

Transmission Update

August 2009

Summary

- ✓ Welcome to the Twenty Fourth National Wind Coordinating Collaborative (NWCC) Transmission Update! Kevin Porter of Exeter Associates, Inc. led the August 18, 2009, Transmission Update conference call. As always, this written brief is being distributed after the call to conference call participants, other NWCC members and participants, and to interested NWCC observers.
- ✓ This update features a discussion of the Bonneville Power Administration's recently concluded wind integration rate case and a briefing on the formation of the Eastern Interconnection Planning Collaborative.
- ✓ Sarah Bermejo was on the call to talk about the Bonneville Power Administration (BPA) wind integration rate case, and David Whiteley from Whiteley BPS Planning Ventures LLC reviewed the formation of the Eastern Interconnection Planning Collaborative (EIPC).

Bonneville Power Administration's Wind Integration's Rate

Background

On July 29th, 2009, BPA submitted their filing and a transmittal letter with FERC, including BPA's final record of decision, which outlined the details of the new wind integration rate. Initially, BPA's proposed wind integration rate was substantially higher at \$2.79/kilowatt-month than the final rate of \$1.29/kilowatt-month.

The New Rate

Ms. Bermejo stated that one reason for this decreased rate was that wind generators demonstrated improved wind forecasting. This was an important factor in the lowered rate due to its impact on the persistence scheduling accuracy levels, which in turn determine the level of reserves that BPA must have. The persistence scheduling was originally based on a two hour ahead schedule, but with the improvement in the wind forecasts, an accurate thirty minute persistence schedule was possible. Ms. Bermejo noted that this allowed BPA to forecast the need for substantially less reserves, which translated into less reserves purchased. This saves money, of course, and in turn allows for a lower rate.

Also factoring into this lessened wind integration rate are the reliability protocols that are designed to limit the amount of reserves needed, while providing wind generators a motivation for scheduling more accurately. BPA's reliability protocol

requires wind generators to reduce output (for over-generation events) or revise schedules (for under-generation events) when BPA approaches its total balancing reserve limits. Ms. Bermejo referred to Dispatch Standing Order 216, which allowed BPA to limit generation if 90% or more of BPA's reserves are committed in order to maintain schedules.

The new wind integration rate of \$1.29/kilowatt-month is comprised of three components, the first being regulation, which accounts for the moment to moment changes in generation or load. There is also load following, which accounts for the changes over ten minute increments; and finally imbalance, which represents the difference between scheduled generation versus actual generation.

Rate Design

Ms. Bermejo noted a key element of BPA's wind integration rate is that the rate is unbundled, allowing greater flexibility to parties who are interested in self-supplying parts or all of the services that comprise the wind integration rate. Self-supplying wind integration services will be available by October 1st, 2010. Ms. Bermejo also pointed out that wind generators 20 MW or less are exempt from BPA's wind integration rate for one year in order to allow the installation of telemetering facilities between BPA and the smaller wind projects.

Ms. Bermejo said that BPA started the rate setting process earlier for this rate case because of a settlement in the previous wind integration rate case that required BPA to begin customer workshops early to discuss the reserves forecasting methodology that determines the levels of reserves needed by BPA.

Discussion

A caller asked if there was a breakdown of the \$1.29/kilowatt-month rate. Ms. Bermejo explained that of the \$1.29/kilowatt-month, \$0.05/kilowatt-month is regulation, \$0.26/kilowatt-month is load following, and \$0.98/kilowatt-month is imbalance. She further stated that when comparing the new rate to the existing wind integration rate of \$0.68/kilowatt-month, the existing wind integration rate does not include an imbalance component. The imbalance piece has been incorporated as BPA gained new insight into how imbalance impacts the BPA system.

A caller wanted to know how this compared to other utility wind integration rates, to which Ms. Bermejo responded that to the degree that it is comparable to other wind integration rates in the Northwest. When prompted, Mr. Porter agreed that this was the case when examining the Northwest region, however when other areas of the country are considered, the rate appears to be higher than most. He noted too, however, that there are market differences making comparisons difficult, as other areas of the nation may have sub-hourly markets, and a deeper availability of ancillary services.

A caller mentioned that there are wind control centers in Spain which serve to bring wind forecasting together with grid integration of wind. A proposal to establish such wind control centers will be made before the Southwest Area

Transmission working group. The caller explained that it seemed to make sense to locate these wind control centers where there is a lot of transmission, such as Palo Verde or Meade; where there are extensive grid operations; and where there is a transparent trading hub like as the California-Oregon Border (COB). The caller then asked if the BPA region is looking at establishing such wind control centers, and if so, where in the region BPA would consider locating such a center.

Ms. Bermejo contended that she was unsure of BPA's plans in that regard, but knew that there were a number of BPA initiatives under study to facilitate sub-hourly markets and self-supply and third-party supply of wind integration services.

A caller asked for clarification on how self-supply of wind integration services worked, requesting to know whether if, for example, Powerex can offer some of the services at lower cost than Bonneville, than the wind generator could accept those services from Powerex and pay that rate instead. Ms. Bermejo commented that was fairly accurate, with the caveat that Bonneville has yet to create a business practice that will detail the criteria for the practice of self and third-party supply. This will include things such as telemetry requirements to ensure that the generators are capable of communicating with the transmission providers. She stated that BPA has committed in the record of decision to have the business practice completed by October 1, 2010.

A caller followed up on this statement, asking why it would take until October 2010 to put all of that into place, as it seemed like a rather long timeframe. Ms. Bermejo replied that there was a great deal of telemetry involved in terms of self-supply. While BPA is working to make this happen as quickly as possible, there are many technical steps that must take place first which take time. Dynamic scheduling has to be fully functional. There is also the time necessary for wind projects to install communications equipment, and there are some modifications to the automatic generation controls to the federal hydro system to accommodate dynamic schedules.

A caller noted that the work plan put out by the BPA wind integration team in May only went out about eighteen months, with plans to meet in fall of 2009 to put together a longer term work plan. The caller then asked if there were any more concrete plans for that meeting yet. Ms. Bermejo noted that the wind integration work plan published in June 2009 is posted on BPA's website, and is fairly detailed. Ms. Bermejo did not know of a more specific date for the meeting to develop a longer term wind integration work plan.

A caller asked what the overall goal of the telemetry was for; whether it was meant to facilitate a common control center, of balancing individual entities, or if it was meant to facilitate the overall market structure. Ms. Bermejo replied that it is designed to be flexible, and to meet multiple customer objectives, but an overhaul of the market structure for ancillary services will require more planning and discussion throughout the Pacific Northwest.

Eastern Interconnection Planning Collaborative

Background

In March 2009, PJM approached Mr. Whiteley to facilitate the development of an interconnection-wide transmission plan and analysis for the Eastern Interconnection, now known as the Eastern Interconnection Planning Collaborative (EIPC). The specific focus is on the East where, historically, transmission planning has been done on a regional basis. Transmission planning in the East is very well established, but there has not been an interconnection-wide effort, and the regional plans are not fully coordinated or reviewed throughout the Eastern Interconnection. Mr. Whiteley detailed the task as essentially pulling together the regional NERC-registered planning authorities in the East, many of which have Order 890 Attachment K requirements, and to roll up the regional plans that are already developed. This would be used to create an integrated interconnection-wide model that could be used to address some of the big-picture energy policy questions currently being posed, such as questions about wind integration or demand side management on a larger scale, or the impacts of carbon prices on retirements of existing plants.

Mr. Whiteley explained the planning would be an open, collaborative process involving stakeholders from all aspects of the industry. The EIPC would create scenarios and analyze results to help inform the energy policy questions being raised. Initially, the group was composed of seventeen planning authorities, but has now grown to include thirty-nine of the total forty-two planning authorities in the Eastern Interconnection.

Project Form and Status

The way this work would be performed mimics that of a typical planning cycle. The process would begin with the development of the interconnection-wide model, based on the rollup of the regional plans. This would be followed by analysis based on hypothetical scenarios that are, firstly, important to stakeholders; secondly, are feasible; and finally, are of high priority. The EIPC would rely upon the expertise of the transmission planning authorities, such as their engineers, modeling systems, and software, to actually perform the studies and provide the answers to the questions posed. This process then loops back to stakeholders to provide ideas and feedback on what has been presented.

Mr. Whiteley noted that the difference between this process and a typical transmission planning cycle is that the results from the EIPC work could be used for informing the energy policies currently being drafted at the state and federal levels. The results can also feed back into the regional facility approval processes. Though EIPC's results are not meant to directly affect individual project reviews, the results could be used to inform the regions regarding the transmission options that will work to achieve policy goals.

Mr. Whiteley reported that the group is currently on the verge of putting together a strawman for further detailed discussion and development with stakeholders. As the EIPC has no real precedent, this stage of constructing a test proposal will allow for discussion on how to best craft the details and process that will meet industry and stakeholder needs.

The EIPC is also developing a proposal to the U.S. Department Of Energy (DOE) in response to their RFP on interconnection-wide transmission planning. The proposal will mirror the process being developed for the EPIC, which would allow the DOE funding to jumpstart the studies that the EIPC would be setting up. The deadline for the DOE proposal is September 14, 2009, and Mr. Whiteley asserted that they expect to have their bid submitted in place by then, with the hope of starting stakeholder discussions in the fall, prior to the DOE work starting in 2010.

Discussion

A caller asked for a description of the role of Non-Governmental Organizations (NGO) in the EIPC process. Mr. Whiteley explained that the intent is for NGOs to be treated as stakeholders in the process, just like other industry groups. They would participate in the collaborative process to provide input and would be queried on what they believe are the important questions the EIPC could answer. Mr. Whiteley also stated that the EIPC should have a steering committee that represents all parts of the electric power industry, and NGOs would be represented in the steering group that directs the broader work of the EIPC. Mr. Whiteley also noted that the DOE RFP requires that NGO participation be recognized in proposals, and it will be included in the EIPC's proposal.

A caller asked how states were organizing to participate in the interconnection-wide work. Mr. Whiteley replied that there is a group of state regulators who have met and are preparing a bid under the DOE RFP. He noted that the DOE RFP is split between Topic A, which is the interconnection-wide transmission planning studies, and Topic B which is focused on state participation. Mr. Whiteley stated that he did make a presentation to a group of state representatives at the end of June 2009, but does not know the details of their proposal, except to the extent that Topic B includes a provision that states identify renewable energy zones in the East that would be likely areas of interest for the interconnection-wide studies under Topic A.

A caller inquired as to whether there has been any interest expressed in planning with other interconnections and how to evaluate transmission or generation facilities that may straddle more than one interconnection. The caller noted an example of a potential 765-kV line the Southwest Power Pool is considering along the Kansas border, while entities in the West are considering a possible 500-kV line that would be located not far from the proposed SPP line. Mr. Whiteley replied that this would fall under a second phase of the project, as the East is one step behind the West in terms of interconnection-wide transmission planning. Eventually, assessing how the three interconnections interact with each other will be extremely valuable, since there will certainly be renewable energy resources

located on the seams between them. However, with regards to interconnection-wide planning, the East needs to walk before it can run.

A caller asked how helpful the Joint Coordination System Plan (JCSP) process would be in regards to the EIPC. Mr. Whiteley identified the JCSP as an interregional precursor study that provided lessons on some of the challenges that can be expected when transmission plans begin looking beyond local and regional levels. However, he pointed out that the JCSP is different from the EIPC, in that the EIPC includes *all* of the regions in the Eastern Interconnection, which expands the challenges, while the JCSP covered a smaller footprint.

A caller asked whether the EIPC results in an actual entity that would conduct interconnection-wide planning in the East, and if so, what kind of authority it would require and what kind of membership and voting processes would be needed. Mr. Whiteley responded that at present, the EIPC does not see this as necessarily evolving into an organization with a corporate structure. Mr. Whiteley said that the cooperation of the planning authorities, and the use of their technical resources, is actually all that is needed for the work of the EIPC.

A caller asked if the potential DOE funding is viewed as startup money, and if so, if there was any indication of how the EIPC will be funded in the future. Mr. Whiteley remarked that the DOE money is seen as startup funding. He further mentioned that before the DOE RFP was released, the transmission planning authorities had discussed funding the project themselves. So while DOE funding will get the process started quickly, the transmission planning authorities will consider funding the EIPC if the results are useful.

Implications

BPA's willingness to reduce its initial wind integration rate as wind generators improve their accuracy in wind forecasting reduces what would have been a very sizable jump in BPA's wind integration rate. That said, BPA recognizes more needs to be done to ease the integration of wind on BPA's grid and will be installing 14 wind anemometers, working on instituting sub-hourly scheduling and working on developing its own wind forecasting system. It also will be interesting to see how BPA will implement the self-provision of wind integration services, and whether wind generators will be able to tap into other sources of wind integration services that are more economical than BPA's.

The EIPC will roll up existing transmission plans from regional transmission planning authorities in the Eastern Interconnection, identify any gaps to be addressed, and assess big policy questions from an interconnection-wide perspective and framework. Such planning, while relatively common in the West, has not happened as frequently in the East and if successful, will represent a change in paradigm in transmission planning in the Eastern Interconnection.

Whether the region embraces interconnection-wide planning and attempts to incorporate the analyses and recommendations of the EIPC remains to be seen.

**For more
Information**

Sarah Bermejo, Bonneville Power Administration
skbermejo@bpa.gov

David Whiteley, Whiteley BPS Planning Ventures LLC
d.a.whiteley@att.net

BPA Administrator's Final Record of Decision (WP-10-A-02/TR-10-A-02), July 2009.

http://www.bpa.gov/corporate/ratecase/2008/2010_BPA_Rate_Case/docs/WEB_WP-10-A-02_TR-10-A-02.pdf.

Presentation of David Whiteley to the NARUC Electricity Committee on July 21, 2009, regarding the Eastern Interconnection Planning Collaborative.

<http://www.narucmeetings.org/Presentations/Whiteley%20EIPC%20NARUC%20Meeting%207-21-09.pdf>.

P:\1737\jlr\NWCC\NWCC Transmission Update Aug09.doc