Summary of Modeling WG Call #1
Tues., Aug 17, 9:00-10:30 AM ET

Designated WG Members in attendance: Wil Burns, Samir Succar, Matt Schuerger, Ryan Kind, Erin Hogan, Mary Ellen Paravalos, Allan Meyers, Dennis Chastain, Michael Goggin, Dennis Sobieski, Ed Tatum, Doug Kallesen, Doug Hurley, Jon McKinney, Valerie Lemmie, Joe Bryson (EPA), John Schnagl for David Meyer (DOE), John Buechler and David Whiteley,(EIPC), Catherine Morris (Keystone Center)

1. Ground rules established for WG calls and meetings:
   - Decisions will be made by consensus, meaning no one expresses objections to a proposal moving forward. WG members noted the importance of ensuring that that there is enough time to fully consider proposals that are up for decision.
   - Each sector's 1-3 designated representatives on this WG have speaking priority. Other participants and observers will have opportunities to weigh in on substantive discussions, the timing of which will depend on the agenda.
   - At this point, the WG members see no need for a chairperson, as long as Keystone will be facilitating.

2. Overview of different models and how they will be used (John Buechler):
   - Transmission system: The power flow model (PTI PSSE – "Power System Simulator for Engineering") contains a detailed representation of the transmission system topography for the Eastern Interconnection. PSSE will be used for transmission analysis of the roll-up case in Phase 1 (Task 2), and for analysis of the detailed transmission build-outs for 3 final scenarios in Phase II (Tasks 7 &8) This model is used to analyze the reliability of the transmission system in a manner that is consistent with NERC standards.
   - Production cost model: GE MAPS (Multi-Area Power Simulation) is an 8760 hr/yr model of EI that works with a solved power flow case developed using the PSSE model. GE-MAPS contains a representation of the transmission system as well as generation. The transmission topology will be consistent with that of the transmission models, but will include more detailed representation of generation including economic characteristics which are not used in the power flow model (e.g. types & cost of fuels, heat rates, startup costs, minimum run times, cost of emissions etc). GE MAPS will be used in Phase 1 (Task 3) on the roll-up case, and in Phase 2 (Task 9) for each of the 3 scenarios. The outputs of this model include overall and regional production costs, electricity prices, and environmental emissions data.)
   - Macroeconomic model: CRA-NEEM (North American Electricity and Environmental Model) will combine some features of the previous two models, at a higher, less detailed level. This model does not utilize a detailed representation of the transmission system; within regions there are no transmission constraints, while transfer limits are utilized to approximate the capacity to transmit power between regions. NEEM will be used in Tasks 4 & 5 for macroeconomic analysis of 8 Resource Futures (9 sensitivities each). It can analyze many alternatives in less time and with less precision than the detailed models described above. The input assumptions will come from a variety of public data sources and are subject to review by EIPC to ensure consistency with

existing regional plans. SSC will be informed of assumptions and sources and will have opportunities to provide input on the assumptions to be used for the future resource expansion scenarios.
- Time frame (15-20-year horizon or other) of the 8 macroeconomic Futures and 3 Scenarios to be determined by the SSC.

3. Macroeconomic Modeling Webinar with CRA – **Aug. 30th, 1-3 PM ET.** Suggested topics regarding both the NEEM and MAPS models:
   - Definition of regions
   - What outputs look like
   - Examples of other CRA studies/reports using this model
   - Expanded description of all the models and how they will be used (like John Buechler's overview during this call)
   - Relate models to project tasks and timelines
   - What the model can and can't do
   - Clarification of where/when costs of transmission system fit in (Macroeconomic analysis vs. high-level transmission analysis)
   - Where the SSC and Work Groups will need to take action to support schedule
   - How emissions data is tracked and reported
   - Will do follow-up call/webinar after 8/30 webinar to answer remaining questions

4. Charge and tasks of the Modeling WG
   - Charge of WG, as described in July SSC meeting summary: develop a better understanding of the capabilities, assumptions and outputs of the CRA NEEM (macroeconomic) model, that will be used to evaluate the 8 Resource Futures and the GE MAPS (production cost) model that will be used to analyze the final 3 Scenarios.
   - Some members suggested that the WG charge should include providing feedback on these models (understanding that any changes to charge require SSC approval).
   - Members discussed adding to the charge topics like integrating environmental data and dealing with least cost planning issues
   - This WG agreed it should coordinate with Scenario Planning WG to develop an understanding of the relationship between work and outputs of these two groups.

5. Environmental Data sub-group
   - This sub-group was suggested by NGOs at July SSC meeting to perform a similar function as the WECC Environmental Data group.
   - Audubon Society is currently seeking funding to identify certain land and other values using GIS tools that might feed into the EISPC process; these efforts are currently unfunded but may end up being something that can be integrated into EIPC modeling.
   - Will discuss more on next call, including potential activities of this group, how it would be populated, and where it belongs.
   - Some WG members expressed the opinion that the decision to form any sub-groups should be made by the SSC and not by the WGs

6. Next steps

- Keystone will distribute a summary for review and posting.
- Communicate questions to CRA prior to Modeling webinar (through Keystone).
- Request for documentation on CRA's model (MRN-NEEM) in advance of the August 30th webinar (model structure, inputs/outputs, and assumptions)
- Circulate CRA presentation materials and deliver questions to CRA prior to webinar.
- EIPC will discuss with CRA what model documentation can be released in advance of the webinar.
- Schedule next WG call.

7. Next WG call (to be scheduled after 8/30 webinar) Agenda items:
   - Environmental data subgroup – should it be formed, who will decide, where does it belong, what would it do, how would it be populated
   - How to coordinate work of and interaction between Scenario Planning & Modeling WGs
   - Planning for follow-up/ Q&A with CRA after webinar
   - How to obtain info and communicate with CRA throughout the process