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**MEETING SUMMARY**  
**MINNESOTA CLIMATE ACTION PLAN TECHNICAL WORK GROUP**

Energy Supply TWG Teleconference #9 Summary

November 16, 2007, 8:00am-10:00am

*Prepared by Linda Limback and Bill Dougherty*

The meeting was called to order by Bill Dougherty a few minutes after 8:00 am.

In attendance were the following TWG Members:

- Bascom, Duke - GGE
- Cashin, Mike - AlleteMP
- Draxten, Brian - Ottertail
- Freese, Barbara - UCS
- Grant, Bill - IWL
- Hamilton, J. Drake - FE
- Jagush, Robert - MoraPU
- MacFarlane, Chuck – OTP (Brian Draxten attending)
- McMillan, Dave – AlleteMP – (Mike Cashin attending)
- Olsen, Eric – GRE (Stacy Fujii attending)
- Stone, Richard – Excelsior Energy
- Turnure, Jim - Xcel Energy
- Wachtler, John – Barr Eng.
- Ambrose Bob - Great River Energy
- Heaney, Bill – IBEW

From MN state staff, the following were in attendance:

- Limback, Linda -DOC
- Walters, Rebecca - PCA
- White, Marya - DOC
- Ciborowski, Peter - PCA
- Thornton, David - PCA
- Garvey, Edward – DOC
- Anne Caflin

From the Public, the following were in attendance:

- Jerry Hinderman

From CCS staff, the following were in attendance:

- Bill Dougherty – Stockholm Environment Institute – US Center

TWG members not in attendance were:

- Anderson, Rev. Leith - Wooddale Church
- Goodwald, Jerry – Gerdau Ameristeel
- Jones, Boise - EJAM
- Marchessault, Jim - Business Card
- Polasky, Steve - UofM
- Robertson, Mike - Chamber
- Sparby, David – Xcel- (Jim Turnure attending)
- Steger, Will – Ely

The background documents that were 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
- Draft summary of Meeting #8
- PowerPoint presentation for the meeting
- Analysis spreadsheets for each of the priority options (note: not posted; these spreadsheets were distributed to TWG members individually)
- Updated spreadsheet for the MN ES GHG forecast

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 in detail during his presentation so that that the data was made orally available to phone conference attendees who did not have access to the documents,

The agenda for the meeting is as follows:

1. Roll Call of TWG members and public
2. Review and approval of summary of TWG Meeting #8 (October 25, 2007)
3. Review of MN CCAG Process and Expected Next Steps
4. Discussion of the assumptions used in the initial analytical results of priority energy supply options
5. Discussion of revised GHG forecast for energy supply
6. Proposed agenda, time and date for NEXT meeting
7. Public input and announcements

Bill Dougherty called the meeting to order and took the roll call (as summarized above). The notes from meeting summary #8 were accepted with no changes. He reviewed the MN CCAG Process and Expected Next Steps, noting that ES TWG was at step 5, “Quantify GHG reductions and costs/savings”. He then facilitated a discussion about the assumptions used for priority energy supply options and the analytical results. Summarized below are some of the key points that emerged from the discussion:

## **ASSUMPTIONS USED AND INITIAL ANALYTICAL RESULTS**

### **1. Key assumptions**

At the outset of the discussions, Bill Dougherty indicated there were four key assumptions for the TWG to address and resolve. These were 1) planned capacity addition assumptions; 2) planned capacity retirement assumptions, 3) cost & performance assumptions for new capacity, and 4) avoided costs associated with electric sector expansion in MN.

To this list, one additional item was flagged, the electric sales forecast. This was added to the list of items to discuss at the meeting. Though the issue of the sales forecast had been discussed at length at the 25 October TWG meeting, a TWG had come across new information that it would be good for the TWG to be aware of and address as appropriate.

### 1. Planned addition assumptions

- Over the 2006-2010 period, the analysis of energy supply options assumes a planned capacity addition schedule based on submitted resource plans. Over the 2011-2025 period, the analysis of energy supply options assumes a planned capacity addition schedule that includes 2 new coal plants that come online in 2013, Big Stone 2, pulverized coal at 630 MW and the Mesaba IGCC at 603MW. Within these underlying assumptions, the current analytical framework, as requested by the TWG, examines two scenarios, one with the RES and one without the RES.
- The scenarios need to be revised to reflect phasing in of plants, if that information is available. The projected phase-in schedule for the Mesaba IGCC plant is known will be sent for incorporation in the analysis.
- It is still undecided whether the new coal plants will, in fact, be built, so it was agreed to account for this in the analysis. The TWG requested to no longer use the current analytical framework (i.e., with and without the RES because they felt that the runs of the model with these two scenarios was sufficient) and instead to undertake an analysis of the following two reference scenarios:
  - *Reference Scenario #1:* Electric expansion in MN assuming a) recently passed legislation concerning the renewable energy standard (RES) and Conservation Improvement Program (CIP) and b) **without** the Big Stone 2 and Mesaba coal capacity additions.
  - *Reference Scenario #2:* Electric expansion in MN assuming a) recently passed legislation concerning the renewable energy standard (RES) and Conservation Improvement Program (CIP) and b) **with** the Big Stone 2 and Mesaba coal capacity additions.
- The point was made that in the scenario where the two new coal plants are built, it **cannot** be assumed that other old coal plants would be backed down. **This remains an open question that will need to be addressed by the TWG in future discussions.**
- The analysis should account for distribution commitments. For Big Stone 2, annual generation apportioned to MN customers is assumed to be 40% over the planning horizon. For Mesaba, annual generation apportioned to MN customers is assumed to be 100% over the planning horizon
- Xcel Energy will work with Bill D to verify that cleaner emissions resulting from Xcel's MERP initiative (Metro Area Emission Reduction Project, which refuels 3 coal power plants in the Metro area) are reflected in the Reference Scenarios.

## 2. Planned retirement assumptions

- Over the 2006-2025 period, the current analysis of energy supply options assumes no planned retirements. Plant retirements are outlined in utilities resource plans. Currently, there is no regulatory process to retire a power plant. Retirements may be a function of the new MN regulations. Future carbon regulations will likely lead to the need for retirement decisions.
- Existing coal plants have already been retrofitted with air pollution control equipment for local air quality consideration. Hence, it may not be appropriate to assume they will be backed down if and when the two new coal plants come on-line. Also MN utilities have voluntarily signed on to the Midwest Independent Transmission System Operator (MISO) organization, which requires economic dispatch mode, and thus there is some uncertainty about whether the MISO agreement will allow MN utilities to back down inexpensive power generation from older and higher carbon emitting plants. The new MN regulations mostly influence companies' need for new plants.
- Utilities will take CIP (Conservation Improvement Program) into account in new resource plans, and, as of yet, it is unclear how that will influence retirements. Agreements under MAPP require that spinning reserves remain accessible.
- A revised scenario is needed to look include a 1) new units without others being backed down and 2) with some units backing down. Scenarios can include data on ages of plants (to anticipate retirement date) from the Utility Data Book that is available online at [www.commerce.state.mn.us](http://www.commerce.state.mn.us).

## 3. Cost and performance assumptions

- The current default cost assumptions in the analysis (i.e., capital costs, fixed and variable O&M cost) as well as performance assumptions (i.e., heat rate, capacity factor) were taken from the Energy Information Administration (EIA) for the Annual Energy Outlook 2007 (AEO2007).
- For capital cost assumptions, the EIA costs represent "overnight" estimates that do not account for interest during construction, learning effects, company overhead, or regional labor multipliers. The TWG felt that the analysis should seek to account for these categories of capital costs.
- The TWG agreed that a compilation of cost and performance assumptions should reference the following additional sources (they will forward to Bill as soon as possible):
  - Black and Veatch study for the National Renewable Energy Laboratory (NREL)
  - EPA (has a suite of numbers that are a bit more current than those used by EIA)
  - National Energy Technology Laboratory (NETL)

## 4. Avoided costs

- Bill introduced the topic of avoided costs by indicating the TCI TWG wishes to have the input of the ES TWG on this topic.

- Avoided costs are considered proprietary and so they were estimated using a weighted average approach that assumed capacity expansion plans with (\$56.3/MWh) and without (\$52.6/MWh) the RES, as per the original analytical framework envisioned by the energy supply TWG.
- With the revision in the analytical framework proposed in the meeting by the TWG, avoided costs for new capacity will change.
- A TWG member mentioned that avoided costs based in a recent report are \$77/MWh. Another TWG member indicated this avoided cost figure needs to be reviewed.
- Discussion then focused on the appropriateness of considering the costs of carbon in the Reference Scenarios. The rationale was that it is likely that accounting for carbon emission will become a business-as-usual context. The cost of carbon could be built into two scenarios: 1) with \$0 cost and 2) with an assigned cost per ton. After some debate, it was agreed to leave the Reference Scenarios as they are, without trying to include the cost of carbon.
- Sensitivity analysis with some different cost estimates for carbon will run later so that TWG members can go back to the tables that estimate carbon emission by technology to see the affect. Given resource and time constraints, only a limited set of sensitivity analyses can be run.

#### **5. Electric sales forecast**

- Time ran out before this topic could be addressed..

#### **SCHEDULE**

- The next TWG meeting is on 28 November 2007 from 8 am to 12:00 pm. This is planned as an in-person meeting.
- It was pointed out that no TWG meetings after Dec 6<sup>th</sup> have been scheduled; more ES TWG meetings should be scheduled soon so rooms can be reserved.
- The next MCCAG meeting is December 5<sup>th</sup>, then for Jan 10 all day and Jan 24 all day

#### **PUBLIC COMMENTS:**

There were no public comments.

#### **ANNOUNCEMENTS**

There were no announcements.