OFFICE OF OIL AND GAS

Powering American Energy Leadership Through Innovation

America's abundant oil and natural gas resources are a foundation of our energy security, economic strength, and global leadership. They fuel transportation, generate reliable electricity, heat homes and businesses, supply essential materials for manufacturing and agriculture, and support thousands of products Americans use every day.

The Office of Oil and Gas within the U.S. Department of Energy's Hydrocarbons and Geothermal Energy Office (HGEO) is working with **industry**, **universities**, **other federal** and **state agencies**, and **DOE National Laboratories**.

AMERICA LEADS THE WORLD

#1

IN OIL PRODUCTION

14 million barrels
OF CRUDE OIL PER DAY

The U.S. leads the world in crude oil production and is on track for record production in 2026.

#1

IN NATURAL GAS PRODUCTION

122.5 billion
CUBIC FEET PER DAY

The U.S. is on track to produce a record amount of marketed natural gas in 2026, continuing its position as the world's largest natural gas producer since 2011.

41%

Natural gas was America's largest source of utility-scale electricity generation in 2025, providing approximately

41% OF THE NATION'S ELECTRICITY

RECORD ENERGY EXPORTS

U.S. energy exports reached a record

31 quadrillion Btu
IN 2025

(the equivalent of roughly 1.3 billion barrels of oil) and a record

11 quadrillion Btu
OF NET ENERGY EXPORTS.

OIL & GAS ARE MORE THAN FUEL

They are the building blocks for modern life. Hydrocarbon-derived feedstocks help make products and countless manufactured goods.

- Medical Equipment
- Electronics
- Clothing
- Fertilizers
- Detergents
- Building Materials
- Asphalt
- Computers
- Smart Phones

HGEO OIL & GAS INNOVATION

HGEO advances oil and gas research, development, and demonstration across three divisions **Production**; **Transportation & Storage**; and **Power**, **Fuels & Chemicals**. Each area is focused on moving promising technologies from the laboratory toward real-world deployment.

CASE STUDY 1

UNLOCK MORE DOMESTIC OIL

~10% **of oil in unconventional shale formations is typically recovered**

DOE is investing **$36 million** in a University of North Dakota Energy & Environmental Research Center program combining **six field pilots** with laboratory research, modeling, Super Intelligence, and field data to advance enhanced oil recovery in the underground Bakken Formation. There is potential to unlock **billions of additional barrels of domestic oil**.



CASE STUDY 2

TURN PRODUCED WATER INTO A RESOURCE

1,000 GALLONS/DAY

A New Mexico Tech pilot is designed to recover high-purity water and lithium from up to 1,000 gallons of produced water per day. It is among DOE-supported projects developing technologies to recover **usable water**, **lithium and other valuable minerals**, **fertilizer inputs**, and **industrial materials** while reducing water requiring disposal during oil and gas extraction.



CASE STUDY 3

UNLOCK TOMORROW'S NATURAL GAS RESOURCES

164× **One cubic meter of methane hydrate can release about 164 cubic meters of natural gas**

DOE and its partners completed a landmark long-term production test at **Prudhoe Bay on Alaska's North Slope** to evaluate the potential of methane hydrates as a future natural gas resource. The field data are helping researchers understand how these vast, naturally occurring resources could be safely and efficiently produced.

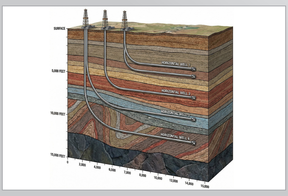


CASE STUDY 4

USE DATA TO ENABLE SMART WELLS

~70% **of new wells are drilled near existing producing wells**

HGEO and National Energy Technology Laboratory researchers are studying how wells communicate underground via fluid movement. Better information about these interactions between wells can help operators **optimize hydraulic fracturing, improve recovery, and manage unwanted fluid communication and associated water production.**





"Our innovation with oil and gas is allowing America to get more from the resources and infrastructure we already have."

Curt Coccodrilli,
Acting Assistant Secretary, HGEO

THE GOAL

More energy from American resources. Lower production costs. More reliable infrastructure. More value from every barrel, molecule, and gallon of produced water.

Through applied science, field demonstrations, and partnerships, HGEO is helping U.S. oil and natural gas continue powering American prosperity and energy security. Our innovations strengthen America's position as a global energy leader.

Note: Data is courtesy of the U.S. Energy Information Administration (EIA).

Learn more: energy.gov/hgeo/office-oil-and-gas

October 2026

U.S. DEPARTMENT of ENERGY | Hydrocarbons and Geothermal Energy Office