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Revitalizing Greenhouse Gas Permitting Inside a Biden EPA

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REVITALIZING GREENHOUSE GAS PERMITTING INSIDE A BIDEN EPA

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The Clean Air Act's (CAA's)[1] prevention of significant deterioration (PSD) permitting program provides an opportunity for President Joseph Biden's U.S. Environmental Protection Agency (EPA) to make a rapid improvement on the implementation of existing greenhouse gas (GHG) regulation.[2] EPA's Tailoring Rule, in 2010, made the PSD permitting program applicable to GHGs for stationary sources of air pollution. But as shown here, since 2010, PSD permits, mostly issued by state environmental agencies, have required little actual control of GHGs, specifically carbon dioxide (CO_2).

The Biden EPA should conduct an annual review of CO_2 technology options for stationary sources, establish a renewed commitment to review of specific draft permits, and strengthen the existing PSD permitting database. Such actions are straightforward steps to improving the existing PSD permitting program for GHGs.

I. Background

A. *The Best Available Control Technology Determination*

The shining star of the PSD permitting program is its requirement that new or modified major stationary sources install best available control technology (BACT) for each unit at the source.[3] BACT is a pollutant-specific emission limitation that is based on the maximum degree of reduction possible at an emissions unit. One stationary source might have multiple emissions units.[4] The PSD permitting authority, often a state environmental agency, uses a five-step "top-down" approach to determining BACT on a case-by-case basis.[5]

While the top-down process is not compelled by the statute, EPA's long-standing preference is for that approach, as described in detail in EPA's 1990 New Source Review Workshop Manual. After receiving an application for a permit from a stationary source, the top-down approach requires the permitting agencies to identify all available control options, eliminate technically infeasible options, rank remaining technologies by control effectiveness, eliminate control options based on evaluation of collateral impacts, and specify the BACT emission limitation.[6] Moreover, the Workshop Manual states that an *effective* permit requires four elements:

1. An identification of the emissions units to be regulated;
2. An emissions standard or other operational limits;
3. Specific methods for determining compliance and/or excess emissions, including reporting and recordkeeping requirements; and
4. An outline of the procedures necessary to maintain continuous compliance with the emission limits[7]

The top-down BACT approach is indeed resource-intensive for both permit applicants and permitting authorities. During the George W. Bush Administration, EPA noted that "most developers describe [PSD] permitting as an extremely complex and time consuming process."[8] As a result, some have advocated for scaling back the CAA's PSD permitting program, for example in the analyses required for visibility impacts. Others have advocated for scrapping the entire PSD permitting program altogeth-

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1. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
2. The authors assume in this Comment no new federal legislation directly addressing GHG emissions from stationary sources. Of course, were the U.S. Congress to pass such legislation, and were the president to sign it into law, EPA would need to evaluate how such law would impact the regulation of GHGs under the PSD program, as well as other parts of the CAA.
3. Major source status under PSD is typically triggered at 250 tons per year (TPY); for certain source categories, major source status is triggered at 100 TPY.
4. An emissions unit is any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any pollutant listed under §112(b) of the Act. *See also* 40 C.F.R. §70.2 (2020).
5. U.S. EPA, New Source Review Workshop Manual B.4 (1990), https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf.
6. *Id.* ch. B.
7. *Id.* at H.1.
8. U.S. EPA, NSR 90-Day Review Background Paper 11 (2001), https://www.epa.gov/sites/production/files/2015-08/documents/nsr-review.pdf.

er.[9] Indeed, the Donald Trump Administration finalized multiple regulatory and policy changes with the goal of limiting the PSD program in the name of reducing regulatory burden on stationary sources.[10] Most of the changes implemented under the Bush and Trump Administrations had the effect of reducing the number of sources subject to PSD review.[11]

On the other hand, others have argued that the PSD permitting program is a key element of the CAA's goal of protecting public health and requires stronger implementation.[12] Many pushed against the 2002 regulatory weakening of the PSD program through regulatory comments, litigation, and legal scholarship.[13] Others have called for changes to EPA policies that inhibit the PSD permitting program, such as the "redefining the source" policy.[14] The arguments rest largely on the notion that the U.S. Congress, when formulating the PSD program in the CAA, intended that BACT be a technology-forcing regulation.[15] Indeed, over time, that technology-forcing goal has played out at stationary source units for several different kinds of pollutants.[16] After all, the point of the top-down approach for determining BACT is not simply for permitting authorities to catalogue and restate existing emissions limits and pollution controls.

B. GHGs and PSD Permitting

GHGs became subject to the PSD permitting program after the landmark U.S. Supreme Court case *Massachusetts v. Environmental Protection Agency*.[17] The Court, in that case, held that EPA must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.[18]

There was a separate question as to what extent any endangerment finding would trigger requirements to regulate GHGs under the PSD program.[19] Initially, on December 18, 2008, EPA Administrator Stephen Johnson issued an interpretative memorandum stating that "pollutants subject to regulation under this act" referenced only actual, not potential future regulated emissions, meaning no action was required under PSD permits at that time.[20] On December 7, 2009, EPA issued its endangerment finding, concluding GHGs "may reasonably be anticipated both to endanger public health and to endanger public welfare."[21] As a result, GHGs from mobile sources would be a regulated air pollutant via the light-duty vehicles tailpipe rule.[22]

Then, on March 29, 2010, EPA clarified that the Johnson memorandum's use of "subject to regulation" means "actual control of emissions of the pollutant," and that obligation is not operative until the rule "takes effect."[23] As a result, the stationary sources under the PSD program would not include GHGs until the tailpipe rule went into effect, scheduled for January 2, 2011.[24] Concurrently, EPA began developing a plan for regulating stationary sources under the PSD program.[25] Pursuant to the PSD regulations, any pollutant subject to regulation under the CAA generally is also subject to PSD review.[26]

9. *See*, *e.g.*, John C. Evans & Donald van der Vaart, *Prevention of Significant Deterioration: A Case for Repeal*, 47 ELR 10742 (Sept. 2017).
10. *See*, *e.g.*, News Release, U.S. EPA, EPA Takes Further Actions to Improve the NSR Permitting Program (Dec. 3, 2019), https://www.epa.gov/news-releases/epa-takes-further-actions-improve-nsr-permitting-program ("These actions will improve regulatory certainty and remove unnecessary obstacles to projects . . ."); *see also* Kelsey Brugger, *Greens Challenge Permit for Troubled Virgin Islands Refinery*, E&E News, Feb. 3, 2021, https://www.eenews.net/greenwire/2021/02/03/stories/1063724267.
11. *See*, *e.g.*, Harvard Law School Environmental and Energy Law Program, Memorandum on EPA's Proposed Changes to New Source Review in ACE 10 (Oct. 29, 2018), http://eelp.law.harvard.edu/wp-content/uploads/NSR-proposal-summary.pdf ("The proposal makes clear that the broader goal is to reduce the number of existing facilities required to undergo [New Source Review] NSR permitting and incorporate modern pollution controls, regardless of whether they are initiating emissions-increasing projects as a result of [the Affordable Clean Energy Rule] ACE or for any other reason.").
12. William S. Eubanks II, *The Clean Air Act's New Source Review Program: Beneficial to Public Health or Merely a Smoke and Mirrors Scheme?*, 29 J. Land Res. & Env't L. 361 (2009) ("electric utilities are emitting more than their share of dirty smoke while the federal executive branch, especially under former President George W. Bush, is providing mirrors to deflect the truth: the NSR program is failing to protect public health . . ."); Jonathan Remy Nash & Richard Revesz, *Grandfathering and Environmental Regulation: The Law and Economics of New Source Review*, 101 Nw. U. L. Rev. 1677 (2007) ("We demonstrate that the new [NSR] regulations are inefficient and would, contrary to the Administration's contention, worsen environmental quality.").
13. Nash & Revesz, *supra* note 12 (describing multiple negative responses of the 2002 reform, such as a lawsuit by several states against EPA, a request by several U.S. senators to delay the implementation of the new regulation, and a U.S. Government Accountability Office investigation).
14. The authors acknowledge that an additional important topic in PSD permitting for GHGs is EPA's "redefining the source" policy. *See*, *e.g.*, Sage Ertman, *Climate Change and the PSD Program: Using BACT to Combat the Incumbency of Fossil Fuels*, 47 Env't L. 995 (2017), *available at* https://www.jstor.org/stable/44466739?seq=1. The authors suggest that EPA closely reexamine the "redefining the source" policy, but the details of such reexamination is not the focus of this Comment.
15. The legislative history is clear that Congress intended BACT to perform a technology-forcing function. *See* S. Rep. No. 95-252, at 31 (1977) (remarks of Sen. Muskie, principal author of 1977 Amendments).
16. Richard Toshiyuki Drury, *Pollution Trading and Environmental Injustice: Los Angeles' Failed Experiment in Air Quality Policy*, 9 Duke Env't L. & Pol'y F. 231, 276 (1999) ("Others have defended technology-forcing regulations, which set a performance standard achievable by the best available control technology, citing its history of success in reducing pollution. In response to such firm command and control mandates, industry has often innovated to meet and exceed the required emission reductions."); *see also* United States v. Cinergy Corp., 618 F. Supp. 2d 942, 962, 39 ELR 20114 (S.D. Ind. 2009) (describing BACT for nitrogen oxide (NO_x) at coal-fired power plants to have transitioned over time from low-NO_x burners to selective catalytic reduction (SCR)).
17. 549 U.S. 497, 37 ELR 20075 (2007).
18. James Farrell, *The Future of the Greenhouse Gas Tailoring Rule*, 41 ELR 10247, 10249 (Mar. 2011).
19. Robert Meltz, Congressional Research Service, Federal Agency Actions Following the Supreme Court's Climate Change Decision in *Massachusetts v. EPA*: A Chronology 2-3 (2014), https://fas.org/sgp/crs/misc/R41103.pdf. *See also* Farrell, *supra* note 18.
20. Meltz, *supra* note 19, at 2-3.
21. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (Dec. 15, 2009).
22. *See* 40 C.F.R. §52.21(b)(50) (2020); Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 75 Fed. Reg. 25324 (May 7, 2010).
23. Meltz, *supra* note 19, at 4.
24. *Id.*
25. For further discussion of the time line of the tailoring rule, see Meltz, *supra* note 19, and Farrell, *supra* note 18.
26. *See* 40 C.F.R. §52.21(b)(23)(ii) (2020).

EPA considered two options for how to regulate GHGs under Title I of the CAA. First, EPA considered GHG regulation under §110 of the CAA by treating GHGs as a criteria pollutant. Under the §110 approach, EPA would set a concentration of CO_2 anwd/or CO_2 equivalent (CO_2e) above which concentrations would be unhealthy for all people, including sensitive populations. For all areas in states exceeding this concentration, a plan would need to be developed with control measures that would, in a specified time frame, reduce concentrations to meet the specified national ambient air quality standards. Second, EPA considered GHG regulation under §111 of the CAA by focusing on emission source categories. Under the §111 approach, EPA would set emissions standards for GHGs for new and existing sources. EPA chose the §111 approach.[27]

Both the §110 and §111 approaches would have required that EPA treat GHGs as regulated pollutants under PSD. Major source status under PSD is typically triggered at 250 tons per year (TPY).[28] However, given the mass of CO_2 emissions from combustion, EPA estimated there would be a 150-fold increase[29] in permit applications during the first 12 months of the new rule. To avoid such an increase, EPA applied the "absurd results" doctrine and established, via its Tailoring Rule, a new criterion for CO_2e emissions, which defined a major source as one emitting 100,000 TPY or more.[30]

The Tailoring Rule included a phase-in plan for sources of different sizes. Several provisions of the Tailoring Rule were struck down by the Supreme Court in 2014.[31] After that decision, a PSD permit for GHGs could only be required for sources that already required a permit for another pollutant ("anyway sources").[32]

II. Findings

The authors here endeavored to examine all BACT determinations for CO_2 from 2010 to 2020, as found in EPA's RACT/BACT/LAER Clearinghouse (RBLC).[33] The overall purpose of the examination was to get a broad look into how effective PSD permitting has been for GHGs after EPA's Tailoring Rule. In particular, the authors' goal was to examine the number of BACT determinations in the RBLC that include the number two key element for an effective permit as described in the Workshop Manual—that is, how many determinations included "emissions standards or other operational limits."[34]

The RBLC is a database that gathers determinations made by permitting authorities throughout the country.[35] We ran a simple keyword search for "carbon dioxide" in the RBLC from 2010 to 2020 for all types of processes. The search returned 71 entries, each representing a single stationary *source* (e.g., a steel mill).[36] Each of these stationary sources had multiple process units (e.g., a boiler, generator, turbine, etc.). The total number of process units for all 71 entries was 241. Each RBLC entry includes a list of the source's particular process units and each process unit includes a short description of the "control technology" applied in the underlying BACT determination for that process unit.

Our search broadly found that most PSD CO_2 RBLC entries do not include a specific control technology or technique at all. As described in Table 1 below, of the 241 process units, 63 included entries listing "no feasible controls." Where something more is listed as the "control technology," the RBLC entry typically includes only qualitative and vague standards such as "efficient unit design and operating practices," "good combustion practice," and "good operating procedure." As described in Table 1, of the 241 process units, 99 listed "pollution prevention controls," 31 listed "good combustion practices," 22 listed "good operating practices," and 6 listed "good operational practices."

Table 1. Summary of RBLC Search for "Carbon Dioxide" for all Process Units From 2010-2020*

# RBLC entries in search	RBLC entry "control method" description
63	"no feasible controls"
101	"pollution prevention controls"
31	"good combustion practices"
22	"good operating practices"
6	"good operational practices"
18	qualitative standard plus specific control measure (e.g. "Use of good combustion practices, based on the current manufacturer[ ]s specifications for this engine ").

* RBLC search updated as of February 19, 2021. All data and categorization are in a large Excel document on file with the authors.

27. Farrell, *supra* note 18, at 10248.
28. 42 U.S.C. §7479(1).
29. 74 Fed. Reg. 55292, 55304 (Oct. 27, 2009).
30. Farrell, *supra* note 18, at 10253.
31. Utility Air Regul. Grp. v. Environmental Prot. Agency, 573 U.S. 320, 44 ELR 20132 (2014).
32. U.S. EPA, *Clean Air Act Permitting for Greenhouse Gasses*, https://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases (last updated Dec. 10, 2019).
33. RACT is reasonably available control technology and LAER is lowest achievable emission rate. U.S. EPA, *Technology Transfer Network Clean Air Technology Center—RACT/BACT/LAER Clearinghouse*, https://www3.epa.gov/ttn/catc/rblc/htm/welcome.html (last updated Feb. 22, 2016).
34. The authors' search revealed that many PSD GHG permits in the RBLC also did not include other elements for an effective permit as described in the Workshop Manual. However, a close examination of these other elements, while important, was not the focus of this Comment.
35. Submission of BACT determinations by state, local, and tribal permitting authorities is voluntary. Not all agencies submit all determinations. Anecdotally, one of the authors has heard that at least one state agency never submits determinations. Therefore, while this review likely captures a majority of GHG BACT determinations, it cannot be said to have captured all.
36. The authors conducted the search in January 2021. The same search conducted after January 2021 could produce different results since a permitting authority could update the RBLC at any point for a BACT determination completed in the 2010-2020 period.

Further, out of the 241 process units, only 20 entries included some specificity in the short description of control measures in addition to a qualitative standard. Such specific control measures included technologies and techniques such as use of economizers; instrumentation and controls (temperature sensors, oxygen trim systems); heating incoming combustion air with an air preheater; extended preheating of the hydrocarbon/steam feed; preheating of combustion air, energy-efficient convection coil design; or use of an improved CO_2 removal system. One example that provided such specific control measures is a PSD permit issued by Indiana for a fertilizer plant.[37] In that case, the permitting authority included specific energy-efficient design features, including air inlet controls, heat recovery, condensate recovery, and blowdown heat recovery.[38]

In another example, New York included specific control measures as part of the BACT determination for a boiler.[39] The permit applicant's plan, which the state included in its determination, included measures such as oxygen trim control, economizer, optimizing blowdown based on the total dissolved solids content of the feedwater, condensate return, steam pipe insulation, optimization of the steam distribution network, and routine inspection of the steam network to detect and fix any leaks.[40]

Moreover, the authors found significant deficiencies in the RBLC itself. Only 36 of the 71 RBLC entries even included a link to the full permit record, including the actual BACT determination. Neither did we find any attempt by permitting authorities to require applicants to review GHG control studies or technical papers, nor did the permitting authority appear to have done so on its own.

In 2010-2012, EPA published detailed "technical white papers" of potential GHG control technology options for eight source categories, including electric power-generating units, large industrial/commercial/institutional boilers, and nitric acid plants.[41] In 2011 EPA guidance on PSD GHG permitting, the Agency encouraged permit applicants and permitting authorities to consult the technical white papers.[42] Yet, our search of the RBLC entries and associated links to permit records found no situation where the permitting authority considered or asked the applicant to consider the technical white papers.

For example, in 2020, almost eight years after EPA published its technical white paper called "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions From the Iron and Steel Industry,"[43] the Kentucky Department of Environmental Protection (DEP) issued a PSD permit for the Nucor Steel Brandenburg plant.[44] The Kentucky DEP's BACT analysis for GHGs did not reference EPA's technical white paper, did not consider many of the measures listed in the technical white paper as available technologies in 2012, and did not consider if any of the technologies EPA considered as emerging technologies in 2012 were now available technologies in 2020.[45] Moreover, in no situation did the permitting authority itself cast a wider net and conduct further research on possible control techniques or emission rates actually achieved, whether in the United States or in other countries.

III. Next Steps

The Biden EPA has stated that addressing the climate crisis is one of its key goals. Major opportunities for GHG reductions are being lost in an existing program. The effectiveness of GHG BACT determinations could be greatly increased with a few actions by EPA, most of which require nothing more than increasing resources, updating computer systems, and changing staffing priorities. We propose the three specific changes outlined in the sections below.

A. EPA Should Assess "Available" and "Emerging" GHG Control Technology Options

EPA's Office of Air and Radiation (OAR) should conduct an annual assessment of "available" and "emerging" GHG control technology options for key source and emission unit categories. EPA should cast a very broad net in its assessment, and should annually re-assess each source category, based on projections of technology development and number of units expected to be built.[46] EPA should prominently display the annual GHG assessment in the RBLC, with specific direction to applicants to refer to such annual assessment in permit applications and to permitting authorities to consider such guidance in BACT determinations.[47]

37. Permit for Ohio Valley Resources, LLC, Nitrogenous Fertilizer Production Plant, RBLC ID: IN-0179 (Sept. 25, 2013).
38. *Id.*
39. This entry was not returned by the authors' search terms, but was returned when the search term was changed to "carbon dioxide equivalent." New York State Department of Environmental Conservation, Permit ID: 9-2911-00113/00039, Covanta Niagara I, LLC (May 2, 2014), https://www.dec.ny.gov/dardata/boss/afs/issued_atv.html.
40. *Id.* at 12-26.
41. U.S. EPA, *supra* note 32.
42. Office of Air Quality Planning and Standards, U.S. EPA, PSD and Title V Permitting Guidance for Greenhouse Gases 20 n.51 (2011) (EPA-457/B-11-001), https://yosemite.epa.gov/oa/eab_web_docket.nsf/Filings%20By%20Appeal%20Number/1F78270704E5418185257A25005A3482/$File/Exhibit%2051a%20to%20Revised%20Petition%20for%20Review%20...12.51a.pdf ("These technical 'white papers,' targeting specific industrial sectors, provide basic information on GHG control options to assist states and local air pollution control agencies, tribal authorities and regulated entities implementing measures to reduce GHG, particularly in the assessment of best available control technology (BACT) under the PSD permitting program.").
43. Office of Air and Radiation, U.S. EPA, Available and Emerging Technologies for Reducing Greenhouse Gas Emissions From the Iron and Steel Industry (2012), https://www.epa.gov/sites/production/files/2016-11/documents/iron-steel-ghg-bact-2012.pdf.
44. Kentucky DEP, Nucor Steel Brandenburg Title V/PSD Initial Review 38 (July 23, 2020) (available from dropdown menu at http://dep.gateway.ky.gov/eSearch/Search_AI_Detail.aspx?AgencyID=162861).
45. PSD permit on file with authors.
46. Past performance is not a measure of future results. For example, while EPA has had a legitimate focus in the past on coal-fired power plants, it is unlikely that any new coal-fired power plant will be constructed in the United States.
47. For example, the RBLC could be updated to include a "bulletin board"-like feature for EPA to post its annual review.

Technology changes with a speed that is often related to the attention focused on it. Given the great concerns, and government and private action related to reducing GHGs, it is logical to expect rapid leaps in technology options. At the same time, other, existing technologies will continue to be refined, yielding incremental improvements that can only be determined by acquiring field data. While EPA's 2010-2012 technical white papers were potentially useful for permits to be issued for those source categories, they were a vastly inadequate effort in three ways. First, the technical white papers needed to be updated frequently (as noted above, we propose an annual review). Second, the technical white papers only covered certain source categories. Lastly, the technical white papers did not consider zero-emissions technologies, including whether they exist or are on the horizon for that kind of source or emissions unit.[48]

Therefore, instead of waiting 10 or more years to assess new data, EPA should annually determine if there is new information that should trigger a new or updated assessment of a source or emissions unit category. EPA should cast a broad net in its annual assessment, including information from vendors, industry conferences, academic papers, and source test/continuous emissions monitor system (CEMS) information.[49]

While BACT is supposed to be technology-forcing, it takes resources and pushback against political inertia to get there. In the authors' conversations with former EPA and state permitting staff, it is clear that permitting authorities are under increased pressure to issue permits quickly, and have few resources to do so. Rigorous inquiry and review suffer under resource pressure. In addition, it is often simply easier to accept an applicant's proposal rather than push for a significant increase in BACT stringency. Moreover, comprehensive information on state-of-the-art emissions controls (and the associated emissions reductions) is difficult to find. Locating additional conference papers, academic papers, and source test information would require a motivated permit engineer with support of his or her agency management to conduct such a detailed review.[50]

B. *EPA Regions Should Engage in Vigorous Review on State Draft Permits and BACT Determinations*

EPA, through its Regional Offices, should devote time and attention to review of draft state permits and BACT determinations. EPA's 10 Regional Offices have historically had the task of reviewing permits proposed by permitting authorities within their geographic jurisdiction. OAR should build on that history by issuing internal guidance to Regional Offices with oversight of the GHG BACT determination (as well as other aspects that EPA determines to be important) of each proposed PSD permit.[51]

EPA's OAR should develop guidance as to how those reviews should be conducted. That guidance should ensure timely, thorough reviews and should enlist the historic federal-state partnerships to reduce the inevitable frictions that will result. EPA's OAR and Office of General Counsel should also review options for remedial action if a final permit is issued with an inadequate BACT determination.[52] Simply by signaling that EPA expects a certain level of quality will often yield that result. However, EPA should also be prepared to exercise all of its authorities, if necessary.[53]

Regional Offices also directly issue PSD permits in limited situations where the permitting authority does not have approval to issue PSD permits (today, this occurs mostly for permits for sources on tribal nations' lands). As a result, OAR's guidance should also require close collaboration between the Regional Office and the relevant headquarters offices during development of those permits, so that the same quality of GHG BACT determinations issue from the Regional Offices as EPA expects from state, local, and tribal permitting authorities.[54]

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48. For example, glass-melting furnaces today often use "electric boost" (i.e., heating with electricity) for part of the heat needed to melt components used in the furnace. Even today, 100% electric furnaces are available for some types of glass production, and, in the near future, should be available for even more glass production processes. *See*, *e.g.*, Andy Reynolds, Electric Boosting and Melting Technology, Presentation at Glassman Latin America 2018 (Mar. 21-22, 2018), https://www.glassmanevents.com/content-images/speakers/Andy-Reynolds-Fives.pdf.
49. A "source test" is a manual sampling of the exhaust gas from a process, in order to determine the quantity of pollutants emitted. Many industrial processes are today also required to install and operate CEMS, which sample and report emissions on a frequent basis, typically at least every 15 minutes.
50. John-Mark Stensvaag, *Preventing Significant Deterioration Under the Clean Air Act: The BACT Determination—Part I*, 41 ELR 11101, 11103 (Dec. 2011):
> A moment's reflection will show that the task faced by the reviewing authority is a challenging one. . . . 'Issues have included (1) the scope and comprehensiveness of the universe of candidate technologies which must be considered, (2) when the universe of control technology candidate technologies may be closed to the introduction of new technologies relative to a given permit application, and (3) the methodology for analyzing the candidate technologies for BACT.

(footnote omitted).
51. We here distinguish internal guidance, which affects, for example, internal EPA operations, budget, and program and enforcement priorities, compared to external guidance, which often provides EPA's interpretation of a regulation. EPA has, in recent years, often provided an opportunity for input on its external guidance documents. Because internal guidance governs Agency operations, and in some cases may be confidential, EPA has not provided opportunities for input on its internal guidance.
52. Adam Babich, *Back to the Basics of Antipollution Law*, 32 Tul. Env't L.J. 1 (2018) ("Ultimately, both the legislative history and the law itself clarify the broad scope of EPA's supervisory role in the PSD program." (footnote omitted)).
53. For example, EPA can use §113(a)(1), (a)(2), and (a)(5) to compel compliance when permitting requirements are not met by a state. In the past, EPA has rarely used that authority, and the authors expect that EPA will continue to use those authorities only in egregious cases. We also note that the Supreme Court, in 2004, upheld EPA's actions when it did use §113(a)(5) in a case regarding the appropriate application of BACT. *See* Alaska Dep't of Env't Conservation v. Environmental Prot. Agency, 540 U.S. 461, 34 ELR 20012 (2004).
54. One example of a permit issued by EPA pursuant to a federal implementation plan shows EPA rejecting the applicant's request for expression of BACT limits as a 12-month rolling average and instead requiring a 365-day rolling average. Region 8, U.S. EPA, Response to Public Comments on Draft Air Pollution Control Greenhouse Gas Prevention of Significant Deterioration (PSD) Permit to Construct, Permit No. PSD-WY-000001-2011.011, at 8 (2012), https://www.epa.gov/sites/production/files/2015-07/documents/cheyenne_light_fuel_power_-_cpgs_-_final_rtc_-_9-27-12.pdf.

C. Bolster the RBLC

EPA should expand the usefulness of the RBLC database. The stated goal of the database is to promote the sharing of information among permitting agencies and to aid in future case-by-case determinations.[55] Data in the RBLC are not limited to sources subject to RACT, BACT, and LAER requirements. The data we pulled suggest that there is an opportunity to maximize the potential of the RBLC (i.e., half the determinations requiring "good combustion practices"). One opportunity is to resume publishing the RBLC Annual Summary.[56] These reports provide a helpful snapshot of the level of activity in the clearinghouse. Ideally, the updated version would expand its scope and include additional information about the types of projects being permitted.

Another helpful addition would be to ensure that the clearinghouse contains direct links to the RACT/BACT/LAER analyses. The clearinghouse currently provides a "Permit URL" field, but its use is inconsistent. In some cases, there is a direct link to the facility's permit, yet in other cases, no link is provided at all.[57] Permits are helpful because they present the results of the BACT analysis.

However, to provide the most guidance to future case-specific inquiries, it would be beneficial to also provide a link to the document containing the full five-step BACT analysis. As described above, database entries such as "efficient operating practices" provide little information without the context of a more complete analysis. While including this information directly in the clearinghouse would require updates to various data fields, providing another URL to the complete analysis does not represent a significant administrative burden and would provide substantial benefits for future analysis of BACT determinations.

A longer-term improvement that would have a dramatic impact on the RBLC's effectiveness would be to incorporate information related to EPA's research efforts, and its oversight, as discussed in Sections A and B of this part, into the database. Currently, comments and suggestions made by EPA for projects are not linked to the clearinghouse. Introducing EPA comments into the clearinghouse would provide a clear record of the procedures that were followed prior to the issuance of a permit. This would be a greater extension of the principle of providing context to these case-specific analyses. Such an effort would certainly carry a greater administrative burden, but centralizing information about the permitting process would allow for even greater adoption of best practices and allow for more comprehensive analysis of processes and for identifying areas where permitting decisions could be improved.

The RBLC is a hugely important resource. Indeed, in several discussions with former EPA and state permitting engineers about the RBLC, the authors heard frustration with its limitations.[58] As technology continues to progress, compiling information about new control methods will become increasingly valuable to developers and permit engineers. Building on the existing foundation will ensure the RBLC continues to advance pollution control technologies. Not only would that assist permit engineers, but it would also provide another source of information for researchers. The RBLC is the only real form of communication *between* permit engineers.[59] The RBLC, especially in an age of teleworking and information, should be updated.

IV. Conclusion

EPA and state permitting authorities have great experience with BACT in the context of non-GHG permits. For example, BACT for nitrogen oxides (NO_x) at coal-fired power plants was usually based on modest combustion modifications, if anything, in the early days of the PSD program (late 1970s through the 1980s). But beginning in 1990, permitting authorities began requiring the use of selective catalytic reduction (SCR), which can reduce emissions by 90% or more.

Similarly, permitting authorities permitted combined-cycle gas turbines at levels at or near the new source performance standard of 75 parts per million (ppm) until the mid-1980s, when a few permitting authorities exerted leadership and started requiring SCR and setting emissions limits in the range of 9-25 ppm. Even then, emissions limits stagnated at that level until the late 1990s, when a competing technology demonstrated much lower levels. At that point, pressure from oversight agencies (the EPA Regional Offices) resulted in reductions to 2 ppm by the late 1990s.

It is time to allocate resources toward improving the GHG BACT process and the RBLC. Such an update to the RBLC is likely also to invigorate EPA and state permitting staff, aiding in another goal of the Biden Administration to rebuild institutional competency around core agency functioning.

55. U.S. EPA, *RACT/BACT/LAER Clearinghouse (RBLC) Basic Information*, https://www.epa.gov/catc/ractbactlaer-clearinghouse-rblc-basic-information (last updated Sept. 1, 2020).
56. Office of Air Quality Planning and Standards, U.S. EPA, RACT/BACT/LAER Clearinghouse (RBLC) Annual Summary for 2007 (2011) (EPA-453/R-11-001), https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100A03C.PDF.
57. Part of the reason for the inconsistent data in the RBLC may be that, for the most part, submission of data by permitting authorities is voluntary. EPA should consider making submission mandatory.
58. Notes from e-mails with former staff on file with authors.
59. EPA should consider whether an online forum within the RBLC, dedicated to permitting authorities, will increase communication across the field and result in improved BACT outcomes.