

*Event Summary: National Petroleum Council Report:
Prudent Development of North America's Oil & Gas Resources*

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In September 2009, U.S. Secretary of Energy Steven Chu requested that the National Petroleum Council (NPC) conduct a study evaluating North America's natural gas and oil resources supply chain and infrastructure potential, the role of natural gas as a transition fuel to a lower carbon fuel mix, and policy options for the development of North American natural gas and oil resources that mitigate environmental, health and safety concerns. On Wednesday, October 12, 2011 the CSIS Energy and National Security program was pleased to host the individuals who chaired the study's substantive task groups for an in-depth discussion of the NPC report's key findings and recommendations.

Opening remarks were given by Christopher Smith, Deputy Assistant Secretary for Oil and Natural Gas, Office of Fossil Energy at the U.S. Department of Energy, and Government co-chair for the Coordinating Subcommittee of the NPC study. Mr. Smith laid out the process by which the NPC study was proposed and carried out, focusing on the intellectual challenges that faced participants. According to Mr. Smith the goal of the study was to figure out a framework for prudently developing U.S. resources while protecting human health and the environment. The study aimed to answer a number of questions:

1. How is energy used in the United States and what are recommendations for changing energy use?
2. How do we move the economy forward and create positive political recommendations where energy is concerned?
3. How do we reduce U.S. oil use?
4. And, how do we reduce greenhouse gas emissions dramatically by 2050?

The process of answering these questions, as far as the study was concerned, was three-part:

1. Listen—to public and private concerns
2. Quantify—use the information and data collected to quantify risks.
3. Communicate—talk with groups and communities to communicate concerns, including fundamental changes that are need to transform U.S. energy.

According to Mr. Smith, the U.S. has a fundamental challenge to move energy consumption from where it is now to where policy goals hope to be in the future. Outreach, as well as technical analysis, are needed in order to reach current U.S. energy goals, and should be rooted in and address individual's concerns.

Clay Bretches, the Vice President of E&P Services and Minerals at Anadarko Petroleum Company provided an overview of the NPC study. Mr. Bretches pointed to the diverse group of participants, in total more than 400, 50% of which were from outside of the oil and gas industry, as a unique aspect of the NPC study. The objectives of the study, to assess the U.S. resource base, describe the role of

technology, and prudently develop U.S. resources based on the study's findings, were aided by input from special interest groups, NGOs, academics, and companies.

Follow Mr. Bretches first comments, Andrew Slaughter, Business Environment Advisor-Upstream Americas for Shell Petroleum Exploration & Production Company described the resource and supply aspect of the study. The NPC study focused primarily on the U.S. and Canadian resources. Technological innovation has given gas a tremendous platform for moving forward in the U.S. energy economy. Oil is also an important aspect of the NPC study, as technology and innovation has allowed the U. S. to increase its production capacity in recent decades. Supply options, or, as Mr. Slaughter put it, "Portfolio Options," are unique to the United States, as the U.S. is fortunate to have many options, however, access to these resource supply options depend on a number of factors:

1. Sustained, long term potential must be considered early on
2. Infrastructure is vital to the supply of energy resources and must be invested in
3. Lease length and structure needs to be developed, along with appropriate regimes for each location

In response to Mr. Slaughter's discussion of supply options, Ken Yeasting, Senior Director of Global Gas and North American Gas for HIS Cambridge Energy Research Associates, Inc. spoke about the demand side of the NPC study. The NPC study looked at a number of existing U.S. energy forecasts and compared for the purpose of the NPC study. Most of U.S. demand, as presented in these various studies, is driven by power and policy related issues. In Canada, another region touched on by the NPC study, demand is driven by variations in industrial demand, resulting in a wide range of end use demand projections. To test these differing demand projections for the United States and Canada, the NPC study created a supply case stress test—and their findings were overwhelmingly positive. Using the highest estimates of demand the stress test showed that with reasonable regulation and reasonable access the North American supply can meet demand. However, with unreasonable regulation and unreasonable access the North American supply cannot meet demand. In short, the United States must allow proper developments of the energy infrastructure in order to keep pace with growing demand, or else the U.S. could become an energy importer, as previous projections hypothesized.

Mr. Yeasting's specific recommendations, following the NPC studies finding on North American demand were as follows:

1. Better reflection of environmental impacts on markets and fuel technology choices is needed, particularly in reference to fuel neutral carbon capture and sequestration (CCS) as a part of the U.S. energy landscape.
2. Efficiency must be improved in order to respond to demand properly, particularly in the advancement of building and appliance efficiency, as well as the adoption and development of fuel cycle analysis.
3. Enhanced regulation of markets would allow utilities to better manage natural gas price risks and harmonize the crucial interaction between the demand of gas and power sectors.

The current Carbon Strategies Director of El Paso Corporation, Mr. Fiji George, followed up Mr. Yeasting's comments with a discussion on the end-use emissions and carbon regulation findings of the NPC study. Mr. George touched upon U.S. greenhouse gas (GHG) emissions reduction goals (80%) and

the role of the Environmental Protection Agency in creating an atmosphere where less carbon intensive energy options (such as gas) are important aspects of the future of U.S. energy consumption. Particularly, the relationship between U.S. carbon constraints and natural gas demand has created a number of policy options:

1. Policy makers should seriously consider the effective cost of carbon policy.
2. An increase in research and development focus on CCS is needed, along with a pilot project and consideration for natural gas specific CCS projects.
3. Provide regulatory certainty that includes scope, timing, and requirements.
4. Measure reduced methane emissions through industry-government partnership.
5. Policy makers who are concentrated on reductions in GHG emissions and carbon pricing should focus their goals on economy wide, focused and complimentary policy.

Following Mr. George's recommendations concerning end use emissions and carbon regulation, Mr. Scott Moore, Vice President of Marketing at Anadarko Petroleum Corporation concluded the NPC report findings with a focus on Operations and Environment. Technology, Mr. George stated, leads to regulations, so it is essential for the U.S. to open up avenues for information sharing, and regulation must reflect changes and new findings in the tech sector. Industry and government should respond to these potential findings and changes, in three particular ways, as outlined in the NPC study:

1. Regional councils of excellence should be established to address developments.
2. A commitment to community engagement should be made on the part of all parties involved.
3. And the development of consistent methodologies for footprint analysis should be adopted in response to environmental factors.

To wrap up the summary of the NPC study Mr. Clay Bretches abridged the recommendations that resulted from the study into 5 points:

1. Prudent development should be supported through:
 - a. Established region council of excellence that share effective environmental, health, and safety practices
 - b. Adoption of effective regulation policies
 - c. Commitment to community engagement
 - d. Measurement and reduction of methane emissions
2. Better reflect environmental impacts in market and choices
 - a. Better analyze and compare the full environmental impact of fuel and technologies, develop tools for understanding these effects
 - b. Consider options for internalizing the cost of carbon impacts into fuel prices
 - c. Technology sharing
3. Enhance the efficient use of energy
 - a. Encourage adoption of energy efficiency in building
 - b. Remove utilities' barriers to promotion of efficiency, combined heat, and power
4. Enhance the regulation of markets
 - a. Allow utilities to effectively manage their natural gas price risks
 - b. Harmonize interactions between natural gas and markets
 - c. Provide greater environmental regulation certainty affecting power sector

5. Support intellectual capital and skilled workforce
 - a. Increased cooperation and communication between federal government, natural gas, and oil companies and students in higher education
 - b. Increased investment in K-12 science and math education from all levels of government.

In conclusion, Mr. Bretches reiterated that the United States possess enough supply to support national economic, environmental and security objectives, and that the key to realizing these objectives in prudent development, and the recommendations provided by the 2011 National Petroleum Council study.