WIRAB-CREPC-SPSC Fall Meeting Minutes
October 28-30, 2015

WIRAB Members Present: David James (AB), Alan Barber (BC), Jeff Blend (MT), John Chatburn (ID), Dr. Laura Nelson (UT), Commissioner Janea Scott (CA), Christopher Worley (CO), and Commissioner John Savage (OR).


Other State or Federal Representatives: Larry Mansueti of the U.S. Department of Energy; Sandy Waldstein of FERC; Commissioner Kristine Raper of the Idaho Public Utilities Commission; Bryce Freeman of the Wyoming Consumer Counsel; Commissioner Susan Ackerman of the Oregon Public Utilities Commission; Commissioner Stephen Bloom of the Oregon Public Utilities Commission; Commissioner Mike Florio of the California Energy Commission; Commissioner Phil Jones of Washington Utilities and Transportation Commission; Commissioner Travis Kavulla of Montana Public Service Commission; Commissioner Thad LeVar of Public Service Commission of Utah; Commissioner Doug Little of Arizona Corporation Commission; Commissioner Pam Patton of Colorado Public Utilities Commission; and Commissioner Jordan White of Utah Public Service Commission.

Welcome and Introductions (October 28th 1:00 PM)

WIRAB Chair John Savage (OR) provided the welcome and introductions.

Clean Power Plan Final Rule

Joseph Goffman, Associate Assistant Administrator for Climate and Senior Counsel, at the U.S. EPA

Panel Summary:
Joseph Goffman explained the EPA has been hearing comments from stakeholder while the EPA has been road since the final rule has been released. He appreciated the opportunity to join last year’s CREPC-SPSC meeting because it illustrated important issues in the proposed rule that may not work in the West. Goffman is hearing that stakeholders are trying to work together with their plans and stakeholders are well aware of the benefits of regionalization and how electricity markets can incorporate CPP compliance into the market. He noted that the EPA is hearing that most stakeholders are leaning toward mass based compliance.

Goffman explained how the state emission targets are derived from uniform emission rates on power plans. He also explained that the EPA is worked closely with FERC in a variety of reliability workshops to address reliability concerns in the final rule. These concerns were addressed by building in more time for compliance, allowing more time for states to develop plans and providing a reliability backstop. The EPA regional offices recently sent a memo to
states clearly stating what milestones need to be addressed and when to be able to receive an extension to submit a plan.

Goffman then address questions from the audience concerning the issues with mass based approaches constraining load growth and when the federal plan is expected to be finalized.

**State Perspectives on Final Rule**

Steve Burr, Principal Environmental Scientist/Specialist, AZ DEQ
Jeff Blend, Economist and Energy Analyst, MT DEQ
Carolyn Tanner, General Counsel, NV PUC (did not attend)
William Allison, Director, CO Air Pollution Control Division
Brian Turner, Deputy Executive Director, CPUC

**Panel Summary:**

Steve Burr stated that AZ DEQ appreciates the changes that EPA made from the proposed rule to the final rule and believes that compliance is achievable for AZ. AZ has begun its public stakeholder process and is currently on track. It is still early in the process, so all compliance options are on the table, but there may be some that can soon be eliminated. Steve brought up the concern AZ has with double counting emission reductions and provided examples on the issue.

Jeff Blend stated that the Center for New Energy Economy is directing MT’s stakeholder process which includes the participation of utilities, environmental groups, customers, etc. MT has the highest rate possible because all of its effected units are coal. Jeff explained that all compliance options are still on the table, but he laid out some advantages MT see with both mass based and rate based compliance strategies. MT does not believe that it can meet the goal without trading.

William Allison stated that CO did not see much change between the proposed rule and the final rule, but believes that the CPP allows CO to continue many of the initiatives it is currently implementing. William stated that CPP goal is achievable, but business as usual will not do it. Of the 55 effected units in CO, 21 are coal. The CO Air Pollution Control Division is working closely with the PUC and Colorado Energy Office on developing the plan. CO agrees that massed based compliance may be the easiest to track and implement, but CO is experiencing rapid load growth, so it also needs to think about rate and understand the new source complement proposed by the EPA. CO is open to trading, but will most likely not sign onto a multi-state plan. CO has begun speaking with stakeholders and it lengthy process, so it expects to request an extension.

Brian Turner gave an update on what the California PUC is already doing with regards to greenhouse gas emissions in CA. CA already has a carbon market based on cap and trade and it chose to go with this type of market because it is easy to implement and allows for economic
regulation. The cost of carbon can easily be implemented into economic dispatch and that economic signal is ultimately passed on to the customers. CA allocates emissions credits to the customers through load serving entities (LSEs) so that the economic benefit goes to the rate payers and does not act like a windfall payment to utility owners who already include that cost in economic dispatch. The CA PUC will continue to oversee utilities’ GHG implementation plans.

Emission Trading Opportunities
Franz Litz, Executive Consultant, Great Plains Institute
Steve Burr, Principal Environmental Scientist/Specialist, AZ DEQ
Jessica Shipley, Senior Policy Analyst, OR DOE
Glade Sowards, Environmental Scientist, UT DAQ
Craig Segall, Senior Staff Attorney, CARB
Mary Wiencke, Director, Environmental Policy & Strategy, PacifiCorp

Panel Summary:
Franz Litz moderated and opened the panel by discussing the two trading ready model rules outlined by the EPA. At a high level he explained the difference between rate based and mass based compliance approaches. In rate based, credits must be created, plants will be the consumers of credits and there needs to be an “ERC desk” to manage both the creation of credits and the measurement and verification required. In mass based, there are less hoops to jump through because allowances are already known, the big question is: how are allowances allocated?

Steve Burr stated that a mass based program would be easier to implement than rate because the commodity being traded is created automatically, the market will be larger and it will be easier to set aside allowance for a Clean Energy Incentive Program (CEIP) implementation. Rates advantages because it accommodates growth better and states do not have to do the allocation of credits because ERCs have to be earned. AZ want a plan that allows for interstate trading.

Jessica Shipley stated that OR is looking at a trading ready plan. OR has held stakeholder meetings on trading to discuss to the costs and risks to both rate payer and energy producers, the effect on CO₂ emissions, and the ease of connecting the CPP compliance with other state policies in OR. OR is also concerned with tracking and wants to make sure that tracking is universal.

Glade Sowards said that UT has begun its formal stakeholder process so all options are currently still on the table, but from early analysis rate based compliance looks to be a heavy lift. One of the challenges with UT is with allowance allocation because from all of the effected EGUs in the states, only four different entities holder the air permits and they may have different goals, i.e. investor owned utilities, public power entities, and independent power producers. UT also has a high growth rate so UT is struggling with how to treat new sources.
Craig Segall pointed out that compliance will not be difficult for CA and CA will actually be long in a carbon market due to its own current and future policies. CA already has an existing market which is massed based and it is also economy-wide, so it doesn’t just focus on the power sector. CA has some issues because it imports most of its power. CA is also aware of changing issues the electricity market with the expanded EIM and possible integration of PacifiCorp into the CAISO. CA is considering a state measures plan so that interactions can occur in the current marketplace and it expects to have a draft plan by 2016.

Mary Wiencke outlined issues a large utility is facing with the Clean Power Plan and multistate trading. PacifiCorp serves load in six states and has effected EGUs in seven states, but not all these states overlap, so it is involved with 9 different state stakeholder processes. Its main concerns is with the issues that will arise if states choose different option (rate vs mass) and PacifiCorp is concern with how the CPP interact with a regional ISO.

Recess
WIRAB Chair John Savage (OR) recessed the meeting at 5:00 PM.

Welcome and Introductions (October 29th 8:00 AM)
WIRAB Chair John Savage (OR) provided the welcome.

NW Power Pool Market Initiative
Scott Kinney, Director of Power Supply, Avista Utilities
Nita Zimmerman, Director of Strategy Integration, BPA

Panel Summary:
These speakers noted that, with the departure of 3 parties, 13 participants remain in the MC Initiative. The speakers presented summaries of the 15-minute Centrally-Cleared Energy Dispatch (CCED) market, their Petition for Declaratory Order filed with FERC in early September, 2015, and their Regulation Reserve Sharing Group (RRSG) that aims to capture geographic and load diversity, as well as manage regional Area Control Error (ACE). The NW Power Pool Initiative is currently considering the combination of CCED and RRSG versus a 5-minute-clearing market.

Energy Imbalance Market Update
Rebecca Wagner, Chair, EIM Transitional Committee
Stacey Crowley, Director of Regional Affairs, CAISO
Sarah Edmonds, Vice President & General Counsel, PacifiCorp Transmission
Joe Hoerner, Director Energy Supply Management, PacifiCorp
Marc Reyes, Manager Market Fundamentals & Resource Planning, NV Energy
Josh Jacobs, Director Load Serving Operations, Puget Sound Energy

Panel Summary:
Rebecca Wagner opened this session by noting that a 5-member, independent Board that will oversee EIM policy was approved by the CAISO Board earlier in 2015.
Stacey Crowley noted that CAISO Bylaws are currently being revised to reflect this new Board.

Marc Reyes provided an update on the start of NV Energy’s participation in the EIM, commenting that FERC decision-making will determine when NV Energy begins its participation. A November 4, 2015 start date remains possible, although unlikely.

Sarah Edmonds and Joe Hoerner provided comments on PacifiCorp’s participation in the EIM. It has been a low-risk, high-return experience for PacifiCorp, with more than $30 million in gross benefits for the entire market (PacifiCorp and CAISO) during the market’s first 11 months of operation. Infeasibilities, problematic early in the joint CAISO-PacifiCorp EIM, have steadily decreased and are currently less than 1%. Participation of NV Energy will facilitate PACE-NV Energy transfers and will further reduce infeasibilities.

Josh Jacobs provided an update on Puget Sound Energy’s progress in becoming an EIM participant. Puget Sound is moving into a building/implementation phase, with Alstom changing Puget’s EMS model to accommodate energy exports. Puget Sound will file an OATT with FERC in February, 2016, and plans to become a full EIM participant in October of 2016.

Benefit Analysis of PacifiCorp’s Full Participation in a Regional ISO
Rick Link, Director of Origination, Pacific Power
Jack Moore, Director Transmission Analysis, E3
Mark Rothleder, V.P. Market Quality & Renewable Integration, CAISO

Panel Summary:
A report of this analysis and a technical appendix are now available on both the PacifiCorp and CAISO websites. With a 20-year horizon, in 2015 dollars, gross benefits range from $1.6-2.3 billion for PacifiCorp and $1.8-6.8 billion for CAISO. These benefits fall into several categories: improved efficiency of dispatch and commitment, savings from lower peak capacity, improved efficiency of overgeneration management, and savings from renewable energy procurement. The latter two categories are especially important to CAISO, given California’s new 50% RPS. Although only gross benefits were determined, it is likely that benefits will exceed costs. Furthermore, many benefits (e.g., reductions in GHG emissions) were not quantified in this analysis. Although challenging, only gross benefits incremental to the EIM were determined. Generation supply curves (PacifiCorp alone, CAISO alone, and the two
entities combined) were presented; PacifiCorp’s wind generation is the lowest-cost generation of the combined entities.

**Major Policy Issues with Development of Regional ISO**

Patrick Reiten, President and C.E.O., PacifiCorp Transmission
Phil Pettingill, Director of Regional Integration, CAISO
Matthew Barmack, Director Market and Regulatory Analysis, Calpine Corp
David Boyd, Vice President Government and Regulatory Affairs, MISO
David Neumayer, V.P. Power Marketing for Rocky Mountain Region, WAPA
Stephen Beuning, Director Market Operations, Xcel Energy
Ann Rendahl, Commissioner, WA Utilities & Transportation Commission

**Panel Summary:**

This session was a roundtable discussion. David Boyd listed several advantages of an ISO, including efficient use of resources flowing from geographic diversity and sharing’s benefits (e.g., maintaining a reserve margin). Matthew Barmack from Calpine Corp distinguished between the planning and operational timeframes, noting that the CPUC is concerned with the former and CAISO with the latter. Ann Rendahl posed the rhetorical question of whether CEC (or other state) policy would drive regional ISO policy.

Transmission was also discussed in some detail. David Neumayer and Steve Beuning discussed the joint WAPA/Xcel tariff, noting that a postage stamp rate was ruled out due to large cost shifts; a license plate rate (i.e., zonal design) is now being considered. Transmission planning was addressed, with David Boyd noting that MISO typically models 4 scenarios (business-as-usual, 3 other scenarios).

Finally, the question of state participation in integrating into an ISO was considered. Ann Rendahl questioned whether, from a state perspective, the transfer of property involved is in the public interest; this question is likely to be adjudicated. It was also noted that California legislation must be passed in order to change ISO governance.

**Recent Activities at FERC and DOE**

Sandra Waldstein, Director, FERC Division of State, Int’l and Public Affairs
Larry Mansueti, Office of Electricity, US DOE

**Panel Summary:**

Sandra Waldstein gave an update on the recent activities at FERC. FERC recently released a Notice of Proposed Rule Making allowing FERC to gain access to NERC data. FERC also has four main initiative it is currently address: reliability, markets, infrastructure and the Clean Power Plan.
Larry Mansueti gave an update on the recent activities at the US Department of Energy. Some key initiative being address include renewable energy research, energy efficiency implementation, carbon capture and sequestration commercialization. The DOE also gave a presentation offering up its services to states on planning studies for the Clean Power Plan.

**Peak Reliability**

Gary Stephenson, President and C.E.O., Peak Reliability

**Summary:**

Gary Stephenson gave an overview presentation on Peak Reliability and its role as the Reliability Coordinator. Gary gave the analogy that an RC is like the air traffic controller of the electric utilities. He also gave an update on some of the key initiatives Peak is under taking including budgets concerns, new funding agreement, data sharing, data quality and its strategic plan.

**WECC Reliability Study Requests**

Byron Woertz, Senior Project Manager, WECC

**Panel Summary:**

Byron Woertz presented study results from TEPPC study cases relative to the 2024 Common Case and gave a TEPPC work plan update.

- **PC-19:** High Distributed Generation (DG) mainly in California:
  - Increase incremental DG/DR/EE, decrease steam and CC, increase dump energy
  - Decrease production cost and decrease CO2 production
- **PC-21:** Coal Retirements Case aimed with a study goal of reducing carbon emission by 80% by 2050 (greater than the CPP).
  - Increased energy from CC and CT, Increase energy from remaining coal unit, increase RE
  - No unserved load, decreased production cost, decreased CO2 but did not meet goal
  - Some overloaded lines
- **PC-22:** High Renewable Energy Case with west-wide 50% renewable energy target.
  - Significant reduction of CC and CT, Reduction of geothermal output
  - Significant transmission congestion throughout Western interconnection, high dump energy

**Renewable Energy Transmission Initiative v. 2.0**

Brian Turner, Deputy Executive Director, CA Public Utility Commission

Neil Millar, Executive Director of Infrastructure Development, CAISO

Grace Anderson, Western Renewables and Transmission Planning, CEC
Panel Summary:
Commissioners Janea Scott (CA) and Mike Florio (CA) introduced the goals of the RETI 2.0 process.

Brian Turner explained that RETI 2.0 is an initiative to facilitate electric transmission coordination and planning to enable CA to meeting its high renewable standards. RETI 2.0 is an open, transparent, and science based process that will explore the abundant renewable generation resources in California and throughout the West, consider critical land use and environmental constraints and identify potential transmission opportunities that could access and integrate renewable energy with the most environmental, economic and community benefits.

Neil Miller explained the CAISO’s role in the RETI 2.0 initiative as a regional transmission planner for CA. CAISO will participate in the RETI 2.0 process to help map out the associated transmission infrastructure and address regionalization with the CPP and PacifiCorp’s integration.

Grace Anderson discussed what data sets are needed to complete the models and environmental layering tools and is looking for input from the neighboring states and other stakeholders into the RETI 2.0 process.

Transmission Planning by the Regions
Neil Millar, Executive Director of Infrastructure Development, CAISO
Ron Belval, Tucson Electric Power Company, WestConnect
Rich Bayless, Consultant, Northern Tier Transmission Group
Patrick Damiano, President & CEO, ColumbiaGrid

Panel Summary:
Neil Millar discussed CAISO’s 2015-2016 plan, making sure CA is on the path toward meeting its 33% RPS goal. CAISO is prepping informational work around new 50% renewable target. CAISO has also begun the interregional coordination process.

Ron Belval gave an overview of WestConnect’s planning cycle and asked states that if they want CPP scenarios to be considered in the planning cycle that a deadline is coming up. Currently WestConnect does not have any state representatives participating in its processes.

Rich Bayless and John Leland (on the phone) gave an overview of NTTG Order 1000 regional transmission plan including the process, objectives, modeling and regional cost allocation. They gave an overview of the 2014-2015 regional transmission planning cycle and the 2016 interregional coordination cycle.
Patrick Damiano stated that ColumbiaGrid is currently on its 3rd FERC Order 1000 Functional Agreement and a public meeting is scheduled of November 9th to approve the Functional Agreement.

**Recess**
WIRAB Chair John Savage (OR) recessed the meeting at 5:00 PM.

**Welcome and Introductions (October 30th 8:00 AM)**
WIRAB Chair John Savage (OR) provided the welcome.

**Flexibility Assessment of the Western Interconnection**
Nick Schlag, Managing Consultant, E3
Arne Olson, Partner, E3

**Panel Summary:**
This analysis involved WECC, WIEB, and NREL in addition to E3, and revealed that regional diversity and coordination provides significant benefits. Traditionally, meeting peak load has been of most concern to the power sector; with high renewable penetrations, accommodating both peak load and relatively low net load (and the transition from low net load to peak load) is of great concern. Flexibility encompasses the accommodation of both low net load and peak load, as well as the transition between these two net loads.

This complex modeling analysis involved the REFLEX tool (Monte Carlo draws) and then use of the PLEXOS tool (a production cost model). Penalties for upward shortfall violations (i.e., failing to serve all load) were assumed to be $5-50,000/MWh, while downward shortfall violations (i.e., overgeneration) were associated with penalties of $50-100/MWh. Five regions, including CA, the Northwest, the Southwest, Basin, and Rockies, comprised the Western Interconnection. Case 1 (base case) was a 20% renewable energy scenario, whereas Case 2 involved 41% renewable generation.

In going from Case 1 to Case 2, reductions in both production cost and CO₂ emissions were found. Curtailment, however, increased from 0% to 6.5% and was particularly high in CA, the Northwest, and the Southwest. The Southwest was especially susceptible to curtailment because its baseload resources (coal, nuclear) are less flexible than, for example, those in CA.

Mitigation strategies presented included regional coordination (curtailment was reduced from 6.5% to 3%), as well as storage and flexible operation of coal units. Gas CCGTs were unable to reduce curtailment, unlike flexibly-operated coal units. There is synergy between regional coordination and storage/flexible operation of coal units. In addition, there is a so-called sweet
spot for curtailment, but while curtailment is the default solution, the above mitigation strategies can reduce curtailment. Importantly, there was little or no need for transmission expansion.

**Frequency Response and System Stability**

Robert D’Aquila, GE Energy Management

**Panel Summary:**

This presentation concerned reliability in the current power sector environment of coal unit retirement (i.e., loss of synchronous generation) and high renewable generation. Reliability includes frequency response, voltage stability, and grid resilience. Several studies have been conducted recently that examine this issue, including the WWIS-3 and MRITS studies.

Provision of reliability services from renewable generation and other sources was covered. It was noted that renewable generation can have reactive power controls built into it. Wind generators, for example, can have inertial control (analogous to discharge of a battery) that has a response time measured in seconds. Governor control, with a response time in the order of minutes, can also be used. Synchronous condensers, while they cannot provide active power, can provide reactive power. They have the additional property of being able to provide short-circuit strength that enhances grid resilience (unlike renewable generation).

**Clean Power Plan – Current Efforts and Future Studies**

Melanie Frye, Vice President Reliability Planning and Analysis, WECC

Vijay Satyal, Senior Energy Policy Analyst, WECC

Thomas Carr, Attorney/Economist, WIEB

**Panel Summary:**

The WECC representatives noted that reliability is a multi-faceted concept, involving diverse features such as frequency response and resource adequacy. They also emphasized the interstate dependency of the Western Interconnection. The distinctions between production cost and power flow modeling was described (e.g., different data inputs are required for these different types of modeling).

WIEB’s so-called gap analysis, in which the Interim and Final State GHG Emission Goals are compared with WECC’s year 2024 Common Case, was presented. Five Western states will be either in or close to compliance with both goals by 2024, two states are in near-compliance, and four states face challenges in meeting one or both goals. Possibilities for future modeling work were presented, including compliance cost modeling and modeling of emissions trading within/among regions of the Western Interconnection.
Update on Idaho-WIEB State Energy Planning Grant
Alaine Ginocchio, Policy Analyst, WIEB

Summary:
Work being conducted under this grant from the DOE was described. There are four stages of work involved; the mapping/goals stage is currently underway. In addition, work with LBNL on energy efficiency EM&V and with WREGIS on adapting the registry for energy efficiency crediting was described.

Business Meeting
Maury Galbraith, Executive Director, WIEB

Summary:
A decision by the WIEB Board to retain the SPSC, rather than folding it into CREPC, was described. The CREPC charter will not be revised, whereas the SPSC charter will be edited to remove references to ARRA funding. The SPSC charter will retain its membership and voting requirements.

Adjourn
WIRAB Chair John Savage (OR) adjourned the meeting at noon.