FINAL

Resource Adequacy Steering Committee Meeting

October 3, 2006 - 10 AM to 3 PM

Notes

ATTENDEES: Tom Karier, Paul Norman, John Fazio, Wally Gibson, Terry Morlan, Mary Johannis, Stefan Brown, Steve Fisher, Steve Weiss, Leann Bleakney, Dave Levee, Howard Schwartz, Jerry Thale and Aliza Seelig

I Presentation of the Proposed Pilot Capacity Adequacy Standard

A Goal of Meeting:

John Fazio stated that his presentation is to help the Steering Committee make a decision today whether to recommend that the Council adopt the Pilot Capacity Adequacy Standard for the Pacific Northwest. He emphasized that the Committee is being asked to approve the methodology since it is anticipated the actual numerical targets and some of the assumptions will change as more analysis is performed by the Technical Committee. John mentioned that the building block approach to the capacity metric is parallel to the WECC proposed approach to resource adequacy guidelines for the Western Interconnection.

B Linkage of Capacity Target to LOLP Analysis:

In a similar manner to the adopted energy metric and target, the pilot capacity metric and target is linked to a capacity Loss of Load Probability (LOLP) analysis. Specifically, John selected a scenario of resources and loads for which the capacity LOLP is 5%. From that scenario, he calculated sustained peaking planning reserve margins (PRMs) for both the summer and winter to maintain a 5% capacity LOLP. He then compared the LOLP-derived PRMs to the PRMs derived from the building block approach including components for adverse temperature reserves, operating reserves and replacement reserves. He found that the building block components are not strictly additive because the conditions requiring the use of these reserves may not all happen at the same time. Therefore, John introduced the concept of adjustment reserves that are needed in addition to adverse temperature reserves and operating reserves in order to maintain a capacity LOLP of 5%. Adjustment reserves are less in the winter than in the summer perhaps because the Region has more access to the non-firm energy market and to hydro flexibility in the winter than in the summer when there is competition for non-firm resources from California and the rest of the Western Interconnection.

C Load-related PRM Component:

Steve Fisher asked how load forecast error is figured into the capacity target. John responded that it is not specifically factored into the LOLP analysis, but can be addressed through scenario analysis. John then went onto explain the assumptions

underlying the various components of the proposed PRMs for summer and winter. Related to the adverse temperature component of the PRM, Howard Schwartz asked whether the peak load always corresponds to the highest or lowest temperature during summer and winter months. John indicated that analyses substantiate that relationship. Stefan Brown asked, if the availability of better data will allow for calculation of peak period load rather than the use of average daily load to function as a surrogate for peak period load? John responded that better data will allow for calculating load over the 10 hour per day, 5-day peak period. **Action Item:** John will change slide #10 to indicate that the focus is not on improving temperature data, but rather to perform a more precise calculation of load over the peak period duration. The Steering Committee also weighed in on the work that is ongoing by Council staff to derive a better temperature-load correlation for December, which is too high currently. If this analysis results in a lower adverse temperature reserve component, then the adjustment reserve component will go up since the overall PRM is pegged to the LOLP analysis. Wally Gibson suggested that it is likely that the critical winter month will be February once the correction is made to the December correlation. The Committee decided to use February as the most critical winter month, which means the adverse temperature component is reduced from 19% to 15% and the adjustment reserve component is increased from 0% to 4%.

D Refinement of Reserve Margin:

Jerry Thale suggested that the decrease in thermal capacity due to reduced efficiency with high summer temperatures should be incorporated into the calculation of the resources to meet load plus sustained peaking capacity reserve margin needs. In addition, other heat-related factors such as wildfire-related generation or transmission outages need to be incorporated into the uncertainties incorporated into the reserve margin methodology to cover heat wave events. Howard Schwartz suggested that more work is needed to decide how to incorporate wind into the reserve margin calculation.

E Current Status:

John described the current status of the Region from a capacity standpoint, given that the Region is about 2,000 aMW surplus from an energy perspective. Typical reserve margins for December and July are about 41% and 28%. More work is needed to be able to more accurately calculate the reserve margin. The hydro generation needs to be updated to reflect the latest biological opinion reductions to summer hydro generation and to incorporate Idaho Power Company's hydrogenation, which is not part of the Pacific Northwest Coordination Agreement. John then presented the sustained peaking capacity PRM if the Region were just adequate from an energy point-of-view. For this case, the winter PRM would be 27%, which is deemed adequate, but only 13% in the summer, which is deemed inadequate based on the proposed summer capacity target. This means that the PNW is still energy limited in the winter, but capacity limited in the summer. Steve Weiss stated that this is an important result, which should be emphasized. Tom Karier stated that the summer

analysis needs to be refined as much as possible to substantiate this result. Jerry stated that such refinements need to include summer derates. Also, future load shapes may be more susceptible to temperature deviations because much of the almost-constant aluminum load has gone away; new loads coming on-line are generally temperature-sensitive.

F July 24th Reserve Margin:

John went onto to characterize the July 24th event in the context of the proposed Pilot Capacity Standard. He indicated that some of his analysis is still based on assumptions regarding the relationship between Northwest Power Pool load and PNW load. Although all of the control areas provided data, the aggregate peak load appears too high. John asked the Steering Committee whether there would be any objection to allowing limited sharing of that data with a task force including BPA's load forecasting staff, who are not part of their trading floor. An email with this request for limited sharing of data will be sent out following this meeting. The Steering Committee discussed the July 24th event in detail. Steve Fisher suggested that there appears to have been more forward selling than prudent. John then showed that the reserve margin would have been 5% on July 24th, if the Region had just been adequate from a capacity standpoint using the pilot standard. This supports the proposed summer target in the pilot standard.

II Technical Committee Deliberations and Recommendations

A Incorporating July 24th Experience into Capacity Standard Assumptions:

Mary Johannis presented a summary of the Technical Committee deliberations. The Technical Committee reached consensus on the pilot capacity standard; dissents are highlighted in Mary's presentation and in the notes. Neither Mary nor John received any negative comments regarding passing the Pilot Capacity Standard onto the Steering Committee for their consideration.

The July 24th experience was incorporated into the Pilot Capacity Standard through an examination of how uncontracted IPP capacity should be counted toward meeting summer loads in the PNW. The Technical Committee came to consensus that that portion of the 3,500 MW of uncontracted IPP capacity, which appears to be unable to secure transmission service out-of-region should be counted as available to the PNW to meet load. The "land-locked" portion of IPP capacity is estimated to be about 1,000 MW. Steve Weiss suggested again that a summer PRM at the 19% proposed capacity target level assuming no IPP capacity might represent a "yellow" warning signal and such a PRM assuming 1,000 MW of IPP capacity might represent the "red" warning signal. Mary responded by saying that on the energy side, the yellow signal was defined to be the "economic" target, which is set by the Council's 5th Power Plan resource strategy. No decision was made regarding a "yellow" warning signal at this time. In response to a question from Steve Fisher, Mary stated that Grant County PUD did not agree with the assumption that 1000 MW of uncontracted

IPP generation is available to meet PNW summer capacity adequacy needs; instead they believe zero is a more appropriate assumption. An important assumption in estimating the "land-locked" IPP capacity" is that 2,000 MW is delivered via the Northern Intertie to the PNW for probable delivery to California. The Canadian shaping capability becomes very important because it means that they can likely provide up to 2,000 MW of exports (during peak hours) for many years to come.

Howard asked, how was the uncontracted IPP generation used on July 24th? Our review of that day's operations seems to show that all of this IPP generation was eventually sent south; however, a portion of it had to be transmitted via NW utilities to get to California. These utilities could have opted to keep this generation in the PNW.

Jerry asked if we had considered market manipulation. Mary answered that we had not specifically looked into market manipulation, but we had reviewed Mid-C and CAISO market prices. The CAISO real-time price was only at the $400/MW-hour level for a few hours on the 24th. However, it was pointed out that the CAISO price is not reflective of the true market price because of all their must-run and resource adequacy-related contracts.

Next Mary described an analysis performed by BPA's Weather and Streamflow Forecasting group regarding the likelihood of a July 24th weather event to reoccur. The analysis indicated that this event has less than a 1 in 50 probability of reoccurrence, so probably is a rarer event than one for which the Region needs to plan. The proposed capacity standard covers a 1 in 20 year event.

B Methodology and Capacity Targets

Next Mary described the hydro flexibility assumed available to the Region by the Technical Committee. It was acknowledged that more work is needed in this area to finalize this assumption for the proposed capacity adequacy standard.

Steve Fisher reminded the committee that we had decided in the morning to use February instead of December (due to data questions regarding December). Thus the components of the winter PRM are temperature reserves of 15%, operating reserves of 6% and adjustment reserves of 4%, which totals the 25% target derived from the winter capacity LOLP analysis.

Jerry suggested we look at the pressure gradient for a 1 in 20 year event to give us a better feel for how to count wind. **Action Item:** The Technical Committee will investigate how pressure gradients fare in extreme temperature events when it is evaluating how to count wind toward meeting the capacity adequacy target.

Howard asked about the wind generation on the 24th. Wally said that over the 10 hour period the capacity factor for wind went down and then up again but this is just looking at the BPA control area. Howard asked what the regional capacity factor

would be. Steve Weiss noted that the Technical Committee is planning to look into this in more detail. The assumption that wind can be counted at a 15% capacity factor is just a placeholder.

III Decision on the Pilot Capacity Adequacy Standard

Paul Norman suggested the Steering Committee consider recommending that the Council adopt both the Pilot Capacity Standard and the work plan, which includes the tasks necessary to provide the analytical support to finalize the PNW Capacity Standard. Tom suggested the work plan could be an appendix to the Pilot Capacity Standard paper.

John reviewed the changes to the paper suggested earlier in the meeting. Members of the Steering Committee suggested a number of additional changes to the document such as the role of the Forum in finalizing the PNW Capacity Standard and language as to the surplus nature of the Region both from an energy and capacity standpoint providing the Forum comfort that the Region has a year to finalize the standard.

Steve Weiss asked, what turns on the capacity yellow light? For the Energy Standard, the Economic Standard defines the yellow light zone. Steve suggested that if the Region can barely meet the sustained peaking capacity PRM target without the uncontracted IPP generation that this might define the yellow light zone.

Paul then polled the Steering Committee members. **All indicated that they support recommending the Pilot Capacity Adequacy Standard to the Council for adoption.** Paul commended the Technical Committee for their work in support of developing this Pilot Standard. Terry Morlan indicated the Pilot Capacity Adequacy Standard paper would be sent to the remainder of the entire Steering Committee mail list, so that those not in attendance would also have a chance to comment. **Action Item:** John will distribute the draft paper to the entire Steering Committee mail list and invite comments. However, the comment period will only be about a day given the Council's protocols for document submittal in advance of Council meetings. There will, of course, be another opportunity to comment once the Council releases the paper for public comment.

IV Work Plan and Schedule for 2006-07

Data Definitions and Reporting Protocols is the next major work item for the Technical Committee. Tom suggested that if the Technical Committee is generally in agreement on these protocols, the Steering Committee probably does not need to meet. However, if there are areas of disagreement, then the Steering Committee would need to meet to resolve the areas of disagreement.

Jerry pointed out that BPA ATC Methodology uses load forecasts, which appear too high for the Portland area. He suggested sending this load forecast out to the Forum mail list to scrutinize as a part of the effort to arrive at standardized reporting protocols. **Action Item:** Mary will obtain this load forecast and send it out to the group for comment.

The Steering Committee decided the work plan should be presented on a monthly basis. Various tasks were added to the work plan, as suggested by Steering Committee members.

V Schedule Meeting (if needed) and Adjourn

The next meeting of the Technical Committee is tentatively scheduled for November 17, 2006 from 10 a.m. to 3 p.m. at the Council's Offices, if needed, to resolve data definitions and reporting protocols.

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