



47 Junction Square Drive Concord, MA 01742

978-369-5533 www.mjbradley.com

October 31, 2018

U.S. Environmental Protection Agency
EPA Docket Center
Docket ID No. EPA-HQ-OAR-2017-0355
Mail Code 28221T
1200 Pennsylvania Avenue NW
Washington, DC 20460 (submitted via regulations.gov)

Re: Emissions Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program

To Whom it May Concern:

On behalf of the Energy Strategy Coalition, we are submitting these comments in response to the request for comment on the U.S. Environmental Protection Agency's (EPA's) proposal to replace the Clean Power Plan (CPP) with revised emission guidelines (the Affordable Clean Energy (ACE) rule) for state plans to reduce greenhouse gas (GHG) emissions from existing electric generating units (EGUs). Specially, EPA is proposing to determine that heat rate improvement (HRI) measures are the best system of emission reduction (BSER) for existing coal-fired EGUs. EPA is also proposing new regulations related to how EPA and states implement emission guidelines under section 111(d) of the Clean Air Act. Additionally, EPA is proposing revisions to the New Source Review (NSR) program, which "protects air quality when [new sources are]...built or [existing sources are] modified, [and]..."assures that: new or modified industries are as clean as possible, and advances in pollution control occur concurrently with industrial expansion."

Our companies operate and manage fossil-fuel, nuclear, hydropower, solar, wind and other renewable generation as well as electricity and natural gas transmission and distribution systems across the United States. We are committed to reducing GHG emissions and other air pollution consistent with federal, state, and regional programs and goals. We continue to support a consistent national program that meaningfully reduces GHG emissions and provides a long-term investment signal for clean energy technologies and infrastructure.

This letter is submitted on behalf of the following electric power companies and electric utilities: Austin Energy; Consolidated Edison Company of New York, Inc.; Exelon Corporation; Los Angeles Department of Water and Power (LADWP); National Grid; New York Power Authority (NYPA); PG&E Corporation; Seattle City Light; Sacramento Municipal Utility District (SMUD); and Tenaska.

² U.S. Environmental Protection Agency, *New Source Review (NSR) Permitting*, https://www.epa.gov/nsr.



Based on our experience, we can make investments in clean energy while improving electric system efficiency, increasing reliability, and maintaining quality of service to our customers. While the proposed rule's preamble discusses concerns about reliability, we believe these concerns are misplaced. Many of our companies jointly submitted comments to Federal Energy Regulatory Commission (FERC) in response to the Notice Inviting Comment on the Grid Reliability and Pricing Rule issued on October 2, 2017.³ In those comments, many of our companies noted that the electric system continues to reliably and resiliently provide affordable electricity for customers as the sector responds to changing conditions.⁴

The North American Electric Reliability Corporation (NERC) consistently finds that the bulk power system has provided an adequate level of resiliency to severe events. NERC's most recent report also notes that nearly all reliability metric indicators are stable or improving. Importantly, this improvement in reliability and resilience has occurred in concert with lowering emissions and while electricity rates remain affordable: residential electricity prices have fallen nearly 30 percent from the last peak in 1985. Therefore, we disagree with the discussion in the ACE preamble that a rule that meaningfully reduces GHG emissions to address climate change is not appropriate due to ongoing reliability considerations and discussions.

We believe a regulatory program that reflects the changing energy mix resulting from market shifts and state and customer demands for decreasing emissions can ensure the electric power system continues to be constructed, operated, and maintained in a resilient manner—and can, in fact, increase grid resiliency. Regulations can support companies' long-term investments in the electric sector and consideration of the changing climate as something that itself poses significant risks to grid reliability, including through: sea level rise; increased severity of storms and storm surges; longer and more intense wildfire seasons; hotter and more extreme temperatures; and prolonged droughts. While each operator of the electric grid is working to support such investments by the electric sector, EPA has a critical role to establish a legally durable regulatory program that can work with—and not frustrate—the power sector's long-term investments that achieve meaningful carbon dioxide (CO₂) reductions.

Effectively mitigating the impacts from climate change under the Clean Air Act requires achieving reductions from a wide variety and number of sources and providing a durable regulatory framework that facilitates technology innovation and investments. Each step is critical even if individually incremental.

Federal Energy Regulatory Commission, Notice Inviting Comments on Grid Reliability and Resilience Pricing (Oct. 2, 2017), https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14699281.

Comment of Energy Strategy Coalition re: Request for Comment on Grid Resiliency Pricing Rule, Docket No. RM18-1-000 (Oct. 23, 2017). https://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=14721029 We also note that resilience and reliability, while related, are different measures of grid operation. However, both have been consistently maintained even as we make clean energy investments and build a lower-emissions electricity system.

See, e.g., North American Electric Reliability Corporation, State of Reliability 2017 (June 2017), at p. vi, https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/SOR_2017_MASTER_20170613.pdf. For each year starting in 2013, NERC has found that the bulk power system has provided an adequate level of resiliency to severe events, and in 2012, NERC found that bulk power system reliability was stable noting that the metrics showed no significant upward or downward trends for the period 2008 to 2011.

Energy Information Administration, Annual Average Residential Electricity Price in Short-Term Energy Outlook (Jul. 2017), https://www.eia.gov/outlooks/steo/realprices/.



As noted by the Supreme Court in *Massachusetts v. EPA*, "[a]gencies, like legislatures, do not generally resolve massive problems in one fell regulatory swoop." Each policy that addresses only one part does not make it less valuable. Rather, a regulatory framework that provides the certainty needed for investment and innovation in emission reducing technologies and systems allows our industry and others to effectively make investments and innovate to help address climate change.

We agree with EPA that regulations must correct the "market failure by causing affected EGUs to begin to internalize the negative externality associated with CO_2 emissions." However, EPA's proposed approach falls far short of correcting the market failure. In order to do so, and to satisfy the statutory criteria, BSER must: reflect the industry's emission trends; consider the nature of electricity generation, the ramping up and down of interconnected resources to match electricity supply and demand and the history of successful optimization of this generation deployment to reduce GHG and other emissions; examine the sector's continued investment in and operation of cleaner energy resources; and reflect the potential emission reductions that the sector can achieve (C-1).

I. Any definition of BSER and program to replace the Clean Power Plan must reflect real world industry practices to reduce CO_2 emissions, including generation shifting, and it must drive meaningful emission reductions by the electric sector. (C-1, C-2)

We agree with EPA's discussion in the proposed rule noting that the electric sector has successfully reduced its CO₂ emissions over recent years. The electric grid operates as an interconnected system, shifting generation among affected EGUs and to low and zero-emitting sources for a variety of reasons, including environmental requirements and company commitments to reduce emissions. In fact, generation shifting is the ordinary means by which supply and demand are instantaneously matched throughout the interconnected electricity grid as balancing authorities and utilities make dispatch decisions to deliver power to consumers at least-cost, subject to reliability and other constraints.

Generation shifting is industry practice and is evident in the transition from a system heavily dependent on coal (55 percent of all generation in 1990) to one that in 2017 was more evenly balanced across natural gas (32 percent), coal (30 percent), nuclear (20 percent), and hydroelectric and other renewable resources (17 percent). Combined with the expanding role of energy efficiency in meeting consumer demand, the shift in generating resources and in their dispatch has led to a systemwide decrease in emissions of criteria air pollutants and GHGs, including carbon dioxide (CO₂). Our companies' successes at reducing emissions while continuing to deliver electricity reliably and affordably demonstrates that this approach is consistent with the nature of the electric grid and with power companies' business models. It provides clear evidence of the emission reduction opportunities that generation shifting provides. (C-1). For example, many of our companies have assets that are covered by or are within the footprint of the Regional Greenhouse Gas Initiative (RGGI) or the California Cap-and-Trade Program. We comply and

⁷ Massachusetts v. EPA, 549 U.S. 497 at 524 (2007).

Emissions Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program, 83 Fed. Reg. 44,749 (Aug. 31, 2018).

⁹ Throughout these comments, we note the comment number from the proposed rule to which our comments are responding.



facilitate cost-effective compliance with those programs through a combination of measures, including the use of lower- and zero-emitting resources and deployment of energy efficiency.

Additionally, we have seen the benefits of using federal market-based systems to allow the power sector to identify the most cost-effective compliance opportunities through the Acid Rain Program and the Cross-State Air Pollution Rule (CSAPR). For example, in developing CSAPR, EPA determined that a "direct control" approach would result in fewer emission reductions and higher cost compared to a market-based solution, which could capture the benefits of generating shifting and other cost-effective compliance opportunities.¹⁰

As described in our prior comments to EPA, there are numerous examples of companies and grid operators using generation shifting as a cost-effective, efficient, and low-emitting best practice across the country as well as companies investing in energy efficiency projects to reduce emissions. ¹¹ For example, Los Angeles Department of Water and Power is making investments across its system to lower emissions, including "replacement of coal resources, renewable energy, modernizing power plants...[and] energy efficiency." This approach, focused on shifting generation to cleaner resources, has reduced its total CO₂ emissions from delivered electricity by 47 percent from 1990 to 2017. Similarly, Austin Energy has pursued a strategy of generation shifting in order to reduce emissions, including "replac[ing] older fossilfueled generation with efficient natural gas combined cycle and simple cycle turbine units," adding 1,005 MW of renewable capacity resulting in over 20 percent of generation to come from renewables in 2013 (with additional contracts to reach a 35 percent renewable portfolio in 2017), and setting "future resource priorities to allow for the reduced utilization or retirement of [its] coal and gas steam units within the next decade." ¹³ Pacific Gas and Electric delivered to customers 33 percent of its electricity from renewable resources in 2017, three years ahead of the 2020 mandate. ¹⁴ Exelon Corporation also has long provided a zero-carbon nuclear fleet that underpins regional air quality and grid reliability. For example, in 2016, Exelon completed an uprate at Peach Bottom Atomic Power Station in Pennsylvania, which added 276 MW of zero-carbon generation to the resource mix in the PJM region, displacing over two million short tons of CO₂ annually. Additionally, Seattle City Light has been "operating an aggressive conservation program for more than thirty years," and has reached net CO₂ emissions neutrality by serving residents

See, e.g., Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals, 76 Fed. Reg. 48,207, 48,272-73 (Aug. 8, 2011).

See, e.g., Joint Comments on EPA's Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, Docket ID No. EPA-HQ-OAR-2013-0602 (Dec. 1, 2014); Joint Comments on EPA's Proposed Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, Docket ID No. EPA-HQ-OAR-2017-0355 (Apr. 26, 2018); Joint Comments on EPA's State Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units Advance Notice of Proposed Rulemaking, Docket ID No. EPA-HQ-2017-0545 (Feb. 26, 2018).

¹² Comments of Los Angeles Department of Water and Power, Docket ID No. EPA-HQ-OAR-2013-0602 (Dec. 1, 2014).

Comments of Austin Energy, Docket ID No. EPA-HQ-OAR-2013-0602 (Dec.1, 2014).

¹⁴ PG&E Clean Energy Deliveries Already Meet Future Goals (Feb. 20, 2018) available at: https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20180220_pge_clean_energy_deliveries s already meet future goals.

¹⁵ Comments of Exelon Corporation, Docket ID No. EPA-HQ-OAR-2017-0545 (Feb. 28, 2018).



and businesses primarily though "low cost, reliable, non-emitting hydropower." National Grid has been, and continues to be, a national leader in the deployment of energy efficiency programs, and "believes strongly that energy efficiency strategies and technologies are an achievable and cost-effective means to reducing carbon emissions nationwide." Each of these investments, as well as others that have helped reduce our sector's CO₂ emissions, have been implemented while maintaining affordable and reliable electricity for consumers.

EPA's proposed determination that HRI at fossil fuel-fired steam generating EGUs are BSER fails to reflect the nature of the power sector and the much greater and cost-effective emission reductions achieved through generation shifting, and as a result, cannot represent the *best* system of emission reduction for those units. Therefore, EPA's proposed approach does not meet the statutory requirements of BSER. Even recognizing that the electric sector has already achieved significant emission reductions relative to the CPP under existing market forces, EPA's Regulatory Impact Analysis (RIA) for the ACE proposal projects emission increases in 2030 relative to the emission reductions anticipated under the CPP. For example, by 2030, EPA estimates that the proposed rule would increase CO₂ emissions from 47 million to 61 million tons compared to the CPP.

BSER should not be interpreted to preclude generation shifting, which is the system that most cost-effectively reduces emissions, reflects the nature of the sector being regulated, and that is broadly used by power companies and states to reduce emissions as noted above. BSER should reflect the best that power companies can do to reduce emissions. This can include the application of a technology or operational change in the facility's utilization. As a result of the interconnected grid and the cost advantages of natural gas and renewable generation, with a reduction in the utilization of higher-emitting units, there will be an increase in the utilization of lower- or zero-emitting units to meet total electricity demand and a reduction in GHG emissions.

Including generation shifting in BSER is consistent with the statutory language of the Act. BSER that reflects generation shifting can: meaningfully reduce emissions; be of reasonable cost; and encourage technology development. It is flexible, ensuring that any impacts on energy (or reliability needs) can be managed. Furthermore, generation shifting has been adequately demonstrated to reduce emissions from affected sources. Thus, it best fulfills the statutory criteria—it achieves meaningful emission reductions considering cost and is adequately demonstrated. (C-2)

II. EPA's proposed approach for the emission guidelines fails to satisfy EPA's obligation under the Act to identify a BSER and has the potential to lead to market distortions and higher emissions. (C-7, C-9, C-14, C-65)

EPA's proposal for BSER is a list of candidate technologies of HRI measures that states could use to establish standards. The stated HRI technologies in and of themselves do not clearly lead to an emissions reduction. Listing technologies for states to consider does not satisfy EPA's obligation to identify a BSER. Rather, EPA is delegating that obligation to states, which is inconsistent with Congress's intent.

¹⁶ Comments of Seattle City Light, Docket ID No. EPA-HQ-OAR-2013-0602 (Dec. 1, 2014).

¹⁷ Comments of National Grid, Docket ID No. EPA-HQ-OAR-2013-0602 (Dec. 1, 2014).

See, Clean Air Act, § 111(d), 42 U.S.C. § 7411(d); Massachusetts v. Environmental Protection Agency, 549 U.S. 497 (2007).



Further, because EPA has neither identified a BSER nor the emission reduction achievable through that system, EPA is creating an extremely difficult task for states to establish legally sound standards of performance that must reflect a "degree of emission limitation" achievable through the BSER. (C-7) We are also concerned for similar reasons that the proposed changes to section 111(d) implementing guidelines would apply in other contexts. EPA is obligated under the statute to identify the "best system of emission reduction" and the emission reductions that are possible through application of that system. Through this process, EPA ensures a consistent level of environmental performance across states and avoids potential market distortions that could result from states imposing divergent requirements.

Additionally, we are concerned that EPA's proposed approach will require states to spend significant resources to identify a BSER for each affected source and to design and implement state plans—plans that ultimately will not achieve meaningful emissions reductions. EPA's proposed rule sidesteps the cooperative federalism contemplated by the Clean Air Act because it fails to include a minimum performance level that enables states to design compliance plans, which may require more stringent reductions, to address state-specific goals. Instead, the proposed rule may lead to a perverse outcome by incenting states to design plans that achieve very few emission reductions, even in the face of alternative cost-effective reduction opportunities. This outcome is counter to *Massachusetts v. EPA* and EPA's obligations under the Clean Air Act to reduce emissions. We are concerned that EPA's approach will require states to spend resources to develop plans that do not actually achieve an environmental objective. (C-7)

Furthermore, states could impose significantly different requirements for two similarly situated plants leading to adverse emission and market outcomes. For example, if similar units in the same market but in different states face different standards, a unit facing a less stringent standard may be dispatched more, leading to higher emissions and market distortions than if both units were similarly regulated. This result will invite litigation over each state plan and unit BSER determination, which will create significant uncertainty for the electric sector and potentially increased costs for each generator and customers. Thus, we urge EPA to ensure that BSER avoids such potential market distortions. (C-14)

We also have significant concern regarding the potential rebound effect that could result from EPA's proposed HRI approach. (C-9, C-65). In its modeling of the proposed ACE rule, EPA used just over 500 "model plants" in IPM to represent the nearly 700 existing coal-fired electric generating units in the U.S. In EPA's modeling output, as shown in the graphic below, of the model plants that generated any electricity in 2030 and 2035 (approximately 360) about 18 to 30 percent are projected to have their emissions increase under the proposed rule compared to a scenario not requiring HRIs. This outcome has the potential to occur because HRI requirements reduce the amount of coal required by a coal plant to produce each unit of electricity. This higher fuel efficiency translates into a lower marginal or variable production cost for the coal plant, all else remaining equal. Because power plants that cost less on the margin to operate are selected—or dispatched—first, followed by progressively more expensive resources

¹⁹ IPM combines several existing electric generating units with similar characteristics into a single "model plant." These model plants are then used to simulate the power sector. For each electric generating unit type, there are fewer model plants in IPM than there are actual electric generating units in the U.S. In EPA's IPM Platform v6, the version used for modeling the proposed ACE rule, about 22,000 actual existing U.S. electric generating facilities are represented by just under 6,000 model plants. See Documentation for EPA Platform v6 Section 4.2.6 for a more detailed discussion.



until all demand is satisfied, the lower a coal plant's marginal cost, the more it will be used to produce electricity.

Importantly, this analysis does not take into account a second aspect of rebound, which is increased longevity of coal-fired power plants once investments are made in heat-rate improvements due to the need to recoup the investment. Given the limited emission reductions that heat-rate improvements can achieve, this longevity rebound has the potential to quickly reverse any emission reductions secured through heat-rate improvements and lead to overall mass emission increases. EPA should undertake an analysis to evaluate the extent of longevity rebound before including a requirement for HRI in any final rule.

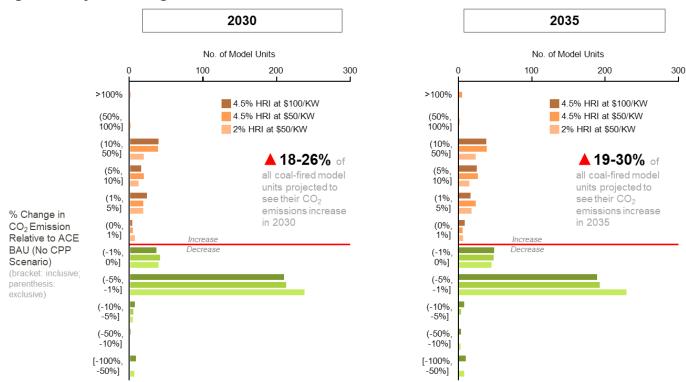


Figure 1. Projected Changes in CO₂ Emissions of Model Coal-Fired Plants

A BSER that is determined unit-by-unit for which modeling demonstrates that units may *increase* their emissions fails to satisfy the requirement of BSER to be the *best* system of emission *reduction* and is inconsistent with the Clean Air Act. This potential outcome further demonstrates that EPA's definition of BSER must reflect industry practices in addition to HRI in order to capture the opportunities by the sector to meaningful reduce CO₂ emissions.

III. States should retain the authority to implement compliance flexibility measures.

Form of the Standard (C-15). In any final rule, states should have the discretion to use a mass-based compliance approach provided they can demonstrate it is equivalent or more stringent than EPA's BSER. Mass-based targets provide a clear objective for states as they evaluate the implications of the rule and ensure emission reductions are achieved. Mass-based regulatory approaches have been shown to be



highly effective in addressing conventional air pollutants emissions, including the NOx SIP Call program and Acid Rain trading program, as well as GHG emissions. Thus, we urge EPA to encourage states to utilize such an approach, if desired.

Consideration of Remaining Useful Life (C-22, C-24, and C-25). While states should be able to consider remaining useful life given the language of section 111, EPA should ensure that states not use that consideration as a justification to not require emission reductions consistent with the BSER. States can consider remaining useful life as a means to evaluate appropriate compliance flexibility—which could involve a firm commitment to retire a unit earlier than otherwise planned and thereby ensure the overall emission reductions are consistent with BSER.

Trading (C-26, C-28 through C-33, C-40, and C-41). When BSER reflects industry trends and practices that will reduce emissions and achieve meaningful emission reductions, trading is essential to ensure the opportunities throughout the system can be captured at least cost to customers. However, under EPA's limited definition of BSER, the emission reduction opportunities are constrained unnecessarily.

Our companies and others have demonstrated the benefits of trading (e.g., RGGI, California, and Acid Rain Program). Studies of trading systems have shown that significant emission reductions can be achieved at a lower cost. Trading has allowed our companies to capture least-cost reduction opportunities, which allows lower compliance costs and impacts for our customers. Flexibilities such as banking have enhanced the cost effectiveness of trading programs by allowing companies to choose to make early reductions and use the associated allowances later in the future when reductions are only available at higher costs. Moreover, EPA has found that trading can enable greater emission reductions than a technology-based standard that individual sources would have to achieve independently. As noted above, for CSAPR, EPA evaluated a "direct control" approach that would have set emission limits on individual sources without allowing trading, but ultimately concluded "that the direct control alternative would result in fewer emission reductions and higher costs compared to [a trading-based approach]." Similarly, for the Regional Haze program EPA required states to show that trading would achieve greater overall reductions than individual sources installing "best available retrofit technology." Trading allowed EPA to issue a more stringent and cost-effective rule, and the Tenth Circuit upheld the regional haze trading program in 2014.

A BSER that facilitates trading allows a state and operator to recognize the "remaining useful life" provisions of 111(d) by providing units the option of purchasing allowances to continue to operate without pursuing emission reduction measures. Thus, we disagree that allowing trading and "remaining useful life" could be viewed as superfluous when EPA defines BSER to reflect how the industry operates and the emission reductions that can be achieved by the sector. (C-26). Rather, trading and consideration of remaining useful life are complementary when a BSER is defined to reflect the opportunities associated with trading.

²⁰ 76 Fed. Reg. at 48,273.

²¹ 40 C.F.R. § 51.309.

²² WildEarth Guardians v. EPA, 770 F.3d 919, 923 (10th Cir. 2014).



Further, EPA states in the proposed rule that under a trading program, a single source could potentially shut down or reduce utilization to such an extent that its reduced operation generates adequate compliance instruments for a state's remaining sources to meet their standards of performance without implementing any additional measures at any other source. For CO₂, a global pollutant, that result is the exact opportunity that BSER should reflect. Such an opportunity benefits our customers by ensuring the least cost emission reduction is achieved. EPA's proposed approach fails to reflect this best system of emission reduction for the electric sector. (C-34) At the very least, it is important that companies be able to average among multiple sources subject to the same state plan, and that the potential for such averaging to be taken into account in delineating the emission reductions achievable under the BSER. (C-29, C-33)

More Stringent State Approaches (C-17 and C-18). The Clean Air Act's cooperative federalism framework allows states to require more reductions than the minimum requirements required by the Act. States that have adopted GHG reducing programs that have and will continue to achieve greater CO₂ emission reductions by deploying more effective systems of emission reductions, such as RGGI or California's cap-and-trade system, should be deemed presumptively compliant. Under both programs, which by design provide a market-based incentive for the deployment of least cost emissions reducing strategies, HRI measures would be deployed as compliance strategies in order to reduce a unit's allowance obligation where they are cost-effective. Therefore, programs that can demonstrate that they will achieve greater emission reductions reflecting what is possible under a more effective system of emission reduction should be deemed compliant. Importantly, as noted above, this broader suite of cost-effective measures should form the basis for EPA's BSER determination.

We appreciate the opportunity to comment on this proposed rule and look forward to continuing to constructively engage with EPA on this rulemaking. Our companies also urge EPA to continue an open and thorough stakeholder process supported by ongoing internal and external analysis. A regulatory process that allows regulators to constructively engage stakeholders is more likely to result in emission reductions regulations that achieve meaningful emission GHG reductions while also reflecting and benefiting from industry practices. For example, the current RGGI program design is based on a robust stakeholder process and targeted economic analyses to allow regulators to develop and revise the program based on new industry information and conditions as well as stakeholder feedback and input. Similarly, in developing the CPP, EPA initiated numerous listening sessions and stakeholder meetings to develop a proposed, and ultimately final, rule that reflected many industry practices and trends. A regulation under section 111 of the Clean Air Act that is designed to reflect the *best* system of emission reductions would similarly benefit from this engagement, and we urge EPA to undertake the analysis and input to develop such a rule.

If you have any questions, please do not hesitate to contact me or Carrie Jenks at cjenks@mjbradley.com.

Sincerely,

Michael Bradle President

M.J. Bradley & Associates LLC