



610 N. Third St.
Harrisburg, PA 17101
(800) 321-7775
www.pennfuture.org

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Department of Environmental Protection, Policy Office
Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
Attn: Patrick McDonnell, Policy Director

Electronic Submission

Re: Pennsylvania State Compliance with Clean Power Plan

Dear Mr. McDonnell,

Citizens for Pennsylvania's Future (PennFuture) is a statewide membership-based environmental advocacy organization committed to promoting sound policy initiatives that protect our environment while maintaining a strong economy. We believe the Clean Power Plan (CPP) provides a unique opportunity to secure the benefits of a clean energy future for all Pennsylvanians and we look forward to supporting a strong state plan.

We thank the Department of Environmental Protection for its efforts in soliciting public input on compliance on the CPP and thank you in advance for consideration of the attached comments.

/S/

Robert Altenburg
Director, PennFuture Energy Center
610 N. Third St.
Harrisburg, PA 17101

1 Compliance Targets/Timeline

1.1 Should the state plan use rate-based (expressed in pounds of carbon dioxide emissions per megawatt-hour) or mass-based (total tons of carbon dioxide) targets?

PennFuture supports the use of mass-based targets as those are more easily adapted to trading programs and, therefore, provide a wider range of compliance options. The Department has had experience with mass-based trading programs such as the NO_x Budget trading program¹ and the CAIR program,² that could serve as useful models in developing such a program.

1.2 How should allowances be allocated under a mass-based approach?

Our preference is for an auction-based allocation with an appropriate set-aside from 2022–2029 allowances reserved for participation in the EPA’s Clean Energy Incentive Program (CEIP).

In general, we agree with the principles supported by the Market Advisory Committee of the California Air Resources Board,³ which recommend that allowance allocation be done in a way that:

- reduces the cost of the program to consumers, especially low-income consumers,
- avoids windfall profits where such profits could occur,
- promotes investment in low-GHG technologies and fuels (including energy efficiency),
- advances the state’s broader environmental goals by ensuring that environmental benefits accrue to overburdened communities,
- mitigates economic dislocation caused by competition from firms in uncapped jurisdictions,
- avoids perverse incentives that discourage or penalize investments in low-GHG technologies and fuels (including energy efficiency),
- provides transition assistance to displaced workers, and
- helps to ensure market liquidity.

This suggests an allocation mechanism that captures the value of the majority of allowances through an auction with a substantial amount of the proceeds being invested in energy efficiency, clean renewable energy, and community and worker transition programs.

Such a mechanism is in keeping with the “polluter pays” principle and thus fairly places costs in proportion to the amount of pollution produced.

¹25 Pa Code § 145.1 *et. seq.*

²25 Pa. Code § 145.201 *et. seq.*

³CARB MAC, *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California*, (June 30, 2007) available at: <http://www.energy.ca.gov/2007publications/ARB-1000-2007-007/ARB-1000-2007-007.PDF>.

1.3 Should new natural gas plants be included within a mass-based target?

One of the advantages of a mass-based approach with an auction of allowances is that the compliance obligation of facilities exists in direct proportion to the carbon pollution they emit. Neglecting to include new sources under the cap would create an incentive to shift capacity and emissions to non-covered sources.

In addition to increased pollution, this could create significant economic inefficiencies. Because of the market-based dispatch of our power grid, an existing source will have to factor the allowance price into its bid where a new source would not. This could create a competitive advantage for retiring older sources even if the replacement is no cleaner. Once again, including new sources under the cap will mitigate these concerns.

1.4 What methods should be used to measure compliance?

The Department should amend the permits of impacted facilities to require allowances be turned in for each ton of carbon emitted. The Department should also ensure that emissions reported for compliance purposes are determined using the most accurate technology that is reasonably available and made available to the public as soon as practicable.

Should a facility be unable to accurately determine the actual emissions for any unit, the Department should guarantee compliance with the statewide cap by requiring allowances to be turned in equal to that unit's potential to emit.

2 Participation in Trading

2.1 Should Pennsylvania adopt a trade-ready program without a formal multi-state agreement?

Yes. Multi-state trading programs have the potential to be a lower-cost route to compliance, so we should not adopt a program design that forecloses that option. Even if Pennsylvania does not enter into a formal multi-state agreement, the structure of a trading program could also be adapted for in-state use.

Pennsylvania also has 10 years of experience with nutrient trading and credit auctions. Since 2005, Pennsylvania has run a voluntary nutrient trading program to help achieve the TMDL pollution requirements in the Chesapeake Bay watershed set by the EPA. The Department enacted the program through the Nutrient Trading Program regulation.⁴ The program has proven to be quite beneficial and cost-effective. Funds from the program have gone toward pollutant reduction initiatives across the state. The Department acts as the environmental and regulatory arm by certifying and registering credits, while the auction for the program is run by PENNVEST. PENNVEST acts a clearinghouse, meaning it is the buyer to every seller and the seller to every buyer. Buyers bid on the available credits and enter into a contract with PENNVEST once their offer is accepted. The seller then delivers the credits to PENNVEST and is paid through PENNVEST with the money provided by the buyer. By having PENNVEST

⁴ 25 Pa. Code § 96.8.

act as the middle man, the cost of the credits is kept at a reasonable price and buyers and sellers don't have to worry about contract issues. The regulated point sources that purchase the credits can use them to comply with their NPDES permits. Additionally, the administrative costs are low and PENNVEST collects the initial application fees, annual dues, and transaction fees.

While not an exact fit for a carbon trading program, the experience the state has had with nutrient trading serves as a useful model. The Department could enact a carbon trading program regulation to help meet its carbon reduction targets set by the EPA. There would be a declining cap on carbon emissions reflecting interim targets just as there is the TMDL cap on nutrients. The only major differences would be the types of pollutants and where they are emitted and that direct credit generation (under a mass-based program) would be more limited.

2.2 Should Pennsylvania, join a formal multi-state trading collaborative?

Yes. Carbon pollution does not stop at the borders of a state or country, so it makes sense to address the issue on a wide scale. Independent studies have also repeatedly shown this will be more cost-effective than a state-only approach.

In addition, having a uniform approach across multiple states may mitigate the business disruption that can occur when many jurisdictions provide different approaches to regulation.

2.3 Should Pennsylvania manage carbon emissions without trading at all?

We recognize that trading programs can result in negative impacts. For criteria pollutants and air toxics, one common concern is that trading programs will result in "hot spots" or geographic areas that suffer higher impacts than they would without a trading program. While such hot spots are less of a concern with greenhouse gasses, carbon trading could allow plants to remain in operation that would otherwise be uneconomical. This could result in communities continuing to suffer disproportionate impacts from these sources.

While this is a real concern, we believe a trading program can be constructed that mitigates such negative impacts. In addition to enhanced outreach in potentially impacted communities, this would require that we avoid over reliance on natural gas or other fossil fuels as a compliance mechanism, and avoid subsidizing fossil fuels and polluting sources at the expense of cleaner alternatives.

3 Energy Efficiency & Renewables

3.1 How can the state best use renewable energy in meeting its compliance obligations?

Expanding clean renewable generation is necessary if we are going to remain a net exporter of electricity while reaching our carbon reduction targets.

The levelized cost of energy (LCOE) for wind and solar are already reaching parity with fossil fuel generation⁵ in many areas, and the costs are continuing to decline. This suggests that investment in clean renewable energy is a much better long term choice than expanding fossil fuel infrastructure.

PJM's Renewable integration study found that, with some transmission expansion and reserves, we could operate with 30% of the energy being provided by wind and solar without any significant reliability issues. They also found that every scenario modeled reduced locational marginal prices over a business as usual scenario. With 30 percent renewable penetration, this reduction in production costs could be as high as 16 percent and wholesale electricity costs could be reduced over 21 percent.⁶ We recommend that the Department work with the Governor's Office, Legislature, Public Utility Commission, Office of the Consumer Advocate, and other interested parties to form a transmission planning working group to address integration issues.

Our existing Alternative Energy Portfolio Standard (AEPS) renewable energy target of 8 percent of generation coming from Tier 1 sources by 2020 is insufficient. This may be further weakened if current bills that would expand Tier 1 to include municipal waste and other non-carbon-neutral sources are passed. We recommend that the legislature abandon attempts to weaken AEPS and instead expand Tier 1 to a 20 percent target by 2030 with at least three percent of that coming from solar photovoltaic sources.

In addition, we recognize that investment in new generation often requires the certainty that long-term contracts can provide. Most of our fossil-fuel fleet took advantage of this being built as regulated utilities and later, during restructuring, receiving guaranteed recovery for stranded costs. The Department should work with the PUC to develop a plan to extend and promote long-term contracting for both AEPS RECs and power purchases.

3.2 How can the state best use energy efficiency in meeting its compliance obligations?

Multiple studies have concluded that energy efficiency is the lowest cost energy resource available. This means that if we fail to maximize our efficiency, we must make up that loss with a higher-cost resource. Furthermore, since Act 175 of 2014⁷ requires that the Department "prioritize the components of the State plan based on a least-cost compliance approach to benefit consumers of electricity." As such, energy efficiency must be the top priority.

Phase I of the Act 129 energy efficiency program resulted in verified gross savings of 3,436,039 tons of CO₂ while returning \$2.40 in avoided supply costs savings for every dollar spent.⁸ While

⁵Lazard's Levelized Cost of Energy Analysis–Version 8.0, (Sept. 2014.) (*available at:* https://www.lazard.com/media/1777/levelized_cost_of_energy_-_version_80.pdf).

⁶General Electric Energy Management, *PJM Renewable Integration Study*, (March 3, 2014).

⁷PA Greenhouse Gas Regulation Implementation Act, Act of Oct. 22, 2014, P.L. 2873, No. 175.

⁸Act 129 Statewide Evaluator, *Phase I Final Annual Report*, (March 4, 2014).

that is a positive start, market potential studies indicate that much greater levels of efficiency could be implemented and still remain cost effective. The main limiting factor is the Act's capping investment at 2 percent of 2006 sales—with inflation this is a declining cap.

An effective program to promote energy efficiency could include many components. These would address both the existing regulations, and potential new programs to finance efficiency improvements. We propose the Department consider the following elements:

- Oppose efforts to weaken Act 129 with opt-out provisions.
- Amend Act 129 to remove the 2 percent investment cap.
- Expand Act 129 to require natural gas efficiency programs.
- Accurately value efficiency by expanding the cost-benefit analysis from the current Act 129 Total Resource Cost test. At a minimum, this should include health and environmental benefits.
- Repeal Act 1 of 2011 and establish a structure where Pennsylvania can adopt current building codes.
- Align the regulated utility business models with energy efficiency through rate design.
- Promote energy saving performance contracting.
- Establish a property assessed clean energy (PACE) program.
- Expand and fund the Keystone Help program.
- Amend Act 129 to require utilities to offer on-bill repayment options.
- Investigate establishing a green bank.

Another way for the state to promote energy efficiency is to include a standardized framework for building performance evaluation like the DOE's Home Energy Score (HES).⁹ The Home Energy Score provides an asset-based numerical rating for the home, similar to a vehicle's miles-per-gallon rating. Along with the score, homeowners receive information on how energy is used in their home and where improvements can be made. We agree with the Conservation Consultants, Inc. that incorporating a framework like HES as a method of measuring baseline performance and improvements across Pennsylvania's homes will provide greater visibility into the level of energy efficiency achieved. Such a tool will also empower homeowners to make changes to improve their home's energy efficiency.

3.3 Should the state participate in the Clean Energy Incentive Program?

Yes. While we recognize that a final judgment on the matter should not be made until the details of the program are finalized, we agree in principle with the expressed goals and design of the program. Under a mass-based trading program, the CEIP will likely provide the most direct incentive for energy efficiency and renewable energy and should be encouraged.

While low-income communities are often overburdened with a disproportionate share of environmental hazards, Pennsylvania's experience with the Act 129 energy efficiency program has shown that improving energy efficiency in low-income communities is more challenging than many other areas. Act 129 has attempted to address this with a specific carve-out target for such communities, but more can be done. The CEIP is a positive step in that it directly addresses encouraging more efficiency in these most-needed areas.

⁹ US DOE, "Home Energy Score," <http://energy.gov/eere/buildings/home-energy-score>.

CEIP also provides a benefit by encouraging early action which mitigates the environmental and public health impacts sooner. But, that is not the only advantage of early action. One of the goals of an energy efficiency program is to achieve a market transformation where use of a particular efficient measure becomes the “business as usual” approach. Early action on efficiency promotes this market transformation by building awareness in the market, by aiding in the development of new technologies, and by contributing to increased sales and reduced costs of measures.

3.4 Should the state set aside allowances or credits to participate in the Clean Energy Incentive Program?

Yes, assuming that the structure of the final CEIP is similar to what was proposed, the Department should participate and set aside allowances.

While some parties may raise an objection to this approach claiming that borrowing allowances from the 2022–2029 period for use in 2020–2021 will require a steeper gradient to future reductions, this may not have a significant impact. The Current PJM-wide average lifespan for coal-fired units is 48 years. As several of our units are nearing this point, we will likely see some natural attrition over the next 15 years even without CPP actions. We believe using those credits in 2020–2021 to promote growth in the efficiency and renewable energy sector provides a better overall value for Pennsylvanians than reserving them to incentivize continued pollution.

3.5 What other energy conservation measures could be considered?

While the focus of the CPP is on conservation of electricity, inclusion of gas conservation measures is important to progress in combatting climate change. This includes controlling upstream emissions of methane from natural gas wells and processing facilities which could undo any benefit of switching from coal to gas. This also includes residential efficiency measures where existing programs, such as Act 129, effectively prioritize efforts in all-electric homes over those using gas for heat and or hot water.

4 Least-Cost Compliance and Reliability Issues

4.1 What compliance pathway represents the least-cost option for Pennsylvania?

Indications are that a multi-state trading system would provide the lowest overall cost of compliance with the CPP. That should certainly be investigated for Pennsylvania, but we can implement highly cost-effective measures within our own borders. A market potential study conducted by the PUC’s Statewide Evaluator (SWE) has shown our current energy efficiency programs are not achieving close to the economic potential. Any least-cost compliance pathway should start with maximizing results from programs, like energy efficiency, where we will more than recoup our initial investment.

4.2 How can Pennsylvania meet its objective of prioritizing indigenous resources?

Pennsylvania has an abundance of indigenous resources. This includes fossil fuels, but Article I § 27 of the Pennsylvania Constitution also includes clean air and pure water among Pennsylvania's natural resources. Expanding the use of energy efficiency and renewable energy will allow us to protect our citizens and our natural resources while enjoying the benefits that come with minimizing our dependence on foreign and out-of-state fossil fuels.

4.3 How can Pennsylvania maintain a diverse fuel mix?

Pennsylvania's fuel mix is far from diverse. The vast majority of the generation comes from coal and natural gas with only four percent coming from renewable sources. In order to increase diversity, we need to become less dependent on fossil fuels. We are nowhere near our solar and wind potential. If the state puts too great of an emphasis on natural gas, that may come at the expense of more clean energy like solar and wind. If we invest more in renewable sources of energy and stop subsidizing fossil fuels, we will diversify our energy portfolio while reducing CO2 emissions.

4.4 How can Pennsylvania protect the commonwealth's position as a net energy exporter?

If we are to meet our mass-based targets without compromising our position as a net exporter, we need to look beyond fossil fuels. Many units in our aging fleet of coal plants are nearing their expected life. If we choose to replace them with gas plants, we make take advantage of historically-low prices in the short term, but we are committing ourselves to decades of dependence on gas, its price volatility, and the environmental risk. Maximizing efficiency and clean renewable generation will allow us to maintain our position as an energy exporter without compromising environmental protection.

4.5 How can Pennsylvania ensure electric reliability?

Increased reliance on natural gas generation creates significant reliability concerns. The majority of natural gas fired plants within the PJM grid do not have firm contracts for pipeline capacity and, as such, cannot guarantee they will be available in an emergency. Even those with such contracts may still experience forced outages as they will need to compete with local distribution companies and other users. While there are several pipeline projects in various stages of development, those pipelines tend to be focused on moving gas to export facilities or for other industrial uses and may not result in increased reliability at power plants.

To ensure electric reliability in the future, we can't afford to tie our economy to fossil fuels. We need to invest in efficiency and clean generation technologies.

5 Vulnerable, Over-Burdened, and Environmental Justice Communities

5.1 What specific Pennsylvania communities may currently be experiencing adverse, disproportionate impacts of climate change and air pollution?

It is an unfortunate truth that the most-impacted communities are often in economically depressed areas with the least resources to mitigate any damages. Pennsylvania has long been a focal point for Environmental Justice action¹⁰ and communities across the state continue to suffer disproportionate impacts from air pollution and related health impacts such as asthma. Climate changes will magnify these impacts with increased heat injuries, disease vectors, and often direct impacts such as flooding and storm damage.

Climate change will, however, impact a wide range of communities across the state. For one example, we can consider the dairy industry. Dairy farming is the largest agricultural industry in Pennsylvania with the second-largest number of dairy farms in the nation bringing in \$1.4 billion per year. Many of these are family farms in rural areas and are critical to local economies. Since heat stress in dairy cattle significantly reduces production, all of these areas may experience negative impacts.

5.2 What specific Pennsylvania communities may experience economic concerns over the implementation of the state plan?

While communities will have legitimate concerns over the implementation of the state plan, the Department should expect that those who oppose action on climate change and regulation in general will seek to foment these concerns by attributing every actual or threatened closure of a plant or a coal mine to actions of the EPA or the DEP. The facts are rarely that simple.

Experience has demonstrated that the cost of environmental regulation plays a minor role in the decision to close facilities. Doing nothing on the CPP, as requested by several commentators, will not prevent plant closures and job losses. The shifting economics of the energy industry is the main source of disruption.

Instead of a source of concern, Pennsylvania should view the CPP as an opportunity. We have the technology and the ability to bring sustainable clean energy jobs to the state. The CPP can help provide a pathway to get us there. Inaction won't solve anything but it will force the EPA to implement a federal plan that may not address these issues in Pennsylvania.

5.3 What additional steps can be taken by DEP to effectively reach out to these vulnerable communities to ensure that their concerns are taken into consideration?

We commend the Department for its efforts to hold 14 listening sessions across the state and hope this level of outreach and public engagement will continue in all phases of the development

¹⁰ See: *Chester Residents Concerned for Quality Living v. Seif*, 132 F.3d 925 (3d Cir. 1997).

of the state plan. As far as additional steps that can be taken, the Department should continue to engage vulnerable communities as much as possible.

The most vulnerable communities are the ones that are already seeing the effects of CO₂ pollution. They tend to include a lot of low-income individuals and minorities. Citizens in the most vulnerable communities do not have the resources to file extensive comments or the ability to take time away from work to attend a hearing. Thus, the Department should use its Office of Environmental Justice to reach out to civic and religious leaders in these communities to get a better sense of their concerns. They need to have a voice at the table as the Department weighs its options for the state plan.

5.4 How can Pennsylvania ensure that these communities are not disproportionately impacted by the state plan?

Pennsylvania has experienced the boom and bust cycle with many extractive industries over the years. There was a boom in timber, in oil, and in coal. Now, the glut of natural gas in Pennsylvania has led to depressed prices and has accelerated the decline of the coal industry and coal-fired power plants.

With declining gas prices, there is continued pressure to expand natural gas infrastructure and use gas as a compliance tool. This is promoted as an effort to bring jobs and economic development to these communities, and it is sometimes promoted as a “bridge fuel” to clean energy. That is possible, but expansion of gas could just as easily lead to over-reliance on a single industry and continue the boom and bust cycle.

Pennsylvania should instead look at the CPP not as a problem for communities, but as an opportunity. We should focus on making the transition from fossil fuels and bringing clean and sustainable industries to these communities.