

Clean Power v. Clean Energy

EPA's Regulation of Greenhouse Gases from Electricity Generation

Introduction

On Wednesday, June 19, 2019, the Environmental Protection Agency (EPA) released a set of three final regulatory actions¹ governing greenhouse gas emissions from electric power plants. These include (1) the final repeal of the Obama administration's Clean Power Plan (CPP) rule; (2) a new Affordable Clean Energy (ACE) rule, "Emission Guidelines for Greenhouse Gas (GHG) Emissions from Existing Electric Generating Units (EGUs);" and (3) procedural regulations governing the development and approval of state implementation plans, which will apply to the ACE rule and any future regulations under the Clean Air Act (CAA) Section 111(d). The ACE rule is scheduled to take effect September 6, 2019.

These final rules will face new legal challenges based on both the economic analysis and the statutory authority for EPA's actions. This *Regulatory Insight* briefly reviews some of the major issues likely to be in contention.

In the course of these rulemakings, I filed four Public Interest Comments, beginning in 2014 with the initial CPP proposal.² The final ACE rule is consistent with some of my recommendations: for example, it imposes a constraint on emissions intensiveness rather than a fixed cap, and it measures climate benefits using a domestic Social Cost of Carbon (SCC) rather than a global one. While it is satisfying to see EPA make changes that I recommended, I have to acknowledge that my four comments were among more than two million filed in the rulemaking docket.

¹ Available at: <https://www.epa.gov/stationary-sources-air-pollution/affordable-clean-energy-rule>.

² The four public interest comments can be found on the GW Regulatory Studies Center website: first, [CO2 Emission Guidelines for Existing Stationary Sources – Electric Utility Generating Units](#), December 2, 2014 (resubmitted for the subsequent docket: [Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units](#), November 19, 2015); second, [State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units](#), February 27, 2018; third, [Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units](#), April 27, 2018; fourth, [EPA's Proposed "Affordable Clean Energy" \(ACE\) Rule](#), October 31, 2018.

Section 111(d) Performance Standards: Is That a Solo Performance or Orchestral?

A critical difference between the ACE rule and the earlier CPP rule is that the ACE rule regulates the emissions performance of individual sources, whereas the CPP sought to regulate the performance of the power grid as a whole. What does the statute say?

Section 111(d) of the Clean Air Act reads, in part:

The Administrator shall prescribe regulations . . . under which each State shall submit to the Administrator a plan which (A) establishes standards of performance *for any existing source* for any air pollutant . . . , and (B) provides for the implementation and enforcement of such standards of performance. Regulations . . . shall permit the State . . . to take into consideration, among other factors, the remaining useful life *of the existing source to which such standard applies.*³ [Emphasis added.]

Traditionally, Section 111, including subsection (d), has been read to mean that each source will have an obligation to meet the performance standard that applies to that particular source. The applicable standard may vary from source to source for a number of reasons. Generally, a performance standard places a constraint on the intensive margin – meaning, for an EGU, that it limits the amount of pollution per megawatt-hour of electricity produced. The standard will also typically vary with the type of fuel being used (coal, oil, natural gas, wind, etc.), and the technologies available to reduce emissions. Standards may also vary with the age of the plant (new sources are held to higher standards than older sources) as well as with its remaining useful life (states may prefer to invest in emissions reduction at the EGUs that are going to be around the longest).

The states have responsibility to develop plans for performance standards applicable to the sources within their borders. They also issue operating permits to individual sources, and have the authority to take enforcement action against any sources who fail to meet the applicable standard.

In order to calibrate the emissions reductions expected to be achieved by each state plan, EPA runs an Integrated Planning Model (IPM)⁴ to simulate the nation's power generating system as a whole. This allows the agency to forecast how its proposed standards will interact with variables that it does not control, such as shifts in fuel supply and electricity demand or changes in available technologies. When running the IPM computer model, however, EPA can control far more variables than it actually has the authority to regulate in the real world. This illusion of omnipotence in the virtual world may, in part, have inspired aspects of the Clean Power Plan, which sought, through the states, to impose more comprehensive controls.

³ 42 U.S.C. §7411. Available at: <https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partA-sec7411.htm>.

⁴ See <https://www.epa.gov/airmarkets/clean-air-markets-power-sector-modeling>.

To this end, the Obama EPA adopted a radically different reading of the Clean Air Act. The agency's goal was not so much to improve the emissions performance of existing sources,⁵ but to shut down coal-fired EGUs and replace them with technologies that the administration favored, including natural gas, solar, and wind power. This was not something that could be achieved simply by setting achievable standards and taking enforcement actions against individual EGUs.

The CPP, R.I.P.

The Obama administration's Clean Power Plan sought to replace fossil-fueled EGUs with renewable energy sources. Since neither the CAA nor any other law passed by Congress ever authorized such a thing, EPA sought to commandeer the authority of the states. It grounded the CPP on the idea that the "best system of emissions reduction" (BSER) would be for the states to adopt a centrally planned power generation system, so that the EPA could direct the states to shutter coal-fired power plants and replace them with something else. The CPP set state-by-state emission limits that would force the desired changes, based on the results of EPA's IPM model.

Many states already had adopted their own "portfolio standards" that specified a percentage of electricity production that needed to come from renewable sources. Such standards effectively tax fossil-fueled power in order to subsidize renewable sources.⁶ The CPP would effectively have forced other states to adopt portfolio standards or equivalent measures to reach EPA's specified emissions reductions. States had additional authorities that would be needed to realize EPA's plan – such as the ability to use eminent domain to build transmission lines, in order to connect the new solar and wind power generators that EPA was seeking.

The original CPP, issued on October 19, 2015, never went into effect. By December both houses of Congress had passed a resolution of disapproval under the Congressional Review Act, but President Obama vetoed the resolution as soon as it was presented to him.⁷ Twenty-seven states filed a lawsuit challenging the CPP. On February 9, 2016, the Supreme Court issued a rare stay to prevent EPA from attempting to enforce the CPP pending the outcome of the litigation in the DC Circuit Court of Appeals.⁸ The DC Circuit put the litigation itself on hold in April 2017,

⁵ Efficiency improvements at existing plants constituted "building block 1" of the CPP, but the targets were set so that they could not be achieved by such improvements alone. At the same time, EPA interpreted its "New Source Review" regulations in a way that actively impeded efficiency improvements at existing plants.

⁶ Regulatory constraints of this type create a cross-subsidy, comprising a "shadow tax" on the disfavored technology and a corresponding "shadow subsidy" on the favored one. For a description of how this mechanism works, see Brian Mannix, "Regulatory Subsidies: A Primer," GW Regulatory Studies Center Working Paper (2012). Available at: <https://regulatorystudies.columbian.gwu.edu/regulatory-subsidies-primer>.

⁷ "Using pocket vetoes, Obama rebuffs GOP attempt to kill Clean Power Plan," Gregory Korte, USA Today, December 19, 2015. <https://www.usatoday.com/story/news/politics/2015/12/19/obama-pocket-veto-clean-power-plan-climate-change/77619582/>.

⁸ The Washington Times, "Supreme Court halts Obama carbon emissions rule," February 9, 2016. <https://www.washingtontimes.com/news/2016/feb/9/obama-carbon-emissions-rule-halted-supreme-court/>.

pending the outcome of the Trump administration's revisions.⁹ Those are now complete, and the litigation will shortly resume, with the new ACE rule now on the table. Many of the litigants who challenged the CPP, joined by EPA, have urged the DC Circuit to dismiss the earlier case as moot, now that the agency has repealed the CPP. Defenders of the CPP have objected, since they plan to challenge the ACE final rule, and want to preserve the hope that judges might choose to keep the CPP alive, even if EPA has rejected it.¹⁰

Ace in the Hole

The Trump administration's ACE rule follows a more conventional format. It determines that the BSER is one that constrains the emissions intensiveness of the coal-fired power plants – i.e., one that minimizes the emissions of CO₂ per unit of electricity produced. This is described as a heat rate improvement (HRI), a measure of EGU efficiency. It is analogous to the approach taken in the Department of Transportation's CAFE standards for automobiles, the Department of Energy's appliance efficiency standards, and most other emissions standards under the CAA. Other than compelling regulated EGUs to invest in emissions reduction, the ACE rule does nothing to force them to shut down, nor does it subsidize any substitute sources of power. The actual requirements that apply to each EGU will be determined in state implementation plans, which are due three years after the rule becomes effective.

The Economic Analysis

In the Regulatory Impact Analysis (RIA) of the ACE rule, EPA displays some admirable humility. It carefully characterizes various sources of uncertainty, including uncertainty in the health effects of particulate matter. It recognizes the limits on information availability and the difficulty of forecasting the future with precision. Among the things that it cannot forecast are the details of the state implementation plans. The analysis therefore estimates the benefits and costs of the ACE rule by using an Illustrative Policy Scenario (IPS), compared with a "Business as Usual" (BAU) baseline.

Baseline Questions

The BAU baseline is a forecast of electricity markets and associated emissions without the ACE rule and also without the CPP. Advocates of the CPP are criticizing EPA for this, but the agency could hardly do otherwise. The CPP was not, in fact, ever implemented. In EPA's view, the CPP was never legal, had already been stayed by the Supreme Court, and was destined to be vacated once the pending lawsuits were concluded. Hence the ACE rule must be measured against a no-rule baseline.

⁹ "D.C. Circuit Again Delays Action on Clean Power Plan," *Power* magazine, Abby Harvey, August 9, 2017. <https://www.powermag.com/d-c-circuit-again-delays-action-on-clean-power-plan/>.

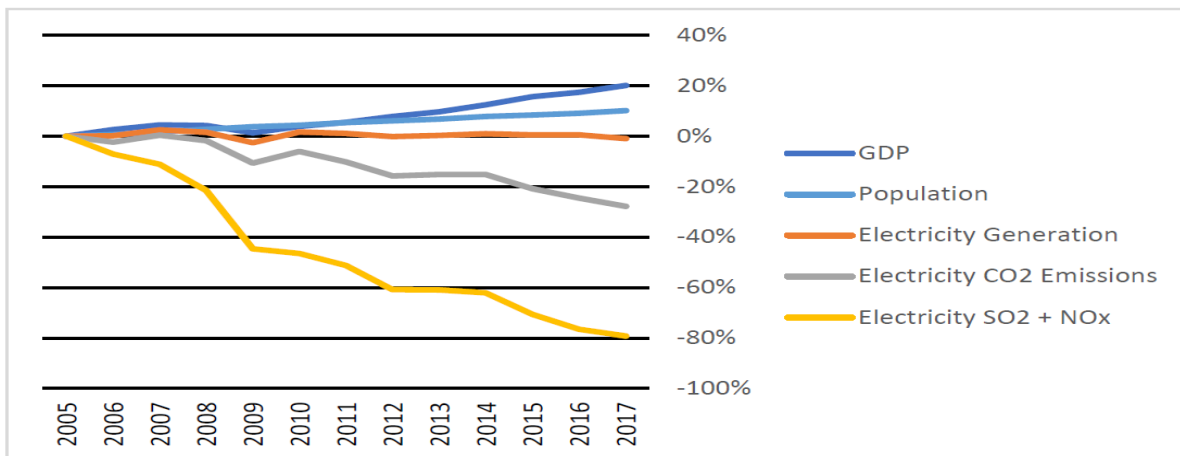
¹⁰ "Don't Kill Clean Power Plan Case, Backers Tell DC Circuit," *Law360*, July 26, 2019. <https://www.law360.com/articles/1182348>.

The more interesting argument that EPA makes is that including the CPP in the baseline would have made little difference because the CPP would likely be nonbinding – i.e., that states would be able to meet their CPP emissions targets without imposing any mandatory changes in their power generating systems at all. This is a startling assertion, because critics have been complaining loudly that the ACE rule represents a “rollback” of the Obama administration’s standards. If the ACE rule is *less* stringent than the CPP rule, how could the ACE rule be binding – producing both costs and benefits – when the CPP is not?

The reason this is possible, and even likely, is the different form that the two rules take. The ACE rule requires specific improvements in the efficiency of coal-fired power plants. As long as some of them exist, they will be subject to the requirements of the rule. In contrast, the CPP used centrally planned targets for overall reductions in GHG emissions. In the approximately three-and-a-half years since those targets were set, the market has shifted. Coal plants have closed, natural gas has become more abundant, and electricity end users have become more efficient. The assumptions underlying the original CPP have become obsolete.

The growth of fracking is probably the largest factor that has changed, producing large amounts of inexpensive natural gas to replace coal plants. Another is reduced electricity demand, as the economy become more energy efficient, allowing GDP to grow without a corresponding growth in electricity demand. Technological improvements in renewable energy, combined with federal and state subsidies, have also had an effect.

Without any rule in place, the trend in the market has been to increase efficiency and reduce CO2 emissions, and EPA expects this trend to continue. Between 2005 and 2017, while GDP increased by 20 percent, EPA’s inventory of GHG emissions and sinks indicates that the U.S. power sector reduced emissions by 28 percent. DOE’s Energy Information Administration shows that all energy-related emissions in the U.S. declined by 14 percent, and coal-related emissions declined by 39 percent. During that same time interval, global energy-related CO2 emissions rose 21 percent. EPA presents¹¹ these trend lines on a graph:



¹¹ EPA Fact Sheet: “Final ACE Rule – CO2 Emissions Trends,” available at: <https://www.epa.gov/stationary-sources-air-pollution/fact-sheet-carbon-dioxide-emissions-trends>.

These trends vary from state to state. EPA forecasts that the CPP targets as a whole (i.e., nationwide) would not be binding. If some states continued to find their targets binding, they would be able to comply with the CPP through a combination of interstate power dispatch and interstate trading of emissions offsets. Not all states have joined interstate GHG trading regimes, but EPA expects that any state that found the CPP to be binding would take advantage of the opportunity to trade with neighbors for whom it was not.

In contrast, the intensiveness constraint in the ACE rule requires each coal plant to improve its efficiency, and it remains binding even if some of them close, renewables increase their market share, or the economy rises or falls or becomes generally less or more energy efficient. That is because the performance standards in the ACE rules apply to individual sources.

Advocates for the CPP will likely argue that, had the plan been allowed to go into effect, EPA would have revised it to keep up with shifting market conditions, to ensure that it remained binding. While that is undoubtedly true, it is not a reason to put such hypothetical future CPP rulemakings into the ACE rule baseline. It does, however, explain why the litigants who have been opposing the CPP are not going to suddenly embrace it, now that it appears to be nonbinding and therefore costless (as well as benefit-less). Opposition to the CPP continues to be widespread, not simply because of the magnitude of the expected costs, but because the structure of the plan represented an unlawful arrogation of state powers by a federal agency.

An unexpected reliance on co-benefits

One notable feature of the ACE rule's RIA is that, despite earlier criticism of EPA's use of "co-benefits" to justify the CPP rule and many other regulations, the agency continues to count those co-benefits. These include projections of lives saved by reductions in particulate matter emissions, even though those emissions are not directly regulated by the ACE rule. Not only does the RIA include those ancillary co-benefits, but it relies on them to justify the ACE rule.

Tables ES-1 and ES-2, below, are from EPA's RIA for the final ACE rule.¹² The first table includes ancillary health co-benefits, and the second table omits them. When co-benefits are included, the present value of the net benefits of the rule are positive, ranging from \$1.1 to \$8.8 billion, depending on the discount rate and other embedded assumptions. When the co-benefits are omitted, the present value of net benefits of the ACE rule are negative, at almost a \$1 billion net loss.

¹² "Regulatory Impact Analysis for the Repeal of the Clean Power Plan, and the Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units," June 2019, pp. ES-4 and ES-5. <https://www.epa.gov/stationary-sources-air-pollution/regulatory-impact-analysis-repeal-clean-power-plan-and-emission>.

Table ES-1 Present Value and Equivalent Annualized Value of Compliance Costs, Domestic Climate Benefits, Ancillary Health Co-Benefits, and Net Benefits, Illustrative Policy Scenario, 3 and 7 Percent Discount Rates, 2023-2037 (millions of 2016\$)

	Costs		Domestic Climate Benefits		Ancillary Health Co-Benefits		Net Benefits	
	3%	7%	3%	7%	3%	7%	3%	7%
<i>Present Value</i>	1,600	970	640	62	4,000 to 9,800	2,000 to 5,000	3,000 to 8,800	1,100 to 4,100
<i>Equivalent Annualized Value</i>	140	110	53	6.9	330 to 820	220 to 550	250 to 730	120 to 450

Notes: All estimates are rounded to two significant figures, so figures may not sum due to independent rounding. Climate benefits reflect the value of domestic impacts from CO₂ emissions changes.

Table ES-2 Present Value and Equivalent Annualized Value of Compliance Costs, Domestic Climate Benefits, and Net Benefits Associated with Targeted Pollutant (CO₂), Illustrative Policy Scenario, 3 and 7 Percent Discount Rates, 2023-2037 (millions of 2016\$)

	Costs		Domestic Climate Benefits		Net Benefits associated with the Targeted Pollutant (CO ₂)	
	3%	7%	3%	7%	3%	7%
<i>Present Value</i>	1,600	970	640	62	(980)	(910)
<i>Equivalent Annualized Value</i>	140	110	53	6.9	(82)	(100)

Notes: Negative net benefits indicate forgone net benefits. All estimates are rounded to two significant figures, so figures may not sum due to independent rounding. Climate benefits reflect the value of domestic impacts from CO₂ emissions changes. This table does not include estimates of ancillary health co-benefits from changes in electricity sector SO₂ and NO_x emissions.

Domestic benefits – plus Alaska and Hawaii, revisited

As shown in the tables above, EPA uses an estimate of domestic benefits of GHG reduction, rather than global benefits. This is certainly correct, as I argued in my comments to the docket.¹³ If EPA were to promulgate a rule that was economically justified when global benefits were counted, but was not justified when only domestic benefits were counted, it would mean that the agency was acting contrary to the interests of the United States in order to aid other countries. We may well consider that admirable, but it is not something that EPA is authorized to do.

¹³ Brian Mannix, *Public Comment on the EPA's Proposed Rule Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*, April 27, 2018, pp. 3 - 5. Available at: <https://regulatorystudies.columbian.gwu.edu/public-comment-epas-proposed-rule-repeal-carbon-pollution-emission-guidelines-existing-stationary>.

Absent specific instructions from Congress, a domestic regulatory agency cannot assume it has the authority to act against U.S. interests on behalf of other nations.

Since publication of the final ACE rule, another complication has emerged. The preliminary RIA for the ACE proposed rule had included language suggesting that the domestic benefits were calculated only for the 48 contiguous states.¹⁴ Some commenters pointed out the error, but EPA did not respond to those comments and did not correct the text.¹⁵ The troubling sentence occurs on page ES-7 of the final RIA: “The SC-CO₂ estimates used in this RIA account for the direct impacts of climate change that are anticipated to occur within the contiguous 48 states.” In response to an inquiry from E&E News, EPA called the sentence a typo, which has since been corrected. The truth may be a little more complicated.

Most of the efforts that have been made, by both governments and academics, to estimate the economic impacts of climate change have focused on global impacts. The effect on individual countries will vary dramatically, and in some cases may well produce a net benefit rather than a loss. But estimating the impact on a single country is complicated, and analysts will often take short cuts. Global impacts may be partitioned among countries in proportion to the length of coastlines, for example, or in proportion to GDP. In my comments to EPA, I was critical of methodologies that emerged from international negotiations and that appeared to be allocating blame – calculating the responsibility for damages (as in a tort suit), rather than the experience of the injury.¹⁶ A true measure of domestic benefits from GHG reductions should focus on the location of the adverse impacts, rather than on the source of the emissions.

But the science of climate impacts is not well developed, and exactly how EPA arrived at the domestic benefits used in the final RIA is not clear. EPA’s domestic benefits estimate appears to be based on a blending of the results of various models, and it is impossible to tell to what degree Alaska and Hawaii might actually have been omitted, or what the significance of that might be.

Nevertheless, Alaska and Hawaii are clearly covered by the ACE rule’s requirements. Interestingly, that was *not* true of the CPP. The Obama EPA gave a transparently pretextual reason (“not enough information”) to justify exempting those two states. When the CPP was announced, President Obama scheduled a tour of Alaska to highlight its climate benefits. He got the enthusiastic reception that he wanted, but what Alaskan’s were celebrating was not so much the CPP’s climate benefits. Rather, they were celebrating their state’s exemption from the rule.¹⁷

¹⁴ “Regulatory Impact Analysis for the Proposed Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program,” August 2018. The language appears on p. ES-10. Available at: <https://www.epa.gov/stationary-sources-air-pollution/proposal-affordable-clean-energy-ace-rule>.

¹⁵ “EPA found a 'typo' in its carbon rule. Why it matters,” Jean Chemnick, E&E News *ClimateWire*, July 1, 2019. Available at: <https://www.eenews.net/stories/1060678675>.

¹⁶ Brian Mannix, op. cit, p. 4.

¹⁷ Brian Mannix, *Alaska is Exempt!* The Federalist Society, September 8, 2015. Available at: <https://fedsoc.org/commentary/blog-posts/alaska-is-exempt>.

The omission of Alaska and Hawaii from the CPP was devious, but it holds an instructive lesson about the existence of “co-disbenefits.” Those two states wanted an exemption from the CPP because it threatened severe environmental damage – to the salmon runs on the Susitna River in the case of Alaska (cause by a proposed hydroelectric dam), and to the Nene goose and other native birds in the case of Hawaii (due to windmills along the ridge tops). This illustrates the real problem with the way co-benefits tend to be calculated in an RIA. Too often, an agency will justify a rule by selectively counting the ancillary effects that appear favorable, while omitting the ancillary effects that would counsel against the rule. It would be helpful if agencies made a greater effort to be transparent and balanced in the calculation of both benefits and costs.

Conclusion

All of these issues will be explored in litigation over the ACE rule, primarily in the DC Circuit Court of Appeals. There will be questions about exactly how the benefits were calculated, and it is possible that judges will find errors or omissions that they consider serious enough to remand the rule to EPA. It seems far more likely, however, that the court will focus on EPA’s interpretation of the Clean Air Act, rather than on the details of its economic analysis. Some authors¹⁸ embrace the Obama administration’s ends-justify-the-means interpretation, which allowed EPA, in the CPP, to commandeer state authority that it needed to meet its goals. In my mind, however, there is little doubt that the ACE rule lies squarely within EPA’s authority, while the CPP is unambiguously outside of it. That should be dispositive. The broader policy arguments about what action is needed to address climate change should be directed to Congress, and not to the courts.

¹⁸ See, e.g., Dan Farber, “ACE or Joker? Trump’s Self-Defeating Climate Rule,” *Legal Planet*, July 25, 2019. Available at: <https://legal-planet.org/2019/07/25/ace-or-joker-trumps-self-defeating-climate-rule/>.