

Wind Integration Forum June 6, 2011 Action Items Update

December, 2011

The action items from the June 6 Wind Integration Steering Committee are repeated below, followed by brief summaries of progress to date.

Action Item 1) Examine Potential Reliability Concerns. Steering Committee members expressed concern over possible impacts on grid stability from the growing wind fleet. BPA will report back to the Steering Committee on the results of its ongoing examination of this concern. As an initial step, BPA's Technology Innovation Program is hosting an August 23 workshop on voltage stability and transient issues associated with large-scale wind integration. Invitations will be mailed to SC members and put out on BPA's Tech Forum listserv in the near future.

Progress to date:

- BPA held the August 23, 2011 workshop. A followup session for the Wind Integration Forum Steering Committee was held on November 17, 2011. The overall conclusion is that "Studies done up to now have not shown 'macro' stability issues with 8,000 MW of wind in Pacific Northwest - as long as wind power plants follow BPA voltage control requirements and study models are correct."¹

Action Item 2) Examine Balancing Authority Consolidation and Energy Imbalance Markets.

Some Steering Committee members expressed interest in balancing authority consolidation and energy imbalance markets to address wind balancing challenges. BPA will seek to reconvene the NW Power Pool BA Leadership Group by Oct 1 to discuss these interests. In addition:

- Balancing Authority Consolidation. Grant, Chelan, and Avista are analyzing consolidation of their BA's, in part to enable more efficient wind balancing. An interim review of progress on this analysis will be included in the NWPP meeting by October 1.
- Energy Imbalance Markets. Several Steering Committee members advocated energy imbalance markets as a means of more efficient wind balancing and as a means of reducing demands on the hydro system. At the BA Leadership meeting there will be a discussion of whether the appropriate analysis is being conducted to consider the benefits of EIM in an environment of 30 minute scheduling (which is set to be widely implemented in the Northwest this summer). The goal will be to try to complete this analysis by early fall. BPA and other Steering Committee members will encourage NTTG and Columbia grid to work together on this analysis after the expected June 22 release of the WECC report on EIM benefits and costs.

Progress to date:

There has not been a BA Leadership Group meeting, but there has been progress on both topics:

BA Consolidation: Grant, Chelan, and Avista have continued to work actively to explore the benefits and costs of consolidation of their balancing authority areas. They expect to

¹ For more on wind and voltage control, see the second presentation on this web page:
<http://www.nwcouncil.org/energy/Wind/meetings/2011/11/Default.htm>

complete a report in December. As yet, this work has not yielded clear implications for wind integration.

Energy Imbalance Markets: WECC staff completed a draft benefit cost analysis in June. Refinements to the benefit cost analysis and a more detailed functional specification for an imbalance market were done by WECC in September.² The WECC Board will consider its next steps on energy imbalance markets in its November 30 meeting.

Since the June Steering Committee meeting, a number of Northwest parties have stated their opposition to having WECC lead an effort to establish an imbalance market. There has been more interest among Northwest parties in exploring an imbalance market within a smaller Northwest Power Pool footprint. A number of Northwest parties also want to understand what the incremental costs and benefits of an imbalance market would be after implementation of other initiatives such as 30-minute scheduling.

Action Item 3) Dynamic Transfer Capability (DTC) Increase. Steering Committee members noted that increasing DTC was essential for addressing the wind balancing challenge. BPA and Columbia Grid have efforts underway aimed at DTC expansion. BPA will work with Columbia Grid to engage in outreach to other parties to ensure that the engagement in this issue is appropriately broad. Brian Silverstein is BPA Lead on DTC. Elliot Mainzer to coordinate with WIST Leads Jeff Miller and Gordon Dobson-Mack to set up briefing for Steering Committee of these potential initiatives among Steering Committee members.

Progress to date:

DTC Task Force with broad industry involvement has been working actively. A briefing for Steering Committee members and others was held on November 17th. The Task Force has developed a methodology for determining DTC limits in July. It plans to apply the methodology to specific paths in December, though ultimate determination of path limits will be up to Balancing Authorities and Transmission Providers. The Task Force has also developed a technical consensus on how to facilitate increased Dynamic Transfers.³

Action Item 4) Potential Legislative Initiatives. Both interest in, and skepticism of, legislative initiatives to address oversupply issues were expressed by Steering Committee members. Some organizations are currently discussing potential initiatives. Paul Norman will request that those involved in these discussions sponsor a discussion of these potential initiatives among Steering Committee members.

Progress to date:

There has been extensive discussion of legislative initiatives to address oversupply issues both among Steering Committee members and other parties since the June Steering Committee meeting. These discussions have focused mostly on ideas for modification of

² The revised WECC analysis of imbalance markets is here:

<http://www.wecc.biz/committees/BOD/09212011/Lists/Minutes/1/13%20EDT%20Analysis%20-%20Risk,%20Governance,%20and%20Cost.pdf> and the functional specification is here:

<http://www.wecc.biz/committees/BOD/09212011/Lists/Minutes/1/12a%20EIM%20Functional%20Specification.pdf>

A summary of the WECC work is here: <http://www.nwcouncil.org/news/2011/10/p01rev.pdf>

³ More detail on the DTC Task Force's work is available here:

<http://www.nwcouncil.org/energy/Wind/meetings/2011/11/Default.htm>

state-level RPS requirements to reduce the economic impact on wind generators when they accept displacement by hydro generation. While there has been significant support for such changes, there has also been concern about how such RPS changes would fit with a resolution of the broader oversupply issue. There has also been concern about the relationship of such a change to a number of other changes in RPS laws advocated by various parties. As of late November these discussions have not resulted in legislation being introduced.

Action Item 5) Cost Allocation. Several Steering Committee members expressed interest in tackling cost allocation issues, which they viewed as an integral part of long term solutions to wind integration challenges. One specific concept was that BPA would make an estimate of what they believe negative priced energy will cost them annually and embed this cost in its wind integration rate. BPA would then pay negative market prices but have a backstop of a cap based on lost PTC and REC values. However this was not the only cost allocation approach of interest. BPA stated that new cost allocation approaches could not be implemented in its currently ongoing rate proceeding, but that it would be willing to facilitate/participate in discussions of the issue as soon as practicable without violating ex parte restrictions associated with the current rate case. Jim Lobdell, Scott Corwin, and Tim Culbertson agreed to organize a discussion of cost allocation approaches.

Progress to date:

Discussions of cost allocation concepts are occurring as part of the Environmental Redispatch settlement discussions, which involve a number of Steering Committee members.

Action Item 6) Long Term Physical Solutions to Oversupply. Steering Committee members advocated consideration of a number of physical solutions to the oversupply challenges. These solutions included interregional transmission reinforcements and additions, increasing the geographic diversity of wind development, more advance arrangements for thermal displacement outside of BPA's BA, and other solutions included in Elliot and Ken's presentation at the meeting. Steve Wright requested that the Council lead a process to examine the feasibility and economics of the alternative physical solutions to oversupply. Tom Karier agreed to explore this within the Council.

Progress to date:

The Council agreed to lead this process and an Oversupply Technical Oversight Committee (OTOC) was established to produce a list of measures that merit further analysis. OTOC has established five work groups to recommend measures back to the OTOC in December 2011. OTOC plans to consolidate workgroup recommendations for consideration by the Wind Integration Forum Steering Committee in January 2012.⁴

Action Item 7) Flexibility Adequacy, with Focus on Natural Gas. Steering Committee members noted that though physical resource capability and flexibility looked more than adequate, experience has been that not all resources are actually fully available at times of system stress. And since gas-fired resources are increasingly being looked to for flexibility, the adequacy of gas infrastructure is a concern. Pacific, BPA, PGE, and Avista will attempt to engage the Northwest Gas Association, Northwest Natural and other gas suppliers in advancing a discussion of this issue that has already begun. PNUCC and NWGA recently hosted a meeting for planners and operators across the gas and electric sectors. Other Steering Committee members will be invited to participate. PNUCC and the Resource Adequacy Forum will also be asked to engage in this discussion.

⁴ The web page for this effort is here: <http://www.nwcouncil.org/energy/Wind/otoc/default.asp>

Progress to date:

Since June there have been ongoing discussions among gas and electric industry representatives on gas/electric industry issues, including flexibility adequacy. An Electric and Natural Gas Summit meeting is scheduled for January 25, 2012 to address the reliability relationship between electric power and natural gas in the Northwest, and related cross-industry issues. Representatives of large electric utilities and the Northwest Gas Association have been meeting informally to examine specific historic scenarios in which there has been concern over combined electric and gas operations in the Northwest, to better understand those interactions. In addition, operators of gas-fired generators and gas supplies are developing a Northwest Mutual Assistance Agreement under auspices of the Western Energy Institute, to facilitate cooperation and communication during emergencies.

Potential development plateau. There was recognition that regional wind development is likely to slow down substantially for several years after projects currently under construction are completed. However it was also agreed that substantial uncertainty exists about the future pace of development, and it is still possible that the recent high pace of development will continue. (Brian Silverstein at BPA will lead an effort to verify that a plateau is likely). It was also agreed that such a plateau should not be used as an excuse to slow down efforts to solve integration challenges. It was suggested that it would be prudent to continue some level of preparation for a higher than expected level of wind development. BPA and the Council will explore a suitable forum for that preparation to take place.

Progress to date:

There has not been a new comprehensive assessment of the likelihood of a plateau or the likely pace of wind development since the June Steering Committee meeting.

Council staff is developing a framework for entertaining a longer term vision for transforming the current power system to a high renewable, low-carbon future. A proposal is being developed for the next Wind Integration Forum Steering Committee meeting.

Relief from transmission commitments. It was suggested that relieving wind developers of commitments to buy firm transmission that they no longer are likely to use, possibly as part of a revised Network Open Season process, could make sense. BPA said they would look at this possibility.

Progress to date:

BPA requested comment on this idea in July as part of its assessment of the need for reforms of its Network Open Season and Generator Interconnection policies. It also

estimated financial and rate impacts. BPA received comments but has not as yet made a decision.⁵

Other significant progress on wind integration since the June Steering Committee meeting:

Intrahour scheduling now fully implemented: Intrahour scheduling at 30 minute intervals has been fully implemented by BPA, reducing its need to hold reserves for wind balancing. BPA has also begun signing up customers to “committed intrahour scheduling”, which provides a 34% discount on BPA’s wind integration rate to customers who commit to 30-minute scheduling.⁶

Supplemental Energy to protect wind generators against schedule curtailments: BPA can curtail scheduled deliveries of wind power when wind generators are not producing their scheduled output and BPA’s reserves are not sufficient to make up the shortfall. This has been a major concern to wind generators, who fear that it could cause their deliveries to be considered nonfirm. BPA has implemented a Supplemental Energy arrangement under which third party reserves are called upon to avoid schedule curtailment if BPA’s own reserves become insufficient.⁷

⁵ Links to the request for comments and the comments submitted are here:

http://transmission.bpa.gov/customer_forums/open_season_2011/PTSA_cust_questionnaire.pdf

http://transmission.bpa.gov/customer_forums/open_season_2011/PTSA_reform_comments_110911.pdf

⁶ More detail on this is here:

http://transmission.bpa.gov/ts_business_practices/Content/7_Scheduling/Committed_IntraHour_Sch.htm

⁷ More detail on supplemental energy is here:

http://transmission.bpa.gov/ts_business_practices/Content/8_Ancillary_and_Control_Area_Services/Supplemental_Service.htm.