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National Climate Coalition

White Paper for EPA Climate Change Workgroup

Applying the PSD Program to Greenhouse Gas Sources

This white paper has been prepared as a draft document to support discussion among members of the EPA Climate Change Workgroup. Accordingly, it should not be referenced, quoted or otherwise used to attribute any particular legal or policy position to any individual member of the National Climate Coalition or to any other entity.

I. Introduction – The Role of the PSD Program in a Broader Regulatory Context

Stabilizing concentrations of greenhouse gases in the atmosphere will require nothing less than the transformation of our energy economy. This is best done through comprehensive national legislation, which can consider energy security, reliability, affordability and other important objectives in an integrated national strategy. National legislation offers the best means of stimulating the development of advanced, low-carbon fuels and energy technologies, building a smart grid, improving the energy efficiency of our buildings and otherwise implementing the large-scale strategies that are our best hope of success.

If Congress fails to act promptly, then EPA should promulgate national standards under CAA section 111(d) for large stationary greenhouse gas emission source categories.¹ These could take the form of a national cap and trade program within which states could participate. Alternatively, they could take the form of national carbon intensity-based performance standards, as appropriate for specific fuels and technologies, that would serve as category benchmarks for averaging and trading. An EPA-promulgated program would be revised or replaced, as appropriate, by Congressional action.

Because such a national legislative or regulatory program is the best approach for addressing large stationary sources of greenhouse gas emissions, any near-term new source review program for greenhouse gases should be designed primarily *as an interim transition* to the more comprehensive national GHG program, which would likely include appropriate revisions to the new source review program.² Otherwise, there is serious risk that the regulatory burdens and

¹ Please refer to the National Climate Coalition Comments on EPA’s Advance Notice of Proposed Rulemaking for a more detailed discussion of the use of section 111(d) authority as the best among EPA’s options to address its legal obligations for regulating greenhouse gases under the Act.

² As noted more fully below, capturing energy efficiency opportunities may warrant revisions to the existing criteria pollutant NSR program, while a national existing source GHG program could render unnecessary any special NSR program for greenhouse gases.

costs associated with any new source program could chill desired investments in energy-efficiency upgrades or in critical low-carbon energy projects.³ Therefore, the new source program should **sunset** upon the commencement of a more comprehensive program that would cover all large new and existing greenhouse gas emission sources whether by Congressional action or by EPA action under section 111.

II. The Consideration of Non-Criteria Regulated Pollutants in a PSD Program

The Clean Air Act's PSD program was designed to ensure that emission increases of criteria pollutants from new and modified major sources would not interfere with the maintenance of air quality in areas that already attained the national ambient air quality standards. Accordingly, Section 161 of the Act directs states to incorporate in their state implementation plans (SIPs) preconstruction review programs to prevent significant deterioration of air quality. Section 110 of the Act, which contains over-arching requirements for SIPs, provides in relevant part that the SIPs must include a preconstruction permit program "as necessary to assure that national ambient air quality standards are achieved." CAA § 110(a)(2)(C). Thus, greenhouse gas emissions may be taken into account in PSD, if at all, only in the context of a project that triggers PSD based on its emissions of criteria pollutants. Even if EPA is uncertain as to the best interpretation of the Act's PSD applicability provisions, it should adopt this approach to applicability as a tailoring strategy as discussed in the Proposed Tailoring Rule.⁴ Thus, *for purposes of this White Paper, we assume that PSD will not be triggered for a project based only on its emissions of greenhouse gases.*

When PSD has been triggered for an emission increase of a criteria pollutant, we assume further that the PSD program would apply best available control technology (BACT) review to increases of non-criteria pollutants that are "subject to regulation" under other provisions of the Act along with the criteria pollutant. See CAA §§ 165(a)(4), 169(3).⁵

³ The risk that a burdensome NSR program could chill such desired new development is not warranted by the insignificant benefits such a program could provide. There is no credible evidence that the NSR program would significantly reduce the carbon intensity of most of our national energy or fuel supply or materially reduce energy or product demand. Such a program further would divert limited resources from potentially more productive opportunities offered by a comprehensive energy efficiency program.

⁴ See 74 Fed. Reg. at 55327 (discussing option of limiting PSD for greenhouse gas emissions to projects that otherwise would be subject to PSD for traditional pollutants).

⁵ Such an approach is to some extent inconsistent with the Act's placement of PSD as a criteria pollutant strategy under section 110 because the Act otherwise neither contemplates nor authorizes the regulation of non-criteria pollutants through a SIP mechanism. This White Paper attempts to reconcile this tension by distinguishing between the PSD applicability stage (where applicability based only on non-criteria pollutants would appear inconsistent with the Act's designation of PSD as a criteria pollutant maintenance strategy) and the BACT-setting stage (where a permitting authority can integrate its consideration of criteria and regulated non-criteria pollutants without distorting the otherwise criteria-pollutant emphasis of the PSD program).

Given the SIP- and the NAAQS maintenance-oriented context of the PSD program, any regulation of non-criteria pollutants as part of the BACT process should be understood as a secondary (though potentially environmentally beneficial) aspect of the PSD program. There are thus material differences in the way that the PSD program should apply to regulated non-criteria pollutants as compared to criteria pollutants. The consideration of regulated but non-criteria pollutant emissions should occur only at a subsequent stage of the PSD analysis – i.e., after EPA or the state permitting authority already has determined that a proposed new or modified source triggers PSD as a result of its emissions of criteria pollutants. Further, although the BACT *standard-setting* process is necessarily limited to the new or modified emissions units responsible for an increase of emissions of a regulated pollutant, permitting authorities likely have much more flexibility in structuring a *mitigation strategy* to meet the BACT emission standards for non-criteria pollutants, because those standards are not directed to the attainment and maintenance of the NAAQS.

The discussion that follows is divided into three parts. The first part addresses whether and under what circumstances a source’s greenhouse gas emissions should become subject to BACT under the PSD program (the “Applicability Analysis”). The second part considers how EPA and permitting authorities may most efficiently establish BACT for large sources of greenhouse gas emissions (the “BACT Process”). The third part considers how EPA and permitting authorities may structure an optimal mitigation strategy for sources to mitigate their greenhouse gas emissions to meet the standard established in the BACT process (the “Mitigation Strategy”).

III. Applicability Analysis – How and Under What Circumstances are Non-Criteria Regulated Pollutants Addressed as Part of the PSD Program

The flow chart on the following page illustrates the multi-step process that we envision would govern the question of whether greenhouse gas emissions from a new source or increases of greenhouse gas emissions at an existing source would trigger PSD. This would include the following steps:

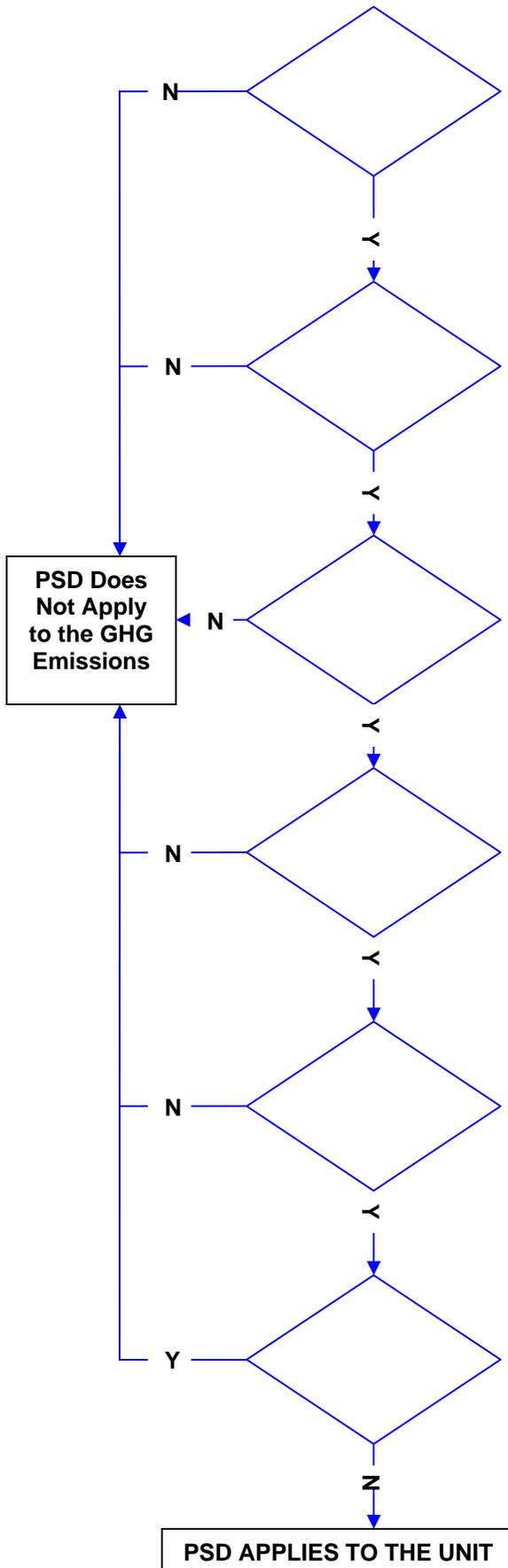
- A. Has the new or modified major source independently triggered PSD for one or more criteria pollutants? As discussed above, the PSD program would not apply to new and modified sources of greenhouse gas emissions unless the project is independently a new major source of criteria pollutants or a modification of an existing major source of criteria pollutants that results in a significant net emissions increase of one or more criteria pollutants. This approach does not foreclose consideration of non-criteria regulated pollutants in the context of establishing BACT under section 165(a)(4) of the Act. But emissions of non-criteria pollutants do not trigger PSD in the first instance.
- B. Is the greenhouse gas a regulated pollutant under the statute? The approach reflected below considers each greenhouse gas pollutant individually and thus, if PSD otherwise is triggered, determines BACT only for the specific pollutants that will be emitted in significant amounts (for a new major source) or that will experience a significant emissions increase (from a major modification) and are also “subject to regulation” elsewhere under the Act. Note, for example, that only

three greenhouse gases would become subject to regulation under the Act by virtue of EPA finalizing its Proposed Light Duty Vehicle Rule, i.e., CO₂, N₂O and CH₄.

- C. Was the preconstruction permit application first deemed complete on or after the first substantive compliance date for the GHG? Permitting authorities will need guidance regarding the applicability dates for sources that are in the process of applying for permits. Consistent with other EPA regulations and transition rules, the chart below provides that applicability for a new regulated pollutant would be determined based on the date on which a preconstruction permit application is first deemed complete.
- D. Are the greenhouse gas emissions at the unit(s) for which PSD was triggered individually significant, taking into account any applicable or proposed permit limits? The chart presents two approaches for determining significance for greenhouse gas emissions. First, for fluorinated synthetic compounds (SF₆, PFCs and HFCs), the chart recommends using 50 annual tons for each (one half of the statutory default major source level). This is a reasonable default level until the Agency either can implement an applicable category-specific performance standard under section 111 of the Act or until it can refine the significance level based on a more complete understanding of the global warming potential of a particular compound.

For the three other greenhouse gases, CO₂, N₂O and CH₄, the chart uses the EPA's proposed upper end tailoring level of 25,000 annual tons, measured on a CO₂-equivalent basis, as the significance level for each (converted to mass-based significance levels for purposes of regulatory clarity).

- E. Does the *net* emission increase from the unit(s) remain above the significance thresholds after taking into account any past or contemporaneous reductions of that GHG within the facility? Recognizing that the PSD program provides an opportunity for a source to net out of PSD if there are sufficient contemporary (i.e., five-year) accumulated emission reductions, this step of the chart provides an opportunity for a source to avoid triggering PSD in such a circumstance. The netting opportunity should be afforded immediately on a pollutant-by-pollutant basis. When EPA has sufficient information about relative global warming potential of different gases, it also should allow netting on an appropriate inter-pollutant basis.
- F. Is the project exempt as a pollution control or strategic energy project? This step of the chart recognizes that there are likely to be certain projects that are so clearly beneficial from an energy intensity perspective that they should be exempt from PSD applicability. These should include appropriate electric generating unit efficiency upgrades and the installation and operation of cogeneration or combined heat and power at facilities.



Is the source a major new source of a criteria pollutant or has there been a modification of an existing major source (of a criteria pollutant) resulting in a significant net emissions increase of a criteria pollutant?

Is the GHG regulated under the Act (e.g., assuming the motor vehicle proposal is finalized, is it a regulated pollutant - CO₂, CH₄ or N₂O?)

Was the preconstruction permit application first deemed complete on or after the first substantive compliance date for the GHG?

Is the GHG emission increase at the unit(s) for which PSD was triggered individually significant, taking into account any applicable or proposed permit limits?

Significant increases:
 CO₂, CH₄, N₂O - Individual mass-based levels equivalent to 25,000 annual tons CO₂
 SF₆, PFCs, HFCs - 50 annual tons each

Does the *net* emissions increase at the unit(s) remain above the significance thresholds after taking into account any past or contemporaneous GHG reductions within the facility?

Recommend intra-pollutant netting immediately and thereafter allowing inter-pollutant netting across the facility using relative GWP and equivalency crediting.

Is the project exempt as an efficiency, pollution control or strategic energy project?

For example:
 Qualifying EGU or production efficiency upgrades
 Combined heat and power; cogeneration

IV. Establishing BACT for Greenhouse Gases

Assuming that the PSD program applies to a new or modified unit based on its criteria pollutant emissions, and that the unit's emissions of a GHG contribute to significant emissions of that GHG (in the case of a new major source) or to a significant (net) emissions increase of that GHG (in the case of a major modification), then BACT for that GHG would be established under the following process. As illustrated in the attached chart, a source would have the option of electing an applicable presumptive BACT standard or undergoing case-by-case BACT analysis. In order to enable streamlining benefits, it is imperative for EPA expeditiously to develop presumptive fuel- and technology-specific performance-based (i.e., carbon intensity) standards as BACT for each large source category of greenhouse gas emissions.

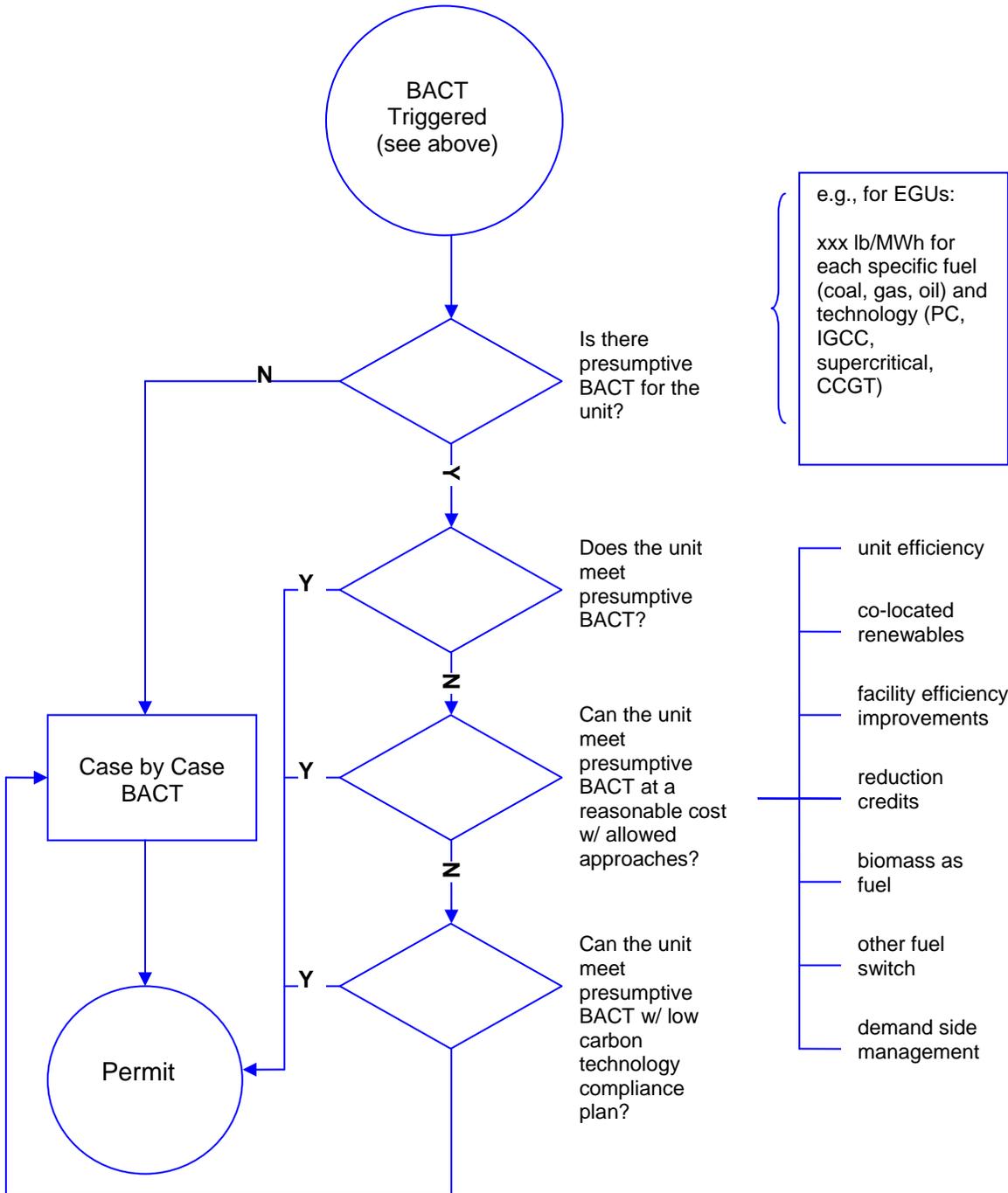
- A. Defining the Project – EPA and state permitting authorities would evaluate the affected emissions unit(s) according to the proposed technology and fuel as the project is designed as reflected in the application.
- B. Presumptive BACT for GHG Sources – EPA would establish fuel- and technology-specific⁶ carbon intensity (i.e., energy efficiency) standards for affected new and modified units for each large source category of GHG emissions. In the first instance, the standards would be set on an interim basis and would be updated as new information is obtained. As part of its standard-setting process, EPA would identify the going-in assumptions about the availability of emission reduction options and about the environmental, energy and economic impacts of considered controls and alternatives, stating its assumptions as a range of data where appropriate. EPA also would specify the cost-effectiveness criteria it used to establish the presumptive carbon intensity level for the category.
- C. Process for Electing or Challenging Presumptive BACT - The standards would apply as “presumptive BACT.” In the absence of a timely election by the permittee to use an alternative approach, the presumptive standard would constitute the performance expectation for the affected equipment. Once the presumptive BACT level is specified as the applicable BACT standard, any third party challenging this aspect of the permit would bear the burden of establishing that the relevant factors as applied to the specific equipment at issue are materially different from EPA's assumptions underlying the presumptive BACT standard.

⁶ Given the immediate and transitional nature of the anticipated PSD/BACT program (and consistent with EPA's historic approach), it is important that the program establish fuel- and technology-specific standards, as opposed to wholly neutral standards, to avoid unintended economic disruption or wealth transfers. The Congressional or EPA existing source program, which would ultimately displace this near-term transitional PSD/BACT program, may consider and, to the extent appropriate, encourage shifts in fuels and technologies as part of a more integrated consideration of strategic energy and environmental policies. Even initially, the indirect pricing of GHG emissions through the compliance portions of this program would have some effect in encouraging the more rapid implementation of low-carbon technologies, carbon sinks, energy storage technologies, demand side strategies and other ways to avoid or reduce compliance costs.

- D. Alternative Election - If the applicant or the permitting authority elects not to proceed under presumptive BACT, then the permitting authority would follow its existing process (e.g., top-down BACT) for establishing BACT based on a consideration of all relevant factors but with a minimum cost effectiveness threshold limited by the upper bound of cost used by EPA to determine cost-effectiveness for the otherwise applicable presumptive BACT standard.
- E. Updating Presumptive BACT - EPA may update its presumptive BACT standards at any time based on emerging data regarding any of the factors relevant to a BACT determination.
- F. Applicability Timing - The presumptive BACT standard applicable at the time that the application is deemed complete would apply for purposes of any administrative or judicial review of the permit, and only information available at or prior to such time could be offered to make the material deviation demonstration necessary to challenge the applicability of a presumptive BACT standard.
- G. Election to Proceed if Presumptive BACT is Challenged - Once the permit is issued, if the application of presumptive BACT is subsequently challenged by any third party, the applicant may elect to proceed to construct and operate at the performance levels defined by the presumptive BACT standard. If the permitting authority's final action, following available judicial review, results in a performance standard more stringent than the presumptive BACT level, then such more stringent standard shall apply for all periods subsequent to the final action following judicial review; however, the applicant shall continue to have available the compliance flexibility options listed below (e.g., qualified offsets and access to an EPA-administered reserve pool of compliance credits at a ceiling price that reflects the upper bound of cost used by EPA to determine cost-effectiveness for the applicable (or most analogous) presumptive BACT standard).
- H. For emission units for which a presumptive BACT standard has not been established by EPA, the permitting authority would follow its existing process (e.g., top-down BACT) for establishing BACT based on a consideration of all relevant factors, but with a minimum cost effectiveness threshold limited by the upper bound of cost used by EPA to determine cost-effectiveness for the most analogous presumptive BACT standard.

ILLUSTRATION

PRESUMPTIVE BACT AND COMPLIANCE OPTIONS FOR GHG SOURCES



V. Mitigation Strategy – Structuring an Optimal Mitigation Program to Reduce Greenhouse Gas Emissions and Carbon Intensity as Part of the BACT Program

Once a permitting authority has established BACT for a source using either a presumptive BACT or case-by-case approach as outlined in Section IV above, it should consider whether and to what extent it would be appropriate to provide the source with compliance flexibility. There are several policy reasons why it may be more appropriate to provide sources with greater flexibility in reducing greenhouse gas emissions than would be available to a source for the control of criteria pollutants. These include the absence of local impacts from greenhouse gas emissions and the existence of often material opportunities to reduce energy consumption and GHG emissions at other locations within the facility, at other facilities within a regional electrical grid or across a fuel supply network, at the customer level (i.e., the demand side) or even at wholly unrelated operations or activities across the globe. In many such instances, the environmental and economic benefits of selecting a mitigation option other than reduction from the source itself could be considerable. Furthermore, developing the regulatory infrastructure to account for and ensure the integrity of greenhouse gas emission reduction credit generation, trading and use could be highly valuable to any eventual Congressional or EPA national climate program. While there are some countervailing factors that EPA or a permitting authority should consider (e.g., the desire to achieve co-benefits of criteria pollutant reductions and the need to address uncertainties regarding the integrity of certain greenhouse gas reduction strategies (e.g., offsets)), these can be addressed by appropriate design conditions.

While the Clean Air Act is silent as to how EPA or the states should address greenhouse gas emissions for this or any other purpose, the Act contains important signals that EPA and the states should craft an approach that optimizes economic and environmental impacts at the mitigation stage.⁷ First, of course, the statute expressly recognizes the importance of structuring the BACT standard in a manner that takes “into account energy, environmental, and economic impacts and other costs.” (CAA §169(3)). In further support of such authority is the fact that, as noted above, the PSD program first and foremost, if not exclusively, is a SIP strategy for attaining and maintaining national ambient air quality standards for criteria pollutants. See CAA §§ 161, 110(a)(2)(C). By implication, the permitting authority should have the flexibility to structure BACT compliance for non-criteria pollutants in any reasonable manner that considers such factors (i.e., economic and environmental impacts) so long as it does not jeopardize attainment and maintenance of the NAAQS.⁸

⁷ While the EPA and states appear to have discretion in setting a reasonable BACT performance standard and in providing compliance flexibility at the mitigation stage, this discretion should not be confused with discretion to expand the scope of the PSD program itself (e.g., by subjecting sources other than new or modified sources to the PSD review). The language of the Act contains no indication that the permitting authority may impose more stringent standards or a more expansive review on sources of non-criteria pollutants.

⁸ Such a NAAQS attainment and maintenance litmus test is similarly preserved in section 111, which, while providing an innovative technology waiver option to new sources, conditions such waivers on the Administrator’s ability to assure, among other conditions, that “emissions from the source will not prevent attainment and maintenance of any national ambient air quality standards,

- A. Annual Average Compliance - Any source subject to BACT under this program would be required to demonstrate compliance with the presumptive BACT standard (i.e., applicable carbon intensity performance standard) on an annual average performance basis unless otherwise provided.
- B. Option to Demonstrate Compliance at a Facility or Broader Level – Recognizing the potential energy, environmental and economic benefits of compliance flexibility noted above, the permit would authorize regulated sources to compensate for any deviation from the applicable performance standard by obtaining appropriate emission reduction credit from qualified on- and off-site GHG reductions (e.g., elsewhere at the facility), at the customer (e.g., demand side), or through EPA-approved offset protocols.
- C. Offset Protocols – EPA would work promptly with industry; existing state, regional and international accounting entities and with other appropriate federal agencies and departments to develop appropriate accounting protocols to assure the integrity of greenhouse gas emissions reductions generated outside of regulated facilities.
- D. EPA-Administered Reserve Credit Pool - In addition, at least until EPA can make a formal finding that available offsets exist to provide sufficient cost containment, the facility also would have the option of purchasing compliance credits from an EPA-administered reserve credit pool at a predetermined price that reflects EPA’s upper bound cost-effectiveness for the applicable (or most analogous) presumptive BACT standard. EPA would fill this credit pool, which ideally should be self-funding, through appropriate solicitations for priority greenhouse gas reduction projects.

VI. Periodic Reconsideration

Subject to appropriate due process considerations, EPA should periodically review its near-term PSD program as it applies to greenhouse gases based on an evolving understanding of its legal authority and of pending state or federal greenhouse gas programs. However, sources that have complete applications for preconstruction permits submitted during the interim PSD program should be entitled to rely on the regulations and standards in place when they filed their applications and should be exempt from any subsequent changes to the program that would materially alter the terms and conditions for the granting of their preconstruction permit.

...” Section 111 is relevant to the Agency’s interpretation of its discretion under the PSD program because the Act provides that section 111 standards, once adopted, provide the minimum performance expectation for BACT standards. *See* CAA § 169(3).