
PETITION

of

Ashley Funk

to the

**Pennsylvania Environmental Quality Board
Pennsylvania Department of Environmental Protection**

PETITIONER'S RESPONSE TO THE DEP'S APRIL 15, 2014 EVALUATION REPORT

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Petitioner Ashley Funk, pursuant to 25 Pa. Code section 23.7, hereby submits her response to the Pennsylvania Department of Environmental Protection’s (DEP) April 15, 2014 Evaluation Report On The Ashley Funk Petition For Rulemaking To Reduce Carbon Dioxide Emissions (April 15 Report).

INTRODUCTION

In 1971, the people of Pennsylvania voted, by a 4 to 1 margin, to amend the Constitution for the Commonwealth of Pennsylvania – one of the nation’s original constitutional charters – to include the following three sentences, joined together and incorporated as Article I, section 27, and known as the “Environmental Rights Amendment.”

Natural Resources and the Public Estate -- The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.¹

In accordance with Ms. Funk’s petition, the issue is whether and to what extent the State is meeting its constitutional responsibilities imposed by the Environmental Rights Amendment. Instead, DEP’s April 15 Report reads as if this constitutional guarantee does not exist. Indeed, it avoids any discussion of the fundamental legal driver for the Petition for Rulemaking: the public trust responsibilities of the Commonwealth enshrined in Article I, Section 27 of the Pennsylvania Constitution. As the Pennsylvania Supreme Court made clear in *Robinson Township v. Commonwealth*,² Article I, Section 27’s requirement to “conserve and maintain” the state’s natural resources imposes twin obligations upon the Commonwealth – and DEP as its agent – as public trustee. The first is the negative duty “to refrain from permitting or encouraging the

¹ Pa. Const. Article I, § 27.

² *Robinson Township v. Commonwealth*, 83 A.3d 901 (Pa. 2013).

degradation, diminution, or depletion of public natural resources, whether such degradation, diminution, or depletion would occur through direct state action or indirectly, *e.g.*, because of the state’s failure to restrain the actions of private parties.”³ The second is the positive duty “to act affirmatively to protect the environment” via legislative or regulatory action.⁴

DEP has done neither. The April 15 Report neither explains how the Commonwealth is “refraining from permitting” sources that cause and contribute to diminution of the atmosphere by virtue of GHG emissions in the Commonwealth, nor how it is protecting the atmosphere from GHG emissions “affirmatively.” Rather, the April 15 Report’s listing of the Commonwealth’s modest efforts to address climate change amounts to little more than self-congratulatory backslapping.

The April 15 Report in fact makes clear that the Commonwealth’s actions fall woefully short of what Article I, Section 27 requires. The science cited in the Petition, and not seriously challenged by DEP, leads to the conclusion that safe atmospheric concentrations of carbon dioxide (CO₂) by the end of this century require 6% per year reductions through at least 2050 starting immediately—exactly what the Petition asks DEP to do. The April 15 Report’s trumpeting of DEP’s modest efforts, and its list of excuses for not doing anything more, underscores that it does not wish to undertake the actions necessary to protect present and future generations of Pennsylvanians like Ms. Funk as Article I, Section 27 requires it to do. This Board has the ability to make the Commonwealth meet its constitutional obligations by requiring DEP to engage in the rulemaking sought by the Petition.

This Response is divided into two sections. The first provides a summary of the constitutional mandate that the Commonwealth (and the Board and DEP as arms of the

³ *Id.* at 956.

⁴ *Id.* at 957.

Commonwealth) have to meet in this matter. The second section responds to several specific faults in the DEP's report. It explains that the DEP's analysis is based on science that is outdated or incomplete, rather than the best and latest science. The second section also responds to DEP's claims about its meager efforts to address climate change, as well as the fact that the lifecycle of GHG emissions from fracking are actually greater than or equal to the lifecycle of GHG emissions from coal. Finally, the second section responds to the concerns raised in the April 15 Report that the Petition fails to address where Pennsylvania's action falls into nationwide efforts, the residence time of GHG emissions, carbon leakage, and the argument that the DEP cannot fulfill the purpose of the petition. Petitioner respectfully suggests that, in light of this analysis, the Board should reject DEP's recommendation and order the rulemaking sought in the Petition.

I. ARTICLE I, § 27 REQUIRES THE COMMONWEALTH AS PUBLIC TRUSTEE TO PROTECT THE ATMOSPHERE FOR PRESENT AND FUTURE GENERATIONS BY REGULATING CARBON DIOXIDE EMISSIONS SO AS TO ACHIEVE SAFE ATMOSPHERIC CONCENTRATIONS.

Article I, Section 27 of the Pennsylvania Constitution provides: "The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people."

Robinson Township made clear that there are two essential components to this constitutional provision: the fundamental nature of the rights created and the serious duties imposed on the Commonwealth as public trustee. First, *Robinson Township* makes clear that the right to clean air, pure water, and the preservation of the natural, scenic, historic and esthetic values of the environment are inherent and fundamental rights in nature and purpose:

Article I is the Commonwealth’s Declaration of Rights, which delineates the terms of the social contract between government and the people that are of such “general, great and essential” quality as to be ensconced as “inviolable”. . . . The Declaration of Rights assumes that the rights of the people articulated in Article I of our Constitution—vis-à-vis the government created by the people—are inherent in man’s nature and preserved rather than created by the Pennsylvania Constitution The first section of Article I “affirms, among other things, that all citizens ‘have certain inherent and inalienable rights.’ ” *Pap’s*, 812 A.2d at 603 (quoting PA. CONST. art. I, § 1). Among the inherent rights of the people of Pennsylvania are those enumerated in Section 27, the Environmental Rights Amendment⁵

As the text of the amendment makes clear, these rights are enjoyed by present **and** future generations of Pennsylvanians, and clearly extends to the atmosphere: “At present, the concept of public natural resources includes not only state-owned lands, waterways, and mineral reserves, but also resources that implicate the public interest, **such as ambient air**, surface and ground water, wild flora, and fauna (including fish) that are outside the scope of purely private property.”⁶

Second, *Robinson Township* describes in great detail the Commonwealth’s duty to conserve and maintain these resources (and thereby protect these inherent and inalienable rights) in its role as “trustee of these resources.” As the court explained:

This environmental public trust was created by the people of Pennsylvania, as the common owners of the Commonwealth’s public natural resources; this concept is consistent with the ratification process of the constitutional amendment delineating the terms of the trust. The Commonwealth is named trustee and, notably, duties and powers attendant to the trust are not vested exclusively in any single branch of Pennsylvania’s government. The plain intent of the provision is to permit the checks and balances of government to operate in their usual fashion for the benefit of the people in order to accomplish the purposes of the trust. This includes local government.⁷

This language makes clear that when Article I, Section 27 identifies the “Commonwealth” as the trustee, this includes the executive branch of government, and thus the DEP. In fact, the mission

⁵ *Robinson Township*, 83 A.3d at 947-48.

⁶ *Id.* at 955 (emphasis supplied).

⁷ *Id.* at 956-57.

of the DEP, “to protect Pennsylvania’s air, land and water from pollution and to provide for the health and safety of its citizens through a cleaner environment,” articulates the DEP’s constitutional obligations. As trustee, the Commonwealth is a fiduciary obligated to comply with the terms of the trust and with standards governing a fiduciary’s conduct. The explicit terms of the trust require the government to “conserve and maintain” the corpus of the trust—the commonwealth’s public natural resources. The plain meaning of the terms “conserve” and “maintain” implicates a duty to prevent and remedy the degradation, diminution, or depletion of our public natural resources. As a fiduciary, the Commonwealth has a duty to act toward the corpus of the trust—the public natural resources—with prudence, loyalty, and impartiality. This gives rise to the two-fold obligation on the Commonwealth set forth above: (1) the duty to “refrain from permitting” (i.e., the duty to prevent) the diminution and degradation of the state’s natural resources either through direct state action or the failure to restrain private actors; and (2) the duty to act affirmatively (through legislative and regulatory action) to protect the environment.⁸

Robinson Township is also explicit in how the Commonwealth should exercise its trustee responsibilities. In particular, the plurality explained that these duties require consideration of both present and future impacts on these resources:

Within the public trust paradigm of Section 27, the beneficiaries of the trust are “all the people” of Pennsylvania, including generations yet to come. The trust’s beneficiary designation has two obvious implications: first, the trustee has an obligation to deal impartially with all beneficiaries and, second, the trustee has an obligation to balance the interests of present and future beneficiaries . . . Dealing impartially with all beneficiaries means that the trustee must treat all equitably in light of the purposes of the trust . . . The second, cross-generational dimension of Section 27 reinforces the conservation imperative: future generations are among the beneficiaries entitled to equal access and distribution of the resources, thus, the trustee cannot be shortsighted . . . this aspect of Section 27 recognizes the practical reality that environmental changes, whether positive

⁸ *Id.* at 956-57.

or negative, have the potential to be incremental, have a compounding effect, and develop over generations. **The Environmental Rights Amendment offers protection equally against actions with immediate severe impact on public natural resources and against actions with minimal or insignificant present consequences that are actually or likely to have significant or irreversible effects in the short or long term.**⁹

The question for the *Robinson Township* court was whether Act 13 (governing natural gas drilling in Pennsylvania) violated the trustee's obligations to “conserve and maintain.” The plurality had no difficulty answering this question in the affirmative—“In constitutional terms, the Act degrades the corpus of the trust,”¹⁰ because of the potential for degradation of the Commonwealth’s natural resources that could occur under Act 13’s regulatory regime. Given the unrebutted scientific certainty of damage to the Commonwealth’s public natural resources without the regulatory regime sought in the Petition for Rulemaking, the Commonwealth and DEP have a fiduciary obligation to explain its position in terms of how the Commonwealth can and will meet its public trustee duties.

In the context of the requested Rulemaking, the constitutional imperative of Article I, Section 27 requires consideration and development of policies that protect present and future generations of Pennsylvanians from the disruptions of climate change. The notion of “we’ve done something” and “cost efficiency” that is the essential message of the April 15 Report underscores the deficiency of DEP’s analysis: without any consideration or articulation of what is necessary to protect Ms. Funk and future generations of Pennsylvanians from the “significant or irreversible effects” of climate change, or how the modest “cost effective” programs outlined in the April 15 Report will provide any protection at all, DEP completely fails to show how the Commonwealth is meeting its Constitutional obligation. Indeed, the implicit message that nothing should be done because the proposed Regulation does not go far enough to reduce

⁹ *Id.* at 959 (emphasis supplied).

¹⁰ *Id.* at 980

greenhouse gases significantly is strong evidence that DEP prefers to abdicate the Commonwealth's constitutional responsibility to conserve and maintain the atmosphere. Abdication, however, is not a legally permissible option.

The Petition makes clear that the best scientific evidence available suggests a program of 6% per year reductions in CO₂ emissions through 2050 can lead to safe atmospheric concentrations of CO₂ by the year 2100 and thereby avoid the worst ravages of climate change. DEP does not challenge that science. If DEP thinks that the reductions are not enough (because they will only reduce GHG emissions worldwide by 0.014%), or that more than just CO₂ should be regulated, then Article I, Section 27 mandates DEP to do *more*, not less, and nothing in the Petition precludes a rulemaking that produces the reductions necessary to meet the Commonwealth's public trustee obligations.

The Pennsylvania constitution requires the Commonwealth to conserve and maintain the atmosphere in order to protect Ms. Funk and future Pennsylvanians. The April 15 Report's recommendation to do nothing is fundamentally inconsistent with that constitutional obligation. In order to fulfill that mandate, the Board should order that DEP begin the requested rulemaking process.

II. THE APRIL 15 REPORT'S ANALYSIS IS INSUFFICIENT

A. The Scientific Data and Analysis Underlying DEP's Report is Not the Best Science, is Outdated, or is Incomplete.

The DEP's April 15 Report fails to address the Petition's goal of annual CO₂ reductions of 6%. The Report acknowledges that this is the goal of the Petition and then simply states that

Pennsylvania is responsible for 4.4% of total U.S. GHG emissions.¹¹ It is unclear why the April 15 Report mentions Pennsylvania's contribution to U.S. GHG emissions here as that is not relevant to the Petition's purpose of having Pennsylvania reduce its emissions by 6% a year. The April 15 Report never denies that it could achieve 6% annual reductions of CO₂ emissions and it fails to provide any analysis on what the benefits of these reductions would be.

The April 15 Report also fails to adequately address the ample scientific evidence included in the Petition for rulemaking, which includes scientific studies from the world's leading climate scientists. As the Petition notes, "the best available science . . . shows that to protect Earth's natural systems, average global surface heating must not exceed 1° C this century. To prevent global heating greater than 1° C, concentrations of atmospheric CO₂ must decline to less than 350 ppm this century."¹² Petitioner has provided sound scientific evidence showing that allowing a 2° C rise in temperatures would be catastrophic.¹³ Atmospheric CO₂ concentrations of 400-450 ppm are consistent with warming that exceeds safe levels. In response to most recent and best available science presented in the Petition, the April 15 Report references the 2009 Climate Change Action Plan ("2009 Plan") and the science referred to in the 2009 Plan. Not only is the 2009 Plan now five years old, but the IPCC Report that the 2009 Plan relies heavily on is from 2007, seven years ago. There has been an abundance of new scientific studies in the past seven years, and the DEP should be using the best available and most recent science and not relying on outdated science to justify rejecting the Petition. There is nothing in the

¹¹ Pennsylvania Department of Environmental Protection Evaluation Report on the Ashley Funk Petition for Rulemaking to Reduce Carbon Dioxide Emissions, 53 (April 15, 2014) (hereinafter "DEP April 15 Report").

¹² Petition, page 24-25.

¹³ J. Hansen, et al., *Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature* (Dec. 2013) PLOS ONE.

Pennsylvania Climate Change Act that would prohibit the DEP from relying on the latest and best available science.

While the Petition contains ample data summarizing the impacts of climate change in Pennsylvania, it is worth emphasizing here again that the environmental impacts of climate change to Pennsylvania have already started to occur and are projected to increase in the immediate future. According to the 2013 Fifth Assessment Report from the Intergovernmental Panel on Climate Change and the 2014 U.S. National Climate Assessment, climate change is already impacting average temperatures, precipitation levels, storm severity, heat waves, and droughts in the Northeastern United States and these effects will only increase in coming years. This latest science, missing from the April 15 Report, is summarized below.

1. Pennsylvania has already begun to experience the effects of climate change.

“Impacts of climate change are already evident in many regions and sectors and are expected to become increasingly disruptive across the nation, throughout this century and beyond.”¹⁴ Pennsylvania and the rest of the Northeastern United States have already begun to feel the effects of an increasingly unstable climate. Between 1895 and 2011, the average annual temperature in the Northeast has increased by almost 2° F and heat waves are now occurring more often in the summer months.¹⁵ Additionally, average precipitation has increased by 5 inches, or approximately 10% of its previous levels.¹⁶ The Northeast has also had the greatest

¹⁴ US Global Change Research Program, *Climate Change Impacts in the United States: The Third National Climate Assessment*, 10 (Jerry M. Melillo, et al., eds., 2014) available at <http://nca2014.globalchange.gov/downloads>

¹⁵ US Global Change Research Program, *Climate Change Impacts in the United States: The Third National Climate Assessment*, 373 (Jerry M. Melillo, et al., eds., 2014) available at <http://nca2014.globalchange.gov/downloads>

¹⁶ *Id.*

recent increase in extreme precipitation events of any region of the United States.¹⁷ Extreme precipitation events have increased by 70% over the last sixty years.¹⁸ These occurrences lead to flash flooding of floodplains, valleys, and agricultural lands.¹⁹ Hurricanes, as evidenced by Hurricane Sandy, are increasing in frequency and severity.²⁰ These major storm systems contribute to heavy rainfall in the Northeast and also lead to instances of flash flooding.²¹

2. The effects of climate change on Pennsylvania will only increase in the near future.

Average annual temperatures in Pennsylvania will only continue to increase in the coming decades if carbon emissions continue at their current and increasing rates.²² If emissions continue to increase, by 2080, warming in the Northeast is projected to increase between 4.5 and 10° F.²³ However, if there is a substantial decrease in carbon emissions, the projected temperature increase will only be between 3 and 6° F.²⁴ Increasing annual temperatures in either instance will also lead to an increase in heat waves and seasonal droughts, particularly in the summer months.²⁵ Seasonal droughts, brought on by earlier snowmelt and higher rates of evaporation, may subsequently have negative impacts on the Northeast’s agricultural production.²⁶ The Northeast has been determined a “vulnerable hotspot” for corn and wheat production, with vulnerability increasing substantially after 2045.²⁷

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.* at 375.

²¹ *Id.*

²² *Id.* at 374.

²³ *Id.*

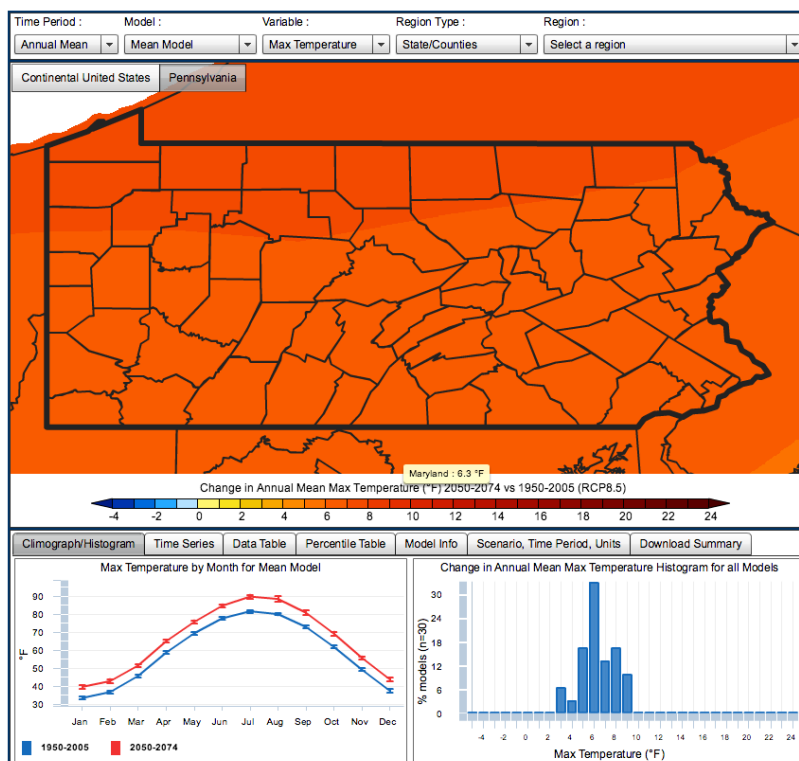
²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ Intergovernmental Panel on Climate Change (IPCC), *IPCC Fifth Assessment Report: Climate Change 2013 (AR5)*, 26.5.2, 24 (2013) available at <http://www.ipcc.ch/report/ar5/wg1/>

At the other end of the spectrum, an increase in carbon emissions could also lead to projected increases in winter precipitation between 5 and 20%.²⁸ In turn, the extreme precipitation events already occurring in Pennsylvania and the Northeast are only going to increase in frequency as the century progresses.²⁹ Experts predict increases in related flash flooding events.³⁰ According to the National Climate Assessment, “...choices made about emissions in the next few decades will have far-reaching consequences for climate change impacts throughout this century. Lower emissions will reduce the rate and lessen the magnitude of climate change and its impacts. Higher emissions will do the opposite.”³¹



3. The people of Pennsylvania will be directly affected by the results of climate change.

²⁸ US Global Change Research Program, *supra* note 2, at 374.

²⁹ *Id.*

³⁰ *Id.* at 378.

³¹ *Id.* at 6.

The environmental effects of climate change in Pennsylvania will directly and adversely affect its citizens. The National Climate Assessment identified the significance of climate change, stating “[t]he cumulative weight of the scientific evidence...confirms that climate change is affecting the American people now, and that choices we make will affect our future and that of future generations.”³² The increases in annual temperatures and associated increases in heat waves pose health risks to the people of Pennsylvania. Heat waves are projected to increase in frequency, severity, and duration.³³ Heat waves create “urban heat islands” in large cities such as Philadelphia, when large cities have higher temperatures than surrounding areas. The urban heat island effect occurs in cities with high amounts of concrete and asphalt and little vegetation.³⁴ Groups most affected by urban heat islands and heat waves are the young, the elderly, and those with pre-existing health conditions.³⁵ Those without access to air conditioning or electricity are also at risk, whether located in the city or in rural areas.³⁶ However, all citizens will be affected by increased health related impacts and costs from the rising temperatures, due to the increase in premature deaths and hospitalizations from heat exposure.³⁷

The increases in seasonal precipitation are also a cause for concern for Pennsylvanians. Extreme precipitation events and hurricanes will occur more frequently over the coming decades, leading to increased danger from flooding.³⁸ Citizens living in floodplains, along rivers, or in valleys will be exposed to the heightened risk and dangers of flooding.³⁹ In cities such as Philadelphia, that have combined sewer systems that treat both storm water and municipal water,

³² *Id.* at 14.

³³ *Id.*

³⁴ *Id.* at 377.

³⁵ *Id.*

³⁶ *Id.* at 378.

³⁷ *Id.* at 377.

³⁸ *Id.* at 378.

³⁹ *Id.*

the extreme precipitation events may also lead to hazards associated with water quality.⁴⁰ When heavy rains occur over a short period of time, sewage systems can overflow and untreated water can enter freshwater systems, causing significant and dangerous drinking water contamination.⁴¹

Scientists are also predicting an increase in vector-borne diseases and allergens.⁴² Allergens and pollens could become more potent in the coming decades, due to changes in the region's climate, such as temperature, precipitation, and CO₂ levels.⁴³ In the Northeast, primary concerns include the spread of Lyme disease and West Nile virus.⁴⁴ Suitable habitats for ticks that spread Lyme disease⁴⁵ and the Asian Tiger mosquito that transmits West Nile⁴⁶ may increase over the next few decades.

In sum, when the DEP is deciding how to fulfill its constitutional obligation to “conserve and maintain” Pennsylvania’s public natural resources, the DEP should be relying on the best available science, not outdated or incomplete scientific studies.

B. Pennsylvania’s GHG Emission Trajectory

One of the most troubling and misleading aspects of the DEP’s April 15 Report concerns the numerous references to various plans and programs to reduce GHG emissions, especially the recommendations in the 2009 Plan, that are not actually happening. These references are

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *Id.*

⁴³ Intergovernmental Panel on Climate Change (IPCC), *supra* note 15, at 27.

⁴⁴ US Global Change Research Program, *supra* note 2, at 378.

⁴⁵ McCabe, G. J., and J. E. Bunnell, 2004: Precipitation and the occurrence of Lyme disease in the northeastern United States. *Vector-Borne and Zoonotic Diseases*, **4**, 143-148, doi:10.1089/1530366041210765.

⁴⁶ Rochlin, I., D. V. Ninivaggi, M. L. Hutchinson, and A. Farajollahi, 2013. Climate change and range expansion of the Asian tiger mosquito (*Aedes albopictus*) in northeastern USA: Implications for public health practitioners. *PLoS ONE*, **8**, e60874, doi:10.1371/journal.pone.0060874. [Available online at <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0060874>]

misleading because the GHG emission reductions in the 2009 Plan are just recommendations and many of the recommendations have not been implemented, as the DEP admits.⁴⁷ Thus, while the April 15 Report spends significant time discussing the potential for GHG emission reductions, it does not once explain a concrete plan that it has implemented, or will implement, to help restore the atmospheric concentration of CO₂ to a safe level.

The April 15 Report includes the figure below as an example of the potential for GHG emission reductions in Pennsylvania.⁴⁸ The April 15 Report notes that Pennsylvania has the potential to reduce GHG emissions by 39 percent by 2020.⁴⁹ This is actually the low end of what is possible. The 2009 Plan includes 52 recommendations that would reduce emissions by 36% by 2020, though the 2009 Plan ultimately recommended reductions of 30% by 2020.⁵⁰ The April 15 Report identified ways to reduce emissions by an additional 8.7% from recent state and

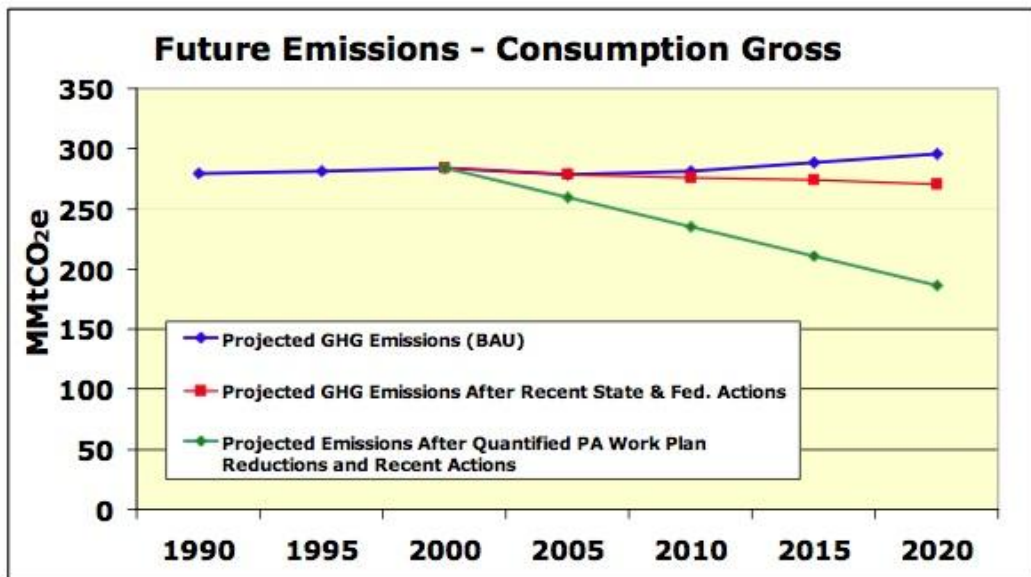
⁴⁷ DEP April 15 Report at 15. There are many flaws in the 2009 Climate Change Action Plan, the most troublesome of which is the lack of any emission reductions goal and an action plan aimed to achieve those goals. Furthermore, in its efforts to reduce CO₂ emissions, the plan promotes natural gas production through fracking, which as discussed below, has greater life cycle carbon emissions than coal over a 20-year period. Energy efficiency and renewable energy are also undervalued and not thoroughly analyzed. Rather, DEP incorrectly labels polluting sources (such as trash incinerators) as renewable energy sources. In addition to strengthening the 2009 Plan by setting an emission reduction goal and increasing actual renewable energy sources, DEP could accomplish significant reductions from improved energy efficiency. For example, DEP could advise the Uniform Construction Code Review and Authority Council to adopt the 2012 International Energy Conservation Code in order to implement efficiency measures. Updating building codes could reduce energy consumption 15% by 2030. Furthermore, in order to increase the value of solar energy in the Commonwealth and encourage domestic solar generation, the state could eliminate the purchase of solar credits from out-of-state by utilities, through Solar Renewable Energy Credits. DEP could also propose to increase the Alternative Energy Portfolio Standards. The current proposed increase of 15% is minimal and would leave Pennsylvania with the third weakest standard.

⁴⁸ *Id.* at 25.

⁴⁹ *Id.*

⁵⁰ Pennsylvania Department of Environmental Protection, Pennsylvania Final Climate Change Action Plan, ExS-2-Ex-S-3 (2009) (hereinafter “2009 Plan”).

federal actions.⁵¹ This means that between the emission reductions identified in the 2009 Plan and the reductions identified in the April 15 Report, there is the possibility of reducing Pennsylvania’s emissions by almost 45% (36% + 8.7% = 44.7%). This is great news—especially because the 2009 Plan already considered factors such as cost effectiveness, economic impacts, and harmonization with other Pennsylvania programs and policies when it made this recommendation.⁵²



MMtCO₂e = million metric tons of carbon dioxide equivalent; GHG = greenhouse gas; BAU = business-as-usual.

However, what is troubling about the April 15 Report is that it explains the great *potential* for GHG emission reductions but fails to note that the DEP has not committed to these reductions. There is no indication anywhere in the Report that the DEP is on track with the red or the green trajectory in the figure; in fact, it appears DEP may be on track with the blue trajectory. DEP’s response explaining all the *potential* ways for the Commonwealth to reduce emissions is completely inadequate and misleading because these emissions reductions are not actually happening. There is nothing in the April 15 DEP Report that suggests that the DEP

⁵¹ DEP April 15 Report at 22.

⁵² 2009 Plan at ExS-8.

could not achieve emission reductions of 45%, or the 39% number that it relies on, and there is nothing that provides an analysis of the specific emission reductions the DEP is committing to.

While the 2009 Plan is a helpful document and the Pennsylvania Climate Change Act requiring the plan is helpful, Pennsylvania still lacks a plan guided by the best available science for mandatory carbon dioxide emission reductions. The 2009 Plan makes recommendations on how the Commonwealth can reduce emissions but it does not actually require that emissions be reduced. That is why the rule proposed in Ashley Funk's Petition is so important and why the 2009 Plan and the Pennsylvania Climate Change Act are not an adequate substitute. If the DEP were to promulgate the proposed rule requiring emission reductions, it could largely rely on the recommendations in the 2009 Plan as a starting place to achieve the required reductions, along with improvements suggested above and by many others who commented on the 2009 Plan. This means that the DEP has the benefit of already having a plan that would help it achieve the reductions that would be required by the proposed rule.

Importantly, Pennsylvania is a state that understands the serious threat of climate change. Because DEP acknowledges that climate change threatens Pennsylvania's resources and citizens, DEP has no excuse for continuing to allow dangerous levels of anthropogenic carbon emissions. As DEP admits in its April 15 Report, "additional emission reductions will further reduce the impacts on the Earth's climate."⁵³ Thus, DEP appears to understand the threat to constitutionally protected resources and the rights of its citizenry, present and future, but what is missing is analysis and action to demonstrate that DEP will comply with the constitutional mandate and take the necessary steps to address climate change. In order to avoid the worst effects of climate

⁵³ DEP April 15 Report at 52.

change, the Commonwealth needs a binding plan that will result in carbon dioxide emission reductions of at least 6% a year.

C. Lifecycle GHG Emissions From Fracking Are Greater Than Or Equal To Lifecycle GHG Emissions From Coal

It is important to note that while the DEP's April 15 Report states on several occasions that Pennsylvania is lowering its GHG emissions by switching from coal to natural gas, any benefit of this transition is overstated due to the multitude of adverse impacts of hydraulic fracturing (fracking). What is most relevant for the purpose of this Petition is the GHG emissions associated with fracking. Studies now show that the GHG footprint⁵⁴ of fracking may actually be worse than the GHG footprint of coal. One study found that on a 20-year timeframe, the GHG footprint of shale gas was *at least 20% greater* than the GHG footprint for coal.⁵⁵ Over a 100-year timeframe, the GHG footprint of shale gas was comparable to that of coal.⁵⁶ The 2013 Climate Change Action Plan Update ("2013 Update") acknowledged the important contribution of fracking to GHG emissions and stated: "[T]he life-cycle climate impacts of natural gas power may be on par with coal-fired power generation."⁵⁷ The fact that fracking is actually significantly worse than coal in terms of GHG emissions on a 20-year timeframe is particularly noteworthy because the next two decades are a critical time for addressing climate change. Of course, this does not mean that Pennsylvania should continue to rely on coal as an energy source. Rather, Pennsylvania must plan for moving off of fossil fuels, not substituting one damaging fossil fuel for another. A 39% to 45% reduction in emissions by 2020 would

⁵⁴ The footprint includes the development and use of unconventional gas.

⁵⁵ Robert W. Howarth, Renee Santoro, & Anthony Ingraffes, 106:4 *Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations*, 679, 687 (June 2011).

⁵⁶ *Id.*

⁵⁷ Pennsylvania Climate Impacts Assessment Update, 101 (2013).

translate into significant reduction in fossil fuel consumption. Reducing fossil fuel consumption through conservation, efficiency and transition to renewables is the way forward.

D. Pennsylvania Must Act To Reduce Carbon Emissions Even If It Cannot Solve Climate Change On Its Own

The April 15 Report contends that, because Pennsylvania's emissions are a small fraction of global GHG emissions, any steps that Pennsylvania takes to reduce emissions will be insignificant and will not help address climate change. This argument is flawed for many reasons.

First, Pennsylvania is a major emitter of GHG emissions globally and has contributed significantly to climate change. If Pennsylvania were a country, it would be the 26th largest emitter of GHGs in the world (out of 217 countries).⁵⁸ As a state, Pennsylvania is the third largest emitter of GHG emissions of all U.S. states.⁵⁹ If Pennsylvania's emissions are too insignificant to matter then that would mean that the 191 countries and 47 states with lower levels of emissions would also not have to reduce their emissions. This notion contradicts another part of the Report that notes, "climate change is a global issue that requires a global response."⁶⁰ One would assume that such a statement indicates support for the idea that all countries and all states have an obligation to reduce their emissions, especially given that there is no international body with jurisdiction over the carbon emissions of the many countries and states and there is no global enforcement mechanism for ensuring countries live up to their obligations under the UNFCCC. The idea that Pennsylvania's emissions are too insignificant to

⁵⁸ This GHG emissions data is available at <http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=90&pid=44&aid=8>.

⁵⁹ This GHG emissions data is available at http://www.eia.gov/environment/emissions/state/state_emissions.cfm?src=email

⁶⁰ DEP April 15 Report at 58.

require reductions is deeply flawed and illogical and counter to the constitutional obligation of the Commonwealth under Article 1, Section 27.

Second, the idea that Pennsylvania's emissions do not matter on a global scale contradicts the roughly 40 pages of the April 15 Report devoted to explaining the various programs the Commonwealth is undertaking to reduce emissions. If Pennsylvania's emissions are insignificant, then why is the Commonwealth (supposedly) working so hard to reduce emissions? Clearly Pennsylvania's emissions are an important contributor to climate change and that is why DEP has already developed plans that could reduce emissions by 39% by 2020 and it is why DEP needs to continue to do more to reduce emissions.

Third, DEP's argument that if Pennsylvania completely ceased all CO₂ emissions it would only reduce the global concentration of CO₂ by 0.06 ppm falsely assumes that no other states or countries would be reducing their emissions at the same time. This ignores the fact the countries all over the world and many states in the United States are already taking significant steps to reduce their GHG emissions. In fact, the 2009 Plan includes a list of GHG emission targets by 26 other states.⁶¹ Thus, Pennsylvania would not be the only state acting to reduce emissions and its reductions in CO₂ emissions would have an important impact on the global concentration of CO₂.

Fourth, the Petition does not deny the point that climate change is a global issue that requires a global response.⁶² But that does not mean that Pennsylvania is free from its obligation to reduce its share of emissions. Given Pennsylvania's significant GHG emissions it must be a part of a global remedy to restore the concentration of CO₂ in the atmosphere to a safe level. It is important to note that this Petition is part of an international campaign to reduce carbon dioxide

⁶¹ 2009 Plan at 1-25-1-26.

⁶² DEP April 15 Report at 58.

emissions. Thus, the DEP's claim that the Petition focuses on a discrete aspect of the issue in one particular location is not entirely accurate.⁶³ It is true that the Petition only addresses emission reductions in Pennsylvania, but that is because Pennsylvania has no authority to reduce emissions in other jurisdictions.

Under the public trust doctrine, the environment and the climate system are framed as property interests that cannot be divided, but are rather part of a greater whole shared by others.⁶⁴ Therefore, sovereigns, including the Commonwealth of Pennsylvania, who hold these property interests in the environment, are co-tenants with one another.⁶⁵ This relationship is analogous to that of co-trustees where, "the dual role of each generation as trustee of the planet for present and future generations and as beneficiary of the planetary legacy imposes certain obligations upon each generation and gives it certain rights."⁶⁶

Each co-tenant, or co-trustee, has the shared duty to prevent waste or destruction of the shared estate, as well as the duty to take action against another co-trustee if they fail to protect the estate.⁶⁷ In their use of the resource, "each co-tenant trustee of a shared planetary asset bears a duty toward all of the beneficiaries of the joint trust – *that is, the present and future global citizenry,*" as well as a duty towards its own citizens.⁶⁸ These duties can be enforced by beneficiaries bringing suit against their trustees, or by one co-trustee against another for harming the property they share.⁶⁹ Here, the shared estate is the atmosphere, and the Commonwealth of

⁶³ *Id.*

⁶⁴ Mary Christina Wood, *Nature's Trust: Environmental Law for a New Ecological Age* 208 (2013).

⁶⁵ *Id.* at 213.

⁶⁶ *Id.* at 212 (quoting Professor Edith Brown Weiss, *In Fairness to Future Generations*).

⁶⁷ *Id.* at 213

⁶⁸ *Id.* at 217 (emphasis added).

⁶⁹ *Id.* at 226.

Pennsylvania, as a co-trustee, has an obligation to maintain healthy levels of GHG emissions for future generations of its own citizens, and those outside its borders.

These obligations have been observed in numerous court opinions. The court in *United States v. Washington* held that tribes were granted an implied right to protection of their fisheries under the Stevens treaties, and can therefore bring action against states who act in such a way to destroy this shared resource.⁷⁰ Similarly, the court in *United States v. 1.58 Acres of Land* held that the federal government and the state of Massachusetts were co-trustees of land in the Boston Harbor and therefore must act accordingly under these duties.⁷¹

Any inaction of other co-tenants does not excuse the Commonwealth from action, as “no nation can simply “opt out” of responsibility or disclaim a fiduciary duty toward an asset it shares as property with other nations.”⁷² Furthermore, the courts can enforce the duties of individual co-tenants, as they have often remedied larger issues through piecemeal litigation, rather than remedying the entire problem at once. In fact, in regards to equal protection, the Supreme Court has held that “it is no requirement of equal protection that all evils of the same genus be eradicated or none at all.”⁷³ Therefore, the duties of Pennsylvania as a co-tenant, or co-trustee, of the atmosphere as a shared asset are enforceable, despite their concerns that other co-tenants have also shirked their duties.

However, the reductions sought in Pennsylvania are simultaneously being sought in other states and countries around the world. As public trustee, Pennsylvania could also take action against other governments to reduce their emissions, which are adversely impacting public

⁷⁰ *United States v. Washington*, 2007 WL 2437166, 10 (W.D. Wa. 2007).

⁷¹ Wood, *supra*, at 213.

⁷² *Id.* at 223.

⁷³ *Id.* at 223 (quoting *Railway Express Agency, Inc. v. New York*, 336 U.S. 106 (1949)).

resources in the Commonwealth, to address more of the global problem. What it cannot do is sit back and complain that a global problem is afflicting its public resources and say it need not do anything about it.

E. Residence Time of GHG Emissions

The April 15 Report argues that the Petition fails to take into account the residence time of GHG emissions and that even once emissions stop the atmospheric concentration of GHGs remain elevated for centuries.⁷⁴ Rather than undermining the Petition, however, this point only underscores the need for DEP to immediately begin reducing emissions. As a consequence of the long-lived nature of CO₂ and the fact that human-derived emissions have already caused a substantial exceedence of what experts say is the long-term safe atmospheric concentration level (350 ppm), any substantial delay in undertaking effective action – even if such action compelled a sharp cut-off of emissions – would render it impossible to return the atmospheric CO₂ concentration to 350 ppm within this century. Thus, Pennsylvania must make progress on an annual basis towards meeting its CO₂ reduction targets and must act immediately to begin emission reductions.

F. Carbon Leakage

The DEP also argues that the petition would not be effective because it fails to take into account carbon leakage. Carbon leakage is used to describe increased carbon emissions in states or countries not subject to climate policies but are directly linked to reductions in emissions in another state. This increase in emissions is either a result of the increased importation of carbon

⁷⁴ DEP April 15 Report at 59-60.

intensive products that are no longer produced domestically, or the relocation of industries to unregulated states.⁷⁵

DEP's concern about carbon leakage is unfounded because the concern can be met with a number of policies that can maintain the competitiveness of the regulated state. For example, one such policy is that of border adjustments, where an importer is either required to pay what equates to the domestic carbon tax upon importation of their goods, or where the importer must pay allowances to compensate for the emissions produced during the production of such goods.⁷⁶ Taxes can also be levied on the consumers for the consumption of goods produced in unregulated foreign states.⁷⁷

California's Low Carbon Fuel Standard Program is an example of how this policy solution can be enacted. Under this program, producers of transportation fuels that are to be sold within California must calculate their "score" based on the carbon intensity of each component of the fuel. If the score falls below the statewide average carbon intensity level, the producer receives credits. If the score falls above the average, the producer must purchase credits.⁷⁸ In *Rocky Mountain Farmers Union v. Corey*, the United States Court of Appeals for the Ninth Circuit vacated an injunction halting the program, and held that it is not "an impermissible extraterritorial regulation," which violates the Negative Commerce Clause.⁷⁹

While the DEP notes that it is concerned about carbon leakage, this could be interpreted as a concern about the fear that business will leave Pennsylvania for states without strict

⁷⁵ Harro van Asselt & Thomas Brewer, *Addressing Competitiveness and Leakage Concerns in Climate Policy: An Analysis of Border Adjustment Measures in the US and the EU*, Energy Policy 42, 42 (2010).

⁷⁶ *Id.* at 42-43.

⁷⁷ Joost Pauwelyn, *Carbon Leakage Measures and Border Tax Adjustments Under WTO Law*, in Research Handbook on Environment, Health and the WTO 1, 29 (Edward Elgar ed., 2012).

⁷⁸ *Id.* at 11.

⁷⁹ *Rocky Mountain Farmers Union v. Corey*, 730 F.3d 1070, 1107 (9th Cir. 2013).

emission and thus implicating economic concerns. It is important to recall here that Article I, Section 27 of the Pennsylvania Constitution protects the right “of citizens to clean air and pure water, and to the preservation of natural, scenic, historic and esthetic values of the environment.”⁸⁰ As explained in *Robinson Township*, economic concerns cannot override the protection of this constitutional right, as “no principle of law permits us to suspend constitutional requirements for economic reasons, no matter how compelling those reasons may seem.”⁸¹ This is so despite the fact that economic concerns are compelling state interests.⁸² Thus, the economic concern of carbon leakage cannot undermine the protection of the constitutional right to clean air, and in turn safe atmospheric concentrations of carbon dioxide.

Furthermore, Pennsylvania’s 2009 Climate Change Action Plan showed that if the recommendations in the plan were implemented, Pennsylvania would save \$12 billion between 2009 and 2020, or \$21 per metric ton of carbon dioxide equivalent emissions that are reduced.⁸³ The 2009 Plan also noted that its recommendations would create 65,000 new jobs and add more than \$6 billion to the Commonwealth’s gross state product in 2020.⁸⁴ These economic benefits not only counteract the aforementioned economic concerns of the state, but could also be used as incentives for businesses to remain within the state or to initiate a border adjustment plan.

G. Pennsylvania Can Achieve The Purpose Of The Petition

Finally, the DEP argues that annual reductions in Pennsylvania of 6% would not achieve the purpose of the Petition because reductions in Pennsylvania’s emissions alone cannot achieve

⁸⁰ *Robinson Twp. v. Commonwealth*, 83 A.3d 901, 951 (Pa. 2013).

⁸¹ *Id.* at 977 (quoting *Jorgensen v. Blagojevich*, 811 N.E.2d 652, 669-70 (Ill. 2004).

⁸² *Id.* at 1006.

⁸³ 2009 Plan at ExS-8.

⁸⁴ *Id.* at ExS-2.

a safe concentration of CO₂ in the atmosphere.⁸⁵ This mischaracterizes the purpose of the Petition, which is to have the DEP promulgate a rule that would require reductions of CO₂ by 6% a year. The Petition does not seek to have Pennsylvania singlehandedly restore the concentration of CO₂ in the atmosphere to 350 ppm. The language in the Petition about restoring the global concentration of CO₂ to 350 ppm by the end of the century was used to develop a prescription to determine the amount of annual reductions required by Pennsylvania (and other states and countries), and that amount was determined to be 6%.

Nothing in the Constitution or the laws of the Commonwealth excuse the government from following its laws, simply because other governments outside the Commonwealth may be interfering with the Commonwealth's ability to fully realize the law's intended goals. The Commonwealth and DEP accept the science of climate change and have planned to address the impacts of climate change within its borders. Indeed, as the 2009 Plan noted, Pennsylvania "is position to become a leader in the fight against this global threat."⁸⁶ DEP's throwing up of its hands and advocating doing nothing is a complete abdication of the Commonwealth's public trustee duties mandated by Article I, Section 27. The Board must reject this constitutional violation and order the rulemaking sought in the Petition.

⁸⁵ DEP April 15 Report at 61.

⁸⁶ 2009 Plan at ExS-1.

CONCLUSION

For the reasons set forth above, Petitioner Ashley Funk respectfully requests that the Environmental Quality Board reject the recommendation of the DEP in its April 15, 2014 Evaluation Report and order the DEP to develop and promulgate regulations consistent with the Petition for Rulemaking.

Respectfully submitted,

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