MJB&A

CONCORD, MA - WASHINGTON, DC

47 Junction Square Drive
Concord, MA 01742

978-369-5533
www.mjbradley.com

MJB&A Issue Brief ■ June 24, 2015

MATS Compliance Extension Status Update

On April 16, 2015 the Mercury and Air Toxics Standards (MATS) rule went into effect. While a significant number of coal-fired electric generating units (EGUs) will achieve compliance using controls installed to meet regulations that pre-date MATS, many units plan to upgrade existing controls, install additional controls, or retire. A large number of coal-fired units have requested compliance extensions to finalize these compliance strategies. Over 154 gigawatts (GWs) of coal capacity have applied for MATS compliance extensions thus far, providing details on the wide variety of compliance strategies being implemented by individual units. This article provides an overview of MATS requirements, compliance options, and compliance extensions.

Background

On February 16, 2012, EPA finalized MATS, establishing standards for hazardous air pollutants from new and existing coal- and oil-fired EGUs larger than 25 MW. The rule sets numerical emission limits for mercury, particulate matter (PM, a surrogate for toxic non-mercury metals), and hydrogen chloride (HCl, a surrogate for acid gases).

Under Section 112 of the Clean Air Act, existing facilities subject to the rule had three years, until April 16, 2015, to achieve compliance. In response to concerns over the ability of units to achieve compliance within three years, EPA allowed permitting authorities to grant a one-year extension to the compliance date. Units could be granted a compliance extension if more time was needed for the installation of controls. Units that planned to retire could operate beyond the compliance date if additional time is needed to construct replacement power at the same site. Additionally, permitting authorities could approve extensions for a retiring unit that is needed for reliability purposes while: (1) other units install controls, (2) offsite generation is constructed to replace the generating unit, or (3) transmission upgrades are completed.

In practice, one-year MATS compliance extensions have been widely available, with state permitting agencies granting one-year extensions for myriad reasons, including for utilities to take additional time in determining appropriate compliance strategies. The deadline for submitting extension requests was December 17, 2014, 120 days before the initial compliance date. An additional one-year extension, setting a compliance date of April 16, 2017, must be issued by EPA and is available only to units critical to ensuring electric reliability.

Overview of MATS Compliance Strategies

Units subject to MATS can achieve compliance through the use of emissions controls or by ending coal use (retirement or natural gas conversion). The primary technologies installed to comply with MATS are flue gas desulfurization (FGD or scrubbers), dry sorbent injection (DSI), baghouses, and activated carbon injection (ACI). While both FGD and DSI are designed primarily to capture sulfur dioxide (SO_2), they have the co-benefit of reducing the emissions targeted by MATS. Baghouses, as well as electrostatic precipitators (ESPs), reduce PM emissions and also help capture mercury, with baghouses generally providing greater reductions of both pollutants. ACI systems are designed to reduce mercury emissions and are significantly less expensive than FGD and PM controls. Given differences in fuels, operating practices, and capacity factors, the combination of controls needed to comply with MATS varies from unit-to-unit. If installing controls is not economically viable, a unit may choose to retire. An alternative to retirement is converting the unit to burn natural gas. Firing gas in a coal boiler reduces the unit's efficiency, but allows the unit to keep running, mitigating reliability concerns and negative impacts on the local economy.

Many coal-fired EGUs have already installed the controls needed to comply with MATS in order to meet the requirements of other regulations or consent decrees. Over two-thirds of coal-fired EGUs have scrubbers—approximately 60 GW of coal capacity installed scrubbers between 2008 and 2010 in response to the Clean Air Interstate Rule (there are roughly 300 gigawatts of coal capacity in the U.S.). According to a March 2014 issue brief released by the U.S. Energy Information Administration (EIA), over 64 percent of U.S. coal capacity was assumed to be in compliance with the MATS rule at year-end 2012 through the use of FGD or DSI systems. An additional 13.5 GWs installed scrubbers in 2013 and 2014. Accounting for these retrofits and coal units retired in 2013 and 2014, more than 70 percent of the U.S. coal fleet should have been largely ready to comply with the rule's April 2015 compliance deadline.

Although MATS compliance extensions (discussed below) suggest that some of these units need additional controls or upgrades, these retrofits are usually much less expensive and can be installed in a much shorter time frame compared to an FGD retrofit. A number of states have also passed laws limiting mercury emissions, leading to the installation of ACI on a growing number of units. Extensions sometimes provide limited exemptions from specific parts of the MATS rule. For example, an extension to install ACI for mercury control may extend the mercury standard compliance date only—the unit must meet the PM and HCl requirements by the original deadline.

MATS Compliance Extensions

MJB&A has been tracking MATS compliance extensions for coal-fired EGUs over the last several years, collecting extension request and approval letters from state permitting agencies. To date, compliance extensions have been granted for 421 units representing over 142 GW of generating capacity. At press time, extension requests were pending for an additional 27 units representing over 8.9 GW of capacity.

Based on the extension requests to date, we have grouped compliance strategies into four categories: (1) installing environmental controls; (2) retiring after deadline; (3) converting to natural gas; and (4) undetermined. Units that need extensions to install environmental controls are being retrofitted with a range of technologies, mainly those discussed above that limit SO_2, mercury, and acid gas emissions. A substantial amount of capacity is also installing new baghouses or upgrading existing PM controls. Extensions for retiring units are usually needed to ensure reliability. These units need to keep running to fulfill power supply contracts or until transmission upgrades or replacement power projects are completed. Units classified as converting to natural gas will stop burning coal, but plan to fire natural gas in the coal boiler. Based on statements in some of the extension requests, some units plan to apply for a fifth year extension from EPA. To date, Kansas City Board of Public Utilities' Nearman Creek Unit 1 and Grand River Dam Authority's GRDA Unit 1 are the only units to request a fifth year extension.

The bullets below highlight details and trends of MATS extension requests and approvals:

- Of the 142 GW with approved extensions, 81 percent is installing controls, 11 percent is retiring, and six percent is converting to natural gas. The remaining capacity does not yet have a final compliance plan. These units are mostly testing control technologies or waiting for other regulations to be finalized before choosing a compliance option.
- Units installing controls tend to be larger (average capacity of 413 MW), while units retiring (207 MW) or converting to gas (180 MW) tend to be smaller.
- The majority of requests (85 percent) are for one year compliance extensions. A small group of extensions (seven percent) are six week extensions that fulfill MISO or PJM contracts, with the units retiring afterward.
- The most common emissions controls being installed are FGD (or upgrade of existing scrubbers), ACI, and DSI. To meet MATS limits and because these technologies can affect PM emissions, a significant number of units must also install or upgrade baghouses or ESPs.
- A number of units will have controls online before April 16, 2015, but requested an extension to provide additional time for testing and tuning.
- 44 units totaling 7.9 GW plan to convert to natural gas, firing gas in a coal boiler.

- Very few MATS extension requests have been denied. All denials have been related to utilities not submitting adequate information in their requests. In some cases, utilities provided this additional information and state agencies approved the extensions. Several units with approved extensions announced that they would retire or achieve compliance before the initial compliance deadline and withdrew their extension requests.

Table 1 shows the emission control technologies being installed for MATS compliance and the amount of capacity each technology is being installed on, based on MATS extensions. While most MATS extensions specified the controls to be installed, some did not. Furthermore, the 114 GW of capacity with extensions that we classify as "installing emissions controls" includes several units that are not actually installing controls. These units are at facilities that plan to achieve compliance through plant-wide emissions averaging, retrofitting some units while leaving others uncontrolled. Units characterized as installing controls include those that submitted extension requests related to EPA's startup and shutdown requirements. Many of these requests are for large units that are assumed to be compliant with all of the other MATS limits but may need to make work practice adjustments or install additional monitoring equipment.

Table 1. MATS Extension Control Technology Retrofits from Approved Extension Requests

Control Technology	Capacity-MW (% of 114 GW Installing Controls)*
FGD	22,077.4 (19%)
Baghouse	17,096.6 (15%)
ESP	511 (<1%)
FGD Upgrade	16,497 (14%)
PM Upgrade	13,914 (12%)
ACI	62,447.5 (55%)
DSI	19,996 (17%)

*Totals are greater than 114 GW and 100% due to individual units installing multiple controls

Key Takeaways

- The MATS extension filings reflect only a fraction of the coal-fired power plants that plan to retire. Nationwide, about 50 GWs of coal-fired generating capacity has retired or is scheduled to retire between 2012 and 2016.
- More than 30 units totaling over 18 GW of capacity have requested extensions related to the MATS startup and shutdown requirements. These units are assumed to be compliant with all other aspects of the rule and do not need major control retrofits.
- There still remain a number of coal-fired units that have not installed advanced pollution control systems and have not requested MATS compliance extensions. It is unclear how these units plan to comply with the rule. They may be planning to retire, but have not formalized their plans.
- In a December 2011 Policy Memorandum, EPA stated that it would seek advice from FERC and other reliability experts when considering fifth year Administrative Order extensions. In its first response to a request for an EPA Administrative Order granting compliance extension beyond April 2016, FERC supported the extension for Kansas City Board of Public Utilities' Nearman 1 unit. In a brief analysis, FERC found that although Nearman 1 is not a reliability-critical unit, an extension is warranted because loss of the unit would result in the Southwest Power Pool falling below its 12 percent capacity reserve requirement.

Contacts

For additional information on MATS extensions please contact:

Chris Van Atten
Senior Vice President
vanatten@mjbradley.com
(978) 369-5533

About Us

MJB&A provides strategic consulting services to address energy and environmental issues for the private, public, and non-profit sectors. MJB&A creates value and addresses risks with a comprehensive approach to strategy and implementation, ensuring clients have timely access to information and the tools to use it to their advantage. Our approach fuses private sector strategy with public policy in air quality, energy, climate change, environmental markets, energy efficiency, renewable energy, transportation, and advanced technologies. Our international client base includes electric and natural gas utilities, major transportation fleet operators, investors, clean technology firms, environmental groups and government agencies. Our seasoned team brings a multi-sector perspective, informed expertise, and creative solutions to each client, capitalizing on extensive experience in energy markets, environmental policy, law, engineering, economics and business. For more information we encourage you to visit our website, www.mjbradley.com.