EPA GHG Permitting Guidance

CIBO Environment Committee

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GHG Permitting Guidance Overview

- EPA is careful to include all the caveats about this being guidance, not a rulemaking
- GHGs to be treated same way as criteria pollutants using 5-step top-down BACT approach
- Real decision-making in hands of the states (with notable exceptions)
- Guidance lacks clarity on how states should address energy efficiency projects
- General industry view is that state inexperience with GHG permitting will lead to delays in permit issuance, especially in early months of program

Two-step Applicability Process

- Step One: does project result in significant emissions increase? No emission decreases may be considered
- Step 2: include “creditable” emission decreases/increases from modification itself plus decreases/increases from source over “contemporaneous period” (5 years before modification)
- Baseline: any consecutive 24-month period in the prior 10 years (5 for EGUs)
- If using actuals to future actuals accounting, energy efficiency projects shouldn’t trigger PSD if output remains the same

Applicability Determinations for Modifications

- Step 1 (1/2/11 to 6/30/11)—PSD triggered if
  - Source trips PSD for criteria pollutants, and
  - Emissions increase and net emission increase >= 75Ktons on CO2e basis and >0 tons on mass basis
- Step 2 (7/1/11 on)—PSD triggered if
  - Step 1 criteria are met, or both
  - Source's PTE =>100K tons on CO2e basis and =>100/250 tons on mass basis, and
  - Emission increase and net emission increase =>75K tons on CO2e basis and >0 on mass basis

Treatment of Biomass Emissions

- EPA does not allow exclusion of CO2 emissions from biomass combustion under PSD, though it may address this issue in future guidance (May 2011?)
- Instead, EPA says that states may take federal and state policies into consideration when evaluating environmental, energy, and economic benefits of biomass fuels (Step 4 of top-down BACT analysis); permit authorities “might” determine “certain types of biomass” are by themselves BACT for GHGs
- Guidance providing a framework for decision-making in January 2011

Contemporaneous Netting

- Contemporaneous netting considered in Step 2 of the applicability analysis—consider all creditable increases and decreases during contemporaneous “look-back” period
- Guidance silent on how you do this for energy efficiency projects—are the emission increases quantifiable, enforceable, and permanent?

Importance of Energy Efficiency

- "...important to emphasize that energy efficiency should be considered in BACT determinations for all regulated NSR pollutants (not just GHGs)"
- "Particularly useful" is performance benchmarking—no caveats
- Also pushes "Energy Performance Indicators"
- Much of this push references the sector White Papers

Scope of BACT Analyses

- For new, “greenfield” facilities, rules provide discretion to evaluate BACT on facility-wide basis
- For existing sources, BACT applies only to the units being modified or added—but
- EPA “requires” permit authorities to look beyond the unit being modified (“across the whole source”) to consider upstream/downstream increases/decreases from units not physically or operationally changed—debottlenecking concept

Indirect Emission Impacts

- States should not include (in Step 1 of BACT analysis) indirect emission decreases that might result from reduced electricity purchases—only consider on-site emission decreases
- However, states may consider in Step 4 how strategies may affect “secondary GHG emissions from offsite locations”
- No guidance is provided on how to do that; could be an important issue for CHP installations

Step 1—Identify All Available Technologies

- Could include inherently lower-emitting processes/practices/designs, clean fuels, add-on controls, energy efficiency projects, or some combination
  - Coal-fired units should include IGCC
  - Sources planning to install lower efficiency units should consider higher efficiency designs
- Could include technologies transferred from other sectors
- Could include technologies used in practice overseas
- CCS considered an “available” technology

EPA Statements on Redefining the Source

- Lots of conflicting statements:
  - "Step 1 list of options need not necessarily include inherently lower polluting processes that would fundamentally redefine the nature of the source"
  - Permit authorities should take a "hard look" at an applicant's proposed design to see which elements could be changed
  - "EPA does not interpret the CAA to prohibit fundamentally redefining the source"
  - "a permitting authority retains the discretion...to consider changes in the primary fuel in Step 1 of the analysis"
  - When a fuel is incorporated into project design as an auxiliary or start-up fuel, it is "available"

Step 2—Eliminate Technically Infeasible Options

- Need clear (and probably extensive) documentation
- Controls should not be eliminated “solely on the inability to obtain a commercial guarantee from a vendor”
- For CCS, if there are “significant and overwhelming” technical issues to overcome, detailed justification for eliminating it is not needed

Step 3: Ranking of Controls

- List in order of overall effectiveness
- While input-based metrics have been traditionally employed, “may be more appropriate” to rank controls using output-based metrics
- “thermal efficiency...can be a useful ranking metric”

Step 4: Economic, Energy, and Environmental Impacts

- Consider both direct and indirect impacts
- Cost-effectiveness to be considered on average and incremental basis
- Should consider collateral emission increases and decreases and associated tradeoffs
- “it is reasonable to anticipate that the cost effectiveness numbers (in $/ton of CO2e) for the control of GHGs will be significantly lower than those of the cost effectiveness values for controls of criteria pollutants”
- May consider how control options “impact the amount of energy that must be produced at an offsite location”

Step 5: Selecting BACT

- Permit authorities may select limits “that do not necessarily reflect the highest possible control efficiencies but that will allow compliance on a consistent basis”
- Can adjust or optimize limits over time
- Need lots of documentation
- States “encouraged” to consider output-based limits
- “Metrics should focus on longer-term averages (e.g., 30- or 365-day rolling averages)”
- Can consider a work practice like an EMS; permit could require an EMS along with requirement “that all suggested actions that result in net savings have to be implemented”

Title V Tidbits

- Sources with PTE 100k tons or more of CO2e and also have PTE of 100 TPY of GHGs on a mass basis need a Title V permit if they don't already have one
- GHG Mandatory Reporting Rule is not an applicable requirement
- EPA rules do not "currently" require sources to pay Title V fees on GHGs; however, states need sufficient fees to cover direct and indirect costs of their permit program