

Sarah A. Emerson
President, ESAI Energy, LLC

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Atlantic Council
GLOBAL ENERGY CENTER

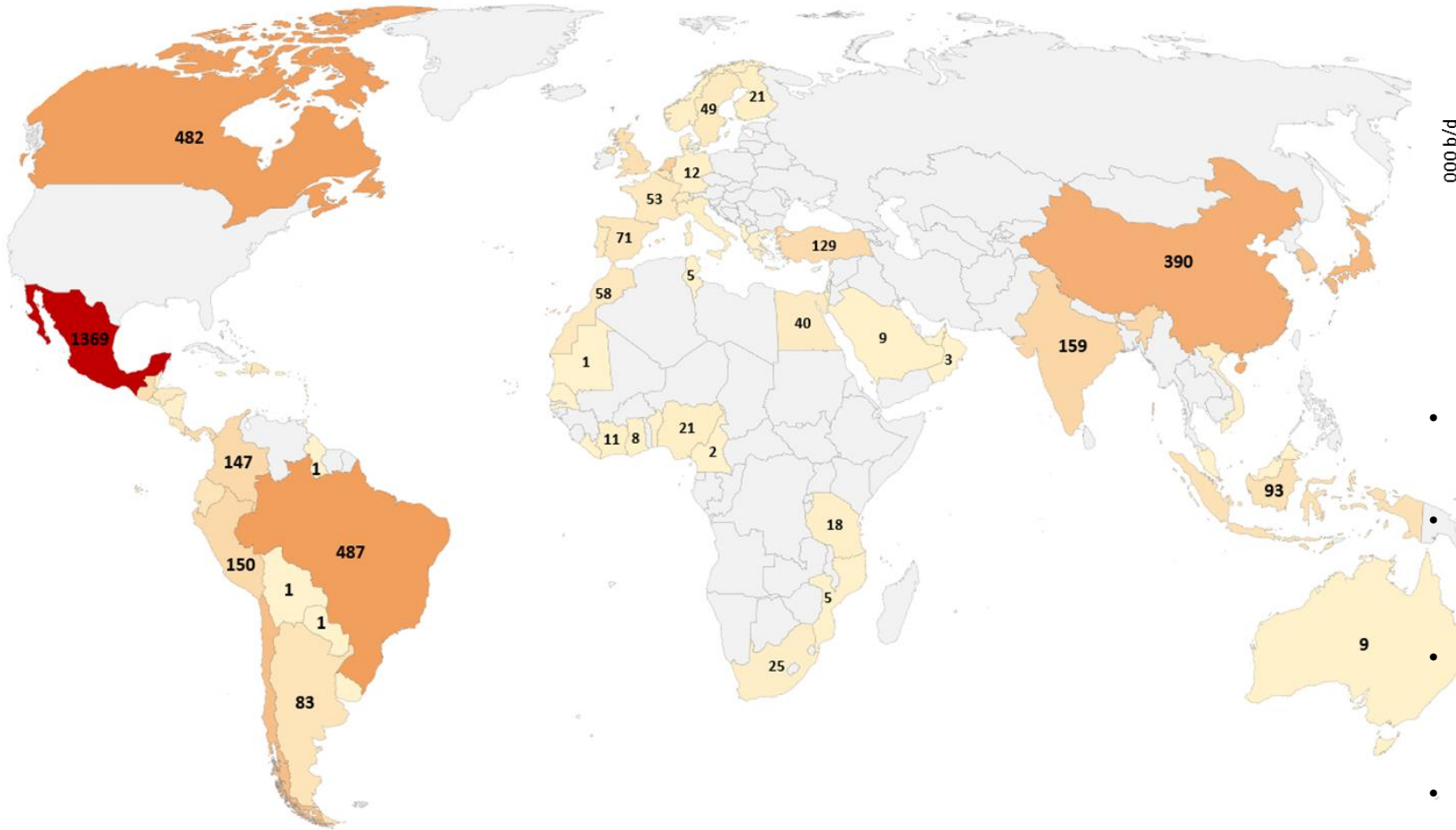
**IS A BAN ON US OIL
PRODUCT EXPORTS
ON THE HORIZON?**

Tuesday, September 13 | 9:00 a.m. (ET)

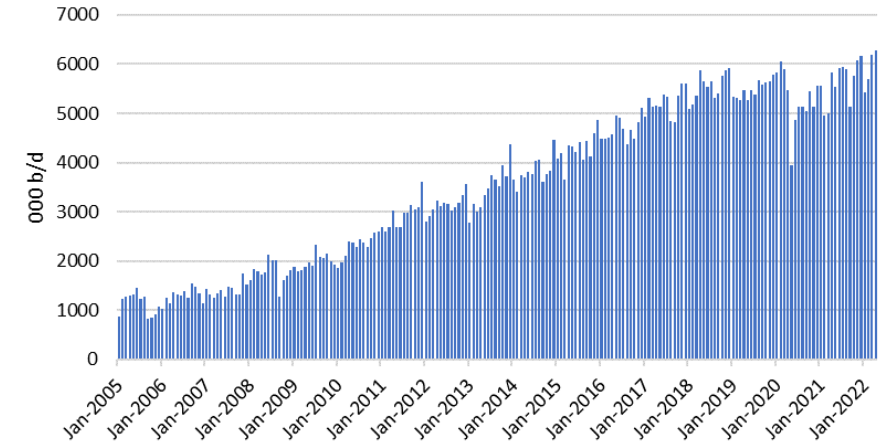
The poster features a photograph of a large red oil tanker ship docked at a pier. The ship's name 'MARA BRITON' is visible on its side. The background of the poster is a dark blue gradient.

The U.S. is a Critical Exporter in Highly Integrated Global Petroleum Product Markets

U.S. Total Refined Products Exports April 2022 (000 b/d)



U.S. Exports of Total Petroleum Products

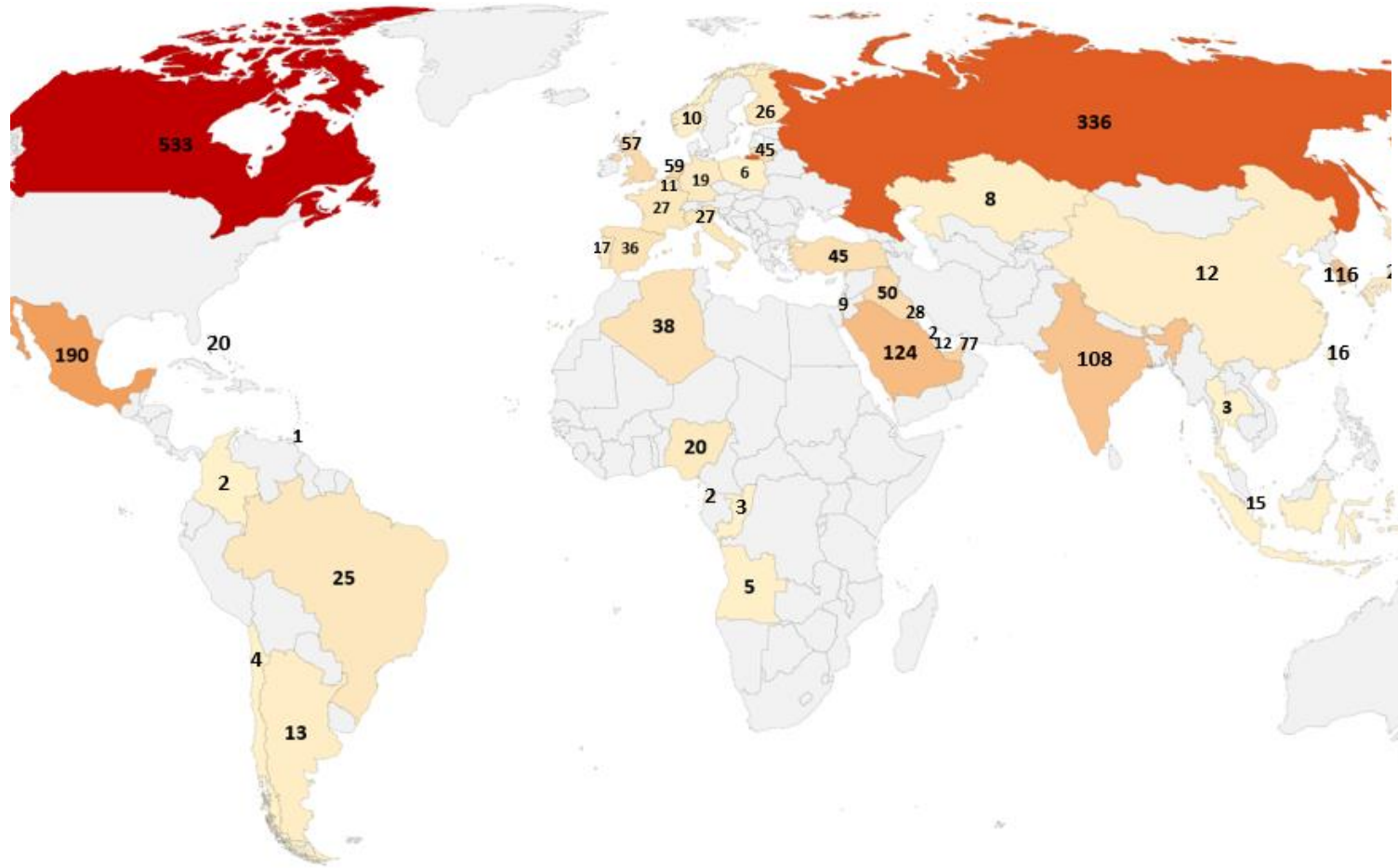


- In 2000, U.S. exports of petroleum products reached 1.0 million b/d. After 2005, they grew steadily until 2018;
- Since 2018, the U.S. refined product exports have remained fairly steady around 6.0 million b/d; In recent months they have averaged around 6.3 million
- The U.S. currently exports petroleum products to dozens of countries around the world, although Mexico remains the largest destination;
- Of the roughly 6.0 million b/d of U.S. petroleum product exports, about 4.4 million b/d or 73% is gasoline, diesel and LPG .

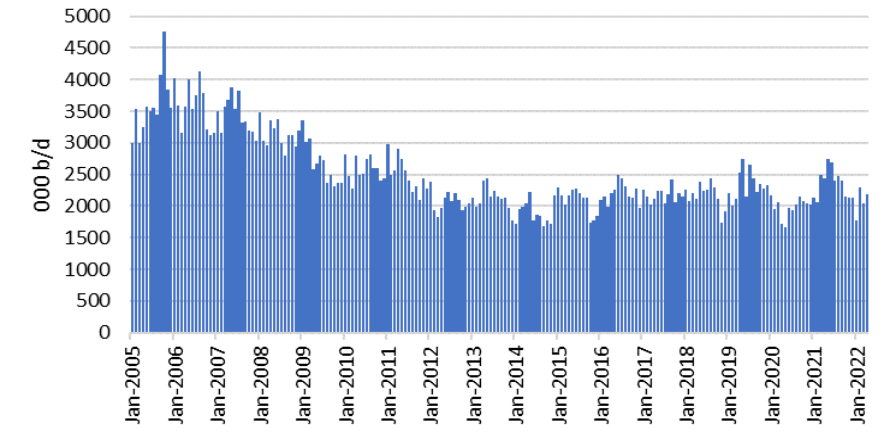
Source: EIA

The U.S. is a Critical Importer in Highly Integrated Global Petroleum Product Markets

U.S. Total Refined Products Imports April 2022 (000 b/d)



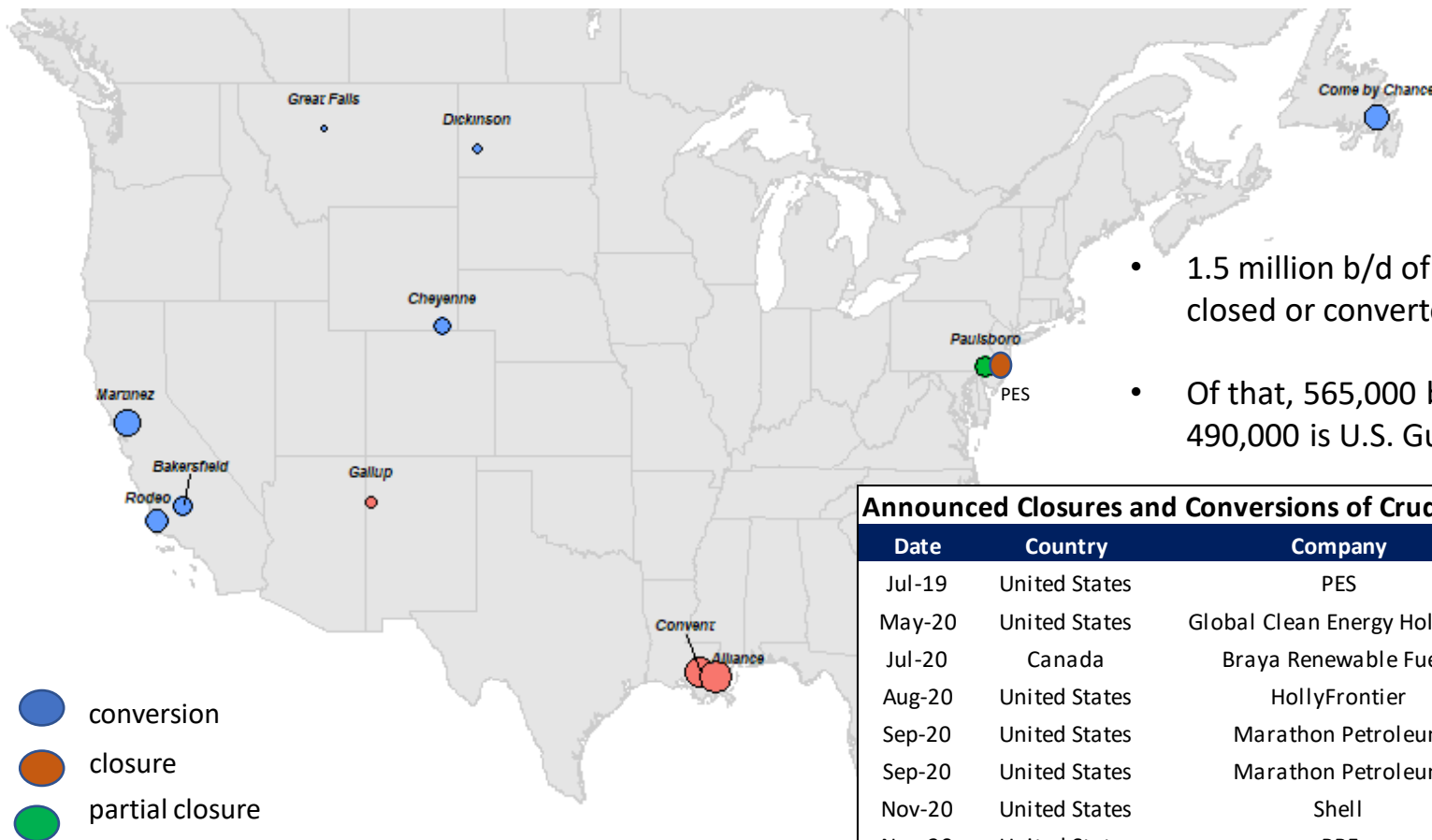
U.S. Imports of Total Petroleum Products



- From 2005 to 2012, U.S. imports of petroleum products gradually declined.
- Since 2012, U.S. imports have remained near 2.0 million b/d but can have significant seasonal spikes in the winter and summer.
- Of this 2.0 million b/d, about one half is gasoline, diesel and LPG imports. The U.S. imports significant volumes of unfinished oil used in refineries to make finished, high spec transport fuels.

Source: EIA

U.S. Refining Capacity Closures Have Reduced U.S. Gasoline and Diesel Production



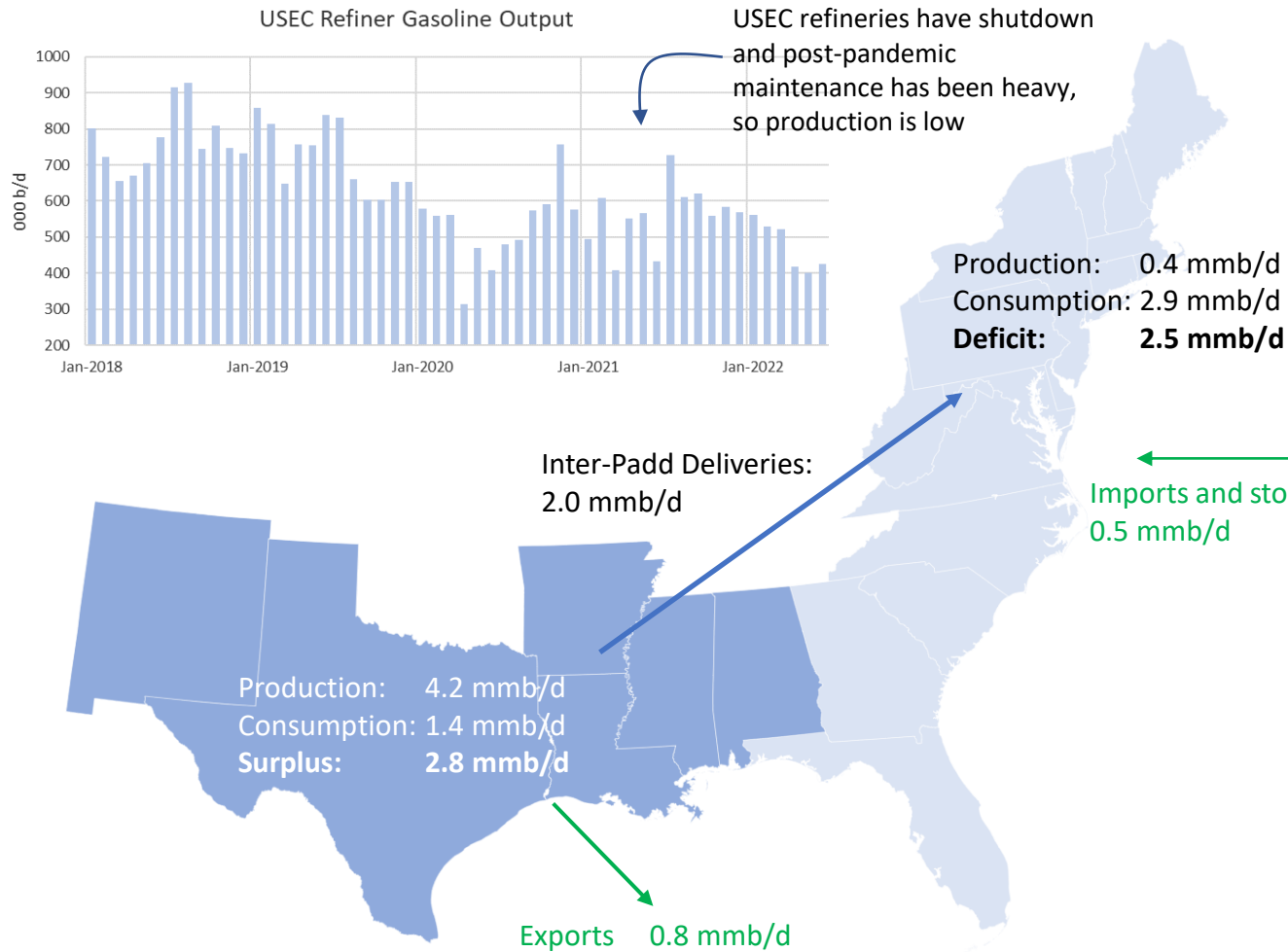
- 1.5 million b/d of U.S. (and Eastern Canada) refining capacity has been closed or converted to renewable fuels since 2019.
- Of that, 565,000 b/d is US East Coast and Eastern Canada capacity and 490,000 is U.S. Gulf Coast capacity

Announced Closures and Conversions of Crude Oil Refining Capacity

Date	Country	Company	Refinery	Capacity	Notes
Jul-19	United States	PES	Philadelphia	335	Closure
May-20	United States	Global Clean Energy Holdings	Bakersfield	70	Conversion to Renewable Fuels
Jul-20	Canada	Braya Renewable Fuels	Come by Chance	130	Conversion to Renewable Fuels
Aug-20	United States	HollyFrontier	Cheyenne	52	Conversion to Renewable Fuels
Sep-20	United States	Marathon Petroleum	Martinez	161	Conversion to Renewable Fuels
Sep-20	United States	Marathon Petroleum	Gallup	27	Closure
Nov-20	United States	Shell	Convent	235	Closure
Nov-20	United States	PBF	Paulsboro	100	Partial Closure
Dec-20	United States	MDU Resources	Dickinson	19	Conversion to Renewable Fuels
Sep-21	United States	P66	Alliance	255	Closure
Mar-22	United States	Calumet	Great Falls	12	Partial Conversion to Renewable Diesel
Mar-24	United States	P66	Rodeo	125	Conversion to Renewable Fuels

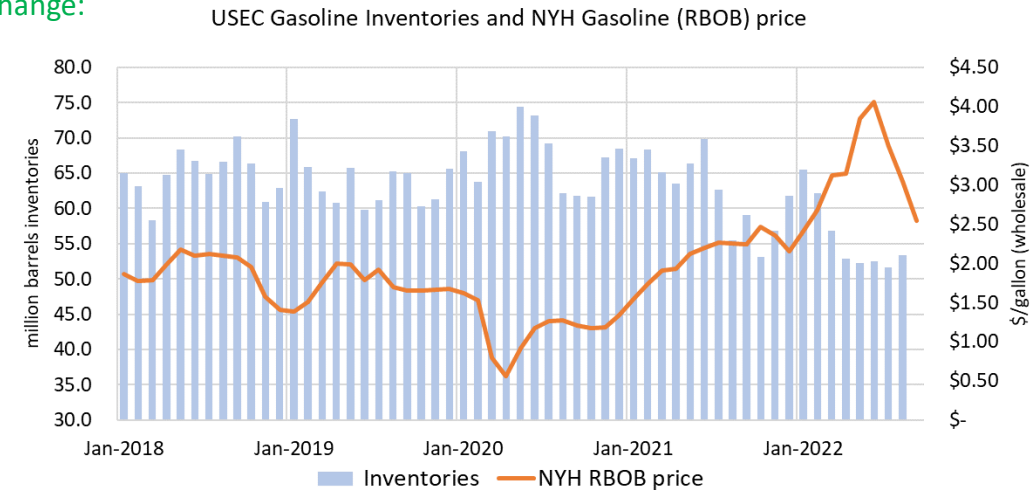
Another 650,000 b/d of refining capacity in Europe has been closed or converted since 2020

The East Coast Supply Chain Works, but is Constrained



USEC Gasoline:

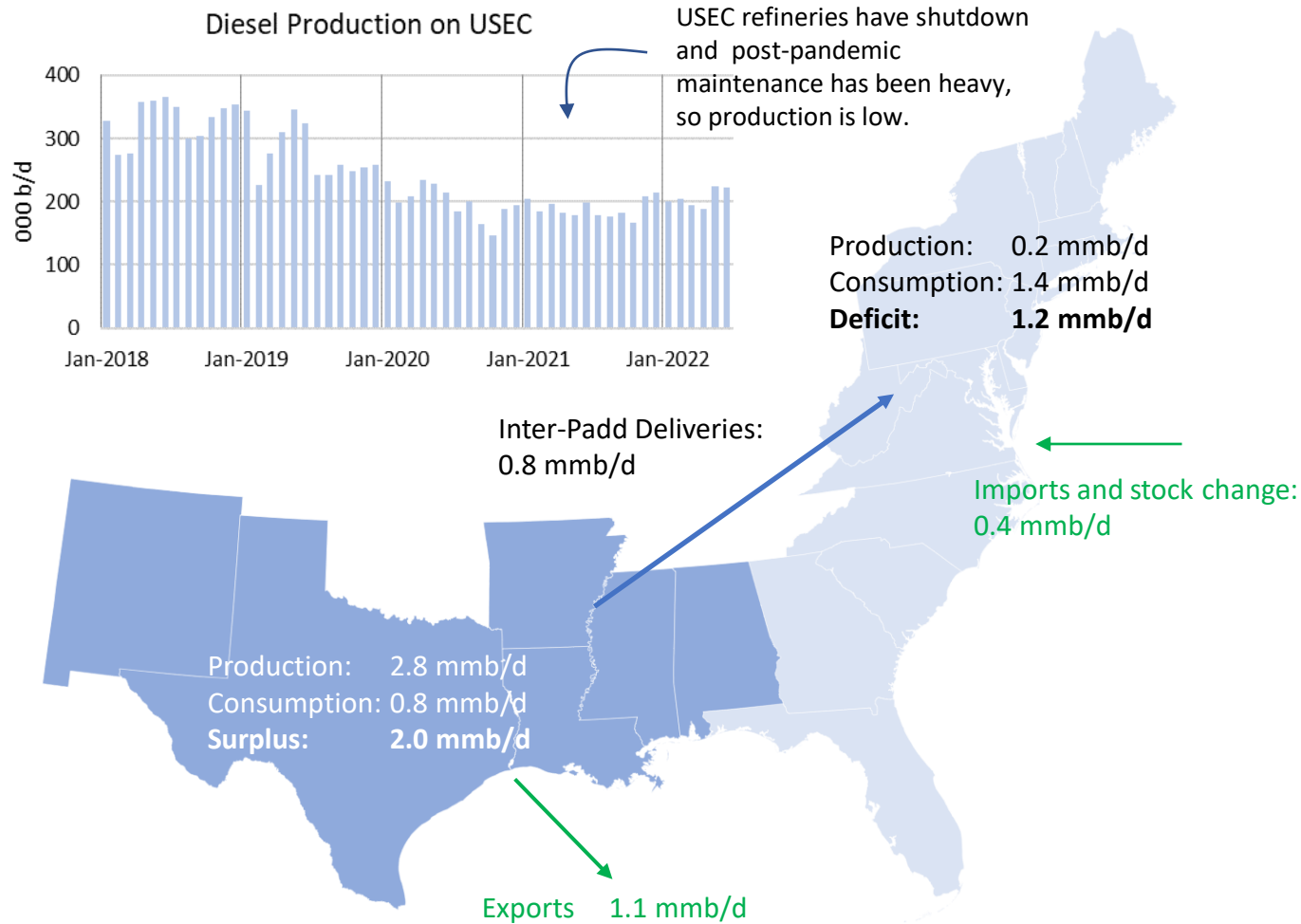
- The USEC is a limited producer of gasoline. Refiners have struggled to make sufficient gasoline due to capacity shutdowns and heavy maintenance in 2022.
- Thus, the USEC has a substantial supply deficit.
- The region relies heavily on supplies from the USGC and on imports from all over the world.
- Given constraints on refining, USEC Inventories have fallen, and prices have risen. But the drop in crude oil prices has brought gasoline prices down considerably.
- The restart of the partially closed Paulsboro refinery would add 70,000 b/d of refining capacity.



Source: EIA, (rounded numbers)

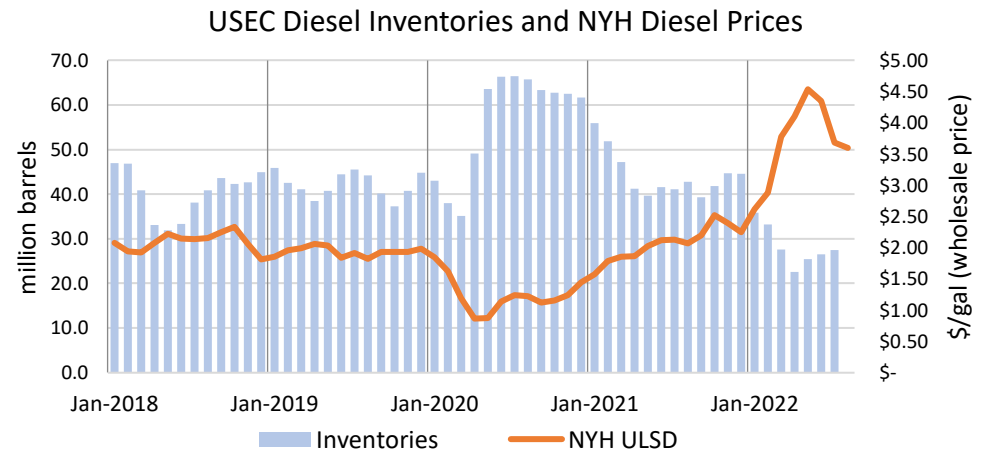
Note this analysis combines gasoline blending components with finished gasoline

The East Coast Supply Chain Works, but is Constrained



USEC Diesel:

- The USEC is a limited producer of diesel with a significant deficit
- The region relies heavily on supplies from the USGC
- Imports, generally in the form of heating oil, come from Irving Oil in New Brunswick, Canada; during winter demand spikes, imports come from other countries (including Russia until import ban)
- Consumption was high in Jan and Feb 2022 and, combined with low refinery throughput and maintenance, encouraged a significant de-stocking and higher prices.
- The restart of the partially closed Paulsboro refinery would add 70,000 b/d of reeving capacity on the USEC.



Source: EIA, (rounded numbers)

Pipeline Capacity to the USEC is Limited

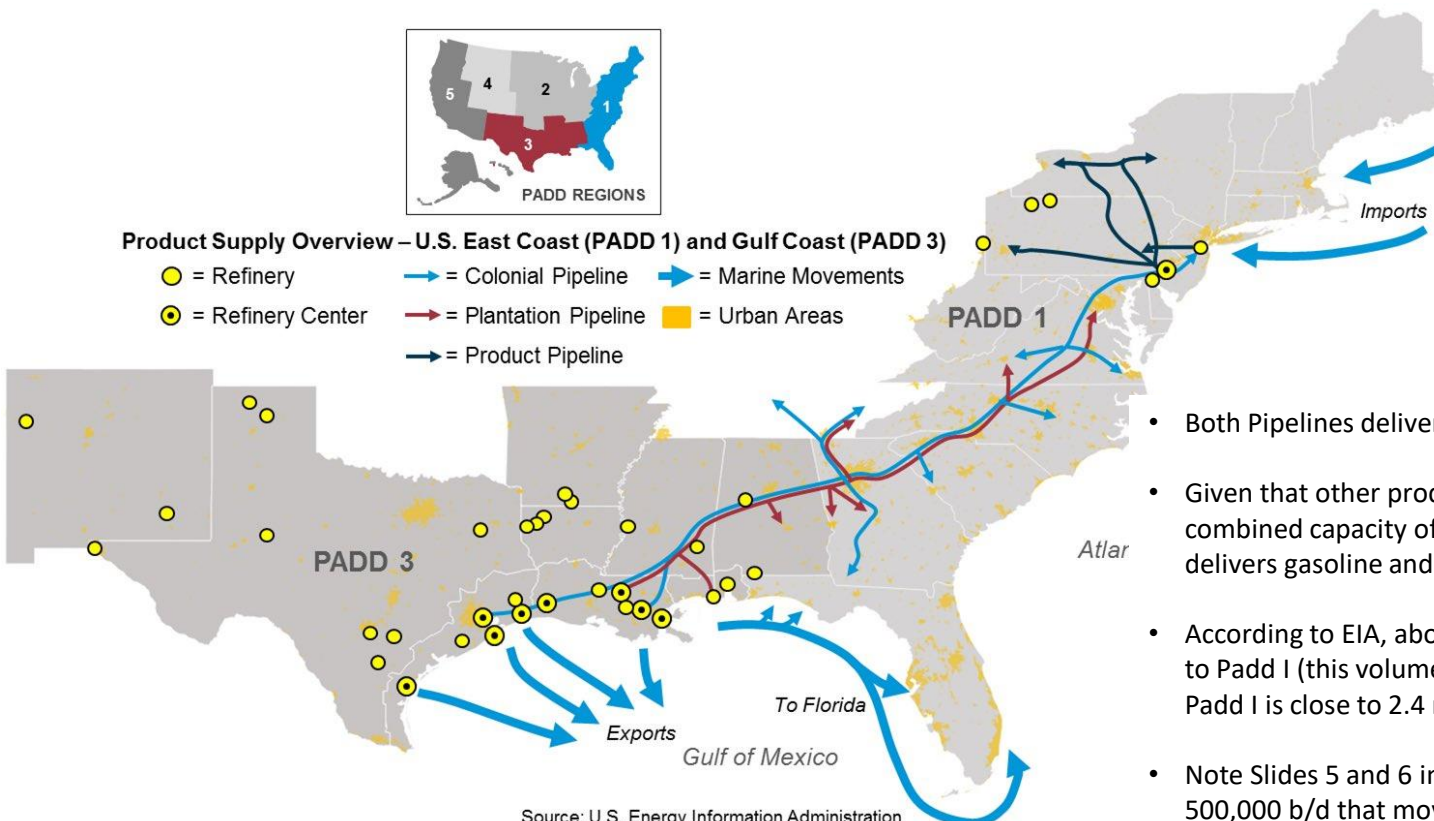
There are 2 major product pipelines that carry petroleum products from the USGC to the USEC:

- The Colonial Pipeline (blue in map)
 - Line 1 Capacity: (gasoline): 1.2 million b/d (industry sources)
 - Line 2 Capacity (diesel and jet fuel): 1.0 million b/d (industry sources)
- The Plantation Pipeline (red in map)
 - Capacity (all products): 0.7 million b/d (press sources)
- Together they have combined capacity of 2.9 million b/d; If the pipelines operate at 95% utilization, their operable capacity is closer to 2.7 to 2.8 million b/d.



Product Supply Overview – U.S. East Coast (PADD 1) and Gulf Coast (PADD 3)

- = Refinery
- = Refinery Center
- = Colonial Pipeline
- = Plantation Pipeline
- = Marine Movements
- = Product Pipeline
- = Urban Areas



Source: U.S. Energy Information Administration

- Both Pipelines deliver product to states outside of Padd I (i.e., AL, MS and TN)
- Given that other products are carried by Plantation and both pipes also deliver to Padd II or III, their combined capacity of 2.9 million/d (2.7-2.8 operable capacity) is higher than the capacity that actually delivers gasoline and diesel to Padd I.
- According to EIA, about 300,000 b/d of jet fuel and another 50,000 b/d of LPG is also transported by pipeline to Padd I (this volume is not represented in slides 5 or 6) Thus, actual capacity to carry gasoline and diesel to Padd I is close to 2.4 million b/d.
- Note Slides 5 and 6 indicate gasoline and diesel movements of 2.8 million b/d, but that includes about 500,000 b/d that moves by tanker to Florida. The volume that would be transported by pipe would be close to 2.3 million b/d in the period Jan-Apr 2022.

- These 2 pipelines are often fully utilized and represent constraints on transporting more gasoline and diesel by pipeline to the USEC, especially during periods of high demand (gasoline in summer and diesel (heating oil) in winter).

U.S. Exports Diesel and Gasoline Almost Entirely to Latin America

U.S. Diesel Exports (April 2022) by Destination

The U.S. Exports diesel primarily to Latin America, especially Mexico and Brazil - **1.4 million b/d in April**



U.S. Gasoline Exports (April 2022) by Destination

The U.S. Exports gasoline to Latin America, especially Mexico. **900,000 b/d in April**



U.S. is Key Supplier of diesel and gasoline to Latin America:

- The U.S. exports about 900,000 b/d of gasoline, almost all of which goes to Latin America;
- The U.S. exports distinctly more diesel (1.4 million b/d), almost all of which goes to Latin America;
- Latin America’s refineries have low utilization rates due to maintenance and equipment issues and cannot keep up with local demand for transport fuels;
- Latin America’s refineries do not have the technology to refine the regions’ heavy sour crude;
- Latin America ships heavy sour crude to U.S. Gulf Coast refineries that can handle the density and sulfur content of the crude and then the refined transport fuels are shipped back to Latin America.

Source: EIA in 000 b/d

Since 1985, ESAI has been the advisor to industry leaders and governments, tasked with navigating critical transitions in the energy markets. While the specific challenges facing the industry have changed, our core philosophy has not.

Our methodology is to built from the ground up. This has necessitated that we continually develop, vet and maintain a robust energy **database that begins in the mid-1980s**. In a world of plentiful data, our Analyst Team **curates data** to provide the best information for our clients.

Our Analyst Team represents **over 100 years of experience** in the energy sector, with a wide range of education, work experience and language skills;

In an increasingly digitized world, **personal interaction** is even more important to interpreting the flood of information and making effective decisions in a complex market;

Each member of our Analyst Team has cross regional and cross functional responsibilities that facilitate a **holistic, integrated approach** to answer questions and projecting outcomes.

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For more information on this presentation, contact Sarah Emerson at semerson@esai.com

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