

REPORT OF ISSUE GROUP 1 SCOPE OF GHG BACT ANALYSIS – DEFINING THE “SOURCE”

Individual Issues/Questions Evaluated by the Issue Group

In defining the scope of the GHG BACT analysis, Issue Group 1 examined the following questions:

- (1) *What is the “source” or affected emissions unit to which the BACT analysis applies?* To what extent should BACT take into consideration changes to or emission reductions from production processes or available methods, systems, and techniques that are outside of or separate from the “emissions unit” that an applicant proposed to build or modify?
- (2) *At what point do potentially available control options “redefine a source”?* To what extent is the BACT analysis limited by the applicant’s proposed project design? To what extent is it appropriate to require permit applicants and permit agencies to evaluate different project designs that emit less GHG, including alternative fuels or energy sources, and energy efficiency improvements?

There are consensus and non-consensus positions expressed below. Statements within a non-consensus section represent only the views of those subscribing to that position, regardless of whether there is a phrase qualifying such statement as the views of such members (*i.e.*, whether or not the statement says “these members felt” or “these members believe”).

Question 1: What is the “source” or affected emissions unit to which BACT applies?

Current EPA Policy and Guidance

BACT provisions in the CAA and EPA regulations often use the term “facility” or “source,” but regulations use “emissions unit” in some contexts. 40 CFR 52.21(b) includes definitions for “stationary source” and “emissions unit.” EPA’s regulations define “emissions unit” to mean “any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric utility steam generating unit ...” 40 CFR 52.21(b)(7). EPA’s Draft NSR Workshop Manual (1990) states: “The BACT requirement applies to each individual new or modified affected emission unit and pollutant emitting activity at which a net emissions increase would occur” (NSR Workshop Manual at B.4).¹ This is consistent with long-standing EPA precedent, which does not require that a BACT analysis be performed for units that are not undergoing a physical change or change in method of operation. This is also

¹ The issue group agreed that the issue of netting for the purpose of applicability of major new source review should not be considered in the BACT analysis and therefore this workgroup. However, the issue group urges EPA to address netting of GHG emissions.

consistent with the regulations, which define the increase from a modification with respect to the emissions unit being changed. The 1990 Draft NSR Manual states that “‘emissions unit’ should be read to mean emissions unit, process or activity” (*Id.* at B.5).

For new facilities EPA has long contended that if a facility emits a pollutant above the applicable threshold then all sources (or emission units) for that pollutant must undergo a BACT analysis. For major modifications to existing facilities, current interpretations would restrict the BACT requirement to only the emissions units that are being physically or operationally changed and that will experience an emissions increase. Traditionally, a BACT analysis has not been required for emissions units that are not being modified. This is memorialized in the 1990 Draft NSR Manual (p. B.4) and in a number of applicability decisions issued over the past 30 years (*See, e.g., Memorandum from Edward Reich, Director Stationary Source Compliance Division Office of Air Quality Planning and Standards, to Michael M. Johnston, Chief Air Operations Section - Region X, regarding PSD Applicability Pulp and Paper Mill* (July 28, 1983)).

Section 165(a)(4) of the Clean Air Act states that BACT is applied to the “proposed facility.” The statutory and regulatory definitions of BACT provide that it is an emission limitation determined to be achievable for the facility “through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control.” 40

CFR 52.21(b)(12) uses similar language to define BACT. 40 CFR 52.21(j)(3) states: “A major modification shall apply best available control technology for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.”

EPA has supported “logical grouping” of new and modified emission units for BACT purposes (*See General Motors, Inc.*, 10 EAD 360, 383 (EAB 2002)). EPA’s Draft NSR Manual (1990) presupposes grouping emission units in some cases, as follows: “Each new or modified emission unit (or logical grouping of new or modified emission units) subject to PSD is required to undergo BACT review” (B.10). Such grouping should be done on a reasonable case-by-case basis. Therefore, EPA has allowed for new and modified emission units to be grouped and for a BACT analysis to be performed for the group of new or modified units when proposed by the applicant. However, EPA has not historically applied this flexibility to include grouping of new or modified emissions units with existing emissions units that are not undergoing modification, so that controls could be applied to existing, unmodified emissions units.

Areas Where Issue Group 1 Reached Consensus on Question 1

- **EPA should continue to require the application of BACT to new emissions units and to existing emissions units that are undergoing a physical change or change in method of operation.** For existing facilities triggering major NSR, EPA should apply BACT to those emissions units that are being physically or

operationally changed. For new facilities triggering major NSR, EPA should continue to apply BACT to all new emissions units at the site that emit the pollutant subject to PSD review, in accordance with longstanding EPA interpretation.

Areas Where Issue Group 1 Did Not Reach Consensus on Question 1

The Issue Group was unable to reach consensus on whether the BACT analysis may or should consider parts of the production process beyond the units undergoing a physical change or change in the method of operation. There were two schools of thought.

- **Alternative Position A: BACT for GHGs should consider efficiency gains achievable in other portions of the production process related to the new or modified emissions unit (whether they are emitting or non-emitting).** The broad language of the BACT definition requiring consideration of “production processes and available methods, systems, and techniques . . . for control of [each] pollutant” necessarily encompasses control methods that can be used in any part of the process leading to the emissions, whether or not that part of the process itself emits the pollutant. EPA’s historical definition of “emissions unit” to mean “unit, process or activity,” Draft NSR Manual at B.5, reinforces the statute’s definition. Once the BACT requirement applies to an emissions unit, adjustments to any production processes of which that unit is part that could reduce its emissions must be considered as control technologies. Thus, efficiency improvements in a production process that could reduce emissions must be considered. These members also believe the use of the terms “source” and “facility” in the Act are broader than the term “emission unit” and could encompass the entire facility where appropriate or the entire project within a source.

In addition, in the GHG context, it would be fruitful to consider efficiencies across multiple production processes, although past EPA practice has been to give separate “consideration to each individual emissions unit or pollutant emitting activity” (*See Masonite Corporation*, 5 EAD 551, 557-8 (EAB 1994)). Given the central role of efficiency and renewable generation in reducing GHG emissions, the source subject to BACT analysis should be defined broadly to facilitate an analysis of control technologies that includes efficiency and renewable opportunities within the applicant’s control. GHG emissions are different from other pollutants, particularly with respect to energy systems, because the control options tend not to be end-of-pipe controls. Thus, the BACT analysis should consider a broad set of approaches, such as alternative energy sources, fuel switching, and energy efficiency including combined heat and power (CHP) and demand-side management. A broad BACT review is more likely to encourage innovation and efficiency because it will analyze a broad set of opportunities with multiple co-benefits. Because end-of-pipe controls generally incur costs while efficiency generally saves money, a broader BACT review is more likely to be cost-effective. For instance, for a proposed electric generating unit (new or

modified) the BACT analysis would cover opportunities within the applicant's control to reduce demand for the electricity or steam, such as application of CHP, energy efficiency or demand-side management programs. The analysis could result in a conclusion that a smaller unit could serve the power or heat needs, with lower overall GHG emissions. EPA has suggested a similar approach in defining the source for the purpose of determining the potential to emit GHGs by proposing to define furnaces to include thermostats that constrain them from operating in warm weather (*See* Tailoring Rule, 74 Fed. Reg. 55321).

- **Alternative Position B: BACT for GHGs should not be expanded from the traditional scope to consider units that are not undergoing a physical change or change in method of operation.** A traditional approach to BACT for GHG emissions should be taken, meaning that the same approaches that have historically been used to establish BACT for criteria pollutants should continue to be applied in the context of GHGs and special GHG rules should not be developed. Defining the source upon which BACT should be determined to include more than the emissions unit(s) being physically or operationally changed would be inconsistent with the statutory language applying BACT to the "proposed facility" as well as current EPA PSD regulations (*See, e.g.*, 40 CFR 52.21(j)(3)) and would often subject the applicant to evaluating control options beyond the applicant's control. Moreover, it is inconsistent with the regulatory definition of emissions unit in 40 CFR 52.21(b)(7), which speaks to the *emitting* portions of a process, and other elements of the regulations that indicate EPA interprets the statutory language as limiting BACT to the units being physically or operationally changed, (*See e.g.*, definition of "begin actual construction," 40 CFR 52.21(b)(11)). Such a departure from current practice and interpretation would require, at a minimum, a new rulemaking. Thus, the reference in the NSR Workshop Manual that the emissions unit should be "read to mean unit, process or activity" does not expand the regulatory definition of emissions unit but rather is referring to processes or activities that themselves generate emissions and are part of the unit being physically or operationally changed. Additionally, several EPA guidance documents limit application of BACT to units that are being modified, *see, e.g.*, July 1983 Reich Memorandum referenced above, reflecting past EPA practice of giving separate "consideration to each individual emissions unit or pollutant emitting activity." *See Masonite Corporation*, 5 EAD 551, 557-8 (EAB 1994).

From a practical perspective, requiring consideration of actions outside the emission unit undergoing a physical change or change in method of operation is likely to be unworkable. For example, an independent power producer cannot impose demand side management or energy efficiency programs on its customer. And extending BACT to include techniques or standards that are beyond the unit being constructed or modified but nevertheless happen to be within the applicant's control would create an unlevel playing field among the regulated community. Also, expanding the scope of BACT (*e.g.*, to include facility-wide energy efficiency audits) would significantly increase the administrative burden

of the program far beyond the estimates that EPA has provided in its proposed PSD Tailoring Rule. Expanding the review beyond the emissions unit would inject uncertainty into the necessary scope of permit applications and create the potential for an open ended analysis – such that the facility can never be certain it has “analyzed enough.” This in turn creates concerns regarding when an applicant can be considered to have submitted a complete application and how many times a project can be delayed by claims that additional upstream or downstream analyses are required. It would require permit review staff to make judgments that they may not have the expertise to make. Moreover, “controls” applied outside the unit undergoing physical change or change in method of operation cannot be translated into an emission limitation on that unit. The regulations require BACT to be expressed as an emission limitation on the emissions unit but a BACT analysis on an upstream process for its efficiency does not translate into an emissions limitation for the emissions unit being installed or changed (*e.g.*, a boiler to provide process steam).

Question 2: At what point do potentially available control options “redefine a source”?

Current EPA Policy and Guidance

EPA has stated that permitting authorities have the discretion to exclude control technologies from the BACT analysis if they would “redefine” the source. *See, e.g.*, NSR Workshop Manual at B.13.

The first step in a BACT analysis is to consider what is “available” for purposes of creating a comprehensive list of control options. The 1990 Draft NSR Manual states that: “Available control options are those air pollution control technologies or techniques with a practical potential for application to the emissions unit and regulated pollutant under evaluation.” EPA has not generally required applicants to change the “fundamental scope” of the project in considering what is “available.” *See Old Dominion* 3 E.A.D. 779 (1992). EAB states: “The permit applicant initially ‘defines the proposed facility’s end, object, aim, or purpose - that is the facility’s basic design.’ The inquiry, however, does not end there. The permit issuer ... should take a ‘hard look’ at the applicant’s determination in order to discern which design elements are inherent for the applicant’s purpose and which design elements ‘may be changed to achieve pollutant emissions reductions without disrupting the applicant’s basic business purpose for the proposed facility,’ while keeping in mind that BACT, in most cases, should not be applied to regulate the applicant’s purpose or objective for the proposed facility.” *See Desert Rock*, 2009 EPA App. LEXIS 28 (2009), p. 31, *citing Prairie State* and *NMU*.

In the BACT analysis, the control technologies to be considered must include production processes and alternative fuels that could reduce emissions if they are available and technologically feasible. *See* CAA § 169(3); 40 CFR 52.21(b)(12); *In re Hibbing Taconite*, 2 E.A.D. 838 (Adm’r 1989). The EAB has stated that fuel switching must be considered as a control technology if it is available and technologically feasible. It has

sanctioned natural gas as a BACT technology for sources that have the capacity to burn natural gas. See *In re Northern Michigan University* (February 28, 2009 slip op. at 20, n.17); *In re Hibbing Taconite*, 2 E.A.D. 838 (Adm'r 1989); see also *In re Cash Creek Generation*, Order Responding to Title V Petitions (Adm'r 2009). The EAB has not required fuel switching that would "fundamentally change the power block at the proposed source," but the Seventh Circuit has noted that the statute's "clean fuels" requirement may necessitate "[s]ome adjustment in the design of a plant" See *Sierra Club v. EPA*, 499 F.3d 653, 656 (7th Cir. 2007). EPA has stated that lower polluting processes should be considered based on demonstrations made on the basis of manufacturing identical or similar products from identical or similar raw materials or fuels. See 1990 Draft NSR Manual at B.10; *In re Hibbing Taconite*, 2 E.A.D. 838.

EPA has not applied the "redefining the source" rationale to exclude add-on controls. See *In re Prairie State Generating Company*, PSD Appeal No. 05-05 (EAB Aug. 24, 2006). Permitting authorities may also consider how the function of a unit as a baseload or peaking unit affects the design and available controls. See *Prairie State*. For a proposed mine-mouth power plant, the specific coal reserve may be an aspect of the purpose or basic design. See *Prairie State*. However, changes in the "design elements" of a proposed project may be necessary to comply with the statutory requirement to consider clean fuels or alternative production processes as a control option, provided this is consistent with the project's basic purpose or basic design. See *Prairie State* and *Desert Rock*.

Areas Where Issue Group 1 Reached Consensus on Question 2

- **Court and EAB decisions have used terms such as the applicant's "fundamental business purpose" and a project's "basic design" to help determine the scope of a BACT analysis. While the Issue Group agreed that these are key terms, there is not consensus about what these terms mean. The differing viewpoints are discussed below in the non-consensus portion. The Issue group agreed that EPA should address the meaning of these terms.**

Areas Where Issue Group 1 Did Not Reach Consensus on Question 2

During the deliberations of the subgroup it was apparent that there is not a clear methodology for determining what control technologies would change the fundamental business purpose or basic design of a project. The subgroup had a range of views on what is appropriate.

- **Alternative Position A: The BACT analysis should not redefine the project as proposed by the applicant because to do so would alter the fundamental business purpose and basic design of the proposed project.** The statute states that BACT is applied to the "proposed facility." Defining BACT according to a facility's broadest defined economic purpose (e.g., according solely to the "product") does not comport with the BACT process, particularly when Congress only referred to project alternatives in the public hearing process (see CAA §

165(a)(2)). The “proposed facility” is the type of project proposed by the applicant, and it is unlawful and inappropriate for BACT to include controls that would redefine or change the fundamental type of project proposed by the applicant. For example, an applicant proposing a combustion turbine to produce a peaking power “product” should not have to evaluate a combined cycle natural gas unit as an alternative. In addition to the legal concerns noted above, permit issuers generally do not have the training or expertise necessary to evaluate an applicant’s business decision to proceed with a particular type of facility. Moreover, in many instances, the applicant’s project is responding to a request by a third party or market opportunity, and neither the applicant nor the permit issuer is in a position to evaluate whether or why the specific product is necessary to satisfy the third-party’s need or market opportunity. For example, a public utility commission may determine that a utility it regulates requires peak power to enhance grid reliability. The regulated utility will enter into a power purchase agreement with an independent power producer (IPP) under which the IPP agrees to provide peak power to the utility. While the IPP is in a position to explain why a technique for controlling emissions from a combustion turbine may or may not be appropriate, the IPP is not in a position to demonstrate that the utility needs peak power more than baseload power.

Including onerous needs analyses is unlawful, inappropriate, and would have a chilling effect on development and businesses that would normally implement quality and efficiency improvements to their production processes. These efficiency improvements would be deterred by the time-consuming and onerous BACT review on a broad range of alternatives. For example, consider a manufacturer evaluating replacement of an old boiler. If it were faced with potential applicability of BACT just to replace an old boiler, the manufacturer would likely not undertake the project and continue operating that less efficient old boiler. The concern is that from a larger perspective EPA policies should encourage efficiency improvements but expanding the reach of BACT is likely to discourage investment in more efficient technologies, which would be counterproductive. Such an analysis would likely involve the disclosure of confidential business information, to the detriment of the applicant’s competitive position in the market. For example, consider if an analysis is required of how an unchanged process can be “more efficient.” Such an analysis could require disclosure of how the manufacturer manufactures its products currently, which is often proprietary information. If made part of a BACT “emissions” analysis, claims could be made that the information is not protected under confidential business information provisions of the regulations.

- **Alternative Position B: The BACT definition requires review of alternative production processes and available methods, systems and techniques, including clean fuels, to lower GHG emissions. Thus, these control technologies must be considered unless they are unavailable or would materially change the product or service provided by the proposed source.** The statute requires a broad review of production processes and available

methods, systems, techniques, including clean fuels, that would enable the applicant to meet its fundamental business process in the manner that produces the lowest GHG emissions achievable. The Seventh Circuit has held that EPA has discretion to determine “where control technology ends and a redesign of the ‘proposed facility’ begins.” (*See Sierra Club v. EPA*, 499 F.3d at 655). EPA should not invoke the “redefining the source” justification to preclude consideration of the full range of control measures listed in the statute, including production processes, techniques, and fuels that enable significant GHG emission reduction.

Clean fuels and efficiency are critical mechanisms for reducing GHG emissions. Regarding clean fuels, the decisions of the EAB and Administrator cited above require consideration of fuel switching for any plant that has an available supply and the technological capacity to use it. Clean fuels should be considered technologically feasible even if it requires some redesign of the plant. *See* 499 F.3d at 656. If it is possible to use a cleaner fuel such as natural gas, that option should be considered in Step 1 of the BACT analysis. The cost associated with any redesign and the availability of the clean fuel at the plant site should be considered in subsequent steps of the BACT analysis. Cost should not eliminate consideration of control technologies at Step 1 of the process.

Step 1 of the BACT analysis should also consider production methods and techniques that can be used to meet the fundamental business purpose. A broad evaluation of production processes, systems and techniques that would improve efficiency and reduce GHG emissions is, in these members’ view, mandated by the statutory text and could also result in significant cost savings. In their view, the terms “fundamental business purpose” and “basic design” should be viewed in this light: the “fundamental business purpose” identifies the product or service to be provided while the “basic design” reflects design choices essential to provide that product or service. Existing laws and regulations can provide appropriate protection of confidential business information such that an applicant’s competitive position would not be adversely affected.

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