

February 7, 2011

EPA Docket Center No. EPA-HQ-OAR-2009-0491
United States Environmental Protection Agency
Mail Code 6102T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Docket ID No. EPA-HQ-OAR-2009-0491.

We are grateful for the opportunity to comment in response to the **Notice of Data Availability for Federal Implementation Plans To Reduce Interstate Transport of Fine Particulate Matter and Ozone** also known as and henceforth referred to as the Clean Air Transport Rule (CATR) or the Transport Rule. Each of the undersigned companies is a member of the US Clean Heat and Power Association (USCHPA), a private, non-profit association designed to promote the merits of Combined Heat and Power and distributed generation and achieve public policy support.

We are gratified by EPA's growing recognition of the important role of energy efficiency in its suite of Clean Air Act regulations. Indeed, energy efficiency reduces compliance costs for all of the Agency's rules - by reducing fuel demand and associated emissions. This perspective was reflected in EPA's recent Guidance for PSD and Title V Permits for Greenhouse Gasses ("BACT Guidance"), which expressly recognized the key role energy efficiency can play - not only in the reduction of greenhouse gasses, but in reducing emissions of all criteria pollutants. As EPA recognized in the Guidance, "[s]electing technologies, measures and options that are energy efficient translate[s] not only in the reduction of emissions of the particular regulated NSR air pollutant undergoing BACT review, but it also may achieve collateral reductions of emissions of other pollutants, as well as GHGs."¹ This appreciation for energy efficiency was also reflected in the Proposed Clean Air Transport Rule, wherein EPA acknowledged that "[p]olicies that will promote efficient use of electric power can be an integral, highly cost-effective component of power companies' compliance strategies."²

Unfortunately, the alternative allocation mechanisms elaborated in the Notice of Data Availability do little to advance energy efficiency. Notably, there is no mention of efficiency goals in the NODA. Moreover, by embracing an input-based emissions formula, the proposal discriminates against efficiency.

¹ 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 30 (hereinafter "BACT Guidance"); *see also* Guidance at 22 ("Thus, it is also important to emphasize that energy efficiency should be considered in BACT determinations for all regulated NSR pollutants (not just GHGs).")

² US EPA, Office of Air and Radiation, EPA-HQ-OAR-2009-0491; FRL-9249-6, Aug. 2, 2010, "Federal Implementation Plans To Reduce Interstate Transport of Fine Particulate Matter and Ozone," 75 Fed. Reg. 45229 (hereinafter "CATR I"); *see also* 75 Fed. Reg. 45352-53.

We are very disappointed by EPA’s failure to include an output-based emissions formula in the NODA. EPA acknowledges that it “received numerous public comments” on alternative allocation approaches.³ While it asserts that the alternative methodologies included in the NODA “emerge from comments that EPA received during the comment period on the proposed Transport Rule,”⁴ it does not account for a wide range of comments in the docket advocating for adoption of an output-based allocation formula.⁵ (see Appendix for comment excerpts) The result is a rule that will place EPA guidance in direct conflict with energy efficiency.

We recommend that EPA adopt an output-based formula that considers both thermal and electric output by regulated units. By setting pollution limits based on each unit of energy produced, rather than the amount of fuel consumed, output-based standards provide greater incentives for pollution prevention, energy efficiency, and emissions reduction.⁶ This approach would reward those facilities that produce larger amounts of electricity with less NOx or SOx emissions.

In contrast, the alternative allocation strategy included in the NODA simply locks in historic emissions levels. By allocating allowances based on heat input, the NODA focuses on the amount of fuel consumed, rather than the amount of useful electricity (and thermal energy) produced by regulated facilities. This approach eliminates incentives for greater efficiency.

Energy efficiency is a particularly important consideration under the Transport Rule because traditional power generation is woefully inefficient. As illustrated in the following graphic, two-thirds of the fuel we use to produce electrical power is wasted under conventional power production. Thus, as depicted below, roughly one-third (15,623 TWh) of primary energy input (49,555 TWh) – a mere 32 percent – is actually delivered to customers using conventional means.

³ US EPA, Office of Air and Radiation, EPA-HQ-OAR-2009-0491; FRL-9249-6, Jan. 7, 2011, “Notice of Data Availability for Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone,” 76 Fed. Reg. 1109, 1110 (hereinafter “NODA”).

⁴ 76 Fed. Reg. at 1111.

⁵ See, e.g., Comments of the Alliance for Industrial Efficiency, September 30, 2010, at pages 2-3

(<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2773.1>); Comments of the American

Clean Skies Foundation, October 1, 2010, at page 5 ([http://www.regulations.gov/#!documentDetail;D=EPA-HQ-](http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2850.1)

[OAR-2009-0491-2850.1](http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2850.1)); Comments of the Clean Energy Group, October 4, 2010, at page 6

(<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2702.1>); Comments of Equipower

Resources Corporation, October 1, 2010, at page 16 ([http://www.regulations.gov/#!documentDetail;D=EPA-HQ-](http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2704.1)

[OAR-2009-0491-2704.1](http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2704.1)); Comments of the New Jersey Department of Environmental Protection—Division of Air

Quality, September 30, 2010, at page 16 ([http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-](http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2684.1)

[0491-2684.1](http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2684.1)); Comments of the Northeast States for Coordinated Air Use Management (NESCAUM), October 1,

2010, at page 8 (<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2010-0162-1757.2>); Comments of

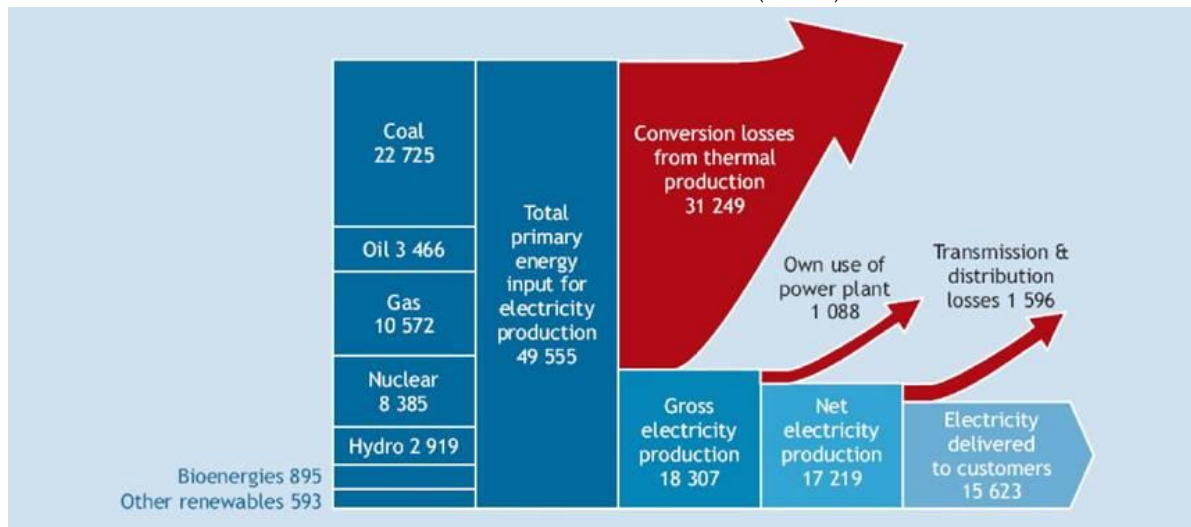
Recycled Energy Development, September 24, 2010 at page 2 ([http://www.regulations.gov/#!documentDetail;D=EPA-](http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2601.1)

[HQ-OAR-2009-0491-2601.1](http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2601.1)); Comments of the US Clean Heat and Power Association, September 30, 2010, at page

2 (<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2823.1>).

⁶ See, e.g., EPA Combined Heat and Power Output-Based Regulations web page at <http://www.epa.gov/chp/state-policy/output.html> and the linked “Output-Based Environmental Regulations Factsheet” and “Output-Based Regulations: A Handbook for Air Regulators” documents.

FIGURE 1: Losses from Conventional Power Generation (TWh)⁷



Waste Heat Recovery and Combined Heat and Power, in contrast, can more than double this efficiency – capturing heat and putting it to good use. Assuming thermal losses alone are reduced by half (a conservative improvement), under the above scenario, an additional 15,624 TWh would be delivered to customers.

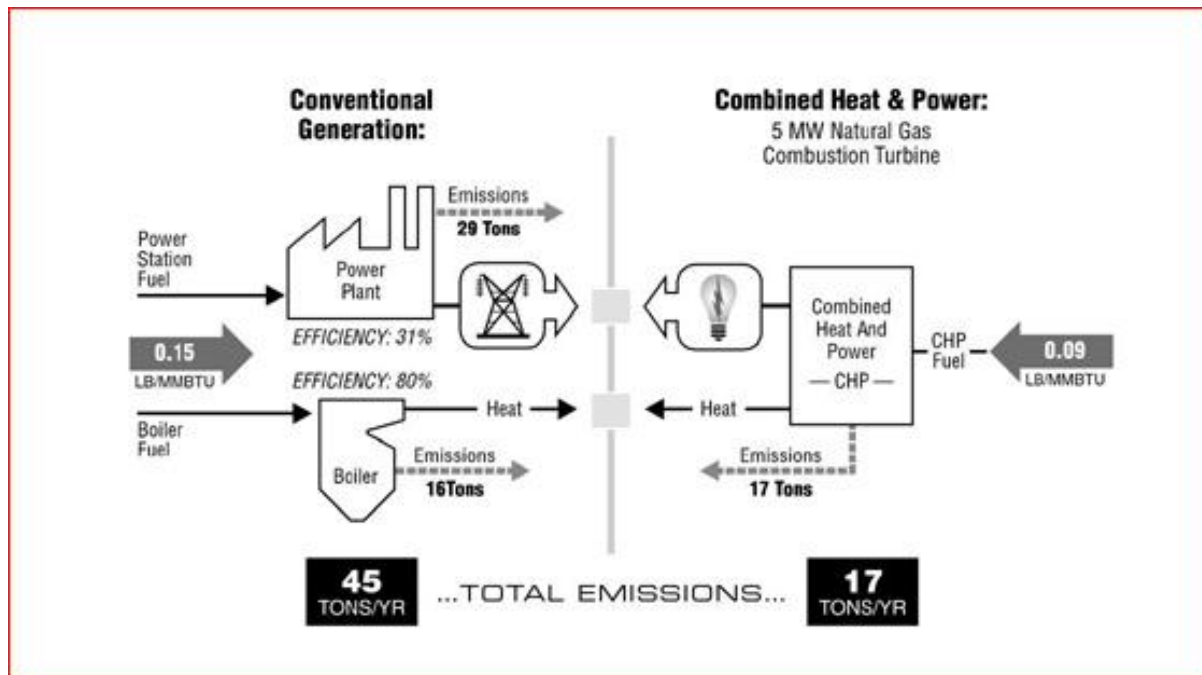
Such losses have concomitant environmental effects. In fact, as depicted below, inefficiencies in conventional power generation lead to nearly three times the NOx emissions of Combined Heat and Power (45 tons/ year vs. 17 tons/ year in the graphic on the next page). Under the Combined Heat and Power scenario much less fuel is consumed and fewer emissions released to provide a given amount of useful energy as compared to separate heat and power. The lower emissions associated with Combined Heat and Power are clearly preferable and should be encouraged.

By allocating allowances based on electricity and thermal energy produced, the Transport Rule would create greater incentives for facilities to incorporate such efficiencies into their design, perhaps encouraging utilities to collocate near industrial sources or buildings that would be able to benefit from their thermal output. The Oak Ridge National Laboratory projects that Combined Heat and Power can provide 20 percent of US electric capacity by 2030.⁸ Deployment of CHP at this scale could lower demand for conventional power and significantly reduce compliance costs under the Transport Rule. The NODA should incorporate provisions that encourage such investments.

⁷ International Energy Agency, 2008, “Combined Heat and Power: Evaluating the benefits of greater global investment,” at 6 (Figure 3) (http://www.iea.org/papers/2008/chp_report.pdf).

⁸ 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).

FIGURE 2: NO_x Emissions from Power Generation⁹



Some may contend that it is too difficult to accurately measure thermal output from CHP. To the contrary, facilities should be able to accurately measure thermal output using audit-quality data; however, in the event this is not possible, EPA could establish a conservative conversion efficiency of MMBtus in the fuel to MMBtus of useful energy to account for any potential inaccuracies in measurement.¹⁰ Such a “discount” would provide regulated sources with an economic incentive to install good thermal metering. Moreover, claims that thermal output cannot be measured are belied by the fact that many states have successfully adopted output-based emissions rules that credit heat recovery from CHP.¹¹

⁹ US EPA, “Output-Based Environmental Regulations Fact Sheet” (http://www.epa.gov/chp/state-policy/obr_factsheet.html) (Note that this figure is for illustration only. CHP performance relative to separate heat and power depends on numerous site- and project-specific factors).

¹⁰ The definition of “conservative” should be evaluated on a technology-specific basis to avoid gaming, but is intended to be set at the lower end of the efficiency range for any given combustion technology, so as to incentivize regulated sources to install accurate metering and re-file their air permit. We believe that EPA already has sufficient data on the population of combustion sources from AP-42 and other sources, and could use that raw data to set efficiency levels by technology.

¹¹ See, e.g., See, for instance, EPA Combined Heat and Power Output-Based Regulations web page at <http://www.epa.gov/chp/state-policy/output.html> and the linked “Output-Based Environmental Regulations Factsheet” and “Output-Based Regulations: A Handbook for Air Regulators” documents (citing 12 states with output-based standards, including at least four that recognize non-electricity thermal output, such as from combined heat and power systems); Delaware Administrative Code, Title 7, Natural Resources and Environmental Control, Section 1144 Control of Stationary Generator Emissions (<http://regulations.delaware.gov/AdminCode/title7/1000/1100/1144.shtml>) (note that while the Delaware law provides a good approach to calculating efficiency, we do not embrace the minimum thermal/ electric output tests

Notably, an output-based approach is also consistent with other EPA rulemakings. For instance, in the recently issued BACT Guidance, EPA expressly “encourage[d] permitting authorities to consider establishing an output-based BACT emissions limit, or a combination of output- and input-based limits, wherever feasible and appropriate.”¹² By likewise embracing an output-based formula for allowance allocation of permits under the Transport Rule, EPA can provide greater consistency across its rulemakings.

The Clean Air Transport Rule sets an important precedent. EPA plans to promulgate a second Transport Rule for industrial sources in the foreseeable future. By incorporating an output-based emissions standard in this rule, EPA can lay the groundwork to adopt a similar allocation methodology in Round Two. This is particularly important given the potential for emissions reductions through energy efficiency at industrial sources. Indeed, potential savings in industrial energy use are vast, as the industrial sector is responsible for about one-third of total US energy demand.¹³

Waste Heat Recovery and Combined Heat and Power hold tremendous promise to reduce electricity demand and lower Clean Air Act compliance costs. We urge EPA to incorporate an output-based approach as an alternative allocation mechanism to help stimulate greater investment by regulated entities in energy efficiency, including WHR and CHP. We thank you for the opportunity to comment on this Rule and hope our comments are helpful.

Sincerely,

Chevron Global Power Co.
DCO Energy
Energenic, LLC
Recycled Energy Development
Solar Turbines Incorporated
US Clean Heat and Power Association (USCHPA)
Veolia Energy North America Holdings, Inc

elaborated in section 8.2.1.1, as this test may lead to the unintended consequence of discouraging highly efficient systems).

¹² BACT Guidance. at 46. See also *id.* at 38 (noting that for “combustion sources, it may be more appropriate to rank control options based on output-based metrics that would fully consider the thermal efficiency of the options when determining control effectiveness”).

¹³ 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>).

Appendix

Comments Advocating Output-Based Standards in Response to “Federal Implementation Plans To Reduce Interstate Transport of Fine Particulate Matter and Ozone” (EPA-HQ-OAR-2009-0491)

Comments of the Alliance for Industrial Efficiency, September 30, 2010, at pages 2-3

(<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2773.1>)

“First and most important, EPA should adopt output-based emissions standards in the Federal Plan. Rather than base pollution limits on the amount of fuel consumed, standards based on each unit of electricity (and thermal energy) produced would encourage efficiency. As a result, pollution would be prevented and emissions reduced.”

Comments of the Clean Energy Group, October 4, 2010, at page 6

(<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2702.1>)

“Many of the Clean Energy Group companies have long supported output-based allocation approaches. An output-based allocation relies on energy production (megawatt-hour [MWh]) as the basis for determining the number of allowances that a unit will receive prior to the compliance year....The benefits of an output-based allocation include promoting more efficient and cleaner production of electricity. In addition, the methodology does not further penalize companies and their customers for investments made in cleaner generation prior to a regulatory mandate.”

Comments of the American Clean Skies Foundation, October 1, 2010, at page 5

(<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2850.1>)

“EPA should consider an output-based methodology...A number of states have adopted output based allocation methods, which allocate emissions allowances based on megawatts produced by power plants. This could reward states with large amounts of generation to retain significant generation, while rewarding the most efficient units.”

Comments of Equipower Resources Corporation, October 1, 2010, at page 16

(<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2704.1>)

“The FIP that the Transport Rule would impose upon the states uses input-based calculations in determining allocations...In mandating an input-based regulation, EPA will usurp state authority to use a system that EPA itself has advocated for more than a decade...The use of an input-based calculation will lead to different allocations than an output-based calculation, which provides a greater number of allowances to more efficient plants.”

Comments of the New Jersey Department of Environmental Protection—Division of Air

Quality, September 30, 2010, at page 16 (<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2684.1>)

“The proposed allocation of allowances results in rewarding dirty units, while penalizing clean units. New Jersey urges the USEPA to revise their allocation method to be based on recent energy

output with rolling updates...Under the USEPA's proposal, clean units that currently meet the Phase 1 CAIR emission rate of 0.15 lbs/MMBtu account for 59 percent of the affected units, but only get 16 percent of the total Transport Rule ozone season NOx allowance. In turn, units that are dirtier than 0.15 lbs/MMBtu account for 41 percent of the affected units, but get 84 percent of the allowances. This provides disincentive for dirty utilities to control their emissions, while under allocates to clean units that have less ability to reduce emissions."

Comments of the Northeast States for Coordinated Air Use Management (NESCAUM), October 1, 2010, at page 8 (<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2010-0162-1757.2>)

"EPA can and should, at a minimum, establish allocations based on output."

Comments of Recycled Energy Development, September 24, 2010 at page 2 (<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2601.1>)

"First and most important, EPA should adopt output-based emissions standards in the Federal Plan. Rather than base pollution limits on the amount of fuel consumed, standards based on each unit of electricity (and thermal energy) produced would encourage efficiency. As a result, pollution would be prevented and emissions reduced."

Comments of the US Clean Heat and Power Association, September 30, 2010, at page 2 (<http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2009-0491-2823.1>).

"First and most important, EPA should adopt output-based emissions standards in the Federal Plan. Rather than base pollution limits on the amount of fuel consumed, standards based on each unit of electricity (and thermal energy) produced would encourage efficiency. As a result, pollution would be prevented and emissions reduced."