

## **Recent EPA Rulemakings Relating to Boilers, Cement Manufacturing Plants, and Utilities**

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The Southern Company

EPA has proposed Utility MACT rules under timelines that we believe will put the reliability and affordability of our nation's power system at risk. EPA's proposal will impact plants that are responsible for nearly 50 percent of total electricity generation in the United States. It imposes a three-year timeline for compliance, at a time when the industry is laboring to comply with a myriad of other EPA mandates. The result will be to reduce reserve margins—generating capacity that is available during times of high demand or plant outages—and to cause costs to soar. Lower reserve margins place customers at a risk for experiencing significant interruptions in electric service, and costs increases will ultimately be reflected in service rates, which will rise rapidly as utilities press ahead with retrofitting and projects to replace lost generating capacity due to plant retirements.

The solution is to allow the industry the time to make a smooth transition to the next generation of emissions control technology required by the Utility MACT standard. A more deliberate schedule for promulgating the standard, coupled with a more realistic compliance schedule, would ease the strain on the industry and reduce risks to consumers. Anything less will put at risk the economic growth and job creation that depends on reliable and affordable electricity every day of the year.

*Congressional Testimony*

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Testimony before the  
Subcommittee on Energy and Power  
Committee on Energy and Commerce,  
United States House of Representatives

**April 15, 2011**

Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee, thank you for inviting me to testify today. The Southern Company is the leading energy supplier in the Southeastern United States, serving 4.4 million customers with reliable electricity service generated from a full portfolio of energy resources—nuclear, Twenty-First Century coal, natural gas, renewables and energy efficiency. We work hard every day to ensure that our customers have access to reliable and affordable power. Like the rest of our industry, we are committed to working with our environmental regulators, reducing emissions and making sure the air is clean. That is why Southern has in recent years invested over \$8 billion dollars in environmental controls and intends to spend up to \$4.1 billion over the next three years to comply with existing, revised or new rules. The results have been impressive: between 1990 and 2010, Southern Company reduced SO<sub>2</sub> and NO<sub>x</sub> emissions by about 70 percent, even as generation increased by about 40 percent. Moreover, by 2020, we expect reductions that will result in SO<sub>2</sub>, NO<sub>x</sub> and Hg emissions 60-80 percent below 2000 levels, while generation again is expected to increase by about 40 percent during this same period.

My message today is that the reliability and affordability that Americans deserve from their power system is at risk. EPA's proposal for a new maximum achievable control technology standard for the utility industry, or "Utility MACT," will impact plants responsible for nearly 50 percent of total electricity generation

in the United States. It imposes a three-year timeline for compliance, at a time when the industry is laboring to comply with a myriad of other EPA mandates. The inevitable result will be to reduce reserve margins—generating capacity that is available during times of high demand or plant outages—and to cause costs to soar. Lower reserve margins place customers at a risk for experiencing significant interruptions in electric service, and costs increases will ultimately be reflected in service rates, which will rise rapidly as utilities press ahead with retrofitting and projects to replace lost generating capacity due to plant retirements.

The solution is to allow the industry the time to make a smooth transition to the next generation of emissions control technology required by the Utility MACT standard. A more deliberate schedule for promulgating the standard, coupled with a more realistic compliance schedule, would ease the strain on the industry and reduce risks to consumers. Anything less will put at risk the economic growth and job creation that depend on reliable and affordable electricity every day of the year.

### **Background on the Utility MACT Rule**

On March 16, EPA Administrator Lisa Jackson signed the Agency's proposed rule to regulate hazardous air pollutants (HAPs) from power plants under Clean Air Act Section 112. The proposal would set stringent numerical emissions limits and work practice standards for a variety of HAPs emitted by coal and oil electric-generating units. The proposal also would amend the New Source

Performance Standards emission limits for particulate matter, sulfur dioxide, and nitrogen oxides for steam electric generating units.

MACT emission limits for existing units must be based on the average of the best performing twelve percent of the plants for which the EPA has emission data. For new units, the emission limits must be based on the best performing source. Since EPA chose to set limits separately by individual pollutants using different sets of best performing plants, EPA's resulting suite of emission limits does not reflect performance of any existing plant, but instead reflects the performance of a so-called "Frankenplant," one consisting of mixed-suite performance characteristics that do not represent the technology applications across all pollutants for any individual facility. As a result, it is unlikely that any single existing plant can meet all of the MACT limits on a continuous basis during all modes of operation without some addition of and/or optimization of existing control devices. And perversely, optimization of control device combinations for a single pollutant or set of pollutants could also have a detrimental effect on emissions of other pollutants controlled by the same technologies. This conflict potentially puts compliance with other standards in jeopardy.

While there have been many twists and turns over two decades, the most significant regulatory landscape shift leading to this proposed rule occurred in February 2008, when the D.C. Circuit vacated the final Clean Air Mercury Rule

cap-and-trade program, which utilities were planning to implement through additional controls. Subsequently, at the beginning of 2010, EPA sent an extensive request for information to all utilities. The request required more than 450 units to conduct stack sampling to provide EPA emissions information on five groupings of HAPs: mercury, non-mercury trace metals, acid gases, organics and dioxins/furans. EPA never explained its legal rationale for requiring generating units to collect emissions information of all HAPs, despite its prior legal conclusion that it only had legal authority to set MACT limits for mercury emissions from coal-fired units. In March 2011 came the latest policy shift, the one that is the subject of this hearing. The Utility MACT proposed rule contains stringent emissions standards for a number of HAPs in addition to mercury. Even EPA estimates the rule, as proposed, will cost at least \$10.9 billion annually, making it one of the most expensive rules in EPA's history.

### **A Wave of Overlapping Regulations**

The Utility MACT proposed rule must be considered in the context of EPA's overall regulatory scheme. Over the past year, EPA has been developing a myriad of environmental regulations, many of which focus on the electric utility industry and specifically on coal-fired electric generators. These regulations include:

- The Transport Rule (CATR, replacement for the Clean Air Interstate Rule),
- Coal Combustion Residuals or By-products (CCRs) rules,

- National Ambient Air Quality Standards (NAAQS) for SO<sub>2</sub>, NO<sub>2</sub>, Ozone, and PM,
- Section 316(b) rules regarding plant cooling water intake structures,
- The climate change Endangerment Finding and the resultant triggering of -
- New Source Review on new and modified sources for greenhouse gases,
- Effluent guidelines for electric utilities, and
- Industrial Boiler MACT.

These regulations will have the most significant impact on roughly 400,000 MWs of oil-and coal-fired generation, which is about 40 percent of the current, available capacity in the U.S., and makes up nearly 50 percent of the U.S. total electricity generation. The aggregate impact of these regulations will require unprecedented levels of expenditures by utilities over a short period of time. Requiring utilities to overhaul their systems in three years raises two potential problems for consumers: reliability of service and affordability of electricity.

### **EPA's Promulgation and Compliance Timeline Is Unreasonable**

#### **1) Rushed Promulgation**

The Utility MACT rulemaking process is currently driving the timing of decision making on control installation or replacement generation. Under the consent decree schedule that EPA agreed to, the rule must be finalized by November 2011. As a preliminary matter, EPA is not allowing enough time for public comment because of the short timeline to finalize the rule. Our technical team looked at nine other less complex environmental rules and found that EPA had ultimately allowed between 120 and 180 days for comment. Here, the

schedule that EPA voluntarily agreed to under the consent decree is posing an undue restriction on the public comment period. Obviously, the rule has far-reaching implications to the electricity supply in the United States and yet EPA is only allowing sixty days for public comment. This is nearly a 1,000-page rule with nearly 1,000 more pages of technical supporting documents, some of which have yet to be posted. Sixty days for public comment on a rule of this magnitude is insufficient and is much less than has been allowed for previous MACT standards (e.g., Cement MACT, Industrial Boiler MACT, etc.). Our industry and the country need time to evaluate the proposed rule, but also time to understand the underlying data, assumptions and calculations that EPA used to derive the standards. These are critically important tasks that must be undertaken to determine if the proposed MACT standards reflect emission levels that were actually “achieved” and whether or not the standards are “achievable.”

Likewise, EPA must take enough time to respond to the hundreds, if not thousands, of significant public comments it will receive on this rulemaking. EPA clearly rushed the proposed rule out the door to meet the consent decree. Our experts have already identified numerous factual and technical flaws in the proposed rule that must be corrected before the rule is finalized. EPA must allow enough time between the submission of comments and the issuance of the final rule to fully address these factual, technical and operational concerns. If EPA

likewise rushes the final rule out the door without responding to the numerous issues addressed in comments, utilities will be forced to comply, if possible, with a rule that is technically and factually in error.

Most important, EPA has the ability to extend the rulemaking schedule. The court clearly indicated that EPA could seek additional time to finalize the rule if need be. In response to industry's concerns about the rulemaking schedule, the court noted that it "appreciates the industry's concern that this schedule may be too hasty for the critical and expensive regulatory decisions that will be made; however, the proposed Consent Decree allows for a change of schedule if need be." Further, the court noted that, "if the science and analysis require more time, EPA can obtain it." Given the stakes, why would EPA not take such a prudent step?

## **2) Inadequate Compliance Period**

If EPA does not seek relief from the court-ordered deadline, the rule must be finalized by November 2011, becoming effective in early 2012. We would suggest that the Clean Air Act Section 112 MACT program has never had to deal with the scale of technology retrofits contemplated by EPA's proposed Utility MACT. While facilities in other MACT industrial categories have been required to install control devices in previous EPA rulemakings, these rulemakings did not require the installation of two or more large-scale control devices at potentially

hundreds of facilities, each with an installation time measured in years, and costing hundreds of millions of dollars. Moreover, we have to remember that these facilities are part of an interconnected grid where work at one plant can affect energy supplies across an entire region. A three-year compliance timeline makes no sense when viewed through the lens of EPA's proposed Utility MACT.

Because utilities are largely accountable to utility regulators, only when the rule becomes final can electric utilities determine the specific retrofits needed to assure compliance of all 400,000 MWs of oil- and coal-fired generation. Without judicial or congressional action, for the moment, compliance is mandated within three years of the Utility MACT rule's effective date, leaving utilities only from November 2011 to early 2015 to complete the following activities:

- Develop compliance strategies,
- Engineer technology and/or operational solutions on a unit-by-unit basis,
- Obtain required environmental permits for construction of control equipment,
- Gain state public utility commission (PUC) regulatory approval for cost of control equipment,
- Procure and install the required technology,
- Complete necessary transmission upgrades,
- Test the technology along with any operational changes, and
- Demonstrate full compliance.

Although the Utility MACT is the most definitive 2015 compliance deadline, the additional rulemakings mentioned above will have compliance deadlines before, on or soon after 2015. Costs associated with the additional rulemakings will have to be incurred over similar timeframes to ensure meeting

those deadlines. Planning and installing compliance technologies to meet all of the applicable new environmental regulations is daunting.

Southern Company is concerned about the ability of the industry to build new environmental controls or replacement capacity in three years to comply with the Utility MACT rule. A recent study conducted by ICF International for the Edison Electric Institute confirms that the Utility MACT rule will trigger the retirement of significant generating capacity and will require new capacity. The study considered the impact of all of the expected EPA rules, including climate-related requirements, and estimated an unprecedented number of environmental control installations and unit retirements across a range of sensitivities. Two scenarios from this study projected the retirement of coal-fired plants with total generating capacity ranging between 56 and 79 GWs by 2015. Several other groups have also examined the impact of EPA's expected rules on coal-fired generation retirements. In an October 2010 report on the impact of EPA's current rulemaking activity, the North American Electric Reliability Corporation (NERC) considered two scenarios, a moderate case and a strict case, for the combined impacts of the Utility MACT, the CATR, the CCB, and the 316(b) regulations. Bernstein Research and Credit Suisse considered the Utility MACT and the CATR regulations. These reports project retirements of plants contributing as much as 70

GWs of generating capacity by 2015. That capacity will need to be replaced to maintain system reliability.

The ICF study also concluded that concurrent with these retirements, 83-100 GWs of scrubbers and 172-194 GWs of fabric filter systems, or “baghouses,” would have to be installed by 2015—more than have ever been installed historically (Chart 1, in Appendix). The NERC Report identifies the risk of this construction boom:

[O]verlapping compliance schedules for the air and solid waste regulations, along with required compliance for rule 316(b) following shortly thereafter, may trigger a large influx of environmental construction projects at the same time as new replacement generating capacity is needed. Such a large construction increase could cause potential bottlenecks and delays in engineering, permitting and construction.

This large number of major projects will result in serious strain on skilled labor pools, commodity markets, engineering expertise, and capital funding, further impairing utilities’ ability to meet a three-year MACT compliance deadline.

EPA appears not to take this problem seriously. The major flaw in EPA’s analysis is that it makes overly optimistic assumptions about the effectiveness and availability of certain control technologies. Specifically, EPA assumes that Dry Sorbent Injection (DSI) is a one-for-one substitute for the installation of a scrubber. We do not agree with this assumption. A study conducted for the Edison Electric

Institute estimates between 80 and 100 GWs of additional scrubbers will be required versus EPA's assumption of only 26 GWs of additional scrubbers.

In recent rulemakings, the Agency has also greatly underestimated the amount of time required to design, permit, construct, and start-up new pollution control devices, such as flue gas desulfurization units, or scrubbers, and selective catalytic reduction systems (SCR). For example, EPA concluded in the Proposed Transport Rule that it takes 27 months to install a scrubber and 21 months to install SCR. This is counter to industry experience and performance. Southern Company's historical experience, which is the most extensive in the industry, shows it takes an average of 54 months to install a single scrubber retrofit and 36 months to install a single SCR retrofit. Although individual project schedules vary depending on site-specific factors and requirements, none of Southern Company's scrubber or SCR installations has been completed in the timeframes suggested by the EPA. Further, construction timeframes are expected to increase due to logistics of installing multiple controls at a facility simultaneously, industry-wide competition for materials and craft labor, and increasing permitting requirements.

The usual timeframes required for planning, designing, permitting, purchasing, and installing potential control technologies and generation replacement capacity are shown in Chart 2 at the end of my testimony. Based on the industry's historical experience, it is unlikely that all required control

technologies will be installed and that adequate replacement capacity will be in place to meet EPA's three-year compliance deadline.

### **EPA's Compliance Timeline Puts Reliability at Risk**

The reliability of the nation's electric generating system is at risk because of the number of new rules and regulations applicable to power plants. The stringency of these regulations, the lack of flexibility likely to be provided within these regulations, and, above all, the compliance schedules that will be required put reliability at risk. Accelerated plant retirements and shutdowns triggered by the Utility MACT rule will cause reserve capacity to plummet, increasing the likelihood and severity of service disruptions.

The NERC report specifically considered the impact of EPA's current and expected rulemakings on electricity reliability. It explains,

... the impact of reliability is a function of the timeline for finalizing the rules and ensuring compliance with the potential EPA regulations. The reliability impact of these rules will be dependent on whether sufficient replacement capacity can be added in a timely manner to replace the generation capacity that is retired or lost because of the implementation of these rules.

One challenge of complying with these new rules is ensuring adequate reserve margins—that is, generating capacity that is available during times of high demand or during interruptions of service from baseload plants. Bernstein Research data show that over 75 percent of units currently without scrubbers are 200 MW or smaller, more than 60 percent are over 40 years old, and 35 percent

have capacity factors of less than 50 percent. These smaller, older units provide critical reliability to the electric grid.

Bernstein Research found that, as a result, “regional capacity margins would be reduced by 7 to 15 percentage points, to 4% in SERC, 6% in SPP, 8% in MRO, and 9% in RFC.” With reserve margins in the single-digits, reliability is a major concern. Indeed, the NERC report concludes that “EPA rules may have significant economic impacts on generating units, potentially affecting the reliability of bulk power systems as measured by significant declines in Planning Reserve Margins.”

Worse, the operation of EPA’s rulemaking will actually impede efforts to address reliability concerns. Bernstein Research projects that, to avoid reliability issues, “a large fraction of the affected plants [will] become subject to reliability-must-run or RMR contracts with their regional transmission organizations (RTOs), thereby ensuring the continued availability of their capacity to the grid.” That scenario will be in conflict with the Utility MACT rule and other rules which may not allow regional transmission organizations to call for generation without the necessary controls installed to meet the required limits. This leaves customers at a high risk for experiencing significant electric service interruptions.

### **EPA’s Compliance Timeline Threatens Affordability**

The second important issue arising from new environmental regulations is affordability of electricity and the ability of the economy to absorb the cost of

massive retrofitting and new capacity projects undertaken on an unprecedented and constrained schedule. The economic impact of controlling or replacing retired coal-fired generation nationwide will range from increased electricity rates and lower discretionary spending, to losses of jobs and tax revenues at power plants and energy-intensive manufacturing, to reliability-related expenses, thus further impeding the economic recovery of the United States.

The EEI/ICF analysis shows that when all pending EPA rules are analyzed, over 150 GWs of coal, half of the U.S. coal fleet, are at risk of being unavailable in 2015 for the needed energy and required reliability due to insufficient time to install controls or replacement generation. Nearly 80 GWs of coal are retired by 2015 and the remaining coal is subject to an unachievable retrofit program. These retirements and retrofits create the need to spend about \$300 billion in the next five years, over two thirds of which is for replacement generation. These circumstances lead to generation shortages and a rapid run-up in prices creating a reliability and affordability crisis. Perhaps just as significantly, the breadth of this proposal causes it to overlap with a number of recent and expected EPA rulemakings that affect the utility industry, increasing the complexity and costs of compliance and adding to uncertainty going forward.

Further, with respect to the Utility MACT limits, there is a serious concern that some emission limits are so stringent that current technology does not exist to

meet them on all units on a continuous basis. Even where existing technologies are sufficient, the costs of engineering solutions will be significant; development and integration of new technologies will push costs up even more.

Logistical issues due to EPA's aggressive compliance timeline will also contribute to high costs. Attempting to control or retire and replace 400,000 MW in three years will dramatically increase the demand for skilled labor, capital, equipment, and resources. The increasing demands will strain supply, putting upward pressure on compliance costs and increasing the risk of project delays and missed compliance deadlines.

Due to the short compliance timeframe, customers will experience rapid rate increases; large industrial consumers will have little time to adapt their processes; and some energy-intensive business operations may have to permanently close, resulting in job losses. IHS/Global Insight estimates that every \$1 billion spent on upgrade and compliance costs will put 16,000 jobs at risk and reduce U.S. GDP by as much as \$1.2 billion.

Shutting down coal-fired facilities alone can cost several hundred jobs per facility. The closure of coal-fired plants and large industrial facilities also puts local government finances at risk due to their dependence on tax revenue associated with these facilities. Local governments will have only a short period of

time to institute plans for retooling their budgets, retraining the workforce, and determining the extent of the services they can continue to provide.

Finally, the total cost of compliance will remain uncertain even throughout the Utility MACT implementation period, due to current schedules for other final rules and their compliance deadlines. The final Utility MACT rules will trigger the need to initiate compliance plans leaving only three years for the impracticable task of overhauling the fleet that provides nearly 50 percent of the U.S. generation. Making early decisions prior to issuance of all of the final rules puts customers at risk for bearing billions of additional costs. Additionally complicating the decision making process and potentially adding costs is the likely litigation of the final rules. The litigation outcome could result in changes to the final rules, but only rarely is litigation accompanied by temporary relief from the requirements the rules impose. Compliance is made more difficult and costly if uncertainty over requirements extends beyond the effective date of the final rules and the compliance deadlines are not stayed.

### **Protect Reliability and Affordability with a Realistic Compliance Timeline**

The solution to the problems created by EPA's unreasonable compliance timeline should be obvious: The industry needs a realistic promulgation and implementation schedule, based on historic experience that reasonably allows it to retrofit units with control technology and begin work on additional capacity. The

Southern Company believes that a minimum compliance timeline is one that would allow upgrades to be made in an orderly fashion without placing reliability in jeopardy or imposing undue costs on electricity consumers.

As discussed above, industry experience demonstrates conclusively that achieving compliance on EPA's three-year timeline is unachievable. When utilities have sufficient advance notice to plan upgrade projects and the required equipment and labor are readily available to complete them, Southern Company's experience shows that installing scrubbers takes, from the planning stage through completion, 40 to 60 months, with an average of 54 months; installing SCR systems takes 28 to 42 months, with an average of 36 months; and installing fabric filter systems takes anywhere from 30 to 48 months. The time necessary to install these types of control systems, as well as others that will prove necessary to comply with the Utility MACT rule, will only be exacerbated by competition within the utility industry for equipment and skilled labor, as well as completion from other industries as they comply with their MACT requirements. While EPA may provide individual units an additional year to comply, the need for extensions will be universal, and even four years will be insufficient to complete required retrofits. EPA's estimation that these projects can be completed in three or four years is not merely optimistic, it is contrary to experience and, as a factual matter, incorrect.

As I have described, the consequences of EPA's unreasonable timetable may be dire. Reserve capacity will dwindle, as multiple plants are taken offline for upgrades, temporarily decommissioned due to non-compliance, or simply retired out of economic necessity. This puts the reliability of our power system at risk, at enormous potential cost. EPA's unreasonable timetable will also inflate the costs of bringing units into compliance, due to the need for expedition at every step of the process, and accelerate spending on new capacity. Customers will face higher rates on average and may, for temporary periods, even experience large price spikes in particular regions. The likely impact on economic growth and jobs will be severe.

The good news is that all of these consequences can be reduced, or even avoided, by extending the rulemaking schedule and the timeline for compliance. We believe that lengthening the implementation period, and retaining EPA's authority to provide an additional one-year extension, will allow for orderly planning, procurement, permitting, construction, and testing and reduce the reliability and affordability risks caused by MACT standards.

## **Conclusion**

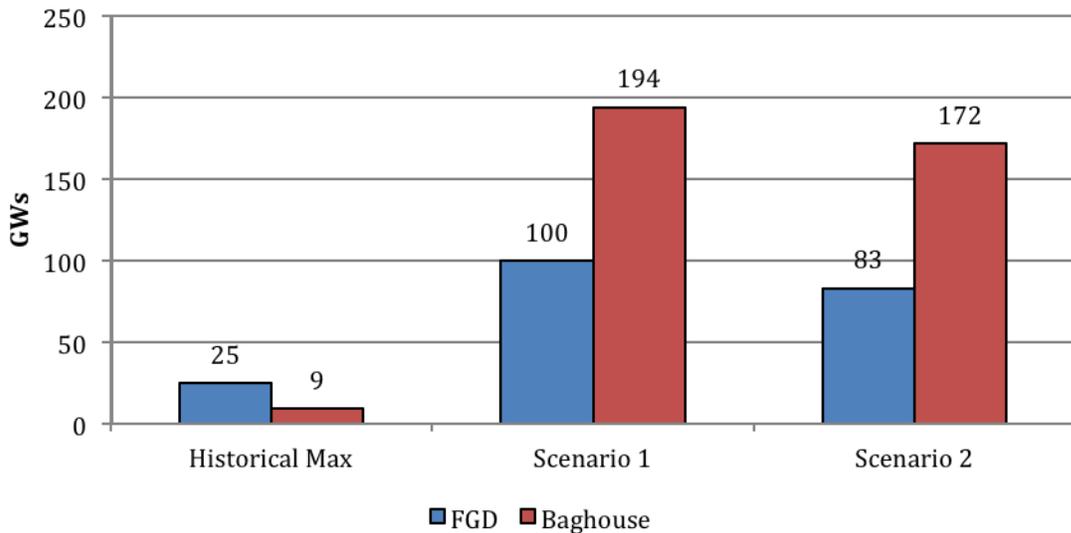
EPA's proposed Utility MACT, on its current schedule and in its current form, puts the reliability and affordability of power in the United States at risk. This is due in part to an implementation timeline that is unrealistic and, for that

reason, unreasonable. If EPA continues on its present path, the result will be to harm power consumers—which is to say all Americans—and threaten jobs and economic growth. These risks can be reduced or perhaps even avoided by simply slowing promulgation and extending the timeline for compliance. This is a common-sense solution that all stakeholders should be able to support.

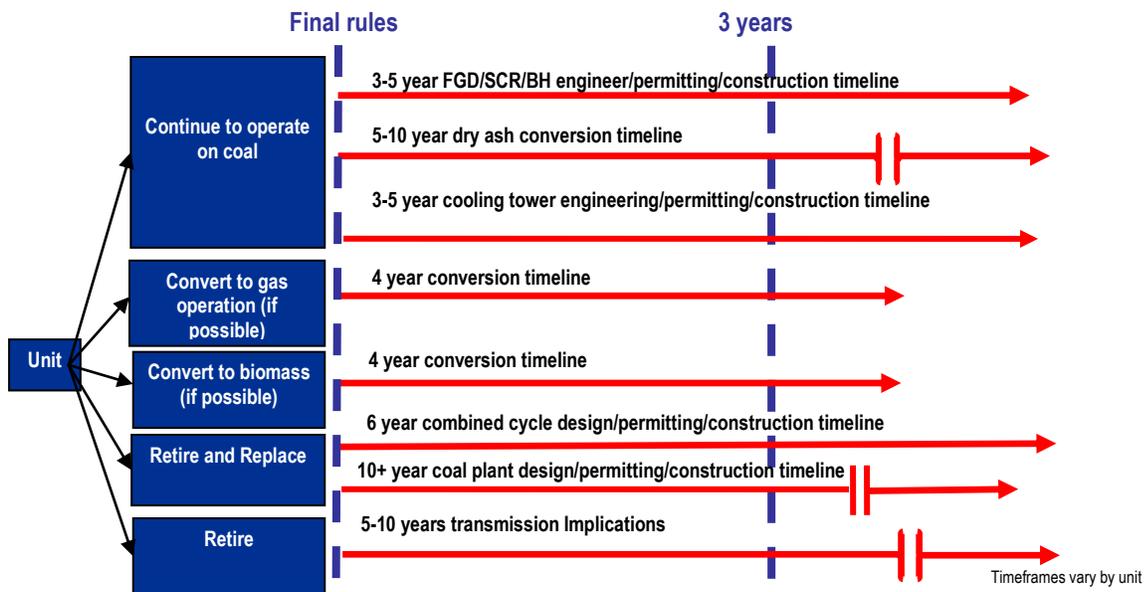
I thank the Committee for holding this important hearing today and giving me this opportunity to testify, and I look forward to your questions.

# Charts Appendix

## Maximum Single Year Retrofits



**Chart 1:** Historical and projected maximum environmental retrofit installations in the U.S. (EEI study conducted by ICF; Historical retrofits Energy Velocity Database 8.24.10).



**Chart 2:** Time required designing, permitting, purchasing, and constructing environmental compliance options for an individual unit; Does not account for resource competition.