



WIRAB Advice to WECC Re: Implementation of the RAC

June 4, 2019

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The Western Interconnection Regional Advisory Body (WIRAB) appreciates the opportunity to submit advice to the WECC Board of Directors on the implementation of the Reliability Assessment Committee (RAC).

The WECC Board of Directors created the RAC to improve the quality of WECC's reliability assessments. In forming the RAC, the WECC Board of Directors sought to combine the subject matter expertise of the analysts that use power flow modeling with the expertise of the analysts that use production cost modeling to produce more comprehensive and consistent reliability assessments. WECC analysts use production cost modeling to simulate the economic dispatch of electric generating units in every hour of a year. The analysts build multiple cases to represent the potential generation resource mix 10 years in the future and use the simulated economic dispatch to analyze system operations and transmission flows under a wide range of future scenarios. WECC analysts use power flow modeling to simulate the operation of the bulk electric during a single hour under contingency scenarios, such as the outage of a major generation unit, to identify specific reliability issues such as frequency response or voltage stability. The RAC is the place where these subject matter experts with complementary skill sets come together to work collaboratively to perform rigorous and comprehensive assessments of reliability issues in the Western Interconnection. WIRAB continues to support the RAC as a means of efficiently utilizing subject matter expertise to improve the quality of WECC's reliability assessments.

Industry-imposed conditions on the modification or adjustment of data submitted to WECC threatens the RAC's ability to independently and rigorously assess reliability issues in the Western Interconnection. WECC receives data from utility representatives (formally designated as "Data Providers") that allow the RAC to build a set of power flow cases that utilities use to meet specified reliability standards (e.g., MOD-032, MOD-026, MOD-027, MOD-33, FAC-002, FAC-013). WECC also relies upon data provided by the Data Providers to determine the generating resource retirements and additions to include in the Anchor Data Set (ADS). WECC and the RAC coordinate with the Western Planning Regions (i.e., California ISO, Northern Tier Transmission Group, Columbia Grid, and WestConnect) to ensure the data submitted by the utility representatives and included in the ADS accurately reflects the most recent plans of the individual Planning Regions.

One of the challenges in building the first ADS was that some Data Providers provided data that was inconsistent with assumptions of the Planning Regions. The Planning Regions attempted to resolve data issues with their respective Data Providers to reconcile key generation and retirement assumptions. However, there was no consistent process to validate and correct data issues among the Planning Regions and their respective Data Providers.

More importantly, however, the RAC operates under the assumption that it lacks the authority to change or modify the data provided by the Data Providers to reflect known generating resource retirements or additions that will occur in the future. The RAC's lack of authority, whether it is real or perceived, to adjust the data submitted to WECC is at the center of an internal RAC dispute regarding the modeling of future generation retirements and additions in the Western Interconnection.

This dispute has split the RAC into two camps along the lines of previous committee affiliation and area of subject matter expertise. Power flow modelers associated with the former Planning Coordination Committee (PCC) typically assume that only known and existing generators should be included in long-term reliability assessments. Future planned generation retirements or additions are not certain and therefore not included in base cases used to assess reliability. The power flow modeling experts believe it is appropriate to be conservative in moving from the status quo.

In contrast, production cost modelers associated with the previous Transmission Expansion Planning Policy Committee (TEPPC) are more comfortable with making assumptions about generation retirements, new generation, and transmission additions over a ten-year timeframe and beyond. The production cost modeling experts believe it is appropriate to make assumptions about future generation retirements or additions, so long as the assumptions are reasonable and transparent.

To date, there is no consensus on whether to include or exclude future resources in the ADS. The power flow cases developed within the RAC generally exclude future resources. By contrast, the production cost model cases were built to include expected future resources consistent with utility Integrated Resource Plans and state/provincial policies such as renewable portfolio standards.

The lack of clarity on whether the RAC has the authority to adjust the data submitted to WECC, and the lack of consensus among the RAC members on how to resolve this dispute, potentially impacts the consistency and quality of WECC's reliability assessments. We provide two specific examples to illustrate the data quality issue. The first example is from the initial development of the Anchor Data Set in 2018 (Version 0.1). The following bullets describe the changes in installed generation capacity in the Western Interconnection over the next ten year period from January 1, 2019, through December 31, 2028:

- Retirement of 7,220 MW of natural gas fired generating capacity.
- Retirement of 5,945 MW of coal fired generating capacity.
- Retirement of 2,400 MW of nuclear generating capacity.
- Retirement of 165 MW of petroleum fired generating capacity.
- Retirement of 214 MW of wind generating capacity.

- Installation of 8,886 MW of natural gas fired generating capacity.
- Installation of 1,912 MW of hydroelectric generating capacity.
- Installation of 375 MW of wind generating capacity.
- Installation of 993 MW of solar generating capacity.

Development of subsequent versions of the ADS and the associated 2028 power flow and production cost data sets has been vigorously debated. The subsequent development of the ADS has resulted in different assumptions regarding future natural gas and coal generation retirements and the installation of wind and solar generation resources.

A second example is from NERC's Long-Term Reliability Assessment (LTRA) published in December 2018 assessing the future resource mix in 2028. A key highlight of the report states, "The Western Interconnection and all of the individual subregions are expected to have sufficient generation capacity to exceed the Reference Margin Level during the assessment period." According to the NERC LTRA, the following bullets describe the changes in installed generation capacity in the Western Interconnection over the next ten year assessment period by type of generation (i.e., generating resource retirements and additions):

- Retirement of 6,181 MW of natural gas fired generating capacity.
- Retirement of 1,861 MW of coal fired generating capacity.
- Retirement of 80 MW of petroleum fired generating capacity.

- Installation of 319 MW of hydroelectric generating capacity.
- Installation of 95 MW of wind generating capacity.
- Installation of 385 MW of solar generating capacity.

Since the changes in the generation mix do not match that of the ADS Version 0.1, it is unclear from these examples whether these future resource mix scenarios are:

- A. Solely the result of the data submitted to WECC by the Data Providers;
- B. WECC's best estimate of the change in resource mix over the ten-year assessment period;
- C. Neither; or
- D. Both

WIRAB supports WECC and the RAC conducting robust scenario analysis that evaluates reliability issues under a wide range of potential future scenarios for the generating resource mix in the Western Interconnection. However, the scenarios analysis must be rigorous, systematic, and transparent. It should also be clear from these examples that WECC and the RAC must have the authority to verify, and if needed, modify the data submitted to WECC by Data Providers in order to ensure that the reliability assessments put forward by WECC are accurate and independent.

The WECC Board of Directors should provide leadership in resolving the internal RAC dispute regarding the authority of the RAC to modify or adjust data submitted to WECC to conduct reliability assessments. WECC relies upon the RAC to perform assessments of potential reliability risks such as the changing resource mix, increased levels of inverter-based resources, and the electrification of the transportation and other sectors in the economy. The subject matter experts on the RAC need the authority to verify, and if needed, modify the data submitted to WECC by Data Providers in order to ensure that the reliability assessments put forward by WECC are accurate. If the RAC lacks this authority due to industry-imposed conditions, then WECC should rely on its authority to request data or information directly from jurisdictional entities pursuant to Section 1600 of the North American Electric Reliability Corporation (NERC) Rules of Procedure without industry imposed limitations. If the RAC is unwilling to exercise a thorough vetting of

generation resource retirements and additions because of a perceived lack of authority, then the WECC Board should clarify that it expects this type of vetting to occur. Without thorough vetting of generating resource retirements and additions, the potential exists for the independence of WECC's reliability assessments to be called into question. Strong leadership from the WECC Board, WECC management, and the RAC is needed to break this deadlock and promote the dissemination of high-quality reliability assessments.