



Allegheny County Health Department

90 SIP Revision

**Proposed Revision to the Allegheny County Portion of the
Pennsylvania State Implementation Plan**

**(Attainment Demonstration for the Allegheny County, PA
PM_{2.5} Nonattainment Area, 2012 NAAQS)**

June 11, 2019

**Written Comments by Clean Air Council,
Climate Reality Project: Pittsburgh & Southwestern PA Chapter,
and the Breathe Project**

Clean Air Council (“the Council”) submits these written comments on behalf of itself, Climate Reality Project: Pittsburgh & Southwestern PA Chapter (“Climate Reality: Pittsburgh & SWPA”), and the Breathe Project regarding the Allegheny County Health Department’s (“Department’s”) proposed revision to the Allegheny County portion of the Pennsylvania State Implementation Plan (“Proposed Revision”), to include an attainment demonstration for the Allegheny County PM_{2.5} Nonattainment Area, under the 2012 national ambient air quality standard.

The Council is a non-profit environmental organization headquartered at 135 South 19th Street, Suite 300, Philadelphia, Pennsylvania, 19103. The Council maintains an office in Pittsburgh. For 50 years, the Council has worked to improve air quality across Pennsylvania. The Council has members throughout the Commonwealth who support its mission to protect everyone’s right to a healthy environment, including members in Allegheny County. The Council has approximately 35,000 activist members.

Climate Reality: Pittsburgh & SWPA is a community of more than 400 concerned Southwestern Pennsylvania citizens and neighbors who are addressing the climate crisis in our own backyard. Its website is located at <https://climaterealitypghswpa.org/>.

Breathe Project is a clearinghouse for information on air quality in Pittsburgh, southwestern Pennsylvania and beyond. Its website is located at <https://breatheproject.org/>.



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1. The Department Should Comply With Deadlines Set by Congress in the Federal Clean Air Act.

The Department is nearly three years behind in submitting a proposed attainment demonstration to EPA to address nonattainment with the 2012 annual standard for fine particulates. It ignored the 18-month deadline set by Congress -- October 15, 2016. 81 Fed. Reg. 58,010, 58,026 (col. 2), 58,152 (col. 3) (August 24, 2016), <https://www.federalregister.gov/documents/2016/08/24/> (requiring a submission within 18 months of designation); 80 Fed. Reg. 2206, 2264 (January 15, 2015), <https://www.federalregister.gov/documents/2015/01/15/> (Allegheny County was designated nonattainment effective April 15, 2015); 80 Fed. Reg. 18,535, 18,537-18,538 (April 7, 2015), <https://www.federalregister.gov/documents/2015/04/07/> (clarifying that this designation applied to the entire county).

The Department is now working under an 18-month sanctions clock that started on May 7, 2018, after EPA made a finding that it had failed to make timely submissions. *See* 83 Fed. Reg. 14,759 (April 6, 2018), <https://www.federalregister.gov/documents/2018/04/06/>. *See* 42 U.S.C. §7509(a), 40 C.F.R. §52.31(c),(d). If the deadline is not met, the Department will be subject to more stringent requirements in the form of an increased offset ratio for emissions from new and modified major stationary sources in the nonattainment area. *See* 40 C.F.R. §52.31(c),(d).

The chronic delay provides the context for evaluating the Proposed Revision, which contains fundamental flaws.

2. The Department Should Identify the Legal or Policy Authority in Support of its Representation that it is Not Allowed to Prepare a Control Strategy that Projects a Future Design Value Less than the National Ambient Air Quality Standard.

At the Board of Health meeting on May 1, 2019, Deputy Director Jim Kelly represented that the Department is not allowed to prepare a control strategy that projects a future Design Value (“future DV”) less than the value of the national ambient air quality standard. *He said that by law, the Department is required to reduce this concentration only to the level of the annual standard (here, 12.0 µg/m³), and that if the Department goes below this level it will be sued, and it does not want to be sued.*

Consistent with this representation, the Department tailored its attainment modeling to result in a future DV of precisely 12.0 µg/m³. Achieving precisely this number would qualify as attainment. *See* 40 C.F.R. part 50, Appendix N, Section 4.1(a) (“The primary annual PM_{2.5} NAAQS is met when the annual PM_{2.5} NAAQS DV is less than or equal to 12.0 µg/m³ at each eligible monitoring site.”). But this is the bare minimum of what the Department must do.

The problem is that the Department believes it is not allowed to go lower than this number. This is incorrect, as a matter of federal law and state law.

A. *Federal law does not prevent the Department from developing a control strategy resulting in a future Design Value less than the standard.*

The Clean Air Act does not prevent the Department from preparing a control strategy that results in a future DV less than the 12.0 $\mu\text{g}/\text{m}^3$ standard -- such as 11.5 $\mu\text{g}/\text{m}^3$ or 11.0 $\mu\text{g}/\text{m}^3$. See Section 172(c)(1), 42 U.S.C. 7502(c)(1) (“Such plan provisions ... shall provide for attainment of the national primary ambient air quality standards”).

Indeed, the regulatory term for such a control strategy is “excess emissions reductions.” In the Implementation Rule, EPA specifically rejected a comment that a state that contemplates such reductions cannot rely on them as Contingency Measures in the event the state does not come into attainment. See Final Rule, 81 Fed. Reg. 58,010, 58,068, col. 2 (August 24, 2016) (“In keeping with longstanding practice, the final rule allows excess emissions reductions to be credited as contingency measures in plans that demonstrate attainment but not for plans that demonstrate an impracticability to attain”), <https://www.govinfo.gov/content/pkg/FR-2016-08-24/pdf/2016-18768.pdf>. EPA would not have acknowledged “excess emissions reductions” to be credited as Contingency Measures if they were prohibited by federal law.

Of course, the policy is to encourage states to make progress toward attainment and benefit public health:

Allowing “excess” emissions reductions ***affords proper credit for these areas as they continue to make progress toward attainment*** while the new SIP is developed for the area. Additionally, in support of the overarching goal of the CAA, ***public health will benefit from the excess emissions reductions.***

Id., col. 3 (bold italics added). These are good objectives, not bad objectives.

Accordingly, there is no basis in federal law for the proposition that the Department may not pursue “excess emissions reductions.”

B. *State law does not prevent the Department from developing a control strategy resulting in a future Design Value less than the standard.*

There is no authority under state law for the Department’s position, either.

What the Department might have in mind are two subsections of the Pennsylvania Air Pollution Control Act that limit the scope of regulations promulgated by the Environmental Quality Board (EQB). See 35 P.S. 4004.2(a) (“In implementing the requirements of section 109 of the Clean Air Act, ***the board may adopt, by regulation, only those control measures or other requirements which are reasonably required, in accordance with the Clean Air Act deadlines, to achieve and maintain the ambient air quality standards or to satisfy related Clean Air Act requirements,*** unless otherwise specifically authorized or required by this act or specifically required by the Clean Air Act.”) (bold italics added); see also 35 P.S. 4004.2(b) (“***Control measures or other requirements adopted under subsection (a) of this section shall be no more***”).

stringent than those required by the Clean Air Act unless authorized or required by this act or specifically required by the Clean Air Act.") (bold italics added). For several reasons, these subsections do not apply here.

First, the Department is not the EQB. There are no similar restrictions on local air pollution control agencies that have received approval to implement programs under the federal Clean Air Act. *See generally* 35 P.S. 4004-4014.

Second, the approval of a state implementation plan is not a “regulation.” An example of a regulation would be an amendment to the Pennsylvania Code regarding control measures (Reasonably Available Control Technology) for industrial cleaning solvents. *See* Control of VOC Emissions from Industrial Cleaning Solvents; General Provisions; Aerospace Manufacturing and Rework; Additional RACT Requirements for Major Sources of NOx and VOCs, 48 Pa.B. 4814 (August 11, 2018), <https://www.pabulletin.com/secure/data/vol48/48-32/1227.html>. But this is not the same process as an approval of a state implementation plan.

Indeed, a search of the Pennsylvania Bulletin does not reveal any notices from EQB regarding an approval of the Department’s revision of its state implementation plan for sulfur dioxide for Indiana County and Armstrong County, before the Department submitted it to EPA in the fall of 2017. *See* <https://www.pabulletin.com/search.asp> (search “EQB,” “state implementation plan,” and “sulfur dioxide”). While there was a notice relating to that state implementation plan, that notice was issued by the Pennsylvania Department of Environmental Protection (“DEP”) for its own public comment period, and not by the EQB. *See* 47 Pa.B. 4771 (August 12, 2017), <https://www.pabulletin.com/secure/data/vol47/47-32/1349.html>. In contrast, there is no notice for the Department’s proposed revision of the state implementation plan for sulfur dioxide for Allegheny County before it was submitted to EPA that same year.

Third, one would not expect to find such a notice because unlike the DEP, the Department is *not* required to obtain EQB approval of its state implementation plan. *See* 35 P.S. 4007.5(g) (setting forth requirements for EQB approval of DEP’s state implementation plans, and stating that this section “shall not apply to State implementation plans submitted by a local air pollution control agency.”¹

Therefore, the Proposed Revision does not trigger the restrictions on the EQB in Section 4004.2(a) and 4004.2(b).

¹ The Department is already aware of Section 4007.5(g), because this subsection also makes inapplicable to the Department the 60-day comment period that is required by the DEP for its state implementation plans. *See* 35 P.S. 4007.5(a). Consistent with this subsection, the Department is only providing a 32-day comment period for the Proposed Revision. The Department cannot assert it is subject to a requirement to obtain EQB approval of a state implementation plan sufficient to bring it within the scope of an alleged EQB “regulation” limited by state law, when the Department assumes it is not subject to the 60-day comment period requirement under the same subsection.

Accordingly, the basis for Mr. Kelly's representation must be some internal policy or directive to or within the Department that prevents it from pursuing "excess emissions reductions." In other words, it must be an exercise of the Department's discretion.

The Department should set forth its legal or policy authority for its representation that it is not allowed to prepare a control strategy that results in a future DV less than the standard. The Department should also specify who might sue the Department for preparing such a control strategy, and what are the specific legal requirements that would form the basis for such a lawsuit.

3. The Department's Use of a Local Area Analysis to Disregard a Future DV Higher than the Standard is a Violation of EPA Regulations and a Misreading of EPA's Guidance Document.

After it performed CAMx modeling and calculated a future Design Value of 12.5 $\mu\text{g}/\text{m}^3$, the Department failed to take the next step of adopting a Control Strategy to reduce this value to the standard of 12.0 $\mu\text{g}/\text{m}^3$. Instead, it violated federal regulations by ignoring this Design Value under the mistaken rationale that the Liberty monitor is not suitable for comparison with the standard. Under federal regulations, this approach is only permissible for certain micro-scale and middle-scale sites, and the Liberty monitor is not one of those sites.

In the summary of the future Design Values for monitors throughout the county using the CAMx model, the Department does not provide the data for the Liberty monitor. See Proposed Revision, Section 5.3.5, page 31, *Table 5-4, Base and Future Design Values ($\mu\text{g}/\text{m}^3$) for Allegheny County Sites, Except Liberty*. However, the forecasted Design Value of 12.5 $\mu\text{g}/\text{m}^3$ is set forth in Appendix I. See Appendix I (Air Quality Technical Support Document), page 52, Table 3-6 (projecting a Future Annual Design Value of 12.5 micrograms per cubic meter), https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Programs/Air_Quality/SIPs/90-SIP-App-I.pdf.

CAMx model addressed local impacts as well as regional impacts. See Proposed Revision, page 24, Section 5.3.1 (Model Configuration) (Local Source Treatment) ("The model was designed to include both regional and localized PM_{2.5} impacts formed by both primary and secondary mechanisms."). The Department did this in the following way:

To account for significant individual emission sources in an area of interest, *the PiG option incorporates a puff/plume model within the CAMx grid cells*. Additionally, *the PSAT option was used to track contributions from a selected group of local sources*. This technique enables the results of separate regional and local impacts to be used for modeling and attainment tests.

Id. (bold italics added). In addition, the Department notes that "[t]he use of PiG allows for specialized treatment of plumes from these sources (similar to refined dispersion modeling), and PSAT allows for separate accounting of impacts from these sources." *Id.*

Despite the fact that the CAMx model addressed local impacts, the Department removed the local impacts from the CAMx modeling, conducted a Local Area Analysis that used different modeling for those impacts (AERMOD), and then add the results of that different modeling back into the CAMx model:

These sources are the same sources that were modeled as PiG sources and tracked with PSAT in CAMx. ***Primary PM2.5 impacts from these sources were subtracted from the regional contributions of the CAMx impacts.*** The refined LAA modeling ***lumped the AERMOD impacts from these sources into a new component called local primary material (LPM), to be summed with the CAMx regional impacts*** (i.e., without LPM) according to the SANDWICH reconstruction methodology ***to generate the final design values at Liberty.***

Id., page 33 (5.4.1 Liberty LAA Methodology) (bold italics added).

This approach is not consistent with EPA’s guidance document for attainment demonstrations for fine particulates. The purpose of a Local Area Analysis is not to engineer a Design Value that will clear the standard. Rather, it is to supplement the results of the attainment test.

Indeed, EPA recognizes that a chemical transport grid model (which in this case is CAMx) is the best tool for modeling for the attainment test:

The relative attainment tests described in sections 4.2, 4.4,² and 4.5 are the primary modeling tools used in an attainment demonstration. ***The application of a chemical transport grid model on a regional or local scale is the best tool available to judge the impacts of changes in future year emissions on concentrations.***

See EPA, Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM2.5 and Regional Haze (November 29, 2019), page 171 (6.1.1 Modeling Analyses). While EPA contemplates other models, the purpose is only to “supplement” the results of the modeled attainment test:

In addition to this “primary” modeling analysis, ***there are various other models***, model applications, and tools ***that can be used to supplement the results of the modeled attainment test.*** These include, but are not limited to:

....

² Section 4.4 (pages 111-127) of the guidance document sets forth the attainment test for fine particulates.

Use of dispersion models to address primary PM2.5 contributions to PM2.5 concentrations. ***In areas with large spatial gradients of primary PM2.5, dispersion models are best suited to characterizing the change in primary PM2.5 in the future.*** A local area analysis may be useful as a supplemental analysis (in either monitored or unmonitored areas, as appropriate) for areas that at least partially rely on local primary PM controls to reach attainment and did not otherwise perform and submit a local area analysis of part of the attainment demonstration.

See id., pages 171-172 (bold italics added). But this does not say that a supplemental dispersion model (such as AERMOD) could be the basis for the actual attainment test -- which is the result reached by the Department. The Department has elevated a “supplemental” modeling analysis into the “primary” modeling analysis. In addition, the guidance document only contemplates using the dispersion model for “characterizing the change in primary PM2.5 in the future.” This is not the same thing as using it to displace the attainment test.

The Department’s stated rationales for displacing the CAMx modeling are wrong as a matter of policy and unreasonable as a matter of law. The main rationale appears to have been the desire to characterize the sources contributing to levels of fine particulates at the monitor:

Source characterization with CAMx was likely not fully representative of some sources near Liberty, specifically at the USS Clairton Plant. All local stationary sources were configured in CAMx as point sources, with constant emissions and fixed stack parameters. ***Refined modeling with AERMOD can more accurately account for many processes with the use of different source types*** (volumes, lines, etc.), building parameters (for downwash), and varying release heights (buoyant volumes). This is especially important for USS Clairton, since some source types have been controlled while other sources types have been added.

See id., page 32 (bold italics added). A question regarding relative contribution among sources is separate from a question regarding the reliability of modeling results obtained through the use of the CAMx model.

The Department’s other rationales also fall flat. The fact there were conservative assumptions in the modeling for electric generating units does not make the CAMx modeling flawed. *See id.* Similarly, if “[s]ome local primary PM2.5 emissions were overestimated with the inventory used for the CAMx modeling,” that is not a justification for abandoning the CAMx model. *See id.* The suggestion that the spatial grading in the CAMx model is “likely too large to properly simulate localized impacts at Liberty” is also not a justification. *See id.* The suggestion that “species are not being properly apportioned by the modeled results” is also not a justification. *See id.*

While the guidance document contemplates that PM_{2.5} measurement data from monitors that are not representative of “area-wide” air quality and therefore not suitable for comparison with the standard, this statement is limited to “micro-scale” and “middle-scale” sites. *See* EPA, Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5} and Regional Haze, page 133 (“PM_{2.5} measurement data from monitors that are not representative of “area-wide” air quality, but rather of relatively unique micro-scale, or localized hot spot, or unique middle-scale impact sites, are not eligible for comparison to the annual PM_{2.5} NAAQS.”), citing 40 CFR 58.30.

The statement in the guidance document taken from the part 58 regulations:

PM_{2.5} measurement data from monitors that are not representative of area-wide air quality but rather of relatively unique micro-scale, or localized hot spot, or unique middle-scale impact sites are not eligible for comparison to the annual PM 2.5 NAAQS. PM_{2.5} measurement data from these monitors are eligible for comparison to the 24-hour PM_{2.5} NAAQS. For example, if a micro- or middle-scale PM 2.5 monitoring site is adjacent to a unique dominating local PM 2.5 source, then the PM 2.5 measurement data from such a site would only be eligible for comparison to the 24-hour PM 2.5 NAAQS.

40 C.F.R. § 58.30 (Special considerations for data comparisons to the NAAQS) (bold italics added). The terms “micro-scale,” “middle-scale,” and “neighborhood scale” are separately defined and mean different things. 40 C.F.R. 58, Appendix D, Section 4.7.1(c).

By preparing a Local Area Analysis with “supplemental” modeling that results in a future Design Value of 12.0 µg/m³, and then using this to replace the “primary” modeling analysis, the Department has determined that the Liberty data are not suitable for comparison with the standard.

This is contradicted by the Department’s own consistent representation that “Liberty is a core PM_{2.5} site that is used to determine compliance with national standards.” *See* (Proposed) 2020 Air Monitoring Network Plan, page 33, Section 10.2 (Liberty) (“Comments”) (“Liberty is a core PM_{2.5} site that is used to determine compliance with national standards.”), https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Air_Quality_Reports/ANP2020-draft.pdf; 2019 Annual Monitoring Network Plan, page 33, Section 10.2 (Liberty) (“Comments”) (same) (July 1, 2018), https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Air_Quality_Reports/ANP2019-final.pdf; Air Monitoring Network Plan for 2018, page 33 (same) (June 30, 2017), Air Monitoring Network Plan for 2017, page 30 (same) (July 1, 2016). Nowhere in any of these plans is there the suggestion that the Liberty monitor is not suitable for comparison with the standard. *See id.*

Moreover, the Department has characterized the Liberty monitor as a “neighborhood” site, rather than a “micro-scale” or “middle-scale” site that is not suitable for comparison with

the standard under Section 58.30. *See* (Proposed) 2020 Air Monitoring Network Plan, pages 33-34 (identifying “Neighborhood” as the “Appendix D Scale” for the primary PM_{2.5} FRM sensor, secondary PM_{2.5} FRM sensor, and tertiary PM_{2.5} FEM sensor), 2019 Air Monitoring Network Plan, pages 33-34 (same).

In contrast, the Department has specifically characterized other sites as “micro-scale” or “middle-scale” sites, drawing a clear distinction between them and “neighborhood scale” sites. *See* (Proposed) 2020 Air Monitoring Network Plan, page 21 (listing Parkway East Near Road as a micro-scale); *see also id.* at page 38 (categorizing Lincoln as a middle-scale). The Department knows the difference between such sites.

The Department cannot ignore the forecasted Design Value of 12.5 µg/m³ through a clear violation of the regulations and a misuse of a Local Area Analysis.

4. The Department’s Modeling for Future Year 2021 is Flawed and Unreasonable Because It is Based on Unrepresentative Meteorological Conditions in Base Year 2011.

The Department’s modeling for the future year is fundamentally flawed because it is based on unrepresentative meteorological conditions in the base year, where there was an unusually high amount of annual precipitation. Only four years of the past thirty years had a greater amount of precipitation, and only one of them occurred after the base year (in 2018). Meteorological data are important because rainfall and temperature inversions can significantly impact the ambient concentrations of pollutants such as PM_{2.5}. The Department cannot reasonably model a future year based on meteorological data in these two unrepresentative years.

To justify using meteorological conditions in the base year as basis for the modeling for the future year, the Department asserts that 2011 is representative of current and potentially future weather conditions in the nonattainment area. Quantitatively, meteorological data for 2011 are defined by an average temperature of 52.8 degrees fahrenheit, 44.24 inches of precipitation, 134 days with temperature inversions, and an average inversion strength of 3.7 degrees C. *See* Appendix B (Meteorological Analysis), page 2, <https://www.weather.gov/media/pbz/records/hisprec.pdf> (precipitation records), <https://www.weather.gov/media/pbz/records/histemp.pdf> (temperature records). The base year had the second-lowest number of annual inversions (157) during the 2009-2018 period -- nearly 15% lower than the annual average for this period. *See* Allegheny County Surface Temperature Inversion Analysis - 2018, March 5, 2019 (rev. April 2019), https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Programs/Air_Quality/AnnualSfcTempInversionAnalysis-2018.pdf.

The year 2011 was an anomaly, as the number of annual inversions for the following year 2012 was 158 -- only one unit above the average for the ten-year period. *See id.* Actually, the year 2012 is far more representative of normal temperature inversion conditions in the county, than was the year 2011.

An analysis of precipitation data over time confirms that meteorological conditions for the base year are unrepresentative for the future year forecast. Over the past ten years (2009-2018), Allegheny County has had an average annual precipitation of 40.57 inches. *See* <https://www.weather.gov/media/pbz/records/hisprec.pdf> (precipitation records). In the base year 2011, it had 44.24 inches of precipitation -- over three-and-one-half inches more than the 2009-2018 annual average. *See id.* With respect to precipitation, the year 2012 was more representative of the decade, with 41.74 inches -- less than one-and-one-half inches more than the 2009-2018 annual average.

Through the following assertion, the Department attempted to justify its use of the meteorological conditions in 2011 as the basis for its forecast for the future year:

More recent years have recorded above normal average temperatures along with precipitation amounts substantially above normal; therefore, the 2011 base year may well represent these more current conditions.

Proposed Revision, page 7 (bold italics added). This is incorrect. In reality, only four years in the past thirty years have involved annual precipitation greater than the total in 2011 (44.24 inches), and only one of those years occurred in a more recent year (in 2018, where there were 57.83 inches). *See* National Weather Service, Pittsburgh Historical Precipitation Totals 1836 to Current, <https://www.weather.gov/media/pbz/records/hisprec.pdf>. The Department cannot rely on one outlier in 2018 to support a misplaced reliance on unrepresentative data from the base year, as a basis for modeling for the future year. Because precipitation levels fell in 2012 following the elevated precipitation in the base year, the Department should not assume that the elevated precipitation in 2018 will continue into 2019, 2020, or 2021 -- three years into the future.

In reasoning that “the 2011 base year may well represent these more current conditions,” the Department is implicitly appealing to climate change to substantiate its use of unrepresentative meteorological conditions in its modeling for the future year. This is not permitted by EPA’s Guidance Document:

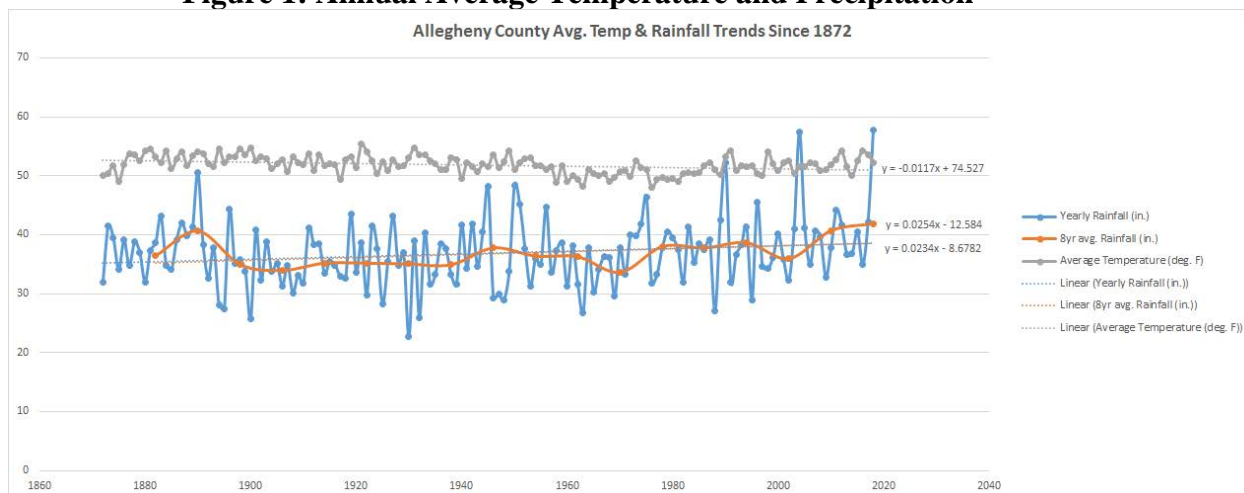
Given the relatively short time span between base and future year meteorology in most SIP demonstrations, ***the EPA does not recommend that air agencies explicitly account for long-term climate change in attainment demonstrations.*** However, air agencies are welcome to consider potential climate impacts in their specific areas, especially where and when there is evidence of significant potential impacts.

See U.S. EPA, Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5} and Regional Haze, Section 2.6.2 (Assessing Impacts of Future Year Meteorology), page 32 (bold italics added), (November 29, 2018), https://www3.epa.gov/ttn/scram/guidance/guide/O3-PM-RH-Modeling_Guidance-2018.pdf.

Based on the county’s historical meteorological data, the average temperature in Pittsburgh has not been trending upwards to a significant degree. While the average temperature has been trending upwards somewhat for the last 25 years, when a larger time scale is considered it appears that average temperature has remained relatively consistent, if actually trending very slightly downward, since 1872.³

The County’s historical annual average temperature and precipitation data dating back to 1872 can be seen visually in the graph below. This graph also contains 8-year averages of precipitation and best-fit trend lines to show the overall direction of values leading to the present day.

Figure 1: Annual Average Temperature and Precipitation⁴



For three reasons, the unrepresentativeness of meteorological conditions in the base year is material to the proposed attainment demonstration. First, the Department is projecting it will exactly meet the 12.0 µg/m³ standard for PM_{2.5} at the Liberty monitor, with no room to spare. Because temperature inversions can adversely affect pollutant dispersion and air quality, a model that takes into account a higher number of annual inversions will result in a forecast of nonattainment at the Liberty monitor.

Second, the Department did not follow EPA’s guidance document’s prescription to model a meteorology that is conducive of elevated PM_{2.5} concentrations:

The best way to represent the meteorological variability within a season and over an entire year is *to model an entire year that has*

³ This trend does not contradict the phenomenon of global warming, which reflects increasing global average temperatures. Global warming has diverse effects on localized climates, including that in Allegheny County. This underscores the notion that the Department should not be modeling the future year based on climate change, set forth elsewhere in these comments.

⁴ The Council prepared this graph prepared based on data from the National Weather Service available here: <https://www.weather.gov/media/pbz/records/hisprec.pdf> (precipitation), <https://www.weather.gov/media/pbz/records/histemp.pdf> (temperature).

meteorology generally conducive to elevated PM_{2.5} concentrations.

See U.S. EPA, Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5} and Regional Haze, Section 2.3.1 (Choosing Time Periods to Model), page 20. This means the Department should have conservatively assumed *less* precipitation, because that would be conducive to elevated PM_{2.5} concentrations. But the Department did exactly the opposite by assuming *more* precipitation, which would not be conducive to elevated PM_{2.5} concentrations.

Third, the Department itself recognizes that temperature inversions are likely to be more frequent and intense in the river valleys throughout the county, than at the weather station at the Pittsburgh International Airport where the inversion data were gathered:

Upper-atmospheric conditions that may indicate the presence of temperature inversions are measured at least twice daily – once in the morning and once in the evening – by balloon-borne sensors sent into the atmosphere by the National Weather Service (NWS) forecasting office near the Pittsburgh International Airport (PIT). The data from these measurements are assumed to represent stability conditions all across the county. However, *the many low-lying river valleys throughout the county are more likely to experience a greater frequency of inversions than recorded at the higher elevation PIT NWS location.*

Proposed Revision, Section 2.3 (Meteorology), page 6 (bold italics added). Accordingly, this statement demonstrates that the meteorological data on inversions at the airport inherently *underestimate* the number of inversions in the Mon Valley. By choosing a baseline year with an inversion rate that was well below the average, the Department has only compounded this inherent underestimation.

5. The Department Should Explain the Data on Fine Particulates in the Emissions Inventory for the 2011 Base Year and 2021 Future Year, Which are Contradicted by Data in Other Emission Inventories.

Under the Implementation Rule, a state permitting agency is required to prepare an emissions inventory for the base year using “actual emissions of all sources within the nonattainment area.” 40 C.F.R. 51.1008(a)(1)(ii). In addition, the inventory must include both filterable and condensable particulates:

The inventory *shall include direct PM_{2.5} emissions, separately reported PM_{2.5} filterable and condensable emissions,* and emissions of the scientific PM_{2.5} precursors, including precursors that are not PM_{2.5} plan precursors pursuant to a precursor demonstration under § 51.1006.

40 C.F.R. 51.1008(a)(1)(iv) (bold italics added). In the present case, there are concerns regarding the reliability of the actual emissions set forth in the emissions inventory for the base year, which also present concerns for the reliability of the emissions inventory for the future year.

A. *The Department should explain emissions data in the base year inventory.*

The Department attempts to explain the source of the data by noting that “[a]ll emissions used for the inventory and for modeling for Allegheny County for base case 2011 were identical to those reported to 2011 NEI” Appendix D.1, page 1, https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Programs/Air_Quality/SIPs/90-SIP-App-D.pdf. But there is a discrepancy between the Department’s emissions inventory and the National Emissions Inventory (NEI). To illustrate, for the Clairton facility the NEI shows a figure of 684 tons. <https://www.epa.gov/air-emissions-inventories/2011-national-emissions-inventory-nei-data> (click on “Pennsylvania,” “PM_{2.5} (filterable and condensable),” zoom in on point on map for the Clairton facility, then click the point to obtain this number). But the Department identified a total of only 588 tons in its emissions inventory. *See* Appendix D.1, page 10.

In addition, DEP’s database provides a third figure different from the other two figures -- 346.36 tons, broken down by process units (267.56 tons) and combustion units (78.80 tons). *See* DEP, Bureau of Air Quality, Air Emission Report, http://www.depgreenport.state.pa.us/powerbiproxy/powerbi/Public/DEP/AQ/PBI/Air_Emissions_Report (set restrictions for “Allegheny County,” “2011,” “Clairton,” “PM_{2.5},” and “U.S. Steel”).

In addition, the Department’s annual point source emissions inventory for 2011 sets forth the same figure as the DEP’s inventory (346.36 tons), and it reported these emissions as filterable fine particulates. *See* Allegheny County Health Department, 2014 Annual Emissions Inventory Report, Attachment A, page 20 of 22 (row for USS - Clairton Works, column for PM_{2.5}FIL), https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Air_Quality_Reports/2014_Emissions_Inventory_Report.pdf. As for condensable fine particulates, there was a three-year gap in their reporting, from 2011-2012, apparently attributable to logistic difficulties involving the DEP’s reporting system. *See id.* While this suggests that the Department is now preparing the calculations of condensable fine particulates for the attainment demonstration, the Department does not explain how this was done in the Proposed Revision.

This problem cannot be explained by specific modifications to the base year data for the Clairton facility identified on page 1 of Appendix D.1, because a similar discrepancy exists for the Allegheny Ludlum facility. For that facility, the Department sets forth 222.53 tons as the actual emissions for base year 2011. *See* Appendix D.1, page 7. Again, the NEI identifies a different figure -- 201.28 tons. *See* <https://www.epa.gov/air-emissions-inventories/2011-national-emissions-inventory-nei-data> (click on “Pennsylvania,” “PM_{2.5} (filterable and condensable),” zoom in on point on map for the Allegheny Ludlum facility, then click the point to obtain this

number). Again, the DEP inventory and the Department’s own inventory set forth the same figure (106.11 tons), but this is different from the NEI figure. *See* Allegheny County Health Department, 2014 Annual Emissions Inventory Report, Attachment A, page 2 of 22 (row for Allegheny Ludlum, column for PM_{2.5}FIL); DEP, Bureau of Air Quality, Air Emission Report, http://www.depgreenport.state.pa.us/powerbiproxy/powerbi/Public/DEP/AQ/PBI/Air_Emissions_Report (set restrictions for “Allegheny County,” “2011,” “Brackenridge,” “PM2.5,” and “Allegheny Ludlum”).

A summary of the differing PM_{2.5} emission inventory values for the three U.S. Steel facilities and the ATI (Allegheny Ludlum) facility is set forth in the Council’s table below:

Table 1 -- Inventory of PM_{2.5} Emissions for 2011 (TPY)

Facility	ACHD Proposed Attainment Demonstration	ACHD Point Source Emissions Inventory Report	DEP’s Emissions Inventory	NEI
ATI (Allegheny Ludlum)	222.53	106.11	106.11	201.28
USS Clairton	588.73	346.36	346.36	683.996
USS Edgar Thomson	633.22	53.66	53.66	184.034
USS Irvin	71.94	35.06	35.06	78.4

The Department should explain why these inventories are not consistent with one another. It should also explain how it calculated the actual emissions for the U.S. Steel facilities (as well as other facilities) in the emissions inventory for base year 2011.

B. The Department should explain emissions data in the future year inventory.

The uncertainty regarding the emission inventory for the base year also creates uncertainty for the emission inventory for the future year. For a large number of facilities, there is no change in emissions from the base year to the future year. To illustrate, there is no change in annual emissions for the Edgar Thomson facility in Braddock (633.215 tpy) or the annual emissions for the Irvin facility in West Mifflin (71.936 tpy). *See* Appendix D.1, pages 8, 10.⁵ If the Department simply copied and pasted the emissions data from the base year inventory into the future year inventory, this would not reflect any meaningful analysis of future emissions. According to the preamble to the Implementation Rule, the Department must do more than this:

⁵ *See also* Appendix D.2 (Stationary Point Sources), Base Case 2011 Point Source Emissions, pages 38-39 of 42 (Edgar Thomson), pages 39-40 of 42 (Irvin); Future Case 2011 Point Source Emissions, pages 33-35 of 37 (Edgar Thomson), page 35 of 37 (Irvin).

The projected emissions should be the best available representation of expected emissions, and thus should take into account emissions growth and contraction, facility closures, new facilities, new controls and other changes in emissions forecast to occur between the base year and the attainment year. In deciding what factors are relevant, states should consider factors affecting projected emissions that could significantly alter the conclusions of the modeled attainment demonstration. See 40 CFR 51.1008(a)(2)(ii).

81 Fed. Reg. 58,010, 58,029, col. 1 (August 24, 2016).⁶

Accordingly, the Department should account for the variation among the baseline emissions inventories and substantiate its choice of data for the base year. It should also substantiate its use of data in the future year, especially for the U.S. Steel facilities.

6. Instead of Disregarding the Forecasted Design Value of 12.5 $\mu\text{g}/\text{m}^3$, the Department Should Strengthen its Control Strategy for the U.S. Steel Facilities.

Recently, the Department stated that it is not appropriate to require companies to make emissions reductions in the context of preparing attainment demonstrations. That assertion is incorrect.

According to the Clean Air Act, the preparation of an attainment demonstration is *precisely* the moment when the Department should be considering emissions reductions from stationary sources. See Section 110(a)(2), 42 U.S.C. §7410(a)(2) (requiring a state implementation plan submitted by a state to “include enforceable emission limitations and other control measures, means, or techniques ... as may be necessary or appropriate to meet the applicable requirements of this chapter [the Clean Air Act]”).

The federal regulations make this even clearer. See 40 C.F.R. §51.1009(a)(1) (requiring a state to “identify, adopt, and implement control measures, including control technologies, on sources of direct PM_{2.5} emissions and sources of emissions of PM_{2.5} plan precursors,” in the attainment plan control strategy), (a)(2) (requiring the state to “identify all potential control measures to reduce emissions from all sources of direct PM_{2.5} emissions and all sources of emissions of PM_{2.5} plan precursors in the nonattainment area”).

This is particularly important here, where the Department has delayed the preparation of this proposed attainment demonstration for nearly three years after the deadline of October 15, 2016, and only a few months before the end of an 18-month clock for sanctions under the Clean Air Act. Following the logic of the Department, the Department would never impose any emissions reductions at all under a draft plan that has been years in the making.

⁶ Because of uncertainty in the emissions data in the inventories, the Council also cannot evaluate the question whether Reasonable Further Progress has been made toward attainment.

In developing a proper Control Strategy to reduce the forecasted design value of 12.5 $\mu\text{g}/\text{m}^3$ to 12.0 $\mu\text{g}/\text{m}^3$, the Department should look first to the largest sources of fine particulates in the Mon Valley -- the three U.S. Steel facilities. In fact, they are responsible for over half the emissions of all point sources within the entire county. *See* Appendix D.1 (Summary of Inventories and Revisions), pages 10-11 (Table D-2) (identifying base year emissions of 588.725 tpy, 633.215 tpy, and 71.936 tpy from the three facilities, which was more than half the total emissions of 2,503 tpy from all point sources), page 14-15 (Table D-3) (identifying future year emissions of 554.094 tpy, 633.215 tpy, and 71.936 tpy from the three facilities, which would be more than half the total emissions of 2,256 tpy from all point sources), https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Programs/Air_Quality/SIPs/90-SIP-App-D.pdf.

Moreover, the Liberty monitor in the Mon Valley has shown nonattainment for the 2013 annual standard since 2015, as well as nonattainment for the other fine particulate standards since 2005. *See* U.S. EPA, Pennsylvania Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants, https://www3.epa.gov/airquality/greenbook/anayo_pa.html (EPA's Greenbook). This means that the Control Strategy should address contributions to that monitor.

But the proposed Control Strategy contemplates very few emissions reductions from these facilities. In fact, there is no change in the annual emissions for the Edgar Thomson facility in Braddock (633.215 tpy) or the annual emissions for the Irvin facility in West Mifflin (71.936 tpy). *See* Appendix D.1, pages 8, 10.⁷

For the Clairton facility, there is a small emissions reduction of 34.63 tpy from the base year to the future year -- a decrease of only about six percent over ten years. *See* Appendix D.1, pages 8, 10 (588.725 tpy in the base year and 554.094 tpy in the future year).⁸ This means there was an average emissions reduction of only 3.46 tpy for each year of the ten-year period.

But it is not sufficient to simply look at the aggregate numbers. It is also important to review what has been happening at specific emissions units at these three facilities. The changes in emissions can be sorted into three categories.

First, nearly all decreases in emissions at particular emissions units resulted from upgrades to the quenching towers in 2013, leading to an annual decrease of 117.283 tons per year:

⁷ *See also* Appendix D.2 (Stationary Point Sources), Base Case 2011 Point Source Emissions, pages 38-39 of 42 (Edgar Thomson), pages 39-40 of 42 (Irvin); Future Case 2011 Point Source Emissions, pages 33-35 of 37 (Edgar Thomson), page 35 of 37 (Irvin).

⁸ *See also* Appendix D.2, Base Case 2011 Point Source Emissions, pages 35-38 of 42 (Clairton), Future Case 2011 Point Source Emissions, pages 31-33 of 37 (Clairton).

**Table 2 -- Emissions Decreases from Quench Towers
(Unit-by-Unit Analysis)⁹**

<i>Emissions Base Year 2011</i>	<i>Sources Base Year 2011</i>	<i>Emissions Future Year 2021</i>	<i>Sources Future Year 2021</i>	<i>Emissions Increase or Decrease (Future Year Minus Base Year)</i>
58.280	191 (Tower 1 for Batteries 1-3)	22.068	191 (Tower 1 for Batteries 1-3)	-36.212
23.780	193 (Tower 5 for Batteries 1-3)	13.647	193 (Tower 5A for Batteries 1-3)	-10.133
68.590	194 (Tower 7 for Batteries 19-20)	26.535	194 (Tower 7A for Batteries 19-20)	-42.55
45.670	195 (Tower B for B Battery)	17.295	195 (Tower B for B Battery)	-28.375
<u>Total Increases or Decreases</u>				<u>-117.283</u>

These emissions reductions involved the construction of new Tower 5A for Batteries 13-15 and new Tower 7A for Batteries 19-20, with Tower 5 and Tower 7 being removed from the future case and used as emergency backup. Appendix D.1, page 3, Table D-1 (Quench Tower PM_{2.5} Calculations, Base and Future Case).¹⁰

Table 1 does not include the increase in emissions associated with the installation of the quench tower for C Battery (Tower C), because the Council is including this in a separate accounting for all changes from C Battery in Table 4 below. (This does not have a material effect on the calculation of emissions changes).

⁹ See Appendix D.2: Base Case 2011 Point Source Emissions (page 37 of 42), Base Case 2011 Point Source SCC Descriptions (page 31 of 35), Future Case 2021 Point Source Emissions (pages 31-33 of 42), Future Case 2021 Point Source SCC Descriptions (pages 27-29 of 32).

¹⁰ See Appendix D.2, Base Case 2011 Point Source Emissions, page 37 of 42 (identifying emissions for Units 191, 193, 194, and 195), Future Case 2011 Point Source Emissions, pages 32 of 37 (identifying emissions for Units 191 and 195 only).

Second, less than 1 tpy of emissions reductions (0.144 tons per year) resulted from changes relating to processes for conveying coal and crushing, screening, and handling coke:

**Table 3 -- Emissions Decreases from
Conveying Coal and Crushing, Screening, and Handling Coke
(Unit-by-Unit Analysis)¹¹**

<i>Emissions Base Year 2011</i>	<i>Sources Base Year 2011</i>	<i>Emissions Future Year 2021</i>	<i>Sources Future Year 2021</i>	<i>Increase or Decrease in Emissions Future Year - Base Year</i>
0.200	215 (coal conveying)	0.250	215 (coal conveying)	+0.050
0.009	218 (crushing/ screening/ handling)	0.010	218 (crushing/ screening/ handling)	-0.001
0.045	219 (crushing/ screening/ handling)	0.030	219 (crushing/ screening/ handling)	-0.015
0.105	222 (crushing/ screening/ handling)	--	--	-0.105
0.055	223 (crushing/ screening/ handling)	--	--	-0.055
0.018	224 (crushing/ screening/ handling)	--	--	-0.018
<u>Total Increases</u>				<u>-0.144</u>

¹¹ See Appendix D.2, Base Case 2011 Point Source Emissions (page 37 of 42), Base Case 2011 Point Source SCC Descriptions (page 31 of 35), Future Case 2021 Point Source Emissions (pages 31-33 of 42), Future Case 2021 Point Source SCC Descriptions (pages 27-29 of 32).

<i>or Decreases</i>				
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These emissions reductions involved the removal of Screening 3 and the addition of a Screening Station 4. Appendix D.1, page 3.

Finally, the emissions reductions resulting from the quenching tower upgrades (the decrease of 117.283 tpy, set forth in Table 1 above) were offset largely by an *increase* in emissions of 82.285 tpy from the upgrade of C Battery in 2012:

**Table 4 -- Emissions Increases from C Battery Upgrade
(Unit-by-Unit Analysis)¹²**

<i>Emissions Base Year 2011</i>	<i>Sources Base Year 2011</i>	<i>Emissions Future Year 2021</i>	<i>Sources Future Year 2021</i>	<i>Increase or Decrease in Emissions Future Year - Base Year</i>
--	--	36.430	10 (oven underfiring)	36.430
--	--	0.160	10 (natural gas process heaters)	0.160
--	--	3.830	252 (oven charging)	3.830
--	--	0.710	253 (oven/door leaks)	0.710
--	--	0.004	254 (topside leaks)	0.004
--	--	0.980	255 (oven pushing)	0.980
--	--	0.554	257 (oven pushing)	0.554

¹² See Appendix D.2, Base Case 2011 Point Source Emissions (page 37 of 42), Base Case 2011 Point Source SCC Descriptions (page 31 of 35), Future Case 2021 Point Source Emissions (pages 31-33 of 42), Future Case 2021 Point Source SCC Descriptions (pages 27-29 of 32).

--	--	1.924	258 (oven pushing)	1.924
--	--	0.033	259 (oven pushing)	0.033
--	--	14.126	260 (oven pushing)	14.126
--	--	0.000	261 (oven pushing)	0.000
--	--	0.020	262 (oven pushing)	0.020
--	--	23.214	263 (Tower C for C Battery)	23.214
--	--	0.300	265 (crushing/ screening/ handling)	0.300
<u>Total Increases or Decreases</u>				<u>+82.285</u>

The Council is not asserting that the C Battery upgrade did not result in any emissions decreases. Rather, the Department cannot take credit for them as part of its Control Strategy. While Batteries 7, 8, and 9 were discontinued, emissions reductions occurred prior to the base year, and therefore do not appear on the emissions inventory for the Proposed Revision. *See* Appendix D.1; *see also* Appendix J (RACM/RACT Analysis), page 19 (“Coke oven batteries 7-9 were idled permanently in April 2009”), https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Programs/Air_Quality/SIPs/90-SIP-App-J.pdf; *see also* EPA-R03-OAR-2015-0470, Appendix D, Liberty-Clairton Emissions Inventories, Liberty-Clairton Point Source Inventory, 2007 (pages 1-4), Liberty-Clairton Point Source Classification Code (SCC) Descriptions, 2007 (pages 1-4), <https://www.regulations.gov/document?D=EPA-R03-OAR-2015-0470-0005>, (Approval of the Base Year Emissions Inventory for the Liberty-Clairton Nonattainment Area for the 2006 24-Hour Fine Particulate Matter Standard, 80 Fed. Reg. 59,615 (October 2, 2015)).

Adding the emissions increases from C Battery (+82.285 tpy) to the emissions decreases from the quench towers (-117.276) and the emissions decreases from coal conveying and coke crushing/screening/handling operations (-0.144 tpy), the total emissions decreases are 35.135 tpy, which roughly corresponds to the difference in base year and future year emissions in the Department’s emissions inventory (34.63 tpy), with an allowance for rounding. *See* Appendix D.1, pages 8, 10 (588.725 tpy in the base year and 554.094 tpy in the future year).

Because six years have passed since the last significant emissions reductions at emissions units at the U.S. Steel facilities (the Clairton quench towers), it is time for the Department to impose additional emissions reductions as part of this attainment demonstration. Last year, the Department proposed revisions of its regulations for coke ovens, but it never finalized them.

One of the things the Department could do is to lower the allowable percentage of leaking doors, lids, and offtakes from coke oven batteries. The Clean Air Act directs EPA to promulgate regulations tailored to meet specific percentages of such leaking equipment, as set forth in the statute. *See* 42 U.S.C. 7412(i)(8). Pursuant to this section, the EPA has promulgated a Battery NESHAP for charging, leaks, and bypass stacks at coke oven batteries. *See* 40 C.F.R. part 63, subpart L. While a state law restricts the EQB's authority to promulgate more stringent standards for hazardous air pollutant emissions from coke ovens, the restrictions are directed to this NESHAP program, rather than to revisions of state implementation plans for criteria pollutants. *See* 35 P.S. 4006.6(a),(d). Therefore, that state law does not prevent the Department from lowering the allowable percentage of leaking doors, lids, and offtakes from coke oven batteries, through county regulation or air permit modifications.

U.S. Steel does not lack the resources to do this. In 2018, it enjoyed an increase in profits of over half a billion dollars (an increase in adjusted net earnings of \$618 million). *See* U.S. Steel, Form 8-K, January 30, 2019, <https://www.sec.gov/Archives/edgar/data/1163302/000116330219000006/x20181231form8-k.htm> (containing link to press release); *see also* U.S. Steel, United States Steel Corporation Reports Fourth Quarter and Full-Year 2018 Results, <https://www.sec.gov/Archives/edgar/data/1163302/000116330219000006/x20181231earningsrelease.htm> (“Adjusted net earnings were \$957 million, or \$5.36 per diluted share. This compares to a full-year 2017 net earnings of \$387 million, or \$2.19 per diluted share. Adjusted net earnings for 2017 was \$341 million, or \$1.94 per diluted share.”).

The Department should develop a serious control strategy for the three U.S. Steel facilities, rather than ignoring a forecasted Design Value greater than the standard through a misapplication of EPA's guidance document and a violation of federal regulations.

7. The Department Should Provide a More Thorough RACT Evaluation for the U.S. Steel Facilities, in Light of Trends in Technology and Innovation.

In its RACM/RACT analysis, the Department conducts a review of RACT requirements for industrial facilities within the county, including the three U.S. Steel facilities. Appendix J (RACM/RACT Analysis), pages 15-20 (Clairton facility), 21-23 (Edgar Thomson facility), 24-25 (Irvin facility). For the U.S. Steel facilities, the Department is relying on RACT determinations that appear to have been made a number of years ago and that may be out of date. Especially for the Clairton facility, the Department should prepare a more thorough and detailed analysis of the applicability of RACT in an area where there have been recent trends in technological change and innovation.

Pursuant to the preamble to the Implementation Rule, the Department may not simply rely on determinations made a number of years ago:

A state may not simply rely on a previous RACM or RACT determination or other control technology analysis for a particular source or source category, regardless of how recently it was performed, when developing the attainment plan for a PM2.5 NAAQS.

81 Fed. Reg. 58,010, 58,037, col. 3 (bold italics added). The policy rationale is that innovation may provide opportunities for new developments in technology:

Past experience has shown that due to ongoing innovation, cost-effective control technologies and process alternatives for many sectors continue to be developed, and new reasonable opportunities to reduce emissions in the future are expected to be available for existing sources, particularly those with technology determinations made several years ago.

Id. (bold italics added).

As a matter of policy, EPA uses the passage of three years from the past RACT determination as a starting point, but even in this case the agency must still provide a RACT analysis that incorporates such developments:

For this reason, ***the state must determine whether the existing controls or emissions reduction approach at the source can be updated or improved with reasonably available controls or strategies to achieve increased levels of emission reduction.*** In cases where a stationary source has installed new state-of-the-art emissions controls fairly recently (e.g., within the last 3 years), ***the state technically would still need to provide a RACT analysis for the source, but in such cases it may be appropriate to find that existing controls satisfy the RACT requirement.*** Based on this policy, the state's updated RACM and RACT analyses will represent the most thorough, up-to-date review of control measures for its PM2.5 nonattainment area. ***The collection of existing control measures, any updated RACT/RACM determinations, and potential new control measures can then be considered together by the state as part of a comprehensive analysis to ensure the area will attain expeditiously.*** The EPA notes, however, that the more recently this analysis has been done, the less effort is expected to be needed to verify that it is up to date.

See id. (bold italics added).

With respect to C Battery, the Department is relying on a BACT determination that was prepared at the time of the application for the installation permit, which apparently occurred a number of years ago:

As part of the IP application for C Battery, U. S. Steel performed a Best Available Control Technology (BACT) analysis for all the affected emission units. The new C Battery with the PROven system was determined to be BACT for by-product coke plants. An alternative option of non-recovery coke ovens using the Sun Coke Co. process was not considered to be technically feasible for integration into the other portions of the by-product coke oven plant.

See Appendix J.2 (RACT Analysis), page 19.

As for the other batteries, the Department infers that there is no RACT because the Department believes that applicable standards are “strict”:

Coke oven batteries 7-9 were idled permanently in April 2009. Coke oven batteries 1-3, 13-15, 19-20, and B have strict standards for SO₂ and PM according to ACHD Article XXI regulations and Title V operating permit conditions, including work practice standards, and there are few operational alternatives to be considered.

See id. But whether the Department believes the standards are strict is not sufficient. (And it is not an excuse for not imposing additional controls, where the Mon Valley has long suffered from nonattainment with the standard for fine particulates). The question is whether technological developments and innovation have provided new opportunities for emissions reduction.

With respect to the quench towers, the Department asserts the technology qualifies as BACT, but it is unclear whether this was a determination made in 2013 at the time of the upgrade or whether this is an up-to-date determination:

For the new Quench Towers C, 5A, and 7A, double baffles are BACT versus alternative shorter quench towers with single baffles. Coke dry quenching (CDQ) was considered but found unacceptable due to available space and cost. This was the same conclusion on the other remaining quench towers. Other options were reviewed but would required [sic] extensive construction and installation costs. Included in the review were a “wet Low Emission Quench (LEQ) system,” a “ThyssenKrupp EnCoke World Steel Bochum Coke Stabilization Quenching (CSQ) process,” a “Kress Indirect Cooling (KIDC) system,” and others.

See id. (bold italics added).

Similarly, the Department should provide more context regarding this discussion of alternatives for pushing emissions control, and confirm whether it is also up-to-date:

Alternatives to such pushing emissions control are the use of a coke side shed enclosure vented to a control device or a mobile capture and control unit. ***However, the shed system is cost prohibitive and the mobile capture is not technically feasible for this SIP.*** For battery process upsets, the atmospheric venting of raw coke oven gas through by-pass/bleeder stacks is first passed through a flare system. ***The alternatives to this are to use either regenerative thermal oxidation or catalytic thermal oxidation; however, these alternatives are too costly to be feasible for this SIP.*** Similarly, the impacts from the emissions of Boiler #1, Boiler #2, R1 Boiler, R2 Boiler, T1 Boiler, T2 Boiler, and the Desulfurization Plant Afterburner do not warrant additional control.

See id. (bold italics added).

It should also do the same thing for this discussion:

Controls such as low NOx burners or additional SO2 desulfurization are not economically feasible for the underfiring and boiler units. SO2 is controlled for the plant overall by the conditioning of coke oven gas (COG) at the desulfurization plant. As part of the SO2 2010 NAAQS SIP, a new vacuum carbonate unit (VCU) packing system was developed for desulfurization of the COG used for the boilers and at the other U. S. Steel Mon Valley Works plants (Edgar Thomson, Irvin).

See id. (bold italics added).

Finally, the Department should provide an analysis of developments in technologies in iron and steel in Japan and Europe and their applicability to the U.S. Steel facilities. The most comprehensive coke technology plan for emissions reduction was developed in Japan as a 10-year national project by the Japan Iron and Steel Federation and Center for Coal Utilization, with the help of Japanese steel companies JFE Steel, Mitsui Mining, and Nippon Steel. Known as SCOPE 21 (short for Super Coke Oven for Productivity and Environmental enhancement toward the 21st Century), this method combines many known emissions reduction practices into one comprehensive plan for emissions reduction. The first commercial plant was built by Nippon Steel and has been online since 2008. *See* Okazaki et al., Program for Sustainable Development at Nippon Steel, Nippon Steel Technical Report No. 101 (November 2012), https://www.nipponsteel.com/en/tech/report/nsc/pdf/NSTR101-30_tech_review-5-1.pdf *See also* Kunihiko Nishioka et al., Super Coke Oven for Productivity and Environment Enhancement

toward the 21st Century (SCOPE21), Lecture papers at the 12th Coal Utilization Technology Congress, Tokyo, pp.1-2 (November 1, 2002), http://www.jcoal.or.jp/eng/cctinjapan/2_3A4.pdf

The European Union has prepared a Reference Document for Best Available Techniques for the iron and steel industry. See JRC Reference Report, Best Available Techniques (BAT) Reference Document for Iron and Steel Production (2013), http://eippcb.jrc.ec.europa.eu/reference/BREF/IS_Adopted_03_2012.pdf. This document includes general sections relating to Coke Oven Plants (Chapter 5, pages 205-287), Blast Furnaces (Chapter 6, pages 289-352), and Basic Oxygen Steelmaking and Casting (Chapter 7, pages 353-418). *Id.*

Even if regulatory standards in Europe are different, this document may identify opportunities for emissions reductions. The document provides BAT Conclusions for Iron and Steel Production (pages 481-519). Specifically, there is a section for Coke Oven Plants (Section 9.4, pages 503-508), Blast Furnaces (Section 9.5, pages 509-512), and Basic Oxygen Steelmaking and Casting (Section 9.4, pages 513-516). *Id.*

Finally, the document identifies emerging technologies for Coke Ovens (Section 11.3, pages 549-553), Blast Furnaces (Section 11.4, pages 554), and BOF and Casting (Section 11.5, pages 555-558).

The Department should also consider the website of the Institute for Industrial Productivity, which provides a list of coke making technologies and measures along with their development status, many of which are now “commercial.” See The Institute for Industrial Productivity, <http://ietd.iipnetwork.org/content/coke-making> (coke making), <http://ietd.iipnetwork.org/content/coke-dry-quenching> (coke dry quenching).

8. The Department Should Revise its Flawed Contingency Measures, Which Are Inconsistent with the Clean Air Act and EPA Regulations.

The two Contingency Measures proposed by the Department (a commitment to undertake a future wood burning curtailment campaign and the preparation of a culpability analysis for industrial sources) are vague and imprecise. They are not acceptable Contingency Measures under the Clean Air Act, the regulations, and the preamble to EPA’s Implementation Rule. The Department should revise the proposed Contingency Measures to comply with the law.

For state implementation plans for nonattainment areas, the Clean Air Act requires Contingency Measures that will take place “without further action by the State”:

(9) Contingency measures

Such plan shall provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard by the attainment date applicable under this part.
Such measures shall be included in the plan revision as

contingency measures to take effect in any such case without further action by the State or the Administrator.

Section 172(c)(9), 42 U.S.C. 7502(c)(9) (bold italics added). EPA regulations require “***specific contingency measures*** that shall take effect with ***minimal further action by the state or the EPA***” 40 C.F.R. 51.1014(a) (bold italics added). *Accord*, 81 Fed. Reg. 58,010, 58,066, col. 1 (“Contingency measures must be fully adopted rules or control measures that are ***ready to be implemented quickly***”) (bold italics added).

A. *The Department’s proposed future wood burning curtailment campaign does not involve proper Contingency Measures.*

The first Contingency Measure -- an offer to implement a wood burning curtailment campaign in the county -- is not a specific measure that would take place with “minimal further action.” *See* Proposed Revision, Section 8 (“Contingency Measures”), page 51 (“In the event that the PM_{2.5} design value(s) at one or more monitor location violate the 2012 NAAQS by the end of 2021 or beyond, or if a RFP requirement is not achieved, a new wood burning curtailment campaign would be initiated by ACHD.”). The proposed campaign would include “new wood stove change-out or ‘bounty’ programs, additional educational and community outreach programs, and/or an ‘enhanced’ Air Quality Action Day program.” *Id.*, page 52. The Air Quality Action Day Program “would declare an action day for lower levels of predicted PM_{2.5} concentrations.” *Id.* All of these contemplated future initiatives would take time to come to fruition.

Moreover, the Department has provided no evidence that the proposed wood burning curtailment campaign would result in the necessary reductions in PM_{2.5} levels at the Liberty monitor, which has been the focus of longstanding nonattainment. While the Department asserts that “[r]esidential wood burning represents a substantial portion (20%) of the future case area source inventory,” it is referring to all area sources throughout the county, and not just those in the Mon Valley. *See id.*

According to the preamble to the Implementation Rule, Contingency Measures should reflect at least one year’s worth of emissions reductions, based on the difference between the base year and future year. 81 Fed. Reg. 58,010, 58,066, col. 3 (requiring “approximately equivalent to 1 year’s worth of air quality improvement or emissions reductions proportional to the overall amount of air quality improvement or emissions reductions to be achieved by the area’s attainment plan”). According to the Department’s calculations, this would translate to 34 tons per year. *See* Proposed Revision, page 51. Not only do the four options for reducing wood burning fall short of this amount, they would not likely lead to attainment at the Liberty monitor.

The proposed Contingency Measures are based on four options for reducing wood burning emissions that the Department rejected as control measures when it performed its Reasonably Available Control Measures (RACM) analysis. *See id.* at 42, Table 6-1 (“Current Controls and RACM Alternatives Evaluated for Allegheny County”); *see also* Appendix J, pages 9-11.

While Option 1 (Wood Stove Change-Out Program) represents the greatest potential emissions reductions among the four options (19 tons per year), this is not a control measure that would take place “with minimal further action,” according to the Department’s own analysis:

A wood stove change-out program has been implemented before in the Pittsburgh MSA, so that it, or a similar structure, ***could begin implementation within 1 or 2 years.*** However, ***the process of selecting households and tracking implementation slows the change-out process.***

Id. at 10 (bold italics added). Moreover, the Department states that the cost-effectiveness of such a change-out program would be \$44,440 per ton of fine particulates reduced. *Id.* The Department would have to convince government decisionmakers that this investment is appropriate, which would not require “minimal further action.”

Moreover, the Department states that “[t]he number of exchanges would also be too small over this period for any substantial reduction of PM_{2.5}, even if focused on the Liberty area.”). *Id.* Without a substantial reduction of emissions throughout the county, the Department does not even arrive at the question whether this would result in attainment at the Liberty monitor.

While Option 4 (Additional Replacement of Outdoor Wood Boilers (OWBs)) presents the second largest potential reductions of fine particulates (9.698 tons per year), this is also not a control measure that would take place “with minimal further action.” *See id.* at 11. Such a program would involve creating financial incentives for owners of existing (grandfathered) outdoor wood boilers to upgrade their equipment at a cost of \$2,308 per ton of fine particulates reduced. *Id.* (“Existing OWBs are exempt from the requirements of 25 Pa. Code Chapter 123.14. The exemption extends to new OWB owners that acquire the equipment as the result of a real estate transaction.”). Again, the Department would have to convince government decisionmakers that this investment is appropriate.

Moreover, the Department states that “[i]t is unlikely that any significant emission reduction would be achieved.” *Id.* Again, without a substantial reduction of emissions throughout the county, the Department does not even arrive at the question whether this would result in attainment at the Liberty monitor.

Option 3 (Woodstove Replacement When Homes are Sold) represents an even vaguer control measure than the first two options. The Department proposed to follow the practice in other states where “some local communities have required the removal and destruction of old wood stoves upon the resale of a home.” *Id.*, page 10. The dependence of such a program on a future event such as the resale of a home means that the measures would not take effect with “minimal further action.” *See id.*, pages 10-11.

Moreover, the Department states that (1) “[c]osts were not quantified for this option,” (2) “[r]eductions are difficult to quantify for this option,” and that (3) “[i]t is unlikely that this option could generate significant PM_{2.5} emission reductions in a short or medium timeframe.” *See id.*, page 11. Again, without a substantial reduction of emissions throughout the county, the

Department does not even arrive at the question whether this would result in attainment at the Liberty monitor.

Finally, Option 2 (Outreach Program) presents the least specific measures for reducing fine particulates. The Department proposes an outreach campaign that encourages air pollution professionals to work with people to “deliver the Burn Wise message to the public.” *See id.*, page 10. Again, this would not happen with “minimal further action.” *See id.* (“The outreach campaign can be implemented within 6 months.”).

With respect to effectiveness, the Department states that “there is insufficient information to estimate the amount of emission reductions resulting from behavior change like fuel switching from green to seasoned wood.” *Id.*

The Department rejected all of these options as RACM -- Options 1 and 4 for not generating significant reductions, and Options 2 and 3 for being difficult to quantify for reductions and/or in costs. *See Proposed Revision*, page 42, Table 6-1 (“Current Controls and RACM Alternatives Evaluated for Allegheny County”).

Given the Department’s statements in its RACM/RACT analysis, it is unreasonable to expect they would sufficiently reduce emissions as contingency measures. While EPA notes that “suitable contingency measures may be measures that were technologically and economically feasible for the area, but did not qualify as RACM or RACT or additional reasonable measures for one or more reasons,” (*See* 81 Fed. Reg. at 58,066), the Department has not even shown that these measures are technologically and economically feasible. Instead, the Department needs to turn to industrial facilities in the Mon Valley for Contingency Measures.

B. The Department’s proposed “thorough culpability analysis” for industrial sources does not involve proper Contingency Measures.

The Department’s second approach is to conduct air modeling and studies to undertake a “thorough culpability analysis,” if it is determined that local industrial source contributions represent the majority of the localized excess PM_{2.5} at the violating monitor. Proposed Revision at 52. According to the Department, this would involve a meteorological analysis, local source modeling, and source apportionment analysis. *Id.* Because this would involve extensive work, this is not a control measure that would take place “with minimal further action.”

In addition, this is not sound air pollution policy. There is a serious question regarding the Department’s dedication to achieving attainment at the Liberty monitor, where it prioritizes a future wood burning curtailment campaign across the entire county, over specific reduction measures at large stationary sources within a few miles of the Liberty monitor.

But the Department has a history of ignoring large stationary sources of air pollution in the Mon Valley, and putting the burden of air pollution and emissions reductions on individuals. In an article in the *Allegheny Front* in 2017, Jim Kelly, the Deputy Director of the Department deflected responsibility from U.S. Steel for the health problems in the community, directing it back to the misfortunes of the victims of air pollution:

A new countywide survey released by the health department finds that cancer rates in Clairton are slightly higher than the county as a whole. But the plant's emissions blow toward Braddock, a small community with its own US Steel facility. Cancer rates there are double the rest of the county.

Kelly says these communities are so small that just a few sick people can sway the statistics. ***And, he adds, it's not easy to pin diseases on US Steel. There are many reasons people get cancer, especially in low income areas.***

"You've got high smoking rates, you've got old housing stock, with lots of asbestos, lung cancer right there," Kelly explains. "You have low education, you have high unemployment, high obesity rates, all of these things are correlated with those same things."

Julie Grant, *Can a Town Prove That Its Health Problems Are Caused by Pollution?*, <https://www.alleghenyfront.org/article>. To be fair, the fact that the Department has undertaken poor policy choices in its Contingency Measures is not a basis for a legal challenge, since EPA cannot tell the states what measures to include in a state implementation plan, unless they are required by law.

But a failure to provide any reasonable basis for proposed Contingency Measures makes them legally insufficient. Under the Administrative Procedures Act, agency action is unlawful if it fails to make a "rational connection between the facts found and the choice made." 5 U.S.C. § 706; *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 52 (citing *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168). That is the case here.

Because the Department has failed to provide evidence that the proposed wood burning curtailment campaign will actually achieve the required emissions reductions, this Contingency Measure is legally deficient. *See Louisiana Environmental Action Network v. EPA*, 382 F.3d 575, 586 (5th Cir. 2004) (vacating and remanding EPA's approval of a proposed Contingency Measure for the Baton Rouge nonattainment area that relied on emissions reductions at the Trunkline compressor station, located 24 miles south of the nonattainment area). In that case, EPA's assertion that Contingency Measures based on emissions reductions at the Trunkline facility would positively contribute to attainment was not supported by substantial evidence. *Id.* The Fifth Circuit noted that EPA's assertion was directly contradicted by the record, as the Trunkline facility was located 24 miles *south* of Baton Rouge and EPA's own analysis showed that areas *north* of Baton Rouge were more likely to influence attainment. *Id.*

Similarly, a court would view the Department's proposed Contingency Measures as unreasonable, where the Department relies primarily on a future wood burning curtailment campaign throughout all of the county to address nonattainment at the Liberty monitor, rather than measures to be implemented by large industrial sources in the Mon Valley.

The Department should revise its plan to include specific Contingency Measures that will reasonably result in emissions reductions of 34 tons per year, in the event the county does not come into attainment by the attainment date. Contingency Measures at the three nearby U.S. Steel facilities—which generate the majority of PM_{2.5} emissions in the county—are the proper place to start.

Thank you for your consideration of these comments.



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