ENERGY LOGISTICS & DISTRIBUTION

Industry In-Sight™

FALL/WINTER 2022




JORDAN KNAUFF & COMPANY

ENERGY EQUIPMENT & INFRASTRUCTURE ALLIANCE

The Voice of the Energy Supply Chain

ENERGYBUILDERS

IN THIS REPORT

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

All charts in this report are updated to the latest information available at the time of publication. Due to differing reporting dates for various data used throughout the report, all charts are not updated to the same ending period.

INTRODUCTION ... About This Report

We are pleased to offer this periodic report which provides a comprehensive compilation of energy information, insights and data. It aggregates critical planning and forecasting information from a myriad of sources into one resource for energy supply chain analysts and decision-makers.

The energy supply chain is an increasingly complex network of upstream, midstream and downstream providers of construction, equipment, materials and services. As shale gas-oil and renewable energy continue to expand in the U.S., additional infrastructure is needed to connect the new sources to the current network of pipelines, storage and transmission stations. Current and new members of the supply chain will need to expand in order to build and service the additional infrastructure.

We define the Energy Logistics & Distribution Industry as any energy production, transportation and storage activities that take place from the well-head to the refinery or gas processing plant through delivery to the end user. Industry members include: producers and distributors of oil and natural gas, natural gas liquids, refined fuels and propane; energy storage and pipeline operators; oil and gas field services; producers and distributors of lubricants, oils, greases and fluids; service contractors, capital equipment manufacturers; materials suppliers; as well as logistics, transportation and maintenance providers.

Segments covered in this Industry In-Sight™ include:

- Crude oil and refined products, natural gas, liquefied natural gas (LNG), natural gas liquids including propane and heating/fuel oil, as well as drilling activity.
- Renewables, including solar, wind, hydropower and ethanol.
- Logistics, including storage and terminals, pipelines, trucking, shipping and rail.
- Economic and financial data pertinent to the Energy Logistics & Distribution Industry.

It is our intention that this publication will provide value in the following areas:

- **Aggregate Information** – The Data Center provides comprehensive statistics on the Energy Logistics & Distribution Industry including, among others: prices (domestic and international), production, consumption, inventory, imports/exports, LNG terminals, drilling activity, solar and wind capacities, energy consumption by sector and source, tank and underground storage capacities and utilization, pipeline mileage and trucking conditions. In all, the report offers more than 70 individual charts covering these topics and more. All charts in this report are updated to the latest information available at the time of publication.
- **Input to Business Decisions** – As a relevant and informative reference for use when contemplating decisions that will have a meaningful impact on your business. Accordingly, we welcome any input, feedback and suggestions to help us include meaningful and timely topical content in future publications. We especially would like to receive suggestions for ideas on Hot Topics in the Energy Logistics & Distribution Industry.
- **Identification of Opportunities** – The breadth of information provided will enable owners and operators of energy logistics businesses to track developments in energy segments outside of their day-to-day focus.
- **Public and Transaction Comparables by Segment** – This section provides the tracking of a cross-section of publicly-traded companies and transactions in various segments of the Energy Logistics & Distribution Industry. The data include operating metrics, such as revenues and EBITDA (earnings before interest, taxes, depreciation and amortization); and valuation analyses such as total enterprise value / latest twelve months revenues and total enterprise value / latest twelve months EBITDA.

Thank you for taking the time to review this Energy Logistics & Distribution Industry In-Sight™. Our goal is to provide the most comprehensive and beneficial information possible. Please forward your feedback and suggestions to any member of the Jordan Knauff & Company or Energy Equipment & Infrastructure Alliance team members listed on the last two pages of this report.

INTRODUCTION

Who is the Energy Equipment & Infrastructure Alliance (EEIA)?

EEIA ... The Voice of the Energy Supply Chain

The energy supply chain is over 120,000 companies in sixty industries, annually contributing more than $170 billion to the U.S. economy, with hundreds of thousands of workers in communities throughout every state of the union. They provide construction, well services, capital equipment, supplies, logistics, professional services and technology in support of energy operations. They build energy infrastructure including production sites, transmission infrastructure, pipelines, storage facilities, processing plants and export terminals.

The shale energy revolution is transforming prosperity, security and quality of life in America. In a few short years, it has brought rising employment, income and opportunity to workers and businesses of all sizes and in all fifty states, often to communities that until recently have known limited prospects for growth. It has given Americans a cleaner environment, lower energy costs, renewed national competitiveness and energy security.

Creating a supportive public and policymaker environment for this miracle depends on active public engagement by energy supply chain stakeholders -- the non-oil and gas companies where energy-driven jobs and opportunities are greatest.

EEIA is that voice. EEIA mobilizes and leads the North American supply chain in pursuit of government policies that support full development of our energy resources, while protecting public health, safety and the environment. It also works for widespread public support for energy development.

EEIA is active on all fronts: federal and state legislative, regulatory, judicial and public opinion. Its strength is based upon the supply chain's enormous fifty-state contributions to jobs, economic growth and community prosperity. EEIA conducts economic research that measures and reports the facts about the energy supply chain's tremendous contributions to the American economy.

EEIA is an organization of leading supply chain companies, trade associations and labor organizations. It is the voice of the businesses and workers of America's energy miracle.




INTRODUCTION

Who is Jordan Knauff & Company (JKC)?

JKC was founded in 2001 to undertake a distinct mission: to assemble and maintain a staff of top-notch investment banking personnel and offer their knowledge and experience to provide the best available investment banking services to middle-market companies, the entrepreneurs that lead them and the financial entities that transact with them. JKC has been active within the Energy Logistics & Distribution Industry as operators, investors, board members and investment bankers prior to the firm's founding in 2001.

On a combined basis, over the course of their careers our employees have completed over 200 transactions as investors, owners, operators, buyers, sellers and investment bankers of middle-market businesses across a variety of industries. The majority of our firm's broad transaction experience has been with private companies owned by one shareholder, a partnership, a family or private equity investors.

Experience has taught us that the owners and executives of middle-market businesses tend to have very different needs and goals in capital transactions from those that are common to capital events related to larger companies. Our personnel apply their considerable expertise to accomplish important goals: delivery of successful outcomes for our clients. Pursuant to that, we direct and manage all aspects of the capital transaction process, assist our clients with the management of important constituents (employees, customers, vendors and lenders), act as a teammate to other important client advisors (legal counsel, accountant, tax advisor) and collaborate with transaction counsel in the negotiations with the parties on the other side of the transaction.

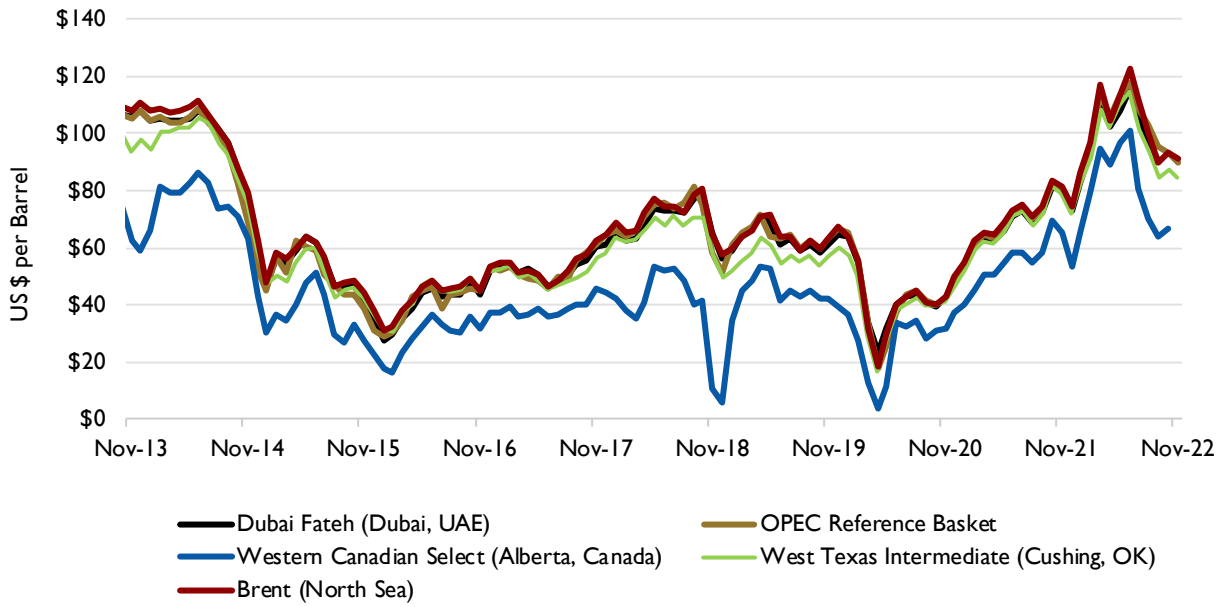
The Services We Provide

- Sell Companies: Generate a liquidity event on behalf of the owner(s) through whole, majority, or minority sale of assets, stock or units.
- Raise Capital: Representation of companies, management teams and entrepreneurs in the raising of senior debt, mezzanine debt or equity capital. Proceeds may be used for a variety of reasons, including, among others, recapitalizations, funding of growth, funding of acquisitions or liquidity for owners and investors.
- Acquisition Advisory: Assistance in sourcing and closing acquisitions -- whether it be a single transaction or a series of acquisitions as part of a consolidation strategy in an Industry Development Project™ (IDP) - a proprietary method for assisting private equity groups, companies or private investors that want to pursue multiple non-auction transactions within a single industry.
- Strategic Business Services: A suite of services for middle-market business owners and executives. Comprised of three components – Company Specific Valuation, Capital Road Map® and Strategic Industry Analysis – these services can be packaged together or used on an à la carte basis.

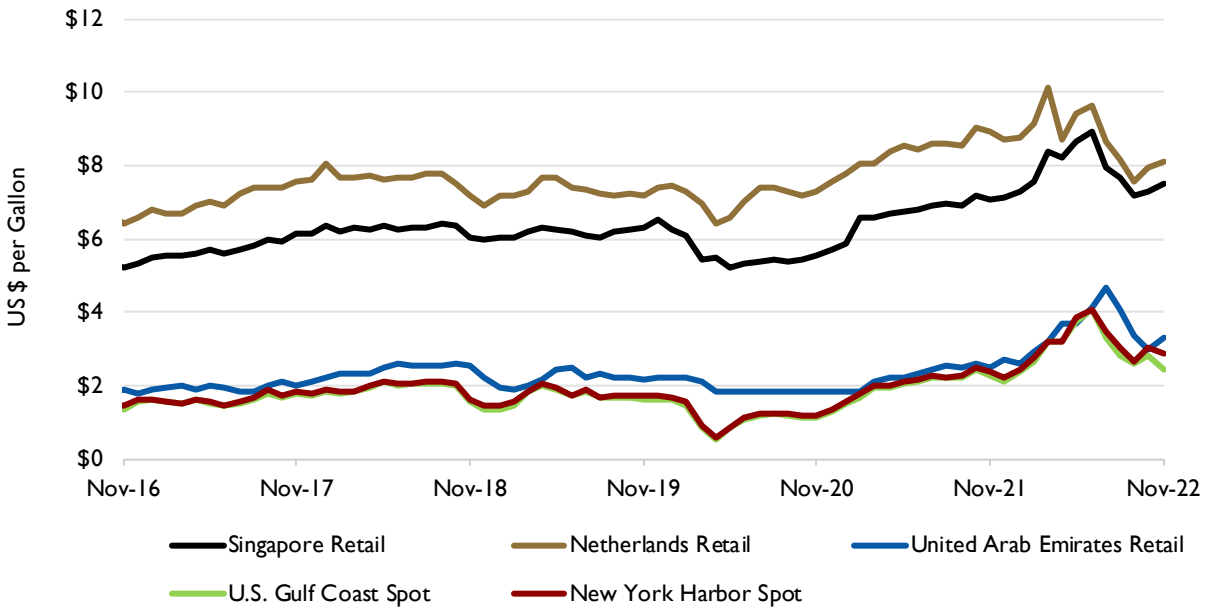
DATA CENTER

OIL

CRUDE OIL PRICES (MONTHLY AVERAGE) (1)



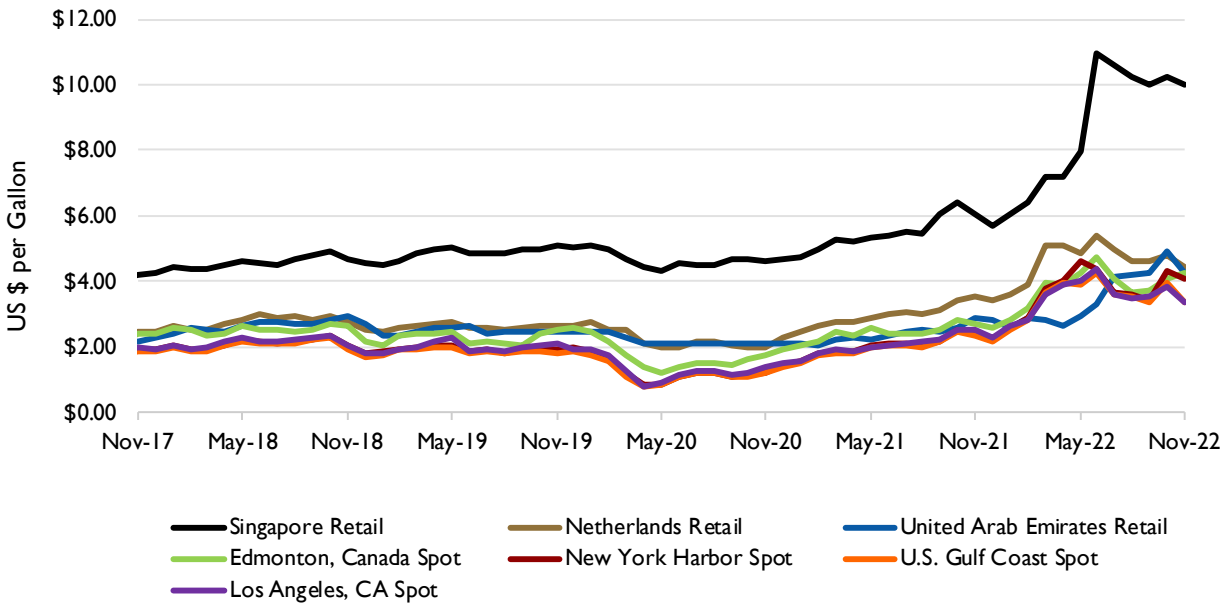
GASOLINE PRICES (MONTHLY AVERAGE) (2)



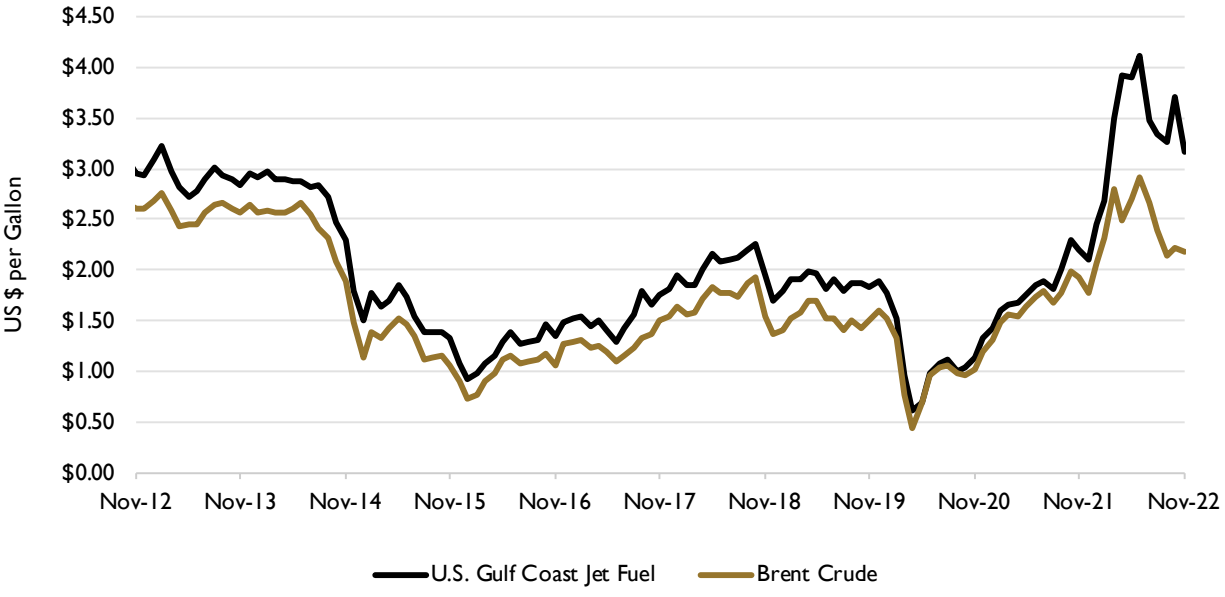
DATA CENTER

OIL

DIESEL PRICES (MONTHLY AVERAGE) (3)



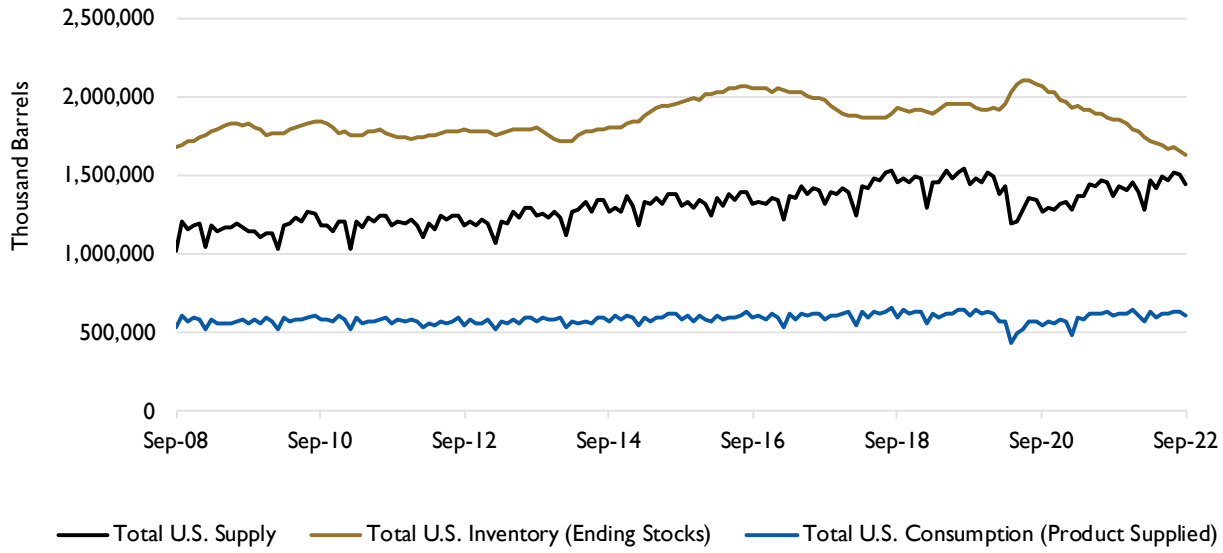
JET FUEL PRICES (MONTHLY AVERAGE) (4)



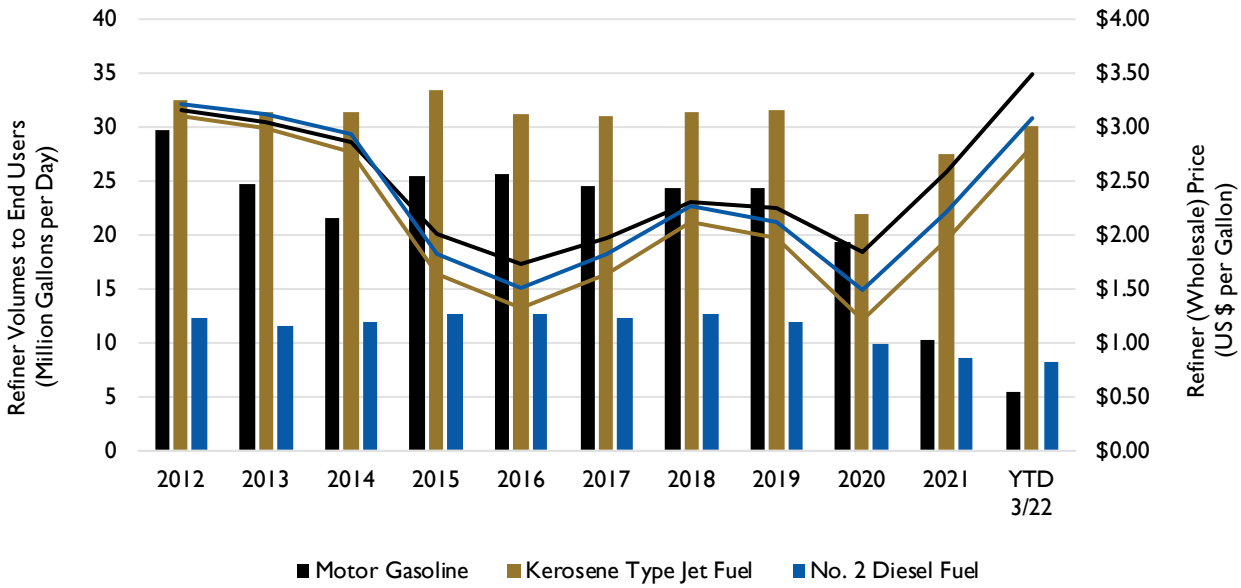
DATA CENTER

OIL

U.S. Crude Oil and Petroleum Products Supply, Inventory and Consumption (Monthly) (5)



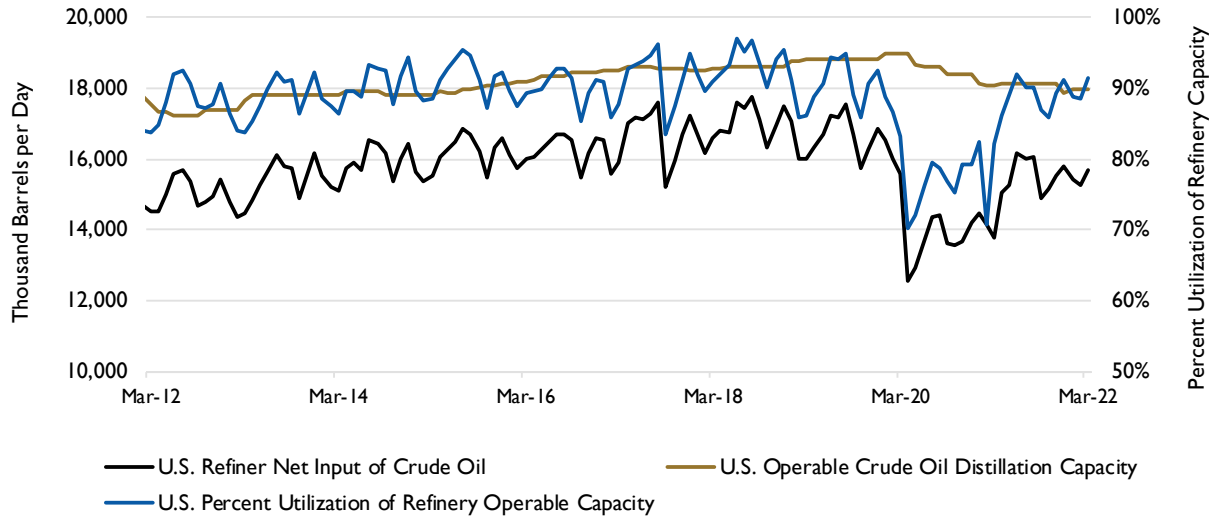
U.S. Refinery Volumes and Wholesale Prices of Petroleum Products (Annual Average) (6)



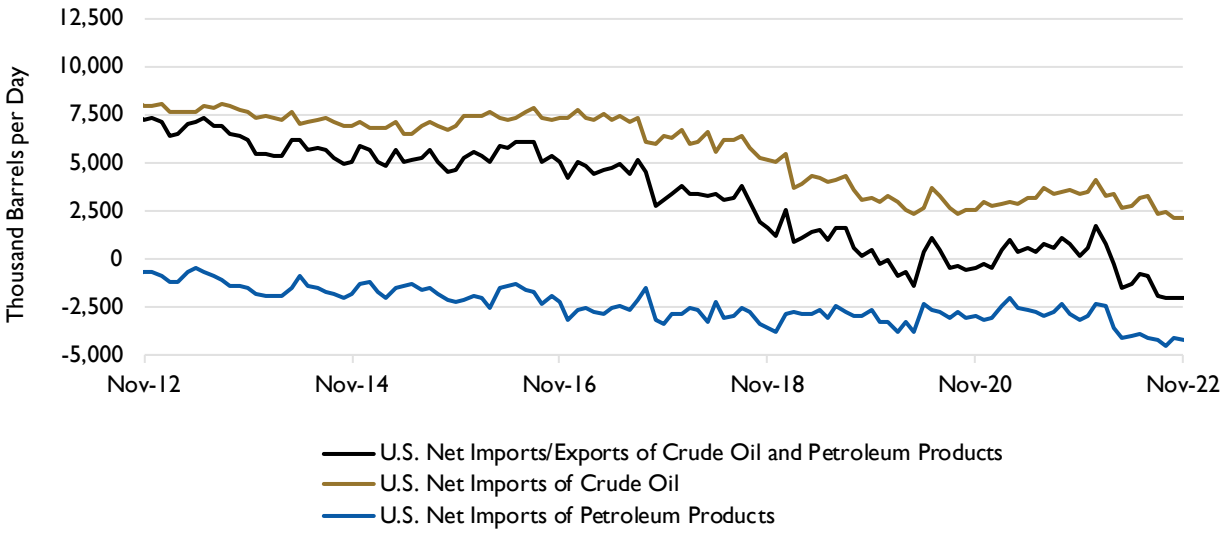
DATA CENTER

OIL

U.S. Crude Oil Refinery Input, Distillation Capacity and Refinery Utilization (Monthly Average) (7)



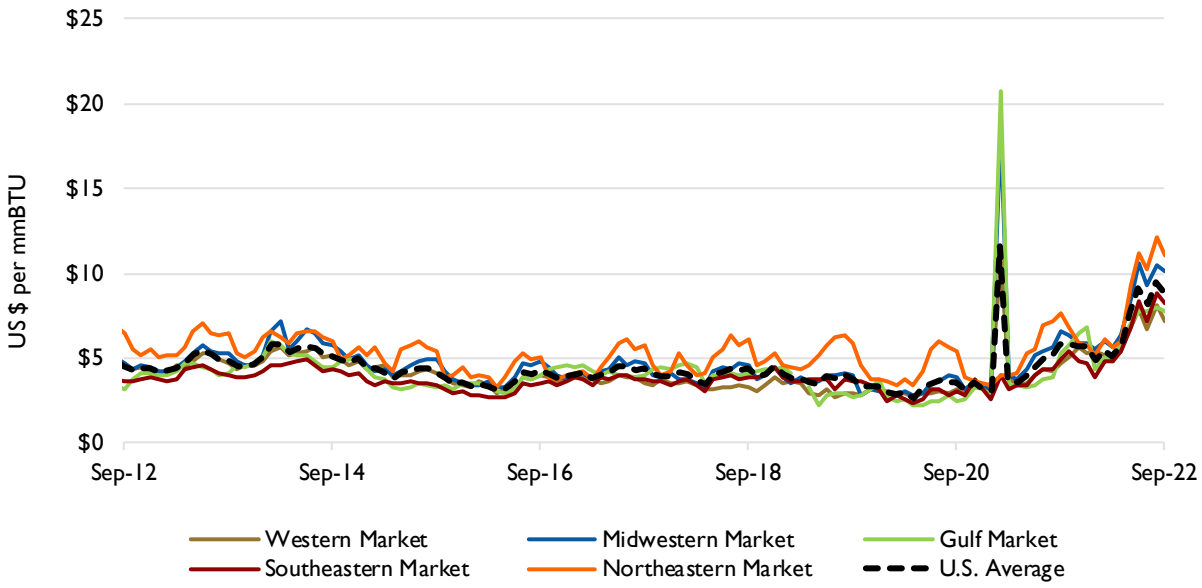
U.S. Crude Oil and Petroleum Products Imports and Exports (Monthly Average) (8)



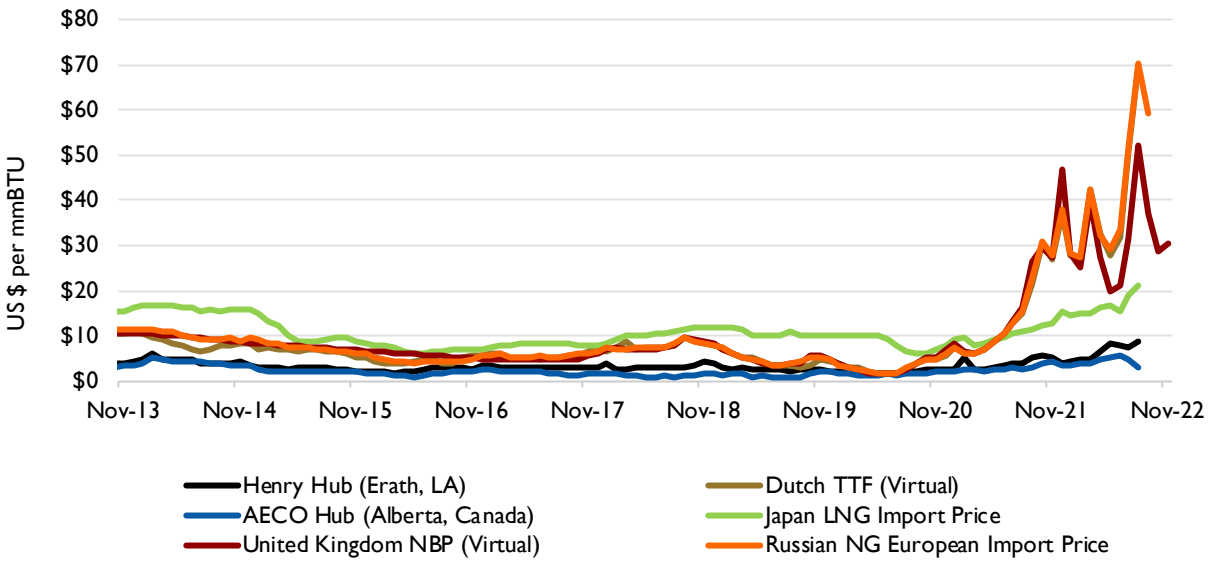
DATA CENTER

NATURAL GAS

DOMESTIC NATURAL GAS CITYGATE PRICES PER REGION (MONTHLY AVERAGE) (9)



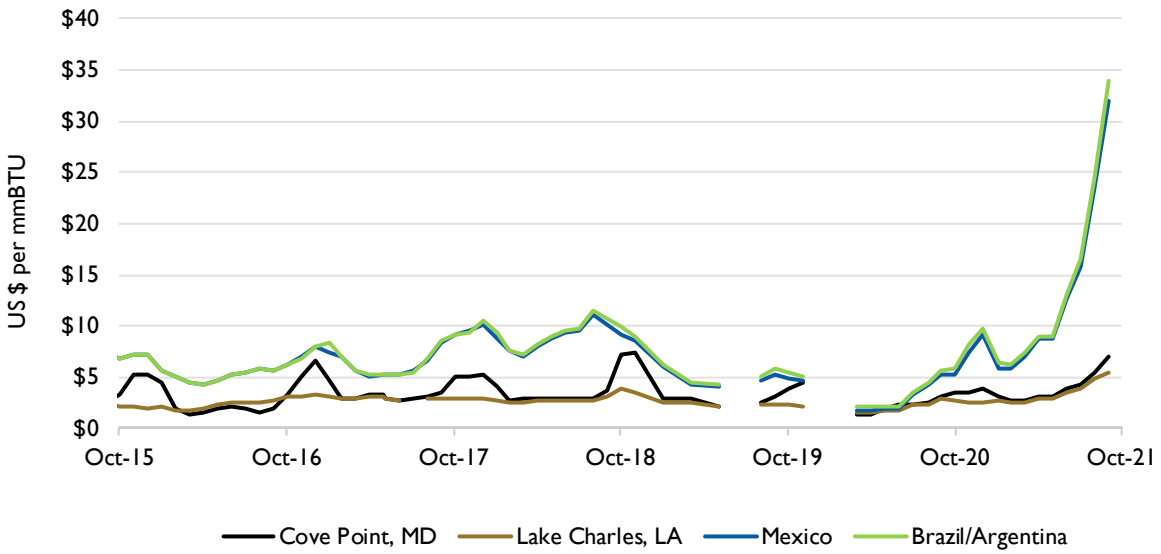
INTERNATIONAL NATURAL GAS PRICES (MONTHLY AVERAGE) (10)



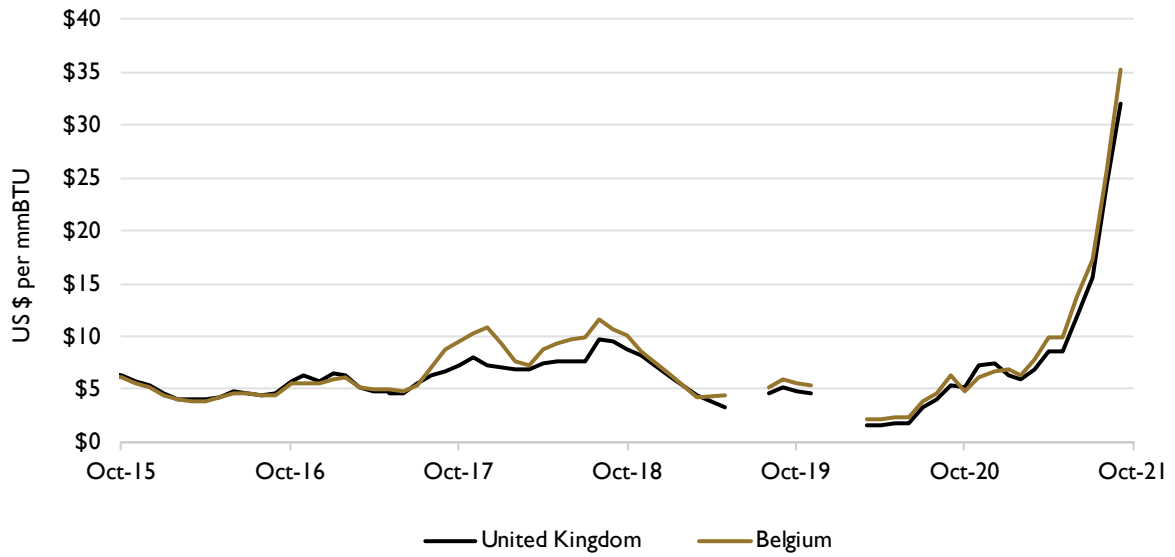
DATA CENTER

NATURAL GAS

AMERICAS LIQUEFIED NATURAL GAS PRICES (MONTHLY AVERAGE) (11)



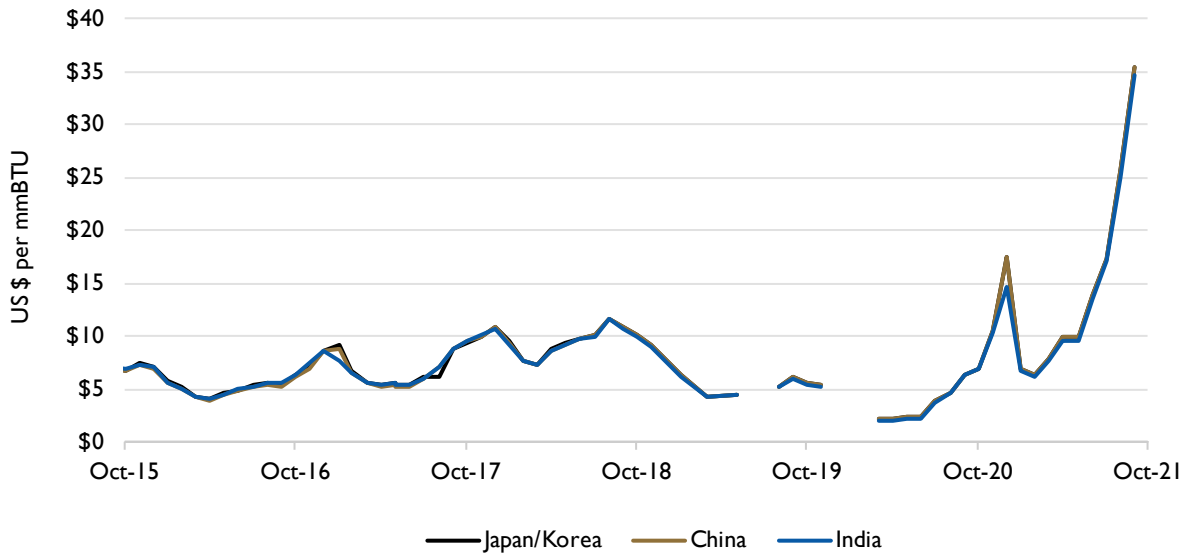
WESTERN EUROPE LIQUEFIED NATURAL GAS PRICES (MONTHLY AVERAGE) (12)



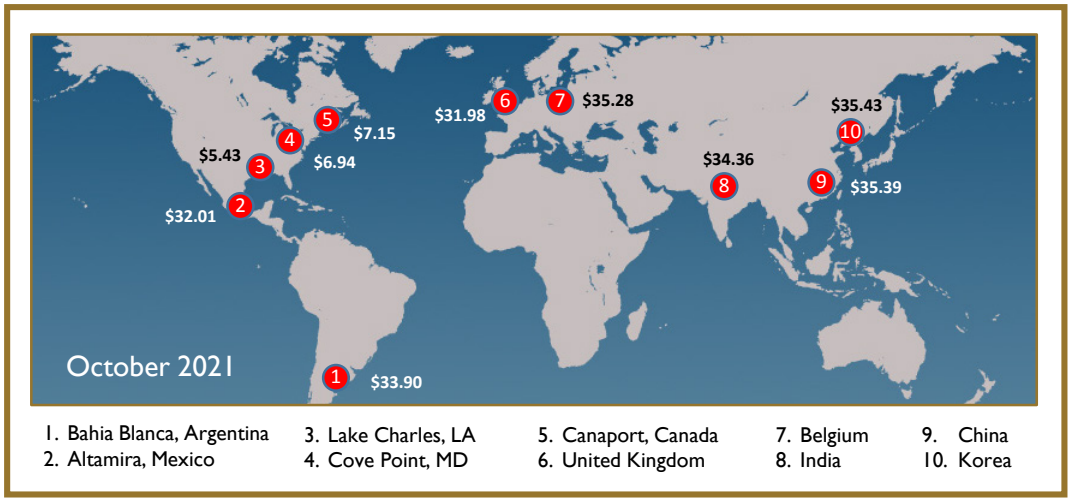
DATA CENTER

NATURAL GAS

ASIA LIQUEFIED NATURAL GAS PRICES (MONTHLY AVERAGE) (13)



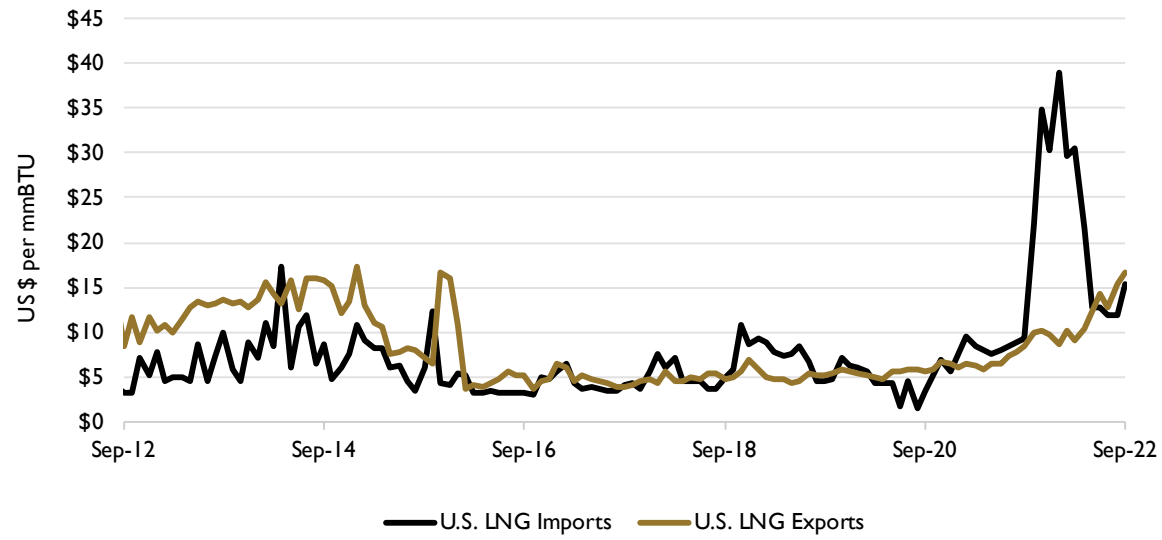
WORLD LIQUEFIED NATURAL GAS PRICES MAP (MONTHLY AVERAGE) (14)



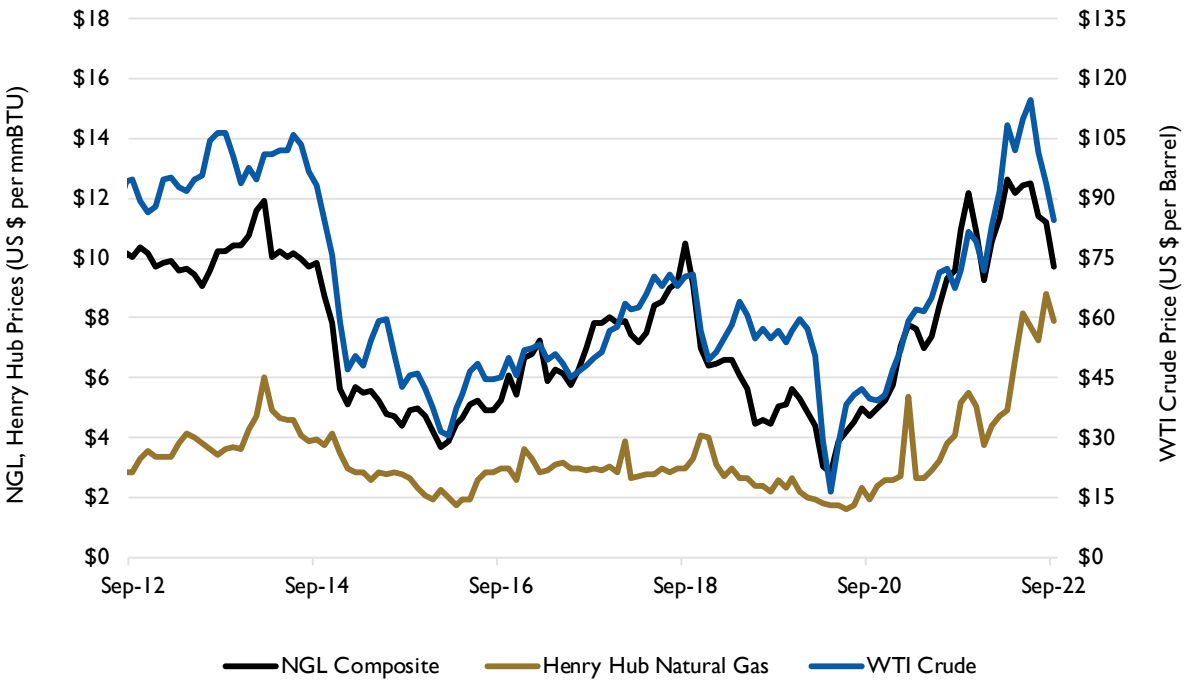
DATA CENTER

NATURAL GAS

U.S. IMPORT / EXPORT LIQUEFIED NATURAL GAS PRICES (MONTHLY AVERAGE) (15)



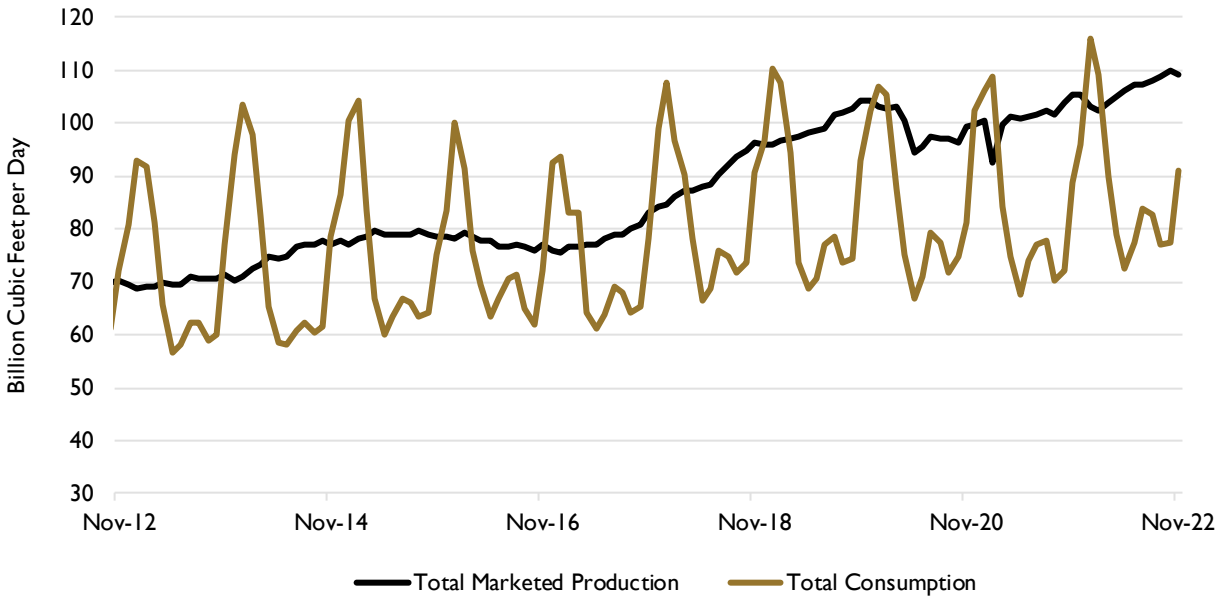
NATURAL GAS PLANT LIQUIDS PRICES (MONTHLY AVERAGE) (16)



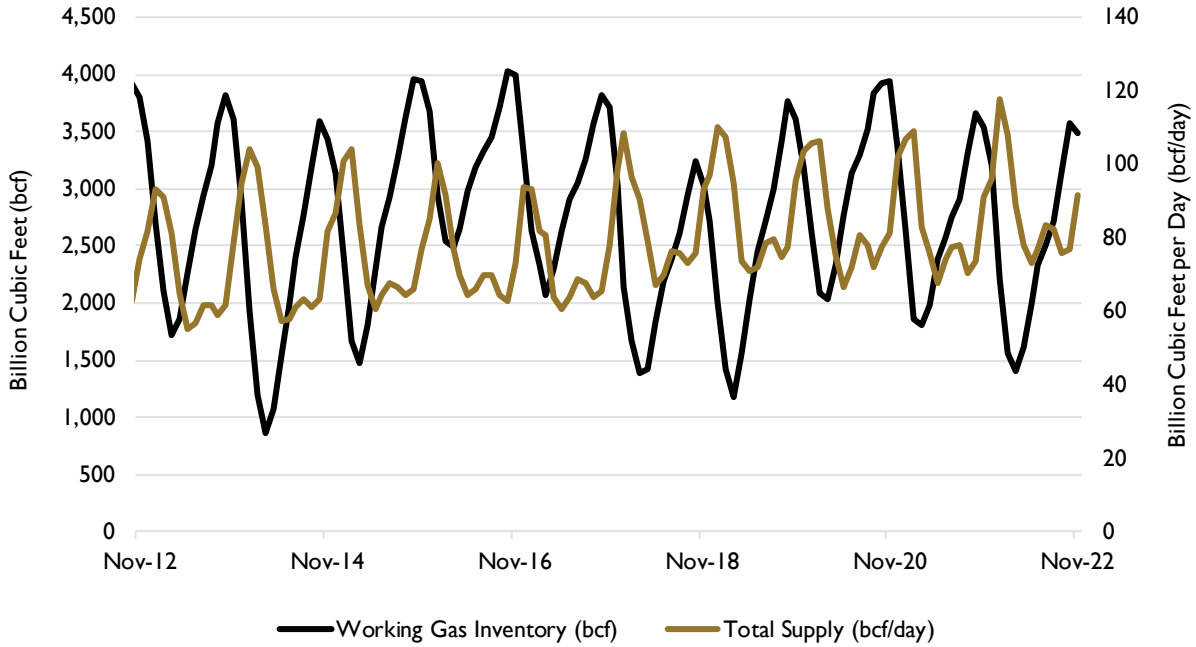
DATA CENTER

NATURAL GAS

U.S. Natural Gas Production and Consumption (Monthly) (17)



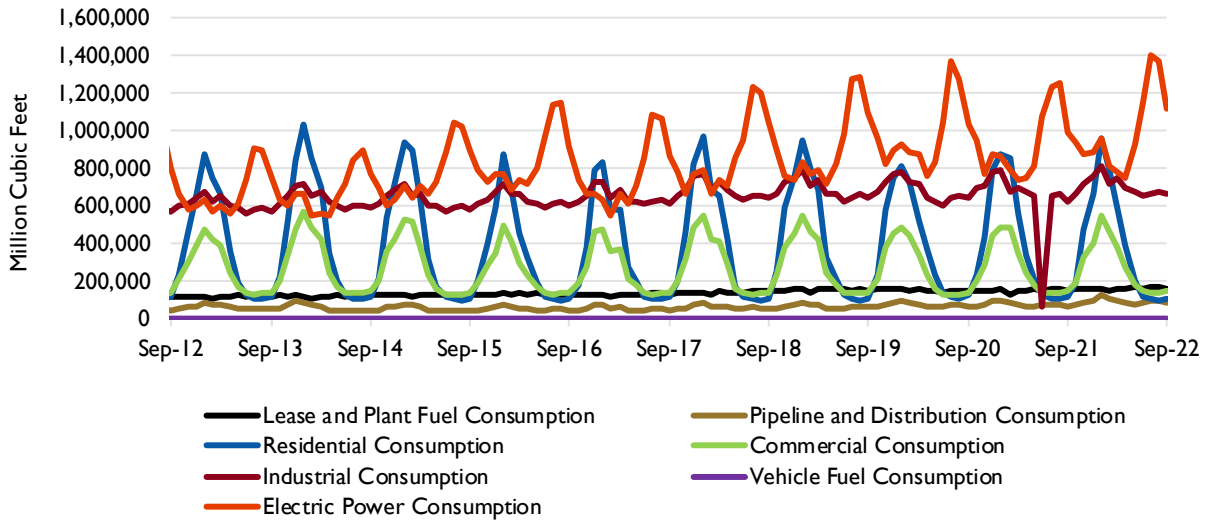
U.S. Natural Gas Supply and Inventory (Monthly) (18)



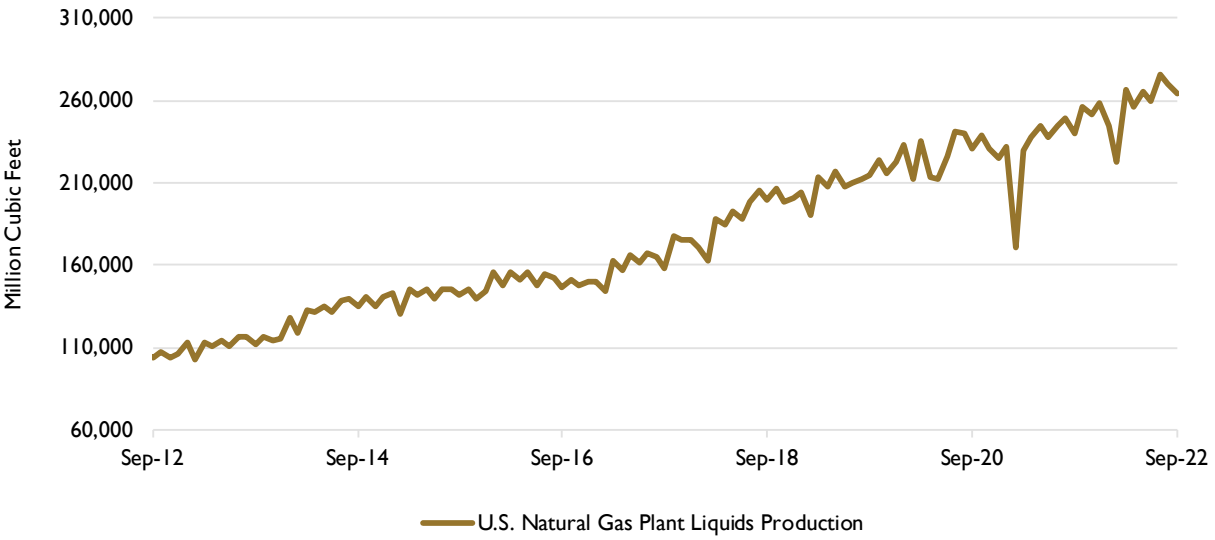
DATA CENTER

NATURAL GAS

U.S. NATURAL GAS CONSUMPTION BY END USE (MONTHLY) (19)



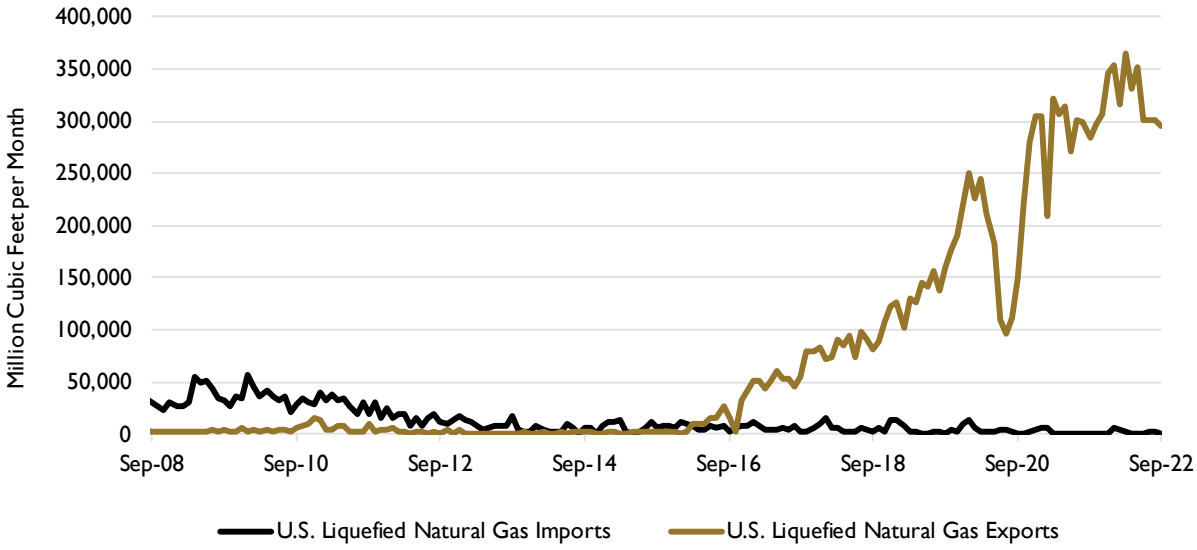
U.S. NATURAL GAS PLANT LIQUIDS PRODUCTION (MONTHLY) (20)



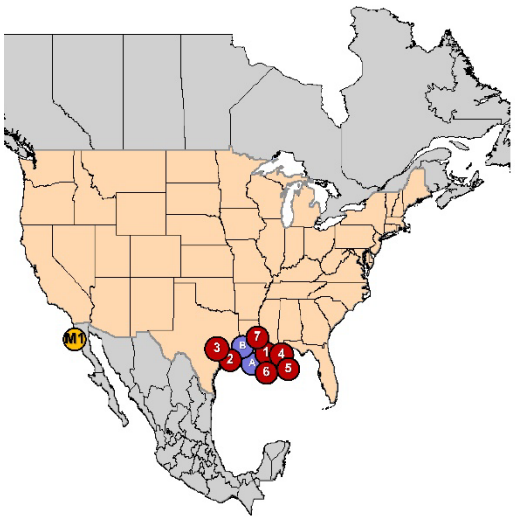
DATA CENTER

NATURAL GAS

U.S. LIQUEFIED NATURAL GAS IMPORT AND EXPORT VOLUMES (MONTHLY) (21)



NORTH AMERICAN LNG EXPORT TERMINALS – *PROPOSED* (22)



UNITED STATES

PROPOSED TO FERC
Pending Applications:
1. **Cameron Parish, LA:** 1.18 Bcfd (Commonwealth, LNG) (CP19-502)
2. **Port Arthur, TX:** 1.86 Bcfd (Sempra - Port Arthur LNG Trains 3 & 4) (CP20-55)
3. **Freeport, TX:** 0.24 Bcfd (Freeport LNG uprate) (CP21-470
4. **Cameron Parish, LA:** 1.45 Bcfd (Venture Global CP2 Blocks 1-9) (CP22-21)
5. **Cameron Parish, LA:** .057 Bcfd (Venture Global Calcasieu Pass) (CP22-25)
6. **Hackberry, LA:** -0.45 Bcfd (Sempra - Cameron LNG Vacate T5 & modify T4) (CP22-41)
7. **Plaquemines Parish, LA:** 0.45 Bcfd (Venture Global Plaquemines) (CP22-92)

Projects in Pre-filing:
A. LaFourche Parish, LA: 0.65 Bcfd (Port Fourchon LNG) (PF17-9)
B. Plaquemines Parish, LA: 2.76 Bcfd (Delta LNG - Venture Global) (PF19-4)

CANADA
For Canadian LNG Import and Proposed Export Facilities:

https://www.nrcan.gc.ca/energy/natural-gas/5683

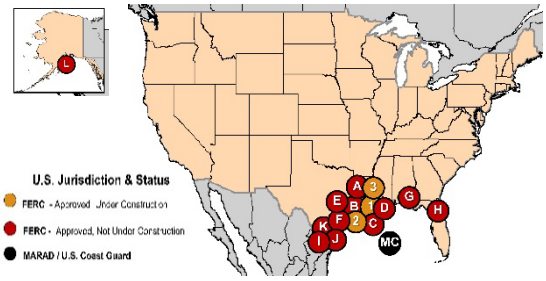
MEXICO (Projects in advanced planning/development stages)
M1. Baja California, MX: 0.4 Bcfd (Sempra – Energía Costa Azul Phase 1)

As of December 13, 2022

DATA CENTER

NATURAL GAS

NORTH AMERICAN LNG IMPORT/EXPORT TERMINALS – *APPROVED* (23)



Import Terminals (Not Shown on Map)

UNITED STATES As of December 13, 2022

APPROVED - UNDER CONSTRUCTION - FERC
None

APPROVED – NOT UNDER CONSTRUCTION – FERC
1. Kenai, AK: .007 Bcfd (Trans-Foreland – Kenai LNG) (CP15-521)

APPROVED - NOT UNDER CONSTRUCTION - MARAD/Coast Guard
A. Gulf of Mexico: 1.0 Bcfd (Main Pass Energy Hub)
B. Gulf of Mexico: 1.4 Bcfd (TORP Technology-Bienville LNG)

CANADA
For Canadian LNG Import and Proposed Export Facilities go to:
https://www.nrcan.gc.ca/energy/natural-gas/5683

Export Terminals (Shown on Map)

UNITED STATES As of December 13, 2022

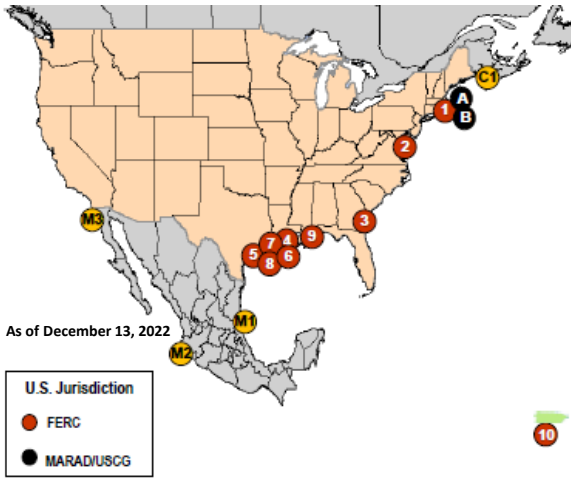
FERC – APPROVED, UNDER CONSTRUCTION
1. Cameron Parish, LA: 0.92 Bcfd (Venture Global Calcasieu Pass Units 5-9) (CP15-550)
2. Sabine Pass, TX: 2.26 Bcfd (ExxonMobil – Golden Pass) (CP14-517, CP20-459)
3. Plaquemines Parish, LA: 3.40 Bcfd (Venture Global Plaquemines) (CP17-66)

FERC – APPROVED, NOT UNDER CONSTRUCTION
A. Lake Charles, LA: 2.2 Bcfd (Lake Charles LNG) (CP14-120)
B. Lake Charles, LA: 1.186 Bcfd (Magnolia LNG) (CP14-347)
C. Hackberry, LA: 1.41 Bcfd (Sempra - Cameron LNG Trains 4 & 5) (CP15-560)
D. Calcasieu Parish, LA: 4.0 Bcfd (Driftwood LNG) (CP17-117)
E. Port Arthur, TX: 1.86 Bcfd (Sempra - Port Arthur LNG Trains 1 & 2) (CP17-20)
F. Freeport, TX: 0.72 Bcfd (Freeport LNG Dev Train 4) (CP17-470)
G. Pascagoula, MS: 1.5 Bcfd (Gulf LNG Liquefaction) (CP15-521)
H. Jacksonville, FL: 0.132 Bcf/d (Eagle LNG Partners) (CP17-41)
I. Brownsville, TX: 0.55 Bcfd (Texas LNG Brownsville) (CP16-116)
J. Brownsville, TX: 3.6 Bcfd (Rio Grande LNG – NextDecade) (CP16-454)
K. Corpus Christi, TX: 1.86 Bcfd (Cheniere Corpus Christi Stage III) (CP18-512)
L. Nikiski, AK: 2.63 Bcfd (Alaska Gasline) (CP17-178)

MARAD/USCG – APPROVED, NOT UNDER CONSTRUCTION
MC. Gulf of Mexico: 1.8 Bcfd (Delfin LNG)

CANADA - LNG IMPORT AND PROPOSED EXPORT FACILITIES
https://www.nrcan.gc.ca/energy/natural-gas/5683

NORTH AMERICAN LNG IMPORT/EXPORT TERMINALS – *EXISTING* (24)



★ Authorized to re-export delivered LNG
★ Added liquefaction and export capabilities (also shown on the LNG Export Terminals Existing map)

Import Terminals (Shown on Map)

UNITED STATES
1. Everett, MA: 1.035 Bcfd (GDF SUEZ - DOMAC)
2. Cove Point, MD: 1.8 Bcfd (Dominion - Cove Point LNG) ★
3. Elba Island, GA: 1.6 Bcfd (El Paso - Southern LNG) ★
4. Lake Charles, LA: 2.1 Bcfd (Southern Union – Corpus Christi LNG) ★
5. Freeport, TX: 1.5 Bcfd (Cheniere/Freeport LNG Dev.) ★★
6. Sabine, LA: 4.0 Bcfd (Cheniere/Sabine Pass LNG) ★★
7. Hackberry, LA: 1.8 Bcfd (Sempra - Cameron LNG) ★
8. Sabine Pass, TX: 2.0 Bcfd (ExxonMobil – Golden Pass) (Phase I & II)
9. Pascagoula, MS: 1.5 Bcfd (El Paso/Crest/Sonangol - Gulf LNG Energy)
10. Peñuelas, PR: 0.3 Bcfd (EcoElectrica)

MARAD/USCG
A. Offshore MA: 0.8 Bcfd (Excelerate Energy – Northeast Gateway)
B. Offshore MA: 0.4 Bcfd (GDF SUEZ – Neptune LNG)

CANADA
C1. Saint John, NB: 1.0 Bcfd (Repsol/Fort Reliance - Canaport LNG)

MEXICO
M1. Altamira, Tamulipas: 0.7 Bcfd (Shell/Total/Mitsui – Altamira LNG)
M2. Baja California, MX: 1.0 Bcfd (Sempra – Energia Costa Azul)
M3. Manzanillo, MX: 0.5 Bcfd (KMS GNL de Manzanillo)

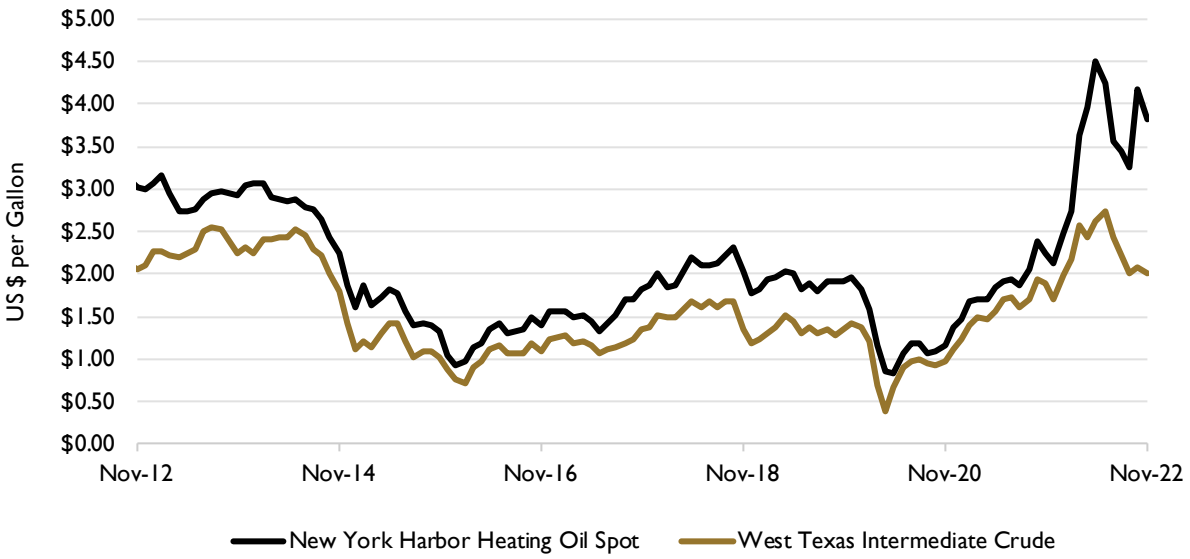
Export Terminals (Not Shown on Map)

1. Kenai, AK: 0.2 Bcfd (Trans-Foreland)
2. Sabine, LA: 4.55 Bcfd (Cheniere/Sabine Pass LNG – Trains 1-6)
3. Cove Point, MD: 0.82 Bcfd (Dominion–Cove Point LNG)
4. Corpus Christi, TX: 2.40 Bcfd (Cheniere – Corpus Christi LNG Trains 1-3)
5. Hackberry, LA: 2.15 Bcfd (Sempra–Cameron LNG, Trains 1-3)
6. Elba Island, GA: 0.35 Bcd (Southern LNG Company Units 1-10)
7. Freeport, TX: 2.14 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction Trains 1-3)
8. Cameron Parish, LA: 0.74 Bcfd (Venture Global Calcasieu Pass Units 1-4)

DATA CENTER

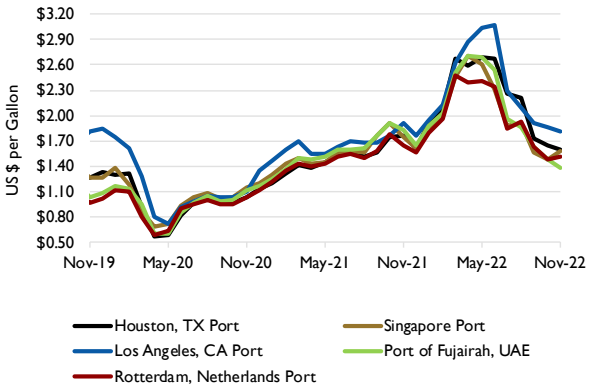
PROPANE AND HEATING/FUEL OIL

HEATING OIL PRICES (MONTHLY AVERAGE) (25)

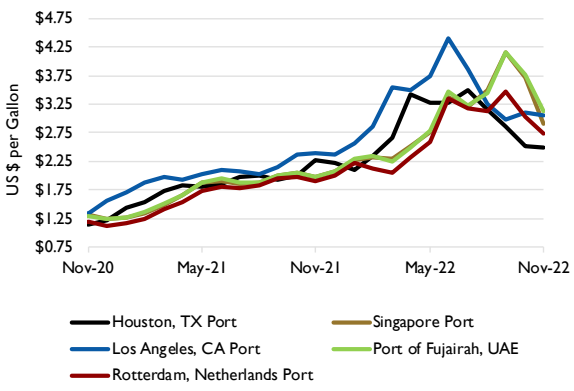


INTERMEDIATE FUEL OIL AKA "BUNKER FUEL" PRICES (MONTHLY AVERAGE) (26)

Intermediate Fuel Oil 380



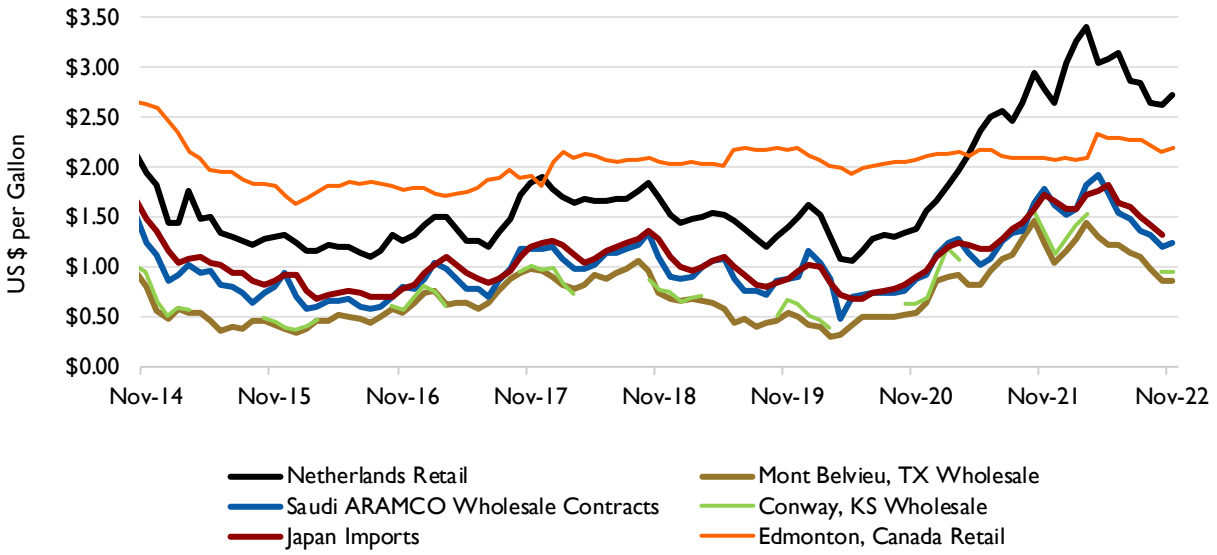
Very Low Sulfur Fuel Oil (VLSFO)



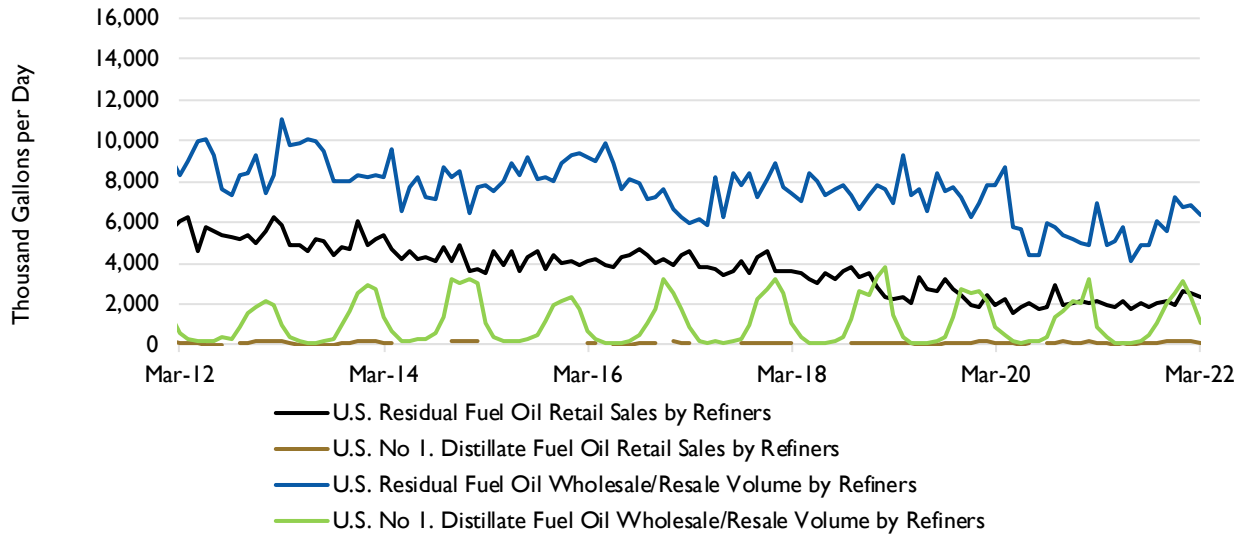
DATA CENTER

PROPANE AND HEATING/FUEL OIL

PROPANE PRICES (MONTHLY AVERAGE) (27)



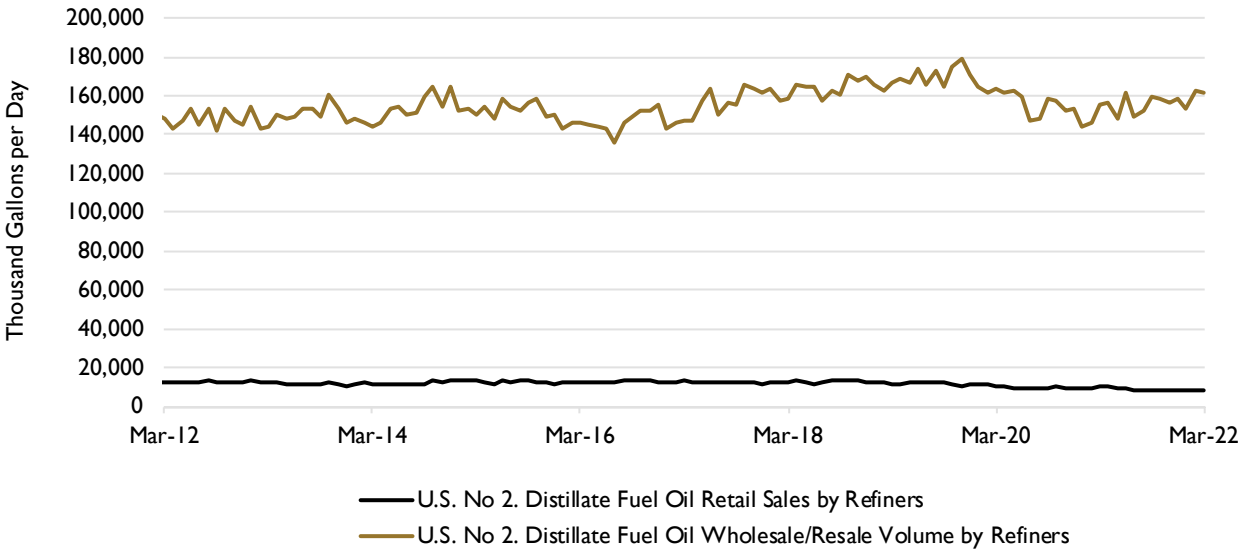
NO. 1 DISTILLATE FUEL OIL, RESIDUAL FUEL OIL WHOLESALE, RETAIL SALES VOLUME BY REFINERS (MONTHLY) (28)



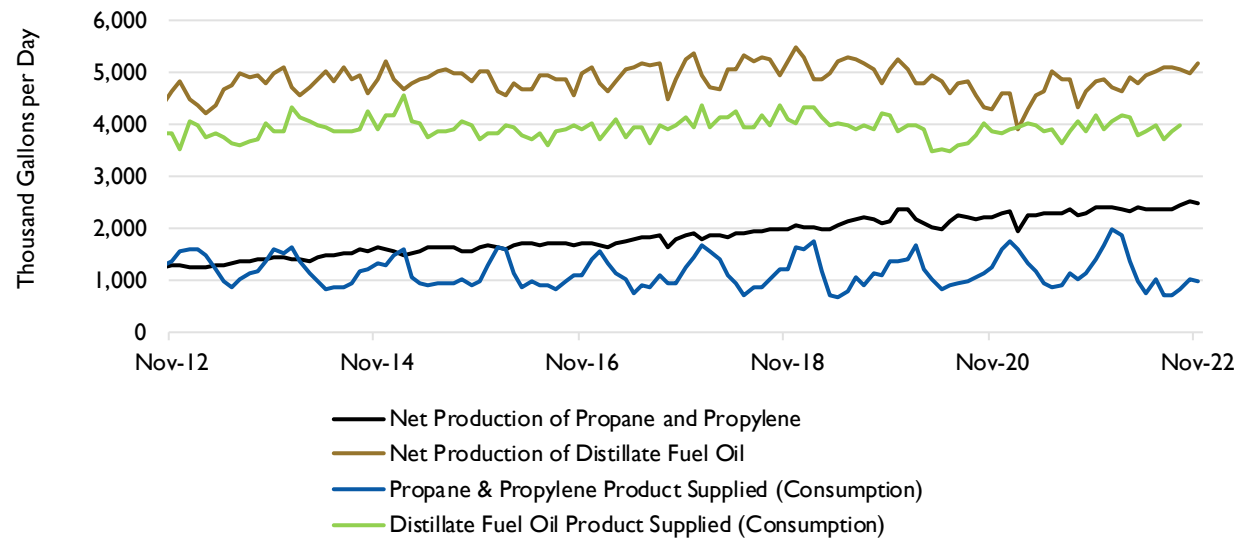
DATA CENTER

PROPANE AND HEATING/FUEL OIL

No. 2 Distillate Fuel Oil Wholesale, Retail Sales Volume by Refiners (Monthly) (29)



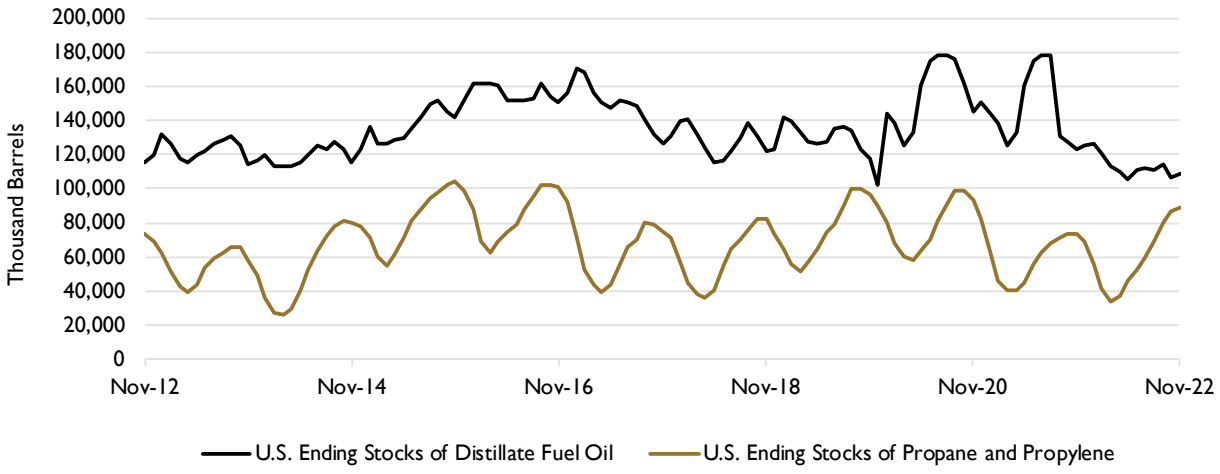
Propane & Propylene and Distillate Fuel Oil Production and Consumption (Monthly) (30)



DATA CENTER

PROPANE AND HEATING/FUEL OIL

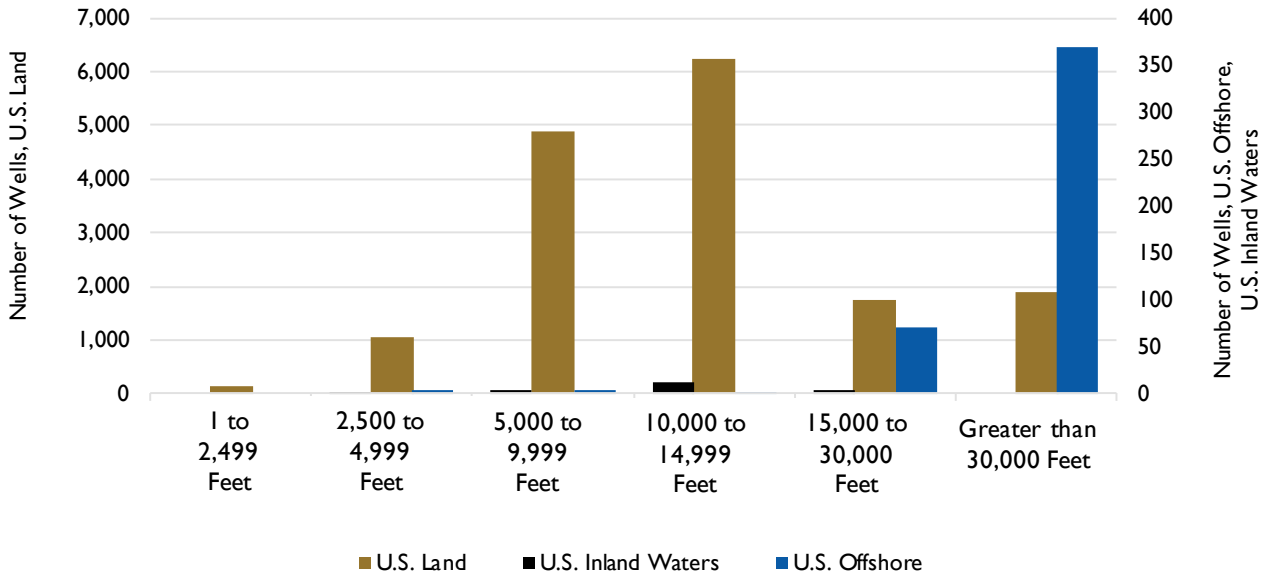
U.S. ENDING STOCKS OF PROPANE & PROPYLENE AND DISTILLATE FUEL OIL (MONTHLY AVERAGE) (31)



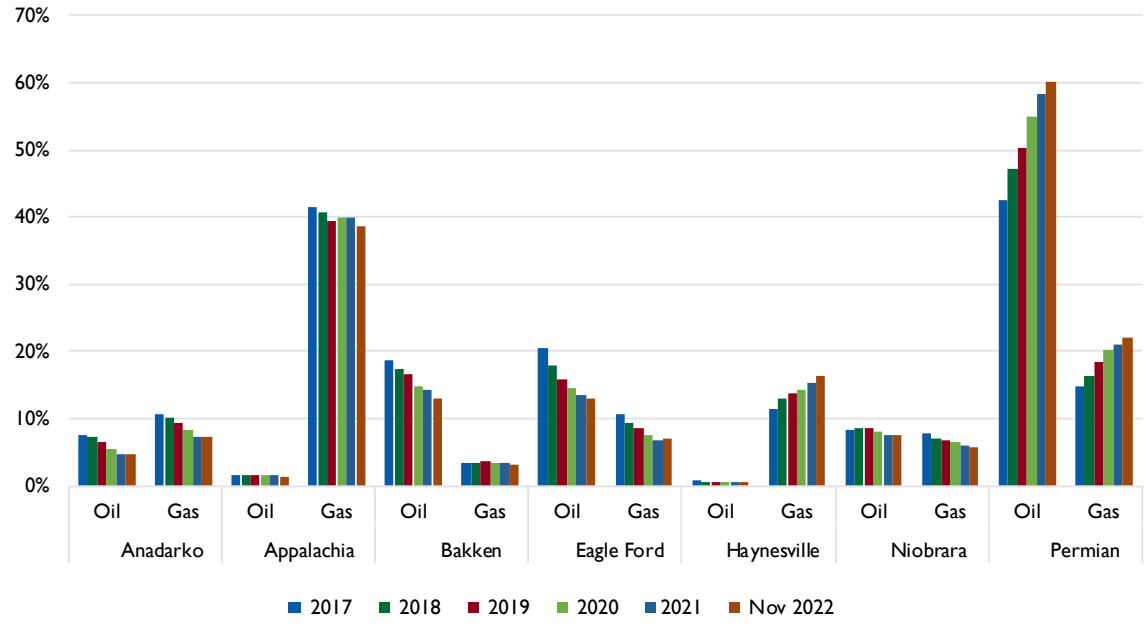
DATA CENTER

DRILLING ACTIVITY

U.S. WELL STARTS BY DEPTH (YEAR TO DATE NOVEMBER 30, 2022) (32)



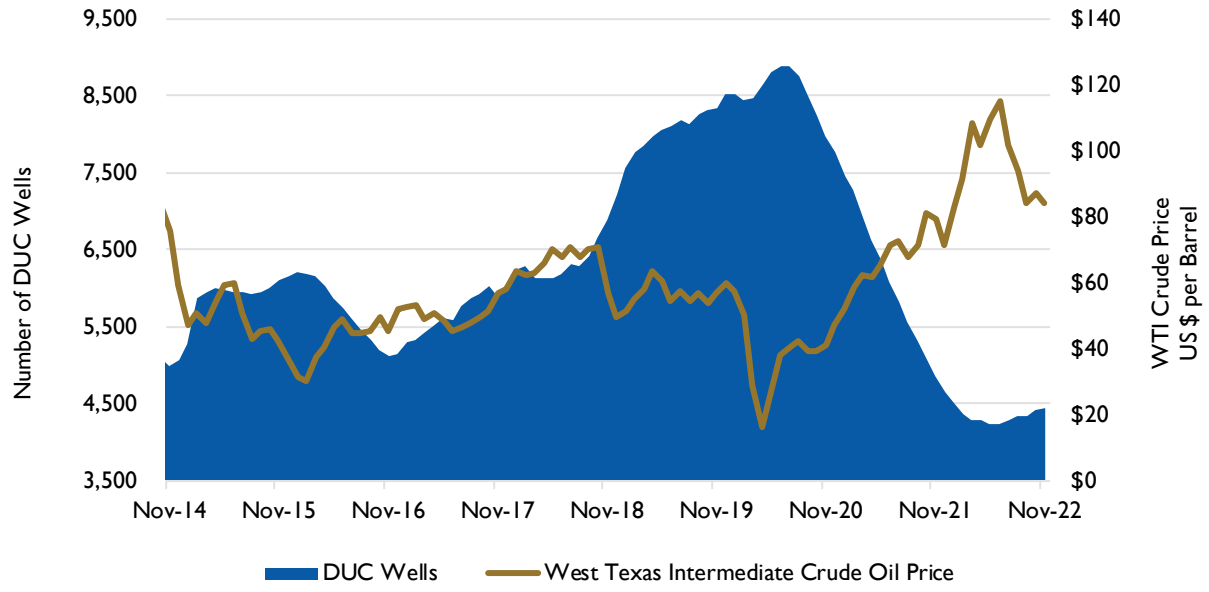
PERCENTAGE OF CRUDE OIL AND NATURAL GAS PRODUCTION PER SHALE REGION (ANNUAL) (33)



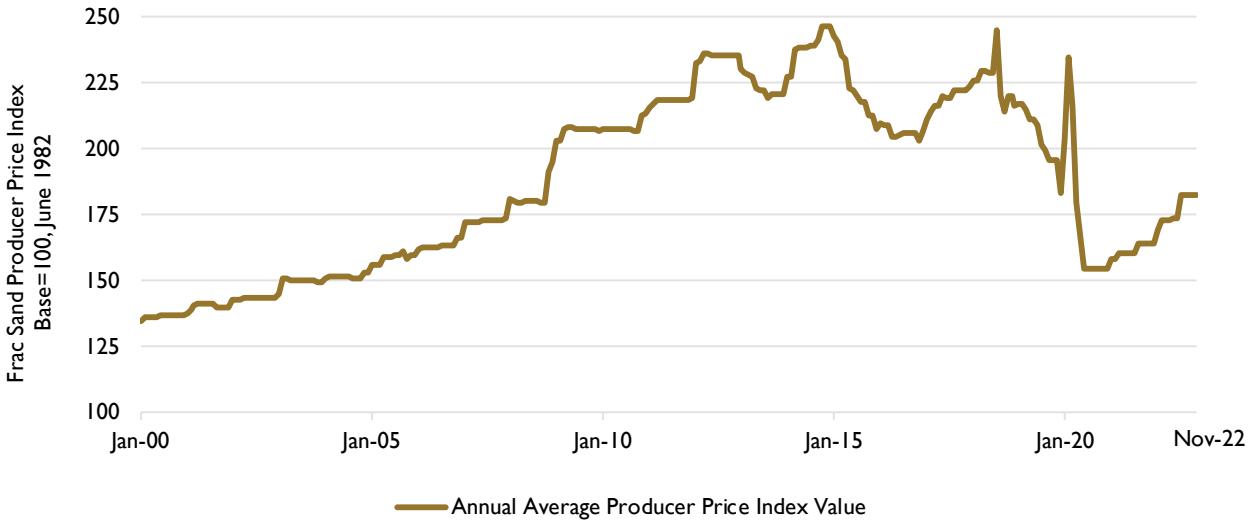
DATA CENTER

DRILLING ACTIVITY

DRILLED BUT UNCOMPLETED (DUC) WELLS VS. CRUDE OIL PRICE (MONTHLY) (34)



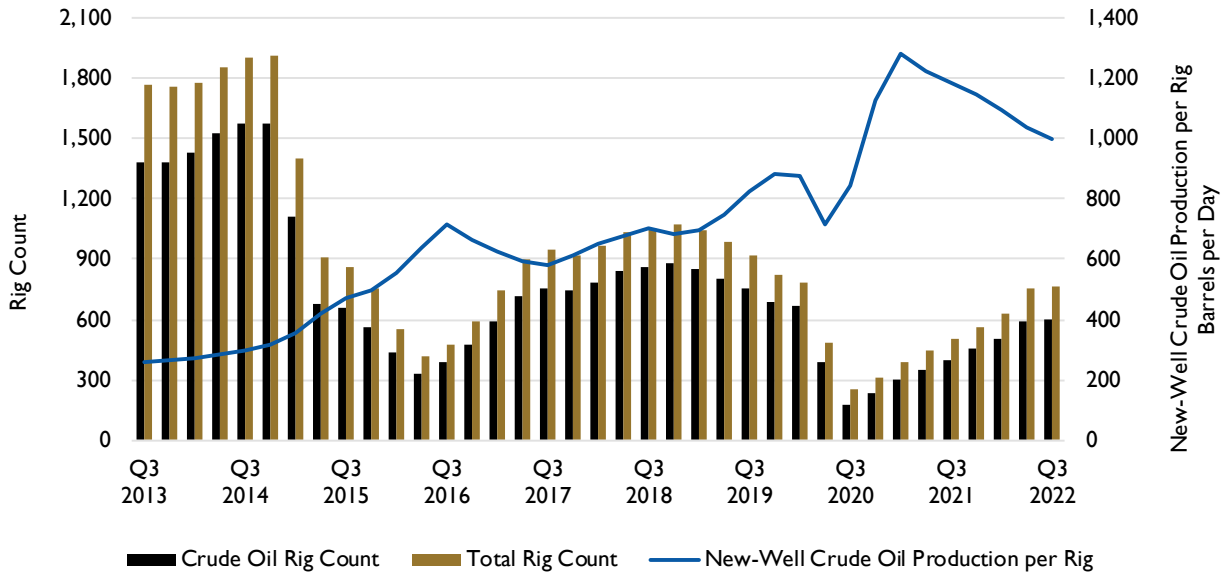
HYDRAULIC FRACTURING SAND PRODUCER PRICE INDEX (MONTHLY) (35)



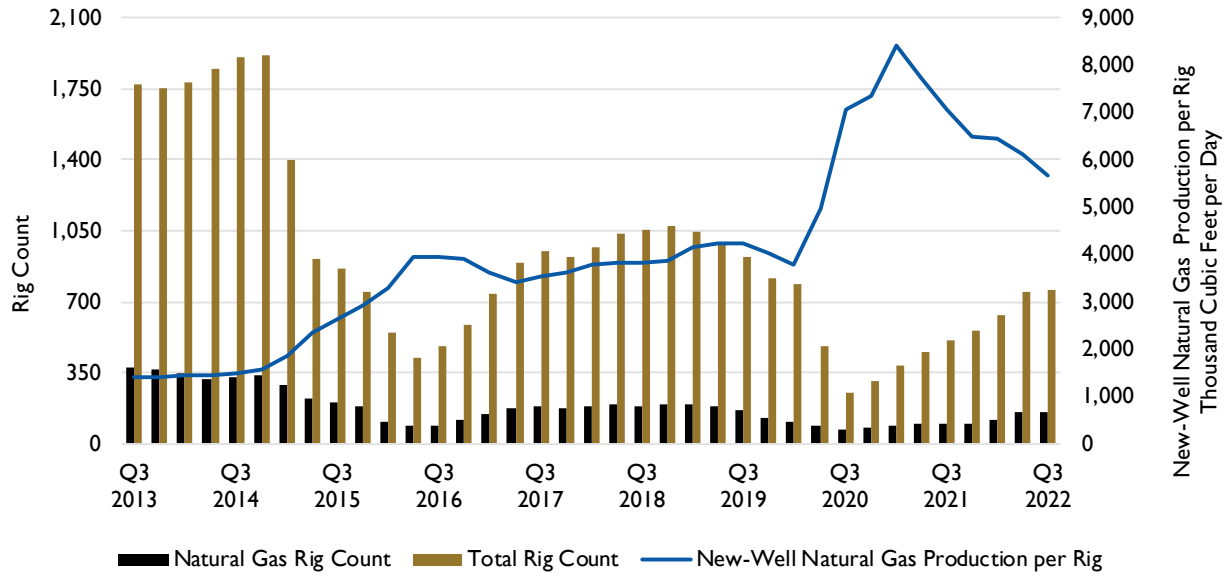
DATA CENTER

DRILLING ACTIVITY

CRUDE OIL PRODUCTION, RIG COUNT AND PRODUCTION PER RIG (QUARTERLY) (36)



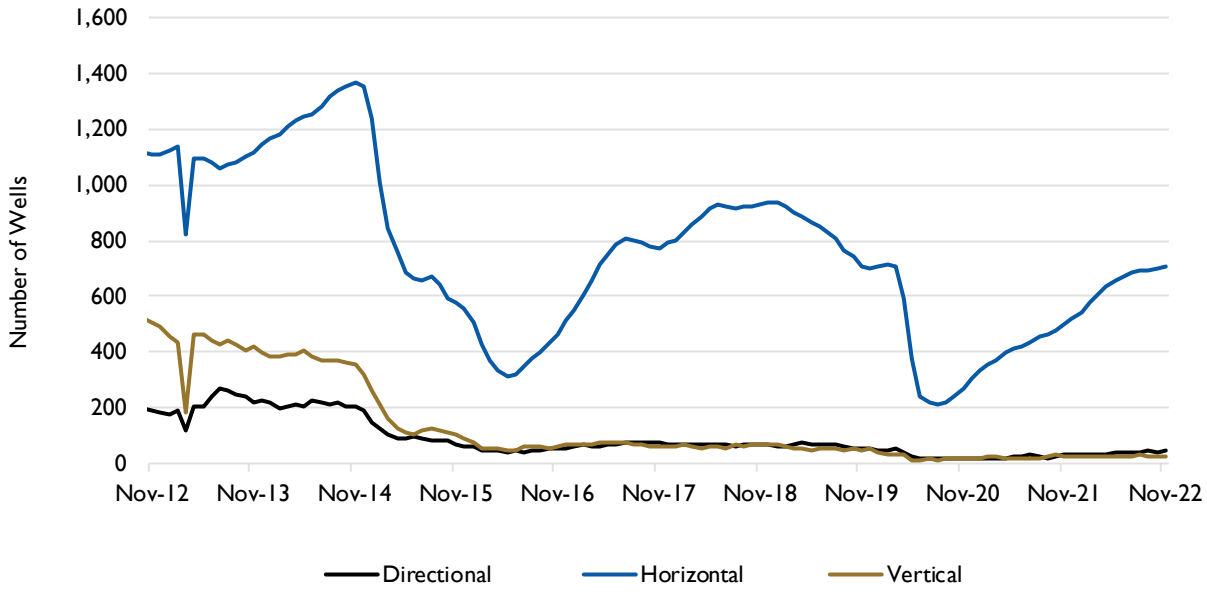
NATURAL GAS PRODUCTION, RIG COUNT AND PRODUCTION PER RIG (QUARTERLY) (37)



DATA CENTER

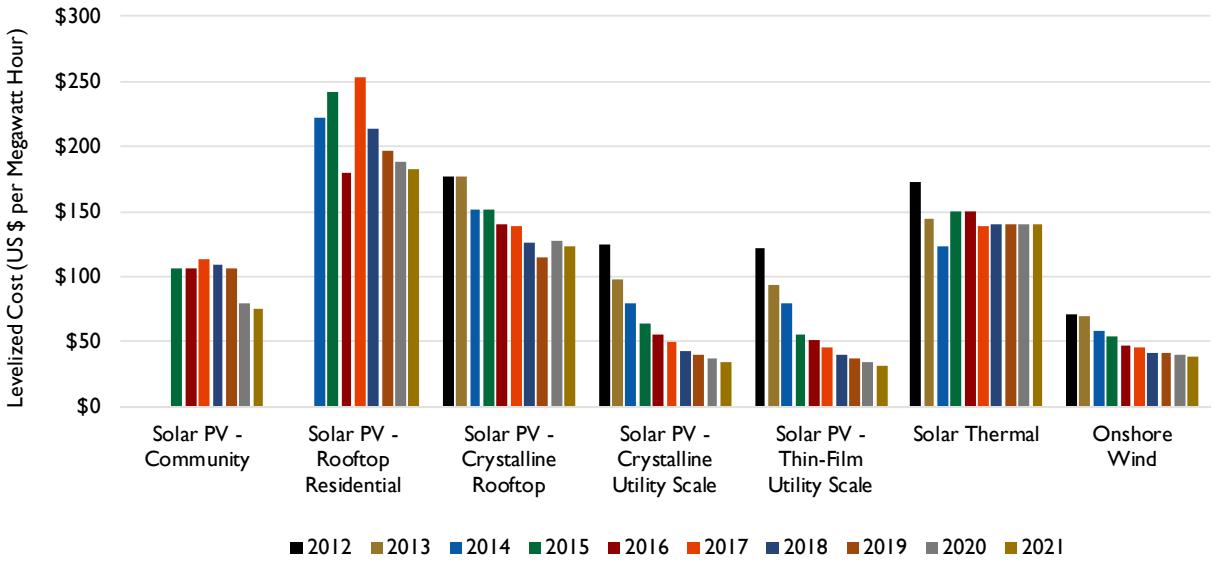
DRILLING ACTIVITY

U.S. DRILLING RIGS BY TYPE (MONTHLY) (38)



RENEWABLES

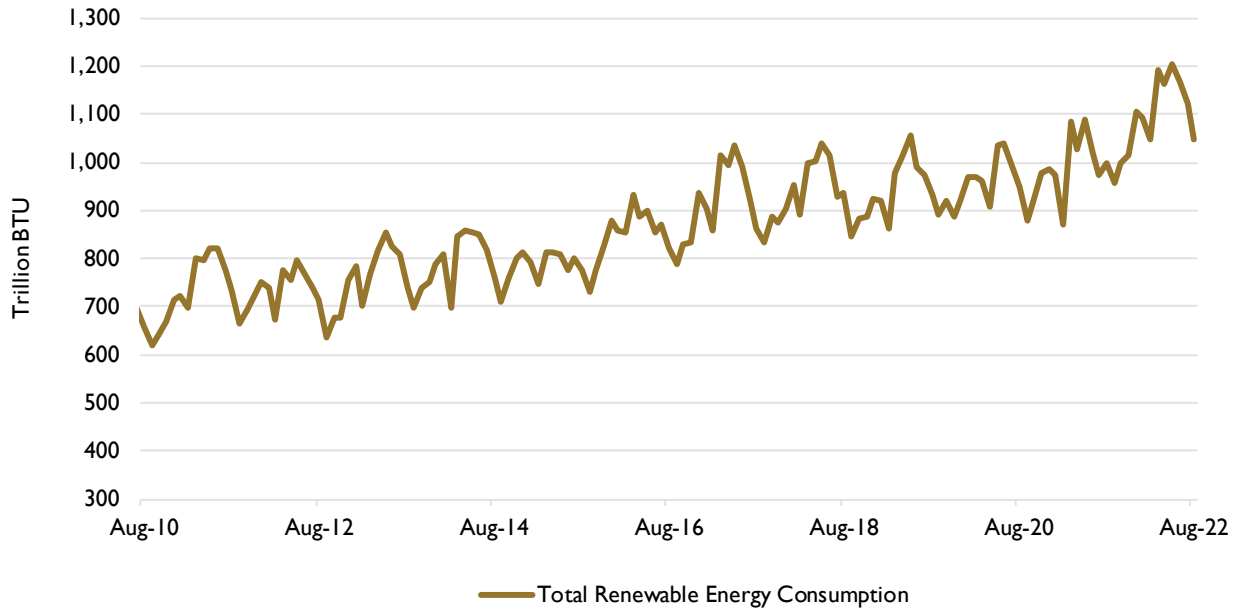
WIND AND SOLAR PRICES (ANNUAL AVERAGE) (39)



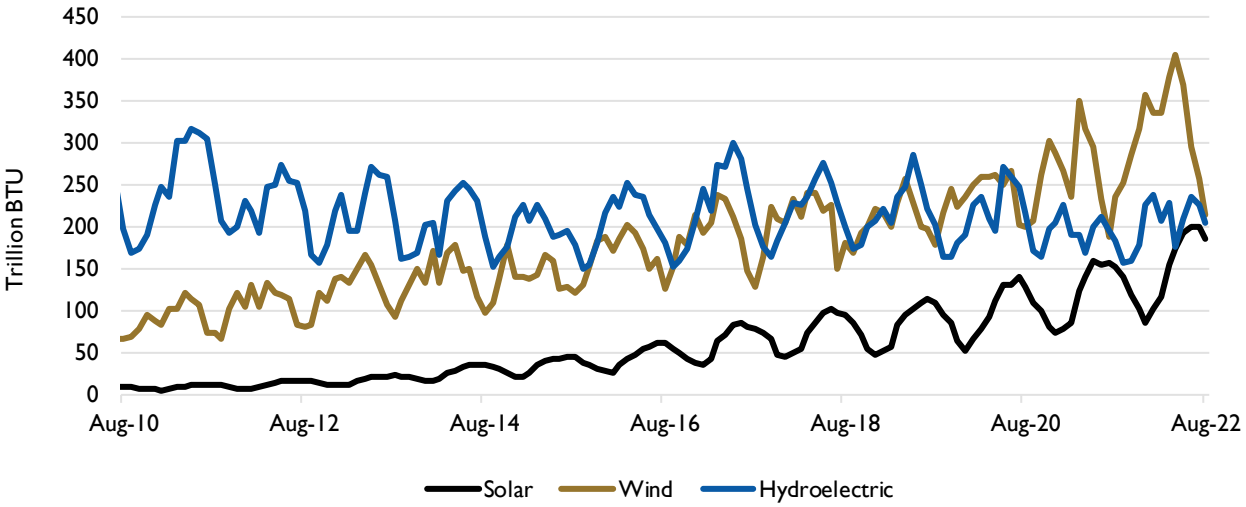
DATA CENTER

RENEWABLES

U.S. TOTAL RENEWABLE ENERGY CONSUMPTION (MONTHLY) (40)



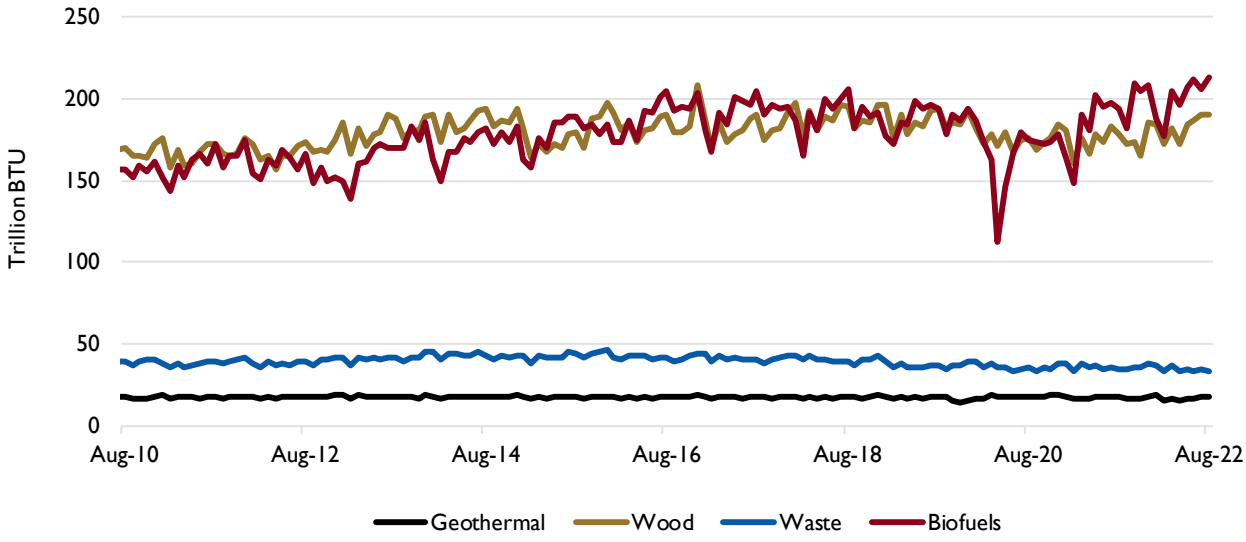
U.S. SOLAR, WIND AND HYRDOELECTRIC ENERGY CONSUMPTION (MONTHLY) (41)



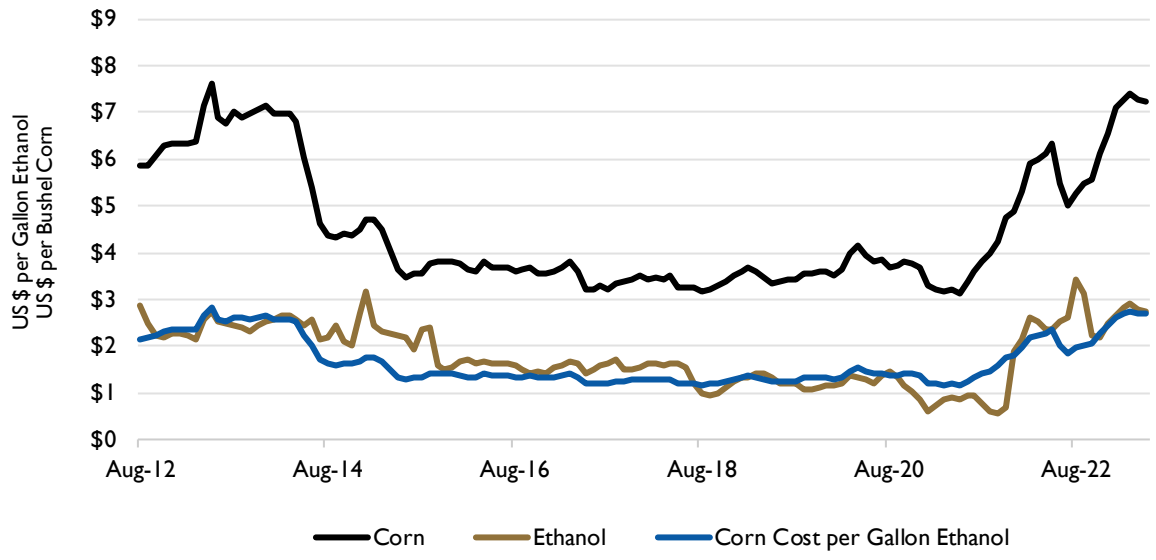
DATA CENTER

RENEWABLES

U.S. WOOD, WASTE, BIOFUELS AND GEOTHERMAL ENERGY CONSUMPTION (MONTHLY) (42)



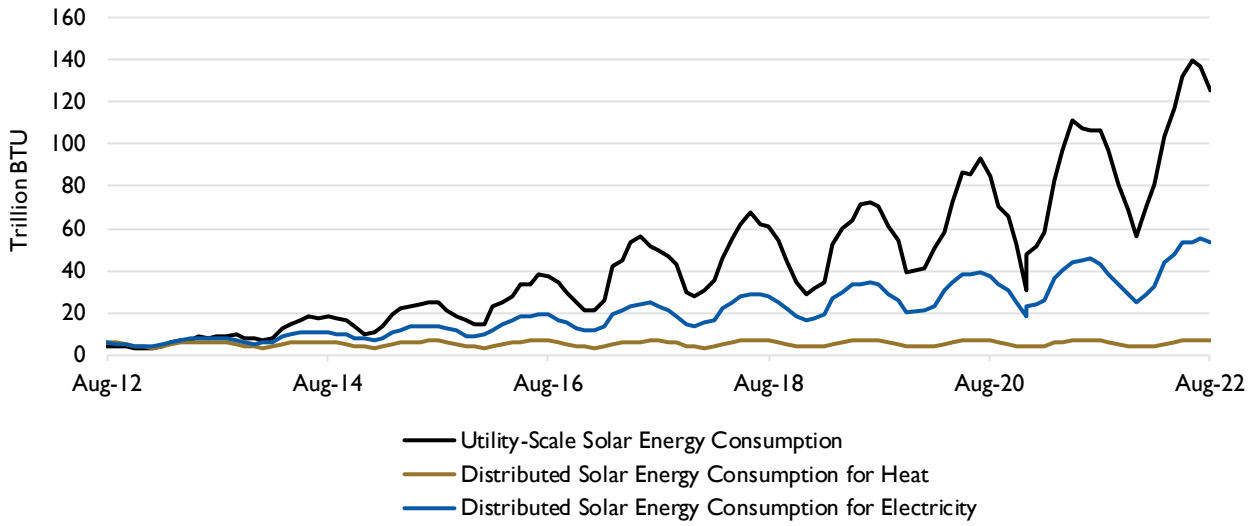
CORN AND ETHANOL PRICES AND CORN COST PER GALLON OF ETHANOL (QUARTERLY) (43)



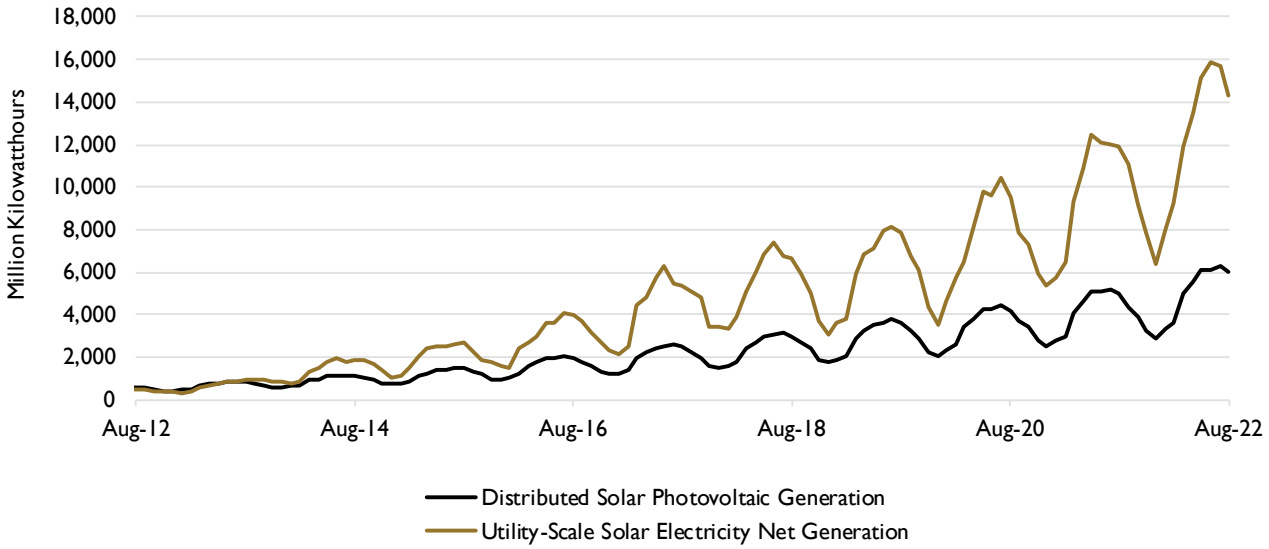
DATA CENTER

RENEWABLES

U.S. Solar Energy Consumption (Monthly) (44)



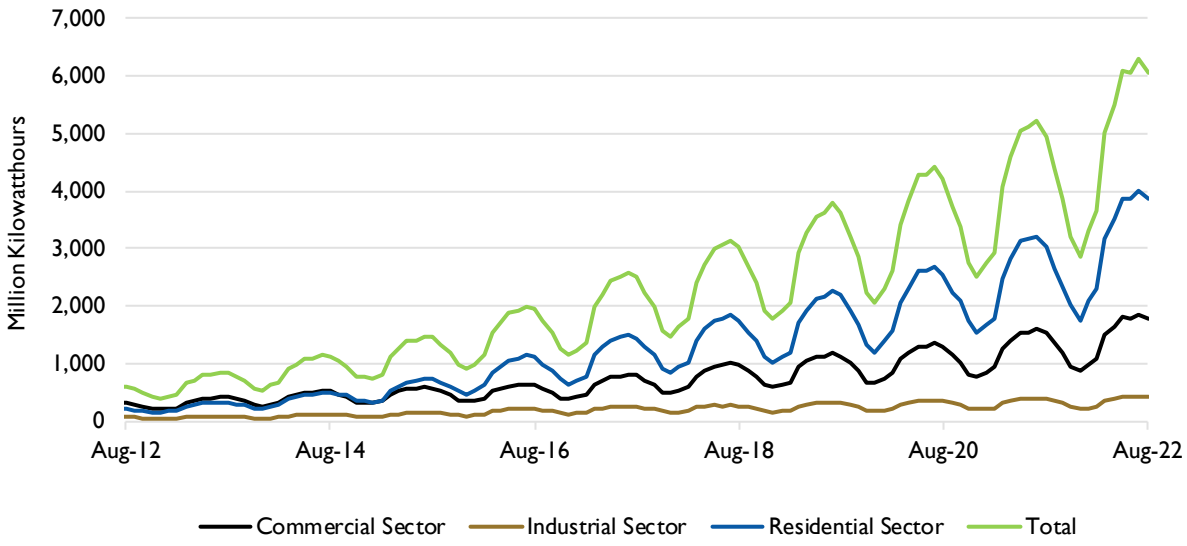
U.S. Solar Energy Net Generation (Monthly) (45)



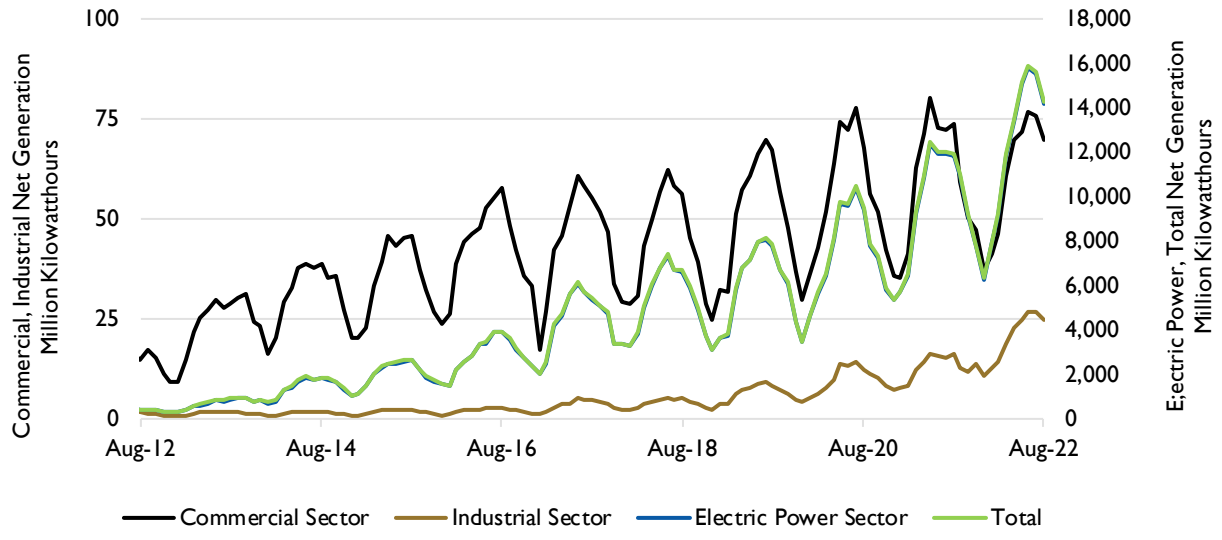
DATA CENTER

RENEWABLES

DISTRIBUTED SOLAR PHOTOVOLTAIC GENERATION BY SECTOR (MONTHLY) (46)



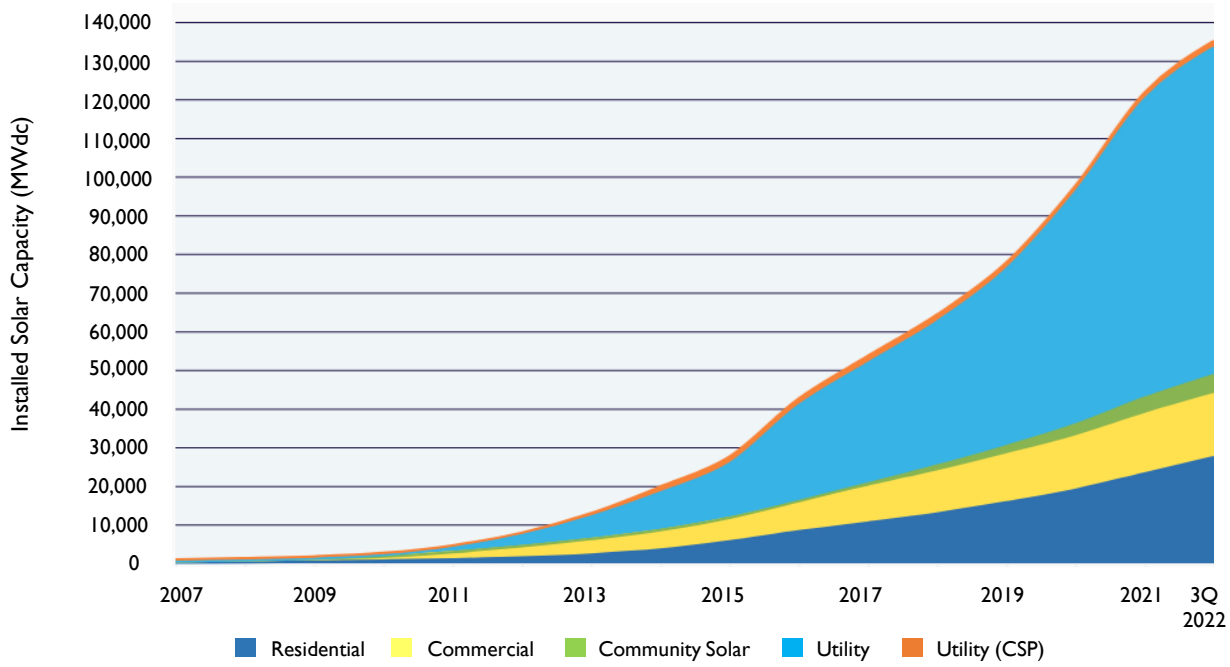
UTILITY-SCALE SOLAR ELECTRICITY NET GENERATION BY SECTOR (MONTHLY) (47)



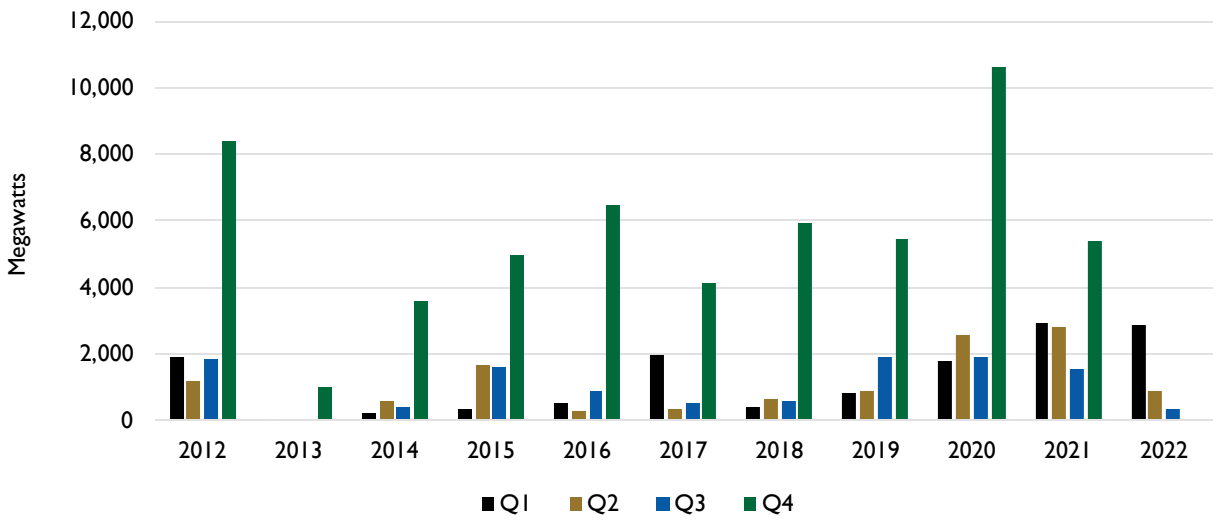
DATA CENTER

RENEWABLES

U.S. Cumulative Solar Installations (Quarterly) (48)



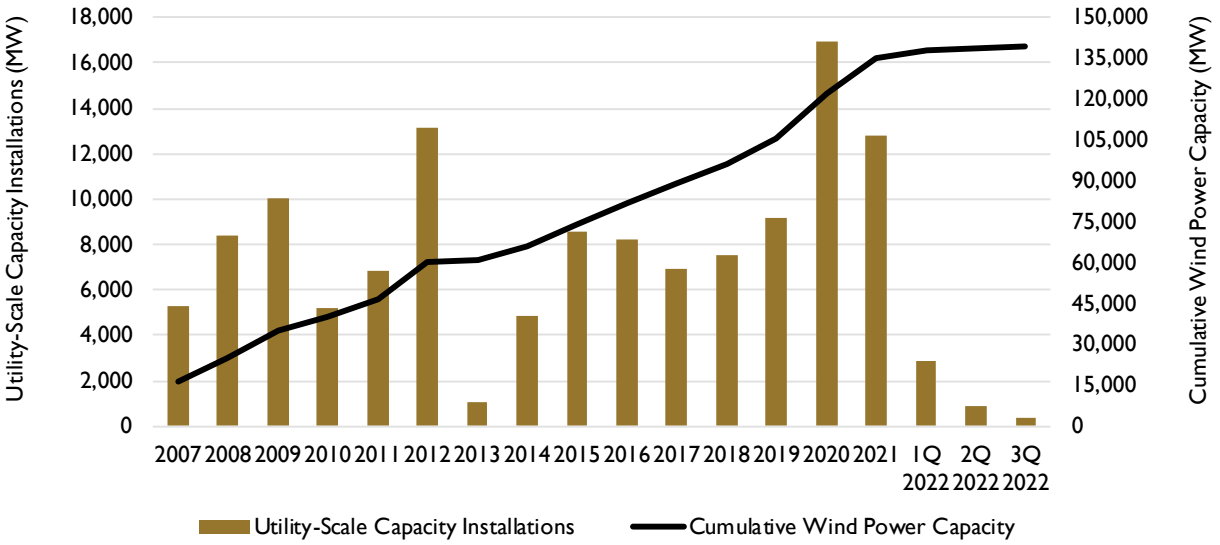
U.S. Wind Power Capacity Installations (Quarterly) (49)



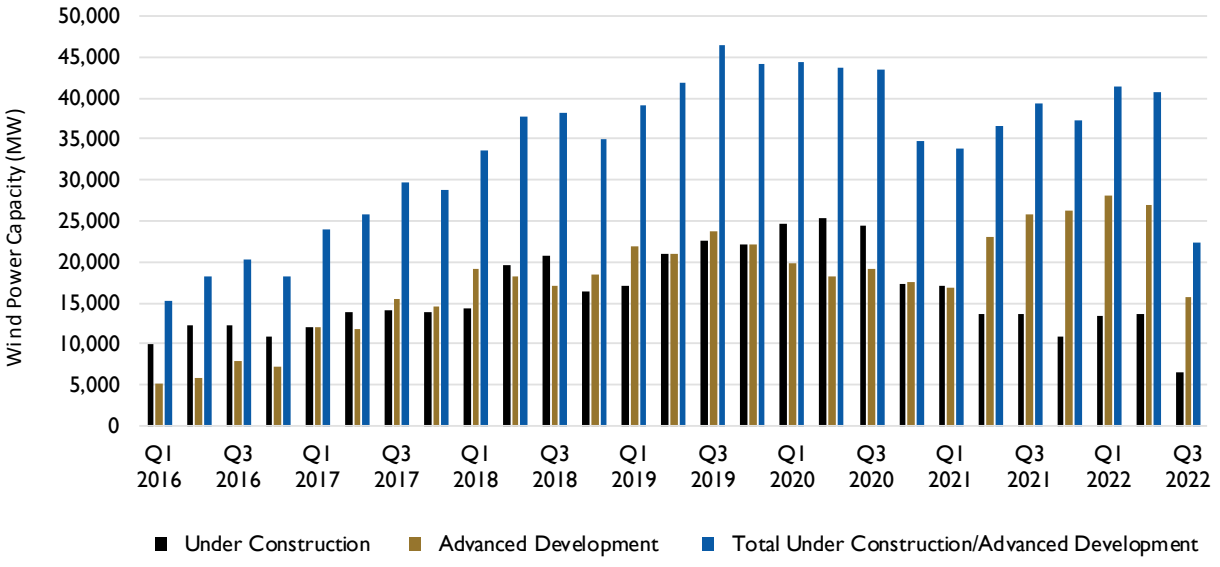
DATA CENTER

RENEWABLES

UTILITY-SCALE WIND POWER CAPACITY INSTALLATIONS (QUARTERLY) (50)



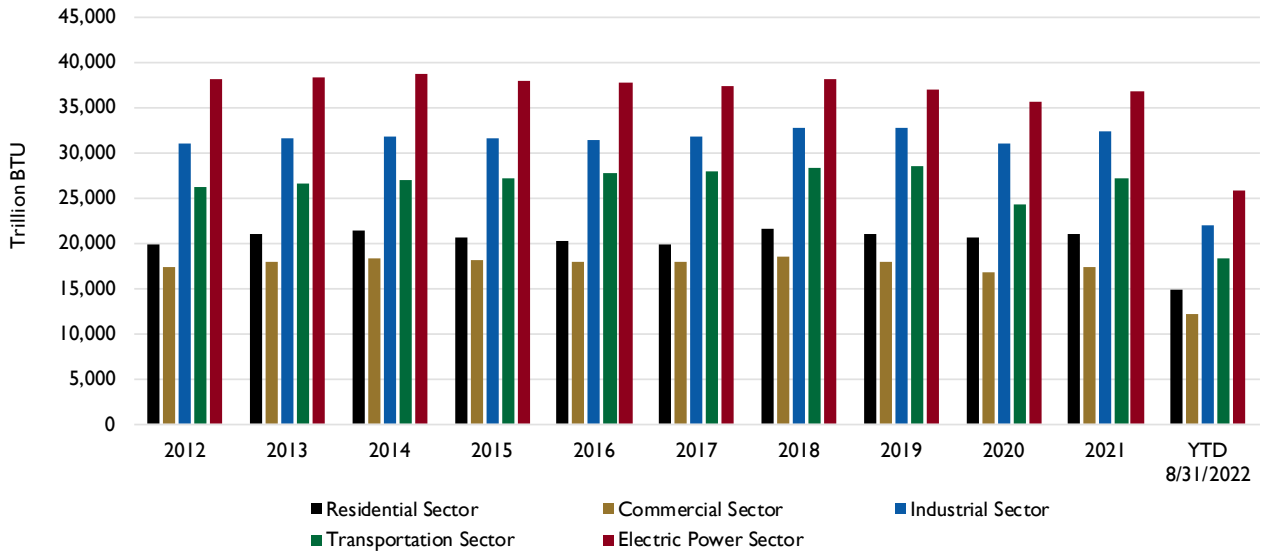
WIND POWER UNDER CONSTRUCTION OR IN ADVANCED DEVELOPMENT (QUARTERLY) (51)



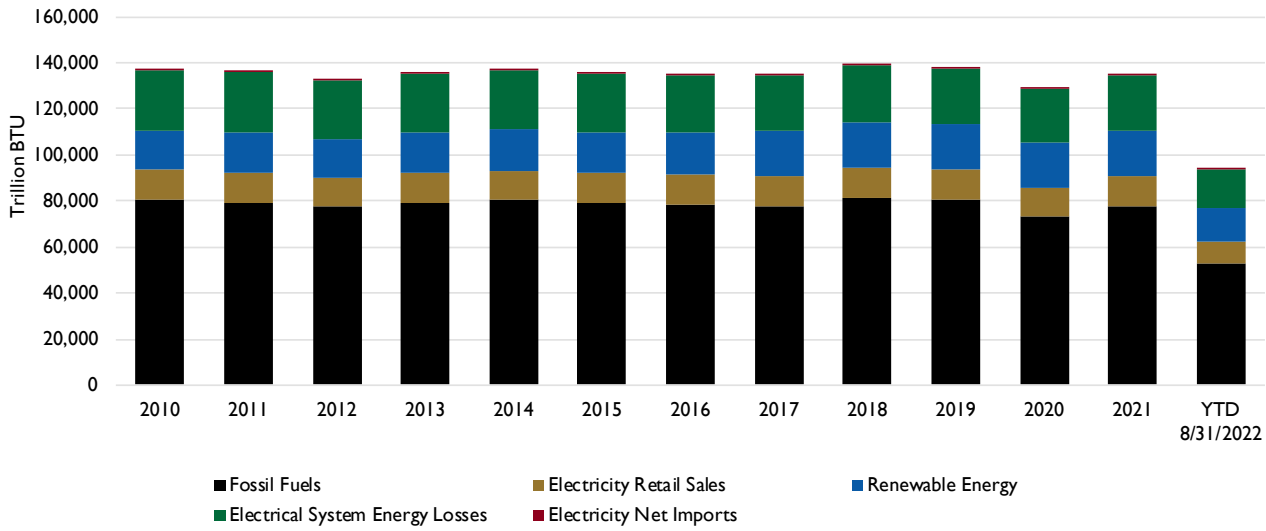
DATA CENTER

U.S. AGGREGATED ENERGY CONSUMPTION

Energy Consumption by Sector (Annual) (52)



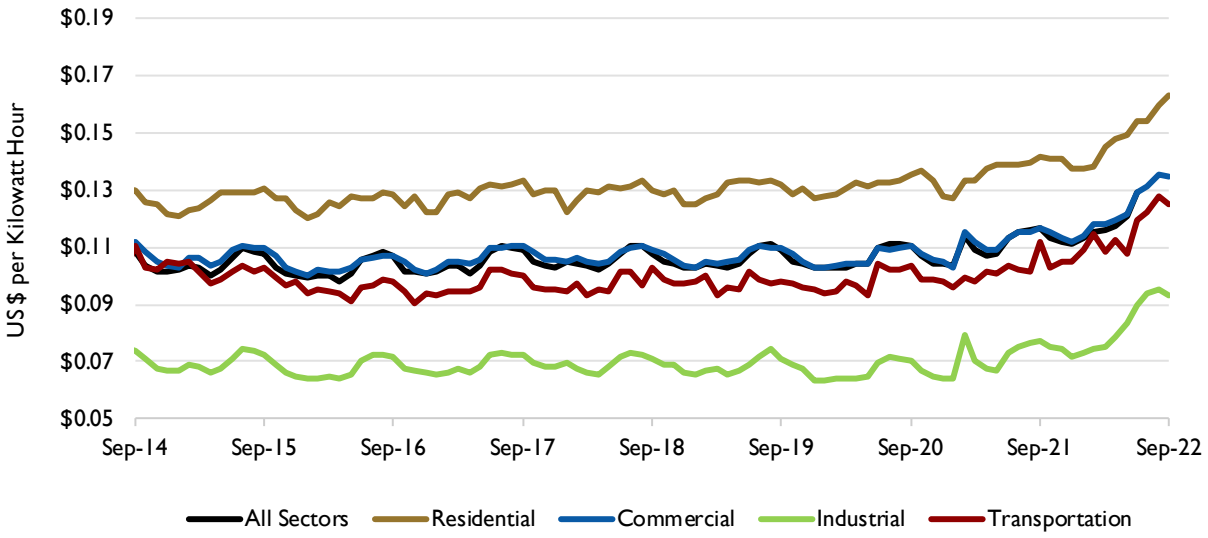
Energy Consumption by Source (Annual) (53)



DATA CENTER

U.S. AGGREGATED ENERGY CONSUMPTION

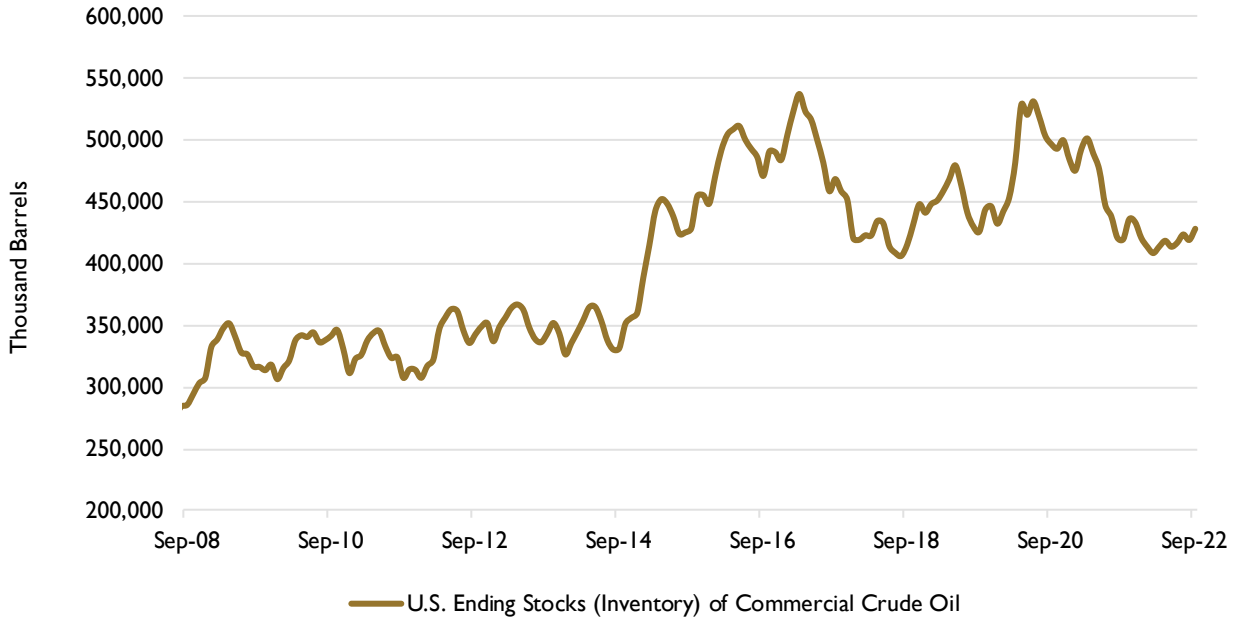
ELECTRICITY PRICES BY SECTOR (MONTHLY AVERAGE) (54)



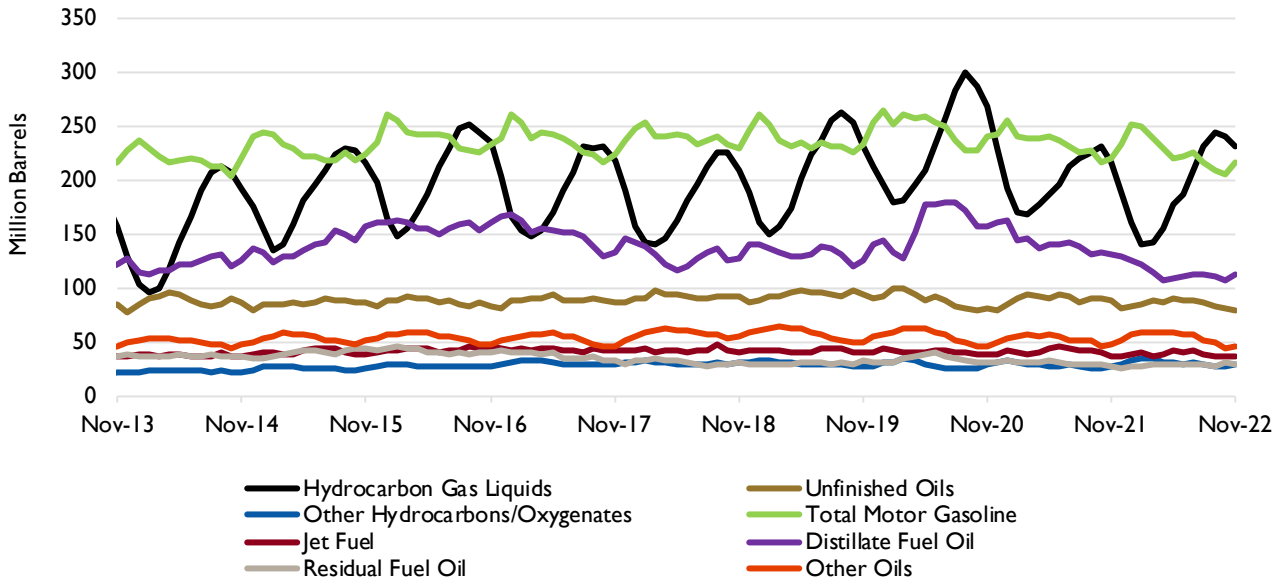
DATA CENTER

LOGISTICS - STORAGE AND TERMINALS

COMMERCIAL CRUDE OIL INVENTORY (MONTHLY) (55)



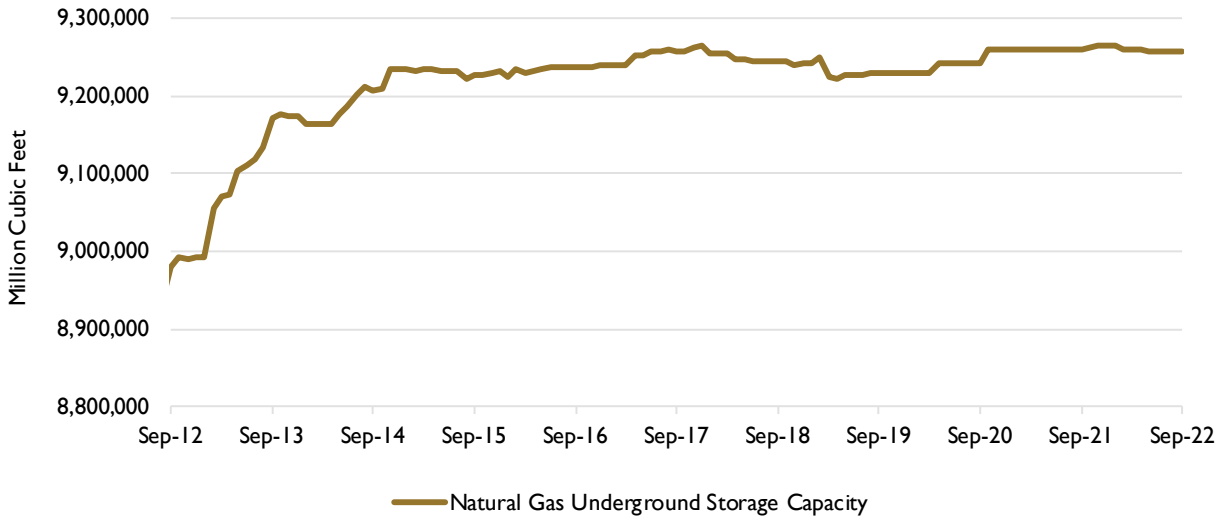
PETROLEUM AND OTHER LIQUIDS COMMERCIAL INVENTORY (MONTHLY) (56)



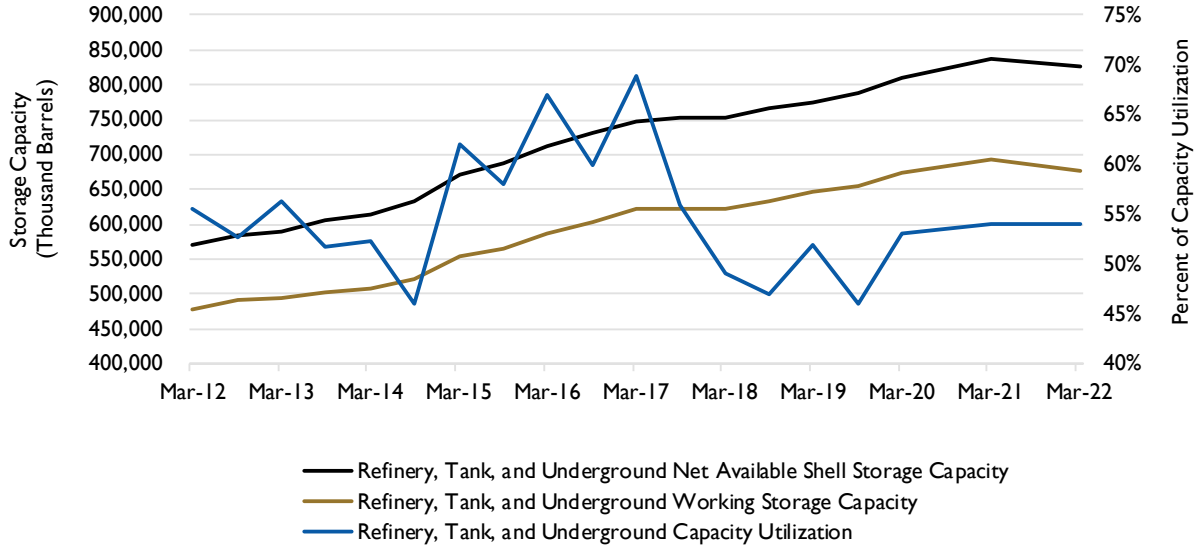
DATA CENTER

LOGISTICS - STORAGE AND TERMINALS

NATURAL GAS UNDERGROUND STORAGE CAPACITY (MONTHLY) (57)



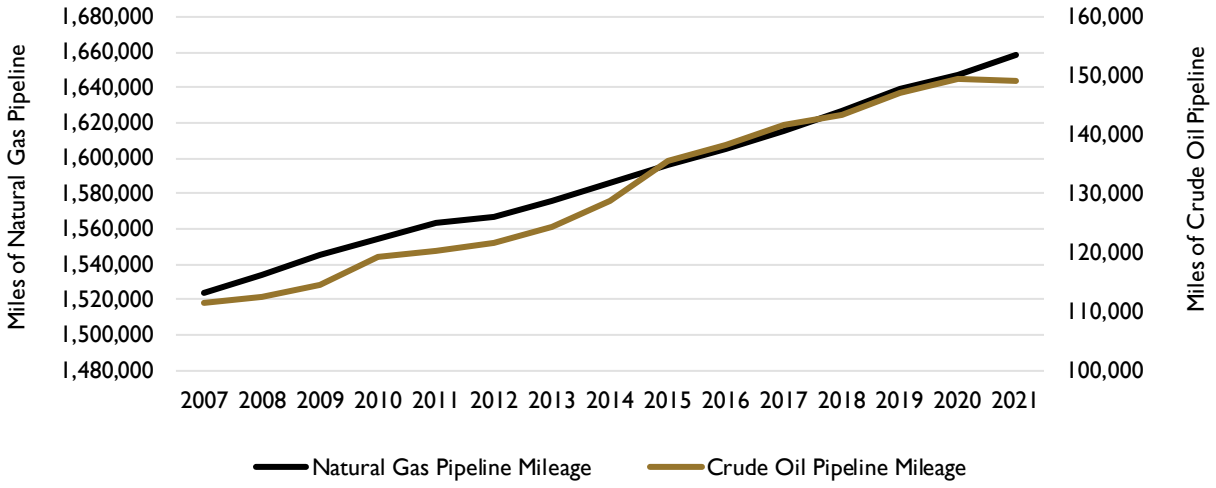
COMMERCIAL CRUDE OIL REFINERY, TANK AND UNDERGROUND STORAGE CAPACITY AND UTILIZATION (ANNUAL) (58)



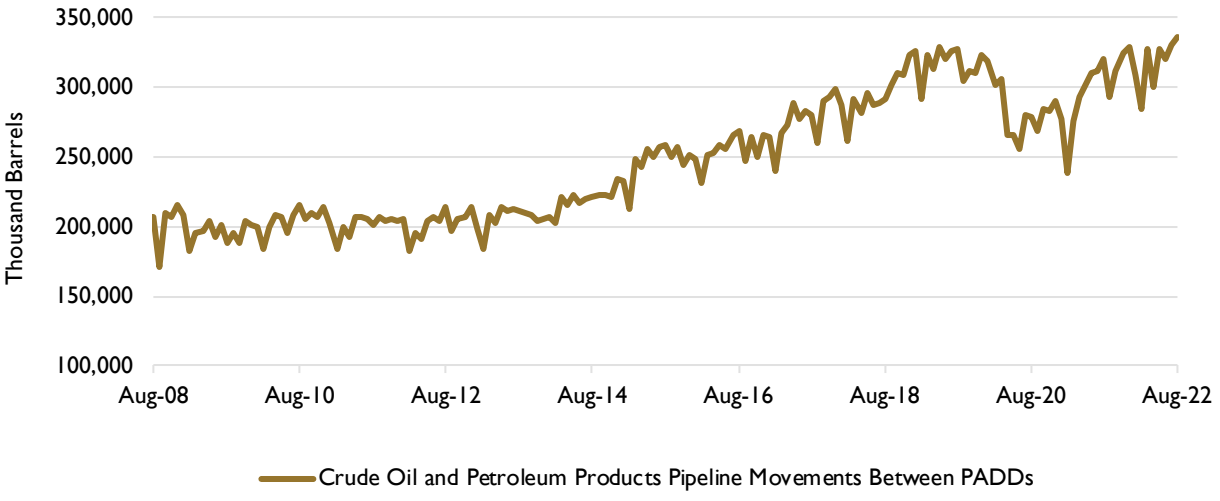
DATA CENTER

LOGISTICS - PIPELINES

CRUDE OIL AND NATURAL GAS PIPELINE MILEAGE (ANNUAL) (59)



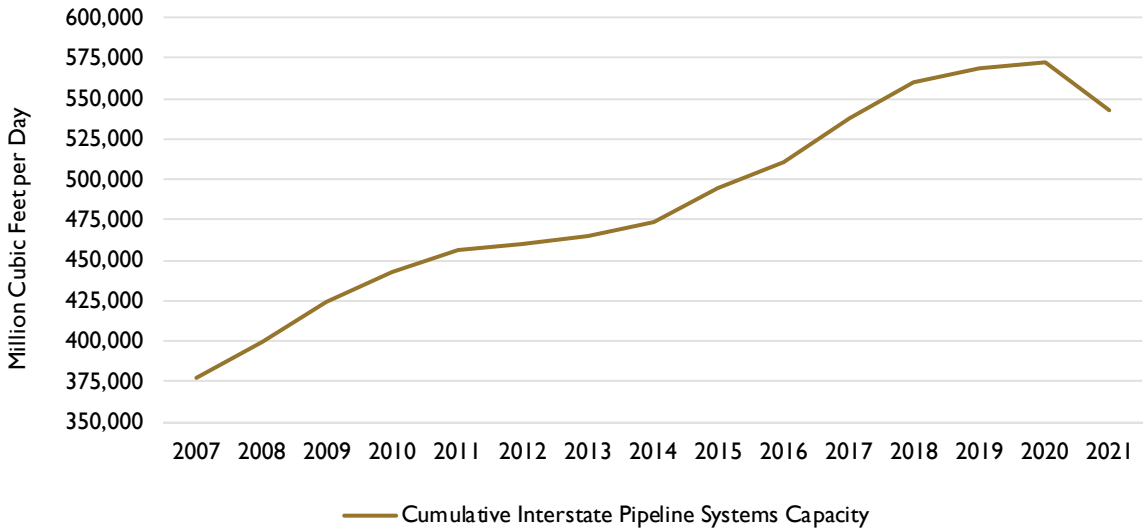
CRUDE OIL AND PETROLEUM PRODUCTS PIPELINE MOVEMENTS BETWEEN PETROLEUM ADMINISTRATION FOR DEFENSE DISTRICTS (PADDS) (MONTHLY) (60)



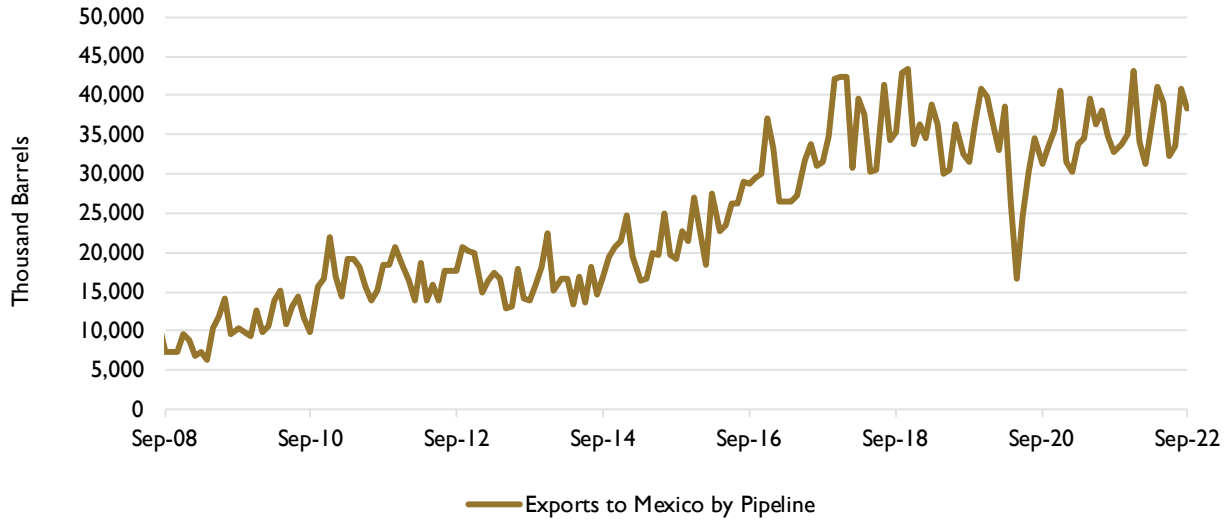
DATA CENTER

LOGISTICS - PIPELINES

NATURAL GAS CUMULATIVE INTERSTATE PIPELINE SYSTEMS CAPACITY (ANNUAL) (61)



CRUDE OIL AND PETROLEUM PRODUCTS EXPORTS TO MEXICO (MONTHLY) (62)

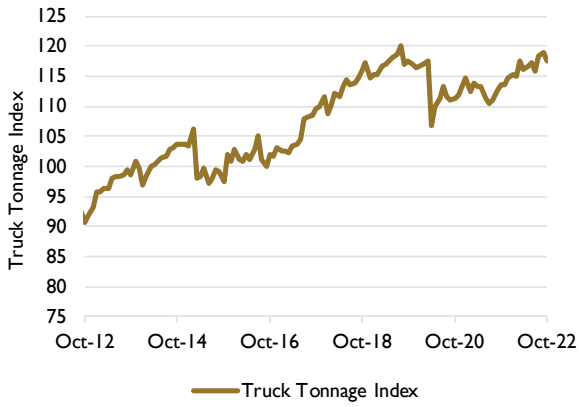


DATA CENTER

LOGISTICS - TRUCKERS

TRUCK TONNAGE INDEX (MONTHLY) (63)

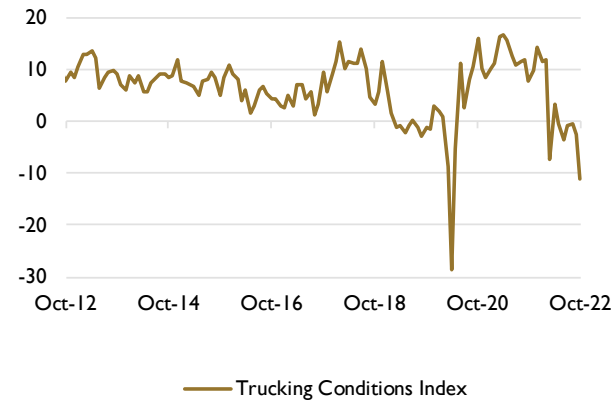
MEASURES GROSS TONNAGE OF FREIGHT



HEAVY TRUCK SALES (MONTHLY) (64)

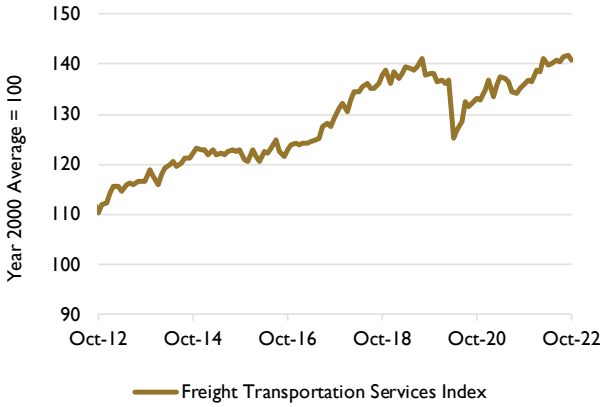
TRUCKING CONDITIONS INDEX (MONTHLY) (65)

INCLUDES FRIGHT VOLUMES, RATES, FLEET CAPACITY, BANKRUPTCIES, FUEL PRICE AND FINANCING



FREIGHT TRANSPORTATION SERVICES INDEX (MONTHLY) (66)

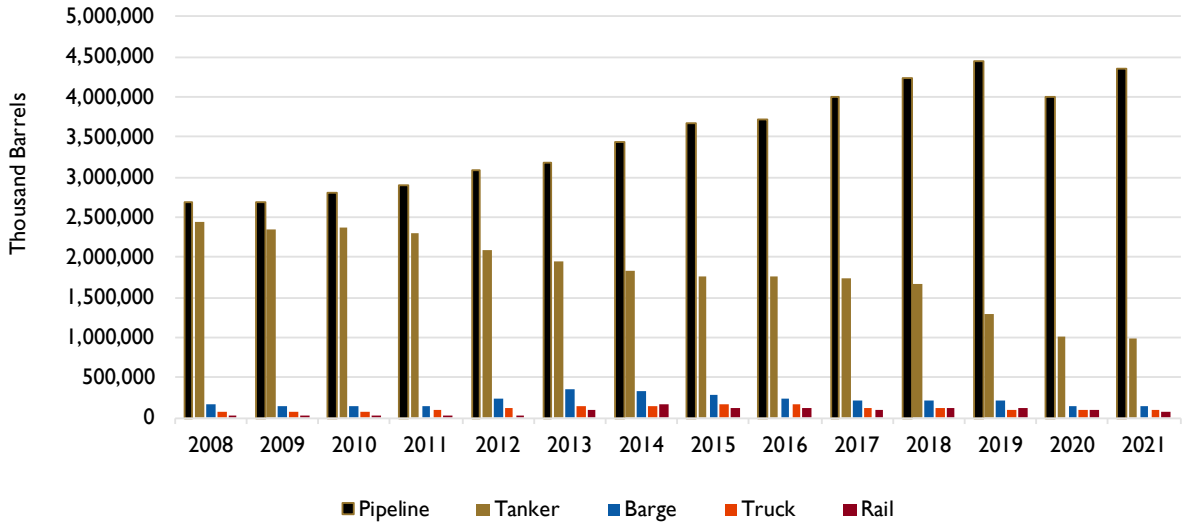
INCLUDES TRUCKING, RAIL, WATERWAYS, PIPELINES AND AIR FRIGHT



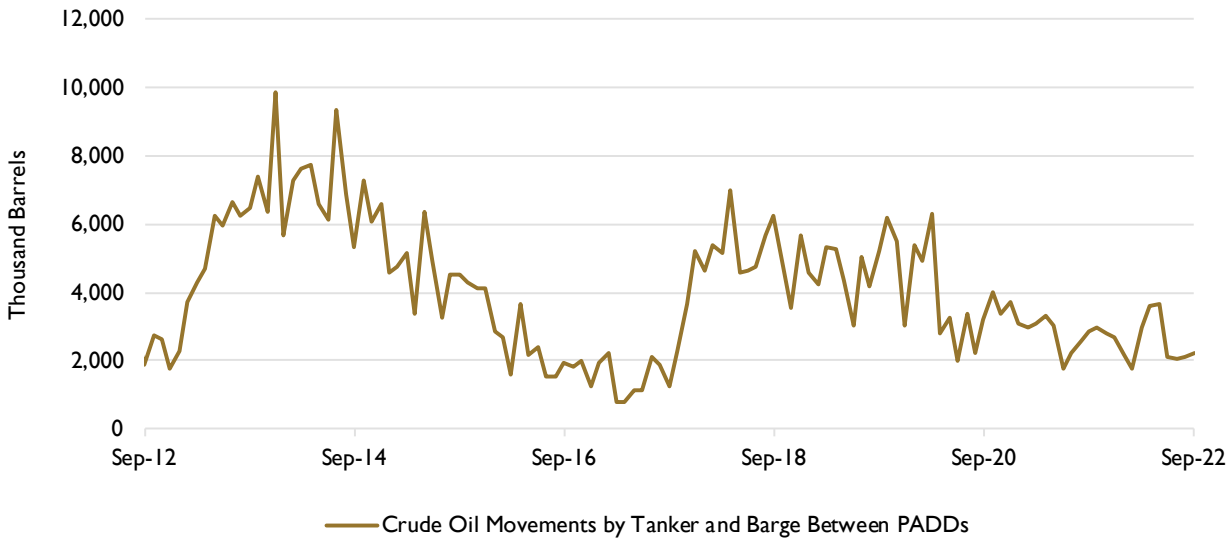
DATA CENTER

LOGISTICS - SHIPPING

CRUDE OIL REFINERY RECEIPTS BY TRANSPORTATION METHOD (ANNUAL) (67)



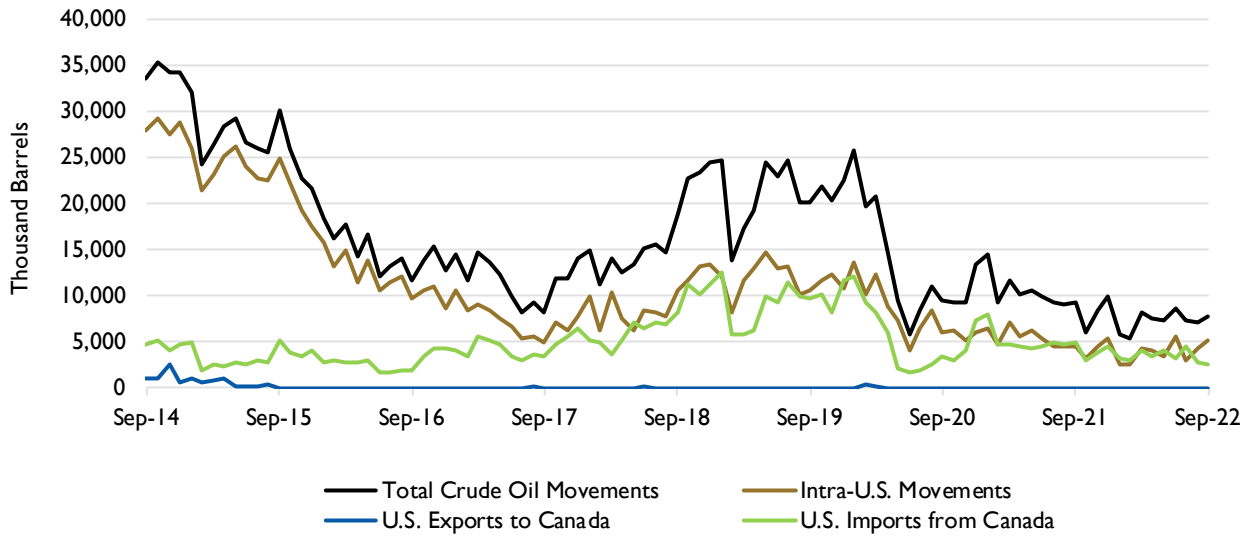
CRUDE OIL MOVEMENTS BY TANKER AND BARGE BETWEEN PETROLEUM ADMINISTRATION FOR DEFENSE DISTRICTS (PADDS) (MONTHLY) (68)



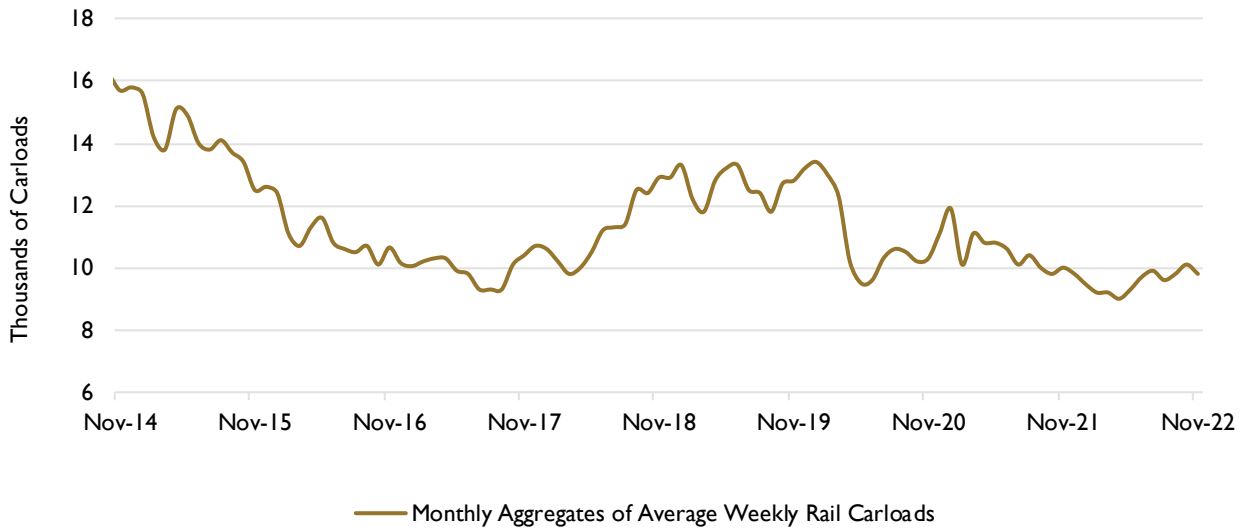
DATA CENTER

LOGISTICS - RAIL

MOVEMENTS OF CRUDE OIL BY RAIL (MONTHLY) (69)



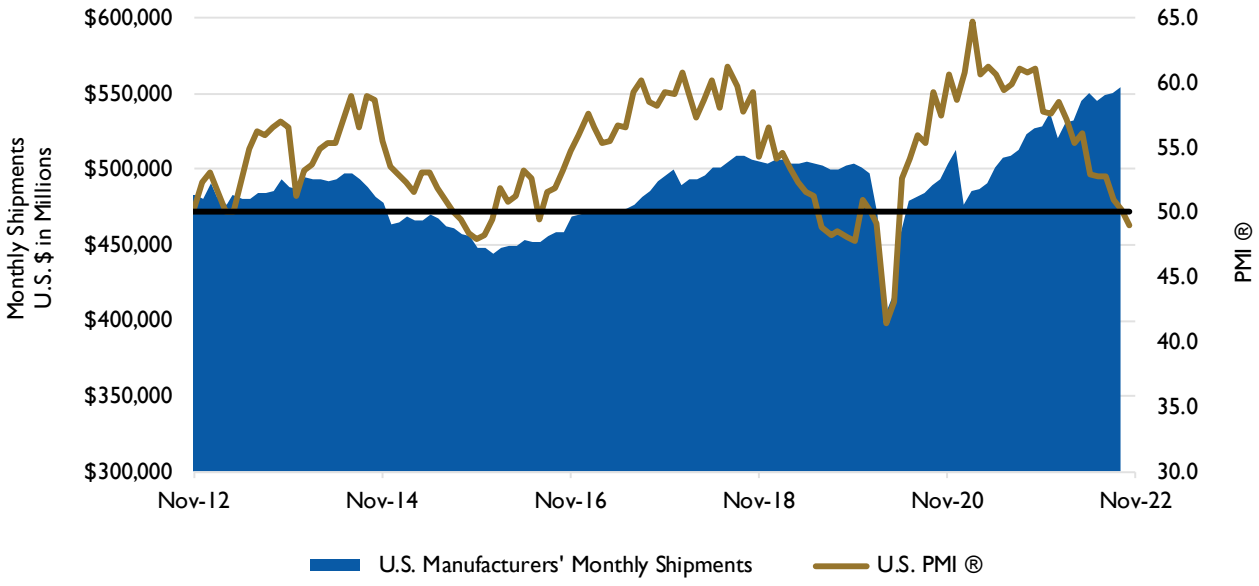
AVERAGE WEEKLY RAIL CARLOADS OF PETROLEUM AND PETROLEUM PRODUCTS (MONTHLY AGGREGATE) (70)



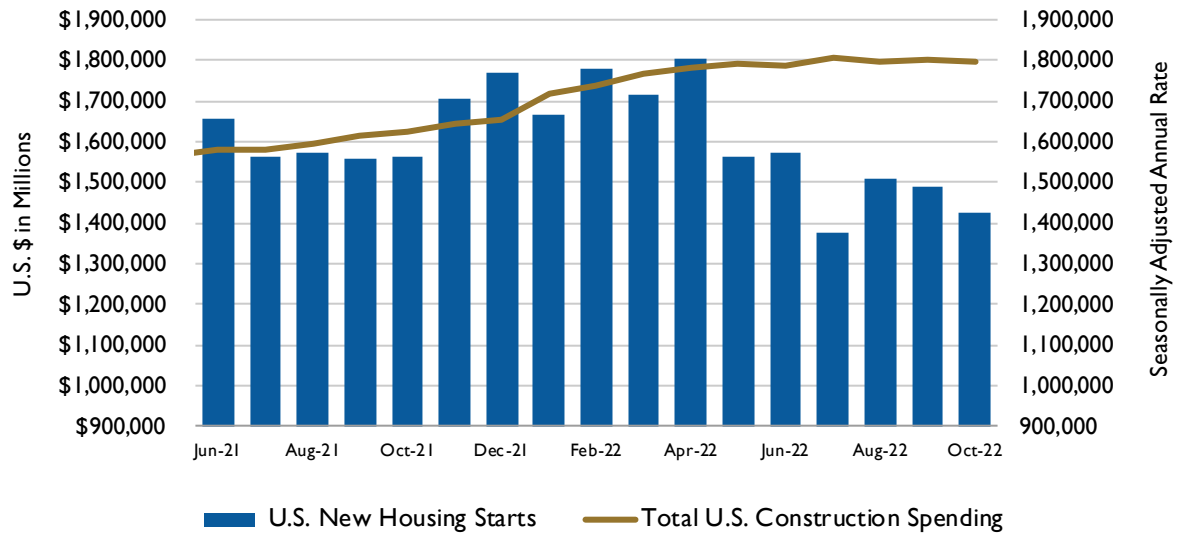
DATA CENTER

ECONOMIC / FINANCIAL

U.S. Manufacturers' Monthly Shipments and U.S. Purchasing Managers' Index (PMI®) (Monthly) (71)



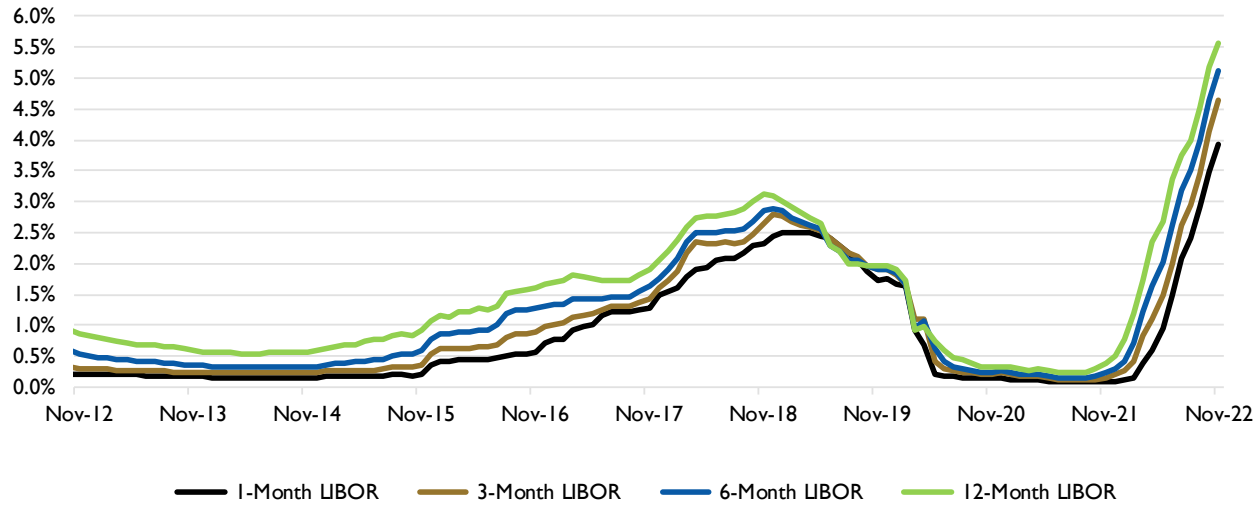
U.S. New Housing Starts and Total U.S. Construction Spending (Monthly) (72)



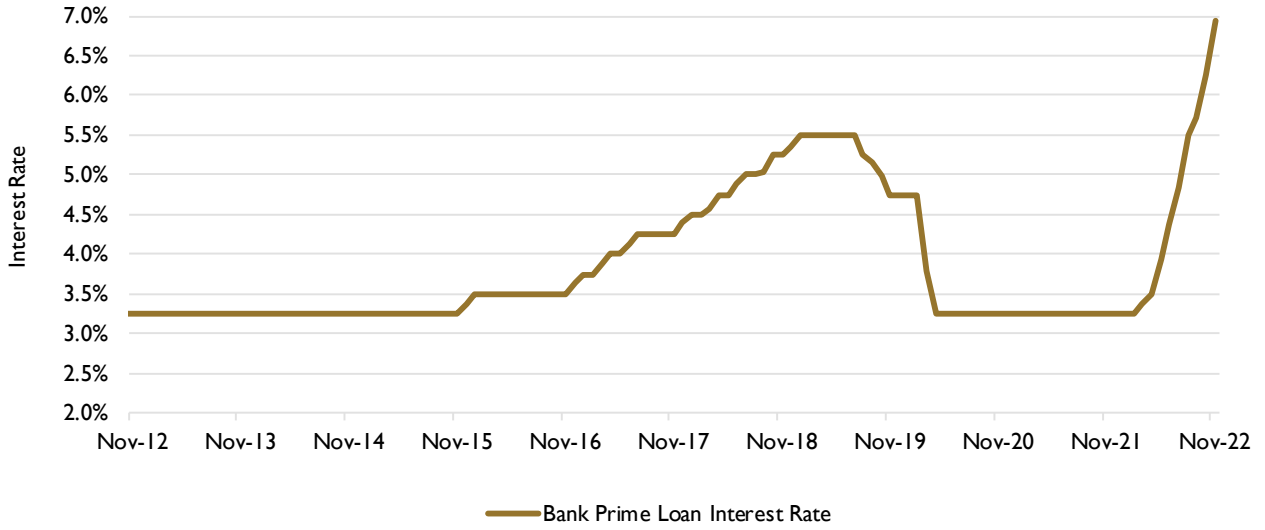
DATA CENTER

ECONOMIC / FINANCIAL

LONDON INTERBANK OFFERED RATE (LIBOR) (MONTHLY AVERAGE) BASED ON U.S. DOLLAR (73)



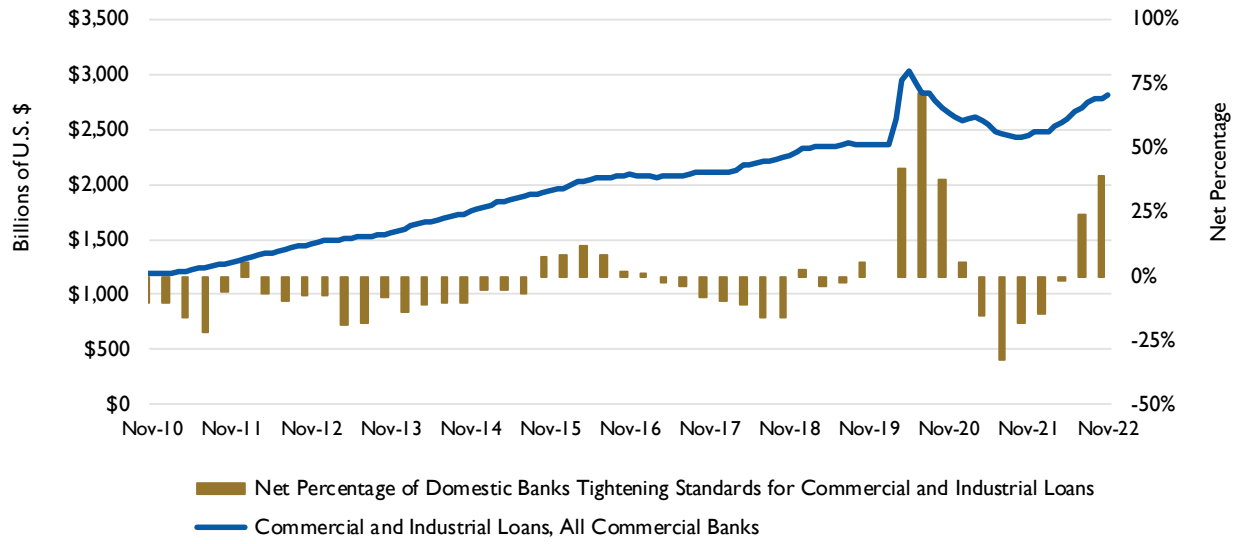
BANK PRIME LOAN INTEREST RATES (MONTHLY AVERAGE) (74)



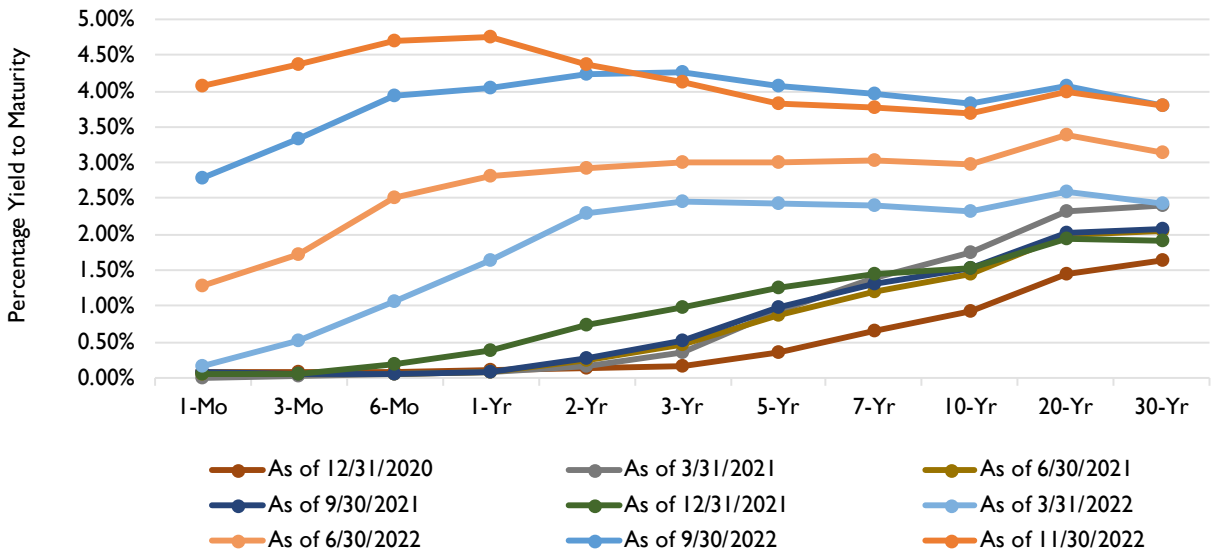
DATA CENTER

ECONOMIC / FINANCIAL

COMMERCIAL AND INDUSTRIAL LOANS VS. BANKING STANDARDS (QUARTERLY, MONTHLY) (75)



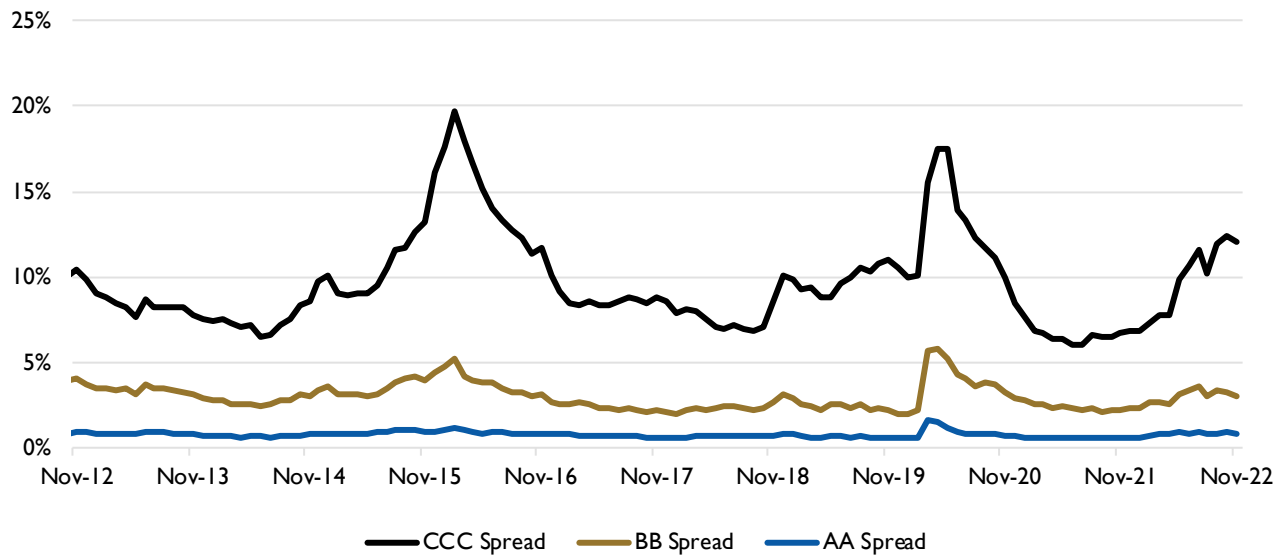
U.S. TREASURY YIELD CURVE (MONTHLY, ANNUAL) (76)



DATA CENTER

ECONOMIC / FINANCIAL

CORPORATE SPREADS TO TREASURIES BY QUALITY
(MONTHLY AVERAGE) (77)



DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

ABBREVIATIONS & ACRONYMS

AECO – Alberta Energy Company
ARAMCO – Saudi Arabian Oil Company, formerly the Arabian-American Oil Company
BCF – Billion cubic feet
BTU – British thermal unit
CIF – Costs, insurance and freight
CMT – Constant maturity treasury
DUC – Drilled but uncompleted wells
EBITDA – Earnings before interest, taxes, depreciation and amortization
IFO – Intermediate fuel oil
ITC – Investment Tax Credit
LCOE – Levelized cost of energy
LIBOR – London Interbank Offered Rate
LNG – Liquefied natural gas
LPG – Liquefied petroleum gas
mmBTU – Millions of British Thermal Units
MTBE – Methyl tertiary butyl ether
MW – Megawatt
NBP – National Balancing Point
NGPL – Natural gas plant liquids
NYMEX – New York Mercantile Exchange
OAS – Option-adjusted spread
OPEC – The Organization of Petroleum Exporting Countries
PADD – Petroleum Administration for Defense District
PG&E – Pacific Gas & Electric
PMI ® – U.S. Purchasing Managers Index ®
PV – Photovoltaic
SoCal – Southern California
SPR – Strategic Petroleum Reserve
TETCO-M3 – Texas Eastern Transmission Corporation Pipeline Zone M3
TTF – Title Transfer Facility
UAE – United Arab Emirates
WTI – West Texas Intermediate crude oil

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

DEFINITIONS

Biofuels – liquid fuels and blending components produced from biomass feedstocks, used primarily for transportation.

British Thermal Unit (BTU) – A traditional unit of heat; it is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

Ending Stocks – A proxy for inventory, defined as the total volume of a given commodity held in storage (leases, refineries, processing plants, pipelines, terminals, tank farms) at the end of the last day of a given month.

Distillate Fuel Oil – A general classification for a variety of petroleum fractions produced in petroleum distillation operations. Included within this classification are No. 1, No. 2 and No. 4 diesel fuels (used in on-highway and off-highway diesel engines), as well as No. 1, No. 2 and No. 4 fuel oils (used primarily for space heating and electric power generation).

Distributed Solar Energy – Refers to solar energy generated by small-scale photovoltaic generation plants. Small-scale is defined as a plant with capacity below one megawatt.

Index – A figure in a system or scale representing the average value of specified prices, shares, or other items as compared with some reference figure.

Intermediate Fuel Oil – Also known as IFO and Bunker Fuel, fuel utilized by ships and barges to facilitate international exchange of various commodities across an array of industries.

Investment Tax Credit – A federal policy tax incentive that supports the deployment of solar energy in the United States.

LIBOR – The London Interbank Offered Rate is the average interest rate at which leading banks borrow funds of a sizeable amount from other banks in the London market.

Liquefied Natural Gas – Natural gas that has been cooled to a liquid state, at about -260°Fahrenheit, for shipping and storage.

Liquefied Petroleum Gas – A group of hydrocarbon gases, primarily propane, normal butane and isobutene, derived from crude oil refining or natural gas processing.

Natural Gas Liquids – A group of hydrocarbons including ethane, propane, normal butane, isobutene and natural gasoline. Generally include natural gas plant liquids and all liquefied refinery gases except olefins.

Natural Gas Plant Liquids – Ethane, propane, butane, isobutane, pentane and pentane plus.

Petroleum Administration for Defense District (PADD) – A geographic aggregation of the 50 States and the District of Columbia into five Districts. PADD 1 is the East Coast region, PADD 2 is the Midwest region, PADD 3 is the Gulf Coast region and PADD 5 is the West Coast region.

Petroleum Products – Obtained from the processing of crude oil (including lease condensate), natural gas and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas and miscellaneous products.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

DEFINITIONS

Product Supplied – A widely utilized proxy for consumption of petroleum products, measuring the disappearance of said products from primary sources. Primary sources include, among others, refineries, processing plants, blending plants, pipelines and bulk terminals.

Propylene – Petrochemical feedstock that is recovered from refinery or petrochemical processes. It is an olefinic hydrocarbon that is gaseous at standard temperature and pressure.

Residual Fuel Oil – The general classification for heavy oils that remain after lighter oils are distilled away in the process of petroleum refining.

Spot vs. Wholesale Price – "Spot" prices are defined by the U.S. Energy Information Administration as, "the price for a one-time open market transaction for immediate delivery of a specific quantity of a product at a specific location where the commodity is purchased 'on the spot' at current market rates."

In this report, certain charts contain both "spot" and "wholesale" prices for given commodities alongside each other within the same chart. In these instances, the wholesale prices shown are, in fact, wholesale market "spot" prices. Thus, the terms are interchangeable in charts where both terms are present in describing respective price series.

Strategic Petroleum Reserve (SPR) – An emergency fuel storage of crude oil maintained by the United States Department of Energy for use during periods of major supply interruption.

Virtual Trading Point – Commodity trading center created to service a specific geographic region but does not have a physical location.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

DESCRIPTIONS

General Conversion Information

- International pricing data for various commodities were converted by JKC from the units utilized by the original data source (in the form of currency value per unit of energy content or volume) to appropriate domestic units (in the form of U.S. dollars per common domestic unit of energy content or volume) in order to allow for convenient, informative comparison of international and domestic commodity price series through displaying them on a singular chart in consistent units. Appropriate domestic units for a given commodity are determined by whatever units are most commonly utilized in the United States to denote prices of that commodity, per the U.S. Energy Information Administration.
- International currency units were converted to U.S. dollars using historical exchange rates published by x-rates.com.
- Energy content and volume conversion factors differ by commodity. International energy content or volume units were converted using the various sources listed below:
  - Google.com In-Browser Unit Converter
    - Alberta Energy Co. Hub Natural Gas – gigajoules to mmBTU
    - Dutch TTF Hub Natural Gas – megawatt hours to mmBTU
    - Houston; Los Angeles; Rotterdam; Singapore; Port of Fujairah, UAE IFO 380, IFO 180 Bunker Fuel – liters/kilogram to gallons per metric ton
  - Iowa State University Liquid Fuel Measurements and Conversions
    - Netherlands Retail LPG – liters to metric tons, metric tons to barrels
    - Saudi ARAMCO Propane – metric tons to barrels
    - Japan Propane Imports – metric tons to barrels
    - Holland Retail Gasoline – liters to gallons
    - Singapore Retail Gasoline – liters to gallons
    - UAE Gasoline – liters to gallons
    - Edmonton Diesel Fuel – liters to gallons
    - Singapore Retail Diesel – liters to gallons
    - Holland Retail Diesel – liters to gallons
    - UAE Diesel – liters to gallons
  - Official Nebraska Government Website
    - Netherlands Retail LPG – barrels to gallons
    - Saudi ARAMCO Propane – barrels to gallons
    - Japan Propane Imports – barrels to gallons
  - Lanka IOC Oil Company
    - Houston; Los Angeles; Rotterdam; Singapore; Port of Fujairah, UAE IFO 380, IFO 180 Bunker Fuel – density, in liters per kilogram

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

CHART NOTES

All charts in this report are updated to the latest information available at the time of publication. Due to differing reporting dates for various data used throughout the report, all charts are not updated to the same ending period.

(1) Crude Oil Prices

- Sources: U.S. Energy Information Administration (Brent, West Texas Intermediate), IndexMundi via WorldBank (Dubai Fateh), Alberta.ca Economic Dashboard (Western Canadian Select), OPEC.org and Quandl.com (OPEC Reference Basket).
- The Organization of Petroleum Exporting Countries (OPEC) reference basket is a composite of the following blends of crude oil: Saharan Blend (Algeria), Girassol (Angola), Oriente (Ecuador), Zafiro (Equatorial Guinea), Rabi Light (Gabon), Iran Heavy (Islamic Republic of Iran), Basra Light (Iraq), Kuwait Export (Kuwait), Es Sider (Libya), Bonny Light (Nigeria), Qatar Marine (Qatar), Arab Light (Saudi Arabia), Murban (United Arab Emirates), Merey (Venezuela).
- All prices are spot or wholesale.

(2) Gasoline Prices

- Sources: U.S. Energy Information Administration (New York Harbor, U.S. Gulf Coast), Trading Economics (Singapore, Netherlands Retail), United Arab Emirates Ministry of Energy (UAE Retail).
- New York Harbor Spot, U.S. Gulf Coast Spot, Netherlands Retail and Singapore Retail all represent the price history of conventional gasoline in their respective locations. United Arab Emirates Retail represents an aggregate of unleaded 95, unleaded 98 and unleaded 91 prices in the United Arab Emirates.

(3) Diesel Prices

- Sources: U.S. Energy Information Administration (U.S. Gulf Coast, New York Harbor, Los Angeles, CA), Ec.euopa.eu European Commission (Netherlands Retail), Knoema.com (Singapore Retail), United Arab Emirates (UAE Retail).
- New York Harbor, U.S. Gulf Coast and Los Angeles, CA prices represent ultra-low sulfur No. 2 diesel.
- Edmonton, Canada price represents low-sulfur diesel.
- Singapore Retail, United Arab Emirates Retail and Netherlands Retail prices represent conventional gasoil found at the pump. Gasoil is an alternative term for diesel commonly used throughout Europe.
- Netherlands Retail prices exclude taxes, Singapore Retail prices include taxes.

(4) Jet Fuel Prices

- Source: U.S. Energy Information Administration.
- All prices are spot or wholesale prices.

(5) U.S. Crude Oil and Petroleum Products Supply, Inventory and Consumption

- Source: U.S. Energy Information Administration.
- Crude Oil and Petroleum Products consist of natural gas plant liquids (ethane, propane, butane, isobutane, pentane), other liquids (hydrogen, oxygenates and renewable fuels like fuel ethanol, motor and aviation gasoline blending components, unfinished oils) and finished petroleum products (motor gasoline, aviation gasoline, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, napthas, lubricants, waxes, petroleum cokes, asphalt and road oil, still gas, miscellaneous products).
- Supply is comprised of field production, renewable fuels and oxygenate plant net production, refinery and blender net production, imports and net Petroleum Administration for Defense District (PADD) receipts. Net PADD receipts represent the net volume of product movement into and out of each PADD by tanker, barge and pipeline.
- Ending Stocks is a proxy for inventory and is defined as primary stocks held in storage as of midnight on the last day of the month. Primary stocks include products held in storage at, or in, leases, refineries, natural gas processing plants, pipelines, tank farms and bulk terminals with the capacity to store at least 50,000 barrels or that can receive product by tanker, barge or pipeline. Ending Stocks include volumes in the Strategic Petroleum Reserve (SPR) maintained by the Federal Government for use during periods of major supply interruption.
- Product Supplied is a proxy for consumption as it measures the disappearance of said product from primary sources, including refineries, processing plants, blending plants, pipelines and bulk terminals.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(6) U.S. Refinery Volumes and Wholesale Prices of Petroleum Products

- Source: U.S. Energy Information Administration Petroleum Marketing Monthly.

(7) U.S. Crude Oil Refinery Input, Distillation Capacity and Refinery Utilization

- Source: U.S. Energy Information Administration Petroleum Supply Weekly.
- Net Input is defined as gross inputs less gross production. Crude Oil Refinery Net Input values are monthly aggregates of weekly net input averages, measured in thousands of barrels per day. The resulting values are represented as monthly average refinery inputs, measured in thousands of barrels per day.
- Refinery Capacity refers to the maximum amount of crude oil designed to flow into the distillation (or crude) unit of the refinery. Operable Capacity is equal to the sum of operating and idle capacity. Idle Capacity is capacity that is not in operation, not under active repair, and can be placed in operation within 30 days.

(8) U.S. Crude Oil and Petroleum Products Imports and Exports

- Source: U.S. Energy Information Administration Petroleum Supply Monthly.
- U.S. Net Imports of Petroleum Products data fall below zero at which point the U.S. becomes a net exporter.

(9) Domestic Natural Gas Citygate Prices per Region

- Source: U.S. Energy Information Administration.
- The prices shown are "Citygate" prices. A Citygate is defined as "a point or measuring station at which a distributing gas utility receives gas from a natural gas pipeline company or transmission system." The Citygate price represents the benchmark price for a given region, accounting for all costs of acquisition, storage, and transportation of gas as well as other charges associated with local distribution companies obtaining the gas for sale to end-users.
- The Western market contains Oregon, Washington, California, Nevada, Arizona, New Mexico, Utah, Wyoming, Colorado, Montana, and Idaho.
- The Midwestern market contains North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Minnesota, Iowa, Missouri, Arkansas, Wisconsin, Michigan, Illinois, and Indiana.
- The Gulf market contains Texas and Louisiana; the Southeastern market contains Florida, Mississippi, Alabama, Georgia, Tennessee, North Carolina, and South Carolina.
- The Northeastern market contains Kentucky, Virginia, West Virginia, Ohio, Pennsylvania, New York, Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, Connecticut, Delaware, New Jersey, and Maryland.

(10) International Natural Gas Prices

- Sources: U.S. Energy Information Administration (Henry Hub), NGX Clearinghouse (AECO Hub), BP Statistical Review of World Energy 2017 (United Kingdom NBP), World Bank via Index Mundi (Russian NG European Import Price), Knoema via World Bank (Japan LNG Import), my.Elexys.be Market Information (Dutch TTF).
- Henry Hub serves as the primary global pricing benchmark.
- Alberta Energy Company (AECO) Hub serves North America.
- United Kingdom National Balancing Point (NBP) serves the British Isles.
- Dutch Title Transfer Facility (TTF) serves continental Europe.
- Virtual Trading Point (Virtual) does not have a physical location and was created to serve a specific region.
- Japan LNG Import Price represents aggregate import prices of liquefied natural gas in Japan and is a price benchmark serving the Asia-Pacific region. The price includes costs, insurance and freight (CIF).
- All price benchmarks above represent gaseous state natural gas transported by pipeline, with the exception of Japan LNG Import Price, which represents liquid state natural gas transported by ship.
- All prices are spot or wholesale.

(11), (12), (13) and (14) Liquefied Natural Gas Prices

- Sources: Federal Energy Regulatory Commission (U.S., Mexico, Belgium, India), World Bank via Bluegold Research (Brazil/Argentina, Japan/Korea, China, United Kingdom).
- All prices are "landed" prices. Landed price is the price received at the regasification terminal and is based on a netback calculation that removes the costs of pipeline transportation, regasification, waterborne shipping and liquefaction, so as to best represent the effective price to the producer or seller at a specific location or defined point.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(15) U.S. Import / Export Liquefied Natural Gas Prices
- Source: U.S. Energy Information Administration.
- All prices are spot or wholesale.

(16) Natural Gas Plant Liquids Prices
- Source: U.S. Energy Information Administration.
- Natural gas liquids spot prices at Mont Belvieu, TX.
- Natural Gas Plant Liquids (NGPL) Composite price includes ethane, propane, butane, isobutane and natural gasoline. Daily closing spot prices for each component are averaged into a monthly series, then weighted according to the portion of a representative natural gas plant liquids barrel that they occupy. The NGPL Composite price excludes natural gas liquids produced at crude oil refineries.

(17) U.S. Natural Gas Production and Consumption
- Source: U.S. Energy Information Administration.
- Marketed Production is equal to gross withdrawals of natural gas from production reservoirs, less gas used for reservoir re-pressuring, nonhydrocarbon gases removed in treating and processing operations, and quantities vented and flared (gas that is disposed of by release into the atmosphere).

(18) U.S. Natural Gas Supply and Inventory
- Source: U.S. Energy Information Administration.
- Working Gas is defined as the total amount of natural gas in storage less the amount of base gas. Base gas is the amount of gas intended as permanent inventory.

(19) U.S. Natural Gas Consumption by End Use
- Source: U.S. Energy Information Administration.

(20) U.S. Natural Gas Plant Liquids Production
- Source: U.S. Energy Information Administration.
- Natural Gas Plant Liquids Production refers to the sum of all production of ethane, propane, butane, isobutane, pentane and pentane plus.

(21) U.S. Liquefied Natural Gas Import and Export Volumes
- Source: U.S. Energy Information Administration.

(22), (23) and (24) North American LNG Import / Export Terminals – Proposed, Approved and Existing
- Source: Federal Energy Regulatory Commission.

(25) Heating Oil Prices
- Source: U.S. Energy Information Administration.
- Spot prices of No 2. heating oil at New York Harbor, alongside the spot prices of West Texas Intermediate crude oil for comparison purposes.

(26) Intermediate Fuel Oil aka "Bunker Fuel" Prices
- Source: Ship & Bunker.
- Intermediate Fuel Oil, also known as IFO and Bunker Fuel, is fuel utilized by ships and barges to facilitate international exchange of various commodities across an array of industries, including energy. It is classified in the maritime field by its viscosity, measured in centistokes. IFO 380 has a maximum viscosity of 380 centistokes and is comprised of 98% residual fuel oil and 2% distillate fuel oil. Under new regulations from the International Maritime Organization, ships must burn fuel with a sulfur content of not more than 0.5 percent or install costly emissions-cleaning scrubbers. Very Low Sulfur Fuel Oil (VLSFO) contains a maximum sulfur content of 0.5 percent.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(27) Propane Prices

- Sources: U.S. Energy Information Administration (Conway, KS and Mont Belvieu, TX spot prices), Government of Canada National Energy Board (Edmonton, Canada trading hub prices), Ec.euopa.eu European Commission (Netherlands Retail prices), LPG Australia and news articles (Saudi ARAMCO contract prices), Knoema.com and Petroleum Association of Japan (Japan Imports prices).
- Conway, KS and Mont Belvieu, TX retail prices are propane prices, while Saudi ARAMCO Contracts and Japan Imports are liquefied petroleum gas (LPG) prices. Netherlands Retail and Edmonton, Canada retail prices are auto propane and exclude taxes.
- Propane and LPG prices are represented on the same chart due to the fact that propane is dealt in international marketplaces as LPG, and is referred to as LPG in many European and Asian countries. LPG is comprised of a mixture of propane and butane.
- Conway, KS wholesale prices are typically available only for the winter months (October through March), during which propane demand is driven by cold weather, therefore, the data series displayed is intermittent.

(28) No. 1 Distillate Fuel Oil, Residual Fuel Oil Wholesale, Retail Sales Volume by Refiners

- Source: U.S. Energy Information Administration.
- No. 1 Distillate Fuel Oil consists of No. 1 diesel fuel and No. 1 fuel oil. The former is used in high-speed diesel engines, including those used by metropolitan buses and smaller automobiles. No. 1 fuel oil is utilized primarily as fuel for portable outdoor stoves and heaters.
- Residual Fuel Oil is the general classification for heavy oils that remain after lighter oils are distilled away in the process of petroleum refining. Residual Fuel Oil includes No. 5 and No. 6 fuel oils. The former is used in steam-powered vessels, and the latter is used for electric power generation, space heating, vessel bunkering and industrial processes.
- All wholesale and retail sales volumes refer to those sold by refiners only.

(29) No. 2 Distillate Fuel Oil Wholesale, Retail Sales Volume by Refiners

- Source: U.S. Energy Information Administration.
- No. 2 Distillate Fuel Oil consists of No. 2 diesel fuel and No. 2 fuel oil (heating oil). No. 2 diesel fuel is utilized in on-and-off highway diesel engines, including those used by railroad locomotives, trucks, automobiles and agricultural machinery. No. 2 fuel oil (heating oil) is used for space heating and moderate capacity industrial/commercial burner units.
- All wholesale and retail sales volumes refer to those sold by refiners only.

(30) Propane & Propylene and Distillate Fuel Oil Production and Consumption

- Source: U.S. Energy Information Administration.
- Distillate Fuel Oil is a general classification for a variety of petroleum fractions produced in petroleum distillation operations. Included within this classification are No. 1, No. 2 and No. 4 diesel fuels (used in on-highway and off-highway diesel engines), as well as No. 1, No. 2 and No. 4 fuel oils (used primarily for space heating and electric power generation).
- Propylene is an important petrochemical feedstock that is recovered from refinery or petrochemical processes. It is an olefinic hydrocarbon that is gaseous at standard temperature and pressure.
- Product Supplied is a proxy for consumption as it measures the disappearance of said product from primary sources, including refineries, processing plants, blending plants, pipelines and bulk terminals.

(31) U.S. Ending Stocks of Propane & Propylene and Distillate Fuel Oil

- Source: U.S. Energy Information Administration.
- Distillate Fuel Oil is a general classification for a variety of petroleum fractions produced in petroleum distillation operations. Included within this classification are No. 1, No. 2 and No. 4 diesel fuels (used in on-highway and off-highway diesel engines), as well as No. 1, No. 2 and No. 4 fuel oils (used primarily for space heating and electric power generation).
- Propylene is an important petrochemical feedstock that is recovered from refinery or petrochemical processes. It is an olefinic hydrocarbon that is gaseous at standard temperature and pressure.
- Ending Stocks are defined as the total volume of a propane and propylene/distillate fuel oil held in storage as of the last day of the period. Ending Stocks are monthly averages of Ending Stocks reported at the end of each week during that month, not the amount of Ending Stocks reported at the end of the month. The resulting values are represented as monthly average inventory levels.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(32) U.S. Well Starts by Depth
- Source: Platts RigData.
- Total number of well starts by depth on U.S. Land, U.S. Inland Waters and U.S. Offshore, respectively.

(33) Percentage of Crude Oil and Natural Gas Production per Shale Region
- Source: U.S. Energy Information Administration Drilling Productivity Report.
- Percentage of total U.S. crude oil and natural gas production from each of the shale regions.

(34) Drilled but Uncompleted Wells vs. Crude Oil Price
- Source: U.S. Energy Information Administration Drilling Productivity Report.
- Drilled but Uncompleted (DUC) Wells are oil and gas wells that have been drilled but haven't gone through the process of completion (the process of installing well casing, tubing and other equipment that prepares a well for production). The number of DUC wells has significant implications on the domestic supply response to crude oil price changes. If crude oil prices decrease, it is theoretically likely that the amount of DUC wells will increase, and vice versa in an increasing crude oil price scenario. Therefore, the West Texas Intermediate Crude price is tracked for comparative purposes.

(35) Hydraulic Fracturing Sand Producer Price Index
- Source: U.S. Bureau of Labor Statistics.
- Hydraulic Fracturing Sand is sand utilized as a proppant in the process of hydraulic fracturing to help facilitate the extraction of oil and gas from subsurface rock formations.
- The Producer Price Index for Hydraulic Fracturing Sand measures the weighted average period-to-period change in the selling prices received by domestic producers of hydraulic fracturing sand.
- Hydraulic Fracturing Sand Producer Price Index Base = 100 at June 1982.
- Not seasonally adjusted.

(36) and (37) Crude Oil and Natural Gas Production, Rig Count and Production per Rig
- Sources: U.S. Energy Information Administration Drilling Productivity Report (new-well crude oil and natural gas production per rig), Baker Hughes Inc. (rig count).
- New-Well Crude Oil or Natural Gas Production per Rig in each quarter represents the average of each month's value. New-well production per rig is estimated by dividing several trailing months of data on total production from new wells in each region by that region's monthly rig count, lagged by two months. New-well production per rig is intended to indicate an average rig's contribution to total crude oil production from new wells.
- The determination between a crude oil rig and a natural gas rig is made by the operating company at the time of issuance of the rig permit by the relevant state's permitting authority. The classification of a given rig as an oil or gas rig is based solely upon the operator's judgment after drilling an appraisal well and determining its specific hydrocarbon content. For example, if a well's production comes 50% from gas, 20% from Natural Gas Liquids and 30% from oil, it could either be listed as a gas rig, because gas comprises the largest share of hydrocarbons, or an oil rig because oil drives the well's economics. This determination is at the judgment of the operator.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(38) U.S. Drilling Rigs by Type

- Source: Baker Hughes North America Rotary Rig Count.
- A vertical well is a well that penetrates the earth vertically below the surface-mounted drilling platform, or the surface location of the well.
- A directional well is classified as one in which the surface location of the well is not vertically above the target reservoir. Thus, the well deviates horizontally from its surface location in order to reach the target reservoir, at a specific azimuth and incline. Azimuth measures the cardinal direction of the well's path relative to the surface location, and incline measures degrees of deviation from vertical.
- Per Baker Hughes methodology, a horizontal well is a type of directional well that deviates from vertical by greater than 80 degrees, or one in which the lower part of the wellbore is parallel to the "pay zone." The pay zone is the section of a reservoir that contains hydrocarbons that can be produced economically.

(39) Wind and Solar Prices

- Source: Lazard's Levelized Cost of Energy Analysis 2012-2020.
- The Levelized Cost of Energy (LCOE) is the net present value of the per-megawatt hour cost of building and operating a generating plant over an assumed financial life and duty cycle. It is utilized as a means of comparing the cost-competitiveness of various energy-generating technologies of unequal life spans, project sizes, capital profiles and capacities.
- The respective levelized costs of each generation technology for each year are a simple average of the high and low values of the cost range associated with that generating technology during that year.
- Solar PV refers to solar photovoltaic.
- Solar PV – Community refers to a solar power plant whose electricity is shared by more than one household.
- Solar PV – Rooftop Residential refers to a Solar PV system that has its solar panels mounted on the rooftop of a residential structure.
- Solar PV – Crystalline Rooftop refers to crystalline solar panels mounted on rooftops. Crystalline panels are a type of solar panel that achieves the photoelectric effect, the chemical process that converts solar (light) energy to electricity, through use of crystalline silicone solar cells.
- Solar PV – Crystalline Utility-Scale refers to a solar power plant that uses crystalline panels to generate power that is fed into the grid, supplying a utility with energy.
- Solar PV – Thin Film Utility-Scale refers to a solar power plant that uses thin-film solar panels to generate power that is fed into the grid, supplying a utility with energy. Thin-film panels differ from crystalline panels in that the photoemissive materials, those which produce an electric current when contacted by sufficient solar energy, are not cut from crystals.
- Solar Thermal refers to solar technology that generates thermal energy to heat water or other fluids, rather than generating electricity.

(40) U.S. Total Renewable Energy Consumption

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Total Renewable Energy Consumption is comprised of hydroelectric, geothermal, solar, wind, wood, waste and biofuels.
- Waste refers to biomass waste and is organic non-fossil material of biological origin that is a byproduct or a discarded product. Biomass waste includes municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural crop byproducts, straw and other biomass solids, liquids and gases.
- Biofuels are liquid fuels and blending components produced from biomass feedstocks, used primarily for transportation. Biomass is organic, non-fossil material comprised of decayed biological matter.

(41) U.S. Solar, Wind and Hydroelectric Energy Consumption

- Source: U.S. Energy Information Administration Monthly Energy Review.

(42) U.S. Wood, Waste, Biofuels and Geothermal Energy Consumption

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Biofuels are liquid fuels and blending components produced from biomass feedstocks, used primarily for transportation. Biomass is organic, non-fossil material comprised of decayed biological matter.

(43) Corn and Ethanol Prices and Corn Cost per Gallon of Ethanol

- Source: U.S. Department of Agriculture Economic Research Service (corn and ethanol price).

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(44) U.S. Solar Energy Consumption

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Utility-scale solar energy refers to solar energy generated by plants with a capacity of at least one megawatt that is transmitted via the transmission grid to a high volume of consumers. Thus, Utility-Scale Solar Energy Consumption represents consumption of solar energy generated at plants with capacity of at least one megawatt.
- Distributed solar energy refers to solar energy generated by small-scale generating plants with capacity below one megawatt that is distributed over a specific locality with a small volume of consumers relative to utility-scale energy consumers. Thus, Distributed Solar Energy Consumption represents consumption of solar energy generated at small-scale generating plants.

(45) U.S. Solar Energy Net Generation

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Distributed Solar Photovoltaic Generation refers to energy generated by small-scale photovoltaic generation plants. Small-scale is defined as a plant with capacity below one megawatt. Photovoltaic generation refers to solar energy generated by photovoltaic solar panels.
- Utility-Scale Solar Electricity Net Generation refers to generation of solar energy by plants with capacity equal to or above one megawatt. Net generation is defined as the amount of gross generation less electrical energy consumed by the generating plant for service or auxiliaries.

(46) Distributed Solar Photovoltaic Generation by Sector

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Distributed Solar Photovoltaic Generation refers to energy generated by small-scale photovoltaic generation plants. Small-scale is defined as a plant with capacity below one megawatt. Photovoltaic generation refers to solar energy generated by photovoltaic solar panels.

(47) Utility-Scale Solar Electricity Net Generation by Sector

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Utility-Scale Solar Electricity Net Generation refers to generation of solar energy by plants with capacity equal to or above one megawatt. Net generation is defined as the amount of gross generation less electrical energy consumed by the generating plant for service or auxiliaries.
- Gaps in the data represent periods for which there was no data reported, or the data value was trivially small and thus deemed unnecessary to report.

(48) U.S. Solar Capacity Installations

- Source: Solar Energy Industries Association Q1 2017 Solar Market Insight Report.
- The Investment Tax Credit (ITC) is a federal policy tax incentive that supports the deployment of solar energy in the United States. The ITC allows those who install a solar system to claim up to 30% of the price paid to install the system as a tax credit when filing Federal taxes, thereby significantly discounting the cost associated with transitioning to solar energy.

(49) U.S. Wind Power Capacity Installations

- Source: American Wind Energy Association U.S. Wind Energy Quarterly Market Report.
- Wind Power Generation Capacity Installations refers to non-utility-scale wind power capacity additions. Utility-scale is defined as installations of wind turbines larger than 100 kilowatts.

(50) Utility-Scale Wind Power Capacity Installations

- Source: American Wind Energy Association U.S. Wind Energy Quarterly Market Report.
- Utility-Scale Wind Capacity includes installations of wind turbines larger than 100 kilowatts. Capacity installations may not always equate to an equal increase in cumulative wind power capacity due to decommissioned, uprated and repowered wind turbines.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(51) Wind Power Under Construction or in Advanced Development

- Source: American Wind Energy Association (AWEA) U.S. Wind Energy Quarterly Market Report.
- AWEA defines projects as being "in advanced development" if it has not yet begun construction, but has either signed a power purchase agreement, announced a firm turbine order, or been announced to proceed under utility ownership.

(52) U.S. Aggregated Energy Consumption by Sector

- Source: U.S. Energy Information Administration.
- Energy consumed by the electric power sector is primary energy only. Primary energy is energy in its original form, before any transformation to secondary or tertiary forms of energy. For example, coal can be converted to synthetic gas and then to electricity. Under these circumstances, coal is primary energy, synthetic gas is secondary energy and electricity is tertiary energy.

(53) U.S. Aggregated Energy Consumption by Source

- Source: U.S. Energy Information Administration.
- Total consumption of each category of energy is as accurate as possible. However, some data is unavailable or unreported and, thus, some total consumption values may be understated.
- Fossil Fuels includes coal, petroleum-based products, natural gas and natural gas-based products.
- Renewable Energy includes conventional hydroelectric, solar, biomass, nuclear, geothermal and wind.
- Biomass is a renewable energy source derived from organic matter such as wood, crop waste, or garbage, with wood being the largest contributor.
- Fossil Fuels and Renewable Energy consumption represent consumption of primary energy, which is energy in its original form, before transformation to secondary or tertiary forms of energy. Thus, to arrive at total energy consumption, Electricity Retail Sales (representing consumption of secondary and tertiary forms of energy) is added alongside consumption of Fossil Fuels and Renewable Energy.
- Electrical System Energy Losses are a deduction from total energy consumption, and are incorrectly represented as positively contributing to total energy consumption. Thus, total energy consumption figures in each year are overstated by the amount of electrical system energy losses.

(54) Electricity Prices by Sector

- Source: U.S. Energy Information Administration.

(55) Commercial Crude Oil Inventory

- Source: U.S. Energy Information Administration.
- U.S. Ending Stocks of Commercial Crude Oil represents stocks (inventory) of crude oil held in storage for commercial use. This figure excludes both lease stock and volumes in the Strategic Petroleum Reserve (SPR). Lease stock is crude oil stored in tanks at sites where producers are drilling on leased land. They're excluded from total commercial crude oil inventory because they aren't yet available for commercial use. The SPR is petroleum maintained by the Federal Government for use during periods of major supply interruption.
- Ending stocks (inventory) are primary stocks of crude oil held in storage as of midnight on the last day of the month. Primary stocks include crude oil held in storage at, or in, leases, refineries, natural gas processing plants, pipelines, tank farms and bulk terminals with the capacity to store a minimum of 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge or pipeline.

(56) Petroleum and Other Liquids Commercial Inventory

- Source: U.S. Energy Information Administration.
- Hydrocarbon Gas Liquids (HGLs) are molecules of carbon and hydrogen in various combinations. HGLs include alkanes, or paraffins (ethane, propane, butane, isobutene, natural gasoline) and alkenes, or olefins (ethylene, propylene, butylene, isobutylene).
- Unfinished Oils are all oils that require further processing and are produced by partial refining of crude oil. Unfinished Oils include napthas and lighter oils, kerosene and light gas oils, heavy gas oils and residuum.
- Other Hydrocarbons/Oxygenates are substances that increase the amount of oxygen in various gasoline blends when added to them. This category includes fuel ethanol, methanol and methyl tertiary butyl ether (MTBE).
- Total Motor Gasoline includes finished motor gasoline and motor gasoline blending components.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

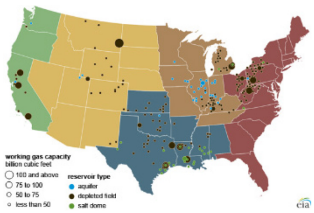
(56) Petroleum and Other Liquids Commercial Inventory (continued)

- Distillate Fuel Oil is a general classification for a variety of petroleum fractions produced in petroleum distillation operations. Included within this classification are No. 1, No. 2 and No. 4 diesel fuels (used in on-highway and off-highway diesel engines), as well as No. 1, No. 2 and No. 4 fuel oils (used primarily for space heating and electric power generation).
- Residual Fuel Oil is the general classification for heavy oils that remain after lighter oils are distilled away in the process of petroleum refining. Residual Fuel Oil includes No. 5 and No. 6 fuel oils. The former is used in steam-powered vessels, and the latter is used for electric power generation, space heating, vessel bunkering and industrial processes.
- Other Oils include aviation gasoline blending components, finished aviation gasoline, kerosene, petrochemical feedstocks, special napthas, lubricants, waxes, petroleum coke, asphalt and road oil, still gas and miscellaneous products.

(57) Natural Gas Underground Storage Capacity

- Source: U.S. Energy Information Administration.
- Underground Storage Capacity refers to total natural gas storage capacity in underground storage facilities called "salt domes," which are caverns hollowed out in subsurface salt formations. Salt domes are the primary means of natural gas storage in the United States.

U.S. Underground Natural Gas Storage Facilities by Type (July 2015)



(58) Commercial Crude Oil Refinery, Tank and Underground Storage Capacity and Utilization

- Source: U.S. Energy Information Administration.
- Commercial Crude Oil Storage Capacity refers to working storage capacity. Working capacity is the volume difference between a crude oil storage tank's maximum safe fill capacity and the volume below which pump suction is ineffective, called tank bottoms.
- Crude Oil Shell Storage Capacity is the design capacity of a petroleum storage tank. It includes tank bottoms, working storage capacity and contingency space. Contingency space is defined as available storage space above the defined maximum operating inventory level that remains empty during normal operations. Shell Storage Capacity is always greater than or equal to working storage capacity.
- Crude Oil Storage Capacity data is released only twice per year for the months of March and September. Thus, the data series excludes inventory levels for all months other than March and September of each year.

(59) Crude Oil and Natural Gas Pipeline Mileage

- Source: Pipeline and Hazardous Materials Safety Administration.
- The chart includes information from only Federal Energy Regulatory Commission-regulated pipeline companies.
- Crude Oil Pipeline Mileage represents total mileage of pipelines dedicated to the transport of crude oil and those dedicated to the transport of petroleum products. Pipeline Mileage for crude oil includes trunk lines only.
- Pipeline Mileage for natural gas includes both trunk and gathering lines.
- Trunk lines are synonymous with transmission lines, which are large, cross-country pipelines that move oil or gas from producing areas to refineries. Gathering lines are pipelines that transport oil or gas from the area in which it was produced to a storage facility which acts as an intermediate stop before transportation by truck, railcar, or trunk line.

(60) Crude Oil and Petroleum Products Pipeline Movements Between Petroleum Administration for Defense Districts (PADDs)

- Source: Federal Reserve Bank of St. Louis, with data provided by the U.S. Energy Information Administration.
- Crude Oil and Petroleum Products Pipeline Movements Between PADDs represents the total volume of crude oil and petroleum products transported between each PADD. The data does not include movements within each PADD.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(61) Natural Gas Cumulative Interstate Pipeline Systems Capacity

- Source: U.S. Energy Information Administration.
- Cumulative Interstate Capacity refers to capacity of natural gas pipelines crossing between states. Thus, capacity of intrastate pipelines is not included and the data should not be interpreted as representing total capacity of natural gas pipelines.

(62) Crude Oil and Petroleum Products Exports to Mexico

- Source: U.S. Energy Information Administration.
- Petroleum Products include pentanes plus, liquefied petroleum gases, unfinished oils, finished motor gasoline, motor gasoline blending components, oxygenates, fuel ethanol, distillate fuel oil, kerosene, kerosene-type jet fuel, special napthas, residual fuel oil, waxes, petroleum coke, asphalt and road oil, lubricants and miscellaneous products.

(63) Truck Tonnage Index

- Source: U.S. Department of Transportation, Bureau of Transportation Statistics.
- The Truck Tonnage Index measures the gross tonnage of freight that is transported by motor carriers for a given month. The Index serves as an indicator of shipping activity in the United States.
- Created by the U.S. Department of Transportation, Bureau of Transportation Statistics via information published in the American Trucking Association (ATA) Monthly Truck Tonnage Report.
- In January 2018, ATA revised the seasonally adjusted index back five years as part of its annual revision. In addition, ATA re-indexed the seasonally adjusted and not seasonally adjusted tonnage indexes to 2015 = 100 back to 1973.

(64) Heavy Truck Sales

- Source: Federal Reserve Bank of St. Louis.
- Heavy Trucks are trucks with more than 14,000 pounds gross vehicle weight.

(65) Trucking Conditions Index

- Source: FTR Transportation Intelligence.
- The Trucking Conditions Index summarizes the status of the trucking industry through tracking changes in six major conditions including freight volumes, freight rates, fleet capacity, fleet bankruptcies, fuel price and financing.
- An index value greater than zero represents a positive environment in the truck market, and an index value below zero represents a negative environment. An index value above 10 is a sign that volumes, prices and margin are in a solidly favorable range.

(66) Freight Transportation Services Index

- Source: Federal Reserve Bank of St. Louis.
- The Freight Transportation Services Index measures the output of the for-hire freight transportation industry and consists of data from for-hire trucking, rail, inland waterways, pipelines and air freight.

(67) Crude Oil Refinery Receipts by Transportation Method

- Source: U.S. Energy Information Administration.
- Refinery Receipts by Pipeline, Tanker, Barge, Truck and Rail refer to total volumes of crude oil of domestic and international origin that are in transit to, or received by, domestic refineries. Volumes of crude oil in transit via pipeline are excluded from receipts. Foreign crude oil is included in receipts only after entry through customs.
- Refinery inputs track volumes of crude oil that are entered into refining processes (e.g., distillation units, cokers, etc.).
- The volume difference between refinery receipts and refinery inputs is that which is in transit but not yet received by refineries plus that which has been received and is held in bonded storage, awaiting entry into refining processes.

(68) Crude Oil Movements by Tanker and Barge Movements Between Petroleum Administration for Defense Districts (PADDs)

- Source: U.S. Energy Information Administration.
- The data series shown on the chart is an aggregate of all crude oil movements between Petroleum Administration for Defense Districts (PADDs). This includes crude oil movement from PADD 1 to PADD 2 and PADD 3; PADD 2 to PADD 1 and PADD 3; and PADD 3 to PADD 1, PADD 2 and PADD 5.
- PADD 1 is the East Coast region, PADD 2 is the Midwest region, PADD 3 is the Gulf Coast region and PADD 5 is the West Coast region.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(69) Movements of Crude Oil by Rail
- Source: U.S. Energy Information Administration.

(70) Average Weekly Rail Carloads of Petroleum and Petroleum Products
- Source: Association of American Railroads.
- Monthly aggregates of the average weekly number of rail carloads transporting petroleum and petroleum products in the United States.
- Excludes the U.S. operations of Canadian railroads.

(71) U.S. Manufacturers' Monthly Shipments and U.S. Purchasing Managers' Index (PMI®)
- Sources: For Manufacturers' Monthly Shipments - U.S. Census Bureau Manufacturers' Shipments, Inventories and Orders Survey; and for U.S. Purchasing Managers' Index (PMI®) – Institute for Supply Management Manufacturing Report on Business®.
- A PMI® above 50 represents expansion within the manufacturing sector compared with the prior month.

(72) U.S. New Housing Starts and Total U.S. Construction Spending
- Source: U.S. Census Bureau.

(73) London Interbank Offered Rate (LIBOR), Based on U.S. Dollar
- Source: ICE Benchmark Administration Limited via Moody's Analytics.
- The London Interbank Offered Rate is the average interest rate at which leading banks borrow funds of a sizeable amount from other banks in the London market. LIBOR is the most widely used benchmark or reference rate for short term interest rates. The chart values are monthly percent averages of daily figures and are not seasonally adjusted.

(74) Bank Prime Loan Interest Rates
- Source: Federal Reserve Bank of St. Louis.
- The Bank Prime Loan Interest Rate is that posted by a majority of top 25 (by assets in domestic offices) insured, U.S.-chartered commercial banks. Prime is one of several base rates used by banks to price short-term business loans.
- The chart values are monthly percent averages of daily figures and are not seasonally adjusted.

(75) Commercial and Industrial Loans vs. Banking Standards
- Source: Federal Reserve Bank of St. Louis.
- Net Percentage of Domestic Banks Tightening Standards for Commercial and Industrial Loans to large and middle-market firms. Quarterly, not seasonally adjusted.
- Commercial and Industrial Loans, All Commercial Banks. Monthly, seasonally adjusted.

(76) U.S. Treasury Yield Curve
- Source: U.S. Treasury.
- U.S. Treasury Yield Curve rates are commonly referred to as Constant Maturity Treasury (CMT) rates. Yields are interpolated by the U.S. Treasury from the daily yield curve.
- The curve, which relates the yield on a security to its time to maturity, is based on the closing market bid yields on actively traded U.S. Treasury securities in the over-the-counter market.

(77) Corporate Spreads to Treasuries by Quality
- Source: Federal Reserve Bank of St. Louis.
- Corporate Spreads to Treasuries represent the spread, or difference, between the yield curve of an index of corporate bonds of a given rating category and the spot rate U.S. Treasury curve. The spot rate U.S. Treasury curve is a yield curve that uses U.S. Treasury spot rates rather than yields, and represents the rate for a zero-coupon U.S. Treasury bond.
- The corporate bond yield indexes are Bank of America Merrill Lynch Option-Adjusted Spread (OAS) Indexes for all bonds with a given investment rating of AA, BB or CCC or below that are publically issued in the U.S. domestic market. Each respective OAS index is calculated using each constituent bond's OAS, weighted by market capitalization. A bond's OAS is the bond's yield spread relative to the risk-free rate of return, typically the U.S. Treasury securities yield, adjusted to account for an embedded option.

HOT TOPICS

OPEN LETTER TO HOUSE SPEAKER KEVIN MCCARTHY ON THE NEED FOR ENERGY INFRASTRUCTURE REGULATORY REFORM

The Honorable Kevin McCarthy
Speaker of the House of Representatives
Washington, D.C. 20515

Dear Mr. Speaker,

On behalf of the Energy Equipment and Infrastructure Alliances' (EEIA) businesses and workers, please accept our congratulations on your election to the position of Speaker of the U. S. House of Representatives.

As the 118th Congress convenes, we look forward to your strong leadership of the energy policy agenda outlined in your acceptance remarks: "We pledge to cut the regulatory burden, lower energy costs for families, and create good-paying jobs for workers by unleashing reliable, abundant American-made energy."

We endorse your commitment to leverage America's abundant resources to advance our nation's energy independence and security, lower our energy costs and create good-paying jobs for our workers. We agree with your identification of regulatory burdens as a principal barrier to achieving these goals. We pledge our strong support to lowering those barriers, including permitting reform, essential to unleashing the enormous potential of our energy resources.

EEIA represents American businesses and workers who build energy infrastructure. They comprise a vast supply chain of providers of construction, equipment, materials, services and workers; including tens of thousands of large and small businesses and millions of workers throughout all fifty states. The energy infrastructure they build includes oil, gas and renewable production complexes, pipelines and midstream processing and storage facilities, generation and transmission systems, and downstream processing and export facilities.

Abundant energy is essential to a robust and growing economy, advancing technology, improved grid reliability and energy affordability, even as we transition to lower carbon energy systems. American energy can also support our geopolitical interests by providing our allies with the means to end reliance for energy on countries who do not share our

HOT TOPICS

OPEN LETTER TO HOUSE SPEAKER KEVIN MCCARTHY ON THE NEED FOR ENERGY INFRASTRUCTURE REGULATORY REFORM (CONTINUED)

values and interests and who threaten our security. Exporting low-carbon American energy such as LNG can also help our trading partners lower their reliance on higher-emitting fuels. These outcomes, all essential to our national security, cannot be realized without major additions to American energy infrastructure.

New energy infrastructure will also be essential for future integration of renewables and net-zero fuels and power generation into America's energy portfolio. New transmission systems are necessary to bring growing wind and solar capacity into our power grid. Infrastructure to capture, transport and sequester carbon dioxide (CCS) is essential to integration of low and zero-carbon fuels such as hydrogen, ethanol and biofuels. CCS also enables lowering the carbon intensity of industrial processes such as cement, steel, fertilizer and petrochemical manufacturing. Coupling CCS with power generation from our abundant natural gas resources will further reduce greenhouse gas emissions while maintaining grid reliability and affordability. None of this can happen at scale without development of a major new nationwide network of CO2 pipelines coupled with underground CO2 sequestration wells.

Building and operating this much-needed new energy infrastructure will add countless good-paying American jobs in construction, manufacturing and services, and underpin the prosperity of families and communities throughout the country.

Yet under the current regulatory regime, this bullish scenario cannot happen at the scale and speed necessary to expand our energy systems to meet our needs for growth and security. Regulatory barriers are constraining our ability to put infrastructure in place. Up-front investment in planning and engineering of new energy systems is discouraged by risks related to unnecessarily high regulatory hurdles and lengthy environmental assessment timelines and complexity that add little or nothing to protection of the environment.

The prospect of endless litigation of permits also adds unacceptable risk to construction budgets and timeframes. Uncertain, ambiguous and excessive regulatory provisions give opponents of development the tools to discourage, slow or stop projects as permits are applied for; or even for those projects already under construction.

HOT TOPICS

OPEN LETTER TO HOUSE SPEAKER KEVIN MCCARTHY ON THE NEED FOR ENERGY INFRASTRUCTURE REGULATORY REFORM (CONTINUED)

To realize our potential, these unnecessary regulatory barriers must be reduced or eliminated, beginning with much-needed reforms to energy infrastructure permitting. EEIA looks forward to your leadership and to working with your office and the Committees with jurisdiction over energy and environmental policy. We are committed to mobilizing the voices of the energy infrastructure supply chain to advocate for these opportunities and reduce the regulatory burdens that now prevent development of essential energy infrastructure and keep America from capitalizing on our rich blessing of energy resources for our prosperity and security.

Thank you again for your leadership and your commitment to reducing the regulatory burden on energy infrastructure as a national priority.

Sincerely,

Toby Mack, President
Energy Equipment and Infrastructure Alliance

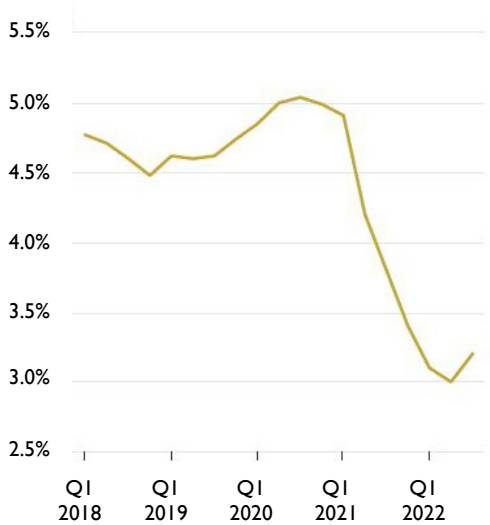
HOT TOPICS

THE NEED FOR WAREHOUSING SPACE CONTINUES TO GROW

Warehousing and storage, which was once just a tiny part of the transportation sector, is now an essential part of the supply chain for businesses that deal in physical goods. Warehouses are used by all types of businesses that need to temporarily store products before either dispersing goods to last-mile delivery locations or to end consumers. Large companies are leasing more warehouse and distribution space to hold more inventory as a precaution against rising supply chain costs.[1] With over 20,000 warehouses throughout the United States[2] and consumers now accustomed to same-day delivery, warehousing and storage is becoming an increasingly important industry in the economy.

Storage and warehousing classify as components of the industrial real estate category, which is forecasted to remain strong even if there is a downturn in the economy.[1] The nationwide vacancy rate for industrial real estate was 3.2% in the third quarter, down from 3.8% the same quarter a year ago. The vacancy rate was over 5% in the third quarter of 2020. In southern California, vacancy rates are as low as 0.7%.[3] Some retailers are holding goods in shipping containers and on railcars outside their warehouses and stores because of the limited space in distribution centers.

Vacancy Rates for U.S. Industrial Real Estate[3]



The industry earns much of its revenue from the storage of consumer goods. Therefore, demand for warehousing tends to follow trends in manufacturing output and consumer spending. As manufacturers produce more goods to meet consumer demand, they require greater warehouse space.

Prior to the pandemic, most manufacturers had adopted lean manufacturing in order to keep working capital at a minimum. Receiving goods just in time for manufacturing kept inventory costs down and utilized facilities more efficiently. When the COVID pandemic arrived, this lean strategy left many

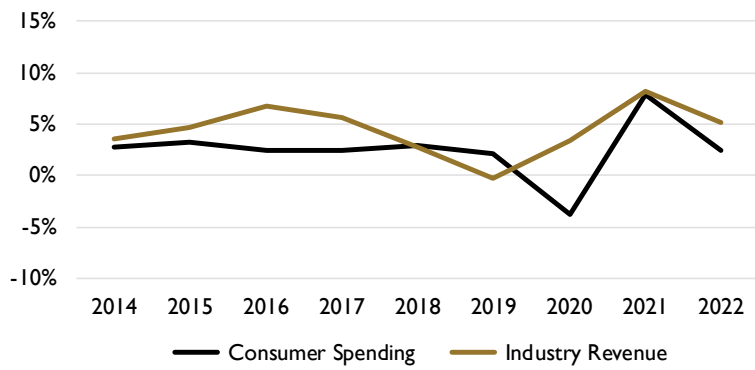
HOT TOPICS

THE NEED FOR WAREHOUSING SPACE CONTINUES TO GROW (CONTINUED)

manufacturers with inventory shortages and in some cases caused production to stop altogether. To prevent future inventory shortages, manufacturers have increased their on hand stock (referred to as buffer stock).

Following strong consumer consumption in early 2022, sustained growth will likely further raise demand for warehousing from manufacturers and retailers as they will require storage for more consumer goods. Consumer spending is anticipated to strengthen, increasing at an annualized rate of 2.4% over the five years to 2027.[4]

Percent Change in Warehouse Revenue and Consumer Spending[4,5]



In addition, the growth in e-commerce is also expected to increase demand for third-party warehousing. As online sales channels have enabled businesses with limited or no brick-and-mortar retail presence to market their products to consumers nationwide, many of these businesses have relied on third-party logistics providers for both distribution and warehousing. While the COVID pandemic didn't start the e-commerce boom, it is responsible for the recent surge in demand. As e-commerce sales grow, the amount of inventory that moves in and out of warehousing facilities grows as well. Products sold through online channels require three times more warehouse space than those destined for traditional retailers because they must be individually packaged rather than palletized for bulk shipments.[4] IBISWorld expects e-commerce sales to grow at an annualized rate of 8.1% over the next five years.

The recent trend toward the increased outsourcing of logistics operations by bigger businesses is expected to continue over the next five years. Large companies are leasing more warehouse and distribution space to hold more inventory as a check against rising supply chain costs. In addition, companies have opened more warehouses in multiple locations to decrease delivery times. According to a survey from Gartner Inc., in 2021, 66% of logistics leaders increased their logistics outsourcing budget and 74% anticipate an increase in the next two years.[4]

HOT TOPICS

THE NEED FOR WAREHOUSING SPACE CONTINUES TO GROW (CONTINUED)

Finally, rebounding global trade is expected to drive greater demand for warehousing. Foreign manufacturers often require domestic third parties to receive and store products made for the U.S. market. After falling 10.9% in 2020, total trade value is anticipated to increase at an annualized rate of 2.9% between 2022 and 2027.[4]

Over the last five years, warehousing and storage industry revenue growth is estimated to be an annualized 3.8%, rising to $33.6 billion, including 5.2% growth in 2022. Retailers, wholesalers, and e-commerce businesses were the largest market for warehousing services, generating an estimated 57.7% of industry revenue in 2022. As a result of the above positive trends, warehousing and storage industry revenue is expected to increase at an annualized rate of 2.7% over the next five years, reaching $38.4 billion in 2027.[4]

General warehousing in the United States has evolved from traditional wharf-side storage sheds to fully automated warehouses. With the global supply chain bottlenecks and disruptions experienced over the past two years, the industry has shifted from a leaner, centralized inventory model, to having more inventory located in multiple locations, to shorten supply chains and increase the speed of last-mile fulfillment.

Sources:

1) CBRE, Thriving U.S. Industrial Market Well Positioned to Withstand Economic Headwinds, May 26, 2022.
2) U.S. Bureau of Labor Statistics.
3) The Wall Street Journal, Small Businesses Getting Squeezed Out in Push for Warehouse Space, October 5, 2022. Cushman & Wakefield.
4) IBISWorld, Public Storage & Warehousing in the U.S., October 2022.
5) IBISWorld, Consumer Spending, September 19, 2022.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

PETROLEUM PRODUCTS

EQUITY COMPARABLES (1)

Petroleum Products (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Calumet Specialty Products Partners, L.P.	$4,553	$133	2.9%	$12.81	69.4%	$1,014	$2,699	0.6x	20.4x	12.4x
Chevron Corporation	227,055	52,929	23.3	143.67	78.8	281,225	296,098	1.3x	5.6x	0.2x
CVR Energy, Inc.	10,329	1,057	10.2	28.98	66.5	2,913	3,942	0.4x	3.7x	1.0x
EnLink Midstream, LLC	9,745	1,297	13.3	8.89	75.0	4,258	10,195	1.0x	7.9x	3.5x
Gibson Energy Inc.	7,761	327	4.2	16.00	79.2	2,343	3,517	0.5x	10.7x	3.5x
Exxon Mobil Corporation	389,392	82,323	21.1	87.31	82.7	363,876	399,090	1.0x	4.8x	0.2x
HF Sinclair Corporation	34,843	4,094	11.7	53.84	92.0	11,675	14,505	0.4x	3.5x	0.6x
Keyera Corp.	5,115	834	16.3	20.71	80.2	4,578	7,244	1.4x	8.7x	3.4x
Marathon Petroleum Corporation	173,756	20,026	11.5	99.33	86.9	49,528	71,616	0.4x	3.6x	0.8x
Parkland Corporation	24,131	959	4.0	21.56	75.0	3,369	8,092	0.3x	8.4x	4.9x
Phillips 66	162,315	10,195	6.3	80.72	72.5	38,830	50,351	0.3x	4.9x	1.5x
NuStar Energy L.P.	1,671	693	41.5	13.50	74.8	1,489	6,008	3.6x	8.7x	4.4x
Valero Energy Corporation	165,157	15,445	9.4	106.85	72.8	42,096	51,348	0.3x	3.3x	0.5x
Median			**11.5%**		**75.0%**			**0.5x**	**5.6x**	**1.5x**
Mean			**13.5%**		**77.4%**			**0.9x**	**7.3x**	**2.8x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
8/17/2022	DCP Midstream, LP (NYSE:DCP)	Phillips 66 (NYSE:PSX)	$13,227.8	0.7x	7.3x
7/28/2022	PBF Logistics LP (NYSE:PBFX)	PBF Logistics LP (NYSE:PBFX)	$1,661.0	4.8x	7.8x
4/24/2019	Anadarko Petroleum Corporation (NYSE:APC)	Occidental Petroleum Corporation (NYSE:OXY)	$57,809.2	4.4x	7.6x
10/22/2018	EnLink Midstream Partners, LP (NYSE:ENLK)	EnLink Midstream, LLC (NYSE:ENLC)	$12,923.5	1.7x	12.2x
8/27/2018	Blue Ridge Mountain Resources, Inc. (OTCPK:BRMR)	Eclipse Resources Corporation (NYSE:ECR)	$348.0	3.6x	12.8x
8/1/2018	Energy Transfer Operating, LP	Energy Transfer, LP (NYSE:ET)	$69,430.8	2.1x	10.9x
5/17/2018	Enbridge Energy Partners, LP (NYSE:EEP)	Enbridge Inc. (TSX:ENB)	$15,925.8	6.6x	10.1x
4/30/2018	Andeavor (NYSE:ANDV)	Marathon Petroleum Corporation (NYSE:MPC)	$35,103.0	0.9x	12.7x
11/8/2017	Alon USA Partners, LP	Delek US Holdings, Inc. (NYSE:DK)	$1,050.4	0.5x	5.9x

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

NATURAL GAS

EQUITY COMPARABLES (1)

Natural Gas (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Alliant Energy Corporation	$4,074	$1,556	38.2%	$52.99	81.1%	$13,297	$21,420	5.3x	13.8x	5.3x
AltaGas Ltd.	9,709	1,042	10.7	19.27	84.9	5,420	12,314	1.3x	11.8x	6.6x
Atmos Energy Corporation	4,202	1,465	34.9	101.85	82.8	14,248	21,711	5.2x	14.8x	5.7x
Avista Corporation	1,632	454	27.8	37.05	79.0	2,704	5,318	3.3x	11.7x	6.0x
Baytex Energy Corp.	1,640	1,306	79.7	4.26	63.9	2,350	3,177	1.9x	2.4x	0.6x
Calumet Specialty Products Partners, L.P.	4,553	133	2.9	12.81	69.4	1,014	2,699	0.6x	20.4x	12.4x
Cenovus Energy Inc.	48,480	9,297	19.2	15.46	68.0	29,846	37,809	0.8x	4.1x	0.6x
Chesapeake Utilities Corporation	654	215	32.8	115.39	78.9	2,047	2,803	4.3x	13.1x	3.7x
Crestwood Equity Partners LP	5,978	704	11.8	27.77	84.3	3,034	7,024	1.2x	10.0x	5.1x
Dominion Energy, Inc.	16,141	7,295	45.2	69.11	77.8	57,534	102,824	6.4x	14.1x	6.1x
EnLink Midstream, LLC	9,745	1,297	13.3	8.89	75.0	4,258	10,195	1.0x	7.9x	3.5x
Enbridge Inc.	38,170	8,914	23.4	37.31	85.8	75,538	138,786	3.6x	15.6x	6.6x
Enterprise Products Partners L.P.	55,906	8,448	15.1	23.78	83.0	51,823	81,916	1.5x	9.7x	3.5x
Epsilon Energy Ltd.	69	53	76.9	6.32	79.1	145	114	1.7x	2.2x	(0.8)x
Eversource Energy	11,742	3,500	29.8	77.96	82.4	27,009	48,558	4.1x	13.9x	6.2x
Genesis Energy, L.P.	2,657	497	18.7	9.20	68.2	1,128	5,610	2.1x	11.3x	6.8x
National Fuel Gas Company	2,186	1,164	53.3	61.55	81.0	5,630	8,242	3.8x	7.1x	2.3x
New Jersey Resources Corporation	2,906	538	18.5	38.70	81.5	3,724	6,760	2.3x	12.6x	5.8x
Northwest Natural Holding Company	956	282	29.5	43.38	75.3	1,510	2,842	3.0x	10.1x	5.1x
MDU Resources Group, Inc.	6,558	851	13.0	27.35	85.0	5,562	8,641	1.3x	10.2x	3.7x
OGE Energy Corp.	3,245	1,054	32.5	36.46	85.0	7,299	12,267	3.8x	11.6x	3.9x
ONE Gas, Inc.	2,354	555	23.6	70.39	76.3	3,811	7,977	3.4x	14.4x	5.6x
ONEOK, Inc.	22,775	3,300	14.5	51.24	68.3	22,897	36,615	1.6x	11.1x	4.2x
RGC Resources, Inc.	84	24	28.7	21.06	84.2	207	323	3.8x	13.4x	5.6x
South Jersey Industries, Inc.	2,585	571	22.1	33.42	94.6	4,089	7,594	2.9x	13.3x	6.6x
Southwest Gas Holdings, Inc.	4,624	843	18.2	69.75	72.9	4,674	10,673	2.3x	12.7x	7.2x
Summit Midstream Partners, LP	384	155	40.5	15.02	38.2	153	1,575	4.1x	10.1x	7.5x
Targa Resources Corp.	21,817	2,541	11.6	60.34	74.0	13,670	23,308	1.1x	9.2x	4.4x
TC Energy Corporation	10,635	6,560	61.7	40.53	74.7	41,010	83,042	7.8x	12.7x	6.2x
Median			**23.6%**	**79.0%**				**2.9x**	**11.7x**	**5.6x**
Mean			**29.2%**	**77.1%**				**2.9x**	**11.2x**	**5.0x**

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

NATURAL GAS

SELECTED TRANSACTIONS (1)

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
8/17/2022	DCP Midstream, LP (NYSE:DCP)	Phillips 66 (NYSE:PSX)	$13,227.8	0.7x	7.3x
2/24/2022	South Jersey Industries, Inc. (NYSE:SJI)	J.P. Morgan Asset Management, Inc. ; JPMorgan Infrastructure Investments, L.P.	$7,846.1	3.9x	16.6x
10/26/2021	Oasis Midstream Partners LP (NasdaqGS:OMP)	Crestwood Equity Partners LP (NYSE:CEQP)	$1,807.8	4.8x	8.1x
10/14/2021	Southwest Gas Holdings, Inc. (NYSE:SWX)	Icahn Enterprises L.P. (NasdaqGS:IEP)	$8,571.9	2.3x	10.6x
2/17/2021	Enable Midstream Partners, LP (NYSE:ENBL)	Energy Transfer LP (NYSE:ET)	$7,329.7	3.1x	9.5x
1/13/2021	Corning Natural Gas Holding Corporation (OTCPK:CNIG)	Argo Infrastructure Partners LP	$172.0	4.6x	17.2x
7/27/2020	CNX Midstream Partners LP (NYSE:CNXM)	CNX Resources Corporation (NYSE:CNX)	$764.2	5.1x	6.6x
2/27/2020	EQM Midstream Partners, LP	Equitrans Midstream Corporation (NYSE:ETRN)	$4,395.8	7.6x	8.1x
10/21/2019	AltaGas Canada Inc. (TSX:ACI)	Alberta Teachers' Retirement Fund Board; Public Sector Pension Investment Board	$1,278.2	5.2x	15.2x
9/16/2019	SemGroup Corporation	Energy Transfer LP (NYSE:ET)	$5,007.4	1.9x	11.2x
8/27/2019	Tallgrass Energy, LP (NYSE:TGE)	The Blackstone Group Inc. (NYSE:BX)	$9,337.3	9.9x	9.9x
5/8/2019	Andeavor Logistics LP	MPLX LP (NYSE:MPLX)	$14,804.7	5.6x	10.6x
4/24/2019	Anadarko Petroleum Corporation (NYSE:APC)	Occidental Petroleum Corporation (NYSE:OXY)	$57,809.2	4.4x	7.6x
11/8/2018	Western Gas Partners, LP (NYSE:WES)	Western Gas Equity Partners, LP (NYSE:WGP)	$13,427.9	6.5x	12.0x
10/22/2018	EnLink Midstream Partners, LP (NYSE:ENLK)	EnLink Midstream, LLC (NYSE:ENLC)	$12,923.5	1.7x	12.2x
10/9/2018	Antero Midstream Partners LP (NYSE:AM)	Antero Midstream GP LP (NYSE:AMGP)	$7,359.7	7.7x	11.5x
9/28/2018	American Midstream Partners, LP (NYSE:AMID)	ArcLight Capital Partners, LLC	$1,595.1	2.0x	14.2x
8/27/2018	Blue Ridge Mountain Resources, Inc. (OTCPK:BRMR)	Eclipse Resources Corporation (NYSE:ECR)	$348.0	3.6x	12.8x
8/1/2018	Energy Transfer Operating, LP	Energy Transfer, LP (NYSE:ET)	$69,430.8	2.1x	10.9x

(1) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

PROPANE AND HEATING/FUEL OIL

EQUITY COMPARABLES (1)

Propane and Heating/Fuel Oil (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Ferrellgas Partners, L.P.	$2,133	$339	15.9%	$9.74	38.6%	$47	$2,029	1.0x	6.0x	6.1x
NGL Energy Partners LP	9,212	528	5.7	1.30	44.7	170	4,527	0.5x	8.6x	6.7x
Spire Inc.	2,199	626	28.5	62.33	78.7	3,272	7,446	3.4x	11.9x	6.9x
Star Group, L.P.	2,007	89	4.4	8.13	69.7	295	603	0.3x	6.8x	3.0x
Suburban Propane Partners, L.P.	1,501	265	17.7	15.05	84.8	948	2,157	1.4x	8.1x	4.6x
UGI Corporation	10,106	2,186	21.6	32.33	68.7	6,769	12,992	1.3x	5.9x	3.2x
Median			**16.8%**		**69.2%**			**1.1x**	**7.5x**	**5.3x**
Mean			**15.6%**		**64.2%**			**1.3x**	**7.9x**	**5.1x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
9/30/2022	Brown's Gas Company, Inc.	Ferrellgas Partners, LP (OTCPK:FGPR)	$7.5	-	-
8/4/2022	Propane Business in Northern New Mexico	Suburban Propane Partners, LP (NYSE:SPH)	-	-	-
3/28//22	Retail Propane Distribution and Refined Fuels Assets of Quarles Petroleum Inc.	Superior Plus Corp. (TSX:SPB)	$145.0	-	-
7/14/2021	Kamps Propane, Inc.	Superior Plus Corp. (TSX:SPB)	$240.0	-	8.9x
4/22/2021	Assets of Freeman Gas, Inc.	Superior Plus Corp. (TSX:SPB)	$170.0	-	-
2/11/2021	Assets of Highlands Propane Inc.	Superior Plus Corp. (TSX:SPB)	$10.9	-	-
2/11/2021	Miller Propane Inc.	Superior Plus Corp. (TSX:SPB)	$5.9	-	-
1/26/2021	All of the Assets of Holden Oil, Inc.	Superior Plus Corp. (TSX:SPB)	$17.8	-	-
11/11/2020	Assets of Petroleum Heat and Power Co., Inc.	Superior Plus Corp. (TSX:SPB)	$6.1	-	-
10/15/2020	Central Coast Propane, Inc.	Superior Plus Corp. (TSX:SPB)	$12.9	-	-
9/1/2020	Simmons Energy Solutions Inc.	MFA Oil Company	-	-	-
8/25/2020	Rymes Propane & Oils, Inc.	Superior Plus Corp. (TSX:SPB)	$159.0	-	-
7/28/2020	Champagne's Energy, Inc.	Superior Plus Corp. (TSX:SPB)	$27.3	-	-
2/6/2020	All American Propane, Inc.	ThompsonGas LLC	-	-	-
1/9/2020	Evelyn Jeanne, Inc., d/b/a Western Propane Service	Superior Plus Corp. (TSX:SPB)	-	-	-

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

DRILLING

EQUITY COMPARABLES (1)

Drilling (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
AKITA Drilling Ltd.	$128	$17	13.3%	$0.86	39.9%	$35	$102	0.8x	6.0x	3.9x
Baker Hughes Company	20,736	2,757	13.3	20.96	52.7	21,206	24,176	1.2x	8.8x	1.1x
CES Energy Solutions Corp.	1,258	128	10.1	1.59	70.1	407	782	0.6x	6.1x	3.2x
Ensign Energy Services Inc.	1,024	209	20.4	1.65	45.2	309	1,306	1.3x	6.3x	5.0x
Halliburton Company	18,992	3,546	18.7	24.62	56.0	22,329	29,659	1.6x	8.4x	2.0x
Helmerich & Payne, Inc.	2,059	419	20.3	36.97	67.7	3,893	4,102	2.0x	9.8x	0.6x
Independence Contract Drilling, Inc.	155	22	14.5	3.00	40.5	41	160	1.0x	7.2x	6.0x
NOV Inc.	6,681	471	7.0	16.18	67.2	6,356	7,580	1.1x	16.1x	2.9x
Precision Drilling Corporation	1,021	182	17.8	50.93	64.0	692	1,528	1.5x	8.4x	5.1x
Secure Energy Services Inc.	5,329	362	6.8	4.20	76.1	1,303	2,158	0.4x	6.0x	2.2x
Valaris Limited	1,474	91	6.2	48.94	77.1	3,679	3,682	2.5x	40.5x	(0.8)x
Median			**13.3%**		**64.0%**			**1.2x**	**8.4x**	**2.9x**
Mean			**13.5%**		**59.7%**			**1.3x**	**11.2x**	**2.8x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
5/4/2020	Quintana Energy Services Inc.	KLX Energy Services Holdings, Inc. (NasdaqGS:KLXE)	$49.6	0.1x	2.1x
10/8/2018	Rowan Companies plc (NYSE:RDC)	Ensco plc (NYSE:ESV) / Valaris plc (NYSE:VAL)	$3,139.1	3.8x	43.9x
10/1/2018	Sidewinder Drilling LLC	Independence Contract Drilling Inc. (NYSE:ICD)	$291.8	2.6x	45.1x
8/27/2018	Blue Ridge Mountain Resources, Inc. (OTCPK:BRMR)	Eclipse Resources Corporation (NYSE:ECR)	$347.9	3.6x	12.8x
8/13/2018	Trinidad Drilling Ltd. (TSX:TDG)	Ensign Energy Services Inc. (TSX:ESI)	$714.0	1.5x	5.1x
6/5/2018	Xtreme Drilling Corp.	AKITA Drilling Ltd. (TSX:AKT.A)	$155.0	2.8x	162.4x
2/15/2018	Layne Christensen Company (NasdaqGS:LAYN)	Granite Construction Incorporated (NYSE:GVA)	$491.9	1.0x	16.5x
5/30/2017	Atwood Oceanics, Inc. (NYSE:ATW)	Ensco plc (NYSE:ESV)	$1,759.6	2.2x	4.7x
5/19/2017	Savanna Energy Services Corp.	Total Energy Services Inc. (TSX:TOT)	$458.2	1.4x	16.6x

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

LUBRICANTS AND GREASES

EQUITY COMPARABLES (1)

Lubricants and Greases (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Albemarle Corporation	$5,593	$2,123	38.0%	$264.44	85.8%	$30,974	$33,853	6.1x	15.9x	1.0x
Ascent Industries Co.	428	51	11.8	14.01	73.0	144	247	0.6x	4.9x	2.1x
Ashland Inc.	2,391	551	23.0	94.97	84.1	5,142	5,933	2.5x	10.8x	1.3x
Clean Harbors, Inc.	5,008	915	18.3	109.98	88.3	5,950	8,303	1.7x	9.1x	2.5x
CSW Industrials, Inc.	701	157	22.4	119.80	82.3	1,848	2,193	3.1x	14.0x	2.1x
FMC Corporation	5,594	1,356	24.2	105.70	75.0	13,314	16,766	3.0x	12.4x	2.4x
HF Sinclair Corporation	34,843	4,094	11.7	53.84	92.0	11,675	14,505	0.4x	3.5x	0.6x
Ingevity Corporation	1,621	456	28.1	60.63	72.5	2,307	3,404	2.1x	7.5x	2.5x
NewMarket Corporation	2,659	397	14.9	300.83	79.5	3,012	3,911	1.5x	9.9x	2.5x
Quaker Chemical Corporation	1,906	234	12.3	144.38	52.2	2,589	3,410	1.8x	14.6x	3.3x
Stepan Company	2,756	315	11.4	93.67	72.4	2,089	2,487	0.9x	7.9x	1.5x
Valvoline Inc.	1,236	285	23.0	25.34	66.7	4,486	6,376	5.2x	22.4x	7.4x
Median			**20.3%**		**77.2%**			**1.9x**	**10.3x**	**2.3x**
Mean			**19.9%**		**77.0%**			**2.4x**	**11.1x**	**2.4x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
6/22/2022	Ocean Bio-Chem, Inc. (NasdaqCM:OBCI)	OneWater Marine Inc. (NasdaqGM:ONEW)	$122.6	1.9x	10.5x
5/11/2022	Trecora Resources (NYSE:TREC)	Balmoral Funds LLC	$254.3	0.8x	8.8x
9/27/2021	Kraton Corporation (NYSE:KRA)	DL Chemical Co., Ltd.	$2,568.0	1.4x	8.3x
12/7/2020	Gabriel Performance Products, LLC	Huntsman Corporation (NYSE:HUN)	$250.0	2.4x	11.0x
7/12/2019	Milacron Holdings Corp. (NYSE:MCRN)	Hillenbrand, Inc. (NYSE:HI)	$2,051.1	1.7x	12.9x
4/23/2019	Synalloy Corporation (NasdaqGM:SYNL)	Privet Fund Management, LLC	$308.8	1.0x	10.9x

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

SOLAR

EQUITY COMPARABLES (1)

Solar (United States & Canada)

Company	LTM(2) Revenues	LTM(2) EBITDA	LTM(2) Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value(3)	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt(4)/ EBITDA
Boralex Inc.	$515	$337	65.3%	$31.95	85.1%	$3,284	$5,568	10.8x	16.5x	6.1x
Capital Power Corporation	1,779	714	40.1	34.16	90.4	3,991	6,735	3.8x	9.4x	3.4x
NextEra Energy Partners, LP	1,176	753	64.0	72.31	81.4	6,067	19,928	16.9x	26.5x	6.1x
NRG Energy, Inc.	30,734	3,950	12.9	38.27	80.0	8,999	16,734	0.5x	4.2x	2.0x
Sunrun Inc.	2,147	(252)	(11.7)	27.59	45.5	5,852	14,775	6.9x	NM	NM
Median			**40.1%**		**81.4%**			**6.9x**	**13.0x**	**4.8x**
Mean			**34.1%**		**76.5%**			**7.8x**	**14.2x**	**4.4x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
3/2/2022	New Energy Equity, LLC	ALLETE, Inc. (NYSE:ALE)	$165.5	-	8.3x
6/16/2021	Solarpack Corporacion Tecnologica, S.A. (BME:SPK)	EQT Infrastructure V; EQT Partners AB	$1,543.1	9.5x	20.7x
1/13/2020	TerraForm Power, Inc. (NasdaqGS:TERP)	Brookfield Renewable Partners L.P. (TSX:BEP.UN)	$10,880.5	9.5x	13.0x
11/4/2019	Pattern Energy Group Inc. (NasdaqGS:PEGI)	Canada Pension Plan Investment Board	$6,293.7	11.5x	16.1x
2/5/2018	8point3 Energy Partners LP (NasdaqGS:CAFD)	Capital Dynamics, Inc.	$1,671.3	23.8x	17.0x
5/4/2017	Up to 20 Megawatts of Solar Energy Power Generation Assets	Kontrol Energy Corp. (CNSX:KNR)	$22.6	-	4.1x
3/7/2017	TerraForm Global, Inc. (NasdaqGS:GLBL)	Orion US Holdings 1 LP	$1,651.8	6.6x	17.2x
1/20/2016	Capstone Infrastructure Corporation	Irving Infrastructure Corp.	$1,435.1	-	12.7x
12/3/2014	Hawaiian Electric Industries, Inc. (NYSE:HE)	NextEra Energy, Inc. (NYSE:NEE)	$4,398.8	1.3x	8.5x

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

WIND

EQUITY COMPARABLES (1)

Wind (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Algonquin Power & Utilities Corp.	$2,622	$912	34.8%	$10.99	74.8%	$7,450	$16,268	6.2x	17.8x	8.4x
Avangrid, Inc.	7,698	1,945	25.3	41.70	77.3	16,122	25,161	3.3x	12.9x	4.5x
Boralex Inc.	515	337	65.3	31.95	85.1	3,284	5,568	10.8x	16.5x	6.1x
Brookfield Renewable Partners LP	4,614	2,996	64.9	31.43	81.3	14,888	48,417	10.5x	16.2x	8.0x
Innergex Renewable Energy Inc.	633	434	68.5	12.67	78.9	2,585	6,823	10.8x	15.7x	9.2x
NextEra Energy Partners, LP	1,176	753	64.0	72.31	81.4	6,067	19,928	16.9x	26.5x	6.1x
Northland Power Inc.	1,783	1,223	68.6	29.46	85.8	7,080	11,954	6.7x	9.8x	3.3x
TransAlta Renewables Inc.	396	189	47.6	10.65	73.9	2,842	3,392	8.6x	18.0x	2.7x
Median			**64.5%**		**80.1%**			**9.5x**	**16.4x**	**6.1x**
Mean			**54.9%**		**79.8%**			**9.2x**	**16.7x**	**6.0x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
10/28/2022	Bullfrog Power Inc.	Envest Corp.	$25.7	10.4x	13.6x
1/13/2020	TerraForm Power, Inc. (NasdaqGS:TERP)	Brookfield Renewable Partners L.P. (TSX:BEP.UN)	$10,880.5	9.5x	13.0x
11/4/2019	Pattern Energy Group Inc. (NasdaqGS:PEGI)	Canada Pension Plan Investment Board	$6,293.7	11.5x	16.1x
10/21/2019	AltaGas Canada Inc. (TSX:ACI)	Alberta Teachers' Retirement Fund Board; Public Sector Pension Investment	$1,278.2	5.2x	15.2x
10/30/2017	Alterra Power Corp. (TSX:AXY)	Innergex Renewable Energy Inc. (TSX:INE)	$745.0	10.6x	31.0x
7/27/2017	Boralex Inc. (TSX:BLX)	Caisse de dépôt et placement du Québec	$3,436.5	12.5x	20.3x
6/19/2017	Pattern Energy Group Inc. (NasdaqGS:PEGI)	Public Sector Pension Investment Board	$4,313.7	12.2x	18.6x
3/7/2017	TerraForm Global, Inc. (NasdaqGS:GLBL)	Orion US Holdings 1 LP	$1,651.8	6.6x	17.2x

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

OIL AND GAS FIELD SERVICES

EQUITY COMPARABLES (1)

Oil and Gas Field Services (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Archrock, Inc.	$822	$307	37.4%	$6.42	61.5%	$999	$2,545	3.1x	8.3x	4.9x
Baker Hughes Company	20,736	2,757	13.3	20.96	52.7	21,206	24,176	1.2x	8.8x	1.1x
Cathedral Energy Services Ltd.	141	19	13.4	0.50	68.7	106	117	0.8x	6.2x	3.9x
CES Energy Solutions Corp.	1,258	128	10.1	1.59	70.1	407	782	0.6x	6.1x	3.2x
Dawson Geophysical Company	34	(15)	(43.6)	1.59	59.1	38	18	0.5x	NM	NM
ENGlobal Corporation	39	(10)	(26.5)	1.26	34.5	45	37	1.0x	NM	NM
Enservco Corporation	19	(5)	(28.6)	1.29	14.7	15	31	1.6x	NM	NM
Ensign Energy Services Inc.	1,024	209	20.4	1.65	45.2	309	1,306	1.3x	6.3x	5.0x
Enterprise Group, Inc.	17	7	39.6	0.27	89.3	14	22	1.3x	3.2x	1.2x
Essential Energy Services Ltd.	106	6	5.8	0.24	58.0	33	39	0.4x	6.4x	1.6x
High Arctic Energy Services Inc	66	3	5.0	0.99	68.0	48	43	0.7x	13.1x	(3.3)x
Innospec Inc.	1,866	222	11.9	85.67	80.2	2,124	2,102	1.1x	9.5x	(0.2)x
Matrix Service Company	748	(38)	(5.0)	4.14	35.2	111	101	0.1x	NM	NM
Mullen Group Ltd.	1,412	192	13.6	10.37	89.7	963	1,563	1.1x	8.1x	3.0x
Newpark Resources, Inc.	770	50	6.4	2.52	52.4	237	382	0.5x	7.7x	3.2x
North American Construction Group Ltd.	522	125	23.9	9.57	53.8	261	555	1.1x	4.5x	2.5x
Parkland Corporation	24,131	959	4.0	21.56	75.0	3,369	8,092	0.3x	8.4x	4.9x
Precision Drilling Corporation	1,021	182	17.8	50.93	64.0	692	1,528	1.5x	8.4x	5.1x
Profire Energy, Inc.	40	4	9.2	0.85	53.5	40	32	0.8x	8.7x	(1.7)x
ProPetro Holding Corp.	1,177	247	21.0	8.05	47.6	840	771	0.7x	3.1x	(0.2)x
Secure Energy Services Inc.	5,329	362	6.8	4.20	76.1	1,303	2,158	0.4x	6.0x	2.2x
Select Energy Services, Inc.	1,261	138	10.9	6.97	66.8	684	833	0.7x	6.1x	0.4x
Shawcor Ltd.	857	61	7.1	6.22	97.6	439	591	0.7x	9.7x	1.9x
Smart Sand, Inc.	217	7	3.0	1.56	31.5	66	119	0.5x	18.2x	6.6x
STEP Energy Services Ltd.	653	101	15.4	3.26	65.3	232	389	0.6x	3.9x	1.2x
USA Compression Partners, LP	674	399	59.1	17.40	86.4	1,704	4,216	6.3x	10.6x	5.3x
Median			**10.5%**		**62.7%**			**0.7x**	**7.9x**	**2.3x**
Mean			**9.7%**		**61.4%**			**1.1x**	**7.8x**	**2.3x**

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

EQUIPMENT AND PHYSICAL TECHNOLOGY

EQUITY COMPARABLES (1)

Equipment and Physical Technology (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
AKITA Drilling Ltd.	$128	$17	13.3%	$0.86	39.9%	$35	$102	0.8x	6.0x	3.9x
CSI Compressco LP	340	105	31.0	1.17	61.6	165	828	2.4x	7.8x	6.1x
Enerflex Ltd.	1,026	103	10.1	4.32	53.3	387	571	0.6x	5.5x	1.6x
Forum Energy Technologies, Inc.	657	33	4.9	21.24	68.5	122	394	0.6x	12.1x	7.9x
Geospace Technologies Corporation	89	(4)	(4.3)	4.41	42.9	57	49	0.6x	NM	NM
Gulf Island Fabrication, Inc.	130	(5)	(3.7)	4.17	90.3	66	31	0.2x	NM	NM
Halliburton Company	18,992	3,546	18.7	24.62	56.0	22,329	29,659	1.6x	8.4x	2.0x
Helix Energy Solutions Group, Inc.	754	62	8.2	3.86	66.8	586	735	1.0x	11.9x	5.1x
Key Energy Services, Inc.	238	(15)	(6.5)	0.00	0.1	0	0	0.0x	NM	NM
McCoy Global Inc.	32	3	9.7	0.68	73.8	19	19	0.6x	6.2x	(0.1)x
MIND Technology, Inc.	30	(9)	(30.9)	0.64	33.7	9	48	1.6x	NM	NM
Nabors Industries Ltd.	2,437	611	25.1	101.45	48.9	955	3,972	1.6x	6.5x	3.6x
NOV Inc.	6,681	471	7.0	16.18	67.2	6,356	7,580	1.1x	16.1x	2.9x
Natural Gas Services Group, Inc.	79	19	24.1	10.04	66.9	124	114	1.4x	6.0x	(0.0)x
PHX Energy Services Corp.	357	36	10.1	4.22	77.2	213	240	0.7x	6.6x	0.7x
RPC, Inc.	1,388	265	19.1	6.93	53.7	1,479	1,446	1.0x	5.5x	(0.0)x
Schlumberger Limited	26,438	5,407	20.5	35.90	72.0	50,777	62,108	2.3x	11.5x	1.8x
Solaris Oilfield Infrastructure, Inc.	282	66	23.6	9.36	64.1	308	398	1.4x	6.0x	0.1x
Superior Drilling Products, Inc.	18	3	16.7	0.67	28.2	20	23	1.3x	7.9x	1.9x
TechnipFMC plc	6,529	555	8.5	8.46	89.1	3,826	5,538	0.8x	10.0x	2.7x
TerraVest Industries Inc.	384	58	15.1	17.81	81.3	319	512	1.3x	8.8x	3.4x
TETRA Technologies, Inc.	519	49	9.5	3.59	61.7	460	614	1.2x	12.4x	3.3x
Weatherford International plc	4,087	666	16.3	32.29	80.4	2,278	4,028	1.0x	6.0x	2.4x
Median			**10.1%**		**64.1%**			**1.0x**	**7.8x**	**2.4x**
Mean			**10.7%**		**59.9%**			**1.1x**	**8.5x**	**2.6x**

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

OIL AND GAS FIELD SERVICES AND EQUIPMENT AND PHYSICAL TECHNOLOGY

SELECTED TRANSACTIONS (1)

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
6/21/2022	U.S. Well Services, Inc. (NasdaqCM:USWS)	ProFrac Holding Corp. (NasdaqGS:PFHC)	$270.6	1.3x	13.3x
2/25/2022	Cordy Oilfield Services Inc. (TSXV:CKK)	Vertex Resource Group Ltd. (TSXV:VTX)	$21.3	1.0x	5.2x
2/14/2022	Macro Enterprises Inc. (TSXV:MCR)	-	$111.9	0.4x	3.4x
1/24/2022	Exterran Corporation (NYSE:EXTN)	Enerflex Ltd. (TSX:EFX)	$758.5	1.2x	5.0x
12/13/2021	Nuverra Environmental Solutions, Inc. (NYSEAM:NES)	Select Energy Services, Inc. (NYSE:WTTR)	$51.9	0.5x	20.2x
10/22/2021	FTS International, Inc. (NYSEAM:FTSI)	ProFrac Holding Corp.	$305.1	0.7x	4.0x
8/4/2021	Alamo Pressure Pumping, LLC	NexTier Completion Solutions, Inc.	$238.0	-	3.4x
3/9/2021	Tervita Corporation (TSX:TEV)	Secure Energy Services Inc. (TSX:SES)	$1,022.9	0.9x	6.7x
12/21/2020	RigNet, Inc. (NasdaqGS:RNET)	Viasat, Inc. (NasdaqGS:VSAT)	$235.7	1.0x	8.6x
12/7/2020	SEACOR Holdings Inc. (NYSE:CKH)	American Industrial Partners	$845.5	1.5x	11.1x
9/1/2020	OneStim Business	Liberty Oilfield Services Inc. (NYSE:LBRT)	$427.8	0.1x	1.5x
9/1/2020	Calfrac Well Services Ltd. (TSX:CFW)	THRC Holdings, LP	$675.7	0.8x	34.9x
5/3/2020	Quintana Energy Services Inc. (NYSE:QES)	KLX Energy Services Holdings, Inc. (NasdaqGS:KLXE)	$49.6	0.1x	2.1x
2/23/2020	Strad Inc. (TSX:SDY)	Management	$116.6	1.1x	3.5x
11/20/2019	W&W Energy Services, Inc.	Petrofac Limited (LSE:PFC)	$24.8	-	-
6/17/2019	C&J Energy Services, Inc. (NYSE:CJ)	Keane Group, Inc. (NYSE:FRAC)	$699.2	0.3x	2.9x
3/20/2019	Red Bone Services LLC/Tecton Energy Services Ltd.	KLX Energy Services Holdings, Inc. (NasdaqGS:KLXE)	$82.5	-	4.8x
1/20/2019	ZCL Composites Inc. (TSX:ZCL)	Shawcor Ltd. (TSX:SCL)	$233.7	1.7x	12.5x
10/29/2018	Adler Hot Oil Service, LLC.	Enservco Corporation (AMEX:ENSV)	$12.5	0.7x	4.3x
6/5/2018	Xtreme Drilling Corp.	AKITA Drilling Ltd. (TSX:AKT.A)	$155.0	2.8x	162.4x
5/1/2018	KLX Inc. (NasdaqGS:KLXI)	Aviall Inc.	$4,482.9	-	15.7x
4/16/2018	Aveda Transportation and Energy Services Inc. (TSXV:AVE)	Daseke Companies, Inc.	$2,139.8	0.7x	4.8x

(1) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

STORAGE AND TERMINALS

EQUITY COMPARABLES (1)

Storage and Terminals (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Alliant Energy Corporation	$4,074	$1,556	38.2%	$52.99	81.1%	$13,297	$21,420	5.3x	13.8x	5.3x
AltaGas Ltd.	9,709	1,042	10.7	19.27	84.9	5,420	12,314	1.3x	11.8x	6.6x
Chart Industries, Inc.	1,550	198	12.8	184.35	84.2	6,612	7,416	4.8x	37.4x	3.9x
EnLink Midstream, LLC	9,745	1,297	13.3	8.89	75.0	4,258	10,195	1.0x	7.9x	3.5x
Equitrans Midstream Corporation	1,249	982	78.6	7.48	64.9	3,237	11,144	8.9x	11.4x	6.9x
Gibson Energy Inc.	7,761	327	4.2	16.00	79.2	2,343	3,517	0.5x	10.7x	3.5x
Green Plains Partners LP	78	50	64.1	12.20	76.2	284	367	4.7x	7.4x	1.6x
Magellan Midstream Partners, L.P.	3,149	1,234	39.2	47.51	88.4	9,867	15,028	4.8x	12.2x	4.2x
MPLX LP	11,257	5,720	50.8	30.01	84.6	30,376	52,521	4.7x	9.2x	3.6x
NuStar Energy L.P.	1,671	693	41.5	13.50	74.8	1,489	6,008	3.6x	8.7x	4.4x
Median			**38.7%**		**80.1%**			**4.7x**	**11.0x**	**4.0x**
Mean			**35.3%**		**79.3%**			**3.9x**	**13.0x**	**4.3x**

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

STORAGE AND TERMINALS

SELECTED TRANSACTIONS (1)

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
8/17/2022	DCP Midstream, LP (NYSE:DCP)	Phillips 66 (NYSE:PSX)	$13,227.8	0.7x	7.3x
7/28/2022	PBF Logistics LP (NYSE:PBFX)	PBF Logistics LP (NYSE:PBFX)	$1,661.0	4.8x	7.8x
10/26/2021	Oasis Midstream Partners LP (NasdaqGS:OMP)	Crestwood Equity Partners LP (NYSE:CEQP)	$1,807.8	4.8x	8.1x
8/5/2021	BP Midstream Partners LP (NYSE:BPMP)	BP Midstream Partners Holdings LLC	$1,826.9	14.5x	9.3x
6/1/2021	Stagecoach Gas Services LLC	Kinder Morgan, Inc. (NYSE:KMI)	$1,225.0	-	10.0x
2/17/2021	Enable Midstream Partners, LP (NYSE:ENBL)	Energy Transfer LP (NYSE:ET)	$7,329.7	3.1x	9.5x
2/10/2021	Inter Pipeline Ltd. (TSX:IPL)	Brookfield Infrastructure Partners L.P. (NYSE:BIP)	$13,857.6	6.5x	17.2x
8/24/2020	Cheniere Energy Partners, LP (AMEX:CQP)	Brookfield Infrastructure Partners LP (NYSE:BIP) and Blackstone Infrastructure Partners, LP	$17,027.5	5.1x	11.3x
7/27/2020	CNX Midstream Partners LP (NYSE:CNXM)	CNX Resources Corporation (NYSE:CNX)	$764.2	5.1x	6.6x
2/27/2020	EQM Midstream Partners, LP	Equitrans Midstream Corporation (NYSE:ETRN)	$4,395.8	7.6x	8.1x
9/16/2019	SemGroup Corporation (NYSE:SEMG)	Energy Transfer LP (NYSE:ET)	$4,991.7	2.1x	13.5x
8/27/2019	Tallgrass Energy, LP (NYSE:TGE)	The Blackstone Group Inc. (NYSE:BX)	$9,337.3	8.9x	11.2x
8/21/2019	Kinder Morgan Canada Limited (TSX:KML)	Pembina Pipeline Corporation (TSX:PPL)	$2,294.7	4.4x	16.3x
5/10/2019	Buckeye Partners, LP (NYSE:BPL)	IFM Global Infrastructure Fund	$10,500.3	2.7x	18.6x
11/8/2018	Western Gas Partners, LP (NYSE:WES)	Western Gas Equity Partners, LP (NYSE:WGP)	$13,427.9	6.5x	12.0x
10/22/2018	EnLink Midstream Partners, LP (NYSE:ENLK)	EnLink Midstream, LLC (NYSE:ENLC)	$12,923.5	1.7x	12.2x
10/18/2018	Valero Energy Partners LP	Valero Energy Corporation (NYSE:VLO)	$4,069.8	7.6x	10.5x
9/19/2018	Dominion Energy Midstream Partners, LP (NYSE:DM)	Dominion Energy, Inc. (NYSE:D)	$10,405.4	13.6x	19.7x
8/1/2018	Energy Transfer Partners, LP (NYSE:ETP)	Energy Transfer Equity, LP (NYSE:ETE)	$69,412.3	2.1x	10.8x
7/30/2018	Four Corners Area Assets	Harvest Midstream Company	$1,125.0	-	13.2x
7/10/2018	Transmontaigne Partners LP (NYSE:TLP)	TLP Acquisition Holdings LLC	$1,254.3	6.1x	11.5x
6/29/2018	Boardwalk Pipeline Partners, LP	Boardwalk GP LP	$6,792.1	5.3x	8.3x

(1) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

PIPELINES

EQUITY COMPARABLES (1)

Oil and Gas Pipelines (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Antero Midstream Corporation	$966	$735	76.1%	$9.18	78.4%	$4,392	$7,550	7.8x	10.3x	4.3x
ATCO Ltd.	3,569	1,392	39.0	30.92	87.6	3,522	12,794	3.6x	9.2x	4.7x
Crestwood Equity Partners LP	5,978	704	11.8	27.77	84.3	3,034	7,024	1.2x	10.0x	5.1x
Enbridge Inc.	38,170	8,914	23.4	37.31	85.8	75,538	138,786	3.6x	15.6x	6.6x
Energy Transfer LP	88,032	12,101	13.7	11.03	88.3	34,049	97,369	1.1x	8.0x	4.0x
Enterprise Products Partners LP	55,906	8,448	15.1	23.78	83.0	51,823	81,916	1.5x	9.7x	3.5x
Equitrans Midstream Corporation	1,249	982	78.6	7.48	64.9	3,237	11,144	8.9x	11.4x	6.9x
Evolve Transition Infrastructure LP	46	34	74.3	0.34	23.9	58	482	10.6x	14.2x	12.5x
Genesis Energy, LP	2,657	497	18.7	9.20	68.2	1,128	5,610	2.1x	11.3x	6.8x
Gibson Energy Inc.	7,761	327	4.2	16.00	79.2	2,343	3,517	0.5x	10.7x	3.5x
Kinder Morgan, Inc.	19,046	6,028	31.6	16.64	82.4	37,490	70,097	3.7x	11.6x	5.2x
ONEOK, Inc.	22,775	3,300	14.5	51.24	68.3	22,897	36,615	1.6x	11.1x	4.2x
Plains All American Pipeline, LP	57,379	2,817	4.9	10.52	83.7	7,342	21,177	0.4x	7.5x	2.9x
Summit Midstream Partners, LP	384	155	40.5	15.02	38.2	153	1,575	4.1x	10.1x	7.5x
Targa Resources Corp.	21,817	2,541	11.6	60.34	74.0	13,670	23,308	1.1x	9.2x	4.4x
The Williams Companies, Inc.	11,490	4,861	42.3	28.63	75.4	34,887	60,114	5.2x	12.4x	4.6x
TC Energy Corporation	10,635	6,560	61.7	40.53	74.7	41,010	83,042	7.8x	12.7x	6.2x
Western Midstream Partners, LP	3,191	1,890	59.2	25.16	85.3	9,723	16,425	5.1x	8.7x	3.6x
Median			**27.5%**		**78.8%**			**3.6x**	**10.5x**	**4.7x**
Mean			**34.5%**		**73.6%**			**3.9x**	**10.8x**	**5.4x**

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

PIPELINES

SELECTED TRANSACTIONS (1)

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
8/17/2022	DCP Midstream, LP (NYSE:DCP)	Phillips 66 (NYSE:PSX)	$13,227.8	0.7x	7.3x
7/28/2022	PBF Logistics LP (NYSE:PBFX)	PBF Logistics LP (NYSE:PBFX)	$1,661.0	4.8x	7.8x
2/11/2022	Shell Midstream Partners, L.P. (NYSE:SHLX)	Shell Pipeline Company L.P.	$6,370.5	11.5x	10.0x
8/5/2021	BP Midstream Partners LP (NYSE:BPMP)	BP Midstream Partners Holdings LLC	$1,826.9	14.5x	9.3x
6/1/2021	Stagecoach Gas Services LLC	Kinder Morgan, Inc. (NYSE:KMI)	$1,225.0	-	10.0x
2/17/2021	Enable Midstream Partners, LP (NYSE:ENBL)	Energy Transfer LP (NYSE:ET)	$7,329.7	3.1x	9.5x
2/10/2021	Inter Pipeline Ltd. (TSX:IPL)	Brookfield Infrastructure Partners L.P. (NYSE:BIP)	$13,857.6	6.5x	17.2x
10/5/2020	TC PipeLines, LP (NYSE:TCP)	TC Energy Corporation (TSX:TRP)	$2,213.6	7.4x	9.0x
7/27/2020	CNX Midstream Partners LP (NYSE:CNXM)	CNX Resources Corporation (NYSE:CNX)	$764.2	5.1x	6.6x
2/27/2020	EQM Midstream Partners, LP	Equitrans Midstream Corporation (NYSE:ETRN)	$4,395.8	7.6x	8.1x
9/16/2019	SemGroup Corporation (NYSE:SEMG)	Energy Transfer LP (NYSE:ET)	$4,991.7	2.1x	13.5x
8/27/2019	Tallgrass Energy, LP (NYSE:TGE)	The Blackstone Group Inc. (NYSE:BX)	$9,337.3	8.9x	11.2x
8/21/2019	Kinder Morgan Canada Limited (TSX:KML)	Pembina Pipeline Corporation (TSX:PPL)	$2,294.7	4.4x	16.3x
5/10/2019	Buckeye Partners, LP (NYSE:BPL)	IFM Global Infrastructure Fund	$10,500.3	2.7x	18.6x
11/8/2018	Western Gas Partners, LP (NYSE:WES)	Western Gas Equity Partners, LP (NYSE:WGP)	$13,427.9	6.5x	12.0x
10/18/2018	Valero Energy Partners LP	Valero Energy Corporation (NYSE:VLO)	$4,069.8	7.6x	10.5x
10/9/2018	Antero Midstream Partners LP (NYSE:AM)	Antero Midstream GP LP (NYSE:AMGP)	$7,359.7	7.7x	11.5x
9/28/2018	American Midstream Partners, LP (NYSE:AMID)	ArcLight Capital Partners, LLC	$1,595.1	2.0x	14.2x
7/10/2018	Transmontaigne Partners LP (NYSE:TLP)	TLP Acquisition Holdings LLC	$1,254.3	6.1x	11.5x
5/17/2018	Williams Partners LP	The Williams Companies, Inc. (NYSE:WMB)	$57,090.5	7.0x	14.1x
5/17/2018	Enbridge Energy Partners, LP (NYSE:EEP)	Enbridge Inc. (TSX:ENB)	$15,925.8	6.6x	10.1x
5/10/2018	Amberjack Pipeline Company LLC	Shell Midstream Partners, LP (NYSE:SHLX)	$1,928.7	8.2x	9.4x

(1) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

TRUCKERS

EQUITY COMPARABLES (1)

Truckers (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 09/30/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Adams Resources & Energy, Inc.	$3,264	$39	1.2%	$29.80	74.7%	$130	$82	0.0x	2.1x	(1.3)x
ArcBest Corporation	5,265	569	10.8	72.73	58.2	1,784	1,934	0.4x	3.4x	0.2x
Covenant Logistics Group, Inc.	1,215	143	11.8	28.70	82.5	415	521	0.4x	3.6x	0.5x
Daseke, Inc.	1,759	187	10.6	5.41	41.1	344	969	0.6x	5.2x	3.0x
Heartland Express, Inc.	761	194	25.5	14.31	80.0	1,130	1,032	1.4x	5.3x	2.2x
Hess Corporation	10,455	5,348	51.2	108.99	82.9	33,569	41,128	3.9x	7.7x	1.3x
J.B. Hunt Transport Services, Inc.	14,661	1,986	13.5	156.42	71.7	16,238	17,663	1.2x	8.9x	0.7x
Knight-Swift Transportation Holdings Inc.	7,502	1,782	23.8	48.93	78.6	7,861	9,834	1.3x	5.5x	1.0x
Landstar System, Inc.	7,710	649	8.4	144.37	76.5	5,259	5,365	0.7x	8.3x	(0.0)x
Marten Transport, Ltd.	1,208	240	19.9	19.16	81.8	1,552	1,484	1.2x	6.2x	(0.3)x
Old Dominion Freight Line, Inc.	6,179	2,054	33.2	248.77	66.6	27,806	27,485	4.4x	13.4x	(0.1)x
P.A.M. Transportation Services, Inc.	923	195	21.2	30.96	75.7	689	885	1.0x	4.5x	0.9x
Patriot Transportation Holding, Inc.	88	6	7.2	7.86	48.3	27	20	0.2x	3.2x	(0.9)x
Parkland Corporation	24,131	959	4.0	21.56	75.0	3,369	8,092	0.3x	8.4x	4.9x
Ryder System, Inc.	11,523	2,923	25.4	75.49	81.1	3,865	10,580	0.9x	3.6x	2.2x
Saia, Inc.	2,753	629	22.8	190.00	52.0	5,002	5,012	1.8x	8.0x	(0.0)x
Schneider National, Inc.	6,618	1,004	15.2	20.30	73.8	3,614	3,448	0.5x	3.4x	(0.2)x
TFI International Inc.	8,997	1,245	13.8	91.05	84.1	8,056	10,030	1.1x	8.1x	1.3x
Titanium Transportation Group Inc.	362	30	8.2	1.65	56.6	74	137	0.4x	4.6x	1.8x
Universal Logistics Holdings, Inc.	2,024	290	14.3	31.72	77.8	834	1,338	0.7x	4.6x	1.7x
Werner Enterprises, Inc.	3,194	534	16.7	37.60	77.1	2,385	2,849	0.9x	5.3x	0.9x
Yellow Corporation	5,353	285	5.3	5.07	33.3	262	1,707	0.3x	6.0x	5.0x
Median			**14.1%**		**75.4%**			**0.8x**	**5.3x**	**0.9x**
Mean			**16.5%**		**69.5%**			**1.1x**	**5.9x**	**1.1x**

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

TRUCKERS

SELECTED TRANSACTIONS (1)

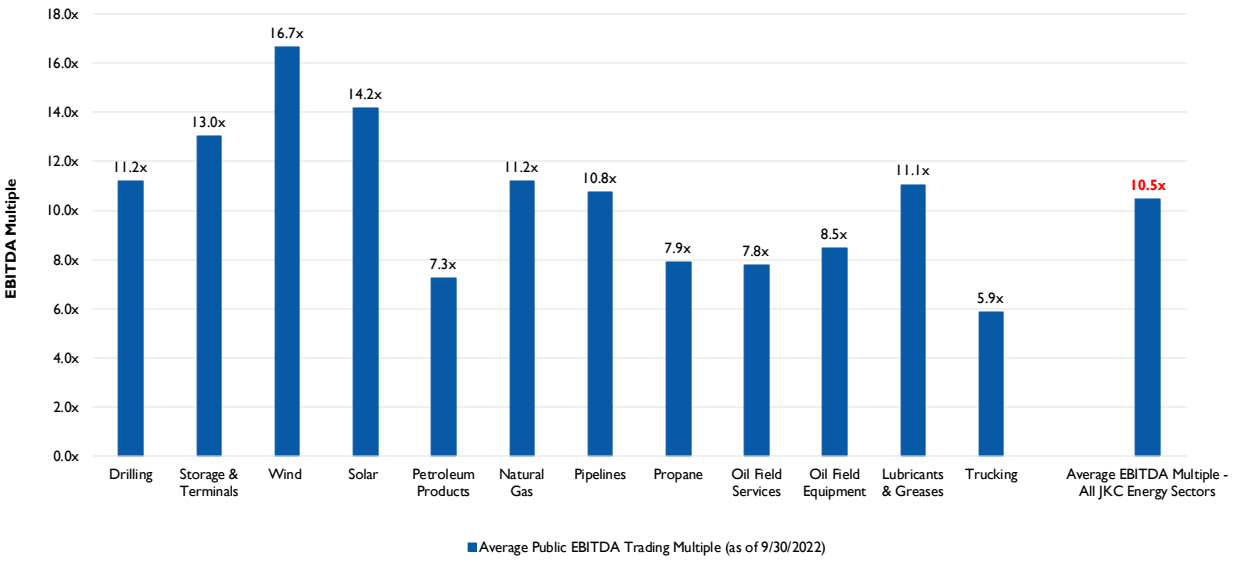
Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
6//24/22	USA Truck, Inc.	Schenker, Inc.	$461.3	0.6x	4.7x
2/9/2022	Pilot Freight Services, Inc.	A.P. Møller - Mærsk A/S (CPSE:MAERSK B)	$168.0	-	-
2/9/2022	AAT Carriers, Inc.	Covenant Logistics Group, Inc. (NasdaqGS:CVLG)	$55.0	2.2x	-
1/4/2022	Midwest Logistics Systems Ltd.	Schneider National, Inc. (NYSE:SNDR)	$262.6	1.3x	-
2/19/2020	Performance Team LLC	A.P. Møller - Mærsk A/S (CPSE:MAERSK B)	$545.0	1.0x	6.1x
11/5/2018	CaseStack, Inc.	Hub Group, Inc. (NasdaqGS:HUBG)	$255.0	1.1x	11.6x
8/31/2018	Mode Transportation, LLC	York Capital Management	$238.5	-	10.0x
12/7/2017	Keen Transport, Inc.	Wallenius Wilhelmsen ASA (OB:WALWIL)	$64.0	0.8x	6.4x
7/19/2016	Span-Alaska Transportation, Inc.	Matson Logistics, Inc.	$197.6	-	9.4x
5/2/2016	Trimac Transportation Ltd.	Trimac Corporation	$215.9	-	5.9x
9/9/2015	Con-way Inc.	XPO Logistics, Inc. (NYSE:XPO)	$3,057.0	-	6.2x
8/17/2015	Liberty International Inc.	Janel Corporation (OTCPK:JANL)	$2.3	-	26.6x
7/28/2015	Stagecoach Cartage and Distribution, LLC	Roadrunner Transportation Systems, Inc. (NYSE:RRTS)	$40.0	-	5.7x
5/25/2015	Hodges Trucking Company, LLC	Rodan Transport (U.S.A.) Ltd.	$42.0	-	3.0x
5/6/2015	Quality Distribution Inc.	Apax Partners LLP	$823.3	-	12.0x
5/4/2015	Bridge Terminal Transport Inc.	XPO Logistics, Inc. (NYSE:XPO)	$100.0	-	8.1x
4/21/2015	Command Transportation, LLC	Echo Global Logistics, Inc. (NasdaqGS:ECHO)	$391.0	-	10.6x
1/20/2015	Wheels Group Inc.	Radiant Global Logistics Ltd.	$80.1	-	13.5x
10/1/2014	Barr-Nunn Transportation, Inc.	Knight Transportation, Inc. (NYSE:KNX)	$115.9	-	4.5x
7/24/2014	Contrans Group Inc.	TFI International Inc. (TSX:TFII)	$528.2	-	6.8x

(1) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

AVERAGE PUBLIC EBITDA TRADING MULTIPLES

ALL JKC ENERGY SECTORS (AS OF 9/30/2022)



FACTOIDS: LITTLE-KNOWN FACTS AND STATS

Petroleum Products (1)

- In 2021, the average carload of crude oil originated in the United States carried around 650 barrels of oil.
- Based on the above number, the 91,152 carloads of crude oil originated by U.S. Class I railroads in 2021 was equivalent to around 162,000 barrels per day, or approximately 1.5% of U.S. production.
- One rail car can haul enough crude oil to make 13,500 gallons of gasoline.

Natural Gas (2)

- Before the pandemic, the number of natural gas operating rigs in the United States had been declining.
- The number of natural gas-directed rigs continued to fall in the first half of 2020, reaching a low of 68 rigs in July 2020, the fewest in the historical data.
- In September, 166 natural gas rigs were operating in the United States.
- Most of the growth in natural gas-directed rigs in the United States has been in the Haynesville region, which includes Texas and Louisiana.

Propane and Heating/Fuel Oil (3)

- U.S. heating oil prices were 65% higher this October compared to October of last year.
- Higher heating oil prices have been partially driven by low distillate inventories.
- New England has the largest share of homes heated using heating oil.
- On average, 33% of homes in New England use heating oil as the primary heating fuel.

(1) Association of American Railroads.
(2) U.S. Energy Information Administration.
(3) U.S. Energy Information Administration.

FACTOIDS: LITTLE-KNOWN FACTS AND STATS

Lubricants and Greases (1)

- The increasing use of fully electric and hybrid electric vehicles is projected to reduce global demand for passenger car motor oils even though the global car population is expected to keep rising.
- The global lubricants market is expected to stagnate through 2050, with sluggish demand for transportation lubricants estimated to fall 1.1% per year on average.
- The demand for transportation lubricants is projected to peak in 2033, leveling off thereafter.

Solar (2)

- Construction costs for solar photovoltaic systems continued to decrease in the United States in 2020; the capacity-weighted average fell 8% compared with 2019.
- Homes and buildings in the West and Northeast have the largest share of small-scale solar.
- U.S. shipments of solar photovoltaic solar panels rose to a record electricity-generating capacity of 28.8 million kilowatts (kW) in 2021.

Wind (3)

- In April 2022, the Traverse Wind Energy Center in Oklahoma went online. The Traverse facility is one of the largest wind farms in the United States with 999 megawatts (MW) of capacity.
- The Traverse wind farm has 356 wind turbines.
- An additional 160 MW of wind capacity is expected to come online in Oklahoma this year, and another 503 MW is planned to come online in 2023.

(1) S&P Global.
(2) U.S. Energy Information Administration.
(3) U.S. Energy Information Administration.

FACTOIDS: LITTLE-KNOWN FACTS AND STATS

Oil and Gas Field Services (1)

- The two main stages in bringing a horizontally drilled, hydraulically fractured well online are drilling and completion.
- The drilling phase involves dispatching a drilling rig and crew, who then drill one or more wells on a pad site.
- A separate crew typically performs the completion phase by casing, cementing, perforating, and hydraulically fracturing the well so it can begin production.
- In general, the time between the drilling and completion stages is several months.

Equipment and Physical Technology (2)

- The Permian Basin in western Texas and eastern New Mexico is one of the world's most prolific unconventional oil- and natural gas-producing regions. The Permian Basin has become more productive because of the technological advancements in drilling and completion techniques, which allow operators to economically extract hydrocarbons from the low permeability reservoirs.
- Improved geological understanding, known as subsurface delineation, helps operators place wells to optimize well spacing in the most productive areas.
- In the Permian Basin, average well horizontal length has increased to more than 10,000 feet in the first nine months of 2022, compared with less than 4,000 feet in 2010.

Storage and Terminals (3)

- Underground natural gas storage by the numbers:
  - Approximately 400 active storage facilities in 30 states, made up of depleted natural gas or oil fields (80%), depleted aquifers (10%) and salt caverns (10%).
  - Approximately 20% of all natural gas consumed during the winter is supplied by underground storage.
  - Underground storage capacity increased 18.2% between 2002 and 2014.
  - Approximately 4 trillion cubic feet of natural gas can be stored underground, or enough to meet an average states residential natural gas consumption for more than 20 years.

(1) U.S. Energy Information Administration.
(2) U.S. Energy Information Administration.
(3) American Petroleum Institute.

FACTOIDS: LITTLE-KNOWN FACTS AND STATS

PIPELINES (1)

- Leipzig-based company Ontras Gastransport received approval to start construction of the first German and European hydrogen pipeline network.
- In total, the company plans to construct approximately 900 kilometers of hydrogen pipelines in eastern Germany.
- The project will involve the conversion of existing natural gas pipelines into hydrogen pipelines, as well as the new construction of individual sections.

TRUCKERS (2)

- There were 3.36 million truck drivers employed in 2020 (a decrease of 6.8% from 2019).
- There were $732.3 billion in gross freight revenues from trucking in 2020.
- There were 10.23 billion tons of freight transported by trucks in 2020.

(1) Tank Storage Magazine.
(2) American Trucking Associations.

JORDAN KNAUFF & COMPANY
ENERGY LOGISTICS & DISTRIBUTION TEAM

G. COOK JORDAN, JR.
Managing Principal
Office (312) 254-5901
cj@jordanknauff.com

DAVID A. KAKAREKA
Managing Director
Office (312) 254-5907
dkakareka@jordanknauff.com

LORI A. CALLAWAY
Vice President of Research and Publications
Office (312) 254-5914
lcallaway@jordanknauff.com

ANDRES J. BALLESTEROS
Analyst
Office (312) 254-5906
aballesteros@jordanknauff.com

ABOUT JORDAN KNAUFF & COMPANY

Jordan Knauff & Company was founded in 2001 to undertake a distinct mission: to assemble and maintain a staff of top-notch investment banking personnel and offer their knowledge and experience to provide the best available investment banking services to middle-market companies, the entrepreneurs who lead them and the financial entities that transact with them. On a combined basis, over the course of their careers our employees have completed over 200 transactions as investors, owners, operators, buyers, sellers and investment bankers of middle-market businesses across a variety of industries. The majority of our firm's broad transaction experience has been with private companies owned by one shareholder, a partnership, a family or private equity investors.

JKC JORDAN KNAUFF & COMPANY

200 West Madison Street, Suite 980
Chicago, Illinois 60606-3414
tel: (312) 254-5900 ▪ *fax*: (312) 254-5999
web: www.jordanknauff.com

ENERGY EQUIPMENT & INFRASTRUCTURE ALLIANCE

TOBY MACK
President and Chief Executive Officer
(202) 870-7715
tmack@eeia.org

MARTI DE GRAAF
Executive Vice President and Chief Operating Officer
(312) 806-0664
mdegraaf@eeia.org

ABOUT THE ENERGY EQUIPMENT & INFRASTRUCTURE ALLIANCE

EEIA is a Washington, D.C.-based trade association representing the North American natural gas and petroleum production, transportation and processing infrastructure supply chain. That supply chain is comprised of 60 industries that provide construction, equipment, materials, services and supplies to energy infrastructure and operations. EEIA advocates for sound legislative and regulatory policies at the federal and state levels. Its members include companies, trade associations and labor organizations operating in the energy sector. EEIA advocates for industries both directly with policymakers, and through mobilization of business leaders and workers to act and speak for the value and benefits of full and responsible development of energy resources in their communities and with their political leaders.

ENERGY EQUIPMENT & INFRASTRUCTURE ALLIANCE

The Voice of the Energy Supply Chain

ENERGYBUILDERS

601 Pennsylvania Avenue NW
Suite 900
Washington, DC 20004
(202) 870-7715
info@eeia.org ▪ www.eeia.org