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Hearing of the U.S. Senate Committee on Energy and Natural Resources:
"Keeping the Lights on – Are We Doing Enough to Ensure
the Reliability and Security of the U.S. Electric Grid?"
Thursday, April 10, 2014

Chairman Landrieu, Ranking Member Murkowski, and Members of the Committee:

My name is Cheryl LaFleur. For nearly four years, I have had the honor of serving on the Federal Energy Regulatory Commission. Today, I appear before you as FERC's Acting Chairman, an appointment that I received in November.

I would like to thank the Committee for holding this hearing on the reliability and security of our nation's electric grid and for inviting me to testify. One of my first decisions as a FERC Commissioner was to make electric reliability a personal priority. Therefore, I appreciate the Committee's interest in and commitment to these critical issues.

FERC's Role in Supporting Grid Reliability and Security

Our nation relies on the electric grid to meet many vital needs: to power our economy, to bolster our national defense, and to support our quality of life. At FERC, we take seriously our obligation to the American people to protect the reliability and security of the electric grid and to enhance its resilience. Indeed, I believe that reliability is job one, a fundamental responsibility for FERC and the electric industry. From my past experience working directly for electricity and natural gas customers, I know firsthand how hard even a short outage can be on families, businesses, and communities. And a major interruption in service could have devastating effects on our nation's citizens and economy, whether it is caused by severe weather, a cybersecurity incident, or a physical attack. FERC works with asset owners and grid operators to address these threats on an ongoing basis.

FERC supports the reliability and security of the electric grid in several ways. For example, FERC oversees the development and enforcement of mandatory reliability standards for the bulk power system. In addition, as part of its responsibility to ensure that wholesale electric rates are just and reasonable, FERC must ensure that these rates provide appropriate signals for investment in needed infrastructure. Further, FERC is

responsible for authorizing the construction of certain energy infrastructure, such as interstate natural gas pipelines, liquefied natural gas terminals, and non-federal hydropower generation. The timely development of needed energy infrastructure supports the reliability of the electric grid. Finally, experts from FERC work with representatives of other federal and state agencies and the electric industry to help identify and address threats to energy infrastructure security.

I would like to briefly discuss the process for establishing mandatory reliability standards and the continuing evolution of the relationship among the parties involved. Section 215 of the Federal Power Act, which Congress enacted as part of the Energy Policy Act of 2005, directs FERC to work with an independent Electric Reliability Organization (ERO) to develop reliability standards for the bulk power system. In 2006, FERC certified the North American Electric Reliability Corporation (NERC) as the ERO. NERC develops reliability standards pursuant to an open and inclusive stakeholder process and then submits those standards to FERC for consideration. FERC may either approve a proposed standard, or, if it identifies any deficiencies, remand the proposed standard to NERC for further consideration. Section 215 also authorizes FERC to identify gaps in reliability that require new standards or modifications to existing standards and to direct the ERO to address those gaps, but it does not authorize FERC to write or modify the standards.

Section 215 transformed the relationship among FERC, NERC, and the electric industry with respect to reliability. It marked the end of a system under which a group of reliability councils loosely structured under NERC developed reliability standards, with which the industry complied on a voluntary basis. Section 215 inaugurated a hybrid system that retained the industry development of standards through NERC, but subjected those standards to FERC approval and enforcement.

Now eight years since enactment of section 215, the transition to the paradigm that it established has gone well in many respects. There certainly have been growing pains related to the overall level of demands on the system**,** the volume of work**,** and disagreements among the industry, NERC, and FERC in some areas. However, FERC and NERC continue to build a strong relationship. We work closely with NERC CEO Gerry Cauley, his team, and the Regional Entities to advance grid reliability, security, and resiliency. This collaboration also includes many stakeholders, such as individual utilities; industry trade associations like the Edison Electric Institute, the National Rural Electric Cooperative Association, and the American Public Power Association, represented here by its President and CEO Sue Kelly; and the National Association of Regulatory Utility Commissioners, here by its president, Collette Honorable. I believe it

is important to recognize that, despite the unique nature and relative newness of the process established in the Energy Policy Act of 2005, FERC, NERC, and the industry have put in place for the first time foundational reliability standards that are robust, mandatory, and enforceable.

Overseeing reliability standards for the grid requires that FERC pay attention to the day-to-day, nuts-and-bolts activities necessary to keep the lights on, like tree trimming and relay setting coordination, while also staying abreast of emerging issues. Threats in the former category, including severe weather, are more familiar, and responses are relatively well understood. Threats in the latter category are new and evolving, or at least our understanding of them is evolving over time.

I believe that FERC is making progress on both of these fronts. With respect to nuts-and-bolts issues, FERC has issued orders over the last three-and-a-half years on new or modified reliability standards for tree trimming, frequency response, reliability planning criteria, and protection system maintenance and testing, among other areas. Going forward, the challenge with respect to these and similar day-to-day issues is to improve on the progress that FERC and NERC have made in setting priorities, developing and implementing reliability standards, mitigating violations, and disseminating lessons learned.

We face different challenges with respect to emerging issues, like cybersecurity and geomagnetic disturbances. When it comes to threats like these, we do not have the benefit of decades of experience at our backs; instead, we are in the position of developing meaningful, cost-effective regulation in an environment of rapid change and imperfect knowledge. We must avoid both the temptation to defer action until we have absolute certainty and the pitfall of promulgating specific rules that rapidly become obsolete. In this regard, I believe that FERC thus far has struck a good balance, as illustrated in part by our recent rulemakings on geomagnetic disturbances and cybersecurity.

Cyber Threats to the Grid

Congress referred specifically to cybersecurity when it enacted section 215 of the Federal Power Act to make electric reliability a core part of FERC's mission. Pursuant to that authority, FERC in November 2013 substantially approved Version 5 of the Critical Infrastructure Protection (CIP) standards. Under the Version 5 standards, all bulk electric system cyber assets, for the first time, will be required to receive some level of protection, commensurate with their impact on the grid. This advancement, combined

with several new cyber security controls developed by NERC, established the most comprehensive cyber protections yet approved by FERC.

FERC also directed two important modifications to the Version 5 standards. First, FERC directed removal of language that requires certain CIP requirements to be implemented in a manner that "identifies, assesses, and corrects" deficiencies. Commenters disagreed over the obligations imposed by this language, highlighting its inherent ambiguity and underscoring FERC's previously stated concerns about its enforceability and consistent application across regions. While I strongly support NERC's effort to reform its enforcement process, enforcement considerations should not cause the standards themselves to be ambiguous. Second, FERC directed NERC to develop objective criteria against which NERC and FERC can evaluate the sufficiency of entities' protections for low impact assets. Of course, by definition, low impact facilities do not pose as great a risk to the bulk electric system as high or medium impact facilities. However, the lack of clear standards against which NERC and FERC can evaluate entities' protections for low impact facilities would undermine one of the most important improvements in the Version 5 Standards: the requirement that all bulk electric system cyber assets receive a defined level of protection commensurate with their impact on the system. I believe that the Version 5 standards, and the further changes that FERC directed, are a significant step forward for cybersecurity.

However, because cyber threats are fast-changing, established standards are not enough. We must also engage other government agencies and asset owners and operators to communicate threats, share our expertise, and disseminate lessons learned. President Obama in his February 2013 Executive Order on cybersecurity called on independent agencies like FERC to engage voluntarily in the executive branch's efforts to improve the cybersecurity of the nation's critical infrastructure. FERC has been an early and sustained voluntary participant in this process. Through our Office of Energy Infrastructure and Security, we have worked with the Department of Homeland Security (DHS), the Department of Energy (DOE), the Federal Bureau of Investigations (FBI), and others to help support key initiatives under the Executive Order. Our participation has included coordinating with our Federal partners to provide information sessions (including classified briefings) on threats to asset owners and operators; actively participating in National Institute of Standards and Technology working groups developing the Cybersecurity Framework; and assisting DHS in identifying critical energy infrastructure.

Physical Threats to the Grid

Grid reliability and security also requires protecting the physical security of the assets that make up the grid—protecting them from tampering, vandalism, and sabotage. FERC has long supported the physical security of the electric grid as part of our broader emphasis on strengthening the resilience of our nation's energy infrastructure. Resilience begins with how the system is planned, designed, constructed, and operated, and is informed by how asset owners and grid operators respond to and learn from events. Many of these factors are addressed in detail in the mandatory reliability standards that I described earlier in my testimony. At the same time, no single action or approach is sufficient. Building a resilient grid requires comprehensive and ongoing assessments under a range of conditions, and FERC is dedicated to this work.

An important part of these efforts is the sophisticated grid modeling FERC performs. This modeling, which draws on our subject matter expertise and helps us fulfill our responsibility to support the reliability and security of the grid, identifies key energy infrastructure facilities, taking into account a wide number of assumptions, factors, and possible scenarios.

The topic of physical security has become more prominent since the April 2013 attack on the Metcalf substation in northern California. In the wake of the Metcalf incident, FERC has worked to explain to asset owners and operators around the country the specific facts of the attack and the need for asset owners to increase the physical protection of key facilities. As part of this outreach, we have participated with NERC, DHS, DOE, and the FBI in a 13-city physical security campaign (including a detailed briefing about the Metcalf incident) for utilities, states, and law enforcement agencies in the United States and Canada. We have also provided asset owners and operators with guidance on specific steps that they could take to improve their facilities' physical security, informed by our modeling and drawing on the combined expertise of FERC, relevant Federal agencies, and NERC.

In addition to these ongoing efforts, on March 7, 2014, FERC acted under our statutory authority to oversee reliability standards to direct NERC to develop physical security standards for the grid within 90 days.

FERC required that these physical security standards include at least three steps. First, the standards should require owners and operators of the bulk power system to identify which of their facilities are critical to the reliable operation of the interstate grid. A critical facility is a facility that, if rendered inoperable or damaged, could have a

critical impact on the operation of the interconnection through instability, uncontrolled separation, or cascading failures on the bulk power system. We acknowledged that the number of facilities that will qualify as critical will be relatively small compared to the number of facilities that comprise the bulk power system, and that not every owner and operator of the grid will have critical facilities. Second, the mandatory reliability standards should require owners and operators of identified critical facilities to evaluate potential threats and vulnerabilities to those facilities. Third, the mandatory reliability standards must require owners and operators of critical facilities to develop and implement plans to protect against attacks to their identified critical facilities.

In directing NERC to develop physical security standards, we recognized that many in the industry already have taken steps to identify critical facilities and to protect those facilities from attack. A mandatory standard will reinforce these efforts and ensure that all owners and operators of the bulk power system take such important steps where appropriate. FERC also recognized that there is not a "one size fits all" approach to physical security. Therefore, we acknowledged that the steps owners and operators should take will vary based on factors such as location of the critical facility, its size, function, existing protections, and attractiveness as a target.

While on the subject of physical threats to the grid, I would like to touch briefly on another aspect of this issue that has received considerable attention in recent weeks.

As I noted earlier, FERC draws on our familiarity with electric system operations to perform sophisticated modeling that helps to identify and address system vulnerabilities. Last month, *The Wall Street Journal* published an article that included some details of such FERC modeling. I stated then, and I continue to believe, that publication of sensitive information about the grid undermines the careful work done by professionals who dedicate their careers to providing the American people with a reliable and secure grid. *The Wall Street Journal* appropriately declined to identify by name particularly critical substations throughout the country. Nonetheless, I view the publication of other sensitive information as highly irresponsible. While there may be value in a general discussion of the steps we take to keep the grid safe, the publication of sensitive material about the grid crosses the line from transparency to irresponsibility, and gives those who would do us harm a roadmap to achieve malicious designs. I appreciate Chairman Landrieu's and Ranking Member Murkowski's recent statements highlighting the importance of protecting this type of information.

Under my predecessor, the modeling discussed in *The Wall Street Journal* was categorized by FERC as Critical Energy Infrastructure Information (CEII), a designation

set forth in FERC's regulations. My understanding is that, consistent with those regulations, certain aspects of such modeling were shared with the owners and operators of relevant facilities pursuant to non-disclosure agreements. Unfortunately certain details of FERC's modeling have now been disseminated widely through *The Wall Street Journal*. In light of these events, we are working to fully understand what happened and what we can do to improve our internal processes to ensure that no similar disclosure will occur in the future. I have asked the DOE Inspector General to help advise us about how we could improve our processes with respect to information security. I look forward to the Inspector General's report. It is critical that those who deal with FERC are confident that all sensitive information is protected appropriately.

Improving Protection against Cyber and Physical Threats to the Grid

As discussed above, Congress and the Administration have taken important steps to protect against cyber and physical threats to the grid. I am committed to FERC working closely with our governmental partners to support grid reliability and security to the fullest extent possible under our existing statutory authority.

I have frequently suggested two legislative changes to further enhance cyber and physical security. First, I have asked for a narrowly-focused, FERC-specific Freedom of Information Act (FOIA) exemption for sensitive information concerning physical or cyber threats to, or vulnerabilities of, the bulk power system. The recent decision of the U.S. Court of Appeals for the District of Columbia Circuit in a case involving the International Boundary and Water Commission will be useful in protecting such information pursuant to the "law enforcement" exemption under FOIA. However, the specific contours and reach of the case are not entirely clear. I therefore believe a new FOIA exemption is still needed to definitively eliminate any risk of disclosure that may chill the beneficial exchange of information among FERC, NERC, and the industry.

Second, I have called on Congress to designate a federal department or agency (not necessarily FERC) with clear and direct authority to require actions in the event of an emergency involving a physical or cyber threat to the bulk power system. This authority should include the ability to require action before a physical or cyber national security incident has occurred. However, it is important that any such authority should not impede FERC's existing, above-noted authority under section 215 to approve reliability standards developed by NERC through its current processes.

Other Challenges to Grid Reliability

Finally, I would like to comment briefly on other challenges to grid reliability, some of which the second panel at today's hearing will discuss in greater detail.

As the Committee is well aware, our nation is currently undergoing major changes in its power supply and associated infrastructure. There are several drivers of this change. First, our nation is experiencing significant growth in the use of natural gas for electric generation, due primarily to the increased availability and affordability of domestic natural gas, but also to its relative environmental advantages and its role in balancing the growing fleet of variable resources. A second factor driving changes in our power supply is the considerable growth of renewable and demand-side resources, fostered by developments in technology and by policy initiatives at both the state and Federal level. Finally, new environmental regulations are also driving changes in our power supply.

FERC has a role to play in protecting grid reliability as new environmental regulations are developed and implemented. While it is not FERC's responsibility to tell the Environmental Protection Agency (EPA) what regulations to issue under the laws it is responsible for enforcing, FERC can and should help the EPA understand the implications that such regulations may have on electric reliability. For example, in conjunction with the issuance of its Mercury and Air Toxics Standards (MATS) rule, the EPA indicated that it will seek advice on requests for extra time for electric generators to comply with the rule. In May 2012, FERC issued a policy statement outlining how it will advise the EPA on this issue. FERC staff also participates in regular conference calls with EPA, DOE, and the Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) to discuss their efforts to plan the system to meet future needs, including implementation of EPA rules.

FERC's interaction with the EPA on the MATS rule provides one template for FERC lending its expertise on such matters. Similarly, I believe that it is important for FERC to follow the development of EPA regulations on greenhouse gas emissions, because such regulations and state implementation plans could have significant implications for how the grid is operated in the future.

In addition, because vital decisions in this area will be made at the state level, FERC can and should reach out to our state colleagues on these issues. I have served with Commissioner Moeller, who is testifying on the next panel, as one of FERC's leaders of a Forum on Reliability and the Environment established jointly by FERC and

the NARUC. This Forum has provided a structure for conversations concerning these issues, including not only FERC and NARUC representatives, but also senior EPA officials. I look forward to working with my President Honorable to continue and build on these efforts.

Finally, although the drivers of power supply changes are largely outside of FERC's jurisdiction we must work to ensure the energy industry and markets adapt to these developments in order to carry out our statutory responsibilities. Just last week, FERC held a technical conference to explore the impacts of this winter's cold weather events on the RTOs and ISOs and to discuss actions taken to respond to those impacts. This technical conference built on FERC's work over the past two years to explore the need for enhanced coordination between the electric and natural gas industries in light of significant growth in the use of natural gas for electric generation. In addition, FERC is considering how centralized capacity market rules and structures can best support the procurement and retention of all resources necessary to meet future reliability and operational needs.

Conclusion

During the four months I have had the honor of serving as Acting Chairman, FERC has faced several substantial challenges, a number of which the Committee is focusing on today. I have repeatedly emphasized to the wonderful team of employees at FERC that our actions should be focused on enhancing the reliability and security of the electric grid and assuring that the nation's energy infrastructure and markets meet the changing needs of energy consumers. I look forward to working with the Committee to advance these vital interests.