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Resource Adequacy Technical Committee Meeting March 16, 2007

Notes

ATTENDEES: John Fazio (Council), Mary Johannis (BPA), Stefan Brown (OPUC), Clint Kalich (Avista), Chris Robinson (Tacoma), Nicolas Garcia (WUTC), Steve Weiss (NW Energy Coalition), Silvia Melchiorri (PGE), Howard Schwartz (WA staff), Tom Haymaker & Greg Mendonca (PNGC), Jeff King & Terry Morlan (Council) and Ian Bird (BPA).

PHONE PARTICIPANTS: John Bushnel (MT staff), Don Tinker (Seattle), Rod Notebook (Grant County PUD), Mark Ohrenschall (Media) and Melinda Eden (OR Council member).

I Introductions & Updates:

After introductions were made, Mary Johannis reported that BPA had met with the California Energy Commission and CAISO to discuss mutual import/export expectations between the two regions. One purpose of this meeting was to test the assumption that 3,000 MW of surplus winter capacity is available to the Pacific Northwest from California. Follow-up analyses will be conducted using the information, which the CEC will provide. In addition, the possibility of establishing regional protocols to call upon out-of-region seasonal diversity capacity/energy under emergency circumstances was discussed.

Mary also discussed postponing the March 28th Steering Committee Meeting because it falls during Oregon's spring break. Another reason to postpone the meeting is that the Resource Adequacy Forum will likely be a topic on the April 6th PNUCC Meeting providing an opportunity to increase attendance at the next Steering Committee Meeting. Tentatively, the Steering Committee Meeting was deferred to April 13, 2007.

II Methods to Translate Regional Targets into Utility Guidelines

John Fazio presented a PowerPoint on this topic to assist the group in brainstorming methods to translate regional resource adequacy metrics and targets to the utility-specific level. John discussed that since the region's utilities plan to a wide variety of metrics and targets, one way to connect utilities' loads and resources to the regional resource adequacy standards is to aggregate utilities' loads and resources using a specified methodology.

Mary presented one option for this translation, at this point, only looking at the energy metric and target. Given that the Council-approved energy metric and target assumes 3,000 MWa available from uncontracted within-region merchant generation and 1,500 MWa from out-of-region spot market resources and hydro flexibility, the region's utilities only need to plan for firm energy resources to cover that % of their load not covered by uncontracted resources. Looking at a forecasted regional load of about 22,500 MWa in the year 2010, the region's utilities in aggregate would need to plan to meet 80% of their load with firm resources. Mary performed an analysis, which showed that approximately half of the load in the region is served by thermal utilities and half by hydro utilities. So, her suggestion was that the analysis would look to hydro utilities to cover 70% of their load with firm resources and thermal utilities would cover 90% of their load with firm resources. The reasoning here is that thermal utilities generally are capacity constrained and should have no problem covering their load on an energy basis with resources needed to cover their capacity needs. Hydro utilities, on the other hand, will have greater than critical hydro generation available in almost all years to cover their load. **Action Item:** Stefan

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Brown suggested that this reasoning and the assumption regarding the split of hydro and thermal utility load needs to be stated explicitly in the slides of the PowerPoint.

There was some discussion regarding the 3,000 MWa assumption of market resources from uncommitted in-region merchant generation. Some of this capacity is being tied up in long-term contracts; so the 3,000 MWa assumption will likely decrease in the future. **Action Item:** One of the topics for the next meeting will be an examination of the magnitude of uncontracted IPP generation and the availability of that generation in the summer and winter to the PNW.

John presented another approach to figuring the percentage of utilities' firm load, which would need to be covered by firm resources in order to achieve the regional energy target. He looked at two bookends—a 100% thermal utility without any access to the market and a 100% hydro utility with access to the market. Although there was some disagreement regarding the exact numerical target for thermal utilities, the conclusion was that thermal utilities should not be energy-constrained and so the exact numerical target is not that important. Coincidentally, John came up with the same percentage of a hydro utility's load, which needs to be covered by firm resources—i.e. 70%. There appeared to be no objection to these methods for translating the energy metrics to the utility-specific level.

No methods for translating the regional pilot capacity adequacy standard to utility-specific guidance were discussed since this standard still needs to be finalized.

III Insights from the Northwest Wind Integration Action Plan specifically re: How to Count Wind Toward Capacity Metric & Target

Jeff King presented a PowerPoint providing an overview of the plan. This plan will be implemented by a formal Wind Integration Forum, a new advisory committee to the Council, which will be chaired by BPA and the Council. The report describes wind integration costs of from \$2 - \$16/mwh for integrating up to 6,000 MW of new wind into the region. Clint Kalich pointed out that the \$2 is associated with a fairly small increment of the 6,000 MW. Jeff pointed out that the Wind Integration Task Force concluded that approximately 3,000 MW of wind capacity (i.e. the amount of wind capacity planned to be added through 2009) can be constructed without major transmission system improvements. Jeff reviewed the recommendations in the Action Plan. Stefan mentioned a possible disconnect between some of these recommendations and state policies. A group of state commissioners is being convened to address this issue. A key recommendation for the Forum is that the 15% capacity value initially assigned to wind as its contribution to meeting the region's capacity target under the regional standards needs to be reexamined.

Clint pointed out that the 3 years of wind data being suggested for purchase under one of the recommendations is not of sufficient length (i.e. it does not include a sufficient number of adverse temperature events) to allow the Forum to make a final recommendation of the capacity value for wind under the capacity metric. There was discussion regarding using historical wind anemometer data to extend the record, or purchasing additional data. John Fazio suggested the formation of a sub-group to address the wind capacity value issue; sub-group participants will include John Fazio and/or Jeff King, Clint Kalich, Sylvia Melchiorri, Don Tinker, Wally Gibson, and Mary Johannis. It was also suggested that Steve Barton and Bart McManus be invited from BPA.

Ian Bird of BPA presented a graph of historical hourly generation of wind plants in BPA's control area for the period 2001 through 2006. There appears to be three years of data or less for a

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number of plants, given the on-line dates of those wind turbines. Based on BPA's graphic, on a peak-hour basis, the assumption that wind can contribute a 15% capacity value appears to be overstated. However, the analysis would need to be done on a sustained peaking basis and probably for a larger number of wind plants and longer period of record.

IV Benchmarking Process Update

John presented a PowerPoint describing efforts to develop counting protocols, to validate the data used in the GENESYS and other simulation tools, and to benchmark the GENESYS model itself. One such effort is a comparison of the hourly FCRPS generation simulated by the Trapezoidal Approximation (used by GENESYS) and that simulated by BPA's HOSS model. Another effort involves a comparison of the results Council's new load forecasting model with the HELM algorithm, which is currently used by GENESYS to simulate hourly loads.

Future benchmarking activities include checking whether simulated dispatch in GENESYS matches what a scheduler would do. Documentation and presentation will be provided on all of these efforts. **Action Items:** John will check on historical imports to help validate assumptions on imports and exports. Mary will perform the action items identified in the BPA-CEC/CAISO meeting to verify whether the 3,000 MW winter surplus capacity assumption from California is still viable. John & Mary will send Clint their respective information on the magnitude of uncontracted IPP capacity. Clint's staffer can help develop the most current evaluation of uncontracted IPP generation.

Other future activities include re-examinations of capacity and energy events to evaluate whether the thresholds are correct. Nicolas Garcia suggested that the group create the story, which documents that such actions as the governor's calls for conservation are ways to reduce demand that GENESYS does not model.

V Status Report on Coordinating with WECC on Developing Resource Adequacy Guidelines and Improving Power Supply Assessment

Mary summarized the status of efforts at WECC and NERC to develop resource adequacy assessment standards and guidelines. Mary provided a synopsis of BPA's comments to the WECC on their initial methodology for developing resource adequacy targets for the WECC sub-areas. BPA's primary comment was that the peak hour capacity metric WECC uses to assess resource adequacy is not appropriate for the PNW. BPA encouraged WECC's efforts to develop modeling capability to allow for different resource adequacy metrics to be applied to WECC's assessment efforts.

VI Discussion of a Loss of Fish-operation Probability Metric

John presented a PowerPoint, which describes a methodology to measure any incremental misses in achieving biological targets (primarily April refill) due to the use of hydro-flexibility in the GENESYS model. Even without any hydro-flexibility, the FCRPS cannot always meet biological opinion targets. For example, Coulee will refill 80% not 100% of the time without any hydro-flexibility. Any incremental misses above 200 Kaf count as misses from a Loss of Fish Probability analysis.

John presented a graph showing the trade-off between LOLP and LOFP. Questions include is a 5% LOFP appropriate? What does it mean to miss the April 10 refill target? The group discussed that this information needs to be part of the package of information, which is provided

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to the Steering Committee, as the Technical Committee makes its recommendations to finalize the Capacity Adequacy Standard.

VII Schedule Next Meeting

The next meeting is scheduled for April 26th, possibly at the Power Pool's offices.

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