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Finding the Balance: The Role of Natural Gas in America's Energy Future

By helping the United States reduce its carbon pollution and begin the transition to a sustainable energy future, the efficient use of natural gas can play an important role in meeting America's energy needs while slowing our contributions to climate change. Recent developments in technology have increased access to natural gas supplies stretching from New York to Texas. Yet, burning natural gas without emission controls creates carbon emissions that ultimately will be too high in relation to America's need to reduce emissions 80 percent or more by mid-century. In addition, as drilling moves into more communities, many people have become concerned about the negative impacts drilling will have on their lives. Comprehensive regulations ensuring that drilling occurs safely and only in appropriate places can provide a critical vehicle to allow natural gas to fulfill its valuable role in America's energy future.

Preserving Special Places

Part of our identity as a nation is tied to the preservation of wild lands untouched by humans, including wilderness and roadless areas. Many of these areas, such as watersheds that supply drinking water, provide invaluable ecological services to communities. Whether these irreplaceable resources exist on land, off our coasts, or deep in the ocean, they should be protected from drilling. We do not need to sacrifice these natural treasures to obtain the natural gas the nation needs.

Drilling Safely

Although natural gas is currently being produced in approximately 30 states, many of those operations are not subject to regulations

that adequately protect human health and the environment. The wells, roads, and pipelines that come with natural gas development can displace wildlife and fragment their habitats. Erosion and polluted runoff—as well as leaks and spills—can foul treasured fishing streams. Natural gas extraction can also contaminate drinking water. Emissions from drilling rigs, truck traffic, and production equipment can include hazardous air pollutants and contribute to unhealthy ozone levels. The absence of sufficient environmental protections is hiding the true cost of getting natural gas out of the ground.

Technologies exist that allow natural gas to be produced in an economical but more environmentally friendly way. For example, harmful air emissions can be captured with the

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right equipment, toxic wastes can be minimized and managed in ways safer than open air pits, and wells can be clustered to minimize impacts. Some states are leading the way in requiring cleaner operations, such as air quality protections in western Wyoming, New Mexico's waste management rules, and Colorado's stormwater runoff prevention program.

While these state models are positive steps, they are isolated examples. Most regulations have not kept up with advancements in our knowledge of the impacts or with the latest technology. We need new, comprehensive state and federal protections to address the following:

- reducing air pollution by hazardous air pollutants, particulates, and methane and other greenhouse gases;
- reducing water and ocean pollution by setting strong standards on drilling muds, cuttings, and produced waters or solids;
- requiring public disclosure of chemicals used in the extraction process and eliminating exemptions under the Clean Water Act and Safe Drinking Water Act for gas production;
- protecting health by requiring air and water quality monitoring, assessing the potential for exposure to harmful substances, tracking health outcomes, and including health impact assessments in environmental impact statements;
- requiring natural gas waste to be subject to the hazardous waste provisions of the Resource Conservation and Recovery Act and delegated state programs;
- improving seismic survey mitigation measures for the oceans, establishing benchmarks for the further development and commercial use of greener alternatives to airguns, and requiring noise abatement during exploration and production;
- strengthening NOAA's role in offshore planning and regulatory processes;
- ensuring consistency of offshore leasing with coastal and marine spatial plans developed pursuant to the President's Ocean Policy Task Force recommendations;
- reforming BLM policies for natural gas development on federal public lands, including new protections for wildlife habitat, protection of air and water resources, and improved reclamation standards; and
- protecting communities and residential areas through safe setbacks from homes and schools, noise restrictions, and surface owner protections.

Using Gas Efficiently

Recognizing that all natural gas extraction and use can have some negative environmental impacts, it is critical that we use the fuel in the most efficient manner possible. NRDC has a 30-year history of finding innovative approaches to develop affordable ways to get more work out of less natural gas and electricity usage. We

pioneered a strategy of coordinating efficiency standards with financial incentives that has repeatedly resulted in utility systems finding investments in energy efficiency to be a cost-effective alternative to new natural gas and electricity resources. As a result, the average U.S. household uses a third less natural gas today than it did in 1980, and many gas-fired appliances are more than twice as efficient as their predecessors.

In 2004, NRDC established a formal partnership with the American Gas Association (AGA) designed to fundamentally change utilities' business models by removing linkages tying their financial health to increased natural gas consumption in homes and businesses. NRDC and the AGA are also working together to accelerate the industry's energy efficiency investments and upgrade efficiency standards for buildings and appliances. We take mutual pride in our successes, but we will not be satisfied until we reach the shared goal of exploiting all cost-effective opportunities to improve the efficiency of natural gas use throughout the U.S. economy.

Similarly, we need to continue to improve the efficiency of gas-powered electricity generation and take advantage of opportunities to use waste heat from electricity production to reduce energy needs in other sectors. With the full cooperation of the sponsor—Calpine's Russell City facility—California recently incorporated in air quality permits the first greenhouse gas performance standards for a gas-fired power plant. NRDC looks forward to the day when all fossil fuel generation is required to meet such standards.

Displacing Higher Carbon Fuels

Because natural gas has fewer carbon dioxide emissions per unit of energy than petroleum and coal, expanded use of natural gas can result in significantly lower cumulative emissions of carbon dioxide if it is used to displace those higher carbon fuels. However, a greater supply of natural gas in and of itself may or may not result in reduced emissions. For those applications where it replaces dirtier fuels such as coal or oil, or serves to help integrate large additions of variable-output renewable resources to electricity systems, natural gas will lower cumulative emissions. But if natural gas displaces energy efficiency, renewable resources, or more efficient fuel or vehicle investments, then it would increase cumulative emissions.

To ensure that use of natural gas contributes to reductions in greenhouse gas and other emissions, we need a comprehensive cap on greenhouse gas emissions along with complementary policies that boost energy efficiency, increase reliance on renewables, reduce greenhouse gas emissions from transportation, and support development of carbon capture and sequestration technologies to reduce carbon emissions from burning fossil fuels.