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American Energy Outlook: Technology, Market, and Policy Drivers

Witnesses: The Honorable Adam Sieminski Administrator, Energy Information Administration, U.S. Department of Energy **Robert McNally** President, The Rapidan Group Lisa Jacobson President, Business Council for Sustainable Energy Committee Members Present: Cynthia Lummis (R-WY), Subcommittee Chair Eric Swalwell (D-CA), Subcommittee Ranking Member Lamar Smith (R-TX), Full Committee Chairman Ralph Hall (R-TX) Dana Rohrabacher (R-CA) Randy Weber (R-TX) Randy Hultgren (R-IL) Daniel Lipinski (D-IL) Joe Kennedy (D-MA) Marc Veasey (D-TX)

On February 13, 2013, the House Committee on Science, Space, and Technology's Subcommittee on Energy held a hearing to receive testimony assessing the current state of America's energy technologies and policies and their potential impacts on energy markets.

Chair of the Subcommittee on Energy Cynthia Lummis (R-WY) began her opening statement declaring, "Plentiful and affordable energy is arguably the single most important factor to enabling our prosperity—from our health and wellness to our national and economic security." She advocated for "an 'all of the above' energy strategy" and indicated the "potential for increased energy production to help address the nation's spiraling debt." For the next seven years, an Institute for Energy Research report projected an annual increase in GDP of \$127 billion and an annual increase in federal tax revenue of \$24 billion. Lummis cited the International Energy Agency (IEA) study that indicated that the U.S. would surpass Russia and Saudi Arabia in oil production by 2020. She emphasized the importance of coal by stating that the IEA projects "that coal will be the dominant energy source globally by 2030," and that it "is the only source of energy that can meet the scale of energy demand for the billion people worldwide who live with no electricity at all."

In his opening statement, Ranking Member Eric Swalwell (D-CA) stated, "It is time for us to get serious about creating a coherent green energy policy to enable us to compete globally." The U.S. energy future lies in "our ability to transition to new, cleaner, more sustainable resources" given that "the U.S. uses 20 percent of the world's oil but has only two percent of world's oil reserves." Swalwell noted that the increase in wind power in 2012 outpaced natural gas. By 2018, Pew Charitable Trusts estimates that domestic clean energy installations will increase U.S. market revenue by a compound annual rate of 14 percent or a total of \$2 trillion. Swalwell emphasized the need to take public health, the environment, and climate change into account when developing energy policies. He indicated a need to "engage our world-class scientific enterprise" and to "leverage equitable and innovative financing mechanisms." In addressing the uncertainty often associated with investing in research and energy, he stated "we need to be willing to take risks."

Adam Sieminski, an administrator for DOE's Energy Information Administration (EIA), outlined in his testimony the recent energy production and consumption statistics issued in the *Short Term Energy Outlook* (STEO) and 2013 *Annual Energy Outlook* (AEO). The recent STEO is the "first to include the extension of the federal production tax credits for certain renewable energy sources." The EIA expects an increase in domestic crude oil production of 1.4 million barrels per day by 2014. Over the next two years, they project a fall in crude oil prices and a rise in natural gas prices. An increase in natural gas prices will "contribute to a modest rise in coal-fired electricity generation." Sieminski also stated that EIA expects electricity generation from renewable resources to grow; wind power generation is anticipated to increase by 16 percent in 2013 and 8 percent in 2014, and all solar power generation by 30

percent in both years.

The 2013 AEO projects that natural gas will comprise 30 percent of U.S. energy generation in 2040 and will reach "other new markets, such as exports, as a fuel for heavy-duty freight transportation like trucking, and as a feedstock for producing diesel and other fuels." In his testimony, Sieminski noted that the rate of "renewable fuel use [will grow] at a much faster rate than fossil fuel use," increasing from "13 percent in 2011 to 16 percent in 2040." The increase in renewables and efficiency will prompt a "shift away from the most carbon-intensive fuels," leaving the "U.S. energy-related carbon dioxide (CO2) emissions…more than 5 percent below their 2005 level through 2040." He added that, among other reasons, the increase in efficiency means that the projected increase in electricity usage is "less than one percent per year."

In his testimony, Robert McNally, president of the Rapidan Group, set out five observations and suggestions for dealing with energy markets, technologies, and policies. First, he stated that "ample" amounts of energy, particularly from fossil fuels, are necessary to "sustain our standard of living." Fossil fuels are "far superior to other primary energy sources because they are dense, highly concentrated, abundant, and comparatively easy to transport and store," according to McNally. Second, he issued a reminder that transforming existing energy systems takes time. Third, he urged policymakers to be cautious in making predictions and setting "unachievable targets." Fourth, he noted that "we live in a global oil market, no matter how little we import" and that can have undesired consequences such as the "short-term crude and gasoline price volatility caused by a fundamentally tight and fearful global oil market." Fifth, McNally stated that "not all surprises in the energy sector are unpleasant." He pointed to the innovation in technology that "enables the energy industry to find and produce enormous reserves while protecting the environment and conserving natural resources." Accessing methane hydrates, he advocated, could be a "plausible" innovation in the future.

As president of the Business Council for Sustainable Energy (BCSE) which represents energy efficiency, natural gas, and renewable energy industries, Lisa Jacobson discussed the recent "real market penetration of a wide range of sustainable energy technologies and resources" in her testimony. She stated that for such growth to continue, "long-term, stable polices" needed to be enacted "to level the playing field and to provide market access to sustainable energy technologies." Jacobson highlighted the crucial nature of federal investments in energy R&D noting BCSE's "strong support" of continued federal funding for basic and applied research to "ensure that products do not sit on laboratory or university shelves, but are transferred to the private sector to achieve the intended public benefit."

Lummis began the question and answer section asking Sieminski about EIA's projections for exporting coal. Sieminski indicated that coal demands are "growing rapidly" in underdeveloped areas; however, since U.S. electricity will only grow by less than a percent, "our options are limited." Domestic use of coal will increase slightly, Sieminski stated. He noted that not only does the opportunity to export coal exist, but the U.S. has already been exporting coal to Europe. He told Lummis that more information would be available with the publication of EIA's International Energy Outlook this summer.

Swalwell discussed President Obama's challenge in the State of the Union address to cut in half U.S. energy consumption. Given that commercial buildings consume about 19 percent of all energy in the U.S., Swalwell inquired, "Is there an opportunity for us to have commercial buildings working better with public utilities to connect to the grid...[and to] install clean energy technology on these buildings to make them more energy efficient, reduce their consumption, and also create more made in America jobs?" Sieminski replied that there are "lots of opportunities in the business sector for improvements in energy efficiency," and that EIA is implementing a survey of energy consumption in different types of buildings to identify such opportunities. Jacobson brought up the Better Buildings Initiative which brings together stakeholders to "overcome the barriers" to implementing efficiency jobs can't be outsourced."

Joe Kennedy (D-MA) asked for additional recommendations for improving efficiency. Jacobson responded that new buildings have good standards, but retrofitting old buildings is "challenging." She noted the importance of current tax incentives for renewables, but noted a need for long-term planning to foster investment especially given that alternative energy resources are not yet "competitive" price-wise. McNally argued that eliminating the tax incentive and instead using the funds to invest in basic research is a better way of developing clean technologies.

Ralph Hall (R-TX) brought up the issue of EPA regulations and how such actions could affect energy production. Jacobson voiced support for the state-based regulation plan outlined by Governor John Hickenlooper (D-CO) at the Senate Committee on Energy and Natural Resources hearing on February 12, 2013. Hickenlooper stated that "states are the laboratories" indicating a hope that "federal regulations would be modeled after [those of] a group of states" rather than added on top of state regulations. Jacobson noted a need to be careful and ensure that correct data is utilized in regulations, but also pointed out the importance of generating public confidence in production safety.

Regarding natural gas, Dana Rohrabacher (R-CA) asked if federal policies and regulations were "stifling" hydraulic fracturing and natural gas production on federal lands. Sieminski pointed out that some fracturing occurs on public lands; however, geologically most reserves are on private lands. Rohrabacher also asked about the peak oil and gas hypothesis, to which Sieminski replied that the "problem with the peak oil and gas hypothesis was that it was entirely geology based" but didn't account for the role of technology or market price.

Marc Veasey (D-TX) inquired as to the practice of flaring and if there was "technology on the horizon to make it so that we don't have to flare natural gas." Sieminski pointed out that much of the flaring occurs in locations of new oil and gas developments that

have yet to be connected to existing pipelines. He stated that it "takes time" for those areas to get connected. Additionally, he stated that there are companies considering using small natural gas liquefaction containers that allow for easier transport. In Alaska, much of the extracted gas gets reinjected, thereby reducing the need for flaring, Sieminski noted.

Daniel Lipinski (D-IL) discussed issues of nuclear energy and EIA's projections for the nuclear industry. Sieminski responded that the projected growth in nuclear stems from the construction of new plants and improvements in efficiency technology. Rohrabacher and Lummis expressed an interest in discussing additional "approaches to nuclear energy" including light water and small modular reactors.

Randy Hultgren (R-IL) inquired as to what would be the best use for limited energy resources and funding. McNally replied that beneficial uses included research into improving batteries and extracting methane hydrates safely and efficiently. Opening statements, witness testimonies and an archived webcast of the hearing can be found on the House Committee on Science, Space, and Technology web site.