AXPC

AMERICAN EXPLORATION & PRODUCTION COUNCIL

American Energy

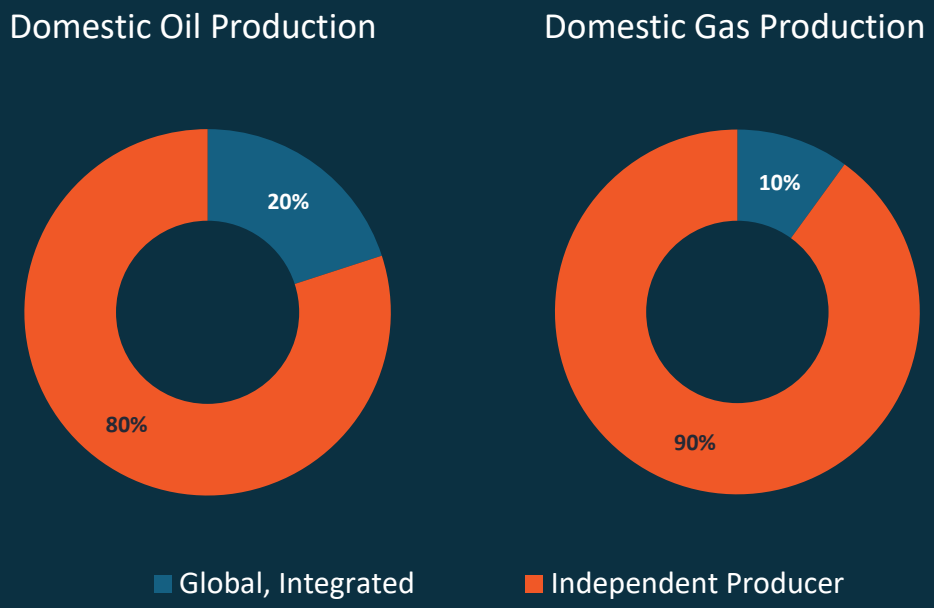
2025

AXPC Members

Leading Independent Upstream US Producers

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

In 2024, Independents - companies who are not fully integrated across the supply chain - produced 80% of the US's oil and 90% of the US's natural gas



Independent Operator Share of Onshore Activity

2022-2024:

85% Of Produced Crude Oil, Condensate, and NGLs

90% Of Produced Natural Gas

95% Of Producing Wells Operated

90% Of New Wells Drilled

90% Of Capital and Operating Expenditures

Source: EPA Subpart W Data and Rystad Study of Independent Operators

AXPC Members are Key Global Producers

In 2023, AXPC members produced:

2,145 million barrels of oil

6% of the world's oil

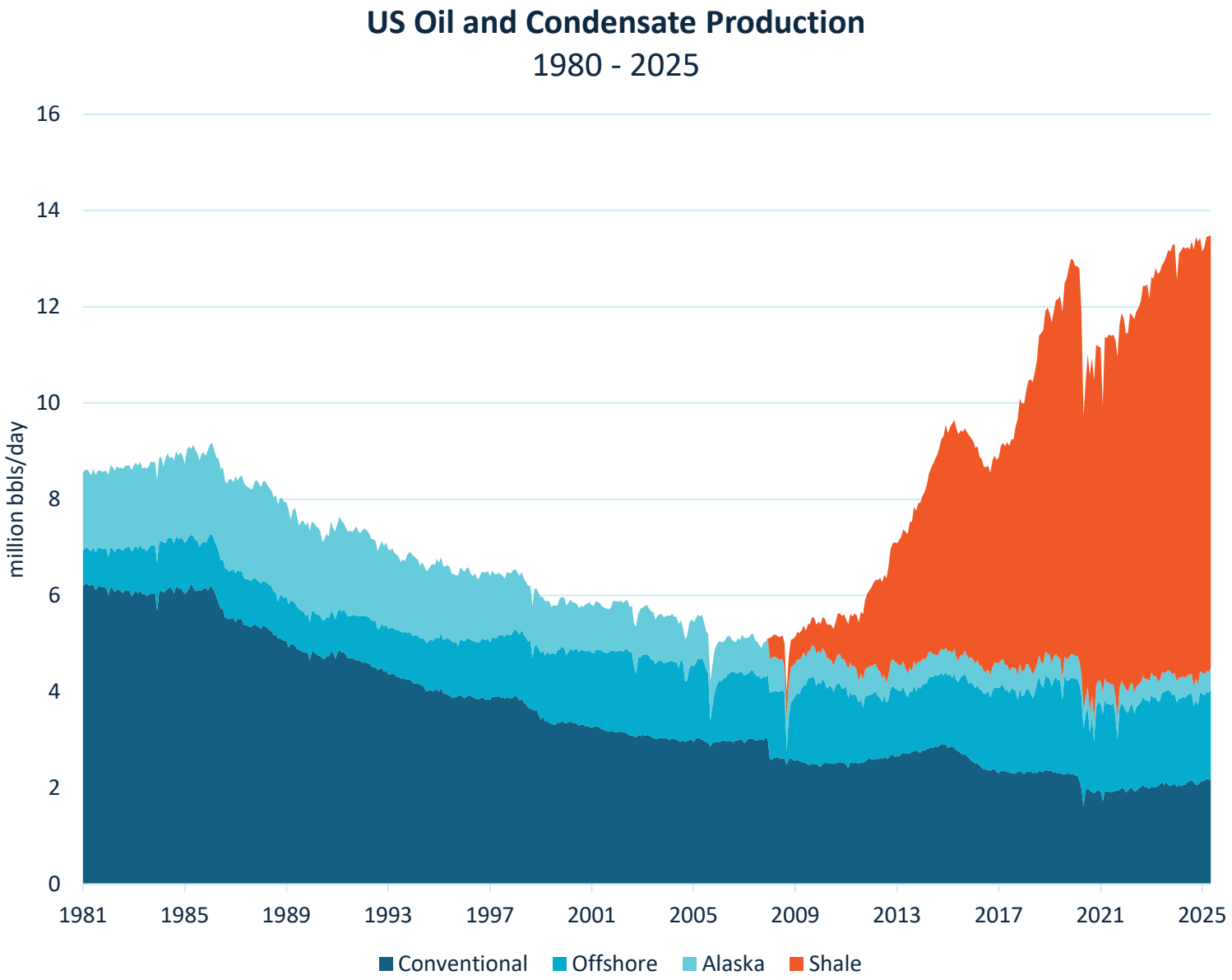
19,306 billion standard cubic feet of natural gas

13% of the world's natural gas

Source: EPA Subpart W Data and Rystad Study of Independent Operators

The Shale Revolution: America's Energy Game-Changer

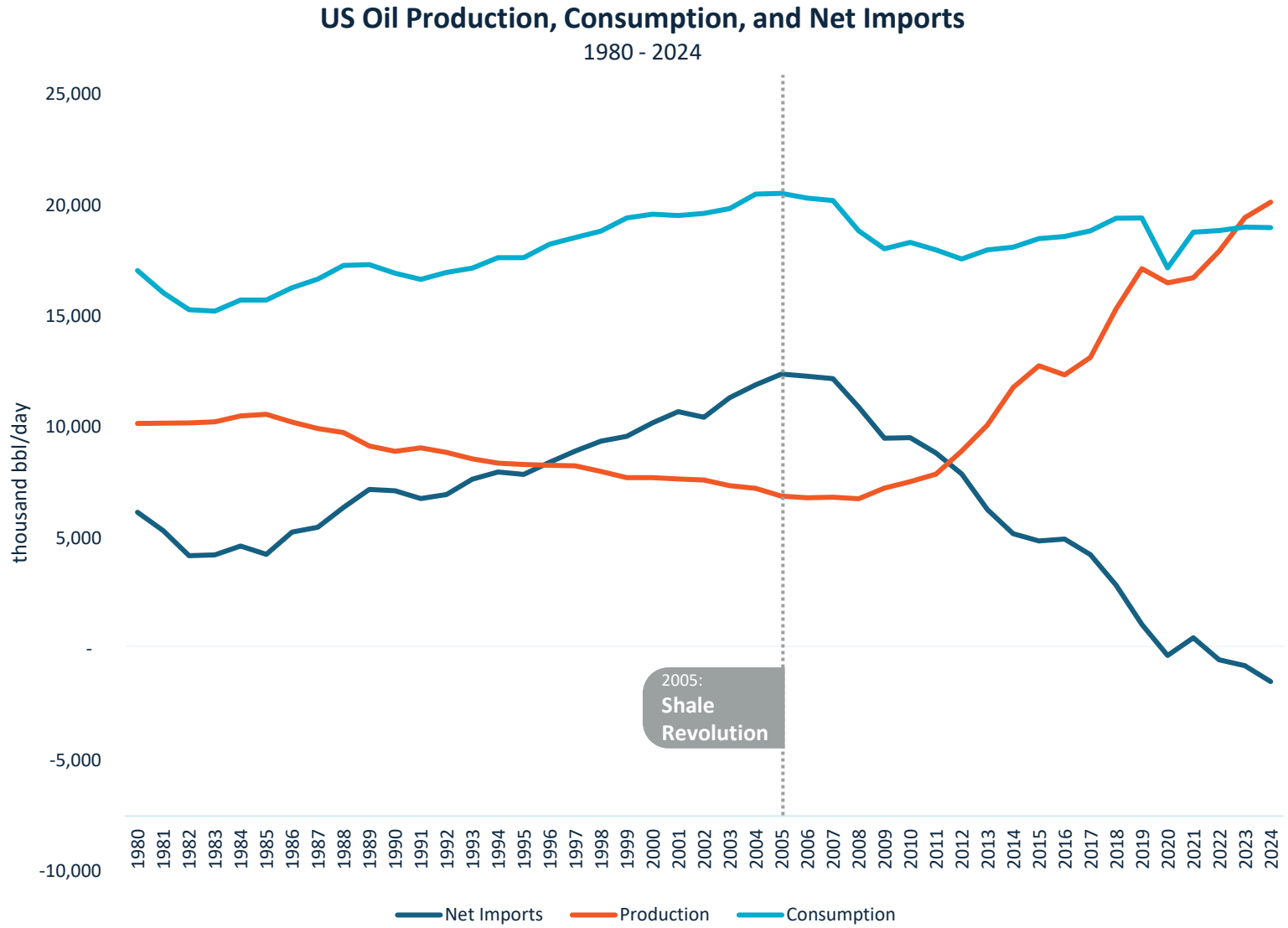
Since 2005, the surge in US oil and gas production—unlocked by horizontal drilling and hydraulic fracturing in shale formations—has transformed energy security and global markets. This is the Shale Revolution.



Source: Energy Information Administration

US Shale Revolution Unlocked an Era of Energy Independence

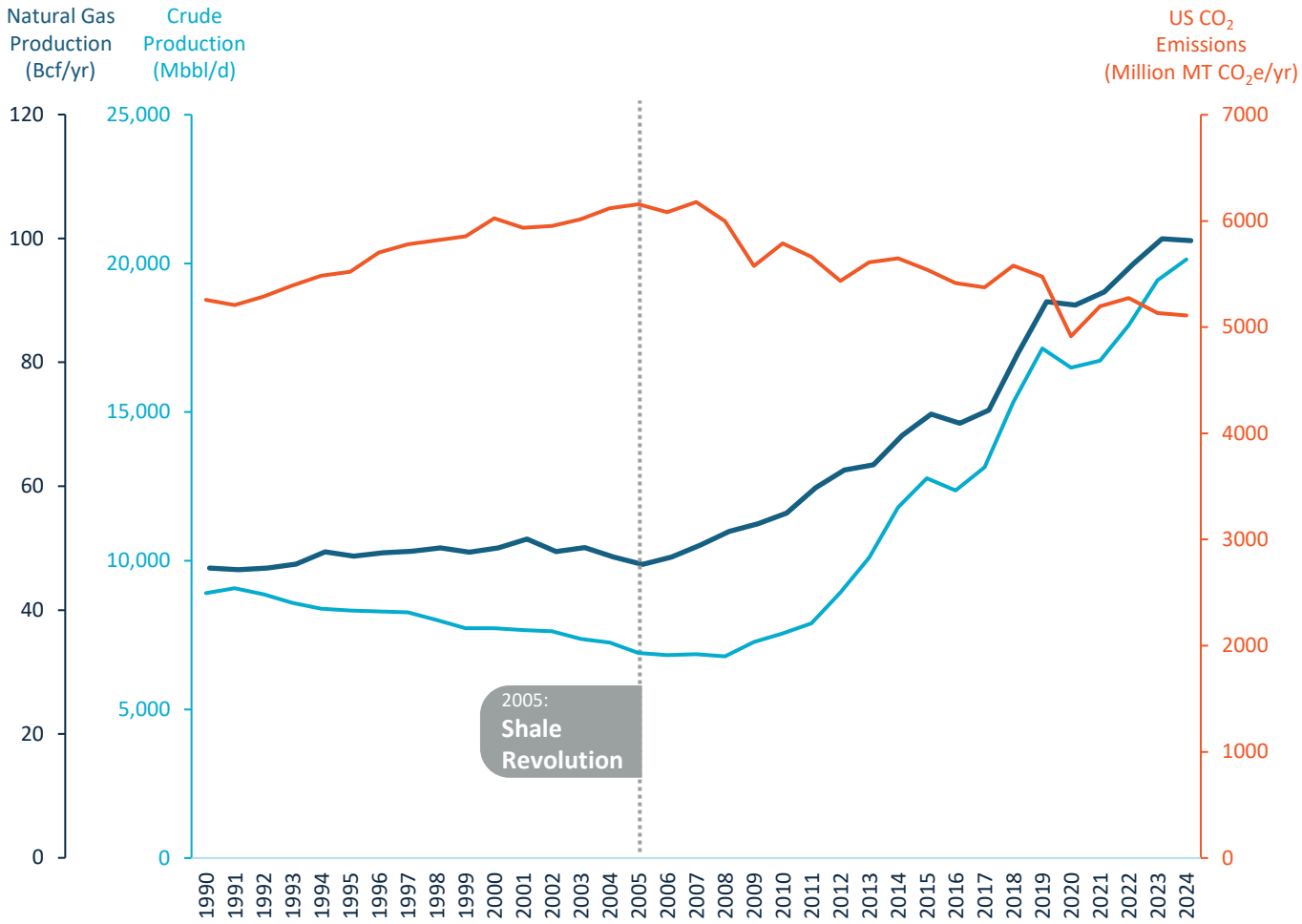
- Shale revolution innovations unleashed domestic resources, catapulting the U.S. toward greater energy independence
- In September of 2019, the US became a **net exporter** of oil for the first time – producing more that we consumed and exporting more than we imported
- The surge in energy production helped keep **prices lower and more stable** for American consumers
- The US trade deficit in 2024 was **$320 billion lower** than it would have been without American oil and natural gas exports



Source: Statistical Review of World Energy, Barclays

US Shale Revolution Powers a Cleaner Environment

- Since the beginning of the Shale Revolution in 2005, the US has reduced its overall greenhouse gas emissions by 17%
- The **US reduced CO_2** emissions at unforeseen levels due to the shift to greater natural gas-powered generation.



Source: Statistical Review of World Energy

Upstream Oil and Natural Gas Supports 3.6 Million US Jobs

Industry adds nearly $563B (~2% of US GDP) to the US Economy

US Upstream Onshore Oil and Natural Gas Industry

An estimated

$563B

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

3.6 million jobs

paying in total

$316B

in labor income (wages)

In 2024, the upstream sector paid

$149B

in federal and state taxes

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

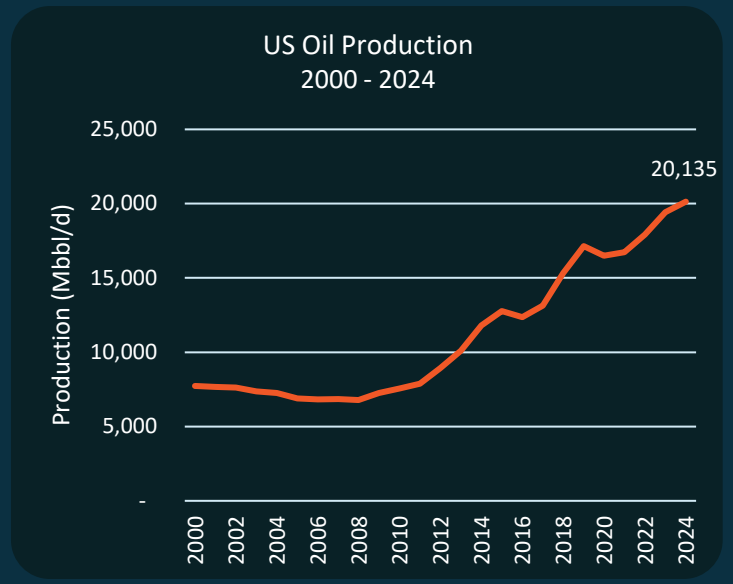
Source: Rystad Study of Independent Operators

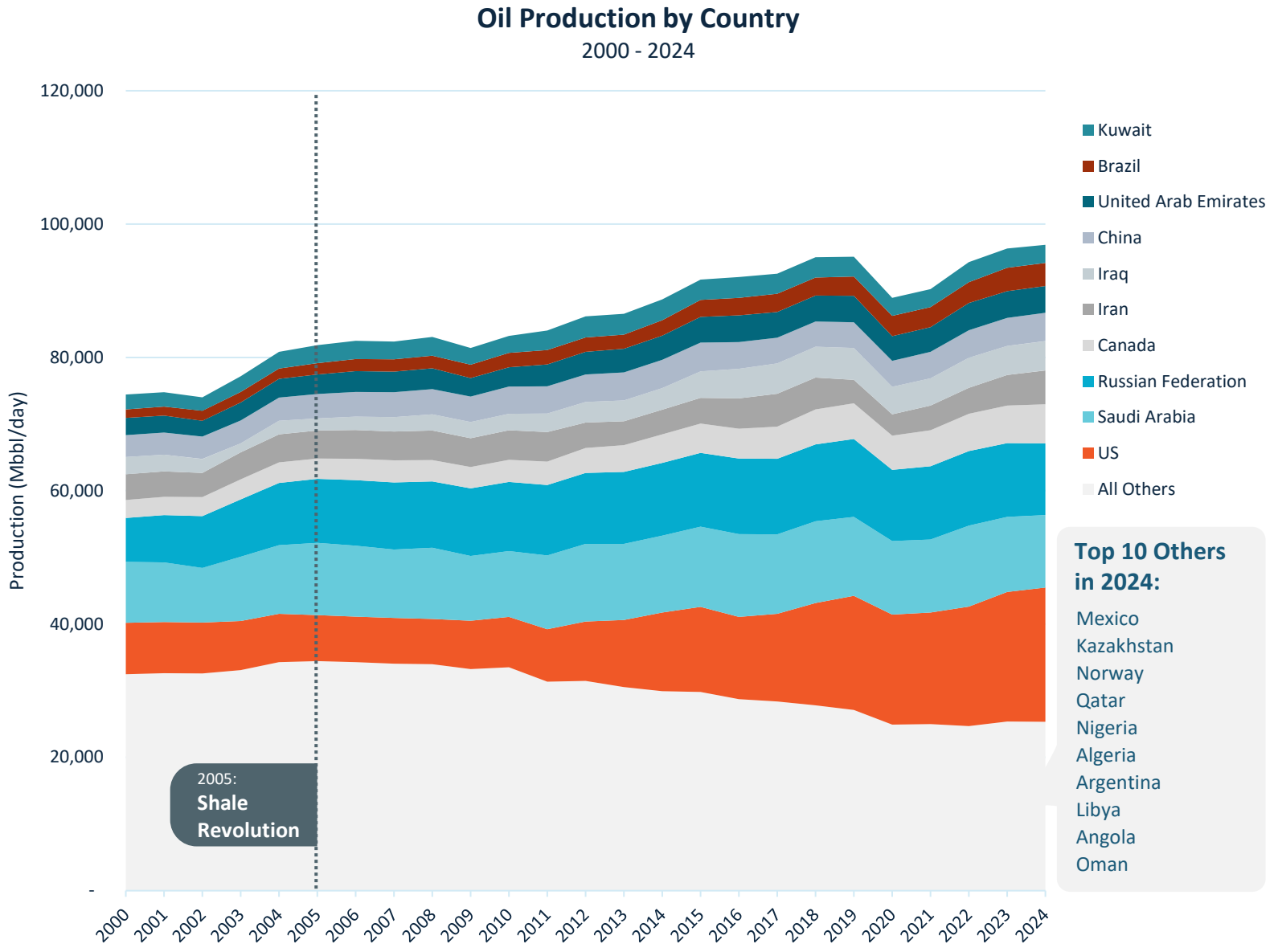
Energy Production

The US Produces More Oil than Any Country in History

In 2024, global oil production averaged around 97,000 Mbbl/d. The **US produced around 20,000 Mbbl/d**

- The US produced ~21% of global production
- The next largest producers, Saudi Arabia and Russia, produced 11% and 11% respectively





Top 10 Others in 2024:

Mexico
Kazakhstan
Norway
Qatar
Nigeria
Algeria
Argentina
Libya
Angola
Oman

* Includes crude oil, shale oil, oil sands, condensates (lease condensate or gas condensates that require further refining) and NGLs (natural gas liquids - ethane, LPG and naphtha separated from the production of natural gas).

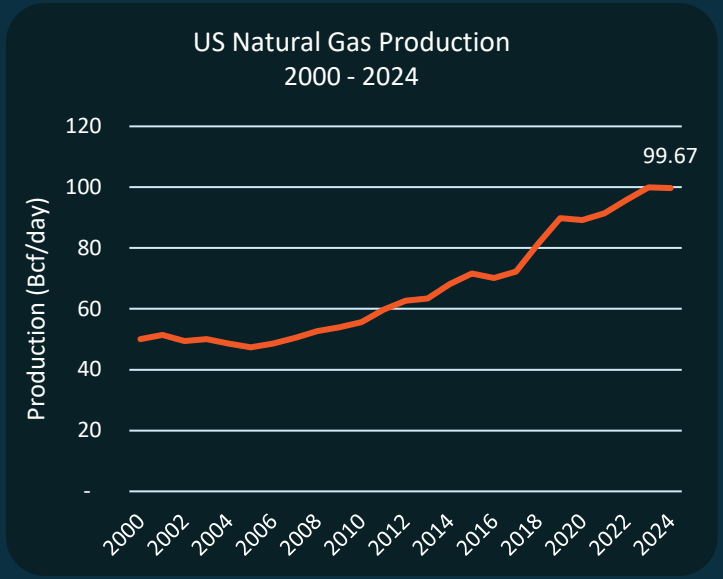
AXPC

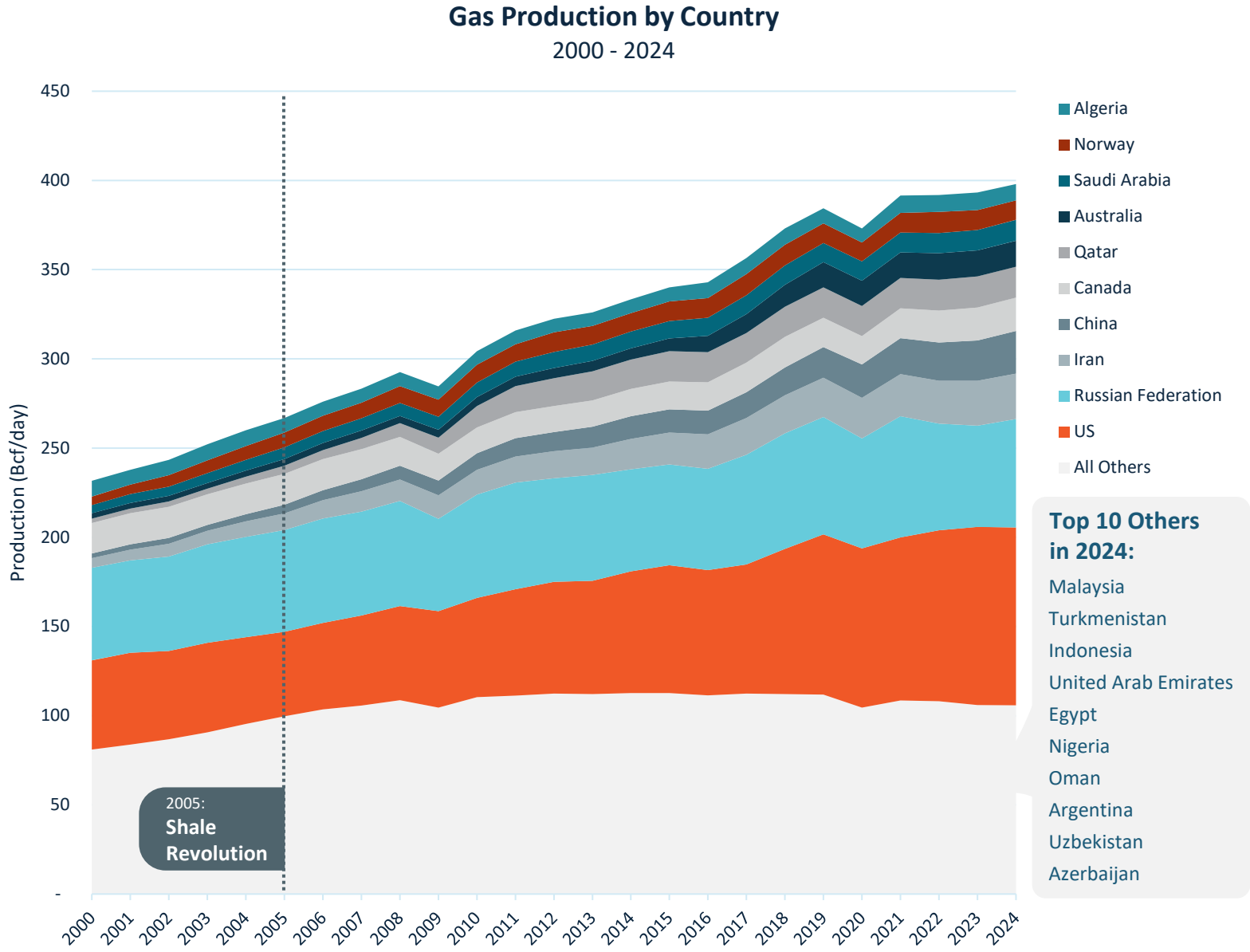
Source: Statistical Review of World Energy

The US is the World Leader in Natural Gas Production

In 2024, global gas production was ~145,000 Bcf.
The US produced ~36,000 Bcf

- **The US produced ~25% of the world's natural gas**
- The next largest producers, Russia and Iran, produced 15% and 6% respectively





Top 10 Others in 2024:

Malaysia
Turkmenistan
Indonesia
United Arab Emirates
Egypt
Nigeria
Oman
Argentina
Uzbekistan
Azerbaijan

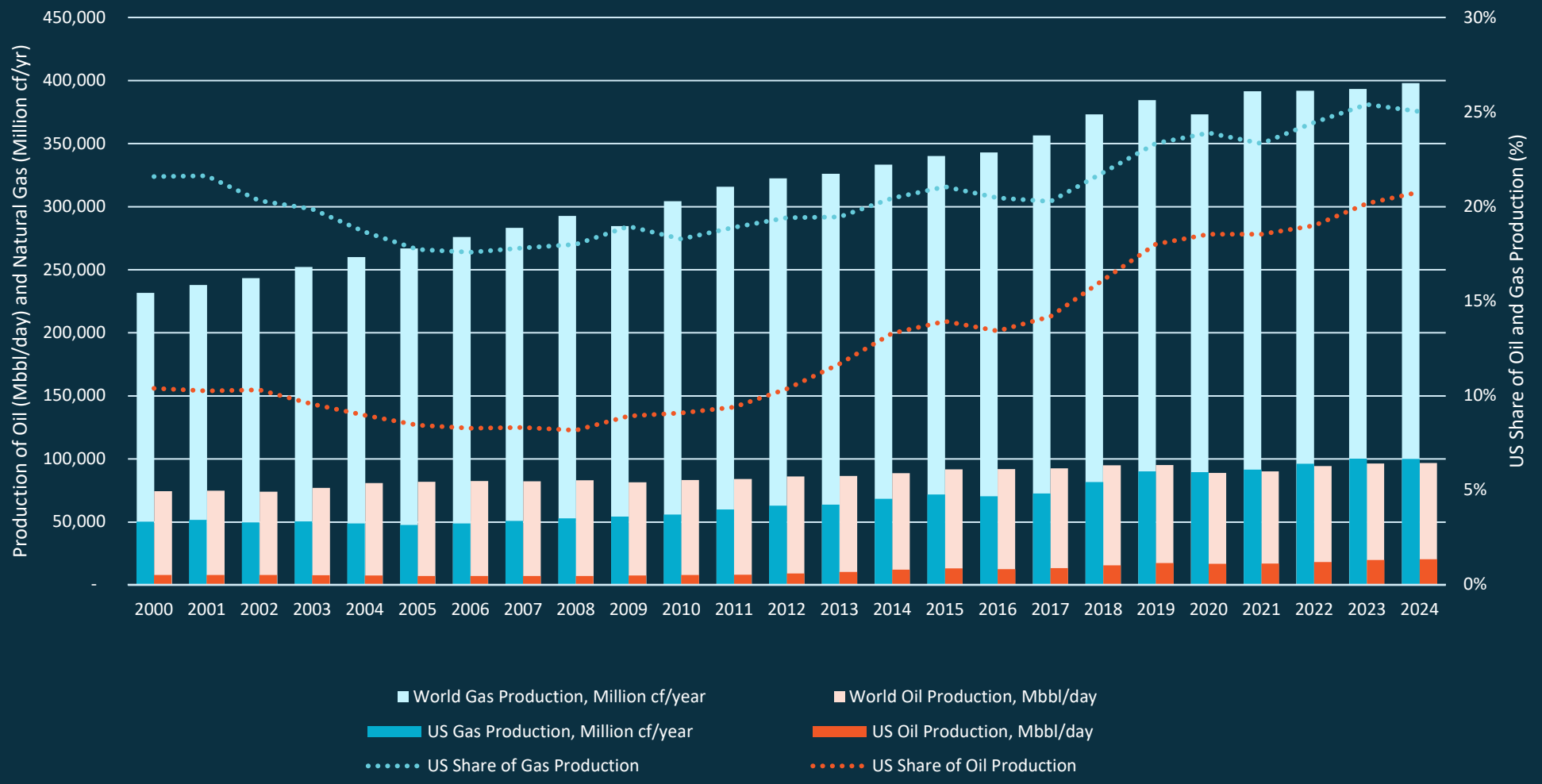
Source: Statistical Review of World Energy

The US has Increased its Share of Global Oil and Natural Gas Production

Powered by the Shale Revolution

The US share of global natural gas production has increased from **18% to 25% since 2005**

The US has increased its share of global crude production from **8% to 21% since 2005**



Source: Statistical Review of World Energy

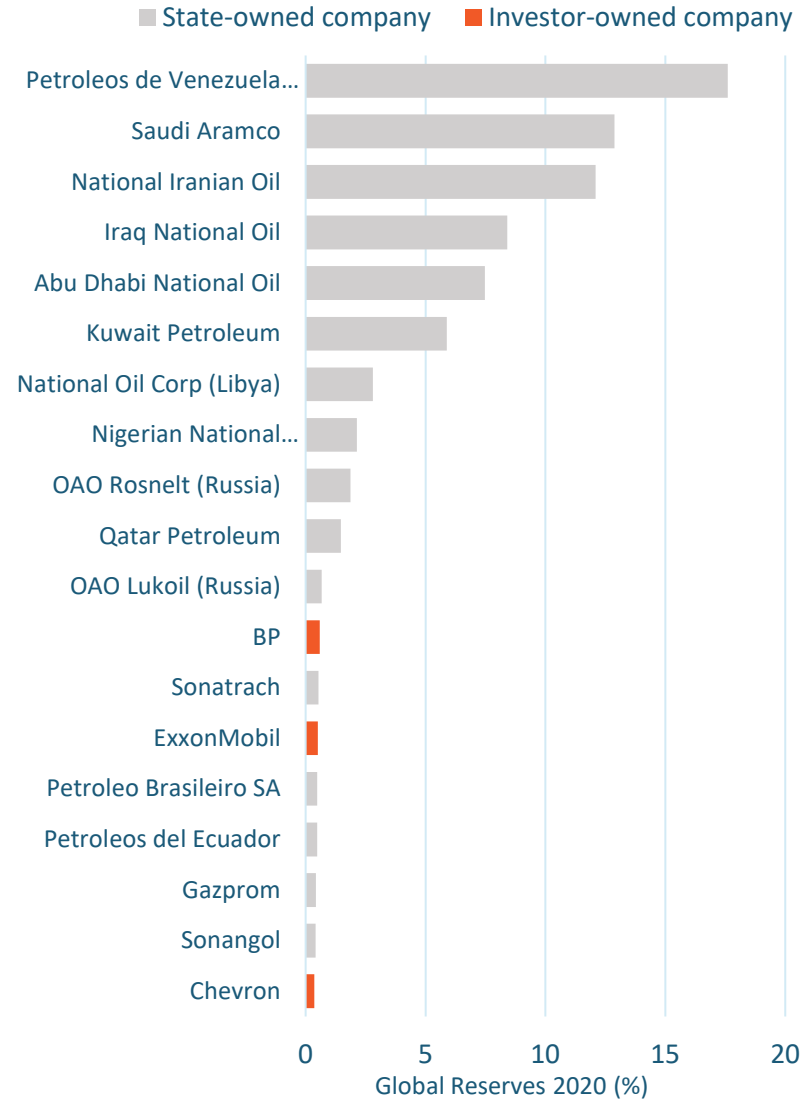
Vast Majority of Oil, Natural Gas Reserves are Foreign State-Owned

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

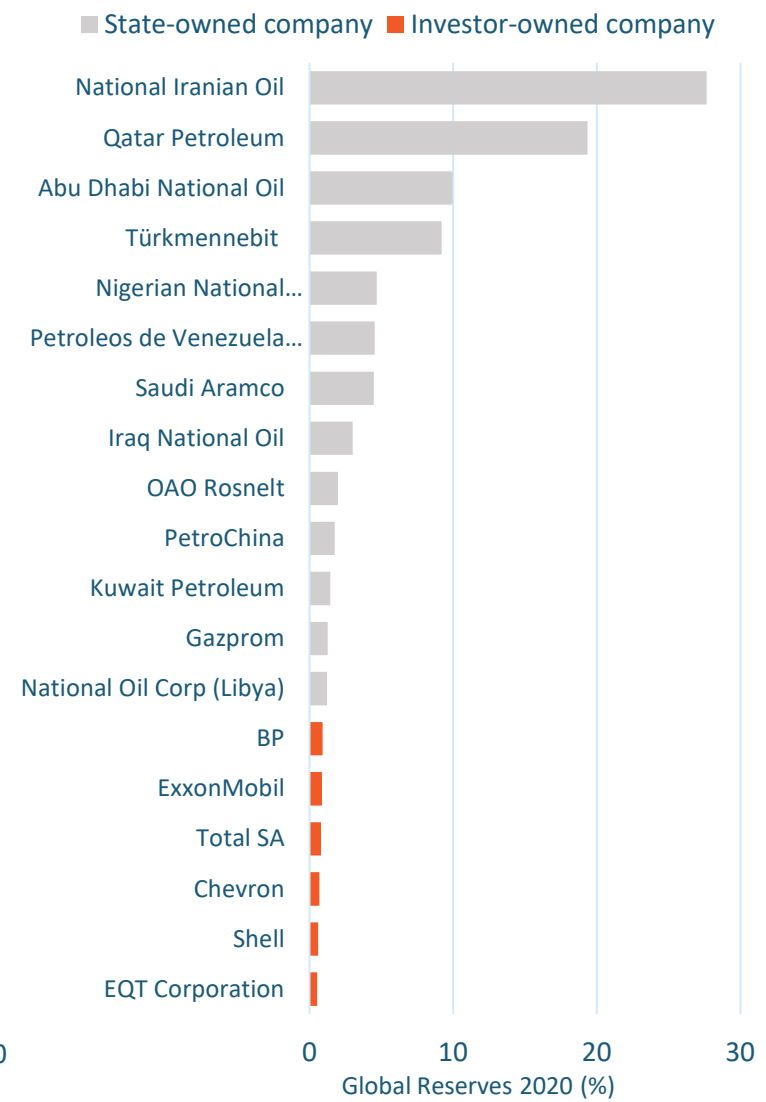
Ranked by control of global reserves in 2020:

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

Largest Oil Companies by Reserves

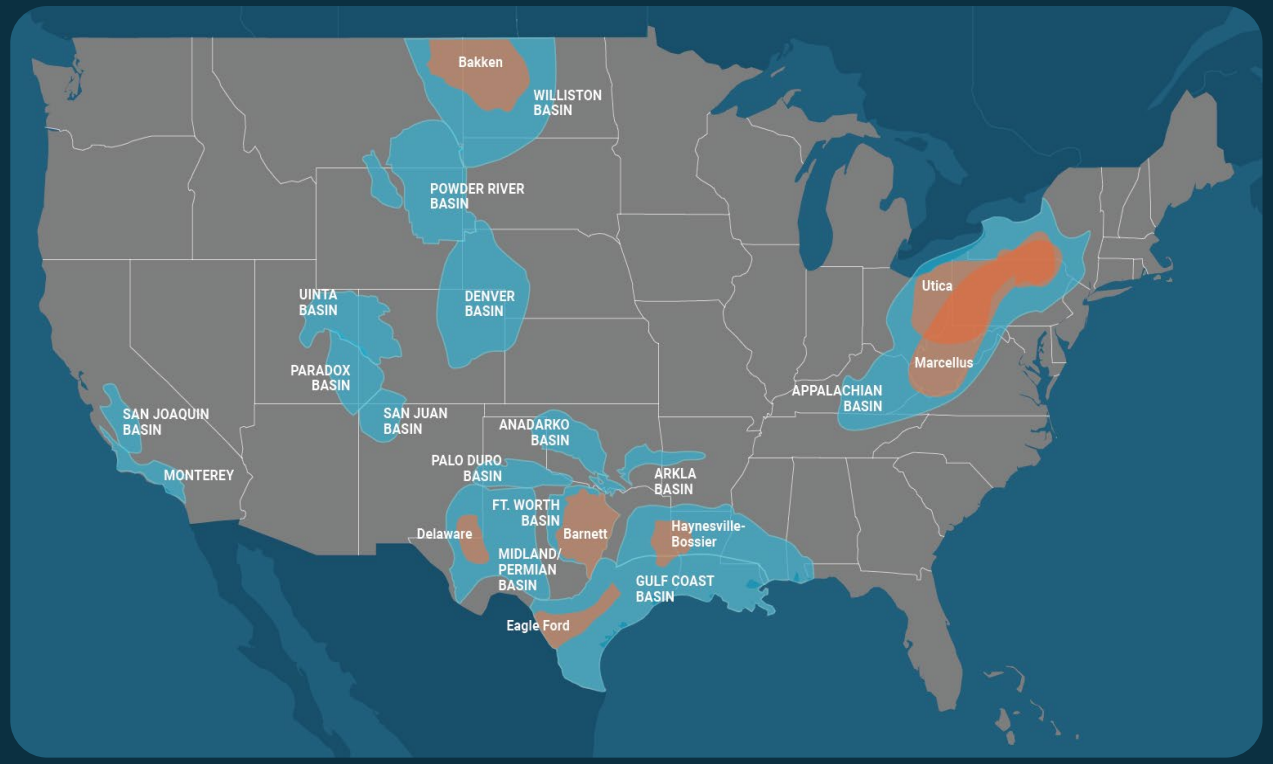


Largest Natural Gas Companies by Reserves



Source: American Petroleum Institute; Company Annual Reports; Oil and Gas Journal; Bloomberg

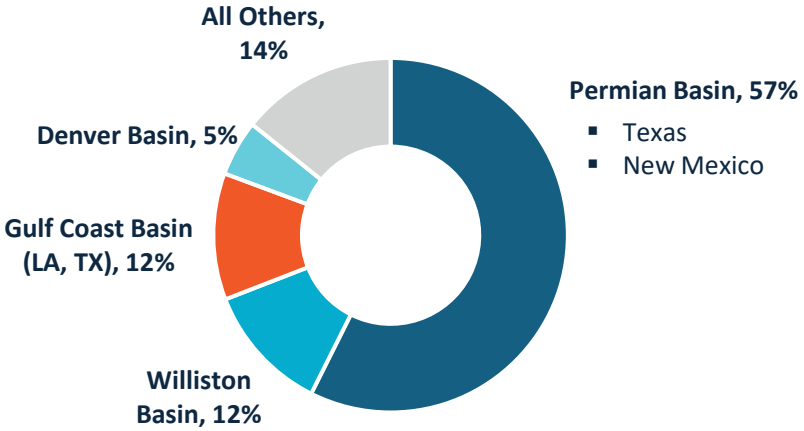
Permian is Largest Oil Producing Basin, Appalachian is Largest Natural Gas Producing Basin



Source: Environmental Protection Agency, Production by Basin from Subpart W

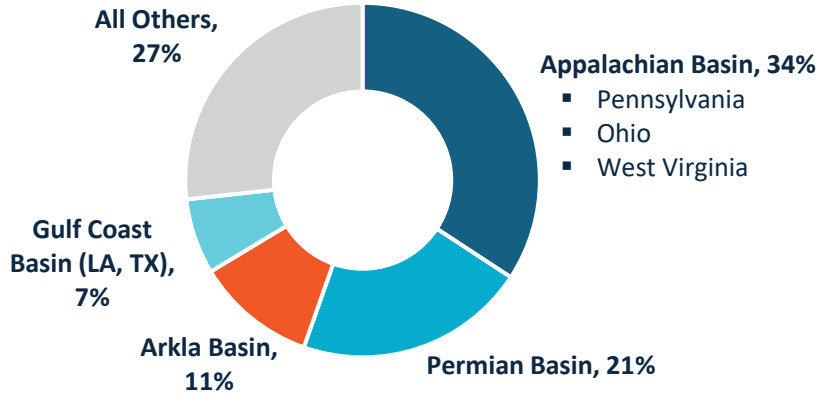
Oil Production by Basin

2023



Gas Production by Basin

2023



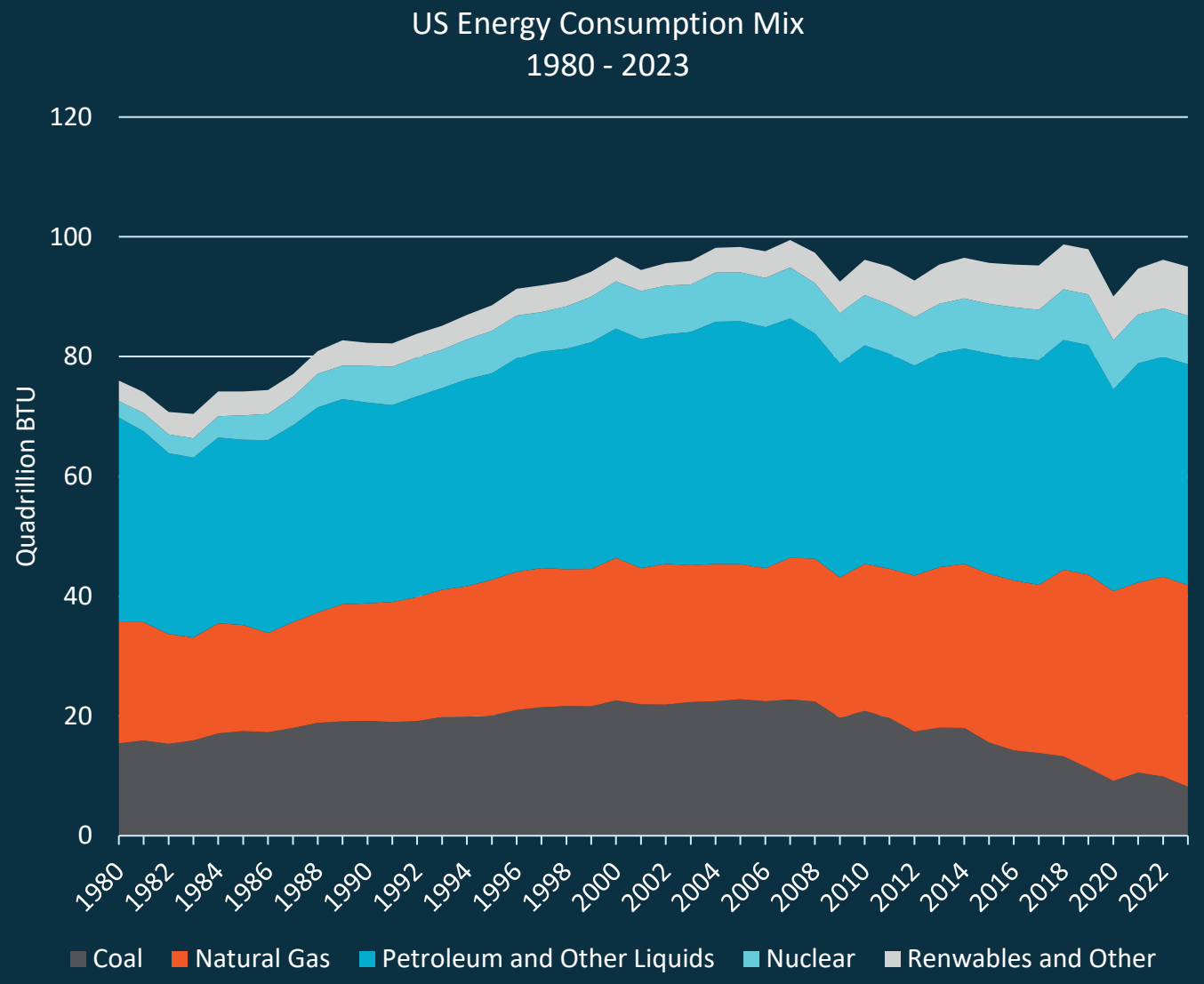
Source: Environmental Protection Agency, Subpart W Data

Energy Consumption

Oil and Natural Gas make up the Majority of the US Energy Mix

Energy from fossil fuels have made up **80-85%** of the country's energy mix over the last several decades.

Our use of natural gas has increased by **69%** at the same time reliance on coal decreased by **49%**.



Oil and gas currently account for **74%** of our nation's energy mix.

Energy provided by renewables has **more than doubled** to account for 9% of national consumption, but has not kept pace with the increase in demand.

Source: International Energy Agency and US Energy Information Administration, Statistical Review of World Energy

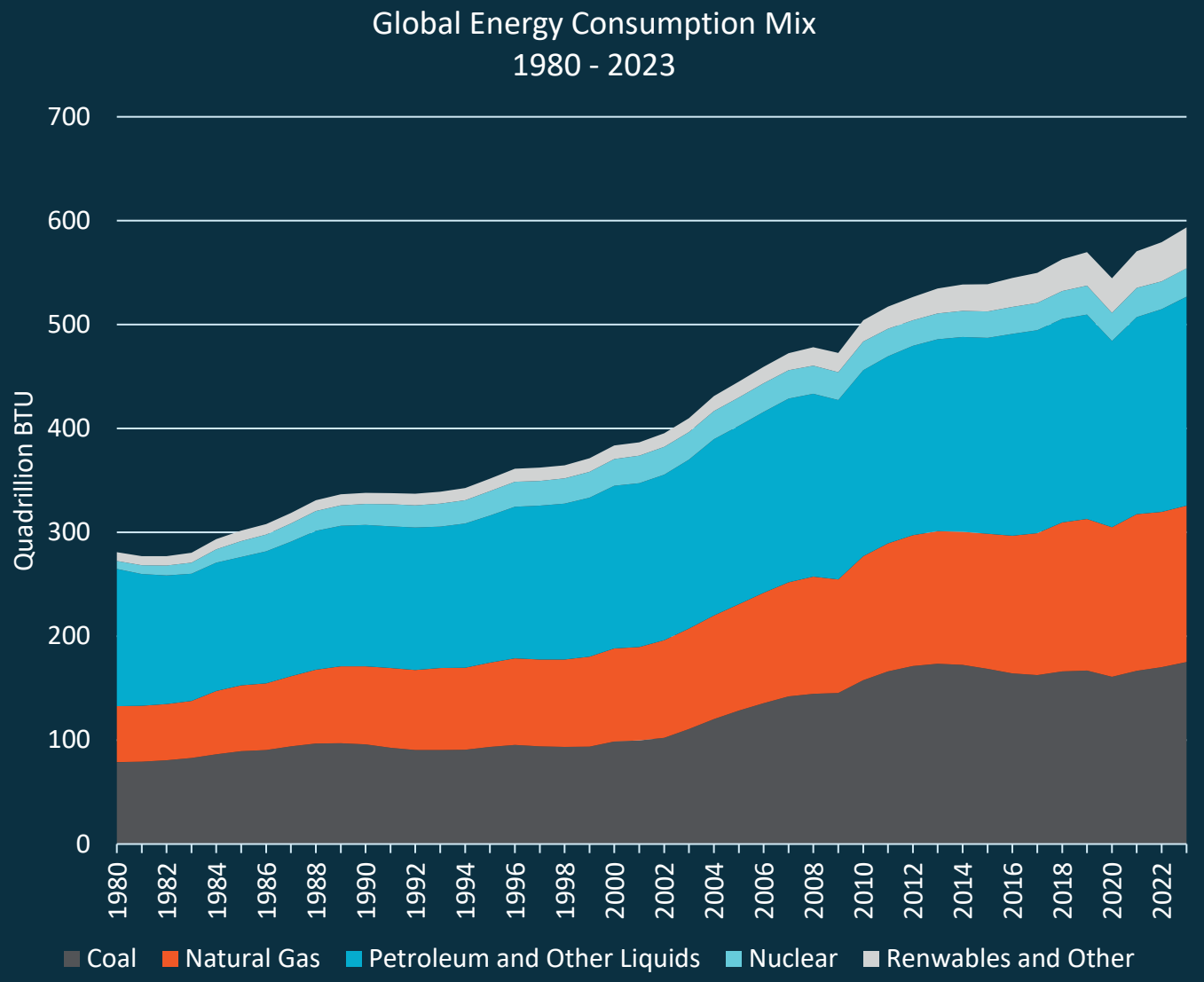
Oil and Natural Gas make up the Majority of the Global Energy Mix

Global energy consumption more than **doubled** from 1980-2023

Energy from fossil fuels made up 89% of the world's energy in 2023

Energy from coal contributed 30% of the world's energy in 2023

From 1980 to 2023, global reliance on coal for energy has more than **doubled**



Every single source of primary energy has increased globally

Energy provided by renewables has **increased by over 4 times** between 1980-2021

Even with this dramatic increase, renewables still only contribute to 7% of the total energy mix

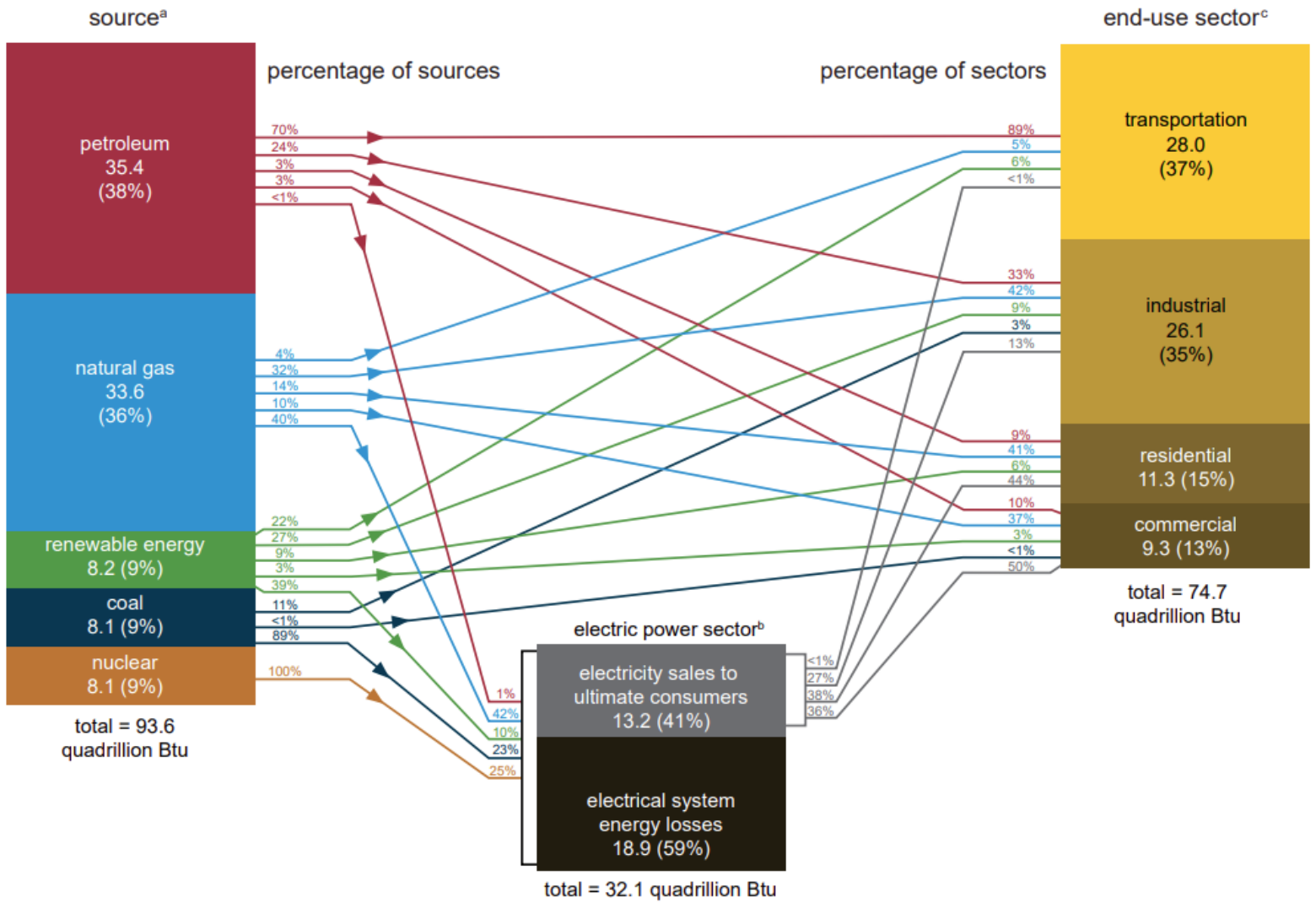
Historic demand increases outpace the growth in renewable energy

Source: International Energy Agency and US Energy Information Administration, Statistical Review of World energy

Energy Sources and their End Uses in the US

- Transportation consumes the largest amount of energy (37%) followed closely by the industrial sector (35%)
- Natural gas is the single biggest input into electric power (42%) followed by coal (23%) and nuclear (25%)
- Petroleum products are by far the largest source of energy for transportation (89%)
- Natural gas and petroleum products provide 75% of the energy for the industrial sector

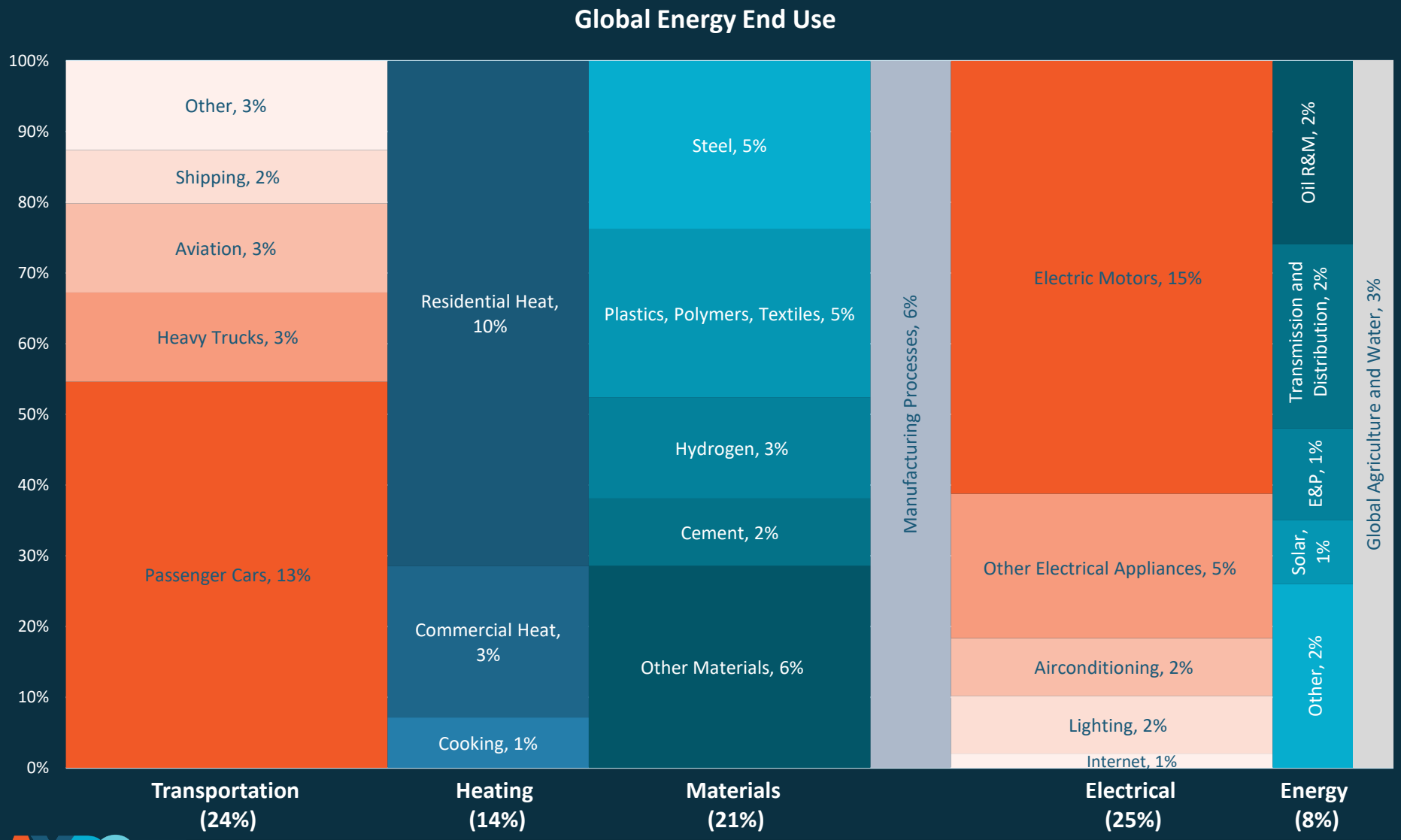
Energy Consumption by Source and Sector in 2023



Source: Energy Information Administration

End Use of Energy Around the World

What can this tell us about the future of our energy systems?



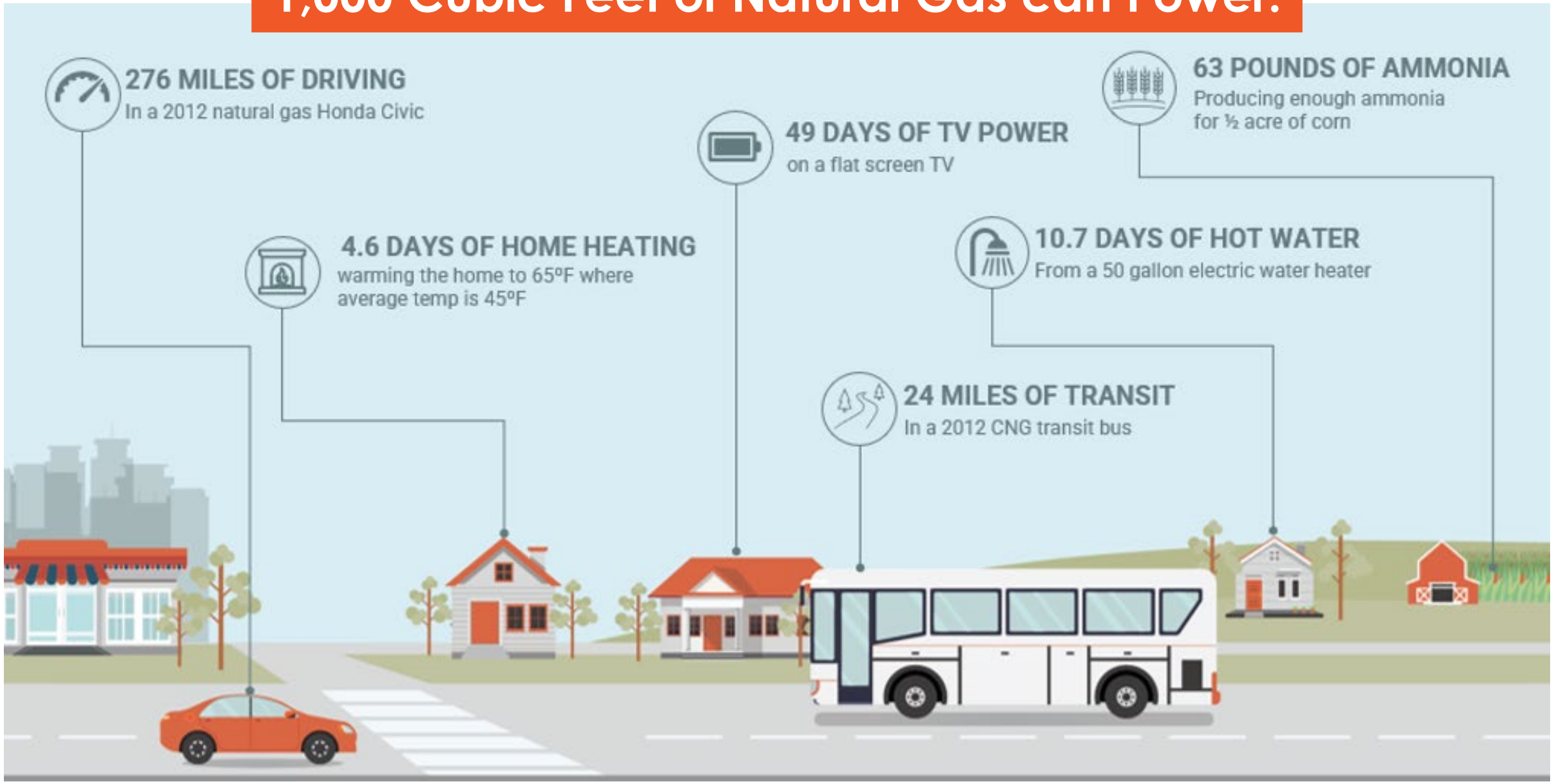
About half of energy needed for transportation is for heavy trucks, aviation, shipping etc. totaling ~11% of global energy.

Materials and manufacturing constitute over a quarter of all energy end use.

Energy production is a significant source of energy demand as well – future sources of energy will likely add to this demand over time.

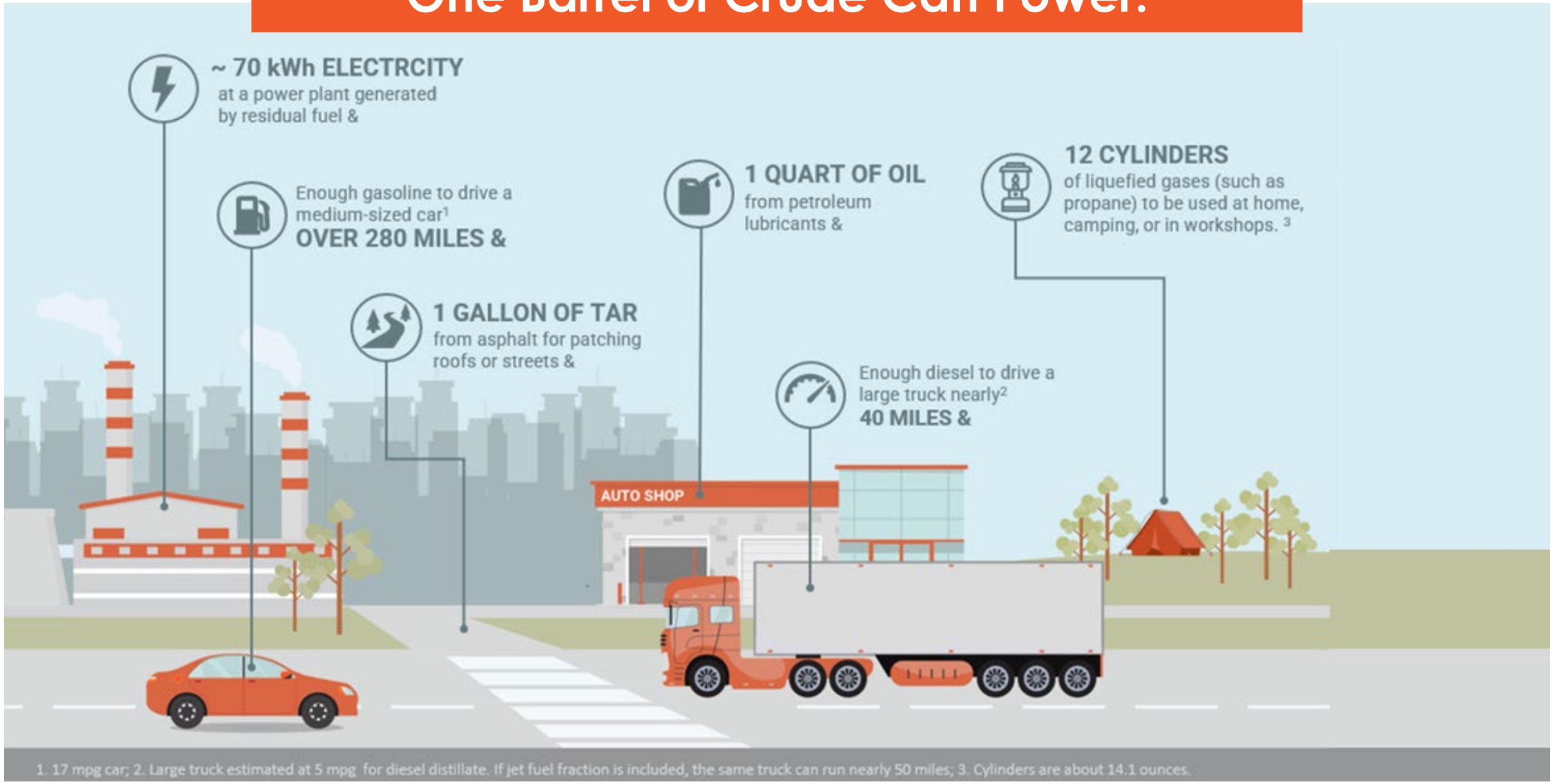
Source: Thundersaid Energy Analysis https://thundersaidenergy.com/2024/02/15/global-energy-demand-nervous-breakdown/

1,000 Cubic Feet of Natural Gas can Power:



Source: Cleanskies.org

One Barrel of Crude Can Power:



1. 17 mpg car; 2. Large truck estimated at 5 mpg for diesel distillate. If jet fuel fraction is included, the same truck can run nearly 50 miles; 3. Cylinders are about 14.1 ounces.

Source: Energy Information Administration

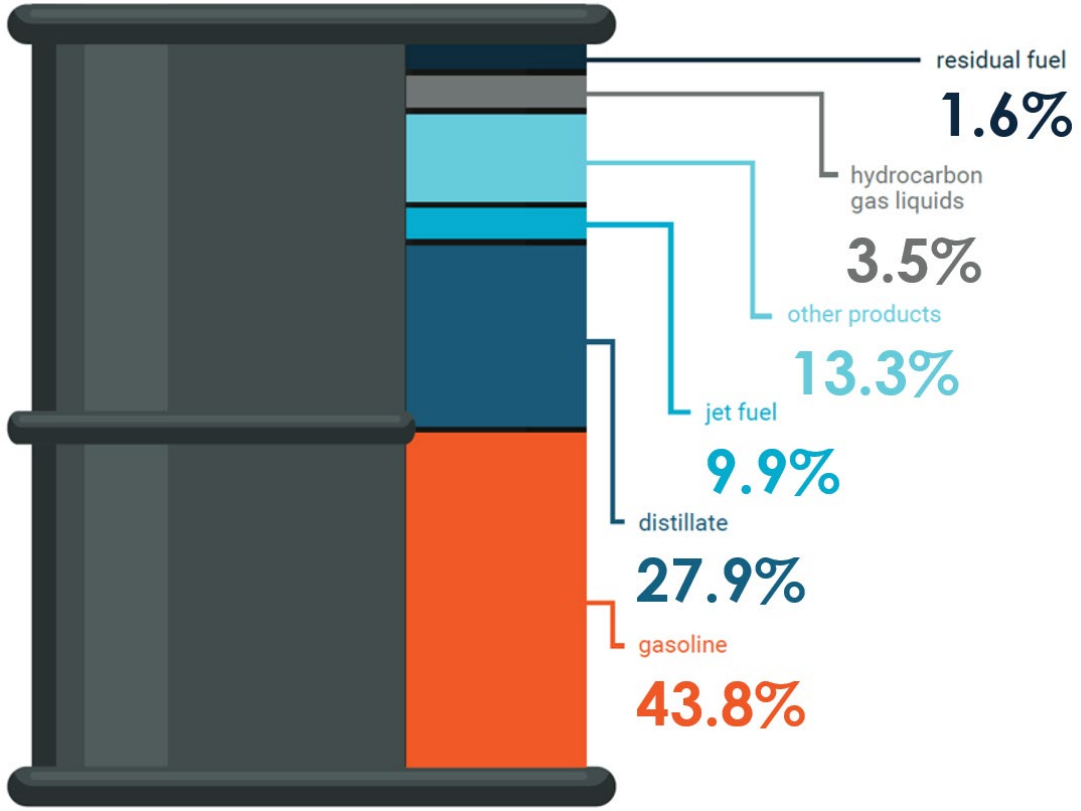
How is One Barrel of Crude Oil Used?

According to the EIA, 80% of the **7.4 billion barrels** of petroleum used in the US in 2023 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

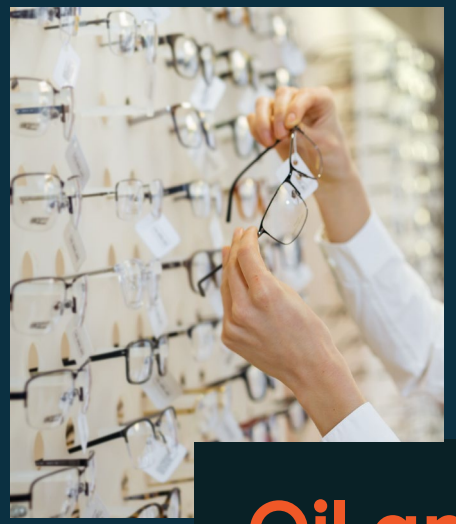
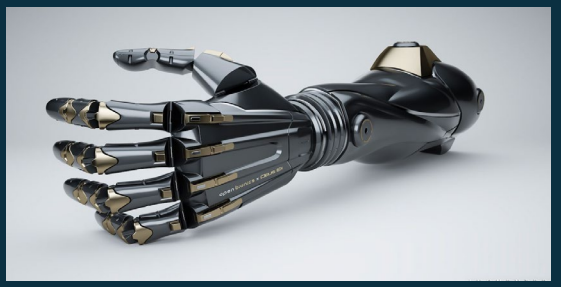
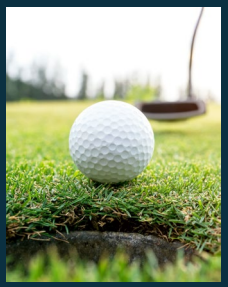
Petrochemicals derived from oil and natural gas make the manufacturing of o**ver 6,000 everyday products and high-tech devices** possible

Petroleum Products made from a Barrel of Crude Oil

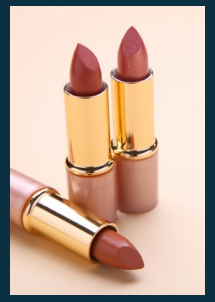


Source: Energy Information Administration

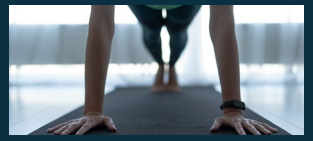






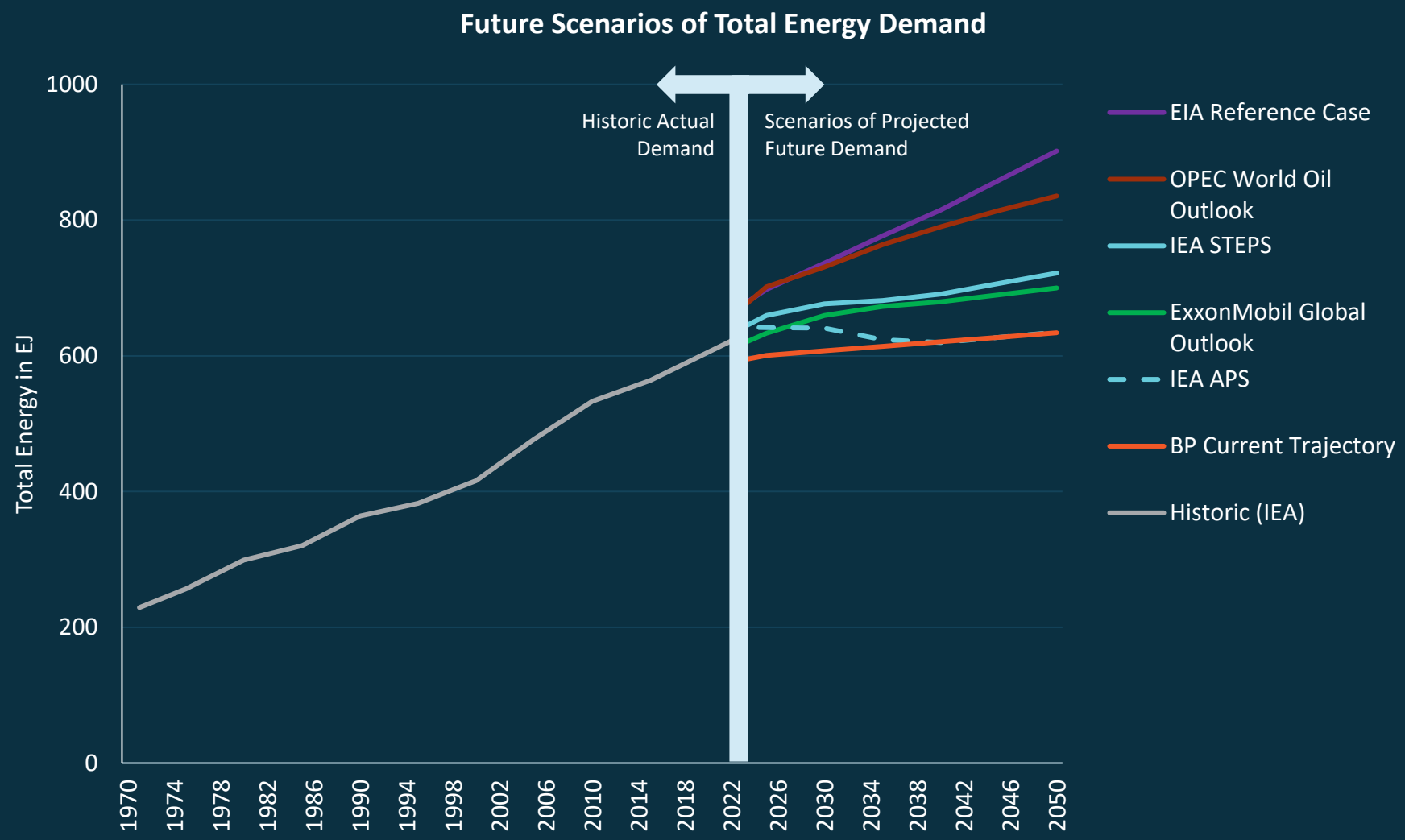

Oil and Natural Gas are Vital to Modern Life

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.**

AXPC

The Future of Energy Demand

A Comparison of Scenarios and Projections



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

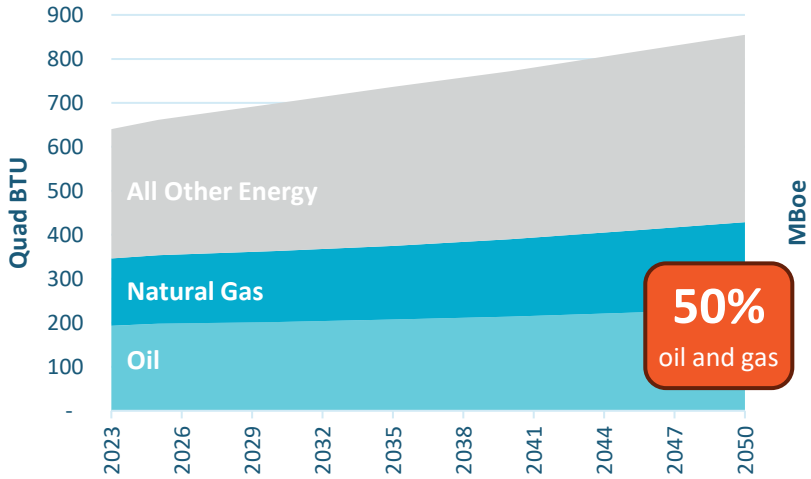
Future planning must be rooted in the reality that emerging economies will require more energy – not less.

Sources all listed in the legend of above chart.

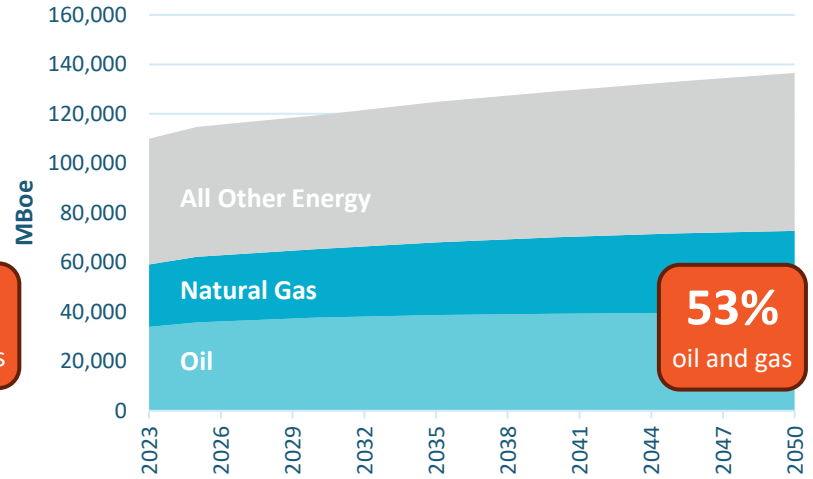
Oil and Natural Gas will Remain a Long-term Source of Global Energy

In all modeled scenarios, oil and natural gas will continue to constitute a significant portion of the energy mix out to 2050 and beyond

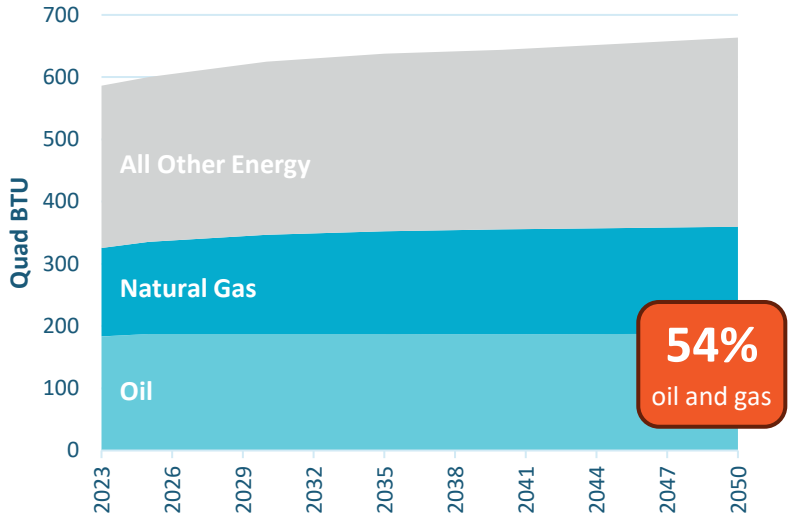
US EIA Reference Case



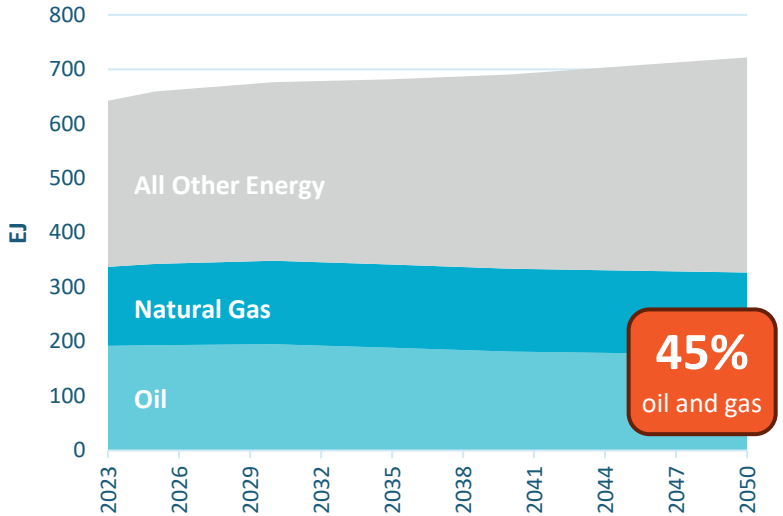
OPEC World Oil Outlook



ExxonMobil Global Outlook



OECD's IEA Stated Policies Scenario



Sources all named in charts

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 or over **40%**

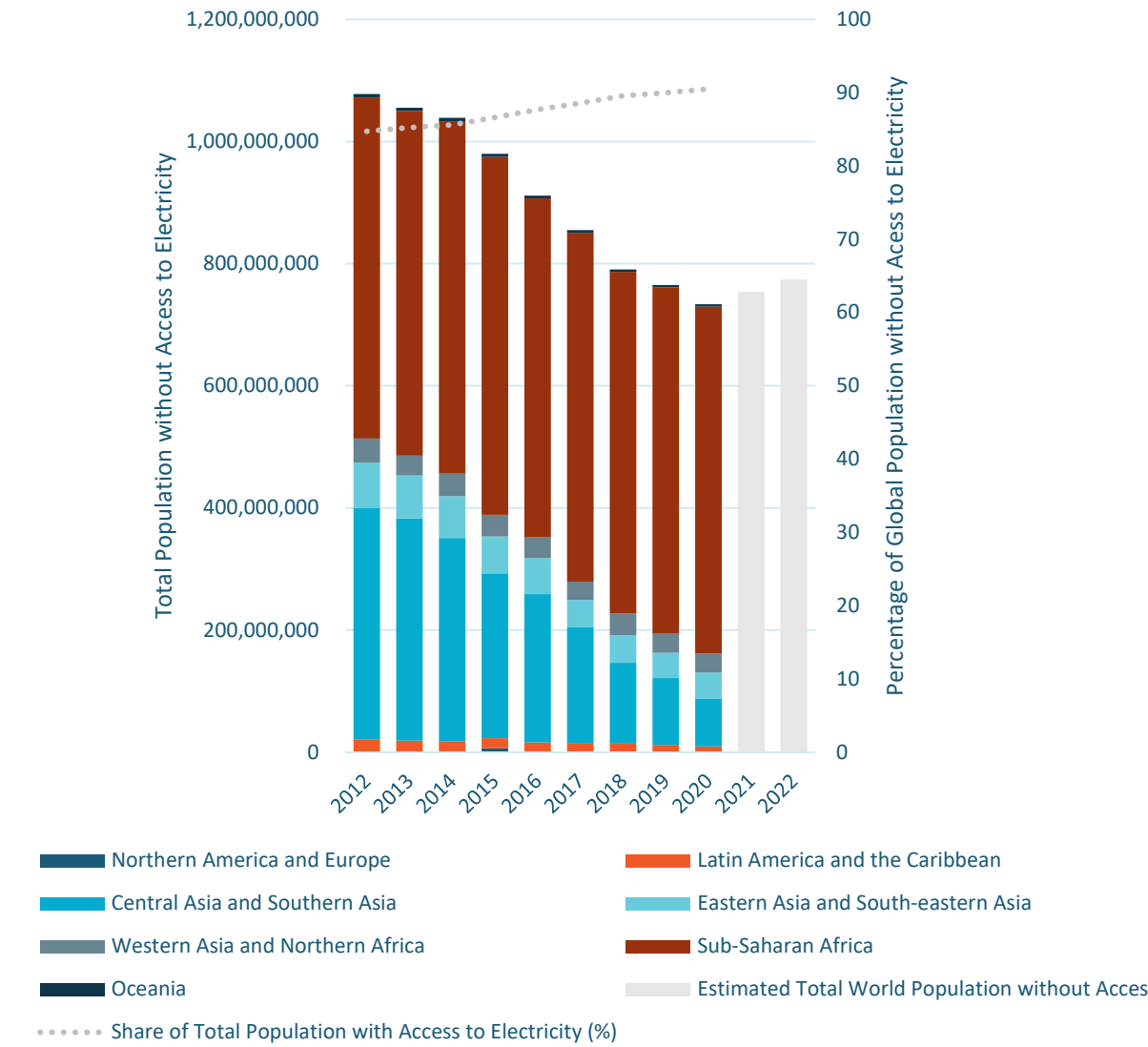
did not have *reliable* access to electricity

In 2023 an estimated

666 MILLION PEOPLE or **8%**

did not have *any* access to electricity

Historical and Projected Electricity Access by Region



Source: Energy Progress Report, SDGs; International Energy Agency; The Payne Institute; Energy for Growth Hub

Billions of People Lack Access to Clean Cooking Fuels

In 2022 an estimated:

2.3

BILLION PEOPLE

did not have access to clean cooking fuels, instead 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

Energy Prices

The Shale Revolution Provides Americans with Affordable Energy

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

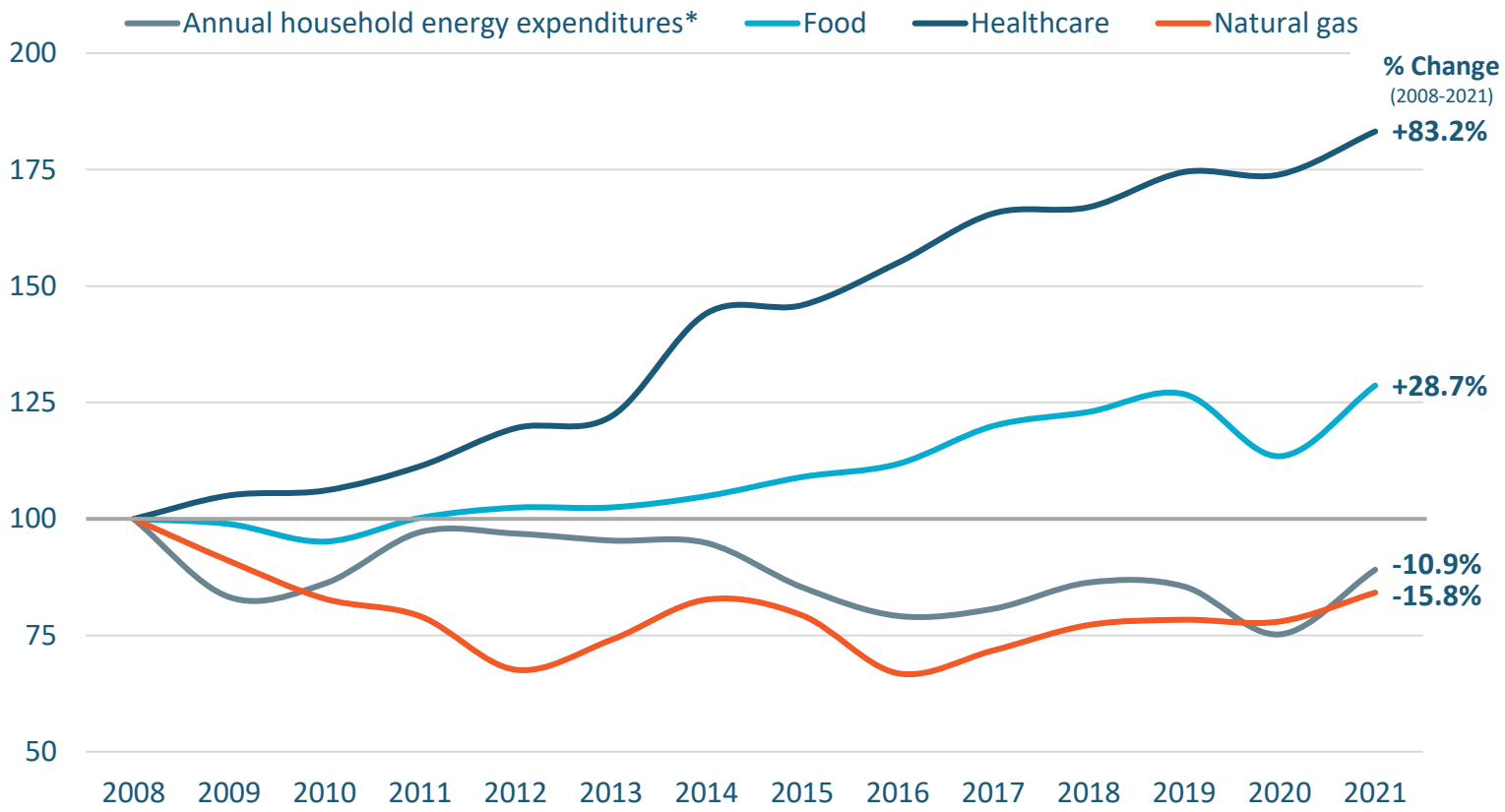
Percentage of household costs on natural gas **decreased by 15.8%**

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)

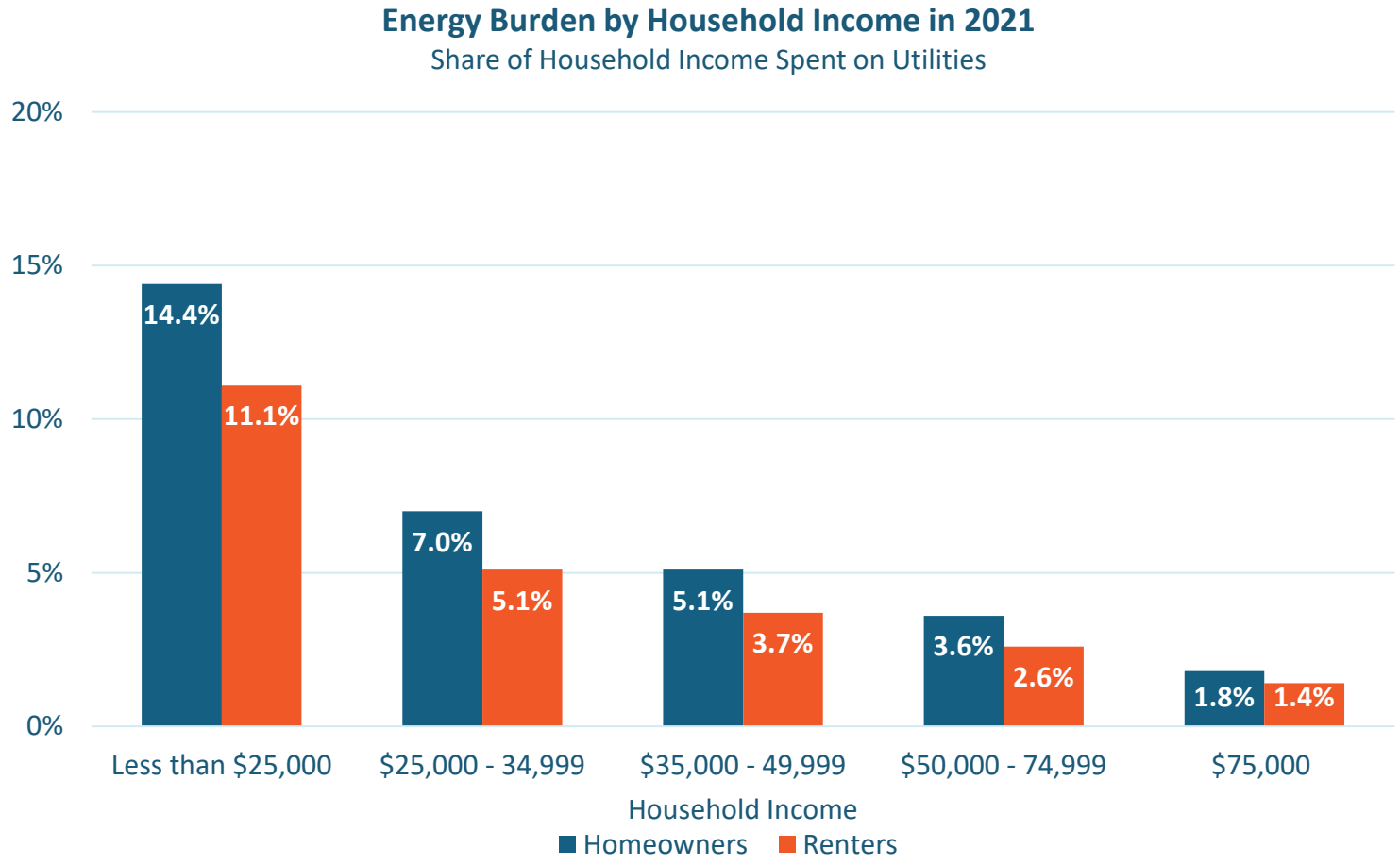


* Household energy expenditures include motor fuels, electricity, natural gas, and fuel oil
source: Bureau of Labor Statistics

Energy Burden Hurts the Most Vulnerable Americans Most

In the first year of the pandemic, **27% of American households** reported some form of energy insecurity

In general, households spent ~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



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% 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

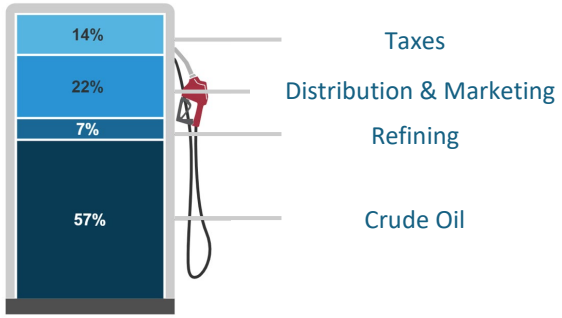
Global market forces (supply, demand, costs) determine the price for crude oil, which is the primary factor in gasoline prices

Increased global supply of crude oil supports lower gasoline prices

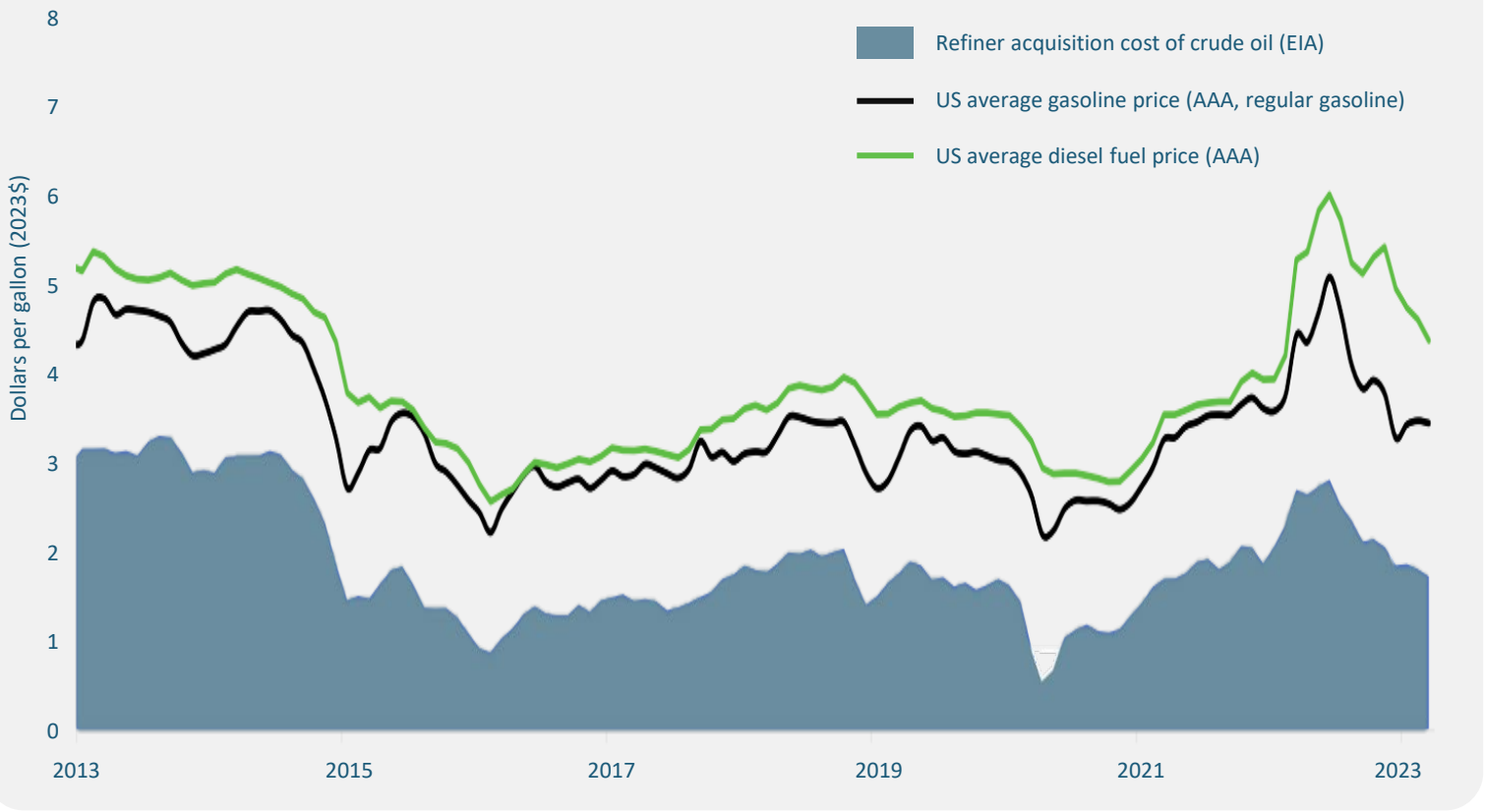
What We Pay for in a Gallon of Gas

Regular Gasoline

Retail Price: $3.61/gal Oct 2023



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



Source: American Petroleum Institute

Climate Leadership

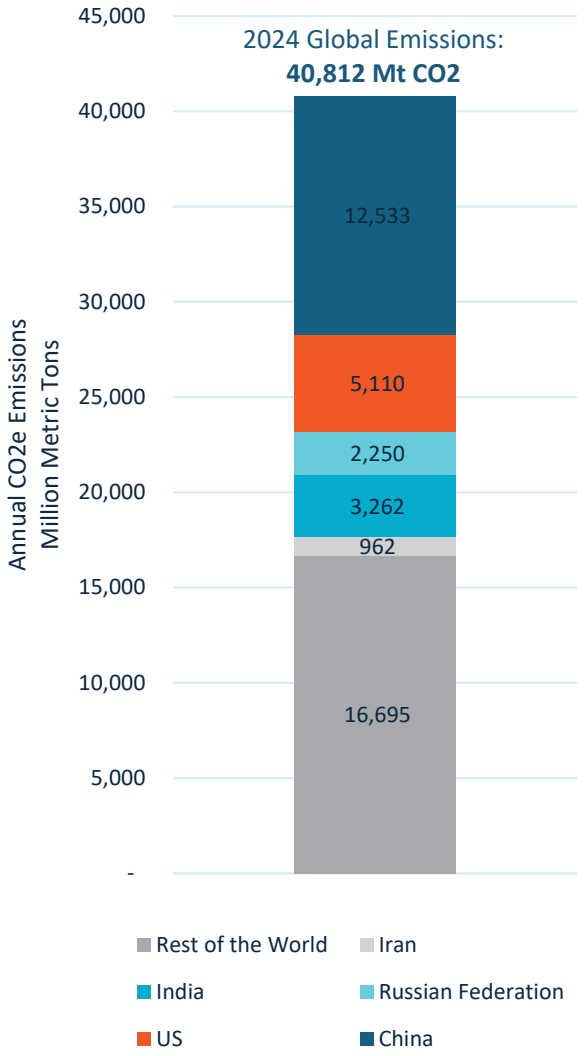
Emissions without Borders: Global Trends

The US was responsible for 13% of the global CO2e emissions in 2024. The US also **reduced overall emissions by 15%** between 2000 and 2024

China was responsible for 31% of global CO2e emissions in 2024. China **more than tripled CO2e emissions** between 2000 and 2024

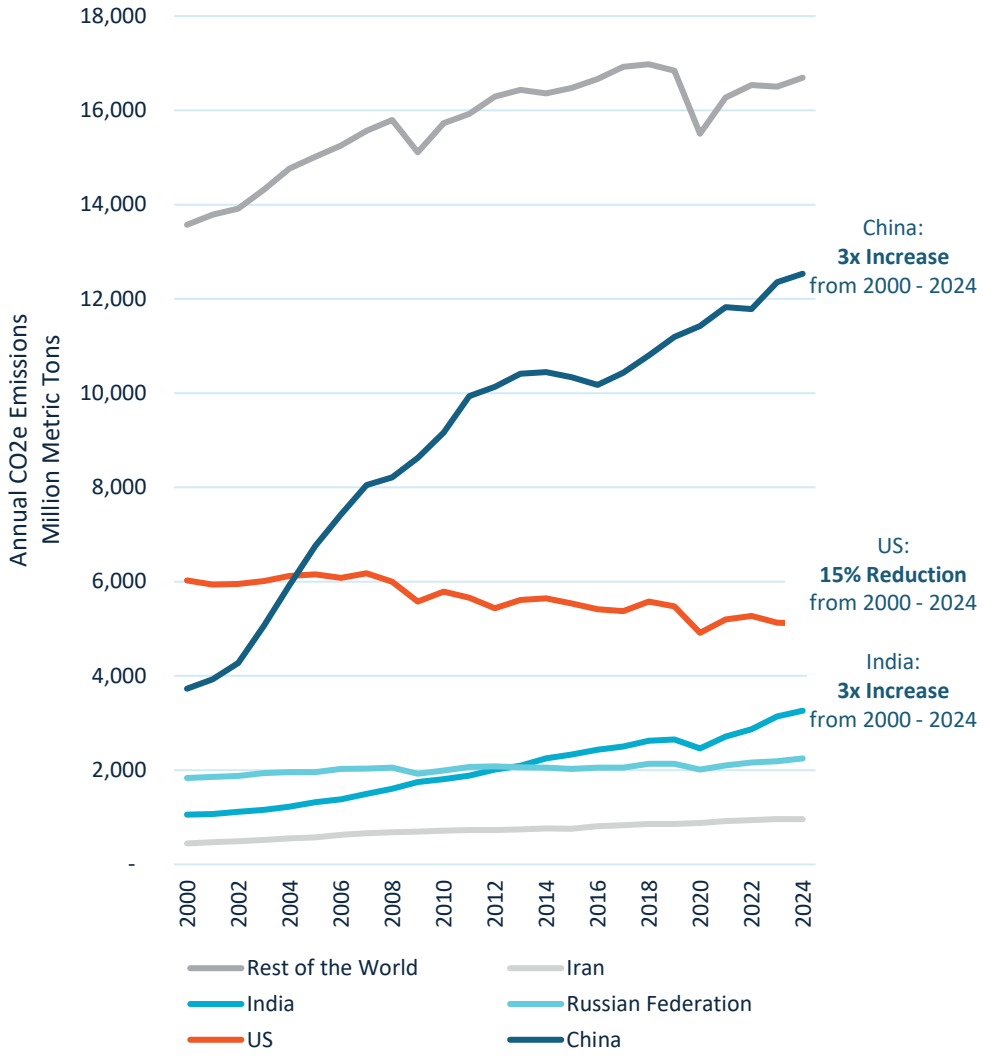
Energy policy and emission reduction strategies must think **globally** to effectively reduce emissions at scale

Relative Portion of Global CO2e Emissions by Country in 2024



CO2e Emissions by Country

2000 - 2024

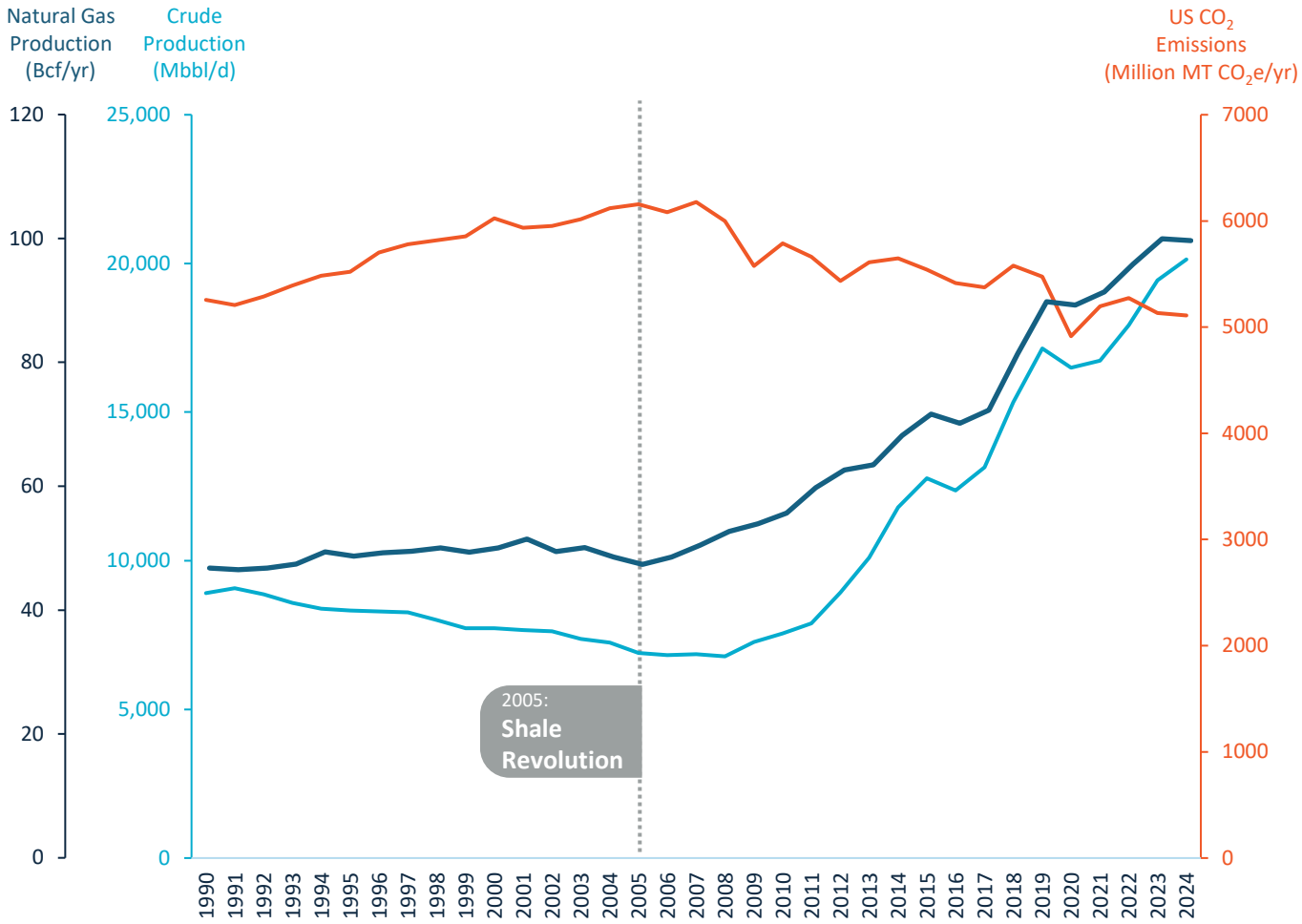


Source: Energy Information Administration

US is the World Leader in Both Production and Emission Reductions

Emission reductions and oil and gas production are not mutually exclusive

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



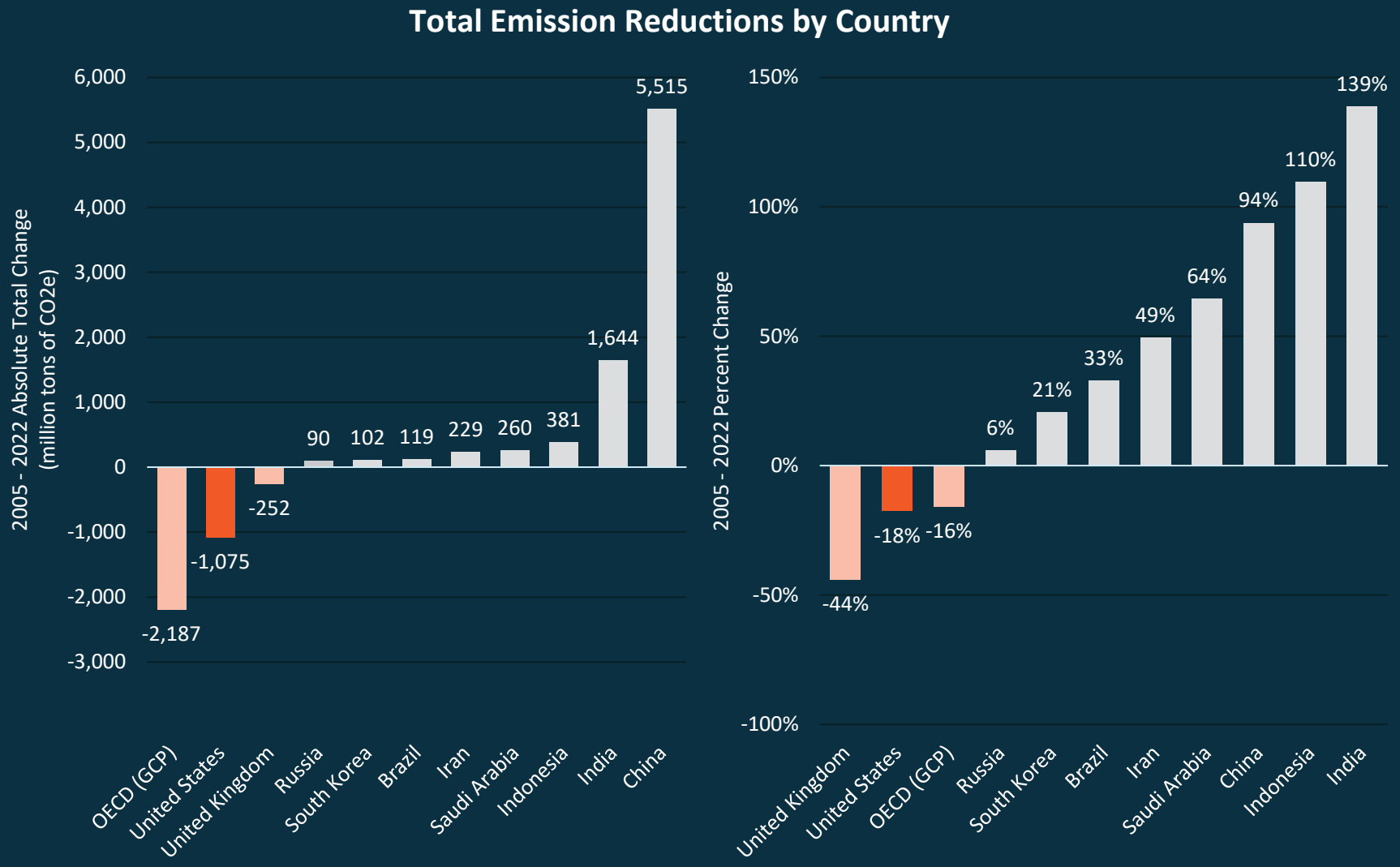
Source: Energy Information Administration

US Shale Revolution Powers US Emission Reductions
2005 to 2022

From 1990 through the beginning of the Shale Revolution, emissions steadily increased. But between 2005 and 2022, **US emissions decreased by 18%** - outperforming the average of all OECD countries.

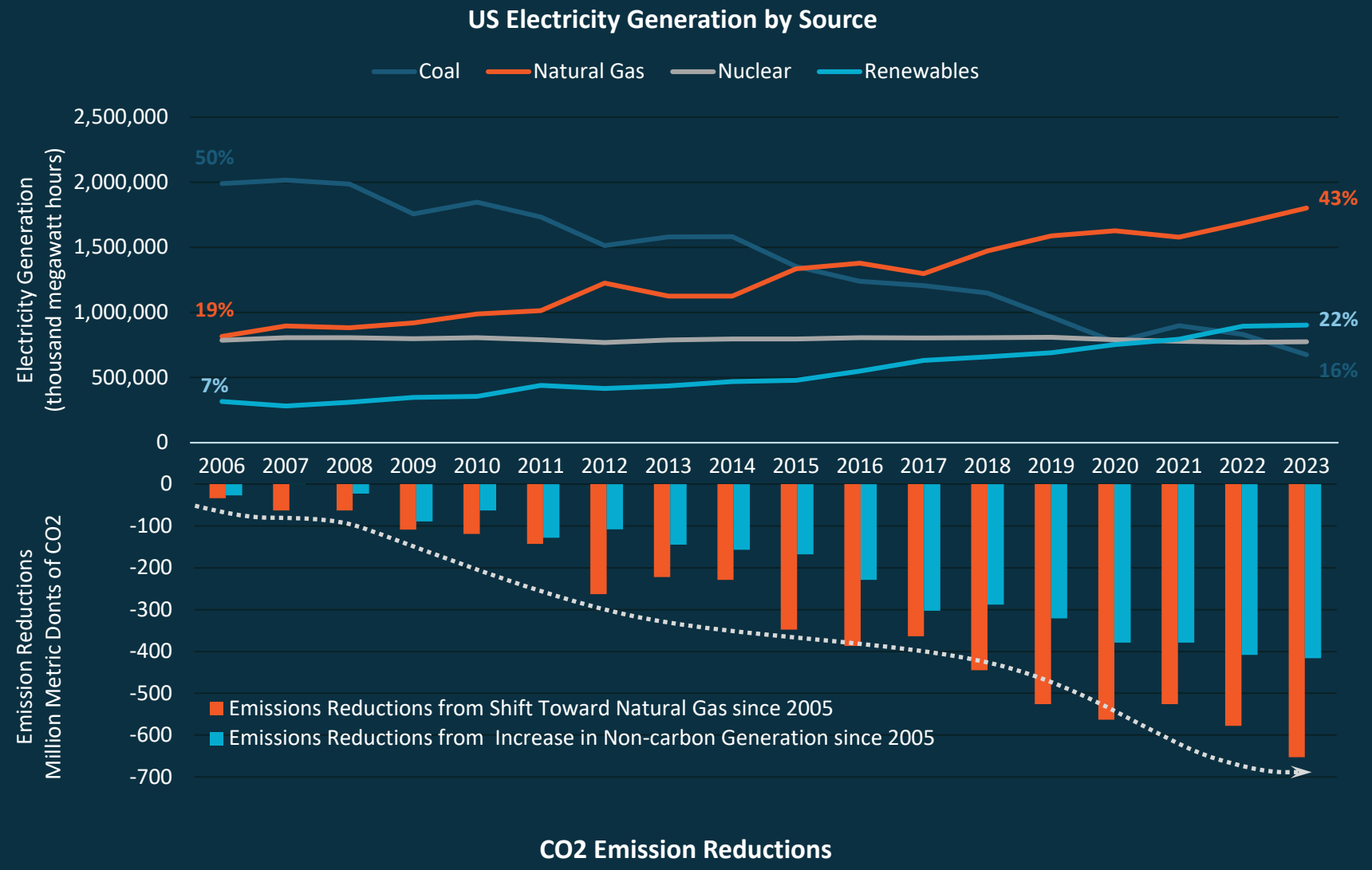
The US's emission reductions of 1,075 million tons of CO2e since 2005 represents **half the emission reductions** of all developed countries.

The shift to generating more electricity from natural gas and renewable sources **reduced energy-related carbon dioxide emissions** nationally.



Source: https://ourworldindata.org/co2-emissions

Natural Gas is Responsible for 60% of All Power Sector Emission Reductions in the US



60% of all US emissions reductions in electricity generation since 2005 are due to the switch from higher-carbon fossil fuel electricity generation (coal) to natural gas generation

Natural gas now fuels ~43% of the US's electricity

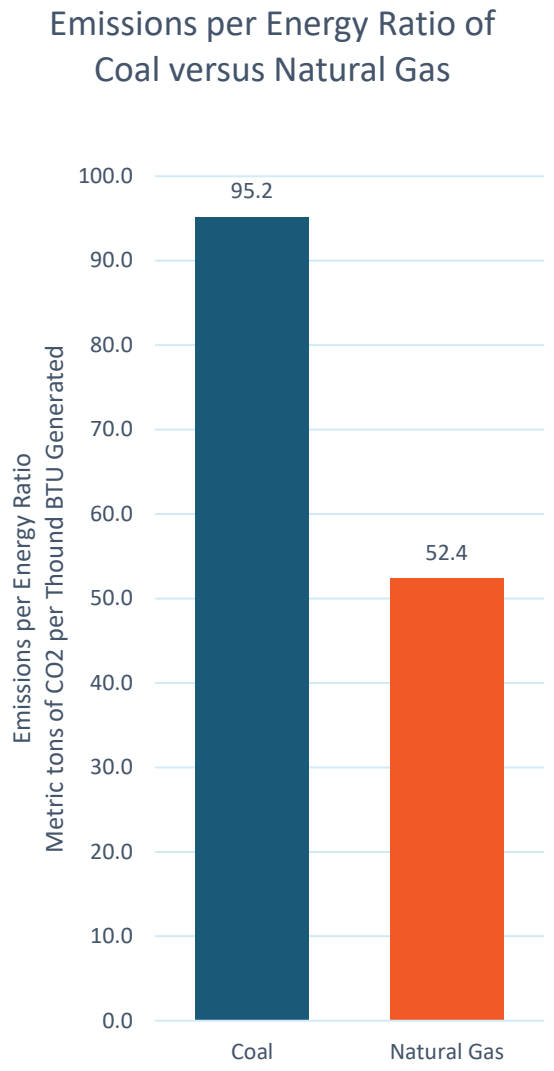
Source: Energy Information Administration

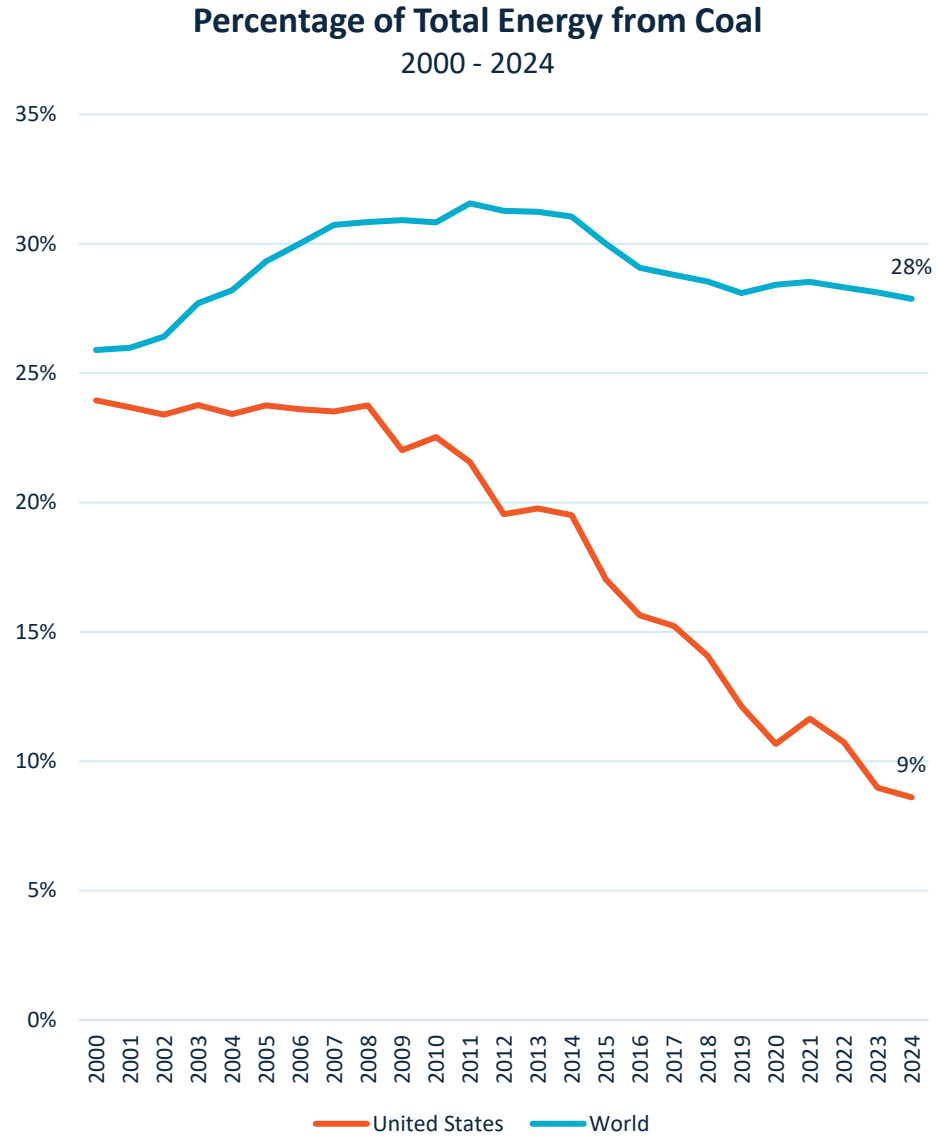
Switching from Coal to Natural Gas is a Global Climate Opportunity

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.**

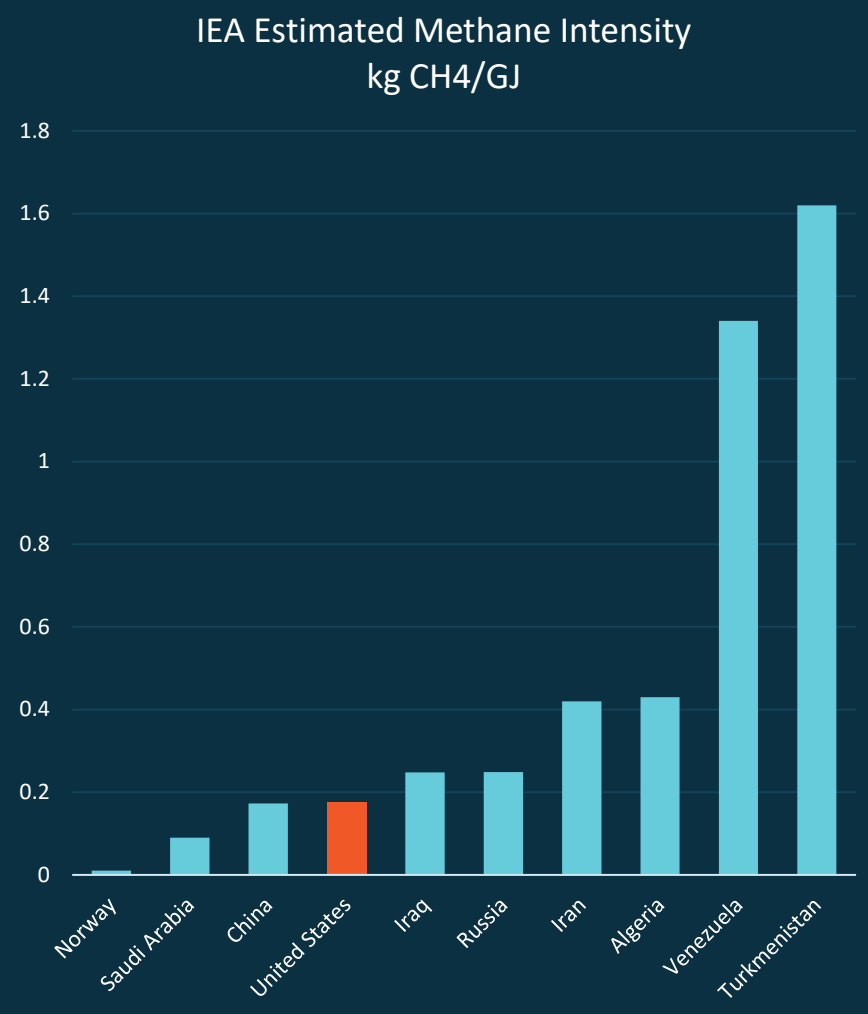
Global coal use and recent trends, however, are not nearly as positive.

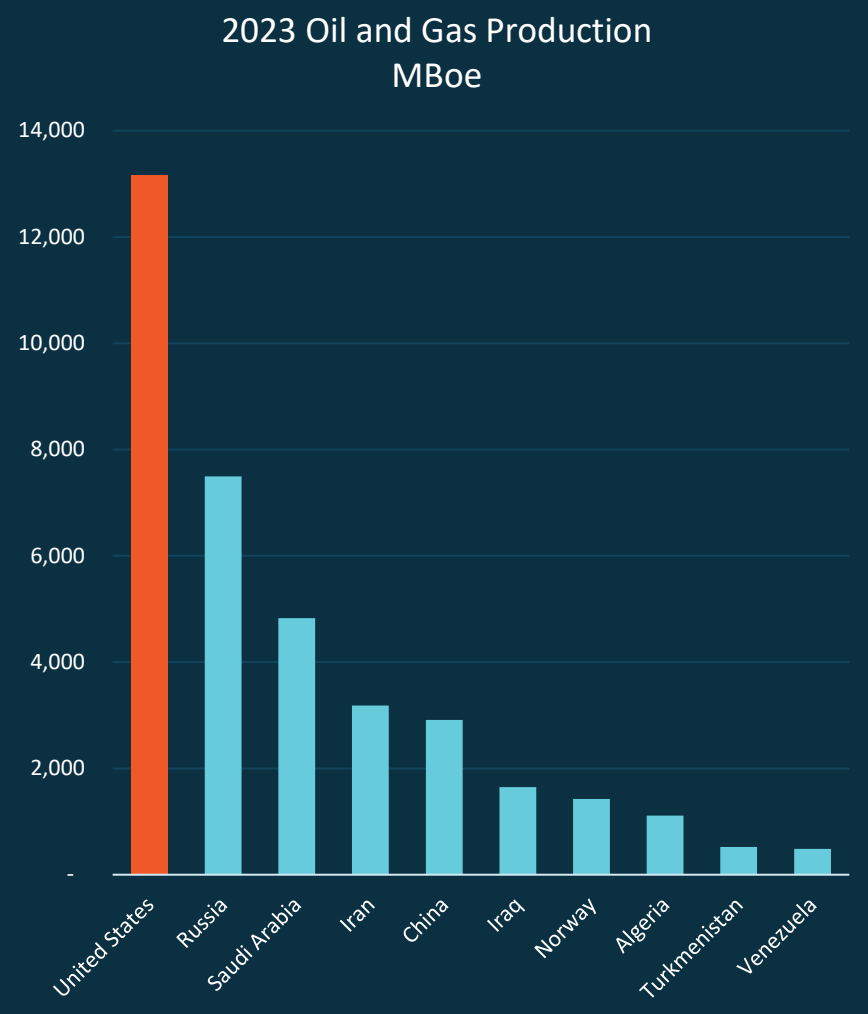




Source: Statistical Review of World Energy

US Production of Oil and Gas is among the Cleanest and Essential to the Global Energy Marketplace





The IEA estimates the Methane Intensity of oil and gas producing countries

The methane emissions intensity of oil and gas production varies widely with the best-performing countries score more than 100 times better than the worst

US production is among the lowest in methane intensity while highest in total production

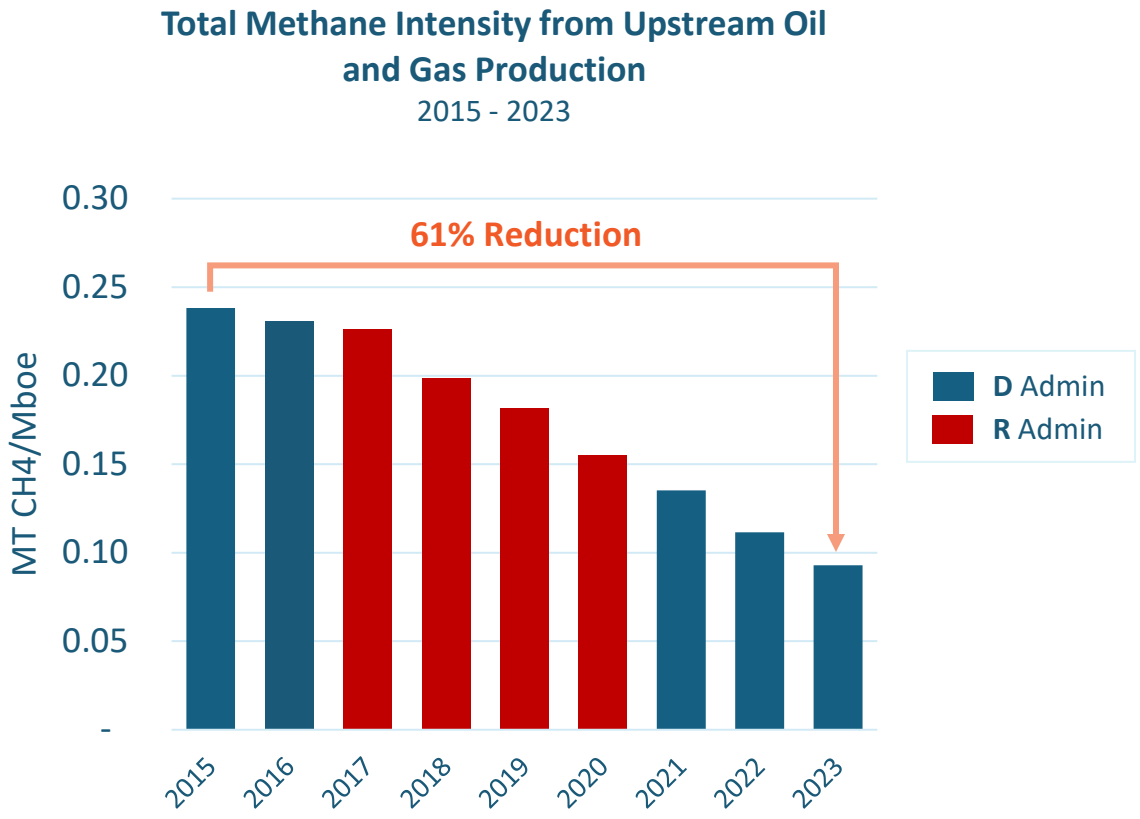
US Energy is critical to providing the world with clean energy at scale

Source: 2024 Global Methane Tracker, IEA

American Upstream Oil and Gas Producers have Remained Steadfast in their Emission Reduction Commitments

American Upstream Companies are making huge strides in reducing methane intensity – regardless of administration

- US Upstream Oil and Gas producers have reduced their methane emissions intensity by **61%** since 2015



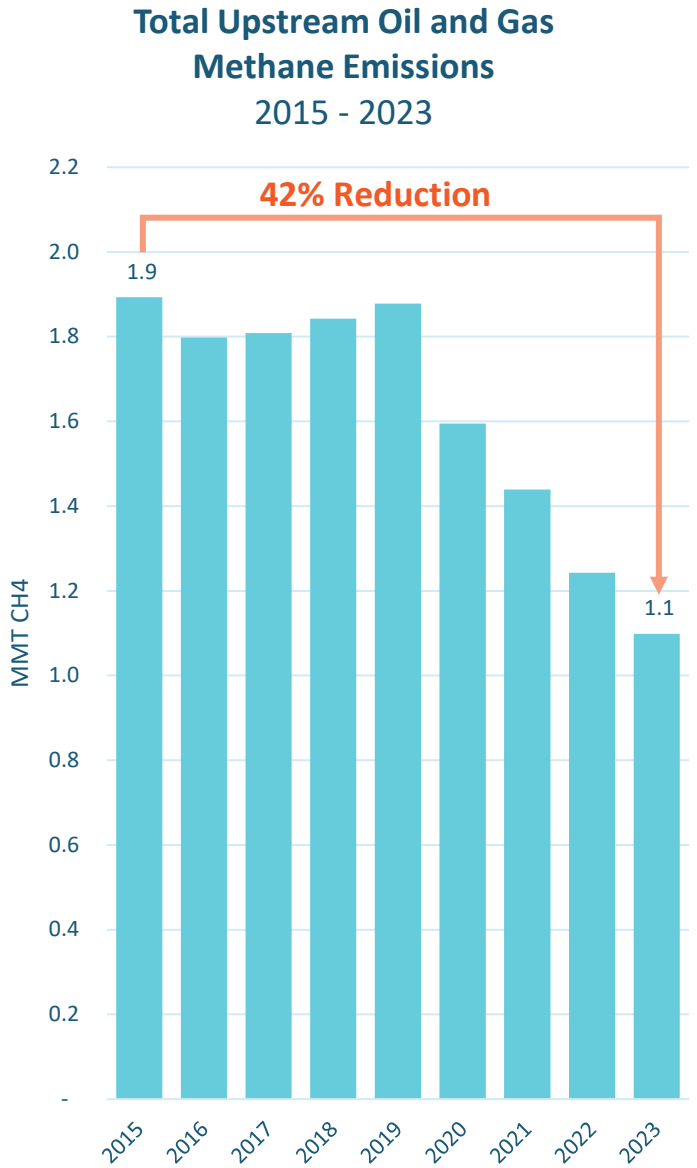
Source: Clean Air Task Force/Ceres Report on Benchmarking Oil and Gas Emissions. 2023 value estimated using Environmental Protection Agency data.

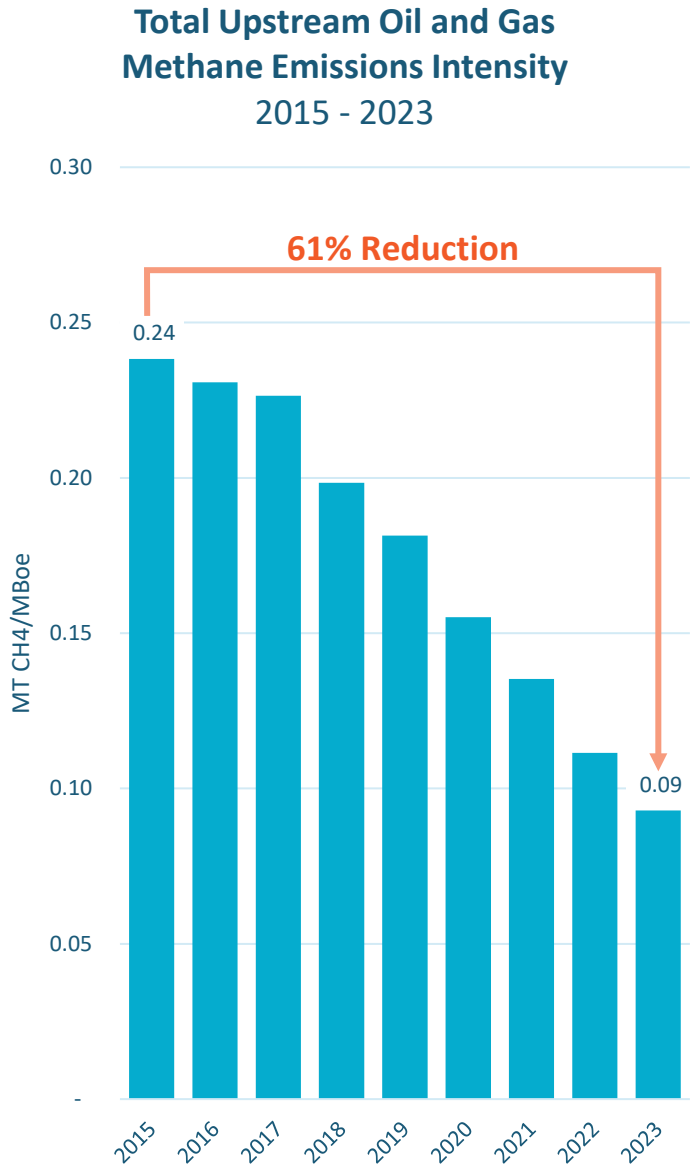
US Innovation and Operating Practices have Driven Industry Emission Reductions

Based on an analysis by CERES and the Clean Air Taskforce, the upstream oil and natural gas industry has reduced its methane intensity by 61% and total methane emissions by 42% since 2015

As emissions plummet, total US production of oil and natural gas increased by almost 50% over the same period

The US upstream oil and gas industry has led the way in emission reductions through technology innovation and improved operating practices





Source: Clean Air Task Force/Ceres Report on Benchmarking Oil and Gas Emissions. 2023 value estimated using EPA data.

Federal Lands

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

In 2024, operators on onshore Federal and Tribal lands in the US produced:

682
MILLION BARRELS
of oil

4.50
TRILLION CUBIC FEET
of natural gas

Which is more than the entire production of:

ALGERIA
504 Mbbl

VENEZUELA
350 Mbbl

NIGERIA
598 Mbbl

LIBYA
434 Mbbl

UNITED KINGDOM
1.08 tcf

PAKISTAN
0.92 tcf

NIGERIA
1.65 tcf

OMAN
1.60 tcf

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

12th
LARGEST
producer of oil in the world

7th
LARGEST
producer of natural gas in the world

AXPC

Source: Bureau of Land Management and Department of Interior; Statistical Review of World Energy

Revenue from Federal Lands is Distributed Back to the States

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

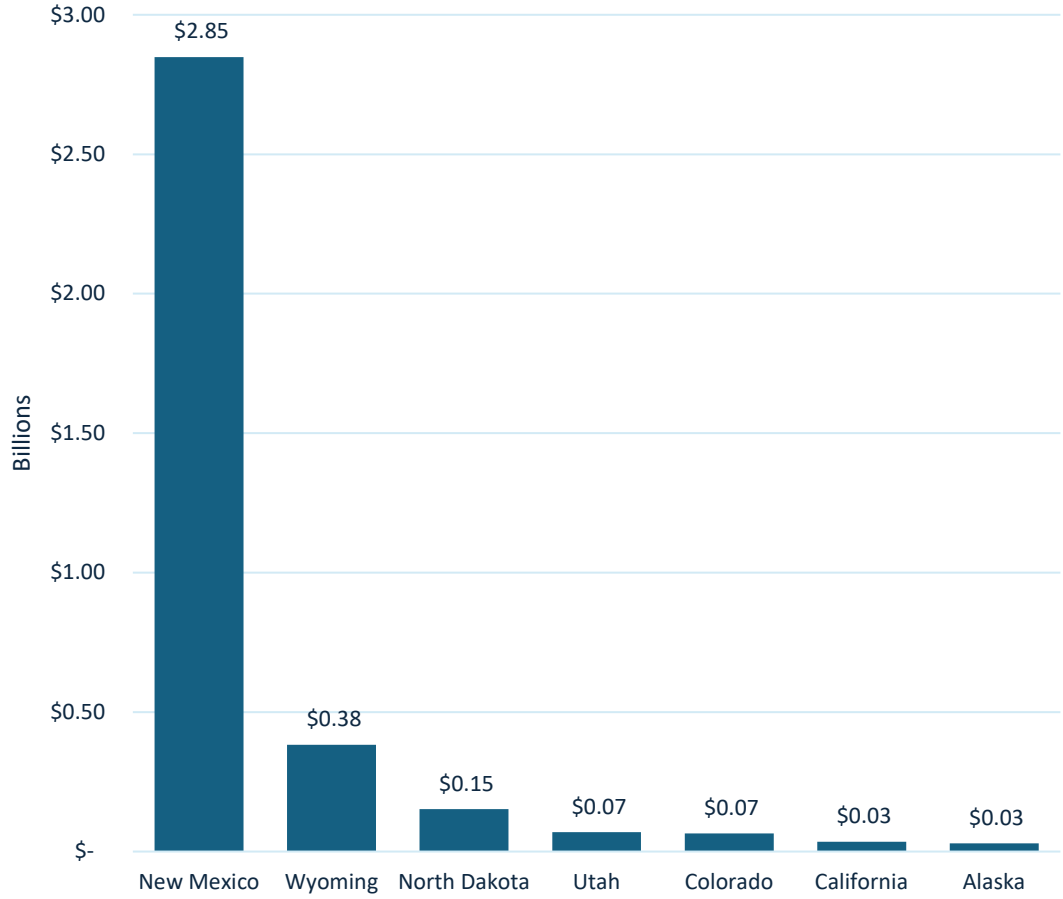
In 2024, onshore federal and tribal lands production yielded over:

$7.18 BILLION
of total federal revenue

$3.60 BILLION
disbursed to local and state governments*

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

State Disbursements from Production on Federal Lands
2024

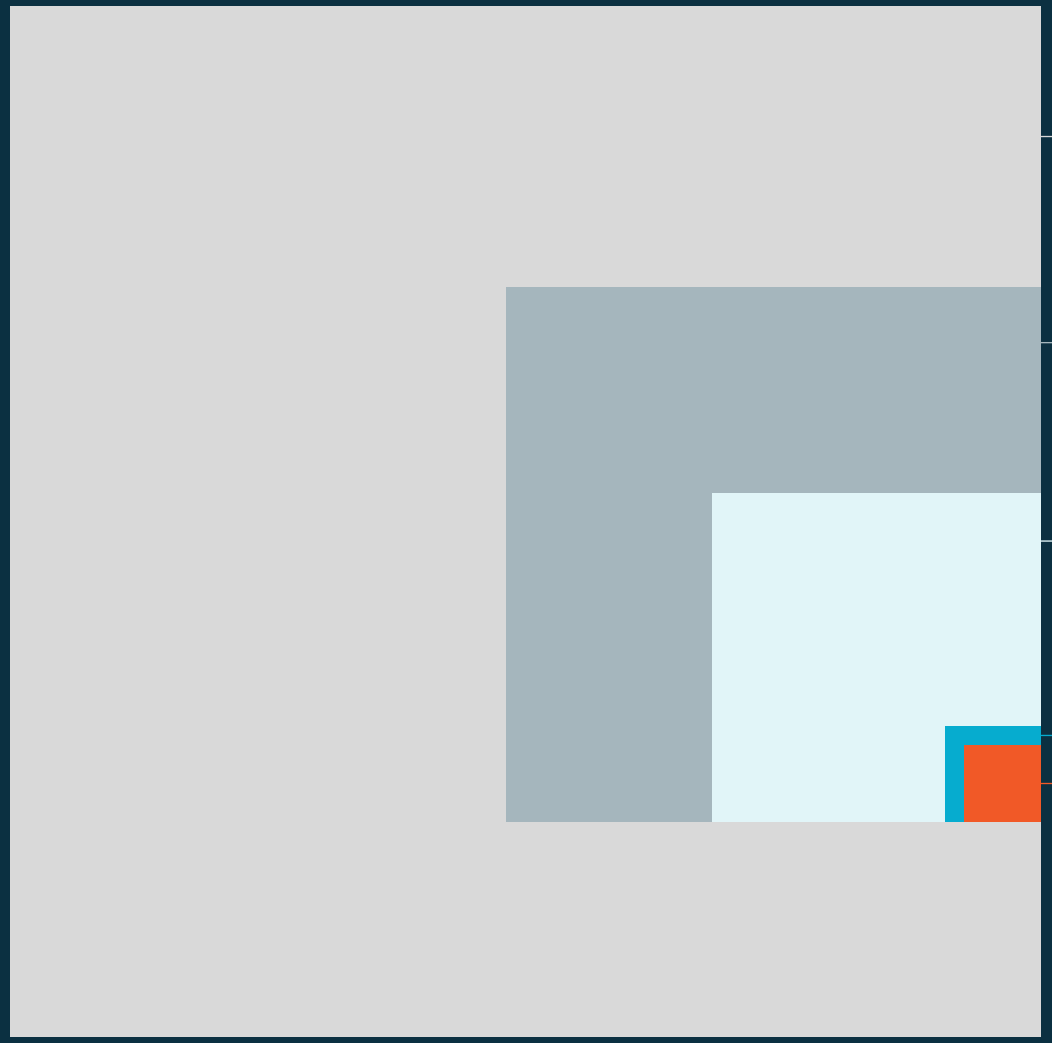


Note: This represents all revenue disbursed to the states. Except for Alaska, states receive 50% of extractive revenue paid to the federal government from leases on federal land in that state. Alaska receives 90%, dating back to the Alaska Statehood Act.

AXPC

Source: Department of the Interior

Federal Lands Provide Globally Significant Production on a Small US Footprint



TOTAL US LAND **2,430** million acres

FEDERALLY OWNED LAND **657** million acres

MANAGED BY BLM **245** million acres

LEASED FOR PRODUCTION **24** million acres

ACTIVELY PRODUCING **16** million acres

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

In 2023, **54%** of oil and gas leases were actively producing; remaining leases are going through a complex regulatory process

Source: Bureau of Land Management Data

Federal Lands Production Takes Years, Subject to Delays/Litigation

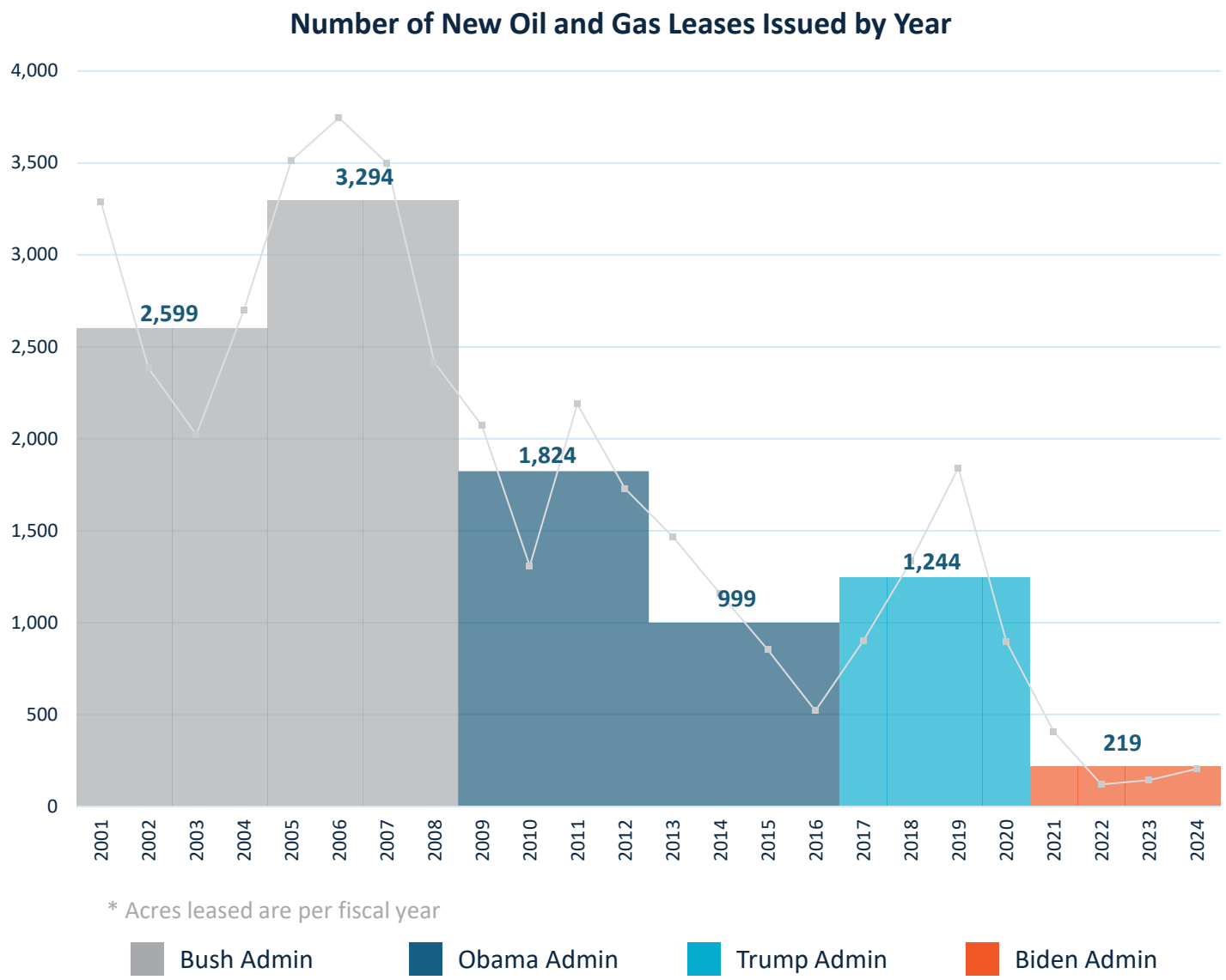
Land Use Planning	Leasing	Permitting	Exploration & Development	Production	Reclamation
▪ BLM performs public land use planning to determine how federal lands can be used, inc. which lands will be available for oil & gas development vs. other uses (recreation, grazing, etc.)	▪ Companies nominate parcels & wait for DOI to evaluate them & put them up for sale ▪ Nominated lands are subject to extensive NEPA analysis, public comment periods ▪ BLM assigns operational stipulations to parcels & holds lease sales	▪ Additional NEPA analysis (EA or EIS) is performed across broader operational area ▪ Companies then submit an Application for Permit to Drill (APD), which is informed by surveys & more environmental analysis ▪ BLM approves or denies APDs	▪ Companies conduct detailed exploratory work ▪ Formulate a plan of development ▪ Install production facilities/ infrastructure ▪ Drill/complete wells	▪ The wells are put into production, monitored, and maintained for the life of the well.	▪ Operators work with federal & state agencies on all reclamation activities, inc. ecosystem & biodiversity restoration ▪ Reclaiming lands used for well pads, roads, rights of way, etc. back to their original state is a critical component of responsible development
3 – 10 Years	1 – 3 Years	2 – 5 Years	1 Year	20+ Years	Ongoing

Litigation, Delays

Comparison of Leasing Activity by Administration

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 – new production takes years to come on line after a lease is secured



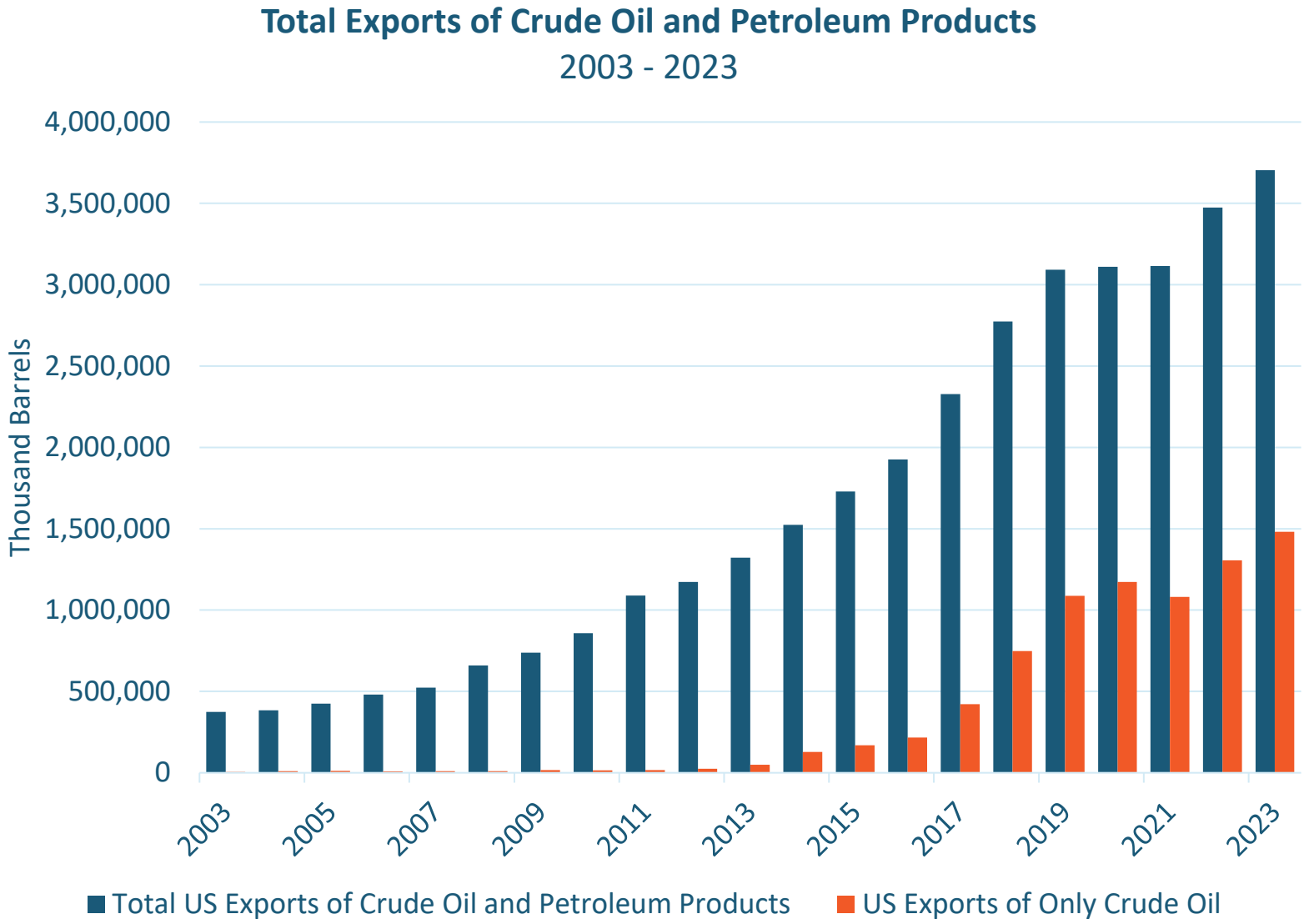
Source: Federal Oil Leases Slow to a Trickle Under Biden - WSJ

US Energy Exports

US Crude Exports Ban Lifted with Bipartisan Support in 2015

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 US crude oil worldwide

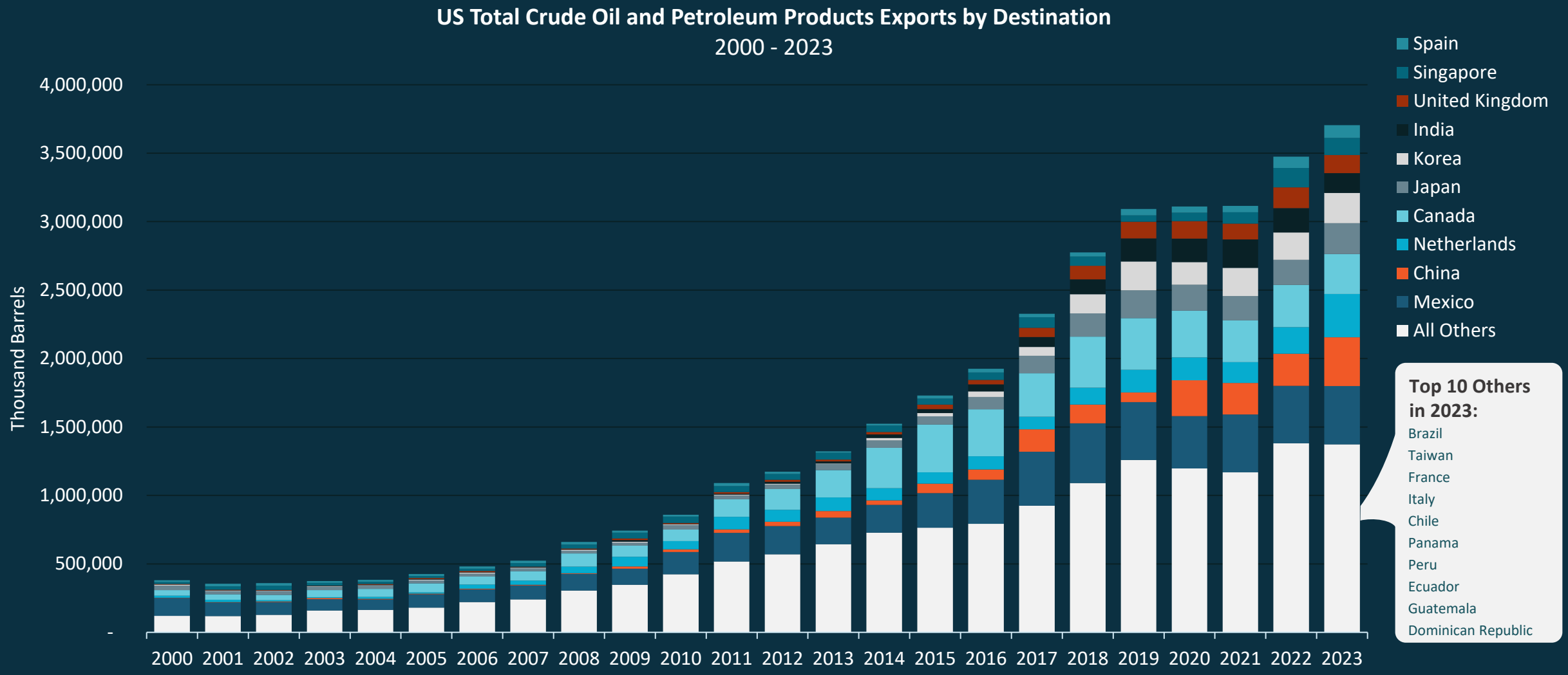
Since the US started exporting crude, global oil prices were reduced by $1.93 per barrel over the six-year period studied



Source: Energy Information Administration

Exports of US Crude and Petroleum Products are Sent Around the World

US Oil Exports Support Global Energy Security



Source: Energy Information Administration

Liquified Natural Gas 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

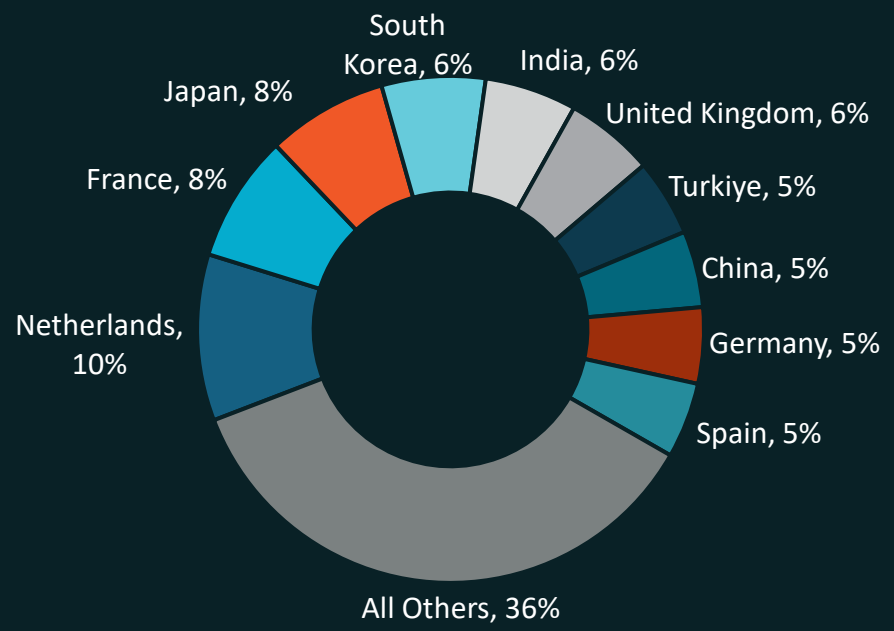
Regasification and End Use

The LNG is delivered to regassification 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

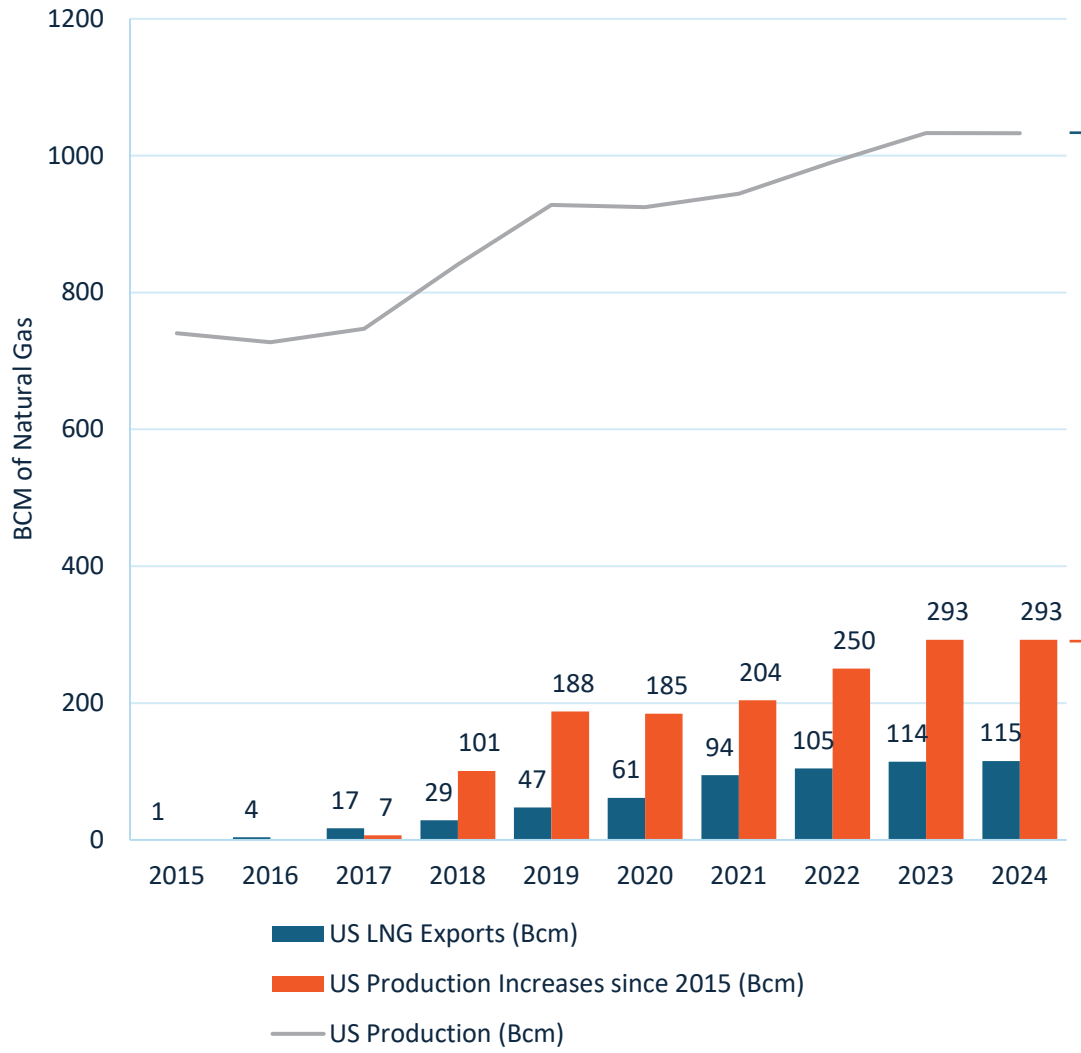
US LNG Around the Globe

Since 2015 when the US began exporting LNG, we have become the world's leading supplier, moving ahead of Qatar and Australia in 2023

Where US LNG was Exported in 2024:



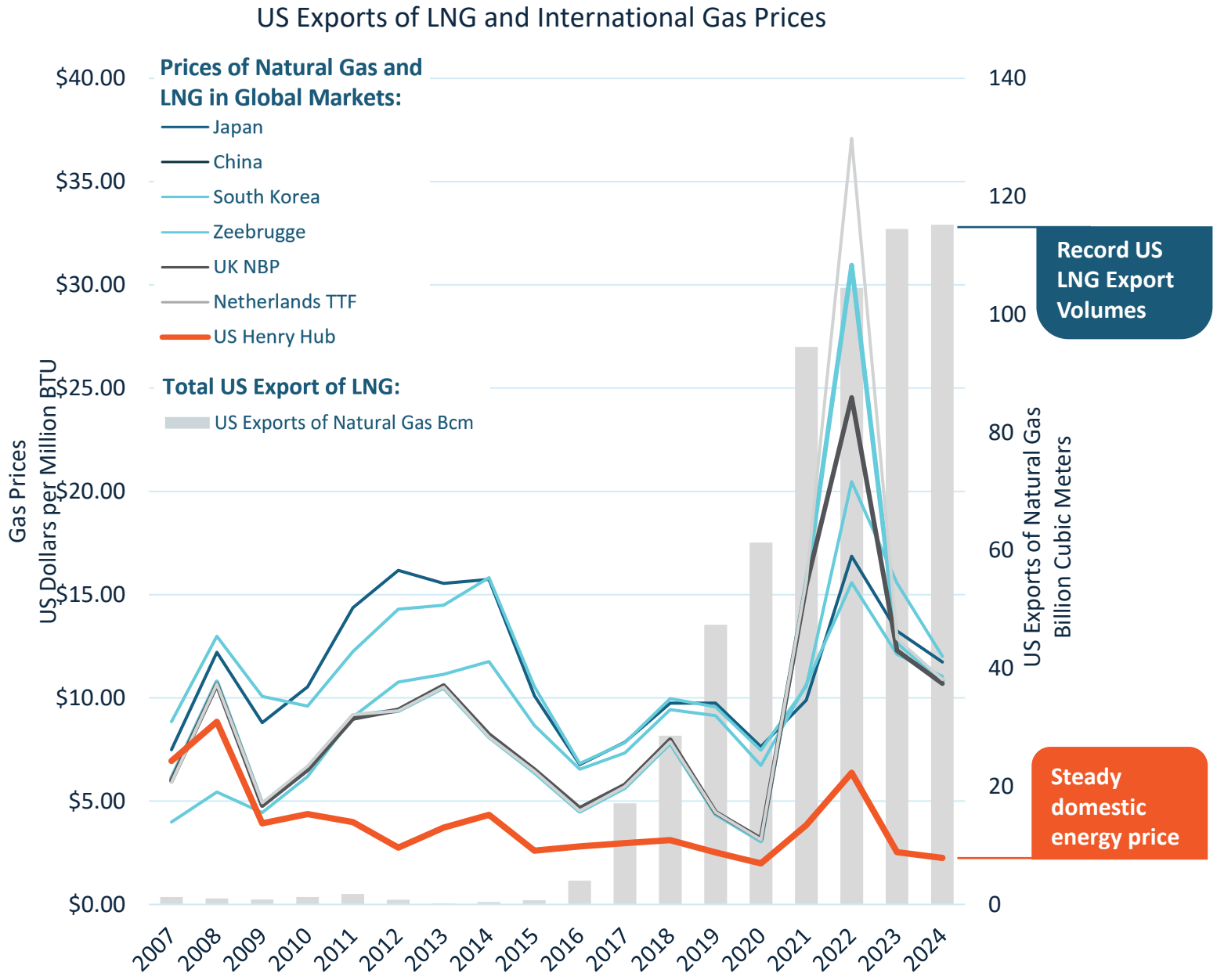
Total US LNG Exports
2015 - 2024



Source: Energy Information Administration

Increasing LNG Exports, Stable Domestic Prices

Since the Shale Revolution in 2005 and the first export of LNG in 2015, the US's domestic gas prices (Henry Hub) have remained lower and more stable as domestic production insulated the US to the volatility experienced abroad.

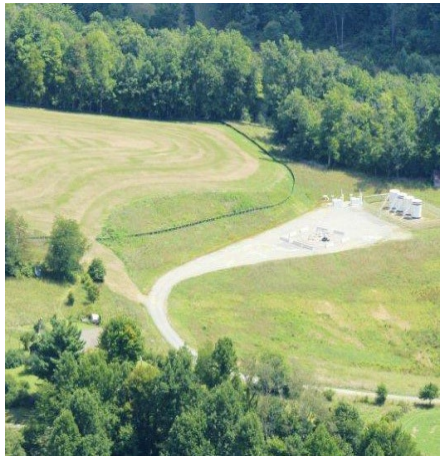


Source: Energy Institute Statistical Review of Energy

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

What is Hydraulic Fracturing?

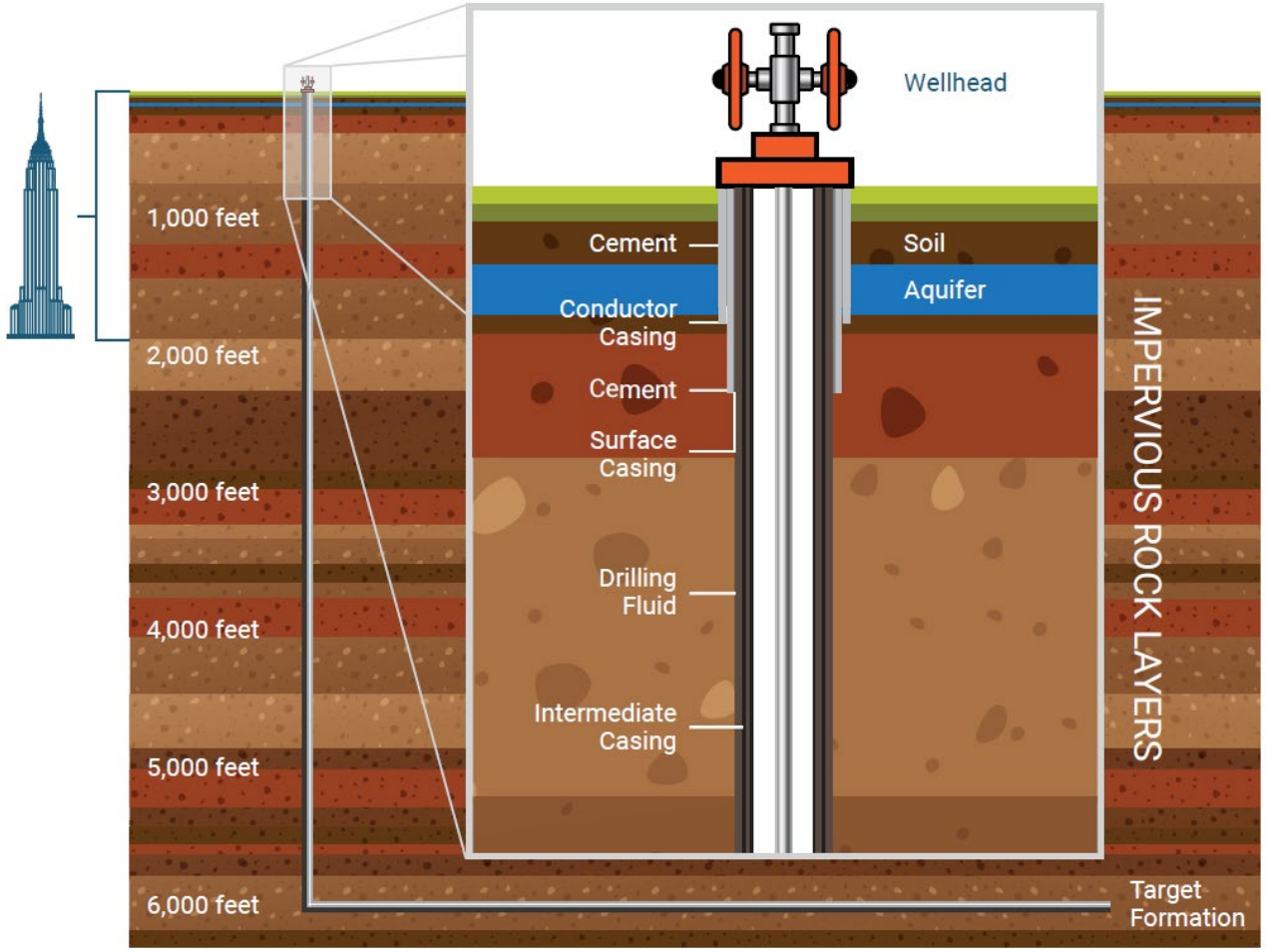
Fracking is a well stimulation technique that has been employed by the oil and gas industry since 1947

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?

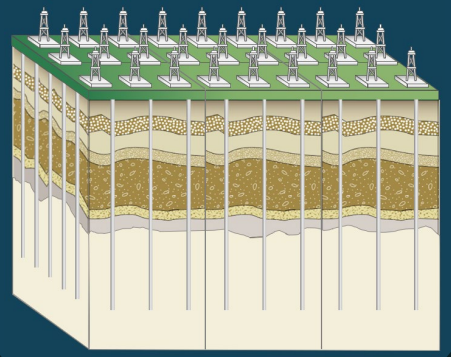
Hydraulic fracturing is generally associated with horizontal drilling practices or “drilling sideways”

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



Innovation in the Oil and Gas Industry

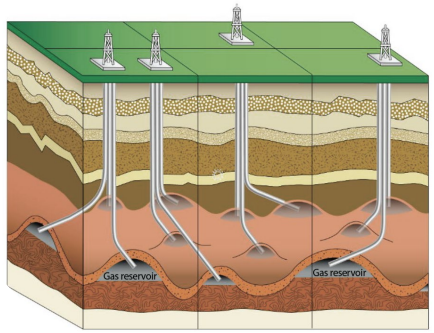
Technology and Modernization has Reduced the Industry's Physical Footprint



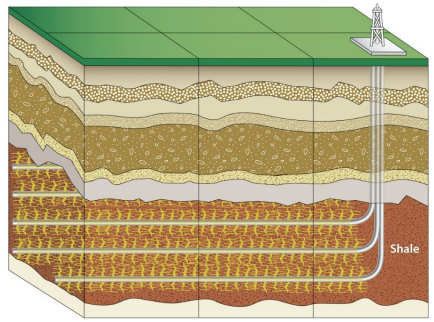
Conventional/Vertical Drilling

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



Hydraulic Fracturing

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

Natural Gas for Electricity Generation

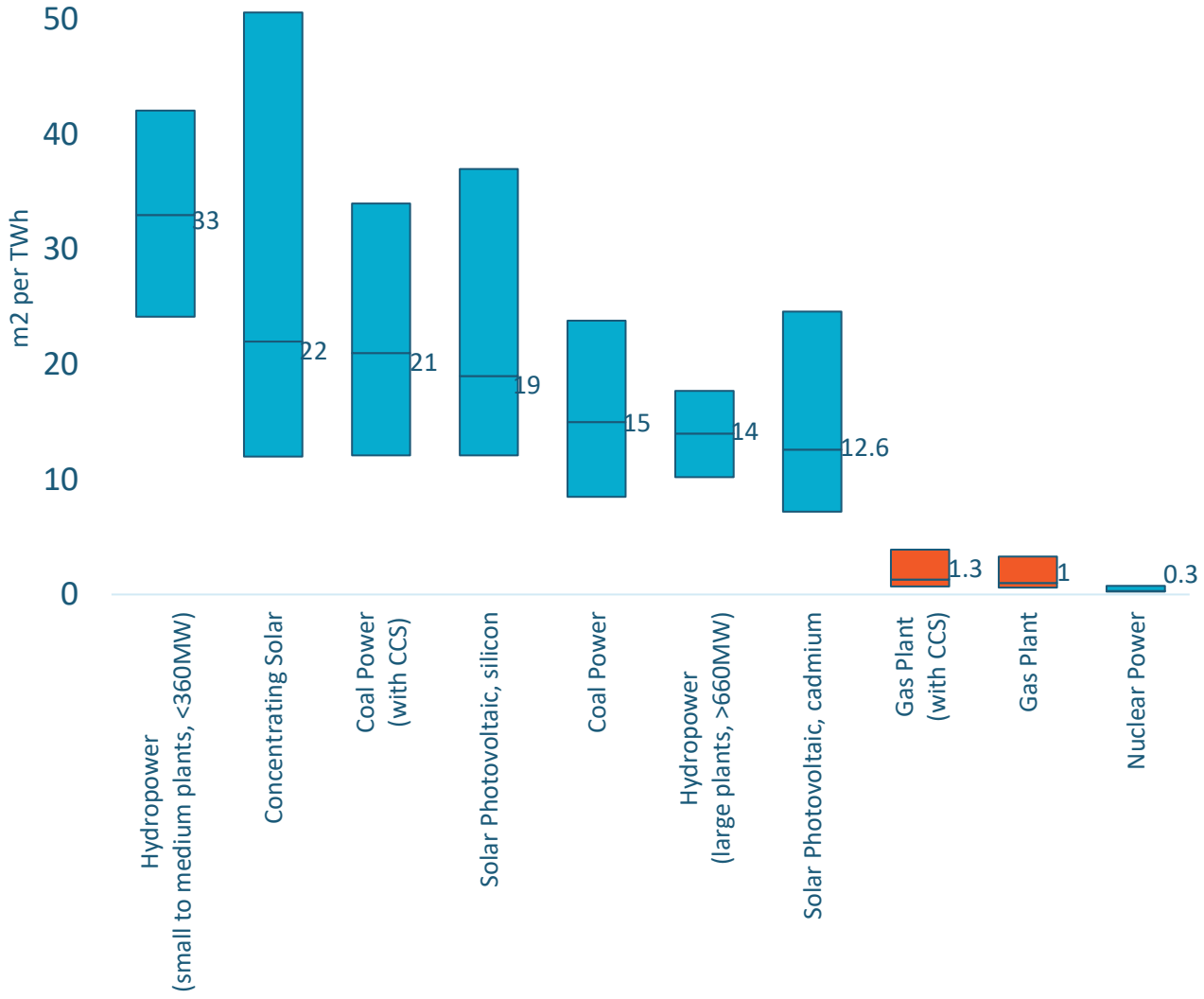
All forms of energy generation require raw materials, whether drilling for oil or natural gas, or mining and disposing of materials.

Minimizing land use is critical to preserving biodiversity and reducing impacts to wildlife.

Natural gas–fired power plants have one of the lowest land-use footprints per unit of energy produced — **more than 12 times lower than traditional PV solar installations.**

Total Land Occupation per Energy Output

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



Source: Life Cycle Assessment of Electricity Generation, United Nations Economic Commission for Europe

Who Regulates the Oil and Gas Industry?

One of the most highly regulated industries in the country

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.

US Department of the Interior (DOI)

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.

AXPC

Industry activities are heavily governed by state/federal regulations

- ✓ Well drilling and operations
- ✓ Spacing and site selection
- ✓ Stormwater 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

AXPC