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**By mail and e-mail**

Nick Abraham  
Legislative Clerk  
Committee on Energy and Commerce  
2125 Rayburn House Office Building  
Washington, DC 20515

Dear Mr. Abraham:

Enclosed are the responses of Commissioner Phillip Moeller to the additional questions for the record. If you have any questions, please telephone me at [REDACTED]

Sincerely,

Robert Ivanauskas

**House Energy & Commerce Committee  
Subcommittee on Energy & Power  
Hearing entitled "FERC Perspectives: Questions Concerning EPA's Proposed  
Clean Power Plan and other Grid Reliability Challenges"**

**Additional Questions for the Record for Commissioner Philip Moeller**

**Questions of the Honorable Ed Whitfield**

- 1. How many times did you or your staff meet with EPA to discuss the Clean Power Plan proposal?**

Answer: I did not meet with EPA to discuss the Clean Power Plan prior to its release. Subsequent to its release, I have heard EPA officials discuss the plan on several occasions in public forums. One of my advisors, Robert Ivanauskas, attended one private meeting prior to release of the rule which included Joe Goffman, Janet McCabe, and Chairman Cheryl LaFleur. Although EPA brought some documents to that meeting, EPA decided not to allow FERC to look at those documents.

- 2. Do you view EPA's proposed Clean Power Plan as an "energy plan" or a "pollution control" rule? Please explain your response.**

Answer: I view the Clean Power Plan as both a pollution control plan and an energy plan. The intent of the plan is to reduce carbon emissions, but its compliance options constitute an energy plan that will be enacted by the states.

- 3. Would you agree that the proposed Clean Power Plan gives EPA a certain amount of control over State decisions regarding the generation, supply and consumption of power, particularly if State renewable energy and efficiency programs are included in an EPA-approved State Implementation Plan?**

Answer: Yes, the Clean Power Plan as enforced would give the EPA a certain amount of control over State decisions on electricity policy.

- 4. As the D.C. Circuit Court recently held, FERC lacks authority to dictate how States plan and operate their energy systems. Are you aware of any statutory authority that permits EPA to mandate that States restructure their electric systems and subject State energy decisions to federal oversight and control?**

Answer: I am not aware of any such statutory authority.

- 5. To what extent does FERC have authority over State utility and resource planning? Are you aware of any statutory authority giving EPA greater authority in this area than FERC?**

Answer: FERC does not have authority over state utility and resource planning, and I am not aware of any similar authority for the EPA.

- 6. EPA projects nearly 180 gigawatts of generation capacity will retire between 2010 and 2020 in response to the Clean Power Plan and other factors, such as EPA's previously finalized Mercury and Air Toxics (MATS) rule. What do you view as the potential reliability impacts resulting from the loss of 180 gigawatts of generation over the next 6 years?**

Answer: The reliability impacts will be linked with weather patterns. As I noted in my testimony, if we have several years of relatively mild winters and summers, there may be little impact. But hoping for mild weather is not a sound strategy. I am especially concerned with areas of the Midwest, noting that market rules in the Midcontinent Independent System Operator footprint require that any electricity shortages are shared. Hence there is the potential for widespread rotating blackouts if only parts of the system experience shortages. In addition, as the polar vortex events of last winter showed, parts of the Northeast experienced very tight system conditions. Many of the units that are slated to retire in the next year were running at high capacity factors when the Eastern Interconnection was stressed last winter.

- 7. Would you be supportive of EPA including in its final Clean Power Plan a "reliability safety valve" that provides FERC greater authority to prevent the retirement of reliability critical generating units? What might such a safety valve look like?**

Answer: I am absolutely supportive of a reliability safety valve. As for the details of such a safety valve, I would encourage a public dialogue on ideas to construct the most reasonable and workable plan. One component could consist of a formal decision-making process where EPA would request FERC's views and recommendations on reliability implications, and FERC would consult with NERC and regional grid operators when developing its recommendations.

- 8. Has EPA advised you about how the Clean Power Plan would work in states with multiple Regional Transmission Organizations (RTOs) or states with RTO members and non-RTO members or states with no RTO members? If yes, how would the plan work according to EPA?**

Answer: I have not been advised by EPA on how the CPP would work in these situations. I realize the EPA has been publicly promoting regional solutions, but it is not clear to me how these would actually work.

- 9. EPA analyzed a set of compliance scenarios referred to as "Regional" scenarios. The regional scenarios allow emission rate averaging across affected sources within six multi-state regions, informed by North American Electric Reliability Corporation (NERC) regions and Regional Transmission Organizations (RTOs). What role does FERC see for itself in overseeing such regional compliance efforts?**

Answer: Although I cannot speak for all the Commissioners consisting of FERC, I cannot imagine how FERC could oversee any aspect of compliance as this is an EPA rule, not a FERC rule.

**10. EPA's proposal specifically encourages States to consider the following strategies to reduce GHG emissions: demand-side energy efficiency programs; renewable energy standards; efficiency improvements at plants; dispatch changes; co-firing or switching to natural gas; construction of new Natural Gas Combined-Cycle plants; transmission efficiency improvements; energy storage technology; retirements; expanding renewables like wind and solar; expanding nuclear; market-based trading programs; and energy conservation programs.**

**a. Would you agree the above items relate more to energy planning than to environmental protection?**

Answer: Yes.

**b. Do you believe EPA has the expertise to be in the energy planning business?**

Answer: No.

**c. Is there anything on this list that would be within the jurisdiction of States?**

Answer: All of the strategies on this list are within the jurisdiction of the States.

**d. Is there anything on this list that may directly or indirectly impact FERC jurisdiction?**

Answer: Indirectly, switching to more natural gas would require pipeline capacity expansion, which if interstate in nature is within FERC's jurisdiction. Efficiency improvements to transmission or generation assets, energy storage technology, and the retirement of power plants may be FERC jurisdictional (from a cost recovery standpoint). Mandating changes to the dispatch of power plants would be jurisdictional to NERC, and thus jurisdictional to FERC.

**11. In July, the National Association of Regulatory Utility Commissioners (NARUC) approved a resolution seeking to:**

**preserve States' authority to decide the type, amount and timing of new or existing generation facilities that will be constructed or maintained within the State to achieve legitimate State policy objectives; ... to safeguard and guarantee States' continued right to operate programs to procure new generation or maintain existing generation for reliability, affordability and environmental purposes ...; and to ensure that nothing in the Federal Power Act be deemed to preempt or prohibit such activity by the States.**

**Do you view EPA's Clean Power Plan as impacting any of these areas which NARUC has expressly resolved to preserve? How so?**

Answer: Yes, the Clean Power Plan will impact all of these areas due to the four compliance methods in the proposed rule.

**12. EPA estimates that its existing power plant carbon standards "will not raise significant concerns over regional resource adequacy or raise the potential for interregional grid problems." Yet, the L.A. Times, in an article entitled "U.S. electricity prices may be going up for good," recently concluded that EPA's power plant retirement projections for its Mercury and Air Toxics (MATS) rule "turned out wrong almost immediately." Do you believe EPA could be again underestimating the reliability impact of its regulations?**

Answer: Absolutely, that is my biggest concern. Reliability issues are most often associated with local load pockets. There are profound reliability implications of the Clean Power Plan that need to be thoroughly discussed and studied to assure the continued reliability of the nation's bulk power system.

**13. EPA says that "central" to its proposed rule is "[t]he fact that generation at one EGU can be substituted for generation at another." EPA seems to suggest that a megawatt generated in Illinois can substitute for a megawatt generated in New York. This seems like a simplified understanding of how the grid functions. Would you agree?**

Answer: Yes, this is a very simplified understanding of how the grid functions. The flow of electricity is ultimately governed by the laws of physics, and the laws of physics will trump written policy.

**14. You testified that "changing from economic dispatch to environmental dispatch is truly a fundamental change that would require a complete redesign of markets to include essentially a carbon fee on any resources that emit carbon dioxide." Your position seems to conflict with the positions of Chairman LaFleur and Commissioners Bay and Norris, who contend that electricity markets will be able to integrate the Clean Power Plan requirements similar to other state and regional environmental requirements. Why is this Proposal different from previous environmental regulations that have been integrated into electricity markets?**

Answer: Previous environmental regulations have focused on plant-specific requirements. The approach under the "Clean Power Plan" is much broader and will fundamentally affect the interstate nature of the nation's electricity markets.

**15. You raised concerns that "EPA is essentially capping the amount of national electricity consumption in 2030." Can you elaborate and do you view this as problematic?**

Answer: Essentially, the EPA is capping electricity consumption through its assumptions on load growth and how electricity load will change in the future after mandating its combination of the four compliance building blocks.

Building block one relates to improved heat rates at coal plants. There is a great deal of skepticism as to whether this is even possible, as coal generators already have the economic incentive even without the rule to decrease heat rates.

Building block two relates to increasing natural gas generation dispatch up to 70 percent. Assuming this is even operationally possible, as noted in my testimony, this appears to be a fundamental shift from “economic dispatch” to “environmental dispatch” and has the potential to completely undermine the market principles that underpin dispatch of the system.

Perhaps this “environmental dispatch” can be reconciled with “economic dispatch” if regulators can accurately calculate a carbon fee that would result in a 70% dispatch for natural gas plants. But such a fee is likely to result in significant increases in costs to consumers. This building block also assumes that there will be sufficient pipeline expansion to meet this new gas demand, which seems unlikely unless new financing models for pipeline expansion are developed given that natural gas generators are reluctant to enter into long-term contracts for new pipeline capacity.

Building block three involves the expansion of low-emitting and zero-emitting resources, essentially renewable resources. But given that non-hydropower renewable resources are intermittent in nature, they will need to be backed up by fast-responding resources, most likely more natural gas units. That will affect state compliance baselines, so it will be difficult to achieve.

That leaves building block four, improvements in energy efficiency. Although I am a longstanding supporter of improving energy efficiency, these are very aggressive goals that continue to become more challenging every year.

It’s possible that some technological breakthroughs will allow for at least some partial solutions to these challenges. Yet I am concerned when new technologies are very costly and difficult to deploy in a widespread manner.

Although there has been a great deal of discussion about national electricity consumption staying flat or decreasing, increases in gross domestic product and electricity consumption have been positively correlated. If wealth creation and economic opportunity begins to improve, it seems likely that Americans will start to use more electricity. Even today, there are growing areas of the nation—notably with increased oil and gas development—where electricity consumption is rising significantly. This presents challenges to states with growing economies and how they can enjoy economic growth while meeting compliance baselines in the Clean Power Plan. Thus, by hinging its policies on assumptions about flat or decreasing electricity growth, the EPA is essentially capping the amount of national electricity consumption in 2030.

## Questions of the Honorable David B. McKinley

**1. This January, during the "Polar Vortex", electricity customers in the PJM region experienced significant abrupt increases in their electricity costs, with bills rising to several times their normal levels. These price spikes were caused, in part, by significant generation outages during January, despite these generation resources receiving billions of dollars a year in advanced payments in exchange for their being available to provide energy during peak periods, whether in the extreme heat of the summer or the extreme cold of the winter. I am concerned that the causes of this situation have not been understood well enough to prevent it from happening again. Do you think you fully understand what happened and can assure us it isn't going to happen again? Has the Commission conducted a comprehensive root cause investigation and analysis of the situation, or directed PJM or the PJM Independent Market Monitor ("IMM") to do so?**

**a. If yes, have those results been released publicly?**

**b. If no, why not?**

Answer: While the Commission hasn't opened a "root cause" investigation, it has been attempting to fully understand and respond to the problems that became apparent in the polar vortex events earlier this year. I have fully supported such efforts, and I am keenly interested in learning all that I can about activities undertaken by Commission staff. While I do not direct the work of staff, as I am not Chairman, staff has informed me that immediately following the Polar Vortex events, the Commission's Office of Enforcement initiated a review of the events with a focus on determining whether any manipulative or improper behavior may have contributed to the high natural gas prices and/or the elevated cost of electricity. This review is being conducted in coordination with Enforcement staff's regular surveillance program which routinely screens the natural gas and electric markets for potential manipulation or other improper conduct. Enforcement staff is also working closely with the IMM, which is also conducting its own independent review of the Polar Vortex events in PJM. Enforcement staff informs me that it has not uncovered any manipulative activity that caused the high natural gas or electricity prices. I expect that staff will continue to gather information as part of their review.

Moreover, on April 1, 2014, the Commission held a technical conference on Winter 2013/14 Operations and Market Performance in RTOs/ISOs. At this conference, the Commission looked into the impacts of the cold weather events on the RTOs/ISOs and discussed how the RTOs and ISOs responded to those impacts. At that technical conference, staff from the RTOs/ISOs provided presentations on the conditions in their market during the Polar Vortex events and how they dealt with them. In addition, Enforcement staff provided an overview of its review of the Polar Vortex and its preliminary observations. Enforcement staff's presentation is available at: <http://www.ferc.gov/CalendarFiles/20140401083844-Staff%20Presentation.pdf>.

On May 9, 2014, PJM issued a public report describing its investigation into last January's Polar Vortex events in the PJM region. The report describes several challenges PJM faced in maintaining reliability during the Polar Vortex, outlines their causes, and identifies ways improve operations and market performance. The report is available at:

<http://www.pjm.com/~media/committees-groups/task-forces/cstf/20140509/20140509-item-02-cold-weather-report.ashx>.

You also asked whether I fully understand what happened and whether I can assure Congress that it isn't going to happen again. These markets are highly complex, with the tariffs from FERC's Regional Transmission Operators consisting of thousands of pages. FERC has a full time commitment to the wholesale energy markets, as these markets fall squarely within its jurisdiction.

Even with its full time commitment to energy markets, I cannot claim that FERC fully understands everything about the polar vortex. Nor can I claim that FERC will be able to stop the next polar vortex from happening. Nevertheless, the purpose behind much of my work at FERC is to help prevent future events like the polar vortex.

Finally, all of the work performed by FERC and its staff has not been released to the public. Such work contains very sensitive market data, and its release could harm the ability of consumers to purchase energy at the best prices. And such work also contains speculation by FERC staff on how to understand this matter, the disclosure of which would harm FERC's ability to enforce its rules and tariffs. Thus, regarding the polar vortex, FERC has been following its longstanding procedures for releasing its decisions and work product.

I will continue to encourage the Chairman to allocate staff resources to understanding the events of the polar vortex, and to address any problems that have arisen because of the polar vortex.

**2. What efforts has the Commission undertaken, or directed PJM and the IMM to undertake, to identify potential solutions to the generation performance problems that occurred during January 2014 in the PJM region?**

Answer: Staff has informed me that both the Commission and PJM have worked to identify potential solutions to generation performance issues. The April 1 technical conference on Winter 2013/14 Operations and Market Performance in RTOs/ISOs (described in response to your question 1), was an important aspect of the Commission's effort to understand the impacts and potential solutions for problems that arose during the cold weather events. Generator performance was an important topic at this event. In addition, as part of its review of the Polar Vortex events described above in my response to question 1, Enforcement staff has been working with the PJM IMM to determine whether any generators violated any existing rules governing generator performance in PJM.

Another Commission effort that highlighted generator performance is the inquiry launched last year into the centralized capacity markets in the eastern RTOs and ISOs. During a technical conference and in comments submitted after the technical conference, the Commission discussed how reliability and operational needs are being supported by the RTO/ISO rules and structures. Generator performance is an important concern that has arisen in this inquiry.

The RTOs have also considered tariff revisions that can help respond to generator performance concerns. For example, ISO-NE filed a new "Pay for Performance" capacity market design,



which the Commission approved in May. PJM is also seeking revisions to its capacity market to improve generator availability and performance during periods of high demand on the grid.

**3. Has the Commission determined whether any generation outages were reflective of attempts to manipulate market-clearing prices?**

Answer: No. The Commission has not made any such formal determination. FERC's staff has informed me that it has not concluded that any outages were attempts to manipulate market-clearing prices. I expect that staff will continue to gather information as part of their review.

**4. We understand that the delivered price of natural gas rose to historic highs in the PJM region during January 2014, and that these unprecedented delivered prices for natural gas were primarily the result of extraordinarily high prices for capacity on interstate natural gas pipelines in the PJM region. Has the Commission conducted a comprehensive root cause investigation and analysis, or directed PJM or the PJM Independent Market Monitor ("IMM") to conduct a comprehensive root cause investigation and analysis, of the unprecedented natural gas prices that surfaced in the PJM region during January 2014?**

**a. If yes, have those results been released publicly?**

**b. If no, why not?**

Answer: The complete answer to this question is my response to your question 1, as FERC's work on the polar vortex has focused heavily on natural gas prices.

**5. What efforts has the Commission undertaken, or directed PJM and the IMM to undertake, or directed interstate natural gas pipeline operators to undertake, to identify potential solutions to the natural gas deliverability problems that occurred during January 2014 in the PJM region, either by better optimizing the use of existing assets or by constructing new assets or both?**

Answer: I am not aware of any specific efforts by the Commission, although as referenced above PJM is seeking to improve generator performance.

I have begun an effort on my own to examine whether the natural gas markets can be improved by additional transparency and liquidity after normal daily trading hours and over weekends, and if so, how this could be accomplished. I am holding a public meeting in the Commission Meeting Room at 2:00 p.m. on September 18 to discuss this topic. This has the potential to reduce volatility and natural gas prices (and consequently electricity prices) during times of very high demand.

**6. Has the Commission determined whether any natural gas deliverability problems were reflective of attempts to manipulate natural gas prices or electricity market clearing prices?**

Answer: No. The Commission has not made any such formal determination. FERC's staff has informed me that it has not concluded natural gas deliverability problems were reflective of attempts to manipulate natural gas prices or electricity market clearing prices. I expect that staff will continue to gather information as part of their review.

**7. Price increases for natural gas and electricity in the PJM region, and elsewhere, are very concerning to me. My constituents in the PJM region have asked me to ensure that markets have been, and are, functioning properly and that prices have not been increased by speculation or manipulation. It is now July, can you assure me that FERC intends to have answers to these questions about natural gas and electricity pricing BEFORE next winter?**

Answer: The Commission has several ongoing initiatives that assess the energy and capacity markets to ensure that they are continuing to function properly. For example, as described in my response to your question 2, the Commission is reviewing the centralized capacity markets in the eastern RTOs and ISOs. In addition, Commission staff will be holding a series of workshops on price formation in the RTO/ISO energy and ancillary services markets, which will explore potential improvements to market designs and operational practices that impact how prices in these markets are determined.

Additionally, see my response to question 1, which explains that Enforcement staff conducted its review of the cold weather events, which included looking at whether any manipulative or improper behavior may have contributed to the high natural gas prices and/or the elevated cost of electricity. Enforcement staff has not concluded that manipulative activity caused the high natural gas or electricity prices.

**8. In the Clean Power Plant proposed rule's Regulatory Impact Analysis, EPA notes that the Integrated Planning Model (IPM) was used to project the impact of the rule on electricity prices. The documentation for the IPM on EPA's web site explains that the model assumes both perfect competition and perfect foresight. The former means that "IPM does not explicitly capture any market imperfections such as market power, transaction costs, informational asymmetry or uncertainty." The latter "implies that agents know precisely the nature and timing of conditions in future years that affect the ultimate costs of decisions along the way." Does FERC agree that such a model can accurately capture how the proposed rule will impact prices? What are some likely differences in the actual implementation of the rule and this model?**

Answer: Although I cannot speak for the agency, based on your above description of the IPM model, that model appears to have substantial limitations and is unlikely to be an accurate model of price impacts. The most likely differences between the model and actual implementation are

going to be higher prices than what the model predicts.

**9. Achieving compliance with the proposed rule will require a replacement of higher carbon dioxide emitting resources with new lower or zero-emitting units. Yet a recent study by Christensen Associates commissioned by the Electric Markets Research Foundation concluded that the RTO markets "do not and cannot address long-term capacity needs." The study also found that "[b]ilateral forward contracting remains key under any market design for locking in revenues and facilitating financing of new resources. Contrary to this key necessity, however, the RTO markets include some design elements that impede long-term investments and long-term bilateral contracts." What steps does FERC intend to take to ensure that RTO markets do not impede bilateral contracting needed for new resource development that will be required for state compliance with the rule?**

Answer: As referenced above, FERC has an ongoing review of existing capacity markets that was initiated approximately one year ago. I am not aware of staff's specific next steps in this effort, although the above-referenced effort to improve "price formation" is certainly related to this general topic. Staff informs me that technical conferences on price formation will be announced in the near future. Simply put, if we can improve price formation, the need for major changes in capacity markets is lessened.

Specifically to your question, I do not know what steps this agency will take, but I believe that my vote on this Commission will offer me an opportunity to help shape and improve the ultimate actions taken by this Commission. FERC will need to watch this issue very carefully, as it has the potential to alter the competitive nature of wholesale markets.

**10. Within the retail access states, most of the generation is no longer owned by vertically integrated utilities and instead is under merchant ownership. There is no state or local jurisdiction over these merchant generation owners regarding whether to continue to operate or close a plant or what types of generation technology should be built. Does FERC see any difficulties in implementation of the proposed rule in states with large amounts of merchant generation?**

Answer: Although I do not speak for all of FERC, my biggest concern relates to whether there will be sufficient pipeline capacity to supply the natural gas needed for electric generation. Pipelines have traditionally been financed through long-term contracts with local gas distribution companies. The emerging customer class for new pipelines consists of electric generators, but in competitive markets these plants are called to perform based on economic dispatch, as opposed to being baseload units. Hence, historically they have not signed long-term contracts that would assist in the financing of new pipelines, and I have no expectation that they will suddenly want to sign long-term contracts unless their incentives change. Unless this challenge is addressed, sufficient pipeline capacity may not be available to meet the natural gas generation needs imposed by the Clean Power Plan.