STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

**ENERGY AND ENVIRONMENT CABINET**
OFFICE OF THE SECRETARY
500 MERO STREET
12TH FLOOR, CAPITAL PLAZA TOWER
FRANKFORT, KY 40601
TELEPHONE: (502) 564-3350
FACSIMILE: (502) 564-3354
www.eec.ky.gov

November 26, 2014

The Honorable Gina McCarthy, Administrator
United States Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator McCarthy:

On behalf of Kentucky Governor Steve Beshear, I am submitting comments on EPA's proposed regulations for greenhouse gas emissions from existing electric generating units. This voluminous rulemaking will arguably have the most significant and far-reaching impact to environmental and energy policy that we have seen in 40 years. In response, the Energy and Environment Cabinet has spent a significant amount of time reviewing the proposed rule and preparing the attached comments. Importantly, we conducted 25 stakeholder meetings with organizations representing utilities, environmental groups, manufacturing and large electricity consumers, coal associations, and business associations.

We appreciate EPA's recognition that all states are not equal in energy profile, consumption, and generation. We commend EPA on its stakeholder process and the access that has been provided to key individuals in the agency. It is evident that EPA has considered a broad array of stakeholder interests; however, we do have concerns on several aspects of the rule that are both technical and legal in nature. We are also concerned that we did not have sufficient time to fully understand the implications of the October 28, 2014, Notice of Data Availability (NODA). The Cabinet has expended extensive resources reviewing the original proposal and holding stakeholder meetings. The stakeholder input has been particularly meaningful, and we were not able to have similar robust engagement with stakeholders regarding the NODA.

While flexibility in general should be considered an attribute of the rulemaking, the overall lack of clarity and the numerous instances where EPA requested comment were daunting. These shortcomings undoubtedly limited all stakeholders' ability to adequately comment on the various facets of the rule by the deadline and should be an area of great concern to EPA.

As noted in our October 2013 discussion paper on potential 111(d) implications, over half of Kentucky's electricity consumption is in our electricity-intensive manufacturing sector and any negative disruption to our low cost power could have a tremendous impact to the state's economy. EPA appropriately acknowledges that this proposed rule constitutes a significant energy action and, by default, dictates energy policy on a scale never before produced by an environmental regulation. As you know, there is considerable concern regarding the potential impacts to least-cost dispatch of power. It is a widely held belief that this rule could initiate unintended consequences and jeopardize price stability and power reliability.

The inevitable litigation that will ensue upon promulgation of a final rule puts all states at a great disadvantage in preparing an approvable plan prior to any resolution of legal issues. While this may not be different from previous litigation on various EPA rules, the approach EPA has taken with this rule sets the stage for extensive challenges. The Attorney General of Kentucky has joined multiple lawsuits challenging the rule, and earlier this year the Kentucky General Assembly unanimously passed a bill that limits Kentucky's compliance plan to reductions that can be achieved within the fenceline. Despite the legal uncertainties and provisions of Kentucky law, we felt it necessary to provide constructive comments in case the rule remains intact as proposed.

We have discussed with you and your staff that utilities in Kentucky will be shutting down 23 coal-fired boilers between now and 2020 to comply with other federal environmental regulations. These retirements will result in real greenhouse gas emission reductions that must be factored into EPA's evaluation of a state's compliance with a final rule. We are certain other states will be making similar comments and strongly encourage EPA to explicitly state in the final rule that the reductions from these retirements will count toward compliance.

Finally, you will note that our comments on the proposed rule begin with our serious concerns regarding economic implications. The potential negative economic impacts are not unique to Kentucky, but some states will certainly experience greater impact than others. First, vulnerable low-income citizens, who spend a disproportionate share of their income on energy, will bear the brunt of increased electricity costs; as EPA acknowledges, there will be a rate impact as a result of this rule. Of course, energy efficiency improvements can help defray increased rates, but as you know, expenditures to reap those rewards still must occur. Secondly, as I mentioned above, energy-intensive industries are sensitive to even moderate electricity price increases. And lastly, mining employment in central Appalachia has plummeted in recent years, a result of both market and regulatory forces. Kentucky's eastern coal region is suffering already, and we will experience even greater loss of employment and production as other states take action to comply with the proposed rule. We urge EPA to conduct a proper and thorough analysis of the economic impacts of the rule on local communities.

We have had solid communication with you and your staff for the past several years, and while we might not always agree on everything, I feel we have had mutually respectful interactions. Please give our comments the utmost consideration.

Sincerely yours,

LK Peters

Leonard K. Peters
Secretary

LKP:wh

**KENTUCKY ENERGY AND ENVIRONMENT CABINET**

# COMMENTS ON PROPOSED SECTION 111(d) RULE FOR GREENHOUSE GAS REGULATIONS

November 26, 2014

## TABLE OF CONTENTS

# Comments from the Kentucky Energy and Environment Cabinet

## Summary of Comments

The proposed Section 111(d) rule will undoubtedly have the most significant and far-reaching impact on environmental and energy policy that the United States has experienced during the last 40 years. Therefore, the Kentucky Energy and Environment Cabinet comments focus on likely economic impacts of the proposed rule; factors that could affect a state's ability to meet emissions targets; unintended consequences, including the potential for stranded assets; state flexibility; and specific comments on the Notice of Data Availability (NODA).

### Specific Economic Implications and Impacts

As Governor Steve Beshear has communicated with EPA on numerous occasions, we have serious concerns about rising electricity costs and the threat they pose to our manufacturing economy. In this proposed rulemaking, EPA did not conduct a rigorous cost/benefit analysis, and therefore has likely under-estimated the costs to many states' economies. Specifically, the Regulatory Impact Assessment (RIA) did not incorporate the price risk associated with increased reliance on historically price-volatile natural gas. For manufacturing-intensive states like Kentucky, an increase in electricity costs raises the price of goods produced, harms state GDP (estimated loss of almost $2 billion with a ten percent increase in the cost of electricity), and causes job losses. The final rule should include a "safety net" provision that would allow states that have increased exposure to natural gas price volatility to be able to dispatch their remaining coal-fueled fleet, if doing so will offset rate impacts that exceed ten percent.

In addition to the potential and likely increase in electricity costs, Kentucky and other coal-producing states will experience job losses in the coal mining sector. EPA's own RIA estimates that approximately 47,000 coal extraction jobs will be lost in the United States by 2030. This represents a 60 percent nationwide reduction in coal mining employment from a 2013 base year. The effect of the proposed rule will be a worsening of the poverty already dominant in eastern Kentucky.

### Concerns with Meeting Kentucky's State-Specific Goal

The building blocks that comprise the Best System of Emission Reduction (BSER) have technological and/or legal vulnerabilities, and therefore, the Cabinet contends that a state's target should be adjusted commensurate with the elimination of the percentage contribution to the target should a court invalidate one or more of the building blocks. One of the most serious technological limitations is EPA's use of a six percent heat rate improvement for Electric Generating Units (EGUs). The utility stakeholders we met with in Kentucky were unanimous on this issue—the six percent heat rate is not practicable and must be adjusted, with a commensurate adjustment in the state's emissions rate.

The Cabinet and many stakeholders have concerns regarding grid reliability and stability given the proposed rule's emphasis on intermittent, non-dispatchable renewable energy (RE) sources.

EPA should conduct an evaluation of RE grid integration in cooperation with the U.S. Department of Energy to ensure that the projected 2030 growth of renewables does not present a significant risk to grid stability and reliability. The Cabinet also has concerns about the EPA's use of regional RE potential rather than state-specific RE potential in developing RE targets. We urge EPA to use the alternate approach proposed in this rulemaking to quantify renewable generation, excluding hydroelectric generation, that focuses on the technical and market potential within each state.

End-use Energy Efficiency (EE) is an area that holds great promise. To maximize the benefits of EE, we encourage EPA to use flexible protocols for Evaluation, Measurement & Verification (EM&V) and established or EPA-approved protocols that result in rapid review and approval of state plans.

Finally, EPA should account for events beyond a state's control that could result in plan non-compliance. Such events could include natural disasters, weather disruptions affecting fossil fuel utilization, and human-induced catastrophic events. The final rule should have provisions that exclude demonstrated emission increases resulting from exceptional events.

**Available Options for States Must Be Clarified**

The proposed rule requires state plans to be submitted by June 2016. It is therefore critical that EPA issue guidance documents or promulgate appropriate regulatory text to provide states with certainty in establishing and implementing applicable requirements under a Section 111(d) plan. The issues most in need of clarification include the following: (1) EPA should recognize and allow any coal-fired EGU retirements after the 2012 base year to count toward compliance to meet a state's goal; (2) The use of new Natural Gas Combined-Cycle (NGCC), with or without Carbon Capture and Storage (CCS), should be allowed by a state to achieve its goal; (3) Section 111(d) should not be applicable to an existing source that has been modified and/or reconstructed, thereby being subject to Section 111(b) and Subpart TTTT; (4) While the Cabinet disagrees with an interim goal, EPA should promulgate the alternate goals as an available regulatory option to allow maximum flexibility in adopting either goal and its associated timeline; and (5) The Cabinet recommends that out-of-sector offsets be allowed where the designated pollutant, $CO_2$, is directly mitigated. Kentucky's reforestation initiative is consistent with this premise and should be allowed as a compliance option.

**Unintended Consequences**

Major potential unintended consequences of the proposed rule include stranded utility assets; constrained economic dispatch in regional wholesale markets; risk to grid reliability; and market distortions if issues regarding the transfer of renewable generation in terms of MWh between states are not addressed. Several utility stakeholders have stated that the interim period forces an impending "compliance cliff" beginning in 2020 that does not consider potential stranded assets and does not afford them the requisite time to prepare for compliance by properly going through their integrated planning process. Kentucky ratepayers will be burdened with a $4.5 billion price tag for compliance with the MATS rule if retrofitted plants, which have an assumed remaining useful life of 20-30 years, are not allowed to operate. EPA should re-evaluate the compliance timeframes while considering the remaining useful life of the affected EGUs that have recent or soon-to-be installed air pollution controls. With the flexibility provided for Section 111(d) compliance, it should be the state's role to determine how it complies with the ultimate 2030 standard. Therefore, the Cabinet strongly recommends eliminating the interim compliance period and interim target.

We are also concerned that Kentucky ratepayers will be subject to higher rates because of actions in other states that might impact the economic dispatch of power into regional wholesale markets. Because of the regional nature of wholesale markets, whether or not Kentucky chooses to be a part of a multi-state collaborative, the implementation of other state plans will potentially impact the ability to ensure that Kentucky ratepayers are afforded the least cost power to meet their needs.

Another potential unintended consequence could result when EGUs are retired and the remaining units are necessary to provide voltage support. EPA should account for the generation of the volt-ampere reactive power when determining the state-specific goals by subtracting this generation from the goal computation. Also, EPA should account for emissions from generating units that will be required to operate because of the transmission constraints by implementing a "safety valve" mechanism, which would deduct the associated emissions generated during must-run conditions from the units' annual emission levels.

There is great risk to double counting in a Section 111(d) plan using the Renewable Energy Certificates (RECs) trading system currently in place, and therefore reported emissions would be lower than actual emissions. EPA should specify that Power Purchase Agreements (PPAs), where RECs are tied to electricity consumed, be included as a compliance option for Section 111(d) state compliance plans. These RECs would then be retired.

EPA must consider the possibility that $CO_2$ emissions will increase from load shifting. The state goals as proposed heavily rely on the re-dispatching of baseload units from coal-fired EGUs to natural gas units. This shift could in effect force coal-fired EGUs to serve as "peaking units" and thus increase the net output rate of $CO_2$ emissions.

Finally, it is unclear if EPA considered the feasibility of NGCC units sustaining a high capacity factor to serve as baseload units. Stakeholder input has shown a wide range of opinion on whether a 70 percent capacity factor is sustainable.

**State's Flexibility in Meeting the Goal**

EPA's expectation that individual states will have the time necessary to evaluate fully the opportunities of such a complex plan and oversee its development is unreasonable. EPA at a minimum should allow a 3-year timeline for states to submit their plans after the rule is finalized. The use of 2012 data (which had higher than average natural gas usage at EGUs) for a baseline has the potential to result in lower goal projections and higher costs of compliance than would otherwise be estimated with a more representative starting year. Therefore, the Cabinet recommends a three-year average of data between 2005 and 2012 as being more appropriate for goal computation. This would not only assist in eliminating fluctuations in energy demand and production but would also give credit for actions taken prior to the 2012 baseline.

**Notice of Data Availability (NODA)**

While the NODA was intended to clarify many issues of concern, it introduced more uncertainty into the process. Most importantly for states, it is no longer clear what a state's goal will be in the final rule, thereby delaying the compliance planning process. The NODA appears to present fundamental changes to the proposed rule that stakeholders have been considering for several months, and the one-month time frame given for consideration of the NODA is inadequate. We remain concerned about rising costs of electricity and stranding of utility assets—two outcomes that appear to be even more likely based on our understanding of the NODA. For example, the glide path discussions in the NODA do not prevent the potential for stranded assets. Furthermore, the use of a 40 year "book life" does not reflect the actual life of coal-fired power plants, with 65 years being a more realistic time frame. The estimated 15 year "book life" of retrofits is also not realistic given how capital intensive these projects are. Thirty years is a more realistic estimate for remaining life of these projects. Utility investments to meet other EPA regulations will cost ratepayers billions of dollars. Stranding these assets will lead to higher electricity rates as new generation resources are built to replace those prematurely retired power plants.

We also have concerns about the establishment of a minimum floor for NGCC, which would create market distortions, preventing a utility from providing the least-cost resources to its consumers, especially during times of natural gas price volatility such as those experienced in recent history. These market distortions would increase prices in states such as Kentucky. An NGCC floor could affect reliability in areas that have not historically relied on NGCC. This floor would require a significant build out of electricity generation and transmission, as well as the natural gas infrastructure necessary to serve those generators. The planning horizon for such investments is long, and it is not clear that the assets would be in place by 2020 or even 2030 in some cases.

The NODA indicates the potential for using a regional approach to set the NGCC floor and the RE (Building Blocks 2 and 3) targets. The use of a regional approach limits a state's flexibility. The regions identified do not match dispatch or market regions, creating seams, which introduce inefficiencies. The NODA does not consider the transmission needs necessary to move power across the region, which introduces reliability, timing, and siting concerns and higher costs of electricity.

Changes to the goal-setting equation not only introduce uncertainty, but also do not reflect the realities of the electricity system. Fossil fuel-fired baseload units cannot be replaced with intermittent RE generation and EE. The backup generation needed would likely be natural gas, which would diminish $CO_2$ reductions and lead to more investment for natural gas capacity and therefore higher electricity prices.

# I. Introduction

On June 18, 2014, the United States Environmental Protection Agency (EPA) published a proposed rule in accordance with the President's Climate Action Plan. The proposed rule, *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*, provides EPA's framework for regulating greenhouse gases from existing Electric Generating Units (EGUs) under Section 111(d) of the Clean Air Act (CAA).[1] After reviewing the proposed rule and its technical support documents (TSDs), the Kentucky Energy and Environment Cabinet (Cabinet) provides comments for EPA's consideration prior to issuing a final rule. These comments include input from the Public Service Commission, Division for Air Quality, Department for Energy Development and Independence, and the Office of General Counsel within the Cabinet, as well as input gathered from 25 stakeholder meetings and numerous other sources.

The number of options in the June 2, 2014, proposed rule, the October 28 Notice of Data Availability (NODA), and several Technical Support Documents (TSDs) (including the critical rate-to-mass conversion TSD issued on November 7, 2014) and permutation of these options create outcomes too numerous to reasonably anticipate what a final rule will be. The notice does not adequately inform the public—making it impractical to comment on potential issues resulting from the final rule. The purpose of notice is to promote informed decision-making. Given the number of unknown components in the proposed rule, it is impossible for the public to adequately comment on the ultimate standard. After this public comment period, EPA should narrow the number of options and allow for meaningful participation in a second comment period.

The Cabinet is aware of several legal arguments regarding EPA's authority and approach for this proposed rule. There is already legal action concerning whether regulation under Section 112 of the Clean Air Act precludes establishment of Section 111(d) requirements.[2] Undoubtedly, the issue of EPA's approach of emission reductions beyond the fence line of existing power plants will be a central theme in challenges to the final rule. EPA sets forth its perspectives on both of these arguments at length in its *Legal Memorandum for Proposed Carbon Pollution Emission Guidelines for Existing Electric Utility Generating Units.*

As we stated in our April 22, 2014, comments to EPA on the proposed 111(b) rule for new sources, the Cabinet does not believe EPA promulgated an appropriate Section 111(b) standard of performance that is a necessary prerequisite for proposed Section 111(d) standards. EPA does not have the legal authority to propose Section 111(d) standards without properly establishing Section 111(b) standards of performance.

Despite these legal questions and concerns, the Cabinet's comments will focus on the requirements of the proposed rule given that the state will be obligated to develop and implement a plan well before legal appeals are exhausted.

[1] See 79 Fed. Reg. at 34830.
[2] *West Virginia v. EPA*, No. 14-1146 (D.C. Cir 2014).

## II. Specific Economic Implications and Impacts

A rigorous cost/benefit analysis is vital to understand the intended outcomes, while also considering the social and economic costs of implementation of any rulemaking. EPA did not conduct a rigorous cost/benefit analysis in developing the 111(d) proposed rule especially considering its 2030 final compliance date. EPA also failed to account for the uncertainty of factors affecting the energy landscape nearly two decades into the future. Considering the far-reaching impacts of the current proposal, the Cabinet identifies the following serious concerns regarding impacts to Kentucky's and the nation's economy

### i. Increased Electricity Prices

EPA states in the proposed rule that "The proposed guidelines have important energy market implications. Under Option 1, average nationwide retail electricity prices are projected to increase by roughly 6 to 7 percent in 2020 relative to the base case, and by roughly 3 percent in 2030 (contiguous U.S.) even assuming low and stable natural gas prices."[3]

The Regulatory Impact Assessment (RIA) did not incorporate the price risk associated with increased reliance on natural gas. The cost of moving to greater dependence upon natural gas electricity generation is greatly underestimated should natural gas prices exhibit their historical volatility. Consumers will bear a greater burden of future electricity price increases due to compliance with this proposal if the costs are underestimated.

EPA has acknowledged, "Electricity performs a vital and high-value function in the economy."[4] However, a continued bias in this and all EPA analyses generally, is that EPA does not estimate or incorporate any consumer sensitivity to changes in electricity prices. This sensitivity is formally known as "price elasticity of demand," which is the percentage change in the quantity of goods demanded given a percentage change in price. Although the RIA admits that "… some demand reduction does occur in response to price," it goes on to state that "… EPA modeling does not typically incorporate a 'demand response' in its electric generation modeling to increases in electricity prices typically projected for EPA rulemakings."[5] EPA treats electricity demand as a constant in modeling applications that is completely insensitive to changes in electricity prices. Omitting price elasticity of demand violates economic principles and biases the RIA findings towards environmental regulation by underestimating the costs of environmental regulation.

---

[3] See 79 Fed. Reg. at 34934.
[4] P. 2-25, *RIA for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants* (EPA-542/R-14-002, June 2014).
[5] P. 2-27, *RIA for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants* (EPA-542/R-14-002, June 2014).

The RIA states that the methods used "… do not permit estimation of economy-wide effects."[6] The employment analysis is furthermore "… limited to the direct changes in the amount of labor needed in the power, fuels and generating equipment sectors directly influenced by compliance with the Guidelines."[7]

These are serious limitations. By failing to take into account the potential market responsiveness of electric power consumers to changes in electricity prices, EPA is severely underestimating the costs of environmental regulation, particularly for electricity-intensive manufacturing processes. A variety of econometric studies, looking at the relationship between electricity prices and employment, have found that higher electricity prices are associated with statistically significant reductions in employment.[8]

Independently, the Cabinet determined through its own econometric modeling that the six percent change in electricity prices alone estimated by EPA would cause a net loss in the United States of 439,000 full time jobs, over half (236,000) of which would come from energy-intensive manufacturing sectors. [9] As a result of EPA's underestimation of employment effects, the costs of this proposal are likewise underestimated and therefore the RIA's findings are biased towards environmental regulation. Furthermore, the Cabinet strongly disagrees with EPA's assessment "… that impacts on retail electricity prices are modest and fall within the range of price variability seen historically in response to changes in factors such as weather and fuel supply."[10]

EPA's social cost analysis as presented in the RIA is incomplete. The analysis is deficient in addressing the secondary price effects corresponding to the increased opportunity costs of goods produced in manufacturing-intensive states, like Kentucky. Cabinet modeling suggests that a ten percent increase in the real price of electricity, which could be intensified by the proposed rule, would, on average, be associated with a 1.1 percent reduction in state GDP (SGDP).[11] This would result in a loss of almost $2 billion to the state of Kentucky, which represents a loss of over half of its automotive-related foreign exports, or loss of eight percent of its total foreign

---

[6] P. 6-33, *RIA for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants* (EPA-542/R-14-002, June 2014).
[7] P. 6A-1, *RIA for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants* (EPA-542/R-14-002, June 2014).
[8] P. 87-89, Solnick, Loren M., *The Employment Impact of Changing Electricity Prices*. Eastern Economic Journal, (1980), P. 440-449, Carlton, Dennis W., *The location and Employment Choices of New Firms: An Econometric Model with Discrete and Continuous Endogenous Variables*. The Review of Economic Statistics (1983), Deschenes, Oliver, *Climate Policy and Labor Markets*. National Bureau of Economic Research (2010), Aldy, Joseph E., and Pizer, William A., *The Competitiveness Impacts of Climate Change Mitigation Policies*, *Washington D.C.*. National Bureau of Economic Research (2011) and Kahn, Matthew E. and Masur, Erin T., *How do Energy Prices and Labor and Environmental Regulations Affect Local Manufacturing Employment Dynamics? A Regression Discontinuity Approach.* National Bureau of Economic Research (2010).
[9] Patrick, Aron, *The Vulnerability of Kentucky's Manufacturing Economy to Increasing Electricity Prices, Commonwealth of Kentucky*. Energy and Environment Cabinet (2012).
[10] See 79 Fed. Reg. at 34885.
[11] See *The Relationship between Electricity Prices and Economic Output*, http://energy.ky.gov/Programs/Documents/Model%20of%20electricity%20prices%20and%20economic%20output.pdf.

exports.[12] EPA's analysis should reflect what portion of GDP loss is due to the proposed rule's effect on market conditions.

Furthermore, producer states like Kentucky have high electricity intensity, ~0.5 kWh/$SGDP, while primarily consumer states like New York and California are low, ~0.13 kWh/$SGDP. EPA's analysis should reflect the likely consequence of increasing electricity costs in producer states resulting in less heavy industry and manufacturing in the regional economy and in the United States overall. For example, electricity-intensive industries like primary metal manufacturing, which have been leaving the United States during the past decades, are currently clustered in states, like Kentucky, where electricity costs have remained low. If these companies migrate to countries with less stringent environmental regulations, the net effect of the rules would be economically disadvantaged state and regional economies, increased unemployment, and worsening of the trade deficit if those same goods, previously made in the United States, are now imported. The result is production migration that diminishes the assumed regulatory benefit and threatens U.S. GDP and national security by lessening U.S. independence within the manufacturing sector. These significant effects on the producer states truly become a national issue and not simply a state issue.

Also, we strongly urge EPA to include a "safety net" provision in the final rule because of these potential significant economic impacts. Such a provision would allow states that have increased exposure to natural gas price volatility to be able to dispatch their remaining coal-fueled fleet, if doing so will offset rate impacts that exceed ten percent. This would be done in concert with the utility regulators. Further, this provision would provide an alternative in the case of weather anomalies, such as the 2014 "Polar Vortex" or severe natural gas pipeline disruptions, which could allow utilities to continue to provide safe and reliable electricity service to their end-use customers.

### ii. Job Losses in the Mining Sector

EPA recognized localized negative impacts of the proposed rule in its RIA, stating: "Although the net change in the national workforce is expected to be small, localized reductions in employment may adversely impact individuals and communities just as localized increases may have positive impacts."[13]

The Cabinet anticipates that the proposed rule will have a significant negative impact on employment in Kentucky and across the United States, in addition to the employment impacts that result from higher electricity prices in the industrial sector. Coal mining employment will be the hardest hit sector. EPA's own RIA estimates that approximately 47,000 coal extraction jobs will be lost in the United States by 2030.[14] This represents a 60 percent nationwide reduction in coal mining employment from a 2013 base year. The first coal mining jobs to be lost will be

[12] See Kentucky Demographic Profile, http://www.thinkkentucky.com/kyedc/pdfs/KYDemographicProfile.pdf.
[13] P. 6-6, *RIA for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants* (EPA-542/R-14-002, June 2014).
[14] P. 6-26, *RIA for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants* (EPA-542/R-14-002, June 2014).

those at mines that produce the highest priced coal—notably, mines in eastern Kentucky. Therefore, the impact of this proposal will almost guarantee the broadening and deepening of the poverty already dominant in eastern Kentucky.

Coal mining employment in eastern Kentucky, which declined by half in just two years, in part because of environmental regulation, will see a continuation of this precipitous decline into the future because of these regulations .[15] The eastern Kentucky coal industry is reliant on exports to other states. Kentucky's largest export destination states—Florida, Georgia, South Carolina, Virginia, and North Carolina—would be required to reduce coal generation significantly, with Florida required to reduce coal generation by over 90 percent under this proposal.

### iii. Significant Energy Action

Presidential Executive Order (E.O.) 13211, Section 2(b) requires EPA to provide "… a detailed statement by the agency responsible for the significant energy action related to: (i) any adverse effects on energy supply, distribution, or use (including a shortfall in supply, price increases, and increased use of foreign supplies) should the proposal be implemented, and (ii) reasonable alternatives to the action with adverse energy effects and the expected effects of such alternatives on energy supply, distribution, and use."[16]

According to OMB Memorandum 01-27[17], regarding implementation of E.O.13211, a significant adverse effect could include, among other things:

1. Reductions in coal production in excess of five million tons per year;
2. Reductions in electricity production in excess of one billion kilowatt-hours per year or in excess of 500 megawatts of installed capacity;
3. Increases in energy use required by the regulatory action that exceed any of the thresholds above;
4. Increases in the cost of energy production in excess of one percent; or
5. Increases in the cost of energy distribution in excess of one percent.

It further sets forth that a regulatory action could also have significant adverse effects if it, among other things:

1. Adversely affects in a material way the productivity, competition, or prices in the energy sector;
2. Adversely affects in a material way productivity, competition, or prices within a region;

[15] Commonwealth of Kentucky, Energy and Environment Cabinet, Department for Energy Development and Independence, *Quarterly Coal Report* (January-March, 2014).
[16] Executive Order 13211, https://www.federalregister.gov/articles/2001/05/22/01-13116/actions-concerning-regulations-that-significantly-affect-energy-supply-distribution-or-use.
[17] OMB Memorandum 01-27 (Guidance for Implementing E.O. 13211), July 13, 2001. http://www.whitehouse.gov/omb/memoranda_m01-27.

3. Creates a serious inconsistency or otherwise interferes with an action taken or planned by another agency regarding energy; or
4. Raises novel legal or policy issues adversely affecting the supply, distribution or use of energy arising out of legal mandates, the President's priorities, or the principles set forth in Executive Order Nos. 12866[18] and 1321l.

The Statement of Energy Effects offered by EPA in the Federal Register and the very limited discussion in the RIA do not constitute a "detailed statement" of the numerous adverse effects of this rule in two dimensions. First, EPA's statement does not provide any regional or local impacts of the proposed rule.[19] While noting that electricity prices will increase by four to seven percent and that natural gas prices will increase by eight to twelve percent, EPA does not reference the regional and local impacts of these changes. Second, EPA's Statement of Energy Effects for this action notes a "… 16 to 22 percent reduction in coal-fired electricity generation …", but does not reference the change in U.S. coal production. EPA omitted reference to its own projections that this rule will reduce U.S. coal production by 20 to 27 percent in 2020.[20] Using the Energy Information Administration's (EIA's) Annual Energy Outlook 2014 estimates, this is a reduction of between 217 and 291 million tons of coal annually—at least 40 times greater than the five million ton reporting threshold required by OMB Memorandum 01-27.

EPA should expand its statement and provide more detail on these impacts, and any final rule should include this detail, as well as address alternatives that mitigate regional and local impacts of the rule. The current statement is clearly inadequate.

## III. Concerns with Meeting Kentucky's State-Specific Goal

The Cabinet identifies several areas of concern with the various building blocks EPA utilized in calculating the state-specific GHG goals.

### i. Severability of Best System of Emission Reduction (BSER)

EPA states, "We consider our proposed findings of the BSER with respect to the various building blocks to be severable, such that in the event a court were to invalidate our finding with respect to any particular building block, we would find that the BSER consists of the remaining building blocks. The state goals that would result from any combination of the building blocks can be computed from data included in the Goal Computation TSD and its appendices using the methodology described in the preamble and that TSD."[21,22]

The state's target must be adjusted commensurate with the elimination of the percentage contribution to the target should a court invalidate one or more of the building blocks. For

[18] http://www.archives.gov/federal-register/executive-orders/pdf/12866.pdf.
[19] See 79 Fed. Reg. at 34948.
[20] See 79 Fed. Reg. at 34933.
[21] See 79 Fed. Reg. at 34892.
[22] Also see 79 Fed. Reg. at 34895.

example: If Building Block 4, Energy Efficiency, is vacated, Kentucky's target of 1,763 lbs $CO_2$/MWh should increase to reflect only the effect of Building Blocks 1, 2 and 3. Assuming that the loss of one or more of the building blocks can be made up by the remaining building blocks is not appropriate and should not be employed by EPA as a backstop. There are real technological limitations to each of the building blocks, and these limitations cannot be dismissed.

### ii. Heat Rate Improvements

According to the proposed rule, "We believe that [… 6 percent...] represents a reasonable estimate of the technical potential for $CO_2$ emission reductions that would be achievable from affected coal fired steam EGUs, on average, through heat rate improvements as an element of the best system of emission reduction."[23]

One of the more widely known resources that EPA used in arriving at the six percent reduction requirement was the 2009 Sargent & Lundy report, *Coal-Fired Power Plant Heat Rate Reductions*.[24] The report does not support EPA's contention that a six percent reduction is a "…reasonable estimate of the technical potential for $CO_2$ emission reductions." Instead, it reinforces that a heat rate improvement of that magnitude is not achievable.

First, the heat rate penalty for environmental controls such as Flue Gas Desulfurization and baghouses significantly reduces any efficiency improvements accomplished through turbine or boiler upgrades. All of Kentucky's utilities have expended significant resources in add-on controls to comply with the Clean Air Interstate Rule and the $NO_x$ SIP Call in the previous ten years. Additionally, these utilities are investing in controls necessary to comply with the Mercury and Air Toxics Standards (MATS) rule.

Second, while initial efficiency improvements, regardless of the range, might be technically feasible, it is a well-known fact these efficiency gains are not sustainable. The degradation of operational efficiency is a forgone conclusion, and it simply would be uneconomical and impractical to expect the industry to maintain a specific efficiency level.

Finally, stakeholders from all of Kentucky's utilities reinforce the conclusion that achieving a heat rate improvement of six percent is highly unlikely, if not impossible. One percent is a realistic number with the absolute upper range being a three percent improvement, at best, because, where practicable, utilities have already made investments to maximize heat rate efficiency.

It is much more appropriate to allow each state to evaluate the ability to achieve emission reductions within its statewide fleet in order to calculate the state-specific goal. An alternative would be to reset the heat rate improvement in Building Block 1 to two percent to comport with

[23] See 79 Fed. Reg. at 34861.
[24] Sargent & Lundy 2009, Coal-Fired Power Plant Heat Rate Reductions, SL-009597, Final Report, January 2009, http://www.epa.gov/airmarkt/resource/docs/coalfired.pdf .

the Sargent and Lundy findings and to be consistent with EPA's own determination of BSER found in the 111(b) Modified and Reconstructed Rule.[25] Should EPA see fit to readjust the percentage, the Cabinet again contends that simply shifting the reduction to another building block would be inappropriate.

### iii. Renewable Energy Generating Capacity

If Building Block 3 remains a compliance option, affected utilities have within their purview a range of renewable energy (RE) options—utility scale, distributed, or imported resources. All three of these renewable options present a unique set of issues in order to maximize the benefits of renewable electricity generation while ensuring state flexibility.

The proposed rulemaking encourages the development of renewable electricity generation; however, this development should not be done at the expense of grid reliability and stability. For example, if renewable generation in 2030 increases beyond the existing fossil fuel capacity, the risk to the grid becomes preferential intermittent, non-dispatchable power over grid stable fossil generation. EPA should modify its approach to ensure that the projected 2030 growth of renewables does not present a significant risk to grid stability and reliability.[26] EPA should conduct an evaluation of RE grid integration on the projected renewable development contained in the proposal in cooperation with the U.S. Department of Energy.

The Cabinet recognizes that establishing an RE "floor" is one tool to preserve existing RE capacity and advancing technology development, while not inadvertently creating backsliding on RE deployment.[27] However, this should not be done at the expense of eliminating the use of cost-effective fossil fuel sources. For example, it is plausible that the renewable capacity in the state could decrease as aging renewable capacity is replaced with future low-emitting and cost-effective fossil generation. Establishment of an RE floor alters the selection of the most cost-effective generation option.

EPA notes in the proposed rule, "For the purposes of calculating a baseline level of RE generation in each state, the EPA adopted a broad interpretation of RE generation to include any non-fossil renewable fuel type, with the exception of generation from existing hydroelectric power facilities."[28] The Cabinet agrees with excluding existing hydropower from establishing a state's existing RE capacity and fully supports the use of incremental hydropower from existing facilities or new facilities as a compliance option.[29]

The Cabinet asserts that EPA has already established a broad set of criteria for including Combined Heat Power (CHP) biomass units as renewable by using U.S. EIA state level data and therefore should complete the *Accounting Framework for Biogenic $CO_2$ Emissions from*

[25] See 79 Fed. Reg. at 34960.
[26] See 79 Fed. Reg. at 34868.
[27] See 79 Fed. Reg. at 34868.
[28] P. 4-5, *GHG Abatement Measures Technical Support Document* (June 2014).
[29] See 79 Fed. Reg. at 34867.

*Stationary Sources*.[30] For example, Kentucky has three facilities that are considered to be CHP facilities which were included in the 2012 baseline renewable data. Two of those are biomass waste CHP facilities with the third being a CHP involving off-site steam utilization. Therefore, EPA should not limit the type of CHP units considered as renewable given the varying renewable CHP potential in each state.

The Cabinet also questions the feasibility of the extent of renewable development assumed in the proposed rule because resources and market condition differences among states are not taken into account. EPA's approach dilutes these differences by aggregating states into regions and applying regional growth factors and regional RE targets, without specifying criteria for those growth factors or targets. In fact, EPA's assumption that the state regional portfolio standards used to calculate the regional RE target are consistent among states in terms of the types of activities allowed to meet those standards is inherently flawed. Given these flawed assumptions, the Cabinet recommends that EPA use the alternate approach proposed in this rulemaking to quantify renewable generation, excluding hydroelectric generation, that focuses on the technical and market potential within each state.[31,32]

### iv. Power Purchase Agreements

In addition to RE in Building Block 3, zero-emitting nuclear energy is a compliance option afforded to states. However, in-state nuclear energy remains unavailable in several states due to bans on nuclear electricity generation. In Kentucky, KRS 278.600-610 states that a nuclear power reactor cannot be certified by the state Public Service Commission (PSC) unless a disposal site for the high-level nuclear waste is available by the time the plant needs disposal capacity.[33] The PSC also could not certify the project unless it finds that the cost of high-level nuclear waste disposal "is known with reasonable certainty."[34]

Therefore, Kentucky's only viable option for nuclear energy to reduce $CO_2$ emissions from the electricity sector is the utilization of imported nuclear capacity. Until such time that nuclear generating capacity is an in-state option, the Cabinet recommends that EPA allow states to utilize power purchase agreements (PPAs) from zero/low emitting sources such as nuclear as a compliance option. This same recommendation applies to PPAs for imported renewables. This approach appropriately provides credit for GHG reductions at the point of consumption.

### v. Demand-Side Energy Efficiency

The proposed rule states, "[t]he EPA seeks comment in the preamble on the critical features of such [EM&V] guidance, including scope, applicability, and minimum requirements, as well as the appropriate basis for and technical resources used to establish such guidance, including

[30] http://www.eia.gov/electricity/data/state/.
[31] See 79 Fed. Reg. at 34867.
[32] See 79 Fed. Reg. at 34869.
[33] http://www.lrc.ky.gov/Statutes/statute.aspx?id=40560.
[34] http://www.lrc.ky.gov/Statutes/statute.aspx?id=14168.

existing state and utility protocols and existing international, national, and regional consensus standards or protocols. This section further elaborates these considerations discussed in the preamble, with individual sub-sections addressing RE and demand-side EE programs and measures."[35]

In reference to Building Block 4, the Cabinet, including the PSC which oversees demand-side management programs for regulated utilities, supports the use of flexible protocols for Evaluation, Measurement & Verification (EM&V) and established or EPA-approved protocols that result in rapid review and approval of state plans. EPA must balance this flexibility with enough detail to offer the states a measure of certainty as states develop their plans. Furthermore, because the EIA is the most likely source of data for many of the requirements of the states, the use of time differentiated data should only be a part of the guidelines to the extent that it is readily available from EIA. It is critical that the cost of EM&V in verifying energy efficiency (EE) savings not outweigh the EE savings achieved.

As to the level of rigor for more innovative plan programs and strategies, EPA must avoid imposing onerous and burdensome requirements that inhibit development of viable EE solutions. EPA should not restrict the eligible types of EE programs and measures that could be included in a state plan to a pre-defined list of well-understood program types. While this may have appeal to some because of its relative simplicity to administer, it would stifle innovation. The states and other entities must have the flexibility and incentive to develop approaches that meet the program's goals.

The Cabinet supports the use of gross energy savings as part of EPA's requirements and guidance. As noted, accurate estimation of free ridership (necessary to calculate net energy savings) is complex. This is a large understatement. It is far more accurate to develop methodologies and guidelines to address calculations of gross energy savings. All savings due to EE should be counted since they all lead to reduced electricity generation and to proportionally reduced emissions.[36]

### vi. Treatment of Exceptional Events

EPA acknowledges that there are scenarios under which an approved state plan might fail to achieve a level of emission performance by affected EGUs that meets the state goal.[37] EPA should account for events beyond a state's control, in the final rule, that could result in plan non-compliance. Such events could include natural disasters, weather disruptions affecting fossil fuel utilization, and human-induced catastrophic events. The Cabinet urges EPA to include in the final rule provisions that emission increases resulting from exceptional events will be excluded from state compliance demonstrations. An example of such a measure currently in use can be

[35] P. 34, *State Plan Considerations Technical Support Document* (June 2014).
[36] P. 52-53, *State Plan Considerations Technical Support Document* (June 2014).
[37] See 79 Fed. Reg. at 34907.

found when EPA allows a waiver on the use of summer blend fuels in non-attainment areas due to unforeseen supply disruptions.[38]

### vii. Unfunded Mandate

In the proposed rule, "The EPA has concluded that this action may have federalism implications, because it may impose substantial direct compliance costs on state or local governments, and the federal government will not provide the funds necessary to pay those costs."[39]

This preamble language appears to contradict EPA's rationale in the statutory and executive review of the Unfunded Mandates Reform Act (UMRA) and their determination that the Act does not apply to this rulemaking. [40] Further, the Cabinet is concerned that EPA did not fully evaluate the potential impact on state and local governments when stating the following: "This proposed rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments."[41]

EPA must consider the significant costs imposed upon the states as well as the adverse impacts on local or small governments. The Cabinet will have to identify the funding source for the resources to implement and enforce the rules, being the delegated administrator of the program. Given the numerous cutbacks to federal state air grants and state budgets as a whole, existing funding simply cannot cover the costs. Therefore, the Cabinet requests EPA provide appropriate funding to our state agencies for the specific development, implementation and enforcement of a Section 111(d) plan.

## IV. Available Options Must Be Clarified

The proposed rule requires state plans to be submitted by June 2016. It is therefore critical that EPA issue guidance documents or promulgate appropriate regulatory text to provide states with certainty in establishing and implementing applicable requirements under a Section 111(d) plan. Clarifying the issues below will not impact the indispensable flexibility provided in the proposed rule. Neither the proposed regulatory text nor the preamble address key issues that are crucial for developing a plan for compliance. For example, how the retirement of existing EGUs will be treated is a fundamental issue that needs to be answered before a state can even begin to develop a plan, dialogue with stakeholders, or collaborate with other states. Provided below are specific examples of topics that must be clarified.

### i. Treatment of Existing EGU Retirements

It is imperative that EPA recognize and allow any coal-fired EGU retirements after the 2012 base year to count toward compliance to meet a state's goal. The Cabinet currently projects several

---

[38] EPA Fuel Waivers, http://www2.epa.gov/enforcement/fuel-waivers.
[39] See 79 Fed. Reg. at 34947.
[40] See 79 Fed. Reg. at 34947, Section XI, *Statutory and Executive Order Reviews*, D. *Unfunded Mandates Reform Act*.
[41] See 79 Fed. Reg. at 34947.

existing coal-fired EGUs will retire due to compliance timelines under MATS. These retirements will provide significant and quantifiable $CO_2$ emission reductions from existing sources of approximately 17 million tons. Certainly, it is not EPA's intention to leave emissions of this magnitude unaccounted for and uncredited in a state's plan.

Given the intended flexibility of the proposal and the states' responsibility for plan development, states should be able to use these reductions to achieve their targets if they have the option to choose a mass-based approach for compliance.

### ii. Use of New NGCC Capacity to Meet Kentucky's Goal

EPA noted, "[w]e invite comment on whether incremental emission reductions from new NGCC units that outperform the performance standards for such units under CAA section 111(b) based on the use of CCS should be allowed as a compliance option to help meet the emission performance level required under a CAA section 111(d) state plan."[42]

The current existing fleet in Kentucky cannot meet the state's goal as proposed by EPA, 1,763 lbs $CO_2$/MWh, unless new natural gas combined cycle (NGCC) units can be used as a compliance option. Therefore, the Cabinet urges EPA to promulgate specific regulatory language to ensure that the use of new NGCC, with or without CCS, be allowed by a state to achieve its goal.

EPA must allow states to use new NGCC capacity constructed after January 8, 2014, as a compliance mechanism to meet the state goal. It is unreasonable to only allow the use of incremental new NGCC emission reductions that are below the Section 111(b) standard, as this will provide no meaningful fleet-wide rate improvement from the existing source pool. This also ignores the fact that dispatch of new baseload NGCC may replace existing coal-fired generation.

### iii. Section 111(b) Modified and Reconstructed Sources

The proposed rule states, "Because CAA section 111(d) does not address whether an existing source that is subject to a CAA section 111(d) program remains subject to that program even after it modifies or reconstructs, the EPA has authority to provide a reasonable interpretation, under the Supreme Court's decision in *Chevron U.S.A. Inc.* v. *NRDC*, 467 U.S. 837, 842-844 (1984). The EPA's interpretation is that under these circumstances, the source remains subject to the CAA section 111(d) plan, …"[43]

The Cabinet disagrees that Section 111(d) can be applicable to an existing source that has been modified and/or reconstructed, thereby being subject to Section 111(b) and Subpart TTTT. EPA even contradicts itself with the proposed 40 CFR 60.5800 text that specifically exempts these sources after they become subject to subpart TTTT.

---

[42] See 79 Fed. Reg. at 34924.
[43] See 79 Fed. Reg. at 34904.

The Clean Air Act clearly defines "new source" and "existing source" and establishes separate subsections in Section 111 to provide statutory authorization in determining separate standards of performance for new and existing sources. Section 111(a)(2) defines "new source" as any stationary source, the construction modification of which is commenced after the publication of regulations (or, if earlier, proposed regulations); and Section 111(a)(6) defines the term of "existing source" as any stationary source other than a new source. It should be noted that Section 111(d) only applies to existing sources. As defined, modified and reconstructed sources are considered new and not subject to the requirements of a Section 111(d) plan after becoming a modified source.

### iv. Use of Alternate Goal

It is noted in the proposed rule, "… the EPA has developed for public comment an alternate set of goals reflecting less stringent application of the building blocks and a shorter implementation period. The alternate final goals represent emissions performance that would be achievable by 2025, after a 2020-2024 phase-in period, with interim goals that would apply during the 2020-2024 period on a cumulative or average basis as states progress toward the final goals."[44]

While the Cabinet disagrees with an interim goal as discussed in Section V.i. of these comments, EPA should promulgate the alternate goals as an available regulatory option. This would allow maximum flexibility in adopting either goal and its associated timeline.

### v. Carbon Offsets

In the proposed rulemaking, EPA infers that out-of-sector GHG offsets could be used as a compliance option in a state plan.[45] In Kentucky, approximately 2 million acres of land mass has the potential to be reforested. The Kentucky 20/20 Vision for Reforestation establishes a long term goal of planting 20 million seedlings in 20 years. [46]

Using the Chicago Climate Exchange's Forest Carbon Sequestration Project Protocol, assuming 1 million seedlings are planted every year for 20 years and that these seedlings are widely spaced tree plantings in urban and suburban programs, the cumulative effects of these reforestation efforts are ~0.5 million tons of $CO_2$ sequestered. [47] The trees' sequestration is exponential in growth and builds annually at a rate consistent with the growth of the trees.

This is a conservative estimate for urban and suburban tree plantings and could be larger given the design of the program and areas chosen for planting. However, this is not the only potential area for sequestration in Kentucky. Estimates from the U.S. Department of Transportation's Carbon Sequestration Pilot Program suggest, that in addition to state lands, unpaved highway

[44] See 79 Fed. Reg. at 34898.
[45] See 79 Fed. Reg. at 34910.
[46] http://forestry.ky.gov/pages/2020vision.aspx.
[47] https://www.theice.com/publicdocs/ccx/protocols/CCX_Protocol_Forestry_Sequestration.pdf.

areas provide significant potential for carbon sequestration.[48] The Federal Highway Administration's Carbon Sequestration Estimator calculates the return on investment for various carbon sequestration scenarios and is a useful tool for states that want to develop carbon offset programs. These federal agencies have expended significant resources providing states with the tools to estimate their carbon sequestration potential. Therefore, the Cabinet recommends that EPA allow these tools to be used as part of a carbon offset compliance option.

Just as with geologic sequestration, trees provide a viable carbon sequestration option. The Cabinet recommends that out-of-sector offsets be allowed where the designated pollutant, $CO_2$, is directly mitigated. Kentucky's reforestation initiative is consistent with this premise and should be allowed as a compliance option.

## V. Unintended Consequences

This rule will undoubtedly have the most significant and far-reaching impact on environmental and energy policy that the United States has experienced during the last 40 years. As such, the Cabinet identifies the following issues which are cause for concern.

### i. Interim Compliance Period Impacts and Stranded Assets

EPA states that the period of 2020-2029 will help states minimize stranded assets, taking into account the age of the coal fleet.[49] The period of 2020-2029 is not adequate to prevent stranded assets in the case of plants retrofitted to meet the compliance requirements of the MATS rule.

Several utility stakeholders have stated that the interim period forces an impending "compliance cliff" beginning in 2020 that does not consider potential stranded assets and does not afford them the requisite time to prepare for compliance by properly going through their integrated planning process. With the flexibility provided for Section 111(d) compliance, it should be the state's role to determine how it complies with the ultimate 2030 standard. Therefore, the Cabinet strongly recommends eliminating the interim compliance period and interim target.

Kentucky ratepayers will be burdened with a $4.5 billion price tag for compliance with the MATS rule if these retrofitted plants are not allowed to operate. These plants are assumed to have a remaining useful life of 20-30 years after modification. For example, the PSC recently approved a request for a Kentucky facility, which would have been shuttered in 2015 under the recently finalized MATS rule, to spend an estimated $1.26 billion on new technologies to become compliant.[50] The work is under construction today, and as a result of this investment, the facility will have an additional useful life of at least 30 years, through 2045. Stranding this

[48] www.fhwa.dot.gov/environment/climate_change/mitigation/publications_and_tools/carbon_sequestration/#exsum.

[49] See 79 Fed. Reg. at 34897.

[50] Kentucky Public Service Commission's Final Order 2011-00162 "*An Application of Louisville Gas and Electric Company for Certificates of Public Convenience and Necessity and Approval of its 2011 Compliance Plan for Recovery by Environmental Surcharge*," page 8. http://psc.ky.gov/order_vault/Orders_2011/201100162_12152011.pdf.

asset and others would place an unfair cost on Kentucky ratepayers while compromising reliability. This is particularly significant since these compliance costs are accruing as a direct result of previous EPA actions. Therefore, the Cabinet strongly recommends EPA re-evaluate the compliance timeframes while considering the remaining useful life of the affected EGUs that have recent or soon-to-be installed air pollution controls.

### ii. Constrained Economic Dispatch

Kentucky currently has three jurisdictional electric utilities that are members of PJM Interconnection, LLC and one jurisdictional electric utility that is a member of the Midcontinent Independent System Operator, Inc. In addition, Kentucky's two largest jurisdictional electric utilities operate outside of a multi-state Regional Transmission Organization (RTO) construct. Because of the regional nature of wholesale markets, whether or not Kentucky chooses to be a part of any multi-state collaborative, the implementation of other state plans will potentially impact the ability to ensure that Kentucky ratepayers are afforded the least cost power to meet their needs.

Presently, RTOs dispatch power on a security constrained economic dispatch basis. If the markets are impacted by multiple state plans, some of which might include a price of carbon while others do not, and are forced to write their rules accordingly, the wholesale price of power will not necessarily be reflective of least cost dispatch. The Cabinet is concerned that Kentucky ratepayers will be subject to market forces that will result in higher prices because of actions in other states.

### iii. Grid Reliability

EPA fails to consider the location of existing units necessary for grid stability in the proposed rule. As units are retired, the operation of the remaining existing units will be necessary to provide voltage support. The units will emit without actually generating megawatts for sale while serving as voltage regulators. EPA should account for the generation of the volt-ampere reactive power when determining the state-specific goals by subtracting this generation from the goal computation.

The Cabinet is also concerned that the proposed rule will affect the ability to transmit electricity from the generating units to the load areas, especially during the timeframe between when the proposed rule is final and when the transmission system can be updated to comply with the final rule. EPA should account for the emissions from the generating units required to operate because of the transmission constraints by implementing a "safety valve" mechanism. Such mechanism could simply deduct the associated emissions generated during must-run conditions from the units' annual emission levels before calculating emission limits for compliance purposes.

### iv. Preventing Market Distortions

EPA promotes the availability of renewable electricity generation to meet a state's goal.[51] However, the Cabinet is concerned that the proposal may not fully support the transfer of renewable generation, in terms of MWh, to another state when implementing state-specific Section 111(d) plans.

The existence and trading of Renewable Energy Certificates (RECs) enables and promotes efficient renewable energy development. However, the current REC trading system relies on the premise that the renewable energy attribute associated with the renewable energy generated is separate from the electricity provided. The attribute can be sold separately from the electricity or they can be bundled together. When a REC is sold separately from the underlying MWh of electricity, the remaining MWh is called "null power" and is no longer considered renewable.[52] This null power, while not considered renewable, is still consumed either directly or indirectly as part of the mix utilized by consumers on the grid. In essence, this null power has the ability to substitute for more carbon intensive sources. There is great risk to double counting in a Section 111(d) plan using the REC trading system currently in place, and therefore reported emissions would be lower than actual emissions.

For example, Kentucky has renewable distributed generating resources located in the Tennessee Valley Authority (TVA) service territory. Under TVA's Green Power Provider program, TVA receives the RECs from these systems if they are in the program. However, under a Section 111(d) plan, it is impossible to determine which affected EGU's load is being replaced by the RECs and the impact of the null power. To complicate further, Kentucky could still claim the distributed resource from a capacity standpoint even though the renewable attributes of the electricity generated from these sources belong to TVA.

As a result of this dissociation in the REC markets, Kentucky recommends the following:

1. EPA should specify that PPAs, where RECs are tied to electricity consumed, be included as a compliance option for Section 111(d) state compliance plans. These RECs would then be retired.
2. EPA should not permit a generating state to avoid emissions if the RECs are sold to another state, separate from null power, for RE generating capacity.
3. To avoid double-counting, EPA should specify a methodology for assigning an attribute profile for null power or more specifically an average or marginal grid emission value minus the renewable attributes for the purpose of calculating emissions from this null power.[53] Without a null power value, the utilization of RECs is constrained to meeting individual state RPS targets but have no role in a Section 111(d) compliance plan where

[51] See 79 Fed. Reg. at 34919.
[52] http://www.resource-solutions.org/pub_pdfs/Tracking%20Renewable%20Energy.pdf, p. 4.
[53] http://www.ghgprotocol.org/files/ghgp/GHG%20Protocol%20Scope%202%20Guidance.pdf .

the avoided electricity and avoided emissions are of value.[54] This again points to the risk of using RECs as a form of emission offsets for which they were never intended.

### v. Increase in $CO_2$ Emissions from Load Shifting

EPA notes, "We view this as strong evidence that increasing the utilization rates of existing NGCC units to 70 percent, not in every individual instance but on average, as part of a comprehensive approach to reducing $CO_2$ emissions from existing high carbon-intensity EGUs, would be technically feasible."[55]

The Cabinet is greatly concerned that the state goals as proposed heavily rely on the re-dispatching of baseload units from coal-fired EGUs to NG units.[56] This shift could in effect force coal-fired EGUs to serve as "peaking units" and in actuality increase the net output rate of $CO_2$ emissions due to the idling of coal-fired EGUs.

Finally, it is unclear if EPA considered the feasibility of NGCC units sustaining a high capacity factor to serve as baseload units. Stakeholder input has shown a wide range of opinion on whether a 70 percent capacity factor is sustainable. A range from 55-80 percent was voiced by Kentucky utilities, with maintenance downtime being a major concern. These factors must be considered in the final Section 111(d) rule.

## VI. State's Flexibility in Meeting the Goal

EPA has proposed regulatory language in 40 CFR 60.5755, as follows:

"(a) You must submit your state plan with the information in §60.5740 by June 30, 2016 unless you are submitting a request for extension according to paragraphs (b) and (c) of this section.
(b) For a state seeking a one year extension for a complete plan submittal you must include the information in §60.5760(a) in a submittal by June 30, 2016 to receive an extension to submit your complete state plan by June 30, 2017.
(c) For states in a multi-state plan seeking a two year extension for a complete plan submittal you must include the information in §60.5760(a) in a submittal by June 30, 2016 to receive an extension to submit your complete multi-state plan by June 30, 2018."[57]

### i. Timeframe of State Plan Submittal

Due to the variety of state plan options available (mass-based, rate-based, portfolio) to state planning officials, most states will be faced with challenges in coordinating stakeholder discussions necessary to develop its plan. EPA has acknowledged the cost and time requirements that the proposal will demand of states: "As discussed in the Supporting Statement

[54] http://www.westernclimateinitiative.org/the-wci-cap-and-trade-program/program-design.
[55] See 79 Fed. Reg. at 34863.
[56] See 79 Fed. Reg. at 34851.
[57] See 79 Fed. Reg. at 34952.

found in the docket for this rulemaking, the development of state plans will entail many hours of staff time to develop and coordinate programs for compliance with the proposed rule, as well as time to work with state legislatures as appropriate, and develop a plan submittal."[58] EPA's expectation that individual states will have the time necessary to evaluate fully the opportunities of such a complex plan and oversee its development is unreasonable. One year is clearly inadequate to develop a plan with stakeholder input, have a meaningful public participation process, and promulgate and/or repeal state statutes and regulations. Therefore, EPA at a minimum should allow a 3-year timeline for states to submit their plans after the rule is finalized.

### ii. 2012 Base Year

EPA states in the proposed rule, "On a state-by state basis, […EPA…] obtained total annual quantities of $CO_2$ emissions, net generation (MWh), and capacity (MW) from reported 2012 data for all affected EGUs."[59]

The Cabinet recognizes that EPA's goal computation is forward projecting based on a starting year of 2012; however, 2012 is not a representative year. Prolonged outages in several states, along with weather anomalies and low natural gas prices, resulted in higher than average natural gas usage at EGUs. The use of 2012 has the potential to result in lower goal projections and higher costs of compliance than would otherwise be estimated with a more representative starting year. Therefore, the Cabinet recommends a three-year average of data between 2005 and 2012, as being more appropriate for goal computation. This would not only assist in eliminating fluctuations in energy demand and production but would also give credit for actions taken prior to the 2012 baseline.

## VII. Notice of Data Availability (NODA)

EPA's October 28, 2014, NODA covers several issues that the Cabinet addresses in its comments on the proposed rule. However, while EPA may have intended to provide clarity, the NODA only served to introduce more uncertainty into the process. Most importantly for states, it is no longer clear what a state's goal will be in the final rule, thereby delaying the compliance planning process.

### i. Proposed 111(d) Goals Made Uncertain by NODA

In the NODA, EPA is suggesting fundamental changes to the proposed rule that stakeholders have been considering for several months. The suggested changes could be very dramatic to any given state—one month for consideration is inadequate and renders our stakeholder process moot. In addition to insufficient time for rule consideration, the time frame necessary to plan, permit, and construct generation or transmission assets to meet resource needs is thrown into further flux. This exacerbates an already existing concern with the planning horizon needed to meet future resource needs and could jeopardize reliability of the grid.

[58] See 79 Fed. Reg. at 34947.
[59] See 79 Fed. Reg. at 34895.

As stated elsewhere in these comments, the Cabinet is concerned with the impact of the proposed rule on electricity cost. Should the cumulative worst case impact of various options introduced by the NODA be adopted in the final rule, the result in Kentucky would most certainly mean higher prices for all consumers.

### ii. Stranded Assets Issue Not Resolved

The glide path discussions in the NODA do not prevent the potential for stranded assets. Even phasing in of Building Blocks 1 and 2 during the interim period of 2020-2029 is not adequate to prevent stranded assets.

The use of "book life" of 40 years discussed in the NODA does not reflect reality of the actual life of coal-fired power plants. As is common in the industry, 65 years is a much more realistic time frame. The footnote indicating that the "book life" of retrofits is estimated to be 15 years is also not reflective of the reality of the estimated life of these capital intensive projects. This should be more on the order of 30 years. Therefore, application of book life is inadequate for consideration in determining the impact on stranded assets.

As stated elsewhere in our comments, utilities have made investments in power plants to meet other EPA regulations, and these investments will cost ratepayers billions of dollars. Stranding these assets will lead to higher electricity rates as new generation resources are built to replace those prematurely retired power plants.

### iii. Natural Gas Combined Cycle (NGCC) Floor

At least two options introduced in the NODA contradict one another. Stakeholders cite stranded assets as the reason for phasing in Building Block 2 during the 2020-2029 period. However, the NODA introduces the possibility of setting a minimum floor for NGCC. This floor would actually have the opposite effect in states like Kentucky where reliable coal-fired generation units, with remaining useful lives beyond 2030, would have to be shutdown, thereby stranding those assets. As stated, the Cabinet and our stakeholders are very concerned with the implications of stranding utility assets, and the NODA does nothing to allay those concerns.

A minimum floor for NGCC as discussed in the NODA brings other concerns. A minimum level of NGCC utilization would create market distortions, preventing a utility from providing the least-cost resources to its consumers, especially during times of natural gas price volatility such as those experienced in recent history. These market distortions would increase prices in states such as Kentucky.

In addition to concerns regarding prices, a floor could affect reliability in areas that have not relied on NGCC generation in the past. This floor would require a significant build out of electricity generation and transmission, as well as the natural gas infrastructure necessary to serve those generators. The planning horizon for such investments is long, and it is not clear that the assets would be in place by 2020 or even 2030 in some cases.

The NODA also discusses the potential for co-firing natural gas with coal. This would also require significant investment, leading to higher cost of electricity. In the analysis, EPA assumes that coal-fired units run at full load and those that do not could benefit from co-firing. Contrary to EPA's assumption, most units do not run at full load. Furthermore, there could potentially be unintended consequences of co-firing these units. Moving coal-fired or co-fired units away from baseload operations into more of an intermediate or load following mode will decrease any gains in power plant efficiency envisioned in Building Block 1. Ramping co-fired units up and down, in effect running them as peaking units, would most likely increase criteria pollutant emissions as well as $CO_2$ emissions.

### iv. Regional Approach in Goal Setting

The NODA indicates the potential for using a regional approach to set the NGCC floor and the RE (Building Blocks 2 and 3) targets. The use of a regional approach is not appropriate for many reasons, not the least of which is a regional approach limits a state's flexibility. The regions identified do not match dispatch or market regions, creating seams, which introduce inefficiencies. The NODA does not consider the transmission needs necessary to move power across the region, which introduces reliability, timing, and siting concerns and higher costs of electricity.

### v. Goal Setting Changes for RE and EE

Changes to the goal-setting equation not only introduce uncertainty, but also do not reflect the realities of the electricity system. The notion that fossil fuel-fired baseload units can be replaced with intermittent RE generation and EE measures is not appropriate. RE and EE are not dispatchable. RE and EE are intermittent and cannot be used for reliability. The backup generation needed would likely be natural gas, which would diminish $CO_2$ reductions and lead to more investment for natural gas capacity and therefore higher electricity prices.