



# Navigating COVID-19: Good Times Bad Times in Natural Gas and NGL Markets

Special Guest



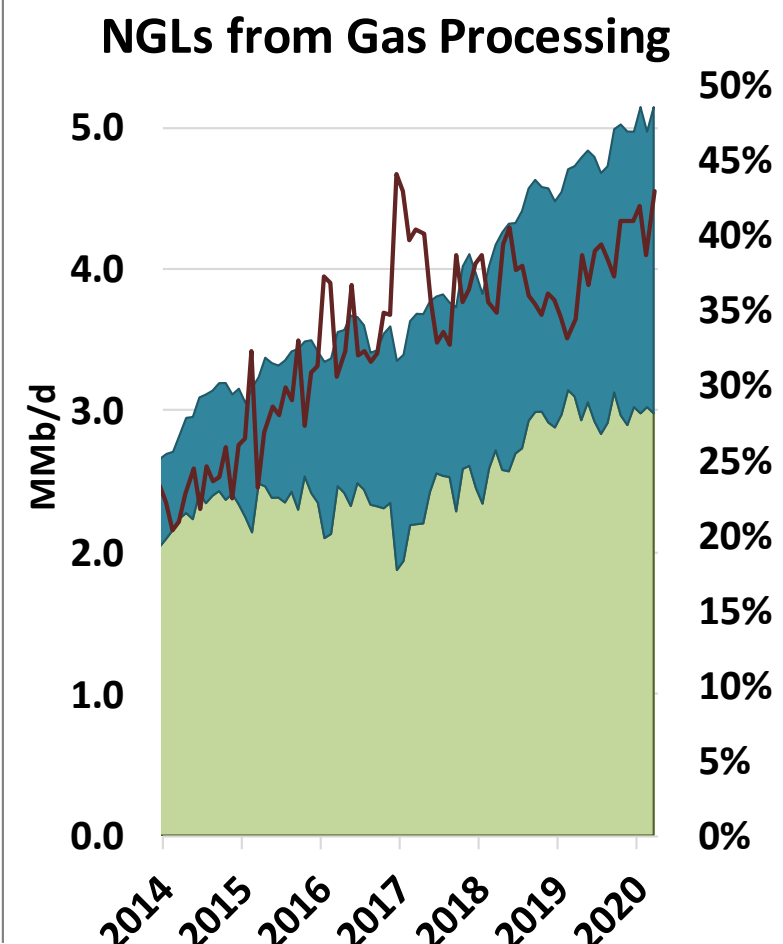
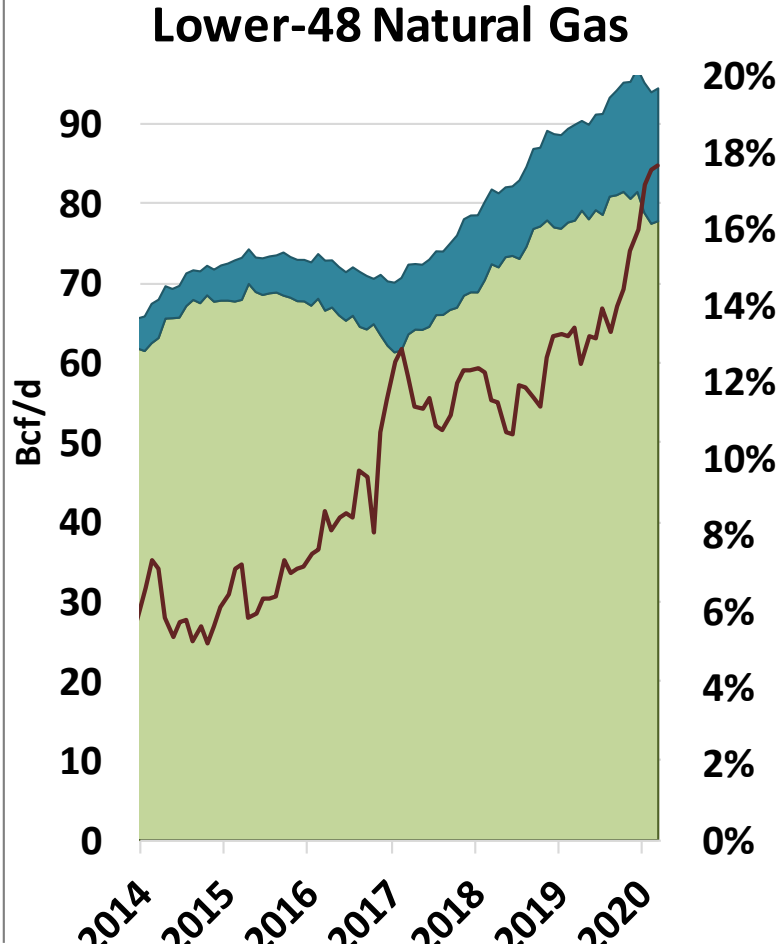
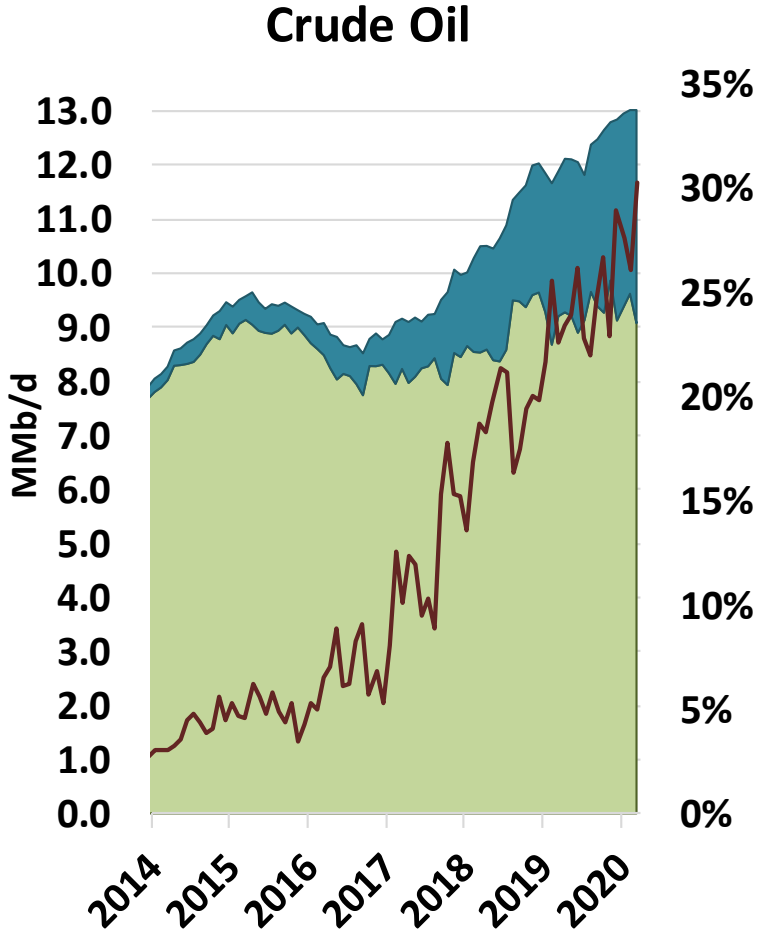
Rusty Braziel | CEO and Chief  
Principal Energy Consultant  
[RBN Energy](#)

Host



J.C. Kneale | VP of NA  
Natural Gas, NGLs and Power  
[Intercontinental Exchange](#)

# Crude/Gas/NGL Production, Exports, and % Exports

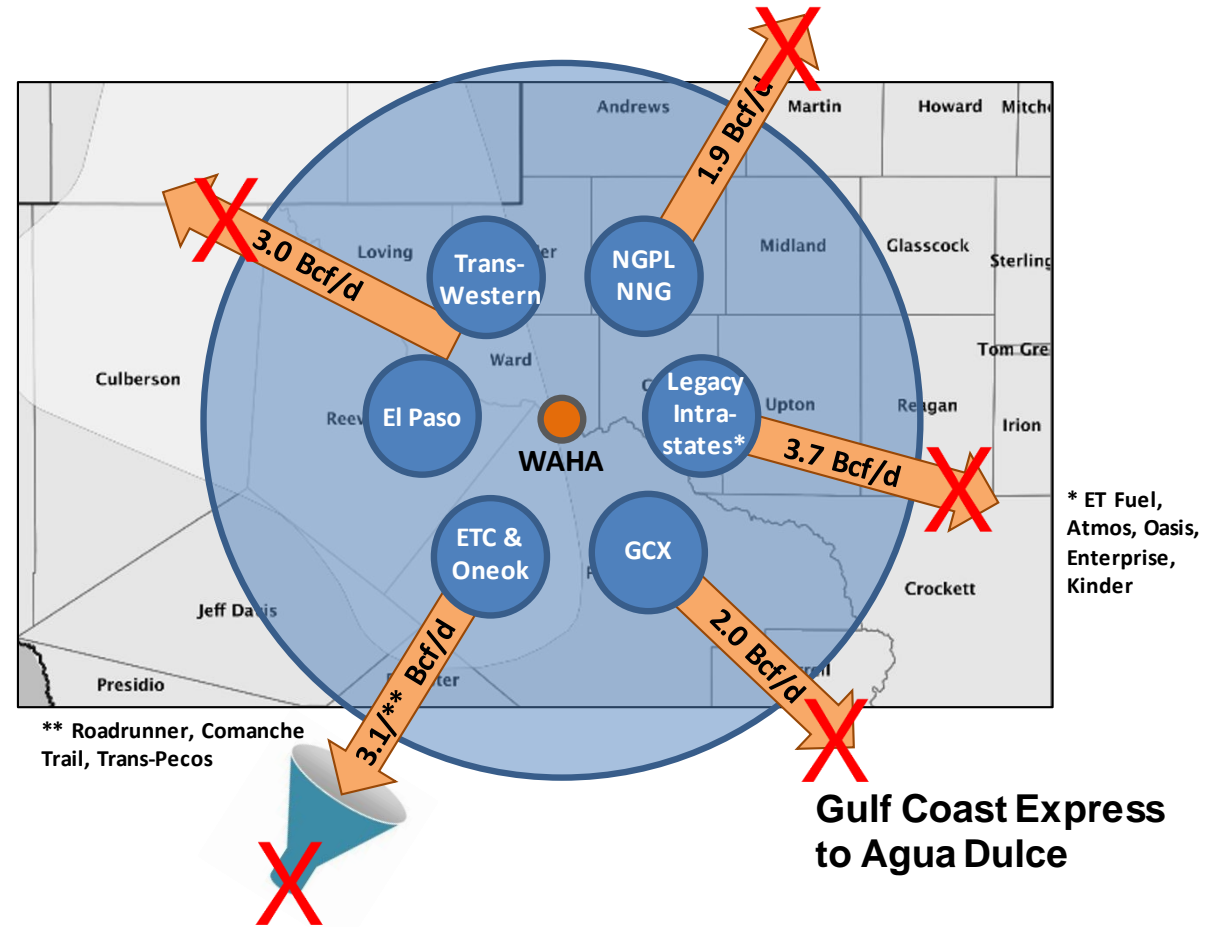
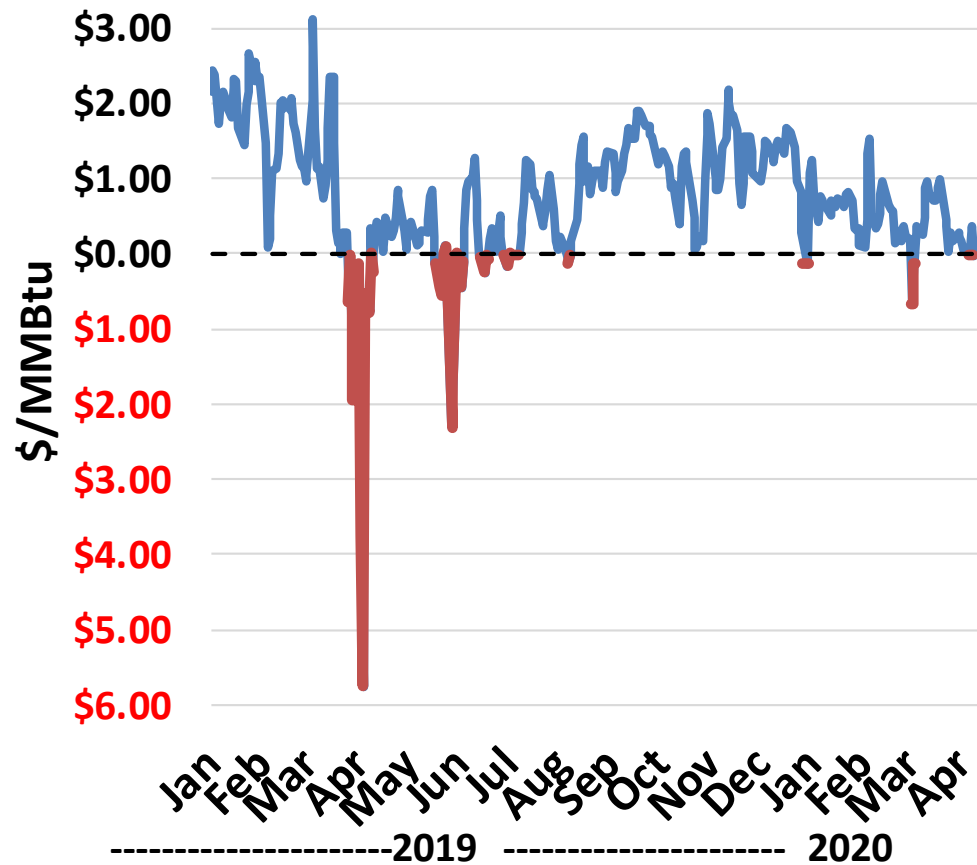


Production to U.S. Markets    Production to International Markets    Percentage Exports



# Permian Gas Takeaway Capacity & Price

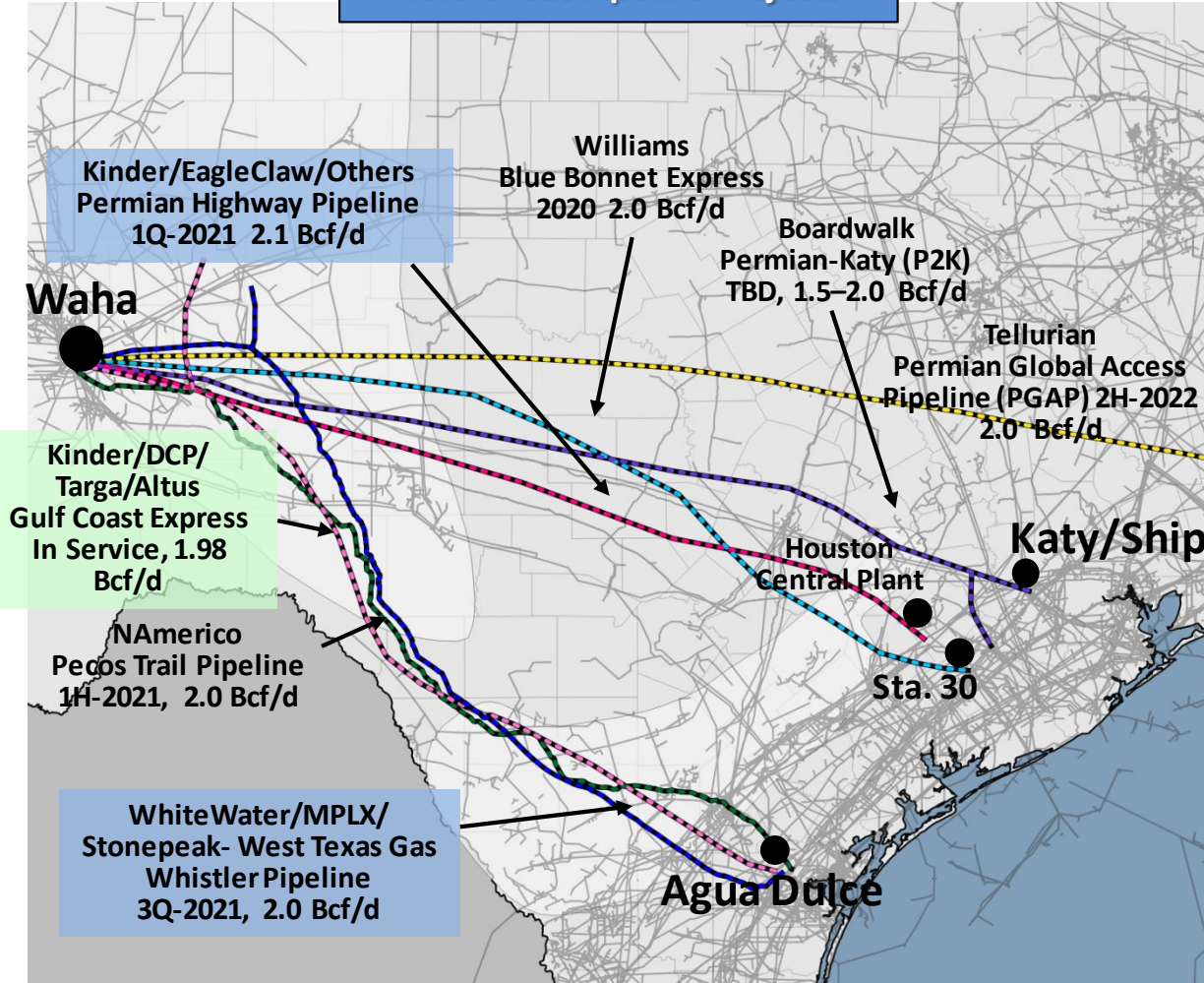
## Waha Hub Daily Average Price



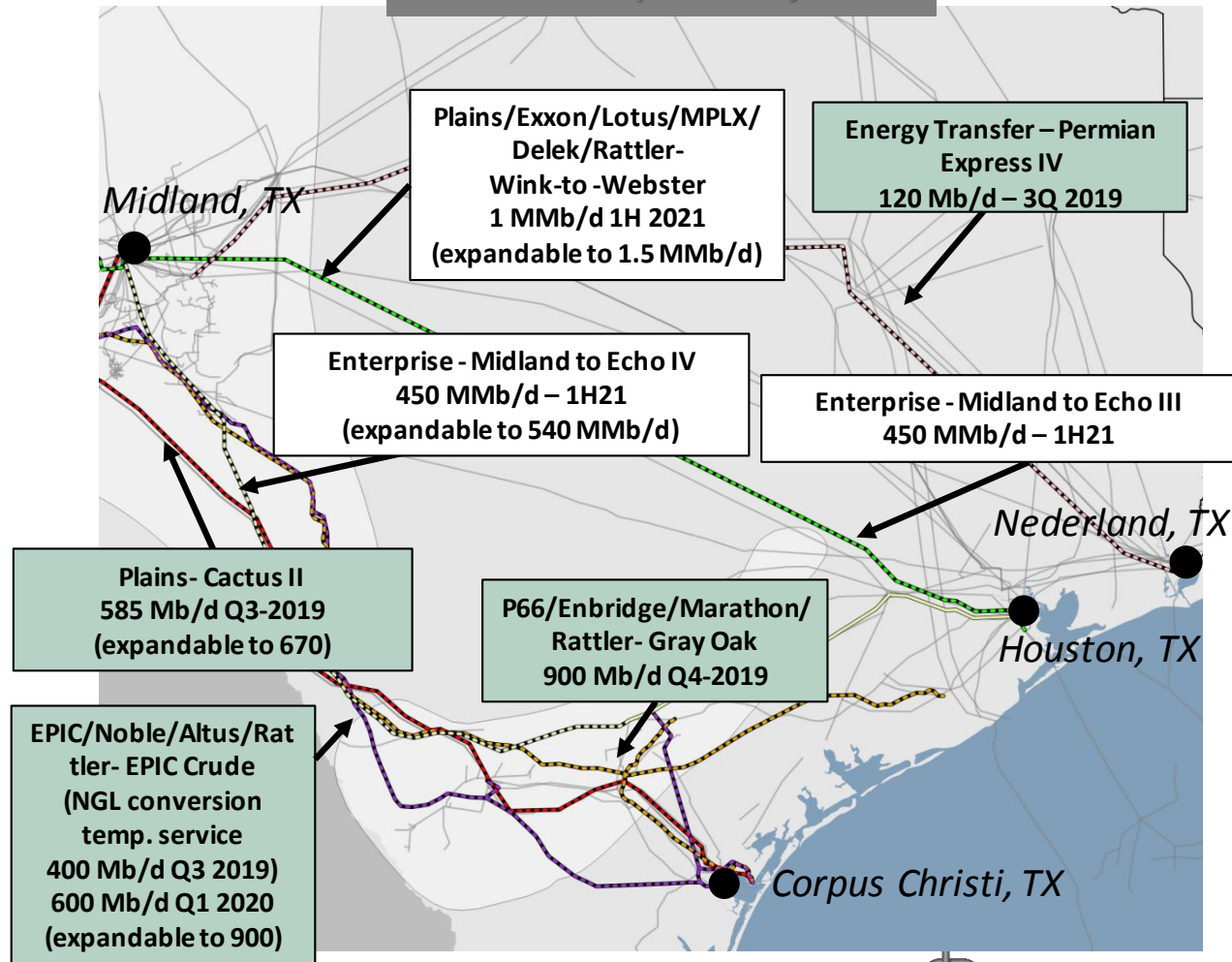


# Permian Crude and Gas Pipeline Projects

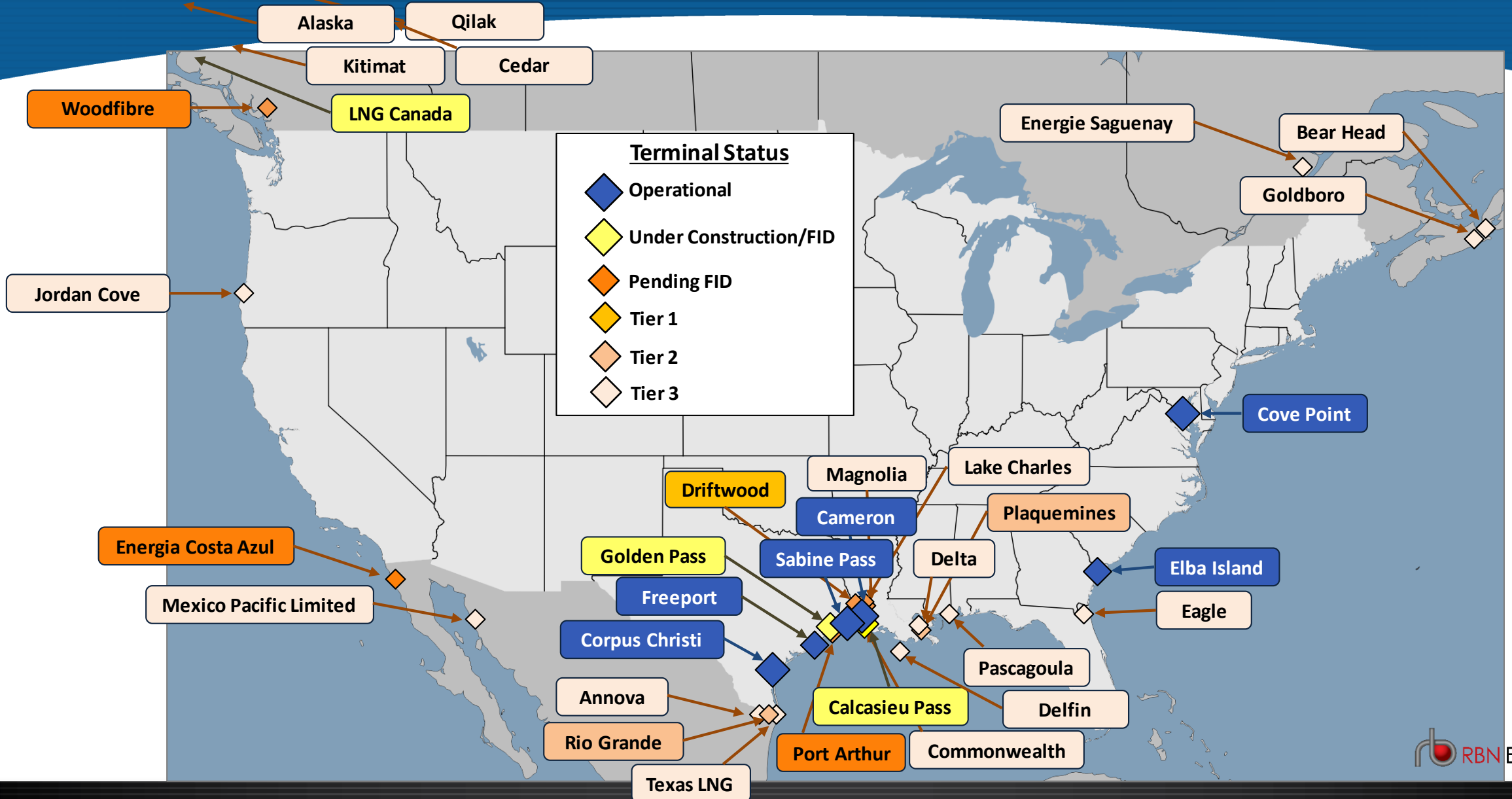
## Natural Gas Pipeline Projects



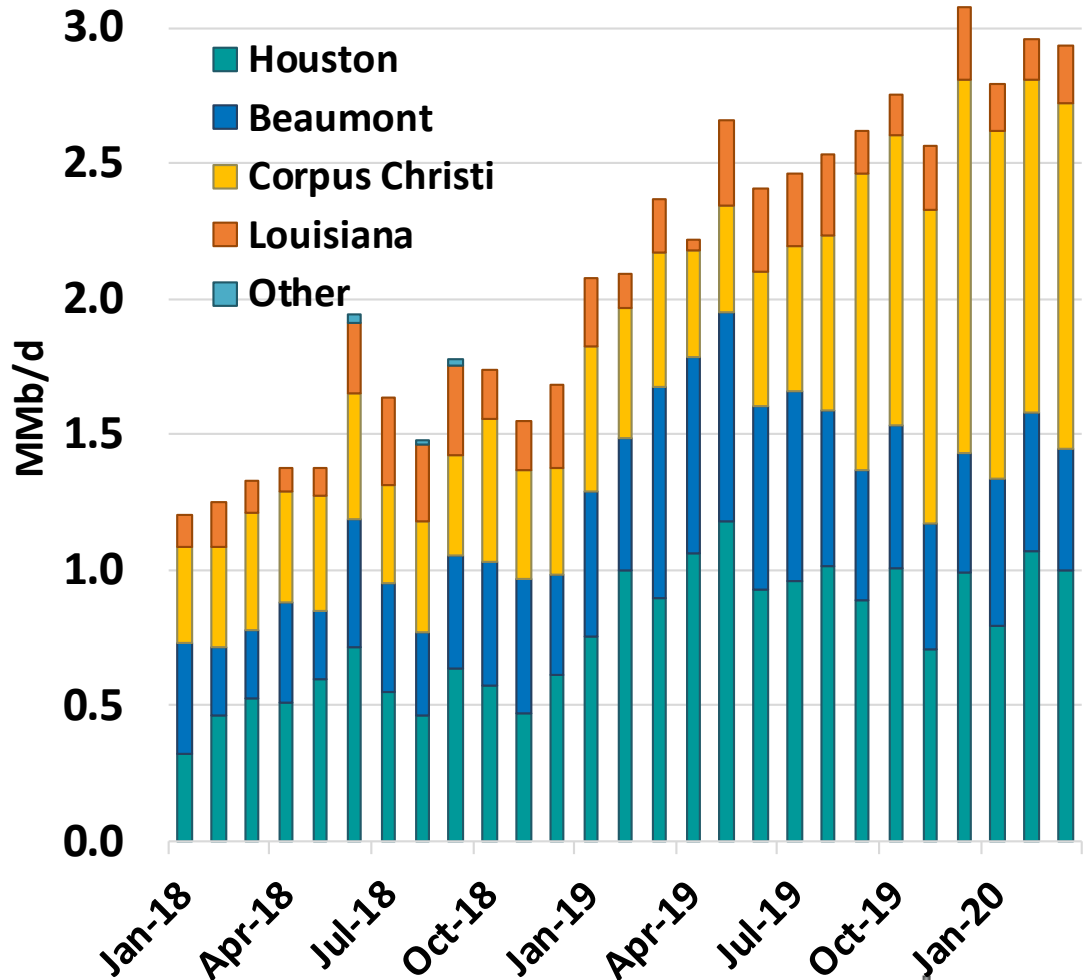
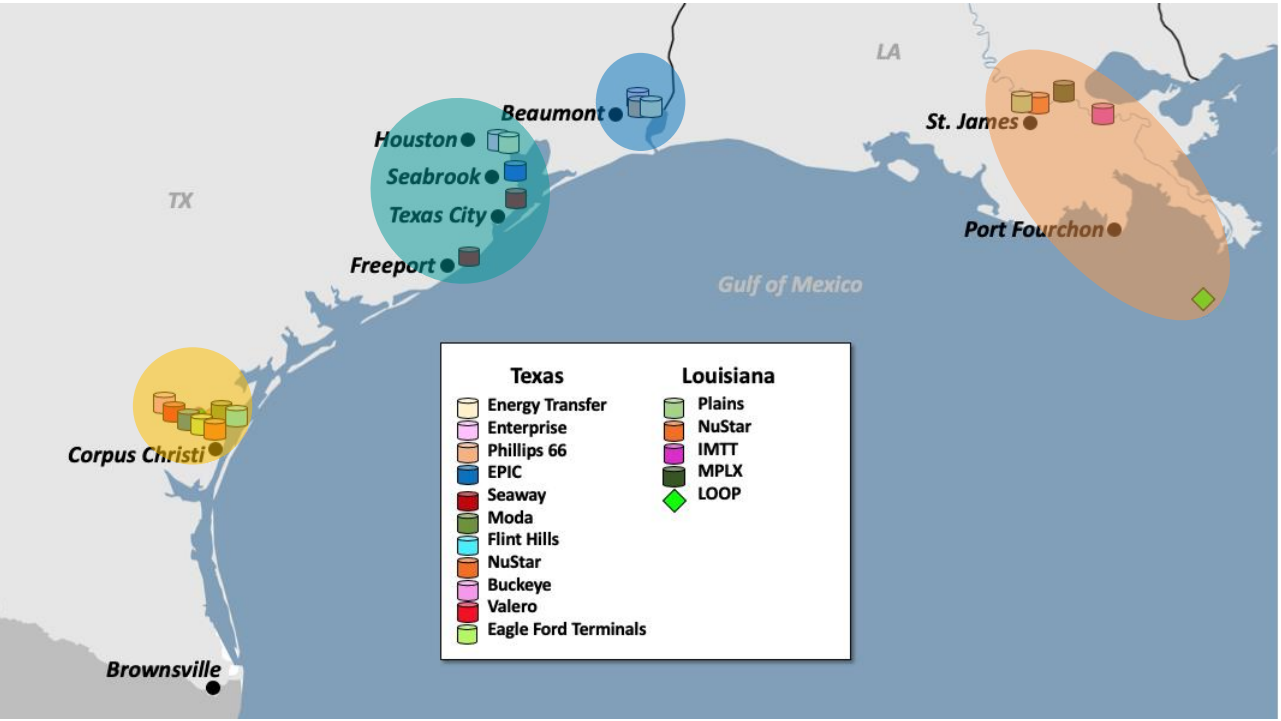
## Crude Oil Pipeline Projects



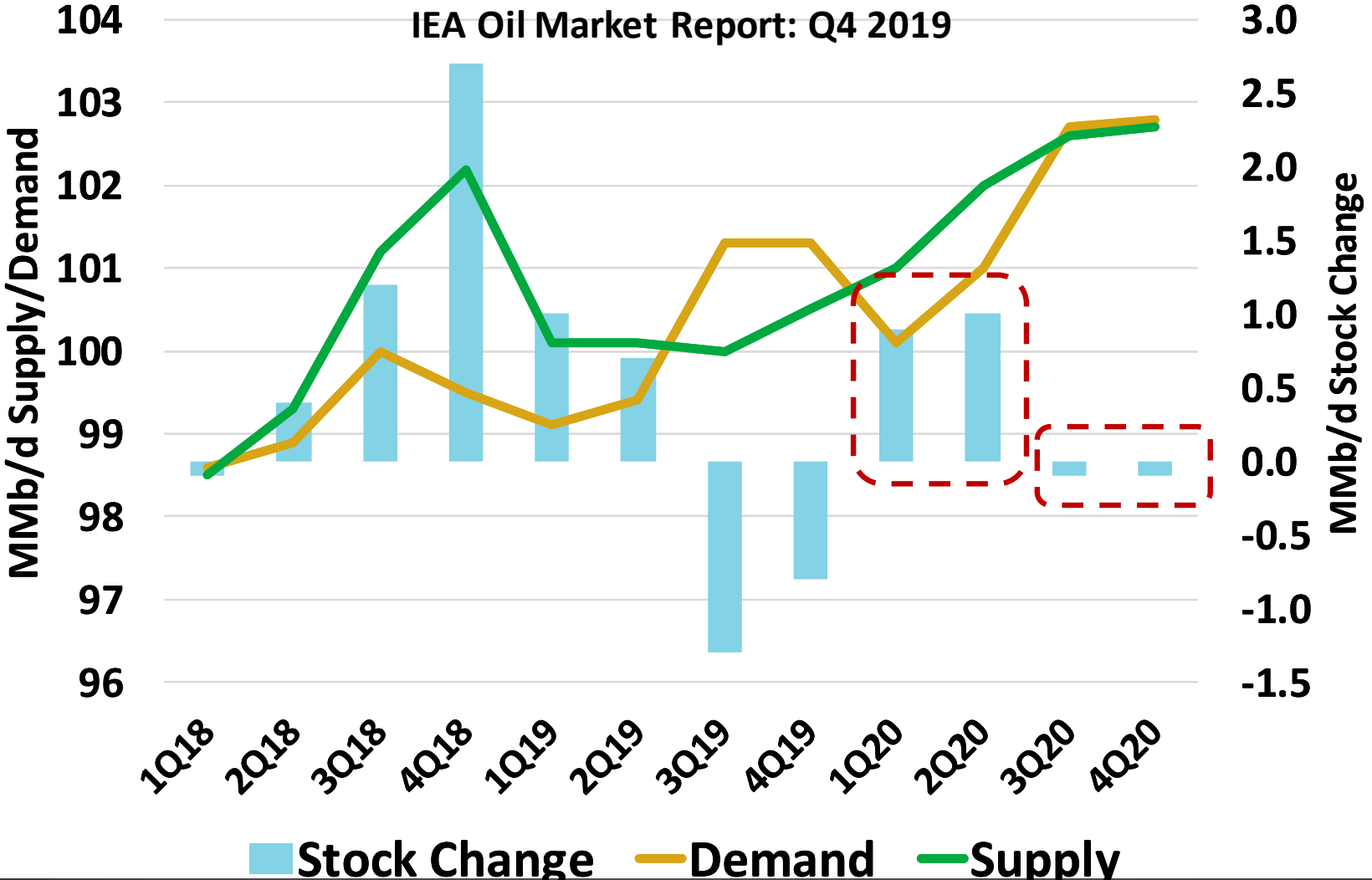
# LNG Export Projects by Status



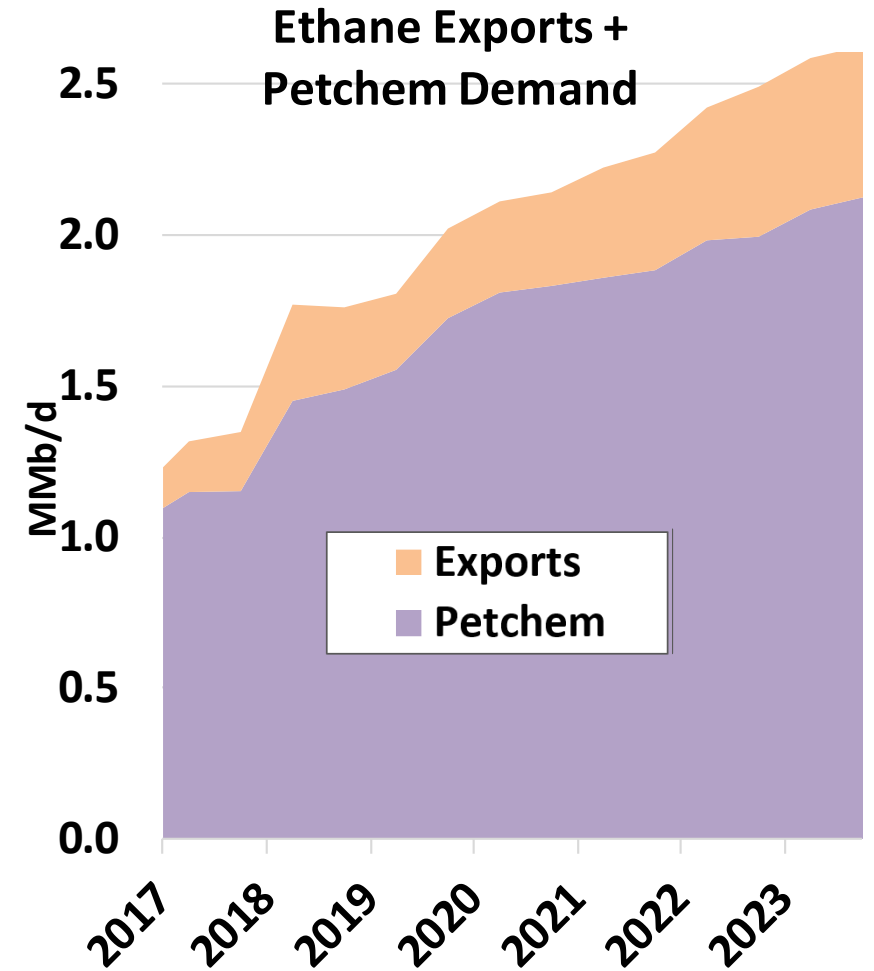
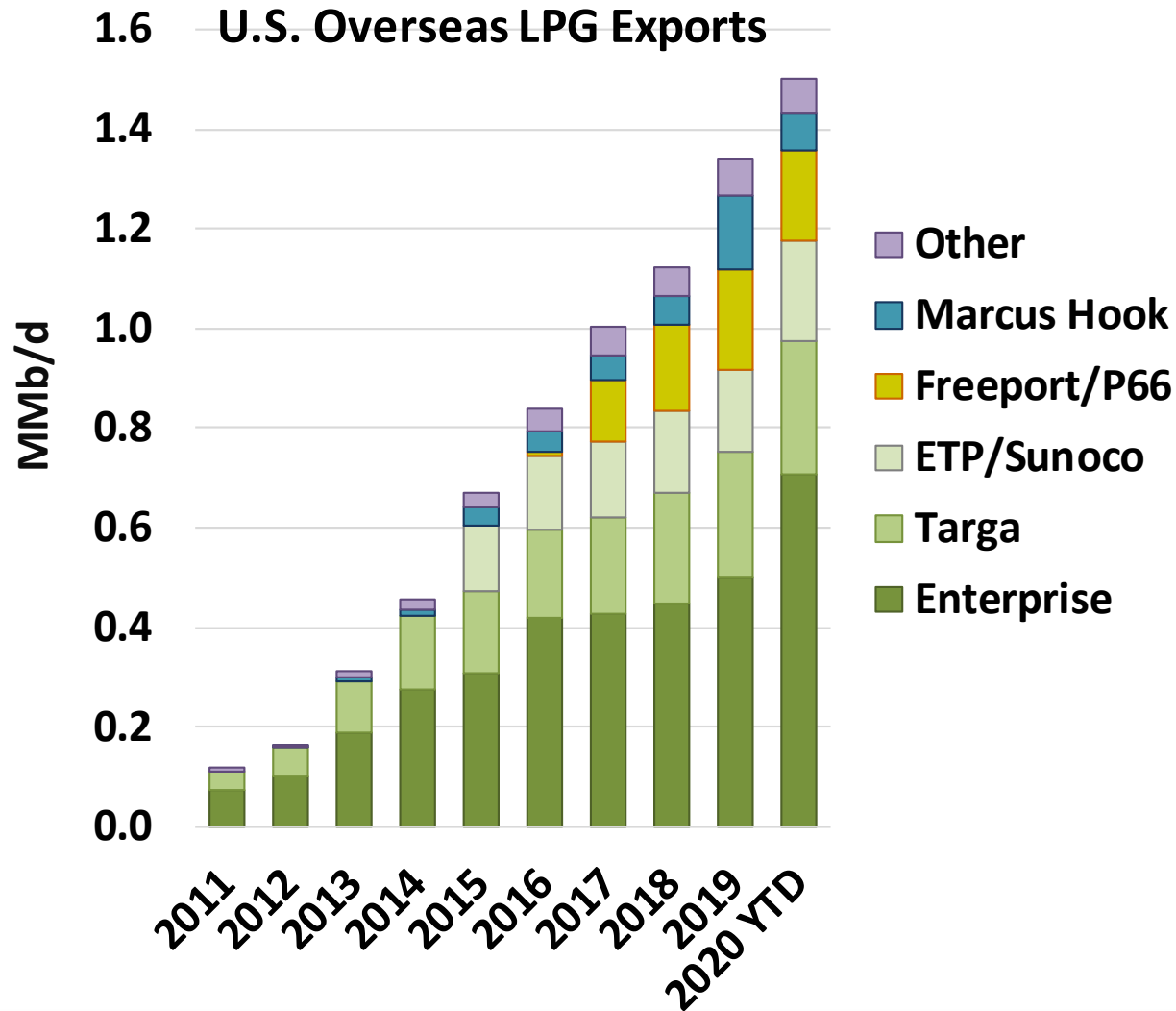
# U.S. Gulf Coast Crude Oil Exports



# Global Oil Supply/Demand Outlook

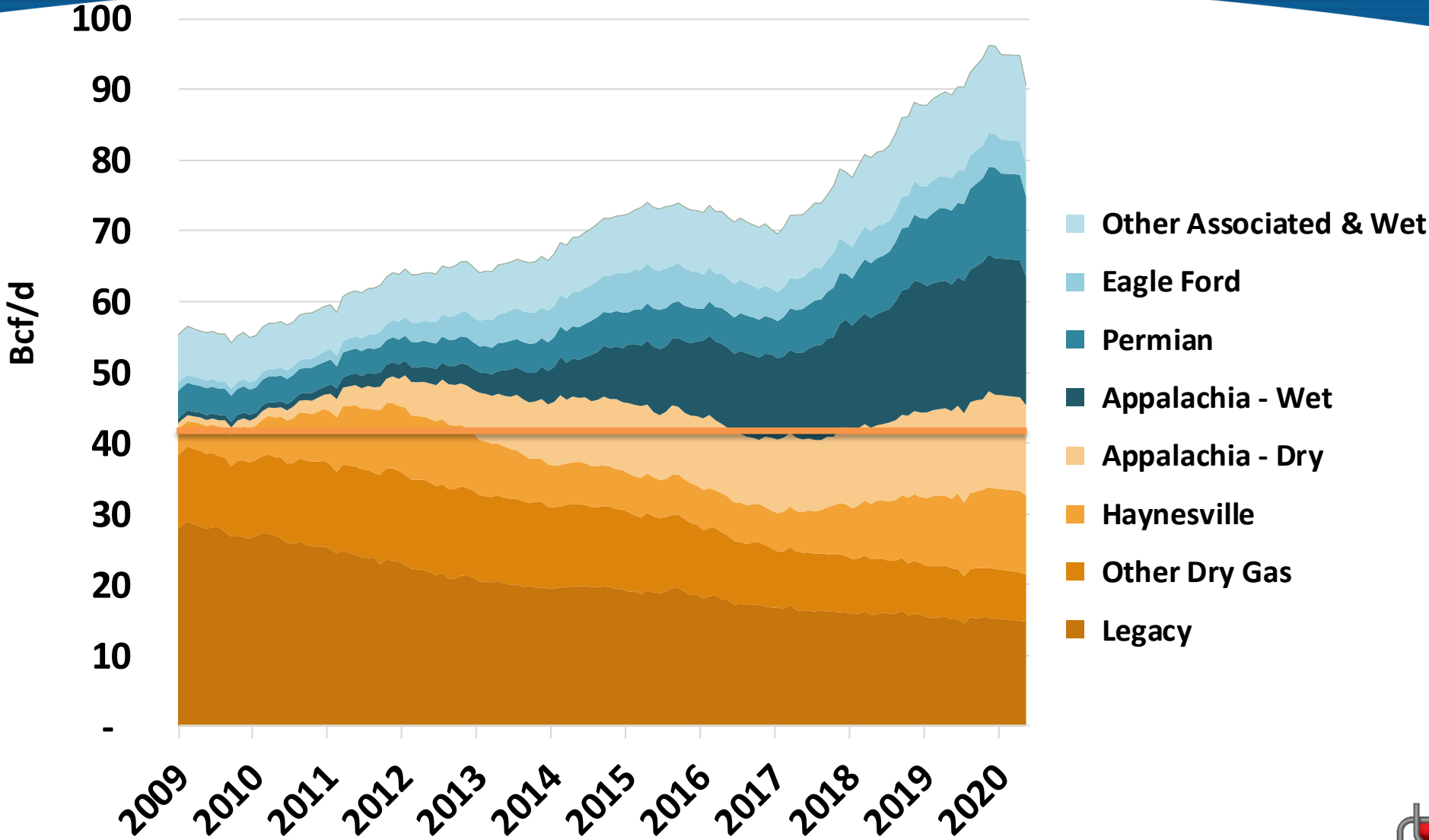


# NGL Export and Petchem Demand



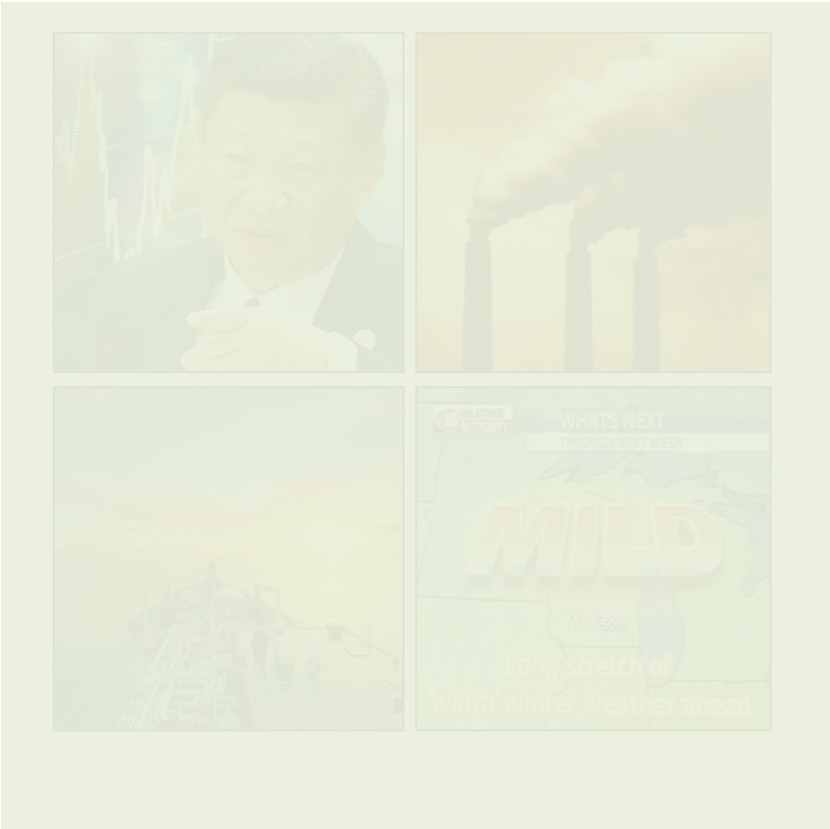


# U.S. Lower 48 Rich and Associated Gas vs. Dry Gas



# Good Times Bad Times

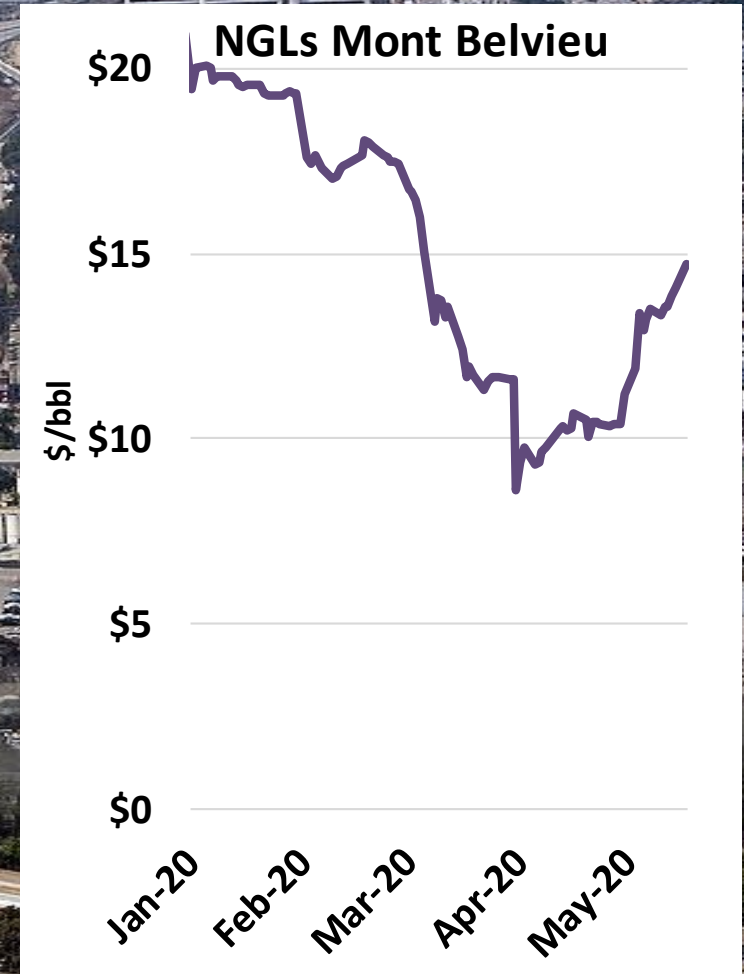
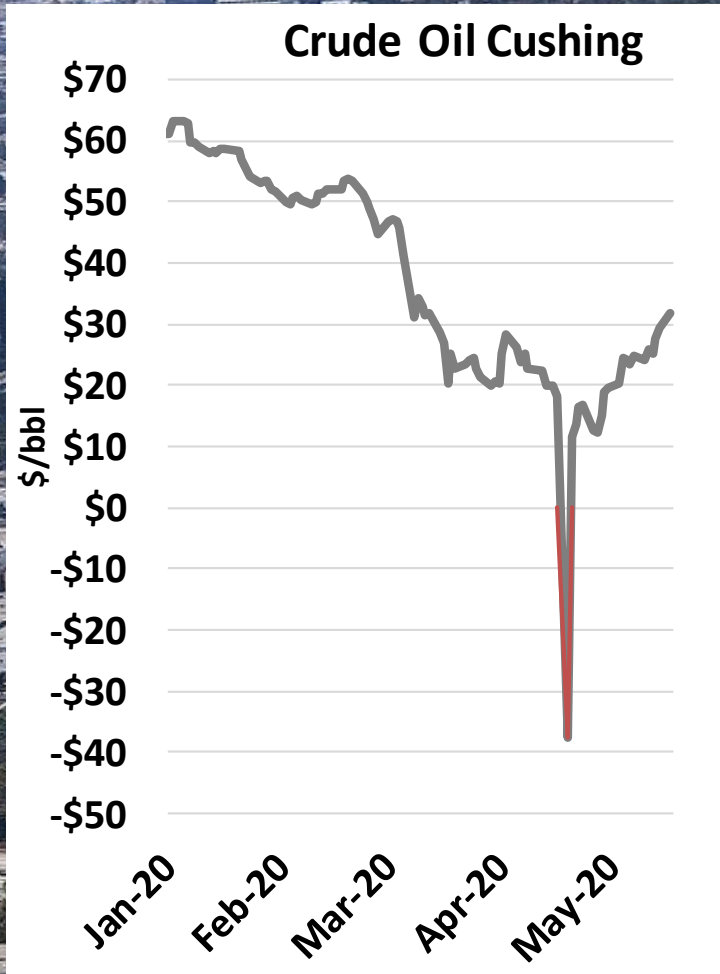
## Before



## After

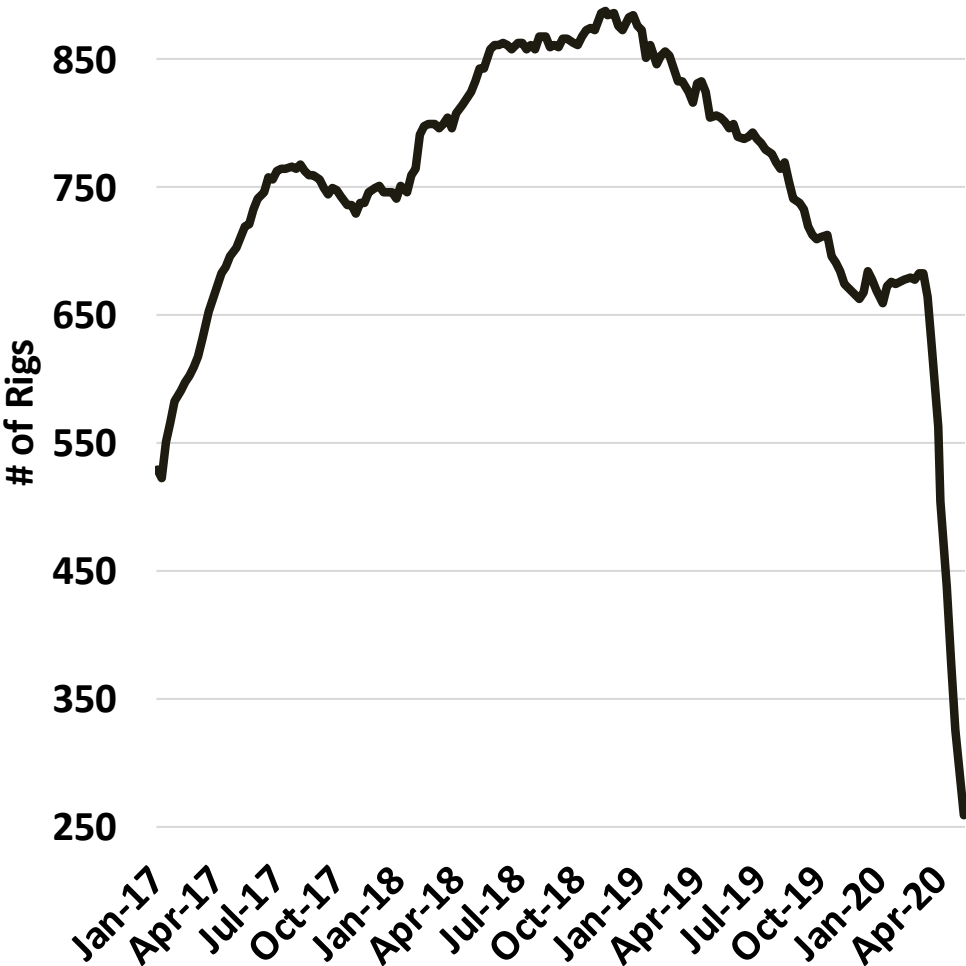


# 2020 COVID Era Energy Market Meltdown

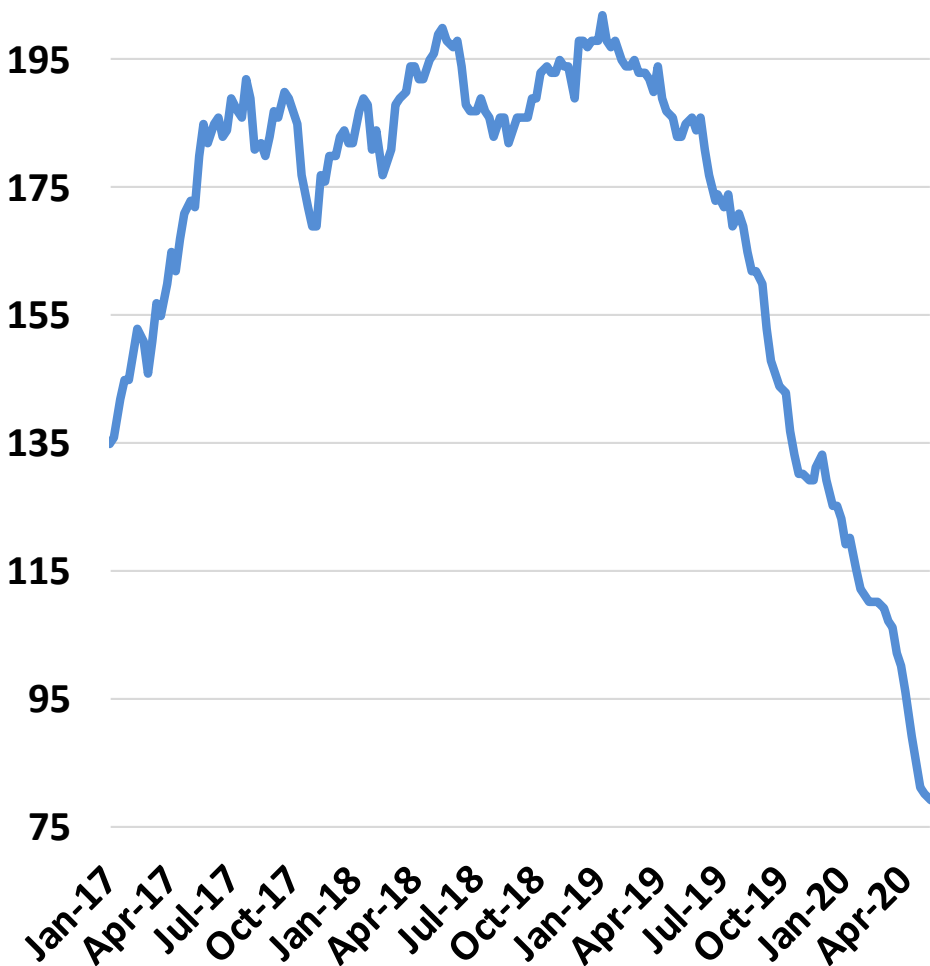


# U.S. Rig Count

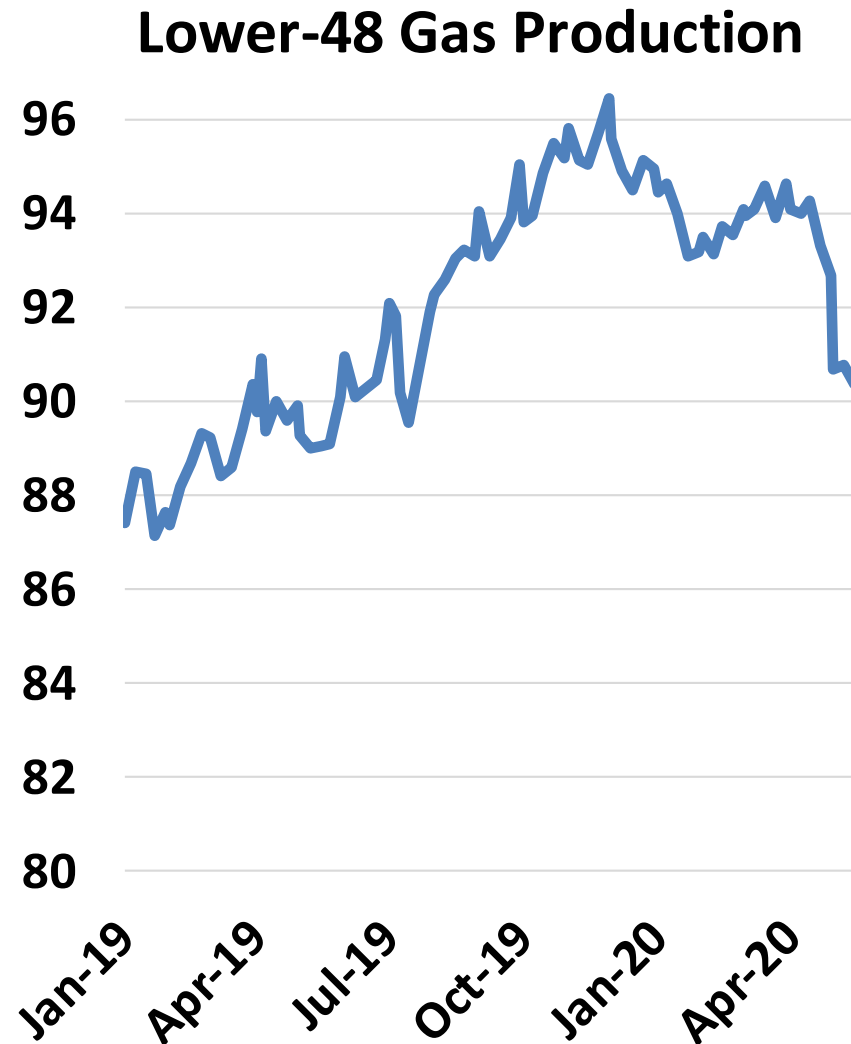
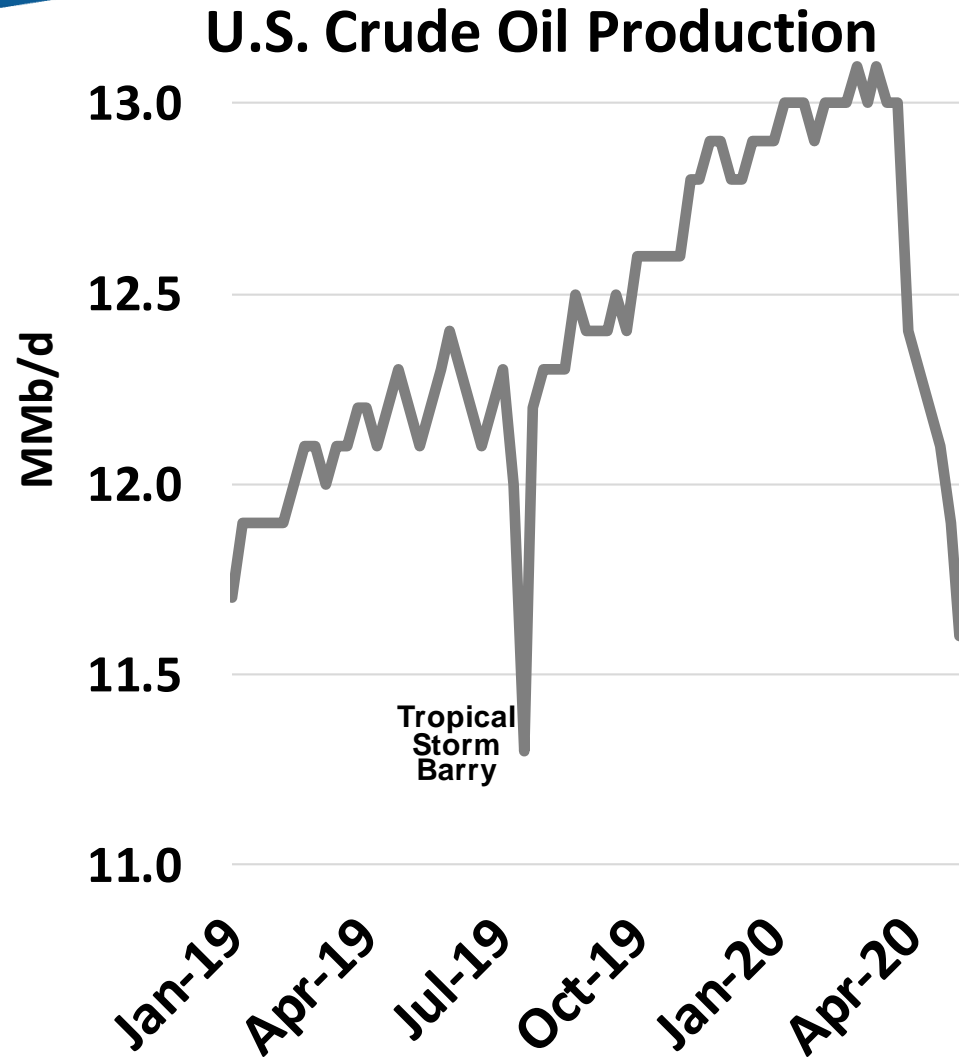
## Crude Oil



## Natural Gas



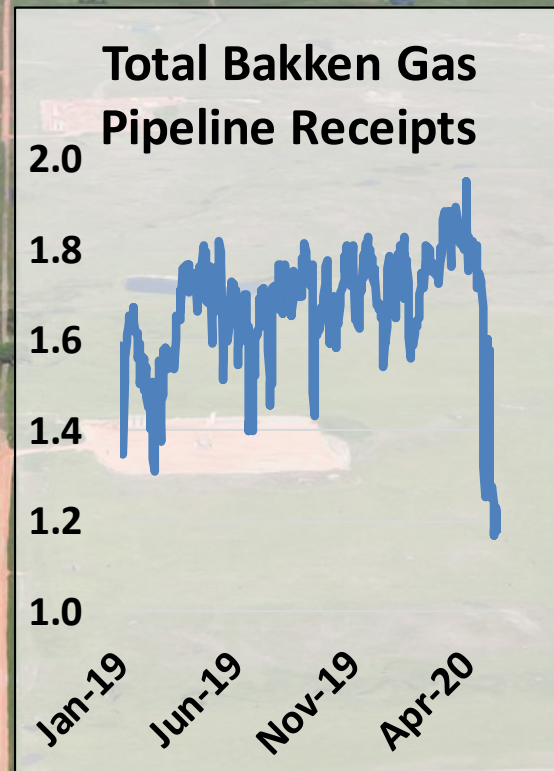
# Crude Oil and Natural Gas Production





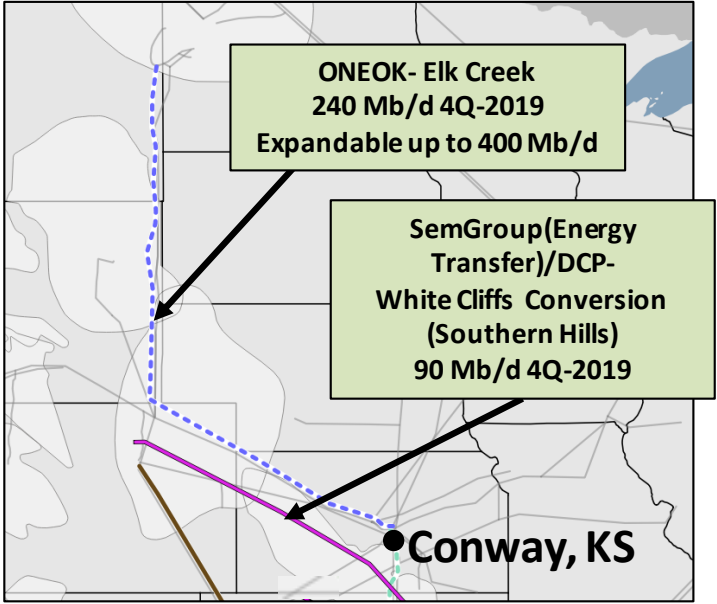
# Bakken Hit Hard

- » 7,500 shut-in wells
- » 510 Mb/d shut-in production
- » Only 12 drilling rigs operating
- » 1 frac crew operating – Most frac supply contracts cancelled through the rest of the year
- » 790 abandoned wells
- » Gas plants near maximum turn down capacity (35%)

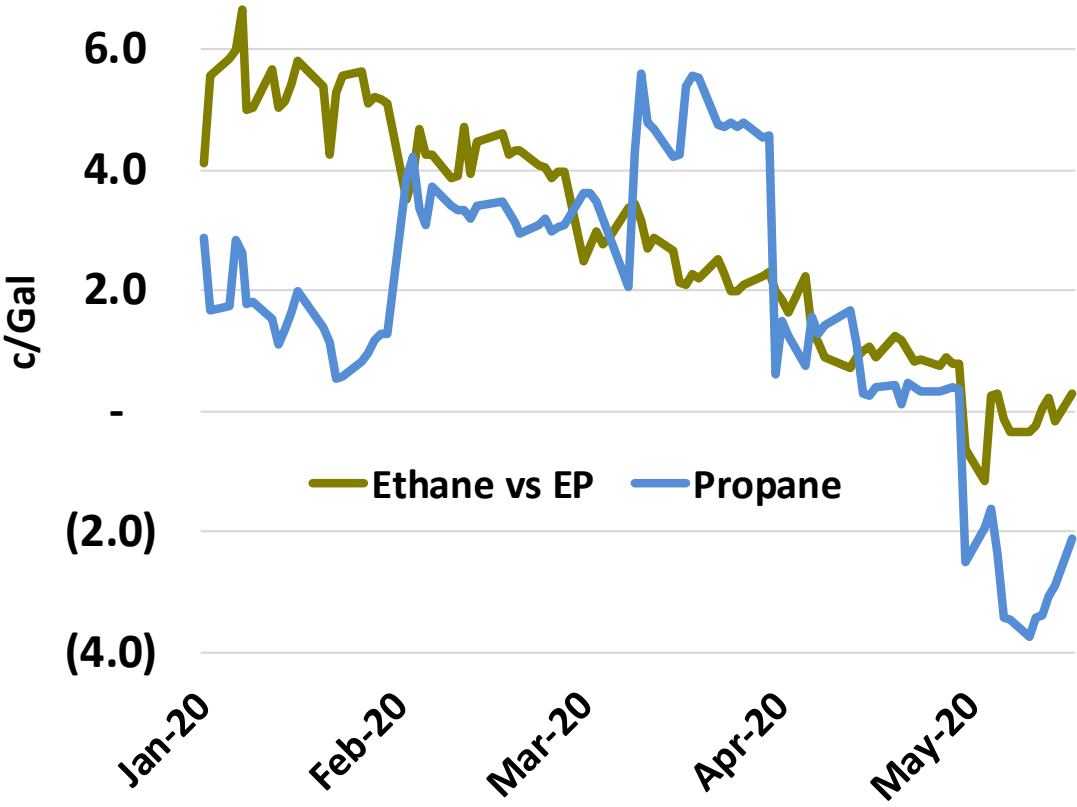


ND Department of Mineral Resources  
Bakken Restart Task Force  
May 15 2020

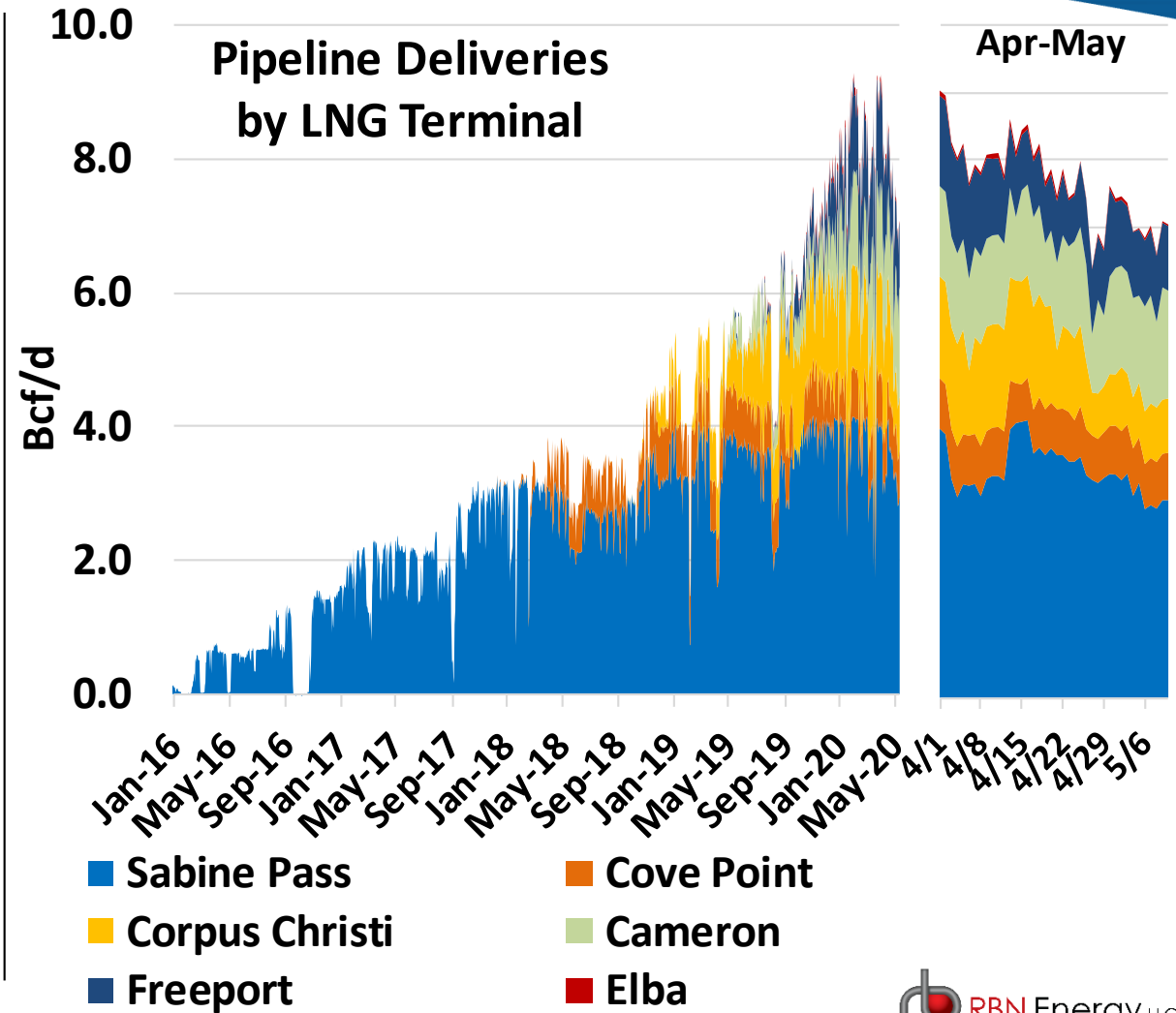
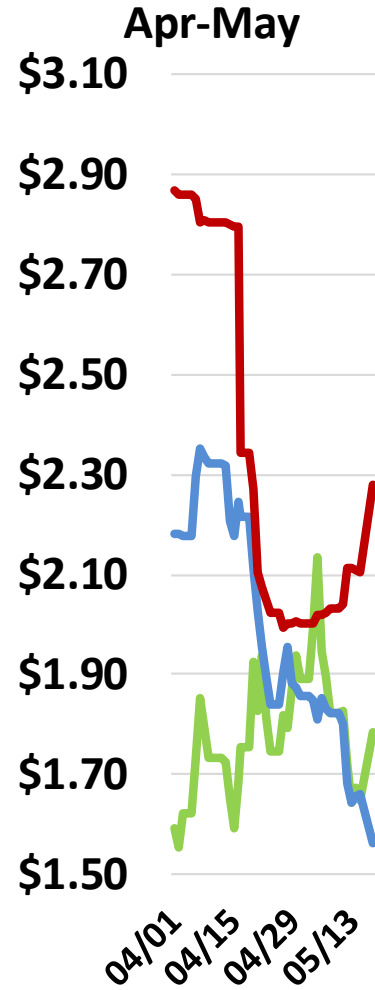
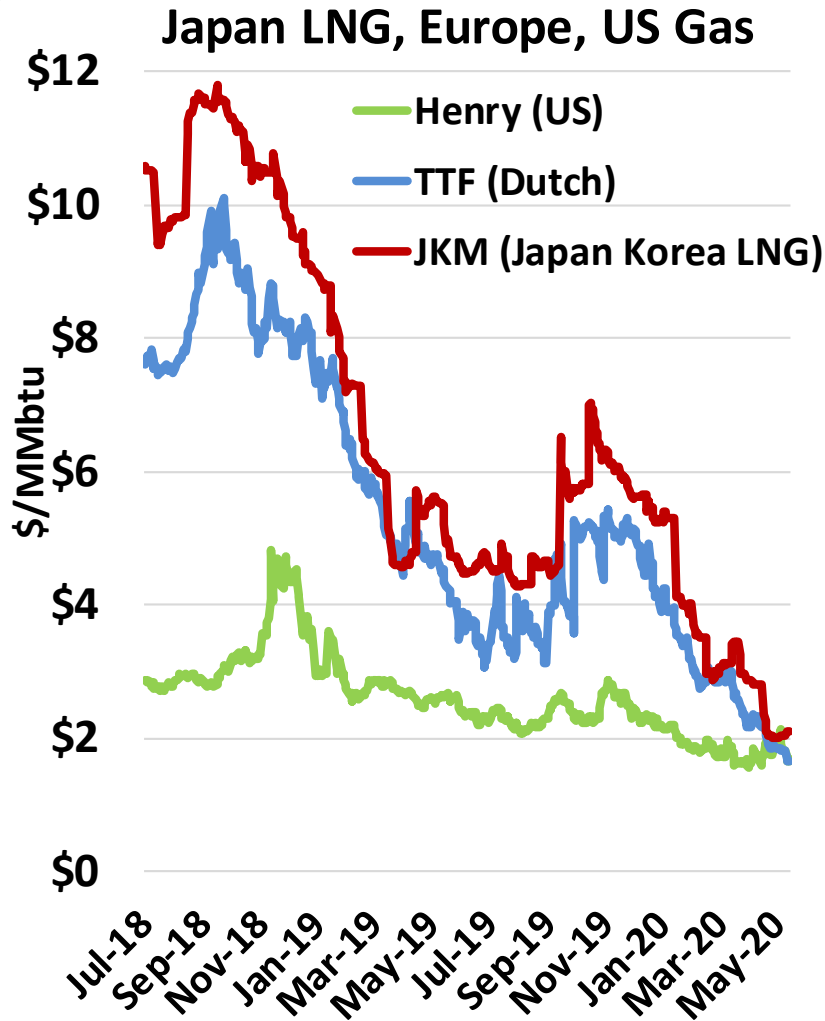
# Bakken NGL Shortfall Impacts Conway



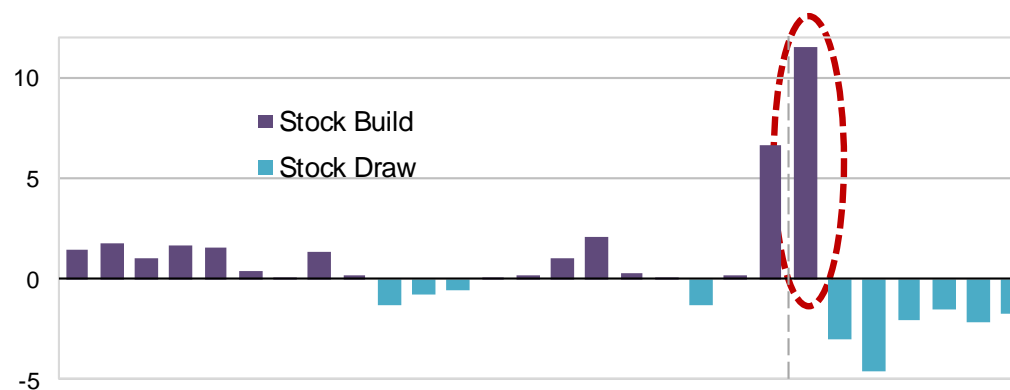
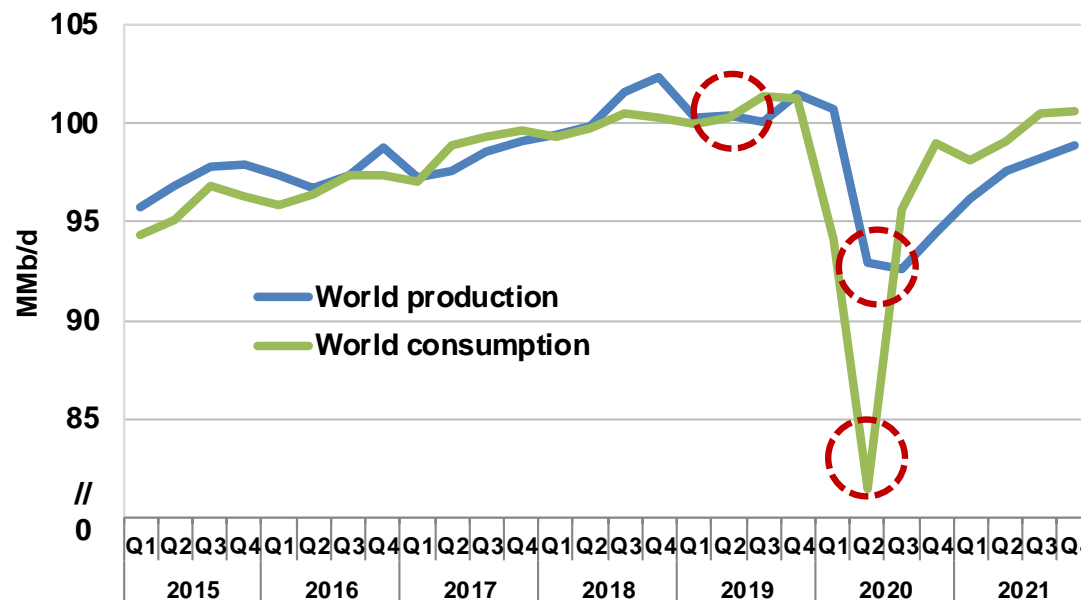
## Mont Belvieu less Conway Propane and Ethane (EP)



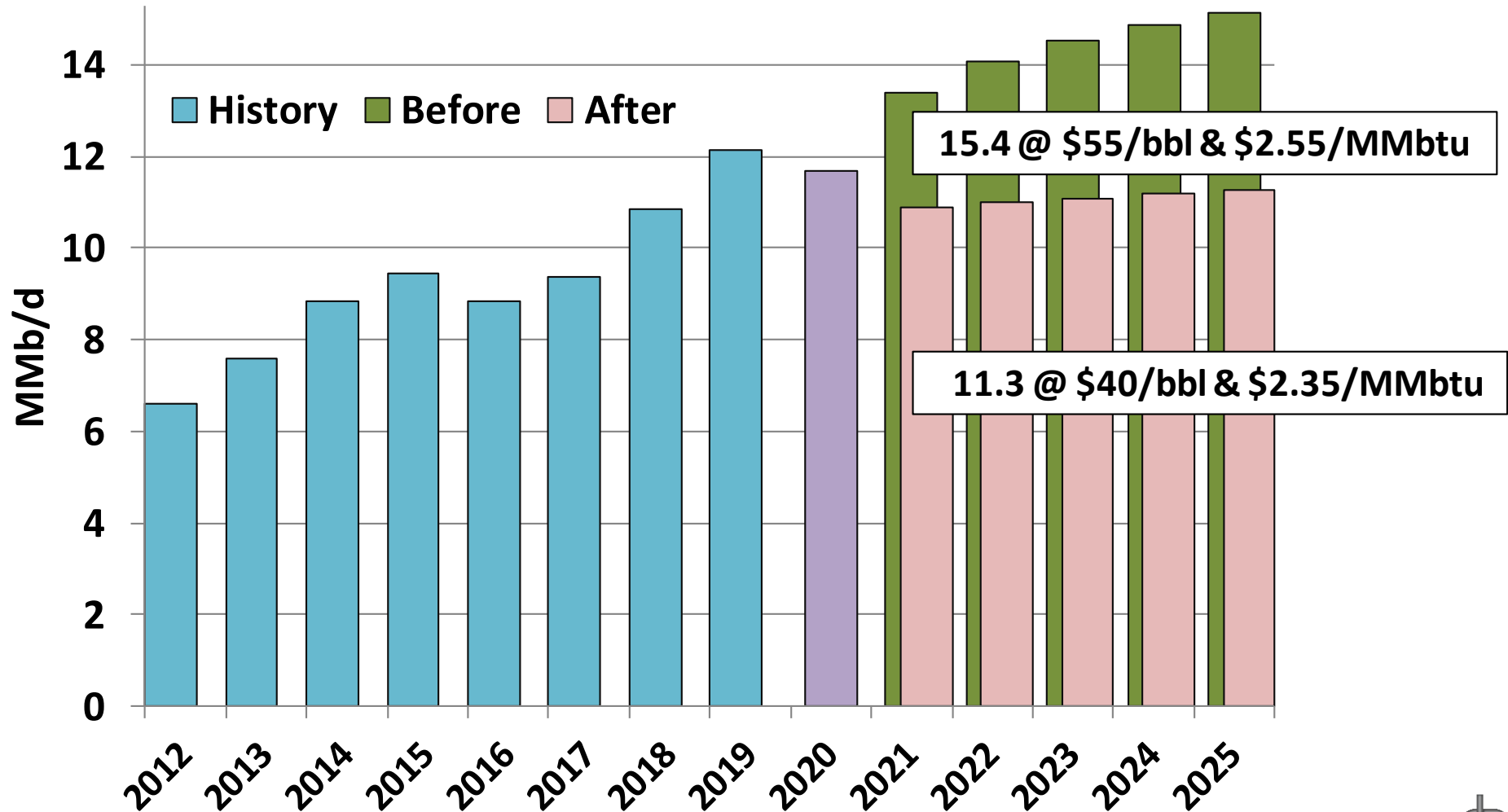
# LNG Feedgas by Terminal



# World Liquid Fuels Production and Consumption Balance

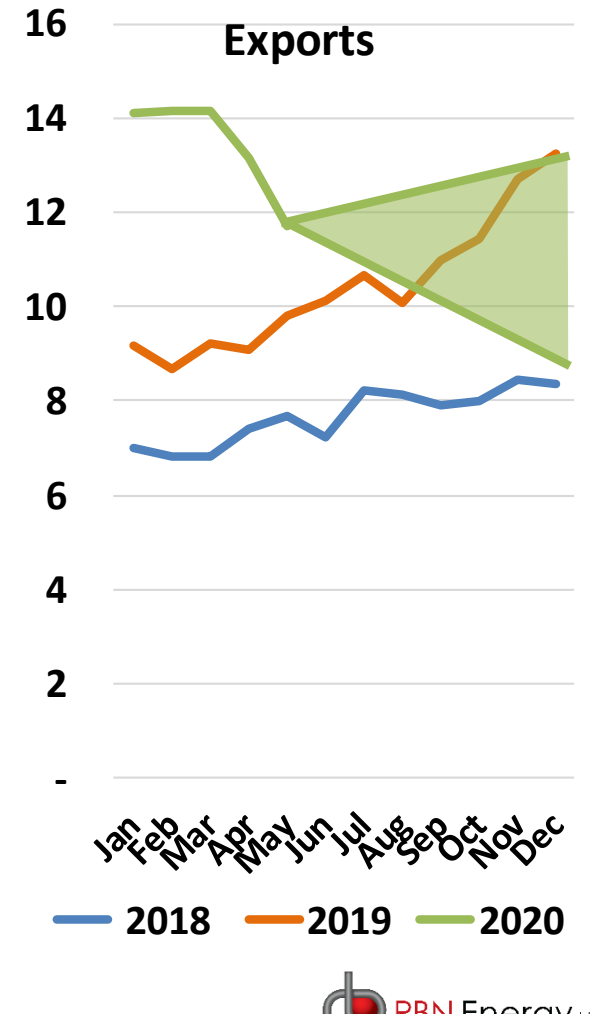
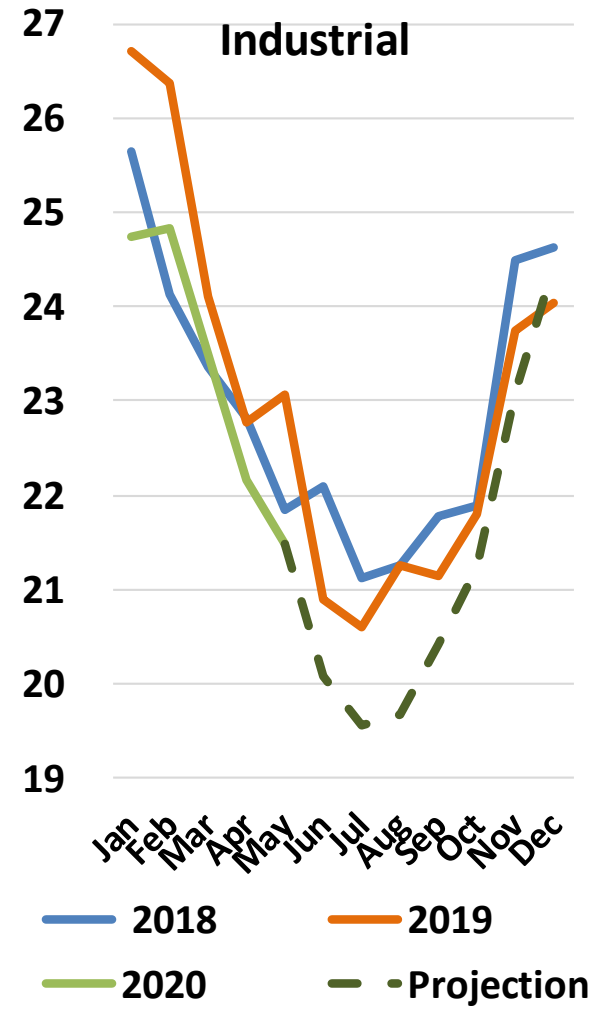
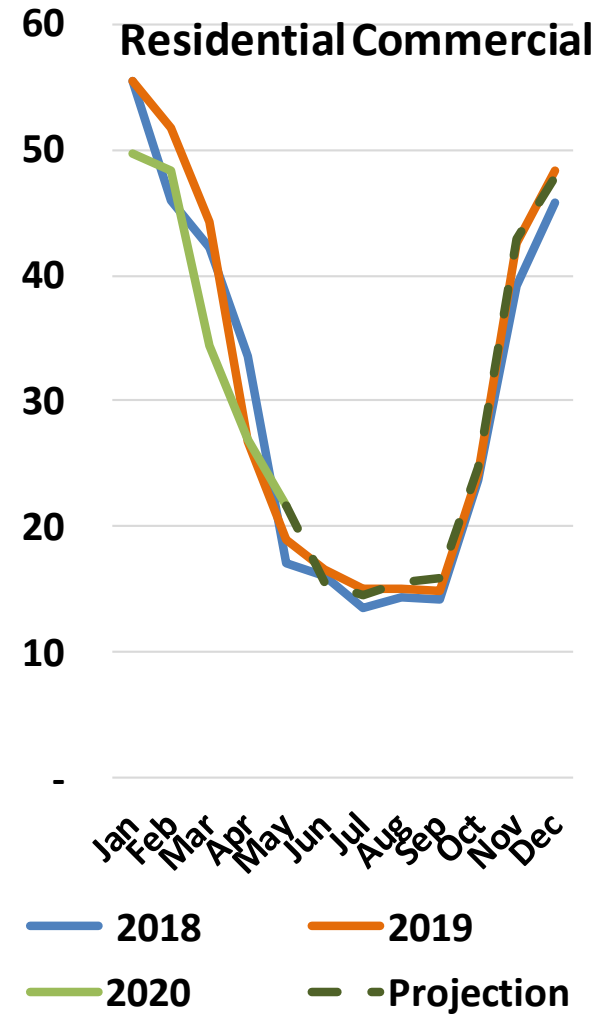
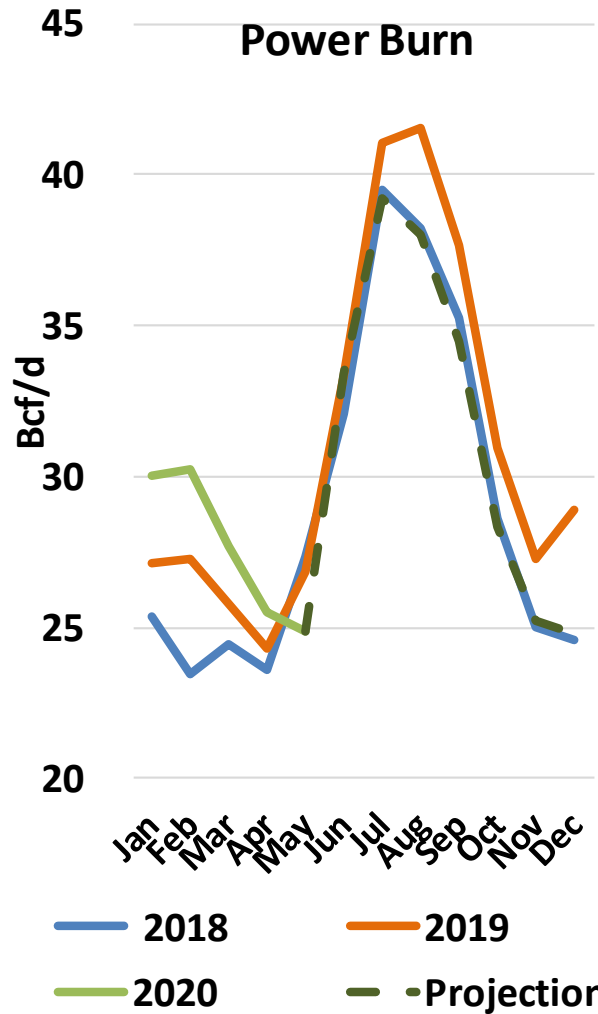


# U.S. Crude Oil “Mid” Forecast Before & After

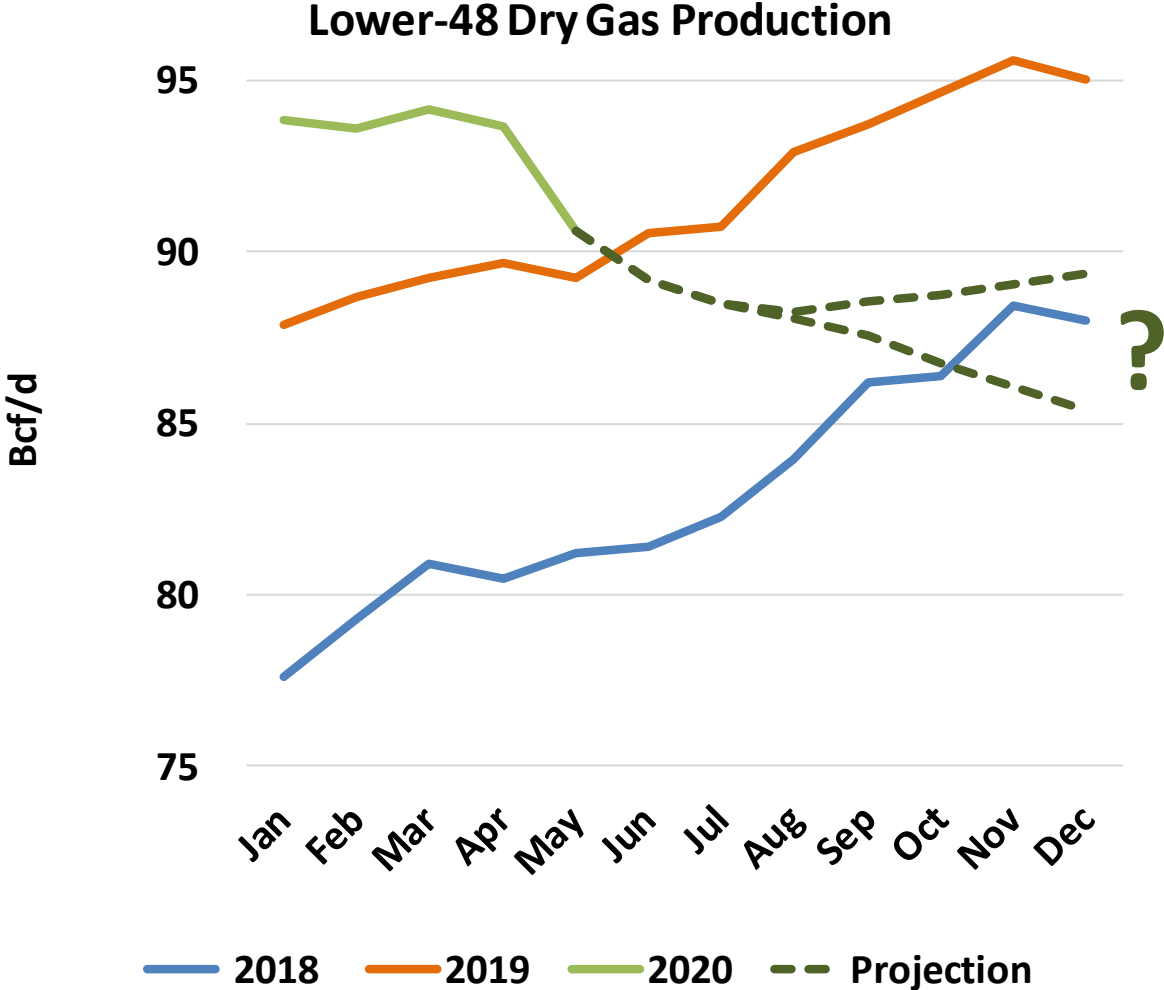




# U.S. Natural Gas Demand



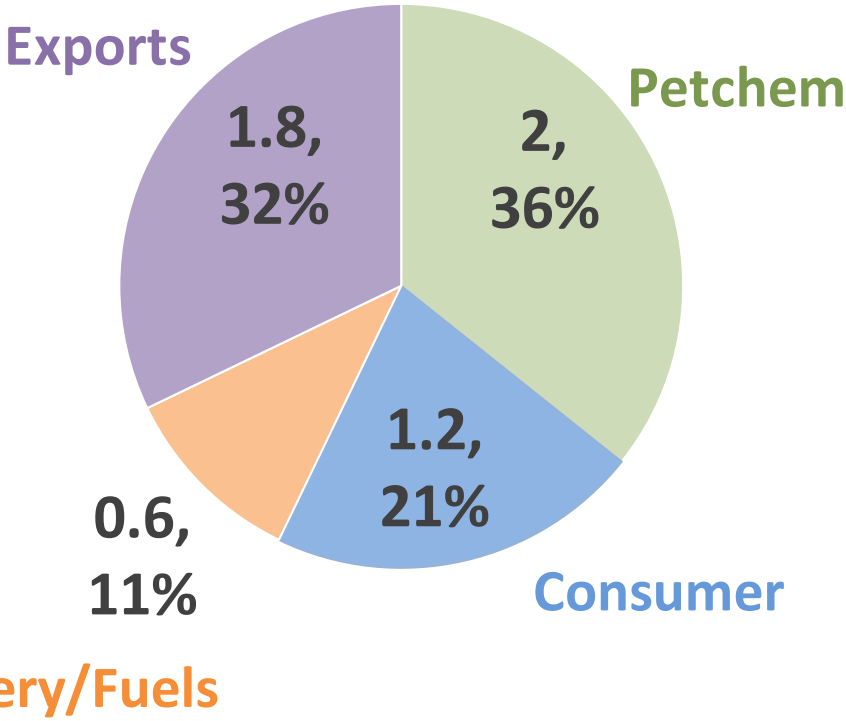
# U.S. Natural Gas Production



# NGL Markets

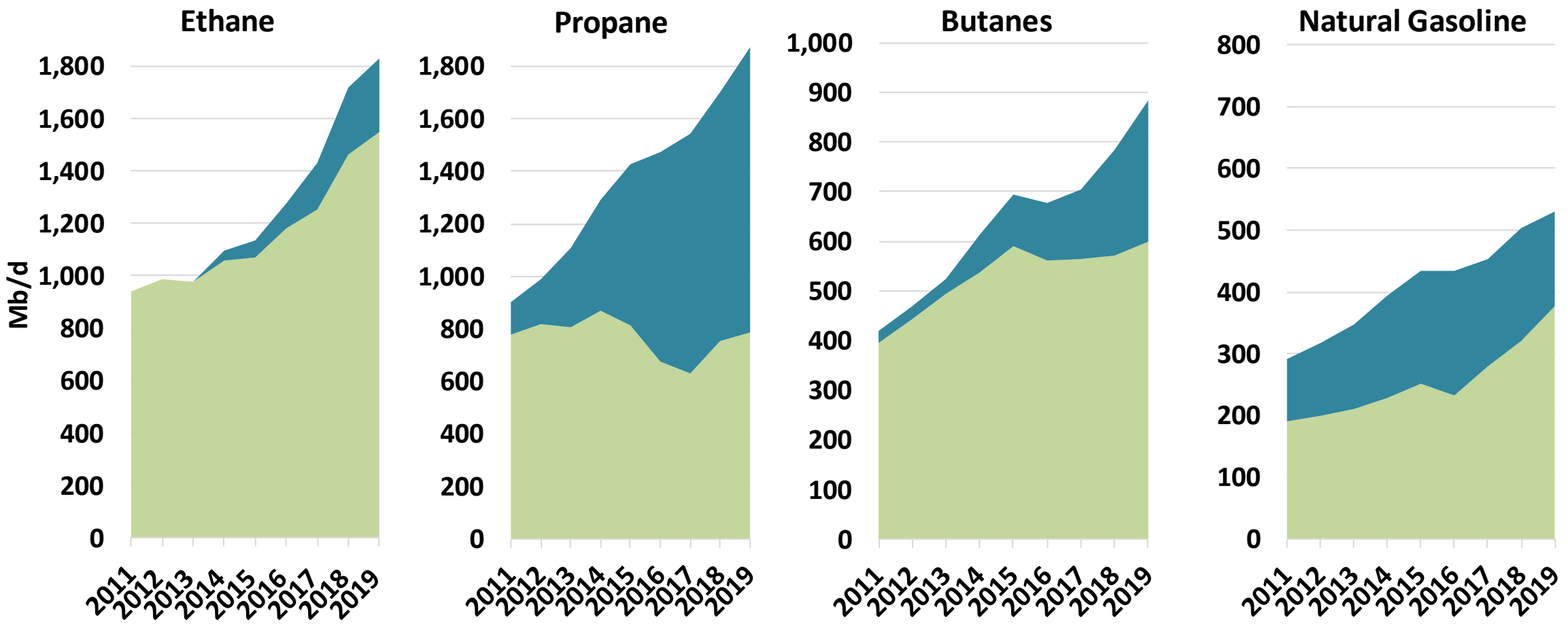


NGL Markets MMB/d, %



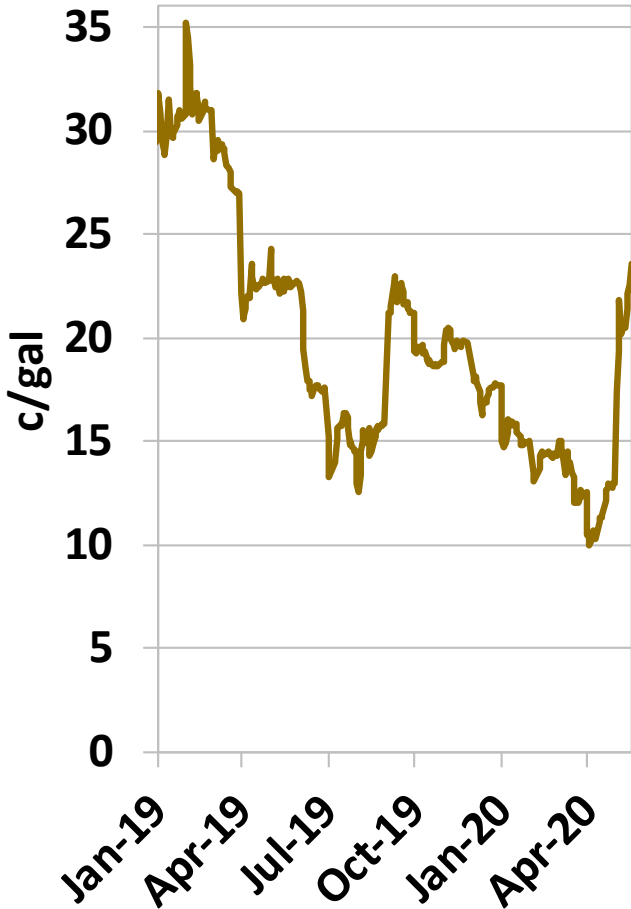
# NGLs - Domestic Demand and Exports

■ Domestic Demand ■ Exports

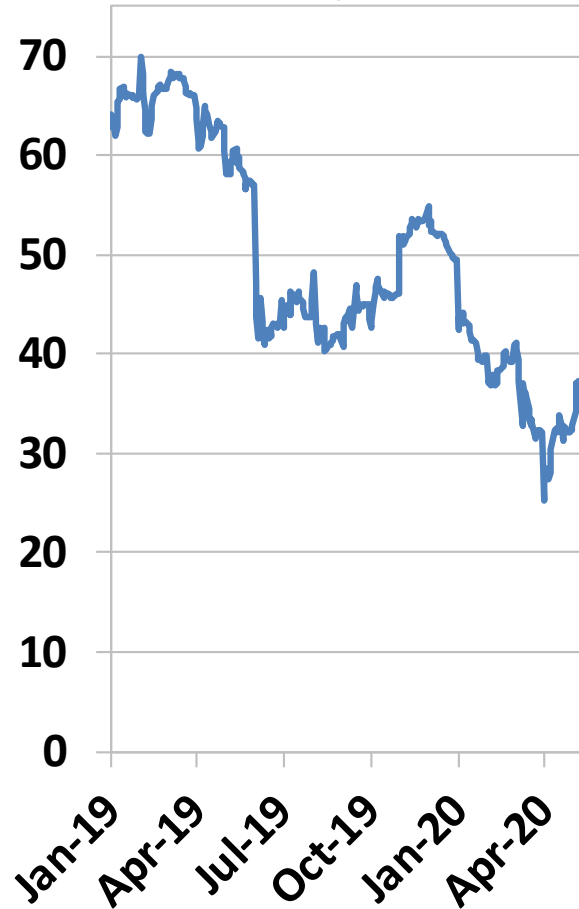


# Mont Belvieu NGL Prices (ENT/non-TET)

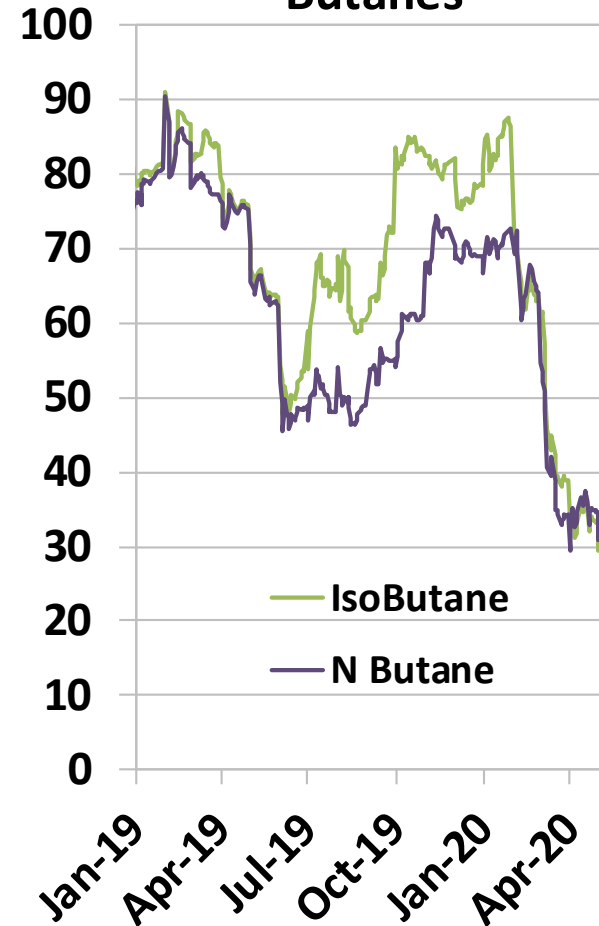
## Ethane



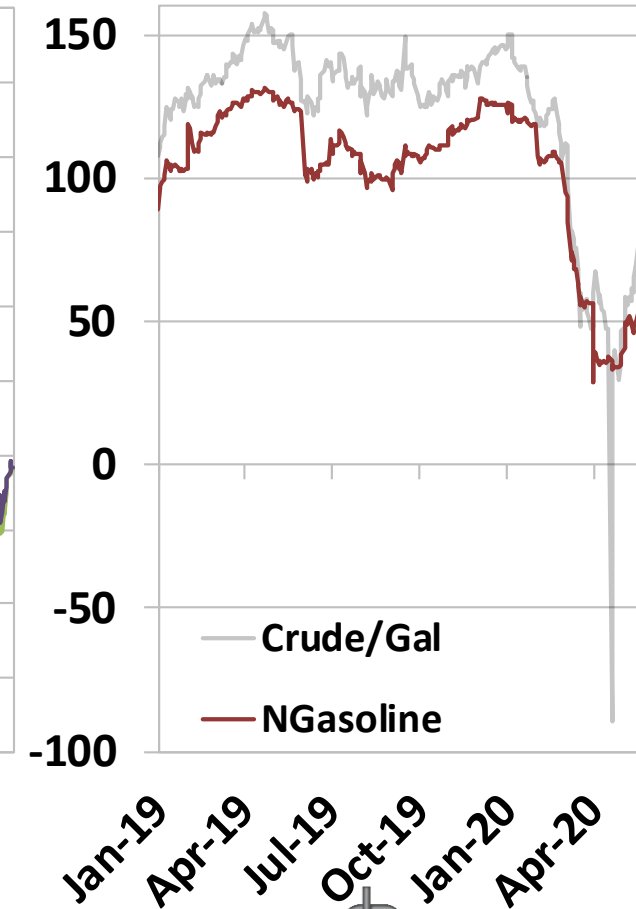
## Propane



## Butanes

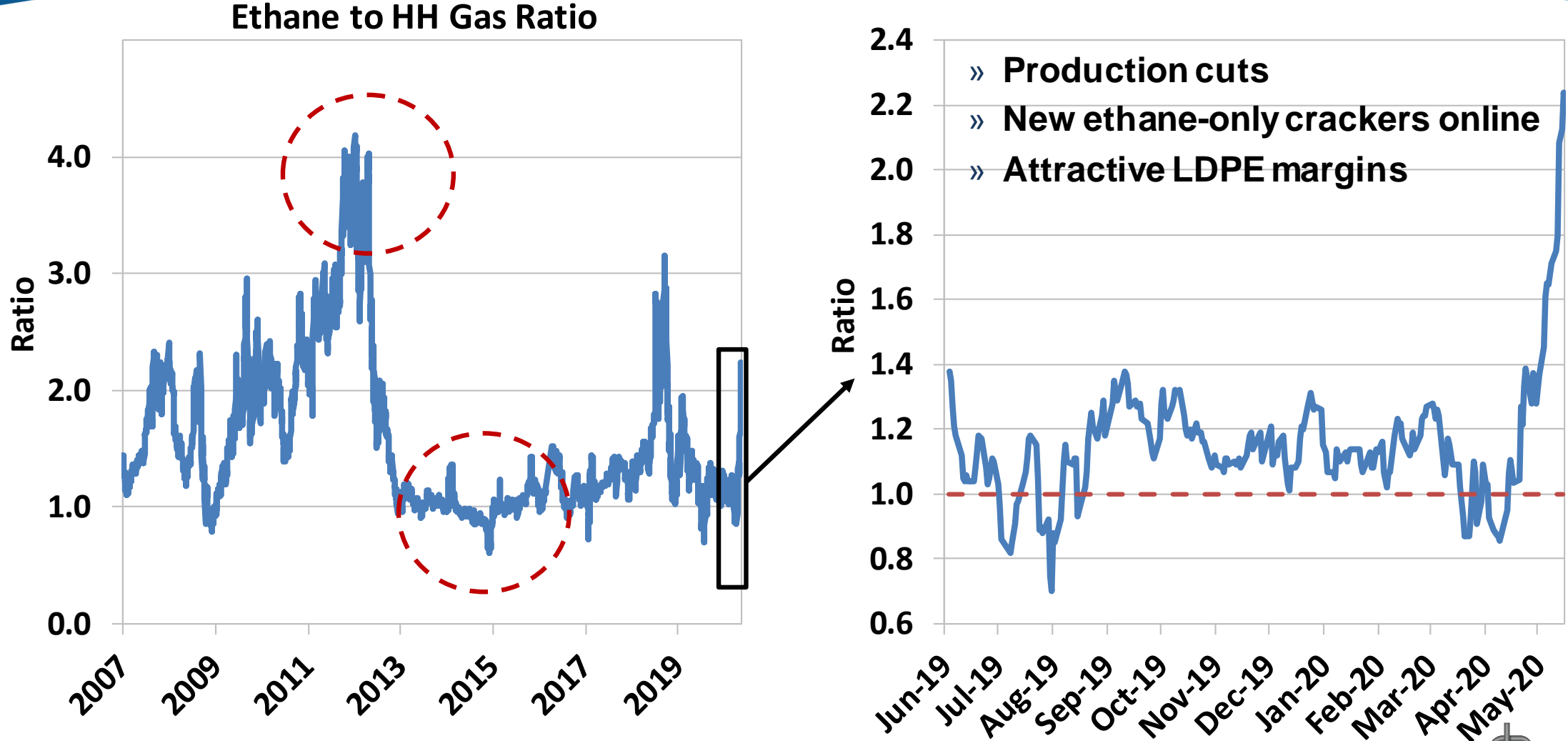


## Natural Gasoline

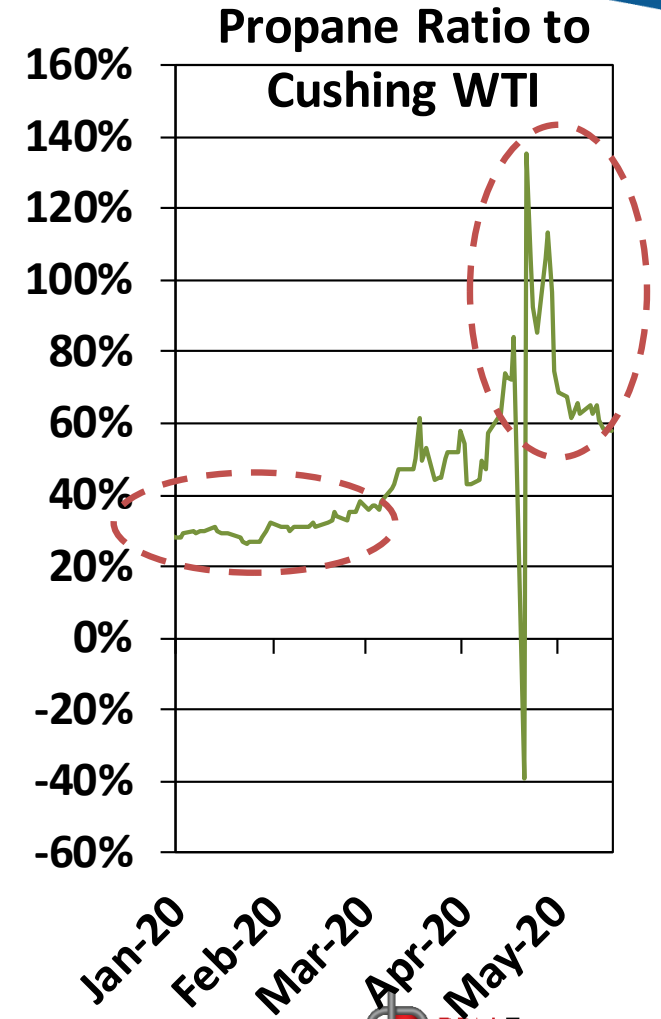
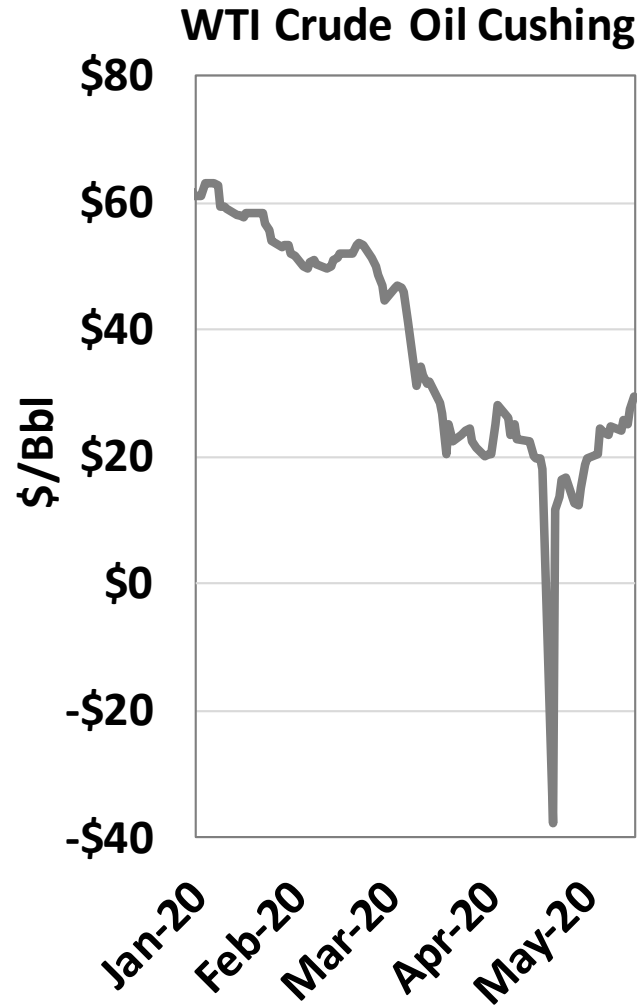
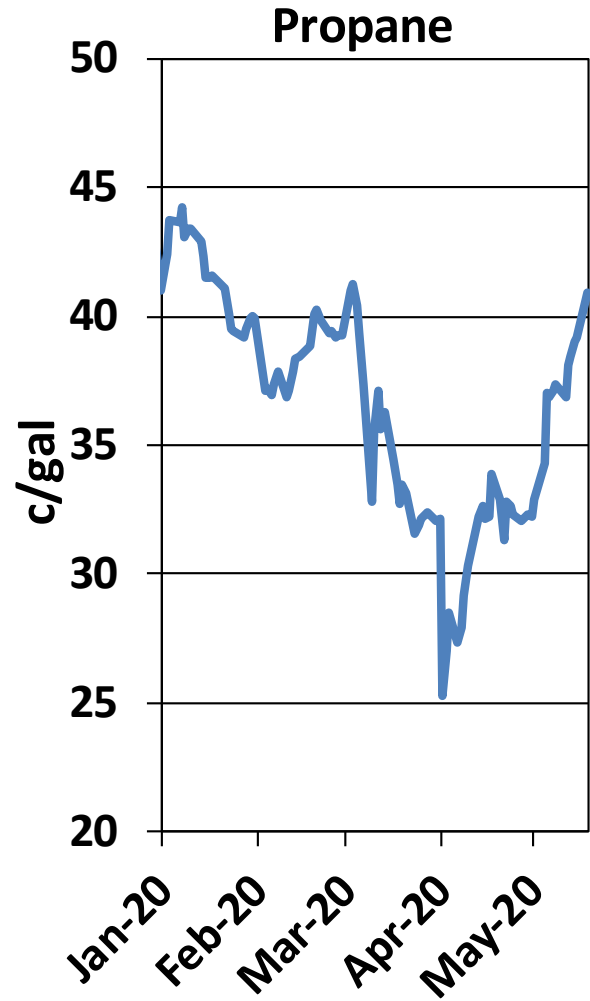
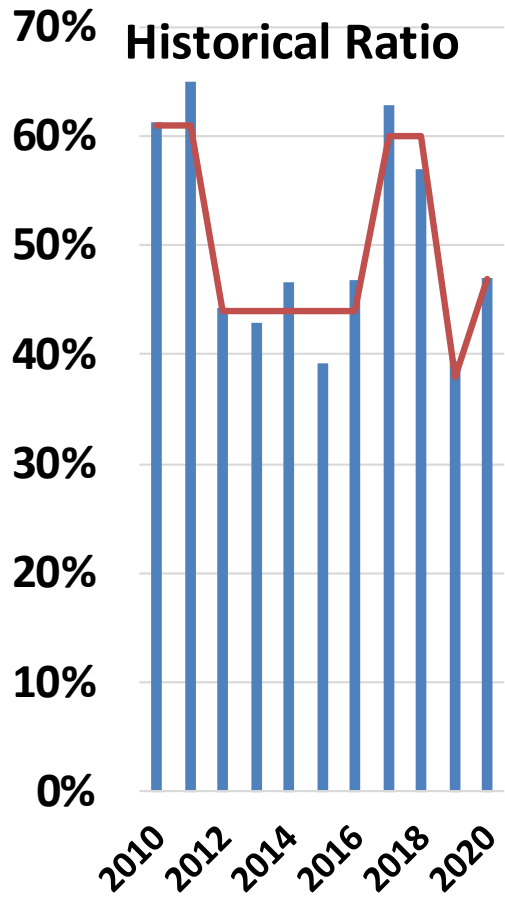




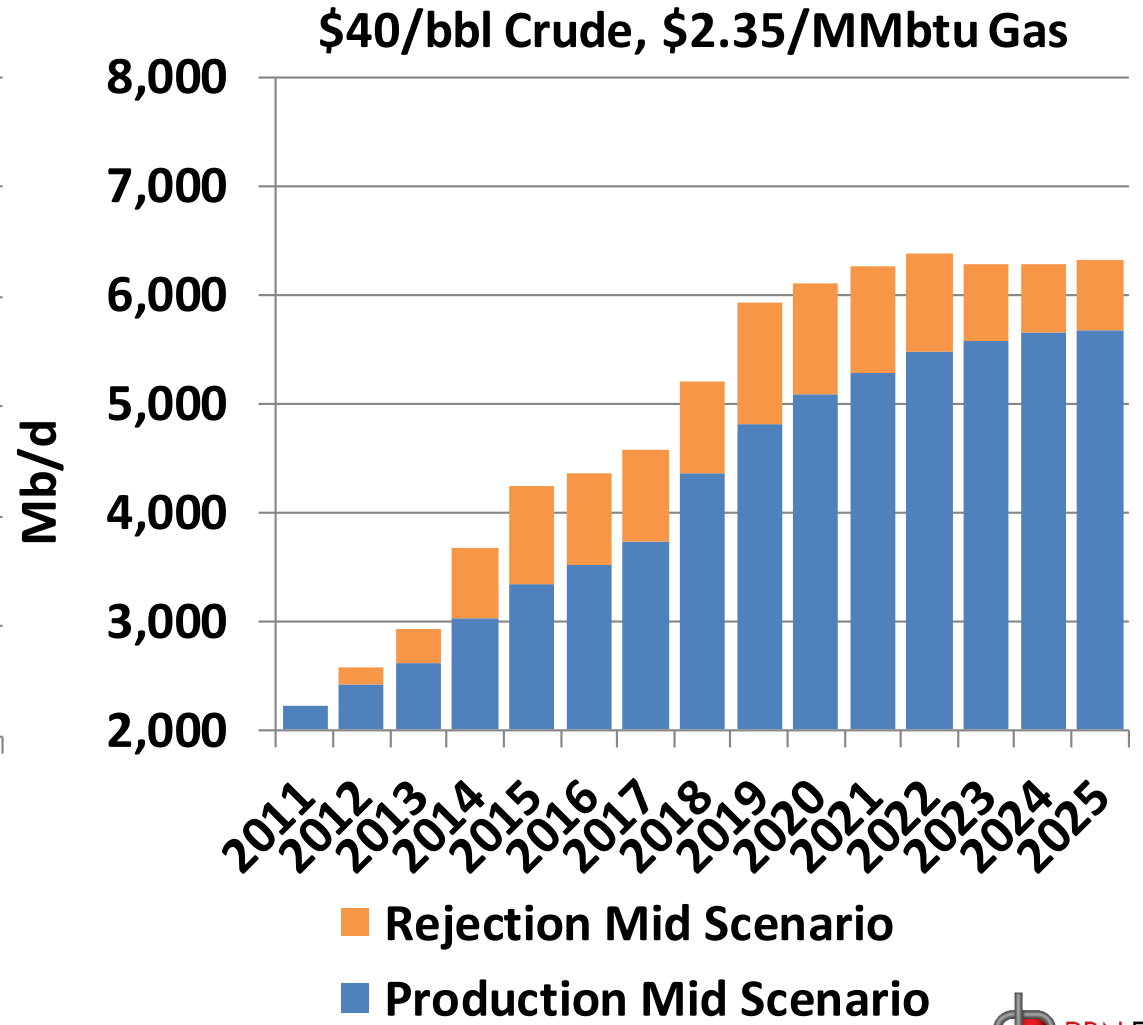
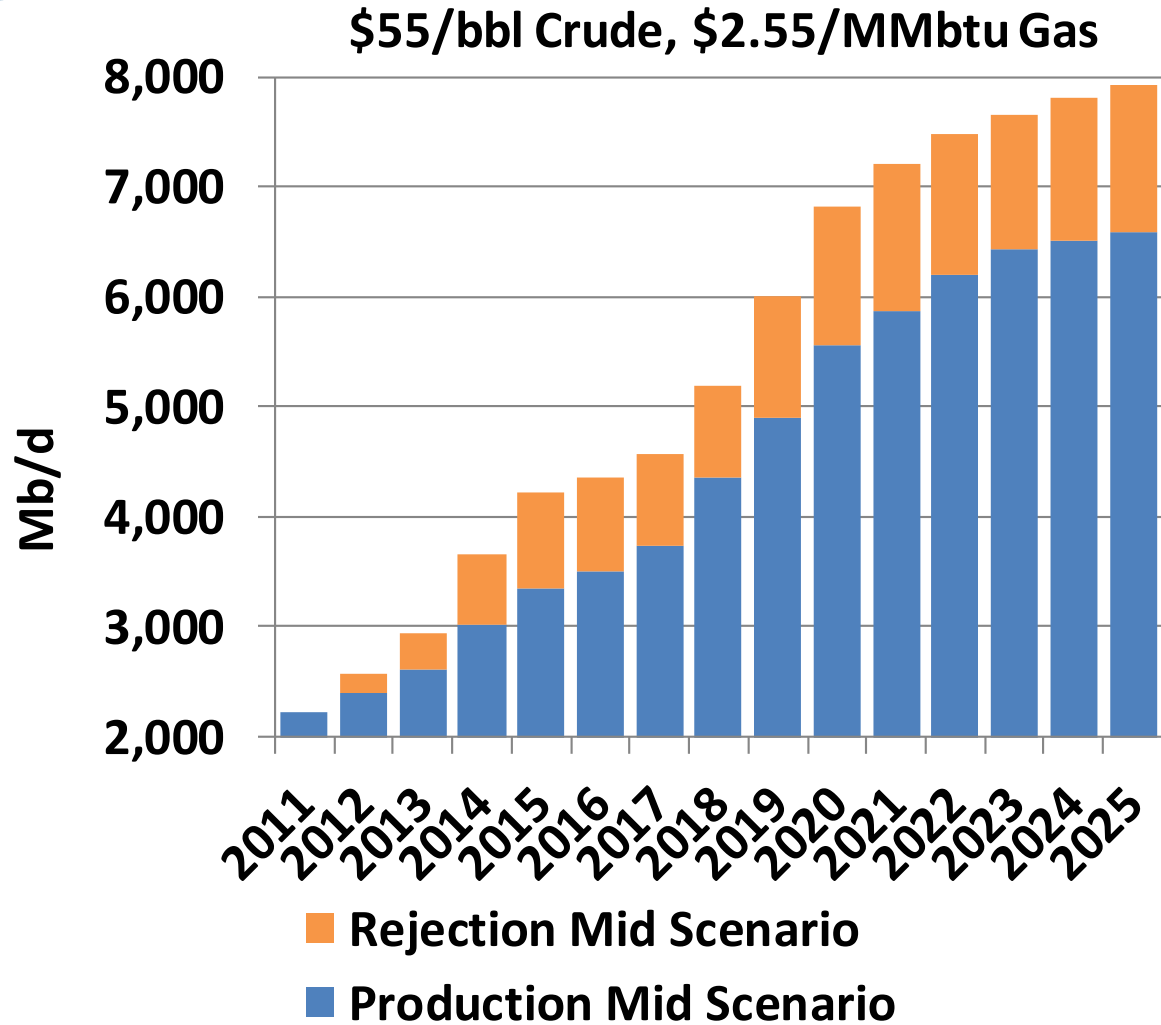
# Ethane to Henry Hub Gas Ratio



# Propane Price and Relationship to WTI Crude Oil



# U.S. NGL Gas Plant Potential Production Forecast (Mid Scenario)



# The 2020 NGL Domino Effect

1

Rich natural gas production containing NGLs flattens or declines

2

Less NGLs are available for processing

3

Potential ethane volume falls along with all NGLs

4

Ethane that was previously being rejected must be recovered to meet petchem demand

5

To incentivize recovery of more ethane, the price of ethane must increase

6

Higher ethane prices result in flexible crackers switching to alternative feedstocks

7

Flexible crackers run more propane

8

Propane production falls along with all NGLs

9

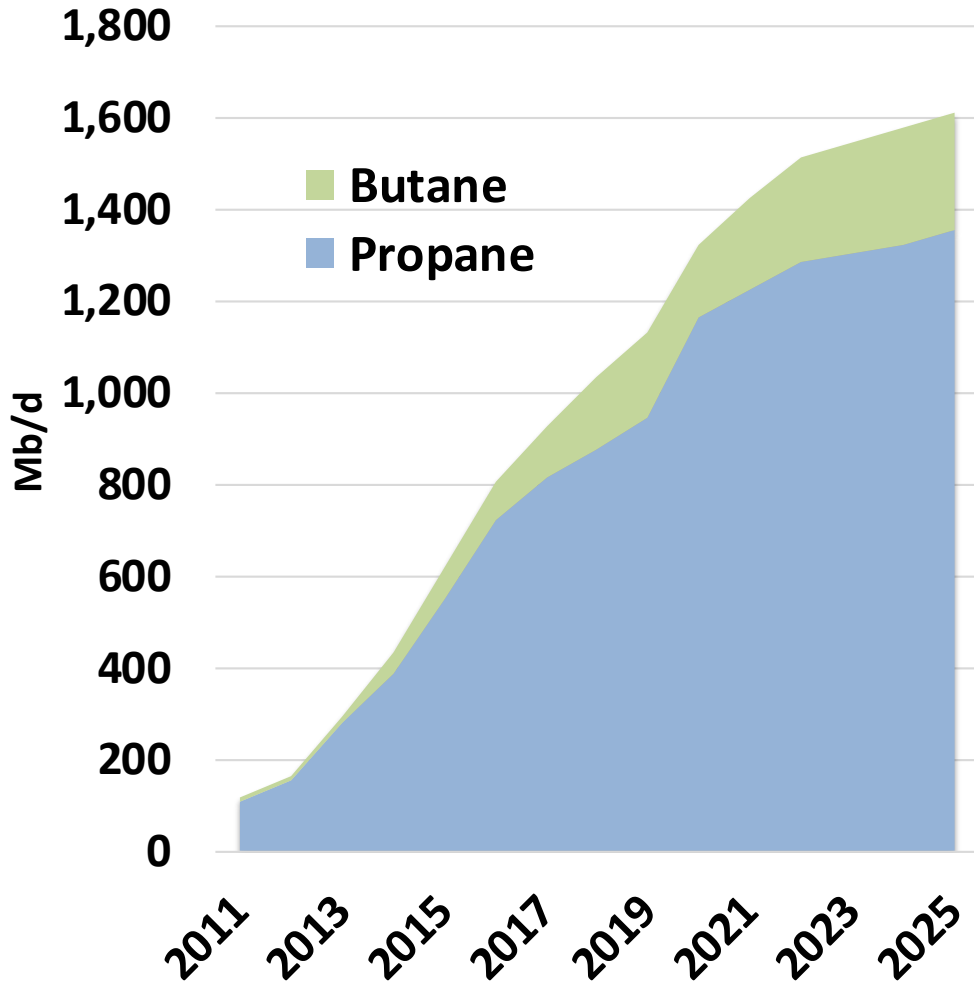
With less propane supply and higher petchem demand for propane, there is less propane available for export

10

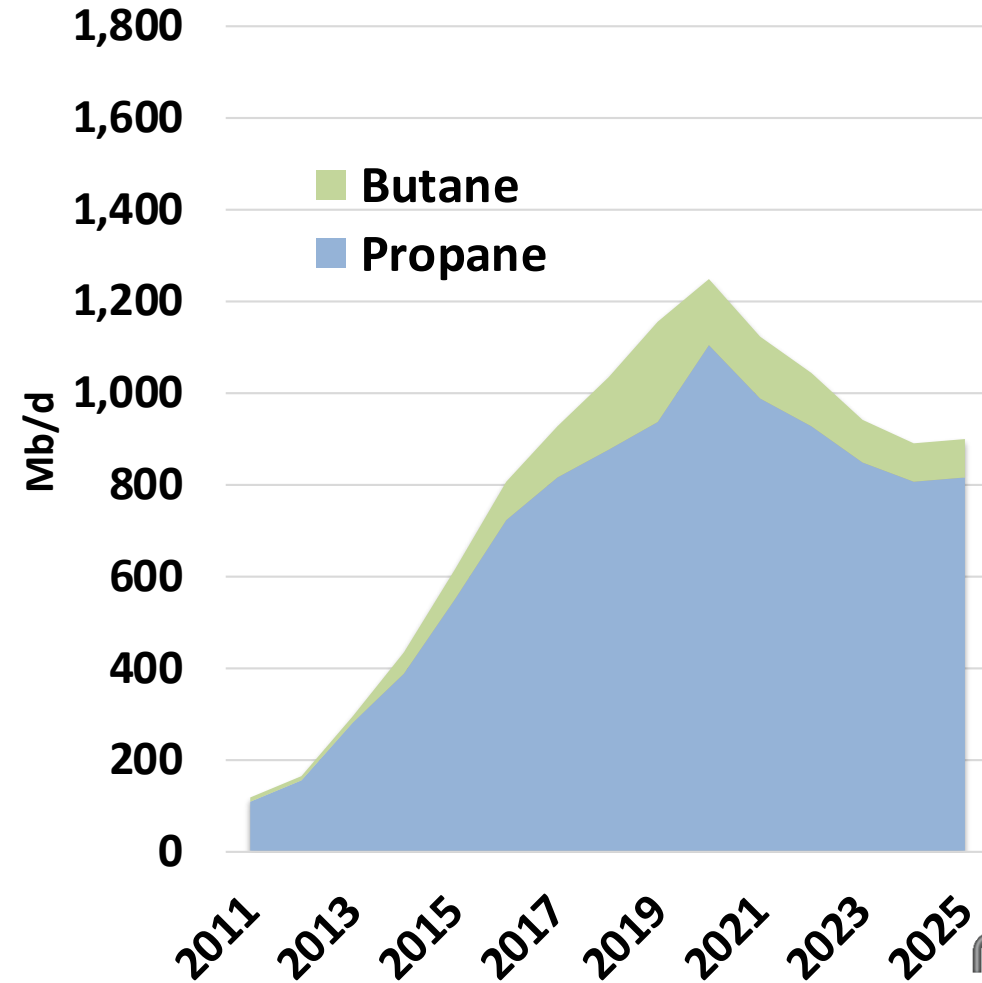
Will crackers cut runs due to lower demand?  
Will global demand for U.S. LPG exports hold up?

# Gulf Coast LPG Exports (Mid Scenario)

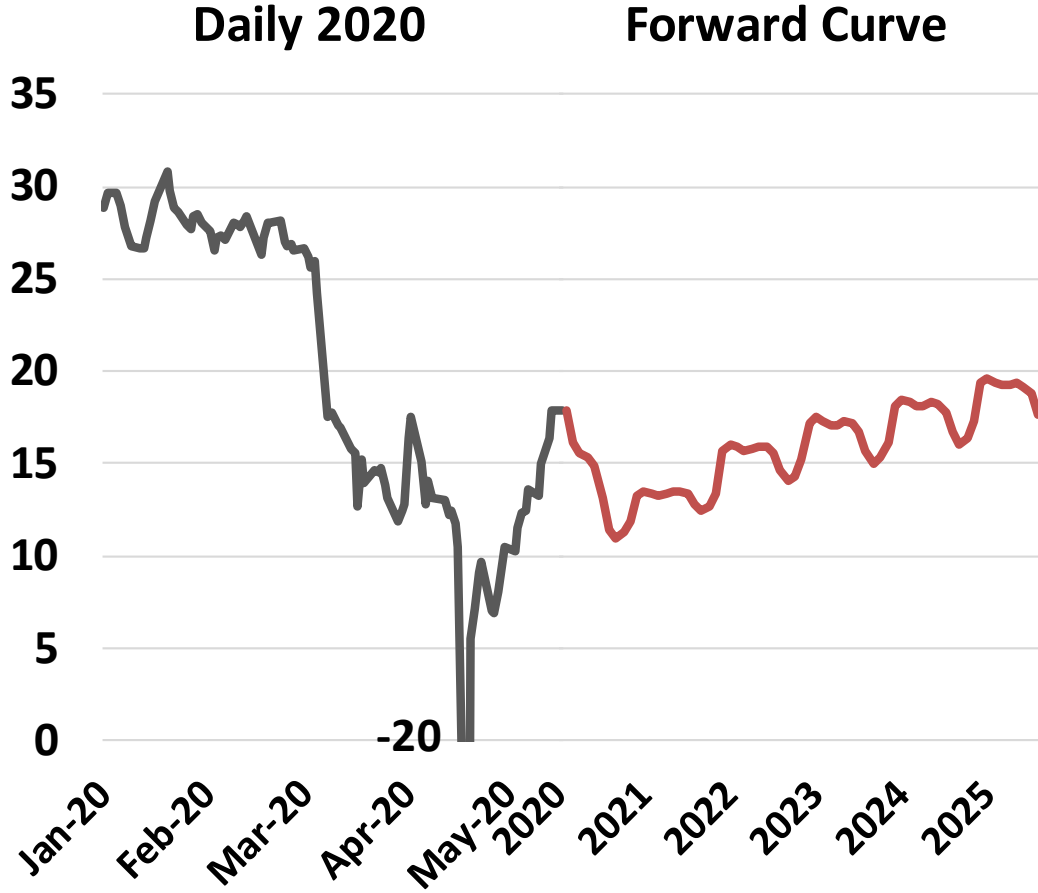
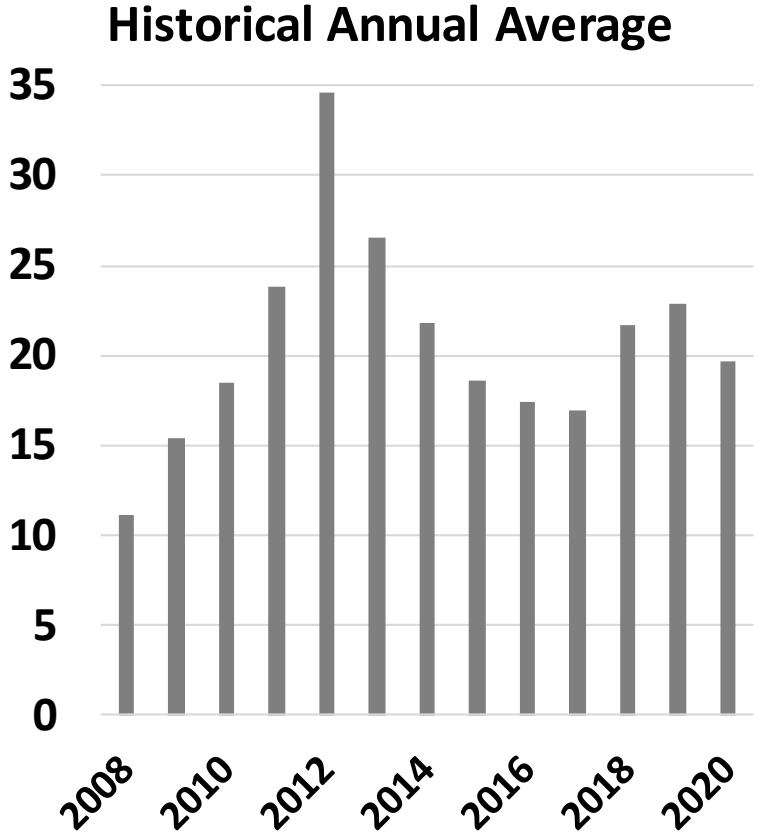
\$55/bbl Crude, \$2.55/MMbtu Gas



\$40/bbl Crude, \$2.35/MMbtu Gas



# Crude to Gas Ratio





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