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**From:** Steven Yates [mailto:syates@crra.org]  
**Sent:** Thursday, March 13, 2008 12:24 PM  
**To:** Jacobs, Wendy  
**Cc:** chambhl@nu.com  
**Subject:** HEDD Questions

Hi Wendy!

CRRA wishes to participate in the HEDD workgroup. I was unable to attend the February 27 kick-off meeting, but I do plan on attending the next meetings. I have reviewed the PowerPoint presentation that was given on February 27 and provided my answers to the questions. I look forward to discussing my ideas as well as those of other workgroup members.

- ★ Given multiple pollutants and energy market changes, are there critical timing issues we should be aware of in establishing shorter term and longer term objectives?

The picture that is presented by the two HEDD PowerPoint presentations is very dynamic. A number of programs are already in place. Overlaying the multiple programs, it is difficult to get a sense of the effect these programs will have on HEDD air quality, but it certainly seems like the HEDD emissions will decrease significantly, should these already extant programs accomplish their goals.

The Regional Greenhouse Gas Initiative has as its goals a reduction in global warming pollution from all sources of 10% below 1990 levels by 2020. Connecticut's Energy Vision has set as its goals a 20% reduction in electric-peak consumption by 2020 and a target that 20% of all energy used and sold in Connecticut will come from clean or renewable resources by 2020. The Connecticut Energy Advisory Board Energy Plan is promoting end-use energy efficiency and combined heat and power. The DPUC's "smart metering" has the potential to create significant electricity demand reductions very quickly. And while the Clean Air Interstate Rule and the anticipated emissions reductions from Midwest power plants cannot by themselves eliminate the HEDD air quality problem, they do offer significant contributions in that regard.

The DEP should model the cumulative effect of the programs listed above, along with any others that require mandatory efficiency increases or emission decreases. Not to be forgotten in the decision-making process is the anticipated net loss of generating capacity as old boilers are retired and replaced with either new capacity or more operation of existing load-following generation capacity as base load. The impact of this must be included in the model as well. The results from such modeling should indicate the degree to which HEDD will continue to be an issue in the shorter and longer term.

- ★ Should there be one reduction target developed or should there be decreasing reduction targets over time?

In general terms, the phased approach allows the regulated entity the most flexibility to meet any target in a manner that causes less disruption than a single hard target.

- ★ What types of emission units should the program apply to?

Based on the information regarding the 2007 HEDD episodes, the Load-Following Boilers clearly emit a much larger portion of the NO<sub>x</sub> emissions than the Aero-derivative combustion turbines. It seems logical to focus on these units first. Since the aero-derivative turbines are smaller sources, for which installation of emission control would represent a greater percentage investment, the phased approach may provide them with a means to come into compliance in a way that does not destroy their economic viability. A similar analysis of HEDD episodes in 2012, for instance, would provide guidance for further action, as needed.

- ★ For assuring the HEDD emission reductions occur and are maintained, what limits should be applied?

One approach would be to limit hourly or daily NO<sub>x</sub> emissions on HEDDs by a percentage of a baseline quantity from 2005, for instance. But some baseline must be set for comparison and benchmarking. Accounting for the emission reductions of CAIR and other existing programs, and prevention of back-sliding will be as important as assuring that measures taken specifically for HEDD are maintained.

- ★ Which pollutants should be addressed?

Nitrogen oxides, as ozone precursors, are the best compounds to address in order to protect human health and the environment on HEDDs. This is an ozone attainment issue. And since VOCs are not emitted in significant quantities by electrical generating units, CRRA recommend regulation of NO<sub>x</sub> only for HEDD.

- ★ What is the most cost-effective approach?

DEP has run several successful programs involving emission reduction credits that have reduced nitrogen oxides substantially. The municipal waste combustor (MWC) NO<sub>x</sub> Trading Program is a terrific example. Within a few years of its inception, every MWC emitting over the regulatory limit had installed NO<sub>x</sub> control. Early adopters benefitted by selling credits to the facilities that needed time to plan and make capital investments in pollution control equipment. This same approach can work with lower NO<sub>x</sub> limits on Load-Following Boilers and perhaps even with aero-derivatives. Granted a HEDD is a short period, but over-control by one facility in the airshed could be purchased as a credit by another facility until that facility installs NO<sub>x</sub> controls.

Best regards,

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