

Hal Quinn is president and CEO of the National Mining Association, which advocates on behalf of the coal and minerals mining industry in the US. Quinn serves on the board of directors of the American Coal Foundation, National Energy Foundation, and the US Energy Association. He also serves on the International Energy Agency's Coal Industry Advisory Board.



DEMANDING THE IMPOSSIBLE Hal Quinn, National Mining Association, US

At the direction of President Barack Obama, the US Environmental Protection Agency (EPA) recently proposed carbon dioxide (CO₂) performance standards for existing power plants. The rule, which seeks a 30% reduction in greenhouse gas emissions by 2030 from a 2012 baseline, is a stunning attempt to remake the nation's entire electric grid at great cost to homes and businesses across the US. It also threatens the reliability of the nation's electric grid, which has already been brought close to breaking point by earlier EPA rules that are forcing many baseload power plants to close. This latest proposal will push the grid over the edge.

Once again, the administration appears determined to eliminate low cost and reliable electricity and replace it with more expensive and less reliable sources. Reducing the diversity of electricity supply and raising costs will create a structural barrier for economic growth. US manufacturing will become less competitive because of higher electricity and natural gas prices, which will stall a US manufacturing renaissance. Families will have less disposable income, as they spend more to light and heat their homes. Some of the most vulnerable members of society, including senior citizens, families on fixed incomes and lower-income Americans will be the hardest hit.

Built on unstable ground

The EPA's proposal is based on a complex web of assumptions – many of them implausible – about future energy demand, dramatic shifts in generation sources, more intermittent sources for generation and reducing energy use in 48 states. Each of these assumptions – referred to by the EPA as “building blocks” – rests upon a weak foundation.

Increase efficiency at coal baseload power plants. The EPA assumes its proposal will create a 6% efficiency gain. The majority of this gain will be made by deploying recommended operation and maintenance practices. But these practices are already routine and taking place, since they make a power plant more profitable. The efficiency of power plants is further compromised by forcing them to operate at suboptimal levels. The result is closing more coal power plants that are essential to reliable, low-cost electricity.

Re-dispatching from coal-fired to natural gas-fired power plants. The EPA assumes that natural gas-fired power plants can run at a 70% capacity factor without any technical or economic evidence to back that up. This assumption appears to be based on plugging into a model an assumed carbon price – one well above those in current carbon trading schemes – rather than any analysis of the technical capabilities of the plants or gas delivery system.

Increased deployment of intermittent generation sources. The growth of renewable generation is highly dependent upon permitting, financing, transmission access and technical challenges posed by integration of intermittent electricity sources into the grid. There is no indication that the EPA appreciates why these sources are called “intermittent” – that their performance is highly variable, both seasonally and daily.

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Nationwide energy efficiency. The EPA's assumption of 1.5% growth in energy efficiency year-over-year lacks any credible basis. Between the agency's efficiency target and technological reality is a chasm that has significant implications for the cost of the rule. Since most of the lowest cost efficiency measures are already in use, the next increment will be more expensive, especially in states with the lowest retail power prices.

Fitting an energy straightjacket

As each of the EPA's building blocks crumble, additional pressure is placed on those that remain, making the EPA's plan not simply implausible, but actually impossible. Though the EPA and its supporters tout the flexibility provided to each of the US states, the proposal in fact fits them with an energy straightjacket. Each adjustment that is made brings more economic pain and a system increasingly at risk of unreliability.

What states need is genuine flexibility to maintain a diverse and reliable generation mix for their citizens' economic and energy security. But this proposal entirely ignores the value of generation diversity to stability in power supplies and prices. The harsh US winter over 2013/14 provided warning signals that the nation's bulk power system is already at its limit. Additional power plant retirements, induced by EPA rules issued two years ago, will push the system over the edge. Businesses and families in many parts of the country paid unprecedented high prices for electricity and saw their heating bills spike, as natural gas prices climbed with competing demand among power plants, factories and households.

Where are the benefits?

Coal-fired power plants supplied 92% of the incremental demand for power this winter. What will happen if another cold winter occurs in the coming years, when many of the coal-fired power plants have been closed due to the EPA's earlier rules? An analysis performed by Energy Ventures Analysis shows:

- Wholesale power prices would rise 27 – 55% across different regions of the US. No state is spared.
- Businesses and households would pay US\$ 35 billion more for natural gas.
- A combination of another cold winter, followed by a warmer than usual summer would cost US consumers US\$ 100 billion in higher electricity and natural gas prices.

These are the consequences of poorly conceived policies and the reason why the EPA's assessment of the economic impacts of its rules inspires little confidence. The EPA previously projected that its most recent rule would retire less than 5000 MW of power capacity. As it turns out, the true amount will likely be 10 – 12 times greater than that figure. And this is all without the current proposal for carbon dioxide.

Much is still to be learned about whether states choose to implement this rule and meet the CO₂ reduction targets assigned to them. Legal challenges to the rule raise further doubts about its viability. But one thing is clear: the costs and risks are real and substantial; the benefits are not.