



What's Moving on the Waterways?


Commodities Panel: Petroleum

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Agenda

- 1 Valero Introduction
- 2 Petroleum Market Summary & Outlook
- 3 Petroleum Movements on Waterways
- 4 Challenges and Outlook

Premier manufacturer, distributor, and marketer of transportation fuels and petrochemical feedstocks



Refining

Largest global independent refiner

15 petroleum refineries

3.1 million barrels per day throughput* capacity


Lowest-cost operator in the industry

Manufacturer and marketer of **transportation fuels**, petrochemical feedstocks, and other specialty products

~6,000 employees

Safety is our foundation for success

Environmentally responsible operations



Ethanol

World's 2nd largest corn ethanol producer


14 ethanol plants in the U.S. with a combined production capacity of **1.7 billion gallons per year**

22% share of U.S. ethanol exports in 2018

~1,000 employees

Continued **investment and growth** in ethanol business

Low-carbon fuel well-positioned for export growth



Renewable Diesel

World's 2nd largest renewable diesel producer

*in joint venture with Darling Ingredients Inc.

275 million gallons per year

Produces low-carbon intensity renewable diesel from recycled animal fats, used cooking oil, and inedible corn oil

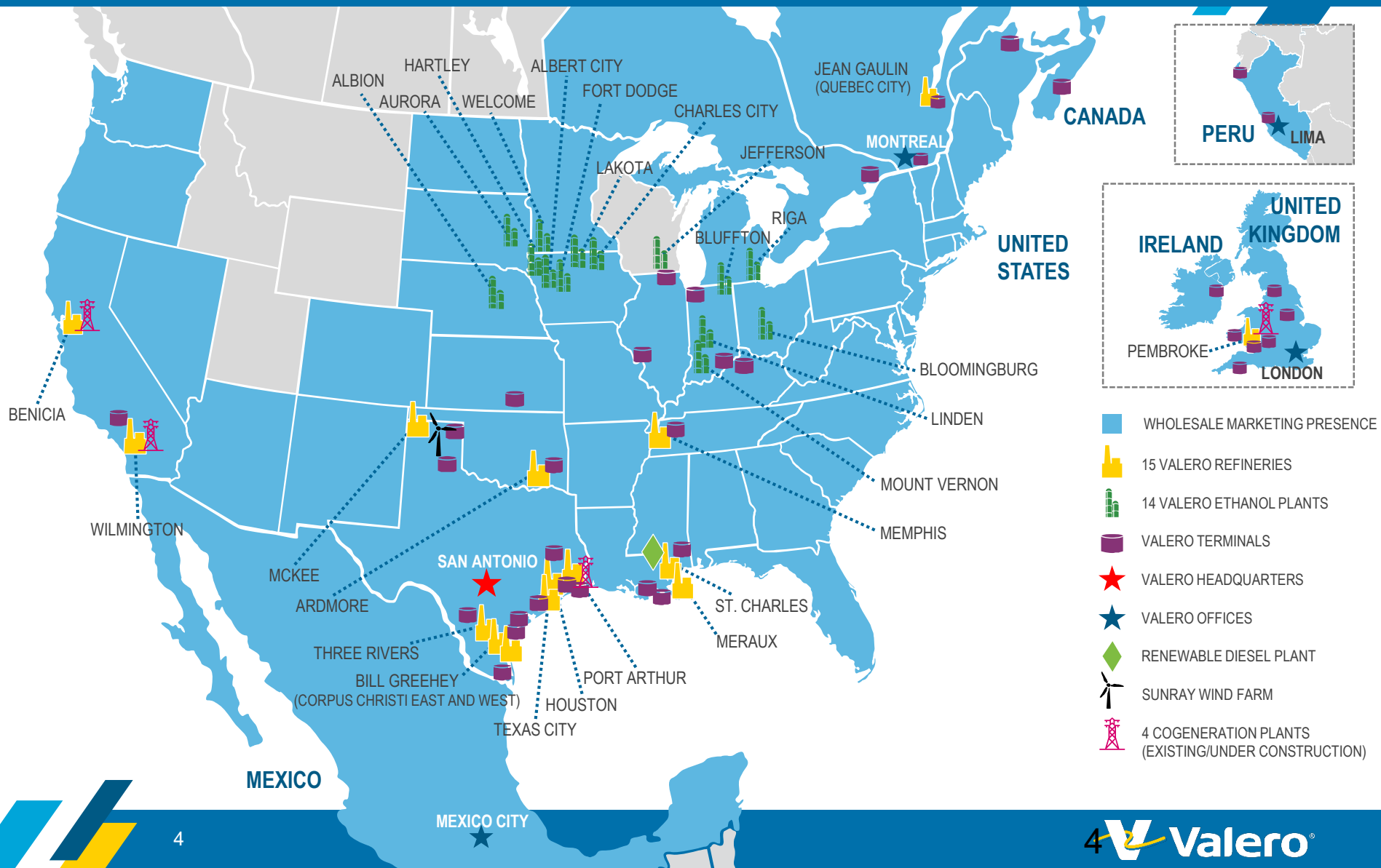
100% compatible with existing engines and infrastructure

Planned expansion to **675 million gallons per year** by late 2021

Low-carbon fuel sold in **California, Canada, and Europe**

*Processing of crude oil and other feedstocks

Our Operations



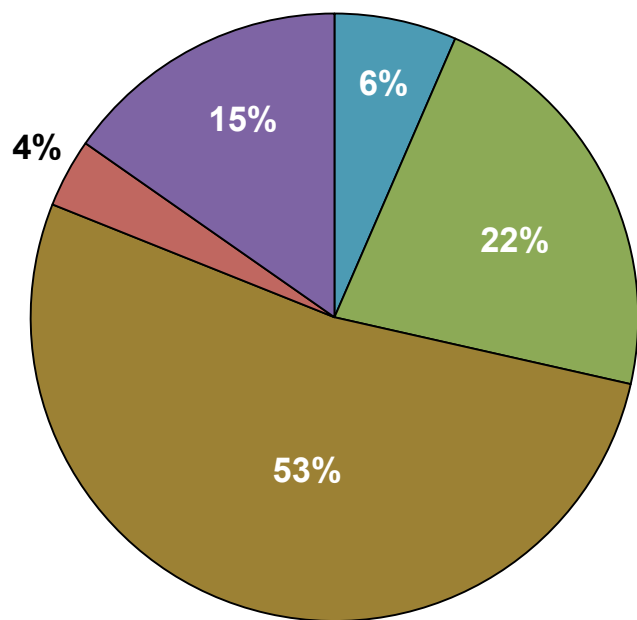
U.S. Refining Capacity – 18.8 MBPD in 2018

Capacity focused in USGC and Mid-Con

U.S. Distillation Capacity

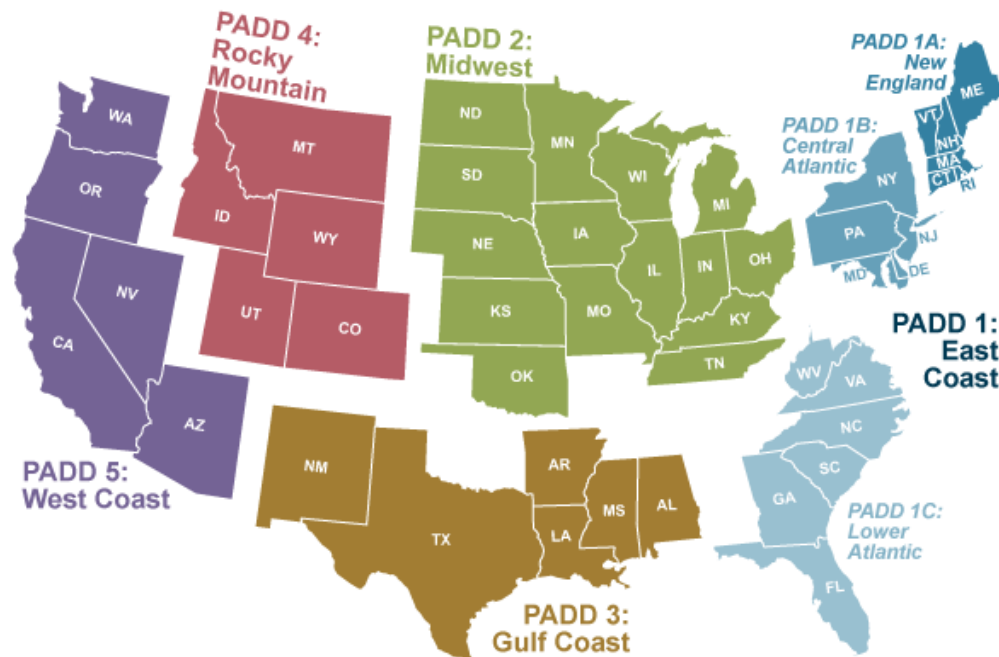
End-2018

Total 18.8 Million Barrels per Day



■ PADD 1 ■ PADD 2 ■ PADD 3
■ PADD 4 ■ PADD 5

Source: DOE



PADD - Petroleum Administration for Defense Districts
U.S. Energy Information Administration Form EIA-888



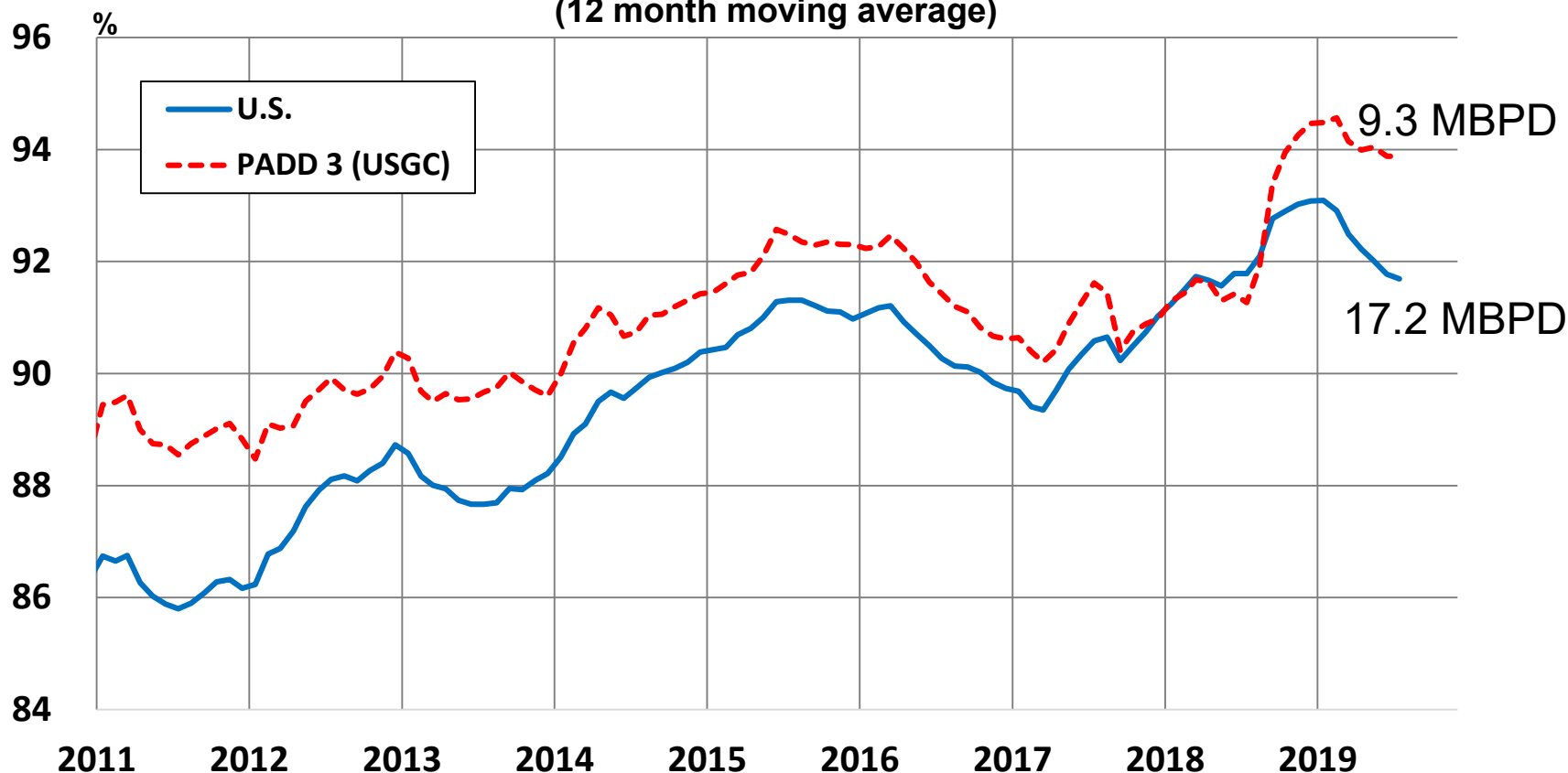
U.S. Refinery Utilization

U.S. refineries have been running harder, led by the USGC

Refinery utilization moved higher starting in the middle of last year, USGC refineries supplying domestic demand and product exports to Latin America and Europe.

U.S. Refinery Utilization

(12 month moving average)

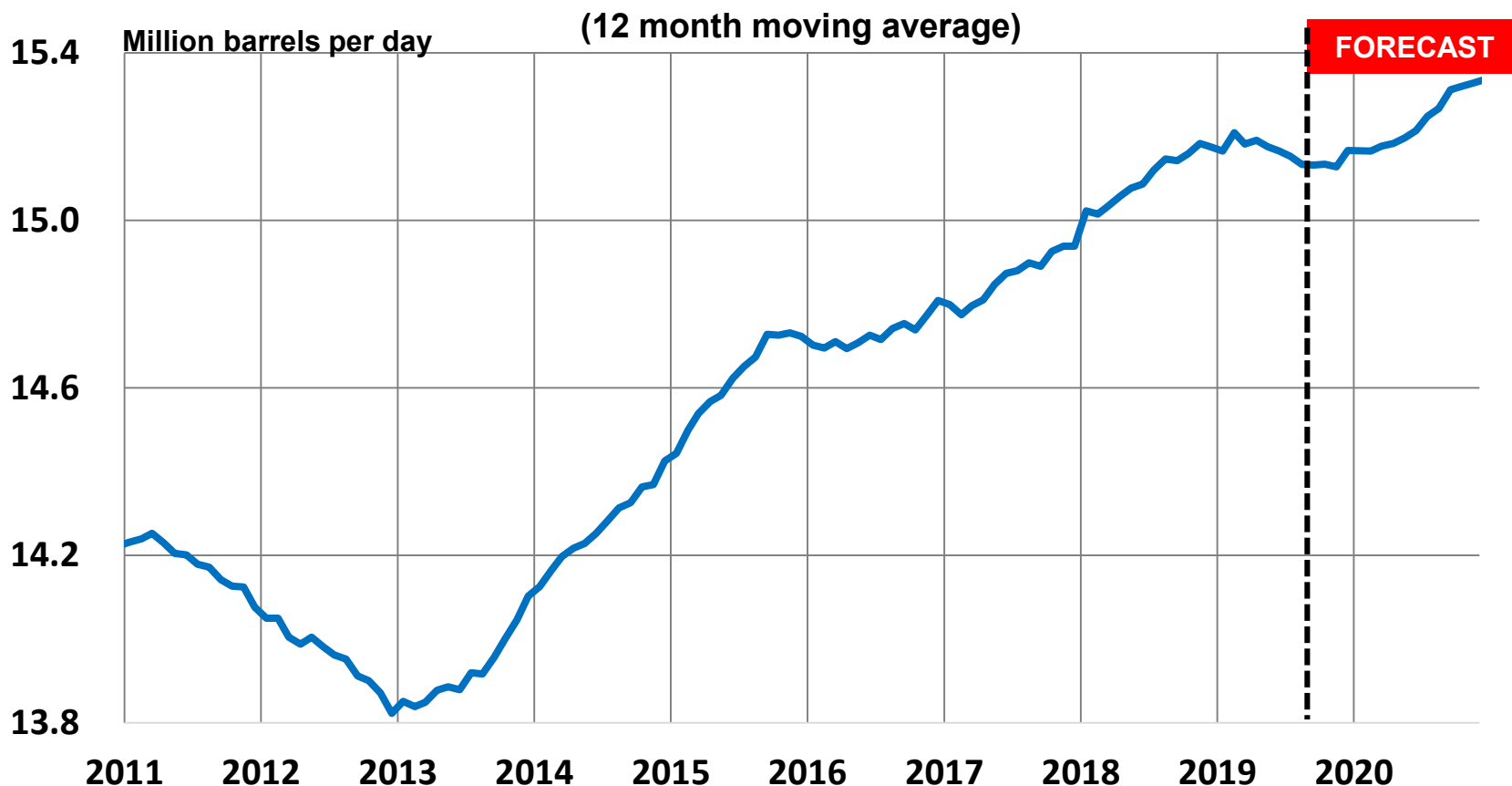


U.S. Transportation Fuels Demand

Refineries running hard to supply fuels demand that has been rising

U.S. transportation fuels demand has been structurally rising since earlier this decade.

U.S. Gasoline + Diesel + Jet Demand

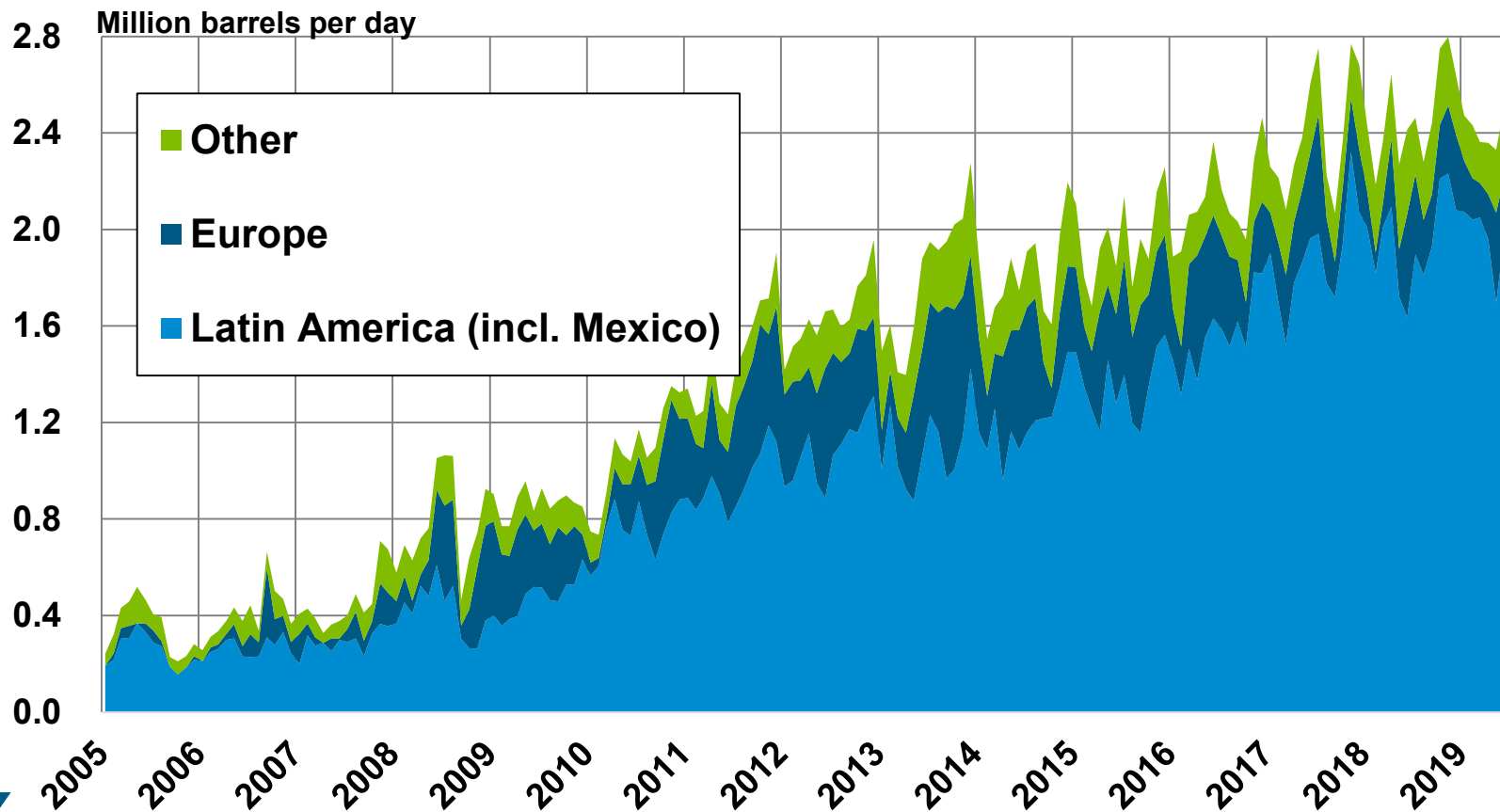


U.S. Product Exports

Latin America is the primary destination for U.S. product exports

Exports to Latin America have averaged over 1.9 million bpd over the first 7 months of this year, about 4x the level of a decade ago.

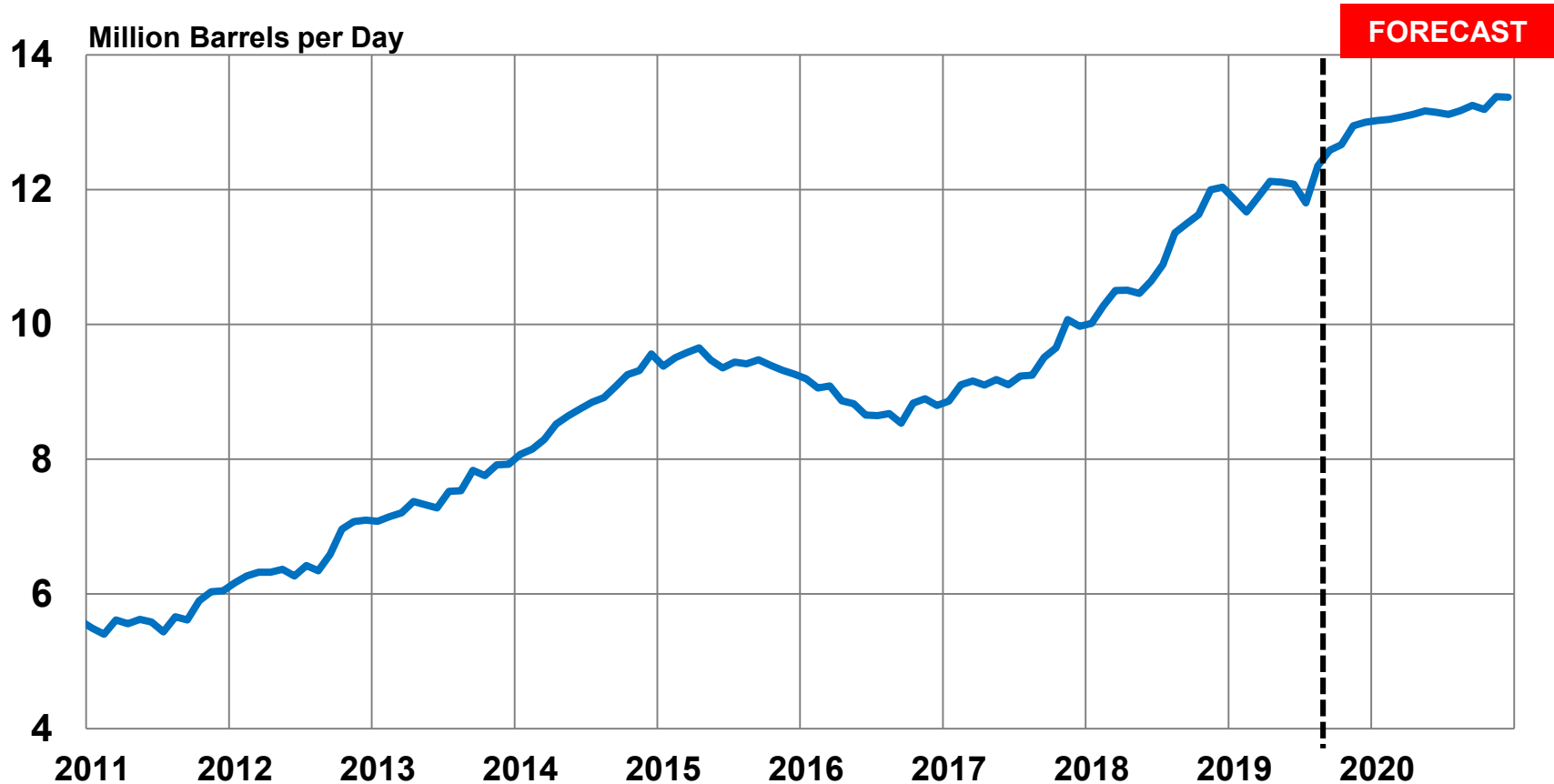
Gasoline, Diesel and Jet Gross Exports



U.S. Crude Production

Production has more than doubled in the last decade

Monthly U.S. Crude Production

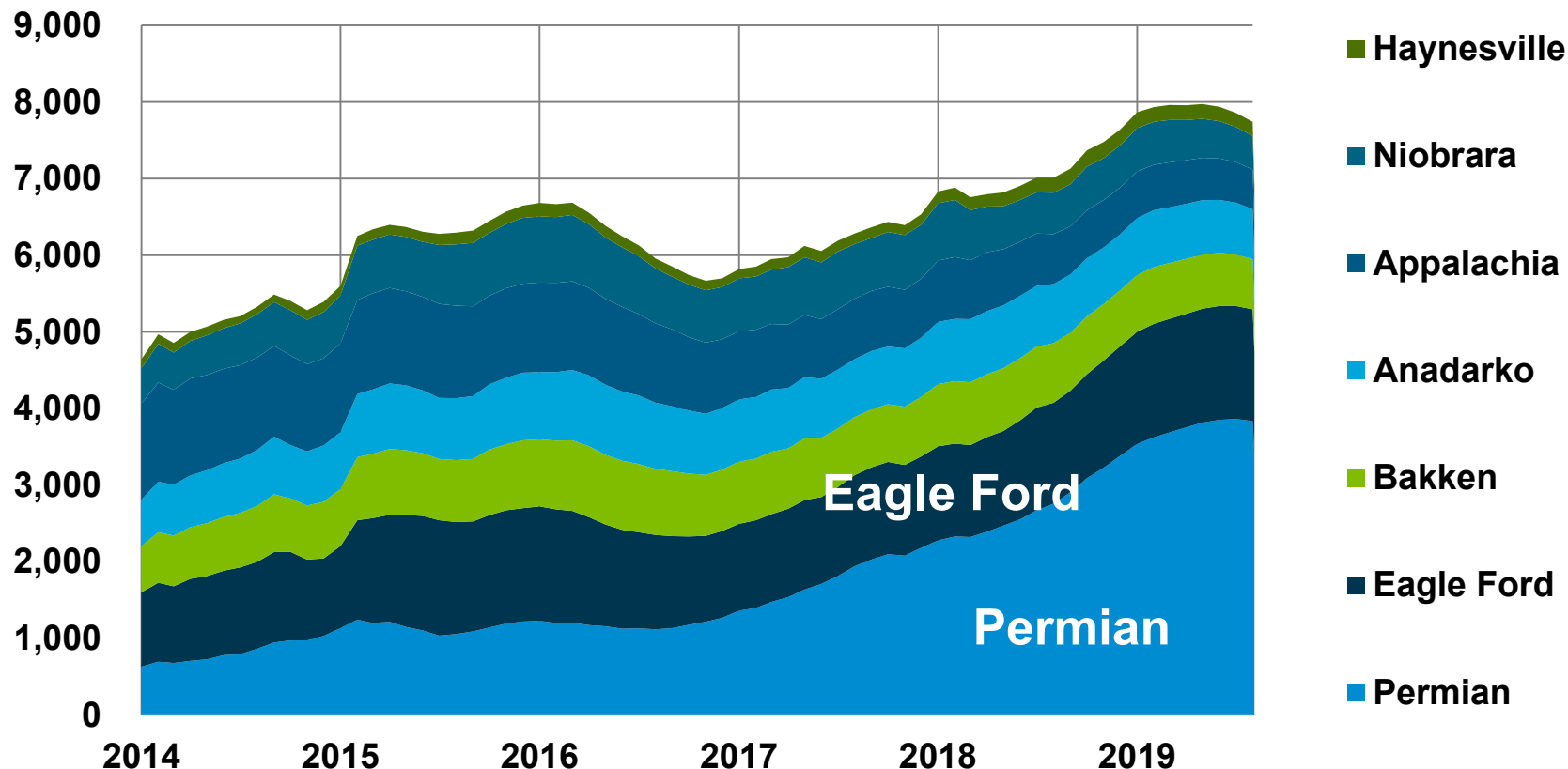


U.S. Crude Production

Production supported by large inventory of DUCs

DUC inventory buildup focused in the Permian, where they have doubled in the last two years (August 2017 vs. August 2019).

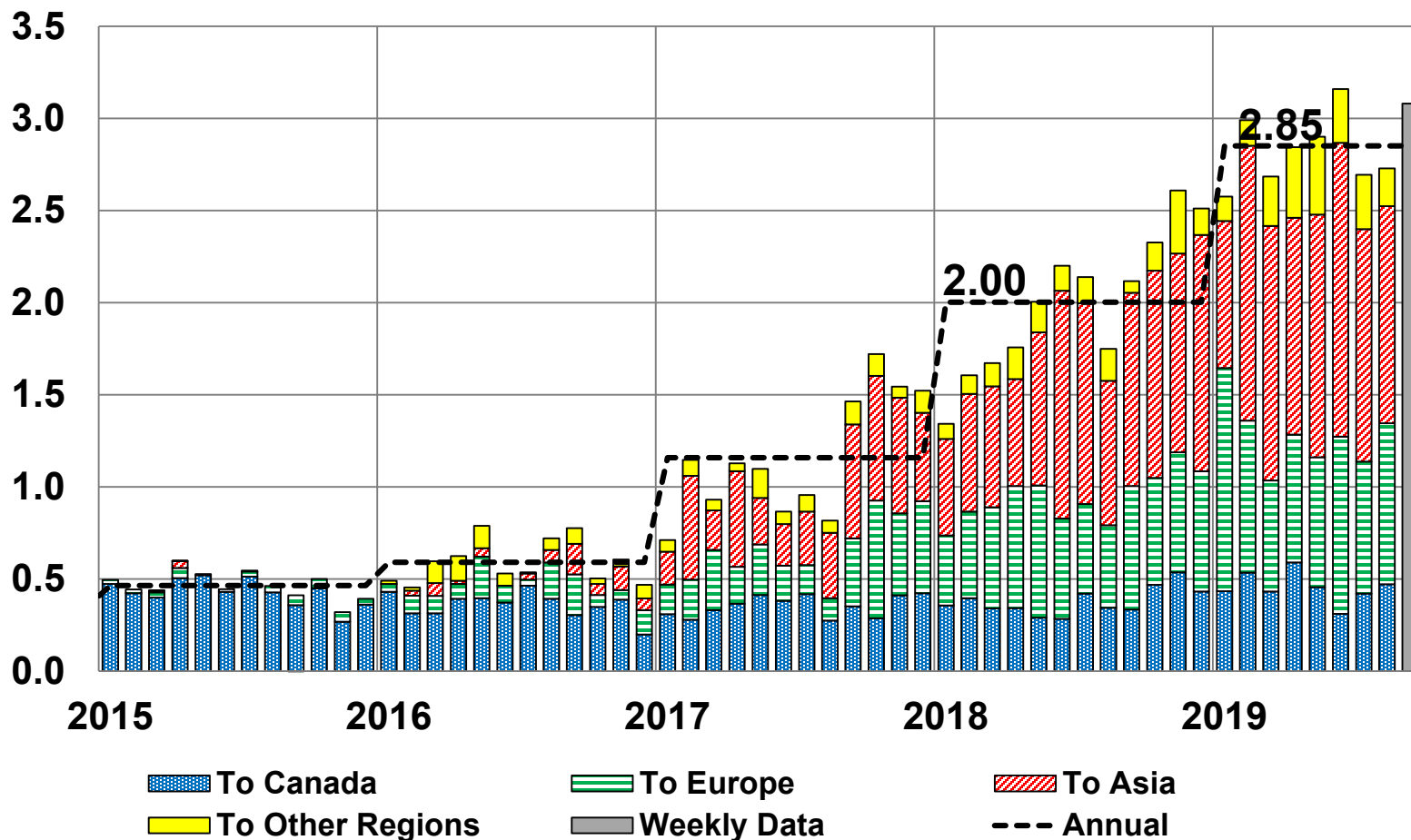
Drilled But Uncompleted Wells (DUCs)



U.S. Crude Exports

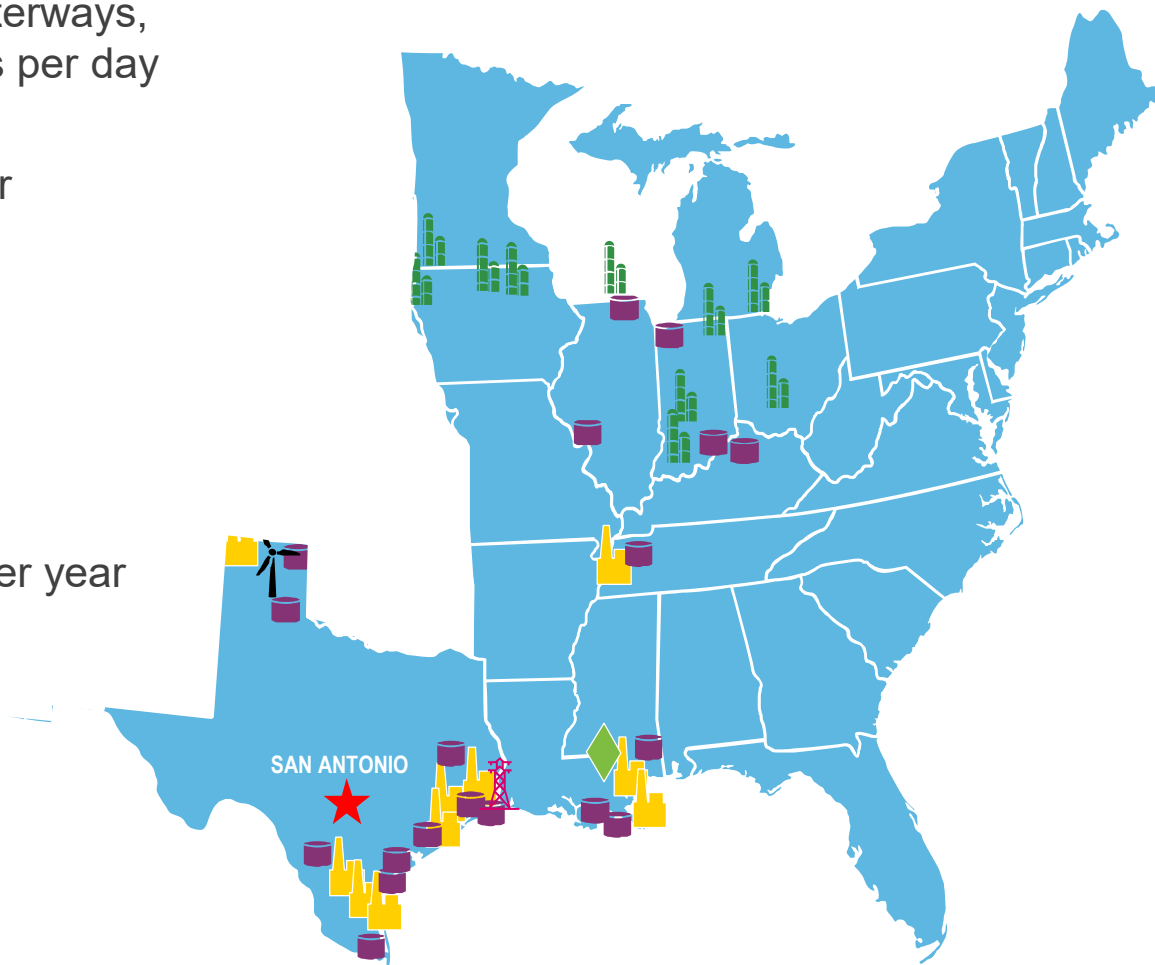
Crude exports up 850,000 bpd year-to-date

Million Barrels per Day



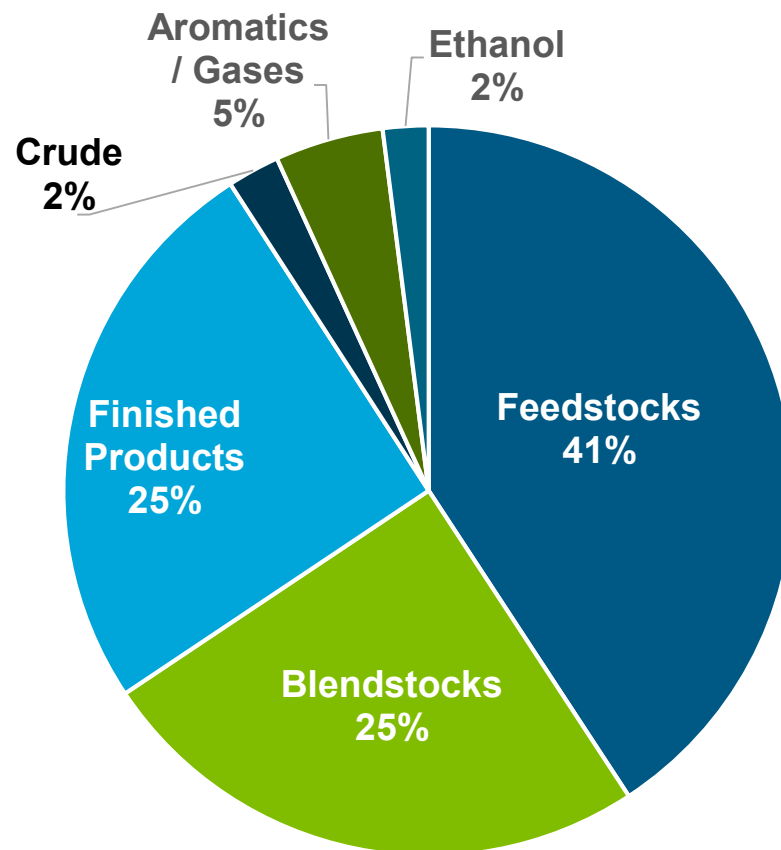
Valero's Use of Inland Waterways

- 8 of 15 refineries on inland waterways, representing 1.7 million barrels per day capacity
- 9,800 Barge Transfers per year
 - Roughly 1 transfer per hour
- 2,800 Miles utilized
- 65 Inland Marine Locations
- 105 Segregated Products & Feedstocks
- 15.5 Million tons transported per year



Percent Valero Movements by Product

- Finished product delivery a small part of barging activity
- Important to refinery optimization and system balancing
- Key resource during maintenance and turn-around activities

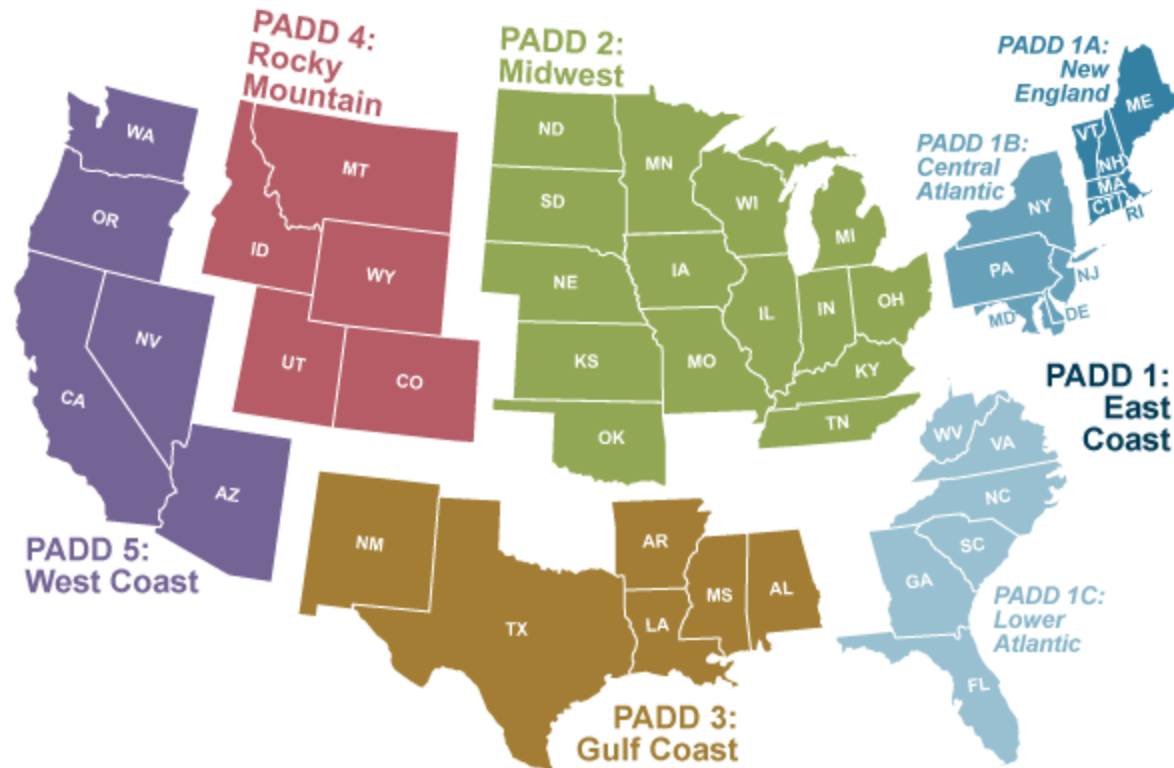


Total Inland Trade

Petroleum Products	2017 Thousand BPD	
Crude Petroleum	639	20%
Gasoline	494	15%
Kerosene / Distillate Fuel Oil	641	20%
Residual Fuel Oil & Asphalt/Tar/Pitch	532	16%
Lube Oil & Greases/Petrol Jelly 7 Wax/ Naphtha & Solvents	240	7%
Petro. Coke/Hydrocarbon & Petro Gases, Liquefied & Gaseous/Petroleum Products	286	9%
Alcohols	180	6%
Benzene & Toluene / Other Hydrocarbons	213	7%
Total Petroleum Products	3,225	100%

Reflects all waterborne commerce on inland waterways

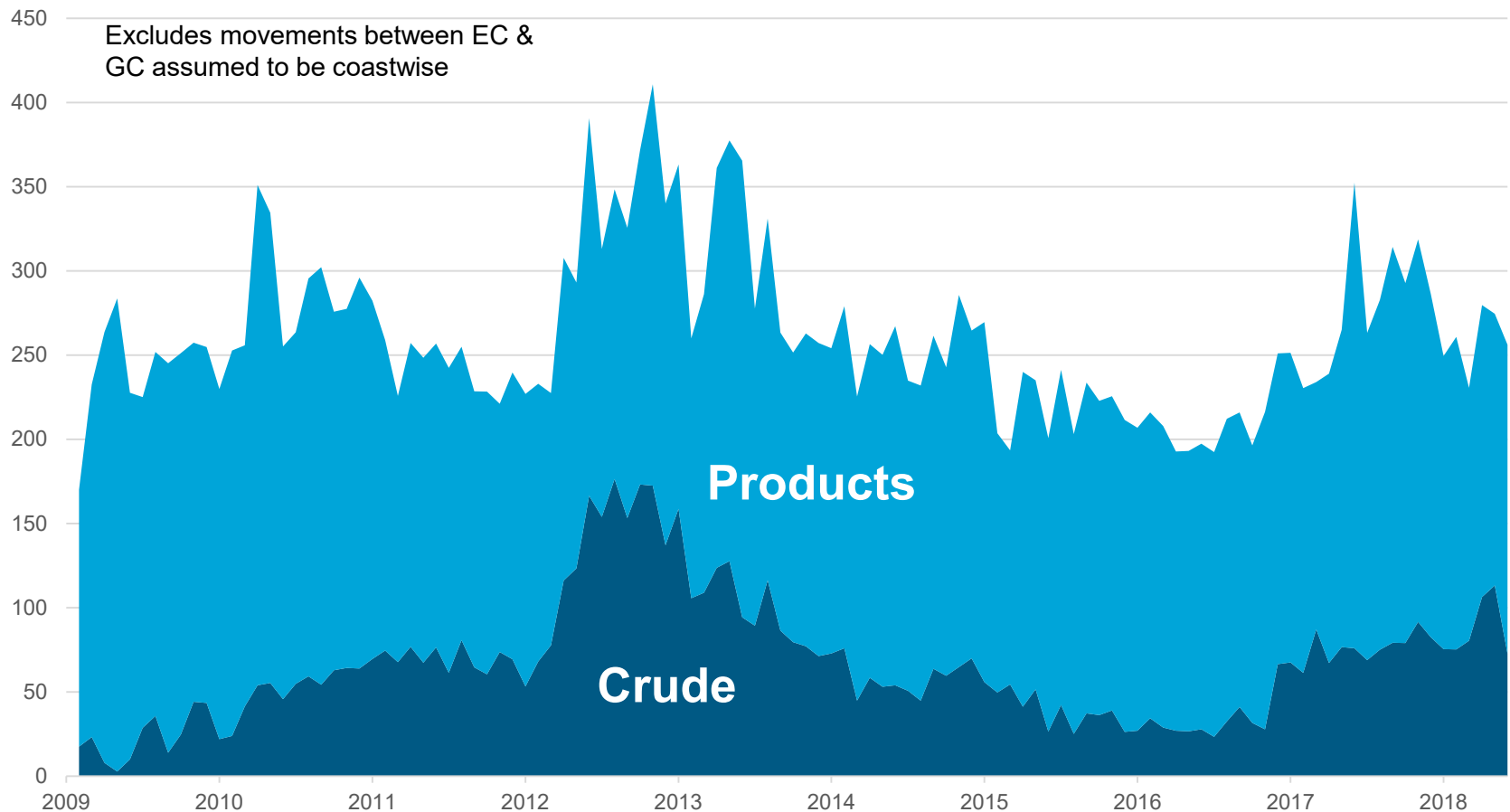
Petroleum Movements between PADDs a good measure of long-haul freight



PADD - Petroleum Administration for Defense Districts
U.S. Energy Information Administration Form EIA-888

Inter-PADD movements - EC, GC & MW

Thousand Barrels per Day

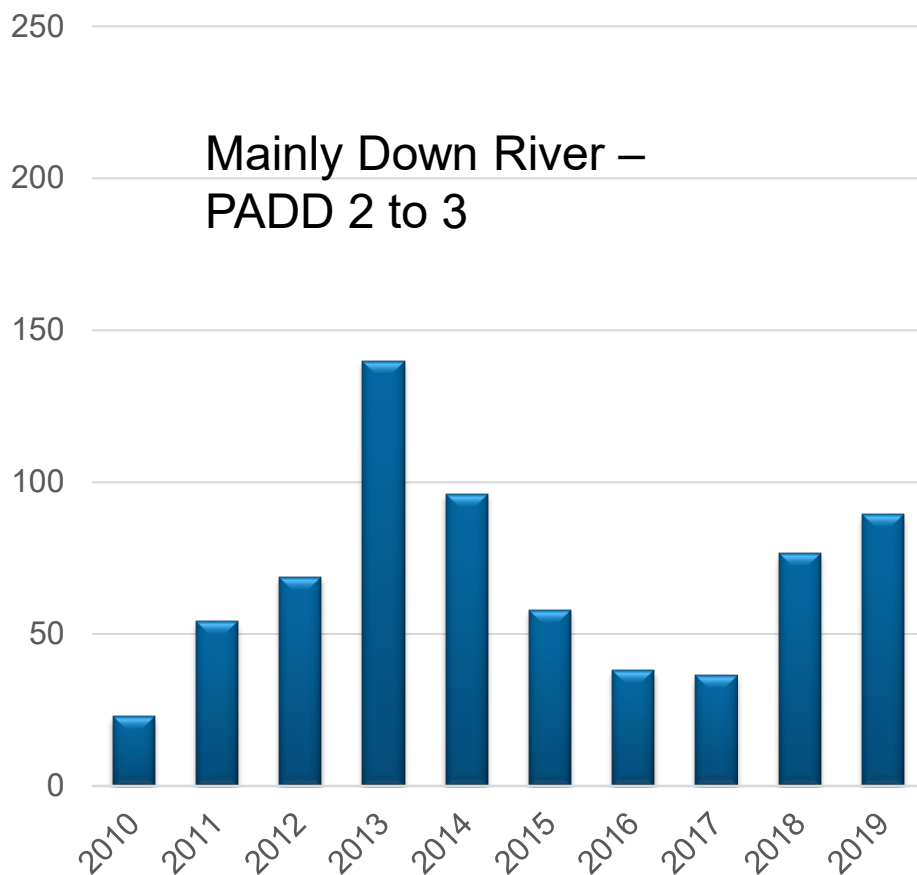


Inter-PADD movements - EC, GC & MW

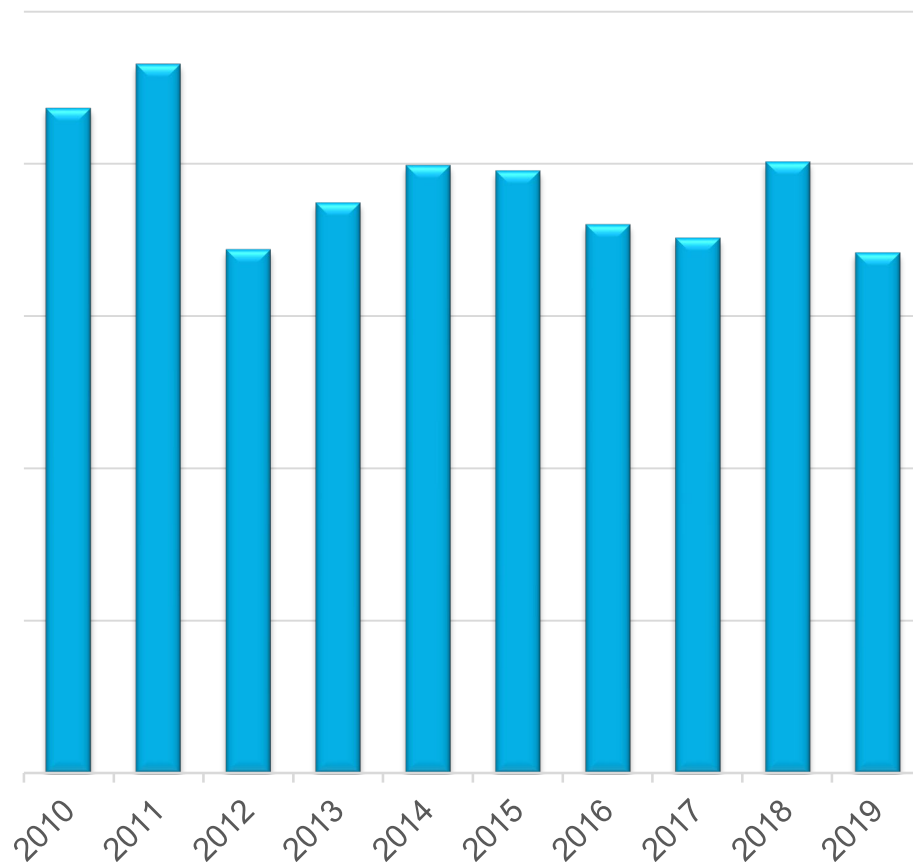
Thousand Barrels per Day

Crude Oil

Mainly Down River –
PADD 2 to 3

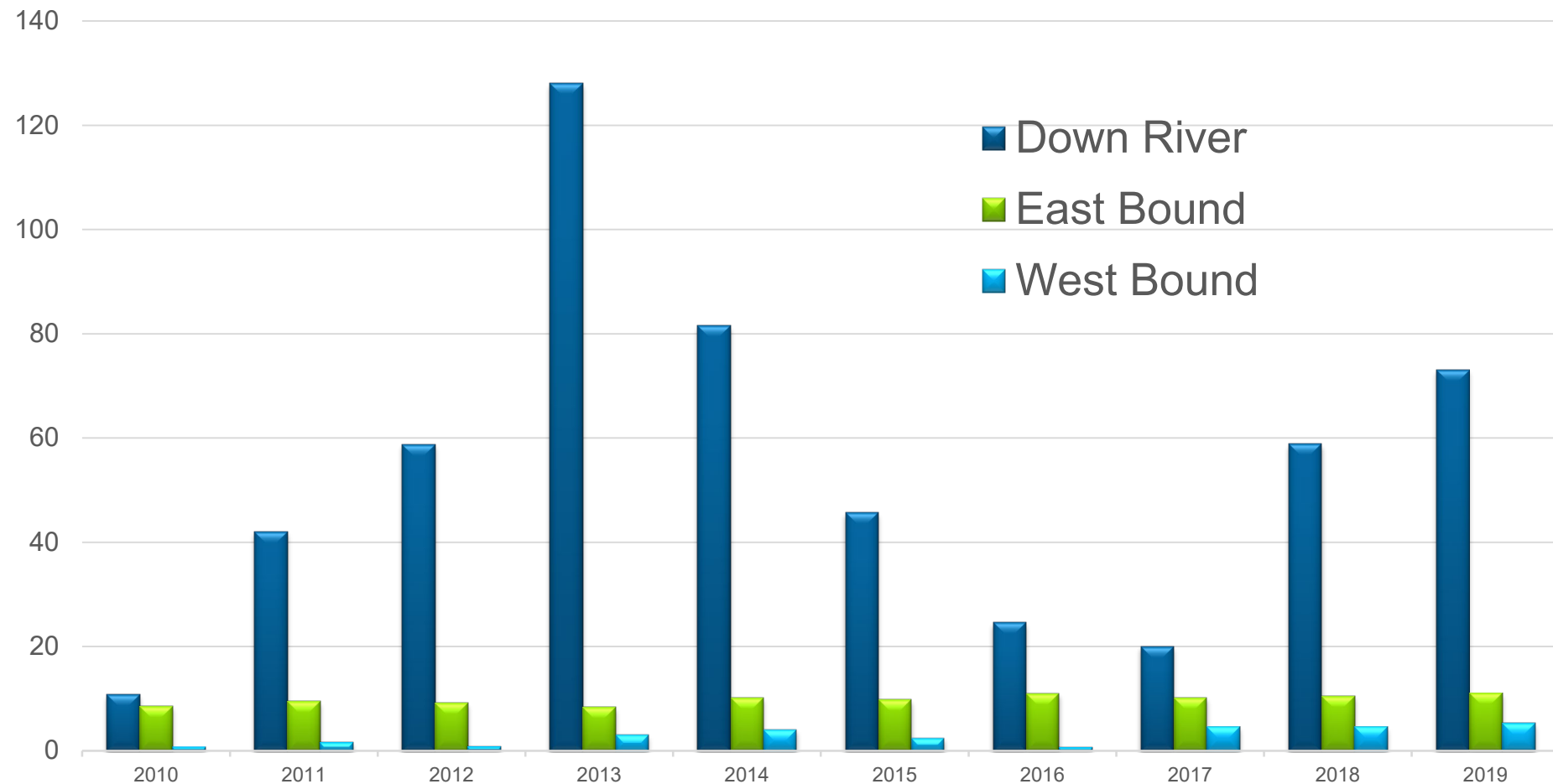


Products



Down River crude trade has revived

Thousand Barrels per Day

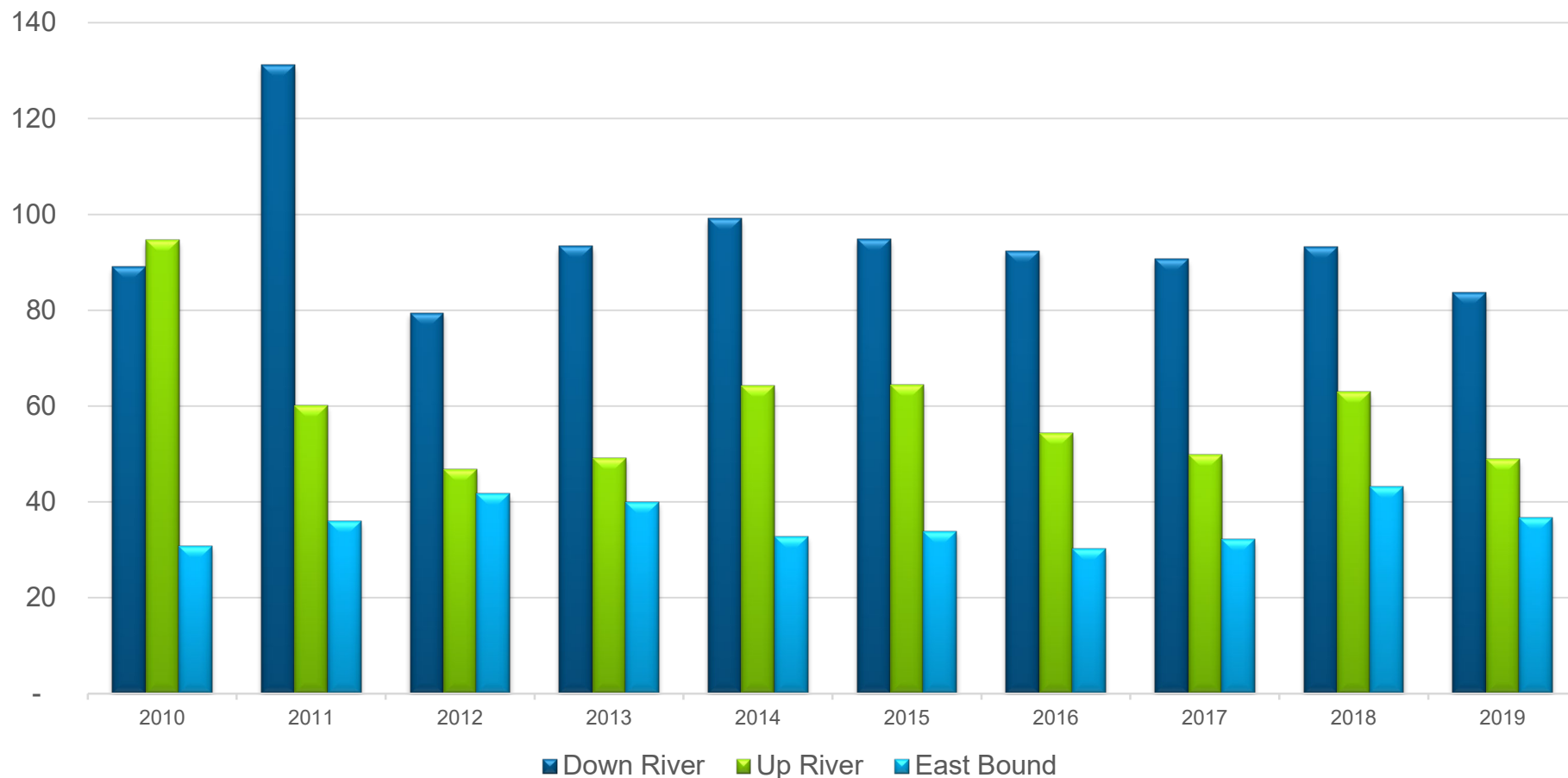


Slight decline in 2019 likely due to weather



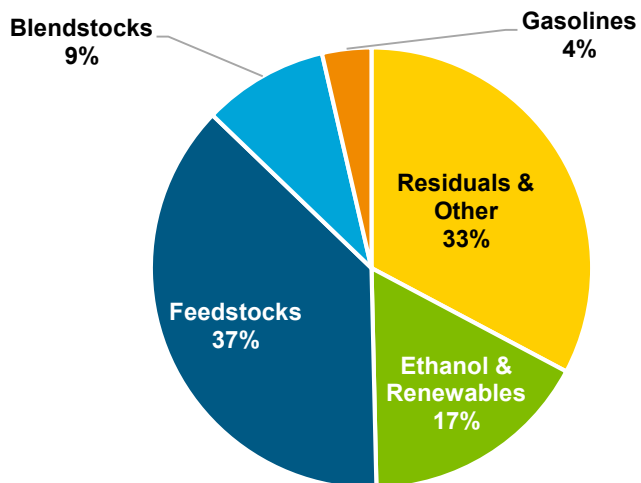
Products

Thousand Barrels per Day

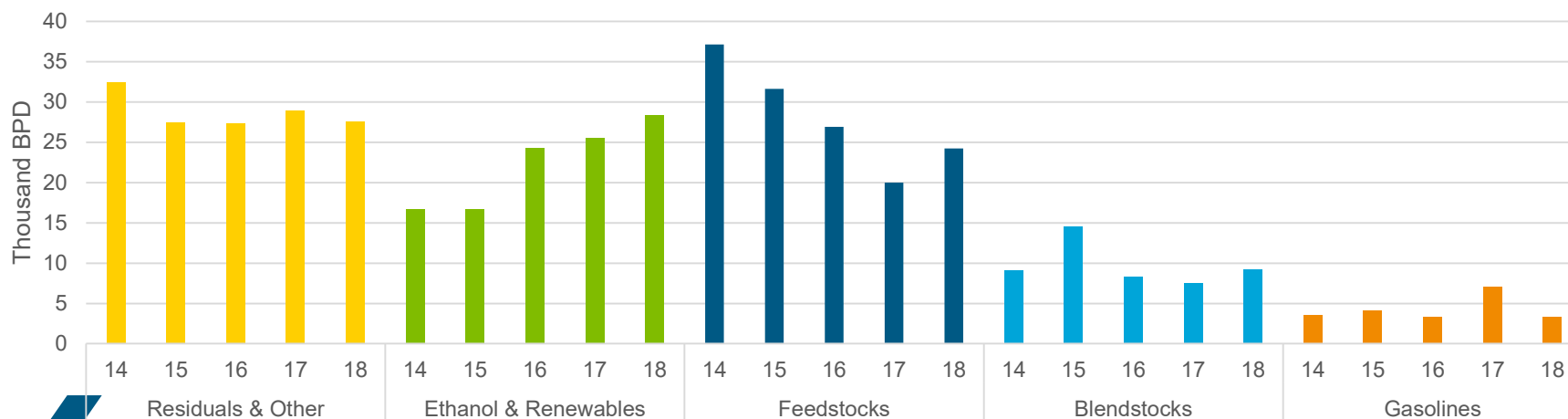
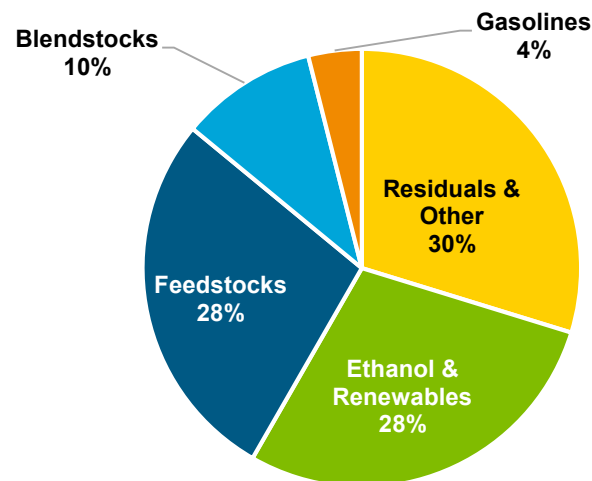


Down River Products – PADD 2 to 3

2014 – 99 MBPD



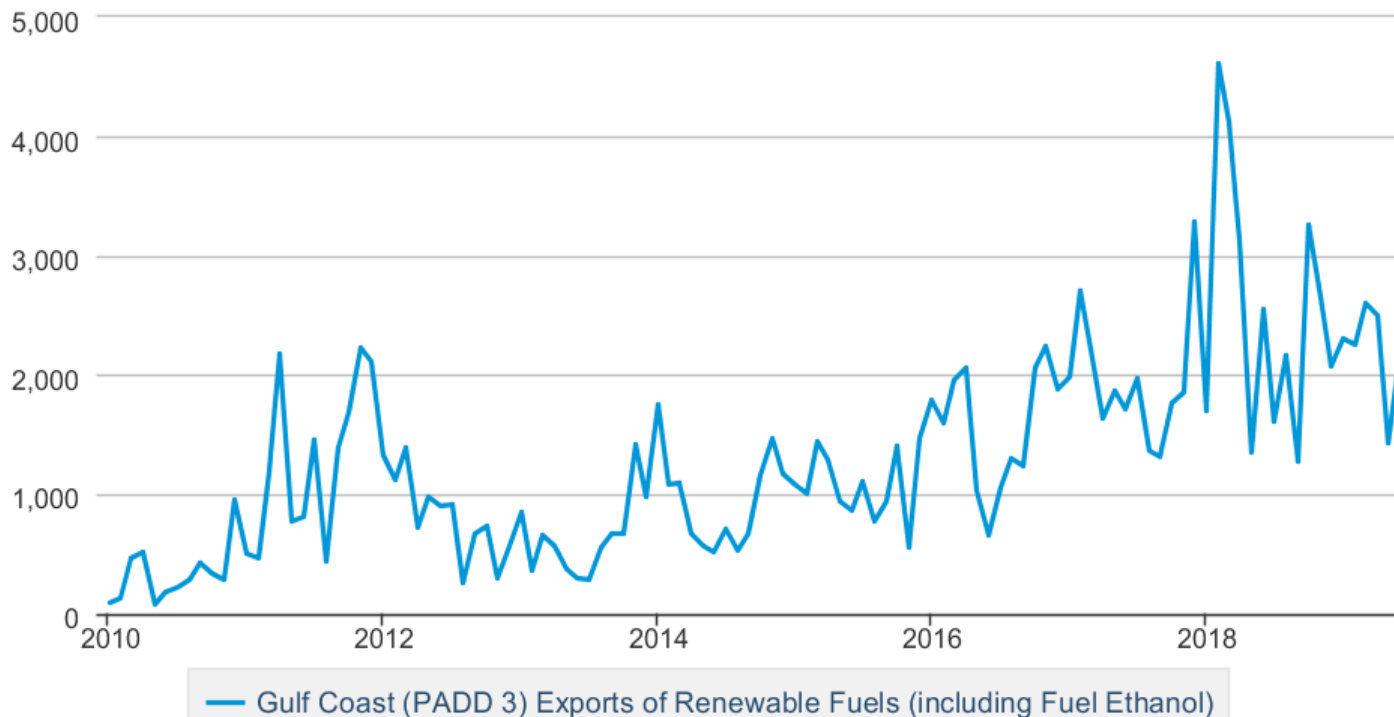
2018/2019 - 89 MBPD



Ethanol Exports have driven inland activity

Gulf Coast (PADD 3) Exports of Renewable Fuels (including Fuel Ethanol)

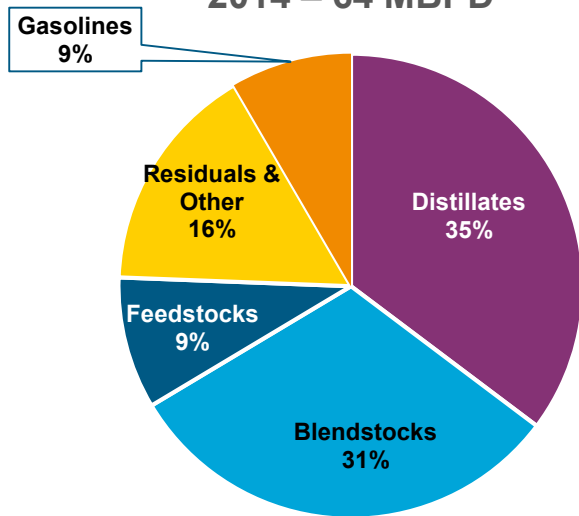
Thousand Barrels



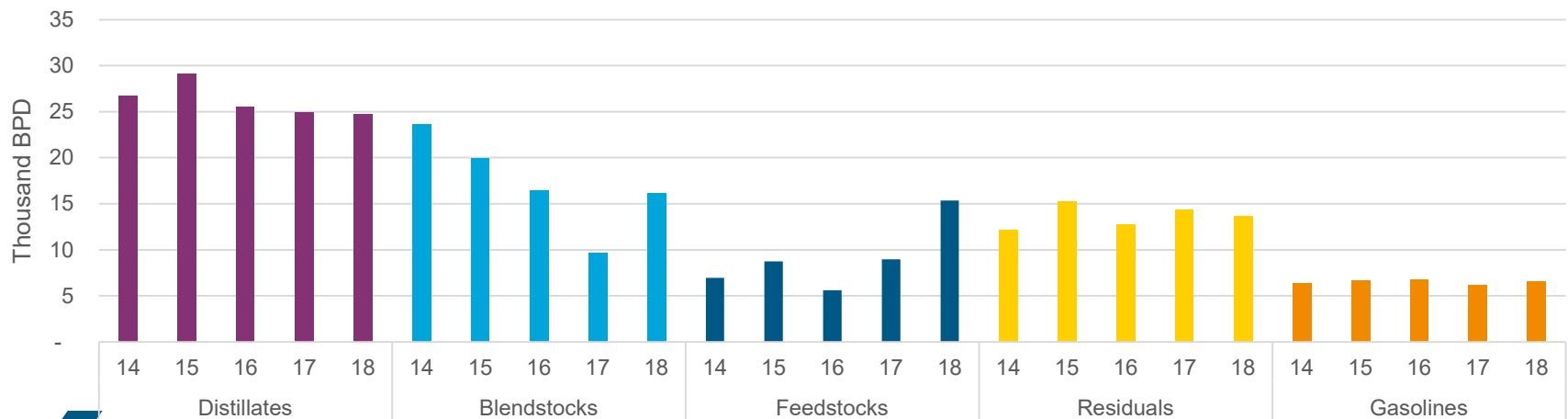
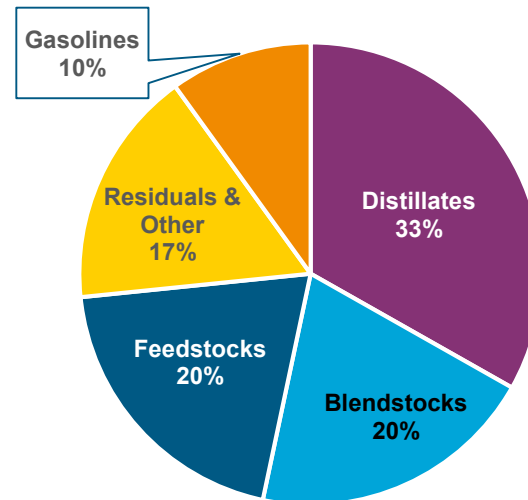
Source: U.S. Energy Information Administration

Up River Products – PADD 3 to 2

2014 – 64 MBPD



2018/2019 – 56 MBPD



Challenges

- Waterway Infrastructure Maintenance
 - Though necessary, still disruptive
 - Alleviated with planning good communication
- Lock Hot Spots – Brazos Flood Gates on Texas Coast
- Continuous Operational Improvement
 - Safety & Environmental
- Increased Labor Costs impact service sectors

Overview of Petroleum Waterway Use

Bullish Factors

- Increased Crude Production Capacity
- Abundant Natural Gas
 - Methanol & Chemicals
- Petroleum Demand Growth
 - Trade policy resolution
 - Easing monetary policy
- IMO 2020
 - Refinery Rebalancing
 - New Fuel Segregation
 - Diesel Cracks

Bearish Factors

- Logistics Optimization
 - Location Exchanges
 - Pipeline Utilization
- Pipeline Infrastructure

Questions and Answers

