

Statement of James T. Looock

On behalf of Western Electricity Coordinating Council Staff

Before the House Subcommittee on Water and Power and The House Subcommittee on Forests and Forest Health

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My name is James T. Looock and currently I am the Director of Technical Services for the Western Electricity Coordinating Council (WECC) Staff located in Salt Lake City, Utah.

I have been asked by the Subcommittees on Water and Power and Forests and Forest Health to address ways and studies being undertaken in the West to relieve transmission congestion, enhance grid reliability and develop new rights-of ways on federal land throughout the West. I appreciate the opportunity to testify before this joint subcommittee hearing on behalf of WECC on these issues.

Background

WECC represents the electric power systems engaged in bulk power generation and/or transmission serving all or part of the 14 Western States and British Columbia, Canada. WECC's interconnection-wide focus is intended to complement current efforts to form Regional Transmission Organizations (RTO) in various parts of the West. WECC is responsible for coordinating and promoting electric system reliability. In addition to promoting a reliable electric power system in the Western Interconnection, WECC supports efficient competitive power markets, assures open and non-discriminatory transmission access among members, provides a forum for resolving transmission access disputes, and provides an environment for coordinating the operating and planning activities of its members as set forth in the [WECC Bylaws](#).

The WECC region encompasses a vast area of nearly 1.8 million square miles. It is the most diverse of the regional councils of the [North American Electric Reliability Council \(NERC\)](#). WECC's service territory extends from Canada to Mexico. It includes the provinces of Alberta and British Columbia, the northern portion of Baja California, Mexico, and all or portions of the 14 western states in between. Transmission lines span long distances connecting the verdant Pacific Northwest with its abundant hydroelectric resources to the arid Southwest with its large coal-fired and nuclear resources.

Due to the vastness and diverse characteristics of the region, WECC's members face unique challenges in coordinating the day-to-day interconnected system operation and the long-range planning needed to provide reliable and affordable electric service to more than 71 million people in WECC's service territory.

Membership in WECC is voluntary and open to any organization having an interest in the reliability of interconnected system operation or coordinated planning. The Council provides the forum for its members to enhance communication, coordination and cooperation – all vital ingredients in planning and operating a reliable interconnected electric system.

WECC members have long recognized the many benefits of interconnected system operation. During the mid 1960s, expansion of interconnecting transmission lines among systems in the western United States and western Canada resulted in the complete interconnection of the entire WECC region. As this expansion was taking place, systems generally adopted the Operating Guides of the North American Power Systems Interconnection Committee (NAPSIC) to promote consistent operating practices within the region. NAPSIC later became the NERC Operating Committee.

Congestion Studies:

The Energy Policy Act of 2005 requires DOE to issue a national transmission congestion study for comment by August 2006, and every three years thereafter. Based on the study and public comments, DOE is to designate selected geographic areas as "National Interest Electric Transmission Corridors."

The Western Congestion Assessment Task Force (WCATF) was formed in the Fall of 2005 due to a proposal to DOE cosponsored by WECC, CREPC (a Western State agency group) and the Seams Steering Group - Western Interconnection. The West has been involved at looking at congestion for several years. When DOE received its assignment via the 2005 Energy Bill, the natural path to follow was for the West to provide the study information to DOE. The West had essentially completed most of the historical congestion studies prior to the formation of WCATF.

The main purpose of the WCATF was to serve as the forum to develop the input to DOE from the West. The process has been open to all interested participants and there has been good participation throughout the Western Interconnection. The WCATF also served as the forum to discuss the various DOE issues as they impact the West, such as the definition of corridors, definition of congestion criteria, when is the appropriate time to designate NIETC corridors and other issues as follows:

- The energy independence of the United States would be served by the designation.
- The designation would be in the interest of national energy policy.
- The designation would enhance national defense and homeland security.
- There must be "adverse impact on consumers" in each area listed as experiencing a transmission capacity constraint or else the constraint is not of national interest.

Through the WCATF, the West has developed a good working relationship with the DOE. There has been DOE representation and participation at the WCATF meetings. DOE and the West formed a productive relationship through the WCATF both from the standpoint of the West understanding DOE's needs and DOE understanding the needs, processes and practices in the West.

Because the West is one interconnection AND one NERC region, study work has been coordinated for many years. Also due to close working relationships between WECC organizations similar views on the issues affecting the West become part of the dialog with goals of reaching a productive consensus.

The major goal of the WCATF report was to assist the DOE team working to implement Section 1221 of the Energy Policy Act of 2005 and to help inform the team as it compiles a congestion study of the nation's transmission system.

The Western Congestion Assessment Task Force (WCATF) completed its primary objective of identifying transmission congestion in the Western Interconnection and submitted a voluminous report to the U.S. Department of Energy's National Interest Electric Transmission Corridor (NIETC) team May 9, 2006. WCATF intent was to draw congestion information from current and recent planning work throughout the entire Western Interconnection. These studies were summarized into a template format that the WCATF developed just for this purpose. The assessment report presented the following identified congested areas

- Identified major assumptions and congestion drivers
- Identified economic impact of congestion
- Identified sensitivity of congestion to assumptions (gas prices, hydro levels, etc)
- Limitations of the analysis

The study looked at three transmission cases: historical, 2008 and 2015. Based on the transmission traffic on 67 WECC-rated paths in the Western Interconnection, the report found fourteen congestion areas in the region. Of those areas, 11 were reported as being congested in the historical study, with 10 continuing to be congested or becoming congested by 2008, and eight continuing to be congested by 2015. None of those eight were free of congestion in the 2008 case and only one was free of congestion in the historical study.

- Although the WCATF identified fourteen congestion areas within the Western Interconnection in the 2006 Study, an additional six congestion areas were identified from sub-regional planning studies.
- The WCATF study focused on the identification of transmission congestion; it did not specifically identify resource/load Constraint Areas (as defined by DOE).
- The WCATF Congestion Areas were not ranked due to the variability and inconsistency in the alternative metric ranking methods.
- Studies indicated that future congestion areas are highly dependent upon the location of future resources in the West.
- Proposed transmission additions have already been identified to alleviate the congestion in many identified congestion areas. Additional studies are required to determine if it is necessary or economical to add new or upgrade existing facilities to reduce congestion in the WCATF identified congestion areas.
- The WECC plans to pursue modeling improvements in future congestion studies in areas such as hydro models and transmission losses in order to improve the accuracy of modeling studies.
- In addition to the constrained areas identified, a number of studies performed in the Western Interconnection over the last several years have identified potential congestion in the Rocky Mountain Area and specifically Wyoming and Montana. This potential congestion is the result of the identification of abundant coal and wind resources in this area which can be developed and used to supply load growth along the West Coast and in the Southwest. Another resource rich area is the oil sands area in Northern Alberta. Transmission Projects proposed to facilitate resource development in these areas include the TransWest Express Project, the Frontier Project, and the Northern Lights Projects (Celilo and Inland Projects). The WCATF conducted an

open congestion identification process involving all interested stakeholders. The WCATF encourages continued use of open public processes to identify congestion in the West.

Details of the report to DOE can be found on the WECC web site at:

<http://www.wecc.biz/modules.php?op=modload&name=Downloads&file=index&req=viewsdownload&sid=178>

Recommendations

- 1) The overall effort to designate corridors on federal lands should be commended since right-of-ways are getting more difficult to obtain. To be meaningful, the designation on federal lands must be coordinated with corridor designations on non-federal lands thru a coordinated effort with state, local and regional planning entities to provide corridor continuity.
- 2) Corridor designation for electric transmission and gas pipelines must recognize technical separation issues addressing safety, reliability and maintenance considerations. There have been incidents of gas pipeline explosions along pipeline right-of ways that could significantly impact electric reliability if there is not adequate separation.
- 3) If gas and electric are on the same corridor, separation must recognize certain technical aspects to assure safety of pipeline operation. One is the impact of ground currents in the vicinity of electric structures during electric flashovers under fault conditions and the impact of these ground currents on pipelines in close proximity to electric facilities.
- 4) There is a reliability risk to placing too many transmission lines on a common corridor. The risk to interconnected system operation is having too many critical facilities on a common right-of-way, or too many lines feeding a major load center on a common corridor. Consideration must be given to wild fires and the impact of smoke on the flashover strength of tower air gaps. There is also a national security issue of having too many facilities on a common corridor, creating the potential vulnerability to terrorist activities.
- 5) There also risks when gas pipelines and electric transmission lines are on common corridors, the pipelines may be feeding gas generating resources in the same load areas for which electric transmission is also providing energy delivery. This can compound the problem if there is a corridor loss since CTs may not be available due to lack of gas supply, to serve load that was being served by the electric transmission on the common corridor.
- 6) The WCATF work of identification of future congestion areas and the need to assure that Section 368 work and the ongoing Section 1221 work are coordinated.
- 7) New transmission is needed through federal land for load growth and to access renewable and conventional resources.
- 8) New levels of cooperation and coordination are needed with federal land managers to allow utilities to adequately protect the transmission systems from fires on federal lands.

Basically, the issues of corridor designation partly deals with assuring there is adequate corridor width, to assure that the technical and safety aspects can be dealt with technically.

Future Studies

Long range transmission planning is being performed to address needs and maximize the efficiency of the system through continual coordination efforts in the Western Interconnect.

Recently WECC formed the Transmission Expansion Planning Policy Committee to perform the following main functions:

- Provide policy and management of the transmission expansion planning process.
- Oversee database management of transmission information.
- Guide the analyses and modeling for Western Interconnection economic transmission expansion planning.

Purpose and responsibilities of the new committee include:

- Steering decisions on analytical methods and on selecting and implementing production cost and other models found

necessary.

- Ensuring the economic transmission expansion planning process is impartial, transparent, properly executed and well communicated.
- Ensuring that regional experts and stakeholders participate, including state/provincial energy offices, regulators, resource and transmission developers, load serving entities, environmental and consumer advocate stakeholders through a stakeholder advisory group.
- Supporting DOE's initiative to evaluate transmission congestion and identify national interest transmission corridors in order to maximize the utility of DOE's work for the Western Interconnection.
- Organizing and coordinating activities with sub-regional planning processes.

Conclusions

Small towns and major cities in the west are threatened with the loss of power due to fires on federal lands due to limited corridors on federal lands. With work associated with Section 368 federal energy corridors we can provide the opportunity to provide needed expansion and diversity in the western electric transmission system to keep up with load growth and resource adequacy.

We encourage the federal land managers to have a longer-term perspective in their evaluation and consider future needs. There exists sensitivity of resource assumptions for corridor needs, but if action is not taken to identify corridors during this evaluation, can we assume that the needed corridors may not be available in the future?