COMMITTEE ON REGIONAL ELECTRIC POWER COOPERATION (CREPC)
COMMENTS ON
THE DEPARTMENT OF ENERGY'S
NATIONAL ELECTRIC TRANSMISSION CONGESTION STUDY
October 10, 2006

The Committee on Regional Electric Power Cooperation (CREPC)[1] believes that the Department of Energy's (DOE) August 8, 2006 *National Electric Transmission Congestion Study* (the "*August 8 Report*") makes a significant contribution to western efforts to identify and cost-effectively mitigate transmission congestion in the Western Interconnection. We concur with the attached comments of the Transmission Expansion Planning Policy Committee of the Western Electricity Coordinating Council (WECC). CREPC provides supplemental comments on the *August 8 Report* in the following three areas: (I) the process DOE employed in developing the report; (II) substantive improvements needed before the report can be used to designate National Interest Electric Transmission Corridors (NIETCs) under Section 216 of the Federal Power Act; and, (III) responses to specific questions posed by DOE.

I. Process to Develop the *August 8 Report*

CREPC commends and endorses DOE's process of relying on information developed in open, transparent regional and sub-regional planning forums in the Western Interconnection. This precedent should be followed in the agency's annual reports and the next 2009 congestion study.

DOE's process to rely on western transmission planning forums has two important benefits. First, we believe this process improves the quality of the data and analysis in DOE's report. Second, it sends a strong signal to other entities about character of transmission planning forums that will be useful to DOE in preparing future reports on transmission congestion. DOE's willingness to accept information and analysis by the Western Interconnection Congestion Assessment Task Force (WCATF)[2] represents the beginnings of a productive partnership among DOE, the western industry, western states and provinces, and other stakeholders.

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[1] CREPC is a joint committee of the Western Interstate Energy Board and the Western Conference of Public Service Commissioners. It was formed in 1983. All regulatory, energy planning and siting agencies in the states and provinces in the Western Interconnection are eligible to participate in CREPC. Positions are taken by CREPC only if no state or province objects. The Western Interstate Energy Board is an organization of 12 Western states (AZ, CA, CO, ID, MT, NE, NV, NM, OR, UT, WA, WY) and three Western Canadian Provinces (AB, BC, SK). Its members are appointed by the Governor or Premier. Its legal basis is an interstate compact approved by 12 states and Congress (PL 91-461). The Board serves as the technical energy arm of the Western Governors' Association. The Western Conference of Public Service Commissioners includes the PUCs from 11 states (AZ, CA, CO, ID, MT, NV, NM, OR, UT, WA, WY)

[2] WCATF was a special task force set up by WECC, CREPC, and the Seams Steering Group-Western Interconnection (SSG-WI) to advise DOE on transmission congestion issues.

CREPC recommends that DOE continue to send a strong message to FERC, industry, states/provinces and others that it will rely on the product of regional transmission planning forums in the development of future congestion studies, the identification of investments to mitigate congestion identified in such studies, and the designation of National Interest Electric Transmission Corridors, <u>provided</u> such forums:

- **Are transparent to outside parties;**
- **Use publicly-available data and models to the maximum extent possible;**
- **Are open to participation by all stakeholders;**
- **Are driven by the interests of stakeholders, not a narrow segment of project sponsors or transmission owners and operators;**
- **Incorporate analyses of the transmission expansion necessary to facilitate the implementation of state-approved or state-acknowledged load-serving entity resource plans and state policies such as Renewable Portfolio Standards and greenhouse gas emissions limitations;**
- **Evaluate on an equal footing wires and non-wires (e.g., demand-side measures, load-based generation including distributed generation) alternatives; and**
- **Consider the application of new transmission technologies.**

II. Substantive Improvements Needed

DOE's *August 8 Report* breaks new ground by attempting to use alternative measures of transmission congestion to identify "Critical Congestion Areas", "Areas of Concern", and "Conditional Areas of Concern". We believe the grouping of congested areas into such categories has merit. However, the analytical underpinnings for such designations in the *August 8 Report* are weak. This is to be expected given that the *August 8 Report* is the first attempt to systematically identify transmission congestion.

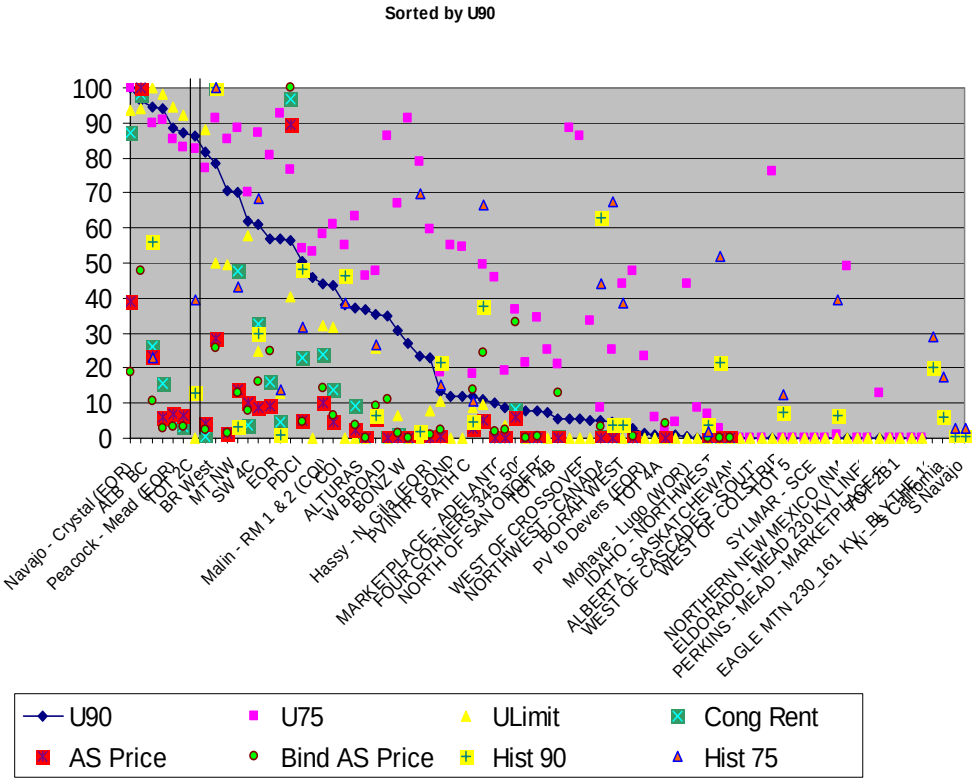
We understand that DOE relied on numerous factors to identify transmission congestion including metrics supplied by the WCATF, the results of Western Interconnection-wide and sub-regional planning processes, advice from parties knowledgeable in operations and planning in the Western Interconnection, and DOE's own judgment. The report does not convey an understanding of how these factors were combined to reach the report's conclusions as to specific areas that are deemed to be Critical Congestion Areas, Areas of Concern, and Conditional Areas of Concern.

WCATF provided DOE with the following quantitative metrics of transmission congestion.

- U75 & U90 = Hours of the year a path operates above 75% or 90% of the path limit as modeled for 2008. The same measure is denoted Hist75 & Hist90 in the historical path studies.
- ULimit = Annual hours operating at the path's limit.

- Congestion Rent = Average hourly shadow price times path flow on that hour, summed for the year.
- Average Shadow Price = Average of the hourly shadow prices, averaged over 8760 hours.
- Binding Hour Average Shadow Price = Average shadow price, averaged over the number of hours the path is at its limit.

Unfortunately, these different measures did not yield consistent indicators of congestion across the different transmission paths in the Western Interconnection. When transmission paths were ranked by these different measures, the measures yielded very different rankings. In the chart below, the transmission paths were ranked using U90, the number of hours of the year that the path operates above 90% of the path operating limit. U90 is depicted by the blue dotted line declining from left to right. All the measures were converted to an index where 100 equals the highest value in the sample. The index values for the other measures (U75, ULimit, Congestion Rent, Average Shadow Price, Binding Hour Average Shadow Price, Hist90 and Hist75) are plotted on the same graph for each transmission path. The wide dispersion of these data points around the U90 line indicates a lack of correlation among the different measures. In other words, the alternative metrics do not convey a consistent message on which paths are congested.



Before NIETC designations are made, more peer review needs to be done to evaluate the utility of alternative metrics for defining transmission congestion.

CREPC recommends that:

- **DOE make clear how various inputs were used to reach the conclusions in the *August 8 Report*;**
- **DOE join with WECC in a workshop to review the strengths and weaknesses of the congestion metrics developed by the WCATF and considered by DOE, and that the workshop be a first step toward developing congestion metrics that have broad support among the industry and states/provinces; and**
- **DOE refine the category of Conditional Congestion to better reflect the fuel choice preferences of load serving entities and their regulators and state and provincial policies affecting generation choices.**

For each of the Critical Congestion Areas, Areas of Concern, and Conditional Areas of Concern identified in the Western Interconnection, DOE should provide an explanation of the data, advice and judgments used in reaching its conclusions. The explanation should identify the strengths and weaknesses in the assessment. This will not only provide stakeholders with a better understanding of DOE's analytic process, but will provide: (1) a more solid footing for evaluating steps to mitigate identified congestion; and (2) lead to improvements in future congestion studies.

Because of the time constraints necessary to produce the *August 8 Report*, the congestion metrics developed by the WCATF and used by DOE were not subject to broad peer review. Alternative congestion metrics should be evaluated by a formal peer review effort. This will not only improve the quality of the metrics, but may begin to develop a consensus among stakeholders, industry and states/provinces on appropriate measures of congestion. Such consensus would build a foundation for timely action to develop, finance and permit proposed congestion mitigation projects.

The designation of Conditional Congestion Areas is a novel and potentially productive categorization of congestion. There needs to be a more rigorous analysis of the factors that lead to identifying Conditional Congestion Areas. This more rigorous analysis should begin with a stronger linkage between the generation preferences of LSEs and the transmission additions needed to alleviate the congestion that would result from the construction of such generation preferences. With DOE encouragement and support, this improved analysis of potential Conditional Congestion Areas could be incorporated into regional and sub-regional transmission planning in the Western Interconnection.

III. Response to DOE Questions

1. **Would designation of one or more National Corridors in these areas be appropriate and in the public interest?**

Without further documentation of the detailed analytic basis for DOE's identification of various congestion areas, DOE designation of a National Corridor in the Western Interconnection would be premature and not in the public interest.

DOE identified Southern California as the only area in the Western Interconnection in the class of Critical Congestion Area. In Southern California, however, numerous proposed projects are underway to build new transmission infrastructure. California entities are working to add transmission in this region with the Palo Verde-Devers No. 2 project, the Sunrise Powerlink, the LEAPS pumped storage project, and transmission for Tehachapi wind resources. Designation of a NIETC would complicate ongoing permitting processes for these projects.

DOE designated three areas in the Western Interconnection as Areas of Concern: Phoenix/Tucson, San Francisco, and Portland/Seattle.

In Phoenix, construction of new transmission is already underway and additional projects are in the permitting process. Additionally, at least one mega project, TransWest Express, which would alleviate congestion in the Phoenix area, is in the study process by the project developers. The Southwest Area Transmission sub-regional planning group has undertaken Project Zia which takes a comprehensive, bottoms-up analysis of the region and is considering innovative ideas to move power to the Phoenix area.

DOE's finding that the San Francisco Bay Area is a Congestion Area of Concern appears to be based not on any systematic detailed modeling of congestion. The Bay Area finding also appears to give limited recognition to recent transmission upgrades in the Bay Area, as well as others, not yet built, that have already been approved by the CAISO, as well as planned generator additions and generator retirements. These improvements will affect all parts of the Bay Area, and could eliminate some of the older, high-cost RMR generation units that contribute to high costs of congestion. Additionally, two potential major new tie lines to the Northwest are under active investigation by PG&E and project developers. Any designation should be deferred until the results of these studies are completed.

A good portion of the congestion identified by WCATF in the "Seattle-Portland" area is in the Puget Sound area and is associated with providing reliable service to area loads, meeting the U.S.-Canada Treaty obligations for return of Downstream Entitlement power and providing capacity for regional economic power sales – primarily exports from Canada to Northwest and California loads. Bonneville, working with Puget Sound utilities, has identified upgrades to resolve part of these problems. PG&E has recently

begun a more detailed investigation of alternative paths between British Columbia and Northern California, one of which is an undersea HVDC cable.

The other portion of the congestion area identified by WCATF is related to internal congestion on the Bonneville system south of Puget Sound, also related in part to export flows from Canada to the Pacific Intertie and on to California. This problem would also be mitigated by additional connections between Canada and California that bypass these flowgates.

2. How and where should DOE establish the geographic boundaries for a National Corridor?

CREPC agrees with DOE that a NIETC must have defined geographical boundaries. In addition, the NIETC designation should be informed by significantly more detailed analysis of congestion mitigation options than is shown in the *August 8 Report*.

3. How would the costs of a proposed transmission facility be allocated?

Allocation of costs for proposed transmission is, and has always been, a difficult issue. However, the premise of DOE's question – that cost allocation difficulties have blocked interstate transmission construction – is not germane in the West. The Western Interconnection is characterized by long distance transmission spanning multiple states. Many of the major western transmission lines are jointly owned and have been financed by agreements among parties to share in the cost of the line in exchange for a proportionate share of the new transfer capacity. This model will likely continue into the future, particularly for very large projects that are beyond the need of any single entity. While there are now merchant transmission developers and in some states infrastructure authorities with the power to issue bonds, in the final analysis in most cases the decisions of what generation LSEs want to reach will underpin the financing of new transmission. In that regard, the future of transmission financing in the Western Interconnection is not too dissimilar from how transmission has been historically financed.

CREPC agrees that when considering the designation of NIETCs DOE should consider the likelihood that the proposed mitigation project (both wires and non-wires projects) can be financed.

Other Topics

- **Criteria for designating National Interest Electric Transmission Corridors (NIETCs)**

Section 216 provides guidance, although vague, for the Secretary on the criteria that should be used in designating NIETCs. The Secretary should develop metrics for the criteria used to designate NIETCs. When designating NIETCs, the Secretary should document how the criteria have been applied to the proposed NIETC. CREPC filed comments last March, 2006, specifying the following priorities for criteria to designate NIETCs:

  - Highest priority should be given to designation of transmission corridors that enable the achievement of state energy policy objectives.
  - Priority should be given to designation of corridors from location constrained generation resource areas.
  - Low priority should be given to the designation of corridors with contractual congestion but little physical congestion, unless there has been an evaluation which finds that solutions to contractual congestion are not feasible or more costly than building new transmission.
  - Low priority should be given to designations that would rely on studies with a high level of uncertainty in the assumptions used.
  - Low priority should be given to criteria that are vague and unverifiable, such as Draft Criteria 5 and 6 proposed by DOE in the Notice of Intent issued January, 2006.

- **Sound and verifiable information.**

DOE has correctly highlighted the need for sound and verifiable information. Western transmission planning efforts have identified numerous needed improvements in data, modeling, and analysis (e.g., improved hydro and wind modeling). CREPC believes that DOE can play a particularly constructive role in improving the tools available to evaluate transmission congestion, including sound methods of evaluating non-wires alternatives and new transmission technologies.

- **Availability of supporting data and analyses.**

CREPC strongly supports DOE's decision that "…the Department intends to make all analyses and underlying data provided in response to the Department available for public review." Publicly-available data and analysis must be the cornerstone of DOE's implementation Section 216. DOE should use its influence to encourage all transmission planning efforts to use only publicly-available data and analysis. This will build confidence in the planning results that will facilitate financing and permitting of transmission.