

# DOE Oil and Natural Gas Collaboration with States

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Ground Water Protection Council  
UIC Conference, San Antonio, Texas

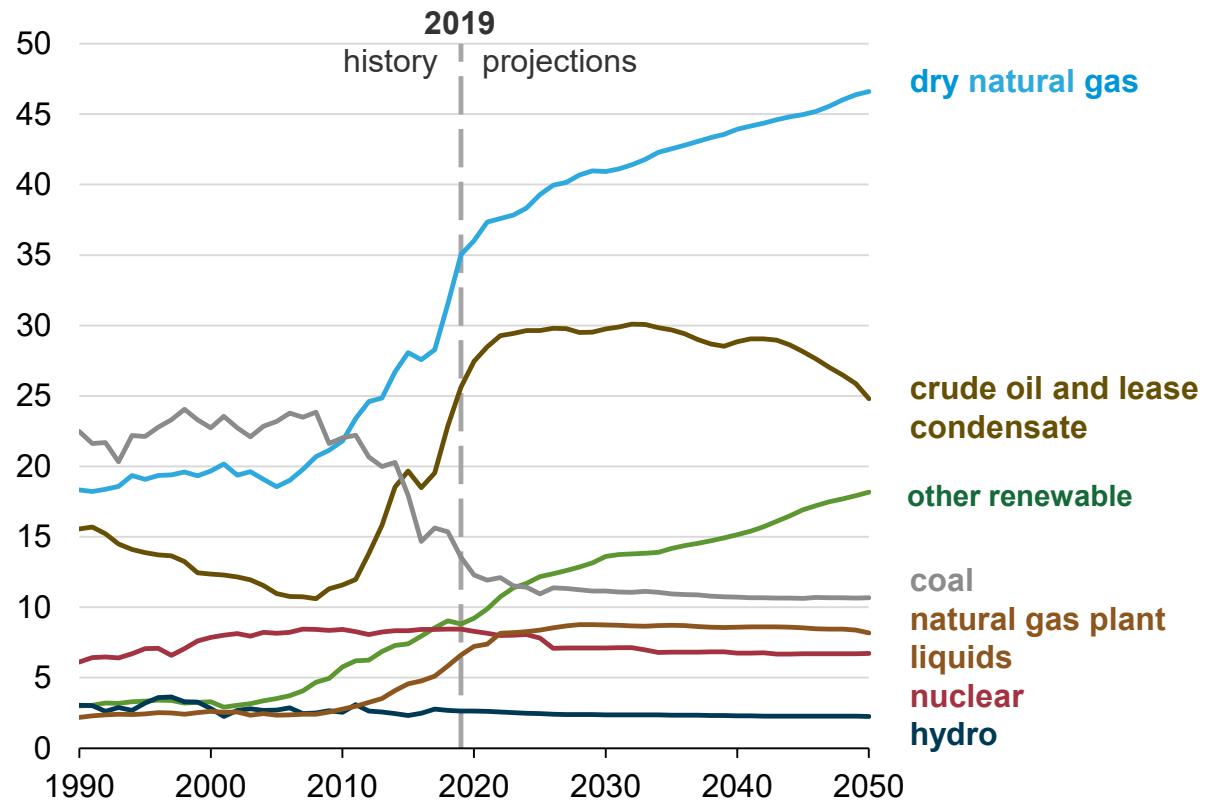


# Oil and Natural Gas Continue to Fuel the Economy

**Energy production (AEO2020 Reference case)**  
quadrillion British thermal units

## Key Elements:

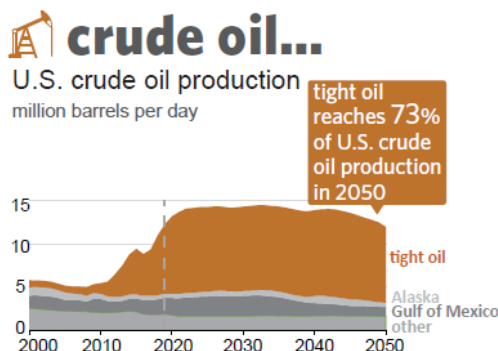
- Resources
- Technology
- Infrastructure
- Supportive regulatory/policy framework
- Federal-State collaboration



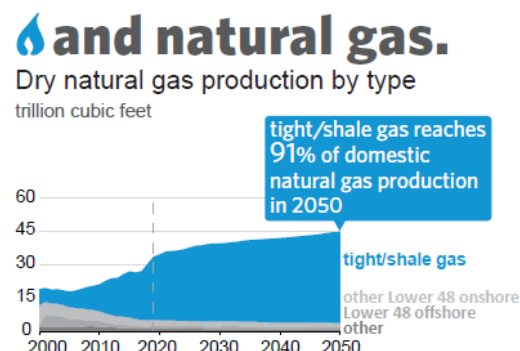
Source: EIA, Annual Energy Outlook 2020

# Expanded Energy Supplies for Economic Growth and Energy Security

**The United States continues to produce historically high levels of...**

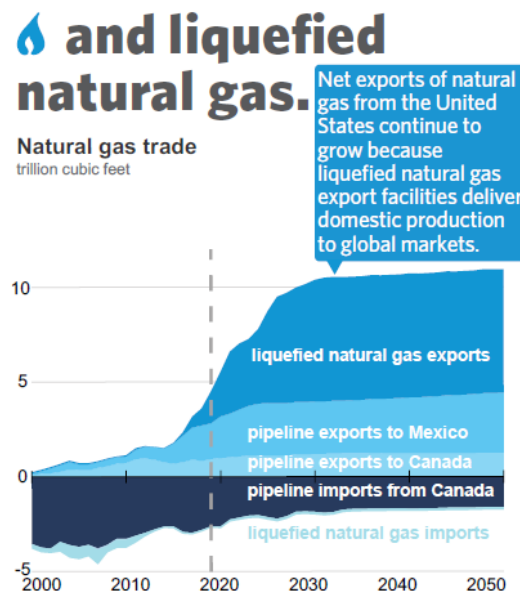
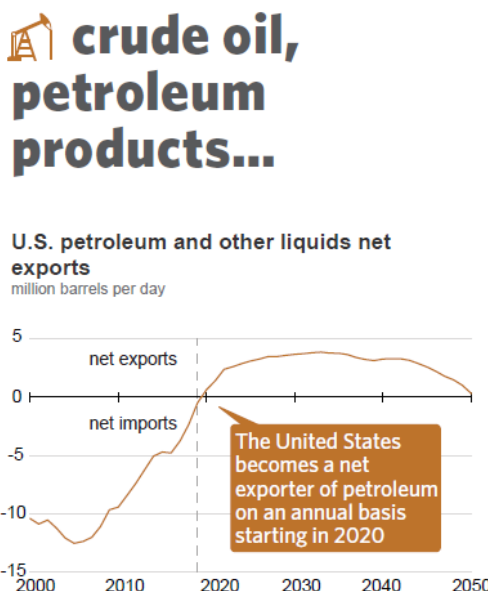


Tight oil development continues to be the main driver of total U.S. crude oil production.



Development of tight and shale resources continues to be the main driver of U.S. dry natural gas production.

**Slower growth in domestic consumption of these fuels leads to increasing exports of...**



Net exports of natural gas from the United States continue to grow because liquefied natural gas export facilities deliver domestic production to global markets.

Source: EIA, Annual Energy Outlook 2020



# DOE's 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

**Upstream Oil &  
Natural Gas R&D**

**Natural Gas  
Infrastructure R&D**



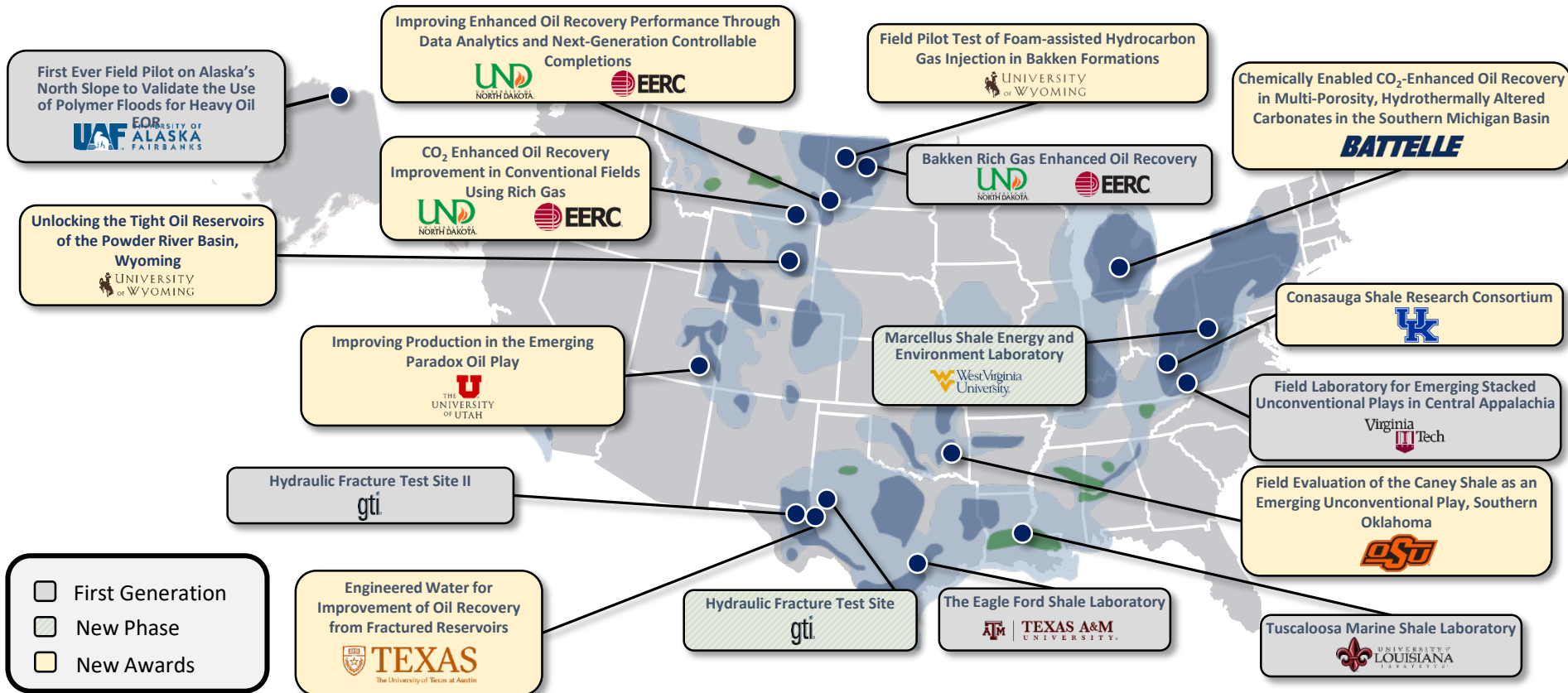
**Gas Hydrates R&D**



**Natural Gas  
Import/Export - LNG**

**Policy Analyses &  
International Relations**

## Field Laboratory Locations



# 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**. Texas **LoneSTAR** is under development.
- **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





# Address the Energy Water Nexus

Advance transformational technology and innovation to meet the global need for safe, secure, and affordable water. By 2030:

- ① Launch desalination technologies that deliver cost-competitive clean water.
- ② **Transform produced water from a waste to a resource.**
- ③ Achieve near-zero water impact for new thermoelectric power plants, and significantly lower freshwater use intensity within the existing fleet.
- ④ Double resource recovery from municipal wastewater.
- ⑤ Develop small, modular energy-water systems for urban, rural, tribal, national security, and disaster response settings.

## **White House Roundtable and Stakeholder Engagement.**

Secretary Perry convened leading experts on water quality in 2018 to discuss competitive prizes to catalyze innovation in critical water issues and a request for information to solicit public comments on key water issues that could be tackled through prizes and challenges.



# RBDMS: Data and Analytic Tools for State Regulators and Resource Managers



Developed by the GWPC and States in partnership with DOE, RBDMS is a suite of integrated modularized software products that assist states agencies in the effective regulation and oversight of oil, natural gas, injection and other facilities, and resource management.

## PRODUCTS



Core



eForms



Data Explorer



GIS Interface



RBDMS Wellbore



Seismic Monitoring



Field Inspection



RBDMS Environmental



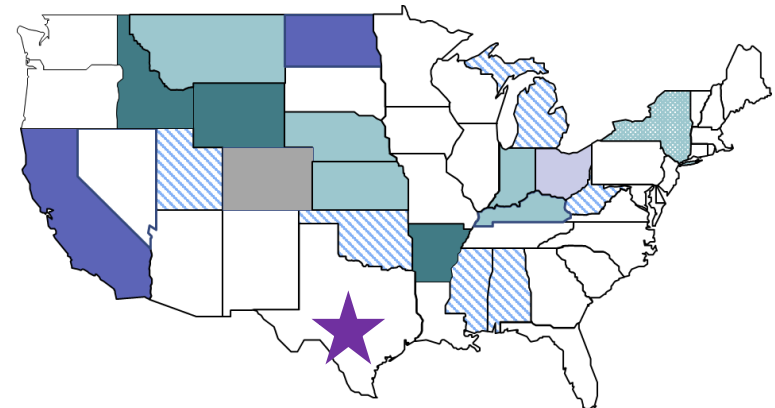
WellFinder



AOR



Gas Storage



Light blue: RBDMS Classic and modules  
Dark blue: RBDMS 3.0  
Hatched blue: RBDMS .Net and other modules  
Grey: eForms and other modules  
Light purple: RBDMS Classic upgrading to RICS

Dark blue: RBDMS 3.0  
Hatched blue: RBDMS .Net and other modules  
Grey: eForms and other modules

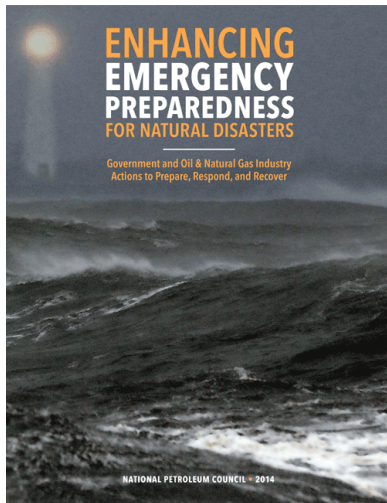




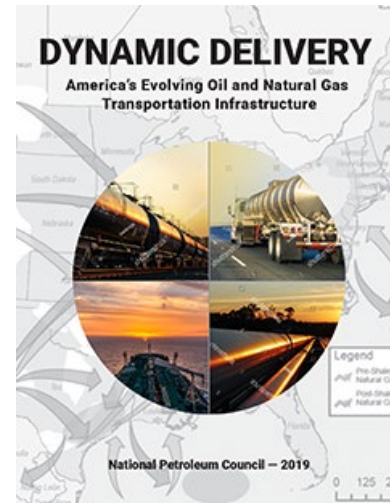
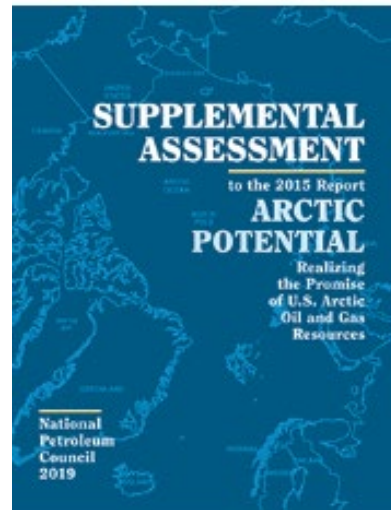
# Policy Analyses & International Relations

## NATIONAL PETROLEUM COUNCIL

- Federally chartered **advisory committee** that advises the Secretary of Energy on matters related to oil and natural gas and the oil and natural gas industries
- **Established in 1946** at request of President Truman
- Since its establishment, the **NPC has prepared over 200 reports** for the Department



2014



2019



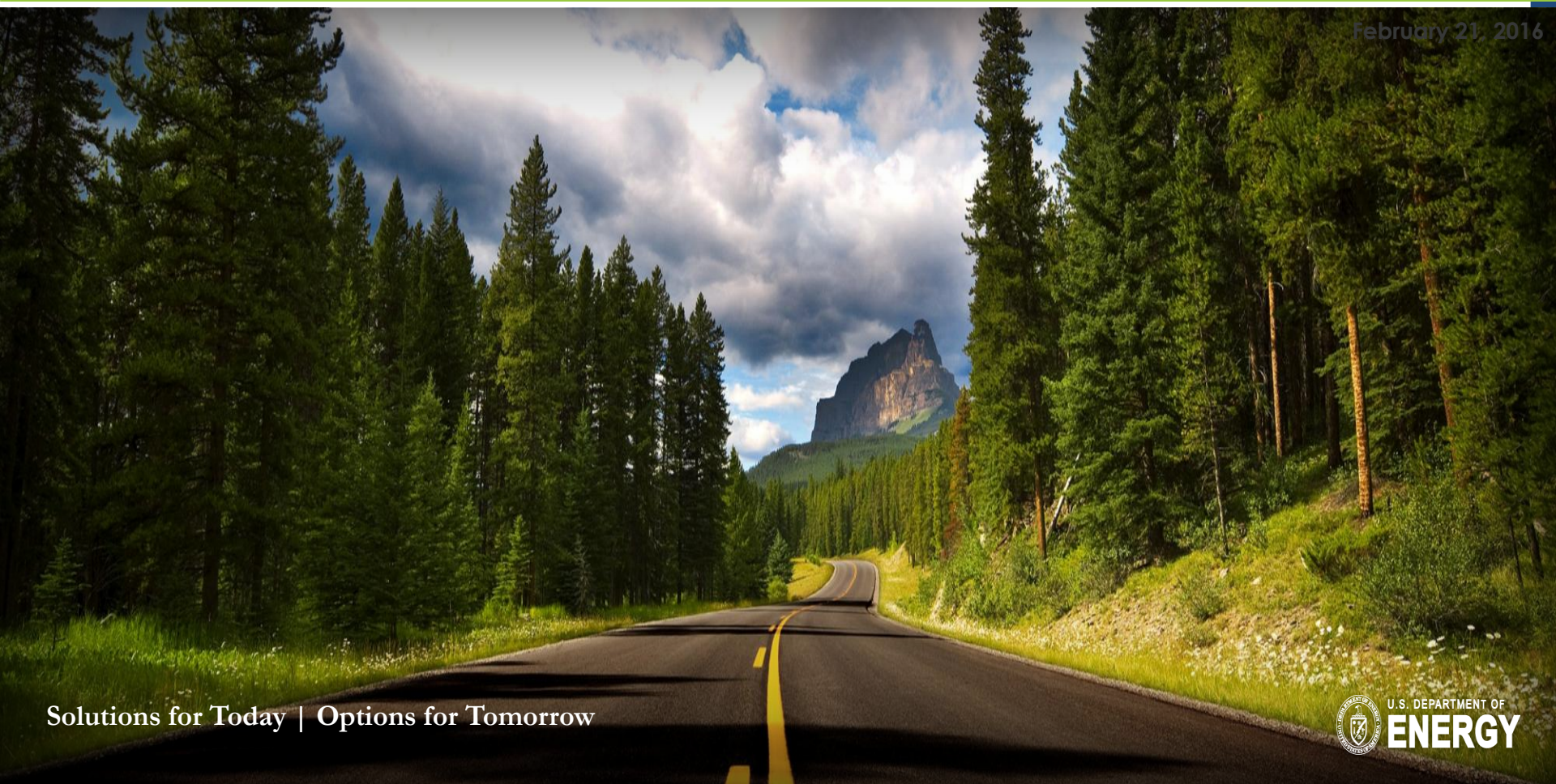




U.S. DEPARTMENT OF  
**ENERGY**

Office of Oil & Gas

February 21, 2016



Solutions for Today | Options for Tomorrow

