Meeting the Mercury and Air Toxics Standards for Power Plants: Greater Benefits, Lower Costs

The Mercury and Air Toxics Standards reduce mercury, soot, lead, arsenic, sulfur dioxide, acid gases, and other toxic pollution from our nation's coal-fired power plants. The standards prevent up to 11,000 deaths and 130,000 asthma attacks among children every year.

Over three-plus years, companies installed pollution controls to reduce their toxic pollutants to meet the standards, and they transitioned old and high-polluting coal units to low-cost and lower-polluting energy resources. As a result, from 2010-2017, mercury pollution from power plants dropped by 86 percent. In addition, acid gas emissions from power plants decreased by 96 percent and heavy metals emissions fell by 81 percent.[i]

Benefits of the Mercury and Air Toxics Standards dwarf estimated costs

The monetized benefits of the Mercury and Air Toxics Standards are up to $90 billion each year, outweighing the costs of compliance by up to a margin of 9-to-1. Also, independent analyses have found many significant benefits associated with the Mercury and Air Toxics Standards that EPA did *not* quantify or monetize, which means the benefits of the standards are even greater than EPA asserted. We now know that EPA's analysis underrepresented the public health benefits of reducing mercury by at least an order of magnitude. A study published in 2017, for example, estimated that the societal costs of harms associated with methylmercury exposure in the U.S. was $4.8 billion per year.[ii]

Actual costs of the Mercury and Air Toxics Standards are a fraction of projected costs

The power sector is now meeting the Mercury and Air Toxics Standards, and doing so at dramatically lower costs than the companies and EPA originally estimated. **One expert analysis found that the cost of initial compliance was around $2 billion and ongoing compliance costs are about $1 billion per year -- less than one-quarter of what EPA had estimated.**[iii] The Table below was included as an exhibit to a brief filed in the MATS litigation by major power companies defending MATS, and it summarizes EPA's numerous overestimates of the costs and expected deployment of various control technologies needed to comply with the standards. For example, in practice, many more plants than anticipated were able to comply using activated carbon injection, a relatively new technology that improved rapidly and proved effective at much lower costs than projected. The table shows the net over-estimate of costs is $7.223 billion.

Table 1. Approximate overestimate of costs

	FF [1]	dry FGD [2]	DSI [3]	wet FGD upgrade [4]	Wet FGD [5]	ACI Waste [6]	ACI carbon [7]	ACI excess [8]	Total
million $	$16,072	$8,838	$0	$4,700	$992	$0	$0	$414	$31,016
Annualized, capital, million $	$1,816	$999	$0	$531	$112	$0	$0	$47	$3,505
Operating costs, million $	$102	$391	$1,400	$0	$37	$1,196	-$207	$798	$3,718
Million $	$1,918	$1,390	$1,400	$531	$149	$1,196	-$207	$845	$7,223

Notes:

1. *The overestimate of FF is the amount over actual installations that is not explained by dry FGD*
2. *Dry FGD estimate for excess dry FGD over actual installed*
3. *DSI estimate assumes that actual reagent is roughly one third of EPA assumption.*
4. *Wet FGD upgrade assumes 30 GW of actual upgrade versus 63 GW predicted. No formal data is available.*
5. *The actual reduction in wet FGD versus the Base Case was greater than forecast by EPA*
6. *Accounts for EPA assumption about fly ash waste for facilities where fly ash is collected with carbon*
7. *Accounts for higher carbon demand from units with ESP versus TOXECON. EPA assumed more TOXECON installations, which include new baghouses.*
8. *Accounts for overestimate of ACI installations after rule is fully implemented. Only includes carbon for VOM as waste already addressed.*

Source[iv] FF=fabric filter; FGD= flue gas desulfurization (scrubber); ACI= activated carbon injection (mercury control device)

Numerous companies adjusted their estimated costs of compliance downward as EPA made adjustments in the final rule and as they identified more cost-effective ways to comply.[v] **Midwest power company FirstEnergy, for example, initially estimated it would cost up to $3 billion total to comply, but their final estimated compliance cost from 2012-2018 dropped to $345 million -- an order of magnitude lower.[vi]**

For nearly half a century we have seen this same story with clean air protections implemented under the Clean Air Act: companies project very high initial costs to comply with the standards, yet end up meeting them for far less than their original estimates due to innovation and other factors. This was true for the Mercury and Air Toxics Standards, as well, which are another example of lifesaving, highly cost-effective, clean air protections.

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[i] https://www.federalregister.gov/documents/2019/02/07/2019-00936/national-emission-standards-for-hazardous-air-pollutants-coal--and-oil-fired-electric-utility-steam

[ii] http://eng-cs.syr.edu/news-events/news/mercury/

[iii] http://blogs.edf.org/climate411/files/2015/09/power-companies-motion2.pdf

[iv] Table taken from: https://www.edf.org/sites/default/files/content/industry_respondent-intervenors_response_to_stay_application_-_no_15a-886.pdf at 53

[v] *See* Exhibit 3, https://www.edf.org/sites/default/files/content/industry_respondent-intervenors_response_to_stay_application_-_no_15a-886.pdf at page 54

[vi] https://investors.firstenergycorp.com/Doc/Index?did=39555676, at page 19