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BACT, In The Future

By

In her press conference announcing the release of the U.S. Environmental Protection Agency's long-awaited greenhouse gas permitting guidance, EPA Assistant Administrator Gina McCarthy repeatedly stated that this guidance is "nothing groundbreaking," and just applies the traditional best available control technology (BACT) process, and demonstrates that the "CAA can apply to GHG without breaking any barriers."

But the guidance and seven white papers issued along with it tell a different story. The white papers provide a first picture of what a GHG BACT analysis might entail. They include long lists of "available and emerging technologies" for reducing greenhouse gas emissions in seven industry sectors: electric generating units, large industrial/commercial/institutional boiler operations, pulp and paper manufacturing, cement plants, iron and steel facilities, petroleum refineries and nitric acid plants.

The good news is that the EPA identifies energy efficiency measures as the primary candidates for GHG BACT. Using less energy not only reduces the generation of GHG, it also saves energy resources and reduces the generation of other pollutants, such as ozone precursors, associated with energy production. Over time, using less energy will also save money.

The bad news is that maximizing energy efficiency throughout an industrial facility is an entirely new and intrusive approach to BACT, and one that has the potential to greatly complicate the review and issuance of permits, and increase the cost of new projects and plant modifications.

The real devil is in the scope for the efficiency analysis and the detailed specification of particular energy efficiency measures. The guidance anticipates a plantwide efficiency

analysis for new plants, and a full process line analysis and secondary impacts review for plant modifications. The white papers, in turn, list specific technologies and process changes the EPA believes are available for each emission unit or process within a plant.

As an example of the level of specification potentially involved, the EPA identifies energy efficiency measures for each individual component of steam generating boilers at petroleum refineries, including preparing boiler feed water with a reverse osmosis membrane treatment system, and installing steam recovery systems to recover blow-down steam for use in space heating and feed water preheating.

The EPA posits that these particular items have two- to five-year and one- to three-year payback periods respectively — thus it may be hard to argue that they aren't individually cost efficient. But if permit authorities undertake the wide-ranging and detailed energy efficiency analysis the EPA foresees, the aggregate capital investment required for the energy saving steps available for each component identified in these white papers could be huge.

A fundamental question for permit authorities is likely to be "How much energy efficiency is enough?" Under a traditional BACT-style analysis, there is no emission reduction target, and McCarthy reiterated that the EPA has no such target efficiency in mind for GHG. Rather, energy efficiency will continue to evolve and a technology or process change identified at one plant will quickly be required as BACT at all plants. This approach to GHG BACT presents the prospect of both a broad and spiraling scope of review.

While McCarthy told reporters that the EPA does not intend permitting authorities to consider GHG reduction alternatives that "redesign" a facility (a long-standing limit on BACT analysis), the guidance itself states that permitting authorities should take a hard look at the design of a project to determine what is fundamental to its purpose and what is not. This could lead to the type of meddling in business decisions that industry has long protested in the BACT determination process.

In her press conference, McCarthy cautioned that the sector white papers do not establish BACT — but in the absence of other guidance, state permitting authorities are likely to use these white papers, as they use techniques identified in the RACT, BACT, LAER Clearinghouse Database, as the benchmark for GHG BACT. Moreover, environmental

activists are likely to insist that these and many other specific energy reduction techniques be incorporated in permit requirements. But energy optimization is often very plant specific. The risk is that permit authorities will dictate a cookie cutter "one size fits all" approach to energy efficiency and lose the opportunity to incentivize innovation at individual facilities.

The critical questions are how broadly and how rigidly permitting authorities will apply this new guidance, and ultimately, how much energy efficiency will be required and at what cost.

Other Points in the Guidance of Particular Interest

Biomass

The EPA guidance sent a positive signal to the biomass and biofuels sectors, suggesting that biomass can be considered BACT, subject to the permitting authority's "accounting of benefits." This careful phrasing suggests the EPA expects permitting authorities to perform some level of life cycle carbon accounting for biomass, rather than broadly treat it as carbon neutral. McCarthy added that the EPA plans to issue additional guidance on biomass accounting in January 2011.

Carbon Capture and Sequestration (CCS)

The guidance indicates that CCS should be considered in Step 1 of the BACT analysis for big emitting facilities, such as power plants, cement plants, and iron and steel facilities, but the EPA makes the important statement that CCS should be rejected in the later steps of the BACT analysis because CCS is not yet a demonstrated and commercialized technology. McCarthy made it clear however, that the EPA expects CCS commercialization to evolve into an available GHG mitigation strategy, and permitting authorities have the option to consider it.

Carbon Offsets

The guidance makes no mention of the possibility of a plant utilizing carbon offsets to achieve BACT emission levels. However, the possibility remains that the EPA will address the use of carbon offsets to achieve GHG performance standards which are expected to be established in future rulemaking. The EPA has not yet established a schedule for proposing

GHG performance standards.

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