

U.S. Senate Committee on Energy and Natural Resources
November 15, 2018 Hearing: *Pending Nominations*
Questions for the Record Submitted to Mr. Bernard L. McNamee

Supplemental Questions from Ranking Member Maria Cantwell

Mr. McNamee, I was troubled to see reference to statements by you in February 2018 about renewables and fossil fuels that suggest a strong bias in favor of fossil fuels and a strong bias against renewable energy. I am concerned that these biases will make it difficult both for you to be the impartial arbiter that you have committed to be, and for the American public to have confidence that you will be an impartial arbiter who relies on the “law and facts” as you have stated in your testimony to the Committee on Energy and Natural Resources.

Question 1: First, I would like to verify the accuracy of quotes from you related to renewable energy. Specifically, is this an accurate quote from you? **"Renewables, when they come on and off, it screws up the whole the physics of the grid. So when people want to talk about science, they ought to talk about the physics of the grid and know what real science is, and that is how do you keep the lights on? And it is with fossil fuels and nuclear."**

Answer: The quoted text appears to be an accurate transcription from a longer presentation.

- If yes, can you explain exactly what you mean when you claim that renewable energy “screws up the whole physics of the grid.” Can you point to a peer-reviewed scientific study that supports your claim?

Answer: The North American Electric Reliability Corporation (NERC) in its “Synopsis of NERC Reliability Assessments: The Changing Resource Mix and Impacts of Conventional Generation Retirements” issued May 9, 2017 (“NERC Synopsis”) identifies some of the challenges renewables place on the operation of the electric grid. Among the observations in the NERC Synopsis:

Voltage control, frequency support, and ramping capability are essential to maintaining BPS [bulk power system] reliability. Through this transition, policy makers and stakeholders must recognize the need to maintain these essential reliability services. It is also necessary to assure resilience measures, such as maintaining fuel diversity and new technologies that work with, not against, the BPS. (NERC Synopsis at 1.)

...

Large unanticipated voltage or frequency deviations during a disturbance can lead to uncontrolled, cascading instability. With no mass, moving parts, or inertia, increasing amounts of inverter-based resources (such as solar photovoltaic) present new risks to reliability, such as managing faster

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fault-clearing times, reduced oscillation dampening, and unexpected inverter action. (NERC Synopsis at 2.)

The “duck curve” represents additional observations about the challenges intermittent renewables can have on the electric grid. The National Renewable Energy Laboratory (NREL) published: “Ten Years of Analyzing the Duck Chart: How an NREL Discovery in 2008 Is Helping Enable More Solar on the Grid Today”, February 26, 2018 summarized the challenges of intermittent renewables to the grid, while also saying it was working on solutions:

Since its discovery, the duck curve has become an emblem of the challenges faced by power system operators when integrating variable renewables on the grid. It highlights concerns that the conventional power system will be unable to accommodate the ramp rate and range needed to fully utilize solar energy. On days characterized by the duck shape—in particular, during sunny spring afternoons when demand is low and solar generation is high—system operators could actually have to turn off, or curtail, some of the solar power, because conventional plants can’t be stopped and started quickly enough to accommodate it. That could mean higher costs—and ultimately limit PV’s environmental benefits.

- Does this statement from you in February 2018 represent your view of renewable energy and its contribution to the grid?

Answer: I recognize that nationwide renewable energy resources play a significant role in supplying U.S. electric generation, as well as other resources. According to EIA 2017 data, approximately 17 percent of U.S. electric generation comes from renewables (hydro 7.4 percent, wind 6.3 percent, biomass 1.6 percent, solar 1.3 percent, and geothermal 0.4 percent.) Recognizing the challenges that intermittent renewables place on the grid is the first step to developing solutions. My understanding is that one of the fundamental technical pieces needed for renewables to be a substitute for all fossil fuels in electric generation for the entire nation (each state may be different) is the availability of utility scale storage to power the grid and provide essential reliability services when renewable resources are not available to generate electricity. I understand significant investments are being made to develop such storage technology. I also recognize that fossil fuels and nuclear provide significant power to the electric grid. According to EIA 2017 data, approximately 62.9 percent of electric generation comes from fossil fuels and 20 percent comes from nuclear.

- If so, how do you reconcile that view with your views stated to this Committee in QFRs submitted on November 21, 2018? Specifically, I refer to your answers to Questions 10 and 11.

U.S. Senate Committee on Energy and Natural Resources
November 15, 2018 Hearing: *Pending Nominations*
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Answer: I see no contradiction in observing that renewable resources place challenges on the grid and my answers to the Committee in QFRs submitted on November 21, 2018 to questions 10 and 11 from Ranking Member Cantwell. In response to question 10, I answered:

Renewable energy resources, including wind, solar, biomass, and hydroelectric, and demand side resources, along with natural gas, coal, and nuclear resources, all play important roles in supporting a reliable grid to meet our nation's power needs.

And in response to question 11, I answered:

When effectively integrated, all resources can enhance the functioning of the grid, and have the potential to contribute to our economic growth and national security.

These answers show that I recognize the value of all resources to operating the electric grid while also recognizing that resources may have different operating characteristics that may be necessary to support the electric grid during different situations. In addition, my understanding is that one of the fundamental technical pieces needed for renewables to be a substitute for all fossil fuels in electric generation for the entire nation (each state may be different) is the availability of utility scale storage to power the grid and provide essential reliability services when renewable resources are not available to generate electricity. Currently, those services are often provided by other resources, such as fossil fuels, nuclear and hydro (depending on where located). As a general matter, I think competitive wholesale electric markets should offer a level playing field for all types of technologies and resources to compete to provide services to the grid and not be biased for or against any particular resource.

Question 2: Second, I would like to verify the accuracy of quotes from you related to fossil fuels. Specifically, is this an accurate quote from you? "**... fossil fuels are not something dirty, something we have to move and get away from, but understand that they are key to our prosperity, our way of life and also to a clean environment.**"

- If yes, how can the American people have confidence in your ability to be an impartial arbiter of decisions facing the commission given this demonstrable bias in your approach to fuel sources?

Answer: The quoted text is not completely accurate. The phrase "our way of life" should read "quality of life" and the entire quote is from a longer presentation.

The quote (as corrected) acknowledges that fossil fuels have played, and continue to play, a significant role in providing abundant and affordable energy to the people of the United States and the world. According to EIA 2017 data, approximately 80 percent of all U.S.

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November 15, 2018 Hearing: *Pending Nominations*
Questions for the Record Submitted to Mr. Bernard L. McNamee

energy consumption (i.e., transportation, industrial, commercial, and electricity generation, etc.) comes from fossil fuels. In terms of electric generation, according to EIA 2017 data, approximately 62.9 percent comes from fossil fuels. Acknowledging these facts does not mean that we should not recognize that renewable energy resources also play a significant role in supplying U.S. electric generation (approximately 17 percent of U.S. electric generation).

As a general matter, I think competitive wholesale electric markets should offer a level playing field for all types of resources and technologies to compete to provide services to the grid and not be biased for or against any particular resource. Should I be confirmed to FERC, I will be not be biased for or against any resources or technologies; I will be an independent arbiter, making my decisions based on the law and facts.

Question 3: Finally, I would like to verify the accuracy of quotes from you related to environmental groups. Specifically, is this an accurate quote from you? **"The green movement is always talking about more government control because it's the constant battle between liberty and tyranny," he said. "It's about people who want to say I know what's better for you."**

- If yes, how can environmental groups possibly expect a fair shake from you as a FERC commissioner given that you equated these groups and their values with those of tyrants?

Answer: The quoted text appears to be an accurate transcription from a longer presentation. I understand the difference between being an advocate and an independent arbiter. If confirmed, I commit that I will be an independent arbiter, making my decisions based on the law and facts, not politics.