



August 23, 2010

Hand Delivery and Email (a-and-r-docket@epa.gov)

EPA Docket Center
EPA West, Room 3334
1301 Constitution Ave., NW
Washington, DC 20460

Re: Comments of America's Natural Gas Alliance
Proposed Rules -- National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters (Docket ID No. EPA-HQ-OAR-2002-0058); National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial and Institutional Boilers and Process Heaters (Docket ID No. EPA-HQ-OAR-2006-0790)

Dear Docket Clerk:

America's Natural Gas Alliance (ANGA) appreciates this opportunity to submit these comments on the U.S. Environmental Protection Agency's ("EPA" or "the Agency") proposed National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters ("Proposed Major Source ICI Boiler MACT Rule"), published at 75 Fed. Reg. 32006 (June 4, 2010). In addition, ANGA is submitting these comments to the docket established for the proposed National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial and Institutional Boilers and Process Heaters ("Proposed Area Source ICI Boiler MACT Rule"), published at 75 Fed. Reg. 31896 (June 4, 2010). Our comments refer to these two proposed rules together as the "Proposed ICI Boiler MACT Rules."

ANGA is an educational and advocacy organization formed by North America's leading independent natural gas exploration and production companies. Together, ANGA members produce over 40 percent of the total U.S. natural gas supply. ANGA is dedicated to increasing appreciation for the environmental, economic and national security benefits of clean, abundant, affordable and dependable North American natural gas.

ANGA's member companies produce the clean and efficient natural gas that is currently being burned in the over 11,000 natural gas-fired boilers/process heaters that would be covered by the Proposed Major Source ICI Boiler MACT Rule.¹ In addition, there are over 1,800 boilers/process heaters currently utilizing coal/biomass/liquid fuel

¹ 75 Fed. Reg. 32006 (June 4, 2010), at 32038.

that will be covered by the Proposed Major Source ICI Boiler MACT Rule that are potential natural gas customers.² New boilers/process heaters coming on-line after the Proposed Major Source ICI Boiler MACT Rule is finalized and effective are also potential natural gas customers. To the extent that the Proposed ICI Boiler MACT Rules will impact the market for natural gas, as discussed in greater detail below, members of ANGA will be significantly affected by the outcome of this rulemaking.

The Proposed ICI Boiler MACT Rules are two of several elements of the Agency's broad strategy to reduce emissions of air pollutants from combustion sources, including Hazardous Air Pollutants ("HAPs") as well as other air pollutants such as sulfur dioxide and oxides of nitrogen. As the Agency has recognized, natural gas is "considered a 'clean' fuel,"³ one that can be used to achieve the overall emission reduction goals of the Clean Air Act (the "CAA" or "Act") and of Section 112 in particular. As the Agency moves forward with these and other rules under the CAA that impact combustion sources generally, it must be mindful of its emission reduction obligations and goals under the Clean Air Act and use its authority under the Act to the maximum extent possible to promote the use of cleaner fuels, including natural gas.

ANGA supports the Agency's proposal to impose work practice standards on major source natural gas-fired ICI boilers and process heaters. This is an appropriate exercise of the Agency's discretion under Section 112(h) of the Clean Air Act. In addition, it appropriately reflects the superior environmental performance of natural gas over other fossil fuels currently being used to fire boilers and process heaters. We also support the Agency's determination that "gas-fired area source boilers are not needed to meet the 90 percent requirement of section 112(c)(3) of the Clean Air Act"⁴ and that therefore such boilers are not subject to the Proposed Area Source ICI Boiler Rule.

ANGA is concerned, however, that with respect to the Proposed ICI Boiler MACT Rules, EPA appears to rely on data and information that were developed in support of the Agency's ICI Boiler MACT rulemaking effort in the 2002-2004 timeframe in reaching the conclusion that fuel switching is not an appropriate control technology for purposes of evaluating the MACT floor and beyond-the-floor standards.⁵ We respectfully suggest that the Agency reconsider this conclusion, taking into account current information and data with respect to the impacts on emissions of HAPs and the feasibility of fuel switching, as well as current natural gas infrastructure and supply conditions. A review of current information and data supports the conclusion that fuel switching is an appropriate control option for the Proposed ICI Boiler MACT Rules.

² *Id.*

³ *Id.*, at 32029.

⁴ 75 Fed. Reg. 31896 (June 4, 2010).

⁵ The discussion that follows cites to relevant information and data relating to the Proposed Major Source ICI Boiler MACT Rule; however, the underlying positions, arguments and rationale apply equally to the Agency's determination regarding fuel switching set forth in the Proposed Area Source ICI Boiler MACT rule at 75 Fed. Reg. 31905.

Fuel Switching As a MACT Control Option Under Section 112

The CAA requires that EPA set emissions standards for each category or subcategory of major sources of HAPs, with the goal of reducing such emissions.⁶ These emissions standards are based on maximum achievable control technology (“MACT”) and determined using a two-step process.⁷ EPA first sets a MACT emissions floor for each HAP and source category, with different methodologies for new and existing sources.⁸ The MACT floor for new sources is the standard achieved by the best controlled similar source; the MACT floor for existing sources is the average limitation achieved by the best-performing 12 percent of existing sources.⁹ EPA then determines if a more stringent “beyond-the-floor” emissions standard is achievable, with consideration of costs and other factors and application of measures specifically including materials substitution and process changes as options.¹⁰

Because the CAA is intended to reduce emissions of HAPs and because materials substitution, or “fuel switching,” to cleaner fuels can reduce HAP emissions, EPA is required to consider fuel switching as a MACT control option. The Act allows fuel switching as a control option in setting MACT floors and specifically names it as a potential emission control option for consideration when setting beyond-the-floor standards.

In setting MACT floors, fuel switching is an allowed, and encouraged, control option. The U.S. Court of Appeals for the D.C. Circuit has recognized that materials substitution is a valid emissions reduction strategy to be considered in setting emissions standards.¹¹ Legislative history confirms this:

The technologies, practices or strategies which are to be considered in setting emission standards under this subsection go beyond the traditional end-of-the-stack treatment or abatement system. The Administrator is to give priority to technologies or strategies which reduce the amount of pollution generated through process changes or the substitution of materials less hazardous. Pollution prevention is to be the preferred strategy wherever possible.¹²

In narrow circumstances where legislative history indicates that Congress may have not intended fuel switching to apply to certain source categories such as mining metals and ores, the statute provides no such exceptions, and courts have not based decisions on such legislative history.¹³ Indeed, EPA has recognized that fuel switching is

⁶ 42 U.S.C. §§ 7412(d)(1), (d)(3).

⁷ See *Nat'l Resources Defense Council v. EPA*, 489 F.3d 1250, 1254 (D.C. Cir. 2007).

⁸ See 42 U.S.C. § 7412(d)(1), (d)(3).

⁹ *Id.*

¹⁰ *Id.* § 7412(d)(2), (d)(2)(A).

¹¹ See *Nat'l Lime Ass'n v. EPA*, 233 F.3d 625, 633 (D.C. Cir. 2000).

¹² S. Rep. No. 101-228, at 168 (1989) (report of the Senate Committee on Environment and Public Works).

¹³ See *Sierra Club v. EPA*, 353 F.3d 976, 988 (D.C. Cir. 2004).

allowed in setting MACT floors and has considered it numerous times when setting floors for various source categories.¹⁴

In setting beyond-the-floor limitations, the Act explicitly directs EPA to consider emissions reduction measures such as fuel switching. The EPA Administrator must determine if additional measures—the beyond-the-floor limitations—are needed to achieve maximum reduction of HAP emissions.¹⁵ The Act specifically names “substitution of materials” and “process changes” as pollution reduction measures for consideration in this determination.¹⁶ EPA has recognized that fuel switching is appropriate for consideration when setting beyond-the-floor standards.¹⁷

In sum, the CAA allows—and specifically encourages—EPA to consider fuel switching when setting standards to reduce HAP emissions.

EPA's Decision Not to Consider Fuel Switching as an “Appropriate Control Technology” for Purposes of Determining the MACT Floor is Arbitrary, Capricious, and Unsupported by Record Material

As indicated above, ANGA believes that the Agency should, and indeed must, consider fuel switching in its evaluation of strategies for reducing HAP emissions from boilers/process heaters. EPA appears to recognize this as well: “We first considered whether fuel switching would be an appropriate control option for sources in each subcategory. We considered the feasibility of fuel switching to other fuels used in the subcategory and to fuels from other subcategories.”¹⁸

The Agency's conclusion that “fuel switching was not an appropriate control technology for . . . any subcategory”¹⁹ is not supported by evidence in the record, nor do we believe that there is other evidence to support that conclusion. To the contrary, we believe that fuel switching results in significant reductions in HAP emissions, is technically feasible, and is or could be readily available to meet increased demand driven by fuel switching.

To the extent that the Agency seeks to support its conclusion against fuel switching in the Proposed Major Source ICI Boiler MACT Rule, it appears to be simply restating, often verbatim, positions taken in the 2002-2004 rulemaking. ANGA submits that both technology and the states of the natural gas market and infrastructure are very different than they were in the period leading up to the 2002-2004 rulemaking. These developments undercut the Agency's conclusions, and would lend strong support for a decision in favor of fuel switching as an effective and available control technology to reduce HAP emissions from ICI boilers.

¹⁴ See, e.g., 64 Fed. Reg. 31898, 31917 (Portland Cement Manufacturing Industry); 67 Fed. Reg. 49398, 49414 (Hydrochloric Acid Production); 67 Fed. Reg. 78046, 78059-62 (Lime Manufacturing Plants); 69 Fed. Reg. 4652, 4669 (Electric Utility Steam Generating Units); 69 Fed. Reg. 21198, 212273-74 (Hazardous Waste Combustors).

¹⁵ 42 U.S.C. § 7412(d)(2).

¹⁶ 42 U.S.C. § 7412(d)(2)(A); see also *Sierra Club v. EPA*, 353 F.3d 976, 988 (D.C. Cir. 2004) (same).

¹⁷ See, e.g., 64 Fed. Reg. 31898, 31917 (Portland Cement Manufacturing Industry).

¹⁸ 75 Fed. Reg. at 32019.

¹⁹ *Id.*

A. Overall Effect of Fuel Switching on HAP Emissions.

In the Proposed Major Source ICI Boiler MACT Rule, EPA discusses the issue of the emissions impact of fuel switching to natural gas in one sentence, with reference to an April 2010 memorandum prepared by ERG.²⁰ EPA concludes that “while fuel switching from solid fuels to gaseous or liquid fuels would decrease PM and some metals emissions, emissions of some organic HAP (e.g., formaldehyde) would increase.”²¹

The manner in which EPA presents data from the ERG Fuel Switching Memorandum in the Proposed Major Source ICI Boiler MACT Rule is both misleading and incomplete. The table that is Appendix A-6 to the ERG Fuel Switching Memorandum summarizes data regarding emissions reductions from fuel switching, by subcategory. A review of those data reveals that, aside from very minor (one ton per year (“tpy”)) increases in chromium and nickel emissions from the biomass subcategory (which includes only approximately 3% of the total number of sources in the category), the only other organic HAP where emissions would increase is formaldehyde, and even for formaldehyde the increase is only for one “sub-subcategory” (“heavy liquid”) and the total increase is 12 tons per year (“tpy”).²²

There are no other increases of any HAPs, including organic HAPs, from any of the subcategories. Moreover, aggregating decreases of formaldehyde emissions from all subcategories in the source category reveals that total formaldehyde emissions from the source category would actually **decrease** by a total of 1,044 tpy.²³ Finally, emissions of CO (the pollutant EPA selected as the surrogate for organic HAPs such as formaldehyde) would decrease by over 407,000 tons per year as a result of fuel switching, more than 70,000 tons per year more than the decreases predicted as a result of the MACT option proposed by EPA in the Proposed Major Source ICI Boiler MACT Rule.²⁴

It is misleading for the Agency to posit in the Proposed Major Source ICI Boiler MACT Rule that data in the ERG Fuel Switching Memorandum shows that “emissions of some organic HAP (e.g., formaldehyde) would increase,” when the data show that the increase in formaldehyde emissions is limited to two small subcategories, that formaldehyde is the only organic HAP whose emissions would increase from any subcategory, and that overall formaldehyde emissions would decrease by more than 1,000 tpy.

The cursory discussion of the emission impacts from fuel switching in the Proposed Major Source ICI Boiler MACT Rule is also incomplete, and it dramatically understates the predicted benefits of fuel switching. EPA indicates that fuel switching

²⁰ Gibson, Graham. Memorandum to Eddinger, Jim, U.S. EPA, OAQPS. *Development of Fuel Switching Costs and Emission Reductions for Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants*. (April 2010) (“ERG Fuel Switching Memorandum”).

²¹ 75 Fed. Reg. at 32019.

²² There were also minor increases in certain non-mercury metallic HAP emissions from the refinery gas sub-subcategory and the “other gas” subcategory.

²³ ERG Fuel Switching Memorandum, Table 2-3 (p.5).

²⁴ *Id.*, Appendix A-7.

“would decrease PM and some metals emissions.” Its own consultant, however, concludes:

“In general emissions of Hg, filterable PM, HCl, HF, SO₂, CO, THC, VOC and non-mercury metallic HAP decreased when switching to NG. For residual liquid and process gas subcategories, formaldehyde emissions increased as a result of fuel switching. However, total emissions of formaldehyde experienced a net reduction when all fuel categories were factored.²⁵

Tables 2.2 and 2.3 of the ERG Fuel Switching Memorandum summarize the total emission reductions of all HAPs from fuel switching from each of the subcategories and in the aggregate. Emissions of metallic HAPs would decrease by almost 4,300 tons per year,²⁶ and emissions of all other HAPs (and HAP surrogates used by EPA in the Proposed Major Source ICI Boiler MACT Rule) would also decrease across the board, with significant decreases in hydrogen chloride (42,289 tons per year), hydrogen fluoride (8,043 tons per year) and mercury (8 tons per year).²⁷

Finally, the ERG Fuel Switching Memorandum also compares the HAP emission reductions that would be achieved through fuel switching to the HAP emission reductions that would be achieved through implementation of the MACT option proposed in the Proposed Major Source ICI Boiler MACT Rule.²⁸ These tables break down the emissions data on a subcategory-by-subcategory basis; there is also a comparison of the aggregate emissions decreases as well. Appendix A-7 shows that emissions reductions from fuel switching would **exceed** emissions reductions from the proposed option for every class of pollutants included in the table except for hydrogen chloride (HCl), where emission reductions from fuel switching (42,289 tpy) would be 0.3% -- 114 tpy -- less than emission reductions from the proposed option (42,403 tpy).

As this wealth of data shows, fuel switching would lead to significant HAP emission decreases; it should be cited as supporting the utilization of fuel switching as a control option for its MACT floor level of control analysis.

In the original January 13, 2003, proposed rule for the ICI Boiler MACT, EPA discussed the issue of fuel switching as a control option and, with respect to the issue of the overall effect of fuel switching on HAP emissions, used the identical language used in the Proposed Major Source ICI Boiler MACT Rule, while citing to a prior iteration (from 2002) of the ERG Fuel Switching Memorandum.²⁹ In the 2003 proposed rule the Agency acknowledged that fuel switching would result in decreased emissions of some HAPs, but apparently concluded that it would be inappropriate to do a further analysis regarding whether the overall emissions effects would justify including fuel switching as a control option.

²⁵ *Id.*, at 11.

²⁶ *Id.*, at 4.

²⁷ *Id.*, at 5.

²⁸ *Id.*, at Appendix A-7.

²⁹ 68 Fed. Reg. 1660, at 1672 (Jan. 13, 2003).

We believe that it is inappropriate in a MACT rulemaking to consider as MACT a control option that potentially will decrease emissions of one HAP while increasing emissions of another HAP. In order to adopt such a strategy, EPA would need to assess the relative risk associated with each HAP emitted, and determine whether requiring the control in question would result in overall lower risk. Such an analysis is not appropriate at this stage in the regulatory process.³⁰

ANGA questions whether the CAA permits the Agency to discount further analysis of fuel switching on this basis. The more recent MACT Floor Analysis cited by EPA as the basis for the Proposed Major Source ICI Boiler MACT Rule,³¹ which uses much more recent data from the Phase I and Phase II ICR 2008 Combustion Surveys, does not discuss fuel switching at all. The Agency seems instead simply to have repeated out-dated conclusions it reached when it developed the 2003 proposed rule in making the determination not to consider fuel switching as a control option in the Proposed Major Source ICI Boiler MACT Rule.

For these reasons, EPA's conclusion with respect to the overall effect of fuel switching on HAP emissions, as a factor in the Agency's determination not to consider fuel switching as a control option, is arbitrary, capricious, and unsupported by the record.

B. Technical and Design Feasibility

EPA cites the feasibility of fuel switching as another factor in its decision not to consider fuel switching as a control option:

There is a significant concern that switching fuels would be infeasible for sources designed and operated to burn specific fuel types. Changes in the type of fuel burned by a boiler or process heater (solid, liquid, or gas) may require extensive changes to the fuel handling and feeding system (*e.g.*, a stoker using wood as fuel would need to be redesigned to handle fuel oil or gaseous fuel). Additionally, burners and combustion chamber designs are generally not capable of handling different fuel types, and generally cannot accommodate increases or decreases in the fuel volume. Design changes to allow different fuel use, in some cases, may reduce the capacity and efficiency of the boiler or process heater. Reduced efficiency may result in less complete combustion and, thus, an increase in organic HAP emissions.³²

ANGA notes that this language appeared, verbatim, in the 2003 proposed rule; as a preliminary matter, ANGA questions whether there has been any additional evaluation of the current state of combustion technologies, including technologies such as dual-fired equipment.

³⁰ *Id.*

³¹ Singleton, Amanda. Memorandum to Jim Eddinger, U.S. EPA. *MACT Floor Analysis for the Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants – Major Source*. April 2010.

³² 75 Fed. Reg. at 32019.

Switching fuels is not technologically infeasible for sources originally designed to burn a particular fuel source. Conversion of existing equipment designed burn a fuel other than natural gas does not require new technologies; rather, as EPA recognizes, it involves changes to equipment,³³ not unlike the installation of air pollution control equipment at an existing source that is necessary to meet new emission standards.

Companies such as Babcock & Wilcox Power Generation Group, Inc. advocate conversion from coal-fired units to natural gas-fired units and have published materials discussing the operational, technical and financial considerations to be evaluated in analyzing fuel switching, including the requisite modifications to existing equipment.³⁴ Babcock & Wilcox reference successful conversions in Ohio and outside the United States.³⁵ Coal-to-gas boiler conversion to generate process steam has also been conducted recently and successfully in South Africa.³⁶ Clearly the technology exists and is feasible to implement, and EPA seems to acknowledge this indirectly when it states that such a conversion “may require extensive changes to the fuel handling and feeding system.”³⁷

If such conversions are not technologically infeasible, the infeasibility must arise elsewhere, and ANGA is concerned that, with respect to its MACT floor determination, the Agency is impermissibly using the costs of such conversions to determine infeasibility. “However, EPA may not consider costs or other impacts in determining the MACT floor.”³⁸

ANGA has not been able to find any other, non-cost related factors in the record that would support a determination that fuel switching is not feasible. Going back to the 2002-2004 rulemaking and the Agency’s “Response to Public Comments” document, EPA appears to have confirmed that the infeasibility of fuel switching was in fact cost-based: “This cost differential [high cost of natural gas relative to other fuels] results in the infeasibility of fuel switching to natural gas.”³⁹

Because the information cited to in the Proposed Major Source ICI Boiler MACT Rule appears to be the same information used by the Agency in the 2002-2004 rulemaking, where EPA acknowledged that the cost served as the basis for its infeasibility determination, and because there does not appear to be any other, additional information upon which the Agency is basing its determination in this Proposed Major Source ICI Boiler MACT Rule, the determination appears to have again

³³ See, e.g., a discussion of the type of equipment changes necessary to convert a boiler from coal-fired to natural gas-fired at <http://energyexperts.org/EnergySolutionsDatabase/ResourceDetail.aspx?id=2325>.

³⁴ See Binkiewicz, F.J., et al., *Natural Gas Conversions of Existing Coal-Fired Boilers*, available at www.babcock.com/library/pdf/MS-14.pdf, at 1.

³⁵ See *id.* at 2, 3.

³⁶ See Thomaz, C., “Large Coal-to-Gas Boiler Conversions Completed,” *Engineering News Online*, available at www.engineeringnews.co.za/print-version/large-coaltogas-boiler-conversions-completed-2009-01-30 (January 30, 2009).

³⁷ 75 Fed. Reg. at 32019.

³⁸ *Id.*

³⁹ Eddinger, Jim. Memorandum to Robert Wayland, U.S. EPA, ESD Combustion Group. *Response to Public Comments on Proposed Industrial, Commercial, and Institutional Boilers and Process Heaters NESHAP*. February 25, 2004.

been made based on cost factors, an approach that is not allowed with respect to the MACT floor.

We recognize that cost is a factor in the analysis of control options for the “beyond-the-floor” scenario, in addition to other non-air quality health and environmental impacts and energy requirements.⁴⁰ Given the amount of time and attention that has been paid to the issue of fuel switching in the context of combustion equipment, we would expect that an estimate of the cost of fuel switching, including capital costs and operating costs, would be based on relatively recent data. However, it appears that the Agency is relying upon cost information dating back as far as 1986.

The ERG Fuel Switching Memorandum sets forth the basis for the Agency’s analysis of costs involved with fuel switching. While that analysis does use information gathered in the 2008 Boiler and Process Heater Questionnaire (ICR No. 2286.01) for the universe of combustion units and the types of fuel they burn, the base costs and the cost sources that the Agency relied upon are the same ones that EPA used for the 2002 analysis (escalated to 2008 costs).⁴¹ These sources include, as the basis for the capital costs for certain equipment, a December 1986 study.⁴²

To the extent that the Agency determined that the significant cost of fuel switching was one of the factors it relied upon in determining that fuel switching was not an appropriate beyond-the-floor option (an assumption that is not completely clear), ANGA does not believe that it is appropriate to rely on capital cost estimates from a 24-year old study in developing the overall estimate for fuel switching costs.

C. Availability

In the Proposed Major Source ICI Boiler MACT Rule EPA cites a third factor it considered when evaluating fuel switching as a control option: the availability of alternative fuel types such as natural gas.

Although there is a plethora of information and data regarding the current and future supply of natural gas and infrastructure necessary to transport and store natural gas, the Agency fails to cite or identify a single source for the following broad statements which the Agency claim support its conclusion.

- Natural gas pipelines are not available in all regions of the U.S., and natural gas is simply not available as a fuel for many industrial, commercial, and institutional boilers and process heaters.
- Even where pipelines provide access to natural gas, supplies of natural gas may not be adequate.⁴³

⁴⁰ 42 U.S.C. § 7412(d)(2).

⁴¹ ERG Fuel Switching Memorandum, at 8.

⁴² Fay, James et al., Massachusetts Institute of Technology, “*Feasibility and Cost of Converting Oil- and Gas-Fired Utility Boilers to Intermittent Use of Natural Gas.*” December 1986.

⁴³ 75 Fed. Reg. at 32019.

ANGA submits that there is no evidence in the record to support these conclusions. Furthermore, once again, this discussion is repeated, verbatim, from the 2003 proposed rule, and there is ample evidence to support the proposition that the natural gas infrastructure and supply are in a very different position than they were in the period immediately preceding the 2003 proposed rule. Finally, as is discussed further below, currently available information refutes the notion that there is insufficient supply or inadequate infrastructure to support demand that could be created if EPA were to endorse fuel switching as a control option for purposes of this MACT standard. ANGA endorses the comments filed by the American Gas Association with regard to information provided therein addressing these supply and infrastructure issues.

Infrastructure. There is nothing in the Proposed Major Source ICI Boiler MACT Rule or in the documents available in the docket, beyond those data available in 2003, that provides any additional data or information to support the Agency's statement regarding infrastructure. In fact, the Agency's argument that the distribution infrastructure was insufficient to support fuel switching was challenged by the National Wildlife Federation in the context of that proposed rule. In its comments, the National Wildlife Federation stated that EPA needed to conduct a more quantitative assessment of the issue to support its infrastructure conclusions. In response, the Agency indicated that it "did not have sufficient information on natural gas supply or infrastructure."⁴⁴

If the Agency did not have sufficient information to make those statements at that time, and there is no additional data or information in the record to support these statements in the Proposed Major Source ICI Boiler MACT Rule at this time, ANGA submits that the Agency still has not developed the quantitative assessment necessary to support any conclusion. Such an assessment is especially necessary in light of the significant differences between the conditions in 2000-2002 and now with respect to infrastructure and supply.

The Agency also makes the blanket statement that "natural gas is simply not available as a fuel for many [ICI] boilers and process heaters."⁴⁵ However, the Agency's consultant that developed the ERG Fuel Switching Memorandum assumed, for purposes of calculating the costs of fuel switching, that the number of sources where natural gas is not available at all was "negligible" and in the cost analysis assigned 0% to the appropriate subcategory, indicating that it assumed that no sources fell into this category.⁴⁶ While ANGA is not necessarily endorsing that conclusion, the fact that

⁴⁴ See, Response to Comments, *infra* note 36, at 100.

⁴⁵ 75 Fed. Reg. at 32019.

⁴⁶ ERG Fuel Switching Memorandum, at 7. In developing costs for switching to natural gas, ERG broke up the source category into three subcategories, including category "C" where "...the facility does not use natural gas at all" and where additional infrastructure would be needed to bring natural gas to the facility. In order to "address the potential availability of natural gas at these facilities," ERG further divided the subcategory into four additional cases, with case "C4" being a scenario where "Gas is not available at all." ERG goes on to state that "the number of units in C4 was expected to be negligible" and therefore assigned 0% to scenario C4.

EPA's consultant made this assumption in the very document that EPA cites suggests that EPA's position is not supported by the record.

Publicly available information supports the proposition that the natural gas infrastructure is sufficiently developed to be able to supply natural gas to the less than 2,000 sources identified by the Agency as currently existing or newly constructed sources that would be subject to this rule that do not currently burn natural gas, and that could therefore be subject to fuel switching if fuel switching were considered a control option in the MACT floor analysis.

According to the U.S. Energy Information Agency, "the U.S. natural gas pipeline network is a highly integrated transmission and distribution grid that can transport natural gas to and from nearly any location in the lower 48 States."⁴⁷ Department of Energy figures indicate that the interstate and intrastate transmission network feeds over 1.1 million miles of regional lines in some 1,300 local distribution utility networks, collectively delivering natural gas to 62 million customers in the United States, including electric generation and industrial/commercial/institutional customers.⁴⁸

According to a recent Interim Report issued by the MIT Energy Initiative ("MIT Interim Report"), the production and delivery infrastructure of natural gas in the U.S. is "both mature and robust."⁴⁹ The MIT Interim Report also focuses on recent developments.

Major changes in U.S. gas markets have prompted significant additions to the country's pipeline network over the last several years. Between 2005 and 2008, for example, pipeline capacity additions totaled over 80 Bcf/day, exceeding those from the previous four-year period by almost 100%. Additions of 44.5 Bcf/day in 2008 alone, exceeded total additions in the five-year period between 1998 and 2002.⁵⁰

With respect to the issue of concerns regarding natural gas infrastructure, the MIT Interim Report has this to say: "On the gas infrastructure side, concerns have been raised about the availability of gas pipeline capacity for the additional gas requirements of this option [displacement of coal generation], but preliminary analysis indicates that the industry has the ability to meet the needs for additional pipeline capacity."⁵¹

Finally, the Federal Energy Regulatory Commission also noted significant recent increases in the storage capacity for natural gas:

⁴⁷ http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/index.html

⁴⁸ U.S. Department of Energy. *Domestic Oil & Gas Resource Conservation: Making the Most of What We Have -- Transmission, Distribution and Storage*, available at <http://www.fe.doe.gov/programs/oilgas/delivery/index.html>.

⁴⁹ MIT Energy Initiative. Interim Report, *The Future of Natural Gas – An Interdisciplinary MIT Study*, p. 59. ISBN (978-0-9828008-0-5)(July 2010).

⁵⁰ *Id.*, at 60.

⁵¹ *Id.*, at 65 (citing to Kaplan, Stan, *Displacing Coal with Generation from Existing Natural Gas-Fired Power Plants*, CRS, 01/2010.).

New storage capacity may be expected to complement this trend. More than 107 Bcf of incremental working gas capacity was added in 2009, including more than 50 Bcf in the Gulf region. Additional production area storage, in particular, allows suppliers to respond more adeptly to market signals, and as a result, those signals are moderated. EIA says that U.S. peak working gas capacity is around 3,900 Bcf. In late November 2009, U.S. inventories were 99% of capacity.⁵²

In the absence of any new or additional information in the record that would allow the Agency to quantitatively assess the adequacy of the infrastructure, the Agency still does not have sufficient information to rule out fuel switching as a control option on the basis of inadequate distribution infrastructure for natural gas. Further, in the face of recent information and data regarding the robust nature of the nation's natural gas infrastructure, ANGA believes that EPA's conclusion that infrastructure is inadequate to support fuel switching in the context of ICI boilers and process heaters is simply incorrect.

Supply: With respect to the issue of supply, EPA makes a general statement that supplies of natural gas may not be adequate to meet demand if ICI boilers are required to switch fuels to natural gas. This runs contrary to recent findings in the MIT Interim Report, which concluded that (a) abundant global natural gas resources imply greatly expanded natural gas use, with especially large growth in electricity generation; (b) natural gas will assume an increasing share of the U.S. energy mix over the next several decades, with the large unconventional resource playing a key role; and (c) the share of natural gas in the mix is likely to be even larger in the near to intermediate term.⁵³

Initially, the universe of covered sources that are burning either coal or oil (and that would therefore potentially be required to switch to natural gas) is relatively small: 578 coal-fired units (4.2% of the total sources) and 826 oil-fired sources (6% of the total).⁵⁴ EPA does not include in the preamble to the Proposed Major Source ICI Boiler MACT Rule any discussion of the potential volume of natural gas that would be required to fire these units. However, in light of the significantly increased supply of natural gas discussed below, ANGA submits that there is sufficient capacity to meet the expected increased demand.

As noted above, EPA's language regarding the adequacy of supply is simply repeated, verbatim, from the 2003 proposed rule. Nothing in the Proposed Major Source ICI Boiler MACT Rule or in the documents available in the docket provides even a single additional source of data or information, beyond those available in 2003, to support the Agency's declaratory statement regarding the potential inadequacy of natural gas supplies. As was the case with the infrastructure issue, the National Wildlife Federation challenged the Agency's assertion of inadequate supply in the 2003 proposed rule, calling for a more quantitative assessment of the issue to support its conclusion.

⁵² Federal Energy Regulatory Commission, *State of the Markets Report 2009* (April 15, 2010), p. 11.

⁵³ MIT Interim Report, *Executive Summary*, at xi.

⁵⁴ 75 Fed. Reg. at 32038.

As it did with respect to infrastructure, the Agency responded by confirming that “The EPA did not have sufficient information on natural gas supply or infrastructure.”⁵⁵

If the Agency did not have sufficient analysis to reach those conclusions in 2003, and there are no additional data or information in the record to support these statements in the Proposed Major Source ICI Boiler MACT Rule at this time, the Agency has not developed support for its conclusion (especially in light of the significant differences between the supply conditions in 2000-2002 and now).

Generally speaking, the available supplies of natural gas are significantly greater than those believed to be available in the 2000-2002 timeframe (when EPA was developing the 2003 proposed rule). In its 2009 Report addressing the supply of technically recoverable natural gas in the United States at 2008 year-end, the Potential Gas Committee reported that the currently available total supply of natural gas was 1,836 trillion cubic feet (“Tcf”), which represented an increase of 39% (516 Tcf) over the Committee’s year end estimate for 2006.⁵⁶

The Potential Gas Committee is not alone in its estimates. The MIT Interim Report also reviewed U.S. gas resource estimates from several sources, including the Potential Gas Committee, and assumed a mean remaining resource base of approximately 2,100 Tcf.⁵⁷

The U.S. Energy Information Administration recently estimated that annual production of natural gas will increase from 20.6 Tcf in 2008 to 23.3 Tcf in 2035, a 13% increase.⁵⁸ As many of these sources have noted, this dramatic increase in recoverable supplies is due in large part to the discovery of significant shale gas deposits and the advances in technology that allow companies to recover gas from these resources. According to FERC, the large increases reflected in the Potential Gas Committee estimates are “almost entirely due to improvements in our ability to produce gas from shale with certainty and control.”⁵⁹

The development of these shale resources will have a significant impact on the natural gas market.

Significantly, the shale gas deposits are close to, and in some cases, directly underneath, natural gas pipelines and gathering hubs and near large markets. Bringing the gas to market could be easy and cheap (see the sidebar, “Say Goodbye, LNG?”). In a press release, the PGC noted, “When the PGC’s results are combined with the U.S. Department of Energy’s latest available determination of proved gas reserves, 238 Tcf [trillion cubic feet] as of year-end 2007, the United States has a total available future supply of 2,074 Tcf, an increase of 542 Tcf over

⁵⁵ See, Response to Comments, *infra* note 36, at 100.

⁵⁶ Potential Gas Committee, *Potential Supply of Natural Gas in the United States (December 31, 2008)* (June, 2009).

⁵⁷ MIT Interim Report, p. 9.

⁵⁸ U.S. Energy Information Administration. *Annual Energy Outlook 2010 With Projections to 2035* (April 2010), p.

3.

⁵⁹ FERC *State of the Markets Report*, at 12.

the previous evaluation." That's a stunning figure — an increase of over 25% above previous estimates. The Energy Information Administration (EIA) defines "proved reserves" as "those volumes of oil and natural gas that geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions." In other words, they are real."⁶⁰

According to FERC, advancements in the natural gas production process, including increases in efficiencies, have fundamentally changed the manner in which natural gas is produced and brought to market and significantly shortened the time from drilling to production.

Not that long ago, it would take several months from the start of drilling to initial production. Average-time-to-drill in 2009 was about 20 days. Nowadays, production is almost certain before drilling begins, and well efficiency increases as producers learn the particular nuances of a given play. Because shale production has many of the characteristics of gas in storage, companies have greater flexibility to produce gas when the market calls for it. Production can be deferred without risking the integrity of the well. Ending long production lead times and the risk of failure or loss may dramatically temper the gas market's systemic boom-and-bust cycle.⁶¹

ANGA also takes issue with a curious Agency reference to "curtailment" and the possibility that curtailment policies could result in natural gas supplies to certain ICI equipment being cut off.

For example, it is common practice in cities during winter months (or periods of peak demand) to prioritize natural gas usage for residential areas before industrial usage. Requiring boilers and process heaters to switch to natural gas would place an even greater strain on natural gas resources. Consequently, even where pipelines exist, some units would not be able to run at normal or full capacity during these times if shortages were to occur.⁶²

Once again, it appears that this concept was originally part of the 2003 proposed rule; we believe that it may have been driven at least in part by conditions in 2000-2001, where a number of factors, including an extremely harsh winter weather period, resulted in constrained supplies and price spikes that were investigated by the U.S. General Accounting Office.⁶³ In that regard, the GAO concluded that "the inability of gas supplies to meet surging demands contributed to the . . . spikes" and that

⁶⁰ Maize, Kennedy and Peltier, Dr. Robert, POWER. "The U.S. Gas Rebound." January 1, 2010, available at http://www.powermag.com/issues/cover_stories/The-U-S-Gas-Rebound_2357.html.

⁶¹ FERC *State of the Markets Report 2009*, p. 12.

⁶² 75 Fed. Reg. at 32019.

⁶³ U.S. General Accounting Office. *Natural Gas: Analysis of Changes in Market Price* (December 2002).

“[s]pecifically, natural gas supplies were constrained because of unusually low storage levels and the inability to quickly increase production levels.”⁶⁴

As is discussed in great detail above, significant changes have occurred both with respect to natural supplies and infrastructure since 2000-2001. These developments more than adequately address the Agency's concerns regarding curtailment. With respect to storage, in its *State of the Markets Report* FERC reports that in late November 2009, U.S. inventories were 99% of capacity,⁶⁵ suggesting that storage and storage capacity should no longer be an issue. Also, as suggested directly above, changes in the production process address concerns regarding the ability to increase production quickly in response to market demands.

Because shale production has many of the characteristics of gas in storage, companies have greater flexibility to produce gas when the market calls for it. Production can be deferred without risking the integrity of the well. Ending long production lead times and the risk of failure or loss may dramatically temper the gas market's systemic boom-and-bust cycle.⁶⁶

A 2005 study conducted for the National Association of Regulatory Utility Commissioners concluded that while states have broad curtailment authority, “none of the thirty-one (31) state respondents indicated that the Governor or the commission had responded to a natural gas shortage in the last five years. This includes states in the Northeast that were subject to the January 2004 Cold Snap.”⁶⁷ In addition, we have been unable to locate any information that suggests that the type of curtailment scenario offered in the Proposed Major Source ICI Boiler MACT Rule has actually occurred or could reasonably be expected to occur.

This wealth of information and data suggest that there is no reason to believe that gas supplies are not adequate to meet any increased demand for natural gas if ICI boilers and process heaters that are currently burning fuel other than natural gas are required to switch to natural gas. More broadly, there are insufficient evidence or data, in the record or otherwise, to support EPA's decision not to consider fuel switching as a control option in evaluating the MACT floor and beyond-the-floor, and we respectfully request that the Agency reconsider this conclusion, taking into account current conditions with respect to the effect of fuel switching on HAP emissions, the technical feasibility of fuel switching, and the ability of the current and future natural gas supply and infrastructure to meet demand driven by fuel switching.

ANGA Supports EPA's Proposal to Establish Work Practice Standards

As the Agency recognizes, Section 112(h) of the Clean Air Act gives EPA the authority to prescribe work practice standards in lieu of an emission standard where it is

⁶⁴ *Id.*, at 13.

⁶⁵ FERC *State of the Markets Report 2009*, p. 11.

⁶⁶ *Id.*, at 12.

⁶⁷ National Association of Regulatory Utility Commissioners Ad Hoc Committee on Critical Infrastructure. *Technical Assistance Briefs: NARUC Inventory on Gas Curtailment Planning*, p.6 (April 2005).

not feasible, in the judgment of the Administrator, to prescribe or enforce such an emission standard.⁶⁸ Section 112(h)(2)(B) further defines the term “not feasible” in this context to apply when “the application of measurement technology to a particular class of sources is not practicable due to technological and economic limitations.”⁶⁹

When evaluating the practicability of applying measurement technologies to natural gas-fired boilers, we concur with EPA that the costs are not only the costs of the monitoring equipment and stack testing, but also the capital costs of any installed control technology.⁷⁰ The capital cost of installed control technology, combined with the costs of monitoring and testing, for this subcategory exceed \$14.6 billion.⁷¹ As EPA points out, this cost is higher than the estimated combined capital cost for boilers and process heaters in all of the other subcategories.⁷²

In addition, Section 112(h) provides that an emission standard is “not feasible” where the Agency determines that requiring that the use of a conveyance to capture the HAPs would be inconsistent with the CAA or other Federal, State or local laws.⁷³ If the Agency were to finalize requirements that would subject gas-fired boilers and process heaters to emission standards that would require that natural gas-fired sources install and operate the same combination emission control systems (fabric filter for PM, mercury, and D/F control and a wet scrubber for HCl control), there would be a disincentive for sources burning other than natural gas to switch to gas (which is both an emission reduction control technique and a pollution prevention technique).

The CAA is designed to promote emission reductions and pollution prevention, as are other environmental laws at the federal, state and local levels. A regulation that serves as a market barrier to implementation of strategies to reduce emissions and prevent pollution would be completely inconsistent with the myriad of federal/state/local laws that are designed to promote and achieve such reductions.

ANGA is not in a position to offer comments regarding the Agency's questions as to whether imposing emission limits on gas-fired boilers and process heaters “may have the negative benefit of providing an incentive for a facility to switch from gas (considered a “clean” fuel) to a “dirtier” but cheaper fuel (i.e., coal).”⁷⁴ To the extent that this possibility exists, however, ANGA strongly agrees that a regulation that could trigger increased emissions of HAPs would be inconsistent with Section 112 of the CAA.

We do note that recent experience has shown that some commercial and institutional entities are more aggressively evaluating installation of electric boilers or heating systems in lieu of gas-fired systems. If the Agency were to impose emission

⁶⁸ 42 U.S.C. § 7412(h).

⁶⁹ 42 U.S.C. § 7412(h)(2)(B).

⁷⁰ 75 Fed. Reg. at 32024.

⁷¹ McClutchey, Singleton et al. Memorandum to Jim Eddinger, U.S. EPA/OAQPS/SPPD. *Methodology for Estimating Cost and Emissions Impacts for Industrial, Commercial, Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants – Major Source*. April 2010.

⁷² 75 Fed. Reg. at 32025.

⁷³ 42 U.S.C. § 7412(h)(2)(A).

⁷⁴ 75 Fed. Reg. at 32025.

limits on gas-fired boilers and process heaters, it would remove a significant incentive for selecting gas-fired equipment (as electric systems are not subject to the Proposed ICI Boiler MACT Rules), while creating an incentive to switch away from natural gas, possibly to electric systems, where the electricity used to operate the systems comes primarily from coal-fired generation. It is widely accepted that significant air quality benefits accrue from burning natural gas over coal (on a pounds of air pollutants per million Btu of energy basis), and that there are inherent efficiency benefits of using natural gas at the site.⁷⁵ Therefore, an EPA regulation that incentivizes a switch from natural gas to electric systems that use electricity from coal-fired generation would be inconsistent with broader federal, state and local clean air goals.

For these reasons ANGA supports the Agency's decision to develop work practice standards, pursuant to Section 112(h) of the CAA, that would apply to natural gas-fired boilers and process heaters.

Conclusion

ANGA appreciates the opportunity to submit these comments on the Proposed ICI Boiler MACT Rules. ANGA strongly supports the Agency's proposal to apply work practice standards to major source boilers and process heaters using natural gas, and to exclude gas-fired area sources from coverage, and believes that these approaches are more than justified under the relevant provisions of the Clean Air Act. ANGA is very concerned, however, that the Agency's position regarding fuel switching as a control option is outdated, unsupported by record evidence, and unsupported by current, publicly available information and data, and we urge the Agency to reconsider this aspect of the Proposed Major Source ICI Boiler MACT Rule and the Proposed Area Source ICI Boiler MACT Rule. ANGA hopes that EPA will accept our recommendation and proceed on a more legally defensible and practical path, including adoption of fuel switching as an appropriate control option.

If you have any questions, please contact Peter Robertson at probertson@anga.us or (202) 789-2642.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Hopper', written in a cursive style.

Regina Hopper
President and CEO

⁷⁵ U.S. Energy Information Administration. *Natural Gas 1998: Issues and Trends*. (April 1999), p. 58.