

Q&A

FINAL Power Plant Mercury and Air Toxics Standards

Top Messages

1. MATS will cut toxics like mercury, chromium and acid gases from power plants and protect the air we breathe.
 - a. Methylmercury exposure is a particular concern for women of childbearing age, unborn babies and young children because studies link high levels of mercury to damage to the developing nervous system. This damage can impair children's ability to think and learn.
2. Americans will be healthier when power plants are cleaner.
 - a. Cleaning up dirty power plants will prevent thousands of deaths and hundreds of thousands of illnesses such as asthma attacks, bronchitis and heart attacks each year.
3. Power plants are the biggest source of mercury in the United States. These standards are overdue.
4. MATS closes loopholes for big polluters and will modernize an aging fleet of power plants, most of which are more than 30 years old.
5. These standards are reasonable and achievable, and many power plants already use the technology that is needed to comply.
6. We can get these health benefits and keep the lights on.

****NOTE****

Refer to separate documents for questions on costs, jobs, reliability & feasibility, health benefits.

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General questions

Question 1

MATS is the most expensive rule the government is working on, got more public comments than any other rule in EPA history and addresses critical issues, including electricity reliability. Why is EPA rushing out this rule, especially in a bad economy? Shouldn't you take as much time as necessary make sure the rule is worth it?

- These standards are already overdue, and the benefits far outweigh the costs. Power plants are the biggest source of mercury and other air toxics such as chromium and acid gases in the United States.
- Americans will be healthier when power plants are cleaner.
- These standards are important to public health AND they are reasonable and achievable. They will keep toxic pollution like mercury, arsenic and cadmium out of the air we breathe and at the same time prevent premature deaths and help thousands of children avoid asthma attacks.
- The final standards are less expensive than proposed and still get significant benefits. We shaved about \$1 billion off the cost of complying with MATS and will still prevent thousands of premature deaths and asthma attacks.
- EPA actively sought public feedback on MATS and we listened to what we heard. The Agency has received more than 900,000 comments, including approximately 20,000 unique comments. The final standards make extensive use of the data and information we received during the public comment process.

More information

- People who eat a lot of fish from mercury-contaminated freshwater lakes and rivers will benefit the most from reductions in mercury. Some people rely on fish they catch themselves from lakes, rivers, and streams for a substantial portion of their food, including tribal populations, Asian-Pacific Islanders, and rural white, Hispanic and African American communities.
- Power plants emit mercury, other metals, acid gases, and particles that all harm people's health.
 - Methylmercury exposure is a particular concern for women of childbearing age, unborn babies and young children because studies link high levels of mercury to damage to the developing nervous system. This damage can impair children's ability to think and learn.
 - Metals such as arsenic, chromium, and nickel cause cancer and other health risks.

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- Acid gases cause lung damage and contribute to asthma, bronchitis and other chronic respiratory disease, especially in children and the elderly. Acid gases also harm the environment. Acid gases deposit to the environment and contribute to acidification of sensitive lakes and streams, which can reduce biodiversity and harm fish populations.
- Particles are associated with premature death and a wide range of lung and heart diseases.

Question 2

The air has gotten much cleaner since the 1970s and it is clean enough. Why do we need this rule?

Answer:

- While we have made great progress in reducing air pollution, public health remains at risk from emissions from a number of sources of air pollution, including power plants.
- Until now, there have been no federal limits on toxic air emissions from power plants, yet power plants are by far the largest remaining source of mercury emissions in the US.
- This rule will cut toxic air emissions from power plants and reduce health risks from exposure to mercury, arsenic, chromium, and nickel.
- Reducing toxic power plant emissions will also reduce fine particle pollution and prevent thousands of premature deaths and tens of thousands of heart attacks, bronchitis cases and asthma episodes.
- EPA research shows that over 100,000 premature deaths each year in the U.S. are associated with fine particle pollution.

Additional information

- Power plants are responsible for 50% of US emissions of mercury and 77% of acid gases. They are also the leading source of emissions of other toxics, including arsenic, nickel, selenium and hexavalent chromium.
- MATS will help reduce exposure to toxic pollution for people who live around power plants and for people who eat fish they catch themselves.
- MATS will also reduce cancer risks for people living near power plants by reducing emissions of arsenic, chromium, and nickel.
- Each state maintains a list of fish advisories that indicate how much fish you can eat and how often you can eat it for lakes, streams, and coastal waters. For commercial fish, FDA recommendations can be found at <http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm110591.htm>
- New science has emerged since the 1970s to tell us that low levels of exposure to hazardous pollutants can have significant health effects, especially for children and other susceptible populations. Some pollutants covered by MATS can have effects on children at very low levels of exposure.

Question 3

What is the current health impact of these coal and oil power plants? What is the effect of those emissions on people (nearby and far away)? / What are the health impacts on nearby communities of an unscrubbed power plant?

Answer:

- Even after several decades of pollution control laws, until now there have been no national limits on emissions of mercury and other air toxics from power plants.
- Power plants emit mercury, other metals, acid gases, and particles that all harm people's health.
 - Methylmercury exposure is a particular concern for women of childbearing age, unborn babies and young children because studies link high levels of mercury to damage to the developing nervous system. This damage can impair children's ability to think and learn.
 - Metals such as arsenic, chromium, and nickel cause cancer and other health risks.
 - Acid gases cause lung damage and contribute to asthma, bronchitis and other chronic respiratory disease, especially in children and the elderly.
 - Particles cause premature death and a wide range of lung and heart diseases.
- EPA research shows that over 100,000 premature deaths each year in the U.S. are associated with fine particle pollution.

Additional Information

- Many of these pollutants are known to travel long distances after being emitted and impact human health and the environment both locally as well as far from the point of emission. The distance traveled and the resulting exposures (and therefore health impacts) vary widely depending on a large number of factors such as stack height, local meteorology and operating conditions.
- People who eat a lot of fish from mercury-contaminated freshwater lakes and rivers will benefit the most from reductions in mercury. Some people rely on fish they catch themselves from lakes, rivers, and streams for a substantial portion of their food, including tribal populations, Asian-Pacific Islanders, and low-income white and African American communities.
- Mercury in the air eventually settles into water or onto land where it can be washed into water. Once deposited, certain microorganisms can change it into methylmercury, a highly toxic form that builds up in fish, shellfish and animals that eat fish. Fish and shellfish are the main sources of methylmercury exposure to humans.

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- Methylmercury exposure is a particular concern for women of childbearing age, unborn babies and young children because studies link high levels of mercury to damage to the developing nervous system. This damage can impair children's ability to think and learn
- Children of women exposed to relatively high levels of methylmercury during pregnancy have exhibited a variety of health effects, including delayed onset of walking and talking, cerebral palsy and reduced neurological test scores.

Question 4

When can I start eating more fish without worrying about mercury contamination?

Answer:

- Over time, MATS will help reduce the levels of mercury in fish.
- Fish are important in a healthy diet; however, some fish may contain mercury or other harmful chemicals at sufficiently high levels to be a concern.
- Depending on the amount and type of fish you consume it may be a good idea to modify your diet if you are: planning to become pregnant; pregnant; or nursing. Young children may also need their diet modified depending on the amount and type of fish they consume. High levels of mercury in the bloodstream of unborn babies and young children may harm the developing nervous system.
- To enjoy the benefits of eating fish while minimizing exposure to mercury, you should follow local fish advisories, eat mainly types of fish low in mercury, and limit your consumption of types of fish that often contain higher levels of mercury.

Additional information

- Your state maintains a list of fish advisories that indicate how much fish you can eat and how often you can eat it for different lakes, streams, and coastal waters. For commercial fish, FDA and EPA recommendations can be found at <http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm110591.htm>
- More information about mercury and fish can be found at:
 - http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice_index.cfm
 - <http://www.epa.gov/mercury/advisories.htm>
 - <http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/states.cfm>

Costs, benefits and other impacts

Question 5

Do projections of higher electricity rates mean my bill will go up?

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Electricity rates are projected to stay well within normal historical fluctuations. EPA and Department of Energy analyses show that plants across the country will be able to meet these standards on time, while maintaining more than enough electricity generating capacity to meet our nation's energy needs. EPA modeling indicates that these standards will result in relatively small changes in the average retail price of electricity (approximately 3 percent), primarily due to increased demand for natural gas, keeping electricity prices below 1990 levels.

Individual consumers can take greater control over their own electricity bills

- A projected increase in electricity rates does not mean electricity bills must increase.
- Americans can take advantage of one of the many available federal, state, or local programs that help them make energy efficiency upgrades to their homes and lower electricity costs.
- You can save \$4-5 on your monthly electricity bill by doing JUST ONE of the following:
 - Enabling the “sleep” features on your home computer and monitor
 - Replacing the bulbs in your 5 most frequently used lights with ENERGY STAR qualified models
 - Replacing your 20 year-old refrigerator with an ENERGY STAR qualified model
 - Cleaning out the lint filter on your dryer after every load
 - Setting your thermostat down while you're at work
 - Using a pan that matches the size of the stove burner– not one that's too big or too small
- States can also help their residents take more control over their energy bills
- Programs such as weatherization assistance and broader use of policies that align the interests of utilities and consumers more closely, can all help to reduce demand for electricity and therefore help keep electricity prices low.

Question 6

How did costs and benefits change? Why?

- The final MATS rule costs less and still gets benefits that far outweigh the costs. We shaved more than \$1 billion off the cost of complying with MATS while maintaining significant public health benefits. We will see \$3-\$9 in benefit for every \$1 spent to comply with this rule.

Costs

- We will see substantial benefits to public health from cleaning up these power plants – and it will cost about \$1 billion less than what we proposed. From public comments and our continued work with DOE, we now know that a number of facilities will likely comply with MATS by upgrading controls they already use, or by using lower-cost technologies. This

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improved understanding and other factors reduced the overall costs of the rule to \$9.6 billion (at final) – down from a cost of \$10.9 billion at proposal.

More information

- Costs are lower because EPA updated its modeling assumptions to better reflect how well certain control technologies would reduce pollution and what types of technology would be necessary to meet the final limits. We worked with the Department of Energy to make these changes.

Benefits

- We will still see substantial benefits to public health from cleaning up these power plants – and it will cost less. This annual benefits of this rule are estimated to be \$37 to \$90 billion. We will see \$3 to \$9 in benefits for every \$1 spent to comply with MATS.
- The benefits estimates have changed for several reasons. We updated the air quality modeling to incorporate the final CSAPR into the baseline and we worked with DOE and industry to better model what types of control technology plants would likely use to meet MATS. All of this influenced our estimates about what emissions changes to expect and where those changes would occur.

More information

The benefits are somewhat lower because:

- Emission reductions from final CSAPR were larger than in the proposed CSAPR, thus lowering the amount of emissions that will be reduced by MATS. Overall, the combined emission reductions from both rules remain very similar.
- We now project that some units will be able to meet the limits by upgrading, instead of replacing, certain technologies and others will be able to use lower-cost technologies. This changes the projected costs, emission reductions and benefits, even though the limits themselves are very similar to what was proposed.

Question 7

What are the projected retirements? How do they compare to what was proposed?

- The projections of coal retirements are relatively small, and are lower compared to proposal. We now project roughly 4.7 GW of additional coal retirements by 2015 due to MATS, down from 9.9 GW when MATS was first proposed. Several reasons contribute to this. First, there are slightly greater retirements in the baseline due to CSAPR and other regulatory and economic factors. In addition, as a result of work with DOE and based on public comments, EPA has updated some of its technology assumptions in the

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analysis to support the final rule. The Agency believes there are additional opportunities to upgrade existing pollution control technologies at lower cost and these changes have been incorporated into EPA modeling.

- Utilities try to provide power at cheapest cost. According to EPA's analysis, the estimated retirements due to MATS are generally projected at older, less efficient, and underutilized units in areas with adequate capacity from other sources. The projected coal retirements reflect 1.5% of all coal capacity, and 0.5% of total generating capacity from all power sources. In addition, the average age of the retired coal units is 52 years old.
- Although any closure of a large generation facility will need to be studied to determine potential local reliability concerns, EPA analysis suggests that projected retirements under MATS will have little to no overall impact on electric reliability, and there are a wide array of tools available to help address any potential local reliability concerns.

Question 8**Why is the PM limit now "filterable" instead of "total" PM?**

- Based on comments and additional analysis, EPA finalized an emission limit for filterable PM as a surrogate for non-mercury metallic toxics. We had proposed an emission limit for total PM, which is filterable PM plus condensable PM.
- We made this change after taking another look at the relationships between individual metal emissions and the different types of PM emissions. This review confirmed that filterable PM would serve as an effective surrogate for metals and would fit better with the requirements for continuous monitoring (because those instruments now just measure filterable PM). In addition, the metals that may be less effectively controlled by a limit on filterable PM are still well controlled by the limit on acid gases. This approach is also consistent with our use of filterable PM as a surrogate for metals in other air toxics rules.

Question 9**How do the mercury numbers compare? Why is EPA allowing more mercury from power plants in the future?**

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- The final emission limit of 1.2 pounds of mercury per trillion Btu of fuel heat input (lb/TBtu) is based on the best available data about the top performing 12% of units for which the agency has data. This methodology is laid out in the Clean Air Act.
- The proposed emission limit included an error in a small amount of the mercury data. We corrected the data and changed the proposed limit to 1.2 lb/TBtu. That is the limit we're finalizing.
- The final emission limit is based on the corrected data and is in line with how the Clean Air Act says we must calculate these limits.

More information

- At proposal, EPA estimated that – as a whole – power plants would emit about 6 tons of mercury once the rule was implemented. This estimate was based on the proposed emission limit of 1.0 lb/TBtu. During the comment period, industry pointed out a conversion error in a small amount of the mercury data. EPA corrected this error and revised the proposed mercury emission limit slightly – to 1.2 lb/TBtu. In general, this meant that the total amount of mercury allowed from power plants would be slightly higher than we estimated -- probably closer to 7 tons.

Question 10

Why does EPA estimate that the final MATS rule will create more short term jobs? (At proposal you projected 31,000 short term jobs. At final you are projecting 46,000 short term jobs.)

- EPA strives to use the best available information about what it takes to build and install pollution controls when making these estimates.
- Between proposal and final, the Agency updated labor estimates to include the most recent real-world engineering data, which shows that it requires more labor to build pollution controls than we originally estimated.
 - The Agency updated a detailed engineering study, which was originally completed in 2001.
 - Since 2001, a considerable number of pollution controls have been installed, and the estimates were updated to reflect this more recent activity.
- The short-term jobs estimate for the final rule reflects these updates.

Question 11

If the MATS rule costs more, and will require more controls to be installed than the Cross-State Air Pollution Rule, how come MATS prevents fewer premature deaths and illnesses?

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- For both rules, the quantified health benefits greatly outweigh the costs. In addition, there are substantial health benefits that EPA has not quantified, particularly those related to reducing exposure to toxics air pollutants.
- As a general rule, programs that allow more emissions trading, such as the Cross-State Air Pollution Rule, are less costly than programs with less trading. However, it is not appropriate to use emissions trading to limit all types of pollution. In the 1990 Clean Air Act Congress recognized that toxic pollutants, whose effects may be concentrated near sources or that bioaccumulate in the environment, such as mercury, are not appropriately controlled through a trading program.
- The pollution problems are different, so following the Clean Air Act we're using different tools to address them.
- By definition, the Cross-State Rule, because it is a trading program, gets the cheapest SO₂ and NO_x emission reductions currently available from power plants. Once those reductions have taken place, subsequent emission reductions of some pollutants will necessarily be more expensive.
- MATS focuses on those remaining plants, many of which are older and potentially more expensive to clean up. Many of these plants are located near communities and run hardest on days of high electricity demand when air quality is the worst. MATS will require those plants with few pollution controls, to make long-overdue investments to reduce significantly toxic air pollutants known to cause neurological damage, cancer, and other serious harm to public health and the environment.

Question 12**Why didn't EPA quantify all the benefits of reducing air toxics? Why only mercury and IQ?**

- Unfortunately, we cannot monetize all of the health and environmental benefits associated with reducing mercury and other air toxics due to data limitations.
- If full accounting was possible for all of the benefit categories, the benefits would exceed the costs by an even greater amount than we currently estimate.

More information

- In terms of mercury benefits, EPA's analysis only quantified one health endpoint – IQ. As noted by the Science Advisory Board, IQ is not the most sensitive neurological impact of mercury exposure, which leads to underestimation of the benefits. In addition, many other impacts of mercury emissions were not quantified including impacts on ecosystems and wildlife especially fish, birds both fish and insect eating, and mammals.
- While the monetized benefits of reducing mercury emissions are not large relative to PM-related benefits, those benefits are also not equally distributed across the population. As EPA's analysis shows, some populations, including low-income African Americans and some

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Native American populations could have higher benefits because these populations are more highly exposed to mercury.

- Other HAPs controlled by the MATS rule were likewise not quantified due to data, resource and methodological limitations. Instead, EPA provided a qualitative analysis of the health effects associated with the HAPs anticipated to be reduced by these rules. Such an approach follows guidance set by OMB Circular A-4, which recognizes that “some important benefits and costs (e.g., privacy protection) may be inherently too difficult to quantify or monetize given current data and methods.”
 - Even if we were able to fully monetize the public health benefits of reducing exposure to mercury and other HAPs, it is likely that the PM benefits would continue to dominate the total monetized benefits due to the size of the exposed population and the severity of the associated health effects.

Question 13

Why are you projecting that we will avoid more asthma cases with final MATS, when the emissions reductions are smaller than at proposal?

- EPA strives to use the best available science when estimating the human health benefits of air quality improvements.
- The Agency recently updated its calculation of PM_{2.5}-related aggravated asthma with more current information regarding the prevalence of asthma in the U.S. population.
- These newer data provide a more reliable characterization of asthmatic populations and resulted in a slightly larger number of avoided cases of aggravated asthma as compared to the RIA for proposed MATS.

Question 14

Won't this rule have a disproportionately negative effect on coal states?

Answer:

- EPA analysis shows very little change in overall coal use because most power plants will be able to reduce air toxics and keep burning coal by installing pollution control equipment, rather than switching fuels.
- Coal-producing states, like the rest of the United States, will also see significant health benefits from controlling mercury, acid gases and particles – including fewer premature deaths, fewer lung and heart ailments, and fewer missed work days.

Additional information

- Coal-fired generation is slightly reduced in 2015 as a result of the proposed air toxics rule. Although total coal deliveries decrease on a tonnage basis, the change is a relatively small 1% of total production destined for the power sector.

Mechanics of MATS

Question 15

How did EPA decide what level of emission reductions to require and which sources were covered?

Answer:

- When EPA sets limits for toxic emissions, it must follow the requirements established by Congress in the Clean Air Act and in recent court decisions.
- The Clean Air Act is very specific in telling EPA how to calculate these limits based on the emissions of the best-performing facilities.
- MATS sets technology-based limits on toxic air pollution from boilers that burn coal or oil at power plants.

Additional information

- EPA must set the standards for each type of facility at a level of emissions control at least as stringent as that achieved by the average of the best-performing 12 percent of existing facilities.
- Standards for new sources must be at least as stringent as the level of emissions control achieved by the best performing similar source.
- EPA finalized subcategories based on the design, use, and/or location of the various types of units at different power plants.

Question 16

Why are you setting standards that power plants can't meet? Can you tell me whether a particular facility can or will meet the standards?

- All of the emission limits set in MATS reflect what actual power plants already achieve in practice.
- EPA does not have test data for each unit at each facility. However, where we do, the data submitted to EPA by utilities suggest that dozens of units already meet the final standards. Units at these plants use a range of widely available control technology – technology that takes toxics out of the air and leads to healthier communities.
- All facilities have the flexibility to decide the most cost-effective way to comply with these standards. Some may choose to make minor adjustments to existing equipment, and others

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– especially those that have not installed advanced controls -- may need to install new equipment.

- The rule does not tell facilities how they have to comply, so it is hard to say just how a particular facility will respond.

Question 17

Is it possible to build a source that meets the new source MACT standards?

- Yes. The final MACT emission limits for new sources are what you would see from a source using a full suite of state-of-the-art controls.

More information

- The data submitted to EPA by utilities suggest that at least one existing unit with a full suite of controls meets the standard that a newly built source would need to meet.

Question 18

Will sources have to put on new equipment or replace existing control equipment to comply with this rule?

Answer:

- Some facilities are already well positioned for compliance, some will have to upgrade existing controls, and some will have to add new controls to meet the emissions limits.
- The standards in MATS are set based on existing, commercially proven technologies that are widely available and frequently used in this industry, such as electrostatic precipitators, baghouses, scrubbers, or dry sorbent injection. Almost every coal power plant uses at least one of these technologies.

Additional information

- MATS does not mandate a specific technology, so power plants can choose to meet the emission limits in a way that makes the most sense for them. This flexibility often drives innovation in addition to promoting existing technologies. Plants will look for and often find even more cost-effective ways to reduce pollution and meet limits.
- Two or three proven, well-known control devices or measures will control multiple air pollutants and meet multiple regulatory obligations.
- Examples of off-the-shelf controls or combinations of controls that may help power plants reduce pollution and meet the emission limits include:
 - For mercury
 - Activated carbon injection
 - Fabric filter
 - Wet flue gas desulfurization system
 - For PM and toxic metals:

- Fabric filter
- Electrostatic precipitator
- For acid gases
 - Wet and dry flue gas desulfurization systems
 - Dry sorbent injection

Question 19

How many plants/units are currently uncontrolled for SO_x, NO_x, Mercury and acid gases?

Answer:

- About 40% of coal-burning power plants covered by MATS don't use add-on controls such as scrubbers or SCRs. (selective catalytic reduction).
- About half of the coal units covered by MATS are more than 40 years old, built in the 1940s, 50s or 60s. Many of these power plants have some minimal level of emission controls, though far from modern, and will need to do the most to meet the emission limits. These units tend to be smaller, less efficient and have fewer emission controls than the newer plants.
- The standards in MATS are set based on existing, commercially proven technologies that are widely available and frequently used in this industry, such as electrostatic precipitators, baghouses, scrubbers, or dry sorbent injection. Almost every coal power plant uses at least one of these technologies. Some facilities are already well positioned for compliance, some will have to upgrade existing controls, and some will have to add new controls to meet the emissions limits.

Question 20

Are we getting a 90% reduction in mercury emissions?

Answer:

- EPA is setting these standards – as required by the CAA – to be as stringent as the best-performing power plants in the country.
- The final rule, along with other actions, will keep 90% of the mercury in coal burned at power plants out of the air.
- MATS will reduce other air pollutants from power plants.
 - 88% reduction in emissions of acid gases in 2016
 - 41% reduction in emissions of SO₂ emissions in 2016
 - 19% reduction in emissions of particles from in 2016

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- We've made significant progress on reducing mercury in the air since 1990 but there is more to do.
 - In 1990 three industries were responsible for about two-thirds of US mercury emissions. These were power plants, municipal waste combustors and medical waste incinerators.
 - EPA set air toxics standards on the other two sources, reducing mercury emissions to less than 3 tons. Power plants remain the largest source of mercury in the US -- emitting 53 tons of mercury in 2005 (the latest year for which we have emissions inventory data).
- Some power plants are already reducing mercury, and EPA sets the standard based on what these best performers achieve in practice.
- For those power plants already reducing mercury, it would not make sense to require an additional 90% reduction.
Additionally, certain power plants use fuel with a low mercury content, so may not need to remove the same percentage as other power plants using fuel that starts with more mercury in it.

Question 21

Won't using pollution control equipment on these power plants make them LESS efficient, which is the opposite of what we want power plants to be doing?

Answer:

- The requirements provide an incentive to develop and install the most efficient technology. Over time this results in technology innovation and the development of even more efficient power production.
- Control equipment does take a small amount of energy to operate, so affected power plants may have to use slightly more fuel to off-set the electricity used to run the pollution control equipment.
- Nevertheless, as power plants upgrade to install pollution control equipment, they often make additional improvements, including many that increase efficiency overall.
- These requirements should help the power sector leave old, inefficient power plants behind in favor of newer, modern power plants that are more efficient overall.

Question 22

Scrubbers are readily available and would achieve greater acid gas removal than sorbent injection and much greater public health benefits. Why doesn't EPA's rule include an acid gas standard that will require scrubbers?

Answer:

- MATS sets stringent standards for reducing acid gas pollution according to the Clean Air Act's requirements.

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- The Clean Air Act tells EPA to set limits for air toxics based on emissions data – not to mandate a particular control technology such as a scrubber.
- Setting limits this way encourages innovation in pollution control. Power plants can use whatever technology or method they choose as long as they reduce pollution and meet the limits.
- The data currently available to EPA show that power plants can meet the emission limits in MATS by using a range of control alternatives.

Additional information

- To meet the emission limits, each power plant must consider its particular circumstances, including location, fuel type, configuration etc. Setting an emission limit instead of requiring specific control technology allows for maximum innovation and flexibility while also ensuring meaningful environmental protection.

Question 23

Did EPA use the health-based compliance option to reduce the cost and impact of this rule?

Answer:

- The Clean Air Act is very specific as to how EPA must set emissions limits for toxic air pollutants. The starting point is always technology-based standards, which are calculated based on what power plants are already doing in practice.
- EPA may have an option to set a different type of emissions standard for air toxics that do not cause cancer. This type of standard is based on risk and is sometimes called a “health-based” emission standard to distinguish it from a “technology-based” standard.
- To set this different standard, EPA must have an adequate factual record that includes information about the health risks associated with each air toxic, and whether a different standard would adequately limit health risks for people who live near sources.
- Power plants emit numerous air toxics, including several different kinds of acid gases. The agency does not possess sufficient information to set these different types of standards for MATS.

Additional information

- The pollution control equipment that limits emissions of hydrogen chloride (HCl) also limits emissions of other highly toxic air emissions, including other acid gases. So even if this alternate approach to setting a standard were justified for HCl in isolation, EPA would also need to determine that it is justified for all other air toxics for which HCl is controlled as a surrogate (e.g. hydrofluoric acid).
- To set a health-based emission limit, EPA considers a variety of factors including,
 - whether there is an established health threshold for the pollutant;
 - whether there is an established health threshold for other toxic pollutants it serves as a surrogate for;

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- the potential for people to suffer health effects from cumulative exposure caused by the regulated source and sources nearby;
- whether a health-based emissions limit would in fact adequately protect people who live near sources from adverse health effects; and
- whether there are other compelling reasons not to employ the health-based standard.

Question 24

Did EPA follow the proper SBREFA process when developing this rule?

Answer:

- EPA made every effort to be responsive to the concerns of small businesses.
- We met with dozens of representatives from small businesses while developing, proposing and finalizing MATS. In these meetings, we discussed ways to mitigate impacts of the rule on small businesses consistent with the law.
- EPA has responded to small business concerns as appropriate in the final rule.

Question 25

What's the effect of the rule on power plants that burn waste coal?

Answer:

- EPA did not create a separate subcategory for coal refuse units (aka "waste coal") because analysis of the emissions data did not show a need for a subcategory.
- In fact, boilers that burn waste coal often achieve high levels of pollution control.

Question 26

What's the effect of the rule on power plants that burn lignite coal?

Answer:

- EPA set a subcategory for a certain class of boilers that are generally designed to burn low rank, virgin coal but can burn other types of coal.
- For this subcategory, EPA set a different emission limit for mercury only. The mercury limit goes "beyond the floor" for this subcategory because EPA analysis shows that additional emission reductions can be readily achieved by using controls that controls are widely available and affordable.

Question 27

Why is EPA changing its coal subcategories in the final rule?

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- EPA did not change the subcategory for coal units. Commenters said that the definition as proposed was not specific enough so we clarified the definition to make sure that the right units were covered by the subcategory.
- The subcategory we finalized covers units that burn low-BTU, virgin coal and are located near mines of such coal.
- For this subcategory, EPA set a different emission limit for mercury only. The mercury limit for these units still goes “beyond the floor” because EPA analysis shows that better controls are widely available and affordable.

More information

- Units in this subcategory should be able to meet the final limits with off-the-shelf technology.
- Boilers in this subcategory are generally designed to burn lignite coal but can burn other types of coal.

Question 28**Won't this rule unfairly burden small municipal power plants and rural communities?****Answer:**

- The effect of MATS will be different on each plant depending on how old it is, what it burns, how efficiently it operates and what technology it may already be using to reduce pollution.
- The unique service provided by these smaller utilities also makes them eligible for loans for plant upgrades as well as demand-management initiatives.

Additional information

- MATS does not mandate a specific technology, so plants can choose to meet the emission limits in a way that makes the most sense for them. This could include a variety of strategies -- including burning cleaner fuel, increasing efficiency, improving combustion, and/or installing pollution controls.
- The standards in MATS are set based on existing, commercially proven technologies that are widely available and frequently used in this industry, such as electrostatic precipitators, baghouses, scrubbers, or dry sorbent injection. Almost every coal power plant – including small power plants – uses at least one of these technologies

Question 29**Why are these mercury limits less stringent than some state limits?****Answer:**

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- Some states have limits that are more stringent than EPA's; others have less stringent limits and many have no limits at all.
- MATS levels the playing field and protects communities across the country by making sure power plants in every state have to limit toxic pollution.
- However, the federal standards are not meant to replace state standards that are more stringent than EPA's.
- U.S. power plants use a wide variety of coal types and boiler designs that affect how mercury control technologies work. In general, there is less variability among power plants in a single state; this means a stricter standard is feasible and cost-effective for some states.
- History has shown that power plants can install controls well within the timeframes required by the Clean Air Act. From 2001 to 2003, 150 GW of new generation was built; from 2008 to 2010, about 20 GW of scrubbers was installed each year.

Additional information

- Different states use their own methods and set limits that may have a different form than EPA is required to establish. This makes it difficult to compare state standards with those being set under MATS.
- However, these state actions to limit mercury emissions have helped demonstrate how power plants can reduce toxics using off-the-shelf control technology and have paved the way for the standards being set now under the Clean Air Act.

Question 30**Which states have laws that already require mercury control at power plants?****Answer:**

- Eighteen (18) states have at least one enforceable mercury-specific regulation on the books. For some of these states, implementation is in a future year.
 - Arizona
 - Colorado
 - Connecticut
 - Delaware
 - Georgia
 - Illinois
 - Maine
 - Maryland
 - Massachusetts
 - Michigan
 - Minnesota
 - Montana
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- New Jersey
- New York
- Oregon
- Utah
- Wisconsin

Question 31

Why did EPA revise its estimate of the number of sources covered by MATS?

- EPA estimates that there are approximately 1,400 units affected by this action. Approximately 1,100 existing coal-fired units and 300 oil fired steam units at about 600 power plants.
- These estimates are based on the data used in the modeling and analysis of the final rule. They are somewhat different from proposal but that doesn't mean more power plants came online or that the universe of units changed. It simply means that we refined our estimates as we learned more during the comment period.

Question 32

Why does EPA give two numbers (75% and 90%) when describing the change in mercury due to MATS? What's the difference between these amounts?

- **Answer:**
They are different metrics. 90% describes how much of the mercury in coal will never be emitted to the air once MATS is in place. 75% describes how mercury emissions will be reduced by MATS beyond levels projected without the rule.
- Both numbers show how we will continue important progress in reducing mercury emissions from power plants.

Additional Information:

- The 90% mercury removal percent is calculated by comparing the mercury content of coal burned at coal-fired EGUs > 25 MW in the base case (72.46 tons) to mercury emissions from coal-fired EGUs > 25 MW in the policy case (6.55 tons). Using rounded numbers: $72 - 7 = 65/72 = 90.28\%$ which rounds to 90%. This reduction is attributable to pollution control

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devices, coal switching, and decreased coal consumption. Therefore, the 90% reduction represents a reduction from the coal that would have been burned in a world without MATS.

- A suite of different pollution control technologies, including controls for SO₂ (scrubbers) and PM (fabric filters), also yield mercury reduction cobenefits.

Other

Question 33

How does EPA plan to respond to the petition from the Utility Air Regulatory Group (UARG) calling on the Agency to delist utilities from regulation under section 112?

- EPA denied UARG's petition to delist coal- and oil-fired utility units in the final rule.
- In the review of the comments on the finding that it is appropriate and necessary to regulate mercury from power plants, we reviewed and evaluated the UARG petition. We concluded that the merits of the petition were unwarranted.

Question 34

What effect would the CSAPR adjustments have on MATS? Are they incorporated?

- The recently proposed CSAPR adjustments will not substantially affect the total benefits and costs of MATS and CSAPR together.
- The adjustments will simply shift a small portion of the benefits from CSAPR to MATS because MATS makes reductions in addition to CSAPR.
- The adjustments mean CSAPR will likely get a little bit less SO₂ reduction, and MATS will get a little more.

More information

EPA has proposed minor modifications to the state SO₂ budgets in the Cross State Air Pollution Rule. These modifications are expected to result in small changes in the levels of SO₂ emission reductions expected in a number of states, with the largest impact expected in Texas. Because of the change in the baseline SO₂ emissions for MATS, the MACT controls may result in slightly larger reductions in SO₂ and other emissions, and consequently slightly higher benefits. MATS costs may also change slightly due to changes in installed controls.

Question 35

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How does MATS interact with EPA's boiler rule?

- A particular unit will only be subject to one rule or the other.
- Power plants may have both "industrial boilers" and "electric generating units" on site. An industrial boiler is a unit that produces power for the plant's immediate needs but does not produce power for sale. An EGU produces power for sale and is above a certain size.
- The boiler MACT applies to industrial boilers and not to those that meet the definition of an EGU.

Additional information

- The Clean Air Act instructs EPA to list source categories and to set standards for them. Most source categories are listed by individual emitting unit, rather than by overall facility. This means a single facility could have different units covered by different rules.
- MATS applies to units that are defined as "electric generating units" under the Act. The boiler MACT applies to units defined as boilers, which are those that do not produce power for sale and may be used to produce power for a company's own use, heat, or steam to serve other industrial processes.
- So while a single power plant may include both types of units within a fence line, each unit will only need to follow one of these rules.

Question 36

Why are we spending billions of dollars on controlling mercury from power plants when almost all the mercury deposited in the US comes from other countries? This rule will not make a difference.

Answer:

- Mercury is a global problem, but the complex chemical nature of the pollutant means it is also important on a local and regional scale.
 - Coal-fired power plants emit 3 forms of mercury. Two forms deposit very quickly near the sources impacting local and regional watersheds. The other form transports regionally and globally.
 - Coal-fired power plants are the largest anthropogenic source of mercury emissions in the U.S. and emit over half of the emissions of mercury that deposits locally in the U.S.
- While emissions from other continents contribute to mercury deposition in the U.S., published research shows that U.S. coal-fired power plants significantly contribute to local and regional mercury deposition (Caffrey et al., 2010; Keeler et al., 2006; White et al., 2009).
- Reducing mercury emissions from power plants is the most important step we can take to clean up our contribution to the problem.

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- We should lead the world by example and reduce mercury pollution from power plants, which are the largest remaining man-made source of mercury emissions in the US.
- The final rule, along with other actions, will keep 90% of the mercury in coal burned at power plants out of the air, and help reaffirm the United States' role as a world leader in reducing mercury in the environment.
- EPA's risk analysis concluded that up to 29% of watersheds are at risk from U.S. EGU-attributable mercury deposition. This risk analysis, which was favorably reviewed by EPA's independent Science Advisory Board, demonstrated that mercury emissions from U.S. power plants are a public health hazard.

Additional Information

- Power plants emit mercury, other metals and acid gases , and particles that all harm people's health.
- MATS is a significant step forward in the United States' international leadership on reducing emissions of mercury.
 - In addition to cleaning up our own mercury emissions, we are participating in talks to negotiate a United Nations Environmental Programme (UNEP) international treaty to limit the use, sale and emissions of mercury.
 - EPA is also helping to transfer US control technology and experience to assist other countries – including those with developing economies – in identifying opportunities and taking action to control mercury.

Question 37

Why are you using 2005 numbers to estimate what portion of air toxics power plants are responsible for when you have newer, 2010 numbers from the information collection request (ICR)?

Answer:

- EPA used the most complete data set available for all sources that emit toxic pollutants, which is the inventory for the 2005 National Air Toxics Assessment (NATA). EPA does not have comparable emissions information for 2010 toxic emissions from other sources besides power plants.

Question 38

Why are the 2010 TRI numbers on the EPA website different from the ones EPA is using for MATS? Shouldn't they match?

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- The mercury estimate in the Toxics Release Inventory and the estimate used in the Mercury and Air Toxics Rule (MATS) are based on different data collected in different ways, so it is not surprising that the estimates don't match.
- The numbers are close, though, and what both estimates clearly show is that power plants are a big source of mercury.
- The TRI estimate uses emissions information that is reported by individual facilities, and facilities have several options about how to calculate what they report. In contrast, the MATS estimate uses emissions information from actual testing -- testing that EPA required as part of a mandatory "information collection request" when developing the rule. This ICR targeted the best performers and required them to use particular methods to test for and report their emissions. For mercury, we required plants to do direct emissions testing. We then extrapolated an estimate for the broader industry from this information.
 - The MATS approach may even underestimate how much mercury power plants emitted because we specifically targeted the best performers in the ICR.
- Despite these differences, both estimates show that power plants are the largest remaining source of mercury, a toxic that is a particular concern for women of childbearing age, unborn babies and young children because studies have linked high levels of methylmercury to damage to the developing nervous system. This damage can impair children's ability to think and learn.

Question 39

The appropriate and necessary finding is based on EPA's reference dose which is derived from the Faroe Islands study. But didn't another large epidemiologic study in the Seychelles Islands see no adverse effect from fetal exposure to methylmercury?

Answer:

- EPA's reference dose (RfD) for methylmercury is based on three studies: the Faroe Islands, Seychelles Islands, and New Zealand studies.
- In 2000 a National Academy of Sciences panel affirmed that EPA's reference dose was scientifically justifiable.
- In addition, last year, the researchers who conducted the Seychelles Island study completed a new analysis of their data and concluded that there was a possible adverse effect on cognitive function from fetal exposure to methylmercury. The analysis was published in the peer-reviewed journal Neurotoxicology.
- These new findings are generally consistent with the earlier studies that were the basis of the RfD. This study, along with others published since 2001, provide additional confidence that exposures above the RfD are contributing to risk of adverse effects, and that reductions in exposures above the RfD can lead to incremental reductions in risk.

Question 40

What were the results of the SAB review? How can EPA justify moving ahead with this rule when its own independent science advisers call the mercury risk analysis “deficient, ... because of its lack of transparency in describing key analytical methods and findings” and say that “Important elements of the methods and findings are missing or poorly explained”?

- Those statements are taken out of context and in no way undermine the validity of EPA’s analysis. The peer review panel is simply raising concerns about some of the ways EPA presented information– not about the scientific basis of the draft analysis, which examines health risks associated with mercury emissions from US power plants.
- In fact, the Science Advisory Board confirmed that EPA’s analysis is scientifically credible. The board “supports the overall design of and approach to the risk assessment and finds that it should provide an objective, reasonable, and credible determination of the potential for a public health hazard from mercury emitted from U.S. EGUs.” The board also said it “regards the design of the risk assessment as suitable for its intended purpose, to inform decision-making regarding an “appropriate and necessary finding” for regulation of hazardous air pollutants from coal and oil-fired EGUs, provided that our recommendations are fully considered in the revision of the assessment.”
- EPA appreciates the SAB’s thorough review of the risk assessment and their endorsement of our approach. We responded fully to SAB’s useful and focused advice in preparing a revised analysis for the final MATS rule.

Question 41

How does Best Available Retrofit Technology (BART) tie in with MATS?

- The options for controls for either BART or MATS will be based on the same proven, currently in-use technologies and processes.
- BART requires emissions controls for the visibility impairing pollutants SO₂, NO_x, and PM. Two of these pollutants, SO₂ and PM, are also controlled under MATS.
- For these pollutants there may be circumstances where a control technology selected for MATS compliance, for example, could satisfy the BART requirements or vice versa.
- Facilities have up to 5 years to comply with BART and generally up to 4 years to comply with MATS. While compliance deadlines will not match up exactly, some overlap may exist for coordinated control strategy planning and implementation.

Question 42

What is the relationship of MATS to New Source Review (NSR) requirements?

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- EPA believes that most sources that choose to install controls to comply with MATS can make these installations without triggering New Source Review.
- If a facility were to trigger NSR, there should be sufficient time for them to apply for and receive an NSR permit.

More information

- Some sources that install controls to comply with MATS may have an emissions increase of certain gases (e.g., GHG, NO_x, SO₂, CO) as a result of providing additional power to operate the control devices.
- Major sources that undergo a modification, including the addition of pollution control equipment, would only trigger PSD requirements for their emissions of GHG if such emissions increase by at least 75,000 tons per year of CO₂ equivalent.

Question 43

What is the status of EPA's Greenhouse Gas New Source Performance Standards (GHG NSPS) for utilities?

- EPA anticipates proposing these standards for power plants in early 2012.
- The draft proposed Greenhouse Gas New Source Performance Standards (GHG NSPS) for EGUs are currently being reviewed by OMB.
- While the details of the proposed rule are not yet final, EPA is committed to ensuring there is a reasonable path forward for every regulated source that will allow them to comply with MATS in a timely manner while still meeting any applicable NSPS requirements.