

Scenario Task Force Meeting
Arlington, VA
September 12, 2011
Summary

Attending: Ryan Kind, Wil Burns, Michael Goggin, Marya White, Eric Callisto, Jim Volz, Stu Nachmias, Deirdre Altobell, David Meyer, Dave Whiteley, Stan Hadley, Roy Thilly, Flora Flygt, Samir Succar, Bob Pauley, Andy Oliver, Tyler Ruthven, Barry Huddleston, Randell Johnson, Rob Sinclair.
Facilitating: Margaret Pinard, Catherine Morris, Caitlin Ellsworth

1. New Futures Comparison Worksheets

Stan Hadley summarized changes to cost comparison sheet since Friday, Sept. 9.

- Future 6 and 8 high level transmission costs added, 11.2% carrying cost rate does not include inflation; a higher rate typically includes inflation; higher rate will not make a significant difference
- Future 8 energy efficiency costs – the costs for EE not attributable to carbon prices were separated out
- Future 7, S3- carbon revenue recycling confirmed
- Transmission total capacity added as a variable for measuring buildout

2. Stu wanted to consult with ConEd's financial experts to better understand the fixed charge rate. He noted two concerns a) Build starts at 2020 – a relatively short time frame for this level of build; b) generation has O&M as additional costs to capital costs, but transmission cost estimate does not nor are the losses related to transmission included. Stan noted that losses are intra region that are treated as a copper sheet and also depends on the type of transmission (AC vs. DC).

3. NGO Proposal – Wil Burns

- **National** – Future 8 with flat carbon price after 2030 and a new NEEM run with more EE/DR (more like Future 8 with additional 7% EE); could support multiple national policy futures and recognizes the value of EE/DR in achieving low-cost CO2 reductions
 - Most STF members agreed with the inclusion of EE/DR/DG as a low-cost CO2 strategy
 - High level transmission costs were higher in F8 even though there was less transmission capacity expansion than F2. Stan suggests the higher cost might be caused by less optimal use of the system.
 - Did not re-run MRN for F8; froze it at F2 to prevent the model from seeing the reduced demand and reducing GDP as a result. Wanted to reflect the potential for the economy to produce the same level of goods and services with lower energy intensity
- **Business-As-Usual (BAU)** – able to agree with revised BAU, provided that one of the other 2 futures includes more EE/DR; if that is not agreed to, NGOs prefers Future 4
- **Regional** – Future 3, S7 with more off-shore wind accomplished with another sensitivity run similar to F3S11. The additional off-shore wind reflects the desire for more resource diversity beyond what economics dictates. Do not have a specific request for amount of off-shore wind at this time.
 - TOs also wanted to capture that the off-shore wind is commensurate with state RPS policies which are higher than BAU and projected.
 - Stan clarified that F5 & F6 had approximately 20 GW forced-in wind

- **NEEM runs** - David Whiteley suggested that CRA might be able to bundle some sensitivities such as hardened pipes and more off-shore wind or flattening the price of carbon as a single NEEM run.
- **Anomalies** – Tyler Ruthven asked if it would be necessary to rerun NEEM to make adjustments of transfer capacity to accommodate changes in the wind transfers in Future 2 or 8. David said the group will need to determine what adjustments are needed and then run a new hardened limit run which will change the resource mix. This should be a recommendation coming from the SSC and not the PAs.
- **Distributed Generation (DG)** - Erin Hogan reminded the STF that Future 8 DG is achieved through behind-the-meter photovoltaic (PV) to simplify cost estimates and if this Future is carried forward, the STF may want to look at this assumption more closely, and whether it is possible to get that much DG (treated as a negative load in both BAU and F4 & F8). The DG is spread across the region based on the amount of DG in the existing system and the solar profile; therefore, the South would see more PV penetration and impacts on peak load under F4 & F8 where DG penetration is doubled.
 - Samir Succar pointed out that the PV assumptions in F8 are less than F4 and are not out of scale with the studies /projections published on PV.
- Several STF members agreed that they may want to take a closer look in Phase 2 at the type and location of DG than was possible under the original compressed schedule
- Wil Burns reminded the STF that the carbon price alone achieved a 12% reduction, so F8 only increased EE/DR/DG an additional 7%, which is less than EE/DR/DG forced in under F4.

4. Discussion/Alternatives:

- Generators – like NGO proposal for National and Regional and for Other would suggest high natural gas sensitivity (F1,S6); Some sector members prefer F3 over F6
- End Users – not ready to respond to NGO’s proposal, were comfortable with TO proposal, particularly the BAU.
- States – New England was comfortable with TO proposal, more interested in diversity than comparability, and personally ok with more EE/DR; noted that F8 goes beyond F2 in terms of carbon reductions and most of it comes from the electric sector. Representatives wondered if this was plausible and whether customers would be willing to pay the costs.
- PP – NGO proposal is reasonable. Had proposed a larger build-out for F2 but not a “must-have” issue, but if the NEEM run is available, would like to test a slightly larger build-out.
- TO/TD – recognize that National should include more EE/DR/DG and would be open to NGO proposal; transfer capability on regional RPS and Regional Carbon about the same but the generation mix differences might provide useful information
- Canada – comfortable with TO proposal; although he supports EE/DR/DG increase proposed by NGOs, concerned that we are already starting with low demand, wondered if it is realistic to achieve even larger load reduction.

5. NATIONAL – F2 vs F8

- The STF agreed that in both cases addressing the anomalies was important, such as the high concentration of closed-cycle gas plants (CC) in Wisconsin and the wind in Nebraska.
 - It was noted that moving significant amounts of gas in or out of MISO – WUMS can have a significant impact when PAs run the power flow. If you move the CCs out, you

may need alternative generation to be imported in to WI or located there to replace retiring coal.

- Likewise, if you make significant changes to wind location, it may require a new NEEM run to determine the change in transfer limits.
- The difference in the generation mix between F2 and F8 may be attributable primarily to the difference in the denominator (load) rather than significant differences in GW of capacity.
- In response to a question, David Whiteley said the STF did not need to set a threshold for transmission additions, below which the PAs do not need to consider in the detailed transmission build-out. PAs will be able to accommodate those small builds without an explicit rule when they look at the overall reliability of the system.
- If the intent is to arrive at the same place (more EE/DR/DG under a flattened carbon price) the STF agreed that we should go with the Future that arrives there most efficiently.
- Based on information shared by David, CRA recommended F8 as the starting place for the National; Ralph will confirm with CRA's NEEM modelers
- F8, S1 – run hardened limit with flattened CO2 price after 2030. Carbon price trumps the RPS in terms of incentivizing renewables
- F2, S5 (low load growth) was not found to be a good substitute for the 7% demand met with EE/DR/DG. F2 S5 would be deeper demand destruction and would not have the costs of EE/DR/DG.
- Ryan Kind noted that it is also important to consider that the costs to customers would be lower if carbon tax revenues are returned to end users to subsidize the costs of EE/DR/DG.

6. REGIONAL – F6 vs F3

- F6, s10 – (adjusted for anomalies) has much more off-shore wind, although the total transmission upgrades are about the same as F3. Not clear on the advantages of F3 adjusted for more off-shore wind, and other renewables.
- F3, s7 – NGO & PP – resulted in much greater emission reductions and greater level of total renewable generation with lower high level transmission costs and similar total cost after carbon offset. Moreover, it could be useful to have a similar policy driver for national and regional implementations for comparability purposes. Significant differences in F6 and F3 transmission build-out.
- Roy Thilly and Rob Sinclair noted that the objective of looking at National vs. Regional is not to look at the pros and cons of different ways to implement a carbon policy but rather to see differences in the transmission system under different generation mixes: F6 provides that difference in the generation more than F3. If states implemented aggressive RPS and the federal government passed a carbon policy, it would be congruent with this regional RPS.
- F3: all the coal is shut down/
- F6 includes more coal, which provides more generation diversity.
- F2 also has significant retirement of coal. Adopting both F2 and F3 would be a tough sell for some states.
- TOs think a regional RPS is more consistent with where we are today. More likely to implement an RPS policy than a carbon policy regionally.
- NGOs, EU, GOs, and Canada would prefer that the EE/DR/DG be added to the National (F2 or F8) rather than Regional.

7. OTHER – F1s3 BAU with revised implementation to EPA Regulations

- There is general support from STF members as long as there is EE/DR/DG adjustment on one of the other Scenarios.
- Preference for F3 for comparability from some Generator Sector members
- EISPC white paper on load forecasts won't be able to offer any input to this discussion because of the schedule. Consultants will work closely with ORNL and GA Tech to determine how much additional EE/DR might be achievable over the data included in the roll-up. The group is trying to see if there could be greater consistency between assumptions.
- BAU is an important bookend for the states.

8. RECOMMENDATIONS:

The recommendations represent the efforts of the STF members to achieve consensus and do not represent the positions of the Sector SSC or Caucus members. The STF members agreed to take these recommendations back to the Sector for discussion and possible endorsement.

NATIONAL – Combined Federal Climate and Energy Policy - F8, S1 (OL 75 soft constraint)

- Policies include Federal Carbon Constraint with National Implementation, national RPS with National implementation, aggressive EE/DR/DG
- A new NEEM run is needed to hardened OL 75 transmission constraints combined with a flat carbon price after 2030
- Assume some of the revenue of carbon tax is diverted to support EE/DR/DG costs in post processing.
- David Whiteley confirmed that the change in recycled CO2 revenues would not require a new run; the government is considered revenue neutral so CO2 revenues have no impact on the economy
- A NEEM run may be needed to fix the anomalies of CC and Wind and Distribution of DG.
- Not clear whether there would be any changes in the aggregate transfer capability to accommodate anomalies.

REGIONAL – National RPS, State and Regional Implementation - F6,S10 (OL 75 Hardened)

- A new NEEM run may be needed to fix the anomalies. NEEM-TX Subteam will make a recommendation.

BAU - Business As Usual with revised implementation of EPA regulations - F1, S3 (Baseline Infrastructure)

- A new NEEM run may be needed to fix anomalies. NEEM-TX Subteam will make a recommendation.

9. Next Steps

- Wil and Stu will work on presentation
- Keystone will send redline version of recommendation memo by Wed.