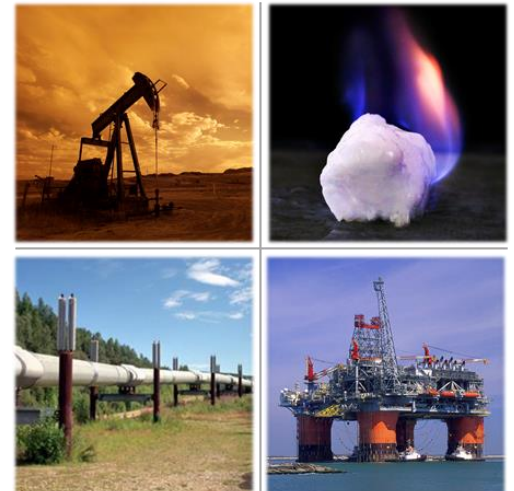


DOE Oil and Natural Gas Update

Shawn Bennett
Deputy Assistant Secretary
Office of Oil and Natural Gas

August 26, 2019
2019 IOGCC Annual Conference

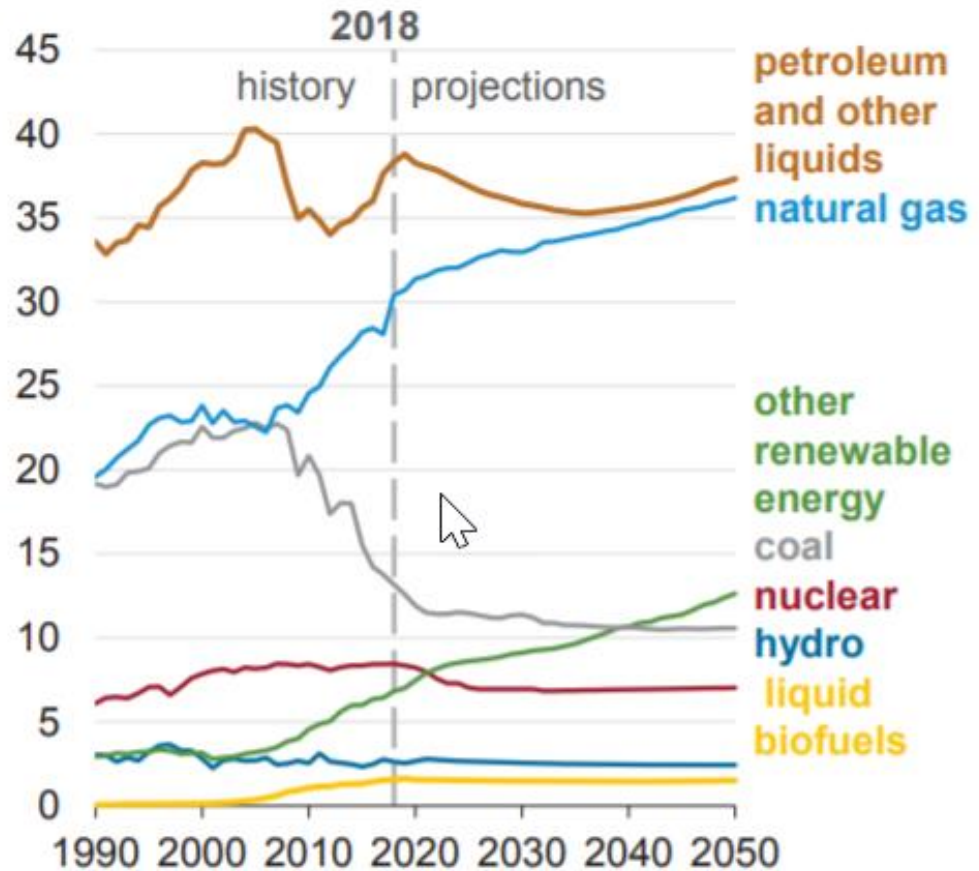


Oil and Natural Gas Continue to Fuel the Economy

Key elements:

- Energy dominance – expanded energy supplies for economic growth and energy security for the U.S. and its allies
- U.S. technological leadership
- Streamlined regulation, less red tape
- Federal-State collaboration

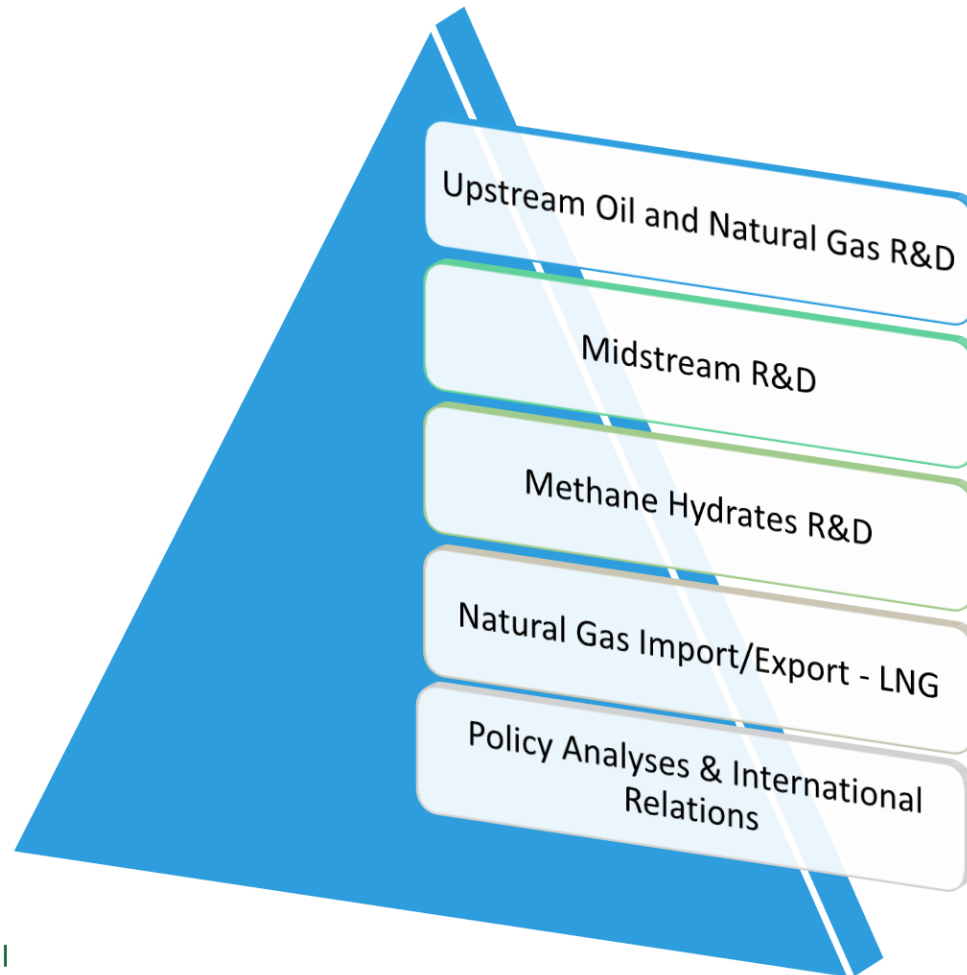
Energy consumption by fuel (Reference case)
quadrillion British thermal units



Source: EIA, Annual Energy Outlook 2019

DOE Oil and Natural Gas Program

Mission: Maximize the value of U.S. oil and gas resources to the public and ensure their responsible development and delivery through policy, research, innovation, and outreach



DOE Field Laboratories: Basin-specific Research

First Ever Field Pilot on Alaska's North Slope to Validate the Use of Polymer Floods for Heavy Oil EOR

Bakken Rich Gas Enhanced Oil Recovery

Marcellus Shale Energy and Environment Laboratory

Hydraulic Fracture Test Site II

Field Laboratory for Emerging Stacked Unconventional Plays in Central Appalachia

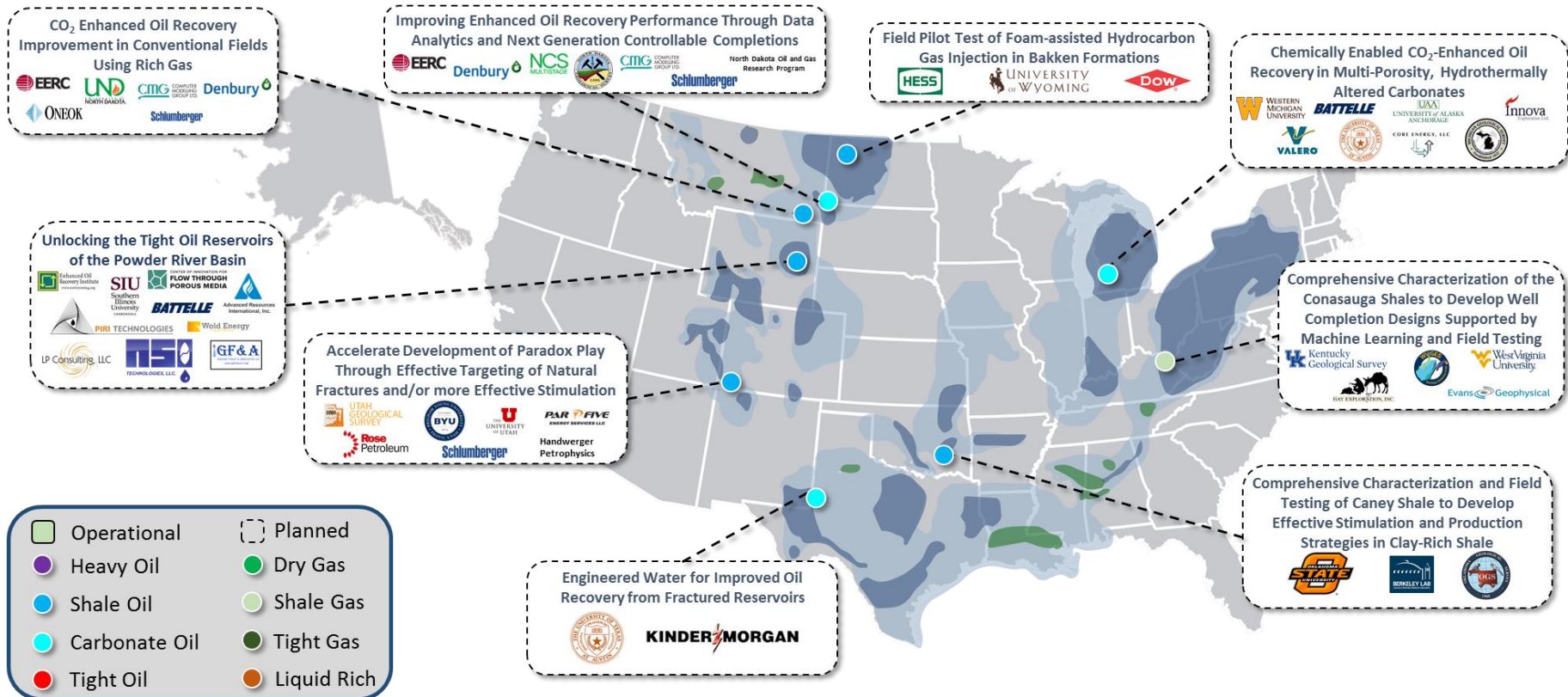
Hydraulic Fracture Test Site

The Eagle Ford Shale Laboratory

Tuscaloosa Marine Shale Laboratory

Operational	Planned
Heavy Oil	Dry Gas
Shale Oil	Shale Gas
Carbonate Oil	Tight Gas
Tight Oil	Liquid Rich

Nine Potential New DOE Field Labs



DOE Field Lab Partners



2018

Potential New Doe Field Lab Partners

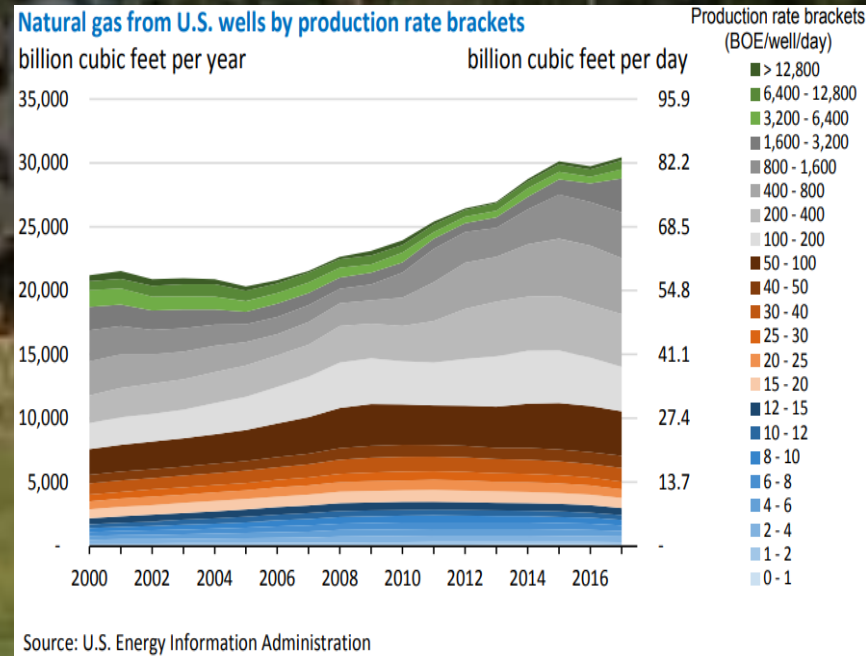
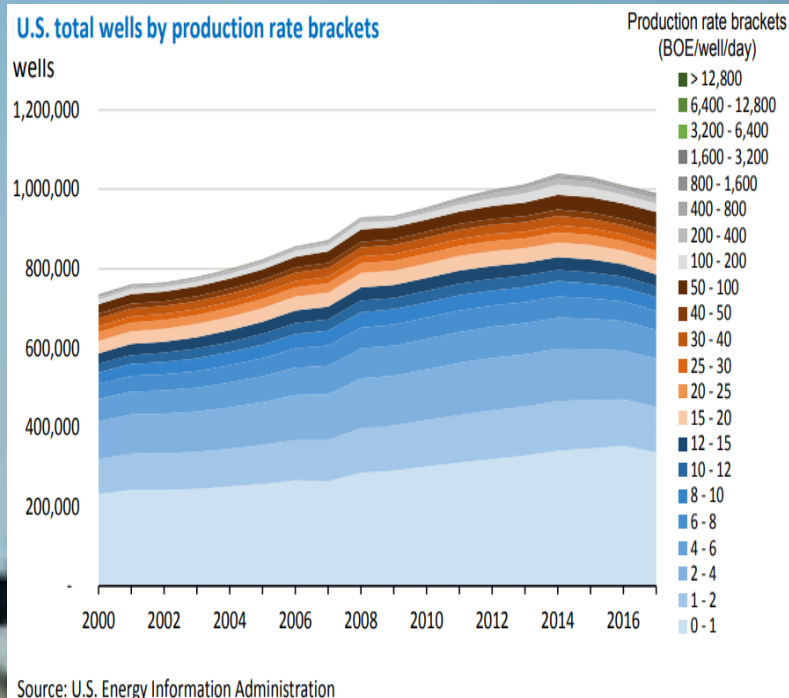
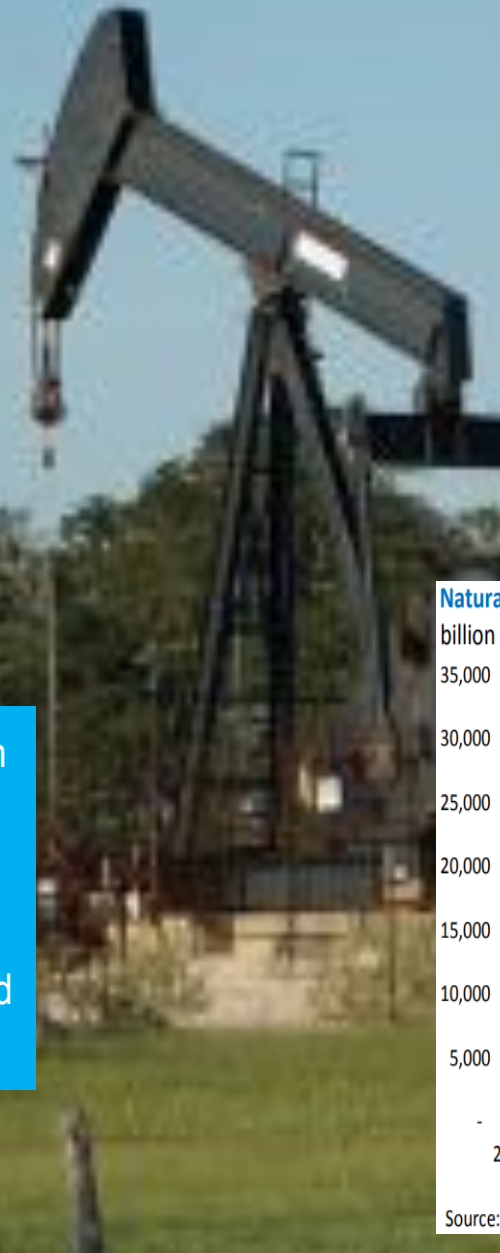


Marginal Oil and Gas Wells

DOE Undertakes Study to Quantify Methane Emissions from Marginal Oil and Gas Wells. Fall 2018.

In 2017, 81% of the nearly 1 million U.S. wells produced 15 or fewer BOE per day.

These “marginal wells” accounted for 15.2% of U.S. oil production and 10.6% of natural gas production.

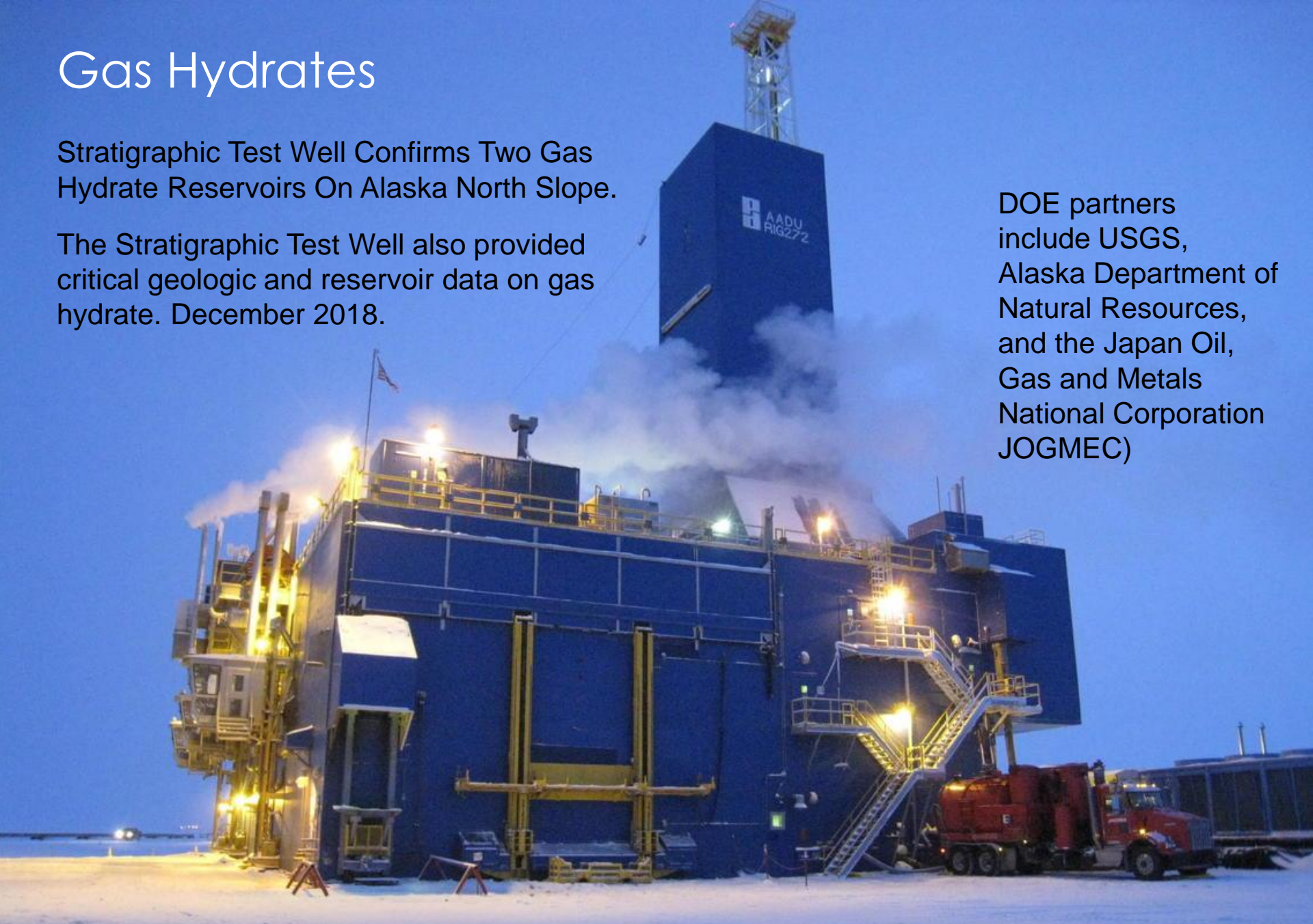


Gas Hydrates

Stratigraphic Test Well Confirms Two Gas Hydrate Reservoirs On Alaska North Slope.

The Stratigraphic Test Well also provided critical geologic and reservoir data on gas hydrate. December 2018.

DOE partners include USGS, Alaska Department of Natural Resources, and the Japan Oil, Gas and Metals National Corporation (JOGMEC)



The Parker 272 drilling rig on location of the Hydrate 01 Stratigraphic Test Well drill site in the Prudhoe Bay Unit, December 2018 (Credit: JOGMEC).

WATER CROSSCUTS DOE AND OUR COLLABORATION WITH STATES

DOE Water Security Grand Challenge. DOE, USGS and EPA are partnering to transform produced water from a waste to a resource. Initial workshop Oct. 2018.



States Leveraging Efforts to Enable Informed Regulatory Decision Making and Increased Transparency.

★ **Risk Based Data Management System (RBDMS).** Over 20 states and the Osage Nation use RBDMS -- an integrated suite of data management tools -- for managing oil and gas regulatory data. Launched in 1992 with DOE support. With **NorthStar**, North Dakota is undertaking a major system upgrade, adapting new innovations previously developed for California **WellStar**.



FracFocus.org. Jointly sponsored by the Ground Water Protection Council and Interstate Oil and Gas Compact Commission. 26 states require or allow operators to use this national registry for the public disclosure of chemicals used in hydraulic fracturing.



Ground Water Protection Council releases its Produced Water Report which examines current regulations, practices, and research needed to expand the use of produced water, a byproduct of oil and gas production, as a resource. June 2019.



HYDRAULIC FRACTURING
HOW IT WORKS

GROUNDWATER
PROTECTION

CHEMICAL
USE

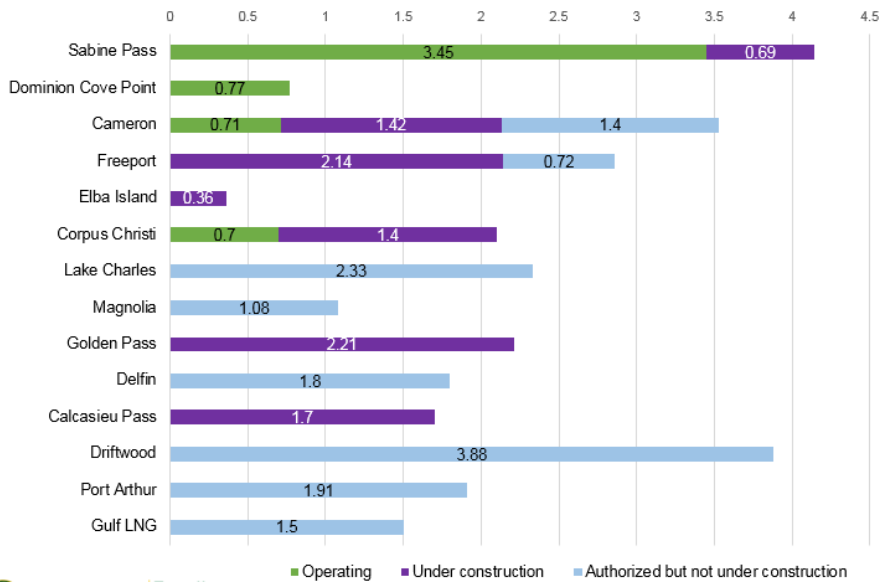
REGULATIONS
BY STATE

FIND A WELL
BY STATE

LNG Exports

U.S. Liquefied Natural Gas Export Continue Record Growth –36 Countries Receiving U.S. Natural Gas Exports as LNG

Fully Permitted Lower-48 LNG Export Projects Volumes in billion cubic feet per day (Bcf/d)



LNG Exports Since February 2016

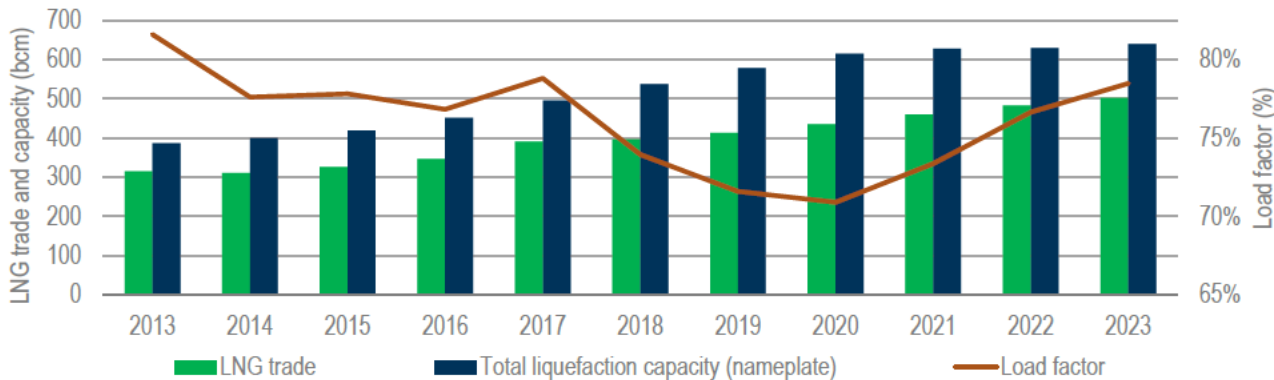
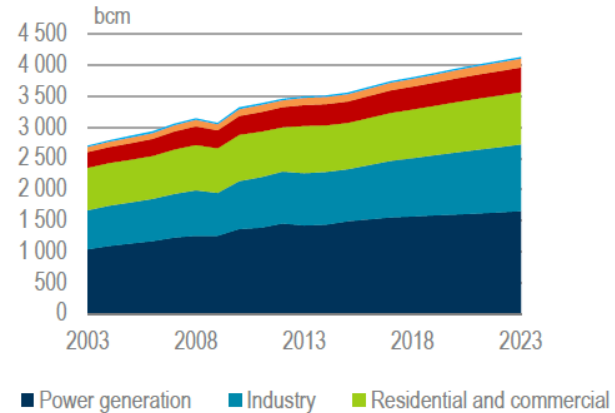


Region	Volume Exported (Bcf)	No. of Cargos
East Asia and Pacific	1,042	304
Europe and Central Asia	546	168
Latin America/Caribbean	797	262
Middle East and N. Africa	199	58
South Asia	164	48
Sub-Saharan Africa	0	0
TOTAL LNG EXPORTS	2,747	840

LNG Exports

Growing global demand for natural gas will continue to increase natural gas and LNG trade

Global Natural Gas Demand by Sector
2003-2023
Source: IEA



Global LNG Liquefaction Capacity and Utilization, 2013-2023
Source: IEA

Policy Analysis and International Relations

International Highlights

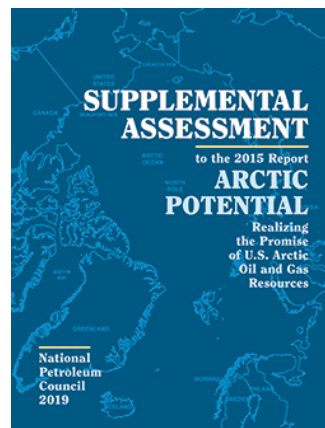
US-Israel Center of Excellence in Energy, Engineering and Water Technology. Call for Research Proposals. April 2019

US-India Economic Engagement. DOE is supporting a new industry-led initiative -- the **India Gas Task Force** – focused on ways the government of India can improve and modernize its natural gas markets, regulation and infrastructure.

Appalachian Manufacturing Opportunity

Ethane Storage and Distribution Hub. President Trump visits Shell's Petrochemical Cracker in Beaver County, Pennsylvania. August 2018. DOE's Report to Congress underscores the potential for expanded manufacturing in the region. December 2018.

National Petroleum Council



Carbon Capture, Storage and Utilization

In Process

U.S. Oil and Natural Gas Transportation Infrastructure

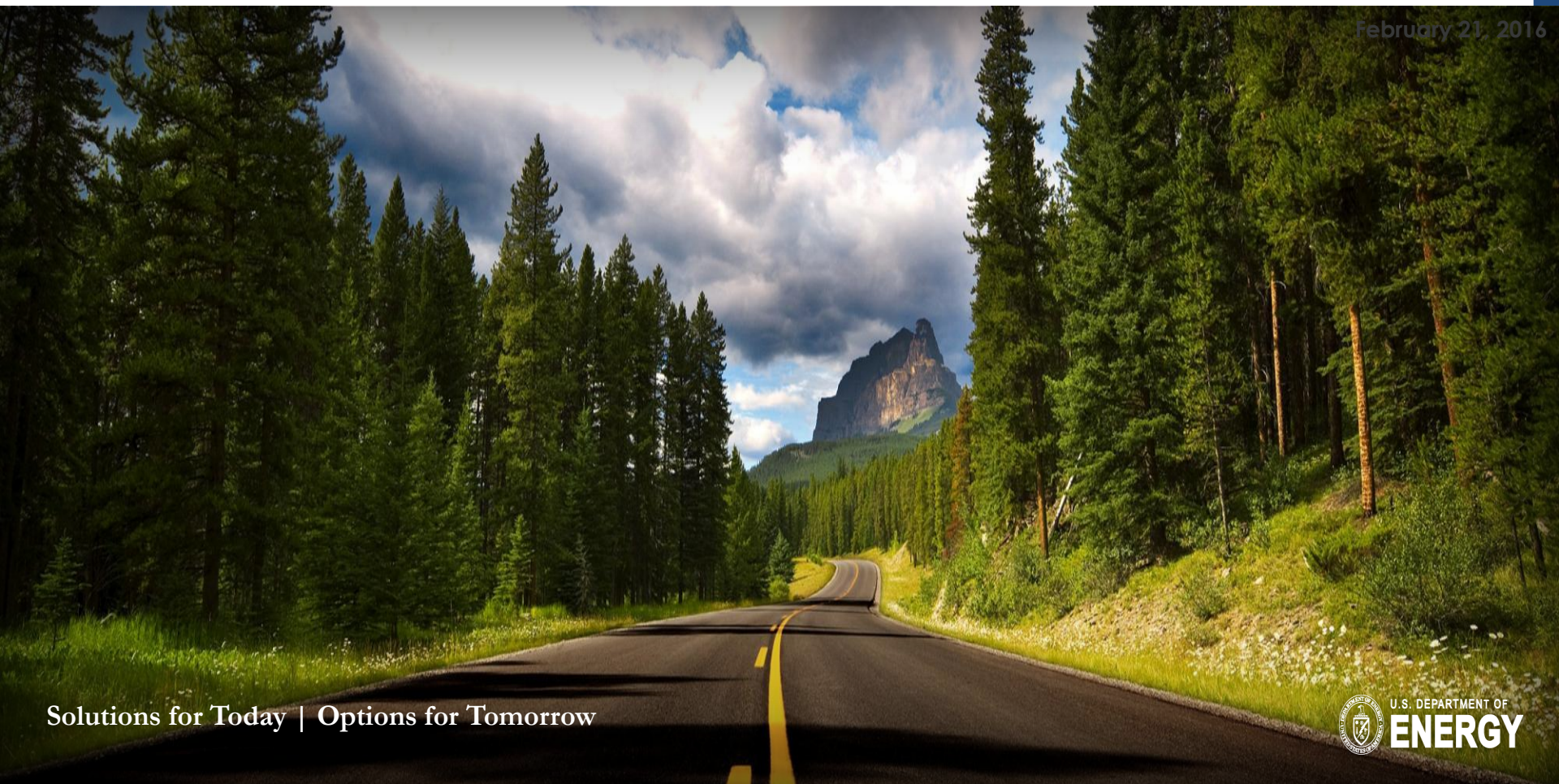
In Process



Office of Oil & Gas

February 21, 2016

www.energy.gov/fe/science-innovation/oil-gas-research
www.netl.doe.gov/research/oil-and-gas



Solutions for Today | Options for Tomorrow

