

# Supplemental Discussion Questions

## Western Resource Planners Forum

June 21-22, 2010

Hilton San Diego Mission Valley

San Diego, California

(Draft 6/14/10)

### Monday, June 21

1:00 pm **Welcome/Introductions**

*John Savage (Oregon Public Utility Commission)*

1:15 pm **Session 1: New Western Interconnection Transmission Planning**

- a. Overview of Project
- b. How do we make transmission plans useful/relevant for resource planning and resource planners? (30 minutes)
  - i. Utility resource planner perspective *Philip Popoff (Puget Sound Energy)*
  - ii. Facilitated discussion with audience *John Savage (Oregon Public Utility Commission)*

### **Questions in preparation for this session:**

- Is your utility resource planning timeframe far enough into the future to consider transmission plans ten years in the future?
- Is your utility planning to obtain large amounts of renewable resources over the next ten years? Are there economies in scale to develop resources from a common area? Or do you plan in obtaining renewable in discrete modular amounts?
- Does your utility resource planning process participate or engage in subregional planning forums such as SWAT, CCPG, Sierra, NTTG, ColumbiaGrid, or CAISO?
- Is your utility participating or considering involvement in a proposed transmission project?
- Has your utility planning process participated in a renewable energy zone process such as the Western Renewable Energy Zone project or a comparable state or provincial effort?
- In your utility planning, how do you compare renewable resources close to load versus more remote renewable resources that require long-distance transmission?

2:00 pm Break

2:15 pm **Session 2: Transmission Planning Reference Case**

- a. Description of the proposed reference case including a description of key inputs and foundational transmission projects. *Thomas Carr (Western Interstate Energy Board)*
- b. Lawrence Berkeley National Laboratory report on Western Integrated Resource Plans and modeling Demand Side Management and Demand Response. *Galen Barbose/Pete Larson (Lawrence Berkeley National Laboratory)*
- c. Audience feedback on assumptions, modeling approaches, and other factors to create a useful reference case. *Jim Tarpey (Colorado Public Utility Commission)*

Note: LBNL is reviewing 13 utility IRPs and synthesizing relevant data into a template spreadsheet. See attached. This information will be used to specify the resource assumptions of the 2020 Reference Case. At the Resource Planners Forum meeting, LBNL will discuss this process and identify various issues that they have encountered in reviewing IRPs. They will feature 1 or 2 utility IRPs to illustrate specific issues. **We would like to identify a designated contact person for each utility who LBNL could call and clarify any follow up questions that arise in their IPR review process.**

**Questions in preparation for this session:**

- Does your utility load forecast account for embedded energy efficiency within the current load forecast?
- Is the load forecast regularly updated for changes in state/provincial/federal DSM policies?
- Has LBNL developed a reasonable strategy for adjusting load forecasts for past and future DSM policies?
- Does your IPR inform us of the most likely future resource mix within your footprint?
- Does your utility IRP or plan specify a preferred portfolio of future supply-side resources with specific quantities, types of resources, and locations to inform transmission planners?
- Does your utility planning target the preferred resource portfolio or does it rely on competitive bidding to determine the shape the resource portfolio?
- Is your utility IRP being reviewed by LBNL?
  - If yes, please provide a contact person who will be able to clarify any ambiguities or questions in interpreting the IRP data.
  - If no, might we be able to get your assistance in filling out the LBNL template with relevant data from the IRP.

3:15 pm Break

3:30 pm **Session 3: Planning for a Regulated Carbon Future**

- a. Current Planning Challenges and Concerns: How are resource planners addressing the risks and costs of future carbon regulation in planning and acquisition decisions? What are the challenges and facing your utility to meet stringent carbon standards?
  - i. What do you see as the main environmental and political factors that could substantially change the economics of existing fossil fuel generation (e.g. EPA air quality regulations, coal ash disposal, water restrictions, tradable energy or carbon credits)? How are you addressing such issues in your modeling?
  - ii. What carbon targets are you modeling and why? Are regulators imposing unreasonable targets and approaches for your planning? Should we take a different approach to modeling and preparing for potential carbon regulation?
  - iii. How are you modeling coal plant retirements, if it all?
- b. Discussion of Carbon Regulation Case for Transmission Planning
  - i. Description of case submitted to WECC
  - ii. Panelist and audience reaction to and input on carbon regulation case:
    - 1) What carbon target should be used?
    - 2) How should we model coal-plant retirements?
    - 3) How should we model tradable energy and carbon credits?

**Questions in preparation for this session:**

- Do you consider the Waxman-Markey carbon reduction targets (17% below 2005 CO<sub>2</sub> levels by 2020) a reasonable benchmark for planning purposes?
  - Does your preferred portfolio assume a higher or lower carbon reduction target for 2020?
  - What is a reasonable range for planning purposes?
  - How do you address the uncertainty of potential carbon reductions?
- In 2008, WECC's TEPPC modeled a carbon reduction scenario for the year 2017. Model runs suggested several insights. Simply increasing renewable generation by itself serves to offset natural gas generation as the resource on the margin. In the face of growing loads, total CO<sub>2</sub> emissions continue to rise despite a higher penetration of renewables. As the penetration increases, and if complemented by increased energy efficiency, CO<sub>2</sub> emissions will begin to drop as coal generation gets displaced. Large reductions in CO<sub>2</sub> begin to occur if a price/tax is imposed on CO<sub>2</sub> emissions. A carbon price of \$20 per ton along with 15% renewables and energy efficiency led to about a 15% reduction in CO<sub>2</sub> emissions. Higher carbon prices reduced emissions further.
  - Have you found similar findings in your utility's analysis of CO<sub>2</sub> emissions?
  - Can you share other findings from your analyses of this problem?
- Do you consider coal plant retirements as part of the potential response to future carbon reduction policies?
- How would your coal fleet be impacted at different carbon prices?
- What criteria should planners consider in forecasting potential retirement of coal plants? Age of the plant? Emissions rate? Need to meet other air quality regulations?

4:45 pm Break

5:00 pm **Session 4: Breakthrough Technologies**

- a. Brief description of Breakthrough Technology case
- b. Audience response to questions;
  - i. What technological advancements would make the most difference and how?
  - ii. Which of the technologies that could make a difference hold the most promise for significant breakthroughs?

5:30 pm Adjourn for day

**Tuesday, June 22**

8:00 am **Session 5: Resource challenges facing utilities and resource planners**

- a. Utility panelists address the following questions and challenges
  - i. What do you see as the major issues facing you in planning for and acquiring resources for your company? What are the major challenges in forecasting loads, evaluating resources, and addressing uncertainties?
  - ii. Dealing with uncertainty about renewable resource requirements: What factors, if any, contribute to uncertainty about meeting future RPS requirements at a reasonable cost? Are utilities concerned about costs of compliance, changing legislation, stranded capital? What are companies' strategies for getting regulatory approval for RPS projects? What should be assumed about unbundled and bundled RECs and what role should they play? Will cost caps limit resource options for meeting standards? What are the impacts of looming water constraints and land restrictions on costs of compliance and utilities' ability to meet RPS requirements? Do these uncertainties undermine resource options that require additional transmission?
- b. Facilitated discussion with audience on questions

**Questions in preparation for this session:**

- What are the big questions that keep you up at night?
- The current recession has slowed the demand for power. May this trend continue for many years? Will we see flat growth for the next ten years with a combination of a slower economy and/or more aggressive DSM policies?
- Over the past ten years, RPS laws have been enacted in many states and increased over time. Do you expect to see the RPS levels increasing in the future? Or might we see push back that causes RPS levels to decline?
- Do you see costs rising with more renewables on the system? Will this begin to hit some of the price caps within your state's RPS?
- Have you had problems procuring renewable resources to meet RPS requirements?
- Would you prefer to use a robust REC trading market rather than developing renewables for delivery to your utility?

9:15 am Break

9:45 am **Session 6: Planning for Resource Adequacy**

- a. What resource adequacy standards are utilities applying for planning purposes? Is there a better coordinated approach?
- b. How do planners gauge resource adequacy with increasing variable generation?
- c. How do we measure adequacy on a broader regional basis? How does WECC address resource adequacy? What is NERC's perspective on this issue?

**Questions in preparation for this session:**

- What methodology and techniques do you rely on to ensure a balance of loads and resources in the future? How is this analysis impacted by increasing levels of variable generation?
- Do you consider WECC's Power Supply Assessment in developing your own assessment of resource adequacy for your footprint?
- What new tools or methodologies are you using to plan for increasing levels of variable generation?
- Have you been engaged or following the work of WECC's Variable Generation Subcommittee (VGS) or NERC's Integrating Variable Generation Task Force (IVGTF)?
- Have you reviewed the work from the Western Wind and Solar Integration Study?
- How do you perceive the Joint Initiatives proposals addressing some of the integration challenges?
- Solar thermal generation can be developed with storage at additional costs while PV solar does not have storage capability. If you have considered solar additions, how do you view the relative benefits of having storage in solar generation to aid in integration the variation of generation?

10:45 am Break

11:15 am **Session 7: Overview of Western Renewable Energy Zone Project**

- a. Western Governors' Association WREZ Initiative
- b. Overview of Phase 3 project
- c. Preferred WREZ Zones

12:00 pm **Session 8: Utility Response to WREZ Phase 3 and Next Steps**

- a. Response to WREZ Phase 3
  - i. Is this whole approach useful? If not, how can we make it useful?
  - ii. Where are utilities proposing to acquire new resources? How do they match up with zones?
  - iii. How do current transmission projects match up with the zones?
- b. Fostering resource development in targeted areas
  - i. Should we aim - is it reasonable to aim - to maximize development in selected zones?
  - ii. If it does make sense to develop resources in selected zones, how do we go about doing that?

Note: LBNL developed a WREZ model with extensions that derives a least cost portfolio of renewable resources for the Western Interconnection for a given penetration of renewables and other assumptions. LBNL used this model to derive a Reference case analysis that assumes 33% renewable penetration for the Western Interconnection in 2020. Their analysis also considers a number of scenario variations: low cost wind, lower cost transmission with HVDC and REC trading. **The WREZ extended model assumptions and graphic results of the resource selection from WREZs and the transmission needed are summarized in the attached powerpoint presentation. The results with different renewable portfolios and transmission development are presented in slides 9-12. The attached Word document is a table identifying the WREZ renewable energy zones developed and delivered to all 20 load zones.** See the full LBNL report on this topic can be found at this link: <http://eetd.lbl.gov/EA/EMP/reports/lbnl-3077e.pdf> .

**Questions in preparation for this session:**

- LBNL's WREZ model analysis derived interconnection-wide least cost solutions for renewable development of WREZ zones for 20 different load zones. The LBNL Reference case assumed a 33% renewable penetration in 2020.
  - Do you find the renewables developed by the WREZ model for your load zone consistent with the likely renewable resources identified in your utility analyses?
  - Do you find other utilities in your load zone expressing interest in the same resources identified by the WREZ model?
  - Does the WREZ model suggest there may be other utilities in other load zones that would have a common interest in developing renewables from the same WREZ zones?
- The WREZ model also evaluated other scenarios: more efficient and lower cost HVDC transmission, lower costs for wind, and use of REC trading. Do these

scenarios alter the renewable mix for your load zone? Is this consistent with your expectations?

- Do you expect to see large scale development of solar resources in the southwest as suggested by the WREZ model? Note the solar technology assumed here was thermal storage with 6 hours of storage? How might this be impacted with greater use of PV solar? How important are water restrictions for large scale solar development?
- The REC trading scenario shows significant reduction of transmission development and greater concentration of low cost renewables developed. Do you see this as a likely outcome of a large REC market for renewables?
- Thirty years ago, utilities collaborated on the building of large coal plants and nuclear plants and the associated transmission. Is the same model relevant for WREZ zone development for renewables?

1:00 pm Break

1:15 pm **Wrap up: Synthesis of the two half-days of meetings**  
*Doug Larson (Western Interstate Energy Board)*