Statement of the U.S. Chamber of Commerce

ON: U.S. Energy Information Administration Report: Analysis of the Impacts of the EPA's Clean Power Plan

TO: U.S. House of Representatives
Committee on Science, Space, & Technology,
Subcommittee on Environment
and
Subcommittee on Energy

DATE: June 24, 2015

1615 H Street NW | Washington, DC | 20062

Thank you, Chairman Bridenstine, Chairman Weber, Ranking Member Bonamici, Ranking Member Grayson, and members of the Energy and Environment Subcommittees. I am Stephen D. Eule, vice president of the Institute for 21st Century Energy (Energy Institute), an affiliate of the U.S. Chamber of Commerce, the world's largest business federation representing the interests of more than three million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations, and dedicated to promoting, protecting, and defending America's free enterprise system.

The mission of the Institute is to unify policymakers, regulators, business leaders, and the American public behind common sense energy strategy to help keep America secure, prosperous, and clean. In that regard we hope to be of service to this Committee, this Congress as a whole, and the administration.

Summary

There are many aspects of the EIA analysis of EPA's Clean Power Plan that are worthy of comment, but for the purposes of this testimony I will limit myself to three main points:

1. EIA's assessment of EPA's plan demonstrates that the economic costs exceed the climate benefits by a wide margin;
2. EIA's assessment shows that contrary to EPA's claim, both electricity prices and electricity expenditures will be higher under EPA's plan; and
3. EPA's rule will harm the U.S. coal industry and jeopardize the reliability of the nation's electricity system.

Background

Since the Environmental Protection Agency (EPA) first proposed its new rule for regulating carbon dioxide emissions from electricity generating stations in June 2014, known as the Clean Power Plan, the agency has touted its alleged environmental and economic benefits based on little more than its own analysis. For example, the agency assures states that the rule's aggressive technology assumptions are achievable, electricity rates will be minimally impacted, and electricity grid reliability will not be an issue.

As the 17th century French mathematician Blaise Pascal famously observed, "The justest man in the world is not allowed to be judge in his own cause," and what goes for men and women should go for regulatory agencies, too.

House Science Committee Chairman Smith is to be commended, therefore, for requesting the Energy Information Administration (EIA) to take an independent look at the economic and energy market effects of EPA's Clean Power Plan. The resulting Analysis of the

Impacts of the Clean Power Plan just released by EIA is the most recent edition to a growing list of analyses[1] that tell a very different story from the one EPA has been telling.

EIA was tasked with using its National Energy Modeling System to analyze EPA's proposal. The "Base Policy" scenario EIA designed hews closely to the Clean Power Plan, including interim goals and compliance around EPA's four building blocks:

1. Reducing the carbon intensity of coal plants by an average of 6% through heat rate improvements;
2. "Re-dispatching" generation from coal-fired power plants to natural gas combined cycle plants so that these plants operate, where possible, at a 70% capacity factor;
3. Further substituting emissions from fossil fuel plants by preserving 5.8% of existing nuclear capacity, completing new nuclear capacity under construction, and increasing renewable electric generating capacity to achieve a regional average of renewable portfolio standards; and
4. Reducing demand from fossil fuel plants through enhanced demand-side energy management.

EIA's "Policy Extension" scenario includes the Clean Power Plan, which EPA says would result in a 30% reduction in power sector carbon dioxide emissions compared to the 2005 level by 2030 and a 45% reduction in power sector emissions by 2040. Although this approach mirrors the Obama Administration's longer-term goals for the U.S.—remember, the administration wants U.S. emission to plunge 80% by 2050—the focus of this testimony will be on the comparison between EIA's Base Policy scenario and its Reference, or "business as usual," scenario for the 2020 to 2030 compliance period. Also note that for consistency, all dollar figures in the testimony are in real 2014 dollars.

It is also worth pointing out that EPA proposes to regulate carbon dioxide emissions from existing power plants through authorities it claims under a rarely-used authorities section, 111(d), of the Clean Air Act. Whether EPA actually has the authorities it claims has been questioned by a growing number of experts, including such legal luminaries as Harvard University Law School constitutional law Professor Laurence H. Tribe.

[1] See for example:
NERA Economic Consulting. 2014. Potential Energy Impacts of the EPA Proposed Clean Power Plan. Prepared for the American Coalition for Clean Coal Electricity *et al*. Available at http://americaspower.org/sites/default/files/NERA_CPP%20Report_Final_Oct%202014.pdf;
North American Electric Reliability Corporation. 2015. *Potential Reliability Impacts of EPA's Proposed Clean Power Plan: Phase I*. Available at http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/Potential%20Reliability%20Impacts%20of%20EPA%E2%80%99s%20Proposed%20Clean%20Power%20Plan%20-%20Phase%20I.pdf; and
Management Information Services, Inc. 2015. *Potential Impact of Proposed EPA Regulations on Low Income Groups and Minorities*. Prepared for the National Black Chamber of Commerce. Available at http://nbccnow.org/wp-content/uploads/2015/06/NBCC_ozone__FInal.pdf.

Economic Costs

Under EIA's Base Policy scenario—which covers only carbon dioxide emissions from fossil fuel combustion, not total greenhouse gases—EIA forecasts that U.S. power sector carbon dioxide emission would plunge below the Reference baseline by 14% in 2020 and 28% in 2025 before settling in at about 27% in 2030. Small cuts also are recorded for other sectors of the economy, bringing total carbon dioxide reductions over the compliance period to nearly 6.2 gigatons below EIA's baseline, or an average of about 561 million metric tons carbon dioxide ($MMTCO_2$) each year. (Table 1 below provides a summary of the data referred to in this section.)

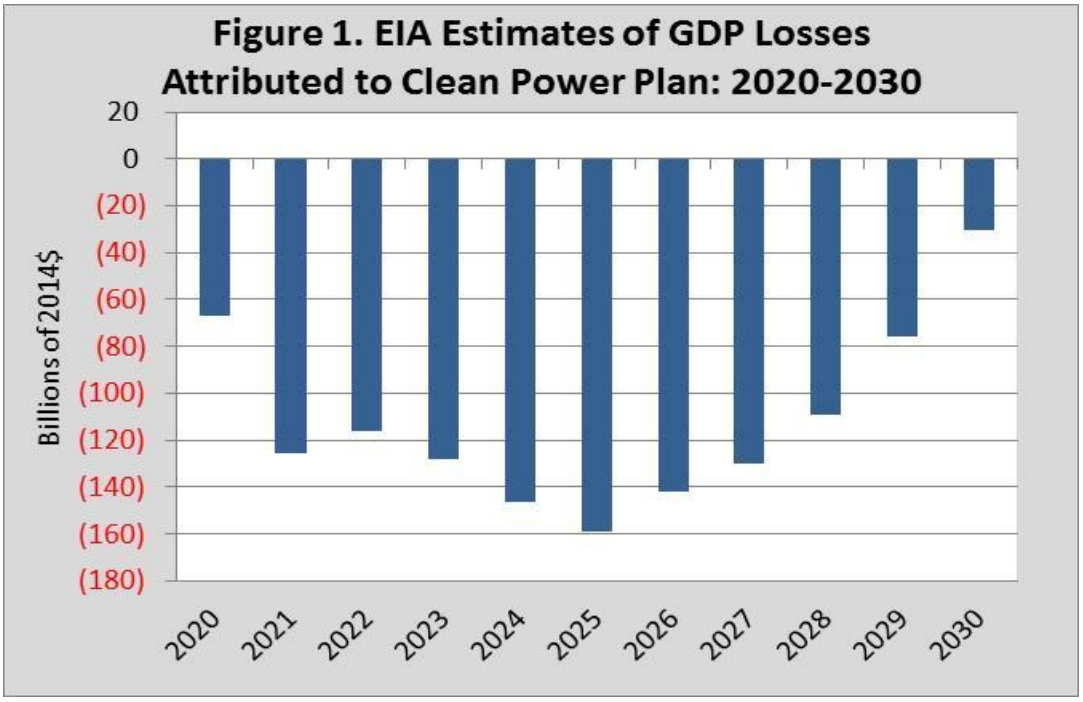
This cumulative figure of 6.2 gigatons in 2030 is a very large number, exceeding the total amount of all net U.S. greenhouse gas emission in 2013. As large as it is, however, the most recent forecast from the International Energy Agency suggests that in 2030 carbon dioxide emissions from China will offset this entire 11 years of reductions in a little more than 7 months.

It is telling that EPA does not discuss the impacts of its proposed rule on gross domestic product (GDP). In its nearly 400-page Regulatory Impact Analysis, the handful of references to GDP that do occur concern energy intensity and the use of implicit price deflators to convert figures into 2011 dollars. Nowhere in this document is there any discussion of how its rule will affect GDP.

In contrast, EIA data show that cutting emissions as rapidly and deeply as EPA proposes would come at a tremendous economic cost, both in total and in a relation to each ton of carbon dioxide reduced. When compared against EIA's baseline Reference scenario, cumulative economic costs over the Clean Power Plan's 2020 to 2030 compliance period are an estimated $1.23 *trillion* in lost GDP, with a peak annual loss of $159 billion in 2025 (Figure 1). This amounts to an average annual GDP hit over the compliance period of $112 billion.

It is often argued, however, that the value of the carbon dioxide emission reductions, as measured by the Social Cost of Carbon (SCC), would turn even such ugly losses as these into gains. The SCC represents an attempt to measure the health, property, agricultural, ecosystem, and other supposed impacts of emitting a ton of carbon dioxide. If the SCC is valued at, say, $48 for the year 2020, a 10 ton increase in carbon dioxide emissions during that year would yield a social cost of $480 while a 10 ton decrease would yield a social benefit of $480.

It's also important to note that because greenhouse gases are well mixed in the atmosphere, these impacts are considered to be global in nature (unlike air pollutants, whose impacts largely are local). This means the climate costs or benefits would be felt primarily outside of the United States.



Whether it is even possible to measure the SCC with any precision remains a matter of no little controversy. Nevertheless, the Interagency Working Group on Social Cost of Carbon charged by the Obama Administration with estimating the SCC states in a May 2013 report that the purpose of the SCC is "to allow agencies to incorporate the social benefit of reducing carbon dioxide (CO_2) emissions into cost-benefit analyses of regulatory actions that impact cumulative global emissions." The president's Council of Economic Advisors also asserts that estimating the SCC is a "critical step in formulating policy responses to climate change," and further that it "provides a benchmark that policymakers and the public can use to assess the net benefits of emissions reductions stemming from a proposed policy."

The U.S. Chamber has been very clear that applying the SCC as a major tool in justifying regulation is unprecedented and represents a worrisome departure from how the federal government develops and employs these kinds of metrics. While the SCC has been referenced in the cost-benefit analyses of some rulemakings, including EPA's Clean Power Plan, it is far from clear that the use of such a metric to defend regulatory action is authorized by any law. Moreover, none of the SCC calculations have gone through any rulemaking process of the type one would normally expect for this kind of far-reaching analytical tool, nor have they been subject to the rigors of notice, public comment, and data quality. They also have never been subject to any kind of Congressional review or approval. The Administrative Procedure Act and Executive Order 12866 require this kind of openness and transparency in the promulgation of regulations, as well as the use of a high level of scientific and technical data quality. As a consequence of all of these procedural failures, not to mention the questionable accuracy of the SCC values themselves, the SCC calculation should be subject to greater transparency, notice, public comment, data quality, and accountability to Congress.

Nevertheless, for our purposes here we will set aside these lingering and very legitimate doubts about the SCC's value as an analytical tool and stipulate that the IWG's SCC estimates are spot on. The IWG created a range of estimates using a 2.5% discount rate, a 3% discount rate, and a 5% discount rate and one representing the 95th percentile of the three SCC estimates at a 3% discount rate. The central SCC at the 3% discount rate will be the focus of this analysis.

Assuming the administration's SCC estimates are accurate—again, a huge assumption and one extremely generous to EPA's contentions —are the resulting climate benefits of EPA's Clean Power Plan large enough to offset the economic losses EIA forecasts using the administration's own metrics? No, not even close.

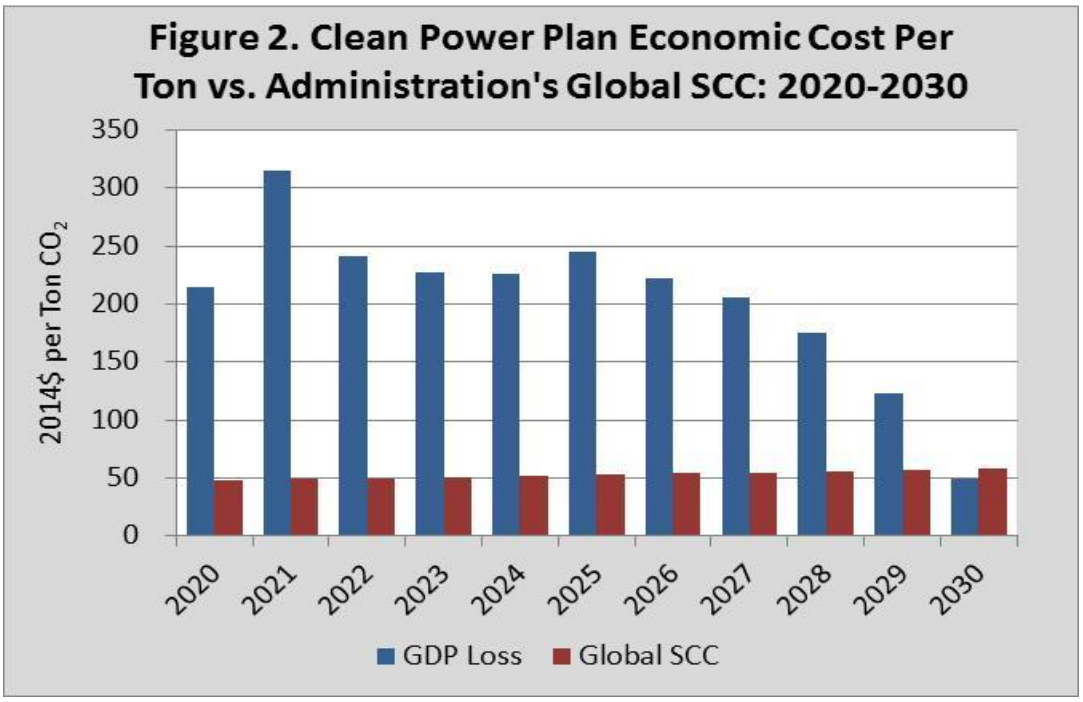
The chart in Figure 2 shows the economic cost per ton of carbon dioxide calculated for each year through 2030 (blue bars) and the administration's Global SCC estimate for that year (red bars). The first thing that jumps out is how high the per-ton costs of decreasing carbon dioxide emissions under EPA's plan really are. From 2020 to 2030, EIA estimates it will cost an *average* of $199 in lost economic growth for each ton of carbon dioxide reduced, reaching a high of $316 per ton in 2021.

Figure 2 compares the economic cost-per-ton figures against the administration's controversial Global SCC estimates. To produce a *net* climate benefit, the SCC benefit must be greater than the economic cost per ton of emission reduction. As the chart in Figure 2 shows, that is certainly not the case here. Indeed, over the compliance period, the average annual per-ton economic loss is a stunning 3.7 times bigger than the claimed SCC benefit.

Even once these SCC benefit estimates, contentious as they are, are taken into account, there still remains a huge net cumulative economic loss of $899 billion, with an average annual net loss of $83 billion. This works out to a shockingly large net economic cost per ton of carbon dioxide reduction of $146.

It was observed earlier that most of the claimed climate benefits from decreasing emissions would occur beyond U.S. borders, meaning the SCC benefits claimed for the United States must be lower than the Global SCC.

Although the Interagency Working Group tasked with developing the SCC baulked at creating a "domestic SCC" (for reasons that are not entirely clear), it did note in its 2010 report that after apportioning the benefits globally, the domestic SCC would be a small fraction of the Global SCC, concluding: "[W]ith a 2.5 or 3 percent discount rate, the U.S. benefit is about 7-10 percent of the global benefit, on average, across the scenarios analyzed. Alternatively, if the fraction of GDP lost due to climate change is assumed to be similar across countries, the domestic benefit would be proportional to the U.S. share of global GDP."



The green bars in Figure 3 below show what the Global SCC looks like after it has been adjusted applying the GDP-share method described above and using the Department of Agriculture's international macroeconomic data set of projected global GDP by country. The results are a Domestic SCC falling within a range of about $10 to $12 per ton over 2020 to 2030.

Applying this Domestic SCC to GDP cost figures calculated earlier, the cumulative net economic loss declines only modestly, moving from $1.23 trillion to $1.16 trillion for an average net annual loss of $105 billion and an average per-ton emissions reduction cost of $188.

These results were arrived at using the administration's central SCC at the 3% discount rate. One arrives at the same conclusion, however, regardless of which SCC—the 2.5%, 3%, 5%, or 3%/95th percentile—is used. The net economic losses over the 2020-2030 period range from $230 billion to $1.13 trillion using the Global SCC and from $1.02 to $1.21 trillion using the Domestic SCC, the latter of which is more pertinent to U.S. policy.[2]

To reiterate, the Chamber does not endorse the administration's use of the SCC in regulatory analysis for the reasons cited earlier. The purpose of this exercise is to demonstrate that even on the administration's own terms and using the administration's own methods, data, and highly contentious SCC, the Clean Power Plan fails the administration's own test as a climate policy.

[2] The net economic losses over the 2020-2030 period for the Policy Extension scenario range from $205 billion to $1.1 trillion using the Global SCC and from $1.01 to $1.20 trillion using the Domestic SCC.

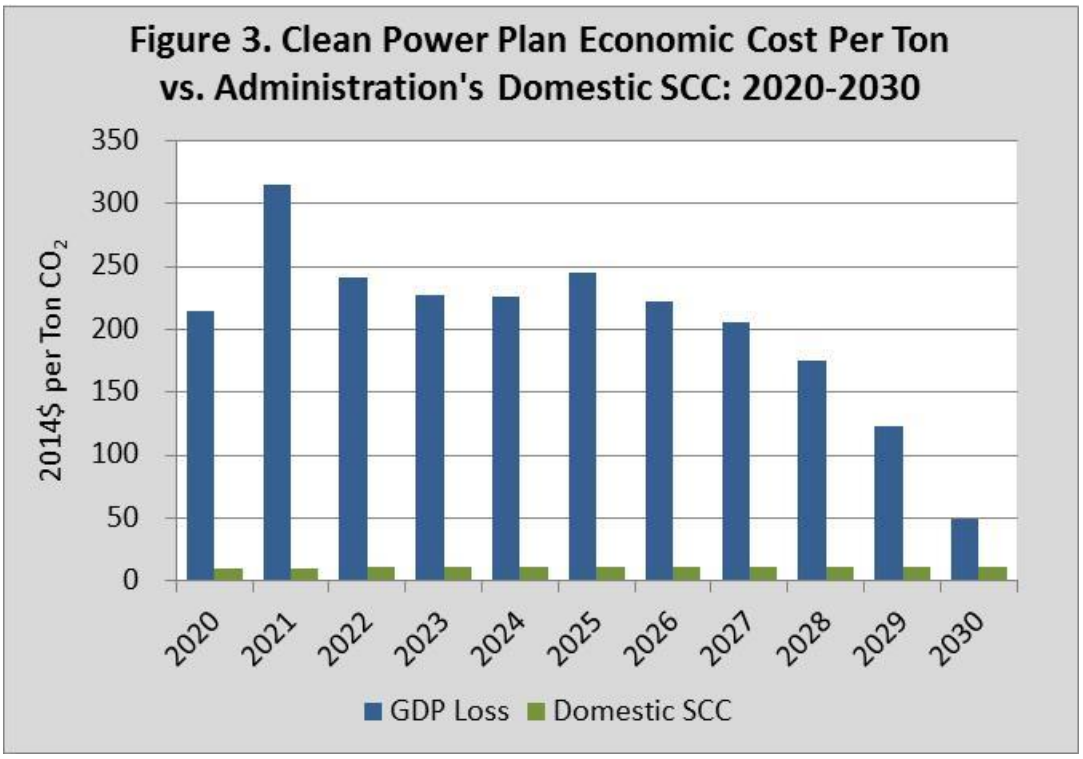


Table 1. EIA Reference Scenario vs. Base Policy Scenario: Costs & Benefits Summary

Carbon Dioxide	2020-2030 Total	2020-2030 Annual Average
	(Million Metric Tons)	
Power Sector Emissions	(5,806)	(528)
Total Emissions	(6,167)	(561)
Costs & Benefits	**2020-2030 Total (Billion 2014$)**	**2020-2030 Per Ton Average (2014$)**
	(Billion Chained 2014$)	(Chained 2014$)
GDP	(1,229)	(199)
Global SCC	330	53
Net GDP	(899)	(146)
U.S. SCC	69	11
Net GDP	(1,160)	(188)

Electricity Costs

EPA's Regulatory Impact Analysis boasts that while the price consumers pay for electricity may increase under the Clean Power Plan, their electricity costs will decrease because of significantly lower demand driven by building block four requiring enhanced demand-side energy management.

EPA's target of a 1.5% annual energy efficiency improvement would be incredibly difficult to achieve, something 17 states brought to the attention of EPA in their comments on the rule. EPA estimated that under State Compliance Option 1—which is the approach EIA modeled—by 2030 power generation would be 11.1% lower than it would have been in the absence of the Clean Power Plan (Table 2).

In contrast, EIA's report notes that "Demand-side energy efficiency plays a moderate role in compliance" compared to the other building blocks. EIA thus projects a more modest decline in electricity output by 2030 of 2.6% compared to the Reference case. This not only reflects a more realistic view of the potential for energy efficiency improvements, it also explains why EPA's claim that electricity *bills* will be lower in 2030 even as electricity *rates* will be higher under the Clean Power Plan is exceedingly unlikely.

Table 2 shows EPA estimates that electricity rates will climb an average of 6.5% in 2020, 2.9% in 2025, and 3.1% in 2030. (Within these averages are broad ranges of increases, with some regions of the country getting socked with percentage rate increases the double digits in 2020 (for New England, New York, Oklahoma, and Texas, for example) and more than 5% in 2025 and 2030 (for Florida, Oklahoma, and the Upper Midwest, for example).)

EPA says not to worry because by 2025, the typical electricity *bill* will be 5.3% lower and by 2030 8.4% lower. Consumers, therefore, will benefit in the end, at least according to EPA.

EIA's analysis does not back up EPA's claim. EIA estimates that electricity demand will decline in the Base Policy case compared to the Reference case, but the price increases overwhelm these declines, leaving consumers with bigger, not smaller, electricity bills. Using EIA's data, we calculate that average household electricity expenditures will be 3.8% higher in 2020, 2.8% *higher* in 2025, and 1.3% *higher* in 2030. For 2030, this represents a nearly 10 percentage point difference of opinion between EPA and EIA.

These price increases are expected to come on top of increases that are already projected in EIA's Reference case, which estimates that "business as usual" policies will lead to a 9.5% jump in the cost per Btu for electricity between 2015 and 2030. Under EPA's Clean Power Plan, EIA estimates the 2030 rate will jump to 14% above the 2015 level.

Rate increases such as these will have real economic consequences. We estimate that all consumers across all sectors will pay an additional $141 billion more for electricity over the compliance period ($164 billion from 2020 to 2040) (Table 3).[3]

Table 2. Electricity Demand, Prices & Expenditures: Policy Case vs. Reference Case

Metric	EPA Regulatory Impact Analysis (Option 1 State)	EIA Analysis of CPP (Base Policy)
	(Percent Change)	
Electricity Generation in:		
2020	(3.0)	(1.1)
2025	(7.8)	(2.7)
2030	(11.1)	(2.6)
Electricity Prices in:		
2020	6.5	4.9
2025	2.9	5.6
2030	3.1	4.0
Electricity Expenditures in:		
2020	3.2	3.8
2025	(5.3)	2.8
2030	(8.4)	1.3

Seeing as EIA's analysis shows economic losses exceeding the supposed climate benefits, pursuing the Clean Power Plan amounts to placing an entirely needless burden on families—especially low-income families—and businesses still struggling with a sluggish economy. Adding insult to injury, the burdens on businesses would be equally harmful, and in the case of trade exposed industries such as manufacturing, increased electricity costs serve to drive industry and associated jobs to other countries that have not imposed similar restrictions. This circumstance would not even reduce carbon emissions and instead simply *move* them from the U.S. to our international competitors.

[3] For EIA's Policy Extension scenario, which more closely aligns the administration's goals, the total increase in electricity expenditures would be $129 billion from 2020 to 2030 and $237 billion from 2020 to 2040.

Table 3. Cumulative Increase in Electricity Expenditures Under CPP		
Sector	Compliance Period (2020-2030)	2020-2040
	(Billion 2014$)	
U.S. Total	141	164
Residential	61	77
Commercial	50	47
Industrial	29	39
Transportation	0.3	0.6

The Clean Power Plan Will Jeopardize Grid Reliability

EPA and EIA both agree that the Clean Power Plan will alter the U.S. generation mix. EPA's Clean Power Plan is the second of a one-two punch to the coal-fired base load power plants that form the backbone of the electricity grid, with the first being EPA's "Utility MACT" rule.

EIA's analysis indicates that without the Clean Power Plan, by 2016, 11% of the nation's current (2015) coal-fired generating capacity will be shuttered, and this will rise to 13% in 2020 and 14% in 2030, mostly because of Utility MACT.

Under EPA's Clean Power Plan, however, EIA projects that by 2020 fully 29% of the nation's current coal-fired fleet will be closed, and this rises to 31% in 2030. Such a sudden shutdown of existing generating capacity is unprecedented, and it raises serious concerns not only about the dizzying speed with which this rule will harm communities across the country that mine coal and depend on coal for power generation, but also about the ability of the electric power system to handle such a rapid loss of base load generating capacity. Based on little evidence, the agency makes the incredible contention that although its rule, by the agency's own estimate, will shutter an additional 49 gigawatts of base load coal-fired power plants by 2020, it will not adversely impact reliability.

In contrast, the North American Electricity Reliability Corporation—the independent organization responsible for ensuring grid reliability—concluded that the number of estimated retirements identified by EPA may be too conservative, and that replacing this generation

presents a significant reliability challenge.[4] And as Federal Energy Regulatory Commission member Philip Moeller has pointed out, grid reliability should not be left to an agency—EPA—with limited expertise on the subject, saying: "Just as the commission does not have expertise in regulating air emissions, I would not expect the EPA to have expertise on the intricacies of electric markets and the reliability implications of transforming the electric generation sector."[5] At least 29 states raised similar reliability concerns in their regulatory comments.

A change in the generation mix of this magnitude this quickly will have repercussions for ratepayers, as we noted in the previous section. A recent study by IHS Energy (underwritten in part by the Energy Institute) helps explain why. It found that the current diversified generation portfolio "lowers the cost of generating electricity by more than $93 billion per year" and that today's diverse fuel mix "produces lower and less volatile power prices compared to a less diverse case with no meaningful contributions from coal and nuclear power and a smaller contribution from hydroelectric power."[6]

The rest of the world has no compunction about using coal. Even green Europe—where natural gas costs about three times as much as it does here—is rediscovering the benefits of coal and has been increasing imports of U.S. coal. Europe is learning that its exorbitant energy prices, largely policy-driven, are ruining its competitiveness and turning energy-intensive industries into endangered species.

More and more, we're seeing European companies fleeing sky-high energy costs and shifting production to the United States. And why not? Affordable and reliable fuel and electricity, supplied by a diverse mix of coal, nuclear, and now natural gas, give American industry an enormous economic edge, driving a manufacturing revival in areas of the country desperately in need of jobs and investment.

In light of these widely-voiced concerns, EPA's continued refusal to look more deeply into grid reliability, an issue posing substantial economic and public safety implications, is extremely troubling.

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[4] North American Electric Reliability Corporation. 2015. *Potential Reliability Impacts of EPA's Proposed Clean Power Plan: Phase I*. Available at http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/Potential%20Reliability%20Impacts%20of%20EPA%E2%80%99s%20Proposed%20Clean%20Power%20Plan%20-%20Phase%20I.pdf.

[5] Written Testimony of Phil Moeller. 2014. Committee on Energy and Commerce, Subcommittee on Energy and Power, United States House of Representatives. *Hearing on FERC Perspective: Questions Concerning EPA's Proposed Clean Power Plan and other Grid Reliability Challenges*. Available at http://www.ferc.gov/about/com-mem/moeller/moeller-12-02-14.pdf.

[6] IHS Energy. 2014. *The Value of US Power Supply Diversity*. Available at: http://www.energyxxi.org/power-diversity.

Conclusion

No matter how one slices and dices the data, EIA's analysis leaves little room for doubt that EPA's Clean Power Plan is badly flawed as a climate policy and as an energy policy, even on the administration's own terms.

Maybe creating a huge new bureaucracy to implement carbon dioxide regulations that would highjack well-established state authority, disrupt the entire U.S. electricity sector, jeopardize the reliability of the electric grid, cripple a strategic industry, raise electricity costs on struggling families, and yield an estimated net loss in wealth of $899 billion to $1.16 trillion is appealing to EPA. But for the rest of the country, it's a decidedly bad deal.

The Chamber has said repeatedly that the Clean Air Act is the wrong vehicle for regulating greenhouse gas emissions. EIA's analysis proves it.