The Alliance for Industrial Efficiency

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United States Environmental Protection Agency
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1200 Pennsylvania Avenue, NW
Washington, DC 20460

We are grateful for the opportunity to comment on the **PSD and Title V Permitting Guidance for Greenhouse Gases** (hereinafter "BACT Guidance"). We participate in a diverse coalition that includes representatives from the business, environmental, labor and contractor communities. We are committed to enhancing manufacturing competitiveness and reducing carbon emissions through industrial energy efficiency. The Guidance takes an important step toward advancing these goals. Our comments both applaud this important advancement and identify several opportunities to achieve even greater emissions reductions from the industrial sector.

We applaud EPA for acknowledging the benefits of energy efficiency in reducing GHG emissions. Potential savings in industrial energy use (and associated greenhouse gas emissions) are vast as the industrial sector is responsible for about one-third of total US energy demand.[1]

In particular, we applaud EPA's recognition of the benefits of CHP and waste heat recovery. Notably, EPA mentions CHP and waste heat recovery in the Guidance itself;[2] the example in Appendix H (where waste heat recovery is identified as BACT); and in the white papers, which explicitly mention CHP/ waste heat recovery as available technologies for each of the covered sectors.[3] Indeed, CHP and waste heat recovery have a significant role to play in reducing

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[1] *See* US Energy Information Administration, Aug. 19, 2010, Rep. No. DOE/EIA-0384(2009), "Annual Energy Review 2009," (Table 2.1a Energy Consumption by Sector, Selected Years, 1949-2009); *see also* US Energy Information Administration, May 25, 2010, Report #: DOE/EIA-0484(2010), "International Energy Outlook 2010 – Highlights" ("The industrial sector uses more energy globally than any other end-use sector, currently consuming about 50 percent of the world's total delivered energy.") (http://www.eia.doe.gov/oiaf/ieo/highlights.html).

[2] *See, e.g.*, US EPA, Office of Air and Radiation, EPA–HQ–OAR–2010–0841; FRL–9228–2, Nov. 2010, "PSD and Title V Permitting Guidance for Greenhouse Gases," at 31 (hereinafter "BACT Guidance") ("Furthermore, combined cycle combustion turbines, which have higher efficiencies than simple cycle turbines, should be listed as options when an applicant proposes to construct a natural gas-fired facility").

[3] *See, e.g.*, US EPA, Office of Air and Radiation, Oct. 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Industrial Commercial, and Institutional Boilers," at 10 (Table 1) (identifying Combined heat and power as an "applicable" technology for all boilers) (http://www.epa.gov/nsr/ghgdocs/iciboilers.pdf); US EPA, Office of Air and Radiation, Oct 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Pulp and Paper Manufacturing Industry," at 11 (Table 3) ("List of Control Measures and Energy Efficiency Options" identifies various heat recovery technologies) (http://www.epa.gov/nsr/ghgdocs/pulpandpaper.pdf); US EPA, Office of Air and Radiation, Oct. 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Iron and Steel Industry," at 9-10 (Table 1) (identifies heat recovery as a technology used in steel production) & 31 ("All steel plants require both electricity and steam to operate, which make them good candidates for combined heat and power (CHP), also known

greenhouse gas emissions. The Oak Ridge National Laboratory ("ORNL") has found that full deployment of these technologies could reduce CO_2 emissions by more than 800 million metric tons per year – the equivalent of removing more than half of the current passenger vehicles from the road.[4] These reductions not only have obvious environmental benefits, but also enhance manufacturing competitiveness by reducing costs.

CHP offers a scalable, off-the-shelf technology that can provide enormous amounts of clean, cheap power. ORNL has found that CHP and waste heat recovery can produce 156 GW of new, clean power by 2030 – equal to the capacity of more than 300 conventional power plants.[5]

BACT compliance will create opportunities for factories and power plants to identify ways to become more efficient and save money over their operating lifetime. BACT creates an opportunity for facilities to assess their processes and identify more efficient technologies to reduce emissions and save energy. This "introspection" will ultimately make regulated companies more competitive.

States and the companies they regulate are ready to begin this process. Indeed, as the National Association of Clean Air Agencies (NACAA) reports, every state but one is poised to issue BACT permits.[6] To the extent regulated entities need assistance identifying appropriate technologies, the network of DOE's Clean Energy Application Centers are well positioned to provide this guidance.[7] EPA acknowledges the potential role of the Application Centers in its White Paper for the Pulp and Paper Manufacturing Industry, but should also reach out to other regulated sectors to ensure that they are aware of this important resource.[8]

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as cogeneration.") (http://www.epa.gov/nsr/ghgdocs/ironsteel.pdf); US EPA, Office of Air and Radiation, Oct. 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Coal-Fired Electric Generating Units," at 28 (Exhibit 3-1) (identifying several heat-recovery technologies as a technology being used at existing utilities) (http://www.epa.gov/nsr/ghgdocs/electricgeneration.pdf); US EPA, Office of Air and Radiation, Oct. 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Portland Cement Industry," at 10 (Table 3) (listing "Heat recovery for power – cogeneration" as an available control measure) (http://www.epa.gov/nsr/ghgdocs/cement.pdf); US EPA, Office of Air and Radiation, Oct. 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Petroleum Refining Industry," 14-19 (Table 1) & 27 ("The large steam requirements for refining operations and the continuous operations make refineries excellent candidates for combined heat and power (CHP) generation.") (http://www.epa.gov/nsr/ghgdocs/refineries.pdf); US EPA, Office of Air and Radiation, Oct. 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Nitric Acid Production Industry," at 13 & 14 ("energy recovery is a valuable resource for these facilities"; "bottoming cycle combined heat and power (CHP) could also be used for energy recovery at nitric acid plants.") (http://www.epa.gov/nsr/ghgdocs/nitricacid.pdf).

[4] Oak Ridge National Laboratory (ORNL), Dec. 1, 2008, *Combined Heat and Power: Effective Energy Solutions for a Sustainable Future*, at 4 (http://www1.eere.energy.gov/industry/distributedenergy/pdfs/chp_report_12-08.pdf).

[5] *Id.* (assuming a conventional power plant generates 500 MW).

[6] *See* National Association of Clean Air Agencies, October 28, 2010, "GHG Permitting Programs Ready to Go by January 2nd" ("[E]very state but one is poised to ensure that sources can obtain preconstruction permits under the Clean Air Act come January 2, 2011") (http://www.4cleanair.org/Documents/NACAAGHGSIPCallletterssummaryfinal.pdf).

[7] *See* DOE, Industrial Distributed Energy website for more information on Clean Energy Application Center locations and contacts (http://www1.eere.energy.gov/industry/distributedenergy/racs.html).

[8] *See* US EPA, Office of Air and Radiation, Oct 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Pulp and Paper Manufacturing Industry," at 19 (highlighting available

We are also pleased to see that the Guidance recognizes the role that output-based standards can play in promoting energy efficiency. Traditional "input-based" regulations set emission limits based on the amount of fuel used (e.g., pounds of pollutant per million BTUs). Output-based limits, however, are expressed as emissions per unit of useful energy output (e.g., pounds per megawatt hour). This rewards generators that have the highest "output" of megawatt hours and the lowest "output" of pollutants. EPA has adopted several output-based emissions standards,[9] and has issued guidance encouraging states to adopt the same.[10] We appreciate that EPA has reaffirmed its interest in output-based standards in the Guidance.[11]

Despite these important advances, the Guidance could go further to ensure that CHP and waste heat recovery reach their full potential. EPA should clarify that these technologies should be considered in Step 1 of BACT for all permits. After all, a facility will not be able to weigh CHP and waste heat recovery against other technologies in Step 4 if it isn't on the table in Step 1. The Guidance takes an important step in this direction by acknowledging that "combined cycle combustion turbines ... should be listed as options when an applicant proposes to construct a natural gas-fired facility."[12] The White Papers go a step further by identifying CHP or waste heat recovery as an available technology for each of the covered sectors.[13] The Guidance itself should clarify that these technologies are available for all sources. Moreover, the White Papers should clarify that the listed technologies are available for both new facilities and retrofits. As written, the applicability of the listed technologies is ambiguous in several of the White Papers.[14]

EPA should further clarify in the BACT Guidance that GHG BACT represents the floor, not the ceiling, for GHG permitting. Traditionally, New Source Performance Standards are issued *before*

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government resources: "For example, the U.S. EPA's Combined Heat and Power Partnership provides information on CHP technology basics, guidance for streamlining CHP projects, information on federal and state policies and incentives, CHP feasibility assessment tools, and a database of funding resources. The U.S. DOE's CHP Regional Application Centers provides educational assistance and project-specific support in eight different U.S. regions, including project development and screening tools; technical assistance and training; information regarding issues related to permitting, utilities, and siting; and case studies.") (http://www.epa.gov/nsr/ghgdocs/pulpandpaper.pdf).

[9] EPA has used an output-based approach for the new source performance standards (NSPS) for NOx from utility boilers, NSPS for mercury from coal-fired utility boilers, and cement kilns. For instance, the most recent *New Source Performance Standards for Stationary Gas Turbines* ([EPA–HQ–OAR–2004–0490, FRL–8033–4], RIN 2060–AM79, p. 38483) provides turbine owners with the option of using an output-based standard for calculating NOx emitted per unit of useful recovered energy. In its final NESHAP rule for the Portland Cement Manufacturing Industry ([EPA-HQ-OAR-2007-0877]; RIN 2060-AO42), EPA proposed an output-based methodology for PM, NOx and SO_2.

[10] *See* US EPA, Aug. 2004, "Output-Based Regulations: A Handbook for Air Regulators" (http://www.epa.gov/chp/documents/obr_final_9105.pdf).

[11] *See, e.g.* BACT Guidance at 38 ("In particular, where the output of the facility or the affected source is relatively homogeneous, an output-based standard (e.g., pounds per megawatt hour of electricity, pounds per ton of cement, etc.) may best present the overall emissions control of an array of control options.").

[12] BACT Guidance at 31.

[13] *See, e.g., Supra* note 3 (listing citations).

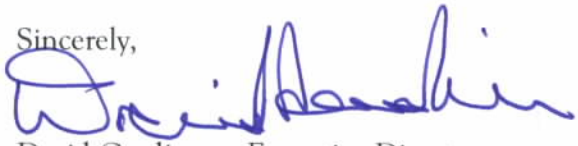
[14] *See, e.g.*, USEPA, Office of Air and Radiation, Oct. 2010, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Industrial Commercial, and Institutional Boilers," at 8-10 (Table 1) (identifying Combined heat and power as an "applicable" technology for all boilers in a table that appears to be limited to GHG emission reduction measures "for existing ICI boilers")(emphasis added) (http://www.epa.gov/nsr/ghgdocs/iciboilers.pdf).

BACT and establish a sector-wide floor. The absence of NSPS makes individual permitting decisions more important, as they serve as a guide for facilities and regulators around the country. To help with this process, EPA must create a readily available, comprehensive database of BACT determinations and available technologies. We are pleased to see that such a database already exists for electric utilities and cement production,[15] and want to ensure it is updated to inform permitting decisions across sectors. This is particularly important, as the Guidance states that "EPA considers a technology to be technically feasible if it has been demonstrated in practice or is available and applicable to the source type under review" and adds that "EPA considers a technology to be 'demonstrated,' if it has been installed and operated successfully on the type of source at issue."[16] A comprehensive searchable database of demonstrated technologies would ensure that regulated entities consider all available options.

The Alliance for Industrial Efficiency is committed to making US manufacturers more competitive through industrial efficiency. We are pleased to see that EPA's GHG Guidance mentions the critical role that efficiency can play in reducing emissions. We applaud this important first step and urge EPA to make the modifications reflected in these comments to clarify the broad applicability of CHP and waste heat recovery.

Thank you for the opportunity to comment.

Sincerely,



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Filed on behalf of:
Glass Manufacturing Industry Council (GMIC)
Mechanical Contractors Association of America (MCAA)
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Recycled Energy Development (RED)
Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
Sheet Metal Workers' International Association (SMWIA)
The Association of Union Constructors (TAUC)
TAS Energy

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[15] US EPA, Greenhouse Gas Mitigation Strategies Database, Version 1.0 (visited Dec. 1, 2010) (http://ghg.ie.unc.edu:8080/GHGMDB/).
[16] BACT Guidance at 35.