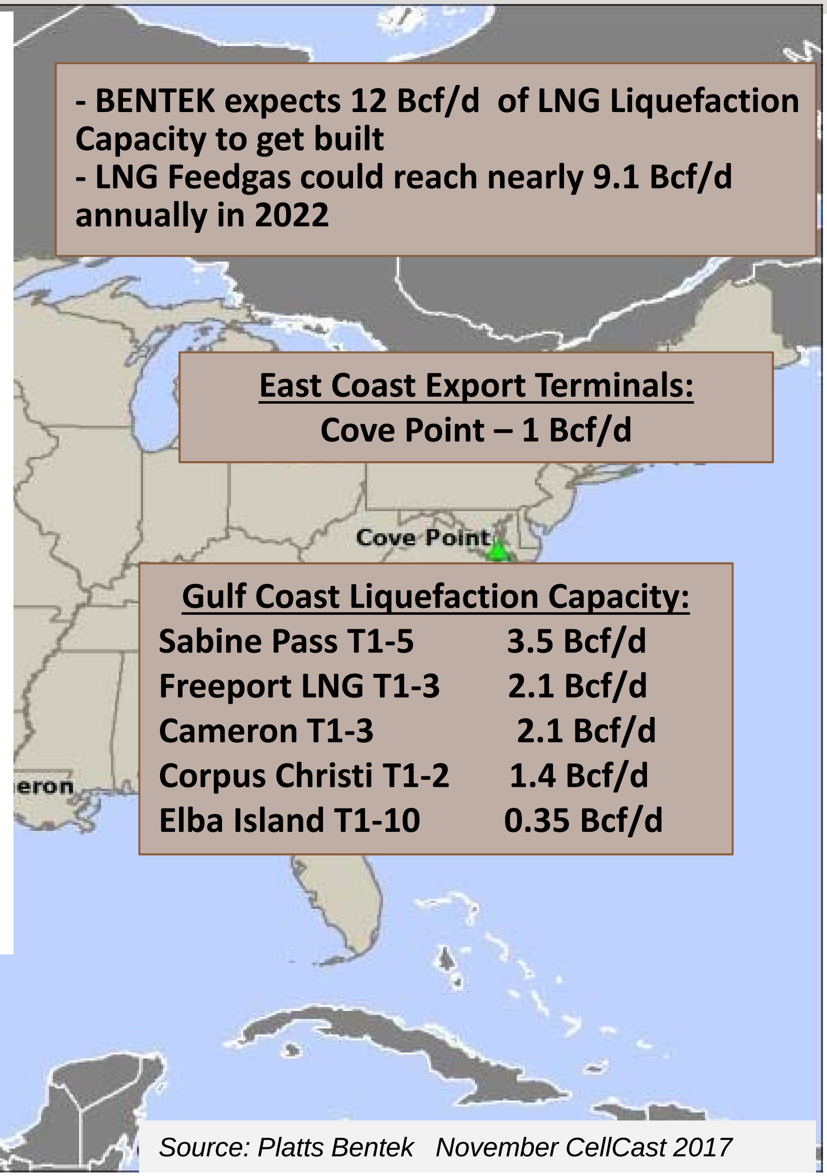
- BENTEK expects 12 Bcf/d of LNG Liquefaction Capacity to get built
- LNG Feedgas could reach nearly 9.1 Bcf/d annually in 2022

East Coast Export Terminals:

Cove Point – 1 Bcf/d

Gulf Coast Liquefaction Capacity:

Sabine Pass T1-5	3.5 Bcf/d
Freeport LNG T1-3	2.1 Bcf/d
Cameron T1-3	2.1 Bcf/d
Corpus Christi T1-2	1.4 Bcf/d
Elba Island T1-10	0.35 Bcf/d

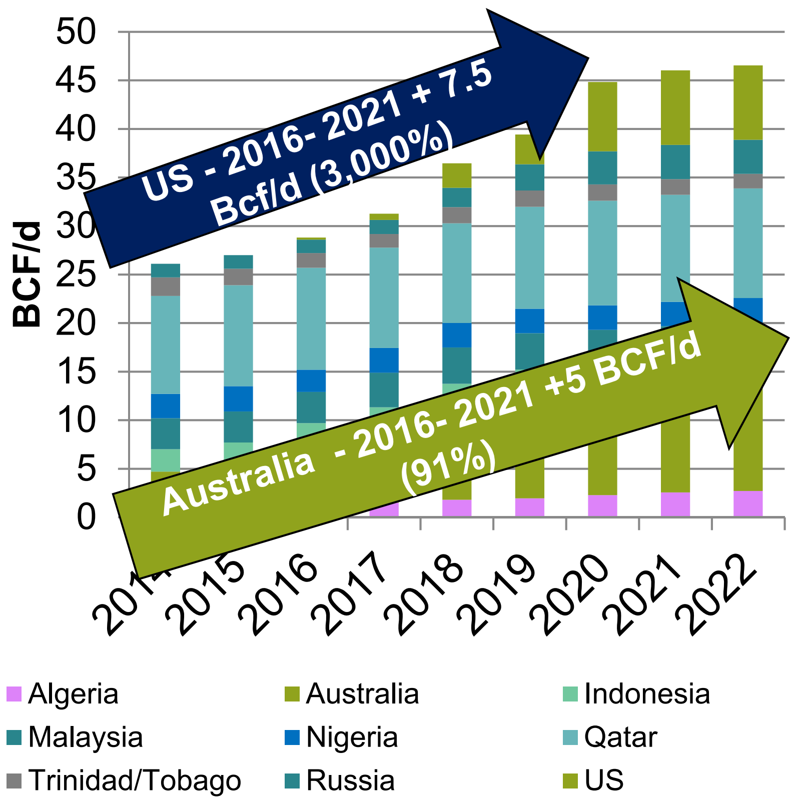


Source: Platts Bentek November CellCast 2017

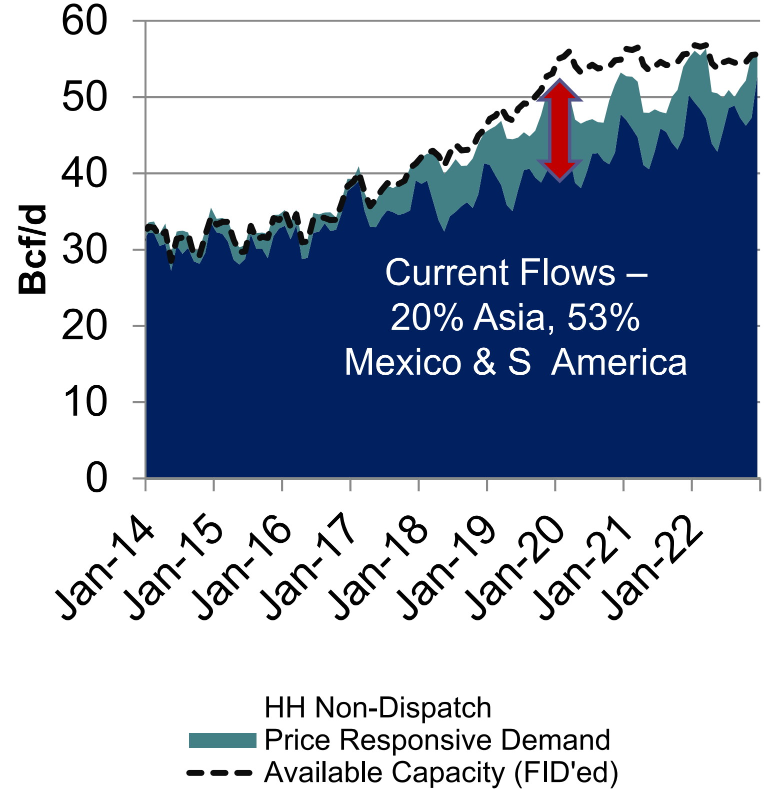
Natural Gas

US & Australia Plan To Be Largest Contributors To Incremental LNG Supply – All Of That Supply Is Competing For Market Share Plagued By Overbuild

LNG Exports Of Major Suppliers



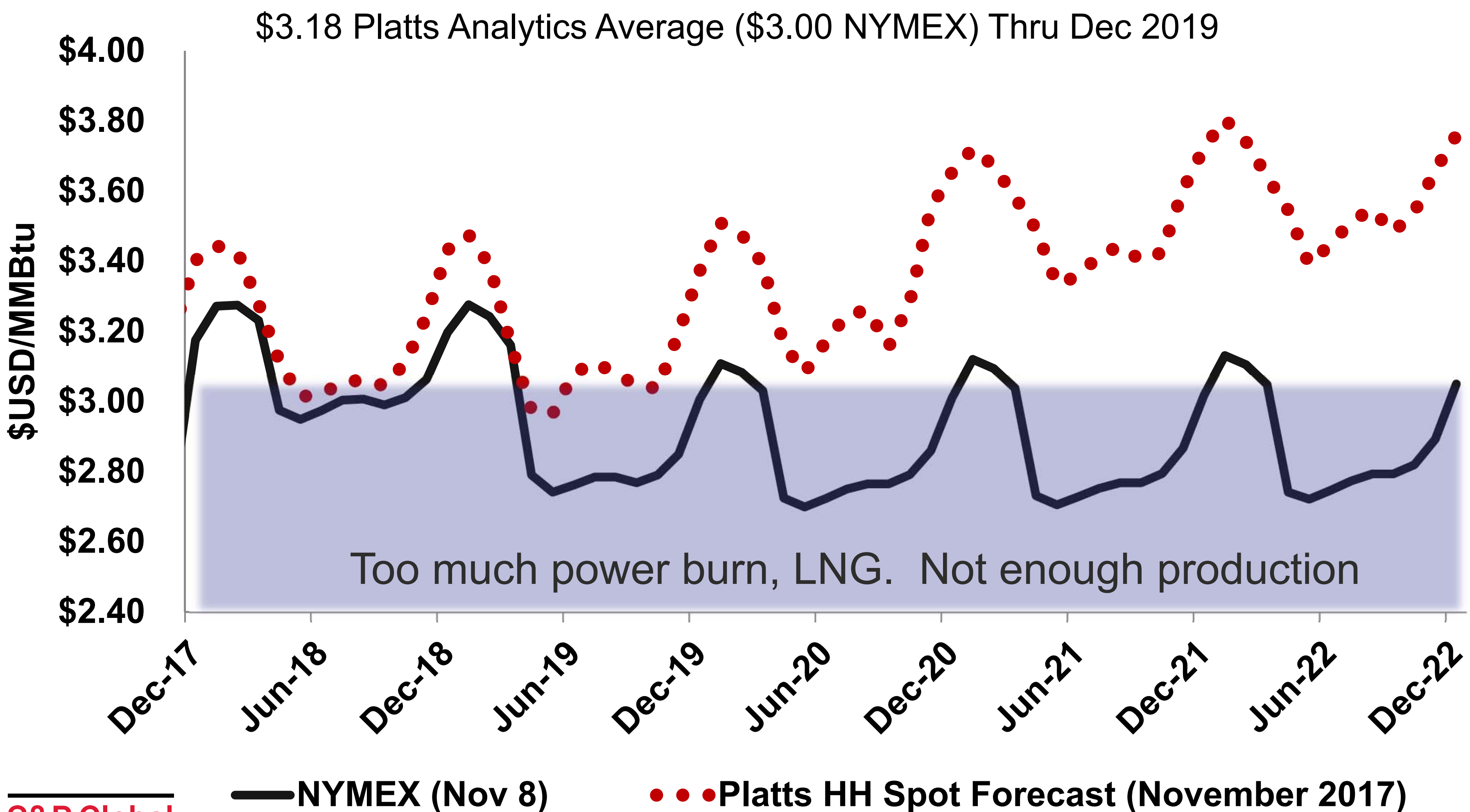
Global LNG Demand



S&P Global Platts

Source: Platts Analytics/Eclipse

Henry Hub Price Outlook – Higher Prices Needed To Incentivize Anticipated Demand



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Key Takeaways

- US Natural Gas story is still driven by the North East
- Current rig count will allow NE production to meet forecast but not fill pipeline capacity – effect of oversubscription to producer balance sheets yet to be seen
- Oil & NGL growth are forecast to be robust, bringing with it associated Nat Gas from the Permian Basin – Haynesville grows on proximity to demand center and access to cheap pipeline capacity
- US is currently close to NG self sufficient – need for incremental supply is predicated primarily upon demand abroad
- Mexico pipeline build out will open up capacity out of US for some Permian production near term
- Longer term, global LNG markets become more of a spot market – if forecasted demand is realized then market prices will set themselves to allow adequate production to come from the US

Thank you

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