

Comments of Sierra Club and Earthjustice on the Clean Power Plan

EXECUTIVE SUMMARY

I. Introduction

Global climate change is the biggest environmental, social, and political challenge of our time. Unless we act swiftly and immediately to curb emissions of heat-trapping pollutants, especially carbon dioxide (“CO₂”), we will be unable to mitigate the worst of effects of this crisis: rising sea levels, mass plant and animals extinctions, an increasing scarcity of crucial natural resources, a greater frequency of extreme weather events, the spread of toxins, pests, and pathogens, widespread displacement of peoples, and unprecedented social upheaval. Fossil fuel-fired power plants, or electric generating units (“EGUs”), are the single largest source of CO₂ emissions in the United States and represent a significant percentage of global emissions. Any strategy to minimize the impacts of climate change must address CO₂ emissions from fossil fuel-fired EGUs in the United States.

We applaud EPA for proposing the Clean Power Plan (“CPP”), which represents the first direct limitations on CO₂ emissions from the U.S. electric sector. The CPP comes at a critical moment in the fight against climate change. The United States and China, the world’s two biggest carbon polluters, recently announced a joint agreement to cut CO₂ emissions significantly over the next decade and a half. For the U.S. to be a climate leader on the world stage and meet its international commitments, the CPP and similar efforts are crucial. The domestic electric sector is also undergoing a major shift away from coal-fired generation in favor of lower-emitting resources, with wind and solar generation experiencing rapid growth and a steep decline in costs. The CPP both reflects the changing nature of the utility sector and helps advance the momentum toward cleaner generation that already exists.

The combination of four building blocks that constitute EPA’s proposal—heat rate improvements at coal-fired EGUs, reduced utilization of coal plants in favor of lower-emitting sources, increased development and use of non-emitting resources, and energy efficiency investments—is cost-effective, technically achievable, and well-tailored to reflect the complex and interconnected nature of the electric system. As such, EPA’s plan is an appropriate exercise of the agency’s authority under section 111(d) of the Clean Air Act. However, the urgency of the climate crisis and the imperative for the U.S. to lead global efforts to reduce climate pollution demands stronger action. EPA must strengthen the CPP and ensure that the rule is maximally effective.

In our comments, we discuss the rule’s legal ramifications and propose a suite of improvements to achieve greater CO₂ reductions. We also address a number of additional topics, including compliance and enforcement issues in state plans, environmental and economic justice considerations, grid reliability, and others.

II. EPA's Obligations Under Section 111(d)

Section 111(d) of the Clean Air Act directs EPA to issue emission guidelines for existing sources of air pollution that endanger the public health or welfare once EPA has issued new source standards for that pollution under section 111(b). States then implement EPA's guidelines through federally approved plans, which include performance standards for covered sources of pollution. These standards must reflect EPA's determination of the best system of emission reduction, or "BSER," that is adequately demonstrated, taking into account the energy requirements and non-air environmental impacts of affected sources. While the statute also requires EPA to consider costs associated with BSER, courts will not reject a BSER determination on economic grounds unless it entails costs that are "exorbitant" and would effectively cripple the regulated industry.

EPA has proposed two alternative approaches for determining the BSER. We offer additional support for EPA's second approach—BSER as the combination of building block 1 plus the reduced utilization of affected sources, quantified in specific amounts from the measures comprised in building blocks 2, 3, and 4. Specifically, the amount of generation from the increased utilization of natural gas combined cycle ("NGCC") units (building block 2) would determine a portion of the amount of reduced generation from affected fossil fuel-fired steam EGUs, and the amount of generation from the use of renewable energy and avoided emissions through demand-side energy efficiency (building blocks 3 and 4) would determine a portion of the amount of the generation reduction for all affected EGUs—both coal-fired steam EGUs and NGCC units. Under this approach, enforcement would be simpler and more straightforward because affected sources would be accountable for the required emissions reductions.

CO₂ emissions reductions at fossil fuel-fired EGUs can be achieved by reducing both the EGU's emission rate and its electricity output. Heat rate improvements at affected EGUs are aimed at reducing these sources' emission rate; redispatch to existing and under construction NGCC units, renewable energy, and demand-side energy efficiency are aimed at reducing affected sources' output and thus their overall mass CO₂ emissions. All of the emission reductions measures under consideration, whether implemented directly at the affected source or beyond the source, translate into emissions reductions *from* such sources. The measures under the four building blocks are effectively "at the unit" measures that reduce affected EGUs' utilization, because these measures are being and can be implemented or sponsored by owners and operators of affected sources. EPA should therefore set the stringency of the emission guideline based on the complete universe of those measures.

Even though EPA's proposal contemplates including both fossil fuel-fired units and stationary combustion turbines in a single category (codified under a new Subpart UUUU), failure to include oil- and gas-fired ("O&G") steam EGUs and NGCCs in building block 1 implies that these units are not subject to emission reduction requirements. Therefore, we urge EPA to incorporate O&G steam EGUs and natural gas-fired units, both NGCCs and simple cycle combustion turbines ("CTs"), in building block 1, and to reformulate its BSER approaches accordingly. Under EPA's second BSER approach, the BSER would include, first, building block

1—heat rate improvements (and other capital investments such as turbine blade replacements) on all affected fossil fuel-fired EGUs, and second, a reduced utilization component. The reduced utilization component would comprise limiting the dispatch of fossil fuel-fired steam EGUs by the amount of available existing NGCC capacity in 2020, and thereafter limiting the dispatch of all fossil fuel-fired EGUs by the amount of available renewable energy and energy efficiency.

In the sections that follow, we establish that each of EPA’s proposed BSER building blocks, if strengthened in the ways that we suggest, are adequately demonstrated and will not impose unreasonable costs on the U.S. electric power generation industry. We note, however, that EPA is not proposing that each of the measures in its proposed system of emission reductions be met. Instead, EPA proposes a formula that identifies one low cost mix of measures that can achieve significant emission reductions and proposes to allow sources, states and groups of states flexibility in achieving equivalent reductions. It is this objectively determined formula that must meet the statutory tests described above.

III. The Building Blocks

A. Block 1: Heat-Rate Improvements

Heat-rate improvements (“HRI”) at individual fossil-fired units are a cost-effective and well-demonstrated method of reducing CO₂ pollution. Through enhanced operation and maintenance (“O&M”) practices and targeted equipment upgrades, plants can reduce the amount of fuel needed to generate each megawatt-hour of electricity, thus reducing CO₂ emissions. EPA expects that coal-fired EGUs can achieve a six percent reduction in emission rates (a figure it admits is conservative) through a combination of O&M improvements and equipment upgrades. However, Sierra Club conducted a study of 52 randomly-selected coal plants and determined that simply by meeting their best historical performance averaged over a one-year period, coal plants can achieve at least a six percent HRI through O&M practices alone. Equipment upgrades add an additional four percent HRI, and the data indicate that few units have already undergone the kinds of upgrades associated with the largest reductions. Therefore, EPA should revise Block 1 to assume a ten percent rather than six percent emission reduction through HRI at coal plants.

As noted above, we also urge EPA to include HRI at O&G steam EGUs and NGCCs in its Block 1 reductions. Our data illustrates that O&G steam units can benefit from the same kinds of O&M and equipment upgrades that would reduce emissions from coal plants. While NGCCs tend to be better operated than steam EGUs, there are still cost-effective equipment upgrades available that will reduce CO₂ emissions from these facilities. Finally, EPA should cover CTs and all other fossil-fired EGUs in the CPP, regardless of capacity factors or function.

B. Block 2: Redispatch of Coal-Fired and O&G Steam Units

Under Block 2, EPA calculates the emission reductions that could be achieved by reducing dispatch of coal-fired and O&G steam EGUs in favor of other resources. Specifically,

the agency determines the amount of unused NGCC capacity that is available in each state up to a 70 percent utilization rate, then calculates the amount of coal and O&G steam generation that could be reduced if the state were to use that excess NGCC capacity for baseload generation. Reduced utilization of coal- and O&G-steam units is an appropriate element of BSER, since it is achievable, technically demonstrated, and economically reasonable.

We have serious concerns about gas-fired generation. Not only does natural gas combustion generate large quantities of CO₂, it produces significant upstream methane emissions that partially—and perhaps entirely—offset the climate benefits that might otherwise accrue from reducing coal combustion. Furthermore, the extraction of natural gas, especially through unconventional methods such as hydrofracking and tight-gas extraction, have significant water quality and land use impacts.

However, EPA is clear that Building Block 2 does *not* mandate redispatch from coal to gas. Rather, it simply quantifies the emission reductions that *could* be achieved through coal-to-gas switching and leaves it up to the states to achieve these reductions in whatever way is feasible. Moreover, Block 2 represents an effective proxy for the reductions available to the electric sector through coal plant retirements. Coal-fired EGUs have been retiring at a swift clip in recent years, a trend that economists predict will continue apace over the next decade. Although the CPP's emission targets do not directly address coal retirements, Block 2 is premised on curtailed use of coal-fired electricity and the emission reductions it quantifies are roughly tantamount to those that can be expected from retirements during the plan's timeframe.

Emission reductions calculated under Block 2 can be increased if the following three changes are considered. First, EPA must account for near-term coal retirements in its target-setting exercise under Block 2. The agency's goal calculations include data from coal plants that have either retired in 2012 or will have retired by the time the compliance period begins. There is no justification to include these units in the goal calculations, and removing them would ensure that the coal fleet actually in existence as of 2020 will reduce its emissions accordingly. To achieve this, EPA should recalculate its state goals at the time each state submits its plan to the agency. Second, EPA's current approach reduces dispatch of coal-fired EGUs (on the one hand) and O&G steam units (on the other) in proportion to their existing ratios of generation. Instead, the agency should revise its formula such that the higher emitting source group is displaced first, and the lower-emitting group is curtailed only if there is additional NGCC capacity after coal is entirely displaced. Third, the current proposal calculates redispatch on a state-to-state basis. This produces differences among the states based on the amount of available NGCC capacity from one state to the next. If EPA were to organize the states into redispatch regions, it would smooth out these disparities and provide for greater reductions, while also reflecting with greater accuracy the interstate nature of the electric sector.

C. Block 3: Increased Utilization of Renewable Energy

We strongly support the use of renewable energy (“RE”) as an element of the CPP. Zero-carbon resources—particularly onshore wind, utility-scale solar, and distributed photovoltaic (“PV”) solar—have been generating electricity for decades and have experienced dramatic price decreases over the last decade, with the steepest reductions occurring in the last few years. These resources are at or near price parity with fossil generation in many areas of the country and continue to exhibit very rapid growth in market penetration. Although there is some uncertainty about the future of certain tax incentives that have benefited renewable resources in recent years, such as the production tax credit and the investment tax credit, we expect that wind and solar will remain competitive products into the foreseeable future through robust financing mechanisms, research and development gains, and regulatory pressure through the CPP and other state and federal programs.

RE is therefore an appropriate—and crucial—component of BSER. In fact, we believe that EPA has significantly underestimated the extent of RE penetration that is achievable nationwide and in individual states. Building Block 3 currently sets state-level renewable goals by calculating regional averages of the renewable portfolio standard (“RPS”) targets in states that have such programs. It then determines the amount of yearly growth needed in each state to meet that regional average. The agency has proposed an alternative formulation for Block 3 that bases the state RE targets on the lesser of two values: 1) a national benchmark that calculates the development of different renewable technologies in 16 leading states as a percentage of those states’ resource-specific technical potentials; and 2) the results of integrated planning model (“IPM”) runs calculating the market potential in each state for different renewable resources based on development cost reductions.

Both of EPA’s approaches must be improved. The primary approach assumes that an average RPS target represents a reliable RE potential for states in that region, when, in fact, this target merely reflects the political will that states in each region have thus far exerted toward RE development. Hence, a region such as the Southeast has the lowest average of all regions (based on the RPS of just one state), even though it has an above-average technical potential for renewable generation. Furthermore, the regional RPS averages generate RE targets for many states under Block 3 that actually fall below the legally-enforceable RPS goals in those states. In addition to a number of flawed assumptions that result in truncated targets, the Block 3 calculations are based on the unfounded assumption that RE generation will remain constant between 2012 and 2017. As for the alternative approach, it selects without justification the *lesser* of the two calculated benchmarks for each state. It also assumes a qualitative equivalence between the two benchmarks, even though IPM modeling offers a much more analytical and input-based estimate of a state’s renewable potential than the alternative, which is based on a rather simplistic ratio of development-to-technical potential for different technologies using a single year’s data. And even the IPM-modeled benchmarks suffer from a paucity of data for many resources and outdated cost assumptions that significantly underestimate the market potential for various renewable resources.

To improve Block 3, EPA has a number of options available. First, it could retain a regional RPS-based approach but correct the flaws we identified above and establish an appropriate RE “floor” that each state must achieve regardless of the regional RPS average. Second, it could conduct a new round of IPM modeling using the best and most updated cost assumptions and resource-specific data to determine the true RE market potential in each state. The Natural Resources Defense Council (“NRDC”) has sponsored its own analysis of Block 3 using IPM modeling that corrects many of the errors in EPA’s proposal, and we urge the agency to consider closely the results of NRDC’s study. Finally, the Union of Concerned Scientists (“UCS”) has proposed a feasible and effective approach to Block 3 that would nearly double the amount of renewable generation achieved through the CPP relative to either of EPA’s approaches. The UCS model would require states to maintain (starting in 2017) the level of RE growth they achieved between 2009 and 2013. It would also establish an annual growth floor of 1.0 percent and annual growth ceiling of 1.5 percent, as well as a total statewide ceiling of 40 percent market penetration. We are confident that with available financing mechanisms, rapidly declining costs of renewable technologies, and appropriate regulatory pressure, states will have little trouble sustaining a consistent level of RE growth between 2017 and the end of the CPP compliance period.

Given the complex, interstate nature of the electric system, there are numerous questions with regard to *how* states and sources should receive credit for renewable generation and *what* they should receive credit for. First, we recommend that EPA use the avoided MWh approach rather than the avoided CO₂ approach for computing the compliance formula. While the latter may in theory provide a more accurate picture of the environmental benefits of RE, it requires dispatch modeling for which the necessary data is not available, whereas the former is far simpler and more transparent, permits greater upfront planning, and allows for methodological consistency with existing programs. Second, the agency should grant RE credit to states that incentivized the development of the RE, regardless of where the RE is located and the electricity is consumed. This will help encourage RE development and will maintain consistency with most RPS programs.

Next, we urge EPA to establish methods to prevent double-counting with regard to RE generation that crosses state lines and to address some of the complexities associated with renewable energy credits (“RECs”), which are likely to be important compliance tools. While we believe that double-counting is not an inherent feature of the rule, the agency must remain vigilant against it, requiring states to comprehensively track and verify the amount and source of the RE they intend to use in their compliance demonstration. Finally, in terms of resources that should qualify as RE, we support distributed solar generation, utility-scale solar, and wind power. We also support the development of new small-scale hydropower for compliance purposes, although we agree that hydropower should not be included in the target-setting, since this would distort the RE goals in certain regions. Similarly, we oppose biomass for both goal-setting and compliance. This resource is associated with significant CO₂ emissions as well as other environmental impacts. Should EPA include biomass in its formula or permit it for compliance purposes, it must conduct a rigorous analysis of the true CO₂ emissions from these sources and solicit additional comments.

D. Block 4: Increased Use of Energy Efficiency

Energy efficiency (“EE”) is the lowest-cost method of reducing CO₂ emissions and is generally the first resource to dispatch to the grid. EE measures have been in place for decades and have many benefits apart from carbon reduction: they ease pressure on the grid and help ensure reliability, they save consumers money on electricity bills (and operators on fuel costs), and they reduce criteria pollutant emissions as well as upstream impacts from fossil fuel extraction, processing, and transmission. EE is therefore a *sine qua non* of any national program to reduce CO₂ from the electric sector, and EPA has rightly included it as an element of BSER in Building Block 4.

The agency’s “best practice” approach to Block 4 assumes that states can sustain annual incremental EE gains of 1.5 percent per year of retail electricity sales during the compliance period. Higher-performing states will begin at the 1.5 percent annual incremental rate beginning in 2020, while lower-performing states will begin ramping up their EE investment starting in 2017, hitting 1.5 percent no later than 2025. These goals are well-supported and achievable in a cost-effective manner in all fifty states. Eleven states already have enforceable programs requiring 1.5 percent or greater by 2020, and three states—Arizona, Maine, and Vermont—already achieved savings greater than 1.5 percent in 2012. Those states that have not thus far achieved significant savings through EE will have little difficulty achieving the 1.5 percent rate by the date expected under Block 4, since those are the states in which the lowest-hanging fruit still remains.

EPA’s approach to Block 3 is a sensible and effective strategy for reducing CO₂ emissions, although research suggests that savings greater than 1.5 percent annually may be appropriate. We offer two modifications that will strengthen Block 3. First, EPA should remove the 1.5 percent ceiling for those states that already have enforceable EE requirements that exceed that figure for 2020 or earlier. The agency should not lower the bar below the commitments that states have already set for themselves. Second, for net-importing states, EPA calculates the number of “negawatt-hours” associated with Block 4 according to the percentage of electricity sales originating from in-state generators, rather than all retail sales. It does not, however, correspondingly *increase* the savings that are expected of net-exporting states, since states cannot control consumer behavior beyond their borders. Yet Building Block 4 merely specifies the EE savings that are available in each state, and it is both feasible and fair to expect states to reduce their own in-state generation in response to reduced electricity demand through EE, rather than shifting some responsibility for curtailing generation onto exporting states. Notably, this approach will not actually add any burden to importing states that meet their EE targets, since they will receive full credit for their negawatt-hours, rather than reduced credit under EPA’s current proposal. Together, these modifications to Block 4 will produce significantly greater emission reductions than under the agency’s current model.

With regard to Block 4 compliance, EPA has offered strong guidance in its CPP preamble and technical support documents, and we offer a number of additional suggestions. The agency

should first issue comprehensive guidelines or requirements for evaluation, measurement, and verification (“EM&V”) procedures, which states will use to ensure that their EE measures are, in fact, achieving CO₂ emission reductions. We also urge EPA to develop guidelines for determining the proper lifespan of an EE measure or program, and to assist states in developing REC-like mechanisms for EE credits, which have not yet gained widespread use. As noted above, we believe states should receive credit for 100 percent of the savings achieved through in-state EE measures, regardless of where the emission reductions occur. Finally, because we believe that EGU owners and operators should bear the full responsibility for emission reductions under the CPP, we urge EPA to give credit only to those EE measures that an EGU owner/operator can play a role in implementing. While this would encompass the kinds of EE programs sponsored by utilities or private parties such as industrial entities, it would not include building codes or appliance standards. We support strong building codes and appliance standards, but we do not believe they are appropriate compliance mechanisms under the CPP.

IV. State Plan Considerations

A. Affected EGUs Must Be Legally Responsible for All Emission Reductions

In line with the Clean Air Act’s requirements, EPA must ensure that state plans impose all of the responsibility for the required emission reductions on owners and operators of affected EGUs. State plan requirements must also be federally enforceable against affected sources, by EPA and through citizen suits. States that follow a rate-based protocol will need to include a mechanism that adjusts the emission rates of individual sources according to reductions achieved through EE, RE, and other measures apart from on-site HRIs. This mechanism could be a trading system for RECs and other emission reduction credits, or it could be a program through which the state administratively allocates emission reduction credits across the fleet of affected sources.

B. Rate-to-Mass Conversions

A key feature of the CPP is that states may choose either rate-based or mass-based compliance scenarios. It is critical that any mass-based target generate equivalent emission reductions to its corresponding rate target designated by EPA. We propose three guiding principles for any state converting a rate-based goal to a mass-based one. First, rate and mass are related to one another through a simple formula: mass equals rate times generation. Second, “generation” here refers to a state’s regulated generation for each compliance period. By “regulated generation,” we simply mean any electricity that could be added to a state’s denominator when determining compliance with the rate (megawatt-hours from existing fossil and RE generation, and negawatt hours from EE measures). Any state wishing to include EE and RE in its rate-to-mass conversion will need to provide the same level of EM&V rigor that would otherwise be included for compliance in a rate-based scenario. Third, mass-based states will, at the outset, project their electric load for each compliance year, but must update those projections during the compliance period to reflect the true quantity of regulated electricity generated in that year. This annual “true-up” will ensure that states are neither penalized in

their mass targets for having underestimated electric demand from regulated units nor given a windfall for having overestimated demand. It is also necessary to ensure that a state's retired units are not later included in the pool of regulated generation, artificially raising its mass cap. EPA did not address this necessary true-up in its technical support document discussing rate-to-mass conversions, and should reject any mass-based plan that does not include it.

C. Compliance and Enforcement Issues for State Plans

EPA must strengthen the CPP to ensure strict compliance with the rule's emission targets. First, the agency must require actionable corrective measures in every state plan, set appropriate minimum thresholds and standards for the adoption, activation, and implementation of these measures, and require states to report publicly the causes of any performance deficiency that triggers corrective action. Second, state plans must assess individual EGU compliance over a period of no more than one year, and states should be required to submit annual, public reports to EPA on the status of their emission reduction progress. Third, EPA should not permit sources to estimate emissions through fuel consumption calculations, but must require continued monitoring emissions systems at *all* EGUs. Affected EGUs should also be required to submit engineering analyses and reference method test results for any compliance measures they wish to use to meet enforceable emission limits. This is necessary to ensure that the selected measures are, in fact, effective. Lastly, EPA must strengthen record retention requirements and ensure that facilities maintain all records onsite.

With regard to state plan approval, EPA should clarify that it will issue a federal implementation plan for any state that lacks an approvable plan of its own within six months after the submission deadline. The agency should also make approval of state plan contingent on the state's adequate demonstration that it possesses not only the legal authority to enact and enforce the plan, but the resources necessary to implement it as well. EPA must amend its proposed regulations to ensure that the state plans include emissions standards that are enforceable by citizens. Finally, EPA should abandon the option of conditional plan approval. If a plan is not adequate at the time a state submits it, the agency should simply reject it and require the state to submit a proposal without deficiencies if it wishes to avoid a federal implementation plan.

V. Environmental Justice Considerations

Minority and low-income communities bear disproportionate health and socio-economic risks from climate change. In the United States, these communities often live near dirty power plants and other large industrial facilities, and also in areas vulnerable to climate change impacts such as sea-level rise. As climate change worsens, environmental justice communities will spend higher proportions of their income as a result of rising food prices or increased water scarcity. To ensure that these communities receive the benefits of the CPP, EPA must address not only overall carbon emissions reductions, but also co-pollutant implications and local communities' growth. EPA must ensure that, first, these communities do not experience increased levels of pollution as a result of the implementation of measures that

increase the utilization of certain affected sources. Second, these communities must benefit from the positive environmental and health effects that will result from the decreased utilization of dirty power plants and the development of renewable energy generation.

In order to properly integrate environmental justice concerns into the CPP, EPA must prepare an environmental justice analysis of the rule, as required under Executive Order 12898. To this end, EPA should require states to conduct an environmental justice analysis as a component of state plans. This analysis will help to ensure that the different compliance measures selected by states under their plans do not cause adverse impacts, and actually benefit minority and low income populations. EPA must also ensure that state agencies that receive federal funding under Title VI of the Civil Rights Act under state plans comply with their obligation not to discriminate on the basis of race, color, or national origin. In the final rule, the agency also needs to make clear that emission standards that would allow uncontrolled or poorly controlled emissions from individual sources are not permissible as Section 111(d) emission guidelines for pollutants with localized health and environmental impacts. Finally, to the extent that the CPP allows states to comply through trading of RECs or CO₂ allowances, EPA must establish guidelines for states to effectively integrate environmental justice concerns into the design of these programs in a manner that restricts trading practices that could exacerbate hotspots and that provides for investments in clean energy and the revitalization of these communities.

VI. Economic Justice Considerations

Investments in energy efficiency and renewable energy to comply with the CPP will produce major additional benefits throughout the U.S. economy, making the clean energy economy a major new engine of U.S. job creation. Renewable energy has become cost competitive with fossil fuels, including coal, oil, and natural gas, as well as with nuclear power. In addition to reducing carbon emissions, the ancillary benefits of the CPP—developing renewable energy, energy efficiency and a modernized, smart power grid—will, when combined with high road employment practices, create millions of good jobs for people who desperately need them, especially people from economically and environmentally distressed communities. States must take the driver’s seat in crafting compliance plans that expand renewable energy and energy efficiency, while also prioritizing the creation of good, clean energy jobs to promote state and local economic development and improve community and workers’ livelihoods.

There are clear environmental and public health benefits of replacing fossil fuels with energy efficiency and renewable energy. Jobs will be created with the CPP, but we cannot ignore the fact that some jobs will be lost and specific communities will be affected as we make the transition away from fossil fuels. The CPP state implementation process provides tremendous opportunities for state and federal policymakers to take concrete policy steps, through workers’ transition policies and funding mechanisms, to address the fears of low income and working class communities and union representatives in carbon-intensive sectors that a market-driven clean energy transition means economic insecurity for them. The

government has a key role in helping to drive a fair and just transition to a clean energy economy that will maximize investments in economic development, provide security to affected workers, and protect the tax base by creating lasting, good jobs in affected communities.

VII. Carbon Tax

EPA should amend the proposed regulations to clarify that states may use a carbon tax as a compliance mechanism. Numerous studies have demonstrated that a carbon tax is an effective means of reducing greenhouse gas emissions. A carbon tax is economically efficient and relatively easy to administer. Moreover, it provides revenue that can be used to offset electricity rate increases for low income households, to implement EE programs in low income communities, and to finance co-pollutant reductions in environmental justice communities.

VIII. Impacts on Upstream Emissions

While the CPP will undoubtedly achieve significant reductions in CO₂ emissions at the point of combustion, EPA must accurately account for any upstream impacts on greenhouse gas emissions that may result from the rule. Of particular concern is methane, a potent heat-trapping pollutant that far exceeds the global warming potential of CO₂ on both 20- and 100-year bases. During all phases of natural gas extraction (production, processing, transmission, storage, and distribution), methane is emitted by equipment leaks or intentional venting. These emissions partially—and, if high enough, entirely—offset the climate benefits of combusting natural gas instead of coal to generate electricity. Methane is also released during coal mining, when reservoirs previously trapped in ore seams are exposed to the atmosphere.

EPA predicts in its regulatory impact analysis (“RIA”), that while the CPP will increase gas production in the short term (leveling out over the long-term), it will reduce coal-mining enough such that methane emissions will decline from a business-as-usual scenario. We offer three important caveats to that prediction. First, given the magnitude of methane emissions associated with gas production (as well as the sizable quantities of CO₂ resulting from gas combustion), EPA must incentivize the use of EE and RE for plan compliance over gas-fired generation. Second, EPA must provide for a rigorous and proper accounting of the actual methane emissions associated with fossil fuel extraction. We are concerned that the agency’s Greenhouse Gas Inventory and other “bottom-up” analyses significantly underestimate the true quantity of methane in the atmosphere resulting from natural gas extraction. The agency must address the most recent research, including “top-down” atmospheric studies, and adjust its estimates accordingly. Third, EPA must act swiftly to directly regulate methane emissions from the oil and gas industry. Emissions from this industry *will* increase under the CPP (even if EPA is correct that overall emissions will decrease), and there is ample support for cost-effective regulations that will, in many cases, generate additional revenue for industry through conserved gas.

Furthermore, EPA assumes in its RIA that decreased coal generation will result in a proportionate reduction in coal mining. The agency must address the impacts that will occur if increased coal exports offset (either partially or wholly) the reductions that would otherwise occur in coal mining under the CPP.

IX. Reliability

Several grid operators and affiliated groups have raised concerns over the number of projected retirements of covered units the CPP may necessitate, and how such retirements would affect the “reliability” of the power grid. In particular, they have raised concerns that retirement of existing units will threaten the grid’s overall resource adequacy, its voltage and frequency stability, and its resilience against major grid disturbances.

The fact that these concerns were raised is not surprising: each time EPA undertakes rulemakings affecting the electric generating sector, naysayers cry that the lights will go out. The concerns are, however, both exaggerated and unfounded. Most of these same groups have been considering the grid impacts of retiring inefficient fossil fuel-burning power plants for years, and have responded by redesigning markets and transmission systems to accommodate renewable energy and other nontraditional power resources. As a result, we already know how to integrate renewable generation resources without disrupting the grid, by ensuring that the replacement resources also replace any essential reliability services that may be required (indeed, most new renewable facilities are already required to have this capability). Meanwhile, electricity storage systems and demand response programs, both of which have seen increasing use over the last several years, are well equipped to fill in any shortfalls that may arise.

In particular, we oppose two specific policy recommendations made by utilities and operators: first, to delay implementation of the CPP, which would further delay our necessary transition to new and cleaner power sources; and second, to include a “reliability safety valve,” which would in effect reward the utilities and affected EGUs who drag their feet by allowing them to continue emitting large amounts of greenhouse gases. These policy recommendations mirror similar recommendations made each time EPA suggests a new set of rules, but they are particularly unnecessary here because the CPP is if anything *more* responsive to potential reliability concerns than several other recent EPA rules. Unlike national standards that are imposed inflexibly on individual facilities, the CPP relies on a cooperative federalism model that allows states to design their plans to minimize disruptive impacts on the grid. We are therefore confident that states working in conjunction with regional grid operators will be able to ensure a smooth transition to a cleaner and more efficient power grid over the next five to fifteen years.

Finally, we join with these grid operators and other commenters in calling on EPA to encourage advanced planning for anticipated supply shifts, and especially to facilitate cooperation between states and regional and local grid operators when implementing the CPP. Although the grid restructuring necessary to support a shifting resource load is definitely

manageable, it will require advanced preparation, and EPA should support that work in whatever way it can.

X. Other Issues

A. The Symmetry Principle

EPA has expressed that it may allow states to use non-BSER measures for compliance purposes. If it does so, EPA must adhere to what we refer to as the “symmetry principle”: the stringency of the state goals must reflect the full set of measures that can be used to comply. Thus states should not be allowed to use non-building block measures such as new NGCC units or new unplanned nuclear capacity for compliance.

B. The Compliance Timeline and Revised Guidelines

EPA’s current CPP proposal extends the compliance period until 2030, and the agency has also solicited comment on an alternative compliance period ending in 2025, with interim goals applying between 2020 and 2024. We urge EPA to adopt the shorter time frame, but we believe that the state goals proposed for the 2025 option are far too weak. Indeed, our analysis of the building blocks demonstrates that the state goals should be much more stringent than those included in the 2030 option. EPA should require full compliance by 2025 because the vast majority of emission reductions can be achieved early on in the compliance period. In addition, we urge EPA to adopt two additional features. First, EPA should advance the compliance schedule to begin as early as January 2018 rather than 2020 to capitalize on the changing nature of electricity markets and the rapid development of renewable resources. We believe that a three-year window is sufficient time for states to begin working toward compliance. Second, the agency should engage in a continuous internal review of the rule during the compliance period and should commit to issuing a revised set of emission guidelines that would take effect in 2026. We also oppose any effort by EPA to relax the stringency of the glide path or phase in emission reductions under Building Blocks 1 and 2. States are free to apportion their emission reductions across the compliance period however they choose so long as the interim and final goals are met. This measure of flexibility provides a sufficient buffer against stranded assets and other technical challenges toward achieving compliance, and no additional relaxation of the glide-path is necessary.

C. New Source Review

Measures that affected sources implement to comply with the CPP are unlikely to trigger New Source Review (“NSR”) permitting requirements. To ensure that sources will not generate enough emissions to trigger NSR, states can include in their plans rigorous source-specific limits on emissions or operations. EPA may not legally permit states to exempt sources from NSR for actions implementing the CPP. Such sources should be subject to emissions limits if they modify and increase their emissions and exempting them would put neighboring communities at risk. Moreover, exempting sources would encourage “life extension” programs

at fossil fuel-fired EGUs that would undermine the goals of both the Clean Air Act, to end the grandfathered status of aging plants, and the Climate Action Plan, to transition the U.S. electric supply sector to lower carbon intensity technologies.