

Transmission Update

September 2008

Summary

- ✓ Welcome to the Nineteenth National Wind Coordinating Collaborative (NWCC) Transmission Update! Kevin Porter of Exeter Associates, Inc. led the September 23, 2008 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 the Southwest Power Pool's (SPP) Balanced Portfolio proposal, an innovative transmission development cost allocation methodology, and a recent order from the Public Utility Commission of Texas (PUCT) that designated five competitive renewable energy zones in Texas.
- ✓ Mike Proctor of the Missouri Public Service Commission explained SPP's Balanced Portfolio approach and Jess Totten of the Public Utility Commission of Texas gave an update on status and developments on the CREZ project.

Southwest Power Pool's Balanced Portfolio Proposal

Background

The SPP Cost Allocation Working Group (CAWG) started working with stakeholders two years ago to examine new methods of allocating transmission expansion costs. CAWG issued a concept paper in 2007, outlining the 'Balanced Portfolio' approach, which included a regional postage stamp rate design for cost recovery of economic upgrades. In January 2008, the Regional State Committee adopted the concept paper recommendation and directed the SPP Regional Tariff Working Group to develop the appropriate tariff language to implement the new rate design. The resulting tariff amendments received final approval from the SPP Board of Directors on July 29, 2008 and the relevant FERC filing was made August 15, 2008. Mike Proctor from the Missouri Public Service Commission serves as Chairman of the SPP CAWG. Mr. Proctor said he had presented the Balanced Portfolio concept to FERC in July and received a positive initial reception. He said they anticipated a ruling from FERC sometime in October.

Mr. Proctor described the Balanced Portfolio approach as a means of determining cost allocation for SPP transmission upgrades that provide additional benefits beyond what is needed for reliability. He said a benefit metric was created to estimate savings versus costs with regard to whether a potential transmission upgrade will allow lower-cost power to be substituted for higher-cost power in a zone, thereby providing an economic benefit. This has important implications for wind power, since wind has very low operating costs.

Mr. Proctor explained that the Balanced Portfolio proposal had developed over a two-year period, starting with the CAWG stakeholder activities, and it involved three steps. The first was the aforementioned benefit metric. The CAWG wanted to create an equitable cost allocation methodology for transmission upgrades that were needed to deliver power from the places where resources could be developed to load centers. The group called these “deliverability upgrades,” which are not quite the same thing as reliability upgrades. Deliverability upgrades are economic upgrades, and the metric for measuring the benefits includes the additional cost savings that could be derived on a system-wide basis.

Mr. Proctor said that when examining cost savings derived from constructing transmission, production costs were a good place to start, but there are additional metrics that could be included. He noted that an analysis of the SPP’s Extra High Voltage (EHV) overlay project (a 765 kV regional transmission network proposal) had shown there are significant savings to be gained just from lower line losses when moving to higher voltage lines.

Mr. Proctor also pointed out that modeling results are often driven by assumptions (e.g., natural gas prices, price of carbon if greenhouse gas legislation is enacted). Furthermore, the CAWG assumed that transmission costs from a Balanced Portfolio will be allocated on a SPP-wide basis, rather than on a beneficiary pays basis, in order to avoid arguments over inputs and assumptions.

The second step was resolving the question of what happens if a transmission upgrade is undertaken and subsequent transmission upgrades are developed that affect the costs and benefits of the earlier transmission upgrade. The portfolio approach - i.e., evaluating a set of transmission projects rather than each transmission project individually - is what resolved this issue. The rationale is that certain transmission projects will benefit certain regions in SPP, but a portfolio of transmission projects will balance benefits across the entire SPP region.

The third step relates to a concern that had been expressed by stakeholders over the large variation of the transmission capabilities of the individual zones in SPP, due to the decentralized transmission planning of prior years. Certain control areas in SPP are more robust than others, while some control areas have more transmission congestion. Finding a set of transmission projects that provides benefits to all the individual SPP zones is difficult. Mr. Proctor said the solution was to allocate costs to zones on a load-ratio basis, then examine the balance of

costs and benefits in each zone. If a zone has benefits that are fewer than costs, then that zone is considered a 'deficient zone.' SPP will then include lower voltage transmission upgrades for that zone to see if that increases the benefits to a point where the ratio is positive. If this is insufficient, SPP will transfer some of the cost of identified reliability upgrade projects (reliability project costs are allocated on a zonal basis) from that zone to the regional SPP rate. This approach balances the benefits and costs in each zone through transfers, moving some costs to the region-wide postage stamp, and hence, the ultimate result is that there are no losers. Mr. Proctor said that the 'no loser' aspect is what sold the Balanced Portfolio approach to stakeholders.

Mr. Proctor said SPP and the CAWG are in the process of examining potential transmission portfolios and conducting economic evaluations of these portfolios. He noted that SPP might use the Balanced Portfolio approach on SPP's EHV proposal.

Discussion

A caller asked who was doing the actual evaluation work to find the balanced portfolio. Mr. Proctor said SPP staff was doing this work. He said SPP will make the final decision on the portfolio but will consider all stakeholder input.

A caller wanted to know how the SPP Transmission Working Group (TWG) fit into the portfolio development process. Mr. Proctor said the TWG had created a subgroup, the Economic Modeling and Methods Task Force, which will provide technical modeling work to the Balanced Portfolio process. The task force will conduct the modeling that will, in turn, be reviewed by the TWG. He noted that the EHV planning was currently being reviewed by the TWG, and this would then be forwarded to SPP's Markets and Operations Policy Committee.

A caller asked how far along SPP was in analyzing portfolios and if there were any leading candidates emerging. Mr. Proctor said there were currently several different portfolios under consideration. He said the evaluation had followed a four-step process:

1. They started by identifying the best individual 'high value' projects and created an initial portfolio of only these projects.
2. Then they looked at trades to include projects that had not made the first cut and ended up estimating the overall system benefits of four separate configurations.
3. They found that two portfolios stood out, but ultimately identified some modeling issues that were skewing the results.
4. This eventually led to a new portfolio that did not include many of the individual high value projects.

Mr. Proctor said they discovered that many of the 500 kV projects should actually be 765 kV, which has led them to examining all 345 kV and 500 kV projects at the 765 kV level. He said there was no definitive set yet but that they were hoping to

be able to send one to the SPP Board of Directors for approval by the end of this year.

Texas Competitive Renewable Energy Zones

Introduction In April 2008, the Electric Reliability Council of Texas (ERCOT) presented four CREZ transmission development scenarios for consideration to the Public Utility Commission of Texas (PUCT). In August 2008, the PUCT issued an order approving the development of Scenario 2, a \$4.93 billion plan to construct new transmission lines to enable the transfer of approximately 18,456 MW of wind power from West Texas and the Panhandle to metropolitan load centers. Scenario 1 would have supported up to 12,053 MW of wind capacity, Scenario 3 would have supported up to 24,859 MW and Scenario 4 would have supported up to 24,419 MW, with costs ranging between \$2.95 billion and \$6.38 billion.

CREZ Update Jess Totten from the PUCT started by explaining some of the history behind the CREZ initiative. He said in 2004, Texas had approximately 1,000 MW of wind energy and the grid in West Texas had reached saturation. Wind and transmission development was at a stalemate, with utilities wanting developers to sign interconnection agreements and put down deposits, and wind developers wanting some certainty that the transmission would be there when their projects were ready to go on-line. In response, the Texas Legislature enacted legislation directing the PUCT to establish the CREZs and develop a transmission plan for them. The Texas Legislature gave the PUCT authority to establish the CREZs using various criteria.

Mr. Totten said the initial phase of the PUCT CREZ proceeding identified four different scenarios and directed ERCOT to conduct a detailed study on the cost of building transmission for each scenario. The final order issued August 2008 approved Scenario 2, which will result in enough transmission in Texas to support 18,456 MW of wind power, including the 6,000 MW already built. Mr. Totten said the plan involves moving wind power from four areas in west Texas to load centers in the east:

1. Texas Panhandle to Dallas and Fort Worth;
2. Central-west Texas and Abilene to Dallas, Austin, and San Antonio; and
3. McCamey to Austin and San Antonio.

Mr. Totten said a significant amount of transmission needs to be constructed, including approximately 1,700 miles of double-circuit 345 kV and 453 miles of single-circuit 345 kV lines. The total cost estimate of about \$4.9 billion does not include the collector connections to wind projects that will also need to be built.

Mr. Totten said the next step is to select the transmission developers to build the

lines. The PUCT wants to include proposals from new transmission companies along with the established transmission providers. A PUCT proceeding is underway, and a hearing is scheduled for December, with an order expected soon thereafter. The chosen entities are expected to file permit applications at the PUCT by December 2009, with the PUCT expecting to complete its review by summer 2010. Transmission projects will come on-line at varying points of time, with the latest being about 2013.

Discussion

A caller asked if any sensitivity studies had been conducted on labor and materials costs and, if so, what kinds of variations in cost did they find. Mr. Totten said no studies of this kind were done. The caller noted that the Pacific Northwest was looking at building several transmission lines and was wondering about the optimal timing for the construction to ensure that the skilled labor needed would be available. Mr. Totten responded that there were just too many uncertainties around issues such as these, and they felt it was best to move forward. He said the PUCT order will result in a significant build-out of transmission, and it will draw companies to Texas.

A caller asked that of the four scenarios, why was this particular one chosen. Mr. Totten said that essentially the four scenarios represented low, medium, and high development scenarios. The PUCT had chosen the middle development scenario. The low scenario would lead to 12,000 MW of wind power and did not result in enough of a benefit. The two high development scenarios had mostly been rejected due to concerns about the ability of ERCOT to be able to manage grid operations with that amount of wind power.

A caller asked if the prospect that outside companies might be chosen to construct transmission lines was causing any controversy among existing transmission providers. Mr. Totten said that he had not heard publicly of any dissension, but the existing transmission providers had joined together in filing a proposal to build the transmission needed to access the competitive renewable energy zones. He speculated that if the PUCT chooses any merchant transmission companies, the transmission providers might mount a court challenge.

A caller wanted to know how the PUCT had decided on the size of the zones, how they had determined what was appropriate. Mr. Totten said that there had not been a lot of predetermined criteria and ERCOT had initially identified areas that were capable of supporting least 1,000 MW of wind capacity. In making final determinations, the PUCT had relied heavily on whether or not wind developers were already spending money and working on getting projects going in the different areas.

A caller asked if the zone process might be extended beyond wind to other renewables. Mr. Totten noted that other renewables do not really need this level of transmission development; for example, landfill gas projects are generally built close to load and biomass has some flexibility in siting facilities. He said solar

projects in West Texas could co-locate with wind if tax incentives are sufficient to stimulate solar development on a larger scale.

Implications

Both the SPP's Balanced Portfolio and the PUCT's order on competitive renewable energy zones could result in significant new transmission that could unlock high-quality wind resources. The Balanced Portfolio concept is particularly encouraging, as the SPP region has some of the nation's best wind resource that has essentially been locked away because of lack of transmission. Still more needs to be done—SPP is waiting for a FERC order on the Balanced Portfolio concept, the PUCT has to determine who will build the transmission to access the Texas CREZs, and, of course, the transmission has to be sited and built. But these represent important steps on the way to building new transmission in SPP and Texas.

For more Information

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Southwest Power Pool Tariff Filing
http://www.spp.org/publications/2008-08-15_Balanced%20Portfolio%20Tariff%20Revisions_ER08-1419.pdf

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ERCOT Competitive Renewable Energy Zone Task Force
<http://www.ercot.com/committees/other/rpg/crez/>