

EXCERPT

APPA's comments on

**National Emission Standards for Hazardous Air Pollutants from Coal-and Oil-fired Electric Utility
Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility,
Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam
Generating Units**

(NESHAP Proposal Also known as EGU MACT or Mercury HAPs Proposed Rule)

Docket Number EPA-HQ-OAR-2009-0234;

Docket Number EPA-HQ-OAR-2011-0044, RFL-9286-1

August 2, 2011

Introduction/Executive Summary

Essential Corrections to EGU MACT Rule:

- 1) U. S. EPA should re-propose the rule and the final EGU MACT should not include acid gases or PM regulatory controls.
- 2) Public power utilities need more time for compliance for planning, public hearings, financing, procurement and construction so the U. S. EPA and the President should grant extensions.
- 3) U. S. EPA should provide more flexibility including subcategories for public power, electric co-ops, IOUs and merchant power.

These subcategories include:

- ≤100 MW for all types of utilities
- ≤30% capacity factor peaking units (limited use – mostly for renewables)
- NERC Reliability Standard CIP 002-4 units
- By fuel type
- Those utilities with physical space constraints

- APPA requested an extension to the comment period deadline and appreciated that the U. S. EPA granted that extension of one month to the comment period.
- In the rule preamble and the supporting technical documents, the U. S. EPA fails to provide any evidence of any risk to the general population from non-mercury metal HAPs and acid gases. APPA believes that it is appropriate to develop regulations under Section 112 for only the two hazardous air pollutants (mercury and nickel) for which EPA has provided evidence of a significant risk to the public. If EPA believes that non mercury metals and acid gases must be regulated, EPA should regulate these HAPs under a less onerous health-based standard. APPA believes that this action would be consistent with the call for control of hazardous air pollutants only where the U. S. EPA has determined there to be human health concerns. EPA’s own study showed health concerns for only **mercury** (coal-fired generation) and **nickel** (oil-fired generation).
- APPA does not believe it unreasonable that the U. S. EPA should use its discretion to minimize the cost impact of this rule while still providing for the protection of public health. APPA believes that EPA should use its discretion in light of Executive Order 13563 (regulatory directive to minimize costs) to modify the proposed rule with a number of changes.
- U. S. EPA should eliminate the use of a “Franken” Plant approach to establish a MACT standard for coal and oil-fired EGUs. Specifically, APPA believes that EPA should establish a MACT that is based on the actual performance of individual EGUs for all HAPs to be regulated. This change in the final rule would result in less compliance cost with little to no change in health benefits or impacts.
- The proposed NSPS for SO₂, PM, and NO_x are, in practice, NOT achievable.
- APPA believes that the U. S. EPA should regulate mercury emissions from power production as necessary to reduce methyl mercury bioaccumulation in fish via air deposition. However, the U. S. EPA should regulate mercury from EGU’s considering the comments herein, on matters such as subcategories, compliance schedules, and other factors. APPA does not presume that these reductions of mercury will affect any mercury transported from international sources of mercury including Asia and Mexico.

- U. S. EPA should not expand the proposed utility toxic rule beyond mercury and nickel since in the preamble for the proposed rule EPA provided no data as to any health risks associated with non-mercury metal HAPS and acid gases related to fossil fuel-fired EGUs. Regulating these emissions would serve no purpose and would add cost without commensurate health benefits. In addition, EPA has not shown that the regulation of acid gases (HCl, etc.) and other air toxics is necessary and appropriate.
- In assessing costs to consumers, U. S. EPA should analyze the impact of the rule in wholesale electricity markets run by regional transmission organizations, particularly in forward capacity markets.
- U. S. EPA should subcategorize and provide for the use of Generally Available Control Technology(s) (GACT) and management practices for area source utilities. U. S. EPA should also make GACT along with alternative work practice or operational standards available for municipal utilities and utilities that are physically constrained, such as those retrofitting with baghouses and scrubbers where the space needed to accommodate the addition of pollution controls is not adequate. APPA believes that the subcategory should address fuel types, combustion processes, such as circulating fluidized boilers or pulverized over air-fired boilers, physical constraints limiting the footprint of plants, and age of plants. **APPA strongly endorses the ≤ 100 MW sub-category.** This ≤100 MW subcategory should apply to all in the utility sector. See Appendix A
- U. S. EPA has grossly overestimated the health benefits of controlling Particulate Matter (PM) and should not consider these benefits since PM is to be controlled under the National Ambient Air Quality Standards (NAAQS) section of the Clean Air Act.
- U. S. EPA should use its discretion to regulate utility air toxics with a health-based emission standard, which would decrease costs without jeopardizing public health and safety.
- U. S. EPA should 1) enable the power sector, particularly public power utilities, to have additional compliance time beyond the standard three years in the Clean Air Act. 2) The U. S. EPA should provide extensions of one or two years each (as needed) as allowed under Presidential extension provisions (the Presidential extension should be delegated to the Governor of each state if the U. S. President desires). An extension is necessary to allow installation of pollution control equipment given time needed for planning compliance, timing and process for obtaining financing for either pollution controls (scrubbers, baghouses, etc.) for EGU MACT/NSPS final rule **or** more time is needed for fuel switching to natural gas where the natural gas pipeline development and expansion projects must be financed, permitted and built by third parties to supply the utility plants that would use the natural gas.

APPA does not assert that any additional time is needed to purchase or install the combined cycle gas turbines themselves as that technology is fully commercially demonstrated, available, and even available in international markets. However, even fuel switching or conversion from coal-fired to natural gas may require permitting, financing and building of natural gas pipeline extensions, as well as natural gas storage permitting and construction. This is particularly true if a public power authority does not have power of eminent domain.

For *some* pipelines and local distribution companies (LDCs), FERC and Public Utility Commissions (PUCs) may need to change standards that would harmonize the “electric day” and “natural gas” scheduling day.

- APPA strongly recommends the U. S. EPA’s final EGU MACT rules include a Title V method to accommodate any utility that cannot meet the EGU MACT compliance deadline. This administrative noncompliance procedure is already established under the Clean Air Act. This will allow for compliance time and avoid criminal and civil liability while reducing the administrative burdens on U. S. EPA and any state agencies with delegated authorities, and reduce costs and burdens on small towns with public power electric utilities.

The Final MACT Should Provide For An Administrative Compliance Procedure for Utilities When They are Unable to Comply with the MACT Compliance Date.

If U. S. EPA fails to take the actions recommended by these comments (77 month categorical extension) to reduce the regulatory burdens of complying with the proposed MACT standards, the agency must provide a streamlined administrative procedure for utilities that operate power plants that will not be able, through no fault of their own, to comply with the standard on the compliance date. (Other types of facilities also should be able to demonstrate that they meet the qualifications for such compliance extensions as well.) APPA recommends using existing procedures that already exist within the Clean Air Act’s existing Title V operating permit program for modification of permits with compliance plans to streamline the procedure for compliance extensions, which we favor over use of other discretionary enforcement procedures that U. S. EPA currently uses for noncompliance. As we explain below, we believe that the transactional costs and the uncertainty of the outcome of the use of the current U. S. EPA enforcement authorities make them unattractive and inappropriate, particularly for public power plants.

One of the benefits of this program would be to reduce the administrative burden on the U. S. EPA and state agencies. Since 1997, EPA has brought enforcement actions for Section 112 air toxics violations in over 500 administrative penalty cases and nearly 100 judicial enforcement cases, some involving penalties and environmental projects over \$1 million each. Many of these cases involve reporting violations but involve significant personnel demands on EPA regions and the Department of Justice. Without this administrative mechanism for streamlining noncompliance schedules into Title V permits, the U. S. EPA, Department of Justice, and their state counterparts could be overwhelmed with the additional enforcement burden presented by government-operated utilities that cannot comply timely with the MACT standards. By “pre-programming” the minimum components that a compliance schedule would have and establishing a time frame for coming into compliance with MACT, these additional burdens on the federal and state government enforcement programs can be avoided but state and federal enforceable compliance milestones would be in place. Also, state and local governments that operate regulated utilities would have certainty and enforceable milestones to meet and would avoid the potentially overwhelming transactional legal costs associated with traditional EPA enforcement. As a result mercury reductions would be achieved without additional costs and in a manner that provides the public with the assurance that these reductions are being made without additional costs to communities.

EPA’s criminal enforcement program opened 346 new environmental crime cases in FY 2010.¹ Many states have experienced losses in employees at state regulatory agencies as a result of cut backs and lost

¹ US.EPA Office of Enforcement

<http://yosemite.epa.gov/opa/admpress.nsf/ab2d81eb088f4a7e85257359003f5339/78264683b1a9874e852577f10059b840!OpenDocument>

revenue from permitting fees. This proposal is designed to place the least possible burden on state and Federal EPA, consistent with Unfunded Mandates Reform Act (UMRA).

APPA discusses these procedures below and recommends how U. S. EPA should “streamline” the adoption of compliance plans even further.

1. Streamlined extended compliance schedules should be provided to public power (and other entities) that can demonstrate need for additional time.

APPA has enumerated in good faith the reasons that many municipally operated power plants are likely to be unable to comply within the three-year MACT compliance period, even if U. S EPA provides the additional year for all public power plants in the final MACT standard, as APPA requests. These reasons include, but are not limited to:

- U. S. EPA’s mistaken assumption that cities can legally begin designing and ordering compliance hardware before issuance of the final MACT;
- Public power’s heavy reliance on outside engineering and union labor and difficulty competing with other utilities because of most cities’ bidding procedures;
- The iterative state and locally mandated administrative procedures for the receipt of bids and award of contracts;
- Federal, state and municipal requirements of public referendums and the issuance of public debentures/bonds for the purchase and installation of pollution control equipment.

In view of these unique public power issues that will likely result in the many public power utilities being unable to meet the MACT compliance date, APPA submits that the final MACT should establish an “Extended Non-Compliance Schedule” procedure for public power generators (and other sources that can demonstrate need for additional time).

2. Discretionary U. S. EPA enforcement procedures are too uncertain, and the transactional costs that they entail are inappropriate when cities know they will be unable to meet the MACT rule because of necessary procedures applicable to local governmental bodies.

The Clean Air Act provides for a battery of civil and criminal remedies, including noncompliance penalties, civil penalties, injunctive relief and jail time, for failure to comply with Clean Air Act standards and emission limitations. These remedies are administered at the discretion of the agency’s enforcement officials in conjunction with officials in the Department of Justice’s Environment and Natural Resources Division (DOJ ENRD). In most situations, the Agency favors use of consent decrees for entering into agreements with noncompliance sources because such legal instruments are judicially enforceable and can be judicially modified. Typically, the U. S. EPA and DOJ will issue a Notice of Violation, negotiate with officers and other legal representatives of the non-complying source and enter into an agreement which is filed the same day as a judicial complaint in the federal court with jurisdiction over a particular entity. Such process involves countless hours, attorney fees, the resources of individual federal district courts, lengthy periods of time and UNCERTAINTY. U. S. EPA enforcement policy also dictates the need for monetary penalties and supplemental environmental policies when noncompliance involves federal emission limitations. If a penalty will exceed certain amounts, U. S. EPA enforcement policy also dictates several levels of agency review before the consent order can be finalized, and such agreements must be published for public notice and comment under section 113(g) of the Clean Air Act before they are final. While U. S. EPA enforcement officials also have the sole discretion to utilize Administrative Orders on Consent (AOCs) without DOJ oversight, the procedures for their issuance also involve case-by-

case review and determinations, though AOCs typically involve far less transactional delays and resource costs.

Since many of APPA’s public power utilities are likely to be unable to comply with the MACT compliance date, even with a one year extension, APPA submits that the typical enforcement procedures are inappropriate. Moreover, because municipal entities are often cash-strapped because of economic conditions and are confronting disproportionate compliance costs (in comparison with other entities) and because they are not-for profit, U.S. EPA should provide for another streamlined procedure for sources to outline compliance milestones which can be incorporated through streamlined procedures in their Clean Air Act federal operating permits. We submit that through these processes, there is more likelihood of equal treatment between entities in various parts of the country (a level playing field, if you will) and greatly minimized transactional costs and legal resources exacted from municipalities that require additional time to come into compliance.

3. Public power utilities will not reap benefits from being out of compliance with the MACT.

Moreover, because public entities are not reaping monetary benefits from failure to comply on time with the MACT, these procedures are equitable. Further since such entities are acknowledging they are violating the Clean Air Act MACT requirements, they bear the onus of noncompliance. Also, Section 112(d)(4) of the Clean Air Act does not preclude the Agency from identifying other means in a Section 112(d) MACT standard for a non-complying source to bring itself into compliance. Finally, if a public power plant violates the milestones in its compliance plan, recordkeeping and reporting procedures for a responsible officer will require expeditious notification of the State and EPA of noncompliance, and opportunity for further enforcement actions with penalties, etc.

4. Part 70 Operating Permit Procedures Provide Procedures for Compliance Plans, Which EPA Can Streamline Further in The MACT by Allowing Such Plans to Be Incorporated Through Minor Modification Permit Procedures.

Title V Compliance Schedules and Reopener Process: APPA urges U. S. EPA to provide **in the final MACT rule** an adoption of MACT compliance schedules through minor permit modifications of a source’s Title V federal operating permits. We explain below why this streamlined procedure should be relied on in lieu of judicial or administrative consent decrees where cities and EPA and DOJ would have to incur unnecessary transactional costs. We also explain why the Title V rules allow EPA to provide in a standard for the use of minor permit modifications which already require notice and public comment to streamline further the incorporation of compliance schedules for entities that cannot comply on the compliance date *even if EPA provides, as APPA hopes, for automatic compliance extensions.*

Title V of the Clean Air Act is applicable to operating permits for all major Clean Air Act sources required the States to adopt procedures for states and EPA to adopt in operating permits Schedules of Compliance. A Schedule of Compliance is defined by Section 501(3) of the Act as:

“a schedule of remedial measures, including an enforceable sequence of actions or operations, leading to compliance with an applicable implementation plan, emission standard, emission limitation, or emission prohibition.”

See both sections 42 U.S.C. §7661 (a) and 42 U. S. C. § 7661 (3).

APPA also believes that such compliance schedules could be processed with public comment under 40 CFR §70.(e)(2)(i) (B) as “minor permit modifications” *if, as required by this provision,* the procedure for inclusion of the compliance schedule is provided by the MACT standard. In other words, to avoid the lengthy administrative procedures required by the major modification procedures of 40 CFR Section 70.7(e)(4) for processing significant permit modifications, EPA can “pre-program” these changes as

minor permit modifications requiring the public power authority to use the procedures for submitting complete applications for approval of a compliance schedule for review by State permitting authorities and continue to operate in compliance with those new requirements unless denied by state authorities. Such procedures also require notice and public comment with proposed permit modifications. By adopting a procedure (and we suggest a general permit modification form for MACT compliance extensions in the final MACT), U. S. EPA can avoid unnecessary, lengthy and costly transactional costs for municipalities and the federal government (and the judiciary) that would be avoided in prosecuting notices of violations and judicial consent decrees. Most important to the cities, it also would allow orderly and expeditious negotiation of extended compliance schedules in full view of the public through the procedures already established for reopening operating permits. (APPA also suggests that these procedures are fully consistent with EPA voluntary audit policies, except of course they would be anticipation of noncompliance rather than in discovery of past noncompliance.)

Demonstration of Qualification for Compliance Plans – A public power plant (or other entity) would submit an application for a minor permit modification for a compliance plan. Such application would be accompanied by a sworn statement by the responsible officer for the utility and city’s mayor or city attorney that despite its best efforts, the public power plant in the jurisdiction cannot timely meet the final MACT standard. Such sworn statement shall be accompanied by affidavits of the efforts that the city had taken to come into compliance and the reasons that it will be unable to comply on the MACT compliance date.

Contents of Compliance Plans: Requirements for MACT compliance plans would include enforceable compliance milestones such as dates for purchase of equipment, dates for contractual agreements for installation, dates for construction and installation of equipment, or shutdown of equipment, with dates if necessary for completion of repowering. Compliance plans also could provide for other contingencies and penalties for failure to meet milestones.

5. Alternatively the final MACT rule should provide for the use of Administrative Orders on Consent to Streamline the Adoption of Noncompliance Extensions.

If EPA determines that the potential burden on states permitting authorities in administering operating permit modifications for incorporation of compliance plans is too great, it should provide in the final MACT rule for administrative consent orders to provide for adoption of MACT compliance plans with milestones for purchase and installation of MACT-required equipment for retrofits or shutdowns of facilities with or without repowering. APPA believes that it is critical that these Administrative Orders are entered into without penalty, since noncompliance will not be to avoid compliance costs that other utilities are facing, but merely to move as quickly as is allowed by law to come into compliance with Clean Air Act emission limitations. In that regard, it would not be appropriate for cities to pay the U.S. or state treasuries penalties for noncompliance with the MACT.

6. It is likely that adoption of a compliance plan procedure requires additional public comment.

Even though the Title V and EPA’s discretionary enforcement authority under the Clean Air Act exist for adoption of these mechanisms in the final MACT rule, we think that it would be appropriate for EPA to reopen the final MACT to take further comment on these issues, including the milestones for such compliance plans and the eligibility requirements for such compliance plans.

Timing for Compliance Requires 77 Months for Public Power Utilities due to Governance Requirements and Financing of Projects

The U. S. EPA has on several occasions made compliance extensions applicable to an entire industry or subcategory.² The analysis presented below focuses on these provisions and why in particular public power facilities face unique additional municipal and state laws that make it urgent for EPA to utilize its authority to provide compliance extensions for the industry. First we provide a general discussion of the Agency's authority to provide compliance extensions. Then we describe assumptions that the Agency states in the preamble about the industry's ability to comply with the proposed standards and why we believe that they are in error. Third, we describe the results of an independent APPA-commissioned survey³ of the public power industry and the types of problems that members will have in complying with the standards if EPA fails to take the recommended actions to reduce the regulatory burdens of complying with the proposed MACT standards. We urge EPA to pay particular attention to municipal and state law affecting bidding procedures for equipment design, fabrication and labor and the state and municipal laws that affect the timing and procedures for public referendums for issuance of public bonds, eminent domain concerns and other unique issues such as easements, high density zoning and union labor that municipalities have reported will necessarily delay compliance with final emission standards for up to six years after they are promulgated. On this basis APPA urges U. S. EPA to grant a one-year state compliance extension in the final rule. We also suggest that it is critical for U. S. EPA to consider the provision in the Clean Air Act that enables the President to grant extensions for up to two additional two-year periods and the source-by-source showings that governors and mayors should provide to be eligible for such extensions from compliance.

Statutory and regulatory provisions

The Clean Air Act addresses compliance schedule requirements in Section 112(i)(3) and (4), as set forth below:

§112(i)(3) Compliance schedule for existing sources

(A) After the effective date of any emissions standard, limitation or regulation promulgated under this section and applicable to a source, no person may operate such source in violation of such standard, limitation or regulation except, in the case of an existing source, the Administrator shall establish a compliance date or dates for each category or subcategory of existing sources, which shall provide for compliance as expeditiously as practicable, but in no event later than 3 years after the effective date of such standard, except as provided in subparagraph (B) and paragraphs (4) through (8).

(B) The Administrator (or a State with a program approved under subchapter V of this chapter) may issue a permit that grants an extension permitting an existing source up to 1 additional year to comply with standards under subsection (d) of this section if such additional period is necessary for the installation of controls. An additional extension of up to 3 years may be added for mining waste operations, if the 4-year compliance time is insufficient to dry and cover mining waste in order to reduce emissions of any pollutant listed under subsection (b) of this section.

(4) Presidential exemption⁴ - The President may exempt any stationary source from compliance with any standard or limitation under this section for a period of not more than 2 years if the President determines that the technology to implement such standard is not available and that it is in the

² National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units, proposed rule, 76FR24976, May 3, 2011.

³ See survey summary in Appendix G

⁴ APPA points out that the CAA's statutory term "exemption" in this context does **not** mean a complete exemption from the rule meaning no installation of pollution controls. A "Presidential exemption" in the context of these comments functions as a regulatory compliance time extension. See CAA 112(i)(4). APPA's recommendation for the use of the Presidential exemption is really a request for additional time.

national security interests of the United States to do so. An exemption under this paragraph may be extended for 1 or more additional periods, each period not to exceed 2 years. The President shall report to Congress with respect to each exemption (or extension thereof) made under this paragraph.

Proposed section 63.9984 of the HAP rule states that “*if you have an existing EGU [electric generating unit], you must comply with this subpart no later than [3 years after date the final rule is published in the **federal register**].*”⁵ Pursuant to a Consent Decree, the U. S. EPA Administrator must sign a final rule by November 16, 2011.⁶ The recently promulgated HAP rule for industrial boilers was signed by the U. S. EPA Administrator on February 21, 2011,⁷ but was not published in the Federal Register (making it effective) until March 21, 2011. It specified a compliance date for existing units of March 21, 2014 (three years after publication).⁸ Assuming a similar one-month lag for publication of the Utility HAP rule would suggest a three-year compliance interval would result in a compliance deadline of December 16, 2014. For any unit granted a one-year extension under §112(i)(3)(B), the compliance date would be December 16, 2015. Hence, a source can be assured that it has **37 months** following issuance of the final rule to comply, and that it may be able to obtain an additional 12 months (*49 month total*), but approval of the 49 month alternative is at the discretion of the permitting authority.

U. S. EPA provided limited discussion of the compliance schedule requirements in the preamble of the proposed rule.⁹ U. S. EPA stated, “*We believe that 3 years for compliance is necessary to allow adequate time to design, install and test control systems that will be retrofitted onto existing EGUs, as well as obtain permits for the use of add-on controls. We believe that the requirements of the proposed rule can be met without adversely impacting electric reliability. Our analysis shows that the expected number of retirements is less than many have predicted and that these can be managed effectively with existing tools and processes for ensuring continued grid reliability. Further, the industry has adequate resources to install the necessary controls and develop the modest new capacity required within the compliance schedule provided for in the CAA. ... EPA believes that the ability of permitting authorities to provide an additional 1 year beyond the 3-year compliance time-frame as specified in CAA section 112, along with other compliance tools, ensures that the emission reductions and health benefits required by the CAA can be achieved while safeguarding completely against any risk of adverse impacts on electricity system reliability.*” The ensuing discussion explained that U. S. EPA believes that many of the units requiring retrofit technology for acid gases can use dry sorbent injection (DSI) technology, which requires less time to install than the dominant approach currently used by electric utilities (flue gas desulfurization, or FGD), but that even if FGD systems were chosen by utilities, they could be “*installed within the 3-year window.*” For non-mercury metal HAPs, “*EPA has assumed that companies with ESPs will likely upgrade them to FFs.*” And for mercury, EPA assumed that compliance would come through the combined contribution of non-mercury specific controls like FGD and FFs, and activated carbon injection systems (ACI). EPA noted that some facilities would have multiple retrofits, requiring a staggered installation sequence, but even these could be accommodated within the four year schedule.

U. S. EPA considered the possibility that widespread retirement of existing coal units and replacement with new capacity could strain industry construction capabilities, but concluded that “*very little new capacity*” would be needed to maintain adequate electricity reserve margins, and

⁵ Ibid., p.25102.

⁶ Consent Decree, American Nurses Association, et. al., v. USEPA, Civ. No. 1:08-cv-02198 (RMC), US District Court for the District of Columbia, <http://www.epa.gov/ttn/atw/utility/consentfnl.pdf>.

⁷ National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, USEPA, 76FR15662.

⁸ Ibid., 76FR15665.

⁹ Op. Cit., National Emission Standards, 76FR25054 - 25058.

“EPA projects that approximately 9.9 GW of coal-fired generation (roughly 3 percent of all coal-fired capacity and 1% of total generation capacity in 2015) may be removed from operation by 2015.”

U. S. EPA’s assessment of timing appears to reflect immediate action based on the proposed rule (versus waiting until a final rule is promulgated). *“EPA expects that sources will begin promptly, based upon this proposed rule, to evaluate, select, and plan to implement, source-specific compliance options.”* U. S. EPA also believes that Regional Transmission Organizations (RTOs) should get started on the new regulations and states, *“The RTOs/ISOs also have a very important role to play and it appears that a number of them are already engaged in preparing for these rules.”* The Agency cites two presentations as evidence of this early action: a presentation by the PJM Interconnection,¹⁰ and a second by MISO.¹¹

U. S. EPA notes that it is developing a number of regulations impacting the power sector in addition to the proposed HAP rule. These regulations include the interstate transport rule (and its multiple iterations as U. S. EPA modifies ambient air quality standards), the coal combustion waste rule, the cooling water intake structure rule, and limits on greenhouse gases from both new and existing power plants. Although U. S. EPA does not address the planning difficulty this poses for the regulated utilities, it does observe that U. S. EPA’s job will become easier over time as *“the Agency will have an opportunity to take into account the effects of the earlier rulemakings in making decisions regarding potential GHG standards for EGUs.”*

In addition to the foregoing discussion in the preamble to the proposed regulation, U. S. EPA conducted an analysis of the feasibility of the retrofit program required by the proposal.¹² The conclusion of this analysis was: *“... a reasonable, moderately paced effort of the power sector and supporting industry, including some early starts, would result in many of the needed retrofits being installed by January 2015 with some needing up to an additional year. In order for all retrofits to be completed by January 2015, most projects would have to start early and the sector would have to engage in a more aggressive deployment program.”* The analysis drew from U. S. EPA’s modeling of compliance measures. A key conclusion from that modeling was the projected widespread use of DSI technology instead of FGD, with a resource savings of 80-90% based on the simpler DSI systems. Additionally, the feasibility analysis implies that the capital cost assumed for fabric filter (FF) systems, the most broadly deployed compliance system in U. S. EPA’s analysis, was about 30% the amount of a similarly sized wet-FGD. EPA also assumed that the most resource-intensive compliance option was retirement of an existing coal unit with replacement by a new coal unit, which U. S. EPA assumed would cost about 5 times the amount of a wet-FGD retrofit. These cost assumptions were critical to U. S. EPA’s resource and timing analysis because the U. S. EPA assessment of industry’s capacity to design, manufacture, and install compliance hardware was based on the capital cost of compliance measures. U. S. EPA also based its expectations for feasibility in part on improving past schedules for installing air pollution control (APC) systems, and stated, *“EPA believes that almost all future APC retrofits can be completed far more quickly than were historical APC projects.”* **The U. S. EPA feasibility analysis for the HAP rule did not consider any of the resource requirements for compliance with the other regulations U. S. EPA cited in its preamble.**

¹⁰ Consideration of Forthcoming Environmental Rules for Resource Adequacy in PJM, presentation to Harvard Electricity Policy Group, December 9, 2010, Tucson, AZ, Paul Sotkiewicz, Chief Economist, PJM Interconnection.

¹¹ Proposed EPA Regulation Impact Analysis, MISO Planning Advisory Committee, November 23, 2010, <https://www.midwestiso.org/Library/Repository/Meeting%20Material/Stakeholder/PAC/2010/20101123/20101123%20PAC%20Item%2002%20Proposed%20EPA%20Regulation%20Impact%20Analysis.pdf>.

¹² An Assessment of the Feasibility of Retrofits for the Toxics Rule, US EPA, Office of Air and Radiation, March 9, 2011.

In summary, U. S. EPA predicts very little problem in meeting the three-year compliance schedule proposed in the regulation, if the additional year of compliance time is provided to “some” units. The key assumptions supporting this conclusion are:

- The use of low-cost, simple, DSI systems to control acid gases, instead of more complex FGD systems
- Faster retrofits than similar projects in the past
- Compliance requirements of other regulations have no impact on HAP compliance
- The small number of projected retirements, about 10 GW of coal capacity
- Early planning action by regulated utilities
- Early planning action by RTOs

General compliance timing issues

Each of the key assumptions in EPA’s analysis of compliance timing merits consideration.

DSI systems

DSI systems have been used by some utilities to address “blue plume” issues associated with the retrofit installation of SCR systems on power plants burning medium to high sulfur coal. SCR retrofits tend to oxidize more of the SO₂ in the flue gas to SO₃, which can pass through FGD systems and condense outside the power plant stack as an acid mist. DSI has been effective in preventing such a mist plume. However, DSI is not in widespread use as a basic SO₂ control system. If these systems are as effective as U. S. EPA assumes, it raises the question of why they have not been placed in service to mitigate basic SO₂ emissions.

Faster retrofits

One might expect that as utilities gain experience with air pollution controls, this learning would allow future retrofit projects to be more streamlined, and faster. However, at some point, such learning reaches a point of diminishing returns, as the application of air pollution controls becomes a mature industry. For the types of hardware that U. S. EPA expects to be retrofitted to enable compliance with the proposed HAP rules, that point in time occurred perhaps in the mid-1980’s, as utilities complied with 1971 vintage State Implementation Plans and New Source Performance Standards. Since that point in time, further experience was gained with eastern U. S. ozone control programs, and the acid rain program prescribed by the 1990 Clean Air Act Amendments, but by then the air pollution control industry was well established.

Countering this learning curve process is the exploitation of the best opportunities for retrofits. Air pollution regulations incorporating trading, like the acid rain program, allowed utilities to control emissions from those sites easiest to retrofit. By exploiting these sites first, utilities were able to minimize the cost of retrofits, and resulting electricity price increases. A consequence of this process was that those sites which have not yet retrofitted advanced SO₂ or NO_x control hardware will face more difficult retrofits. And at sites which have already added large control systems like FGD and SCR, finding available space to retrofit a FF often will be difficult. While the “learning curve” advantages diminish over time, the site congestion problem becomes worse. Site congestion can extend the planning and installation time for a project. **The net effect is that EPA’s assumption of faster future retrofits is probably incorrect.**

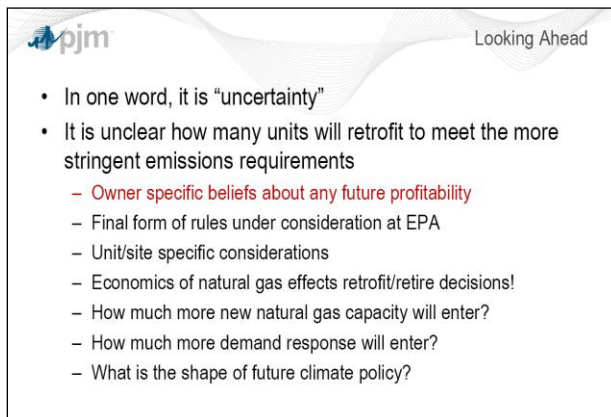
Requirements of other regulations and the 10 GW of retirements

If the purpose of a feasibility analysis is to determine feasibility, then ignoring major compliance activities imposed on the same work force at the same time can only be viewed as disingenuous. When EPA considered resource constraints on the implementation of the 2005 Clean Air Interstate Rule (CAIR), the Agency considered not only the CAIR requirements but also other ongoing regulatory requirements.¹³ An analysis of resource adequacy conducted on one of several regulations has limited value.

Early planning

U. S. EPA is correct in stating that these regulations, and the other regulations under development and cited by U. S. EPA, are known to be coming. However, the implicit assumption that utilities can begin designing and ordering compliance hardware before they know what the basic requirements are is unsupported. It will be difficult for utilities to make decisions even when a final HAP rule is promulgated, given the approach of additional regulations with additional requirements for capital investment. Consider the industrial boiler HAP rule promulgated by U. S. EPA in the spring, 2011. Between its proposal in June 2010, and promulgation in March 2011,^{14,15} the rule changed dramatically. As a result, U. S. EPA's estimate for the total compliance costs for all affected existing units burning solid fuels decreased from \$2.2 billion per year (proposed rule), to \$0.85 billion per year (final rule). An electric utility with <25 MW unit or an industrial party with an industrial boiler owner who made financial commitments based on the proposed rule would have likely have made a poor decision.

U. S. EPA's confidence that RTO's are currently making plans for this wave of regulations, including the HAP rule, may similarly be misplaced. The PJM¹⁶ presentation cited by U. S. EPA in the preamble summed up the industry's dilemma in one slide:¹⁷



The slide features the PJM logo in the top left and the title 'Looking Ahead' in the top right. The main content is a bulleted list:

- In one word, it is "uncertainty"
- It is unclear how many units will retrofit to meet the more stringent emissions requirements
 - Owner specific beliefs about any future profitability
 - Final form of rules under consideration at EPA
 - Unit/site specific considerations
 - Economics of natural gas effects retrofit/retire decisions!
 - How much more new natural gas capacity will enter?
 - How much more demand response will enter?
 - What is the shape of future climate policy?

The fact that PJM knows that additional regulations are being developed does not enable the RTO to take specific measures to ensure grid reliability. That ability will come when it is clearer which power plants will retrofit specific types of hardware, and which will retire – facts that cannot emerge until the final rules, i.e. all rules affecting air emissions, water intake and discharge and waste

¹³ Rule To Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule), 70FR25216, May 12, 2005.

¹⁴ National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Proposed Rule, 75FR32006, June 4, 2010.

¹⁵ National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Final Rule, 76FR15608, March 21, 2011.

¹⁶ PJM is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia. PJM has 163,500 MW generating capacity and >51 million customers.

¹⁷ Op. Cit., Consideration of Forthcoming Environmental Rules, slide #20.

management, are promulgated. PJM's population served of >51 million means that one of every six consumers of electricity is in the PJM RTO.

Compliance information related to public power utilities

An APPA survey of public power utilities was conducted (July 2011) in order to obtain a better understanding of the procedures and time necessary for that segment of the generation fleet to comply with the proposed HAP rule. Specific questions related to:

- The characteristics of existing coal-fired generation, including existing air pollution control equipment, and potential compliance needs
- The timing and process of planning compliance, and how that might differ from that of an investor owned utility (IOU)
- The timing and process of obtaining financing for pollution control projects
- Permitting, detailed design, and construction processes at public utilities
- An overall assessment of the time required for the full compliance process, from initial planning through startup of new pollution control hardware.

Utilities owning approximately 14 GW of coal based generation capacity responded to the APPA survey. These represent over 50% of the coal based capacity wholly owned by public power utilities. Respondents ranged in cumulative capacity between 55 MW and 2200 MW, and averaged 610 MW of coal based capacity. Not all respondents addressed every question in the survey, but most provided a general description of their compliance process, and areas where they might differ from IOUs. The results of the survey are summarized by the following:

- About 20% of respondents planned to retrofit FGD,¹⁸ and about 20% SCR¹⁹ (typically the same utilities were retrofitting both). About one-half planned to replace or supplement existing ESPs with new FFs.²⁰
- About one-fourth were moving forward with plans based on the notice of proposed rule (NOPR). Half were waiting until the final rule is promulgated, and the rest intended to wait until other pending environmental rules were finalized before deciding on a compliance approach.
- About three-fourths of respondents stated that they needed the assistance of engineering consultants for planning their compliance strategy. Such reliance is not unusual, even for IOUs, but several respondents cited their small size and/or remote locations as barriers to obtaining assistance from the larger, more qualified consulting firms. Additionally, several respondents cited a mandatory "public bid" process for selecting contractors (and purchasing equipment) which deterred some contractors and created additional delays in reaching compliance.
- **Public power utilities generally must receive approval from political bodies, such as an elected Board of Directors and a City Council.** Procedures vary by utility, but separate government approvals may be required for the compliance plan and the issuance of bonds to pay for the compliance projects. Several respondents noted that a public referendum is required in order for bonds to be sold.
- Planning periods averaged 17 months, and financing 8 months. However several respondents noted that budgets were addressed only once per year, and that public reviews of plans and

¹⁸ Those planning to retrofit FGD were all single-facility utilities, and they planned to retrofit the entire facility.

¹⁹ One of these SCR respondents planned to retrofit 50% of his capacity; the remainder would retrofit 100%.

²⁰ The portion of the FF respondents' facilities retrofitting FFs generally ranged between 60-100% of total capacity.

funding could result in extended delays, including what one respondent called “hostile interventions.”

- Respondents cited a range of criteria for deciding whether to retrofit an existing unit or retire the unit and replace the lost capacity with a new unit. **In determining the most important criterion affecting that decision, 38% of respondents cited the age of a unit or the capital cost of the retrofit project, 41% cited the average cost of electricity increase resulting from the retrofit project, and 21% cited the general uncertainty regarding the cost of future environmental regulations.** Stated differently, the basic logic used to model the HAP rule – minimizing future cost of electricity considering only the HAP rule – was not the critical criterion for compliance planning for most public power utilities. This is important to the issue of compliance timing because it suggests that modelers, including EPA’s, may be using the wrong model logic to simulate responses to the proposed rule, and thereby projecting the wrong compliance strategies. **Different strategies (specifically, retirement versus retrofit) could have fundamentally different resource and timing requirements.**
- Over three-fourths of respondents expecting to add a FF for compliance stated that **space limitations at their sites would significantly increase capital costs**, compared to a site with adequate space.
- Responding utilities with multiple units to retrofit at the same facility expected to need an additional 12 months in order to address a second unit.
- For past retrofits of environmental control systems (FGD, SCR, FF, ESP), respondents reported an average of 49 months to address all activities from planning to startup. This average did not include the additional time needed to retrofit multiple units at one facility. It is important to note that this figure represents an average. As reflected in EPA’s approach to establishing upper performance limits (UPLs) for HAP emission rates, average values should not be the basis for setting compliance requirements. If one used EPA’s approach of “percentiles” (i.e., select a value for which 99% of facilities would comply with the rule), **then the number of months needed for a single unit retrofit at a facility would range from 73 to 78 months, for “percentiles” of 90% to 99%.**

Adding 12 months for a facility requiring two retrofits would result in 85-90 months.

However, four of the past retrofits described by respondents were either unusually faster or slower than the rest of the reported retrofits. Excluding these units as “outliers,” which seems reasonable if one takes the “percentile” approach, would yield the same average (49 months), but a range of 54-65 months for the 90% to 99% UPL, or 66-77 months if a year is added for facilities retrofitting two units. Please see Figure 2 below for a visualization of the time needed to complete retrofits for compliance as compared to the time allowed by U. S. EPA.

- Unusual situations are not reflected by the above average, but probably fall within the range represented by a “90 percentile” approach. One respondent speculating on a future retrofit cited the need to replace a hot-side ESP with a FF. This change would mean that the air heater would no longer receive “clean” flue gas, since the fabric filter system could not tolerate the high temperature of gases entering the air heater, leading to reconfiguring the air heater to a “dirty” system, and relocating a major electrical subsystem within the existing unit. The respondent judged that this work could not be completed in 4 years.

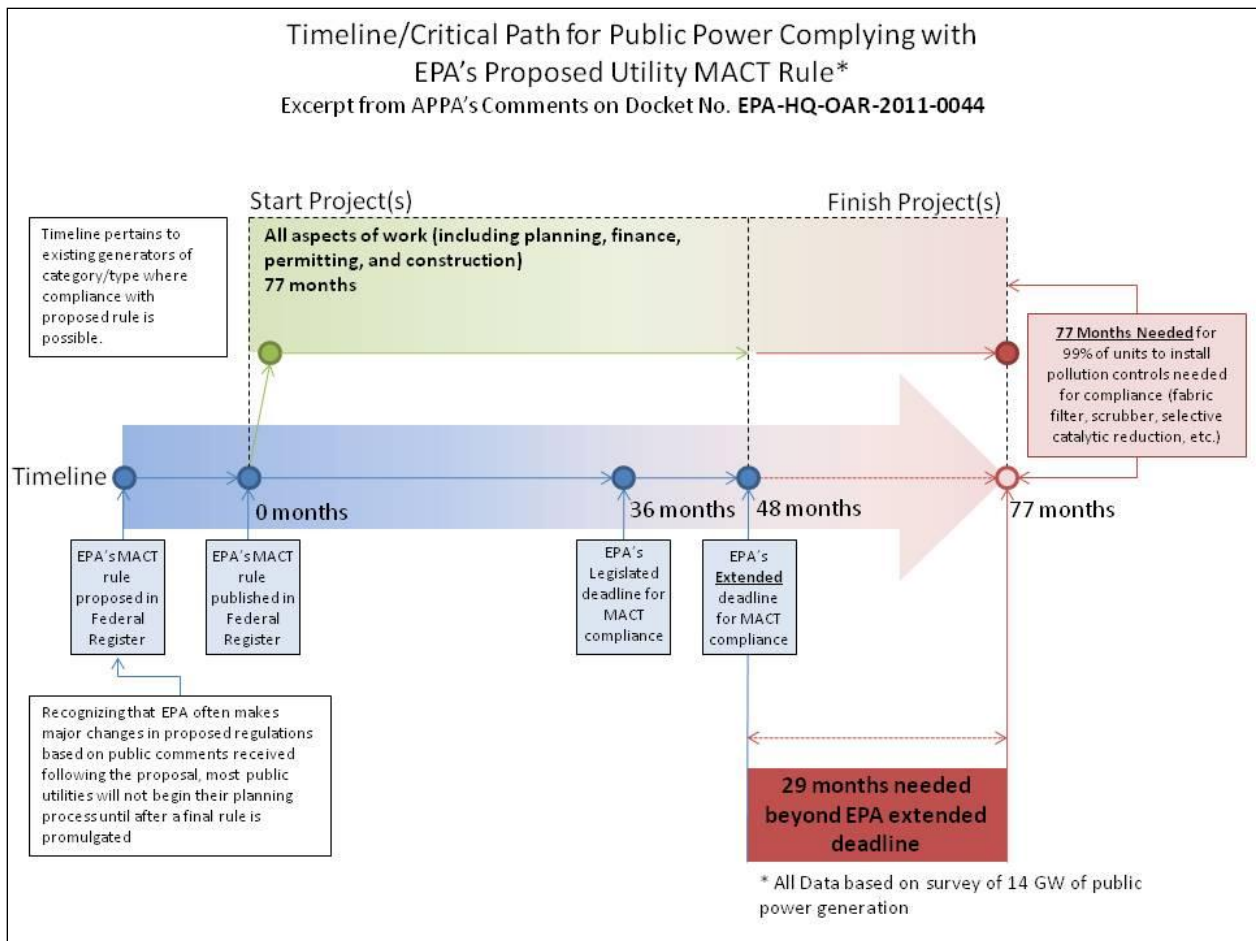


Figure 2: Visualization of timeline needed by utilities to install pollution controls for compliance as opposed to timeline allowed by U. S. EPA.

General conclusions and recommendations

It is clear that public power (not for profit) utilities face some procedural requirements **not** generally shared by investor owned utilities and independent power producers. These procedural requirements can extend the period of time needed by public utilities to comply with the HAP rule. For example, most public utilities must answer to a “Board of Directors,” or equivalent body, as well as a City Council, or equivalent political body. Generally, both of these groups must approve major capital projects, such as retrofitting a FF on a power plant. In some cases, the process includes public participation. Public power (not for profit) utilities do not issue stock, so capital projects are generally financed entirely via debt. Subsequent to approving a project, a second review and approval process is usually required for public utilities to issue bonds, which are the primary debt vehicle for public utilities. In some, but not all, jurisdictions, bonds must also be approved by voter referendum. These review and approval processes can be time consuming, particularly if the government body only considers budget items once per year, or if a bond vote must await a general election.

The average public power utility is also smaller than the average electric utility. **Cumulative coal capacity averages about 417 MW for public power utilities, versus an average of over 1,000 MW for all utilities.** Several respondents to the public power survey expressed difficulty in attracting quality contractors due to the utility’s small size relative to large IOUs competing for the same pool of contractors. Requirements for a public bidding process were cited by several public

utilities as creating an additional barrier to securing top quality contractors. Smaller, less experienced contractors can require longer to complete a project than larger firms.

In general, respondents to the public power survey supported few of the key assumptions used by U.S. EPA in the agency's compliance time analysis. For example, U. S. EPA's expectation of significant planning activity prior to issuance of the final HAP rule was not supported by respondents. **Over 70% of respondents felt the need to see the final HAP rule before charting a compliance path, and some of those wanted to see the outcome of other pending U. S. EPA rules before making decisions. This is a significant issue for public power utilities, as noted above, because of their formal, multilevel oversight and approval process.** Municipal entities cannot afford the economic or political consequences of planning missteps.

Respondents also challenged U. S. EPA's reliance upon DSI, instead of more traditional FGD systems for acid gases. As noted previously, 20% of respondents planned on retrofitting FGD systems. On the other hand, respondents supported EPA's expectation for a large number of FF retrofits. About one-half of respondents planned to retrofit a FF system.

Based on the preamble²¹ and EPA's supporting feasibility study,²² it appears that EPA believes that the regulated utilities can achieve compliance within 50 months of the signing of the final rule (48 months after publication in the Federal Register). As noted above, the preamble states that three years is "necessary," but does not say that it will be sufficient. The U. S. EPA feasibility paper says that, if some utilities get started before the rule is finalized, then "many of the needed retrofits" could be "installed by January 2015 with some needing up to an additional year." These dates are coincidentally identical to the compliance limits specified in Section 112 of the Clean Air Act. EPA appears comfortable with the fact that it is proposing a rule with compliance dates which are unachievable, absent favorable execution of discretionary extensions by permitting authorities, but which are achievable even in that case only if regulated facilities embark on compliance strategies before they know what the regulation will require. This exceedingly thin endorsement of a 3-4 year compliance period is not well supported by the past experiences of public utilities. **As described above, a survey of past retrofits by public power utilities suggests that the regulations would need to provide 66-77 months to accommodate facilities with multiple retrofits and to ensure that 90% to 99% of retrofit projects could be completed within the compliance date deadline.**

U. S. EPA's lack of consideration of resource requirements by other rules under development by the agency, and the assumption "*that almost all future APC retrofits can be completed far more quickly than were historical APC projects*" are both causes for concern. U. S. EPA acknowledges that there are at least four other major power plant rules which will be adopted over the next year, but offers no insight into how resource demands for those rules will impact the timing of compliance with the HAP rule. Those additional engineering and construction resource demands could be large, particularly if the cumulative effect of the rules leads to early retirement of existing coal units and construction of replacement power. U. S. EPA's vacant assertion regarding future versus past retrofit schedules ignores the fact that recent rules involving emissions trading (the acid rain program, the NO_x SIP-call) created a strong incentive to control the most easily retrofit units first. Remaining sites will face inherently more difficult and time consuming challenges. The most common retrofit technology projected by the U. S. EPA's analysis is FF technology. Many existing public power utilities will be challenged to find space to retrofit those large units, and disruptive installations tend to take longer to install.

²¹ Op. Cit., National Emission Standards, May 3, 2011.

²² Op. Cit., An Assessment of the Feasibility.

Finally, it should be recognized that public power utilities are extensions of state and local governments. U. S. EPA's analysis of the timing of compliance includes no consideration for the special compliance schedule challenges that public power utilities face. Both the Unfunded Mandates Reform Act of 1995 and Executive Order 13132 create imperatives that U. S. EPA minimize regulatory impacts on local governments. U. S. EPA acknowledges its obligations to public utilities in the preamble,²³ but appears to believe that convening meetings with national associations representing state and local governments relieves the agency of the need to propose and evaluate substantive alternative regulatory options that address the needs of those government entities.

²³ Op. Cit., National Emission Standards, 76FR25084 – 25087.