

TESTIMONY OF DAVID A. WHITELEY
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Before the
Subcommittee on National Parks, Forests and Public Lands and the
Subcommittee on Energy and Mineral Resources
U. S. House of Representatives
Committee on Natural Resources

Joint Oversight Hearing

On
“The West-wide Energy Corridor Process: State And Community Impacts”

April 15, 2008

Chairman Grijalva and Chairman Costa and Members of the Subcommittees, the North American Electric Reliability Corporation (“NERC”)¹ is pleased to provide this testimony on the need for transmission, including the need for transmission to fully realize the potential for renewable energy to serve as a source for electricity generation. Electric transmission lines provide the vehicle by which electricity flows from where it is produced to where it is used. Since much of our Nation’s generation is located away from load centers, this transport system is critical to meeting the needs of electricity users.

BACKGROUND

Since its establishment in 1968, NERC’s mission has been to ensure the reliability of the bulk power system in North America, including developing and implementing standards to ensure the reliable operation of the interconnected North American grid in the U.S. and Canada and Mexico. To achieve this objective, NERC develops and enforces Reliability Standards; monitors the bulk power system; assesses and reports on future transmission system needs; evaluates owners, operators, and users for reliability preparedness; and educates, trains and certifies industry personnel.

NERC was certified by the Federal Energy Regulatory Commission (“FERC”) as the Electric Reliability Organization (“ERO”) under Section 215 of the Federal Power Act, as added by the Energy Policy Act of 2005 (“EPAct 2005”), in July 2006.² Congress acted in EPAct 2005 to provide for the development of Reliability Standards by

¹ NERC is the corporate successor to the North American Electric Reliability Council, also called “NERC,” formed to serve as the electric reliability organization (“ERO”) authorized by Section 215 of the Federal Power Act (“FPA”).

²See *Order Certifying North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, 116 FERC ¶ 61,062 (2006).

an Electric Reliability Organization in order to capture the diverse and collective expertise of the electricity industry in assuring grid reliability. Upon FERC approval of Reliability Standards developed by NERC, a new set of mandatory Reliability Standards applicable to all users, owners and operators of the bulk power system became effective on June 18, 2007.

The provisions establishing the ERO and vesting it with responsibility for establishing and enforcing Reliability Standards, subject to oversight from FERC, were among several provisions of EPAct 2005 that evidenced Congress's concern with the robustness of the bulk power system, which is the backbone of our interconnected electricity grid in North America. Section 368 of EPAct 2005, which authorized the designation of energy corridors on Federal lands in the West that are the subject of today's hearing, is another example of Congressional concern about the need to improve reliability, relieve congestion, and enhance the capability of the national grid to deliver electricity to where it is most needed.

NERC, as the ERO, was also given the responsibility in EPAct 2005 for periodically conducting assessments of the reliability and adequacy of the bulk power system in North America.³ NERC has performed reliability assessments for many years, and I welcome the opportunity to offer some perspectives based on the latest Long Term Reliability Assessment ("Assessment"), issued in October 2007,⁴ on the needs that are facing our transmission system.

THE CURRENT STATE OF THE GRID

The current grid in the U.S. comprises over 160,000 miles of transmission operating at 230kV and higher. Today, portions of our bulk power systems are being operated at or near their limits more of the time, which increases the possibility of major problems if unplanned events such as equipment failures or extreme weather occur simultaneously. We know we need more investment in generation, transmission, and demand-side measures in many areas of North America to ensure that our bulk power system remains reliable, adequate, and secure.

Approximately 2,000 miles of new lines were added between 2006 and 2007. While plans have been announced for the addition of nearly 15,000 miles of additional transmission over the next 10 years, this is still only half the rate of increase in projected electricity demand as a percentage addition to the existing transmission base. The Assessment projects the demand for electricity will increase by nearly 18% over the next ten years, placing even more strain on our bulk power system infrastructure, especially since the development of electric transmission has for years lagged behind demand growth.

Adequate electric transmission infrastructure is critical for economic and reliable electricity service. Obstacles to new transmission include difficult or uncertain cost

³ FPA Section 215(g).

⁴ The 2007 Assessment is available at: http://ftp.nerc.com/pub/sys/all_updl/docs/pubs/LTRA2007.pdf.

recovery, as well as difficulty in siting and permitting new transmission projects. Local opposition and litigation, particularly in the case of interstate transmission lines, is common. Generally, state and local public policies do not recognize the interstate and international nature of the transmission grid. Regional benefits may seem too remote to offset local impacts. Yet reliability of the power grid in one state affects reliability in other states, due to the interconnected and interdependent nature of the grid.

Significant constraints on the transmission system exist in the Northeast, the Southwest and in California. Resolving transmission bottlenecks needs to be a high national priority, and State and Federal government agencies need to factor the impact on interstate and international bulk power system reliability into their review and approval processes for new transmission projects. Particularly difficult issues may arise if a transmission line is needed in one area to support reliability in another area. These cross-border issues can only be resolved through collaborative efforts to remove obstacles, coordinate and accelerate siting and permitting for needed transmission lines.

SPECIFIC FINDINGS FROM THE 2007 RELIABILITY ASSESSMENT REGARDING TRANSMISSION

The 2007 Long-Term Reliability Assessment represents NERC's independent judgment of the reliability and adequacy of the bulk power system in North America for the next ten years. NERC has been conducting assessments annually since 1970, but this is only the second one issued as part of our responsibilities as the Electric Reliability Organization. The Assessment identifies issues that could affect the long-term reliability of the bulk power system and makes recommendations for addressing them. NERC cannot, however, order the construction of transmission, and thus the Assessment does not recommend or require specific resources or projects.

The Assessment tracks progress made over the last year in areas identified in our 2006 Long-Term Reliability Assessment⁵ as having the potential to affect long-term reliability, including lagging transmission construction. The 2,000 miles added to the transmission grid in the last year represents an increase of a little over 1% of the total system miles, and construction of new transmission remains slow and continues to face obstacles. As a result, the risk to future reliability from an inadequate transmission grid remains. In fact, a study of electricity industry professionals conducted by NERC in 2007 found that aging infrastructure and limited new construction is the primary challenge to reliability, and that the threat is not only the likelihood that outages will occur, but also that outages will be severe.⁶

On the positive side, this year's Assessment finds that more transmission additions are proposed than were reported last year. The pace of proposed transmission projects in the U.S. appears to be accelerating, and a number of potentially significant

⁵ The 2006 Reliability Assessment is available at:
[ftp://ftp.nerc.com/pub/sys/all_updl/docs/pubs/LTRA2006.pdf](http://ftp.nerc.com/pub/sys/all_updl/docs/pubs/LTRA2006.pdf).

⁶ The Results of the 2007 Survey of Reliability Issues is available at:
[ftp://ftp.nerc.com/pub/sys/all_updl/docs/pubs/Reliability_Issue_Survey_Final_Report_Rev.1.pdf](http://ftp.nerc.com/pub/sys/all_updl/docs/pubs/Reliability_Issue_Survey_Final_Report_Rev.1.pdf).

transmission projects (200 kV and over) have been proposed that are expected to improve reliability and/or the efficiency of the transmission system. Many of these projects are proposed for the Western Electricity Coordinating Council (“WECC”) region, including Canada.⁷ Most are still in the planning stages. These projects run the gamut from replacements of existing aging infrastructure to new transmission to meet load growth in cities such as Tucson and Las Vegas to transmission to deliver wind generation.

But transmission development still lags behind the growth in both electricity demand and resources, and significant additional investment in transmission is required in many areas of North America. Each peak season for electricity demand increases the strain on the transmission system, particularly in the constrained areas of the Northeast, California and the Southwest. Nationwide, the Assessment finds that peak demand for electricity in the U.S. is forecast to increase by 17.7% in the next 10 years. The forecast for transmission additions over the same period, however, is only 8.8%.

TRANSMISSION – THE CRITICAL ENABLER

The 2007 Assessment found that almost 14,500 miles of new transmission is proposed to be added in the U.S. over the next ten years. Other reinforcements to the bulk power system, like new transformers and reactive power sources, are also planned, which will strengthen the system.

The Assessment also reports that wind and solar resources are increasingly attractive options because they add fuel mix diversity and reduce CO2 emissions. The trend toward greater use of renewable resources to generate electricity is driven in part by state Renewable Portfolio Standard requirements in many regions and improvements in our technical ability to harness solar, wind and other resources. Renewable resources also can be expected to benefit from regional or future Federal programs to limit greenhouse gas emissions.

Renewable resources are likely to be remotely located. The integration of these new resources therefore will require additional transmission. The economics of constructing transmission specifically for such intermittent resources, however, presents special challenges. Moreover, wind and other renewables have unique characteristics that must be accommodated in the planning, design and operation of the bulk power system.

The projected addition of a number of large nuclear units for service late in the ten-year period covered by the 2007 Assessment also would require significant grid expansion and reinforcement. Similarly, new clean coal generation would require grid upgrades or enhancements.

The common denominator of all these resources – wind, solar, nuclear or clean coal – is that transmission infrastructure must be developed to reliably integrate them into

⁷ A list of these projects is provided in the Appendix to the Assessment.

the bulk power system. Going forward, NERC will evaluate the operational requirements to reliably integrate intermittent resources into the bulk power system. NERC also will monitor the integration of new nuclear generation to ensure that the transmission resources needed to reliably integrate proposed new units into the bulk power system are available.

THE ROLE OF TRANSMISSION CORRIDORS ON FEDERAL LANDS

The identification of energy corridors on Federal lands in the West may play an important role in improving the reliability of the electric bulk power system and accessing new clean energy resources in the West. Given the large amount of federal lands in the West, and the remote location of many clean coal, wind and geothermal resources, it will be almost impossible to bring the benefit of these resources to consumers without constructing substantial new transmission across some federal lands. Corridors designations that enhance coordination among resource agencies and recognize the need for energy infrastructure may facilitate the construction of needed transmission.

To the extent that West-wide energy corridors will help remove obstacles and facilitate a more timely and efficient process for siting energy delivery facilities, consumers will benefit from more reliable and diverse electricity supplies.

CONCLUSION

While NERC does not take a position on any specific energy corridor, we hope that the establishment of corridors in the West pursuant to Section 368 of EPAct 2005 will help enable development of the infrastructure needed to access new clean energy resources in the West. NERC will continue to assess the need for new transmission and to support public policies that will help achieve a reliable and robust transmission grid.

Thank you for this opportunity to testify before you. I will be pleased to answer any questions you may have.

DISCLOSURE REQUIREMENT
Required by House Rule XI, clause 2(g)
and Rules of the Committee on Resources

A. This part is to be completed by all witnesses:

1. Name: David A. Whiteley
2. Business Address: NERC, 116-390 Village Blvd., Princeton, NJ 08540
3. Business Phone Number: 609-452-8060
4. Organization you are representing: North American Electric Reliability Corporation
5. Any training or educational certificates, diplomas or degrees or other educational experiences which add to your qualifications to testify on or knowledge of the subject matter of the hearing: Bachelor of Science and Master of Science in Electrical Engineering.
6. Any professional licenses, certifications, or affiliations held which are relevant to your qualifications to testify on or knowledge of the subject matter of the hearing: Professional Engineering Licenses in the State of Missouri (#20500) and the State of Illinois (#062.41608).
7. Any employment, occupation, ownership in a firm or business, or work-related experiences which relate to your qualifications to testify on or knowledge of the subject matter of the hearing: 30 years of experience in electric utility planning, engineering, operations and management including current employment as Executive Vice President of NERC.
8. Any offices, elected positions, or representational capacity held in the organization on whose behalf you are testifying: I am an officer of the company.

B. To be completed by nongovernmental witnesses only:

1. Any federal grants or contracts (including subgrants or subcontracts) from the Department of the Interior and Department of Agriculture which you have received since October 1, 2000, including the source and the amount of each grant or contract: None.
2. Any federal grants or contracts (including subgrants or subcontracts) the Department of the Interior and Department of Agriculture which were received since October 1, 2000 by the organization(s) which you represent at this hearing, including the source and amount of each grant or contract: None.
3. Any other information you wish to convey which might aid the members of the Committee to better understand the context of your testimony: None.