Comments on EPA's Suggested Modifications to it IPM Modeling Analysis (dated 6/18/02)

Submitted by:
National Wildlife Federation
Clean Air Task Force
National Environmental Trust
Natural Resources Defense Council
Environmental Defense

To:
Utility MACT Working Group
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The industry representatives of the utility MACT working group have submitted a number of requests to EPA regarding its IPM modeling assumptions. In this memo, we are responding specifically to those areas that EPA has indicated they intend to modify. These changes were outlined in their 6/18/02 memo and discussed at the 6/27/02 meeting. While it is useful to make some changes to the model, we strongly encourage EPA to delay re-running any analysis until a determination has been made on the floor calculations.

In terms of timing, since there are a number of demonstrations currently underway to further understand the capture efficiencies of various control configurations, ACI, etc., we recommend that EPA delay making changes to the model that pertain to capture rates until it's ready to model the actual floor calculations. This allows EPA to incorporate any new information that might become available rather than relying solely on current data. Finally, we agree with the suggestion made by the Clean Energy Group in its June 27, 2002 memo that the most sensitive parameters in the model should be identified so that revisions to the model incorporate the most up-to-date information for the most important variables.

Update ACI cost and performance for cold-side ESP

We disagree with revising downward the performance for ESP/ACI combination from 80-60%. The Pleasant Prairie test found that an average 73% capture was possible at the highest tested carbon injection rate. It seems inappropriate to assign the lowest capture rate when it has been demonstrated that the combination of these technologies perform better.

We agree with EPA's suggestion to add a FF to the ESP/ACI configuration with a capture rate of 90% (and the associated costs). We also agree with EPA that spray cooling should remain in the model until compelling evidence is presented to indicate that spray cooling is not nor will be installed. Cost and performance revisions would be appropriate if the control configurations change.

Offer more removal rates for ACI
We agree with two of the removal rates that EPA proposes to use for ACI combinations:
90% C-HESP+FF+ACI
90% FF+ACI

As we explained above, we believe that the ESP+ACI combination should be at a minimum 70%, with the option of further modifying this assumption as additional test results become available from planned demonstrations at additional plants.

Update base co-control (separate lignite from subbituminous and use latest ICR evaluations)
While it makes sense to separate co-control assumptions for bituminous and other coals, we don't think it's appropriate to further distinguish between subbituminous and lignite. The biggest difference in capture efficiencies has to do with the amount of oxidized mercury present in the flue gas. Bituminous coals produce a significantly greater percentage of oxidized mercury over elemental; that difference is not as great between subbituminous and lignite. In addition, it doesn't appear from scheduled emission tests that any tests are planned for lignite plants. Consequently, in the absence of additional data for lignite plants, the same percentage reductions should be used for subbituminous and lignite plants.

Regarding the percent removals for subbituminous and lignite coal, we suggest the following:

- SCR+CS-ESP+FGD=70% (see above discussion re: the Pleasant Prairie results)
- SCR+HS-ESP+FGD=40% (30%, HS-ESP+FGD, according to the ICR, with an additional 10% for the effect of the SCR according to EPRI's 6/3/02 presentation to the Utility MACT Working Group
- SCR+FF+FGD=90% (According to the ICR, 72% capture was measured for subbituminous using a FF; 29% using ESP+FGD. The additional use of SCR would likely bolster the combined capture rates for this configuration.)

We agree that for bituminous coal, the percent reduction attributable to an SCR/FGD configuration should remain at 95%.

We also suggest that EPA perform a literature search and compile the latest research on SCR catalysts, including emerging SCR catalysts. Information on their effect on mercury oxidation, and whether alternative catalysts are likely to be commercially available would be helpful. (For example, in laboratory tests a palladium-based catalyst oxidized >90% PRB coal continuously over 6 months. See: Effect of NOx Control Processes on Hg Speciation in Utility Flue Gas. C. Richardson, T. Macholek, S. Miller, URS. C. Dere, R. Chang, EPRI. AWMA Mega-Symposium, August 2001.)

Remove SNCR as an option for plants >100 MW.
We are requesting EPA to provide further justification for the assumption that SNCR will only be installed on boilers <100 MW. The size of the current population of boilers with SNCR ranges from about 3 to >300 MW. Nearly half of the current installations are on boilers >100

MW. (Thirteen SNCR are installed on boilers <50 MW; 7 on boilers >50 MW and <100 MW and 15 on boilers >100 MW. In addition, according to previous IPM runs EPA is projecting the following for SNCR installations through 2020:

2005 -- 5,400 MW
2010 -- 9,060 MW
2015 -- 15,100 MW
2020 -- 19,600 MW

The number of units with SNCR are 42 in 2010 on units ranging in size from 60 to 735 MW. In 2020, the numbers are 75 units ranging in size from 59 to 660 MW. Does EPA intend to revise these numbers to reflect no SNCR on units >100 MW, and if so, will SNCR be replaced with SCR?

In answering this question, EPA should evaluate which projects are in the pipeline to meet the SIP Call: What are the proposed, or already-initiated installations? Is EPA's assumption based on an observable trend?

Drop SNCR effects on mercury

It is premature to assume that SNCRs have no effect on mercury capture rates. While EPRI has presented data on this topic, their report has not yet been made available to the full Working Group to allow others to review their findings. In addition, we recommend that EPA do a literature search on this topic and report back to the Working Group on its conclusions.