ALLEGHENY COUNTY HEALTH DEPARTMENT
Air Quality Program

SUMMARY OF PUBLIC COMMENTS AND DEPARTMENT RESPONSES ON THE PROPOSED ISSUANCE OF ALLEGHENY ENERGY CENTER LLC – INSTALLATION PERMIT NO. 0959-I001

[Notice of the opportunity for public comment appeared in the legal section of the Pittsburgh Post-Gazette on April 8, 2021. The public comment period ended on June 8, 2021]

1. **Comment:** Combustion Turbine (CT01) Startup Shutdown: BACT and LAER limits must be established during all modes of operation, including startup and shutdown.
   a) Condition V.A.1.n and V.A.1.p exempt various emissions limits during period of startup and shutdown of CT01. However, page 3-2 of the application indicates that while NO_X, VOC, and CO emissions vary during startup and shutdown, other NSR pollutant emissions do not. Please remove the exemptions for these other pollutants and establish limitations for NO_X, VOC, and CO during periods of startup and shutdown.
   b) Note that lb/event BACT and LAER limits for CT01 cold start, warm start, hot start, and shutdown events were proposed for NO_X (5-24), CO (5-30), and VOC (5-38) in the facility application. However, these requirements do not appear in the permit as limits. Please establish BACT and LAER limits for startup and shutdown events and include those in the permit. Please ensure the analysis in determining these limits includes comparison to emissions limits achieved by similar operations.
   c) To calculate potential emissions and establish emissions limits for CT01, 365 startup and shutdown events were assumed. For these limits to be practically enforceable there must be associated operational or production limits such as the number of startup and shutdown events included as permit conditions. Note on Page 3-4 of the application, the facility requested the following limit: "Total startup and shutdown events not to exceed 365 events per rolling 12-month period". However, this requirement does not appear in the permit. Please establish in the permit operational limits on the number of startup and shutdown events and any other parameters assumed in establishing emissions limits such as event duration.

   Response: The Department agrees with the comment. Limitations for NO_X, VOC, and CO during periods of startup and shutdown were established and exemptions for other pollutants were removed. BACT and LAER limits for startup and shutdown events were added as a permit condition and an analysis of other similar facilities was added to the LAER Analysis section of the Technical Support Document (TSD). A condition limiting the number of startup and shutdowns was also added to the permit.

2. **Comment:** BACT and LAER determinations: BACT and LAER are emissions limits established by a permit authority. Appendix B to the review memo indicates controls the facility proposed in order to meet BACT and LAER limits; however, it is not clear what ACHD has determined as the BACT and LAER emissions limits. We suggest clarifying ACHD's determinations in the review memo.

Response: Appendix B of the TSD shows the results of the Invenergy BACT analysis are discussed in the BACT and LAER analysis sections of the TSD. The BACT and LAER emissions limits established by the Department are found in the permit in Table V-A-1.

3. **Comment:** 40 CFR Part 60, Subpart KKKK: Pursuant to 40 CR §60.4330(a)(1) and (2) and as indicated on page 4-9 of the facility application, CT01 is subject to SO_2 limits of 0.90 lb/MWh gross output and 0.060 lb/MMbtu heat input. However, condition V.A.1.g. of the permit only includes a 5.6 lb/hr and .0014 lb/MMBtu heat input limit. Please:
   a) Incorporate the 0.90 lb/MWh gross output limit and cite to both §60.4330(a)(1) and (2).
   b) Indicate in the review memo that the KKKK 0.060 lb/MMbtu limit is streamlined out by a more stringent limit, but still is an applicable requirement.

   Response: The Department agrees with the comment. The limit of 0.90 lb/MWh gross output was added to condition V.A.1.g. and the review memo now indicates that the KKKK 0.060 lb/MMbtu limit is streamlined by a more stringent limit, but still is an applicable requirement.

4. **Comment:** Testing:
   a) Condition V.A.2.d. requires regular PM, PM_{10}, $PM_{2.5}$, NO_X, SO_2, CO, NH_3, VOC, formaldehyde, and sulfuric acid mist emissions testing on the combustion turbine and HRSG stack as required by Article XXI §2108.02.b to demonstrate compliance with conditions V.A.1.e through V.A.1.n.
      1. Please specify the testing frequency required in the permit condition.
      2. This condition does not require testing to demonstrate compliance with the lb/hr emissions limits in Table V-A-1. Please incorporate regular testing requirements for these emissions limits as well.
   b) Condition IV.14.a. establishes a site-wide requirement to perform initial emissions testing specified by the Department pursuant to Article XXI §2108.02. Please include in the permit the initial emissions testing that the Department will require.

   Response: The testing frequency of once every two years was added to condition V.A.2.e as well as the requirement to meet the limits in table V-A-1. The testing requirements for the initial testing are the same as all other regular tests as outlined in section V.A.2.

5. **Comment:** Assuring Compliance with CT VOC limits: It is unclear how compliance with CT01 VOC limits is assured. Both CO and NO_X have continuous emissions monitoring devices, however there is no monitoring device for VOC. On page 5-37 of the application, the facility suggests a correlation factor between CO and VOC emissions during an initial performance test by simultaneously operating CO CEMS while stack testing following U.S. EPA Reference Method 18, 25A. However, no monitoring recordkeeping or reporting requirements exist in the permit to establish this correlation. Please incorporate.

   Response: The Department added condition V.A.2.j. to test for a correlation factor between CO and VOC emissions during an initial performance test and also added language to V.A.5.e. to include estimates of VOC emissions using the correlation factor.

6. **Comment:** Pennsylvania Ambient Air Quality Standards: The modeling analysis does not appear to address the Commonwealth's ambient air standards outlined in 25 PA code § 131.3. Pennsylvania has established ambient-air standards for settled particulate, beryllium, fluorides, and hydrogen sulfide.

   An analysis of Invenergy Allegheny Energy Center's (AEC) emissions for these pollutants may be sufficient to address these additional ambient-air standards. If AEC is a very minor source for these

pollutants, providing an estimate of these emissions may be sufficient to address the Commonwealth's additional ambient air quality standards.

Response: The proposed Installation Permit does not allow the Invenergy LLC Allegheny Energy Center Project to emit hydrogen sulfide. The proposed Installation Permit does allow the Invenergy LLC Allegheny Energy Center Project to emit 2.53×10^{-5} tpy of beryllium in the total HAP project summary. This amount of beryllium is miniscule and would not likely exceed the Commonwealth's ambient air standards in 25 PA code § 131.3. The proposed Installation Permit does allow the Invenergy LLC Allegheny Energy Center Project to emit 4.24×10^{-3} tpy of sulfur hexafluoride in the greenhouse gases project summary. This amount of sulfur hexafluoride is miniscule and would not likely exceed the Commonwealth's ambient air standards in 25 PA code § 131.3. The proposed Installation Permit does allow the Invenergy LLC Allegheny Energy Center Project to emit 44.59 tpy of filterable particulate matter (PM) and 44.24 tpy of condensable PM (for a total of 88.83 tpy of PM). Settled particulates (or "dustfall") from the Invenergy project are not expected to be a concern. Dustfall is generally associated with facilities that emit large portions of filterable PM, usually from material handling operations. A review of dustfall data measured throughout Allegheny County shows that only the dustfall locations in Natrona have exceeded the PA standards in recent years. These sites are located near ATI Specialty Rolled Products, a steel-making facility with several low-level, in-valley sources of filterable PM emissions. ATI has a proposed permitted limit of 575.50 tpy of total PM, which is considerably larger than the proposed Invenergy limit. Additionally, about half of the permitted PM emissions from the Invenergy project are condensable in nature, which is associated solely with the $PM_{2.5}$ fraction of PM and not larger filterable PM fractions that might contribute to dustfall. Emissions from Invenergy would also be at higher elevation than ATI (as well as most other facilities in Allegheny County), which should allow for better dispersion of PM than in other areas. Last, the most comparable facility in Allegheny County to the Invenergy project is the Springdale Energy Plant, a 514 MW power plant with combined-cycle natural gas turbines. While there is no dustfall site near the Springdale plant, former monitor sites for PM_{10} and $PM_{2.5}$ in Springdale showed low concentrations in comparison to other sites in the county, and there have been no observations or complaints of dustfall in the vicinity of the Springdale plant.

7. **Comment:** The Allegheny County Health Department (ACHD) should provide a more complete description of its AERMET preprocessing steps or direct reviewers to a more detailed description of the AERMET processing steps included in the documentation shared with EPA Region 3. An archive of electronic files used to develop the final model ready AERMOD meteorological files should be included in the final documentation. It would also be helpful if ACHD shared its QA/QC procedures to verify the wind measurements made at the Liberty monitor. This will ensure the wind fields were collected in accordance with EPA's on-site meteorological data collection recommendations. A detailed description of the meteorological data used in the dispersion modeling address would be useful.

   Response: The Department agrees with EPA's comment. The detailed AERMET description is filed with the Department and is available upon request.

8. **Comment:** Table 1 (AERMOD PM Emission rates for Invenergy AEC (in g/s)) shows the hourly PM emission rates for the Invenergy AEC sources. The (hourly) emission rate for the PM_{10} Class II 24-hr run does not match the auxiliary boiler emission rates for the other 5 other PM simulations; it is approximately 21% higher. PM emission rates for all the other Invenergy AEC sources are identical across the PM simulations. Please confirm if this is the proper emission rate for this source and if it is, why it is different than the other PM emission rates used for the auxiliary boiler in the other PM simulations.

Response: The Auxiliary Boiler was modeled with the 0.016604361 g/s emission rate for both the PM_{10} Class II 24-hr and the PM_{10} Class II Annual PM simulations. This was the only source in Table 1 that had different values for PM_{10} versus $PM_{2.5}$. The 0.016604361 g/s is the proper emission rate for PM_{10} for the auxiliary boiler and 0.013730529 g/s was the proper emission rate for $PM_{2.5}$ for the auxiliary boiler. For the other four sources, the PM_{10} and $PM_{2.5}$ were equivalent.

9. **Comment:** It appears that some of the ancillary (intermittent) sources are contributing to the peak model concentrations in several of the SIL simulations. For CO, the emergency generator is accounting for the bulk of the modeled 1-hr (see Table 2) and 8- hr peak values. For the 1-hr NO_2 SIL simulations, the auxiliary boiler appears to be contributing to the maximum modeled concentrations (excluding the cold start emission scenario). For 24-hr (Class II) PM_{10} and $PM_{2.5}$, the auxiliary boiler appears to account for a significant fraction of the maximum modeled concentrations. These sources are intermittent in nature. They are not intended to run on a continuous basis like the main combined-cycle combustion turbine and therefore are probably unlikely to be operating under worst-case meteorological conditions. Given this information, it is likely that many of the model concentrations in the SIL simulations far exceed what would occur under normal operating conditions (operations with just the main combined-cycle combustion unit operating and possibly the dew point heater).

   Response: The Department agrees with EPA's comment. No further analysis has been conducted for the modeled simulations.

10. **Comment:** Modeled stack velocities for the emergency generator are approaching 50 m/s. Please confirm the stack velocity units used in the modeling analysis are in metric (meters per second) and not British Imperial units (feet per second). All modeled stack parameters should be in metric units for consistency.

    Response: The Department reviewed the Invenergy LLC Allegheny Energy Center Project Installation Permit Application, specifically Permit Application Form B Fuel Burning or Combustion Equipment, Part VII – Stack Data, and the exit velocity for the emergency generator is 152 ft/s. 152 ft/s is approximately 46.3296 m/s, and the emergency generator was modeled at 46.29 m/s.

11. **Comment:** EPA Region 3 strongly recommends that Allegheny County address any modeled 1-hr NO_2 violation noted in its cumulative modeling analysis. We suggest consideration be given to the following model refinements that may reduce or eliminate the modeled violation:
    a) Model Refinement 1: Use more recently available 1-hr NO_2 background concentrations.
    b) Model Refinement 2: Reprocess the Meteorological Data to Utilize the Adjust u* Option in AERMET.
    c) Model Refinement 3: Refine Modeled Hourly NO_2 Emissions from Clairton Source Group.
    d) Model Refinement 4: If model 1-hr NO_2 violations persist, Allegheny County should consider utilizing a Tier 3 NO_2 option within AERMOD.

    Response: The Department agrees with EPA's comment. ACHD has re-run the cumulative modeling analysis with Refinement 1 and 2 above, with an updated NO_2 background and reprocessed meteorological data to utilize the Adjust u* option selected in AERMET, which included the most recent version of AERMET (v21112). ACHD will refine the model until the results show no receptor locations that are above the NO_2 NAAQS. The modeled results, the updated data used for the NO_2 background, as well as the reprocessed meteorological files are available upon request.

12. **Comment:** Allegheny County should consider updating its Modeled Emission Rates for Precursors (MERPs) analysis for the Invenergy AEC to account for EPA's updated guidance. EPA does not anticipate the overall outcome of the MERPs analysis to change but using more updated guidance

could demonstrate the plant's impact on secondary formation of O_3 or ozone and $PM_{2.5}$ is somewhat improved. ACHD's analysis of the plant's impact on ozone values could be less significant using more recent (lower) design values, given these design values are not spuriously impacted by unusual weather conditions and/or mobile source emission changes due to COVID.

Response: The Permit Application used the MERPs values from U.S. EPA 2016 – "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program", U.S. Environmental Protection Agency Office of Air Quality Planning and Standards, Air Quality Assessment Division, Research Triangle Park, NC, December 2, 2016. At the time of the analysis, the MERPs from the guidance dated 12/2/16 was appropriate. ACHD did recalculate the MERPs analysis with U.S. EPA 2019 – "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program", U.S. Environmental Protection Agency Office of Air Quality Planning and Standards, Air Quality Assessment Division, Research Triangle Park, NC, April 30, 2019. The values from the Permit Application and ACHD's recalculations can be seen in the Department's "Invenergy Modeling Review (Draft)" May 22, 2019. ACHD agrees that the overall outcome using the MERPs values from February 10, 2020 draft guidance would not significantly change the outcome.

13. **Comment:** Allegheny County should consider the following points that would bolster its conclusion that the Invenergy AEC should not hamper the county's ability to meet and maintain the 2012 $PM_{2.5}$ NAAQS. These could be considered as ancillary supporting evidence in addition to Allegheny County's MERPs analysis for secondary $PM_{2.5}$ formation.
    a) $PM_{2.5}$ impacts from NO_X emissions, which form nitrates, are generally less important in Allegheny County than other $PM_{2.5}$ components.
    b) It appears that the Invenergy AEC main combustion-turbine stack may be high enough to loft emissions such that they would not be overly impacted by local vertical temperature inversions. If Allegheny County can supply this supporting evidence, AEC's emissions may not contribute to local $PM_{2.5}$ concentrations that are subject to these atmospheric phenomena.
    c) Allegheny County's recent $PM_{2.5}$ SIP demonstration indicates the county will meet the NAAQS by its proposed attainment date (2021). Allegheny County may want to review its $PM_{2.5}$ SIP to determine if sources similar to Invenergy AEC were added to its projected (future) year emission inventory. Inclusion of an electric generating source(s) in the county or region that are similar or larger than Invenergy AEC would bolster the conclusion that the addition of this new power plant will not hamper future attainment of the $PM_{2.5}$ NAAQS since the $PM_{2.5}$ modeling demonstration showed compliance with new sources similar to Invenergy AEC in the area.
    d) If emission reduction credits (ERCs) are secured from sources within Allegheny County (or very close to it), one could argue that these ERCs would help mitigate AEC's future emission impacts on local $PM_{2.5}$ (and O_3) concentrations in the county.

Response:
    a) The Department agrees that NO_X emissions have not been a contributor to localized excess $PM_{2.5}$ in Allegheny County, specifically in southern Allegheny County and at the Liberty monitor, which is the cause of the nonattainment issue in the county. Nitrate appears to be more regional in nature than other components of $PM_{2.5}$, with formation dependent on the presence of widespread NO_X emissions rather than localized emissions. As noted in the comment, nitrates are also a seasonal component, existing mainly during colder months, when $PM_{2.5}$ concentrations can often be low. The Invenergy project should be expected to contribute minimally to nitrate formation in Allegheny County and surrounding counties.
    b) The Department agrees that the relatively high base elevation of the proposed Invenergy project (309.4 m) and the stack height of the main combustion/HRSG stack (54.9 m), along with

buoyancy and flow from the stack, should allow for good dispersion of pollutant emissions. At a total release height of 364.3 m, the main stack would actually be one of the highest release points of emissions in the county (only about 35 m lower than the Cheswick power plant FGD stack height plus base elevation). ACHD and consultants have made visual observations that plumes at high release heights can often "pierce" through an inversion layer that traps pollutants, specifically in areas of complex river valley terrain. The release height of the Invenergy main stack would also be about 30 m above the total height of the Liberty $PM_{2.5}$ monitor to the northwest, which is the ACHD location with concentrations that are most affected by temperature inversions. Additionally, due to the distance of the proposed Invenergy project from other facilities such as U. S. Steel Clairton to the northwest and ArcelorMittal Monessen to the southwest, there should be little possibility of plume merging from Invenergy with other source plumes that may be contributing to the accumulation of $PM_{2.5}$ in Allegheny County or the surrounding region.

c) The proposed Invenergy project was not included in the future case (2021) emissions inventory or modeled simulation for the $PM_{2.5}$ SIP, since the details of the project were not yet finalized at the time of the SIP development. A similar plant, the Tenaska Westmoreland Generating Station, a 940 MW combined-cycle natural gas power plant near Smithton in Westmoreland County, was included in the future case modeled simulation for the SIP. The future case modeled results showed no peaks of $PM_{2.5}$ near the plant, and did not affect future case design values at any site in Allegheny or Westmoreland Counties (see the $PM_{2.5}$ SIP Appendix I.1, Air Quality Technical Support Document, Figures 3.2 and 3.3). Additionally, the Springdale Plant, as mentioned above as a comparable plant within Allegheny County, was included in both the base case (2011) and future case modeled simulations for the SIP and did not show modeled peaks of $PM_{2.5}$ near its location. The proposed Invenergy project is expected to have little impact on the attainment of $PM_{2.5}$ in Allegheny County and surrounding counties.

d) The Facility will be required to purchase ERC Offsets for 168 tons of NO_X, 107 tons of VOC from stack emissions and 3.83E-2 tons of VOC from fugitive emissions. These values were calculated from offset ratios from Table 3-14 of the Permit Application. The Department will encourage Invenergy LLC (AEC) to purchase ERCs from facilities that are generally upwind of the Liberty monitor.

14. **Comment:** The Department received 261 comments regarding how Allegheny County should consider the negative impact that building a power plant will have on the Great Allegheny Passage trail and the Youghiogheny River.

    Response: And ambient impact modeling analysis was performed as part of the development of this permit. The analysis determined that this project would not cause or contribute to air pollution in violation of the National Ambient Air Quality Standards (NAAQS). For impacts beyond air quality, the comment is beyond the scope of the draft Installation Permit.

15. **Comment:** The Department received 145 comments regarding how Allegheny County should consider stronger air pollution thresholds and air monitoring requirements that reduce air pollution. Some of these include requiring continuous emission monitoring of VOC emissions instead of every two years, requiring the facility to go into hot/cold reserve when air quality puts our neighbors at risk, requiring permanent shutdown/reduction in output for non-compliance, requiring annual testing of the combustion turbine for NO_X, testing for PM, PM_{10}, $PM_{2.5}$, SO_2, CO, NH_3, VOC, formaldehyde, and sulfuric acid mist at least once every 2 years, testing of the auxiliary boiler for NO_X every 5 years, lower the proposed limit on excess ammonia pollution resulting from controls for nitrogen oxide emissions (aka ammonia slip) from 4 to 2 parts per million by volume, dry basis, require additional hazardous air pollutant (HAP) emission testing to verify area source determination and startup and shutdown emission rates.

Response: Emissions of VOC from the combustion turbine are low during normal operations, ranging between 8.10 and 7.88 lbs/hr (i.e., 1.5 ppm). Periodic emissions testing is sufficient for demonstrating compliance with emissions limits this low. Also, this ppm level is at the low end of a CEM's measurement range and could make it difficult to make reliable measurements, thus emissions testing is sufficient. The Department will require CEMS for CO. A correlation factor will be established between CO and VOCs.

Emissions testing will be required for NO_X, PM, PM_{10}, $PM_{2.5}$, SO_2, CO, NH_3, VOC, formaldehyde, and sulfuric acid mist every two years. A NO_X CEM will be installed which will provide a continuous assessment of compliance with the NO_X emissions limits; therefore, annual emissions testing for NO_X is unnecessary. The Auxiliary Boiler will be required to be tested every five years.

The facility is subject to the requirements to submit an episode plan under Article XXI, §2106.02 to outline mitigation activities during air quality episodes. Actions in response to noncompliance are determined by the ACHD Enforcement Section based on the severity of the noncompliance and are beyond the scope of the draft Installation Permit.

Other similar facilities' ammonia slip is 5 ppmvd @ 15% O2. Since the Invenergy facility is 4 ppmvd, the permit remains unchanged.

The Facility is required to perform emissions testing for formaldehyde every two years, which will be sufficient for confirming that the Facility is a minor source of HAPs. For any other HAPs, emissions factors and fuel usage are adequate for documenting the Facility's status as a minor source for HAPs.

Based on the requirements in 40 CFR Part 60 Subpart KKKK and 40 CFR Part 63 Subpart YYYY, The Department believes that emissions testing should be conducted during periods of normal operations (i.e., at least 75% load) and not start-up and shutdown conditions. Emissions testing of start-up and shutdown emissions are not explicitly required by regulation.

16. **Comment:** The Department received 36 comments regarding how Allegheny County is already a non-attainment zone for fine particulate matter and that this area ranks among the worst in the country regarding air quality. There are concerns that the addition of significant levels of numerous air pollutants, including NO_X (with resulting ozone impacts) and $PM_{2.5}$, in a region that already has poor air quality due to these same pollutants.

    Response: See response to Comment # 13.a).

    A Modeled Emission Rates for Precursors (MERPs) analysis was performed for VOC for Ozone and $PM_{2.5}$ under the Prevention of Significant Deterioration (PSD) permitting program. The 93 tpy of VOC showed no Significant Impact after chemical transformation to either Ozone or $PM_{2.5}$. No further analysis was warranted. With respect to ozone precursors, the prosed project is a major source for NO_X and VOC. This triggers Nonattainment New Source Review (NNSR); the applicant has addressed the NNSR requirements by securing emission reduction credits (ERCs) to offset the emissions of NO_X and VOC from the Invenergy Allegheny Energy Center site.

    The Dispersion modeling for NO_2 showed that most impacts were from facilities that are already permitted by ACHD. The Proposed facility has impacts near the site's property. Those projected impacts are below the 1-HR NAAQS for NO_2.

17. **Comment:** The Department received 19 comments regarding how Allegheny County should consider the cumulative effects of other industry in the region rather than just the proposed project.

    Response: A Modeled Emission Rates for Precursors (MERPs) analysis was performed for VOC for Ozone and PM-2.5 under the Prevention of Significant Deterioration (PSD) permitting program. This included the USS Clairton facility, and any other facilities in a 10 km radius, as well as the general background pollution in that area (which would include trains and other mobile emission sources such as vehicle traffic).

    Per Application Sections 6.1.3 and 6.1.4, the "NO_2 (1-hour) modeled emissions from the Project resulted in ambient air concentrations greater than the SILs. Therefore, a cumulative NO_X emission inventory was developed to demonstrate compliance with the NAAQS. See Comment #43 for a more detailed description.

18. **Comment:** The Department received 11 comments regarding how Allegheny County should consider imposing additional requirements to protect nearby environmental justice areas, including a cumulative impact risk assessment of air pollution. There are environmental justice neighborhoods close to the site that deserve to understand the cumulative health risks posed by the power plant.

    Response: Dispersion modeling, when needed, was performed with AERMOD. Local modeling used a grid 10 km from the center of the plant. West Newton and Sutersville was accounted for in the local modeling, where applicable. The Department referenced the Pennsylvania Department of Environmental Protection's (PADEP) EJ Enhanced Public Participation policy (EJ policy). PADEP's EJ policy identifies a trigger permit, in this case a Major Facility Plan Approval New Source Review Non-Attainment, impacting an EJA if the project is located in an EJA or if there are modeled emissions, resulting in concentrations greater than the significant impact levels (SILs) in the EJAs. Modeling did not result in any emissions concentrations exceeding the SILs. Since West Newton and Sutersville are outside of Allegheny County, interested parties may follow up with the PADEP.

19. **Comment:** There is no proof that a natural gas power plant will be built in Elizabeth Township, Allegheny County, now or in the future. This Draft Permit contains outdated, misinformation, and is not accurate. It must be set aside, pulled or denied.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

20. **Comment:** The Department received 4 comments regarding how Allegheny County should consider more than the basic and minimally required modeling. We do not see any evidence of discussions regarding terrain, inversions or even current air quality conditions in our region. Were there any conversations or concerns regarding the location and lack of true and accurate data for this specific site? Was there any consideration of doing site-specific monitoring to establish baseline data for modeling? 40 CFR Part 51 recommends obtaining site-specific data for areas that do not have sufficient historical data to be used for modeling. A temperature inversion study based on monitoring and measurements, not simply based on air models, has not been completed.

    Response: The modeling performed takes into account all meteorological data and terrain data as well as all sources within a 10 km radius. Monitoring and prediction of inversions has improved significantly over the years. Article XXI gives The Department the authority to require facilities to curtail operations in the event of a severe inversion or other similar episode.

An evaluation of the topography and geography surrounding the Liberty meteorological station to the topography and geography surrounding the Project Site shows that the Liberty meteorological station is representative of the meteorological conditions at the Project Site. Both sites can be characterized as being located in generally rolling terrain surrounded by a mix of forest and farmland interspersed with single family residential properties. The modeling compared the locations of the available meteorological data around the Project Site and determined that the Liberty meteorological station was the closest.

The model uses site specific data from the Liberty monitor for surface wind speed and wind direction for years 2010 through and including 2014. The model uses upper air data from the Pittsburgh International Airport for the same time period. ACHD provided the meteorological data to the applicant for the modeling, and this meteorological data was also used in ACHD's SO_2 State Implementation Plan in the Mon Valley section of Allegheny County.

21. **Comment:** The Department received 18 comments regarding how the community health would be negatively impacted by the project for children, people with asthma, heart disease, and cancer, and for future generations. Long-term health impact studies have not been done in this region and sufficient air quality monitoring is not in place in the immediate area of the Allegheny Energy Center site. Public health concerns presented during the public comment period have not been adequately addressed.

    Response: Community health is a factor in establishing the National Ambient Air Quality Standards (NAAQS). The ACHD Air Quality Program is working with other Department programs to determine cumulative community health impacts in the region.

    Since the Project exceeds the de minimis emissions rate levels for HAPs, ACHD was required to perform an air toxics modeling analysis in accordance with the ACHD Air Quality Program Policy to evaluate the effects of the Project for carcinogenic and non-carcinogenic health risks. The facility passed all thresholds for the Prevention of Significant Deterioration (PSD), Nonattainment New Source Review (NNSR), and ACHD's Policy on Air Toxics. Therefore, no significant risk was determined from the proposed facility.

22. **Comment:** The Department received 4 comments regarding how the power will go to the PJM grid and not benefit the residents near the actual power plant with its pollutants of formaldehyde, carbon monoxide, nitrogen oxide, benzene, and toluene, and they ask why such intrusion would be allowed on the very air they breathe, as well as the water available.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

23. **Comment:** Curious as to why the proposed power plant is to be built i.e. is it to replace a phased-out coal fired plant (to reduce C footprint) or is there actually a projected increase in overall demand for energy?

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

24. **Comment:** In addition to the health and tourism concerns the effect this will have on our area's charm and beauty would be destroyed. They are not making more land, and this should not even be considered.

Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

25. **Comment:** I would like to express my opposition to this air quality permit. Invenergy operates a power plant in Lackawanna county that has been in a state of major non-compliance according to public knowledge obtainable on the PADEP's website. This alone violates ACHD's principles in issuing a permit based upon their ongoing compliance issues within our Commonwealth.

    Response: Article XXI, §2102.03.d.2 states that the Department shall reject applications for facilities that own other facilities in Pennsylvania that are in violation "unless the violation is being corrected to the satisfaction of the primary air pollution control enforcement agency(s) for the source(s) in violation." The Department has consulted with the PADEP and determined that the violations identified on the PADEP website are being addressed to the satisfaction of PADEP. Article XXI, §2102.04.k, which also states that IPs cannot be issued to sources that have a violation of a requirement under Article XXI only applies to facilities within Allegheny County that are in violation with a Department regulation, and does not apply to DEP or other states' violations.

26. **Comment:** The Department received 4 comments regarding how the citizens would like the Department to require all emission reduction credits (ERCs) for NO_X and VOC emissions to be purchased from the local impacted area and require Invenergy to propose ERCs before the close of the public comment period so that the public can comment on them.

    Response: The Department appreciates the comment, however, per permit condition IV. 22, the permittee is required to purchase emission offsets prior to commencement of operation of any proposed source. There is no requirement for offsets to be purchased earlier.

27. **Comment:** ACHD rules and regulations for issuance of Installation Permit Section 50517 B9 requires that the applicant must be in compliance with other relevant air pollution rules and regulations at all facilities in Pennsylvania. Evidenced by violation reports that are publicly available through the Environmental Protection Agency and confirmed by the air quality district supervisor with the Department of Environmental Protection, Invenergy's Lackawanna's Energy Center in Jessup Borough, Pennsylvania, has been in noncompliance for the last three quarters, in high violation status with the Clean Air Act, and is currently in noncompliance with DEP air quality regulations.

    Response: See response to comment #25.

28. **Comment:** I am asking my friends, allies, and supporters at this hearing to join me and our allies at Protect Elizabeth Township to call on the Attorney General Josh Shapiro to investigate the Allegheny County Health Department for regulatory failures that have left Allegheny County residents vulnerable and exposed to environmental crimes.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

29. **Comment:** The Department received 101 citizen comments with the following concerns:
    a) Why would ACHD approve adding even more pollution to our area?
    b) Does the computer modeling take into account our very unique regional terrain?
    c) Does computer modeling take into account the atmospheric inversions that regularly occur in our region, during every season of the year?

d) It is my understanding that ACHD is currently not compliant with the EPA Clean Air Act, and that a plan has been submitted to the EPA to improve our regional air quality. It is also our understanding that this proposed application was not included in this plan to the EPA. Why?
e) It is also my understanding that the application for this permit was received during the time that the plan was being drafted. It is very hard to imagine that a plan to improve our regional air quality would include adding a pollution source and if so, how does this fit within the overall calculations of improving regional air quality?
f) The location proposed for this facility is centered between several working farms, has ACHD reviewed and studied the cumulative effect this will have on these farms, the crops, or livestock? Or most importantly the farmers and their families?

Response:
a) The permitting process, particularly Nonattainment New Source Review and Prevention of Significant Deterioration, are in place specifically to allow for growth while ensuring that ambient air quality is not negatively impacted. The draft permit addresses all relevant regulations.
b) See response to comments #20 and #51.
c) See response to comments #20 and #51.
d) The Department is "compliant with the EPA Clean Air Act". Assuming the commenter is referring to Allegheny County being out of attainment with the ozone (NO_X and VOC) and $PM_{2.5}$ NAAQS, the proposed installation was evaluated for Nonattainment New Source Review (for nonattainment pollutants) and Prevention of Significant Deterioration (for attainment pollutants). The modeling analyses referenced elsewhere in this document were performed to ensure that the plan to bring Allegheny County into attainment would not be adversely affected.
e) See response to comment #29.d) above.
f) See response to comments #17, #18, #20, #21, #43, and #66.

30. **Comment:** The impacts of the emissions from the proposed Invenergy plant will add additional pollution burdens to an environmental justice community that already suffers from unfair and high levels of pollution and will add to our region's existing burden of air pollution problems. The Invenergy Plant will lock into place climate a source of climate pollution that will greatly hinder us in achieving our climate goals and become a stranded asset.

Response: The Dispersion modeling showed that most impacts were from facilities that are already permitted by The Department. The Proposed facility has impacts near the site's property. Those projected impacts are below the NAAQS.

The facility passed all thresholds for the Prevention of Significant Deterioration (PSD), Nonattainment New Source Review (NNSR), and the Department's Policy on Air Toxics. No significant risk determined from the proposed facility.

Emissions from the Project will be limited by using BACT and LAER, the use of natural gas, and good operating practices to reduce emissions. In addition, air quality modeling has demonstrated that de-minimis ambient air concentrations will result from Facility emissions, thus the existing air quality will not be adversely affected.

See responses to comments #16, #17, #18, and #21 for further details.

31. **Comment:** The TSD must calculate emissions of PAHs from the facility's combustion turbine (CT) based on the emission factor from AP-42 Table 3.1-3, must substantiate its calculation of hexane

emissions from the facility's CT, and must calculate emissions of acetaldehyde, acrolein, propylene, xylenes, ethylbenzene, and PAHs from the facility's duct burner based on AB 2588 emissions factors.

Response: The CT emissions, as footnoted in the calculation spreadsheets, are based on the manufacturer's data for average short-term steady-state emission rates with duct burner, which are more accurate than AP-42 factor estimates. Emissions of PAH are miniscule. As noted in the emissions calculations spreadsheet, the AP-42 emissions factor for hexane from natural gas combustion (AP-42 Chapter 1.4 Table 1.4-3 (7/98)) has been designated as poor, and therefore, a more realistic hexane emissions factor is being used. The hexane emissions factor is located in Ventura County Air Pollution Control District document AB2588 AB 2588 - Combustion Emission Factors.

32. **Comment:** Invenergy must meet the lowest achievable emission rate (LAER) for major source pollutants, which must include emission rates as well as control technologies and monitoring requirements.

    Response: The Project will meet Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) requirements through the use of air pollution control technology (see Section 5 of the application), good operating practice, and reliance on natural gas and ultra-low sulfur diesel (ULSD) fuel. Because the Project is a major source for NO_X, CO, and VOC (precursor pollutants for ozone), a LAER analysis was performed required for those emissions units emitting either of these two pollutants. For this project, the scope of potentially applicable control options was determined based on a review of the RACT/BACT/LAER Clearinghouse (RBLC) database for entries within the last 10 years. LAER was determined to be Selective Catalytic Reduction (SCR), dry low-NO_X combustors, and good combustion practices on the combustion turbine. Requirements for all LAER and BACT are included in the draft permit.

33. **Comment:** ACHD's $PM_{2.5}$ State Implementation Plan (SIP) proposed to U.S. EPA does not include emissions inventory for proposed Invenergy plant. Additionally, the permit application does not account for proposed SIP revisions regulating precursor pollutants for Nonattainment New Source Review (NNSR), enacted separately through a county ordinance.

    Response: An analysis for $PM_{2.5}$ in regards to $PM_{2.5}$ Nonattainment New Source Review (NNSR) was performed. The analysis showed that the proposed facility would not significantly impact the $PM_{2.5}$ Nonattainment area for the 24-HR National Ambient Air Quality Standard (NAAQS). For the annual $PM_{2.5}$ NAAQS, only the NO_X precursor met the definition as a major source of pollution. The applicant has addressed the NNSR requirements related to siting of the project, compliance at other Allegheny Energy Center sites within the Commonwealth of Pennsylvania and need to secure emission reduction credits (ERCs). For pollutants that fall under multiple NNSR ERC requirements, the most stringent offset ratio specified in 25 Pa. Code § 127.210 applies.

34. **Comment:** ACHD should request additional data on emissions from upsets, including but not limited to blowdowns, malfunctions, upsets and emergency start-ups and shut-downs. The Invenergy permit application provides emission scenarios for 365 annual startups and shut-downs, but does not appear to incorporate criteria pollutant emissions from upsets, malfunctions and maintenance. Citizens also request additional information regarding turbine emissions at low-load operating scenarios.

    Response: Emissions during startup/shutdown will be minimized by limiting the time that the unit is in startup or shutdown mode. Startup and shutdown are defined in Section 3 of the narrative. The emissions from startup and shutdown shall be included in the 12-month rolling sum. CTs will not

have the ability to duct fire during periods of startup or shutdown. Refer to Appendix A of the TSD for startup and shutdown emission calculations.

Upsets and malfunctions, by their very nature, cannot be predicted or calculated. The permit requires proper operation and maintenance to mitigate upset conditions and the emissions estimates represent a worst-case scenario.

35. **Comment:** It is important for the Department to know that no local land use approvals have been granted to Invenergy.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

36. **Comment:** We ask that the Department make clear in the upcoming days that it will not take actions in matters on the Invenergy permit application in the absence of the public hearings that are required and would otherwise have been held.

    Response: A public hearing was held on June 8, 2021 in which the Department heard testimony from concerned residents before it moved forward with the permitting process. Furthermore, public information sessions were held on July 11, 2019 and May 4, 2021.

37. **Comment:** The Department Should Lower the Ammonia ("NH_3") Slip Limit From 4.0 ppmvd to 2.0 ppmvd and Include Continuous Emissions Monitors for Ammonia Based on Recent Permits Issued by PA DEP.

    Response: The ammonia emissions limit reflects periods when the CT is operating at a range of potential operating loads. Therefore, the ammonia limit must reflect operating periods when the SCR catalyst bed may not have reached an optimum temperature and some ammonia may not react to reduce NO_X emissions. During normal steady-state operating conditions and over longer averaging periods, ammonia slip would be expected to be less than 4 ppm ammonia slip limit.

    PADEP noted in its documentation of the Renovo Energy Center, LLC facility that 2 ppm was a recommended emissions limit for ammonia slip based on communication with the Connecticut Department of Energy and Environmental Protection regarding the Towantic combustion turbine facility in CT. However, the 2 ppm limit is applicable during non-transient conditions and only once had the SCR catalyst bed reached the manufacturer's recommended minimum catalyst temperature. This operating scenario contrasts with the potential range of load conditions for the proposed installation; therefore, a greater ppm limit is warranted.

    It should be noted that a review of other similar facilities show ammonia slips of greater than 5 ppmvd @ 15% O_2. Even as a 3-hour average, the proposed limit is only 4 ppmvd @ 15% O_2. The permit remains unchanged.

38. **Comment:** ACHD Must Revise the Proposed Permit to Require Continuous Emissions VOC Monitoring to Ensure that the LAER Requirements Applicable to VOCs are Legally and Practically Enforceable. If the monitoring requirements in the permit are not sufficient to determine each time a limit is exceeded, such a limit is not practically enforceable.

    Response: See responses to Comments #5, #15, and #32.

39. **Comment:** Invenergy Must Include Enforceable Limits for Emissions from Startup, Shutdown, and Malfunction in the Permit and Monitoring Requirements Sufficient to Determine Compliance with Those Limits. Practically, this can be done through specific emission limits for periods of startup and shutdown, and annual limitations on the number of shutdowns. Consequently, the Department must include, for all limits it needs to add to the permit to control startup, shutdown, and malfunction emissions as discussed in Section 3.a, *supra*, corresponding monitoring requirements sufficient to determine whether there is continual compliance or noncompliance.

    Response: See response to comment #1. Limits for startup and shutdown have been added to the permit, as well as a limit on the annual number of startup/shutdown events.

40. **Comment:** Invenergy Should Include Additional HAP Emission Testing to Verify Area Source Determination and Startup and Shutdown Emission Rates. Calculating emissions based only on steady-state operation fails to consider the potential for increased HAP emissions during startup and shutdown events. The Department should also request additional information regarding HAP emissions at low-load operations, during startup and shutdown, with duct firing, and potential fugitive emission to supplement the current analysis in the application.

    Response: Since the permittee is not a major source of HAPs, there is no additional testing needed for HAPs emissions. However, the permit includes limits on startup and shutdown events and emissions from those events (see response to comments #1 and #39). Maximum emissions (and all modeling analyses) were calculated assuming 365 startup/shutdown events per year.

41. **Comment:** The Department Should Provide Additional Information to Establish that the Applicant is Relying on Meteorological Data and Land Use Data that are Representative.

    Response: The Department provided the meteorological data to the applicant for the modeling. This meteorological data was also used in ACHD's SO_2 State Implementation Plan in the Mon Valley section of Allegheny County.

42. **Comment:** The Department Should Clarify the Air Modeling for the Evaluation of Significant Impact Levels for Particular Air Pollutants. Because the air modeling shows that the proposed facility would contribute to a violation of the NAAQS, the Department should deny the application. The Applicant tries to get around this result through inventive reasoning that amounts to the assertion that there would be a violation of the NAAQS anyway as a result of operations of other sources. It does this by simply modeling the proposed project, without those other sources. Without showing its work and contrary to what the applicant did, the Department concludes that there will not be an exceedance of the 1-hr NAAQS of 188 micrograms per cubic meter. The Department should clarify its reasoning and show how it reached this result. Instead of simply adding up concentrations of air pollutants at the monitors, the Department should be conducting source-specific air modeling for all relevant air pollutants.

    Response: The Department agrees with the comment. ACHD has re-run the cumulative modeling analysis with an updated NO_2 background and reprocessed meteorological data to utilize the Adjust u* option selected in AERMET, which included the most recent version of AERMET (v21112). ACHD will refine the model until the results show no receptor locations that are above the NO_2 NAAQS. The modeled results, the updated data used for the NO_2 background, as well as the reprocessed meteorological files are available upon request. (See response to comment #11.)

43. **Comment:** The Department Should Impose Additional Requirements to Protect Nearby Communities in Environmental Justice Areas, Including a Cumulative Impact Risk Assessment of Air

Pollution. ...the applicant did not conduct full comprehensive modelling for all individual but relied on assumptions regarding background concentrations at particular monitoring stations. To address the additional air impacts, the Department should require the Applicant to conduct more complete, comprehensive air modeling that better accounts for the pollution sources in the area and impacts and add more stringent monitoring requirements and limitations in the permit as warranted.

Response: Per Application Sections 6.1.3 and 6.1.4, the "NO_2 (1-hour) modeled emissions from the Project resulted in ambient air concentrations greater than the SILs. Therefore, a cumulative NO_X emission inventory was developed to demonstrate compliance with the NAAQS. The one-hour NO_2 NAAQS was evaluated using the cold startup condition. The facility-wide emissions inventory used for the SIL modeling (Table 6-2) was also used to evaluate the one-hour NO_2. A cumulative NO_X emissions inventory was developed to demonstrate compliance with the 1-hour NO_2 NAAQS and includes an emissions inventory of local sources. Guidance contained in U.S. EPA's March 1, 2011 memorandum (U.S. EPA 2011) was followed. Per the guidance, local NO_X emissions sources that are within 10 km of the Project were included in the NO_X local source inventory. This guidance assumes that the region of significant concentration gradient of a local source is equivalent to 10 times the local source release height. The 10 km distance was developed based on stack heights less than or equal to 100 m. AEC reviewed local sources outside of the 10 km and identified one source with a stack height greater than 100 m. The Genon Energy Inc., Cheswick Station boiler has a stack height of 168.4 m and is located about 35 km away from the Project site. The summary of local sources that were included in the 1-hour NO_2 NAAQS evaluation is provided in Table 6-3. The stack characteristics and emissions rates were provided by ACHD."

This is consistent with the Department's Invenergy Modeling Review where the ambient background 1-hour NO_2 concentrations were considered for all non-modeled NO_2 sources. The ambient background concentration was added to the cumulative modeled concentration resulting from the proposed project and local sources. Invenergy followed guidance from EPA's March 1, 2011 memorandum which outlines a Tier 2 approach. The Charleroi, PA monitor was used as the background monitor; the seasonal diurnal 3rd highest average was used as the background concentration. Modeling results from ALL4INC were consistent with the ACHD modeling review. Since, the sum of the ratios are above one, a cumulative analysis for ozone was done. The cumulative air quality impacts of ozone precursor emissions from the proposed project are not expected to increase the critical air quality threshold for ozone, as the secondary impacts on 8-hour ozone plus background concentrations are below the 8-hour ozone NAAQS of 70 ppb. Since, the ratios above is below 1, a cumulative analysis for ozone would not need to be done based on the updated MERPs values for NO_X and VOC for 8-hour ozone.

The Project exceeds the de minimis emissions rate levels for HAPs for "all other air toxics." Hence, an air toxics modeling analysis was required to be performed to evaluate the effects of the Project for carcinogenic and non-carcinogenic health risks. For the air toxics analysis, emissions from the Project's emissions units were used to model concentrations for comparison to human health risk thresholds. To evaluate the human health risk on an annual averaging period, the annualized emissions rates were calculated by taking the total pounds per year (lb/yr) of emissions for each emissions unit and dividing the total emissions by the annual operating hours for the respective emissions unit. Only those air toxics with established risk thresholds as identified by the Department's Policy are further summarized in Section 6.4.5 and included in the emissions inventory. As summarized in Table 6-4, annual mass emissions of mercury, Polycyclic Organic Matter (POM), and HAP metals are each less than the de minimis levels, in accordance with the ACHD's Policy and, therefore, are not expected to significantly affect public health. Therefore mercury, POM, and HAP metals have not been included in the air toxics modeling analysis.

44. **Comment:** The Department Should Require Invenergy to Properly and Fully Analyze the Additional Impacts Analysis, to Address the Collateral Implications of Expanding the Natural Gas Infrastructure. Invenergy's Air Quality Impacts Analysis Was Flawed and Incomplete.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

45. **Comment:** The Department Should Require all ERCs for NO_X and VOC Emissions to be Purchased from the Local Impacted Area and Should Require Invenergy to Propose ERCs Before the Close of the Public Comment Period.

    Response: See response to comment #26. Credits cannot be transferred from a cleaner area into a dirtier area. This ensures that a company cannot purchase credits for a proposed facility located in an area that already has significant pollution. Per permit condition IV. 22, the permittee is required to purchase emission offsets prior to commencement of operation of any proposed source, not during the public comment period.

46. **Comment:** The Department Should Clarify How the Proposed Air Pollution Episode Regulations Would Apply to the Proposed Project, Located Close to the County Line. Given the positioning of the proposed facility close to the county line, there is a concern that air pollution episodes in the nearby community could escape through the cracks of regulation.

    Response: The proposed Invenergy Allegheny County Energy power plant has yet to receive its Installation and Operating Permits. This source will be subject to this proposed Article XXI regulation upon startup.

47. **Comment:** What area were the Environmental Reduction Credits purchased from?

    Response: Invenergy has not yet identified and procured Environmental Reduction Credits. The draft condition at Section IV. 22 requires that the emissions offsets be purchased prior to commencement of operation of any of the proposed sources. See response to comments #26 and #45.

48. **Comment:** With regards to the Environmental Reduction Credits, will Invenergy be adding to community pollution? Or did the ERCs offset something in the local community?

    Response: The facility passed all thresholds for the Prevention of Significant Deterioration (PSD), Nonattainment New Source Review (NNSR), and the Department's Policy on Air Toxics. No significant risk determined from the proposed facility. Invenergy has not yet identified and procured Environmental Reduction Credits. The draft condition at Section IV. 22 requires that the emissions offsets be purchased prior to commencement of operation of any of the proposed sources. See response to comments #26 and #45

49. **Comment:** Page 5 of the Installation Permit posted on the ACHD website lists a 'General Electric 7HA.03 Combustion Turbine' and page 3 of the IP Review Memo posted on the ACHD website lists a 'General Electric 7HA.02 Combustion Turbine'. Which turbine is correct? Which turbine was emissions modeled? Why are there inconsistencies with the documents?

    Response: The General Electric 7HA.03 Combustion Turbine is the correct turbine. The reference to the 7HA.02 was a typographical error and has been corrected.

50. **Comment:** Where will the electricity generated be sold? The PJM grid has historically not been electricity short.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

51. **Comment:** How has the local weather, such as inversions, been included in the modeling? Where are the episode events included in the modeling?

    Response: The modeling included data for years 2010 through and including 2014. Any inversions in the meteorological data were included in the modeling. While temperature inversion conditions are one key aspect of weather that determines mixing potential and subsequent pollution concentrations, surface temperature, wind direction and speed, and precipitation are also important and included in the modeling.

52. **Comment:** Has Invenergy been included in the new episode pollution rules being considered?

    Response: See response to comment #46.

53. **Comment:** What is Invenergy's responsibility with regards to the new episode pollution rules being considered?

    Response: See response to comment #46.

54. **Comment:** The Mon Valley air quality is some of the worst in the nation and local air monitors historically are not in attainment with national standards. Why is a new major emission source, that according to ACHD documents "will result in a significant net increase in NO_X, CO, VOC, PM_{10}, $PM_{2.5}$, H_2SO_4 emissions under the Prevention of Significant Deterioration (PSD) regulations and Nonattainment New Source Review (NNSR) regulations; a net increase in SO_X and Pb emissions that are less than the PSD and NNSR significance thresholds" being considered for a permit?

    Response: The Department must consider without bias all permit applications that are submitted to the Department. As long as the applicant meets the federal, state, and local regulations for the proposed facility, the Department must grant the applicant with a permit to construct the facility with regard to air pollution standards. It is important to note that the term "significant net increase" is a specific, technical term used under Prevention of Significant Deterioration to indicate that those regulations apply. It does not mean that the project will result in a significant impact to ambient air quality. Based on the modeling analysis, while this project is "significant" with respect to PSD and NNSR, it does not significantly affect ambient air quality.

55. **Comment:** What is the predominant wind pattern at the proposed Invenergy site and what percentage of the time will the wind carry emissions into the Mon Valley?

    Response: There is no meteorological data at the proposed Invenergy site. Based on the high base elevation of the site, it might be expected that the wind pattern would follow the general mesoscale flow throughout southwestern PA. This flow is predominantly from the west/southwest, similar to the wind flow seen at the Liberty site and at airport sites.

56. **Comment:** According to posted documents, start up and shut down of the plant can result in higher emission rates; why does the permit allow this happen up to 365 times per year?

Response: Emissions during startup/shutdown will be minimized by limiting the time that the unit is in startup or shutdown mode. The emissions from startup and shutdown have been included in the 12-month rolling sum in order to estimate a worst-case scenario, and all modeling was based on these estimates. Refer to Appendix A of the TSD for startup and shutdown emission calculations.

57. **Comment:** According to posted documents, start up and shut down of the plant can result in higher emission rates; will this be allowed during inversion days? The permit does not appear to take episode pollution into consideration.

    Response: Article XXI gives the Department the authority to require facilities to curtail operations in the event of a severe inversion or other similar episode. Episode plans will be required once the facility has been installed. See response to comments #15, #20, and #46.

58. **Comment:** How many days per year does ACHD model for inversions? How is this taken into consideration for the Invenergy permit?

    Response: The modeling included data for years 2010 through and including 2014. Any inversions in the meteorological data were included in the modeling. Based on the Annual Surface Temperature Inversion Analysis for 2019, the number of morning temperature inversions derived from PIT NWS data for 2010 was 171; for 2011 was 134; for 2012 was 158; for 2013 was 127; and for 2014 was 141. The document can be downloaded from Allegheny County's Website at AnnualSfcTempInversionAnalysis-2019.pdf (alleghenycounty.us).

59. **Comment:** What areas, towns, and cities become the receptor hotspots for pollutants based on the modeling performed?

    Response: The hillside of Lincoln Borough is the NO_2 hotspot for Allegheny County. This is due to NO_X emissions from another emissions source and not the proposed Invenergy Plant. The hotspot locations for this project are localized on the proposed facility's property.

60. **Comment:** Does ACHD current modeling predict that local monitors should be in attainment? Is the accuracy of this modeling sufficient for issuance of new major source polluters?

    Response: The analysis of the Proposed Invenergy permit showed no significant deterioration of all NAAQS within Allegheny County.

61. **Comment:** NO_X and Ammonia are precursors of $PM_{2.5}$; was this considered in the modeling?

    Response: The $PM_{2.5}$ CAMx modeling showed that ammonia was not a significant precursor of $PM_{2.5}$ in Allegheny County. NO_X was not modeled but was included in the Modeled Emission Rates for Precursors (MERPs) analysis for $PM_{2.5}$. The MERPs analysis showed that the total combination of $PM_{2.5}$ direct and secondary formation from NO_2 and SO_2 was below the SIL.

62. **Comment:** The posted documents stated the plant would not trigger NO_X haze for Shenandoah National Park. How will it affect local regional haze, specifically on 'ozone action days'?

    Response: Similar to the response to comment #13 regarding the impact of the project on $PM_{2.5}$ levels in the Mon Valley, it should also be expected that the proposed Invenergy project would have a minimal impact on local ozone and haze levels. Ozone action days are more driven by region-wide emissions of NO_X and VOC pollutants.

63. **Comment:** The modeling shows that all scenarios of the Invenergy plant exceeded 1-hour standards for certain pollutants. How is this acceptable?

Response: The Department agrees with the comment for 1-hour exceedances of the NO_2 NAAQS. ACHD has re-run the cumulative modeling analysis with an updated NO_2 background and reprocessed meteorological data to utilize the Adjust u* option selected in AERMET, which included the most recent version of AERMET (v21112). ACHD has refined the model until the results show no receptor locations that are above the NO_2 NAAQS. The modeled results, the updated data used for the NO_2 background, as well as the reprocessed meteorological files are available upon request. (See response to comment #11.)

64. **Comment:** Why is hourly monitoring not a requirement for certain pollutants in the draft permit?

Response: Title V requires each facility to conduct regular monitoring activities such as performing stack tests and inspections, and measuring raw materials and fuel consumption, and keeping records of facility operating conditions and equipment maintenance. Monitoring results must be reported to the Permitting Authority at least once every six months. CEMS are required for NO_X, and CO. A correlation factor will be established between CO and VOCs. The other pollutants are not emitted in high enough thresholds to justify CEMS.

The facility will continuously monitor NO_X and CO with emissions testing being used to determine the quality of the monitoring and how well the facility is meeting the limits set forth in the permit according to Federal Regulation §60.4400, which requires annual testing and Federal Regulation §60.4345 and Federal Regulation §60.8. The other criteria pollutants shall be tested according to the testing requirements set forth in Article XXI §2108.02.

65. **Comment:** Has the quality of the feed gas stream been analyzed to ensure it aligns with modeling and assumptions?

Response: Per permit Condition V.A.1.a, only pipeline-quality natural gas shall be combusted in the combustion turbine. The emissions are modeled based on stack velocities and height. The gas stream is not analyzed as part of the modeling analysis.

66. **Comment:** ACHD should modify the permit to require these additional conditions: ACHD will perform a cumulative impact risk assessment of air pollution from the plant and other nearby industrial facilities and operations, including all oil and gas infrastructure and other industrial sources of pollution. Allowing this power plant to continue without a proper assessment will add risk to vulnerable environmental justice neighborhoods close to the site that deserves to understand the cumulative health risks posed by the power plant.

Response: Community health is a factor in establishing the National Ambient Air Quality Standards (NAAQS). The modeling performed took into account all meteorological data and terrain data as well as all sources within a 10 km radius, which includes the EJ communities of West Newton and Sutersville.

67. **Comment:** ACHD should modify the permit to require these additional conditions: ACHD will require continuous VOC monitoring at the plant instead of the current requirement of testing for VOC emissions once every two years. This information should be made available to the public by publishing multiple sources; in real-time to the community via the web, and via mail to area residents once quarterly. If exceedance of the ambient air quality standards established by Article XXI §2101.10 occur, ACHD should take swift action within 24 hours.

Response: See response to Comment #15 regarding continuous VOC monitoring. Publishing CEMS data publicly is beyond the scope of this Installation Permit. Any exceedances of the ambient air quality standards are not immediately attributable to any single source, therefore it is not appropriate to list any Department response in an installation permit. Department response to such events is outlined in Article XXI.

68. **Comment:** ACHD should modify the permit to require these additional conditions: ACHD will lower the proposed limit on excess ammonia pollution resulting from controls for nitrogen oxide (NO_X) emissions… The ammonia limit should match similar requirements the Pennsylvania Department of Environmental Protection (DEP) recently included in a plan approval for the Renovo Energy Center in Clinton County.

    Response: See response to comments #15 and #37. The proposed limit for ammonia slip is lower than other similar facilities (4 ppmdv vs. 5 ppmdv) and is based on a worst-case scenario of operation at lower temperatures.

69. **Comment:** ACHD should modify the permit to require these additional conditions: ACHD will not negotiate fines or enforcement actions with Invenergy so that the operator is encouraged to comply with all ambient air quality standards established by Article XXI §2101.10 and not endanger the public health, safety, or welfare.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

70. **Comment:** The need to purchase emissions credits for NO_X and VOCs is an admission that the plant will be polluting beyond what public officials deem to be safe. But health effects are seen even if exposures are below regulatory standards. Small increases in $PM_{2.5}$, for instance, can increase risk of serious health effects.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit. The permit meets the requirements for Nonattainment New Source Review and Prevention of Significant Deterioration.

71. **Comment:** The National Ambient Air Quality Standards are not even altogether health protective, highlighting the risk posed by the proposed plant.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit. Community health is a factor in establishing the National Ambient Air Quality Standards (NAAQS).

72. **Comment:** Children are particularly vulnerable to air contaminants such as those expected from the Invenergy plan. Children do not respond to emissions as though they are little adults, and safety levels are typically based on occupational research.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

73. **Comment:** Emissions from a new facility, when combined with other existing emission sources, can result in dangerous exposure levels in the ambient air, which may cause both acute and chronic health impacts.

Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit. Modeling analyses performed for this permit has taken into account the effects from other nearby sources of air emissions.

74. **Comment:** Approach health impacts from a community exposure perspective and not just from an industrial emissions one. Pollution can come from various sources, directions and distances. People experience these toxic pollutants sometimes in combination, sometimes in succession.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit. Modeling analyses performed for the permit has taken into account the effects from other nearby sources of air emissions.

75. **Comment:** Environmental Justice is not simply about clean air and water and safety in a general sense. It's about the health of, and opportunities for, community members. With that in mind, community prevalence of preexisting conditions and vulnerabilities should be a part of decision-making.

    Response: The Department appreciates the comment; however, the comment is beyond the scope of the draft Installation Permit.

76. **Comment/Response:** The Department revised the permit to include Relative Accuracy Test Audits (RATA) for the CO CEMS in Section V.A.2.

Bernadette Lipari, Air Quality Engineer
October 5, 2021

List of Commenters

Name	Affiliation
	ACHD
Riley Burger	Environmental Protection Agency
Timothy Leon-Guerro	Environmental Protection Agency
Lisa Graves-Marcucci	Environmental Integrity Project
Ashley Funk	Mountain Watershed Association
Angela M. Kilbert	Penn Future
Angelo Taranto	ACCAN
Benjamin Kunstman	Environmental Integrity Project
Beth Weinberger, MPH, PhD	Southwest Pennsylvania Environmental Health Project
Christopher D. Ahlers	Clean Air Council
Dan Dix	All4

Name	Affiliation
Edward Andrews, P.E.	WVDEP/Division of Air Quality
	Heartwood Organization
James Cato	Mountain Valley Watershed Association
Jill Taylor	Protect Elizabeth Township
Joanne Hall	Protect the Yough
John Baillie	Group Against Smog and Pollution
Joseph O. Minott	Clean Air Council
Kelsey McNaul	Climate Reality Project
Lee Willard	Green Deeds LLC
Maren Cooke	Putting Down Roots
Megan McDonough	Food & Water Action / Food & Water Watch
Matthew Mehalik	Breathe Project
Myron Arnowitt	Clean Water Action
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