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MEETING SUMMARY
MINNESOTA CLIMATE ACTION PLAN TECHNICAL WORK GROUP

Energy Supply TWG Meeting #12 Summary
December 14, 2007, 2:00-4:00pm
Prepared by Linda Lambeck and Bill Dougherty

Bill Dougherty called the meeting to order a few minutes after 8:00 am.

In attendance were the following TWG Members

- Bascom, D. - Global Green Energy, LLC
- Freese, B. - UCS
- Grant, B. - IWL
- Jagush, B. – MoraPU
- MacFarlane, C. – OTP (Draxter, B. attending)
- McMillan, D. – AlleteMP (Cashin, M. attending)
- Polakys, S. – UofM
- Robertson, M. - Chamber
- Sparby, D. – Xcel – (Jm Turnure attending)
- Stone, D. – Excelsior Energy
- Turner, J - Xcel

From MN state staff, the following were in attendance:

- Marya White-DOC
- Linda Limback - DOC
- David Thornton - PCA
- Anne Caflin - PCA

From the Public, the following were in attendance:

- Hinderman, J.

From CCS staff, the following were in attendance:

- Bill Dougherty – Stockholm Environment Institute – US Center

TWG members not in attendance were:

- Ambrose, B. - GRE
- Anderson, L. - Wooddale Church
- Goodwald, G. – Gerdau Ameristeel
- Hamilton, J. Drake - FE
- Heaney, B. - IBEW

- Jones, B. - EJAM
- Marchessault, J. - Business Card
- Olsen, E. – GRE
- Steger, W. – Ely
- Wachtler, J. – Barr Eng.

The background documents used as the basis for the discussions were posted on the website in advance of the meeting. Unless otherwise noted, this includes the following documents:

- Meeting Notice and Agenda
- Summary of the 12/6/07 meeting
- Powerpoint Presentation for meeting (note: will continue using the presentation from the 11/28/07 meeting)
- Analysis spreadsheets for each of the priority options (note: not posted; these spreadsheets have been distributed to TWG members individually)

Bill Dougherty had the documents available in electronic format on site for those attending on the call to view. Bill Dougherty described the contents of the documents during his presentation so that the data was orally available to conference attendees without access to the documents.

The agenda for the meeting is as follows:

1. Call to order
2. Roll Call of TWG members and public
3. Review of draft meeting summary for TWG meeting #11 held on 6 December
4. Continuation of the discussion of the latest analytical results for the energy supply GHG forecast and mitigation options
5. Proposed agenda, time and date for NEXT meeting
6. Public input and announcements

Bill Dougherty called the meeting to order and took the roll call (as summarized above). The notes from meeting summary #11 were accepted with no changes.

This meeting is a continued discussion of materials that this TWG has been going through for the past few meetings and focuses on reviewing the status of agreements reached by the ES TWG, discuss any new, key assumptions and focus on assumptions rather than model's results since these change according to assumptions.

DISCUSSION OF THE ANALYTICAL ASSUMPTIONS FOR THE ENERGY SUPPLY GHG FORECAST AND MITIGATION OPTIONS

Growth rate: The TWG agreed to assume a 0.5% average annual growth rate to 2025, to reflect the historical trend to date and adjust it by the impact of RES. In previous meetings, a few TWG members had reservations and it was agreed to run the model based on this, registering their objections. The TWG requested that Bill send out the calculations used to support this average annual growth rate.

New coal: Given that old coal plants will definitely not be backed down, need to devise a way to handle additional coal generation while also meeting MN's RES which asks for carbon reductions from in-state generated electricity *and* imported power. Current calculations include all MN generated coal-based power that is consumed both in- and out-of-state. The TWG requested that Bill make clear in his calculations the level and type of generation that would not be backed down.

Proper reference cases: Using the CIP and RES legislation provides two reference cases; the first, looks at the electric capacity additions that are on record and they are included, and the second, looks at all capacity additions except the Big Stone and Mesaba coal units. Since there was interest in knowing GHG reductions and costs for both MN's RES and CIP legislation, The TWG requested that Bill prepare the calculations for an additional Reference Scenario that does not include either of these pieces of legislation. And for the TWG's purposes, these will be measured them against a reference with both CIP and RES. There was some discussion over whether to include the costs of the RES legislation in the TWG's plan; since the next MCCAG meeting will discuss this, the TWG agreed to hold-off on its decision.

Proposed Cost and Performance Assumptions: The TWG initially decided to add a 50% adder to the capital cost of all new capacity and to assume that there would be a 4% per year real escalation through 2025. Upon revisiting these escalation figures, the TWG reached consensus that a) a 50% adder should be used and b) the annual real escalation should be as follows:

- Up through 2010: 4%/year
- 2011 through 2015: 2%/year
- 2016 through 2025: step down from 2%/year to nominal.

Planned capacity additions: The "other renewable" category includes things like geothermal, solar, MSW/LFG, biomass and wind. The modeling assumes that, in MN, wind and biomass would be about a 50/50 capacity addition split. Upon review of this assumption, TWG members felt MN is more likely to rely on less biomass and more wind and decided on a 10 MW per year cap on biomass.

Gas prices: MN's new CIP policy may offset more dependence on gas so it was suggested to add another \$3 MBTU given anticipated demand on infrastructure. Analysis is currently in the \$8 range and all agreed to increase this, but disagreed over how much. Some felt a full \$3 increase was too high, others suggested \$1.50 or \$2 so the TWG decided to wait for better data before deciding. Bill offered to undertake research on this topic and provide input to the TWG in advance of the next meeting. The TWG accepted this proposal.

Marginal resource: The TWG was unclear on the resource(s) on the margin that would be displaced by mitigation options. Bill explained that the modeling assumes a simple pro rata split between coal and natural gas. It was decided that Jim Turnure and Bill would attempt to have an off-line discussion about the issue and then report to the group.

SCHEDULE

- 1) The next TWG meeting is Friday, December 21, from 11:00 am to 3:00 pm.
- 2) The next MCCAG meeting is Jan 10 all day and Jan 24 all day

PUBLIC COMMENTS:

There were no public comments

ANNOUNCEMENTS:

There were no announcements.