

Outlook for U.S. shale oil and gas



IAEE/AEA Meeting

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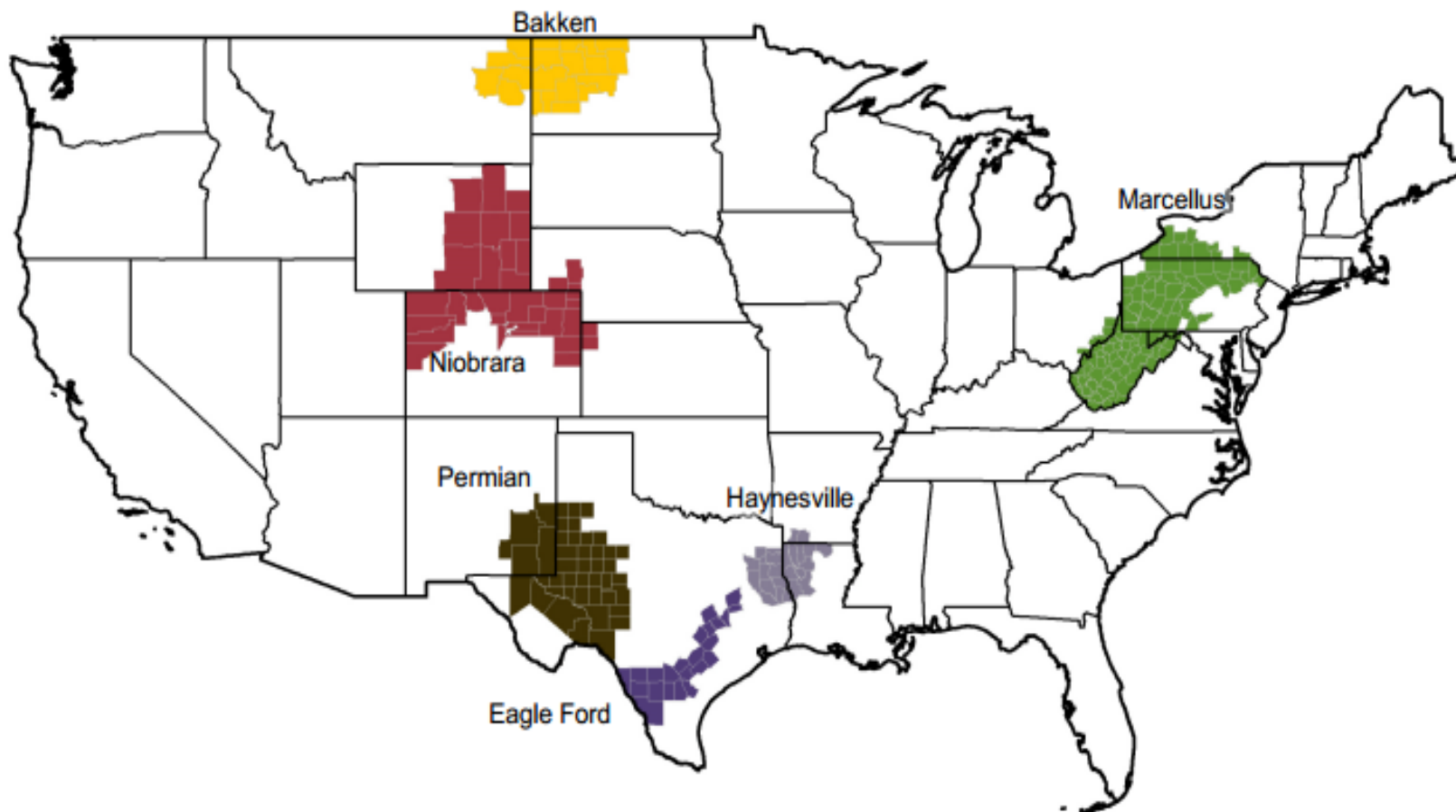
By

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Key insights on drilling productivity and production trends

- The U.S. has experienced a rapid increase in natural gas and oil production from shale and other tight resources
- Six tight oil and shale gas plays taken together account for nearly 90% of domestic oil production growth and virtually all domestic natural gas production growth over the last 2 years
- Higher drilling efficiency and new well productivity, rather than an increase in the rig count, have been the main drivers of recent production growth
- Steep legacy production decline rates are being offset by growing production from new wells
- Of the six plays, the Bakken and Eagle Ford plays account for about 67% of oil production growth; the Marcellus play accounts for about 75% of natural gas production growth

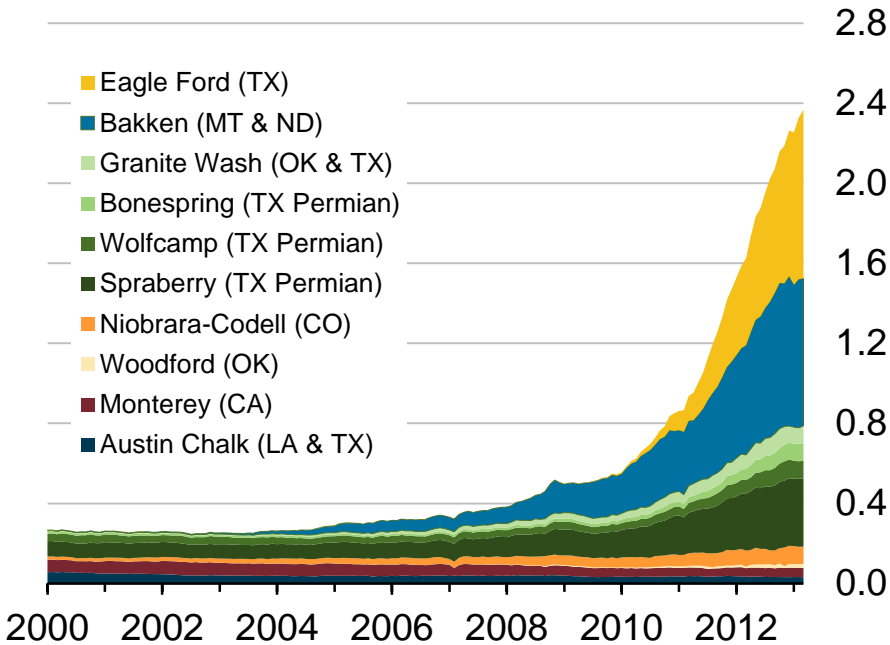
Six key plays account for nearly all recent growth in oil and natural gas production



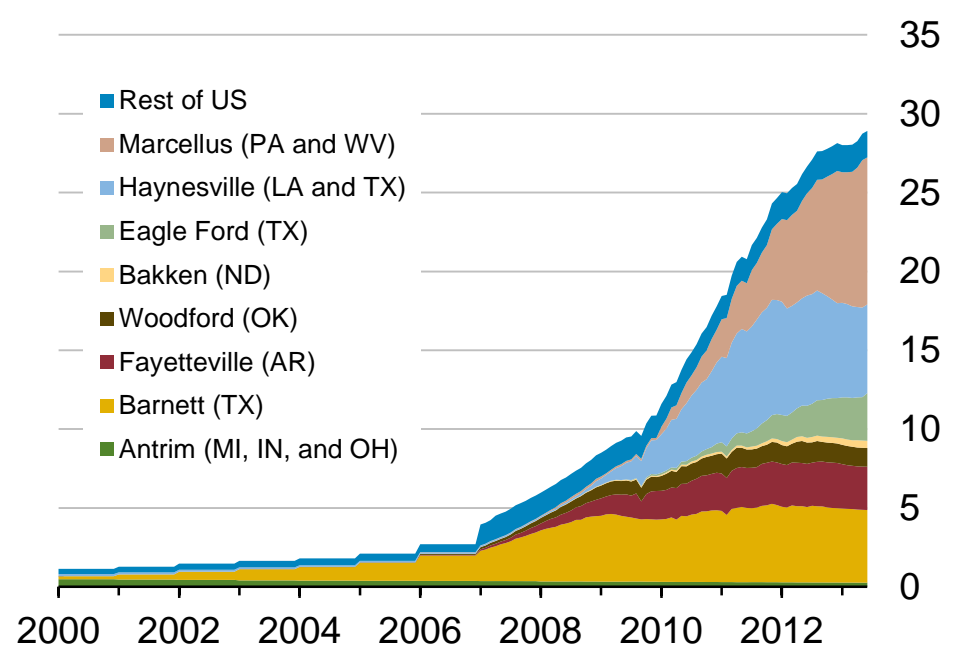
Source: EIA, *Drilling Productivity Report*

The U.S. has experienced a rapid increase in natural gas and oil production from shale and other tight resources

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



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



Note: Dry shale gas production data are based on LCI Energy Insight gross withdrawal estimates as of June 2013, converted to dry production estimates with EIA-calculated average gross-to-dry shrinkage factors by state and/or shale play.

Source: EIA based on DrillingInfo and LCI Energy Insight

U.S. crude oil and natural gas production is up dramatically since 2010 and will continue to grow rapidly; this has strategic implications for the United States:

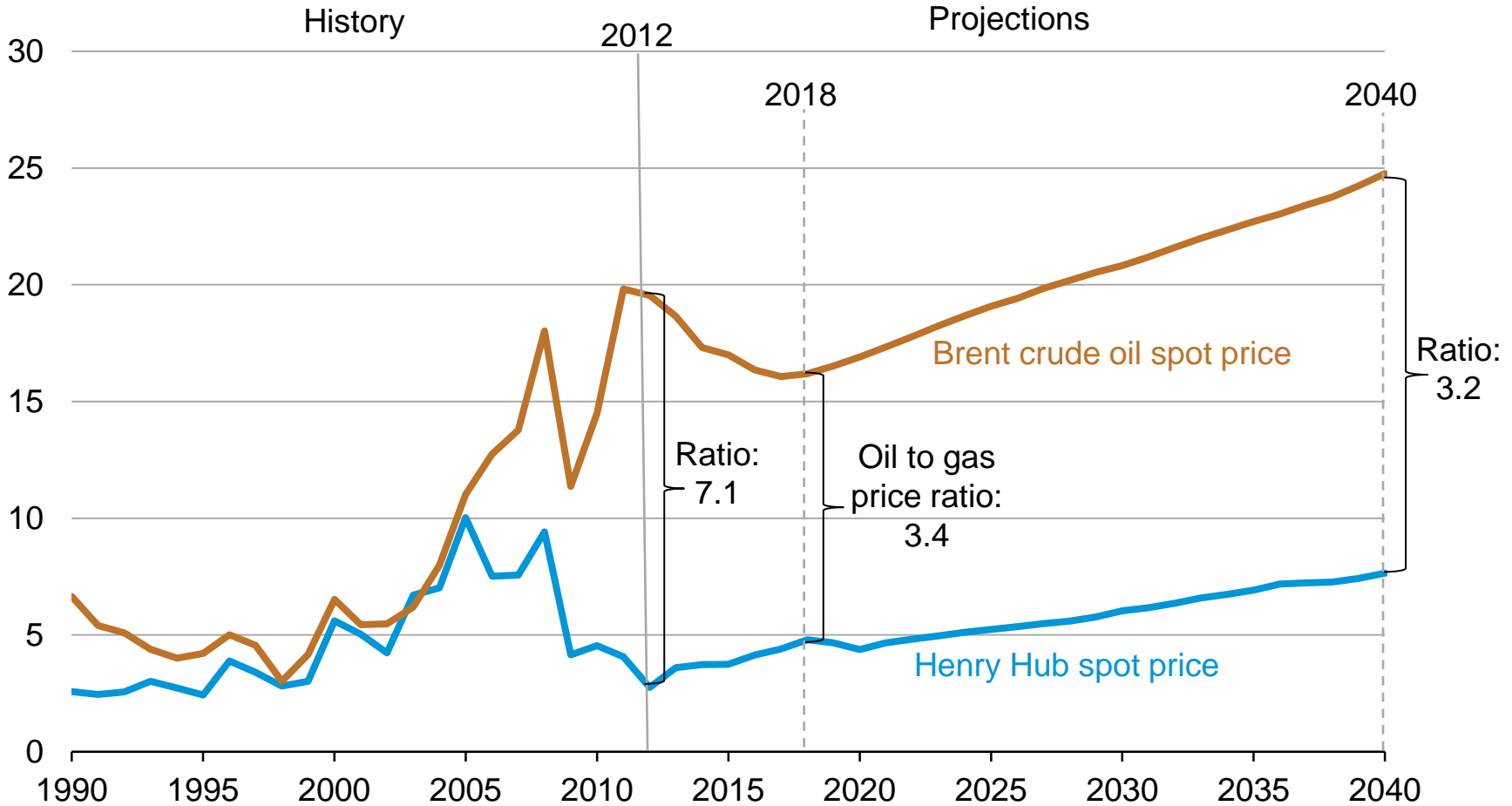
- Refinery operations/investment
- Logistics infrastructure investment
- Exports of petroleum products
- Exports of crude oil and natural gas (LNG)
- Management of Strategic Petroleum Reserve

Natural gas

U.S. natural gas prices remain well below crude oil prices

energy spot prices

2012 dollars per million Btu

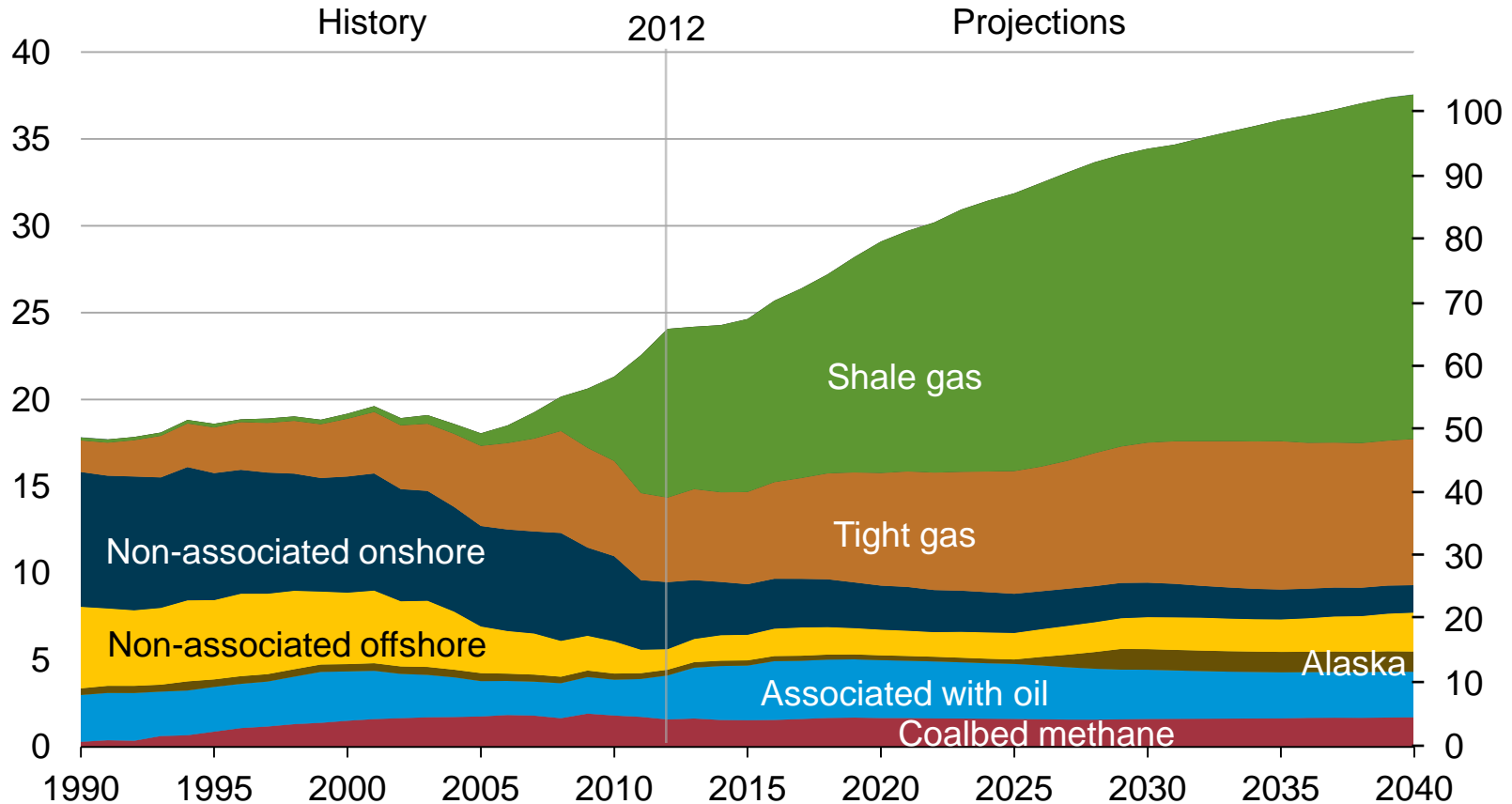


Source: EIA, Annual Energy Outlook 2014 Early Release

Shale gas leads growth in total gas production through 2040 to reach half of U.S. output

U.S. dry natural gas production
trillion cubic feet

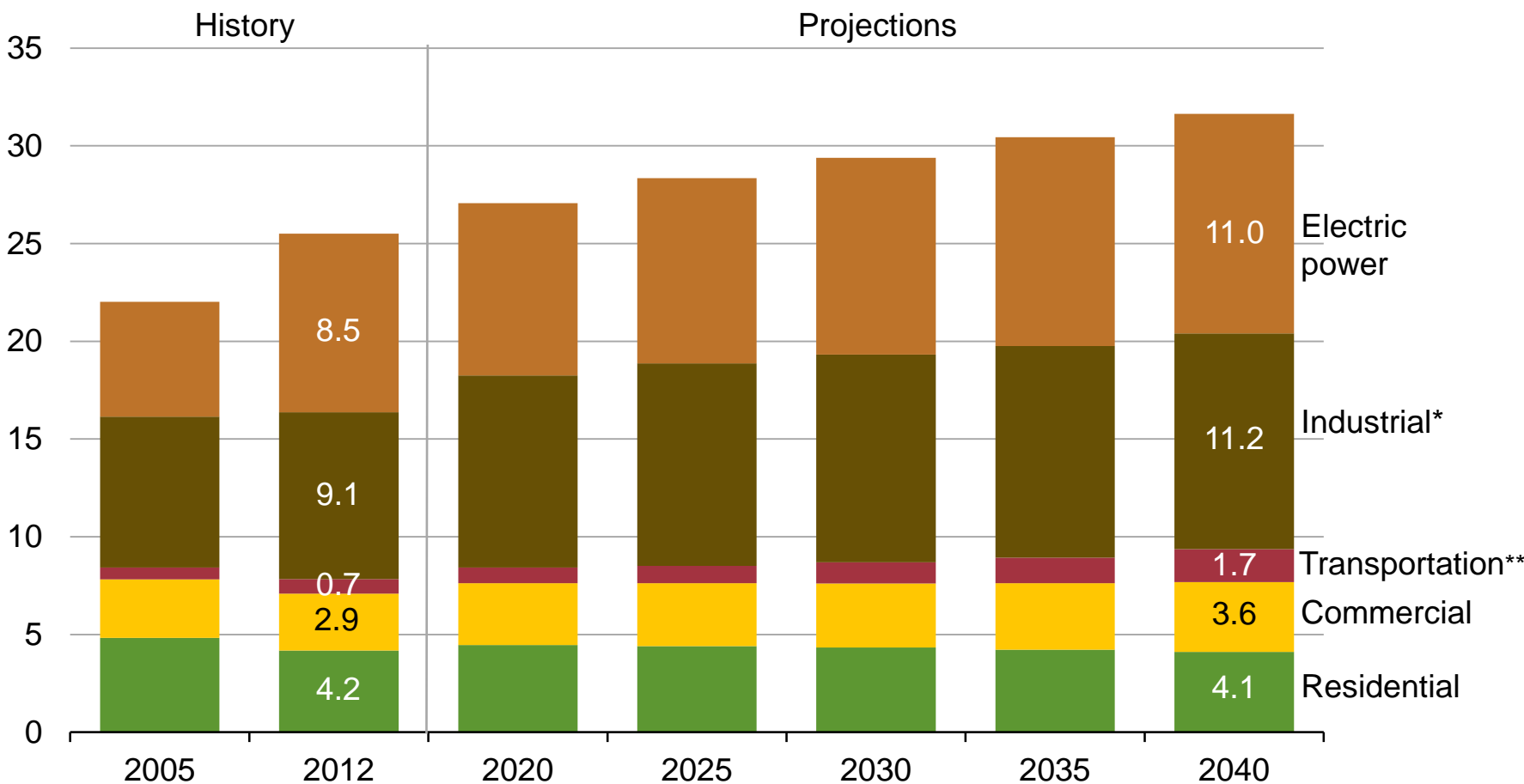
billion cubic feet per day



Source: EIA, Annual Energy Outlook 2014 Early Release

Natural gas consumption growth is driven by electric power, industrial, and transportation use

U.S. dry gas consumption
trillion cubic feet



Source: EIA, Annual Energy Outlook 2014 Early Release

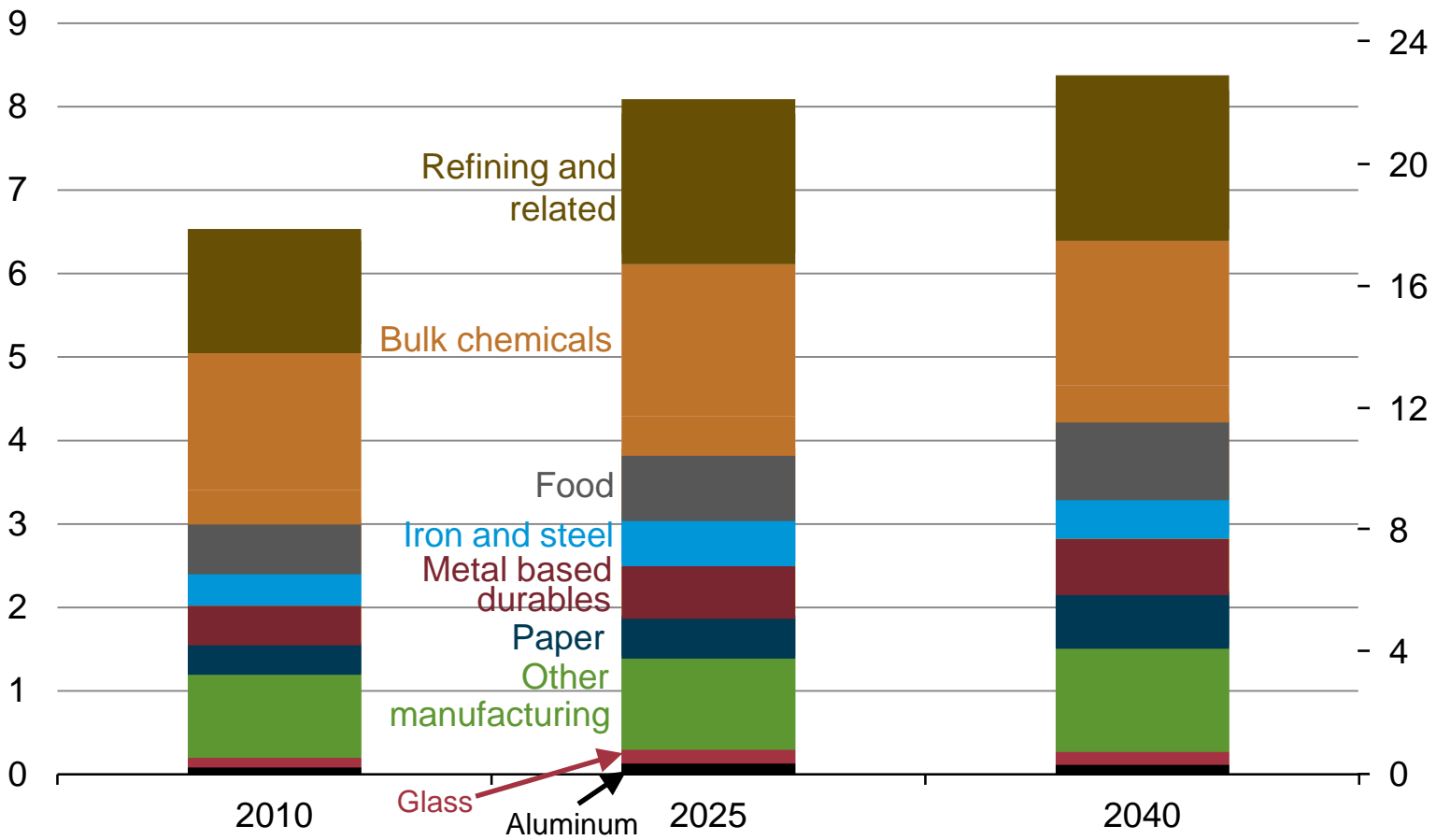
*Includes combined heat-and-power and lease and plant fuel

**Includes pipeline fuel

Manufacturing output and natural gas use grows with low natural gas prices, particularly in the near term

manufacturing natural gas consumption
quadrillion Btu

billion cubic feet per day



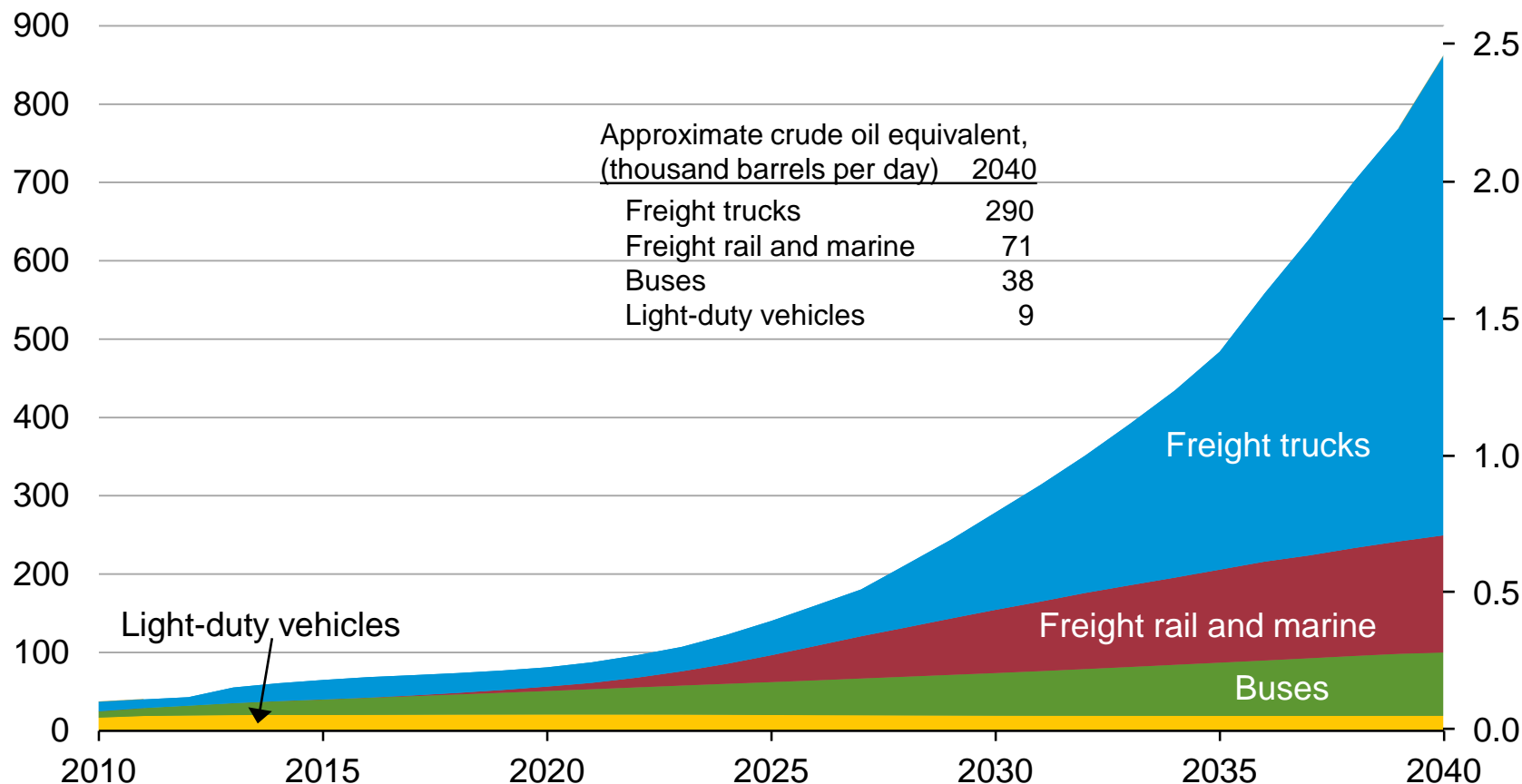
Source: EIA, Annual Energy Outlook 2014 Early Release

Natural gas use in the transportation sector grows rapidly with the largest share in freight trucks

natural gas use by mode

trillion Btu

billion cubic feet per day



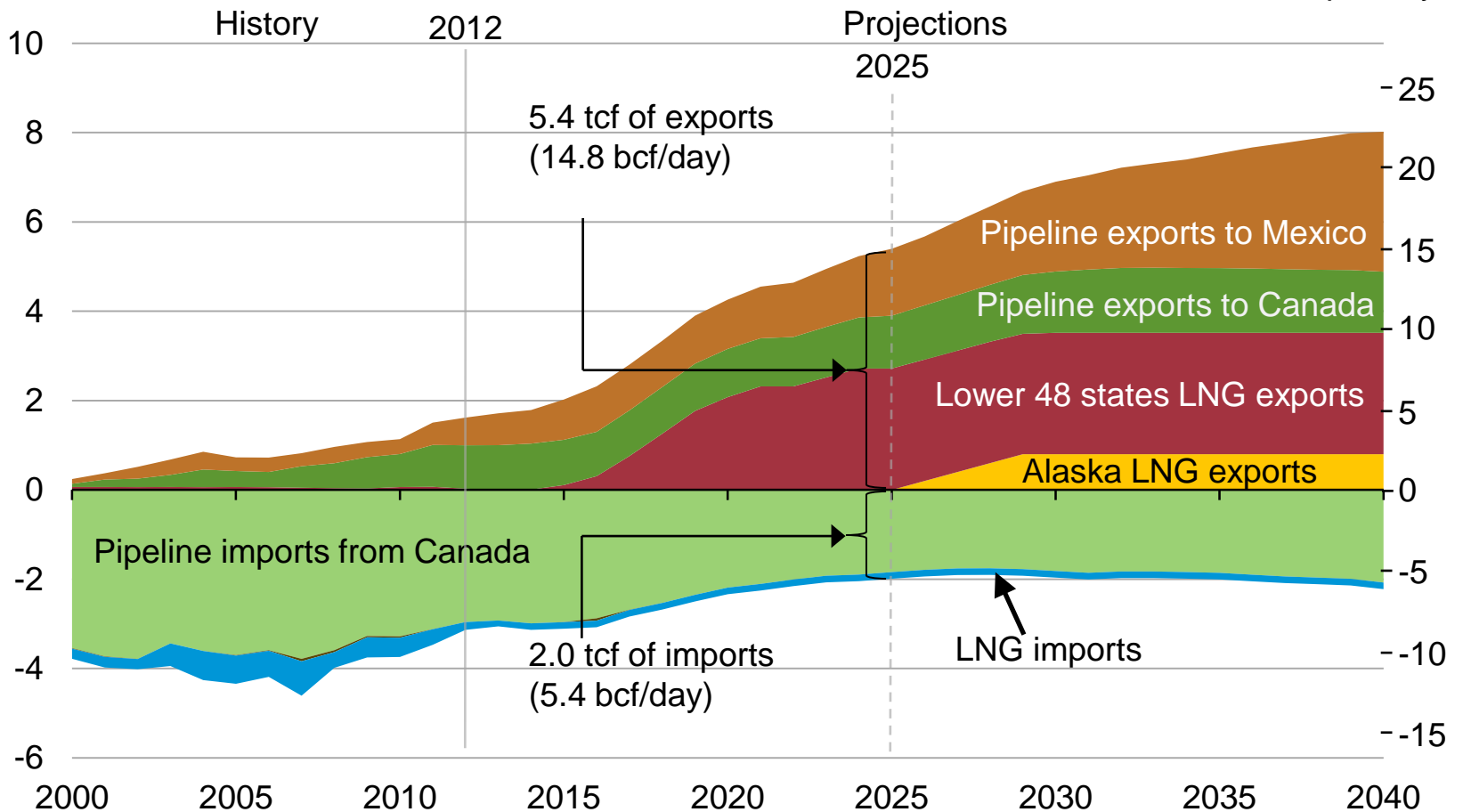
Source: EIA, Annual Energy Outlook 2014 Early Release

U.S. natural gas gross exports exceed 5 tcf in 2025

U.S. natural gas imports and exports

trillion cubic feet per year

billion cubic feet per day



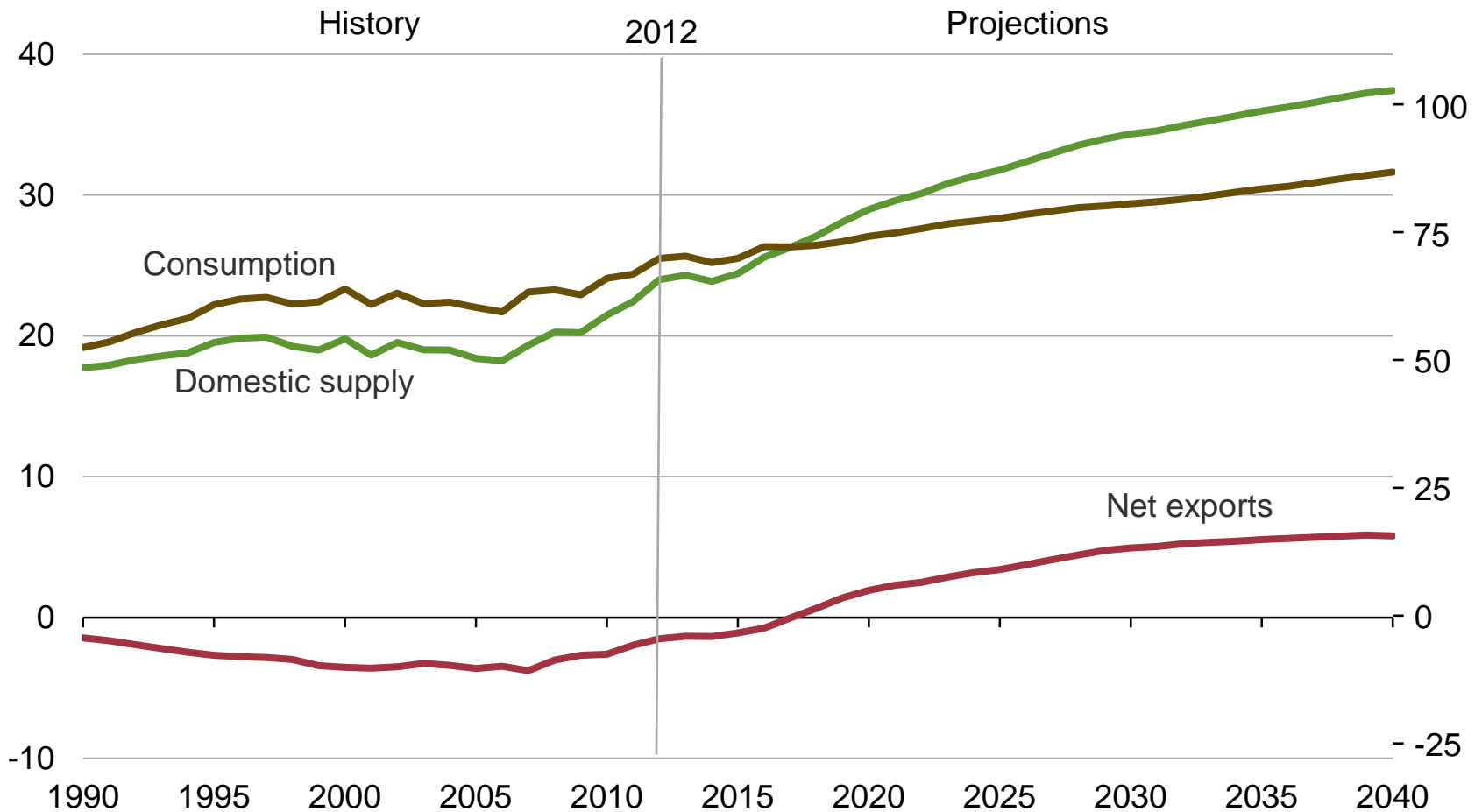
Source: EIA, Annual Energy Outlook 2014 Early Release

U.S. becomes a net exporter of natural gas in the near future

U.S. dry natural gas

trillion cubic feet per year

billion cubic feet per day

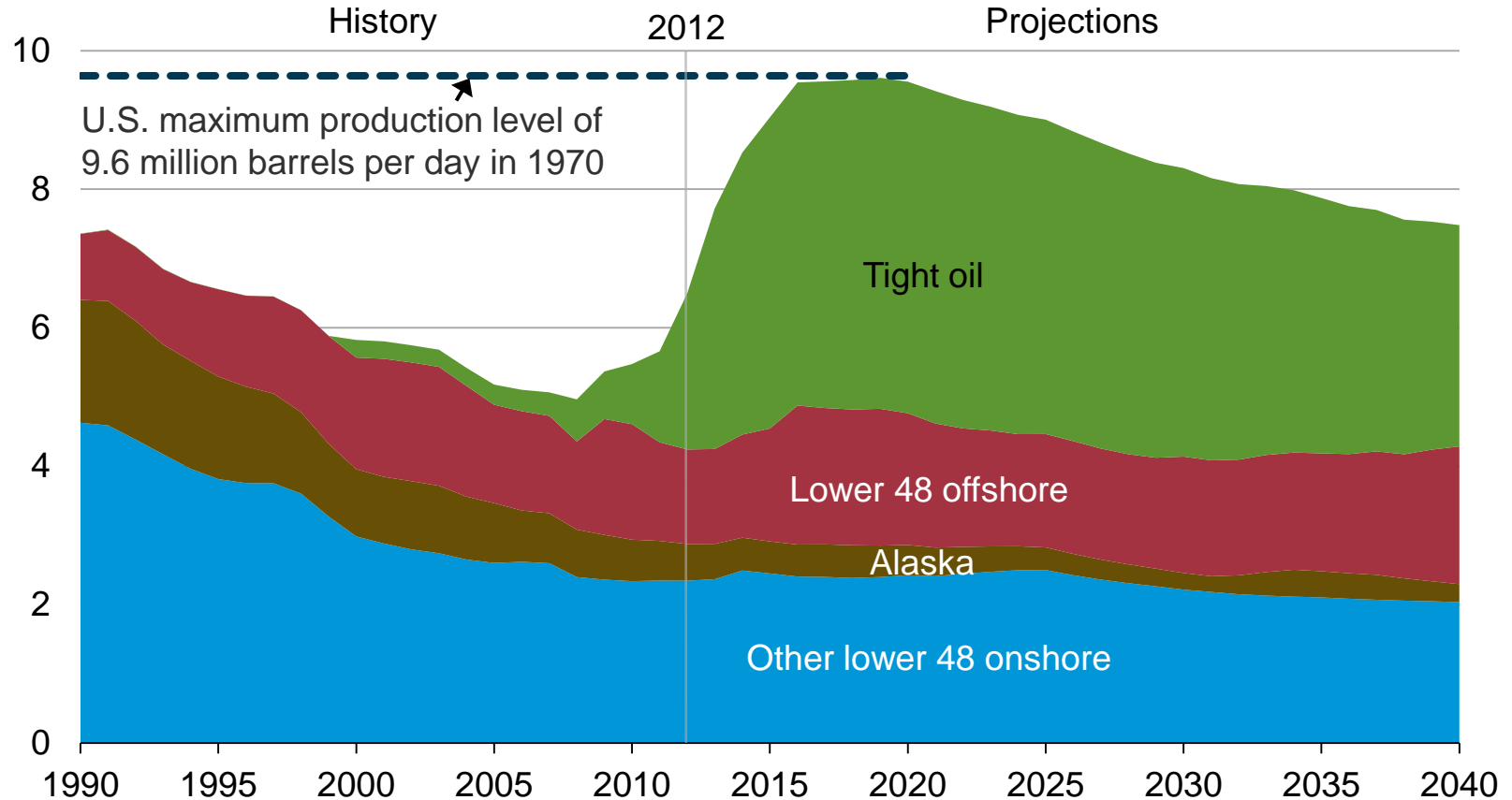


Source: EIA, Annual Energy Outlook 2014 Early Release

Petroleum

Growing tight oil and offshore crude oil production drive U.S. output close to historical high

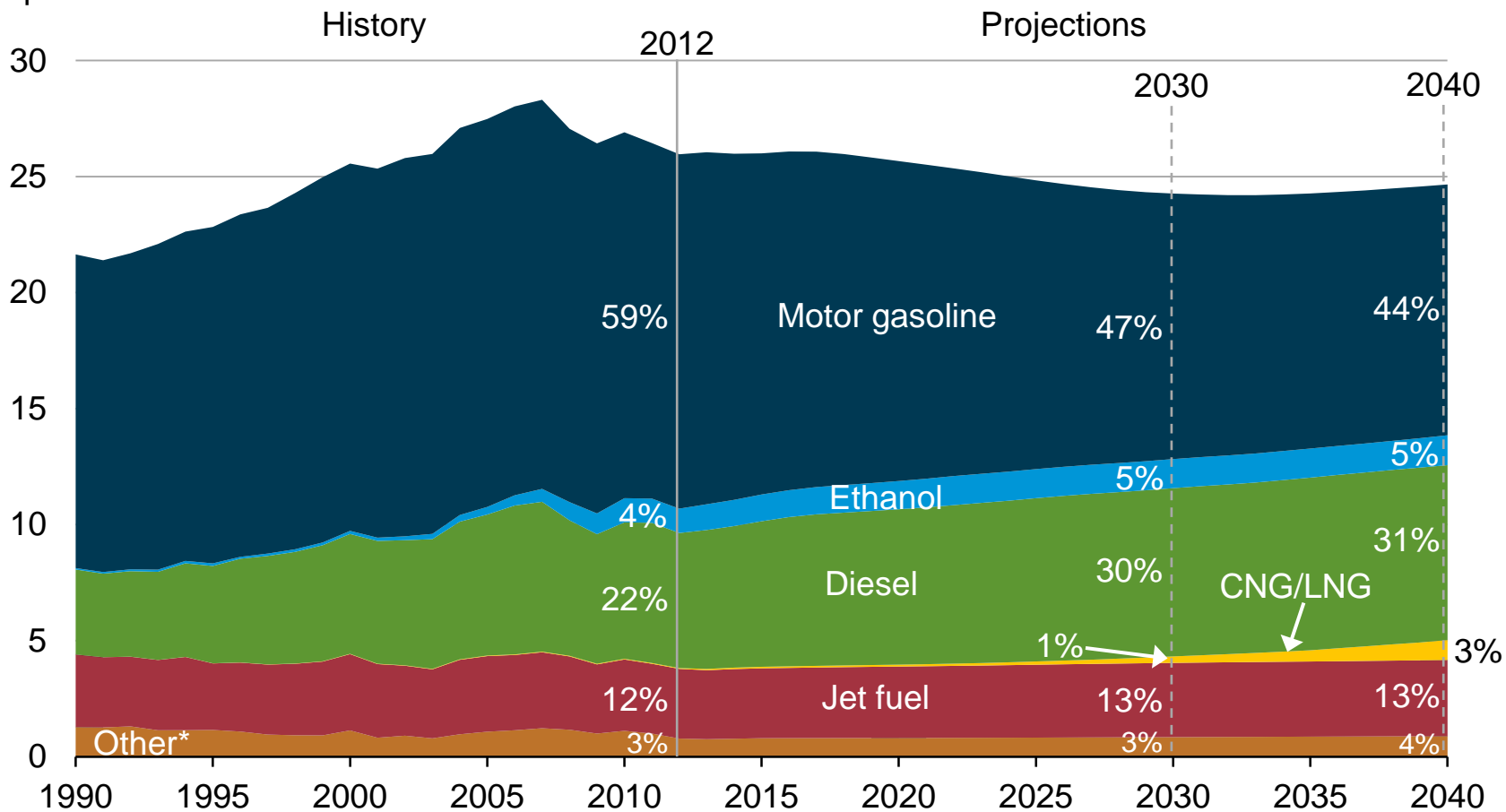
U.S. crude oil production
million barrels per day



Source: EIA, Annual Energy Outlook 2014 Early Release

Transportation sector motor gasoline demand declines, while diesel fuel accounts for a growing portion of the market

transportation energy consumption by fuel
quadrillion Btu



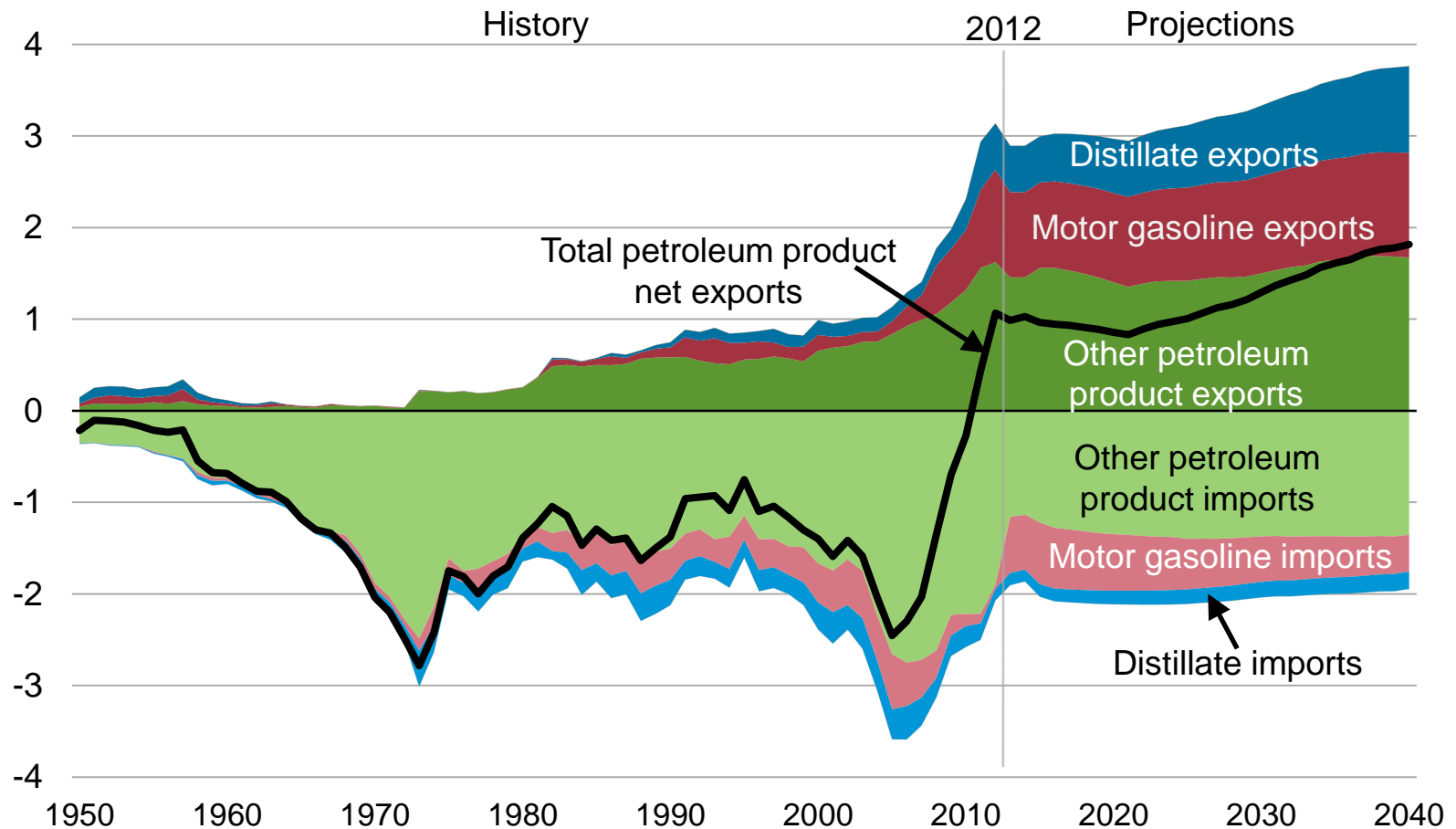
Source: EIA, Annual Energy Outlook 2014 Early Release

*Includes aviation gasoline, propane, residual fuel oil, lubricants, electricity, and liquid hydrogen

U.S. maintains status as a net exporter of petroleum products

U.S. petroleum product imports and exports

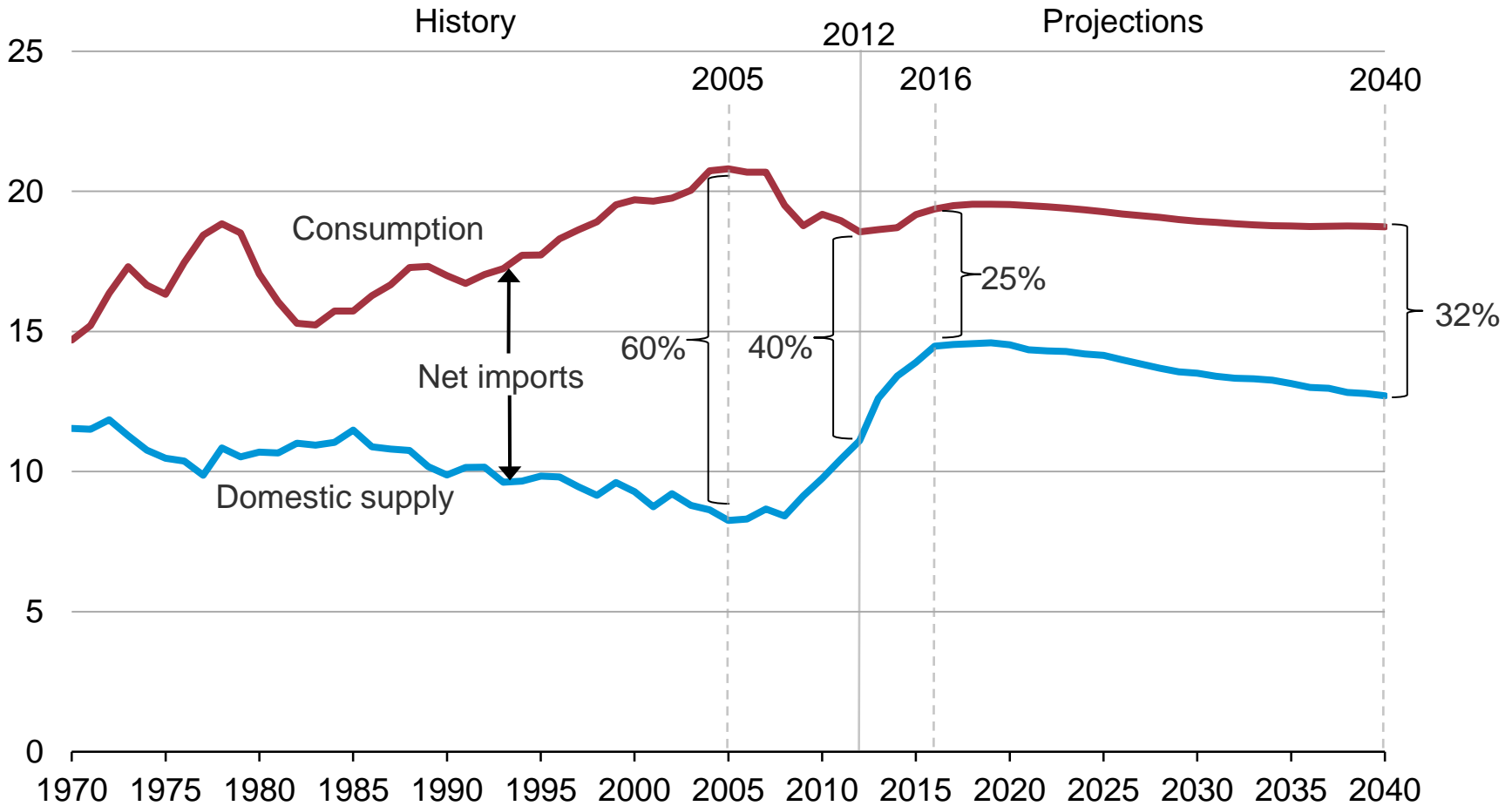
million barrels per day



Source: EIA, Annual Energy Outlook 2014 Early Release

U.S. dependence on imported liquids declines, particularly in the near term

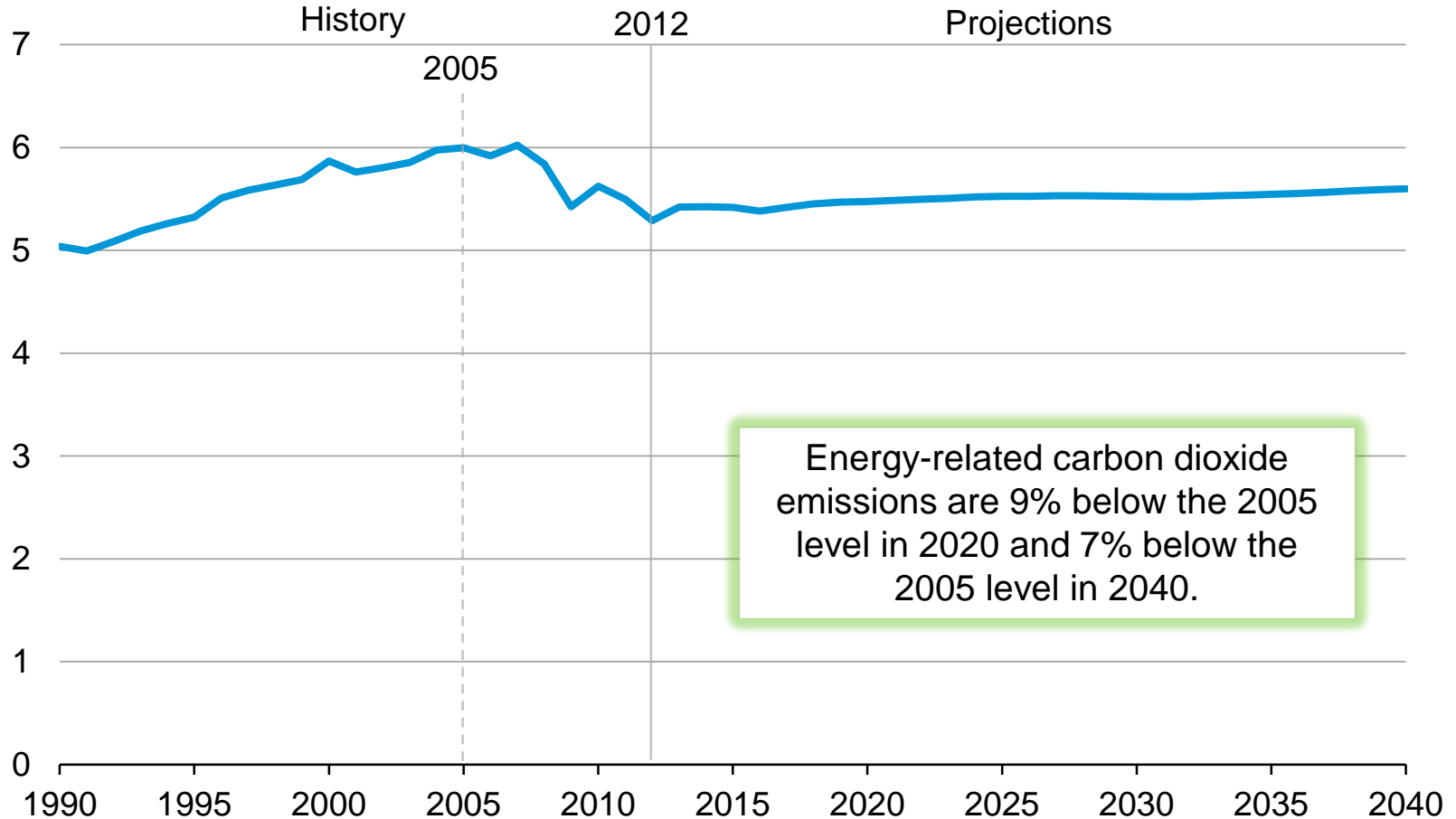
U.S. liquid fuel supply
million barrels per day



Source: EIA, Annual Energy Outlook 2014 Early Release

Energy-related CO₂ emissions remain below the 2005 level over the projection period

carbon dioxide emissions
billion metric tons



Source: EIA, Annual Energy Outlook 2014 Early Release

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 Profiles | <http://www.eia.gov/state>

Drilling Productivity Report | <http://www.eia.gov/petroleum/drilling/>