

HYDRAULIC FRACTURING FACTS

Source unless otherwise cited: American Petroleum Institute

WHAT IS HYDRAULIC FRACTURING?

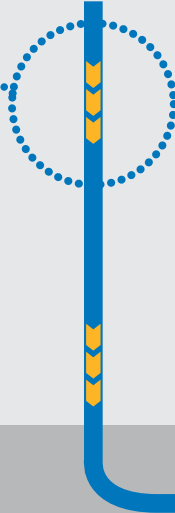
HYDRAULIC FRACTURING FLUID

is pumped down gas wells at a high pressure to open up space where the gas is trapped. This provides a pathway for the gas to escape into the well and to rise to the surface for collection.



- 0.5% CHEMICAL ADDITIVES
- 9.5% SAND
- 90% WATER

Natural gas and oil are trapped within shale formations.



4 EMPIRE STATE BUILDINGS

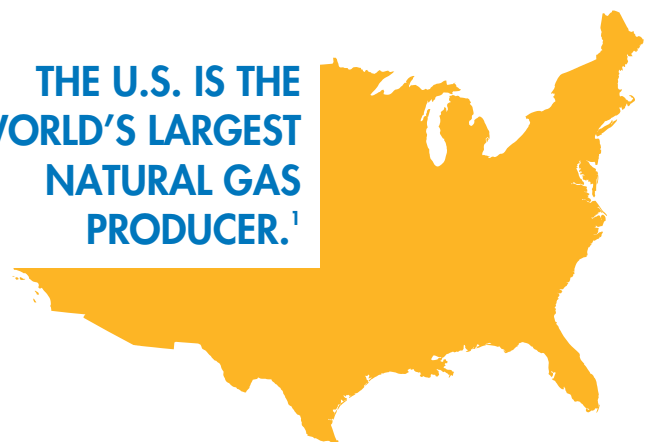
Hydraulic fracturing typically takes place **A MILE OR MORE BELOW THE SURFACE**, so underground water supplies and fracturing operations are separated by thousands of feet of impermeable rock.

BENEFITS OF HYDRAULIC FRACTURING

Supported 2.1 million jobs in 2012; 3.9 million jobs are expected to be supported in 2025.²



THE U.S. IS THE WORLD'S LARGEST NATURAL GAS PRODUCER.¹



A \$1.6 trillion increase in revenues to federal, state and local governments is expected from 2012–2025.²

Hydraulic fracturing currently accounts for **45%** of U.S. oil and **60%** of U.S. natural gas production.¹

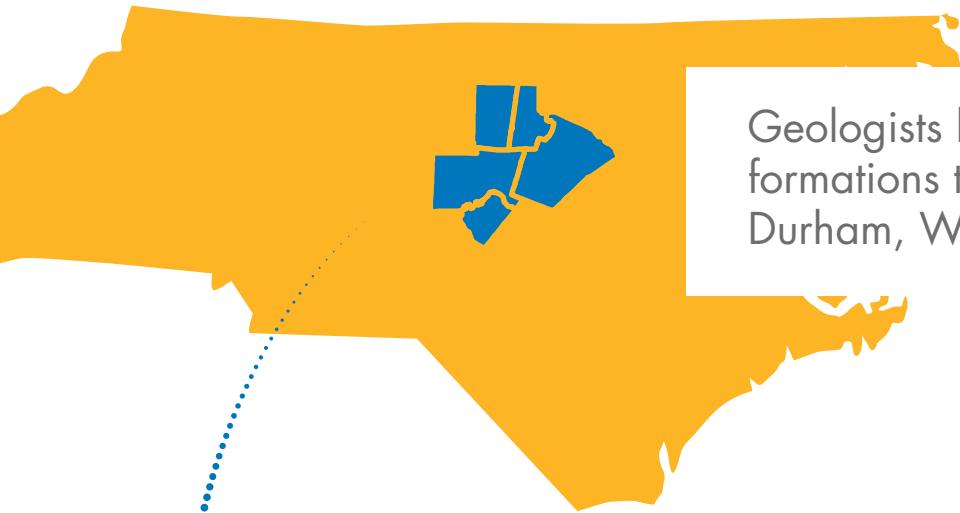


HYDRAULIC FRACTURING INCREASED THE U.S. GDP BY \$284 BILLION IN 2012.

A \$533 billion increase is expected in 2025.²



NORTH CAROLINA AND HYDRAULIC FRACTURING



Geologists have identified natural gas shale formations throughout parts of Lee, Chatham, Durham, Wake and Orange counties.



RESOURCE ESTIMATES = .66 trillion cubic feet of natural gas and 36 million barrels of natural gas liquids.³

Employment and economic impact

7-YEAR
infrastructure development period

496 JOBS
created

\$80 MILLION
in spending each year

\$4.9 MILLION
in state and local public revenues every year³

20-YEAR
production period

1406 JOBS
created

\$158 MILLION
in spending every year

\$9.6 MILLION
in state and local public revenues every year for 20 years³

SAFETY AND ENVIRONMENTAL PROTECTION



OIL AND NATURAL GAS DRILLING IS EFFECTIVELY REGULATED BY STATE GOVERNMENTS.

State regulators continually review their regulations through collaborative efforts with the oil and natural gas industry and also with public-private partnerships like FracFocus,

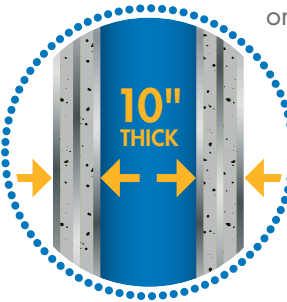
the State Review of Oil and Natural Gas Environmental Regulations and the Groundwater Protection Council.



Through the efforts of the natural gas and oil industry to promote transparency, companies now voluntarily disclose the contents of fluids on FracFocus.org, run by the Groundwater Protection Council.

Natural gas and oil wells contain **MULTIPLE LAYERS OF STEEL CASING AND CEMENT TO PROTECT GROUNDWATER.**

There are about 10" of steel and concrete shielding underground aquifers. That's comparable to an armored door on a bank vault.



Along with natural gas and oil production, wells can also produce wastewater. This **WASTEWATER IS COLLECTED AT THE SURFACE AND RECYCLED** for future use or carefully disposed of in compliance with the Clean Water Act, the Safe Drinking Water Act and appropriate state regulations.

Sources:

1. EIA, *Annual Energy Outlook 2014 Early Release*; 2. IHS, *America's New Energy Future: The Unconventional Oil and Natural Gas Revolution and the U.S. Economy, Volume 3: A Manufacturing Renaissance*, September 2013; 3. Dr. Michael Walden, NCSU, *The Economic Potential From Developing North Carolina's On-Shore and Off-Shore Energy Resources*, April 2013.