

AMERICAN
EXPLORATION
& PRODUCTION
COUNCIL

American Energy

2024

AXPC Members

Leading Independent Upstream U.S. Producers































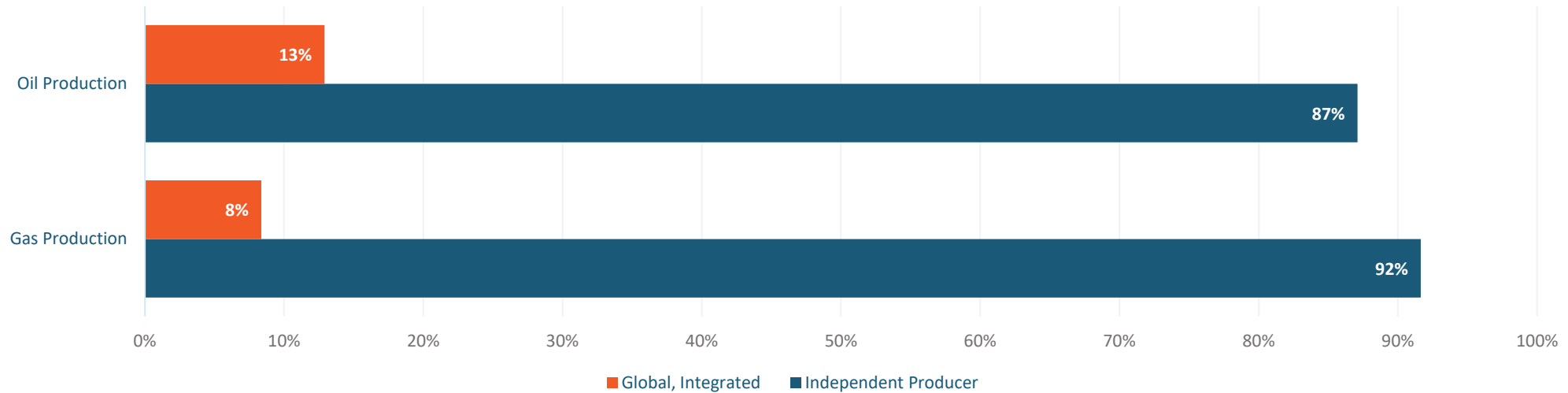





The US is the World's Largest Producer of Both Oil and Natural Gas

The Majority of US Oil and Natural Gas is Produced by Independents

Independents Produce the Majority of Oil and Natural Gas in the US



* Onshore production in 2021. Independent is considered any company who is not a fully integrated (upstream, midstream, and downstream) company. Example of an integrated company: BP, Chevron, etc.

AXPC Members are Key American Producers



2,145 million barrels of oil

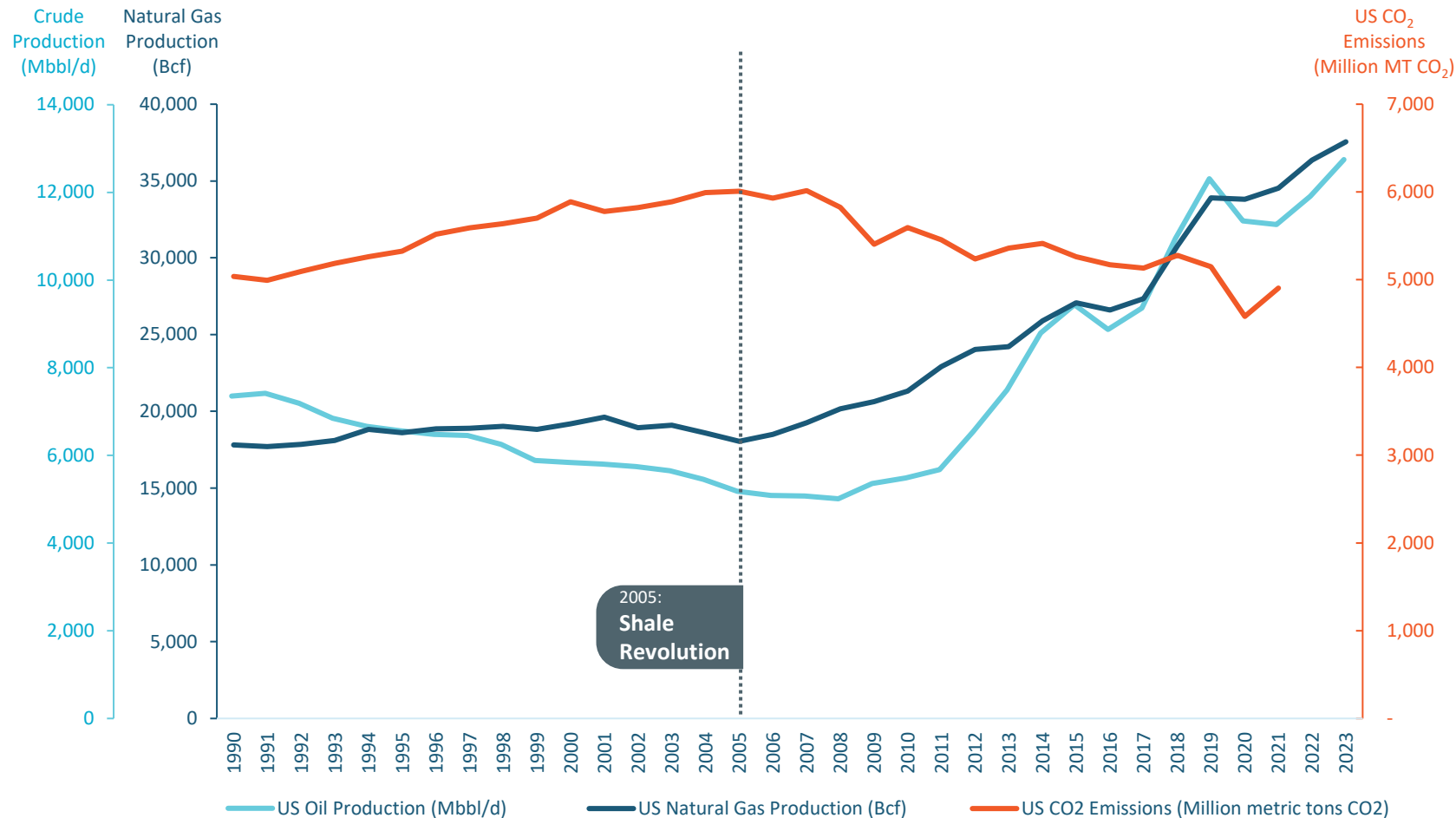
6% of the world's oil



19,306 billion standard cubic feet of natural gas

13% of the world's natural gas

US Shale Revolution = Lower Energy Costs, Cleaner Environment, More Energy Security



Shale Revolution Benefits

10% of US GDP growth between 2010 and 2015 was due to the Shale Revolution

Increased oil and natural gas production kept **prices lower and more stable** in the US

The US trade deficit in 2019 was **\$305 billion lower** than it would have been without domestic oil and natural gas production

The **US reduced energy-related CO₂ emissions** due to the shift to generating more electricity from natural gas/renewables (away from coal) at levels not predicted prior to innovations from the Shale Revolution

Onshore, Upstream Oil and Natural Gas Supports 3.2 Million US Jobs

Adds nearly \$500B to the US Economy

US Upstream Onshore Oil and Natural Gas Industry



An estimated

\$493.1B

of total value is added to the US economy from the upstream oil and gas sector



The upstream (exploration and production) sector of the oil and gas industry supports

3.2 million jobs

paying in total

\$297.2B

in labor income (wages)



In 2022, the mean annual wage in the upstream oil and gas industry was

\$107k/yr

which is

1.7x higher

than the mean annual wage of \$62,000 per year for all US industries and occupations

Entire US Oil and Gas Industry



The entire US oil and gas industry supports

10.8 million jobs

and contributes

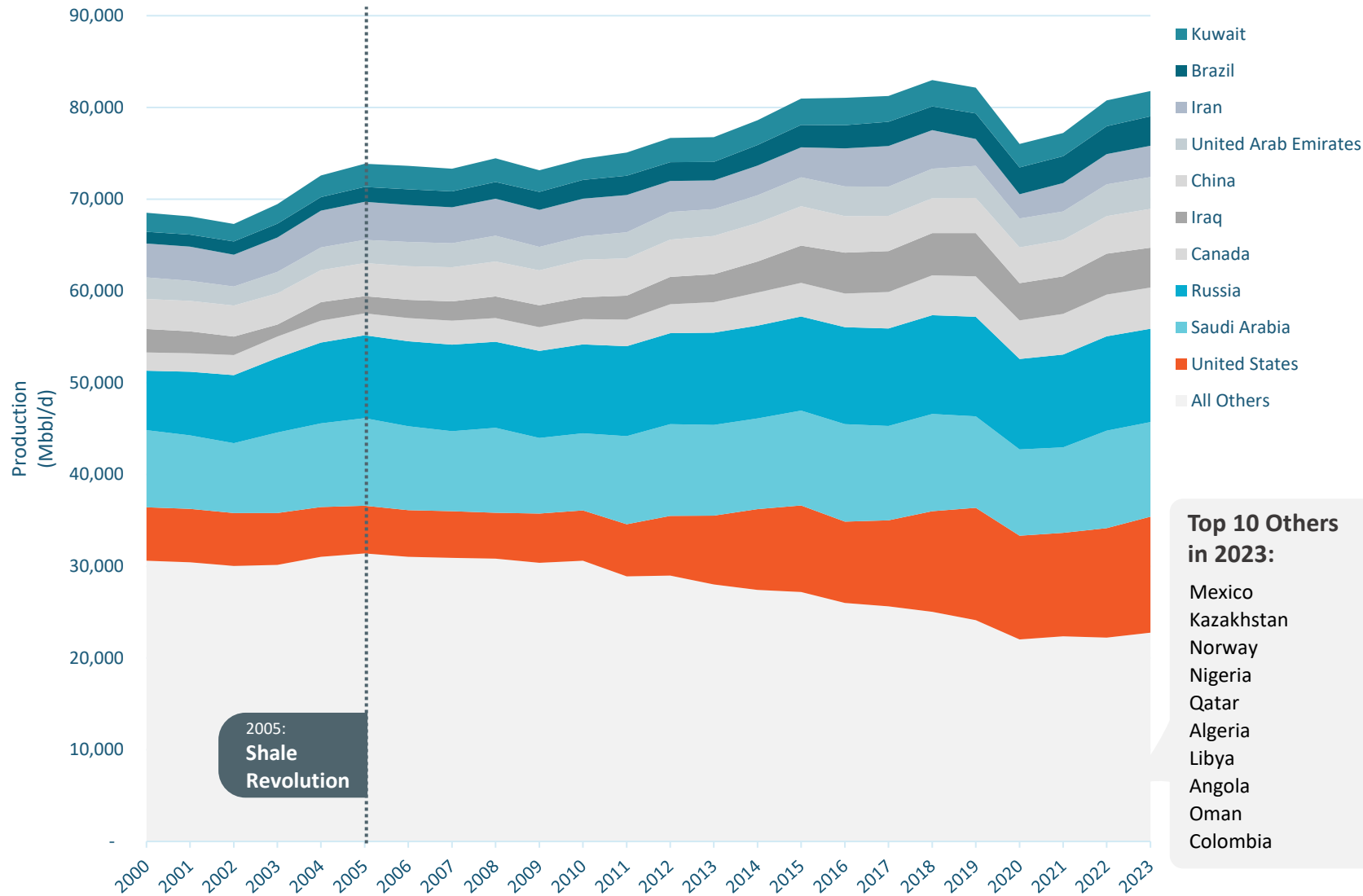
7.6% of total US GDP

Energy Production



The US Now Leads Global Oil Production

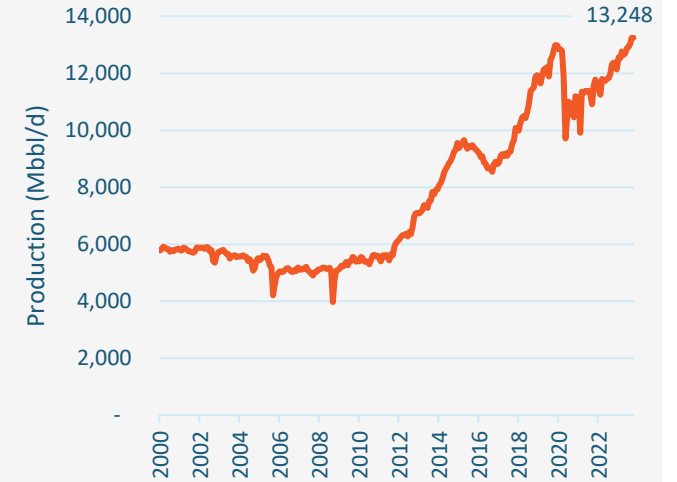
Crude Oil Production by Country



Top 10 Others in 2023:

- Mexico
- Kazakhstan
- Norway
- Nigeria
- Qatar
- Algeria
- Libya
- Angola
- Oman
- Colombia

US Crude Production (2000 - 2023)

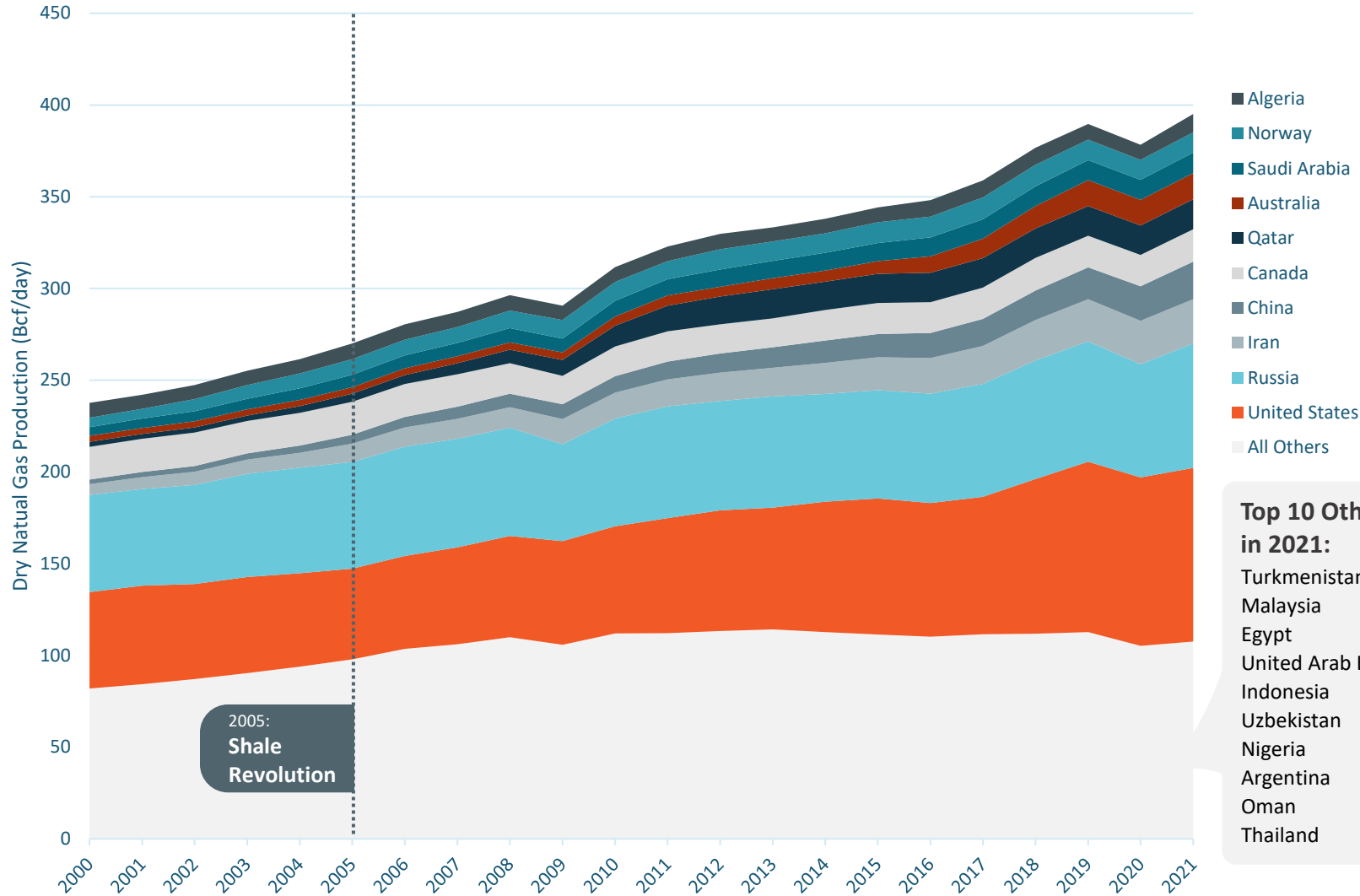


In 2023, global crude production averaged around 81,800 Mb/d:

- **US produced around 12,750 Mbbbl/d, about 16% of global production**
- Saudi Arabia produced 13% of global production
- Russia produced 12% of global production

The US Now Leads Global Natural Gas Production

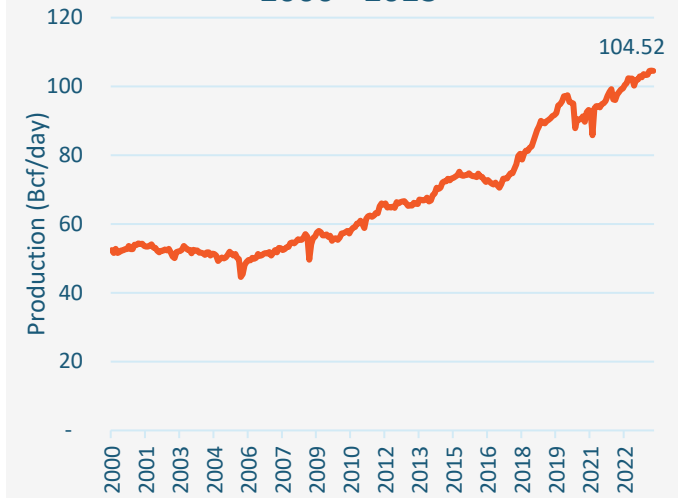
Dry Natural Gas Production by Country
2000 - 2021



Top 10 Others in 2021:

- Turkmenistan
- Malaysia
- Egypt
- United Arab Emirates
- Indonesia
- Uzbekistan
- Nigeria
- Argentina
- Oman
- Thailand

US Natural Gas Production
2000 - 2023



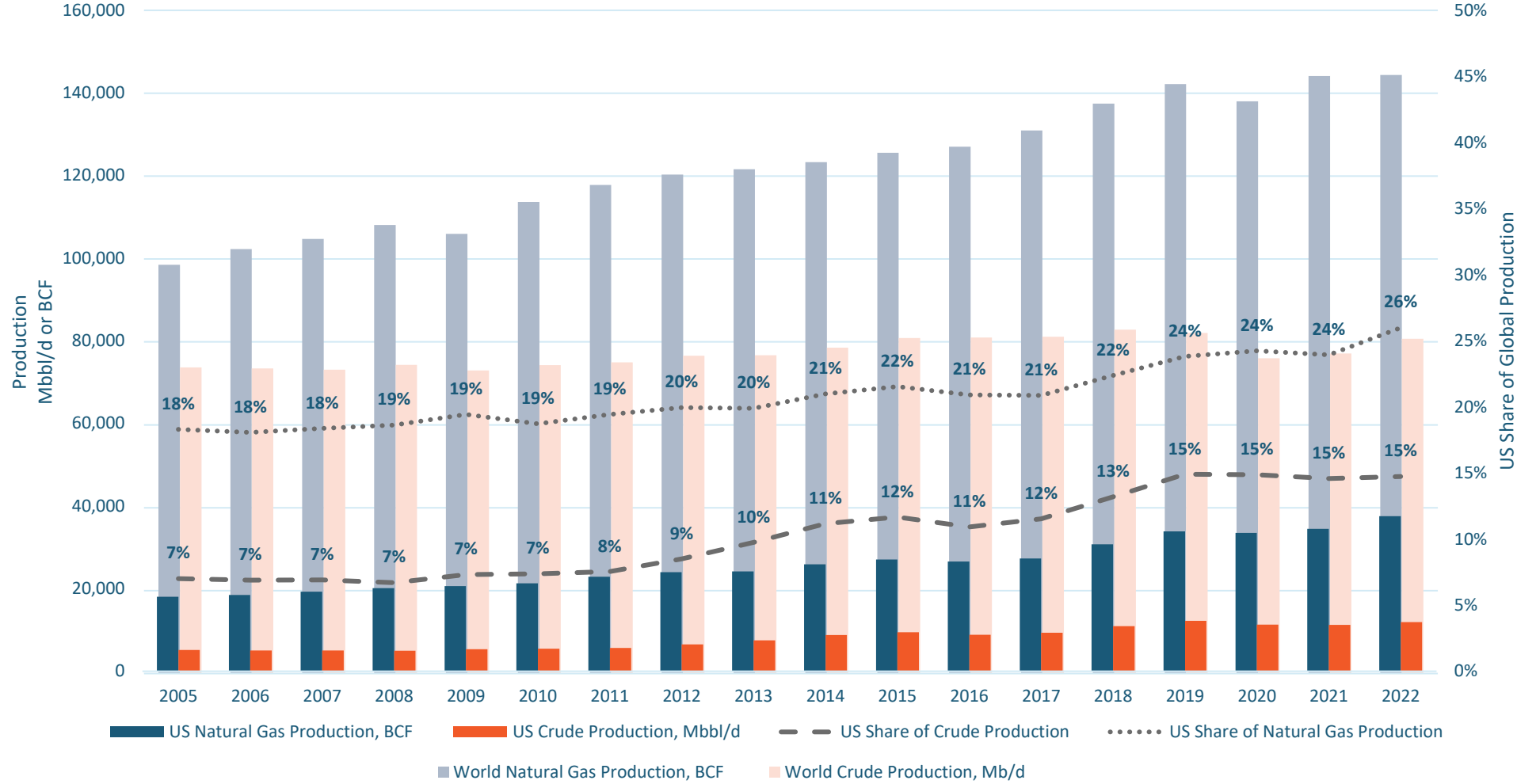
In 2021, global gas production was about 144,200 Bcf:

- The US produced around 94.6 Bcf/day, about 24% of the world's natural gas
- Russia produced 17%
- Iran produced about 6%

The US produced an average 103 bcf/day in 2023.

Because of the Shale Revolution, the US has Increased its Share of Global Oil & Natural Gas Production

Comparison of Global and US Production of Crude Oil and Natural Gas

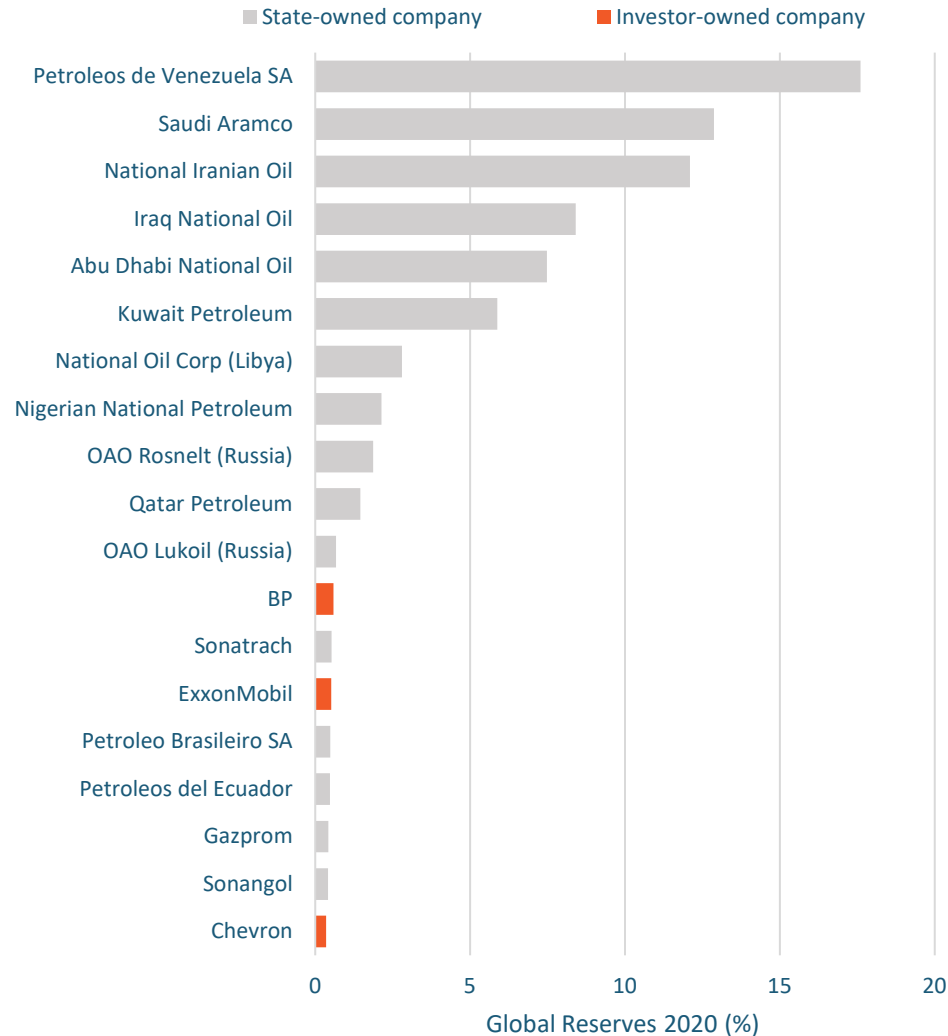


The US share of global natural gas production has increased from **18% to 26%** since 2005

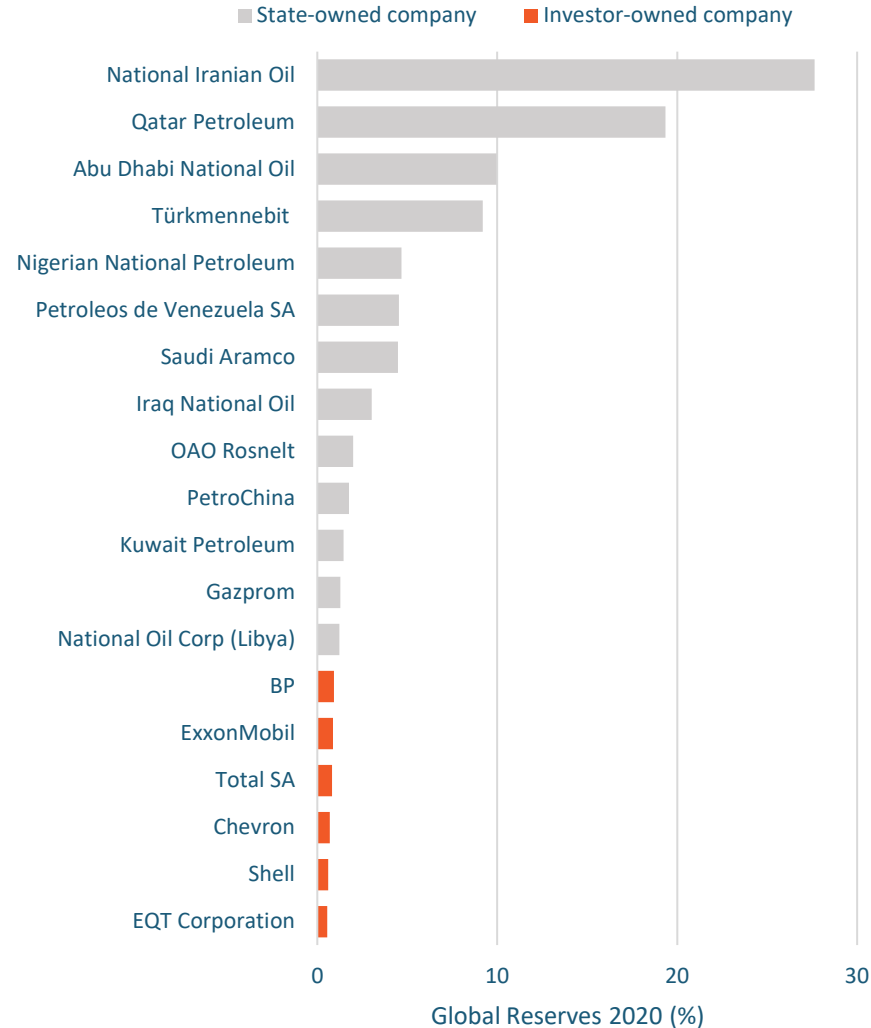
The US has increased its share of global crude production from **7% to 15%** since 2005

Vast Majority of Oil, Natural Gas Reserves are State-Owned

Largest Oil Companies by Reserves



Largest Natural Gas Companies by Reserves



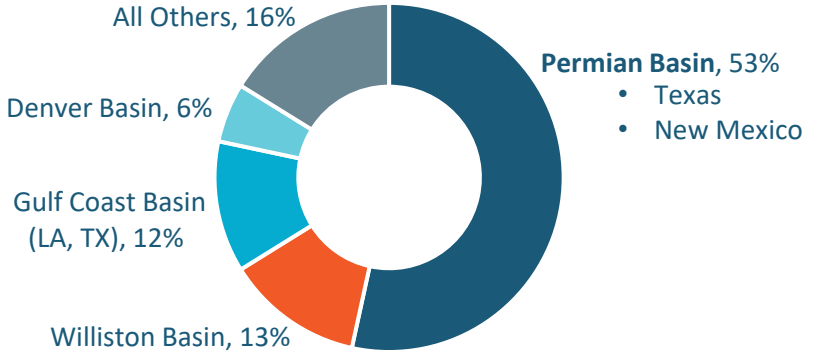
Ranked by control of global reserves in 2020:

- **84%** of top oil reserves were state-owned
- **93%** of top natural gas reserves were state-owned

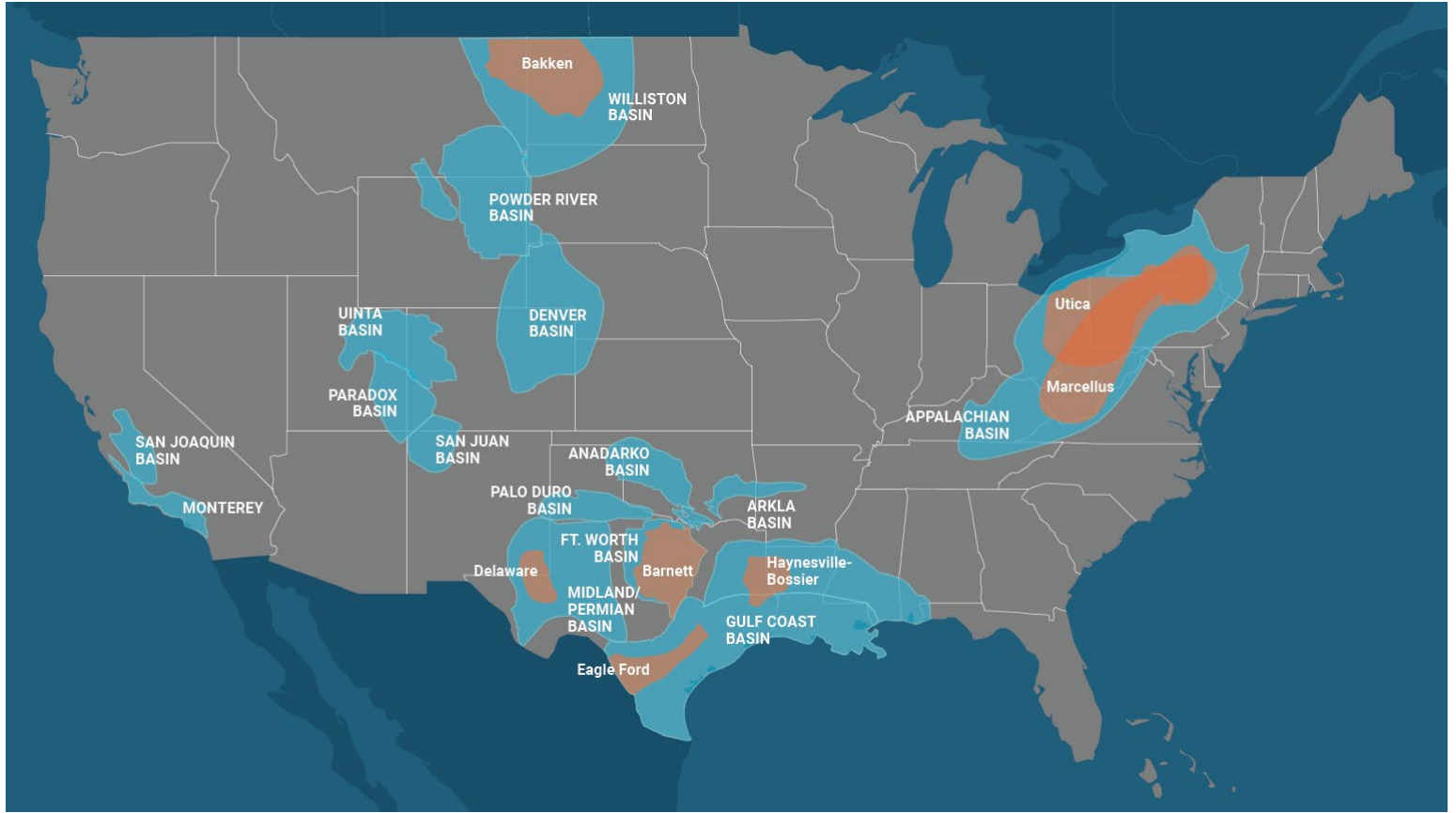
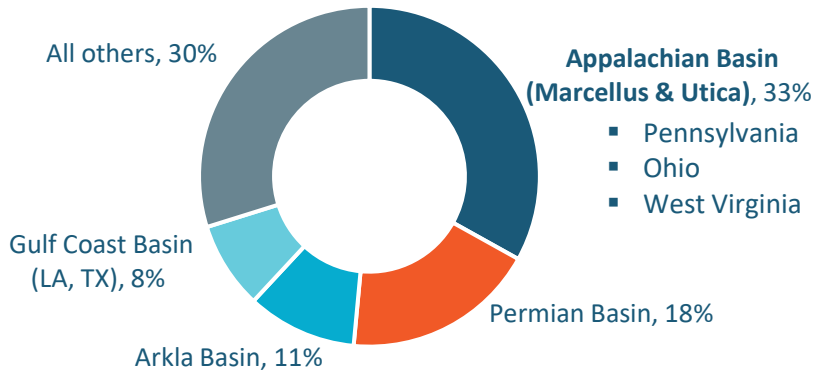
The organizations owning the vast majority of oil and gas reserves operate at the behest of their respective governments

Permian is Largest Oil Producing Basin, Appalachian is Largest Natural Gas Producing Basin

Oil Production by Basin
2022



Gas Production by Basin
2022

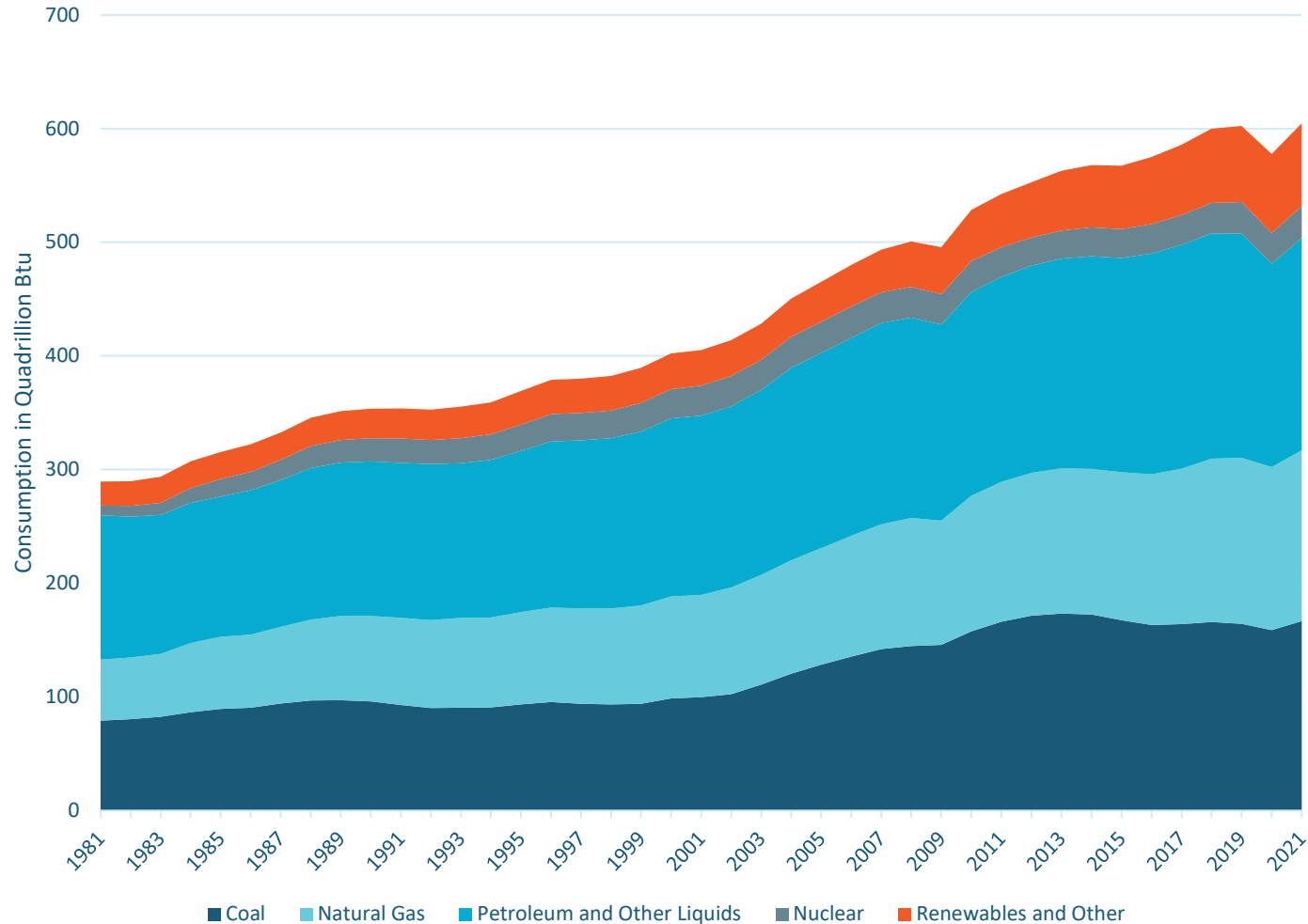


Energy Consumption



Oil and Natural Gas are the Majority of Global Energy Mix

Global Energy Consumption Mix
1981 - 2021



Global energy consumption **doubled** from 1981-2021

Energy from fossil fuels made up **84%** of the world's energy in 2021

Energy from coal contributed **28%** of the world's energy in 2021

From 1981 to 2021, global reliance on coal for energy has **doubled**

Every single source of primary energy has increased globally

Energy provided by renewables has **increased 3.5 times** between 1981-2021

Even with this dramatic increase, renewables still only contribute to **12%** of the total energy mix

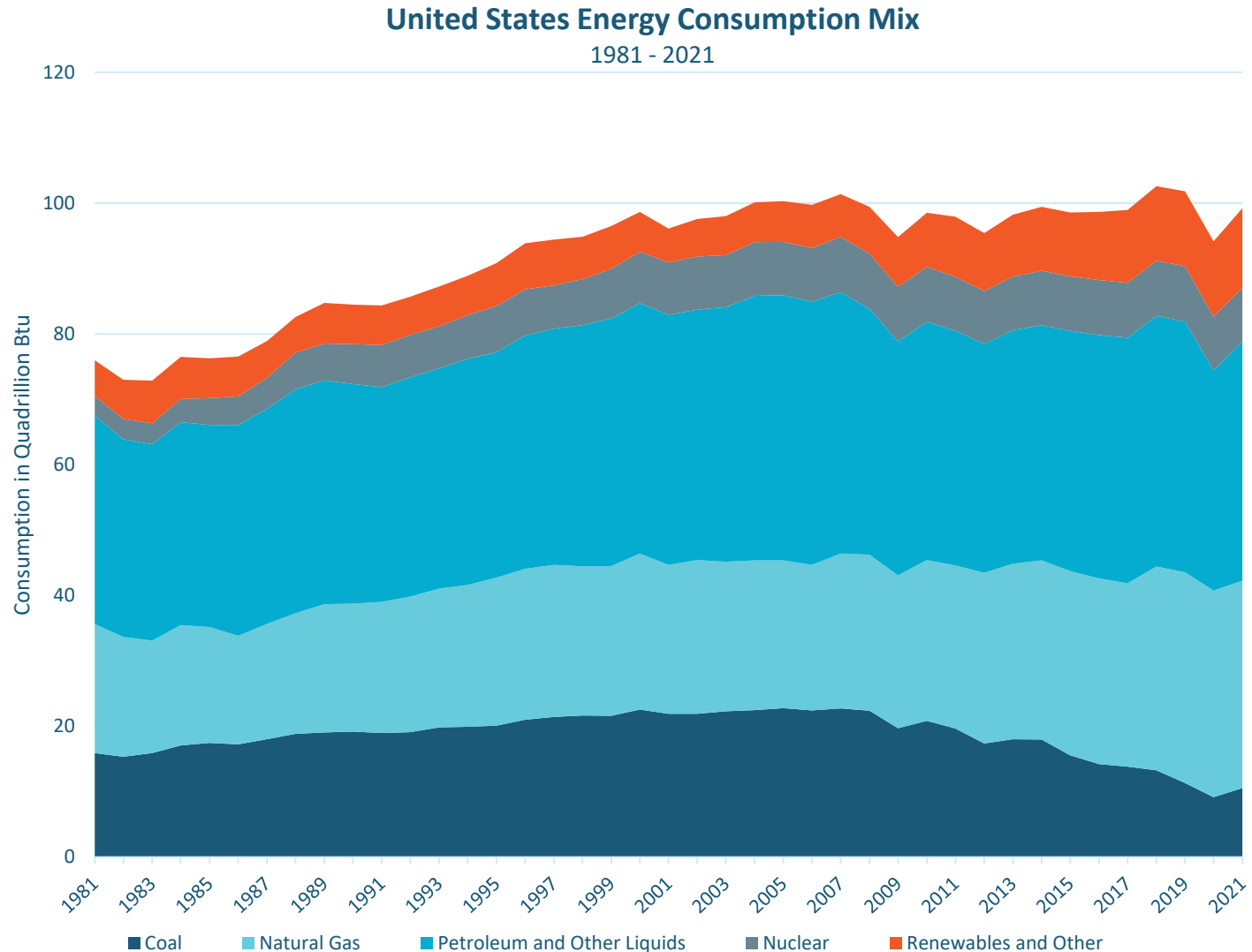
Historic demand increases outpace the growth in renewable energy

Oil and Natural Gas are the Majority of US Energy Mix

US consumption of energy between 1981-2021 grew by **29%**

Energy from fossil fuels made up **81%** of the US's energy in 2021, energy from coal only made up **11%**

Switching energy generation from coal to natural gas has set the stage for country-wide emission reductions in the US



From 1981 to 2021, the US has **reduced** its reliance on coal as an energy source by **34%**

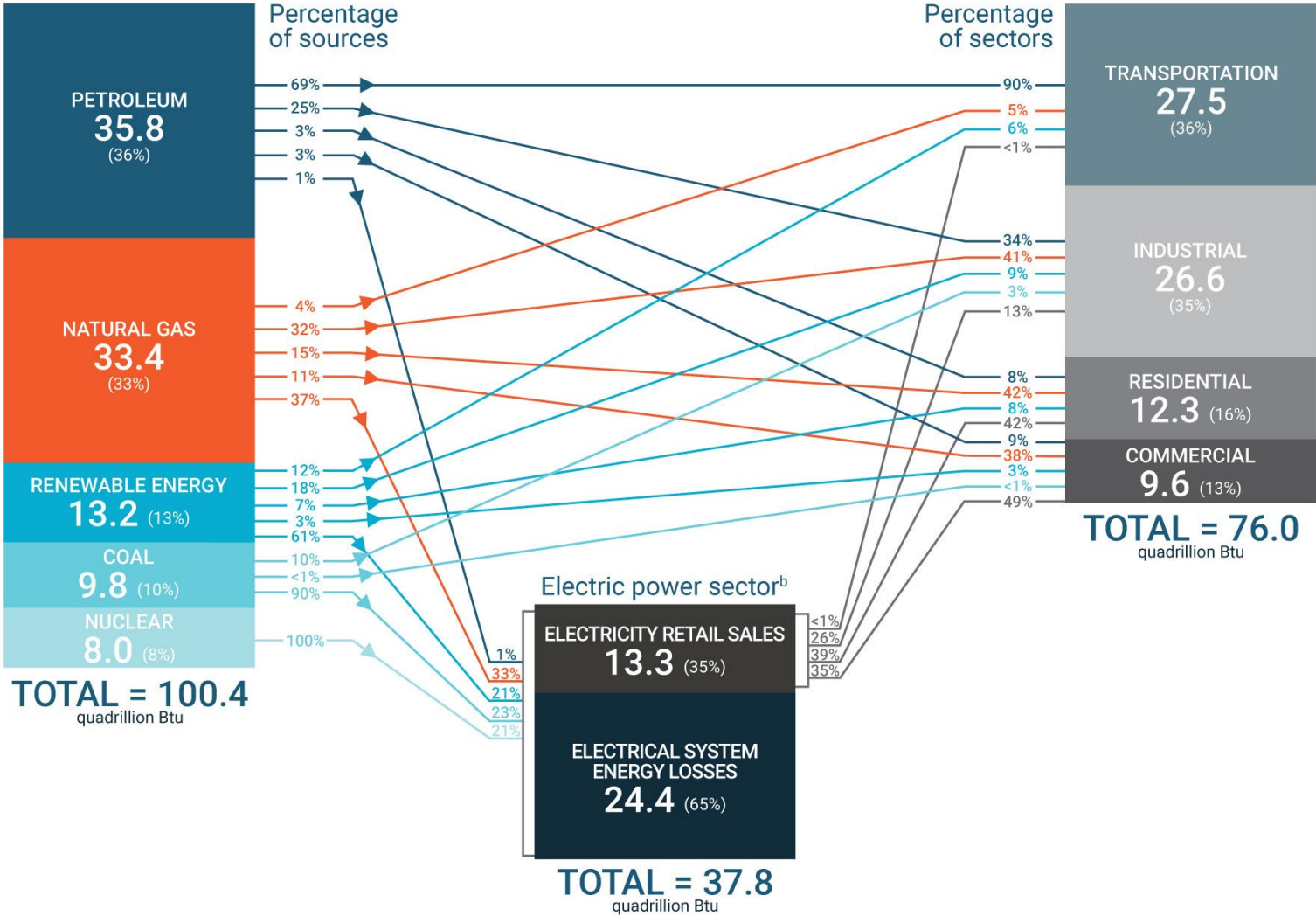
This has been the foundational reason for GHG emission reductions over the last 20 years

Energy provided by renewables **doubled** between 1981-2021 in the US, but still made up only **12%** of the total US energy mix

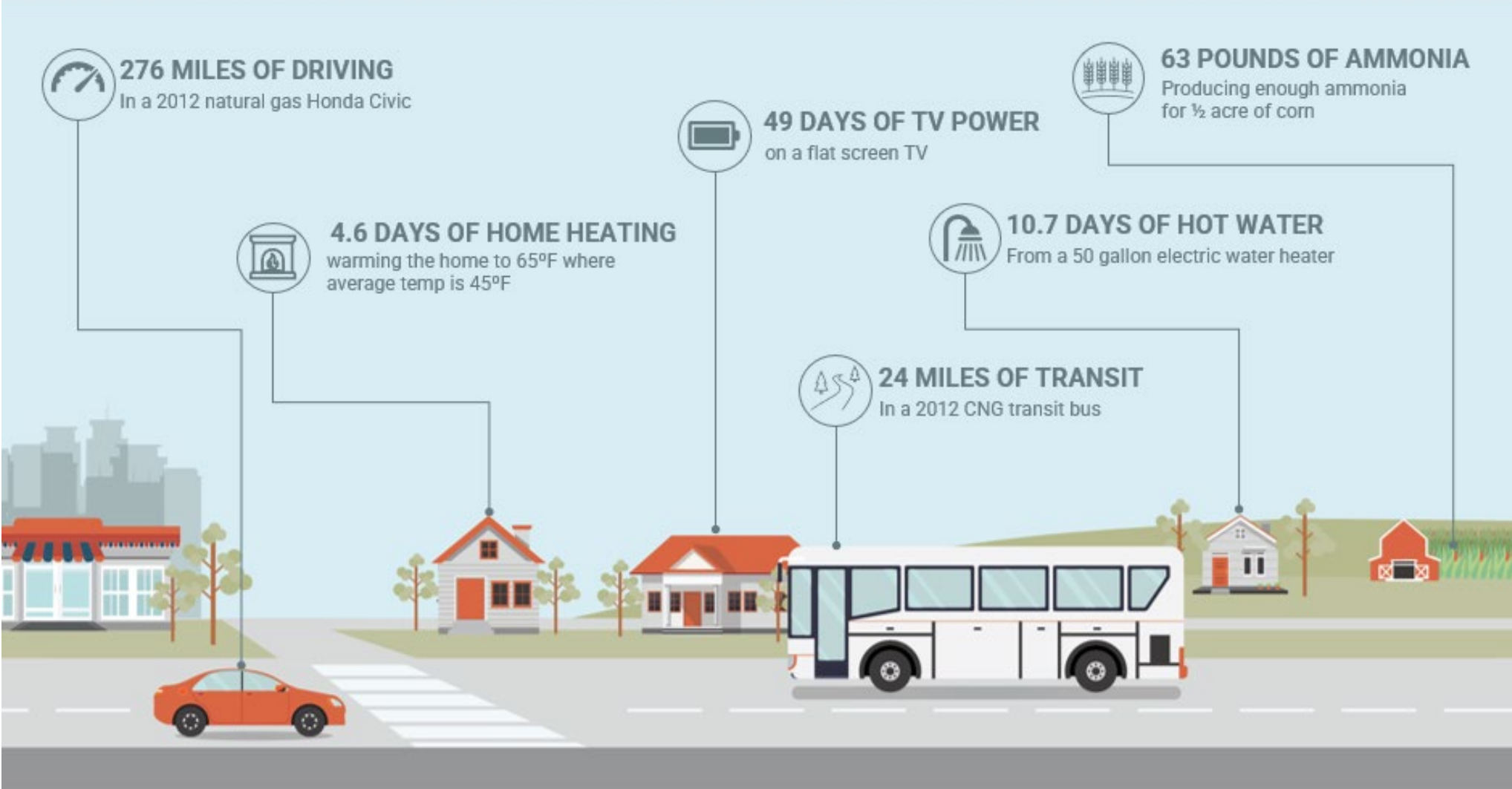
Energy Sources and their End Uses in the United States

Energy Consumption by Source and Sector in 2022

- Transportation consumes the largest amount of energy (36%) followed closely by the industrial sector (35%)
- Natural gas is the single biggest input into electric power (33%) followed by coal (23%) and renewables (21%)
- Petroleum products are by far the largest source of energy for transportation (90%)
- Natural gas and petroleum products provide 75% of the energy for the industrial sector

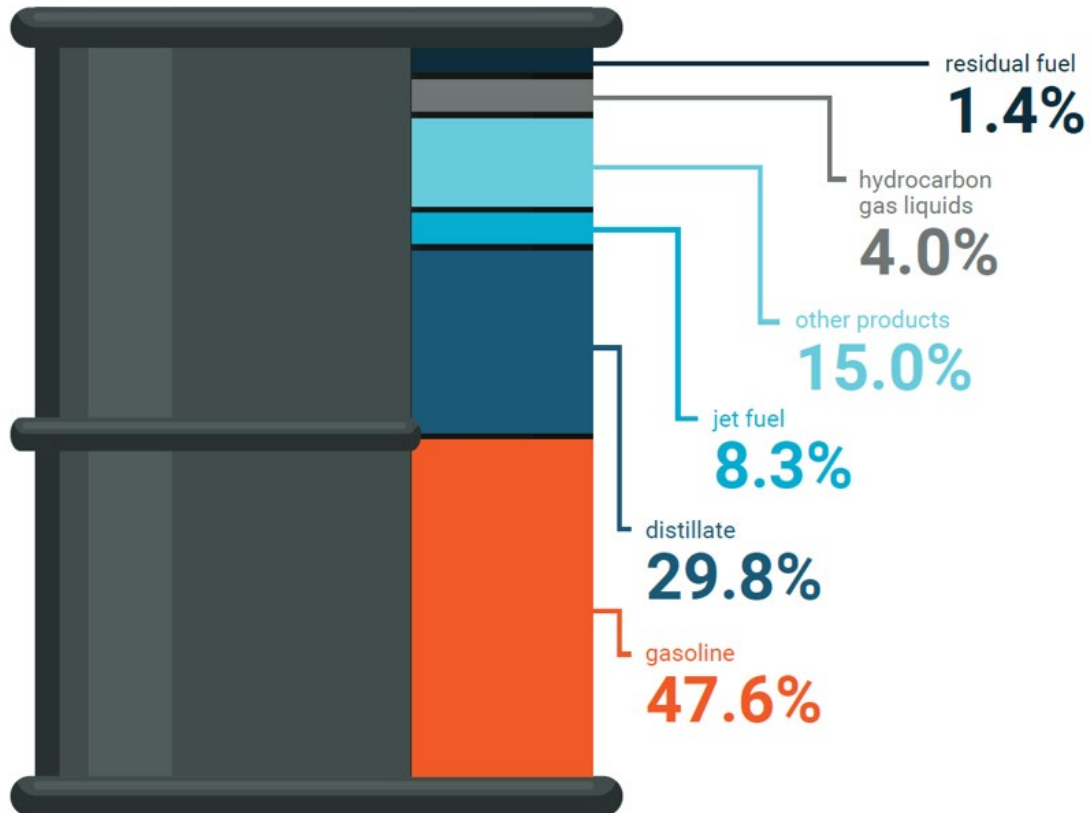


1,000 Cubic Feet (1Mcf) of Natural Gas Can Power



Products from and Uses of Crude Oil

Petroleum Products made from a Barrel of Crude Oil



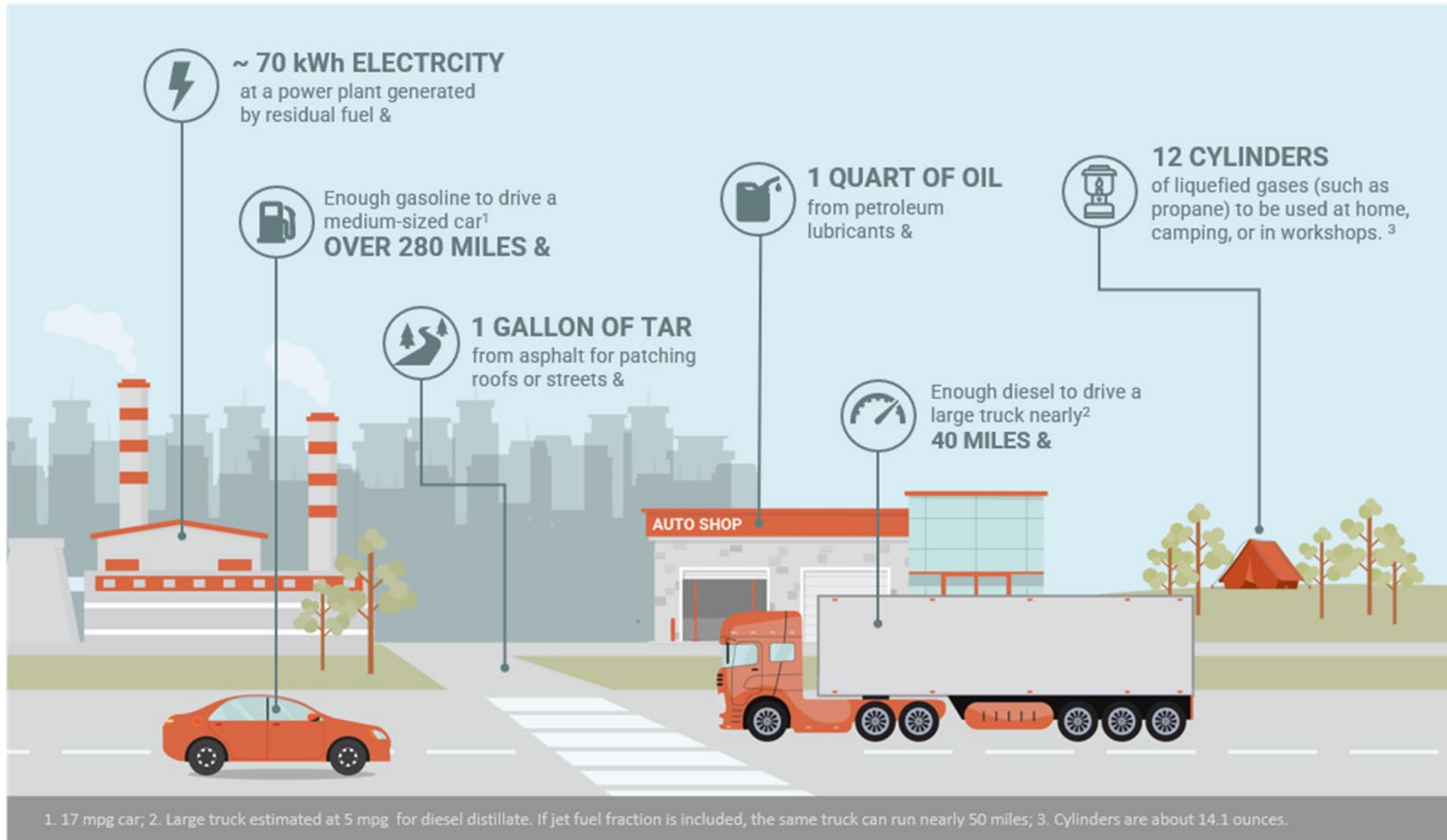
Source: Energy Information Administration, Petroleum Supply Monthly

According to the EIA, 80% of the **7.2 billion barrels** of petroleum used in the US in 2021 were gasoline, heating oil/diesel fuel, and jet fuel. The remaining is used for things like:

- Asphalt and road oil
- Lubricants
- Petrochemical feedstocks
- Waxes
- And many others

Petrochemicals derived from oil and natural gas make the manufacturing of **over 6,000 everyday products and high-tech devices** possible

One Barrel of Crude Oil Can Power:



Oil and Natural Gas are Vital to Modern Life

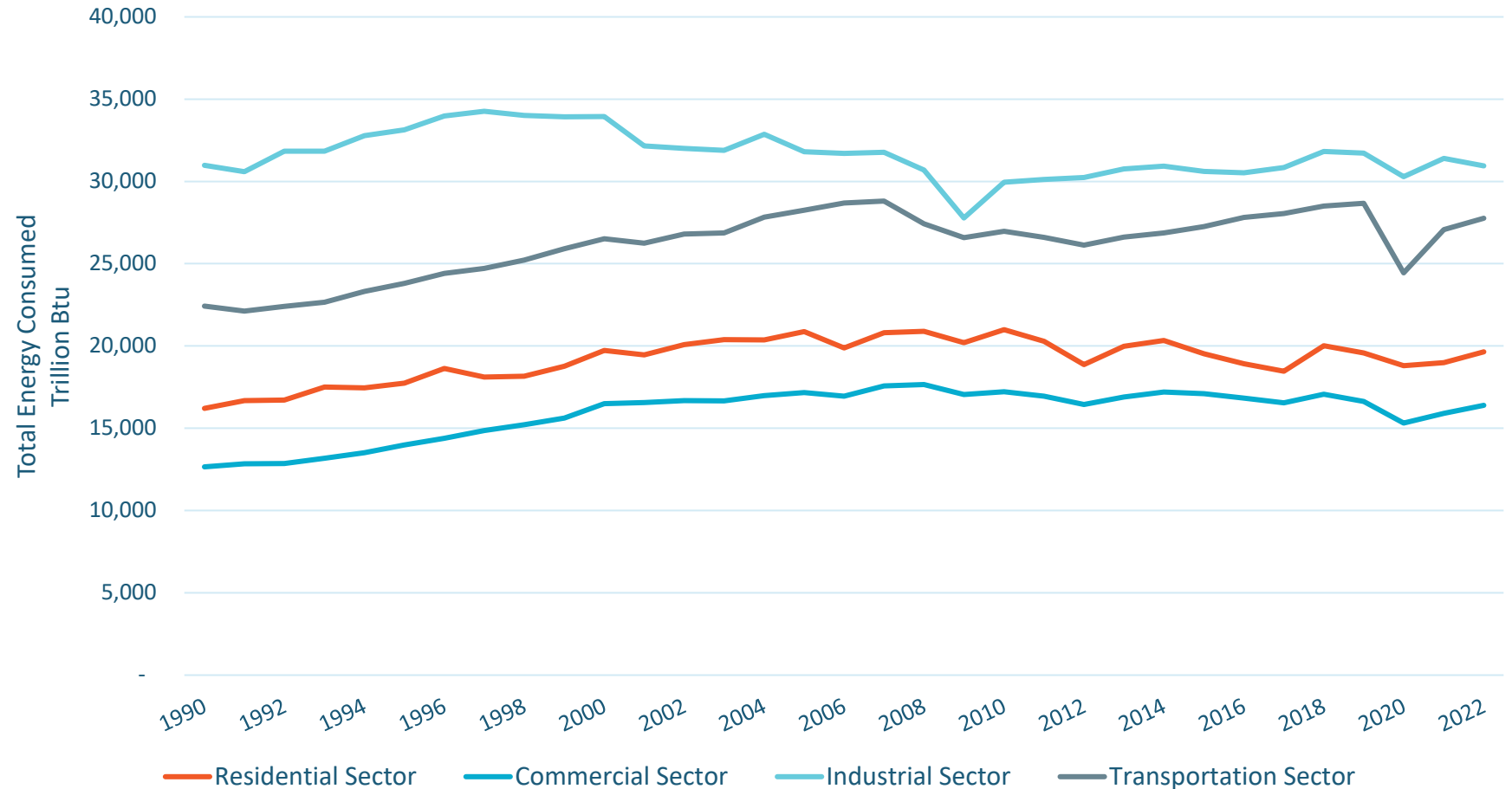


Products made from Petrochemicals

Adhesive, Antifreeze, Antihistamines, Antiseptics, Artificial limbs, Aspirin, Backpacks, Balloons, Bandages, Beach umbrellas, Boats, Cameras, Candles, Caulking, Cell phones, Clothes, Coffee makers, Cold cream, Combs, Computer keyboards, Computer monitors, Cortisone, Crayons, Credit cards, Curtains, Dashboards, Deodorant, Detergent, Dishwashing liquid, Dyes, Enamel, Epoxy paint, Eyeglasses, Fan belts, Fertilizers, Fishing lures, Floor wax, Food, preservatives Footballs, Fuel tanks, Glue, Golf balls, Guitar strings, Hair coloring, Hair curlers, Hand lotion, Hearing aids, Heart valves, House paint, Ice, Ink, Insect repellent, Insecticides, Insulation iPad/iPhone, Kayaks, Laptops, Life jackets, Lipstick, Loudspeakers, Lubricants, Luggage, Mops, Motorcycle helmets, Nail polish, Nylon rope, Packaging, Paint brushes, Pajamas, Panty hose, Parachutes, Perfumes, Petroleum jelly, Pharmaceuticals, Plastic toys, Propane, Putty, Refrigerants, Roofing, Rubbing alcohol, Safety glasses, Shampoo, Shaving cream, Shoe polish, Shoes/sandals, Shower curtains, Skateboards, Soft contact lenses, solar panels, Solvents, Sunglasses, Swimming pools, Synthetic rubber, Tennis rackets, Tents, Tires, Tool boxes, Toothbrushes Toothpaste, Trash bags, Tubing, Umbrellas, Upholstery, Vinyl flooring, Vitamin capsules, Water pipes, wind turbine blades, and many others.

Transportation, Industrial Continue to be Largest Consumers of Energy in US

End-Use Energy Consumed by Sector
1990 - 2022



Historically, all sectors have increased their energy consumption

In 2022, the transportation and Industrial sectors accounted for **62%** of all end-use energy consumption

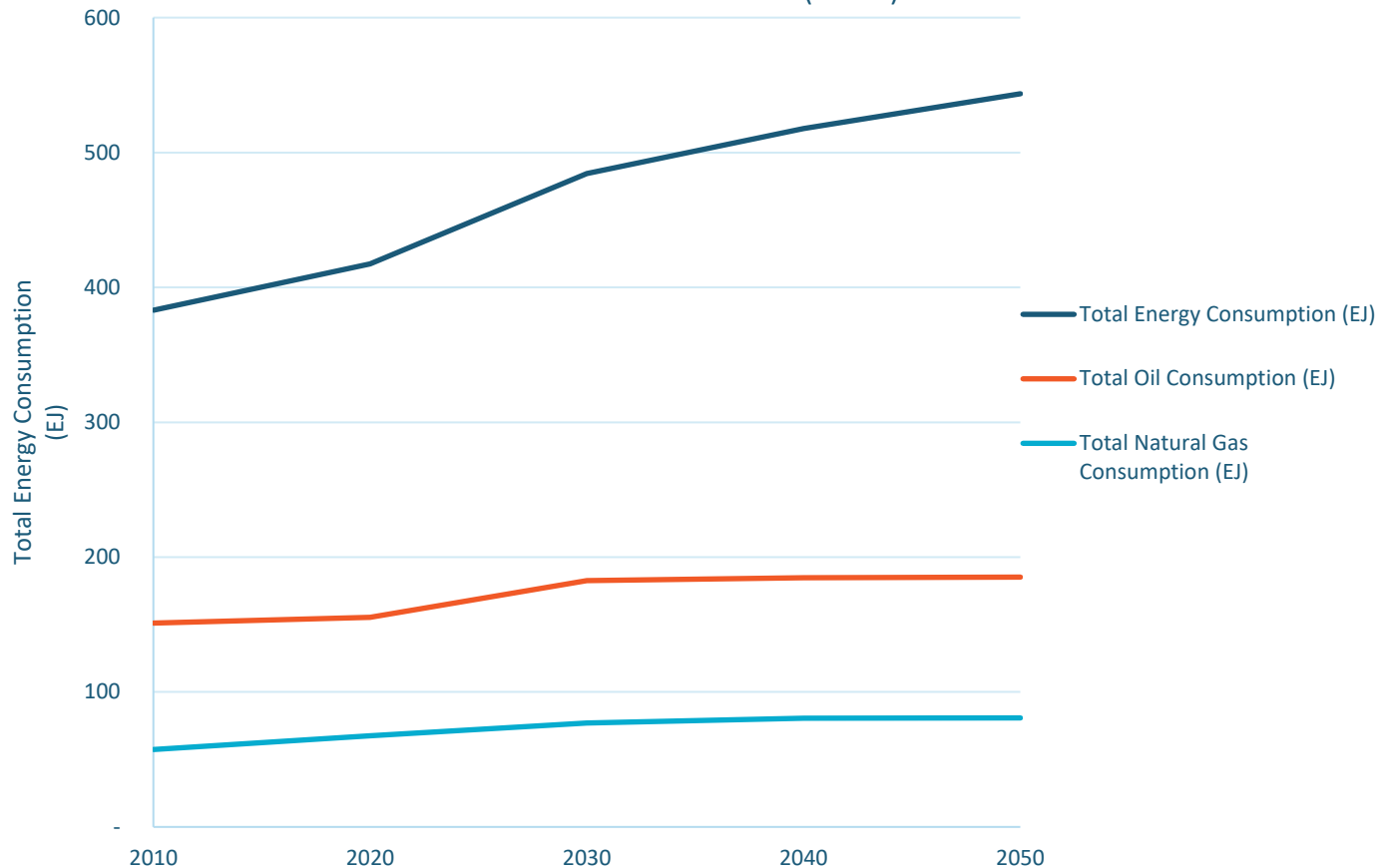
Between 1990 and 2022, the Transportation sector **increased** its energy consumption by **24%**

Total Global Energy Consumption Projected to Increase 42% by 2050

Future Energy Demand for Oil Up 23%, Demand for Natural Gas Up 41%

Energy Consumption Scenario

International Energy Agency
Stated Policies Scenario (STEPS)



The International Energy Agency's Stated Policies Scenario (STEPS) is an energy mix projection scenario developed to assess the potential achievements and limitations of recent developments in climate and energy policy

Global Total Energy Consumption under STEPS is projected to increase by 42% by 2050

According to STEPS:

- Oil accounts for **34%** of Total Energy Consumption in 2050
- Natural Gas accounts for **15%** of Total Energy Consumption in 2050

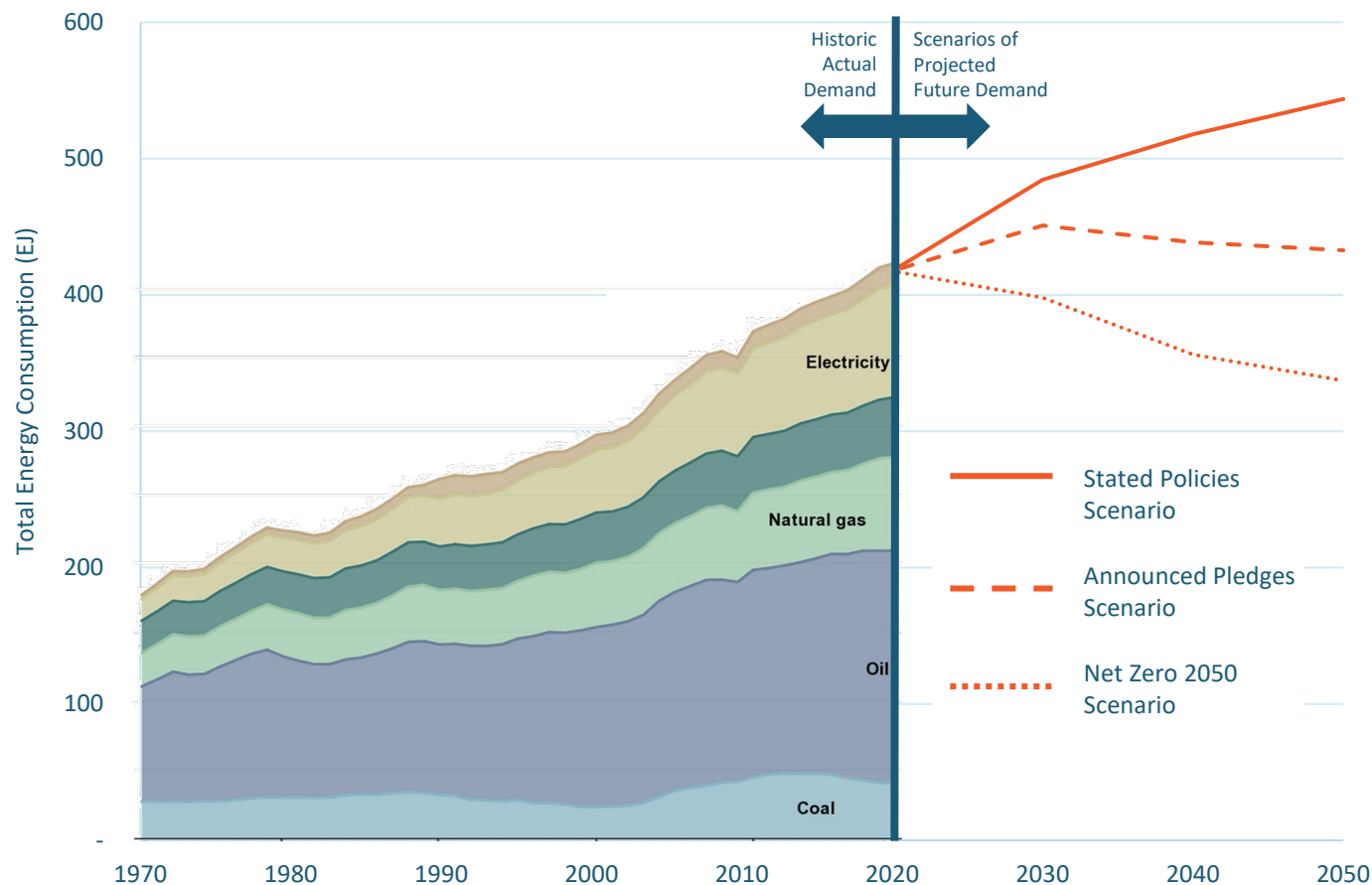
According to STEPS, by 2050:

- Demand for oil will increase by **23%**
- Demand for natural gas will increase by **41%**

Oil and Natural Gas to Remain a Long-Term Source of Global Energy Supply

All Climate Scenarios Show Need for Oil and Natural Gas

Comparison of Total Energy Consumption in Multiple IEA Global Energy and Climate Scenarios



Global energy demand is expected to grow with the emerging economies in China and India and throughout the global south

Notably, the only IEA scenario that projects continued energy consumption growth is the Stated Policy Scenario. Each other scenario (Announced Pledges, Net Zero 2050) projects an unrealistic stagnation or decrease in total energy consumption.

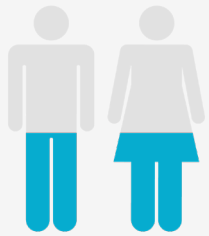
In all scenarios, oil and natural gas will continue to constitute a meaningful portion of the energy mix.

Global Energy Poverty

Billions of People Still Lack Access to Reliable Electricity

The share of the total population with access to energy has **steadily increased** over the last two decades

Despite progress, for the first time in decades, the number of people without access to electricity **increased** in 2022



In 2020 an estimated

3.5 BILLION PEOPLE

did not have *reliable* access to electricity

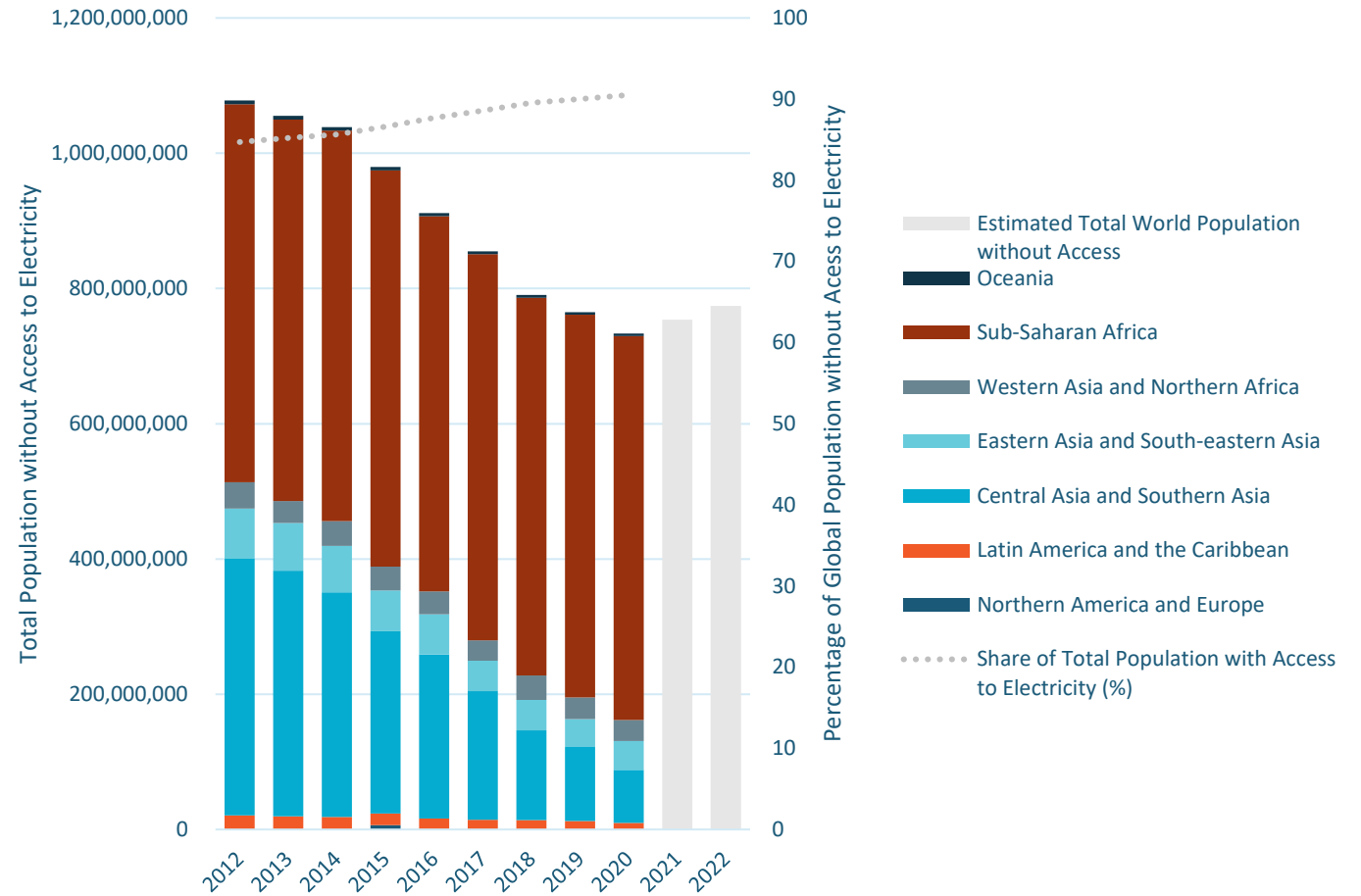


In 2022 an estimated

774 MILLION PEOPLE

did not have *any* access to electricity

Historical and Projected Electricity Access by Region



Billions of People Lack Access to Clean Cooking Fuels

Disproportionately affects women and children



In 2022 an estimated:

2.3
BILLION
PEOPLE

did not have access to clean cooking fuels relying on biomass, coal, or kerosene

3.7
MILLION
DEATHS

per year are associated with household air pollution most often caused by open fires or inefficient stoves

- Women and children typically responsible for household chores such as cooking/collecting firewood bear the greatest health burden from the use of polluting fuels and technologies in homes
- It is essential to expand use of clean fuels such as natural gas and liquefied petroleum gas (LPG) to reduce household air pollution and protect health

US Shale Revolution Provides Americans with Affordable Energy

Compared to 2008, as a percentage of household costs, energy has **decreased by 10.9%**

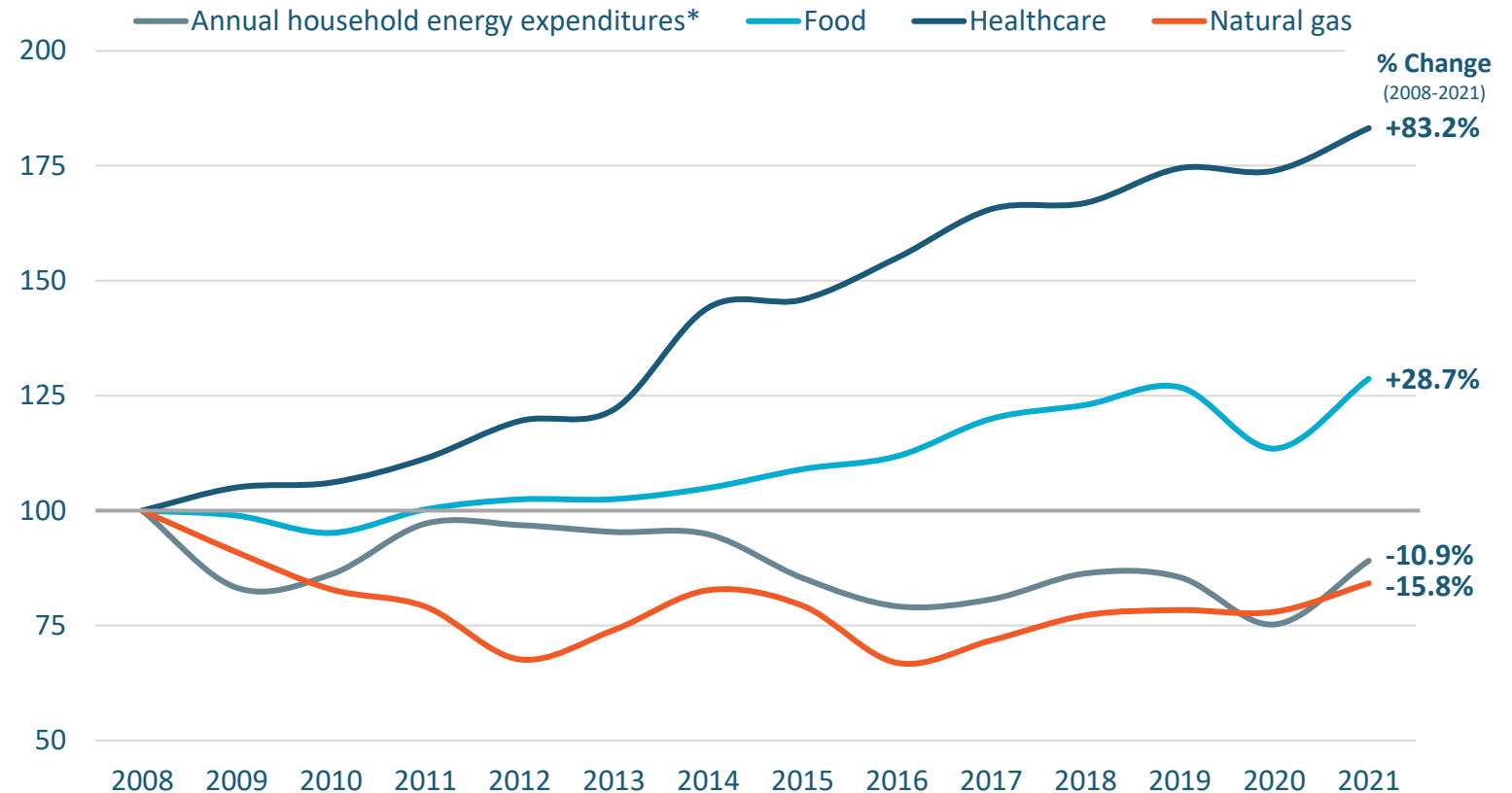
Percentage of household costs on natural gas **decreased by 15.8%**

Housing, transportation and energy typically make up more than half of typical US household spending

American oil and gas production provides a reliable domestic source of energy that helps save Americans an estimated **\$203 billion** annually (or \$2,500 for a family of four)

Household Expenditures by Category

Index (2008=100)



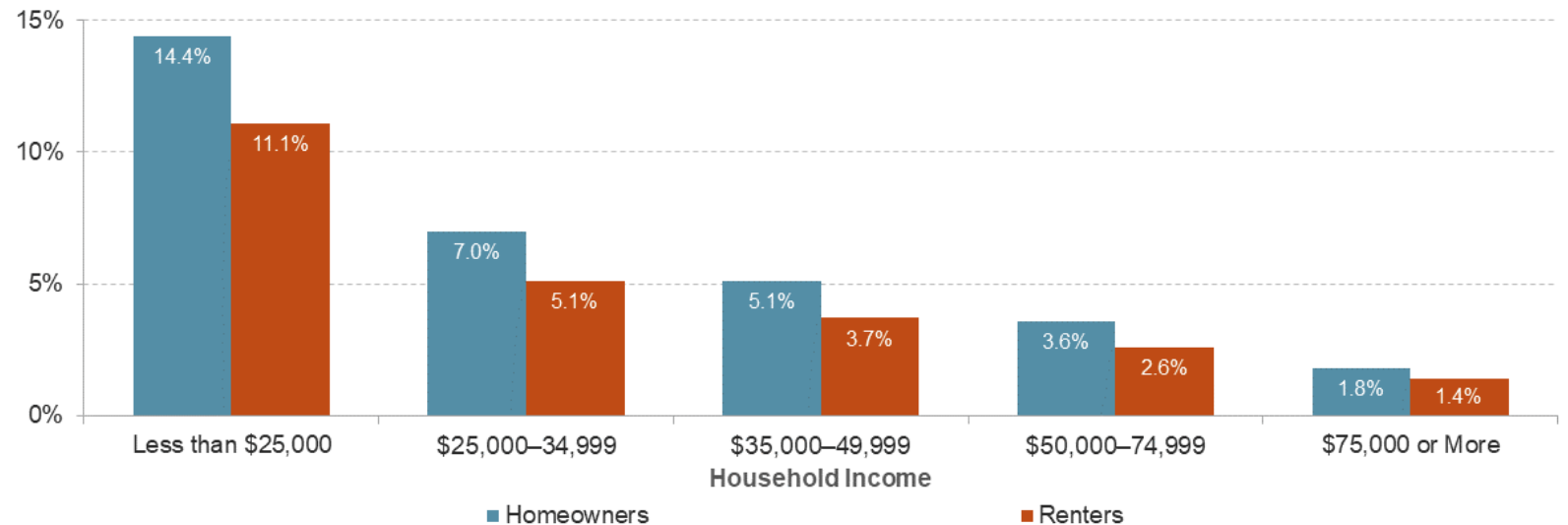
* Household energy expenditures include motor fuels, electricity, natural gas, and fuel oil
source: Bureau of Labor Statistics

United States Energy Security

Energy Burdens Hurt Lower Income Americans the Most

- In the first year of the pandemic, **27% of American households** reported some form of energy insecurity
- In general, households **spent about 3%** of their income on electricity, natural gas, oil, or other fuels in 2021, according to American Community Survey (ACS) data. However, households earning less than \$25,000 had an energy burden **nearly four times higher**, typically spending 12.6% of their income on these utilities

Energy Burden by Household Income in 2021
Share of Household Income Spend on Utilities



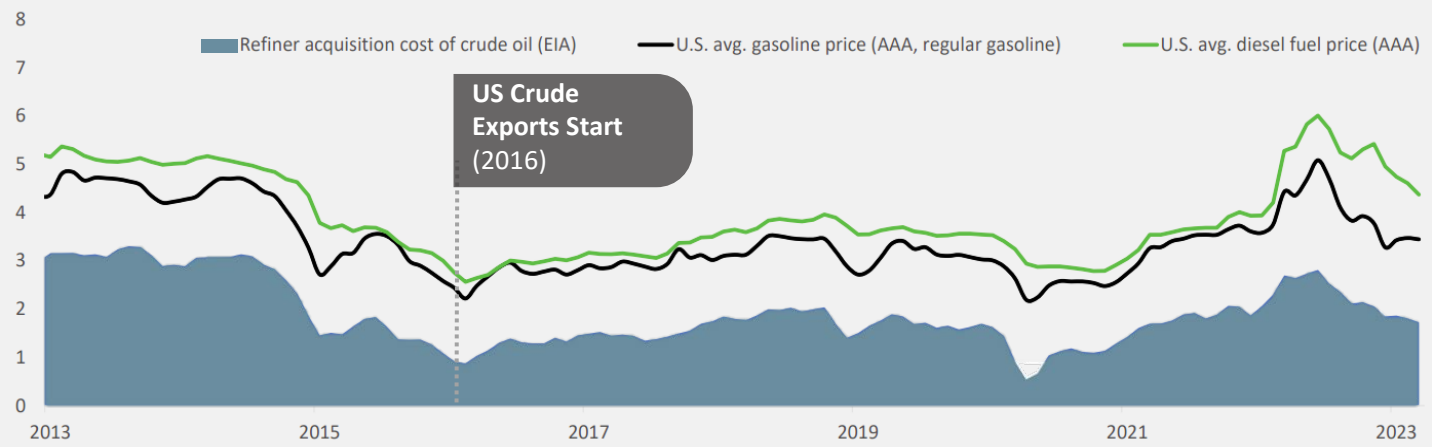
Note: Utilities defined as electricity, natural gas, oil, or other fuels. Excludes renters who do not pay utilities separately from rent. In 2021, most renters paid for utilities separately: 90% of renter households paid for electricity separately, and 77% of renter households paid for their heat source separately, across all heat source types. Source: JCHS tabulations of US Census Bureau, 2021 American Community Survey 1-Year Estimates.

Gasoline Prices Track Global Crude Oil Prices

Global Market Forces Determine Crude Prices; Gasoline Prices Are Not Set by Companies

Refiner acquisition cost of crude oil prices versus US average gasoline prices, adjusted for price inflation

Dollars per gallon (2023\$)

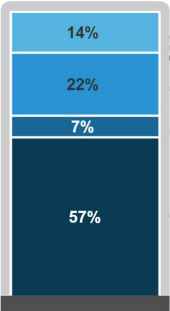


Global market forces (supply, demand, costs) determine the price for crude oil, which is the primary factor in gasoline prices

Increased global supply of crude oil supports lower gasoline prices

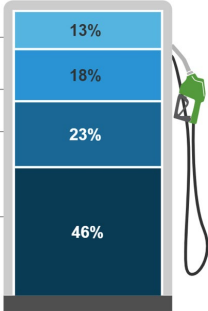
What We Pay for in a Gallon of Gas or Diesel

Regular Gasoline
Retail Price: \$3.61/gal Oct 2023



Taxes
Distribution & Marketing
Refining
Crude Oil

Diesel
Retail Price: \$4.51/gal Oct 2023

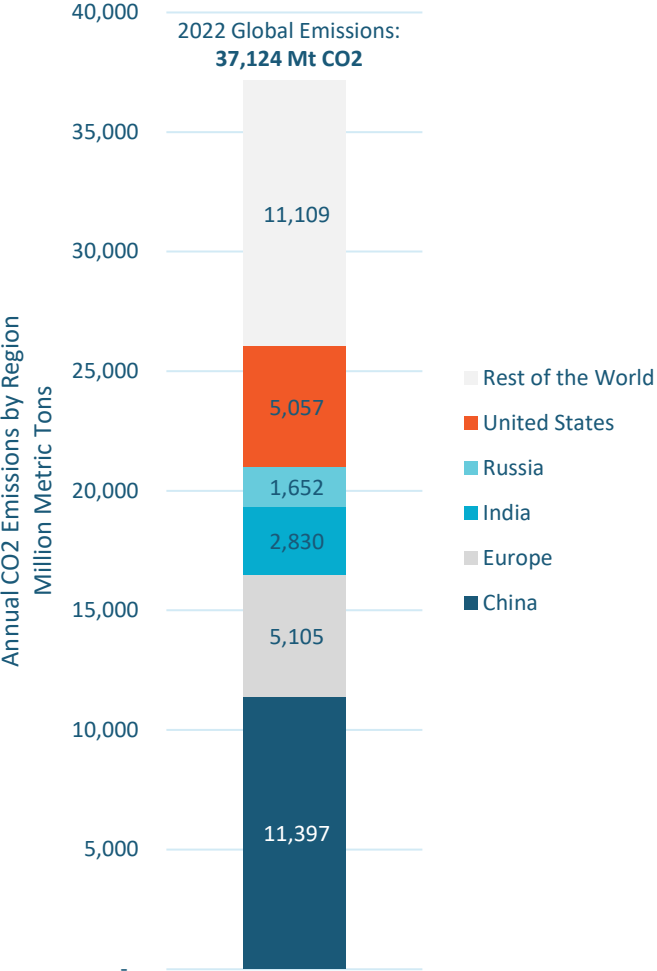


Climate Leadership

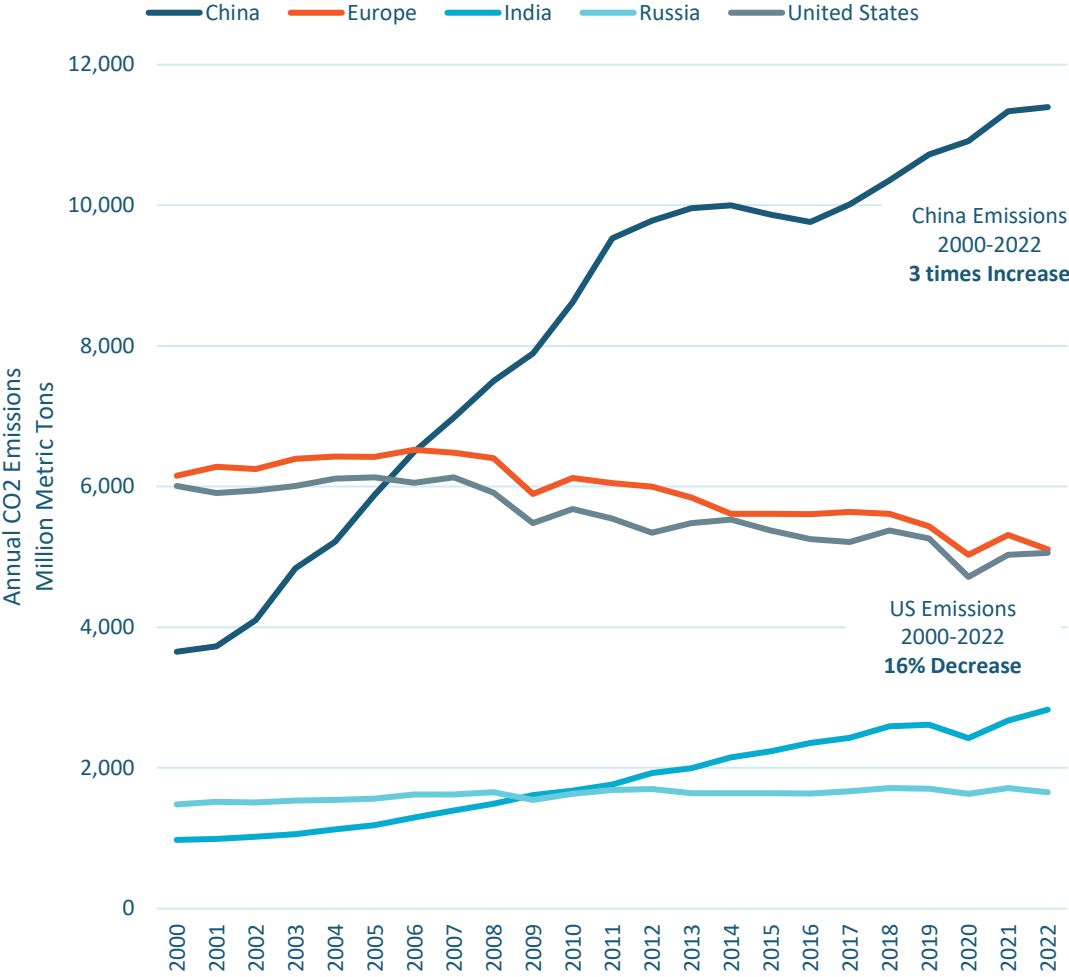


US Responsible for 13% of Global CO2 Emissions (and falling) China Responsible for 31% of Emissions (and growing)

Relative Distribution of Global CO2 Emissions by Region in 2022



CO2 Emissions by Region 2000-2022



The US was responsible for 14% of the global CO2 emissions in 2022. The US also **reduced overall emissions by 16%** between 2000 and 2022

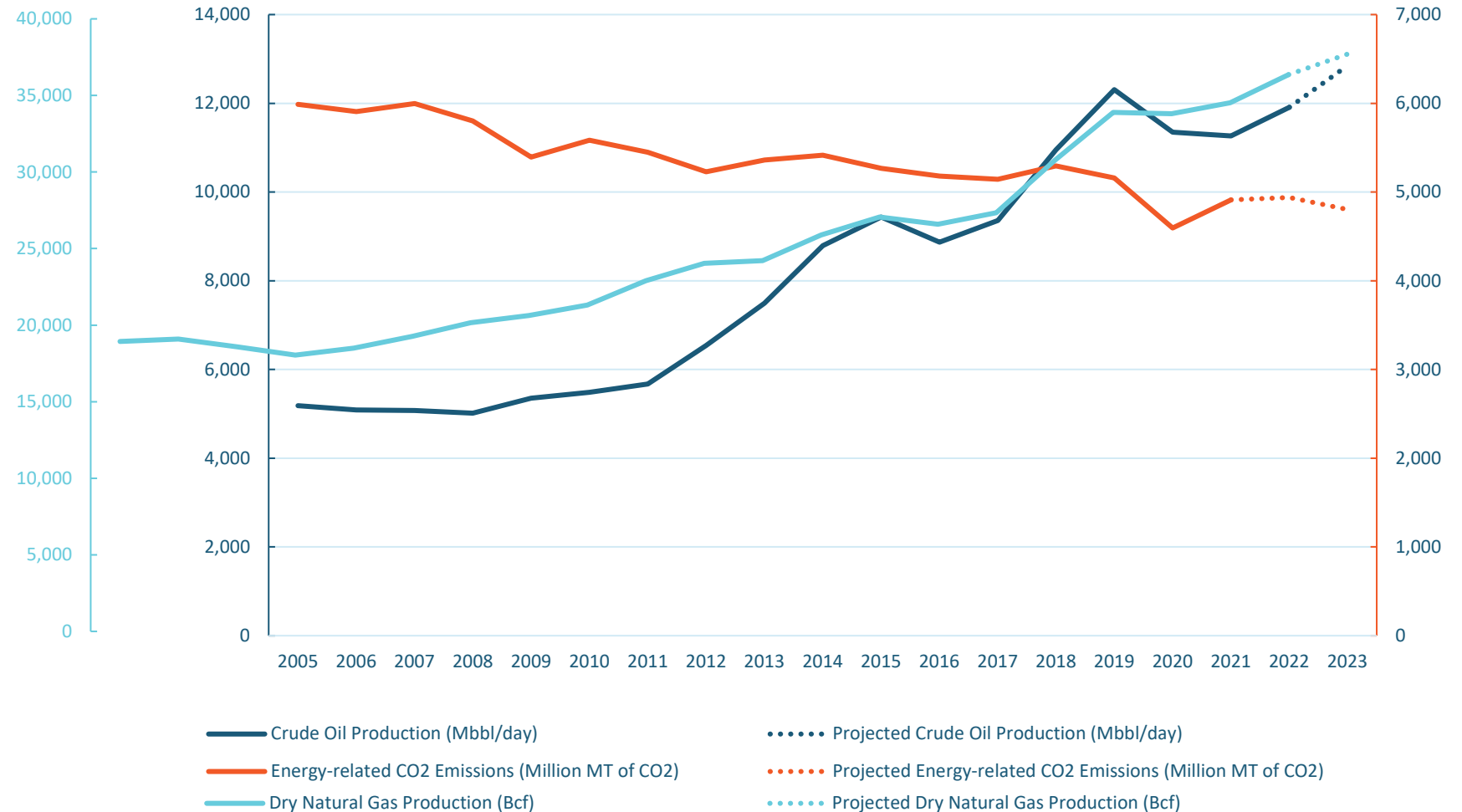
China was responsible for 31% of global CO2 emissions in 2021. China **tripled overall emissions** between 2001 and 2021

Energy policy and emission reduction strategies must think **globally** to effectively reduce emissions at scale

US is the World Leader in Both Production and Emissions Reductions

Emissions Reductions/Oil and Natural Gas Production are Not Mutually Exclusive

US oil production and US natural gas production increased significantly – all while the United States became the world leader in emissions reductions



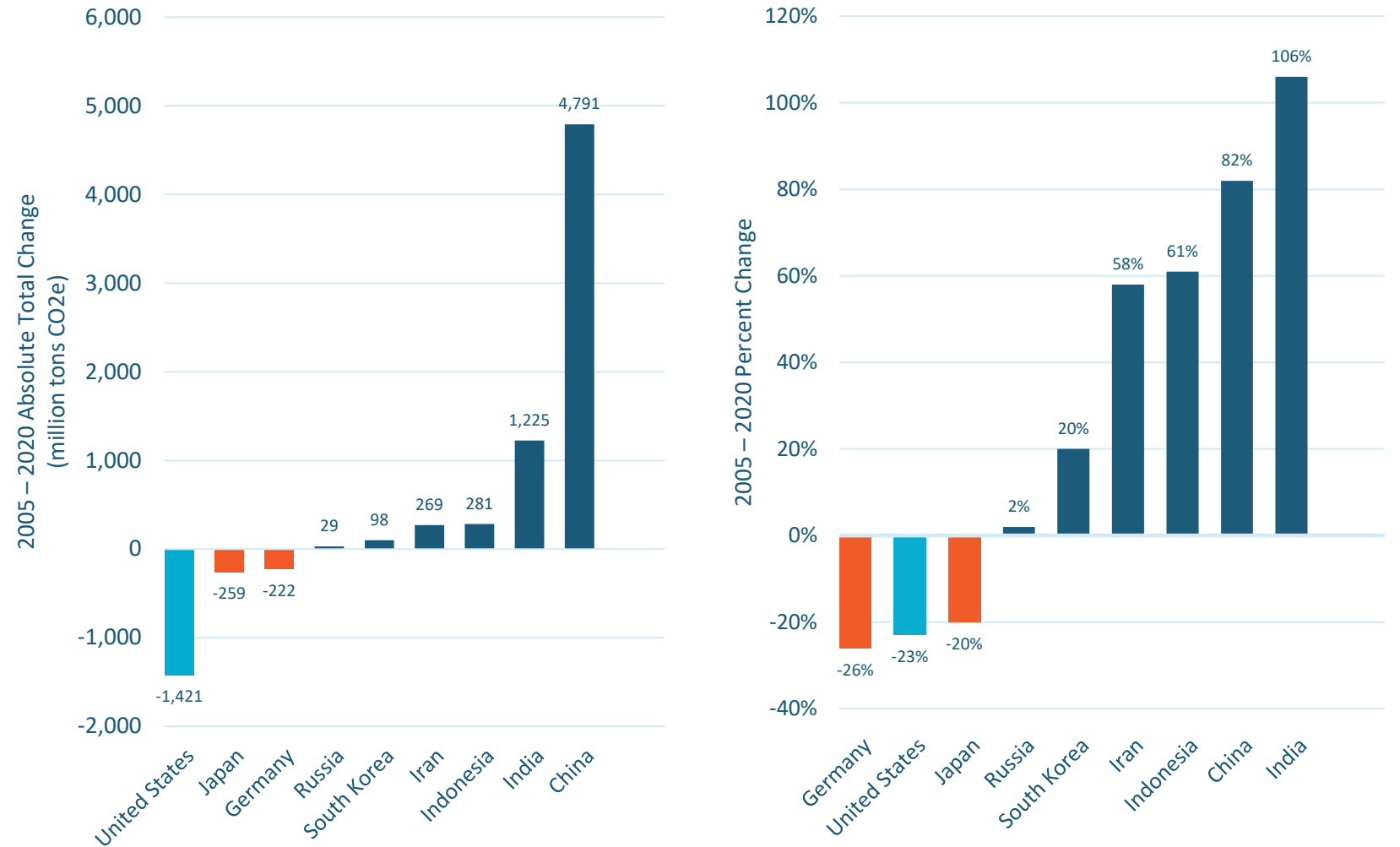
US Shale Revolution Paves the Way for US Climate Leadership

2005 to 2020

From 1990 through the beginning of the Shale Revolution, emissions steadily increased. But between 2005 and 2020, **US emissions decreased by 23%**

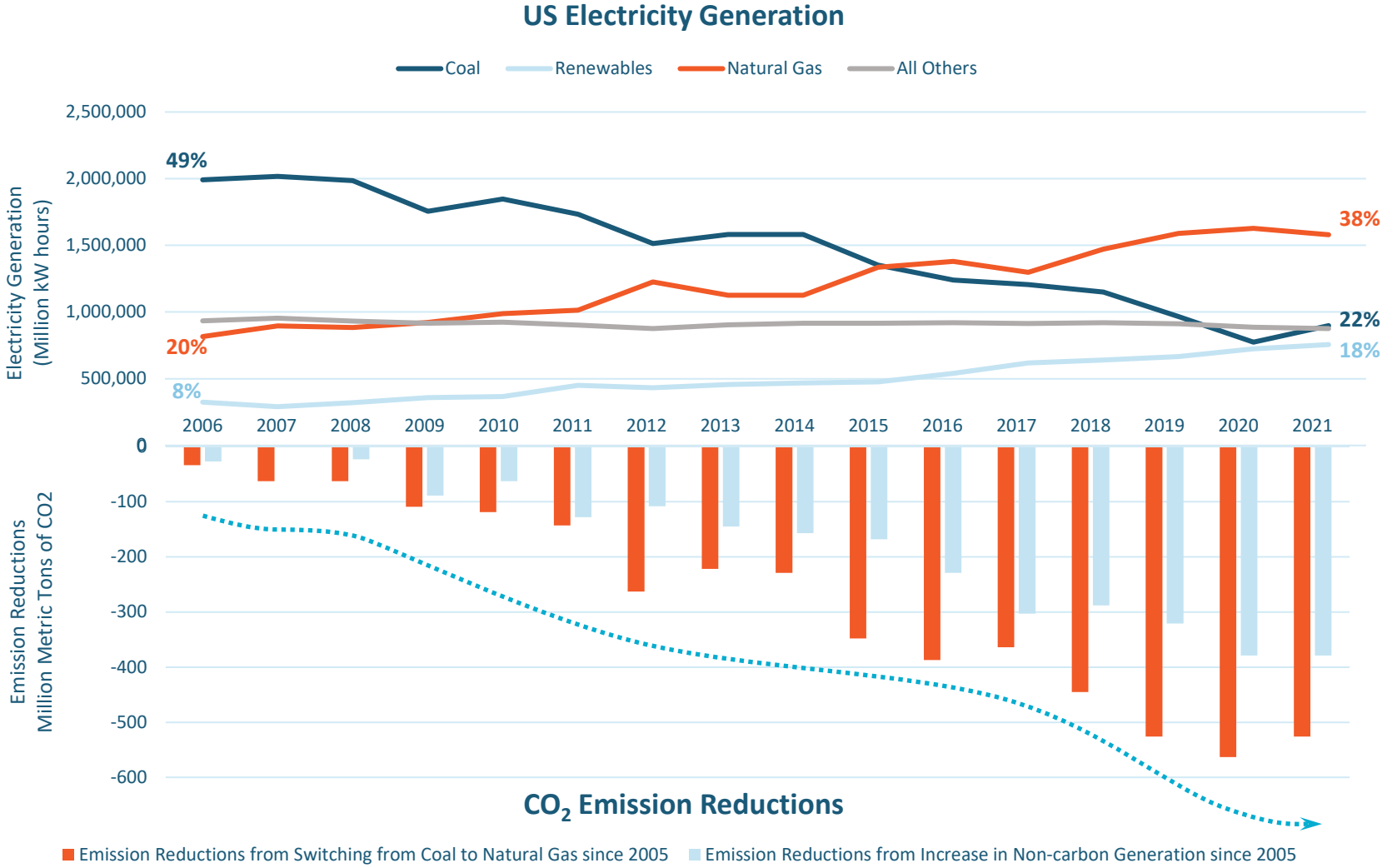
The shift to generating more electricity from natural gas and renewable sources **reduced energy-related carbon dioxide emissions** nationally at levels not predicted prior to these innovations

Total Emission Reductions by Country



Natural Gas is Responsible for 58% of all Emission Reductions in US

Natural Gas Reduced More Emissions than Renewables

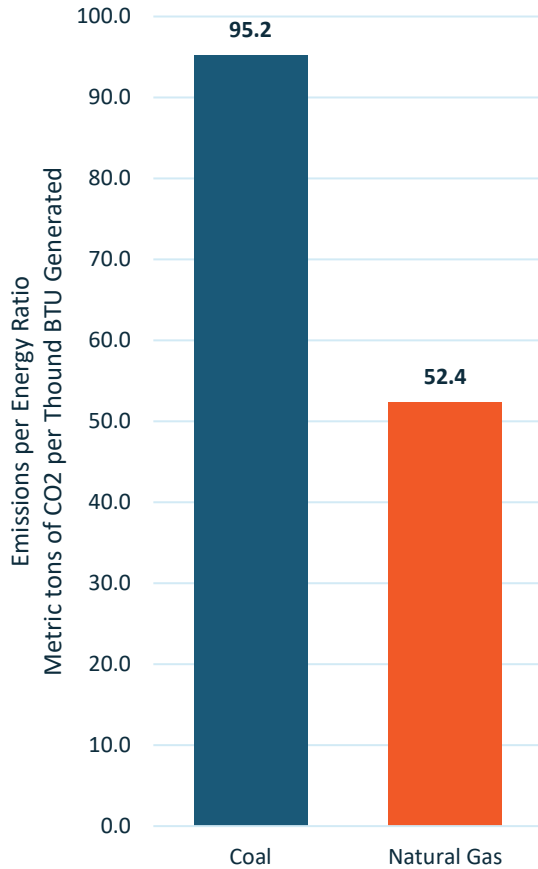


58% of all US emissions reductions were due to the switch from higher-carbon fossil fuel electricity generation (coal) to natural gas generation

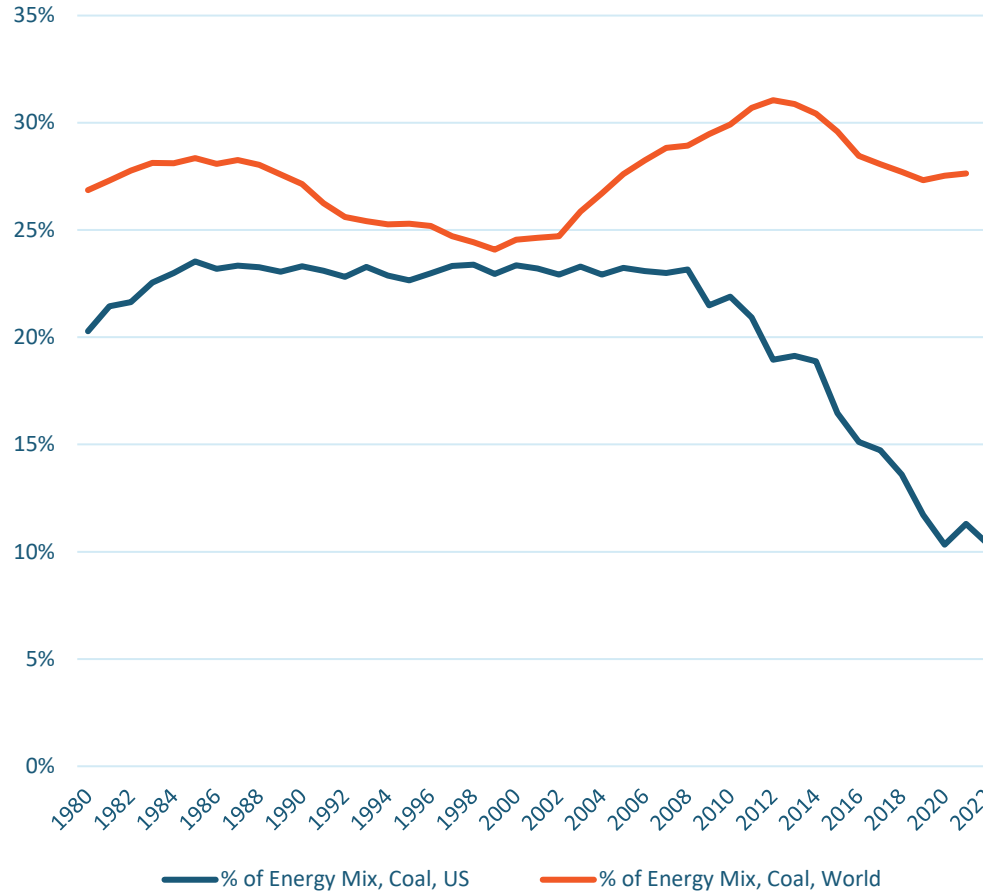
Switching from Coal to Natural Gas = Climate Opportunity

Coal emits an Outsized Portion of Emissions Relative to Energy Generation

Emissions per Energy Ratio of Coal versus Natural Gas



Percentage of Total Energy Generation by Source 1980 - 2022



Coal generates almost **2X** the emissions per unit of energy provided as compared to natural gas in the US

The US has rapidly switched from coal generation to natural gas generation since the Shale Revolution. This has had a meaningful impact on domestic **emission reductions**

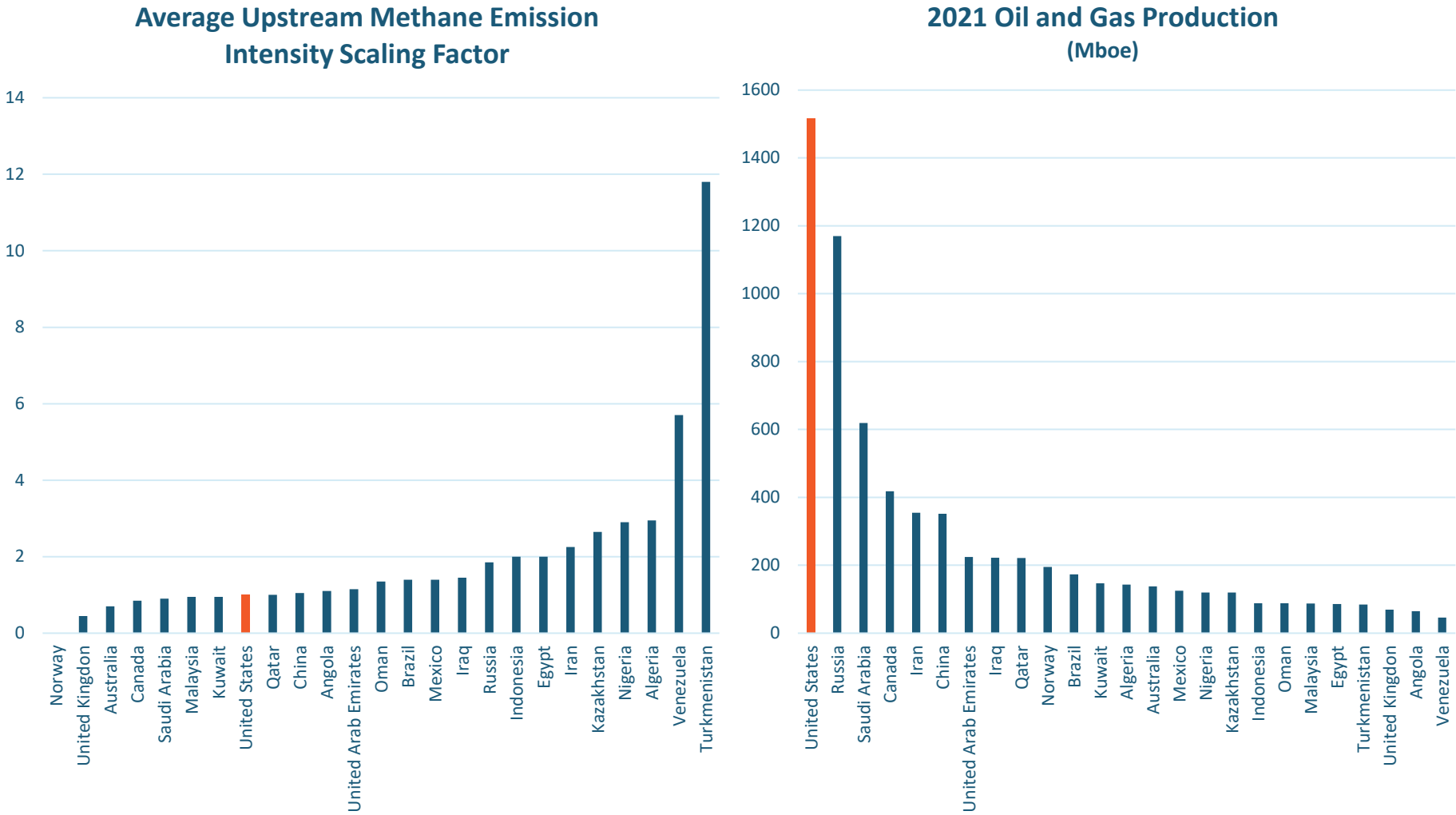
Global coal use and recent trends, however, are not nearly as positive. Active, global engagement to **switch electricity generation from coal to natural gas** is needed to continue progress in driving emissions down

US is Leading in Responsible Oil and Natural Gas Production

The US has one of the lowest emissions intensities coupled with the highest production

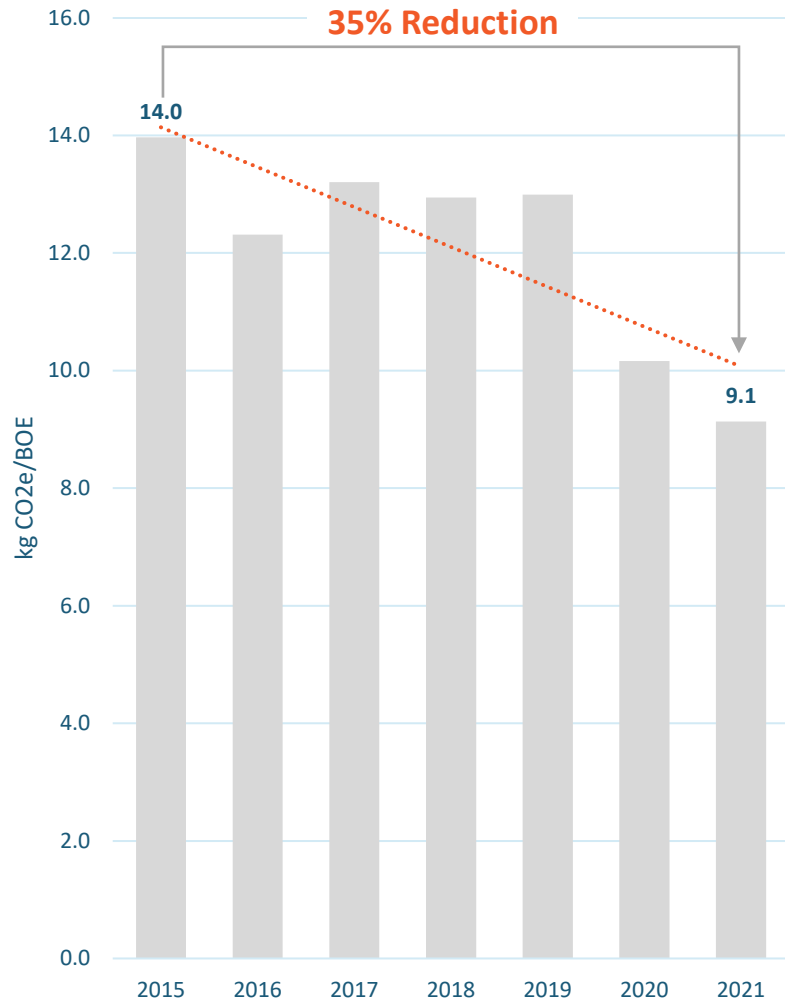
The IEA develops Methane Emission Scaling Factors based on a country's age of infrastructure, types of operators within each country (international oil companies, independent companies, or national oil companies) and average flaring intensity

Only 7 other producing countries have a lower methane factor; the US produces (1,516 mboe) almost as much as all 7 of those countries combined (1,673 mboe)

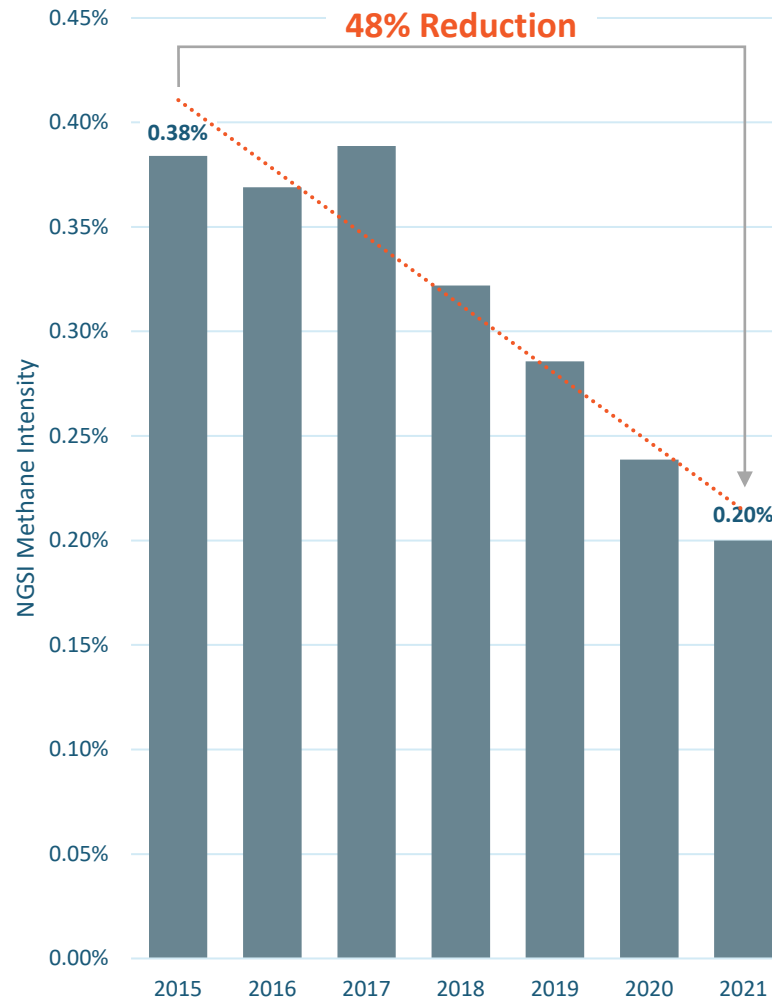


Technology Development and Operating Practices = Emission Reductions

GHG Intensity
2015 - 2021



NGSI Methane Intensity
2015 - 2021



Based on an analysis by CERES and the Clean Air Taskforce, the upstream oil and natural gas industry has **reduced its methane intensity by 48% and its GHG intensity by 35%** since 2015

Through development of new technologies and improved operating practices, the US upstream oil and gas industry has led the way in emission reductions

Partnership with the upstream oil and gas industry's talent and expertise is essential for developing the technology the world needs to meet climate goals

Federal Lands



Oil and Natural Gas Produced on Onshore Federal Lands is a Critical Part of US Energy Security

In 2021, operators on onshore Federal and Tribal lands in the US produced:

Which is more than the entire production of:

If oil and gas produced on onshore Federal Lands were a "country," it would be:

462
MILLION
BARRELS
of oil



17th
LARGEST
producer of oil
in the world

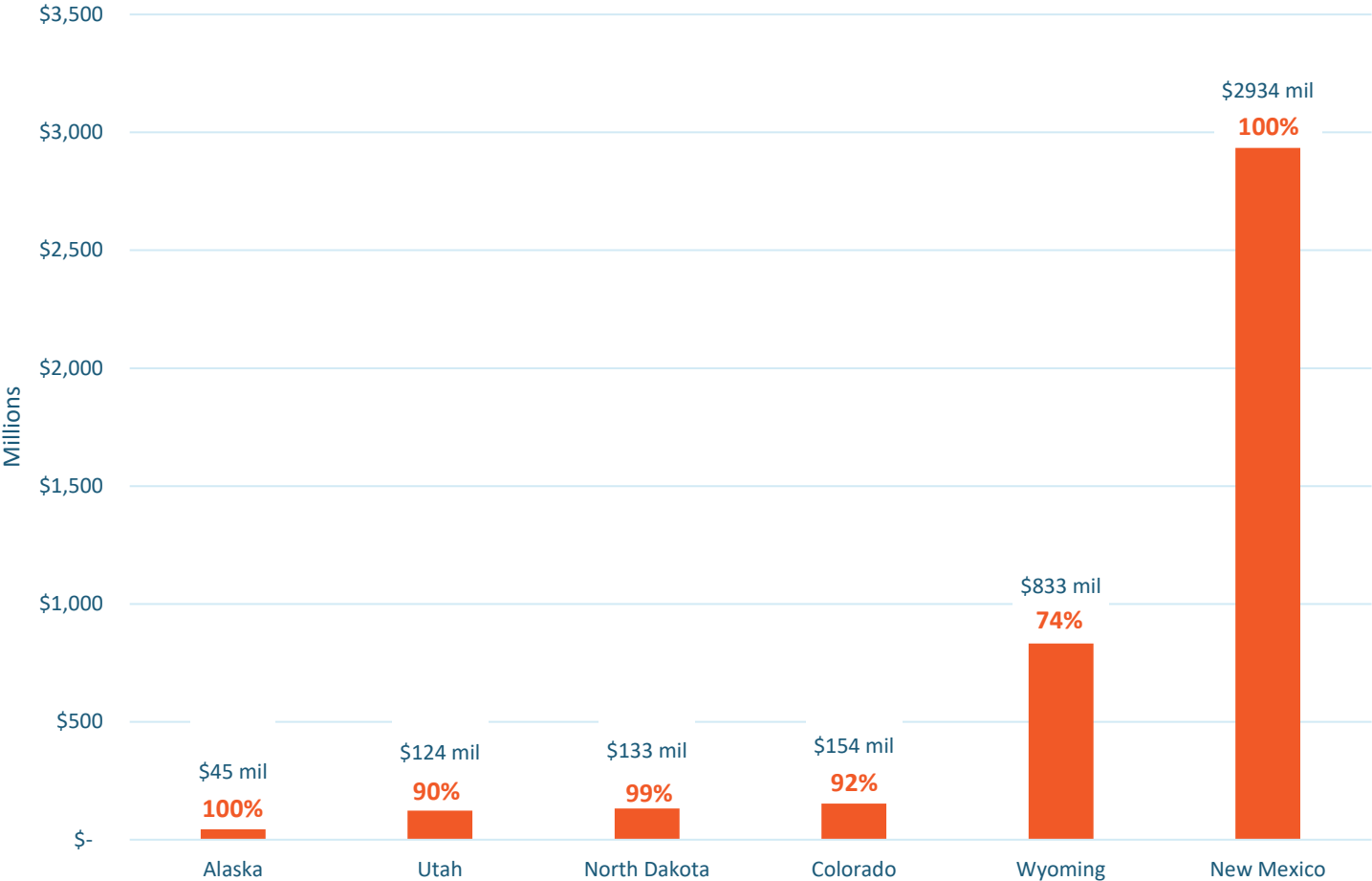
3.59
TRILLION
CUBIC FEET
of natural gas



11th
LARGEST
producer of natural
gas in the world

Revenue from Oil and Gas Activity on Federal Lands is Distributed back to States

State Disbursements from Production on Federal Lands
2023



% - Percentage of State-Generated Natural Resources Production Revenue from Onshore Oil and Gas Production

All oil and gas royalty, rental payment, and bonus bid revenue is shared amongst the US Treasury and the states and communities where the production takes place

In 2023, onshore federal lands production yielded over:

\$8.51
BILLION

of total federal revenue

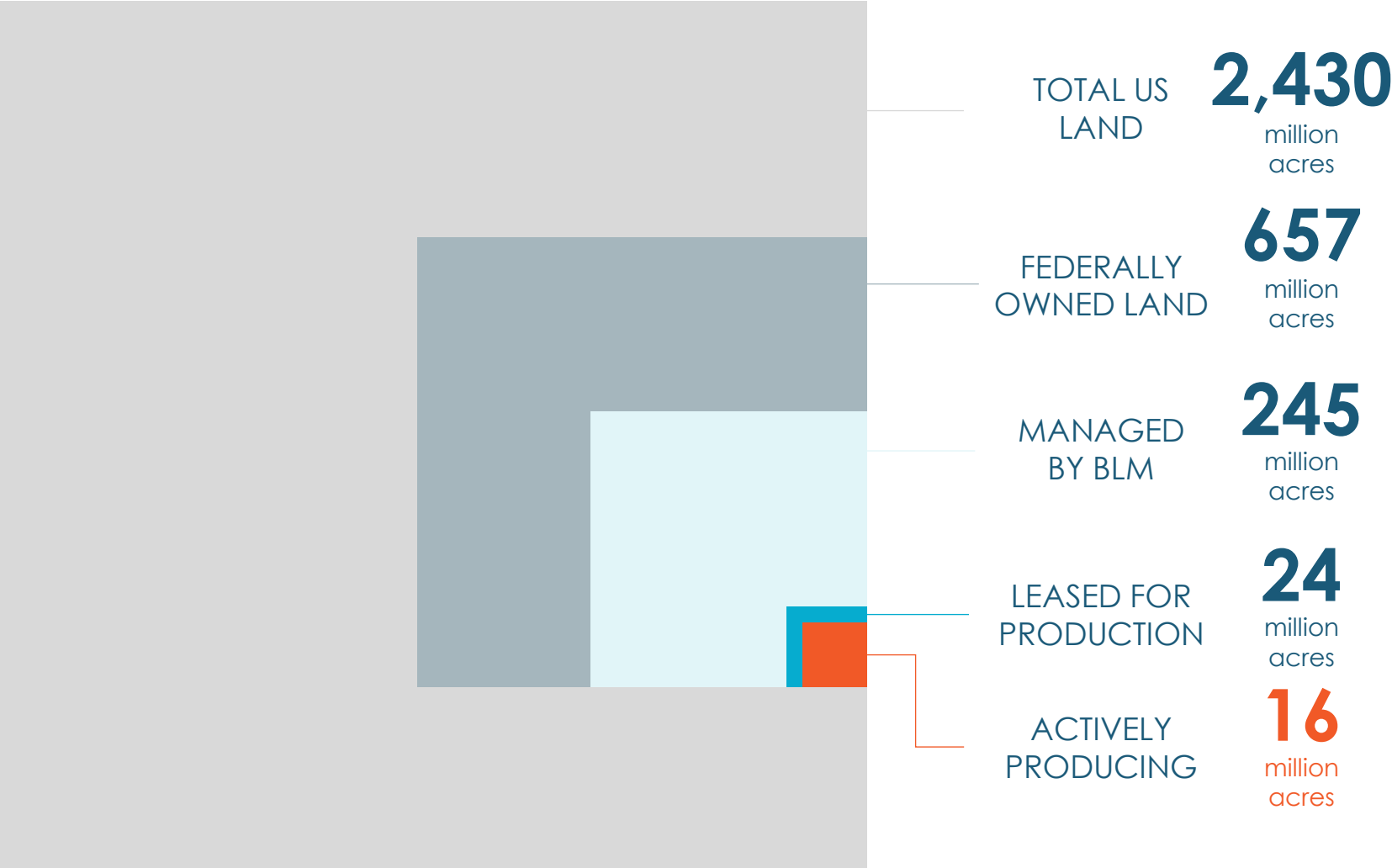
\$4.72
BILLION

disbursed to local and state governments*

Disbursements from production on federal lands made up **35%** of New Mexico's total state operating budget

*Assuming 93% of total US natural resource production revenue is generated from onshore oil and gas in 2022

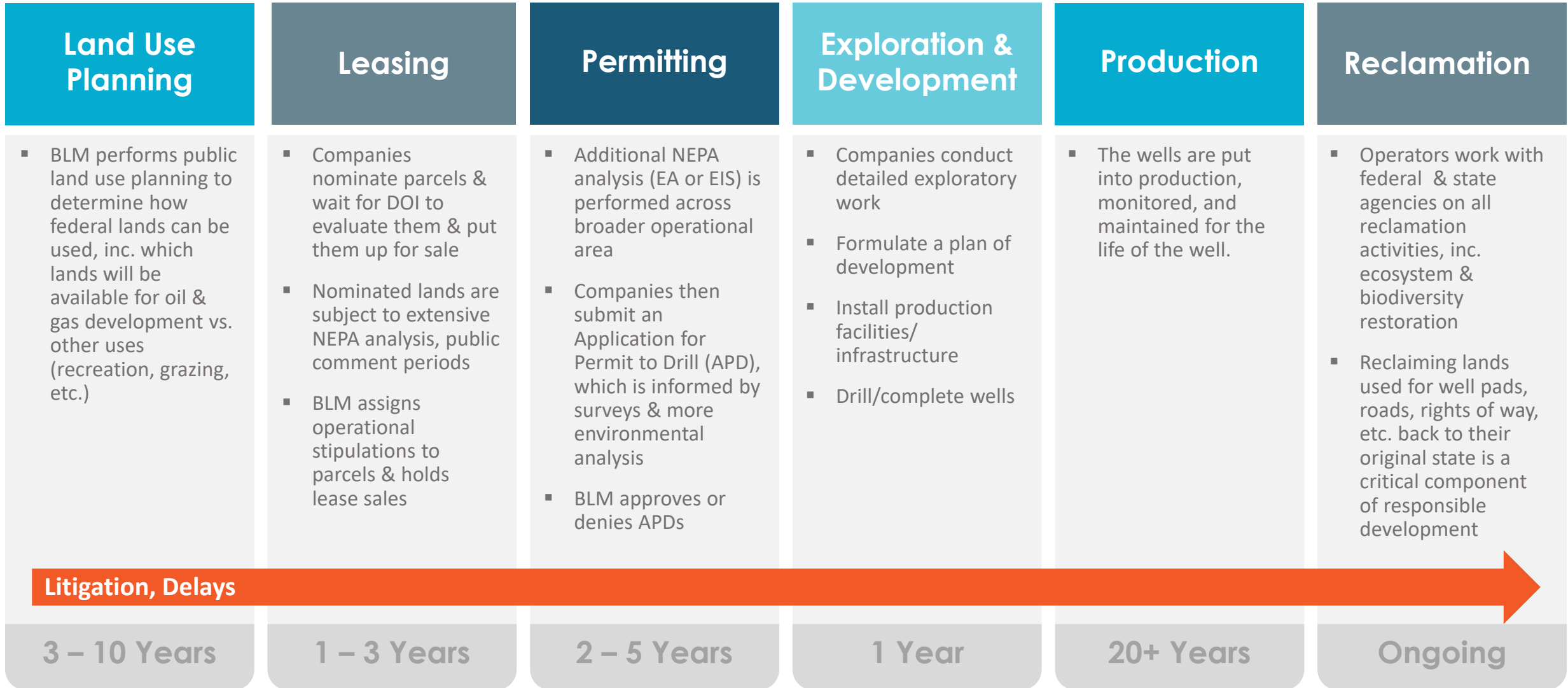
Federal Lands Provide Significant Production on a Small Footprint



<4% of federally owned land is leased to oil and gas companies

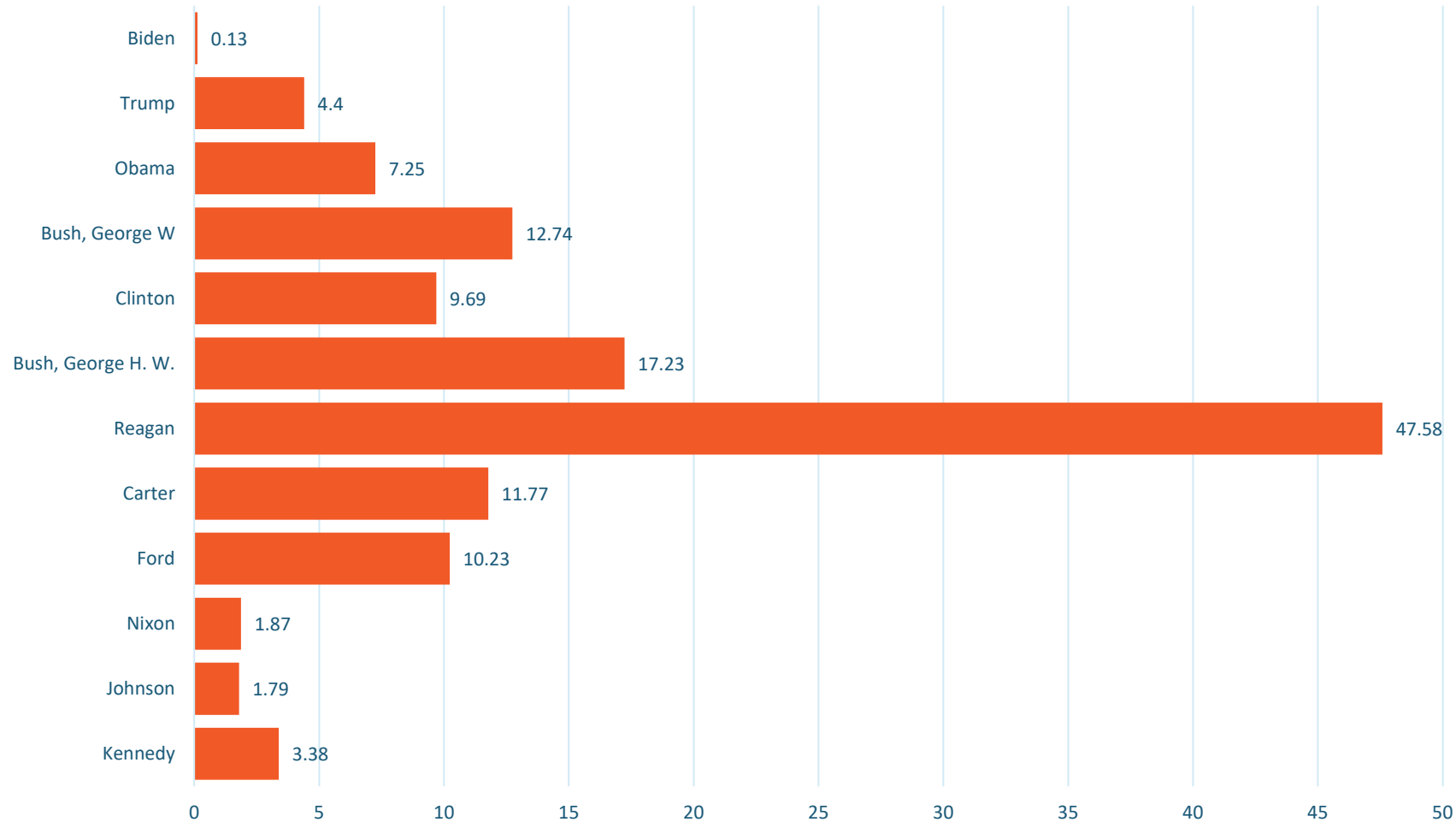
In 2021, 68% of oil and gas leases were actively producing; remaining leases are going through a complex regulatory process

Federal Lands Production Takes Years, Subject to Delays/Litigation



Comparison of Leasing by Administration

Federal Acres Leased in the First 19 Months of Administration
(million acres)



Federal oil and natural gas production leasing has slowed to a near standstill under the Biden Administration

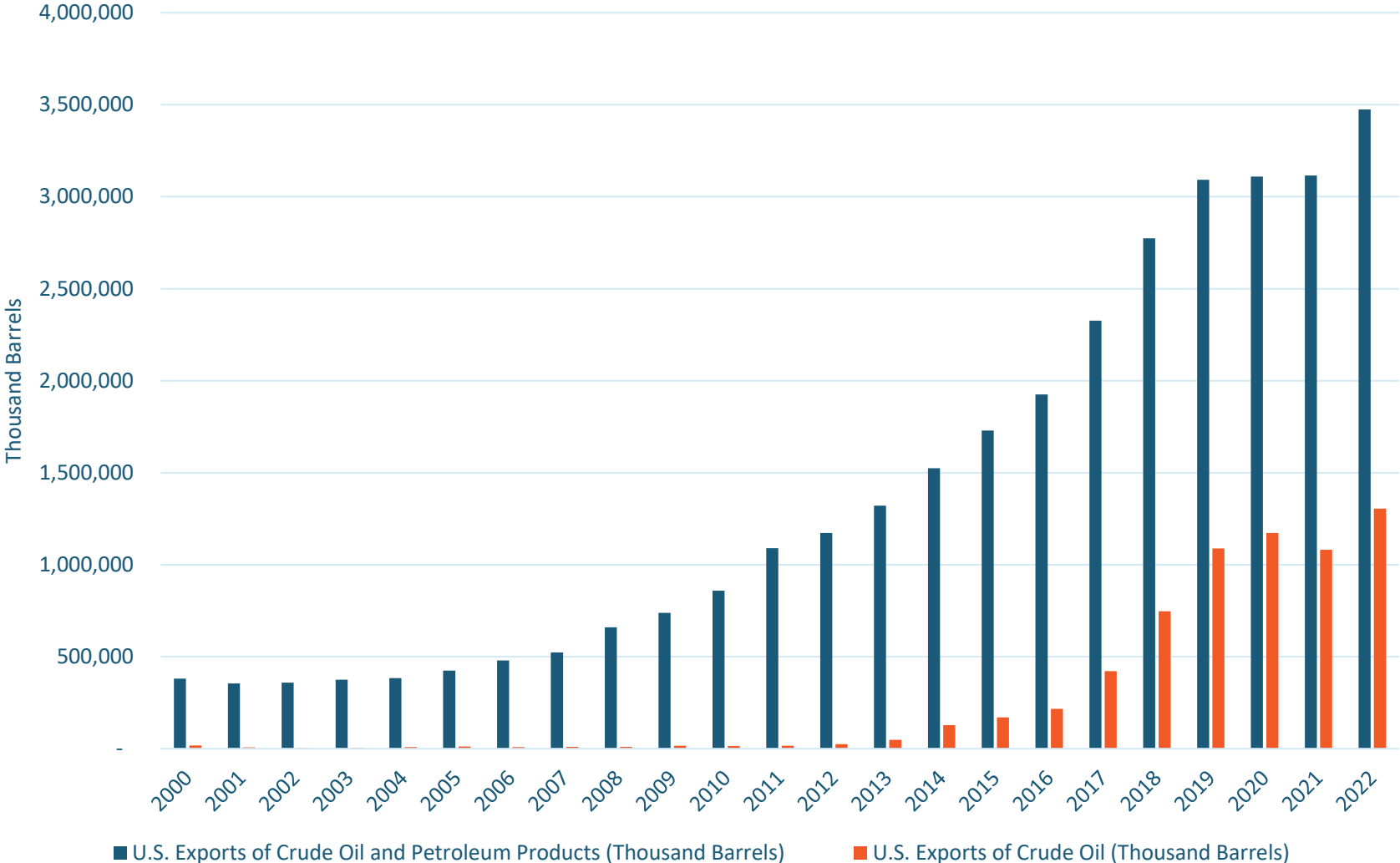
New leases are needed to maintain oil and natural gas supply in the future

US Energy Exports



US Crude Exports Increased Significantly after Ban Lifted w/ Bipartisan Support

Total Exports of Crude Oil and Petroleum Products



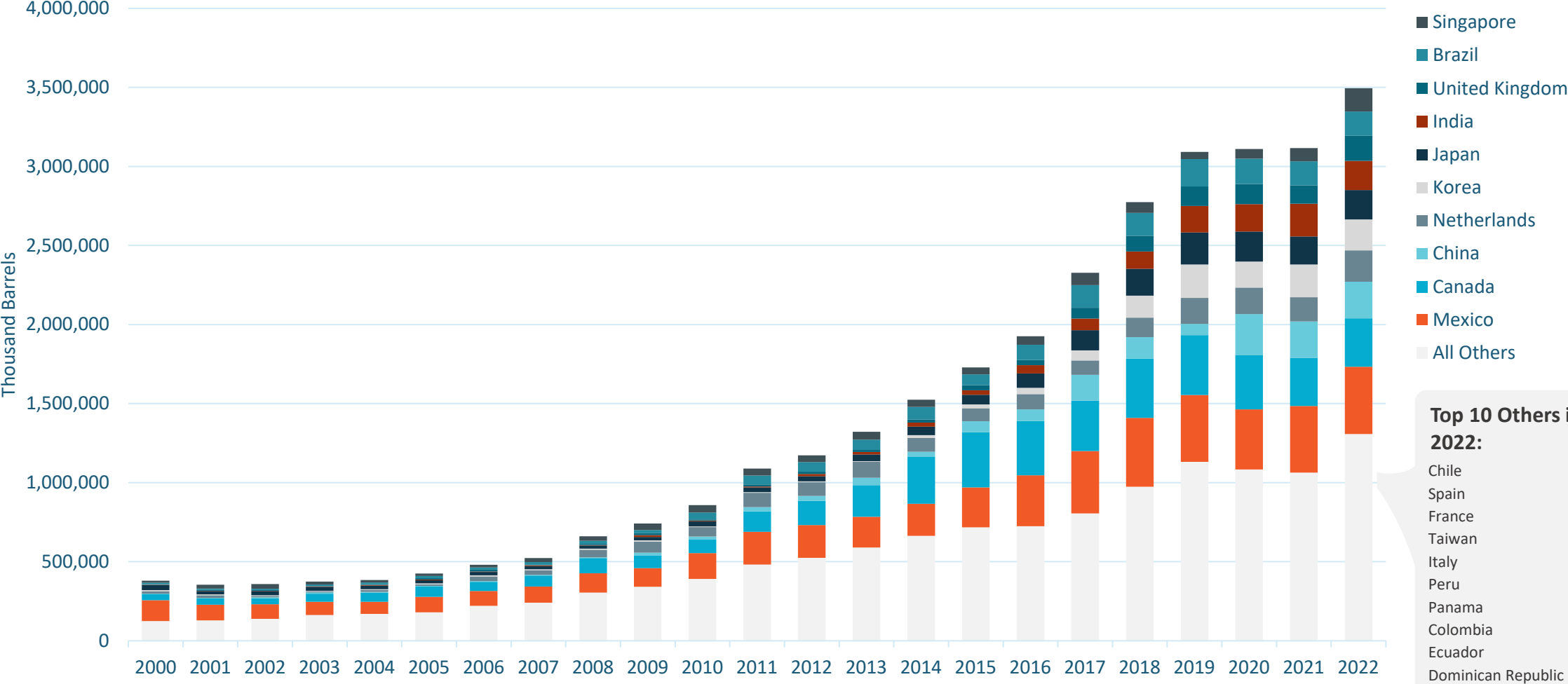
With US crude oil production nearly doubling due to the Shale Revolution from 2005 to 2015, Congress repealed the crude oil export ban in December 2015—allowing the free export of U.S. crude oil worldwide

Since the US started exporting crude, global oil prices were **reduced by \$1.93 per barrel** over the six-year period studied

Exports of US Crude and Petroleum are Distributed Around World

US Oil Exports Support Global Energy Security

US Total Crude Oil and Petroleum Products Exports by Destination



Liquefied Natural Gas (LNG) Fundamentals

Why Liquefy Natural Gas?

Natural Gas Production



Natural gas is produced in basins across the United States and transported via pipelines to liquefaction terminals

Liquefaction



In order to safely and efficiently transport natural gas from places where it is abundant to the places it is needed, the natural gas is cooled and compressed

This natural gas is now:

- -260 degrees F
- 1/600th its original volume
- Completely liquid

Transportation



The LNG is then loaded onto specialized ships to be delivered around the world

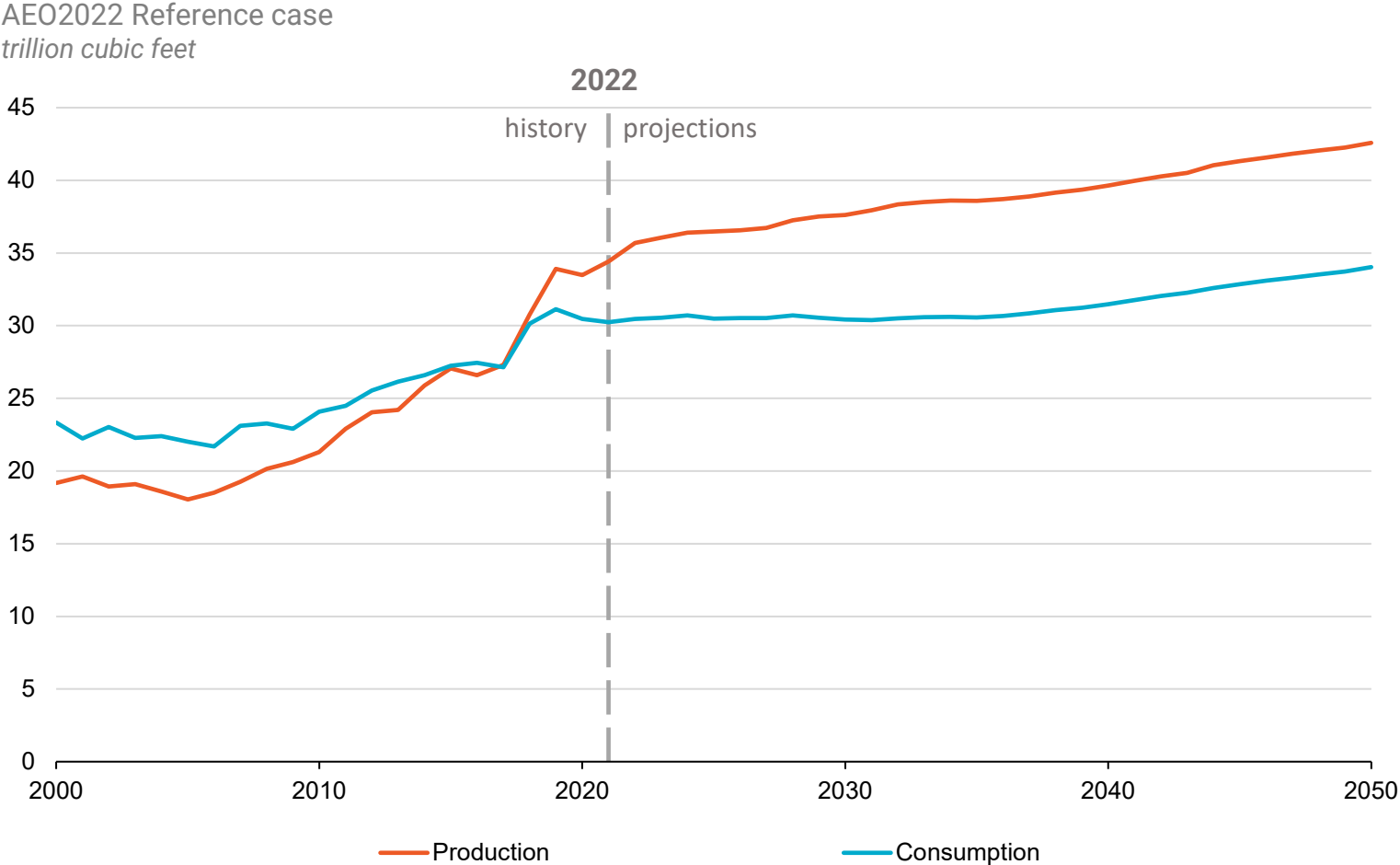
Regasification and End Use



The LNG is delivered to regasification terminals around the world. The liquid natural gas is returned to a gaseous state and delivered via pipelines to generate electricity, heat and power homes, and beyond

US Natural Gas Production Exceeds US Consumption

US Natural Gas Projected Production and Consumption



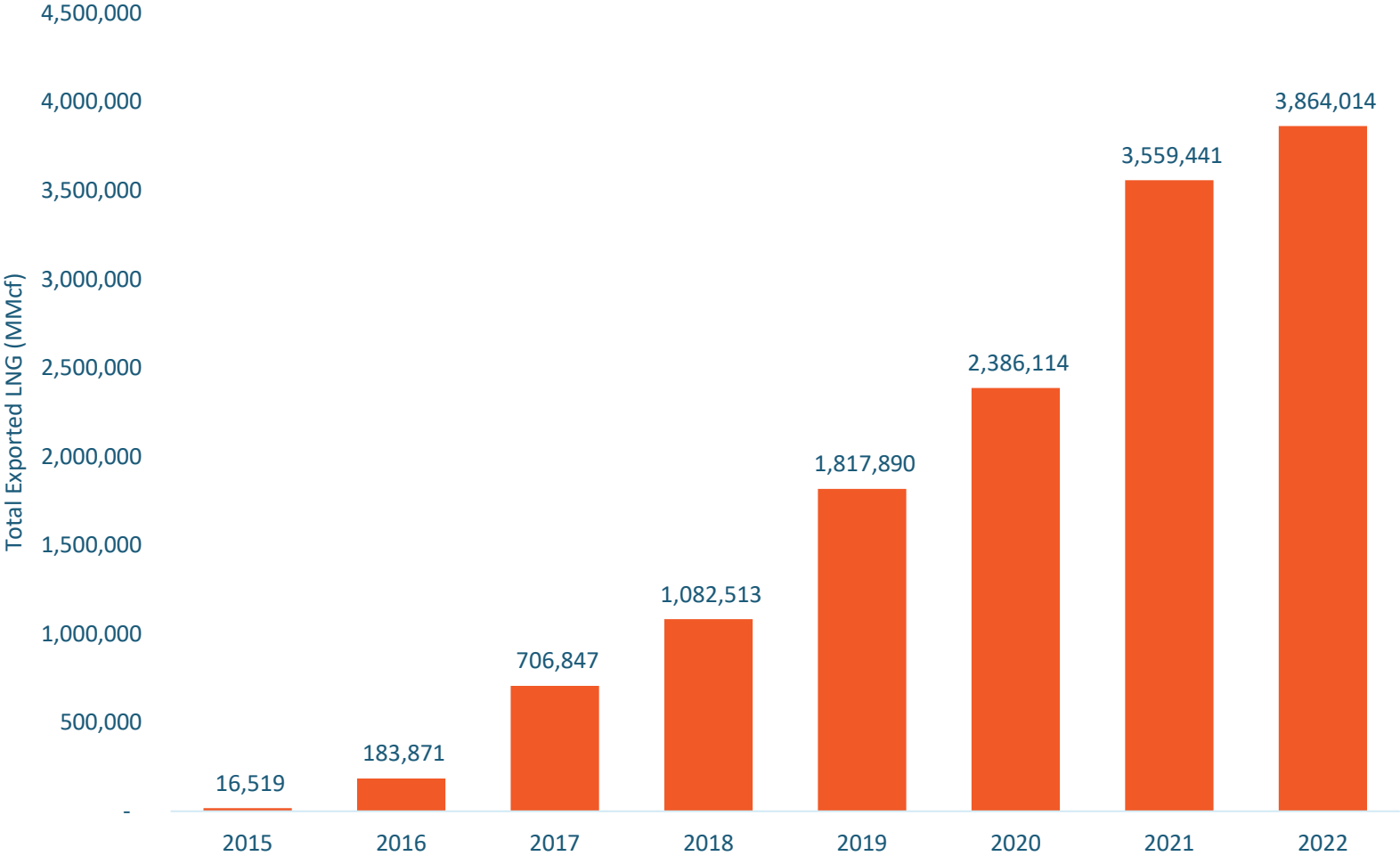
Projections of US production of natural gas exceed the expected domestic demand

This means we can continue to export natural gas in the form of LNG without jeopardizing energy security domestically

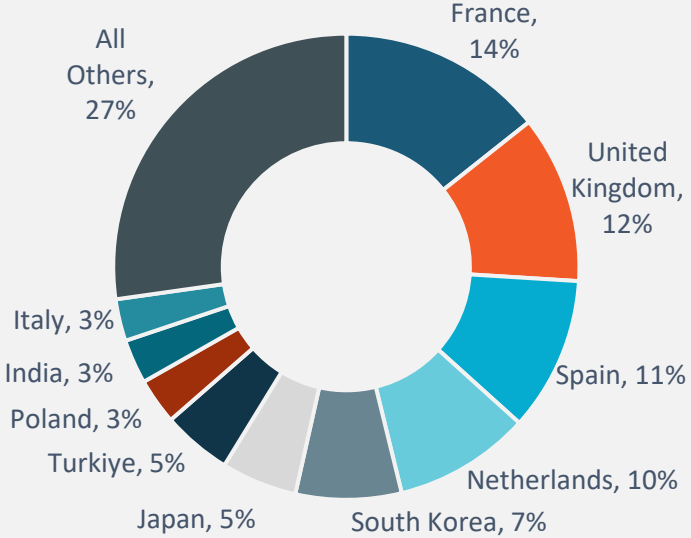
US Natural Gas Production Exceeds US Consumption

US LNG Exports Continue to Increase as US Production Increases

Total US LNG Exports
2015-2022



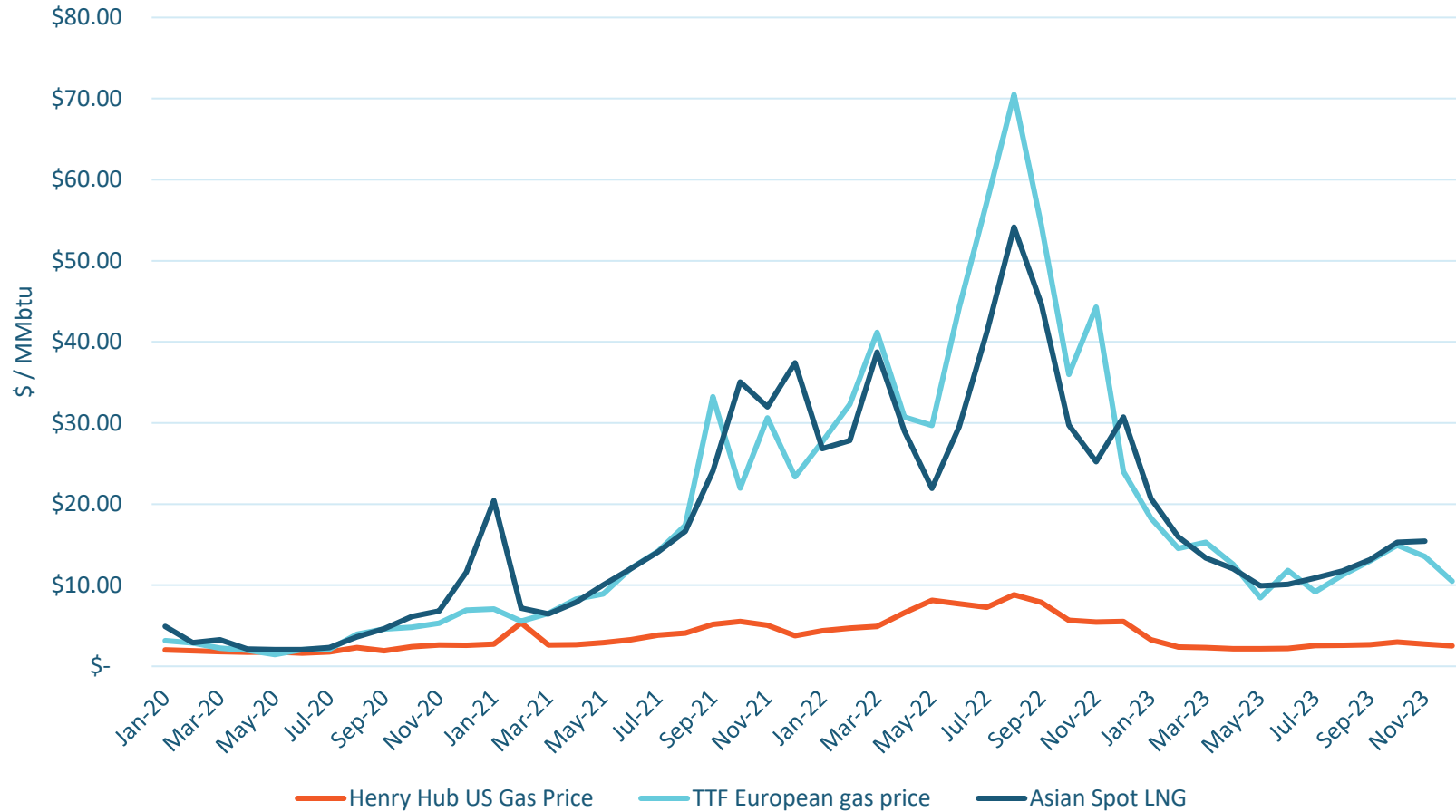
Where US LNG was Exported in 2022:



US Natural Gas Prices More Stable than Global Prices

Even as Exports Increased, US Natural Gas Prices Stayed Lower, More Stable

Comparison of Spot Market Natural Gas Prices
2020 - 2022



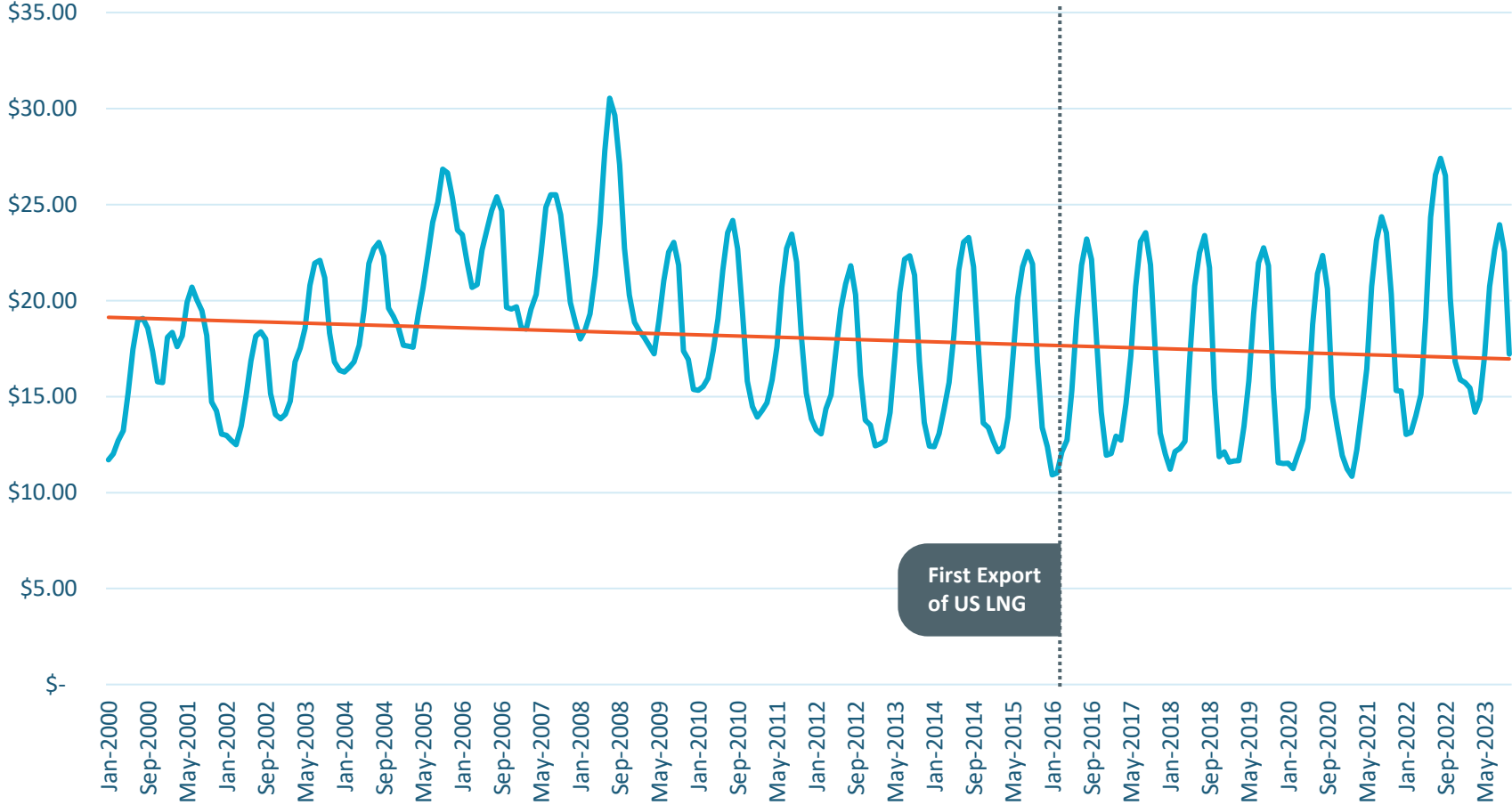
Even with huge growth over the last five years in the export of US natural gas, the price of natural gas per MMBtu has stayed relatively stable and significantly lower compared to those in Europe and Asia.

US Henry Hub natural gas prices in 2023 were the lowest since mid-2020.

LNG Exports did not Increase US Natural Gas Prices

Even with Seasonal Fluctuations, US Residential Price Average Stayed Stable

Real Monthly Average Residential Natural Gas Price
2000 - 2023



The average residential price prior to the US export of LNG was \$18.58 (2023 dollars). After the first export of US LNG, the average US residential price *dropped* to \$16.93/Mcf.

Exploration and Development



The Oil and Natural Gas Production Process

Planning, Leasing, Permitting, Drilling, Completions



~2 YEARS
Pre-Drill Planning



1-2 MONTHS
Construction and Drilling



6-10 DAYS
Completions



20+ YEARS
Production



ONGOING
Closure and Reclamation

Hydraulic Fracturing (“Fracking”) has been Employed since 1947

What is Hydraulic Fracturing or “Fracking”?

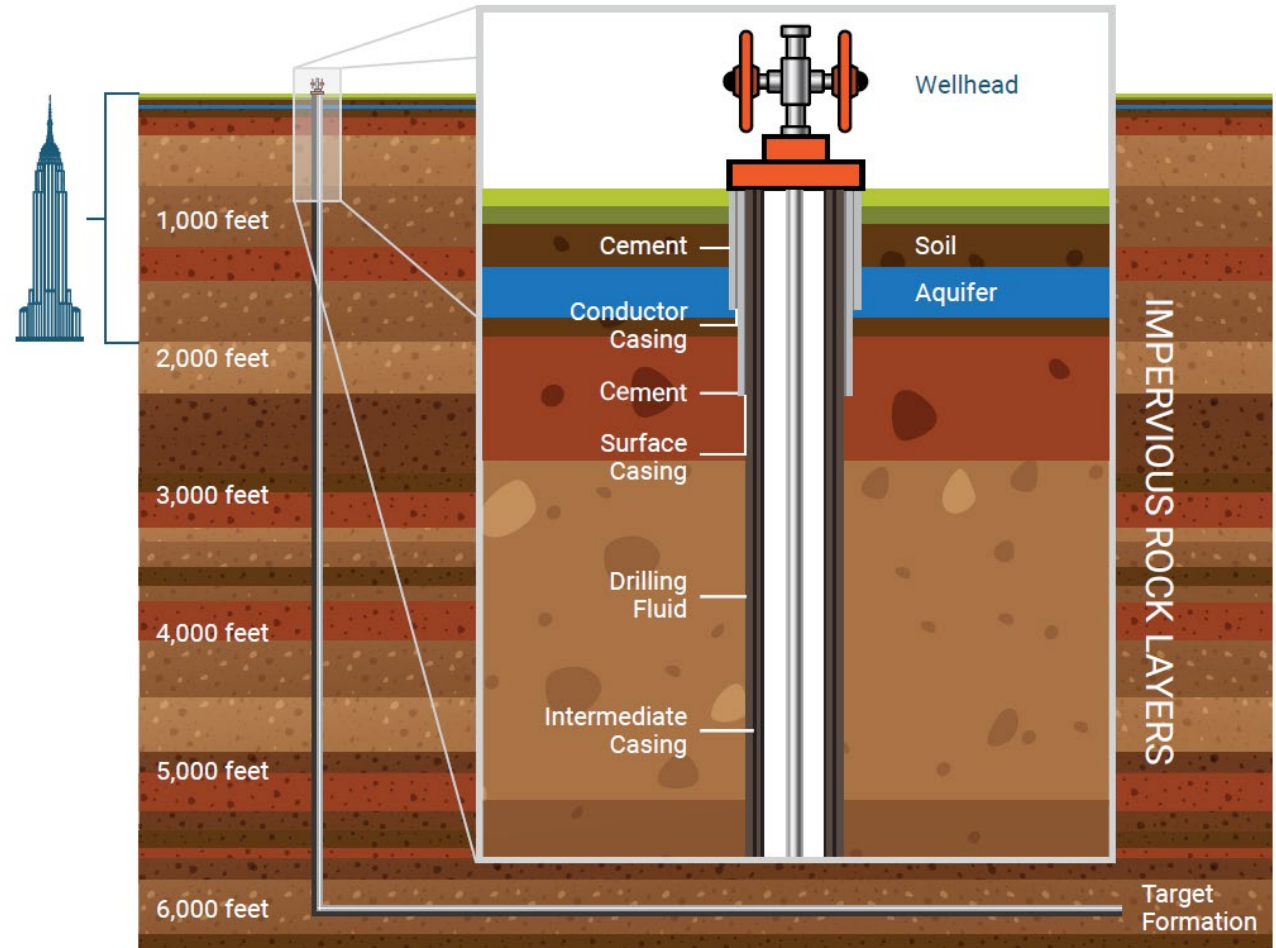
Fracking is a well stimulation technique that has been employed by the oil and gas industry since 1947

The technique is used to create spaces in the rock pores deep underground to release the oil and natural gas so that it can flow to the surface

How does Fracking work?

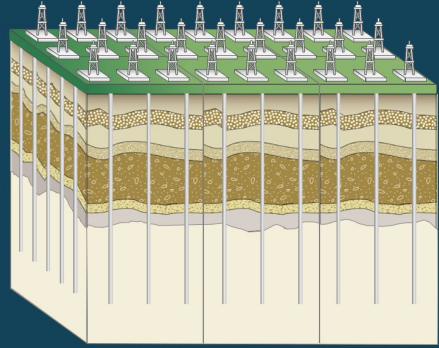
Hydraulic fracturing is generally associated with horizontal drilling practices or “drilling sideways”

Fracturing fluids are injected at high pressure into the targeted formation, creating fissures that allow oil and gas to move freely from rock pores where it was trapped



Modernizing Oil and Natural Gas Development

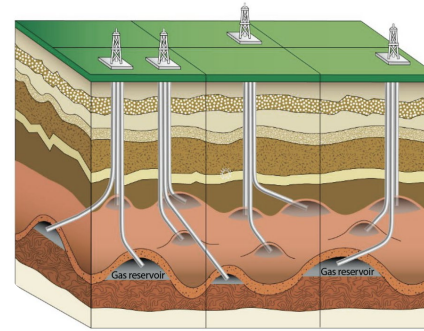
Technology has Dramatically Reduced our Footprint



Conventional/Vertical Drilling

The industry has a long history of invention and scientific development

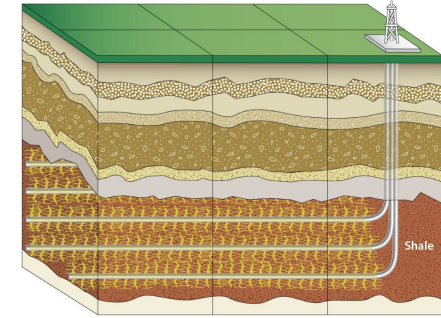
Conventional, vertical wells that were once the norm have been improved to minimize impacts to the environment



Horizontal/Directional Drilling

Modern drilling technology allows a drill to be guided horizontally underground for up to several miles

This allows operators to avoid sensitive environments and increase efficiency by drilling multiple wells in different directions from a single site

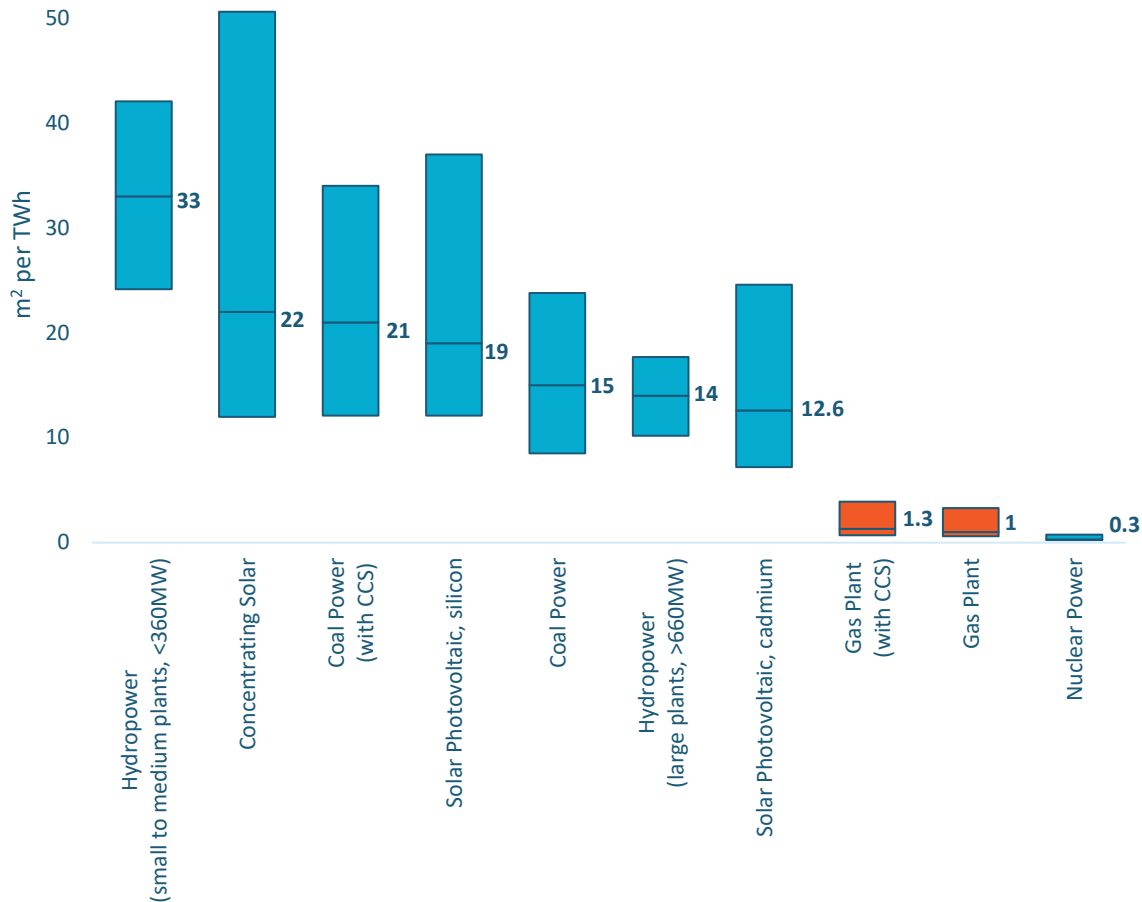


Hydraulic Fracturing

Natural Gas for Electricity Generation = High Energy Density, Low Land Use

Total Land Occupation per Energy Output

(includes land use for extraction and/or mining of materials, construction, fuel inputs, decommissioning, and handling of waste)



The lifecycles of all forms of energy generation require raw materials – whether through drilling for oil or natural gas, or mining and landfilling materials for disposal

Minimizing land use is an important part of preserving biodiversity and limiting adverse impacts to wildlife

Energy generated from natural gas at a gas plant is one of the forms of energy with the lowest land occupation per energy output – over **12 times lower** than traditionally installed PV solar

Who Regulates Oil and Gas Operations?

One of the most highly regulated industries in the US



The Environmental Protection Agency (EPA)

The EPA is responsible for overseeing environmental protection during oil and gas operations. The EPA is tasked with enforcing current regulations in place as dictated by bills passed by Congress such as the Clean Air Act, the Clean Water Act, and the Safe Drinking Water Act.

These bills ensure operators maintain the highest quality of life for the environments in which they live and operate.



US Fish & Wildlife Service; National Oceanic & Atmospheric Administration Fisheries

The USFWS and NOAA Fisheries implement the Endangered Species Act (ESA). These agencies consult with BLM on oil and gas projects to ensure that appropriate measures are taken to protect nearby species listed as threatened or endangered under the ESA and their habitat.



Bureau of Land Management (BLM)

BLM is responsible for managing the federal government's onshore oil and gas program, including leasing and permitting of oil and gas exploration, development, and production activities on federal and Native lands.



Federal Energy Regulatory Commission (FERC)

FERC regulates the interstate transmission of natural gas, oil, and electricity, in addition to hydropower and natural gas projects.



Pipeline Hazardous Materials and Safety Administration (PHMSA)

PHMSA develops and enforces regulations for the safe, reliable, and environmentally sound operation of the nation's 2.6-million-mile pipeline transportation system and the nearly 1 million daily shipments of hazardous materials by land, sea, and air.



Army Corps of Engineers (Department of Defense)

The Army Corps of Engineers is responsible for administering the Clean Water Act (CWA) and issuing permits associated with activities that may impact navigable waters or wetlands.



State regulatory agencies

Onshore oil and natural gas operations (whether they are on state, federal, or private lands) require state permits in addition to federal permits. State regulations are tailored specifically to formations within each state, and account for site-specific expertise. In many states, jurisdiction for water and air protection has been delegated to state agencies by US EPA.

US Department of the Interior (DOI)

Oil and Natural Gas Development

Industry activities are heavily governed by state/federal regulations

- ✓ Well drilling and operations
- ✓ Spacing and site selection
- ✓ Wastewater discharge
- ✓ Erosion and sedimentation controls
- ✓ Stream and wetland impacts
- ✓ Water use
- ✓ Pits and impoundments
- ✓ Spill prevention
- ✓ Air emissions
- ✓ Noise/vibrations
- ✓ Lighting and road use
- ✓ Waste disposal
- ✓ Potential impact on wildlife species/habitat
- ✓ Reclamation