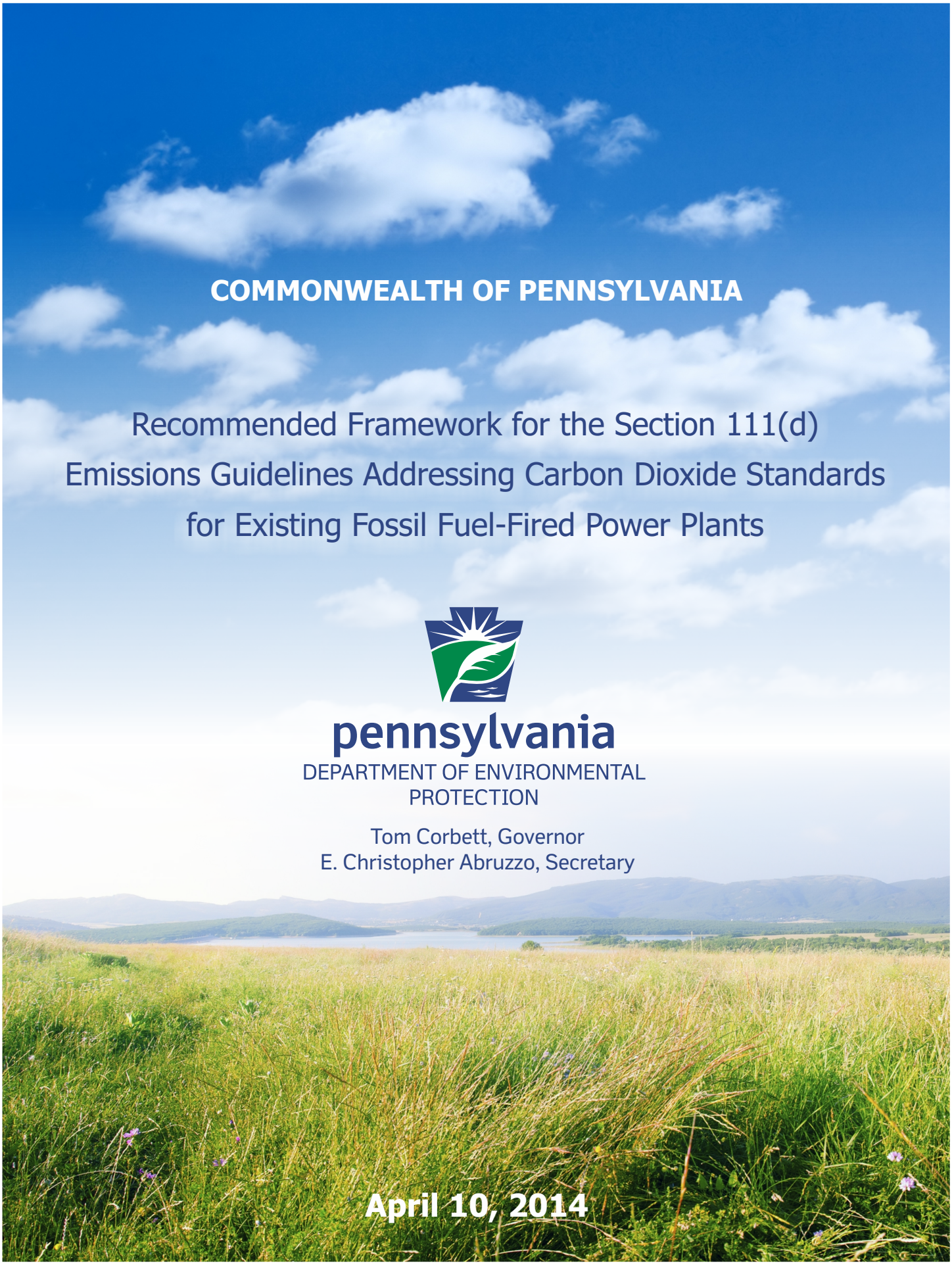

**COMMONWEALTH OF PENNSYLVANIA**

# Recommended Framework for the Section 111(d) Emissions Guidelines Addressing Carbon Dioxide Standards for Existing Fossil Fuel-Fired Power Plants

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Tom Corbett, Governor
E. Christopher Abruzzo, Secretary

**April 10, 2014**

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Gina McCarthy, Administrator
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator McCarthy:

Pennsylvania is making great progress in its efforts to position the state as a world leader in the new energy economy. A key part of this plan is maintaining the stable and diverse supply of electricity that is vital to our economy and national security.

To that end, I am pleased to provide you with a copy of a new Pennsylvania white paper that presents an innovative and flexible framework for achieving lower carbon dioxide ($CO_2$) emissions from existing fossil fuel-fired power plants.

At the heart of this plan is the preservation of states' authority and discretion in the development and implementation of flexible emission control programs. EPA should establish targets for reductions, rather than mandate pathways to achieve them. A flexible approach avoids picking "winners and losers" and empowers states to design the most cost-effective compliance options for their constituents.

As stated in our white paper, Pennsylvania believes that a key to the success of any effort to reduce $CO_2$ is optimizing and maximizing the benefits of energy efficiency projects. For that to occur, it is critical for EPA to endorse, adopt and implement our proposal to modify the New Source Review applicability test. If this change is made, a paradigm shift would be accomplished that would result in considerable investment in energy efficiency efforts not just in the fossil fuel-fired electric generating sector but throughout the entire U.S. economy.

Companies paying to make energy efficiency improvements would benefit economically through lower operating costs, which results in lower prices for consumers while achieving lower $CO_2$ emissions. This change would provide an incentive to companies to make investments that would result in emissions reductions, including $CO_2$, from all emitting sources without the need of a regulation to force the reduction.

Pennsylvania is committed to achieving the goals that would be established under a flexible $CO_2$ program in a fashion that allows us to best serve the needs of our citizens. We look forward to hearing your feedback on our proposal and pledge our commitment to work in partnership with your staff as you craft a plan to meet President Obama's directive to build on state leadership, provide flexibility and take advantage of a wide range of energy sources and technologies towards building a cleaner power sector.

Sincerely,

E. Christopher Abruzzo
Secretary

# Commonwealth of Pennsylvania's Recommended Framework for the Section 111(d) Emissions Guidelines Addressing Carbon Dioxide Standards for Existing Fossil Fuel-Fired Power Plants

**If EPA develops emissions guidelines, it should be done under Section 111(d).**

Section 111(d) of the Clean Air Act (CAA) is applicable for air pollutants that are neither regulated as a National Ambient Air Quality Standard (NAAQS) nor as a hazardous air pollutant (HAP) and where a New Source Performance Standard (NSPS) would apply for new affected sources. This section specifies that the U.S. Environmental Protection Agency (EPA) shall develop regulations establishing a procedure similar to the state implementation plan process which must be followed by the states. Further, this section obligates the states to prepare and implement plans that establish standards of performance for existing sources as well as provide for the implementation and enforcement of such standards. Under Section 111(d), states have the authority to devise flexible programs for existing units that achieve the federal guidelines using provisions that work best for the individual states. Considering the dramatic differences among the states relative to fuel diversity and the market differences between rate-based markets and restructured markets, this state flexibility is critical. Therefore, Section 111(d) would be the most appropriate section of the CAA to regulate carbon dioxide ($CO_2$) emissions from existing large fossil fuel-fired electric utility steam generating units (EGUs) and fossil fuel-fired combustion turbines. Using the guidelines, states would be required to develop Section 111(d) plans for existing sources. These requirements can and should be less stringent than the NSPS, taking into account, among other factors, the remaining useful life of the existing source to which the standards of performance apply, additional environmental benefits of a fuel source, and other important considerations including market impacts and electric grid reliability.

**Emissions guidelines should be developed in close consultation with the states.**

The EPA must recognize state leadership and authority to regulate pollutants within their borders and should ensure preservation of states' discretion in the development and implementation of flexible emission control programs that are consistent with Section 111(d) provisions. The EPA should develop emissions guidelines that provide for maximum flexibility to the states in meeting those guidelines. The emissions guidelines should establish targets, not mandate how to achieve the established targets. Only the states have the authority to design and implement pollution control programs to meet the requirements adopted to regulate carbon dioxide in accordance with Section 111(d), except in areas where the authority has been delegated to a local agency, or a state has failed to submit the necessary plan.

**The emissions guidelines should address $CO_2$ emission reductions achieved by the affected sources.**

Emissions guidelines should establish targets based upon actions that can be taken directly by and at existing sources affected by a Section 111(d) $CO_2$ program. This approach is consistent with EPA's previous emissions guidelines promulgated for other source categories under the CAA. Furthermore, the EPA should limit the definition of "best system of emission reduction" (BSER) to actions that can be taken by the affected existing source without redefining the source. This will require the consideration of the inherent differences within the universe of existing boilers and combustors that are included in the fleet of fossil-fuel fired electric generation sources.

If an energy-efficiency project or some other project with unique environmental benefits (e.g., municipal waste-to-energy projects) associated with a "non-affected" source is to be granted a "credit" under a Section 111(d) program, the "credited" reductions must be quantifiable and enforceable consistent with the quantification by a source affected under the program. The owner, operator or entity receiving credit for actions taken at a non-affected source must be responsible for ensuring that the $CO_2$ reductions continue at the credited level. To ensure the integrity of Section 111(d) programs which include actions taken by non-affected sources, it is critical to have very high data quality standards. Absent high quality data, the effectiveness of the program would be compromised to the economic benefit of some and detriment of others. Consequently, it is suggested that the quantification methods for credits awarded to non-affected sources be standardized by or be required to receive approval from the EPA when using reductions from non-affected sources in a Section 111(d) program.

It is important to note that energy efficiency projects not associated with existing sources or facilities are actually emissions <u>avoidance</u> efforts and not emissions reduction efforts. Consequently, only energy efficiency efforts at existing sources or facilities, or new energy efficiency projects that are coupled with the replacement or retirement of an existing source or facility, should be considered for crediting toward a Section 111(d) program. In the case of a project with unique environmental benefits, the amount of credit should be demonstrated on a continuous basis. Because of the complications of a program that includes non-affected sources, EPA should establish Section 111(d) guidelines for $CO_2$ emissions that only consider currently available and economically feasible technologies that improve energy efficiency at affected sources.

Emissions guidelines should provide for unit averaging for a rate-based program or accumulation of emissions from multiple sources if the program is mass-based. Also, because $CO_2$ is not a pollutant for which a short-term ambient air quality standard is necessary or desirable, a multi-year (e.g., five-year) rolling average can be used to demonstrate compliance. This methodology provides recognition of year-to-year variations in operations without requiring the use of emission allowances. After the close of the reporting period, a "true up" period should be provided to allow "over-emitters" and "under-emitters" to reach a negotiated settlement that provides for "net" compliance with emissions obligations. This approach may be a very desirable option for restructured energy markets as it provides for flexibility without picking "winners and losers," as can occur with allowance-based programs. These opportunities would enable states to design the most flexible

programs and the owners and operators of affected sources to select the most cost-effective compliance options for meeting their compliance obligations.

**States must be allowed to join with other states in multi-state or regional programs.**

States must have the opportunity to collaborate with other states in either formal or ad-hoc forums while developing compliance demonstration options. The opportunity to collaborate should also be provided to the owners and operators of affected sources to allow them flexibility in achieving the most effective compliance options. This collaborative process should be provided for, but not obligated in the guidelines developed by EPA. The most critical aspect of having creditable and high-functioning programs is the quantification of the emissions. In the case of EGUs, monitoring provisions are consistent and specified under federal regulation. This consistent quantification of emissions obviates the need of emission allowances for the success of multi-state trading programs. However, the decision to utilize an emission allowance-based program should be at the state's discretion. Importantly, the emission allowance-based program must also be reliant upon the consistent quantification of emissions.

**EPA must recognize the different makeup of existing power generation in each state and recognize flexible compliance pathways or mechanisms.**

The existing power generation fleet in Pennsylvania is extremely diverse in terms of fuel sources, combustion technology, and vintage. As the Commonwealth is intimately familiar with the exact composition of the fleet, Pennsylvania is best suited to design the plan to meet the final emissions guidelines promulgated by EPA and also to be adequately flexible to accommodate Pennsylvania's diverse resources. This is true for all state and local agencies.

Importantly, states should also have the ability to exclude certain electric generators that have environmental benefits that are beyond the $CO_2$ emissions from those sources. Examples of fuel sources that this may apply to are coal refuse and coal bed methane.

An excellent example of an electric generation source category with multi-media benefits is coal refuse combustion units. In Pennsylvania, large piles of coal refuse are a legacy issue and these facilities turn this refuse into electricity in a controlled combustion process rather than through uncontrolled burning, which occurs due to the exposure of coal refuse piles to air. The exposure of a mining refuse pile to atmospheric oxygen and pressure promotes heat generating reactions, primarily oxidation of the coal refuse itself (i.e., the coal refuse piles are slowly burning), releasing $CO_2$ emissions as well as sulfur oxides, particulate matter, and other pollutants associated with poor combustion. The benefits of utilizing this fuel source are that it is essentially carbon neutral, emissions of other pollutants from coal refuse-fired sources are well controlled, and sources of acid mine drainage and ground water pollution are removed. Additionally, the use of coal refuse reduces the emissions from use of "new" coal or natural gas from being combusted to generate electricity in an amount that would reflect the amount of electricity generated by the coal refuse-fired combustion units.

Because the ash from the controlled combustion of coal refuse is used to remediate the site where the coal refuse pile was located, these areas are reclaimed without any funding necessary from Pennsylvania taxpayers. At this point, over 7,200 acres of affected land in Pennsylvania have been reclaimed through the use of this fuel source. This represents savings to Pennsylvania taxpayers of $140 to $220 million dollars while providing jobs, environmental benefits, and taxes to the localities where these coal refuse-fired facilities operate. For perspective, the industry estimates there are still approximately 170,000 acres affected by coal refuse remaining in the Commonwealth.

**Emissions guidelines should provide for emission reductions compared to a designated baseline period.**

Regulating greenhouse gas such as $CO_2$ is unique when compared to criteria pollutants. Section 111(d) of the CAA allows EPA to consider flexible approaches when establishing the guidelines and allows states to utilize flexible approaches for compliance demonstrations. Potential strategies include state budgets, multi-year averaging, and early reductions. EPA should establish specific goals for the states based on standards of performance, recognizing that existing sources have very limited options when compared to new sources. New sources have the opportunity to incorporate emissions controls and efficiency improvements into their design much easier than existing sources. Further confounding the installation of controls on existing units is the New Source Review (NSR) process specified in the CAA and the regulations. EPA should address the NSR ramifications of the installation of controls or modifications on existing units used to meet the standards of performance established under the guidelines. NSR ramifications should not impede the maximum possible implementation of energy efficiency improvement projects at these affected sources.

Pennsylvania recommends the EPA's emissions guidelines provide for a state budget approach option for only existing sources being regulated for $CO_2$ under a Section 111(d) program. This is because new affected sources will be regulated under Section 111(b) through the New Source Performance Standards (NSPS), which, as proposed, establish unit-specific $CO_2$ limits. Under Section 111(d), EPA should provide for a state budget based on achievable rate-based standards of performance which can then be converted to a mass-based target by multiplying the baseline year energy output (i.e., the gross output in MWh for the baseline year) multiplied by the rate-based standard (expressed in lbs/MWh (gross)) to determine the mass-based target in tons per year. Pennsylvania recommends that the EPA use 2005 as the appropriate baseline year as suggested by President Obama's Climate Change Action Plan. The emission guidelines should allow compliance with the budget to be demonstrated using system-wide averaging or accumulation on a rolling five-year basis for facilities under common control. This system of implementation would provide states the ability to recognize and use all quantifiable and enforceable reductions including, but not limited to, source retirements, permanent curtailments, and early reductions.

**EPA must recognize the differences inherent in regulated versus competitive energy markets and the need to provide for electric grid reliability.**

EGUs in Pennsylvania are participating in a competitive energy market. Therefore, the costs to

comply with state plans implementing the emissions guidelines cannot be directly passed on to the customers. On the other hand, EGUs participating in a regulated rate-based market can directly recover the costs of compliance after obtaining approval from the Public Utility Commission and will be compensated with a return on investment for costs associated with compliance efforts. EPA must recognize the fundamental differences in these marketplaces by recognizing the authority of the states to design and implement programs that best serve the affected sources located within their jurisdiction.

Emissions guidelines mandating an electric grid system-based approach, i.e. the re-dispatch of EGUs based on a lower CO2 emission rate should not be part of a 111(d) program. This type of program could disrupt the competitive energy market and could place additional coal-fired EGUs at risk of early retirement, resulting in additional job losses and potential grid reliability issues. The dispatch of EGUs is beyond the scope of the EPA's authority, and the regulation of carbon dioxide emissions is beyond the authority of RTOs or ISOs. The operation of a competitive energy market is the role of RTOs and ISOs while the regulation of environmental pollution in Pennsylvania is the responsibility of the Pennsylvania Department of Environmental Protection.

**Changes to major New Source Review regulations should be considered to encourage efficiency improvements.**

Any physical change or change in the method of operation relating to efficiency improvements at an affected facility would trigger NSR applicability determinations. If NSR is triggered, the owner or operator may opt out of such efficiency improvement projects or choose not to optimize or maximize the benefits of the project, which is counter to the intent of the emissions guidelines. Therefore, we recommend that NSR regulations for EGUs be amended to redefine major modification as a modification that increases any regulated air pollutant emissions in terms of the lbs/MWh (gross), rather than the current threshold of tons per year.

There are likely other provisions in the CAA that have "absurd results" when it is used to regulate $CO_2$ or other greenhouse gases. Those provisions should all be identified and "tailored" to provide for the greatest opportunity to avoid unintended or negative consequences should this program for EGUs be implemented under Section 111(d) of the CAA. As previously addressed by EPA, circumstances that have absurd results should be corrected through regulatory amendments as was done under the "Tailoring Rule."