

Ameren's Alternative to the EPA's Proposed Greenhouse Gas Rules

Ameren's Generation Strategy vs. the EPA's Clean Power Plan: A Case Study in the Benefits of Midwestern Pragmatism

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EDITORIAL NOTE: This article is the second part of a series of featured publications in the June issue of EUEC Journal with Mr. Baxter's presentation at EUEC 2015, following EPA's presentation on the Clean Power Plan at the 18th Annual Energy Utility Environment Conference (EUEC), February 16, 2015 in San Diego, California.



Mr. Warner Baxter, President & CEO, Ameren Corp. making his presentation at EUEC 2015

Overview

In June 2014, the EPA announced its proposed Clean Power Plan (CPP) for existing coal-fired power plants. The EPA's proposed rule requires states to curb electricity sector-related carbon dioxide (CO₂) emissions from 2005 levels by 30 percent by 2030. The plan also includes aggressive interim targets to be implemented beginning in 2020, straining the capacity of states and the electric system to efficiently and reliably implement the rule.

On a parallel track, Ameren has spent years developing its own strategy to accomplish substantial greenhouse gas (GHG) reductions without needlessly jeopardizing the supply of electricity that our customers use to light their homes, power their computers and run their businesses. Our strategy, as detailed in our Integrated Resource Plan (and summarized in this document), would achieve the same final CO₂ emission reduction goals as EPA's plan over a timeframe of just five more years, and at an aggregate cost of \$4 billion less. As a utility company that millions turn to for reliable and reasonably priced electricity, we have little choice but to approach carbon reductions from a more practical point of view.

Examining EPA's Proposed Rule

A key aspect of the CPP is that, unlike past requirements that directly impact the source of targeted emissions, it goes beyond the source itself (i.e., coal-fired power plants) to encompass the entire electric grid, as well as its users, including homeowners, businesses, manufacturing facilities and farms. As such, the majority of reduction methods that the proposal uses to set CO₂ emission limits are not located at the power plant. Instead, emission limits are derived from the use of a mix of four groups of methods that the EPA calls "Building Blocks." The EPA used estimates of the potential impact for implementing these Building Blocks to establish state-by-state targets for reductions in the CO₂ emission rate ("CO₂ intensity").

A careful review of the various elements of the CPP reveals a number of central flaws that will ultimately compromise its effectiveness:

- **Flawed Assumptions.** The emission targets at the heart of the EPA plan are based on a series of Building Blocks meant to provide a roadmap for states to comply with the rule. Unfortunately, EPA's Building Blocks are riddled with flawed assumptions about the U.S. electricity sector, creating a highly problematic situation for those striving to comply with the plan.
- **Effect on Reliability & Costs.** Because EPA's emission targets are based on unrealistic assumptions regarding power plants and the broader electricity sector, implementation of the proposed rule will inevitably result in significant cost increases and strain on the reliability of the electrical grid as utilities scramble to put it in place. The net effect of this mandated transition also would include job losses and damage to the economic competitiveness of Missouri.
- **Dubious Legality.** The EPA simply does not possess the legal authority to implement the proposed rule. The Clean Air Act (CAA) is quite clear in that it only authorizes EPA to regulate emissions from electric generating units. Yet the proposed rule encompasses a range of measures that fall well "outside the fence" of existing power plants. As such, the rule represents a tremendous expansion of the agency's regulatory authority in the absence of clear congressional authorization to do so.

Cracked Building Blocks

In its proposed rule, the EPA sets each state's emission target by aggregating the effects of four Building Blocks that, it believes, together represent the best system for reducing CO₂ emissions from the electricity sector:

- 1) Improvements in power plant efficiency
- 2) Increased dispatch of existing natural gas-fired plants and reduced dispatch of existing coal plants
- 3) Installation of new renewable resources and retention of existing nuclear power plants
- 4) Increased energy efficiency programs

Yet a close look at EPA's Building Blocks raises a host of questions about the assumptions underlying each one, which in the aggregate create significant challenges for compliance with the CPP. The proposed rule rests on flawed baseline assumptions that significantly overestimate achievable emission reductions. As a result, implementation of the rule as proposed unnecessarily becomes a costly and impractical undertaking. U.S. electricity consumers would ultimately shoulder the burden when their local utility struggles to implement a flawed mandate, either through unwanted rate hikes or potential threats to the reliability of their electric service.

Jeopardizing Reliability

There is simply no substitute for a reliable supply of electricity, and the proposed rule entails significant risks to reliability. Quite simply, coal-fired power plants will need to close to comply with the interim benchmarks that EPA has laid out in its rules, which are set to take effect in 2020. For example, under the CPP's interim requirements, the State of Missouri would be required to meet more than 62 percent of the final 2030 targets by 2020—essentially making the CPP a 2020 compliance rule. More broadly, experts estimate that in just five years, the U.S. could lose more than one-third of its coal-fired generating fleet. Those power plants generate enough energy to power nearly 50 million residential homes in the United States.

Closing this many plants in the next five years will dramatically increase electric reliability risks, which could result in brownouts, load curtailments and other power shortages in regions impacted by coal retirements, including Missouri and Illinois. As an example of a recent reliability issue, during last winter's "polar vortex," the grid operator in the Mid-Atlantic region, PJM, had its reserve generating capacity drop to only 700 MW, a dangerously thin margin that is equal to just one average-sized power plant.

Independent experts from across the country agree that the risk to grid reliability is grave. The Midcontinent Independent System Operator (MISO) has raised resource adequacy as well as reliability concerns that may be expected as a result of the stringent interim targets in the proposed rule, stating that the EPA's plan will likely result in "significant reliability violations." A report from the Southwest Power Pool (SPP) argued that compliance with the CPP will jeopardize the reliability of the bulk electric system. The Electric Reliability Council of Texas (ERCOT) has said that the CPP "is likely to lead to reduced grid reliability." The non-partisan North American Electric Reliability Corporation (NERC) has concluded that Missouri and Illinois could fall below reserve margin standards deemed necessary to ensure reliability.

How much does reliability really matter? According to The Institute of Electrical and Electronics Engineers of the U.S. (IEEE-USA), catastrophic "cascading" blackouts can follow from even minor disruptions in the electric power grid. Moreover, the loss of a single generator might spur an imbalance between load and generation, potentially leading to significant economic damage.

ISO New England perhaps most accurately summed up the imperative of reliability as follows:

A reliable supply of electricity is a foundation of our prosperity and quality of life. Without it, our world literally grinds to a halt – businesses cannot plan and operate productively, hospitals and schools cannot provide their essential services, and residents cannot depend on the electricity they need simply to live their daily lives. Without reliable electricity, the financial and societal costs would be enormous.

Not one of these groups is beholden to any political interest; rather, they are charged with maintaining the reliability of the grid. Their messages should be taken very seriously.

Questionable Legality

We believe the EPA's interpretation of its authority brings about a transformative expansion in its regulatory authority without clear congressional authorization. The EPA has no legal authority to regulate or enforce programs outside of power generating units, such as energy dispatch, energy conservation or the amount of renewable energy utilized, all of which are part of its proposal. Furthermore, by setting an emission standard based on re-dispatch of natural gas combined cycle units by RTOs, the EPA is imposing an impossible requirement on states and utilities given that the Federal Energy Regulatory Commission regulates those markets, not states.

EPA should limit the proposed rule to what is achievable at existing power plants. States should then be given the flexibility to develop any programs that achieve an equivalent emission reduction. This straightforward and pragmatic approach would have the added benefit of making the rule more consistent with the provisions of the existing CAA.

Ameren's Generation Strategy

Ameren's Generation Strategy fits the reliability needs of our customers. It recognizes that our coal-fired power plants are aging and that we need to take steps to thoughtfully retire them as they come to the end of their useful lives. Our strategy will transition our fleet to a cleaner, more diverse portfolio in a responsible way that is beneficial to our customers, our communities and the environment.

In October 2014, Ameren filed our 20-year Integrated Resource Plan (IRP) with the Missouri Public Service Commission. The IRP is based on the gradual, calibrated adoption of a diverse mix of energy resources. Under this plan, Ameren has extended the license of its 1,200 MW Callaway Nuclear Energy Center, and by 2035, we will retire more than 1,800 MW (about one-third) of its coal-fired fleet, add approximately 500 MW of renewable generation, add a 600 MW natural gas combined-cycle unit and continue to offer extensive energy efficiency programs to our customers. Consistent with the letter and cooperative spirit of the CAA, this approach considers the remaining useful lives of the assets at issue while minimizing cost and ensuring reliability. It avoids building generating units that are not needed to meet ongoing customer demand, avoids the real likelihood of running such units uneconomically and avoids retiring coal plants needed for reliability. In short, our strategy represents a common-sense approach grounded in real-world economics.

Ameren's strategy systematically incorporates generation resources with lower levels of carbon and other environmental emissions and meets EPA's CO₂ goals by 2035.

The effect of our approach on the generation portfolio is illustrated below in Figure 2, which shows the transition of the portfolio from both a capacity and energy perspective.

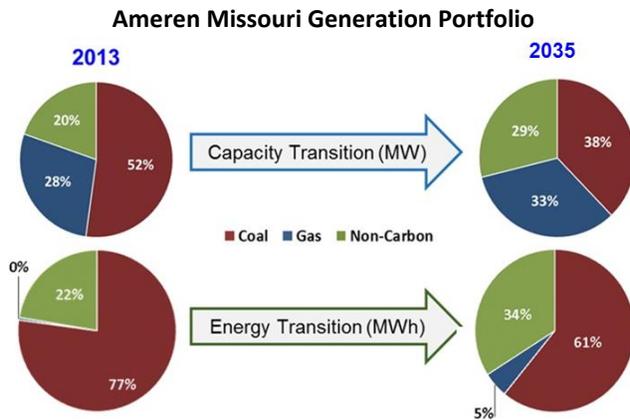


Figure 2. Ameren’s Generation Strategy provides a responsible transition to cleaner, more diverse sources of energy in a way that is beneficial to our customers, the environment and our communities.

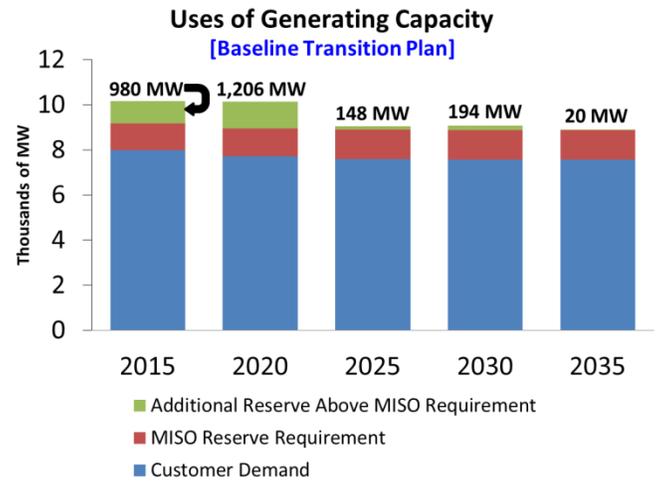


Figure 1. Ameren’s Generation Strategy maintains a modest level of additional capacity reserves beyond those needed for reliability with no new base load capacity needed until 2034, including maintaining an option for additional nuclear generation.

The Solution: Upgrading EPA’s Clean Power Plan

The EPA Clean Power Plan, if finalized as currently proposed, would require costly modifications to our strategy without consequent advantages to justify the difference. Recognizing that the CPP will be subject to legal challenges, Ameren believes that the EPA could greatly enhance the adaptability and effectiveness of its CPP proposal with a few common-sense modifications:

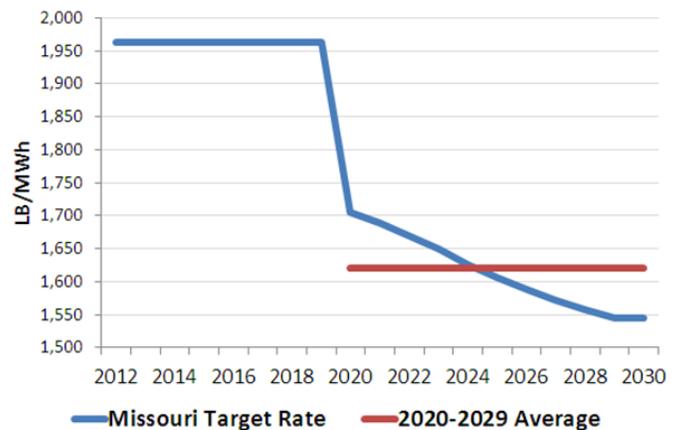
- **2020 Targets:** Replace its interim target goals beginning in 2020 with a more flexible approach that provides states greater leeway in determining the proper glide path to achieve EPA’s final goals.
- **Interim reporting:** Establish enhanced interim reporting requirements by the states to facilitate monitoring and to ensure progress is being made to achieve the final 2030 targets.
- **Graduation Dates:** Offer states the flexibility to extend the 2030 deadline if a clear path to meaningful reductions is evident in a reasonable time frame.
- **Performance Metrics:** Revise its compliance formula to provide proper credit under EPA’s rate-based method for retiring and not replacing existing coal-fired power plants with fossil generation and give credit for early action. In other words, giving full credit where credit is due.
- **Reliability:** Adopt a reliability assurance mechanism and reliability safety valve to ensure state plans can be reliably implemented and to address unforeseen reliability issues if they arise during the implementation phase of the rule.

We believe that our proposed modifications to the CPP, which reflect Midwestern values of prudence and practicality, create a workable alternative to EPA’s proposed rule that would save customers across the nation billions of dollars, while preserving the reliable service Americans have enjoyed for all these decades.

2020: Too Much Too Soon

As noted above, the first and most important modification involves replacing EPA’s interim targets. The interim targets impede the flexibility of states to carry out EPA’s objectives in a cost-effective manner while jeopardizing the reliability of the electricity supply and risking economic disruption. Put simply, the requirement to meet 62 percent of Missouri’s 2030 target by 2020 would cause a “regulatory cliff,” threatening grid operators’ ability to ensure reliable service to customers.

The EPA’s CPP proposal has designated 2020 as the time states and affected utilities must have already implemented strategies to reduce carbon emissions. In reality, the proposal creates a “regulatory cliff” that threatens grid reliability.



Rather than create an unsustainable situation, EPA can ensure that similar reductions occur in the 2020-2029 timeframe by eliminating the rigid interim targets and allowing states to develop individually tailored glide paths to the 2030 targets. Progress toward the 2030 targets can be ensured by requiring state plans to include enhanced reporting requirements demonstrating adherence to the state plan, as well as corrective action contingency plans designed to remedy deviations should they occur. EPA’s desired outcome should be to achieve significant reductions in CO₂ emissions at the lowest possible cost while maintaining reliable system operations, and states are best positioned to deliver this outcome.

Target-date Flexibility

Electric generation is planned decades in advance to ensure reliability; regulators, utilities and a host of other stakeholders work diligently to make plans and long-term investment decisions to provide cost-effective generation and meet projected customer demand. The EPA’s plan effectively short-circuits that process. Thus, EPA should allow states to extend the compliance deadline beyond 2030 upon determining that a plan, like Ameren’s Generation Strategy, will cost-effectively achieve the same reductions within a reasonable timeframe.

Methodology Adjustment: Giving Credit Where Credit is Due

A third adjustment that EPA should make to significantly improve its CPP centers on the formula it uses to gauge progress as utilities undertake the transition to renewable generation sources. EPA should reevaluate its rate-based

methodology in order to give proper credit for coal plant retirements when a retired plant is not replaced with fossil generation. Under the EPA's proposed rate-based rule, coal plant retirements in coal-heavy states get very little credit for the emission reductions achieved when they are retired. EPA should also provide credit for early action that has reduced emissions prior to the 2020 compliance date.

Reliability Safeguards

In addition to eliminating interim targets and the modifications recommended above, two safeguards should be added to the plan.

First, it should include a reliability assurance mechanism (RAM) to deal with reliability issues before a state's plan is implemented. Such a mechanism would require the FERC or its designee to examine the effects of state-submitted plans on regional reliability. If issues are identified, the state should be required to resubmit a revised plan that addresses the reliability threat(s) and adjust its targets accordingly to maintain reliability.

Second, the EPA should incorporate a reliability safety valve (RSV) that would operate throughout the compliance period if unforeseen events—such as tornadoes destroying a wind farm or extreme cold weather—require coal plants to operate at unanticipated levels. Owners of these coal plants need assurance that they will never be penalized for keeping the lights on. However, neither fallback measure is a substitute for addressing the EPA's interim targets. While the EPA's desire to reduce carbon emissions is understandable, doing so should not jeopardize reliability or unnecessarily threaten the affordability of the nation's electric supply. There are better ways to achieve much the same end and the agency should pursue a more reasonable course on carbon policy.

Conclusion

Constructive and common-sense alterations to the EPA's CPP are needed to avoid imposing staggering costs on utility customers and significant risks to electric grid reliability.

Ameren's Generation Strategy proposes pragmatic changes to the EPA plan that include removing the plan's interim targets that begin in 2020; enhancing interim reporting requirements by the states to ensure that progress is being made to achieve the 2030 target; allowing full credit for the retirement of coal-fired power plants and early action; and allowing for a reasonable extension of the 2030 deadline if utilities are making substantive progress toward achieving the EPA's final GHG goals.

Ameren's Generation Strategy provides for a responsible transition to a cleaner, more diverse generation portfolio that will in the long run achieve the same GHG emission reductions as EPA's proposed rule at a significantly lower cost to our customers, businesses and the local economy. Strict compliance with the EPA plan under its proposed timeline would alter our strategy in such a way as to lead to unnecessarily high capacity reserves by advancing, adding and uneconomically dispatching resources not otherwise necessary to meet customer demand.

EPA should take heed of sound alternative plans such as Ameren's that align with its end goal of reducing emissions. While there is agreement that steps should be taken to address global greenhouse gas emissions, there is certainly no consensus that doing so requires widespread economic disruption and reliability risks—particularly when far-reaching, highly effective and common-sense alternatives are available to reach much the same end.

Ameren’s Generation Strategy helps to address unreasonable assumptions built in the CPP’s Building Blocks and is better for the regional economy, protects Missouri jobs and limits unnecessary energy price increases. A workable alternative to the EPA’s proposed rule that reflects Midwestern values of prudence and practicality, the Ameren plan would save our customers billions of dollars while helping avoid substantial economic costs and consequences related to the potential degradation of electric reliability, long a bedrock component of America’s economic prosperity and widely admired standard of living.

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