

Developing a National Gateway to oil and gas well data



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By

Adam Sieminski, EIA Administrator

Energy Information Administration (EIA)

EIA is an independent statistical and analytical agency within the U.S. Department of Energy tasked to collect and provide detailed information and analysis on all aspects of the energy sector as needed to inform policymakers, the markets, and the public

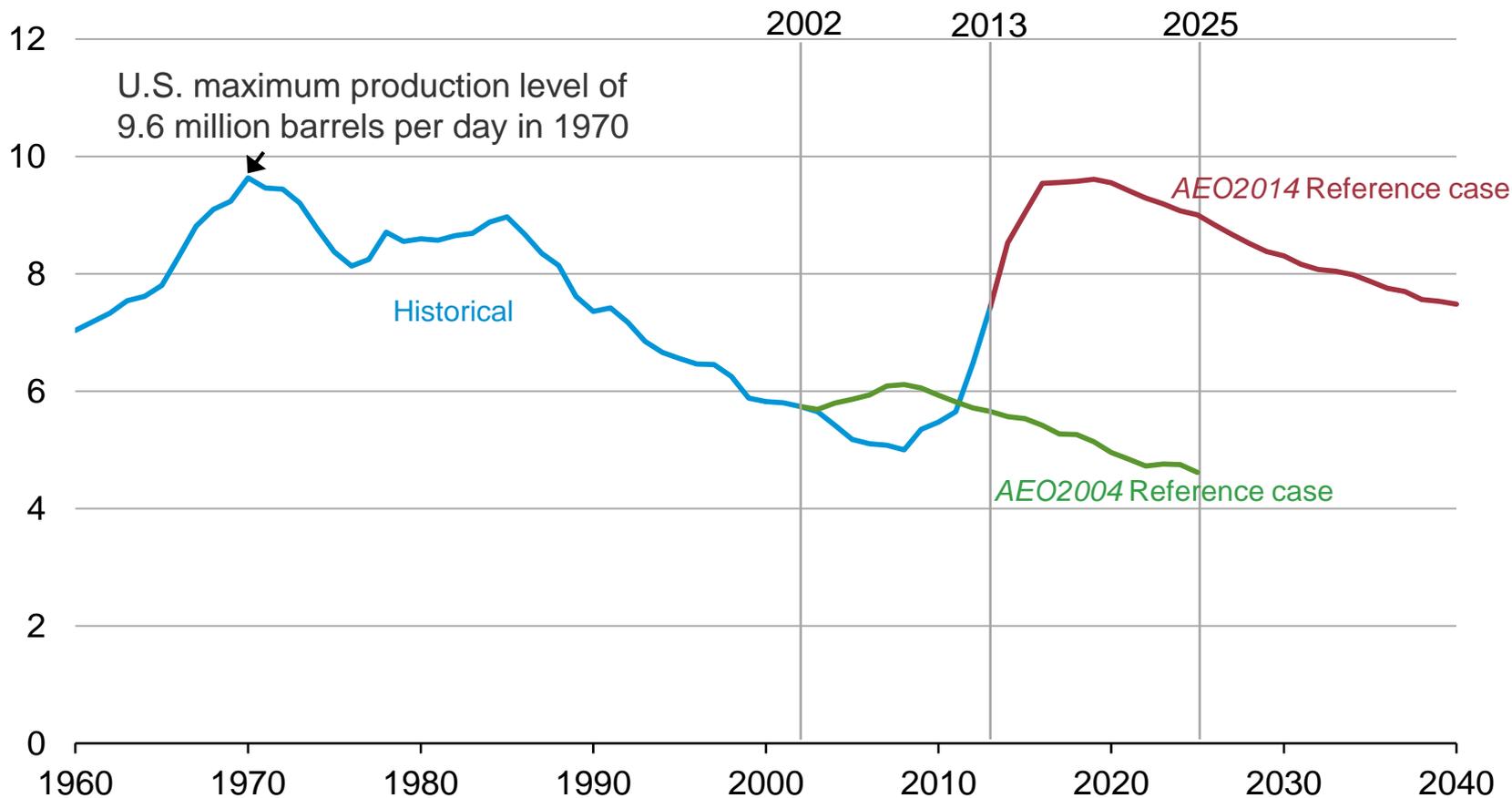
You are all on the front lines of this renaissance in oil and gas production which is exciting for the country

One of my biggest challenges as Administrator of EIA is keeping up with the changing dynamics of US production, and the infrastructure and logistics for processing and delivery of resources to market

Times have changed with U.S. oil production

EIA Outlooks - 2004 and 2014

U.S. crude oil production
million barrels per day

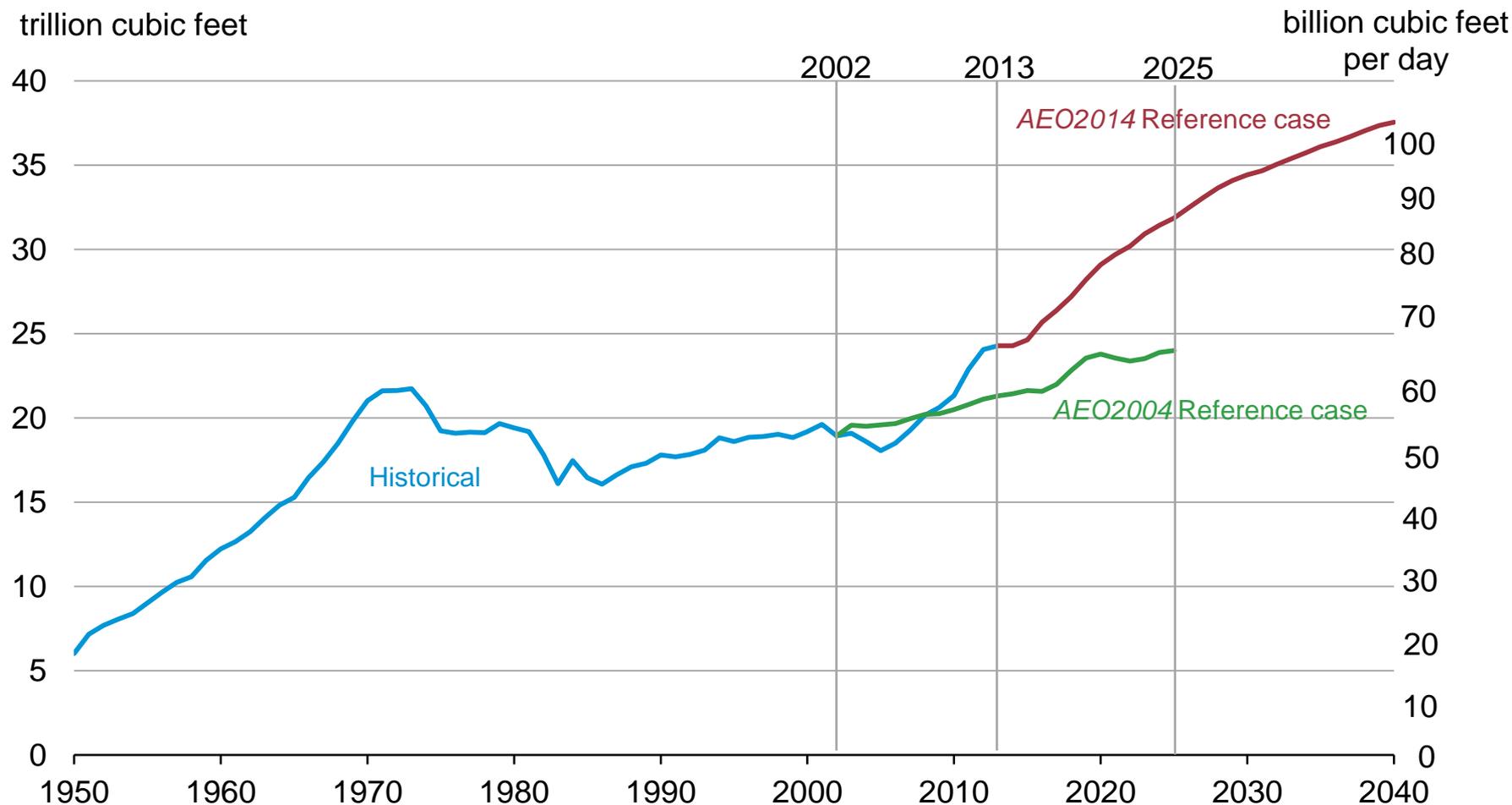


Source: EIA, Annual Energy Outlook 2014 Reference case and Annual Energy Outlook 2004 Reference case

U.S. natural gas production, *EIA Outlooks 2004 and 2014*

U.S. dry natural gas production

trillion cubic feet

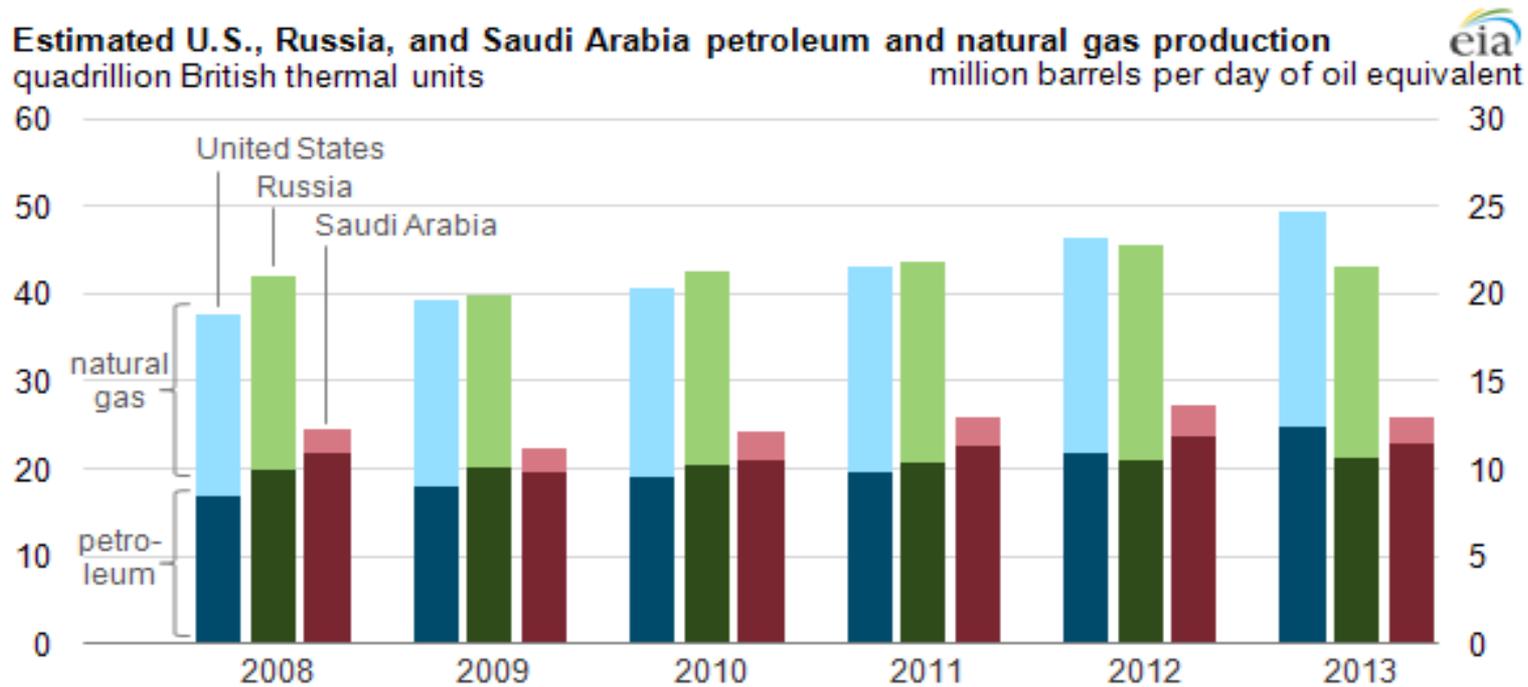


Source: EIA, Annual Energy Outlook 2014 Reference case and Annual Energy Outlook 2004 Reference case

Is the U.S. a rising energy superpower?

- As states, you are managers of the onshore oil and gas production renaissance
- The success is clearly demonstrated in the production data
- Dry natural gas production is at a record high, crude oil reserves are at the highest level since 1976
- In 2013 the US became the top producer of petroleum and natural gas hydrocarbons in the world

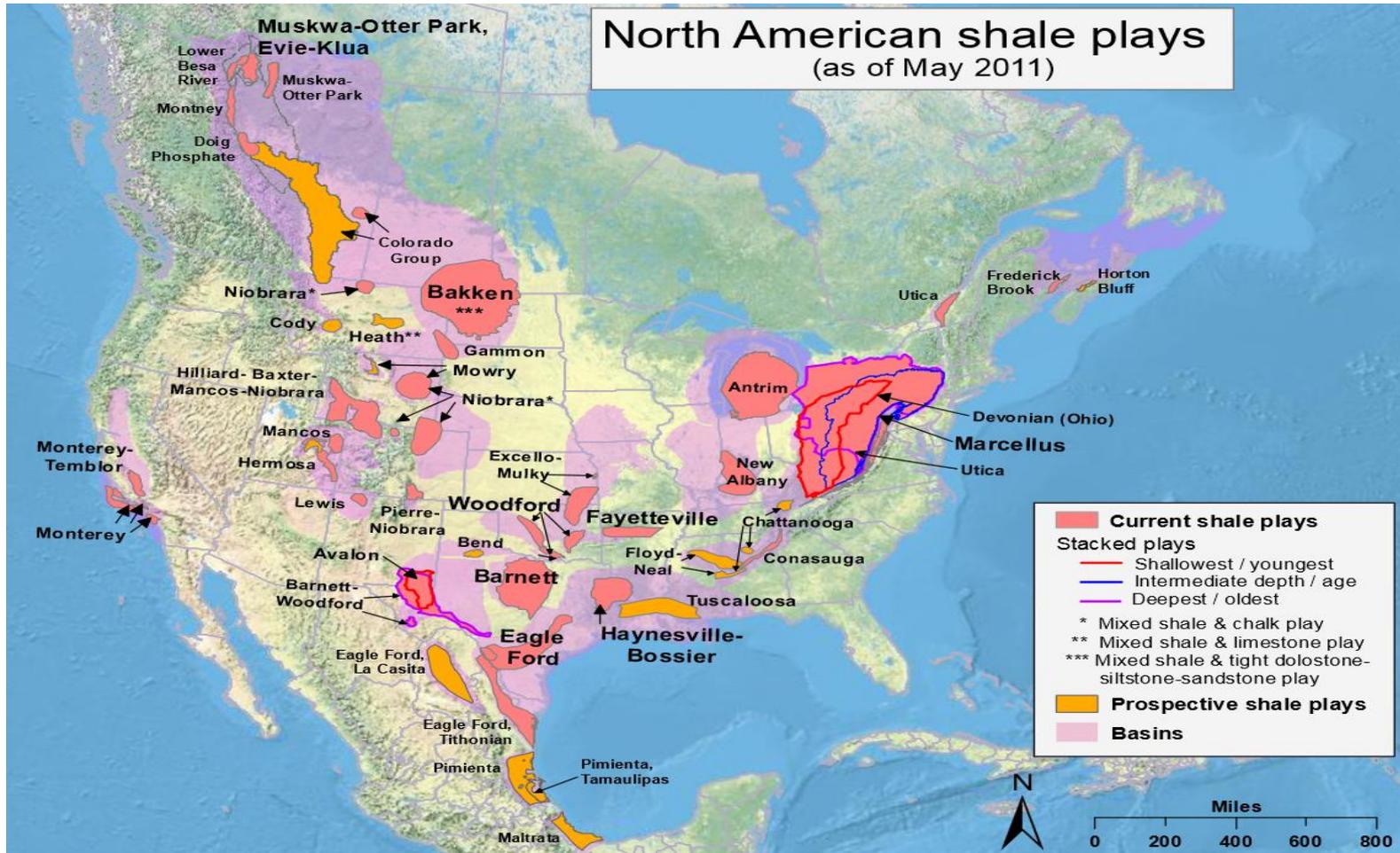
U.S. is largest producer of petroleum and natural gas in the world



Source: U.S. Energy Information Administration

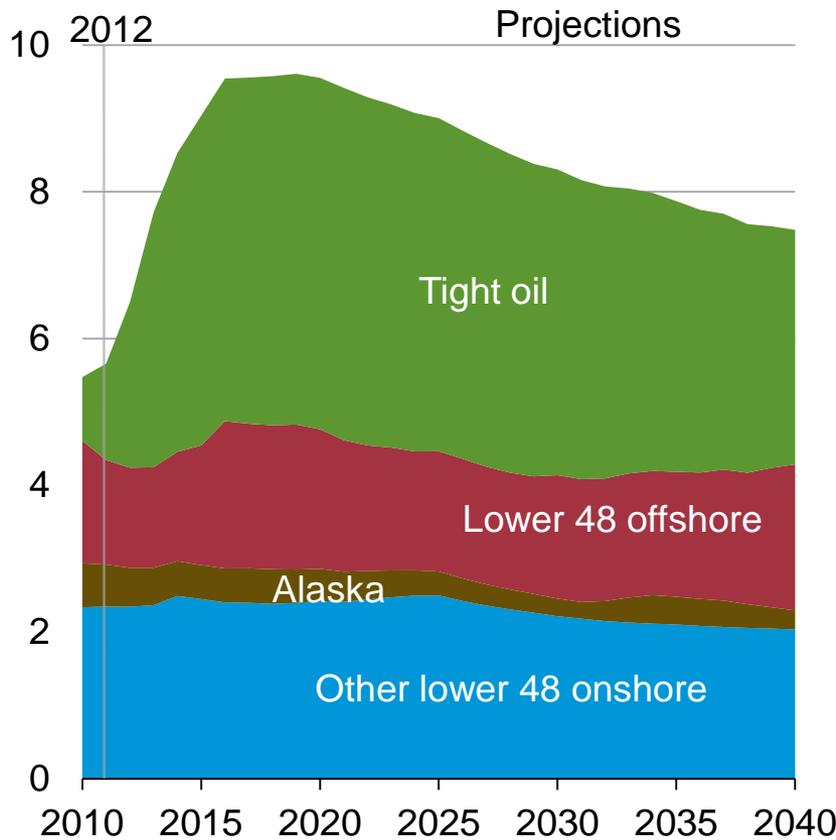
Note: Petroleum production includes crude oil, natural gas liquids, condensates, refinery processing gain, and other liquids, including biofuels. Barrels per day oil equivalent were calculated using a conversion factor of 1 barrel oil equivalent = 5.55 million British thermal units (Btu).

Shale plays are key to production and infrastructure changes

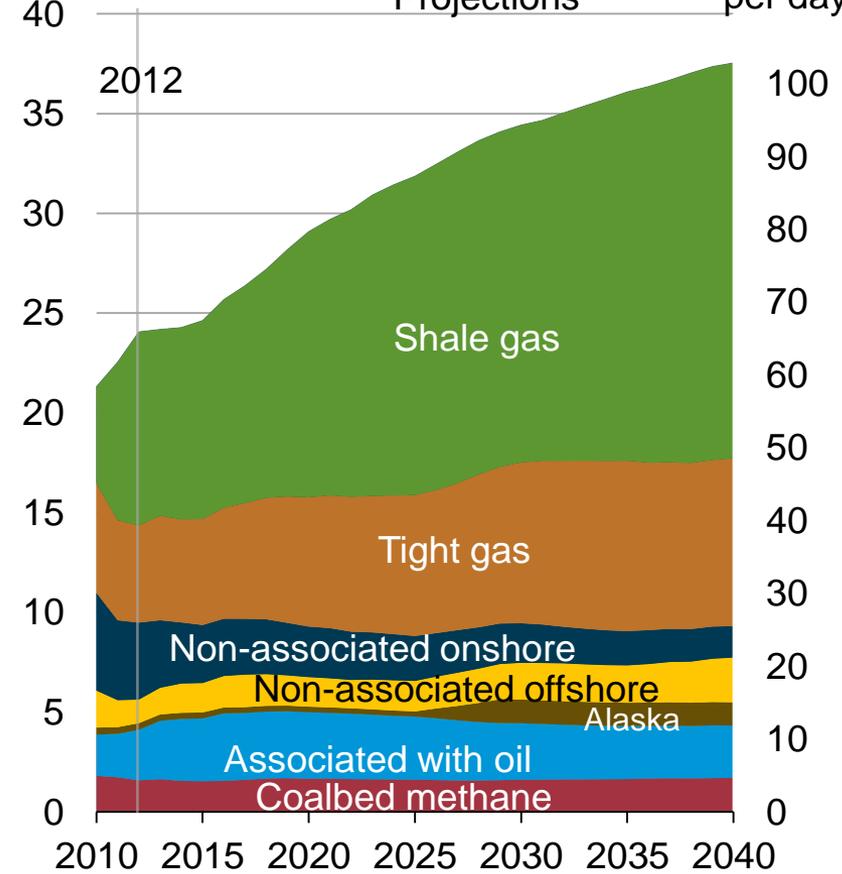


Tight oil and shale gas are already largest contributors to production

U.S. crude oil production
million barrels per day



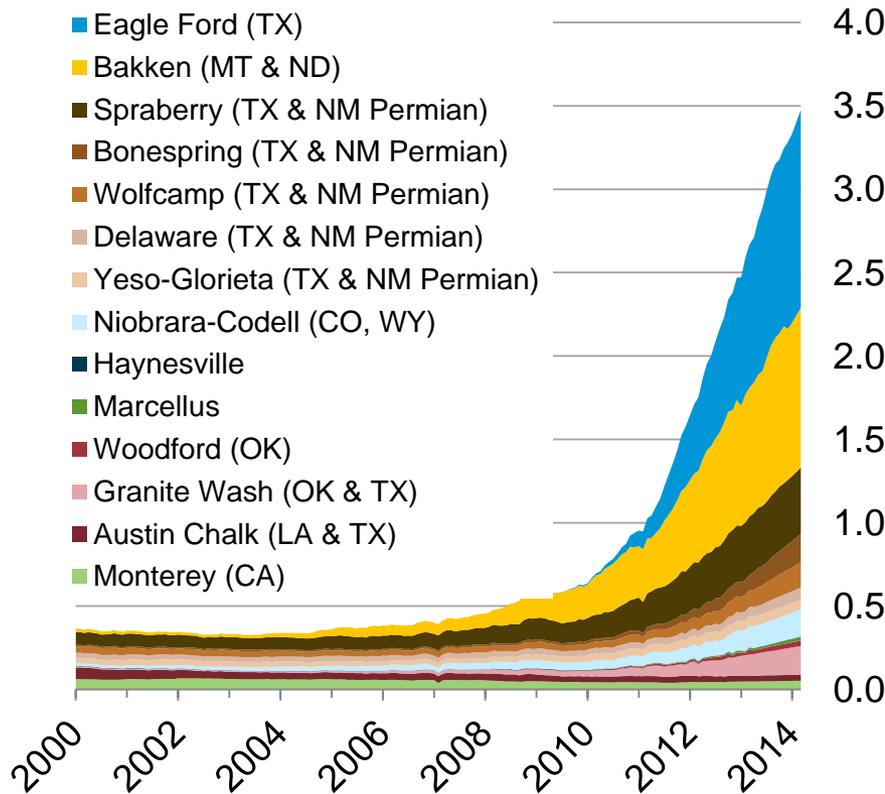
U.S. dry natural gas production
trillion cubic feet per day



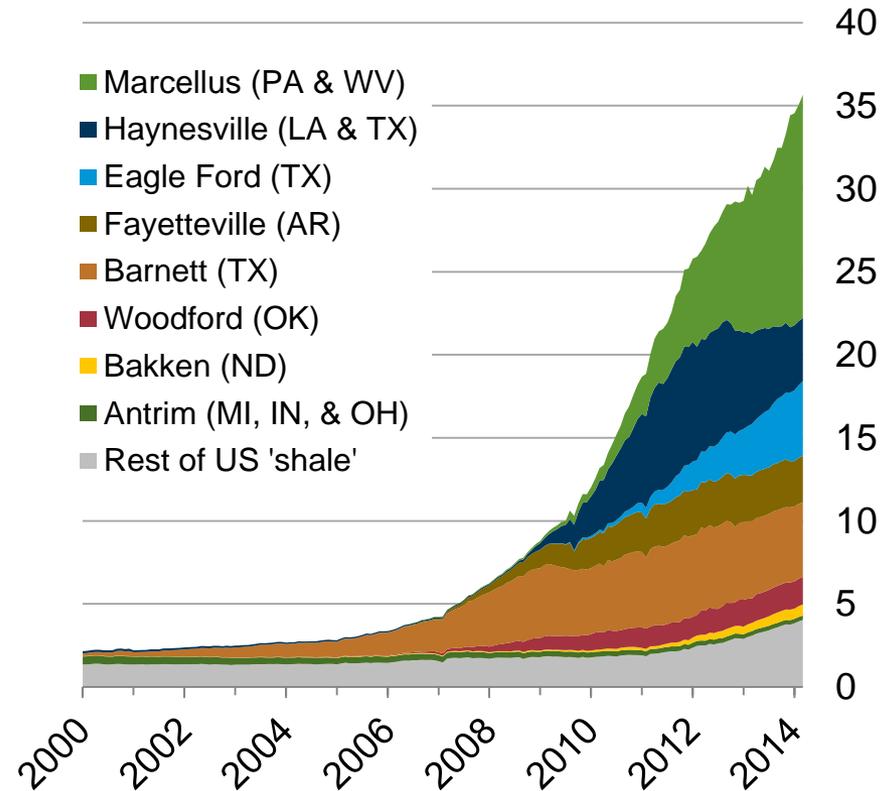
Source: EIA, Annual Energy Outlook 2014 Reference case

Rapid change in natural gas and oil production from shale and other tight resources underscores the need for timely information; *EIA's Drilling Productivity Report currently relies on a commercial service with data collected from your websites*

U.S. shale and tight oil production
million barrels of oil per day



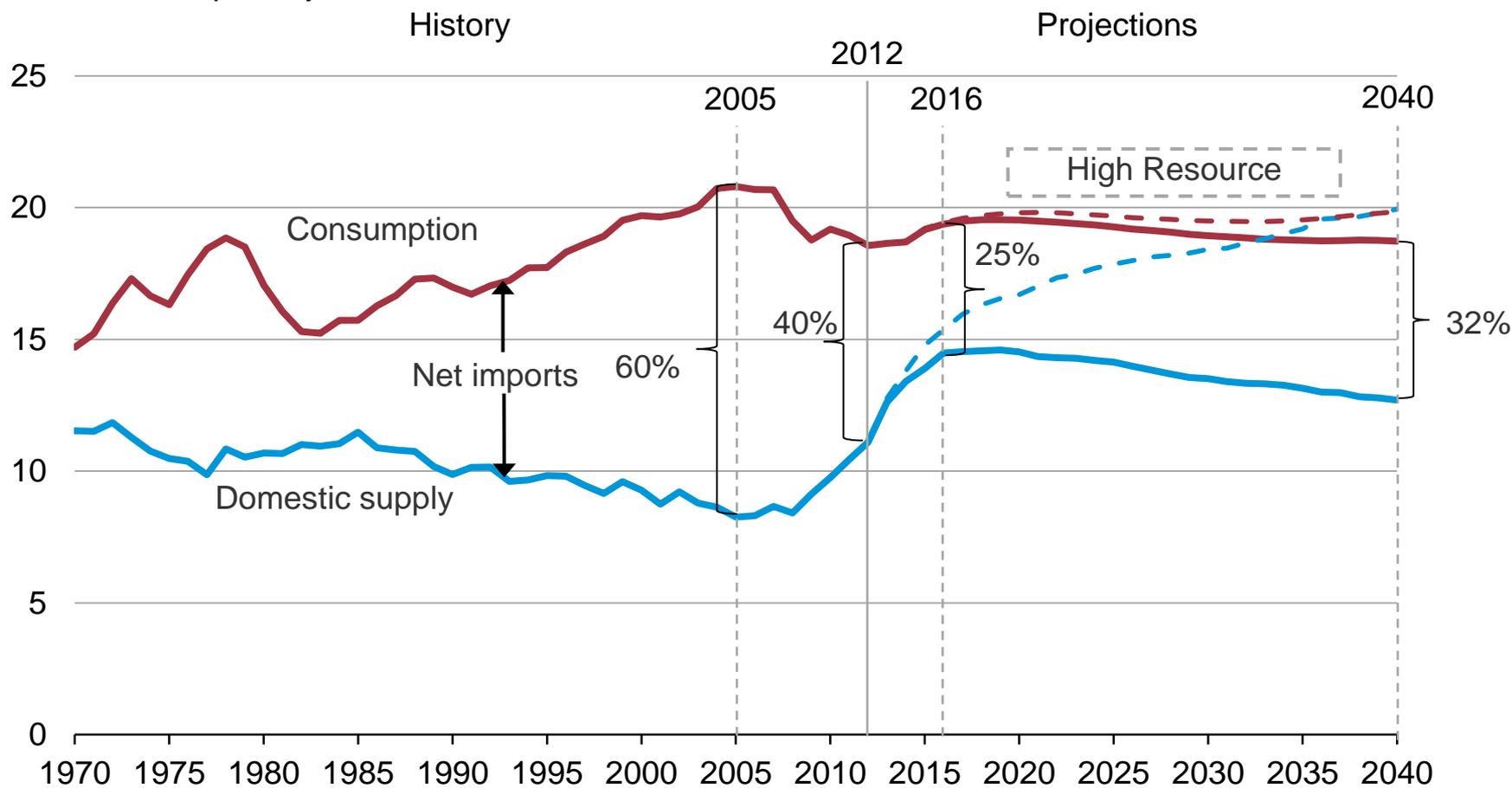
U.S. dry shale gas production
billion cubic feet per day



Sources: EIA derived from state administrative data collected by DrillingInfo Inc. Data are through March 2014 and represent EIA's official tight oil & shale gas estimates, but are not survey data. State abbreviations indicate primary state(s).

Although oil use is slightly increased in the High Resource case due to lower prices, net import dependence declines rapidly

U.S. liquid fuel supply
million barrels per day



Source: EIA, Annual Energy Outlook 2014 Reference case and High Resource

EIA proposes expanded monthly production survey

Current, accurate data on US oil and gas production is important to EIA's short term outlook which markets, policymakers, and the public rely on:

- EIA has just proposed a producer survey of oil production and expansion of the existing natural gas survey (EIA-914)
- This EIA survey will be a carefully developed statistical sample which will enable EIA to publish more current information on oil and gas production trends
- But, the survey will not have well-level data

Improving energy information with the National Gateway

- Leveraging over **20 years of DOE Fossil Energy and state support** for RBDMS through the Ground Water Protection Council (GWPC)
- Commitment by EIA to improve its state data collection
- August 2013 decision by EIA to host the Gateway -- a centralized repository of US well-level data (both oil and gas) collected by participating states
- Well data subset currently on an internal-only EIA beta website
- MOU between GWPC and EIA signed April 2014

Gateway beta site at EIA

GWPC/RBDM National Oil and Gas Data Gateway

Select Wells

From: Through:

Location: State Congressional District

States:

Well Type:

Well Status:

Producing Zone:

Show Production for Selected Wells Only

Apply Filter Clear Filter

Map

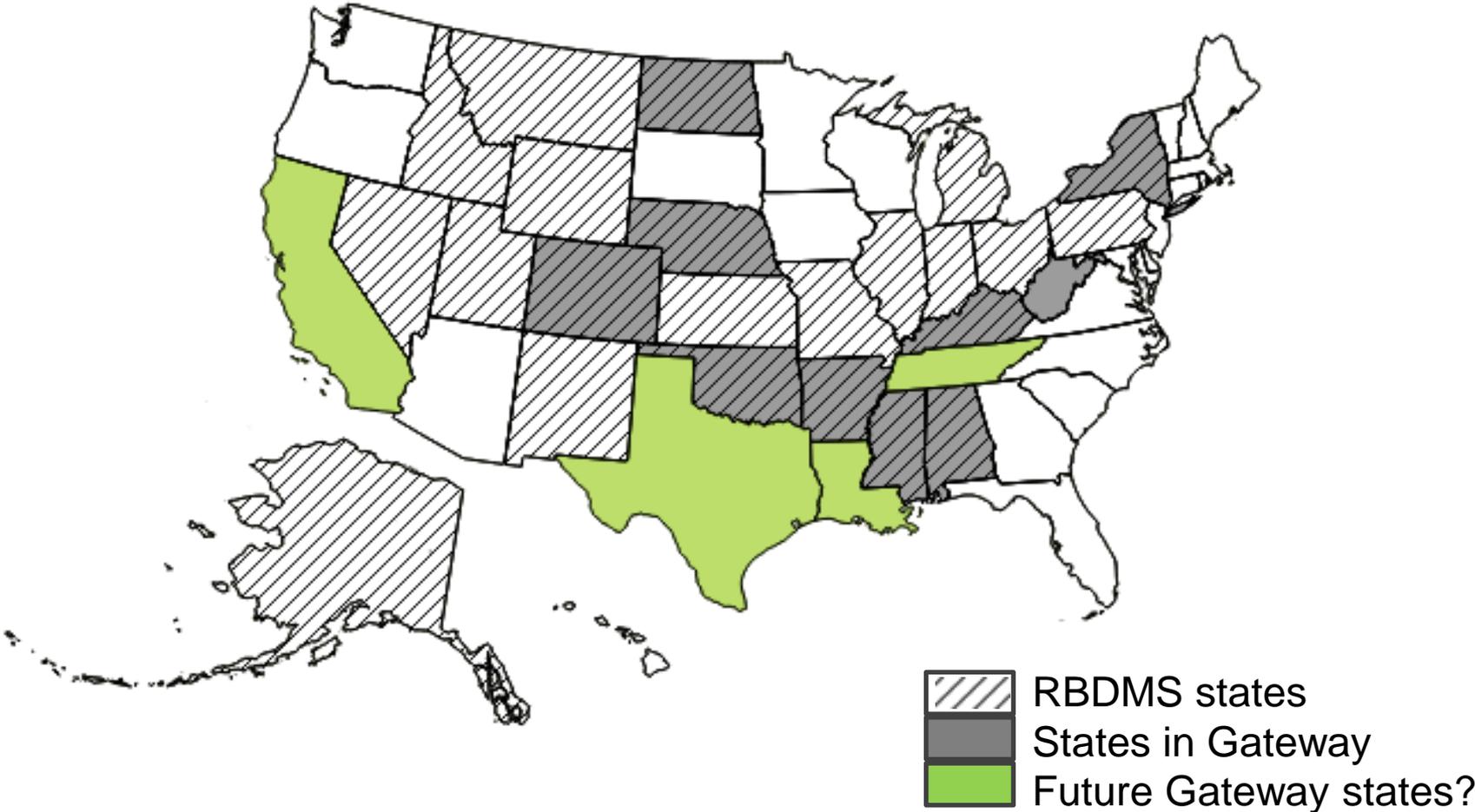
Production Wells Summary Data

Download Data By API

State/Date/Month	Record Count	Gas	Oil	Water
▶ All	8627650	19114316033.666	484718997.30997	2606872344
▶ Alabama	418912	1080569580	41317847	540101442
▶ Arkansas	150548	1115434951	6006039	448740118
▶ Colorado	2262333	8719557969	158754383	0
▶ Kentucky	1498182	565496667	12108769.349975	0
▶ Mississippi	587547	1225349843	73979053	935472355
▶ North Dakota	116374	184280953	171660052	304437774

- ▲ SWD
- ▲ EOR
- ★ GAS
- OIL
- Other

Current Gateway pilot states



Note: all 50 states are members of the GWPC

Benefits of National Gateway

- Streamlined access to state data
- More standardized data definitions
- New analytical tools for well-field analysis
- Improved analysis of emerging plays and technology
- Data for basin-wide and interstate analysis

Future goals for National Gateway

- Encourage all producing states to participate in the Gateway
- Develop advanced data transfer and querying capabilities
- Add production data elements based on the assessment of modeling and analysis needs
- Include underground injection control (UIC) wells (Class II-water disposal) and injection data

Ideas for future State-EIA Collaboration

- Access to Well Finder Web Service
 - Provide high-level well data to the public Well Finder mobile application
- Map services
 - Increase geo-spatial mapping capability
 - Add thematic mapping
- Public access to National Gateway
- FracFocus?

RBDMS Partners (26)

- **U.S. Energy Information Administration (newest partner)**
- **Alabama** State Oil and Gas Board
- **Alaska** Oil and Gas Conservation Commission
- **Arkansas** Oil and Gas Commission
- **Colorado** Oil and Gas Conservation Commission
- **Idaho** Oil and Gas Conservation Commission
- **Illinois** Department of Natural Resources
- **Indiana** Department of Natural Resources Division of Oil and Gas
- **Kansas** Corporation Commission
- **Kentucky** Division of Oil and Gas
- **Michigan** Department of Environmental Quality, Division of Oil, Gas and Minerals
- **Mississippi** State Oil and Gas Board
- **Missouri** Department of Natural Resources
- **Montana** Board of Oil and Gas Conservation

RBDMS Partners (cont'd)

- **Nebraska** Department of Environmental Quality
- **Nebraska** Oil and Gas Conservation Commission
- **New York** State Department of Environmental Conservation, Division of Mineral Resources
- **New Mexico** Oil Conservation Division
- **Nevada** Division of Environmental Protection
- **North Dakota** Industrial Commission, Oil and Gas Division
- **Ohio** Department of Natural Resources Mineral Resources Management
- **Oklahoma** Corporation Commission
- **Osage Nation** Environmental and Natural Resources
- **Pennsylvania** Department of Environmental Protection
- **Utah** Division of Oil, Gas & Mining
- **Wyoming** Oil and Gas Conservation Commission

For more information

U.S. Energy Information Administration home page | www.eia.gov

Annual Energy Outlook | www.eia.gov/aeo

Short-Term Energy Outlook | www.eia.gov/steo

International Energy Outlook | www.eia.gov/ieo

Monthly Energy Review | www.eia.gov/mer

Today in Energy | www.eia.gov/todayinenergy

State Energy Portal | www.eia.gov/state

Drilling Productivity Report | www.eia.gov/petroleum/drilling/

Current status of the National Gateway at EIA

- Complete, updating regularly
 - Alabama, Arkansas, Mississippi, West Virginia
- Mapped, loaded for review and demonstration
 - Colorado, Kentucky, Nebraska, New York, North Dakota, Oklahoma
- In process/discussion
 - California, Kansas, Ohio, Pennsylvania, Texas, additional states
- The database now includes almost 900 thousand well records and 41 million production records

Expansion of EIA-914 Monthly Natural Gas Production Report

- Current EIA-914
 - Gross withdrawals of natural gas
 - Natural gas lease production
 - Federal Gulf of Mexico, Louisiana, New Mexico, Oklahoma, Texas, Wyoming,
- Expanded EIA-914 Proposal
 - Retain current states, Federal Gulf of Mexico, remove 14 states from “Other” category (“Other” category will pertain to only 14 states rather than 28)
 - Add oil and lease condensate production
 - Segment oil production by
 - API gravity categories and
 - sulfur content categories
 - Expansion combined with National Gateway will help EIA publish more current information on production trends