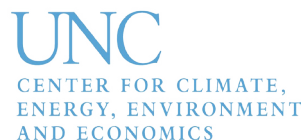


Illuminating the Energy Policy Agenda: Electricity Sector Issues Facing the Next Administration

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Part 4: Natural Gas



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Review

The work reported in this publication benefited from review from experts in the field. The preliminary analysis was shared with external parties, and this publication reflects their feedback. However, this publication has not undergone a formal review process due to the timely nature of its contents.

SUMMARY

The next president will take office during a period of rapid market and regulatory change for the U.S. electricity sector. Due to statutory deadlines, pending lawsuits, and agency rulemakings—if not by choice—the next president will tackle energy policy. To prepare policy makers for what promises to be a dynamic period in electricity law and policy, this report provides an overview of each of six key areas of federal policy and, for each area, identifies the decision points—in time or circumstances—that will force the next administration to make choices that shape the future of the grid. For each decision point, the report explores the next president's options and the federal agencies and authorities that he or she could deploy.

Part 4 of this report describes how different agencies and levels of government regulate natural gas production and create policies affecting natural gas demand. This shared responsibility complicates the regulatory picture and places much of the regulatory responsibility with states. Yet new federal rules, pending litigation, petitions for additional U.S. Environmental Protection Agency regulation, and market forces driving coal from the power sector will require attention and policy responses from the next administration. Key issues include the role of natural gas in decarbonizing the electricity sector, policies that affect natural gas production, and policies that drive demand for natural gas.

NATURAL GAS

At a Glance

Federal Actors: Environmental Protection Agency (EPA), Bureau of Land Management (BLM), U.S. Department of Energy (DOE), U.S. Department of Transportation (DOT) (including the Pipeline and Hazardous Materials Safety Administration, PHMSA), Federal Energy Regulatory Commission (FERC).

Appointments: The next president will appoint the heads of the EPA and the BLM.

Legal Authorities: Clean Air Act (CAA), Clean Water Act (CWA), Pipeline Safety Act, Resource Conservation and Recovery Act (RCRA), Safe Drinking Water Act (SDWA), Toxic Substances Control Act (TSCA), Federal Land Policy and Management Act (FLPMA), Mineral Leasing Act (MLA), Natural Gas Act (NGA), research and development funding in DOE appropriations bills, energy legislation.

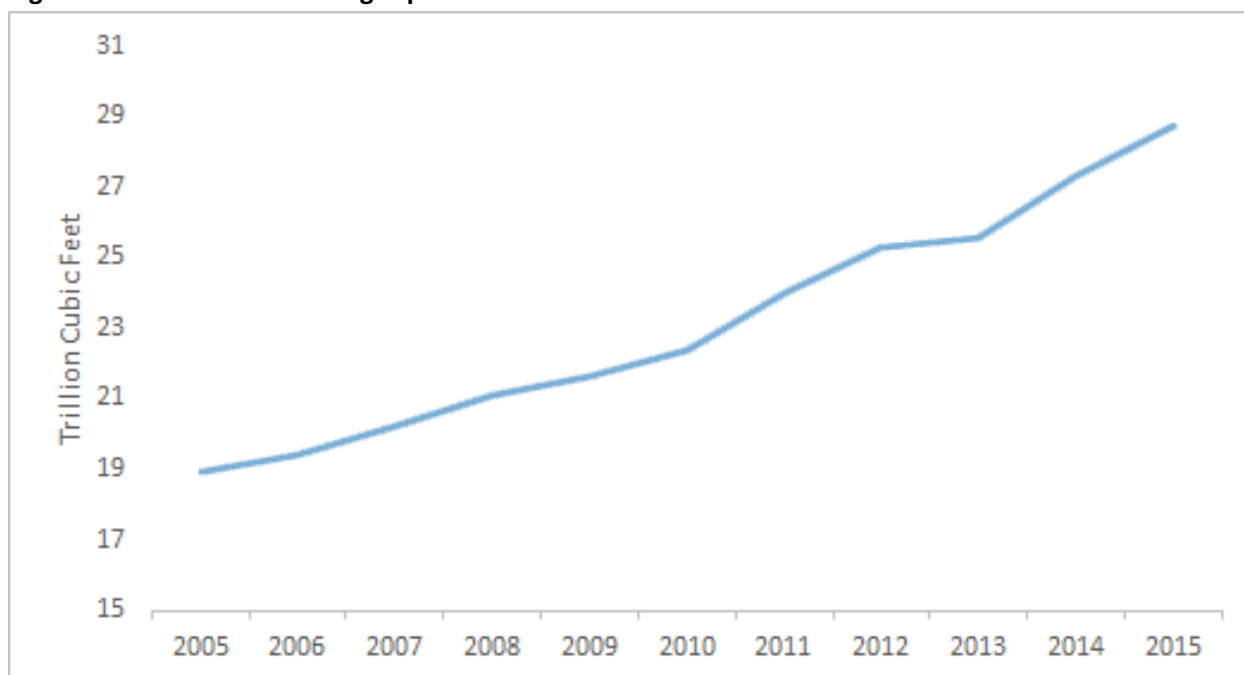
Decision Points:

- Whether and how to encourage displacement of coal with natural gas, such as under the Clean Power Plan, or to pursue more ambitious climate policy that targets GHG emissions from natural gas.
- Whether and how to use the federal government's role as a regulator and a landowner to expand or reduce the supply of natural gas.
- Whether to approve or deny applications for natural gas export terminals and natural gas pipelines that will drive demand for natural gas.

Natural gas is a major and growing fuel source for electricity generation. When combusted, it emits 7% of the nitrogen oxides and 0.2 % of the sulfur dioxides that coal emits to produce the same megawatt hour (MWh) of electricity.¹ It also emits less than half the carbon dioxide, leading some to call it the “bridge” fuel to a low-carbon future.² Others raise concerns that new and more heavily utilized natural gas power plants may extend reliance on fossil fuels and inhibit deployment of zero-carbon-emitting sources of electricity.³

The shale gas boom drove the power sector's increased natural gas use. After years of declining conventional reserves and high natural gas prices, advances in directional drilling and hydraulic fracturing made it feasible to produce natural gas from shale and other unconventional formations.⁴ Shale gas created jobs and economic development.⁵ It also sparks debates about the risks of unconventional natural gas development, including methane leaks, water-intensive production methods, and chemical use.

Figure 4. U.S. annual natural gas production



Source: U.S. Energy Information Administration.

Shale gas has strong supporters and detractors, promising to make this a high-profile and controversial issue for the next administration. Different agencies and levels of government regulate natural gas production and create policies affecting natural gas demand. This shared responsibility complicates the regulatory picture and puts much of the regulatory burden on the states. Yet new federal rules, pending litigation, petitions for additional EPA regulation, and market forces driving coal from the power sector will require attention and policy responses from the next administration. Key issues include the role of natural gas in decarbonizing the electricity sector, policies that affect natural gas production, and policies that drive demand for natural gas.

Background

In 2005, coal accounted for 49% of U.S. electricity generation, while natural gas supplied less than 20%.⁶ Then, the shale boom occurred. By 2015, coal and natural gas each generated about one-third of electric output.⁷ The EIA projects that 2016 will be the first year that natural gas generation exceeds coal generation.⁸

States are the primary regulators of oil and natural gas production in the United States,⁹ unless the production occurs on federal or Indian land or into the federal mineral estate. The Bureau of Land Management (BLM) manages federal natural gas leasing; the U.S. Forest Service and the National Park Service also play minor roles in development as federal land managers.

The EPA and other agencies, including the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, possess generic authorities that may apply to natural gas production. For instance, under the Clean Air Act, the EPA regulates volatile organic compounds (VOCs) and methane emissions from natural gas wells, processing facilities, and other components across the natural gas supply chain.¹⁰

Under the Clean Water Act, the EPA may regulate storm water run-off from well production sites or wastewater treatment facilities that treat fracking wastewater.¹¹ A number of federal environmental statutes preclude the EPA from regulating oil and gas activities¹² or place the burden on the EPA to determine whether it is appropriate to regulate this sector.¹³

The federal government also plays a key role in supporting the natural gas industry, from research and development to tax incentives and policies to induce the use of this fossil fuel.

Decision Points

Climate Policy Decisions Affecting Electricity Generation

Any federal efforts to de-carbonize the electricity sector will affect the amount of generation fueled by natural gas. The EPA's Clean Power Plan, discussed above in the section on climate policy, is the primary example of rulemaking in this category.¹⁴ Modest GHG reduction goals for the electric sector, such as those set by the Clean Power Plan, will benefit natural gas plants over plants burning more carbon-intensive coal. However, tougher GHG policies may also target emissions reductions from natural gas plants; the relative climate benefit of natural gas plants compared to coal plants still falls short of the GHG reduction target encouraged by the international community (80% by 2050).¹⁵ Policies embraced and deployed by the next administration could focus on building the natural gas bridge or on integrating zero-emitting sources onto the grid to meet longer-term goals

Policies Affecting Natural Gas Production

Federal regulation can affect natural gas supply by preventing development in certain areas or making it more or less expensive to produce natural gas. As noted, much of the regulatory authority sits with the states. Nonetheless, the federal government plays two roles in exercising regulatory authority over shale gas production: regulator and landowner. As a regulator, the federal government may set environmental, health, or safety standards for natural gas production, processing, or transportation. As a landowner, the federal government can establish royalty rates, bonding requirements, and permitting conditions to mitigate the effects of natural gas development on public lands, natural resources, and human health.

Thus far, the Clean Air Act has served as the primary mechanism for federal regulation of shale gas production. In 2012, the EPA finalized rules addressing volatile organic compounds (VOCs) from new natural gas wells, other production components, and processing plants.¹⁶ Following release of President Obama's methane strategy, the EPA expanded coverage of these new source performance standards (NSPS) to regulate methane, new oil wells, and additional aspects of the oil and gas value chain.¹⁷ In the expanded NSPS Rule, the EPA noted its intent to set standards for *existing* infrastructure as well.¹⁸ Section 111(d) of the Clean Air Act likely requires issuance of regulations for existing sources.¹⁹ Therefore, the next administration will need to decide whether to promulgate these regulations or face a court challenge meant to force their promulgation. Studies such as those undertaken by university researchers, industry, and the Environmental Defense Fund informed the development of these rules and the EPA's methane inventory.²⁰ The next administration might therefore seek to invest in similar research.

One of the major public controversies over shale gas is the exclusion, in 2005, of hydraulic fracturing—the process of cracking shale rock with highly pressurized water and chemicals to release natural gas—from certain Safe Drinking Water Act (SDWA) requirements. Responding to concerns that drinking water

is therefore at risk from shale gas extraction, the EPA began a multi-year assessment of the issue. The agency released its draft in 2015.²¹ Depending on the timing and substance of the final report, the next administration may face pressure to move quickly on certain types of regulation or to defer to states. (Although the draft assessment stated that EPA “did not find evidence that [hydraulic fracturing has] led to widespread, systemic impacts on drinking water resources in the United States,” the agency’s Scientific Advisory Board found that “EPA did not support quantitatively its conclusion.”²²)

Environmental groups are pressing the EPA to regulate other aspects of shale gas production. For instance, in March 2016, the Natural Resources Defense Council (NRDC) petitioned the EPA to revisit aquifer exemptions under the SDWA.²³ Western states use these exemptions to provide water for oil and natural gas development or to allow fracking into formations that contain underground sources of water. The EPA issued guidance in 2014.²⁴ The NRDC petition cites ongoing contamination of potential underground sources of drinking water and calls for EPA rulemaking. The next administration could receive an approved petition to implement or the decision to approve or deny this action. The NRDC could sue following denial of the petition.

Meanwhile, in May 2016, environmental groups sued the EPA to reconsider the agency’s 1998 determination that oil and natural gas waste is not “hazardous” under the Resource Conservation and Recovery Act (RCRA).²⁵ In the event that the next administration’s EPA decides that oil and natural gas wastes should be treated—and regulated—as hazardous, the statute requires congressional approval of the ensuing rules. These recent petitions and lawsuits suggest that the next administration may need to respond to these and similar challenges.

As chief federal land manager, the BLM finalized rules regulating hydraulic fracturing on public land in 2015.²⁶ These rules established enhanced casing specifications for hydraulically fractured wells, required closed containers for waste storage, and imposed relatively robust chemical disclosure requirements. Industry and several states challenged these rules in federal district court in Wyoming. The BLM rule is pending before the Tenth Circuit; the outcome of the case will inform the next administration’s options for overseeing shale gas extraction on federal and tribal lands.

The BLM could finalize a proposal in fall 2016 to regulate methane leaks from natural gas production facilities on public lands.²⁷ Industry and some states will challenge this rule, resulting in yet another rule defense.

Policies Driving Natural Gas Use

Federal policies can drive or reduce demand for natural gas in the electricity and other sectors. For instance, FERC licenses liquid natural gas (LNG) export terminals, which could open international markets to U.S. shale gas producers. LNG export terminal permit applications are pending at FERC, and the next administration’s appointees to FERC may act on these or future applications.²⁸

Environmental and community groups have challenged FERC approvals under the National Environmental Protection Act (NEPA).²⁹ In July 2016, the D.C. Circuit issued two opinions that sided with FERC’s decision not to account for GHG emissions associated with combustion of the exported gas. Environmental groups have also challenged the DOE’s general approval of the export of natural gas.

In addition to LNG terminals, FERC approves interstate pipelines and grants eminent domain authority to natural gas pipeline companies.³⁰ Pending lawsuits seek to require consideration of environmental impacts during the pipeline approval process.³¹ FERC may increasingly find itself at the center of these disputes.

The next president may seek opportunities to support the shale gas industry, whether through research and development of increasingly efficient production techniques or through environmental mitigation technologies, tax breaks, or tax incentives and other policies driving demand for natural gas. The DOE's Office of Fossil Energy and the National Energy Technology Laboratories might house relevant research and development programs. Alternatively, the next president could push to leapfrog shale gas and other fossil fuels by ramping up research and development and tax incentive packages for renewable energy and battery storage technologies.

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Nicholas Institute for Environmental Policy Solutions

The Nicholas Institute for Environmental Policy Solutions at Duke University is a nonpartisan institute founded in 2005 to help decision makers in government, the private sector, and the nonprofit community address critical environmental challenges. The Nicholas Institute responds to the demand for high-quality and timely data and acts as an “honest broker” in policy debates by convening and fostering open, ongoing dialogue between stakeholders on all sides of the issues and providing policy-relevant analysis based on academic research. The Nicholas Institute’s leadership and staff leverage the broad expertise of Duke University as well as public and private partners worldwide. Since its inception, the Nicholas Institute has earned a distinguished reputation for its innovative approach to developing multilateral, nonpartisan, and economically viable solutions to pressing environmental challenges. www.nicholasinstitute.duke.edu

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