

The EPA quickstep

Sweeping changes could have big implications for coal's future

By Andrea Blowers



Electric utilities better have their dancing shoes on. Over the last several months, the Environmental Protection Agency (EPA) has taken a liking to the quickstep.



Lyle Witham

“The EPA is in the process of making the most sweeping changes to the rules and regulations surrounding emissions from power plant facilities since the Clean Air Act and the Clean Water Act were first enacted and implemented,” says Lyle Witham, Basin Electric manager of environmental services.

Additionally, in January the EPA made a decision to regulate greenhouse gases – including carbon dioxide – from motor vehicles, power plants and other industrial facilities.

This decision originated from a Supreme Court ruling issued in April 2007 that said its administrator “must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health

or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the administrator is required to follow the language of section 202(a) of the Clean Air Act.”

Two years later in April 2009, the EPA issued an “endangerment finding,” formally declaring that carbon

dioxide and five other greenhouse gases threaten public health and welfare. Several months later, EPA Administrator Lisa Jackson signed the findings, which included both vehicle and stationary sources, and on Jan. 14, 2010, the final rule became effective. It essentially gave the EPA power to develop regulations under the Clean Air Act for those six greenhouse gases without new legislation from Congress.

The general public and elected officials have voiced their concerns, saying it’s not in the nation’s best interest to allow the EPA to decide how greenhouse gas emissions should be regulated. They

say Congress should be the one making those decisions.

“Predicting what EPA’s revised regulations will be, when they will go into effect, and how they will affect

Basin Electric is a bit like forecasting the weather,” Witham says. “The further out the forecast goes, the less likely it is to be accurate, and the more likely it is to be revised as conditions

change and new information becomes available.”

Witham says there are three main concerns with EPA’s regulatory process. The first is the number and volume of changes being proposed. “It makes it difficult for EPA to adequately develop and implement each of the programs and figure out the impacts those rules will have.”

Second, the economic impacts on human welfare are not going to be adequately reviewed and considered, he says. “It may be possible to reduce carbon dioxide, but it likely won’t have a measurable impact on humans. It

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Mike Eggl, Basin Electric

will however have a huge impact on the cost of electricity. Plus, developing economies outside of the United States, including China and India, will continue to emit greater amounts.”

Finally, Witham says the time frame for implementing controls is very short and the cost of doing so is steep. He says, “Instead of looking at long-term planning, these rules are forcing costly controls on existing facilities when it might make more sense to replace those facilities in 20 to 30 years.”



Mike Eggl

“We definitely are dancing with a partner that is moving too fast, and I think we’re going to get more than our toes stepped on,” says Mike Eggl, senior vice president of External Relations and Communications. “Coal continues to be pressured from all sides.”

Considering current Clean Air Act requirements, Basin Electric has already addressed the most significant near-term challenges to its coal-based generation facilities, Witham says. That includes installing new scrubbers to address sulfur dioxide (SO₂) issues at Leland Olds Station and installing over-fire air at the Laramie River Station, among other projects, including best available retrofit technology (BART) compliance issues on the units under Phase 1 of Regional Haze.

“The costs of those projects alone add up to about \$460 million,” Witham says. “And they simply deal with the nearest-term challenges.”

Following are some of the changes proposed in EPA-regulated emissions, the timelines and best-guess costs for Basin Electric.

Carbon dioxide (CO₂)

The EPA has issued the Mandatory Reporting of Greenhouse Gases rule requiring the reporting of greenhouse gas emissions from large sources and suppliers in the United States. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more of greenhouse gases per year are required to submit annual reports to EPA.

In April, EPA issued four new proposed rules that amend the greenhouse gas reporting rule. These proposals would require reporting of emissions data from the oil and natural gas industries, and from facilities that inject and store CO₂ underground for the purposes of geologic sequestration or enhanced oil and gas recovery. The comment period for these ended June 11, 2010.

In addition, EPA has proposed adding three new reporting requirements. The agency plans to finalize all of these proposals this year so they would become effective starting in 2011.

The endangerment finding of the six defined greenhouse gases does not alone impose any requirements on industry or other entities.

An act of Congress

Few things can stop the EPA from flexing its regulatory muscle. One is a climate or energy bill that sets standards on carbon dioxide and other greenhouse gas emissions.

In early May, Sens. John Kerry and Joe Lieberman introduced their version of a climate bill, called the American Power Act. As written, Mike Eggl, Basin Electric senior vice president of External Relations and Communications, says the bill leaves much to be desired for electric cooperatives.

For starters, the bill caps greenhouse gas emissions at 4.75 percent below 2005 levels starting in 2013. That increases to 17 percent by 2020, 42 percent by 2030, and 83 percent by 2050. It includes limited preemption of regulation under the existing Clean Air Act, however, cooperatives still have concern the wording isn’t strong enough.

The plan’s allowance floor price starts at \$12/ton in 2013 and rises at 3 percent above inflation annually. The price ceiling starts at \$25/ton and increases annually at 5 percent above inflation. Kerry calls the plan a “Reduce and Refund” bill because utilities would be required to use proceeds of free emissions allowances to shield consumers from rising energy prices triggered by the bill’s mandatory emissions limits. As free allowances shrink, allowance auction revenues would go to the U.S. Treasury for deficit reduction and a “universal refund” distributed to consumers starting in 2026.

Electric utilities will get 51 percent of total emission allowance allocations at no cost annually from 2013 to 2015. That percentage drops to 35 percent between 2016 and 2025 before declining to zero by 2030.

The American Power Act changes the House bill’s 50-50 percent formula based on emission levels and sales to a 75-25 distribution formula. Emission caps for energy-intensive manufacturers will be imposed in 2016 and transportation emissions will be addressed in a separate program.

Eggl says in some areas the bill has improved over previous bills. “If cap-and-trade or another CO₂ pricing mechanism is part of the bill, then a program needs to be in place that provides time and resources necessary to develop technology to capture CO₂ emissions from power plants,” Eggl says. “In that regard, this bill is still more of the same, and not something Basin Electric can support as written.”

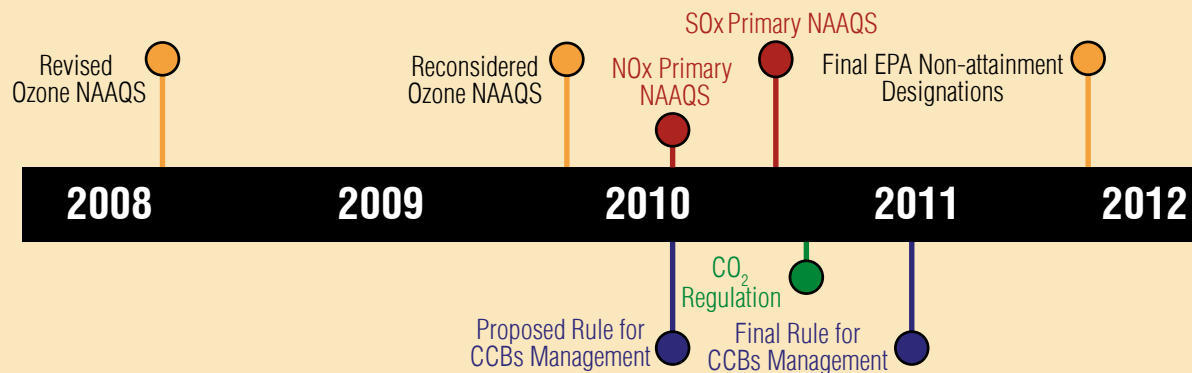
Environmental Regulatory Time Line for Coal Units

● **Ozone**

● **SO₂/NO₂**

● **Coal Ash**

● **CO₂**



However, according to Witham, it is the first step to further regulation of CO₂ and the other greenhouse gases under the new source performance standards and under New Source Review in both prevention of significant deterioration areas and non-attainment* areas, depending on how those are defined under any future proposed greenhouse gas rules or regulations.

“The costs of implementing any controls for greenhouse gases will vary significantly depending on what additional regulatory actions EPA takes, the success of any litigation challenging those actions, and what Congress decides to do with the various greenhouse gas bills before the House and Senate,” Witham says.

Sulfur dioxide (SO₂)

For SO₂, the EPA proposed to lower the National Ambient Air Quality Standard (NAAQS). The agency is revising the primary SO₂ NAAQS by adding a one-hour standard of 75 parts per billion (ppb) and revoking the existing 24-hour and annual standard. Before this proposed change, the primary standards were 140 ppb measured over 24 hours and 30 ppb measured over an entire year.

Witham says with the new one-hour standard, there is a potential for

NAAQS non-attainment in parts of North Dakota and Wyoming. Modeling will have to be done in both states to determine if the potential exists.

EPA released its final rule June 2, 2010. “We will have to model this standard to determine its effects,” Witham says.

Nitrogen oxides (NOx and NO₂)

Each of Basin Electric’s power plant facilities is required to meet specific standards for NOx emissions, and all of the facilities are currently compliant. However, since NOx and NO₂ are precursors to ozone formation, NOx control issues may arise under the proposed new ozone standard.

In addition, for Basin Electric’s Laramie River Station units, the Wyoming Department of Environmental Quality has included a permit condition requiring the installation of a NOx control technology – selective catalytic reduction (SCR) technology – that would achieve a NOx emission limit of 0.07 lbs per million BTU on one of the Laramie River units by 2018 and on a second unit by 2023. The cost would be \$150 million to \$200 million per unit.

Witham says the permit condition is currently under appeal to the Wyoming Environmental Quality Council. It’s

scheduled for initial motions this summer with a full hearing in the summer of 2011.

For the other facilities, if it’s determined SCRs are required for NOx reductions, the costs for installation would be higher, approximately \$175 million to \$250 million per unit. “This is because SCRs are untested, unproven technology on high-sodium North Dakota lignite coal,” Witham says.

Regarding nitrogen dioxide (NO₂), on Jan. 22, 2010, the EPA finalized a new short-term (one hour) NO₂ ambient standard of 100 ppb or 188 micrograms per cubic meter. Witham says the overall implication of this rulemaking requires quantification. “What is known is internal combustion engines similar to the emergency diesel generators located at our facilities will have hardship to comply with this new National Ambient Air Quality Standard,” Witham says.

Equipment in Basin Electric’s fleet at risk to be found non-compliant are the back-up emergency generators at Headquarters, Laramie River Station, Leland Olds Station, Antelope Valley Station, Wyoming Distributed Generation units and the Spirit Mound Station.

*Non-attainment area: As defined by the Clean Air Act, it is an area where emissions levels persistently exceed National Ambient Air Quality Standards, or that contributes to ambient air quality in a nearby area that fails to meet standards.

SO_x/NO_x
Secondary NAAQS

Next Ozone
NAAQS Revision

2013

2014

2015

2016

2017

Begin Compliance Requirements
Under Final CCB Rule

The costs for implementing controls for emergency internal combustion engines will vary significantly. States and EPA regional offices are currently discussing the practical compliance aspects of the standard. The timeline is unknown, but Witham says it's likely to emerge in the next few months.

Ozone

In January 2010, the EPA proposed to lower the NAAQS for ground-level ozone. The agency is proposing to lower the eight-hour "primary" ozone standard to a level within the range of 0.060-0.070 parts per million (ppm), and to replace the 0.075 ppm secondary standard with a three-month cumulative W126 (cumulative exposure index) standard in the range of 7 to 15 ppm per hour.

"Depending on where the standard is set for the primary ozone standard, it could potentially create non-attainment areas in both North Dakota and Wyoming," Witham says. "And since NO_x and VOCs (volatile organic compounds) are two of the primary precursors to ground-level ozone formation, the potential controls and costs will be similar to those for NO_x."

EPA will issue a final ground-level ozone standard by Aug. 31, 2010.

Coal ash

On June 21, the EPA published for the first time a proposed rulemaking that would regulate the disposal and management of coal combustion byproducts (CCB) or coal ash. The agency is considering two options.

The first, which would be led by the EPA, would regulate CCBs as a new "special waste" subject to many of the requirements for hazardous waste under Subtitle C of the Resource Conservation and Recovery Act (RCRA). The second, which would be led by the various states, would regulate CCBs in a manner similar to typical solid waste under Subtitle D of RCRA, subject to fewer and less severe requirements.

The rule says material handling of bottom ash, fly ash and scrubber wastes either needs to be on a dry basis leaving the plant for long-term storage, or facilities need to implement the enhanced design features of in-place wet storage.

Witham says the comment period for this proposed rulemaking is open until Sept. 20, 2010.

"A rough ball park cost to replace a mechanically dewatered system like those at Leland Olds or Laramie River with a dry chain system or something like Antelope Valley's dewatering system is in the range of \$15 million to \$20 million per unit," Witham says.

Overload or certainty?

Witham says other areas where EPA has focused its rulemaking that will likely affect Basin Electric include mercury, fine particulate matter and cooling water intake structures. These issues will be explained further in a future Basin Today story.

"It's really unprecedented there are so many proposed rules all at once," he says. However, each rule is handled individually and the public has an opportunity to comment. "You have to overcome the presumption they developed the rule correctly. There are specific procedures established that must be followed."

He adds, "It's likely each new rule will be challenged through litigation, and legal challenges to new rules can take anywhere from several months to several years."

With whatever rules finally come down the pipe, Witham says, there is a positive angle: rules would provide some regulatory certainty. "Right now, we're in limbo," he says.

However, given the EPA's discretion to set standards, Witham asks, "Will it be an infinite reduction game? Or, will there be a point where levels are adequate enough?"

The public can review final EPA rules and comment on proposed rules by going to www.regulations.gov.