

The Evolution of Midstream Energy
Infrastructure: Poised for the Transition

EPISODE 5

Natural Gas Liquids (NGLs) Market Overview

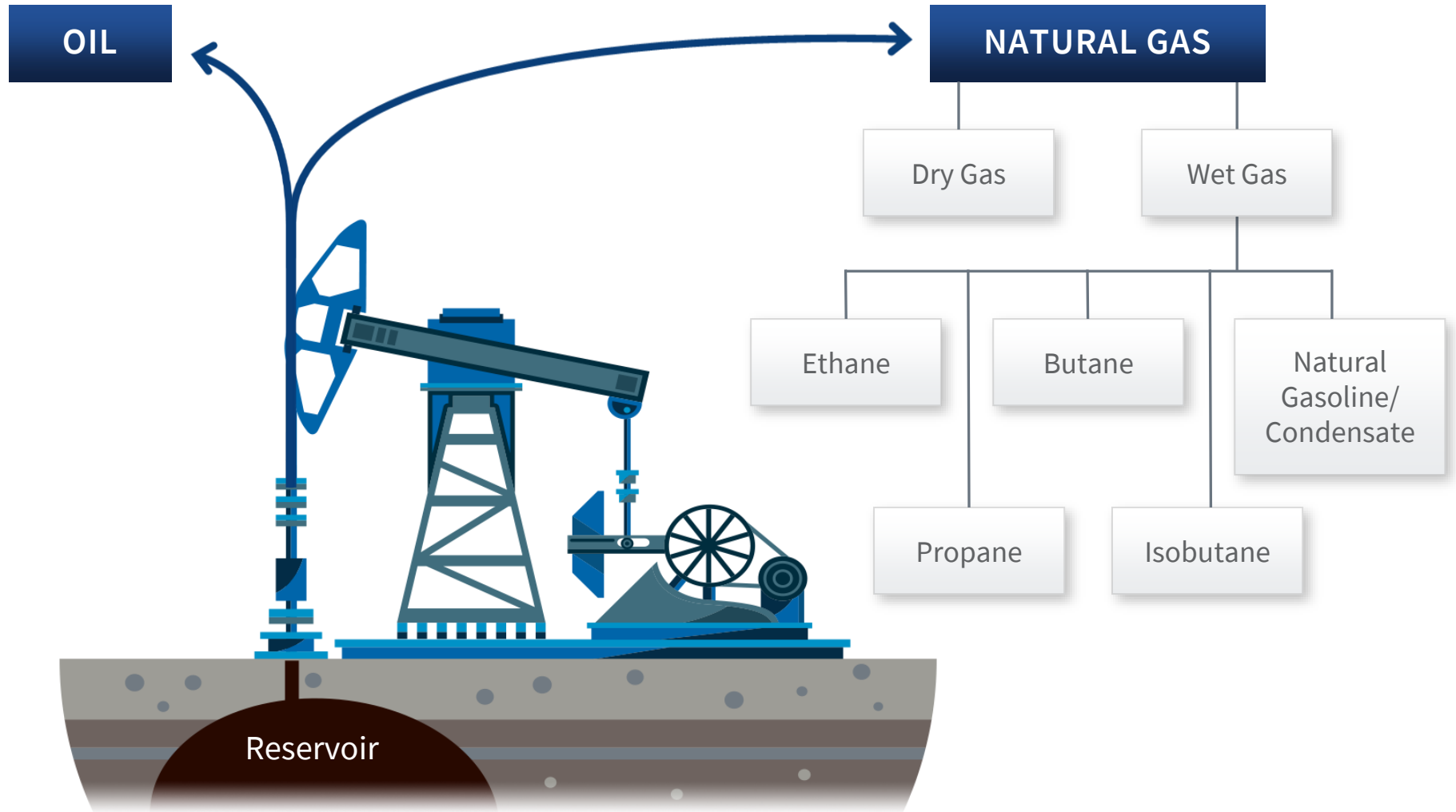
MARCH 2023

CONFIDENTIAL



When exploration and production companies pull hydrocarbons out of the ground, three hydrocarbons (oil, gas & NGLs) can come out in various combinations. These include oil & wet gas, wet gas, or dry gas.

Dry gas is comprised of methane, whereas wet gas is comprised of methane and 5 natural gas liquids (NGLs) in primarily gaseous form.

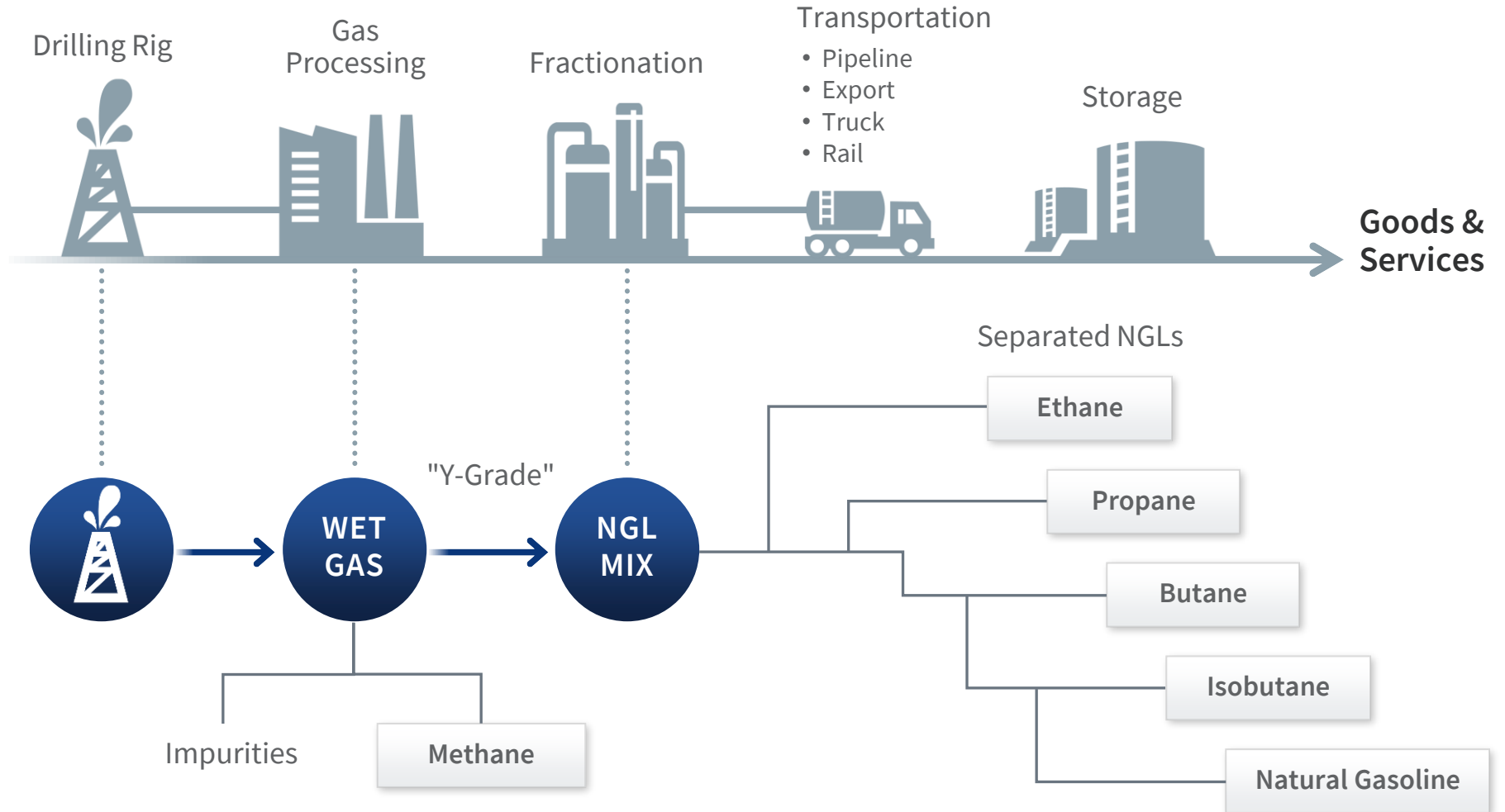




Wet gas travels by gathering pipeline to a processing plant where the NGLs are separated from methane and turned into a liquid.

Once separated the NGL mixture, also known as “Y-Grade,” travels by pipeline to a fractionator where the mixture is separated again into its 5 individual components.

Each specific NGL travels by pipe, truck, or ship to the end user or to storage.





NGLs are a critical component supporting nearly every facet of human and economic development. Beyond just a fuel source, they are a major input for the global petrochemical manufacturing sector (plastics).

Domestically, 59% of NGL supplies are used to make petrochemicals, 26% are used for heating and other uses, and 15% are blended into other fuels.

Source: Enterprise Products Partners, "2022 Analyst Day", March 2022 & "2021 ESG Day", March 2021



Everyday Goods

- Cell phone and computer parts
- Food packaging
- Clothing and footwear
- Textiles: carpets, furniture
- Deodorants and cosmetics
- Detergents
- Diapers
- Sports equipment



Transportation Related

- Lighter vehicle exteriors: cars, planes, boats
- Synthetic rubber tires
- Fuel additives
- Engine coolants
- Interior panels, seats and carpet
- Coatings
- Insulation
- Paints



Medical Field

- Pharmaceuticals
- Sterile packaging (single-use): IV bags, syringes, medicine bottles, liners
- Ethyl-alcohol / hand sanitizer
- Equipment: ventilators, heart rate monitors, suction machines, defibrillators, oxygen masks
- Personal protective equipment (PPE): gloves, gowns, face masks
- Room conveniences: beds and textiles



Renewables & Other

- Wind turbine and solar panel parts
- Battery containers and parts
- Coatings
- Insulation
- Paints
- Unbreakable glass
- Agro-chemicals



Sources: IEA, American Chemistry Council and National Institute of Health

© All Rights Reserved. Enterprise Products Partners L.P.

enterpriseproducts.com

Page 13



U.S. NGL production has more than tripled since 2005 to ~6.1 million barrels per day (MMBpd).

Because NGLs are often considered “oil” in supply and demand balances, this growth has contributed meaningfully to the global crude supply picture.

The prolific growth in U.S. NGL supply has given the U.S. a competitive advantage in petrochemical production and has given the world a new stable and low cost supply of NGLs.

Source: U.S. Energy Information Administration (EIA), CCM

Millions of Barrels Per Day

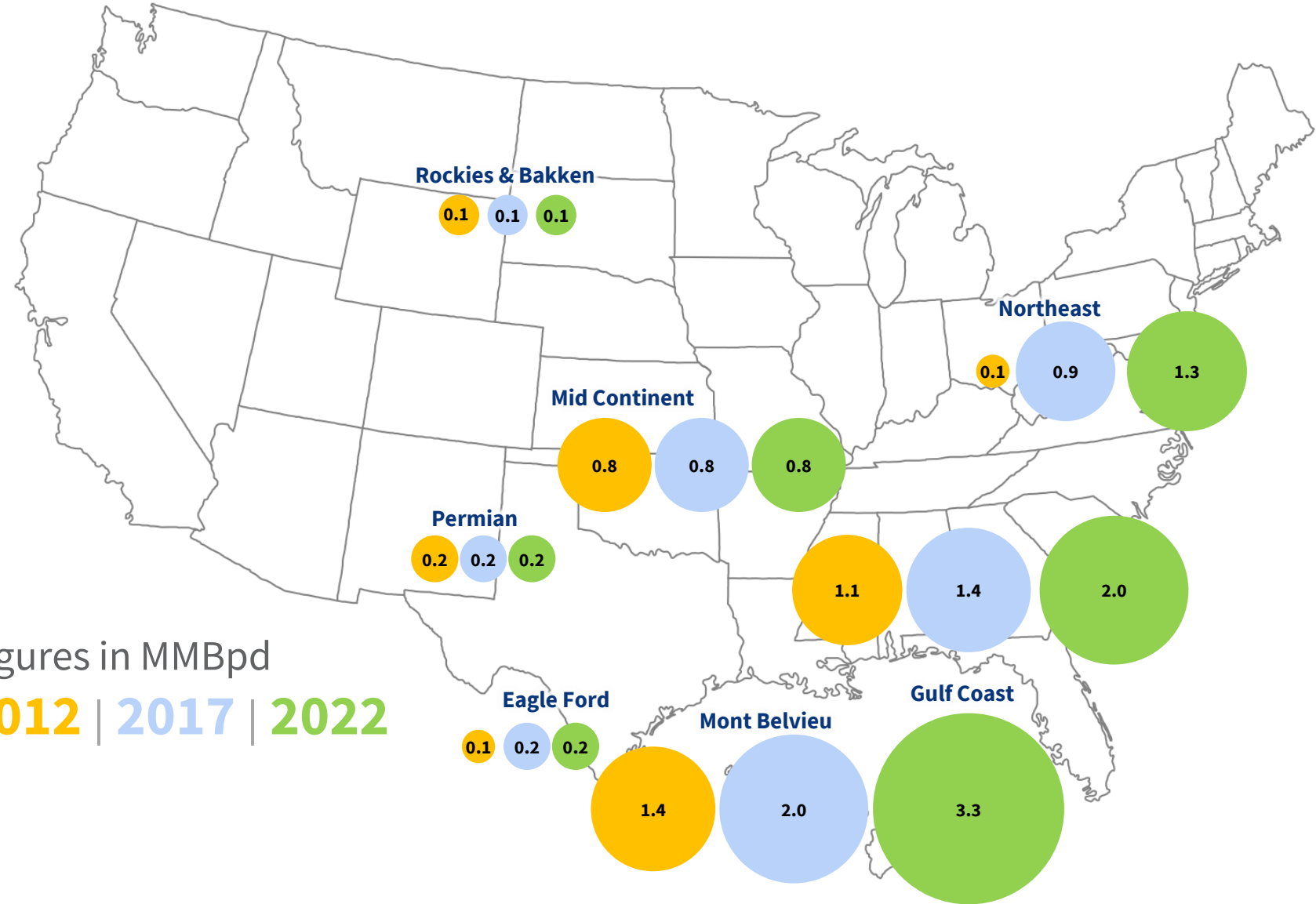
■ Total NGL Production





NGL fractionation has increased meaningfully since the start of the shale revolution. Mont Belvieu, Texas is the dominant location for fractionation capacity in the United States due to its location on top of a large underground salt dome formation, which makes it a prime location to store natural gas liquids.

Since most of the U.S.'s fractionation capacity is located at Mont Belvieu, the midstream industry has spent billions of dollars to move NGL's processed in distant oil and gas fields across the country to the U.S. Gulf Coast.



Figures in MMBpd
2012 | **2017** | **2022**

Source: U.S. Energy Information Administration (EIA), CCM

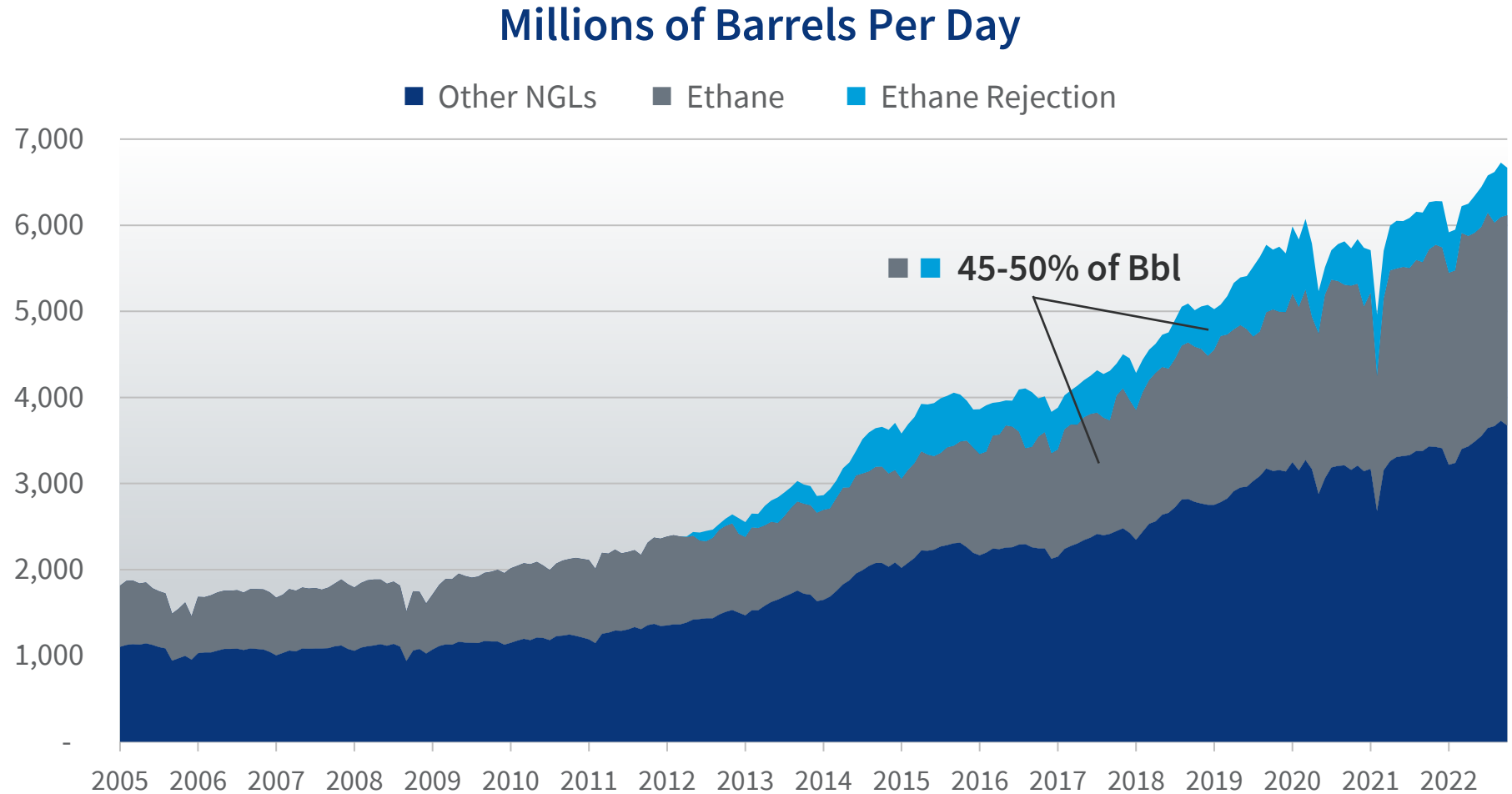


Since 2005, Ethane has grown at an 8% annual rate to ~2.4 MMBpd and makes up 40% of the average barrel.

Ethane is similar in energy content to methane and can be left or “rejected” in the gas stream and sold at a gas equivalent price if the liquids price is uneconomic.

We estimate 500-600 MBpd of ethane is currently rejected, and since 2012 ethane has ranged between full recovery to 1 MMBpd of rejection.

Source: U.S. Energy Information Administration (EIA), CCM



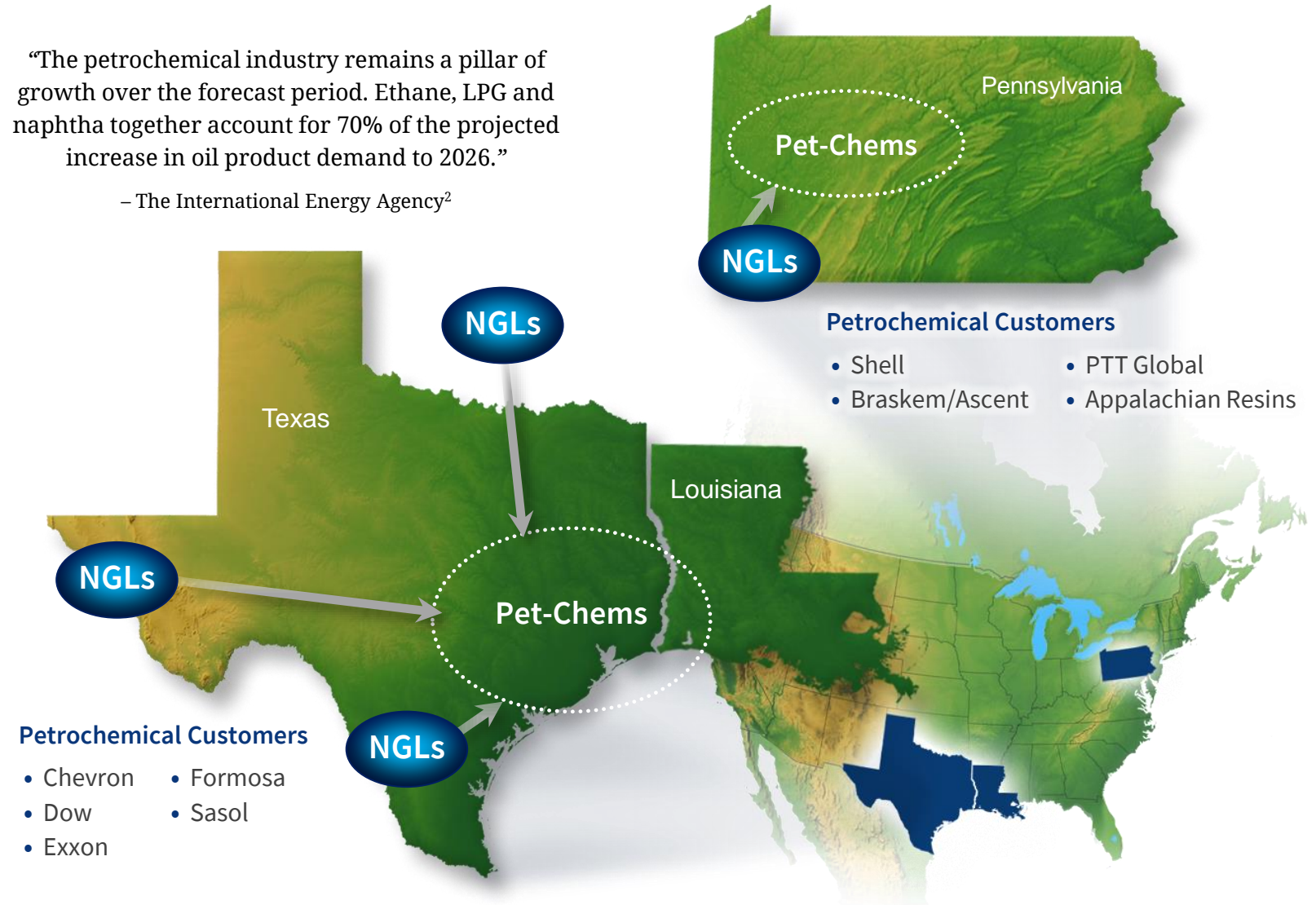


U.S. and Foreign petrochemical companies have committed over \$200 billion towards expansions¹.

Midstream companies provide the critical infrastructure needed to connect NGL supply with demand from by petrochemical facilities.

“The petrochemical industry remains a pillar of growth over the forecast period. Ethane, LPG and naphtha together account for 70% of the projected increase in oil product demand to 2026.”

– The International Energy Agency²



Sources:

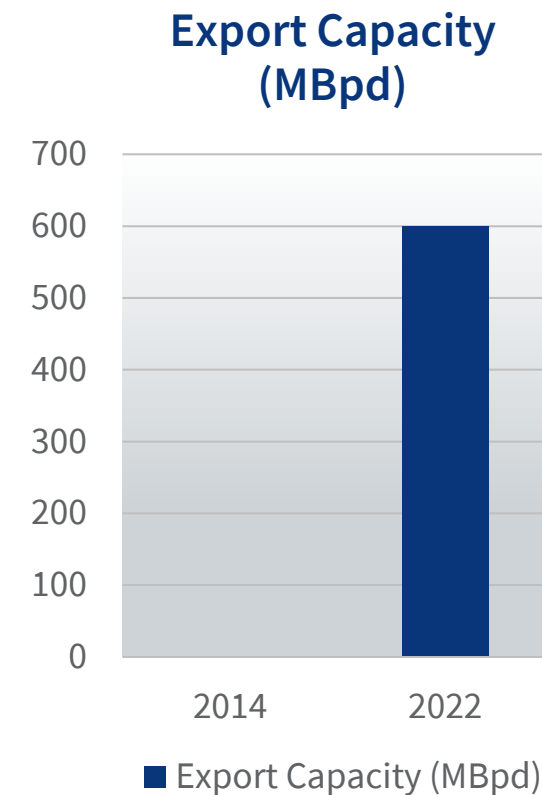
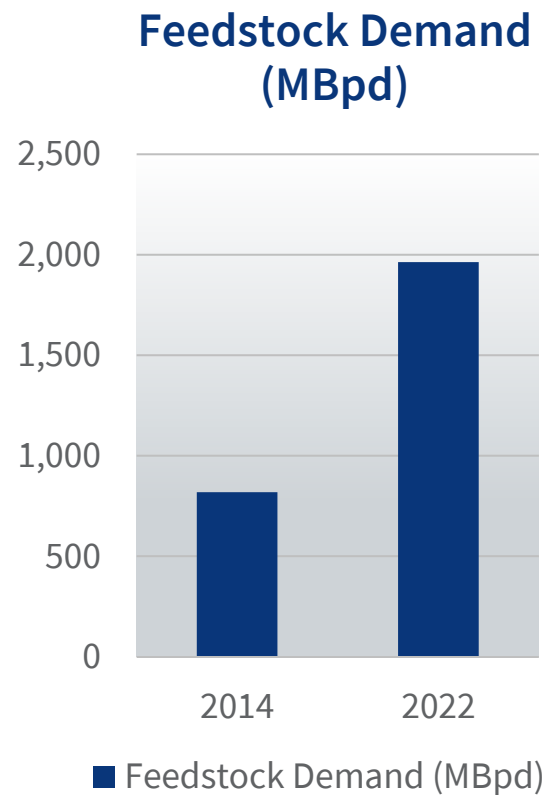
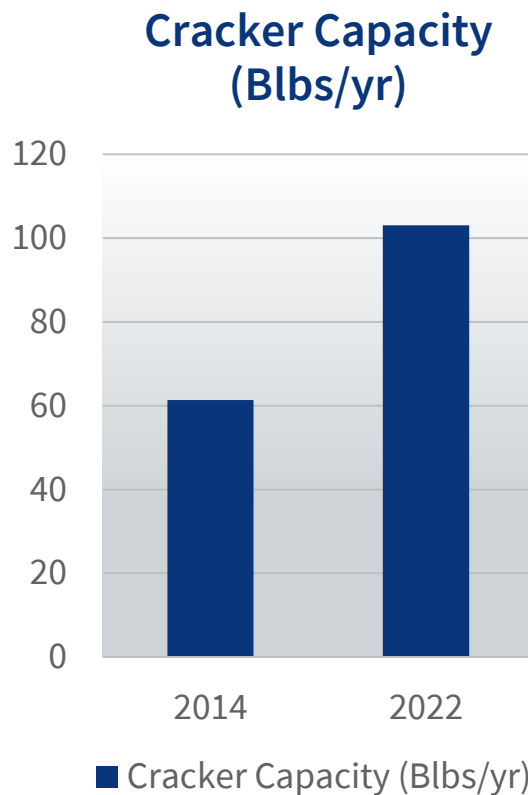
(1) American Chemistry Council, *U.S. Chemical Trade By the Numbers*, August 2022.

(2) IEA, *Oil 2021*, March 2021.



As a result of advantaged U.S. ethane, petrochemical companies added ~40 billion pounds per year (Blbs/yr) of capacity equating to more than 1 MMBpd of incremental ethane demand.

Ship-based export capacity went from non-existent before 2016 to more than 600 MBpd in 2022 as more international petrochemical companies have gained confidence in long term cost advantage of U.S. based ethane.



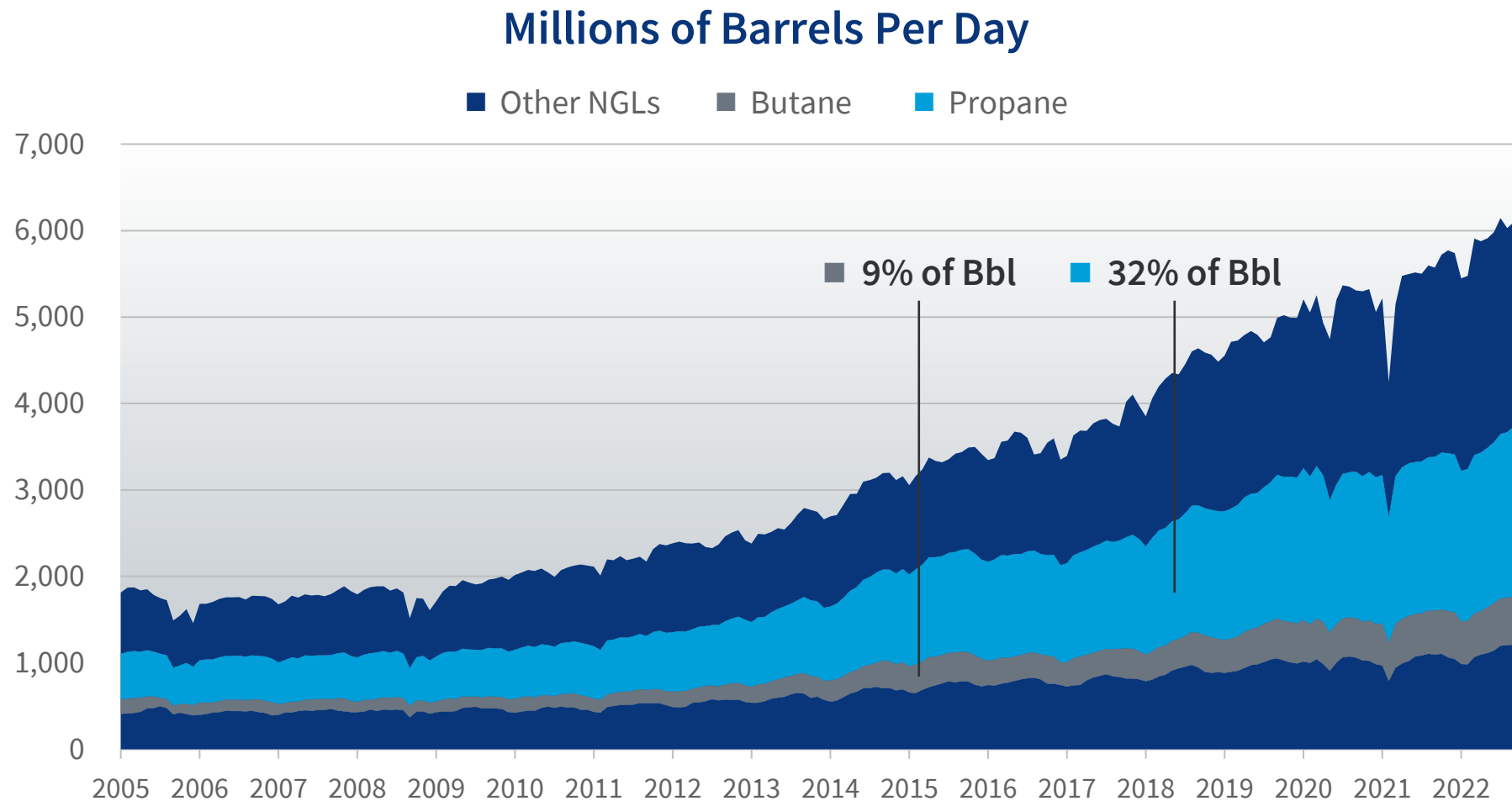
Source: U.S. Energy Information Administration (EIA), Wells Fargo NGL Snapshot, CCM



Since 2005, Propane and Butane, which are collectively known as liquified petroleum gas or LPGs, have also grown at an ~8% annual CAGR to 1.9 MMBpd and 0.5 MMBpd, respectively.

Propane makes up ~32% of the NGL barrel while Butane comprises another 9%.

LPGs are primarily used as a petrochemical feedstock, for power generation, and as a fuel for heating and cooking.



Source: U.S. Energy Information Administration (EIA), CCM

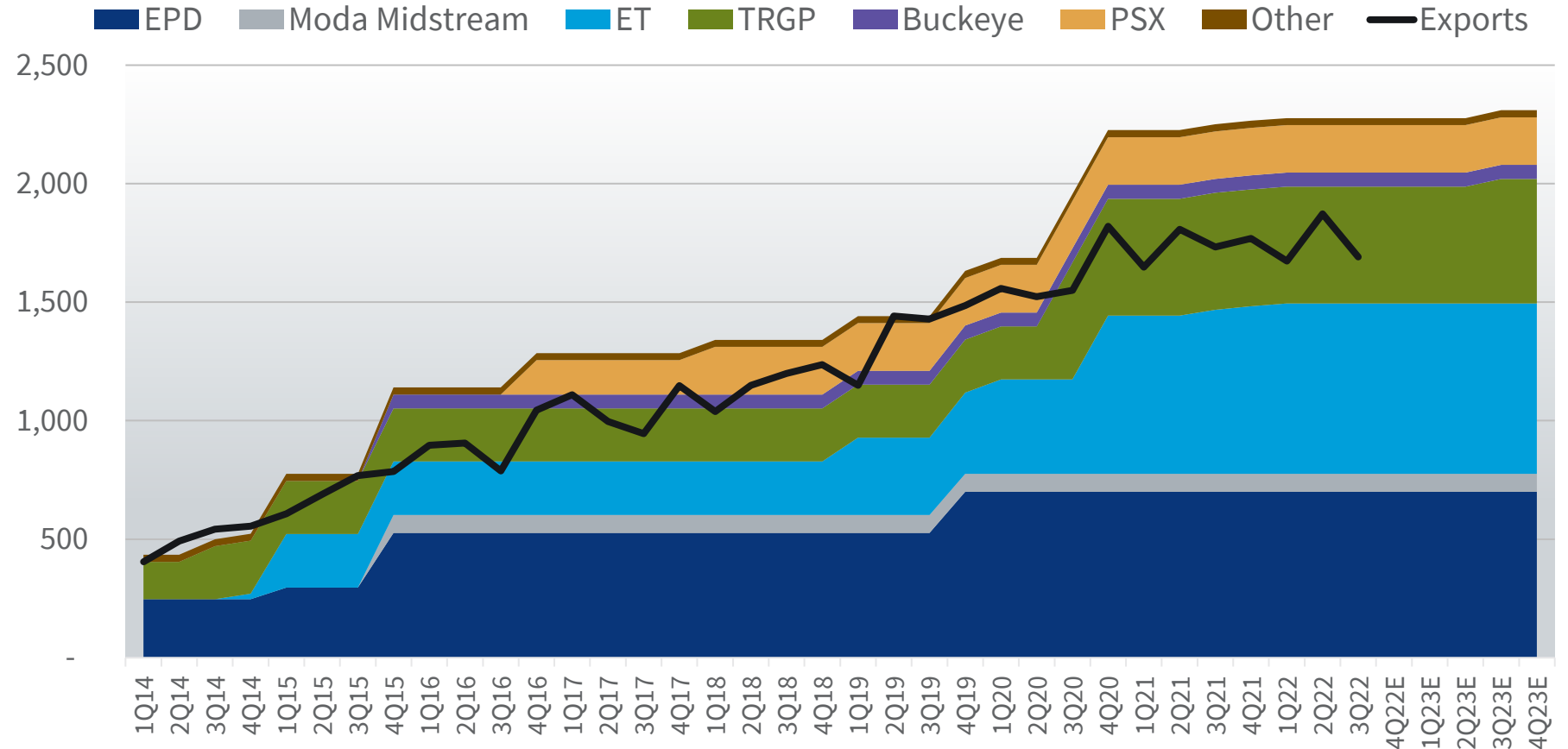


Domestic LPG demand has been consistent at 1.1 MMBpd over the past decade. The petro-chemical sector represents 36% of demand, and 58% is for seasonal heating and crop drying demand.

Supply brought on by the shale revolution has outpaced demand and has allowed U.S. companies to further develop export markets. Since 2014 midstream companies have more than quadrupled their dock capacity to facilitate this expansion.

Source: Company Filings, Wells Fargo NGL Snapshot, CCM

Thousands of Barrels Per Day

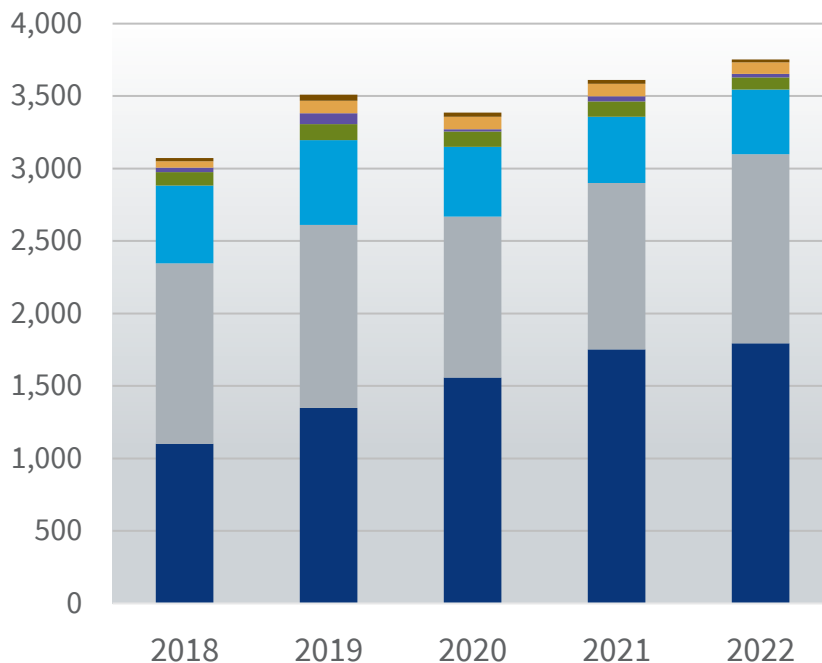




The U.S. is the world's largest LPG exporter and has supplied the vast majority of all the incremental global demand growth since 2018.

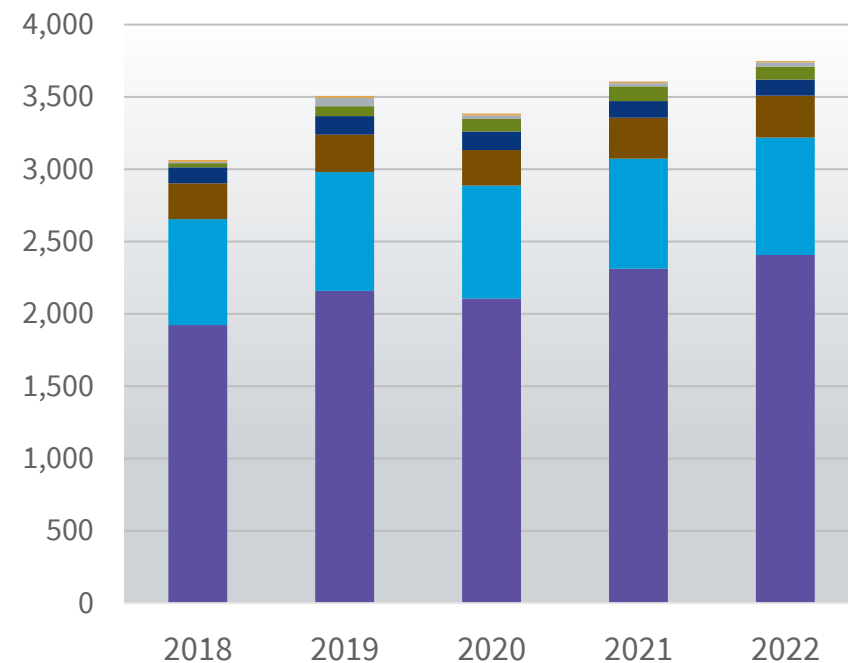
Asia is the world's primary source of LPG demand and accounts for well over 1/2 of the waterborne trade. Growth in Asia has been tied to population growth seeking cleaner burning heat sources as well as significant investment by the petrochemical sector, particularly in China.

Waterborne Supply



■ North America ■ Middle East ■ Europe
■ Africa ■ Asia ■ Australia
■ South America

Waterborne Demand



■ Asia ■ Europe ■ South America
■ North America ■ Africa ■ Middle East
■ Australia

Source: Wells Fargo, "NGL Snapshot", October 21, 2022

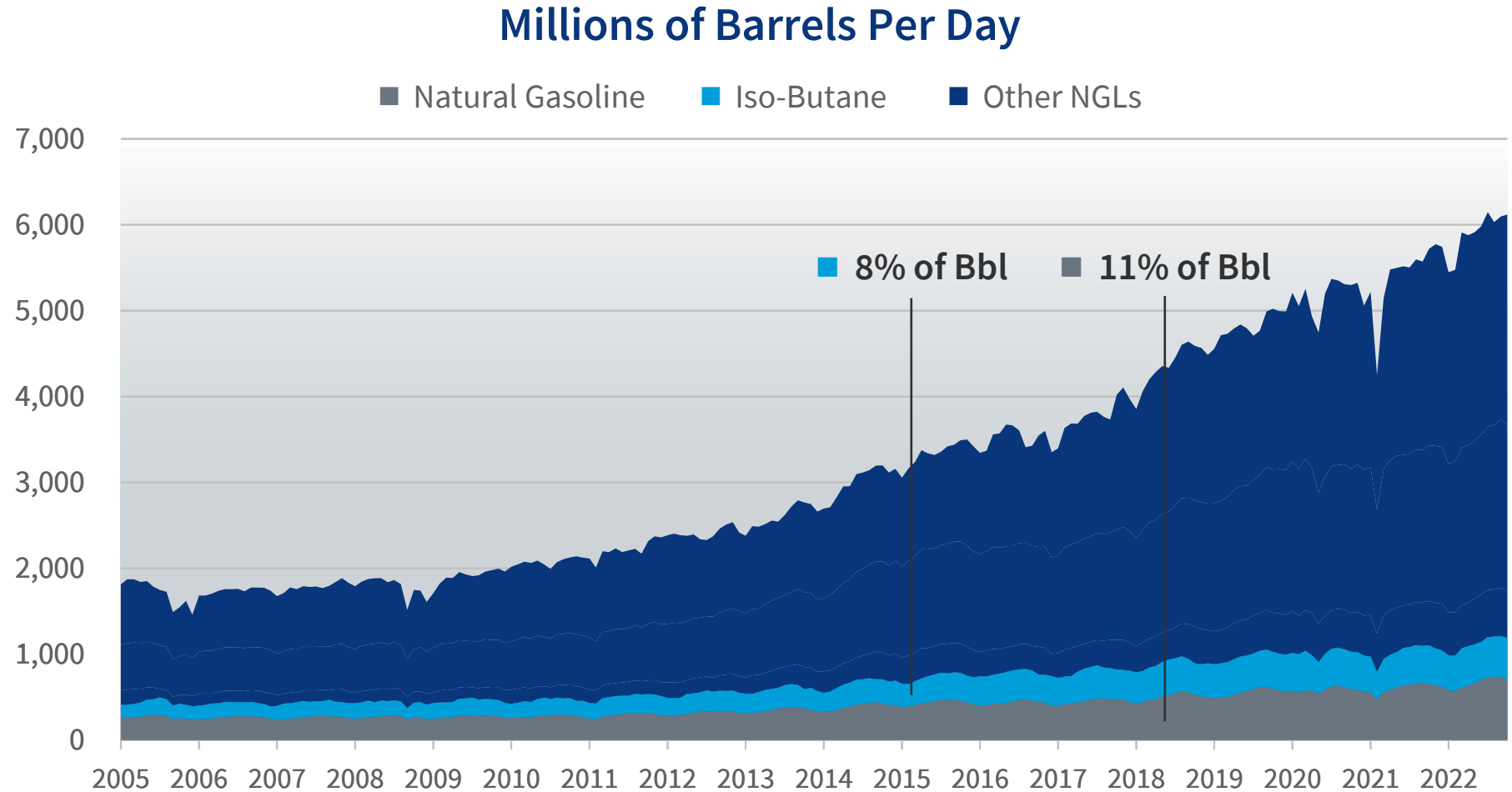


Since 2005, Iso-Butane and Natural Gasoline have also grown at a ~6% annual CAGR to 450 MBpd and 670 MBpd respectively.

Iso-Butane makes up ~8% of the NGL barrel while Natural Gasoline comprises the remaining 11%.

Iso-Butane and Natural Gasoline are primarily used in various refinery processes, and Natural Gasoline is also used as a diluent to enable Canadian heavy crude to flow through pipelines.

Source: U.S. Energy Information Administration (EIA), CCM



The Evolution of Midstream Energy
Infrastructure: Poised for the Transition

EPISODE 5

Natural Gas Liquids (NGLs) Market Overview

MARCH 2023

CONFIDENTIAL

Disclosures

This video presentation was recorded in March 2023 and may not be copied, distributed, published or reproduced in any form in whole or in part. This video presentation was prepared for discussion and illustrative purposes only and should not be construed as investment advice or an offer, solicitation or recommendation to buy or sell any security, product or service. Current and future holdings are subject to numerous risks, and past performance does not guarantee future results. Investments in securities will not always be profitable and investors may lose money, including principal. Chickasaw Capital Management gives no guarantees with respect to the success of its investment management services and has not authorized any person to represent or guarantee any particular investment results.

Securities identified do not represent all of the securities purchased, sold or recommended to advisory clients.

Any views or opinions expressed by the speakers are subject to change any time without notice based upon market or other conditions. Chickasaw Capital Management disclaims any responsibility to update such views. These views should not be relied on as investment advice and, because investment decisions are based on numerous factors, may not be relied on as an indication of trading intent on behalf of any Chickasaw Capital Management product. Chickasaw Capital Management cannot be held responsible for any direct or indirect loss incurred by applying any of the information presented.

Chickasaw Capital Management does not provide legal, tax or accounting advice. Any statement contained in this communication concerning U.S. tax matters is not intended to be used, and cannot be used, for the purpose of avoiding penalties imposed on the relevant taxpayer. Clients of Chickasaw Capital Management should obtain their own independent tax advice based on their particular circumstances.

Further information can be found at www.chickasawcap.com. Copyright by Chickasaw Capital Management 2023. All rights reserved.

Additional Information

Chickasaw Capital Management, LLC gives no guarantees with respect to the success of its investment management services and has not authorized any person to represent or guarantee any particular investment results. Any historical data provided herein are solely for the purpose of illustrating past performance and not as a representation or prediction that such performance could or will be achieved in the future. Securities are subject to numerous risks, including market, currency, economic, political and business risks. Investments in securities will not always be profitable, and investors may lose money, including principal. Past performance is no guarantee of future results.

Chickasaw Capital Management, LLC does not provide legal, tax or accounting advice. Any statement contained in this communication concerning U.S. tax matters is not intended or written to be used, and cannot be used, for the purpose of avoiding penalties imposed on the relevant taxpayer. Clients of Chickasaw Capital Management, LLC should obtain their own independent tax advice based on their particular circumstances. Opinions expressed are current opinions as of the date appearing in this material only. The information herein is subject to change without notice. No part of this material may be copied, photocopied or duplicated in any form, by any means, or redistributed without the prior written consent of Chickasaw Capital Management, LLC.

Certain information herein may be obtained from sources which we consider reliable, but we have not independently verified such information. We do not represent that such information is accurate or complete, and it should not be relied upon as such.

Blbs is billion pounds.

CAGR is compound annual growth rate.

MBpd is thousand barrels per day.

MMBpd is million barrels per day

LPG is liquefied petroleum gas.

NGL is natural gas liquids.

This material is provided for informational and educational purposes only and should not be construed as investment advice or an offer or solicitation to buy or sell any security, product or service.

PAST PERFORMANCE DOES NOT GUARANTEE FUTURE RESULTS