

# U.S. and West Virginia's Energy Economy – Trends

As market conditions, additional regulations and emerging energy technologies, like horizontal drilling and distributed, generation continue to dramatically alter the national energy landscape, fossil fuel producing states like West Virginia are extraordinarily disadvantaged. But West Virginia has long been an energy exporting state and must be provided the tools and to continue to be an exporter in an all-of-the-above manner, particularly with respect to coal and natural gas because both fuels will continue to be a part of the nation's energy mix for some time.

Many see clean coal and natural gas as “bridge fuels” but, for West Virginia, the bridge is long. In fact, EIA projects that coal will continue to be approximately one-third of our energy consumption through the year 2040 (see Figures 1 and 3).

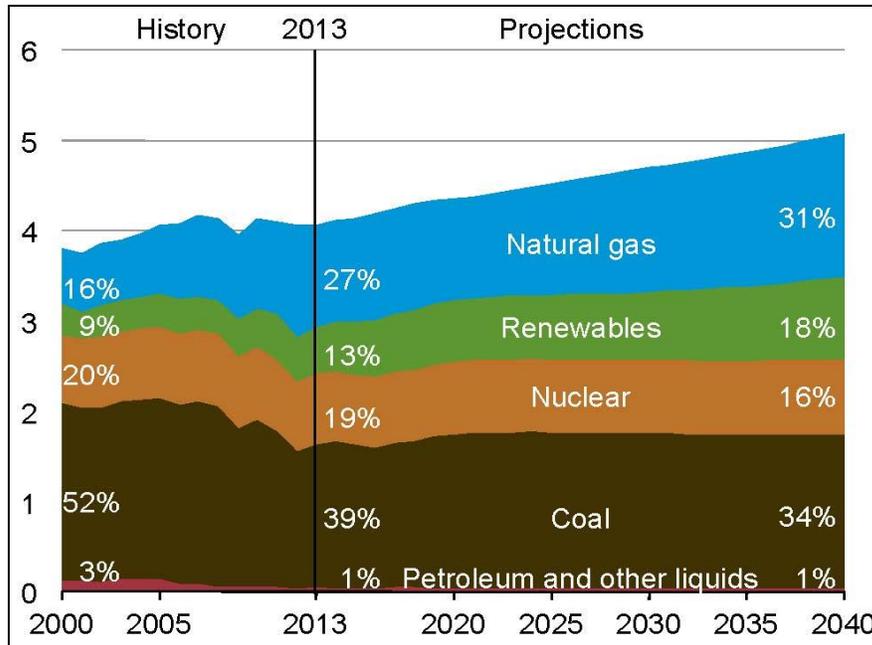


Fig. 1 - ELECTRICITY GENERATION BY FUEL IN THE REFERENCE CASE, 2000 – 2040

Source: History: U.S. Energy Information Administration, Monthly Energy Review, November 2014, DOE/EIA-0035(2014/11). Projections: AEO2015 National Energy Modeling System, run.

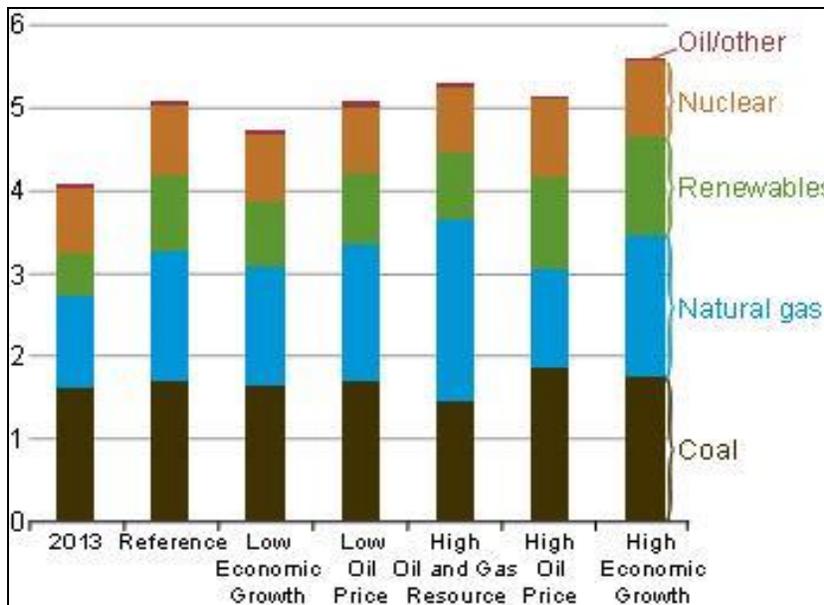


Fig. 2 - ELECTRICITY GENERATION BY FUEL IN SIX CASES: 2013 – 2040

Source: History: U.S. Energy Information Administration, Monthly Energy Review, November 2014, DOE/EIA-0035(2014/11). Projections: AEO2015 National Energy Modeling System, runs REF2015.D021915A, LOWPRICE.D021915A, HIGHPRICE.D021915A, LOWMACRO.D021915A, HIGHMACRO.D021915A, and HIGHRESOURCE.D021915B.

- The Department of Energy (DOE)'s proposed FY2017 budget purports to support a “comprehensive strategy for coal” but cuts the level of funding for Fossil Energy Research and Development and includes a rescission of \$240 million from an existing commercial-scale CCS project in Texas. Commercial-scale demonstration is a critical piece of the R&D puzzle that will

lead us to a utility-scale clean coal solution. Pulling the rug out from under this project sends the wrong message and calls into question our nation's commitment to the future of coal.

- Additionally, the Department of Energy has yet to issue one dollar in loans for CCS projects since it was authorized to do so in 2009. The American Recovery and Reinvestment Act gave the DOE the authority to issue up to \$8 billion in loans for CCS projects. Since 2009, the DOE has offered two solicitations for these loans and issued zero loans.
- Appropriations for CCS R&D at the Department of Energy:
  - Subtotal, CCS and power systems:
    - FY 2016 Enacted- \$430,000,000
    - FY 2017 Committee recommendation- \$377,000,000
  - Carbon capture:
    - FY 2016 Enacted-\$101,000,000
    - FY 2017 Committee recommendation-\$101,000,000
  - Carbon storage:
    - FY 2016 Enacted-\$106,000,000
    - FY 2017 Committee recommendation-106,000,000
  - NETL coal research and development:
    - FY 2016 Enacted- \$53,000,000
    - FY 2017 Committee recommendation- \$0
  - Natural Gas Technologies:
    - FY 2016 Enacted- \$43,000,000
    - FY 2017 Committee recommendation- \$46,000,000
- CCS LOAN GUARANTEES: The authorized level for CCS loan guarantees is \$8 billion but no loans have been issued. The DOE intends to do another solicitation this year. Your staff is in touch with DOE regarding their progress in this area. No legislation currently exists that would convert this authorization to research and development funding at this time. Although the loan authority is \$8 billion, CBO only scores this program at \$80 million (cost of loan administration and financing).
- LABS: West Virginia is home to two world class research labs that are dedicated to finding solutions to ensure the future of fossil fuels is a low or no emissions future. West Virginia's labs are committed to securing our nation's energy needs, protecting the environment and protecting economic development through achieving results in technological innovation.
  - **West Virginia University's National Research Center for Coal and Energy (NRCCE)** is a research center dedicated to the development, delivery and use of clean, abundant energy; the use and protection of water quality; and the protection and restoration of the environment in rural settings and in areas of mining and industrial applications. The NRCCE is currently home to the US-China Energy Center which focuses on developing clean coal technology in collaboration with China's energy sector. NRCCE also houses the West Virginia Water Research Institute including the National Mine Reclamation Center and the Hydrology Research laboratory as well as the Zero Emissions Research and Technology Center.
  - One of DOE's premier labs – **the National Energy Technology Lab (NETL)** is a government-owned government-operated venture with a location in Morgantown, West Virginia. NETL's work has been instrumental in the energy industry. Its mission includes work on advanced energy systems, CO2 capture programs (a cost-shared collaboration between government and industry to increase investment in clean industrial technologies and storage projects), CO2 storage technologies that help reduce greenhouse gas emissions, cross-cutting technologies for future near-zero-emission power systems, funding for commercial-scale projects and research in to ensuring an economically competitive supply of rare earth elements.