

**Draft Summary**  
**State-Provincial Steering Committee Meeting**

**April 22-23, 2010**

**Portland, Oregon**

**Joint CREPC and State-Provincial Steering Committee Meeting April 22**

**Efficient use of the grid and integration of variable generation**

**Western Wind and Solar Integration Study.** Richard Piwko, GE Energy, and Michael Milligan, National Renewable Energy Laboratory (NREL), presented an overview of the Western Wind and Solar Integration Study (WWSIS) and identified numerous findings relevant to policy makers and regulators. Piwko noted that the WWSIS found that it is technically feasible to integrate 30% wind and 5% solar if numerous steps are taken to facilitate the integration of variable generation. Key steps to improve the integration of variable generation include: adopt subhourly scheduling; balancing area consolidation or virtual consolidation through improved coordination; and implement state-of-the-art forecasting. The WWSIS analysis showed that state-of-the-art forecasting would reduce operating costs by \$5 billion annually. The analysis of pumped storage hydro indicates there is no economic benefit from energy arbitrage, although there may be other benefits associated with meeting high ramp rates and storage for regulation.

Michael Milligan addressed the issue of how to improve balancing area cooperation. He described the key objective is to make balancing areas big and fast – similar to the attributes of a good sumo wrestler. Balancing areas should move rapidly and perform economic dispatch over short time intervals. If balancing areas operate under hourly scheduling, then you freeze dispatch within the hour and you must rely on a smaller number of generating units to deal with variability during that hour. The WWSIS informs us that it is not technically feasible to integrate 30% wind and 5% solar without balancing area cooperation. Demand response can play an important and cost effective role in integrating variable generation. The WWSIS will be officially released on May 20 in Tempe, Arizona.

**WECC MIC seams “toolkit” and EIS.** Steve Beuning, Xcel Energy and chair of the WECC Seams Issues Subcommittee, gave a presentation about the proposed seams coordination toolkit and energy imbalance service (EIS). Beuning highlighted that the seams tool would cover the entire Western Interconnection. In addition, he noted that the tool would allow us to allocate curtailments according to transmission priority service because the enhanced tool will allow us to see the grid in a much more detailed way. On the EIS proposal, Beuning highlighted the fact that through a security-constrained economic dispatch market for imbalance energy, the EIS could take advantage of the diversity of energy balances over a large area to better balance the grid in an economical fashion. The EIS would apply only to non-CA ISO parts of the grid. Beuning gave the end date for the cost benefit study as spring/summer 2011.

Carl Monroe from SPP spoke to the benefits experienced by the SPP after implementation of its EIS-style market. SPP had estimated \$80 million in benefits but realized roughly \$100 million. Monroe noted that it required a lot of training to set up the SPP market and that a market monitor is necessary.

**Balancing Area Representatives.** A panel of representatives from balancing areas (BAs) was asked to respond to a series of questions related to integrating variable generation, the WWSIS, and the proposal at WECC to study the seams toolkit and EIS. Tom Imbler, Xcel Energy, observed that Xcel's operation in SPP is buying 15-20 MWh from EIS market for every MWh purchased bilateral market. Xcel is a proponent of the toolkit to increase utilization of the grid and to add renewable energy in its system. It would be cost prohibitive for Xcel to back up its variable generation with its own resources. Imbler encouraged the regulators to approach the toolkit/EIS with an open mind and warned that too much regulatory risk from cost disallowance would discourage participation in a voluntary market.

Stefan Bird, PacifiCorp, observed that his utility participates in the Joint Initiatives. Even though PacifiCorp has a diverse generation and transmission system, it sees the benefit of intra hour scheduling. Ray Brush of NorthWestern Energy (NWE) pointed out that NWE has no generation and operates in a thin market where it can't get regulation services to integrate wind resources. NWE was an early participant in Ace Diversity Interchange and supports the Joint Initiatives work underway. He expects the Dynamic Scheduling System (DSS) to be operating this summer and the ITAP system to be available by the end of the year. Brush stated that virtual balancing authorities will be next target for Joint Initiatives.

Elliot Mainzer, Bonneville Power Administration (BPA), noted that the northwest has been working hard on wind integration for the past 3-4 years. He recognized the need for subhourly flexibility and the regional desire to maintain bilateral markets. The Joint Initiatives mobilized parties to work on the problem and develop solutions. The northwest is being impacted by wind development to meet California policies. Mainzer asserted that they are working with the California ISO towards subhourly scheduling on the COI path and look to British Columbia for flexible hydro resources. Mainzer announced that a northwestern contingent will be visiting SPP this summer to learn more about SPP's energy imbalance market.

Several other participants contributed to the discussion. Dave Aregheni of Salt River Project spoke about transmission siting and cost allocation. Jeff Ackerman of the Western Area Power Administration noted the big impact that wind in Wyoming has on Western's operations and its limited ability to use hydro resources to balance the wind variability. He was encouraged by the development of new tools to address this problem, particularly intra hour scheduling with ITAP and DSS of the Joint Initiatives and the redispatch toolkit, and would like to see faster implementation. David Mills of Puget Sound Energy said that WECC should do an assessment of the EIS proposal but noted concerns about the size of the footprint, the reliance on market solutions in light of the crisis in California markets (2000-2001), and that the potential implementation of an EIS system in 2016-2017 would overlap with other developments in the Joint Initiatives, and that hydro resources could be diverted to the EIS market. Kip Sikes of Idaho Power expressed his worry about cross subsidization if BAs are to assume the costs of integration increases of variable generation. Sikes supports the EIS study but recommends a go

slow approach with a focus on the Joint Initiatives. Sikes suggested that FERC should hold a technical conference on these issues.

FERC Chairman Jon Wellinghoff responded to the BA panel discussion with several brief points. He noted that any market mechanism is a voluntary process. It is a matter of convincing yourself and your regulators that actions are worth it. Wellinghoff supported the idea of a technical conference. He also cited demand response as an important option to lower integration costs and the future use of tapping car batteries for regulation purposes. Finally, he recommended that the regulators in the WECC region should meet with the regulators in the SPP region during the upcoming NARUC meeting this summer in Sacramento.

### **Western Renewable Energy Zone Phase 3 Project**

Lisa Schwartz, Regulatory Assistance Project, provided an update on plans to implement Phase 3 of the Western Renewable Energy Zone WREZ project. Phase 3 will engage regulators and utilities into coordinated procurement of renewables from renewable energy zones to facilitate interstate transmission lines. Synchronizing procurement among LSEs interested in the same zone can create the critical mass needed for lumpy investments into transmission and justify a properly sized transmission line. The specific planned steps to carry out Phase 3 include: reviewing LSE integrated resource plans to coordinate current plans and procurement schedules; develop a list of LSE's preferred zones; and perform electronic mapping of WREZ hubs, load areas, and procurement plans. Schwartz plans on surveying regulators and utilities to identify potential barriers to coordinate procurement and potential solutions. A report would be produced that synthesizes the information obtained with the survey and make recommendations. The WREZ Phase 3 project would be launched at the upcoming Resource Planners' Forum in San Diego planned for June 2-3 (held June 21-22).

## **State-Provincial Steering Committee Meeting April 23**

### **Implementation of the Transmission FOA by DOE**

Larry Mansueti, DOE, reported that the negotiations between WGA and DOE's procurement office were near final and the goal was to sign the contracts by April 30. Mansueti also reported that DOE awarded ERCOT a grant for Topic A and that the Eastern Interconnection is lagging behind and is in the early process of forming its steering committee. Mansueti pointed out the White House memo on strict quarterly reporting requirements and timely paperwork. DOE issued a lab call to the national laboratories to assist in the interconnection-wide transmission planning. The lab call has four topics: interregional reliability analysis; water/energy nexus; new technologies (demand, IRPs); and other new work in future years. Other FOA requirements are to consider DSM and generation technologies such as PV solar. Mansueti also reported on the state of discussions in the Eastern Interconnection and that DOE is closely coordinated with FERC in this process.

## **Legal implementation of a “plan”**

Victoria Ravenscroft, WIEB staff, gave a presentation on the potential legal implications of a transmission plan. The analysis covers four topic areas: legal significance of the plan under current federal regulatory and legislative regime; legal significance given a new interpretation of FERC’s cost allocation authority; legal significance of the passage of Senate Energy Bill (or similar legislation); and the implications for the SPSC and larger planning process should the plan gain legal significance. There was discussion about a need for additional, active public outreach, versus simply opening up to the public. There was also discussion about the final plan and whether it would include enough specifics to be of use to FERC under the Senate Energy Bill. There was mixed reaction to the idea that the planning process could lead to conflicts at SPSC and TEPPC. Questions were raised about how FERC would respond to the passage of Senate Legislation. Mason Emmett of FERC responded that the details would be worked out through a FERC rulemaking to address the elements of the plan and the planning process. The suggestion was made that the staff memo be edited to include land management (federal) issues and address the potential impacts of climate change legislation on the legal significance of the plan. Staff was directed to include “draft” in the title of the plan, brainstorm on public processes involving both SPSC and WECC, and revisit the memo as legislation unfolds.

## **Subregional planning Groups’ “10-year foundational list”**

Jeff Miller, ColumbiaGrid, updated the group on the work of the Subregional Coordinating Group (SCG) in developing a foundational transmission project list among the eight subregional planning groups. Disagreements over which lines should be in or out will be settled at WECC. The SCG should have the final list and report to SPSC and WECC by the end of June. Brad Nickel pointed out that TEPPC needs some “assumed to be built” lines and not so many that they will mask congestion.

## **Implementation of WECC’s Scenario Planning Steering Group**

Brad Nickel, WECC staff, gave an update on the SPSG and reported that the WECC Board approved the addition of a tribal representative to the SPSG. They are awaiting the DOE and tribal appointees. In addition, WECC is forming task forces on the RFP for general assistance to SPSG and on another scenario expert.

## **WECC 2010 study priorities, new tools, and most recent study results**

Brad Nickell, WECC staff, briefed the SPSC in three areas: (1) 2009 study results; (2) long-term planning tools; and (3) the 2010 study program.

The 2009 study results are now compiled in a series of reports that cover transmission planning activities that occurred in 2009. The Annual Report describes activities of the Transmission Expansion Planning Policy Committee (TEPPC), the Technical Advisory Subcommittee (TAS), the Subregional Planning Groups (SPGs), and the new developments of the Regional Transmission Expansion Planning (RTEP) formed to implement the FOA activities. A separate volume of study reports describe the findings from the 2012 studies and the 2019 studies. A third volume on the Historical Analysis Report presents findings on 2008 and 2009

path data which includes information on actual flows, schedules and ATC. Nickell then presented more detailed information on the findings of the 2019 studies. An initial base case modeled compliance with RPS requirements and resulted in a renewable penetration of 15% WECC-wide. The base case provided the foundation for three change cases that shifted 3000 MW of generation to Montana and Wyoming, the southwest, and western Canada. Another case evaluated the impact of once-through-cooling (OTC) generation shifts and endangered species act induced hydro power retirements. Finally, an update was given on work to model a 2029 case that features 33% renewable penetration WECC-wide and postulates a new transmission superhighway concept.

Nickell outlined efforts to adopt a new long-term planning tool model. The current thinking for the long-term planning tool is to use an iterative approach using two distinct models. A Scenario Development Tool would evaluate policy inputs, load and resource options that will produce a set of locational loads and resources for multiple possible future states. The Network Expansion Tool would produce a transmission network for each future end-state for evaluation of common multiple end-states.

Finally, Nickell summarized the status of TEPPC's new efforts in developing the 2010 Study Program. TEPPC received study requests from 20 entities with about 68 different requests. He discussed the process of reviewing these requests and developing a program that identifies high priority topics and consolidates requests into a manageable plan to be carried out over the year.

### **NGO observations on modeling tools**

Steve Weiss, Northwest Energy Coalition, reported on NGO views regarding a long-term planning tool. Weiss pointed out that long-term plans need to include water, land and wildlife impacts; noted the structural changes in the industry that may come with increased BA coordination or increased cost of carbon; and emphasized the forecasting uncertainties. Weiss emphasized that the model needs to be able to look at long-term consequences, look at a wide-range of futures, address how to deal with risk, take advantage of diverse stakeholder views, and place a high value on keeping options open. He recommended that the model be an NWPC type model that will be able to consider varying gas prices over time, realistically model the integration of variable generation, and accommodate land, wildlife and water variables. There was some concern expressed about the availability of wildlife data that can be entered into a model.

### **Report of the Western Governors' Wildlife Council**

John Harja, Chair of the Western Governors' Wildlife Council (WGWC), reported on activities of the WGWC. Their next in-person meeting will be in July. They are forming stakeholder groups and connecting with federal agencies. One of their first projects is to make species data consistent across state lands. There was some discussion about the compatibility of a GIS model and discretionary data such as critical wildlife and water resources. In addition, it was noted that there are data inconsistencies that need to be addressed, such as different types of data among states.

## **SPSC work group reports**

**GUWG.** Steve Oxley, WY PSC and chair of the Grid Utilization Work Group (GUWG), reported on the work group activities. GUWG held an initial meeting on March 29<sup>th</sup>, organized its three subgroups, and subsequently developed its work plan. John Savage, Chair of the Variable Generation Integration Subgroup gave an overview of this subgroup's work plan. There was concern expressed about the overlap of the VGIS work with the work of other entities, namely the WECC Variable Generation Subcommittee. It was pointed out that the work of the VGIS is not to repeat other work but to build upon it. Staff will work on a white paper that surveys what has been done in this area. Steve Oxley next outlined the work of the Grid Utilization and New Technology work group. He pointed out an upcoming webinar (date TBD) on the work of WECC's Historical Analysis Work Group. Victoria Ravenscroft presented a sampling of the HAWG work and how it ties into the work of the GUWG.

The GUWG presented two action items for SPSC approval. The first was to incorporate the GUWG work plan as an amendment to the SPSC work plan. The SPSC approved this action item. Second, the GUWG recommended that the SPSC approve the commitment of \$25,000 from its consultant budget to support the cost/benefit analysis of the Seams Coordination Tool and EIS, discussed during the joint CREPC/SPSC meeting. In addition, the commitment of funds would be contingent upon the commitment of the necessary funds by WECC and creation of an oversight committee that would include state and provincial representatives from the SPSC. The motion was approved.

**DSM WG.** Michael Wheeler, CA PUC, introduced the issues before the Demand-side Management Working Group (DSM WG). The DSM WG is working with Galen Barbose of Lawrence Berkeley National Laboratory (LBNL). They are asking LBNL to come up with demand side impacts that can be used in the reference case and weave into BA load forecasts. LBNL has some challenges on the DWM work. The geography of balancing authorities, which provide WECC load data, and utilities, which implement DSM resources, don't line up. There are different national boundaries on application of appliance standards.

Barbose presented the scope and details of the LBNL DSM work. There are two major tasks from the SPSC study request. First, develop TEPPC reference case DSM assumptions and model the inputs. Second, develop DSM assumptions and model inputs for SPSC scenarios (High DSM, Carbon Reduction, and Technology Breakthrough). For the first task, Barbose identified three analytical steps: (1) Develop projections of expected savings under current law and policies, and consistent with utility resource plans; (2) estimate the new energy savings within BA load forecasts to determine the expected incremental savings; (3) Identify demand response resources in BA data submittals to be benchmarked against IRPs.

LBNL has developed state-by-state projections of expected energy savings from ratepayer-funded energy efficiency (EE) through 2020. These assumptions will be vetted with SPSC members and designated DSM technical contacts. Once state-level savings projections are identified, they will then be broken out into each TEPPC load bubble. LBNL will also develop savings projections from new/updated federal appliance and lighting standards. LBNL will look to state agencies to identify savings from state policies on appliances and lighting. A

fundamental challenge is the lack of information on whether existing energy efficiency savings are in the load forecasts. LBNL has collaborated with WECC to develop a DSM questionnaire that will go to load serving entities for the purpose of identifying the embedded EE in current load forecasts. Other work in California and the Northwest may be used to identify the embedded energy savings in load forecasts. BA load forecasts to WECC include information on four types of demand response resources. This data will be cross checked by LBNL in developing the reference case.

**Scenario WG.** Jim Tarpey, CO PUC, gave the report for the Studies Work Group. Tarpey reviewed the four parts of the SPSC study request and provided an update on the TEPPC review process considering the SPSC requests. On March 24, SPSC sent a letter to WECC urging it to model a 20-year case in addition to the 10-year case. The ability of WECC to run a 20-year case depends heavily on TEPPC's efforts to obtain a new long-term planning tool. The SPSG is moving forward in developing an RFP for such a tool and held a webinar on April 16 regarding such tool. SPSC input to the 2020 Reference Case will start with the review of utility IRPs. LBNL will review these IRPs and provide input to the TEPPC work groups. SPSC members were asked to provide recent updates on their utility IRPs. The SPSC is also helping organize the upcoming Resource Planners' Forum in part to facilitate resource planner input and review of the assumptions that go into the Reference Case.

### **Report of the Western States Water Council**

Alexander Davis, chair of the Western States Water Council (WSWC), briefed the SPSC on the water/energy nexus activities. Davis articulated several reasons why water is an important factor in electricity planning. She then identified three goals of the energy-water nexus project. First, incorporate existing water supply assessments in Western states into a decision support framework for integrated energy-water planning. Second, evaluate electricity generation scenarios and their implications for water supply as part of Topic A (using both water withdrawals and consumption). Third, develop policies and/or programs to facilitate sustainable energy development in the context of economy-wide water availability.

The DOE lab call would provide \$4 million towards a water/energy decision support system (DSS). One component of this work would be a water use and consumption calculator for current and planned electric power generation. The calculator would take output from WECC's model runs and then project water consumption by electric generators. A second component would be a regional water stress calculator. This tool would enable an assessment how that different electricity scenarios would impact the water balance in a region.

### **Business meeting**

The SPSC approved the summary of the January meeting. A proposal to rename SPSC as the Western State-Provincial Electricity Committee was discussed and tabled. Mason Emmett, from FERC, offered help on the work on variable generation. Staff suggested that the next SPSC meeting not be held in conjunction with the WIEB, CREPC and WIRAB meetings. The group agreed and the next meeting was set for September 14-15 in Salt Lake City to precede the TEPPC and SPSG meetings later that week.

## **Western Governors' Association report on implementation of other Topic B tasks**

Rich Halvey, WGA staff, updated SPSC on other Topic B tasks under the interconnection-wide transmission planning funding by DOE. Halvey initially discussed a governance shift for WREZ activities. The WREZ project was guided by the WREZ Steering Committee and that entity is no longer functioning. Halvey noted that since the composition of the SPSC is structurally similar to the WREZ Steering Committee, WGA proposed using the SPSC as an oversight group for future WREZ activities.

WREZ Phase 4 topics cover siting and cost allocation. Under the siting topic, WGA plans to carry out 4 major tasks: (1) developing case studies of recent permitting successes and failures across the region; (2) coordinating and communicating a regional response to any new federal transmission laws or procedures and regional views on implementation; (3) coordinate and communicate a regional response to any transmission corridor reviews or designations; and (4) organize a series of public forums for state, local tribal and federal permitting entities to identify actions to improve coordination of permit reviews and to respond to federal legislation.

For the cost allocation part of WREZ 4, WGA proposes four major tasks: (1) determine the cost allocation options related to interstate transmission lines from geographically constrained areas to load centers; (2) evaluate and seek input regarding right sizing of transmission additions and determine cost allocation options for right sizing new transmission lines; (3) develop a stakeholder process that leads to an Interconnection-wide policy on cost allocation; and (4) encourage interstate negotiations on cost allocation for specific projects.

Halvey noted that siting tasks can begin relatively soon but must be coordinated with wildlife pilots and initial scenario runs. He proposed that cost allocation tasks wait for the results of the scenario runs and examine cost allocation in relation to other scenarios or plans. These proposals prompted discussion among the SPSC members. Dianne Nielson (UT) recommended that WGA staff send letter or email to Governors if the person on the SPSC is the same person who should be on the steering committee for WREZ tasks; and the same request would be sent to the chairs of state public utility commissions. Jason Marks (NM) called for a process to update data in the WREZ model as new information becomes available.

The meeting was adjourned.