

## **Section 4 – Air Resources**

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**List of Acronyms and Abbreviations – Section 4**

%	percent
µg/m <sup>3</sup>	micrograms per cubic meter
AGC	annual guideline concentrations
BACT	Best Available Control Technology
BMPs	Best Management Practices
Btu	British thermal units
Btu/kW-hr	British thermal units per kilowatt-hour
CAIR	Clean Air Interstate Rule
CCS	carbon capture and sequestration
CFR	Code of Federal Regulations
CMS	continuous monitoring system
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalents
the Court	U.S. Court of Appeals for the D.C. Circuit
CSAPR	Cross-State Air Pollution Rule
CVE	Cricket Valley Energy Center, LLC
DAM	Day Ahead Market
DEIS	Draft Environmental Impact Report
DLN	dry low NO <sub>x</sub>
EPA	Environmental Protection Agency
ERC	emission reduction credit
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Report
FIP	Federal Implementation Plan
GE	General Electric
GEP	Good Engineering Practice

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GHG	Greenhouse Gas
g/s	grams per second
H <sub>2</sub> SO <sub>4</sub>	sulfuric acid
K	degrees Kelvin
km	kilometer
LAER	Lowest Achievable Emission Rate
lb	pound
lb/hr	pounds per hour
lb/MMBtu	pounds per million British thermal units
LBMP	Locational-Based Marginal Pricing
LHV	lower heating value
m	meters
m/s	meters per second
MAPS	Multi Area Production Simulation
MMBtu	million British thermal units
MMBtu/hr	million British thermal units per hour
msl	above mean sea level
MW	megawatts
n/a	not applicable
N <sub>2</sub>	elemental nitrogen
NAAQS	National Ambient Air Quality Standards
NAPAP	National Acid Precipitation Assessment Program
NED	National Elevation Dataset
NFPA	National Fire Protection Association
NH <sub>3</sub>	ammonia
NNSR	Nonattainment New Source Review
NO	nitrogen oxide
N <sub>2</sub> O	nitrous oxide
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides

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NRI	Natural Resource Inventory
NYAAQS	New York Ambient Air Quality Standards
NYCRR	New York Codes, Rules and Regulations
NYISO	New York Independent System Operator
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSPSC	New York State Public Service Commission
O <sub>2</sub>	Oxygen
O <sub>3</sub>	Ozone
Pb	Lead
PM <sub>10</sub>	particulate matter with a diameter equal to or less than 10 microns
PM <sub>2.5</sub>	particulate matter with a diameter equal to or less than 2.5 microns
ppb	parts per billion
ppm	parts per million
ppm <sub>v</sub>	parts per million by volume
ppm <sub>vd</sub>	parts per million by volume dry
ppm <sub>w</sub>	parts per million by weight
Poughkeepsie Airport	Poughkeepsie Dutchess County Airport
the Project	the Cricket Valley Energy Center
Project Development Area	the 57-acre portion of the 193.5-acre Property proposed for development.
Property	the 193.5-acre property optioned by CVE
PSD	Prevention of Significant Deterioration
PVMRM	Plume Volume Molar Ratio Method
RACT	Reasonably Available Control Technology
RGGI	Regional Greenhouse Gas Initiative
RAP	re-noticed air permit
remote Laydown Site	the 38.8-acre construction worker parking and laydown site located approximately 2.5 miles north of the Property
scf	standard cubic feet

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SCR	selective catalytic reduction
SGC	short-term guideline concentrations
SIA	Significant Impact Area
SIL	Significant Impact Level
SIP	State Implementation Plan
SMC	Significant Monitoring Concentration
SO <sub>2</sub>	sulfur dioxide
SO <sub>3</sub>	sulfur trioxide
SO <sub>x</sub>	sulfur oxides
tpy	tons per year
U.S.	United States
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	volatile organic compounds

## **4. AIR RESOURCES**

This section provides an update on air quality-related issues since the Draft Environmental Impact Statement (DEIS) was filed, followed by a brief summary of impacts and proposed mitigation. Topics addressed in this section and Section 4 of the DEIS included baseline air quality, meteorology and climatology; emission control technology analysis; characterization of Project emissions; air quality modeling, including cumulative modeling, to evaluate potential impacts; and a demonstration of compliance with regulatory requirements and standards. Comments received on the DEIS associated with air quality issues are provided in Section 4.3, along with responses and reference to sections where additional information is provided for some topics.

### **4.1 Project Refinements Since the DEIS**

Since the DEIS was issued, the New York State Department of Environmental Conservation (NYSDEC) re-issued the draft air permit incorporating specific greenhouse gas (GHG) emissions limits and certifying the volatile organic compound (VOC) and nitrogen oxides (NO<sub>x</sub>) emissions offsets that have been secured for the Cricket Valley Energy project (the Project). A public notice for the revised draft air permit was published in the Environmental Notice Bulletin on December 17, 2011, and a 30-day public comment period followed the complete publication of the notice. The draft permit was previously noticed in the New York State Environmental Notice Bulletin for public comment on May 25, 2011 and July 27, 2011. On July 12, 2012, NYSDEC adopted new regulations (6 New York Codes, Rules and Regulations [NYCRR] Part 251) establishing carbon dioxide (CO<sub>2</sub>) emissions standards for new major electric generating facilities. The new regulations require new facilities to meet CO<sub>2</sub> emission limits (based on a 12-month rolling average) of either 925 pounds (lb) of CO<sub>2</sub> per megawatt-hour of gross electrical output or 120 lb of CO<sub>2</sub> per million British thermal units (MMBtu) of input. The Project will fully comply with this standard. No changes to the Project's proposed emissions or impact to air resources have occurred since the DEIS.

### **4.2 Summary of Project Impacts and Proposed Mitigation Measures**

The Project is a state-of-the-art facility designed to minimize air emissions and associated resource impacts during operation. The Project will utilize combined cycle technology using only natural gas to power the combustion turbines. In addition, stringent pollution control measures will be incorporated in the project design to meet Lowest Achievable Emission Rate (LAER) and Best Available Control Technology (BACT) as applicable. The Project's state-of-the-art design, coupled with the incorporation of advanced pollution control equipment and

operational practices, will ensure that air emissions are minimized and will not result in significant adverse environmental impacts.

The Project is classified by the United States Environmental Protection Agency (USEPA) and NYSDEC as a new major source of air emissions under the Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR) programs. PSD and nonattainment new source review was conducted, as appropriate, for NO<sub>x</sub>, VOC, carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter equal to or less than ten microns (PM<sub>10</sub>), particulate matter equal to or less than 2.5 microns (PM<sub>2.5</sub>), sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), and GHGs.

PSD review requirements include the application of BACT and a demonstration of compliance with ambient air quality standards and other air quality criteria. A BACT analysis has been conducted and pollution control measures consistent with BACT are being implemented for these pollutants. A dispersion modeling analysis has been performed to demonstrate compliance with ambient air quality standards in addition to other impact analyses, such as acidic deposition, impacts to soils and vegetation, indirect growth impacts, visibility impairment, and environmental justice, as required under the PSD regulations. The dispersion modeling results demonstrate that the Project is in compliance with all air quality standards and has an insignificant impact on air quality. These analyses are provided in Section 4 of the DEIS.

Dutchess County is designated as a Subpart 2/Moderate Nonattainment Area with respect to the 8-hour ozone ambient air quality standard. Ozone (smog) is a regional air quality issue since ozone is not emitted directly, but forms in the atmosphere from emissions of precursor pollutants in the presence of strong sunlight. As a result, precursor emissions from sources upwind of Dutchess County have the most influence on local levels of ozone. Because NO<sub>x</sub> and VOC are ozone precursors, these pollutants are regulated as non-attainment pollutants in this area.

The Project is classified as a major source of NO<sub>x</sub> and VOC, and, therefore, is required to apply LAER technology for these pollutants and obtain emissions offsets. USEPA and NYSDEC also require that major sources of ozone precursors (NO<sub>x</sub> and VOC) obtain emissions offsets prior to issuing an air permit. Emission offsets must be obtained from sources that have implemented a permanent, enforceable and quantifiable emissions reduction. The emissions reductions must be certified by NYSDEC and, to be used as offsets, must be located in an area determined by NYSDEC and USEPA to contribute to ozone formation in the location of the proposed new source (Dutchess County).

A LAER analysis was conducted for NO<sub>x</sub> and VOC, and pollution control measures consistent with LAER, including selective catalytic reduction (SCR) and oxidation catalyst systems, are proposed for the Project. In addition, the Project has secured NYSDEC-certified NO<sub>x</sub> and VOC offsets equal to 115 percent of its maximum permitted annual emissions of these ozone precursors, from locations that have been determined by NYSDEC and USEPA to contribute to ozone nonattainment in Dutchess County.

As quantified in Sections 1 and 4 of the DEIS, the Project's highly efficient production of energy is expected to displace the operation of older, less efficient and higher emitting power plants, and improve regional air quality by a net reduction in regional emissions of air pollutants and GHGs. Please note that no credit is taken for displacement of emissions from these older plants due to NYSDEC and USEPA's conservative approach to modeling impacts for compliance with ambient air quality standards. Nevertheless, this displacement is anticipated to occur, yielding an overall improvement in air quality.

#### **4.3 Responses to Comments on the DEIS**

Table 4-1 provides a summary of comments received relative to this topic, and provides a response or guides the reader to the location of the response within this section. Exact language from comments received is used, except as noted through the use of italics. Comment letters and public hearing transcripts from which comments were excerpted are provided in Appendices 1-A and 1-C, respectively.

Comments received in response to the re-noticed air permit (RAP) are designated as RAP-1 through RAP-8.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Peter Rustenberg, Sherman, CT Resident	...the prevailing winds that blow over CVE [Cricket Valley Energy] pass into Connecticut.	5-3	Air impact analyses conducted for the Project have included consideration of impact potential throughout the regional airshed, including Connecticut. Existing Connecticut emissions data were incorporated into the air modeling through required consultation with the Connecticut Department of Environmental Protection as an element of the air modeling protocol.
Mike Purcell, Pawling Resident	...the Great Swamp has an almost daily occurrence of fog rising from the wetlands in the dawn hours. The fog rises above the elevation of the 2 stacks that Cricket Valley is proposing. Emissions of NO <sub>x</sub> combined with water vapor is the main ingredient for smog. Smog is the leading cause of acute and chronic respiratory problems, especially in children and those experiencing respiratory difficulties.	6-2	See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) and Section 4.3.4.1 Additional Impact Analysis (Photochemical Ozone Formation). Smog (ozone) forms in the atmosphere as a chemical reaction involving NO <sub>x</sub> and VOC in the presence of strong sunlight. It is a regional pollutant in that NO <sub>x</sub> and VOC emissions that influence ozone concentrations in Dover are emitted from sources well upwind of the area. Conversely, NO <sub>x</sub> and VOC emissions in Dover will influence ozone formation well downwind. Because the exhaust plume is very buoyant due to its temperature, it will quickly rise above any fog in the area (even fog above stack height). To mitigate for its NO <sub>x</sub> and VOC emissions, in addition to applying LAER technology for NO <sub>x</sub> and VOC emissions, the Project has secured offsets of these pollutants equal to 115 percent of its maximum permitted annual emissions from locations determined by NYSDEC and USEPA to contribute to ozone levels in Dutchess County. In addition, by economically displacing older, higher emitting generators in the region, the Project will further reduce regional emissions of ozone precursors. Note that three stacks, not two, are associated with the proposed Project.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
Mike Purcell, Pawling Resident	The presence of this naturally recurring phenomena of the Great Swamp Critical Environmental Area [ <i>fog rising from the wetlands</i> ] has not been addressed in the Cricket Valley Energy Documents and poses significant adverse impacts to water resources and the calcareous wetland ecology of the Harlem Valley. Calcareous wetlands are dependent on low NO <sub>x</sub> volumes to maintain the fragile ecosystems that are common here and rare statewide.	6-3	<p>In accordance with the New York State Acid Deposition Control Act, a “Source Specific Acidic Deposition Impacts” analysis was conducted to provide quantification of the Project’s contribution to the New York State total deposition of sulfates and nitrates at 18 defined receptors in New York State, New England, and Canada. See Section 4.3.4 – Additional Impact Analysis for further information.</p> <p>The DEIS included analyses of impacts of Project emissions on sensitive vegetation and soils as well as contributions to acid deposition and ambient concentrations of nitrogen dioxide (NO<sub>2</sub>). The analyses concluded that the Project’s impacts would not have a significant impact on sensitive natural resources.</p>
Tonia Shoumatoff and Elaine LaBella, Housatonic Valley Association	<p>Thus far, the applicant has relied upon climatological data, particularly wind measurements, obtained from the Poughkeepsie Airport for air quality modeling.</p> <p>Specific air dispersion models should be developed using on-site meteorological data to ensure that the dispersion modeling will indicate compliance with all state and federal requirements. The project site is within a valley that is topographically complex and may be subject to downwash from the exhaust stacks that would produce locally high concentrations of pollutants.</p>	9-2	<p>Anemometer data from the Dutchess County Airport (Wappinger Falls) were selected for use in the Air Quality Modeling Protocol, which was reviewed and approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project’s plumes will experience, given their height. The modeling analysis directly accounts for the terrain around the Project site. While complex terrain exists west and east of the site, none of these terrain features are close enough to the stack to induce downwash of the exhaust plume. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography, Stack Height and Configuration) for further details.</p>

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Tara Shoureck, Wingdale Resident	We already live in a most polluted part of the country, and the topography of the valley adds to this. After all, what goes up, must come down, and where better to settle than in a valley?	10-1	The Project will be among the lowest emitting power plants of its kind constructed to date. The Project stacks are designed so that emissions are exhausted at sufficient height so that air quality impacts are insignificant anywhere in the valley. The Project plume will be buoyant under all atmospheric conditions and the air quality analysis, approved and reviewed by NYSDEC and USEPA, concurs with these findings. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for further detail.
Tara Shoureck, Wingdale Resident	Sulfur dioxide (SO <sub>2</sub> ) will be a by-product of this plant. In both high and low concentrations, it is linked to respiratory problems, especially in those individuals with asthma or other lung related illnesses.	10-2	By exclusively using high quality natural gas, which contains only trace amounts of sulfur (fractional compared to coal or oil fuels), in the Project's turbines, SO <sub>2</sub> emissions are minimized due to the very low sulfur content of this clean-burning fuel. The air modeling dispersion analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will fully comply with the National Ambient Air Quality Standards (NAAQS) and New York Ambient Air Quality Standards (NYAAQS) which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population. These include the recently released, most stringent standards for SO <sub>2</sub> , for which Project impacts were determined to be insignificant.
Tara Shoureck, Wingdale Resident	No matter how 'clean' this plant will be, it still will be a major source of pollution.	10-3	While the proposed Project is classified as a major source, the DEIS has demonstrated that the Project will comply with NAAQS and NYAAQS and will not appreciably degrade air quality from current levels. In addition, it will displace the operation of older, higher emitting units in the region, reducing emissions significantly, and having a net positive effect on air quality.
Tara Shoureck, Wingdale Resident	Nitrogen dioxide (NO <sub>2</sub> ) will also be released by this plant, another source of respiratory distress. This will be released into the air from the stacks at a continuous 24/7 rate for the life of the plant. People exposed to the two said pollutants [SO <sub>2</sub> and NO <sub>2</sub> ] are told to	10-4	Air impact analyses conducted for the Project have demonstrated that maximum predicted impacts would fully comply with NAAQS and NYAAQS which have been established to protect the most sensitive individuals. These analyses included consideration of impact potential throughout the airshed, whether north, south, east, or west, and concluded that impacts from the plant will be negligible. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
	<p>'limit their outdoor activity' on particularly high concentrations days. Well, depending on which direction the wind will be blowing, that will affect not only Dover, but the surrounding towns of Pawling, Millbrook, towns in nearby CT, and places further away. I guess we all will have to stay inside – try telling that to your kids!</p>		<p>Quality, Public Health, and the School Complex and Section 4.3.4.1 – Photochemical Ozone Formation for more information.</p>
<p>Tara Shoureck, Wingdale Resident</p>	<p>I was told by a Cricket Valley rep that 'clustering' the stacks will reduce emissions by about 40%. I researched this, and found clustering will force the debris plume up higher, where wind speeds are stronger. It will disperse the emissions further away on a strong wind day; it does nothing to reduce pollution.</p>	<p>10-5</p>	<p>Stringent pollution control measures will be incorporated in the Project design to meet LAER/BACT as applicable and as described in Section 4.3 of the DEIS. The three stacks will be clustered together to allow more dispersion of emissions before they reach ground level, which results in approximately 40 percent lower ambient air quality impacts than if the stacks were not co-located. This increased dispersion occurs by effectively combining the exhaust flow rate of individual plumes, which increases the plume height and subsequent dispersion. This technique adds considerable cost to the Project, but results in lower ambient air quality impacts. As demonstrated by the interactive air modeling used to show compliance in the Air Permit Application and in Section 4.5 of the DEIS, the Project will comply with air quality standards established by USEPA and NYSDEC.</p>

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
Tara Shoureck, Wingdale Resident	Which plants [ <i>will be displaced</i> ] and where are they located?  ...Dispatch analysis presumes oil and coal are more expensive; natural gas will become more expensive due to increased demand.	10-6	A summary of the results of the emissions displacement analysis are provided in Section 4.3.6. The emissions displacement analysis, provided as Appendix 1-A of the DEIS, predicts displacement of emissions by modeling the New York Independent System Operator's (NYISO) dispatch of power plants according to projected electricity demand and fuel prices. The specific power plants that are "displaced" by the Project vary hour-by-hour throughout each projection year. Fuel price forecasts are documented in Appendix 1-A of the DEIS, and directly take into account expected future changes in demand for all fuels resulting from a wide range of factors. The proposed Project is forecast to displace operation of a number of sources that may use cheaper (and higher emitting) fuels because of its superior efficiency (more electricity generated with less fuel).
Tara Shoureck, Wingdale Resident	[Ammonia storage] is the equivalent of two swimming pools with the dimensions of 20' x 40'. That's a lot of ammonia!  I find it interesting that the solution will be 19%, as I did a little research into this chemical. At 20%, storage of this substance is subject to stringent requirements under the Clean Air Act. While I'm sure CVE will do it's best to avoid an accident, they do occur.	10-7	An impact analysis specific to aqueous ammonia has been provided in Section 4.6.3 of the DEIS and explained further below in Section 4.3.4.4 – Additional Impact Analysis (Aqueous Ammonia). CVE has elected to utilize aqueous ammonia at a concentration of 19 percent. While the regulatory threshold for ammonia under the accidental release provisions of the Clean Air Act is 20 percent, the Project has adopted the same level of protection (secondary containment) and has performed the same accidental consequence analysis as would be required were the ammonia at greater concentrations.

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Author	Comment	Comment Number	Response
Tara Shoureck, Wingdale Resident	Never mind the worst case scenario of an accident, the daily operations of this plant will affect these children <i>[at the school]</i> , many of whom suffer with asthma or other respiratory distress. I know, because I am a parent of a child with bad allergies and asthma, and spend many a sleepless night trying to get her comfortable so she can sleep.	10-12	<p>CVE has carefully considered the impact of the Project on all individuals, with particular focus on sensitive individuals and the school. The Project has incorporated LAER/BACT technology and will be among the lowest emitting power plants of its kind constructed to date. Comprehensive air quality modeling analyses reviewed and approved by USEPA and NYSDEC have demonstrated that the Project will fully comply with NAAQS/NYAAQS.</p> <p>NAAQS and NYAAQS were established to protect the health of the most sensitive populations, such as those with asthma and emphysema. CVE's air modeling results, reviewed and approved by NYSDEC and USEPA, show that impacts are insignificant and will not adversely impact those with asthma or other respiratory conditions. Additionally, by displacing the operation of older, higher emitting generators, regional emissions will decrease. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) for more information.</p>
Venna Currow, Wingdale Resident	Environmentally, approving this project will hinder the quality of life as we know it. Our...air quality will be much more polluted...	11-1	<p>CVE's air modeling results, reviewed and approved by NYSDEC and USEPA, show that the Project will not cause or significantly contribute to violations of ambient air quality standards that have been set to protect the health of the most sensitive individuals such as those with asthma and emphysema. Additionally, the Project has demonstrated that its maximum air quality impacts will not appreciably degrade air quality from levels that currently meet standards. Finally, by displacing the operation of older, higher emitting generators, regional emissions will decrease. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) for more information.</p>

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
C.L.J. Wood, Oblong Land Conservancy	This is a subject that is complex at best and highly technical and as the DEIS notes the project will be a new major source of air emissions. As laymen it seems to us as though the air quality modeling is based upon data obtained from Poughkeepsie Airport. Admittedly adjustments have been made for the change in topography and ground cover but we are concerned that this modeling may not properly represent conditions in the Project Development Area. For example, the Harlem Valley is frequently subject to air inversions, with the Village of Pawling being located at the lowest elevation. We believe that air dispersion models must be developed based upon local conditions.	12-3	Anemometer data from the Dutchess County Airport (Wappinger Falls) were selected for use in the Air Quality Modeling Protocol, which was approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project's plumes will experience, given their height. The meteorological data used in the modeling represents five years of hourly observations. Within this data set are numerous periods of calm to near calm conditions with thermal inversions. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for more information. CVE's air modeling results, carefully reviewed and approved by NYSDEC and USEPA, show that the Project will not cause or significantly contribute to violations of ambient air quality standards.
C.L.J. Wood, Oblong Land Conservancy	...we believe that a specialist air quality firm must be engaged by the Town of Dover to review the DEIS and make recommendations thereon.	12-4	In addition to extensive review of the air quality analyses by USEPA and NYSDEC meteorologists, comments were received from the Town of Dover's third party consultant on the DEIS, including air quality comments from the consultant's air quality expert. Those comments are addressed in this Final Environmental Impact Statement (FEIS). The Town of Dover has also hired an independent air modeling expert, funded by CVE, to assist in the review of the Project by the Town Board.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
Michael Tierney, Dover Union Free School District	We must also emphasize that this project should not impact the positive and consistent air quality that is currently intact at the school complex. We have hundreds of students inside the buildings and on school grounds; therefore, having consistently positive air quality is essential. We need assurances that the air quality will remain at stable, healthy levels, not affected by wind changes or smoke stack emissions.	13-2	<p>The school complex was specifically considered in the modeling analysis as a sensitive location. The modeling analysis which was thoroughly reviewed and approved by USEPA and NYSDEC demonstrated that impacts even to the most vulnerable populations, those with asthma or emphysema will be insignificant at this location, and at all locations within the valley. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex).</p> <p>CVE is in discussion with the Town of Dover regarding a number of areas of interest, including potential monitoring at the schools; while not necessary for confirming the Project’s compliance with stringent air quality standards, the town may decide through its local review process that this type of activity should be a component of the community benefit package.</p>
Mark Chipkin, Pawling Nature Reserve Management Committee	The adding of pollutants to our stagnant air mass here in the valley will affect the health of all our residents and flora and fauna.	15-2	<p>See Section 4.3.3.1 – Meteorology and Topography and Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex). As discussed in those sections, modeling inputs were carefully selected to reflect site conditions, and modeling results demonstrate that the Project is consistent with NAAQS and NYAAQS requirements that have been established to be protective of public health and welfare, including consideration of flora and fauna. In addition, PSD requirements include an analysis of potential impacts to sensitive vegetation and protected species. As documented in the DEIS, the Project’s air emissions will not have a significant adverse effect on health of residents, flora or fauna.</p>
Joanne Otero, Wingdale Resident	...a 1000 megawatt power plant in our valley ..., combined with an environment more humid than the sites used to collect data (Poughkeepsie Airport,) will have a negative impact on our kids just 1000 yards north of	18-2	<p>As reported in Section 4.2 of the DEIS, temperature and precipitation data for the Project Development Area were obtained from the Cary Institute in Millbrook, about 11 miles from the Project site. Wind speed and direction data were obtained from the National Weather Service station at the airport, as carefully reviewed and approved by USEPA and NYSDEC. Relative humidity is not a dispersion model input. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for additional</p>

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
	the site.		information.  The school complex was specifically considered in the modeling analysis. The modeling analysis which was thoroughly reviewed and approved by USEPA and NYSDEC demonstrated that impacts will be insignificant at this location, and at all locations within the valley. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex).
Michael Purcell, Pawling Resident	A clarification should be made as the CVE Draft EIS also states that emissions plume would be 500 feet above the ground and not pose a threat to the surrounding topography based on data from Dutchess County Airport. The Dutchess County Airport has significantly lower elevations than the Harlem Valley.	19-1	Anemometer data from the Dutchess County airport were selected for use in the Air Quality Modeling Protocol, which was thoroughly reviewed and approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project’s plumes will experience, given their height. Model inputs included site-specific elevations of the terrain surrounding the Project site as well as surface roughness and other related parameters based on site-specific conditions. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for more information.
Michael Purcell, Pawling Resident	The CVE DEIS does not include data or supporting documentation that the temperature inversions will not occur in the Harlem Valley or that surrounding slopes will not be impacted by emissions. The Dutchess County NRI [ <i>Natural Resource Inventory</i> ] may be a useful guidance document for CVE planners.	19-2	The meteorological data used in the modeling represents five years of hourly observation data. Within this data set are numerous periods of calm to near calm conditions with thermal inversions. The modeling analysis also directly takes the surrounding terrain into account. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for further information.
Michael Purcell, Pawling Resident	Given the geography of the Harlem Valley and the height of the proposed emission stacks there seems to be a potential for NO <sub>x</sub> emissions to be adsorbed by water vapor and the forested slopes adding additional	19-3	In accordance with the New York State Acid Deposition Control Act, a “Source Specific Acidic Deposition Impacts” analysis was conducted to provide quantification of the Project’s contribution to the New York State total deposition of sulfates and nitrates at 18 defined receptors in New York State, New England, and Canada. Contributions to nitric acid deposition by the Project will be

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	<p>nitrogen to the Swamp River and larger Ten Mile River watersheds.</p> <p>Fog rises in the bottom of the Great Swamp Watershed just before sunrise and bit after sunrise on an almost daily basis. Further studies should be conducted by CVE to assess the amount of NO<sub>x</sub> emissions that will adhere to water vapor and naturally occurring fog in the Swamp River.</p>		<p>negligible.</p> <p>See Section 4.3.4.2 – Additional Impact Analysis (Acid and Nitrogen Deposition) below for further information. See response to Comment No. 6-2 for further information on Harlem Valley fog conditions.</p>
<p>Michael Purcell, Pawling Resident</p>	<p>BACT, RACT and NO<sub>x</sub> Budget Trading Program technologies while better than ever still do not eliminate point source emissions and in fact are introducing new point sources to an area that is currently without point source emissions.</p>	<p>19-4</p>	<p>While the Project will represent a new point source of emissions, it will offset 115 percent of its maximum permitted annual NO<sub>x</sub> and VOC emissions through purchase of emissions reduction credits. Further, as demonstrated by the displacement analysis in Appendix 1-A of the DEIS (and summarized in Section 4.3.6), it will result in a significant net reduction in regional air pollutant emissions over and above the direct offsets through displacement of the operation of existing less efficient and higher emitting power plants. The cumulative air quality modeling analysis included maximum permitted emissions from existing point sources in the valley and demonstrated that the Project's maximum permitted emissions, in combination with other existing sources and existing background air quality levels, will comply with NAAQS and NYAAQS set to be protective of the health of the most sensitive individuals.</p>
<p>Michael Purcell, Pawling Resident</p>	<p>The Harlem Valley's topographic and precipitation data are different from the source used for air modeling. Other than the data supplied by Dutchess County Airport I do not see mention of the Harlem Valley's unique topographic features in CVE documents. In a report prepared by Chazen</p>	<p>19-5</p>	<p>As reported in Section 4.2 of the DEIS, temperature and precipitation data for the Project Development Area were obtained within the Harlem Valley, from the Cary Institute in Millbrook, about 11 miles from the Project site. Precipitation was shown to average 44.4 inches annually. Note that precipitation amounts are not specific air quality dispersion model inputs rather, the precipitation data is used to characterize the site area's climatological setting.</p> <p>Harlem Valley's unique topography was specifically incorporated into the</p>

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	Companies in April 2006...USGS mean precipitation data shows an average 46 – 48” of precipitation within the Harlem Valley and along the eastern ridges of the Ten Mile River Watershed east of the project site compared to 40” annual for the Dutchess County Airport site. From personal observation working along the eastern ridges the air temperature is generally 3 – 8 degrees F cooler at the higher elevations. Summer rain events frequently form along the eastern ridges and sloughs of the Harlem Valley, this may account for the increased annual precipitation rates. Perhaps this was overlooked in the PSD air permit application and remains an unknown variable.		modeling receptor grid that extended out to 8 kilometers, with the actual elevation of each of the 1,710 modeled receptor points input, along with surface roughness parameters based on local land use distribution characteristics.
Michael Purcell, Pawling Resident	Monitoring the prevailing winds and northerly downdrafts in the Harlem Valley air shed at the valley’s higher elevations should be a CVE priority to protect air and water quality within the Swamp River and Ten Mile River watershed.	19-6	The modeling analyses included in the DEIS demonstrate that emissions from the Project will not have a significant impact on air or water quality at any elevation in the Harlem Valley or beyond. Prevailing wind effects were taken into account in these analyses.
Michael Purcell, Pawling Resident	The project site is located in the valley bottom on a NYSDEC Important Biodiversity Area. Migratory birds should be monitored for impacts related to plume velocities and stack heights, the Great Swamp Critical Environmental Area and NYS Wetland DP-22 are noted for supporting species of birds	19-7	Migratory bird collisions with stacks or interactions with plumes are very rare events and do not have an appreciable impact on bird migration or populations. In addition, CVE has reviewed and evaluated the United States Fish and Wildlife Service (USFWS) guidance on towers, which – although not directly applicable to this type of facility – provides conceptual information illustrating ways in which the Project design minimizes potential effect to migratory birds. For example, CVE has clustered the three stacks together which will minimize the potential for

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	that are breeding, rare and of species special concern in New York State.		bird strikes as they migrate in broad fronts through the area. In most weather conditions, avian avoidance behavior tends to be very strong; CVE is also working with the Federal Aviation Administration (FAA) to minimize navigation lighting requirements to the extent possible to provide for safety while reducing the possibility of inadvertently attracting birds under inclement weather conditions. The full discussion can be found in Section 3.3.3 of the FEIS.
Michael Purcell, Pawling Resident	<p>Quoted from CVE DEIS: “Local impacts from acid precipitation formed due to the project are highly unlikely because the processes that convert SO<sub>2</sub> and NO<sub>x</sub> gases into their acid counterparts can take several days, During this time, the pollutants would have traveled hundreds of miles from the original source. Thus, the emissions from the project would have little or no contribution to the acidity of the precipitation that falls on the surrounding area. Furthermore impacts at greater distances would be negligible due to the wide dispersion of these gases.”</p> <p>The CVE DEIS does not offer any data to support this statement, in fact it seems to go counter to research at Hubbard Brook Field Station in New Hampshire that reports that NO<sub>x</sub> emissions to the atmosphere have been increasing for the last 50 years and recorded for the last 30 (Bio-Science April 2003, Driscoll et al).</p> <p>Nitrogen pollution from point sources in the</p>	19-8	<p>In accordance with the New York State Acid Deposition Control Act, a “Source Specific Acidic Deposition Impacts” analysis was conducted to provide quantification of the Project’s contribution to the New York State total deposition of sulfates and nitrates at 18 defined receptors in New York State, New England, and Canada. See Section 4.3.4.2 – Additional Impact Analysis (Acid and Nitrogen Deposition) for further information. By obtaining direct NO<sub>x</sub> emissions offsets in quantities exceeding the Project’s maximum permitted emissions and further displacing the operation of existing less efficient and higher emitting units, the Project will result in a significant net reduction in regional NO<sub>x</sub> emissions, which will in turn translate to a reduction in nitrogen deposition region wide, including Long Island Sound. The acid deposition analysis in the DEIS is not counter to the Hubbard Brook research. Regional historical increases in NO<sub>x</sub> emissions represented as reflected in the Hubbard Brook research provide an important context for the regulatory programs the Project complies with through its stringent pollution control measures and offsets.</p>

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	<p>northeastern United States is well documented as the leading cause of nitrogen loading in Long Island Sound and a major contributor to smog. Emissions from gas fired power plants account for 25 – 50% of nitrogen point source pollution. Emissions of NO<sub>x</sub> can convert quickly to other forms of Nitrogen once sunlight is introduced. Nitrogen does not readily readsorb into the landscape but is documented as readily adsorbing into aquatic environments, headwaters of watersheds and contributing to the eutrophication of Long Island Sound. Soils in the surrounding higher elevations could be assessed for their Effective Cation Exchange Capacity (NRCS Web Soil Survey).</p>		
<p>Michael Purcell, Pawling Resident</p>	<p>The American Lung Association report from summer 2010 rated Dutchess County air quality with an “F” for Dutchess County as a result of smog during the smog season. CVE could help mitigate NO<sub>x</sub> emissions and other point source pollutants by taking full advantage of the site’s south facing facades. The CVE project documents depict south facing building facades covered in metal siding. These surfaces could readily accept solar pv arrays as a means to produce non polluting energy to the electrical grid.</p>	<p>19-9</p>	<p>The Project will result in a significant net reduction in regional NO<sub>x</sub> emissions through displacement of emissions from less efficient units and direct offsets. CVE considered adding solar panels to its approximately 3 acres of roof, but given the low efficiencies of solar arrays at northern latitudes, CVE has instead elected to incorporate a rooftop rainwater capture system into the Project to help supplement the water supply (see Section 5.4.4.6.3 of the DEIS). CVE is considering all reasonable opportunities to incorporate on-site renewable energy, such as solar photovoltaic panels on the Project roofs.</p>

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Michael Purcell, Pawling Resident	The Dover Middle and High School campus would be a good candidate for an air quality monitoring station.	19-10	<p>As discussed in more detail in Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex), Project air quality impacts at the Dover Middle and High School complex will be negligible. The Project has funded independent review of these modeling studies on behalf of the Town of Dover.</p> <p>Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken. Any and all such upset events are recorded and reported to NYSDEC.</p> <p>CVE is in discussion with the Town of Dover regarding a number of areas of interest, including potential monitoring at the schools; while not necessary for confirming the Project’s compliance with stringent air quality standards, the town may decide through its local review process that this type of activity should be a component of the community benefit package.</p>
Michael Purcell, Pawling Resident	...Additional studies should be completed and funded through escrow of the applicant to establish topographic...and air quality baseline data as a first step towards mitigating potential environmental impacts from the Cricket Valley power plant.	19-11	See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography; Air Quality, Public Health, and the School Complex). Detailed local topographic information and appropriate air quality baseline data were used in the Project analyses. The air quality modeling analyses were reviewed and approved by USEPA and NYSDEC. In addition, the Project funded independent review of the modeling studies on behalf of the Town of Dover.

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Steven Riva, United States Environmental Protection Agency	Although not listed in the application or the draft PSD permit, PM is a PSD-affected pollutant, regulated under 6NYCRR Part 231, in addition to PM <sub>10</sub> and PM <sub>2.5</sub> . Therefore emissions of PM should be addressed in the PSD application, and emission limits for PM should be added for all the PSD-affected emissions units that emit PM, as necessary.	20-1	See Section 4.3.1.3 – Regulatory Updates and Discussion (PSD Permit). As discussed in Section 4.1 of the DEIS, the Project has the potential to emit PM <sub>10</sub> and PM <sub>2.5</sub> . PM emitted from combustion turbines was conservatively assumed to be 100 percent PM <sub>2.5</sub> , which is actually a subset of total particulate matter. Therefore, estimated emissions and associated modeling results for PM <sub>2.5</sub> would also apply to PM and PM <sub>10</sub> .
Steven Riva, United States Environmental Protection Agency	<p>Although the facility is subject to PSD for GHG as discussed in the April 2011 DEIS, the draft permit does not contain GHG emission limits or specify efficiency design parameters for the combustion turbines (i.e. the units that will emit the largest amount of GHG). Note that we agree that the efficiency of the selected combustion turbines is at a level that meets BACT for this proposed source....We recommend that GHG BACT limits and conditions proposed in the DEIS be incorporated into the final permit for CVE...</p> <p>a)Each of the three GE 7FA.05 combustion turbines shall have a thermal efficiency of 57.4 percent (<i>Lower Heating Value – LHV</i>) at <i>International Organization for Standards (ISO)</i> conditions with no duct firing. In addition, the GHG BACT limit for each combustion turbine shall be a heat rate of no greater than 7,605 <i>British thermal units per kilowatt-hour (Btu/kW-hr)</i> at ISO conditions</p>	20-2	See Section 4.3.1.3 – Regulatory Updates and Discussion (PSD Permit). The NYSDEC has incorporated GHG permit conditions into the revised draft PSD permit.

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	<p>with no duct firing (based on net output).</p> <p>b) Total annual <i>carbon dioxide equivalent</i> (CO<sub>2</sub>e) emissions from the three combined cycle units shall not exceed 3,576,943 tons per rolling 12-month period. Each combustion turbine shall install a <i>carbon dioxide</i> (CO<sub>2</sub>) continuous emissions monitoring system (CEMS), or alternative method as specified under 40 [Code of Federal Regulations] CFR 75, to demonstrate compliance with this combined limit.</p> <p>c) Total CO<sub>2</sub>e emissions from the auxiliary boiler shall not exceed 15,887 tons per rolling 12-month period. The CO<sub>2</sub> emissions from this unit shall be monitored through fuel usage.</p> <p>d) Total CO<sub>2</sub>e emissions from the emergency fire pump shall not exceed 114 tons per rolling 12-month period. The CO<sub>2</sub> emissions from this unit shall be monitored through fuel usage.</p> <p>e) Total CO<sub>2</sub>e emissions from the four black start generators shall not exceed 4,822 tons per rolling 12-month period. The CO<sub>2</sub> emissions from these units shall be monitored through fuel usage.</p>		

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Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents	The American Lung Association of New York State rates our air quality in Dutchess Co. as an “F”... I am astounded that our air quality comparison is from Poughkeepsie (airport) area.	23-6	Anemometer data from the National Weather Service station at Dutchess County airport were selected for use in the Air Quality Modeling Protocol, which was carefully considered and approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project’s plumes will experience, given their height. Existing ambient air quality data were obtained from a network of air quality monitors surrounding the site that is operated by NYSDEC and the Connecticut Department of Environmental Protection. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography).
Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents	In our very narrow valley, we have numerous quarrying (blasting) and mining operations with unknown emissions from their operations, related heavy trucking, processing machinery, and Rasco Materials (a petroleum contaminated soil processor), all of which affect our air quality. Cricket Valley construction, commuting construction crews, trucks and equipment will add to existing air pollution.	23-7	Construction related impacts are discussed in detail in Section 4.3.5 – Construction-Related Impacts. In addition, CVE has optioned the former Rasco parcel to eliminate any emissions from that source and reduce the need for off-site parking and its associated travel.
Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents	Yes, gas is “clean-er” than oil but a gas power plant still pumps out millions of tons of CO <sub>2</sub> , smog producing chemicals, and toxins directly into the air we breathe and will increase the already high pollution in our small narrow valley. None of these cumulative air emissions have ever been evaluated but we are proposing adding more without any reliable benchmark. It seems to	23-8	The Project will be one of the most efficient and lowest emitting fossil-fuel-fired power plant ever constructed. The modeling analysis included a cumulative impact analysis that accounted for maximum permitted emissions from other emission sources and existing ambient air quality levels. The modeling also directly accounted for periods of thermal inversion and the unique topography of the valley. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for further information. The results of the modeling analyses, which were thoroughly reviewed and approved by USEPA and NYSDEC, demonstrate that the Project will fully comply with

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	<p>me that we should know what we have before we project what we may/will have. It reminds me of what has happened in poor communities in the Bronx and New York City and the resulting health problems and high asthmatic rates among the children of those communities. Our narrow Harlem Valley is subject to frequent air inversions, a fact which local hang-gliders have also long reported and which any person living here can attest to and clearly see for themselves.</p>		<p>NAAQS and NYAAQS that were established to protect the health of the most sensitive individuals, including asthmatics. In addition, it will displace the operation of older, higher emitting power plants resulting in a region-wide reduction in emissions.</p> <p>In addition, see Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) and Section 4.3.6 – Emissions Displacement for a discussion of cumulative impacts.</p>
<p>Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents</p>	<p>Air quality monitoring equipment should be installed at the Dover High School for a sufficient period of time to provide a reliable air quality benchmark to avoid putting our children at higher risk for lung and other poor air-quality related diseases as well as to comply with all state and federal requirements.</p>	<p>23-9</p>	<p>As discussed in more detail in Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex), Project air quality impacts at the Dover Middle and High School complex will be negligible. Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken. CVE is in discussion with the Town of Dover regarding a number of areas of interest, including potential monitoring at the schools; while not necessary for confirming the Project’s compliance with stringent air quality standards, the town may decide through its local review process that this type of activity should be a component of the community benefit package.</p>

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<p>Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents</p>	<p>Because air quality is such an important and serious health impacting issue, the Dover Town Board must hire an independent air quality specialist expert to review and evaluate the DEIS and make recommendations. However, the Town of Dover is a poor community without extra monies to spend on experts (likely one of the reasons that Dover was chosen for this project), I request that Cricket Valley fund this expense.</p> <p>Any proposed host benefit package or money donations is an unfair exchange for the health of our children.</p>	<p align="center">23-10</p>	<p>Air quality is acknowledged as a significant issue to be evaluated for the Project. Most recently, the Town of Dover has hired an additional air quality expert, funded by CVE, to assist the Town Board in its review of the Project. Air quality issues have also undergone considerable independent scrutiny prior to this assessment. The air quality modeling analyses were reviewed by USEPA and NYSDEC air quality staff, beginning with the modeling protocol. Comments were received from the agencies at several points in the process as provided in Appendix 4-A. In addition, comments were received from the Town of Dover’s third party consultant (AKRF) on the DEIS, including air quality comments from the consultant’s air quality expert. Those comments are addressed in this FEIS.</p> <p>The results of the air quality modeling analyses indicate compliance with standards designed to protect the health of the most sensitive members of our population. Any community benefit package would not be in place of ensuring Project impacts were minimized and not a threat to public health.</p>
<p>Joel Tyner, Dutchess County Legislature</p>	<p>Fact: This April Dutchess County earned an "F" for ozone pollution for literally the third year in a row, with 15 orange days for ozone pollution, one more day than in 2010, according to the American Lung Association of New York State...</p> <p>Fact: Dutchess County was one of only two counties in the state whose number of high ozone days increased when compared to last year, according to the American Lung Association of New York State, and there are over 35,000 Dutchess residents with asthma, bronchitis, or emphysema, according to the American Lung Association of New York</p>	<p align="center">24-3</p>	<p>We note these statistics concerning air quality in Dutchess County, as an important context to the regulatory programs with which the Project has demonstrated compliance. The air dispersion modeling analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population.</p> <p>Because the Project area, like all of the Northeast U.S., is classified as a non-attainment area for ozone, the Project has secured emissions offsets of NO<sub>x</sub> and VOC, precursor pollutants to ozone formation, equaling 115 percent of the Project’s maximum potential annual emissions. Additionally, by displacing the operation of older, higher emitting generators, regional emissions of all pollutants</p>

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	<p>State...</p> <p>Fact: Dutchess County's average hourly concentration of ozone is actually quite a bit higher than even that of New York City's, according to a recent study conducted at the Cary Institute of Ecosystem Studies by Dr. Clive Jones, Jillian Gregg, and Todd Dawson that was reported July 10, 2003 in the New York Times and in the Poughkeepsie Journal as well...</p>		<p>and GHGs, including ozone precursors, will decrease. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) for more information.</p>
<p>Joel Tyner, Dutchess County Legislature</p>	<p>Constance I. DuHamel, cofounder of the Coalition for the Responsible Growth of Dover, is focusing, in part, on how much more polluted the air will be in the area with a new power plant on line, “taking into consideration the relatively poor air quality we are reported to have already.”</p>	<p>24-8</p>	<p>The air dispersion modeling analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex).</p>
<p>Joel Tyner, Dutchess County Legislature</p>	<p>She rightly calls on environmental officials to be continually mindful of the cumulative impact of the site's presence, not just governmental thresholds for the harmful chemicals coming from the emissions of this particular plant.</p>	<p>24-9</p>	<p>See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex). Potential environmental impacts evaluated in the DEIS included impacts to earth resources, natural resources, water resources, land use, viewsheds, traffic, and noise levels in addition to air quality. Many of these topics incorporated specific information regarding existing and proposed projects within the local community. When considering cumulative effects for air quality, specific requirements exist that extend beyond the potential local contributors, acknowledging the regional influence of emission sources. Therefore, as outlined in Section 4.3.3.3, CVE incorporated contributing sources within a broad region of New York State, as well as from portions of Connecticut and Massachusetts.</p>

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Joel Tyner, Dutchess County Legislature	She also proposes Cricket Valley Energy pay for an air-quality monitoring station, to be located nearby on the grounds of the Dover middle and high schools, with the data collected independently and submitted to the EPA. The plant is about a mile from the school, and DuHamel notes there are times of year when children play outside using school facilities.	24-10	<p>A discussion of an air monitoring station at the Dover Middle/High School campus is included below in Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex). Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken.</p> <p>CVE is in discussion with the Town of Dover regarding a number of areas of interest, including potential monitoring at the schools; while not necessary for confirming the Project's compliance with stringent air quality standards, the town may decide through its local review process that this type of activity should be a component of the community benefit package.</p>
Mark Chipkin, Pawling Resident	The Cricket Valley Power Plant ...will add air... pollutants to our environment. This will increase the health risks to residents, many of whom have moved to the Dover Region to avoid city pollutants.	25-3	The air dispersion modeling analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex).
Mark Chipkin, Pawling Resident	Due to the stagnant nature of the air in the Harlem Valley Region, this is particularly true.	25-4	The meteorological data used in the modeling analysis included five years of hourly observations. This data set included numerous periods of calm and near calm conditions. During these “stagnant” conditions, air quality impacts to locations in the valley were demonstrated to be negligible. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for further information.

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Mark Chipkin, Pawling Resident	Cricket Valley can do so much more to give to the Dover Community: new acreage of trees and parks can be purchased, trees can be planted to offset the carbon dioxide and other greenhouse gases that will be pumped daily into our air, a plant can be built to remove toxins from existing water ways and the aquifers. Air pollution monitoring systems, educational scholarships and the support of local land acquisition and environmental programs are some possible examples of appropriate give backs to our community.	25-7	<p>CVE has engaged in a wide variety of community outreach efforts (such as Advisory Working Groups, Open Houses, and newsletters) to share Project information and listen to concerns and priorities of the Dover community and its neighbors.</p> <p>Project design refinements and potential community benefits have resulted from these discussions. For instance:</p> <ul style="list-style-type: none"> <li>• CVE has made considerable efforts to refine the proposed facility design to minimize water use, maximize water recycling and eliminate the need for process wastewater discharge, all of which are a financial commitment to good stewardship.</li> <li>• CVE has been working with local land acquisition groups, including the Oblong Land Conservancy, to place the land west of the Metro-North rail line (approximately 79 acres) into permanent conservation.</li> <li>• CVE continues to support the advancement of Dover's youth through a scholarship, awarded annually to a graduating Dover High School Senior.</li> <li>• CVE will monitor and report water usage to NYSDEC, consistent with anticipated permitting requirements, and has committed to install a stream gauging station to monitor flow downstream of the Project on the Swamp River.</li> <li>• The Project will displace the operation of older, less efficient power plants resulting in a net decrease in greenhouse gas emissions (see Appendix 1-A in the DEIS).</li> <li>• The Project will remediate an abandoned industrial site, including restoration of previously impacted wetlands on the site.</li> </ul> <p>Other community benefits are also proposed that are not specifically integrated</p>

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			into the Project's siting and design. These will be part of a Community Benefits Package to be negotiated with the Town of Dover.
Mark Chipkin, Pawling Resident	Jobs in the community in exchange for polluted air for everyone else, is not acceptable.	25-11	The Project provides for jobs and other community benefits while complying with stringent air quality standards and improving regional air quality through displacement of the operation of older, less efficient and higher emitting power plants, as well as the purchase of direct emissions offsets equal to 115 percent of the Project's maximum permitted annual emissions of NO <sub>x</sub> and VOC. Further, the air dispersion modeling analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will fully comply with the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population.
Mike Purcell, Pawling Resident	...the Great Swamp has an almost daily occurrence of fog rising from the wetlands in the dawn hours. The fog rises above the elevation of the 2 stacks that Cricket Valley is proposing...The presence of this naturally recurring phenomena of the Great Swamp Critical Environmental Area has not been addressed in the Cricket Valley Energy Documents and poses significant adverse impacts to water resources and the calcarious wetland ecology of the Harlem Valley. Calcareous wetlands are dependent on low NO <sub>x</sub> volumes to maintain the fragile ecosystems that are common here and rare statewide...	27-2	See Section 4.3.4 – Additional Impact Analysis. Because the exhaust plume is very buoyant due to its temperature, it will quickly rise above any fog in the area (even fog above stack height). The presence of thermal inversions and ground fog was adequately represented in the meteorological data used in the modeling analyses. The DEIS also included analyses of impacts of Project emissions on sensitive vegetation and soils as well as contributions to acid deposition and ambient concentrations of NO <sub>2</sub> . The analyses concluded that the Project's impacts would not have a significant impact on sensitive natural resources. Note that three stacks, not two, are associated with the proposed Project.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Christina Palmero, State of New York Department of Public Service	The EPA has recently promulgated new standards relating to the emission of Nitrous Oxides and Sulfur Oxide compounds into the environment. The applicants should describe how the low-NO <sub>x</sub> auxiliary boiler could meet these emission standards and whether significant equipment changes would be required to meet them in the future.	28-4	The auxiliary boiler meets all USEPA emissions standards, and no future changes to this equipment are anticipated to be necessary.
David Roberts, Pawling Resident	Prevailing winds will bring particulate matter directly over the school's athletic fields and track facility. Pediatric asthma studies indicate negative health effects from stagnant atmospheric inversions in our areas. There are also several summer camps in Lake Ellis region just east of the school property that are dealing with children with these problems.	29-2	The air quality modeling analysis included consideration of prevailing winds under a variety of meteorological conditions, including periods of thermal inversions. Impacts to the school under all conditions have been demonstrated to be negligible, and are significantly below standards that have been adopted to protect the health of the most sensitive individuals. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) and Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) for further information.
Tamara Wade, Wingdale Resident	I maintain that we must have <i>[air quality]</i> data collected here, best locations being at our high school and elementary schools as it has been stated that the further away emissions travel the more hazardous they become as they combine with other particulates. We should also be concerned with data regarding surrounding townships, as our air is also their air.	31-1	The air quality impact modeling considered impacts to the local community and surrounding townships utilizing individual air quality monitoring data from a number of locations surrounding the Project site. Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) for further information.

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Tamara Wade, Wingdale Resident	Methane will be inevitably released along with NO <sub>x</sub> and VOC's in an area where ground level ozone is already a problem.	31-2	Methane is not photochemically reactive, which means that it does not react to form ozone and is not a contributor to smog. Potential Project contributions to VOC and NO <sub>x</sub> , ozone precursors, are addressed through emission offset requirements, as discussed in Section 4.1 of the DEIS. As Dover's air quality is strongly influenced by regional emissions, the Project will further reduce emission of ozone causing pollutants by displacing the operation of older, higher emitting generators in the region, as well as by directly offsetting 115 percent of the Project's maximum permitted annual emissions.
Tamara Wade, Wingdale Resident	I am concerned about the issue of carbon capture and insufficient usable technology. We surely should have a low to no impact means for this capture as we create these new burning plants. The talk of carbon capture by means of pumping emissions into our earth is absurd, how is this not a process that stands to contaminate soil and water? When the Federal Government seeks to retrofit gas fired plants with this technology in the future are we up against another environmental dilemma in Dover? For a world that speaks of global warming and the need to cease emissions by 2050 it does seem we are jumping from the fire into the frying pan.	31-3	The issue of carbon capture and sequestration (CCS) is discussed in Section 4.3.7 – Greenhouse Gases. CCS is not considered a viable control technology for the Project. The Project will be among the lowest greenhouse gas emitting facility of its kind ever constructed, and will comply with applicable regulatory standards. Further, it will displace the operation of older, less efficient generators resulting in a net reduction in regional emissions of greenhouse gases.

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<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Tamara Wade, Wingdale Resident	What course of timely and remedial action will we be able to take in the event anyone suffers declined health as a result of emissions.	31-5	The air dispersion modeling analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population. Continuous monitoring will ensure compliance with emission commitments.
Tamara Wade, Wingdale Resident	They might also consider permanent fog lights along Route 22 and Cricket Hill in the event that fog is a problem in the cold months.	31-10	Roadway fogging and icing impacts are sometimes associated with wet cooling towers at similar types of plants. Because the CVE Project will utilize air cooling, these issues will not occur.
Tamara Wade, Wingdale Resident	I am concerned about the potential for derailment near the facility however unlikely it may be and the use of 19% aqueous ammonia. I am also concerned about the safety of passengers on Metro North in the event of a catastrophic explosion, which CVE states would not be severe and is unlikely due to the cautious measures they take. One must always assume technological and human error can occur, for instance Three Mile Island, in its time a “state of the art” facility with highly skilled employees, an excellent example of human error.	31-13	<p>The 19 percent aqueous ammonia will be delivered to the site by specialized tanker trucks approved for transport of this material. No aqueous ammonia will be delivered to the Project by rail.</p> <p>All equipment with the remote potential for fire or explosion will be located central to the site to allow for maximum buffer from the property lines in the event of an accident. In addition, these facilities will be built with blast walls to contain and direct any blast.</p> <p>As discussed in Section 4.6.3 of the DEIS, CVE modeled the consequences of a worst-case release of ammonia assuming a complete failure of the onsite ammonia tanks and instantaneous release of 100 percent of the ammonia stored onsite. See Section 4.3.4.4 – Additional Impact Analysis (Aqueous Ammonia). Even under this highly unlikely scenario, no dangerous concentrations of emissions would occur offsite, and no impact to any offsite location, including the rail line, would occur.</p>

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<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Tamara Wade, Wingdale Resident	As for location I am certain it is ideal for the needs of Advanced Power's Cricket Valley Energy project. However, we need to prove that it is a wise location with regard to being in a stagnant valley, within proximity to Schools, residential property, aquifer, wetlands, and railroad.	31-21	It is recognized that the Project needs to be the right fit for Dover and the surrounding communities. The Project will be more efficient and lower emitting than even the cleanest existing fossil fuel-fired power plants in New York. CVE continues to make adjustments to the Project to incorporate low impact design to minimize its impact on the community, whether related to air, water, land use, natural resources, noise, traffic, visual or community character. With respect to location in the valley and in proximity to schools and residences, see Sections 4.3.3.1 and 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography; Air Quality, Public Health, and the School Complex).
Graham Trelstad, AKRF	Page 1-22 notes that a small amount of un-reacted ammonia ("ammonia slip") will be leaked from the project. Will the smell of the ammonia be detectable off-site? What are normal background levels of ammonia for comparison?	32-10	Even directly in the exhaust plume, the maximum ammonia concentration would be 5 parts per million, well below the ammonia odor recognition threshold. Ground-level concentrations would be substantially below this level. Therefore, there will be no odor associated with the emission of trace amounts of ammonia in the exhaust. Typical background concentrations of ammonia range from a few parts per billion to as high as 50 parts per million in heavy agricultural areas. The proposed Project will have no discernable impact to ammonia levels in the area. See Section 4.3.4.4 – Additional Impact Analysis (Aqueous Ammonia) for more detail.
Graham Trelstad, AKRF	As mitigation for potential natural resource impacts of the proposed project, continued monitoring of the Great Swamp water quality should be considered. In particular, the Great Swamp should be monitored for potential acid rain and [nitrogen oxide] NO <sub>x</sub> impacts.	32-14	Protection of the Swamp River and the Great Swamp CEA has been a priority throughout design of the Project, including through careful study of the potential impact of water use. Impacts to water quality from stormwater runoff were thoroughly addressed in Section 5.6.4 of the DEIS, while acid rain and nitrogen oxide impacts were addressed in Section 4.5.7 of the DEIS. In addition, the Project will restore previously impacted wetlands that currently drain to the Swamp River and remediate upland areas adjacent to them.  Further, the Project has committed to preservation of the 79-acre portion of the Property west of the railroad track which abuts the Swamp River. Given the lack of impact potential of the Project, the benefit to the Swamp River CEA resulting

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			from site remediation and restoration, and the preservation of wetland areas currently bordering the Swamp River, an overall benefit to the Great Swamp is anticipated to result from the Project.
Graham Trelstad, AKRF	Overall, the air quality chapter presents a comprehensive assessment of the potential air quality impacts for the proposed project. The analysis was performed based on applicable air quality regulations, and followed applicable air modeling guidance. The project applicant coordinated extensively with both EPA and NYSDEC, and as discussed in the DEIS, prepared a modeling protocol which was reviewed by each of these agencies. However, the data used as the basis for the air quality modeling was not specific to the local topographic and climatic conditions of the project site and Town of Dover. A separate analysis should be conducted that uses actual meteorological measurements, air quality levels, and topographic conditions for the project site and Town of Dover.	32-15	Anemometer data from the Dutchess County airport were selected for use in the Air Quality Modeling Protocol, which was approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project's plumes will experience, given their height. For the air dispersion modeling analysis, a receptor grid consisting of 1,710 receptors contained within five nested (overlapping) Cartesian grids was used out to a distance of 8 kilometers (km) from the stacks. Topographic (terrain) conditions therefore reflect the actual elevations of each of the 1,710 receptor locations input into the model and the surface roughness and other similar parameters input to the model reflect specific local conditions. In addition, the air quality modeling analysis reflects existing ambient air quality as measured from a network of monitors surrounding the Project site that are operated by NYSDEC and the Connecticut Department of Environmental Protection. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration for additional information (Air Quality, Public Health, and the School Complex).
Graham Trelstad, AKRF	Page 4-1 — The proposed project will be subject to the new Cross-State Air Pollution Rule (CSAPR) published on July 6, 2011, in response to the remanded <i>Clean Air Interstate Rule (CAIR)</i> Federal Implementation Plans (FIPs). The new CSAPR will require emission reductions	32-17	See Section 4.3.1.1 – Regulatory Updates and Discussion (Cross-State Air Pollution Rule) for a discussion of the Cross-State Air Pollution Rule (CSAPR).

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	beyond those originally required by CAIR through additional air pollution reductions from power plants beginning in 2012. In addition, the proposed project will be subject to the GHG reporting rule under 40 CFR Part 98.		
Graham Trelstad, AKRF	Page 4-2 — In Table 4.1, the National Ambient Air Quality Standard (NAAQS) shown for lead is the previous standard, which has been superseded, effective Jan. 12, 2009 by a 3-month concentration of 0.15 micrograms per cubic meter. In addition, the 24-hour and 3-hour SO <sub>2</sub> NAAQS are identified; however, these standards were replaced by the 1-hour SO <sub>2</sub> standard, effective April, 12, 2010. The table should include a footnote to reflect the changes to the NAAQS. In addition, since the air quality analysis includes an analysis of these averaging periods, the DEIS should explain why these analyses were undertaken.	32-18	An updated table is provided in Section 4.3.1.4 – Regulatory Updates and Discussion (Miscellaneous Regulatory Updates). Although at the time the 1-hour SO <sub>2</sub> NAAQS was adopted, the 3-hour and 24-hour standards were revoked, these averaging periods remain as NYAAQS.
Graham Trelstad, AKRF	Page 4-6, second bullet — The GHG threshold under the Tailoring Rule for new projects is 100,000 <i>tons per year</i> (tpy), not 75,000 tpy.	32-19	See Section 4.3.1.4 – Regulatory Updates and Discussion (Miscellaneous Regulatory Updates); the 100,000 tpy threshold, which became effective July 1, 2011, is now referenced. At the time of the DEIS, the threshold was 75,000 tpy.

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Graham Trelstad, AKRF	Page 4-10, Section 4.1.2.4 — The discussion of endangered species should reference the Natural Resources chapter.	32-20	See FEIS Section 4.3.1.4 – Regulatory Updates and Discussion (Miscellaneous Regulatory Updates), where discussion of the Endangered Species Act regarding air quality issues and a cross-reference to Section 3 – Natural Resources are included. Section 4.1.2.4 of the DEIS also references Appendix 4-A of the DEIS that provides copies of the relevant correspondence.
Graham Trelstad, AKRF	Page 4-16 — Also applicable to PM limits in 227-1 per the latest PM <i>State Implementation Plan</i> (SIP) (not specified in the regulation). PM limited to 0.1 <i>pounds per MMBtu</i> (lbs/MMBtu).	32-21	This regulation is addressed in Section 4.3.1.4 – Regulatory Updates and Discussion (Miscellaneous Regulatory Updates).
Graham Trelstad, AKRF	Page 4-29, Section 4.3.3.1 — The LAER analysis for the combustion turbines and duct burners should include a discussion of the commercially available and emerging alternate technologies for NO <sub>x</sub> emissions control. This should include a discussion of the SCONO <sub>x</sub> technology, which has been installed in at least some operating power plants.	32-22	See Section 4.3.2.2 – Control Technology Assessment (NO <sub>x</sub> Emissions) where a discussion of NO <sub>x</sub> emissions controls, including SCONO <sub>x</sub> , is included.
Graham Trelstad, AKRF	Page 4-31, Section 4.3.3.2 — The DEIS should clarify whether the NO <sub>x</sub> LAER determination for the auxiliary boiler is based on the use of ultra low NO <sub>x</sub> burner technology. This would seem to be the case since the proposed limit of 0.011 lb/MMBtu is identical to the Caithness Energy Project, which utilized this technology.	32-23	BACT/LAER for the auxiliary boiler was determined to be 0.011 pounds per million British thermal units (lb/MMBtu) of NO <sub>x</sub> . This assumes the use of ultra low NO <sub>x</sub> burner technology.

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Graham Trelstad, AKRF	Page 4-36, Section 4.3.5.1 — The DEIS states that an oxidation catalyst for control of CO emissions from the auxiliary boiler is not considered cost effective. Supporting information should be provided to substantiate this, such as the estimated cost per ton of CO removed.	32-24	BACT is defined as the optimum level of control applied to pollutant emissions based upon consideration of energy, environmental, and economic factors. As such, the cost of control is an integral part of a BACT analysis. It was determined that use of an oxidation catalyst to control CO emissions from the auxiliary boiler is not considered cost effective, based on standard regulatory guidance. Section 4.3.2.1 – Control Technology Assessment (CO Emissions) provides further detail on this assessment.
Graham Trelstad, AKRF	Page 4-59, Fourth Paragraph – Table 4-18 should be referenced as Table 4-19.	32-25	This typographical error is noted.
Graham Trelstad, AKRF	Page 4-61 – The referenced regulatory guidance used for the air quality impact analysis does not include the EPA guidance for 1-hour NO <sub>2</sub> , dated March 1, 2011. It does appear that the analysis utilized the recommendations in this memorandum; however, this should be confirmed, and the memorandum should be properly referenced.	32-26	See Section 4.3.3.5 – Dispersion Modeling and Compliance Demonstration (NO <sub>2</sub> Modeling). Note that completion of the modeling preceded the March 2011 memorandum, and was more conservative than current guidance. Close consultation and guidance was received on the modeling from both NYSDEC and USEPA.
Graham Trelstad, AKRF	Page 4-85 – The most recent NYSDEC short-term and annual guideline concentrations were published in October 2010. Table 4-30 should be revised as necessary to reflect any updated guideline concentrations.	32-27	The air permit application was submitted in March 2010, before these new concentrations were published and the table had not been updated for the DEIS. Tables 4-30 and 4-31 have been updated to reflect the most current NYSDEC guideline concentrations. These tables are provided in Section 4.3.1.4 – Regulatory Updates and Discussion (Miscellaneous Regulatory Updates).

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Graham Trelstad, AKRF	The DEIS air quality analysis does not address the NYSDEC guidance document CP-33, Assessing and Mitigating Impacts of Fine Particulate Matter. Since the proposed project would emit greater than 15 tons per year of PM <sub>10</sub> , it is potentially subject to this policy.	32-28	See Section 4.3.1.2 – Regulatory Updates and Discussion (Fine Particulate Matter). Note that NYSDEC Guidance Document CP-33 was intended as interim guidance until the PM <sub>2.5</sub> NAAQS had been fully implemented, which has since occurred. Therefore, this guidance document has been superseded by federal regulations and USEPA modeling guidance.
Graham Trelstad, AKRF	The DEIS presents a plume visibility analysis in accordance with appropriate Prevention of Significant Deterioration (PSD) procedures to assess potential visibility impacts on state managed parks. An assessment was performed to evaluate the potential for a visible condensed water plume at two locations in the immediate vicinity of the proposed facility and is contained in Section 6.2, “Visual Resources and Aesthetics” instead of Section 4, “Air Resources.”	32-29	See Section 4.3.4.3 – Additional Impact Analysis (Plume Visibility). A visible water vapor plume is not an air quality consideration, but rather is an aesthetic issue. As such, it was included in the Visual Resources section of the DEIS (Section 6.2). An air quality consideration relative to plume visibility is the assessment of the potential for “plume blight” on certain public lands as measured by brightness and contrast (color shift) that could be caused by emissions in a project’s plume. The analysis in Section 4.5.6 evaluates that plume-related air quality issue and determines that the Project will not have noticeable plume impacts at the nearest state park.
Graham Trelstad, AKRF	There is EPA guidance for dealing with modeling terrain effects due to the possibility of plume downwash caused by nearby elevated terrain. The Good Engineering Practice (GEP) stack height analysis should account for elevated terrain in the vicinity of the project site, and the DEIS should be revised to include the findings of the study of terrain in the area.	32-30	See Section 4.3.3.2 – Dispersion Modeling and Compliance Demonstration (Stack Height and Configuration). The CVE Project is located more than 800 meters from the nearest terrain obstacles. Based on USEPA guidance relating to “terrain induced downwash,” this terrain is too far from the stacks to induce downwash.

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Graham Trelstad, AKRF	Given the scale of the proposed project, and its proximity to a public school, it would be appropriate to locate a new air quality monitoring station in the Town of Dover, in a location such as the Dover Middle/High School property. NYSDEC may consider this an opportunity to collaborate with the Dover Middle/High School teachers and students in conducting on-going monitoring as part of a science curriculum.	32-31	See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex). Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken.  CVE views the presence of the Project and its staff as an opportunity to collaborate with the school and its teaching staff with respect to the science curriculum.
Graham Trelstad, AKRF	Additional mitigation for anticipated air quality impacts should be provided locally. Mitigation could include additional tree planting and/or the permanent preservation of more open space. Cricket Valley Energy should consider establishment of a fund for implementation of habitat restoration, alternative fuel or energy conservation projects, or other mitigation measures within the Town over the life-span of the facility.	32-32	In addition to offsetting 115 percent of the Project's maximum annual NO <sub>x</sub> and VOC emissions through direct offsets and displacing emissions from less efficient units resulting in a net regional reduction in GHG and criteria pollutant emissions, CVE will preserve 79 acres of wooded lands bordering the Swamp River. The Project will also remediate an abandoned industrial site, including restoration of wetlands that were severely degraded as a result of historical industrial activity on the site, as well as enhancement of upland adjacent area surrounding the wetlands.
T. Michael Twomey, Entergy	Except for <i>lead</i> (Pb), all of these <i>[criteria]</i> pollutants exceed federal major source emission thresholds and significance levels. Id. Because of New York's non-attainment status for several criteria air contaminants (see <a href="http://www.epa.gov/oar/oaqps/">http://www.epa.gov/oar/oaqps/</a>	33-27	The Project will represent the lowest emitting fossil-fuel-fired power plant of its kind ever constructed. In addition, the Project will directly offset 115 percent of its maximum permitted annual emissions of NO <sub>x</sub> and VOC, precursors to ozone, the only pollutant for which the site is not in attainment of the NAAQS. Further, the Project will reduce regional emissions of all air pollutants and greenhouse gases by displacing the operation of older, less efficient and higher emitting power plants in the region. Increasing baseload electric generation capacity

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	<p><a href="#">greenbk/anc13.html</a>) and the Project's GHG emissions, which cannot be reconciled with New York's air quality goals when lower sources of emissions are available and can be constructed, the Project's operations merit careful scrutiny.</p>		<p>while reducing regional emissions is completely consistent with New York's air quality and climate change goals and objectives. Project operations will be scrutinized closely by NYSDEC and USEPA through the use of continuous emissions monitoring.</p>
<p>T. Michael Twomey, Entergy</p>	<p>Furthermore, under the U.S. Environmental Protection Agency's (EPA) recently finalized Cross-State Air Pollution Rule ("CSAPR"), New York State will be required to achieve substantial reductions in seasonal NO<sub>x</sub> (a precursor to ozone) emission levels by 2012. This statewide emissions reduction requirement is expected to be difficult to satisfy. Where building a facility such as the proposed Project, which has the potential to emit 280 tpy of NO<sub>x</sub>, will make it harder for the State to meet its mandatory Federal air pollutant emission reductions when other lower sources of emissions can be options, it is imperative that the facility's potential environmental impacts over and above air pollution be very carefully evaluated.</p>	<p align="center">33-28</p>	<p>See Section 4.3.1.1 – Regulatory Updates and Discussion (Cross-State Air Pollution Rule). The Project will not only directly offset 115 % of its annual NO<sub>x</sub> emissions from in-state sources, it will displace emissions from existing less efficient units resulting in a significant reduction in regional NO<sub>x</sub> emissions thereby positively contributing to New York's compliance with the NO<sub>x</sub> emissions reductions sought by the CSAPR program. Note that the full range of potential environmental impacts was carefully evaluated in the DEIS.</p>
<p>James Utter, Friends of the Great Swamp</p>	<p>Indirect sources of water pollution may be more difficult to address and are directly related to the Air Quality issues.</p>	<p align="center">34-5</p>	<p>Because the Project will not have a significant impact on either air quality or acid deposition, it will not significantly contribute to indirect sources of water pollution. Since the Project will result in lower regional emissions, it will contribute to reducing these indirect impacts.</p>

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James Utter, Friends of the Great Swamp	One of the major groups of pollutants is the nitrogen oxides. These are converted into nitric acid when dissolved in water droplets and further acidify precipitation which then reduces buffering capacity of soils and changes other soil processes. Nitrogen oxides also reach the soil surface in other ways and produces nitrogen enrichment which has been shown to change soil chemistry and have significant effects on soil ecosystems. The calcareous systems of the Great Swamp and the Swamp River are especially vulnerable to acidification and nitrogen enrichment; the greatest impact is likely to be seen in the calcareous fens, home to many of our rare species.	34-6	<p>In accordance with the New York State Acid Deposition Control Act, a “Source Specific Acidic Deposition Impacts” analysis was conducted to provide quantification of the Project’s contribution to the New York State total deposition of sulfates and nitrates at 18 defined receptors in New York State, New England, and Canada. The DEIS also included analyses of impacts of Project emissions on sensitive vegetation and soils as well as contributions to acid deposition and ambient concentrations of NO<sub>2</sub>. The analyses concluded that the Project would not have a significant impact on sensitive natural resources.</p> <p>Local impacts from acid precipitation formed due to the Project are highly unlikely because the processes that convert SO<sub>2</sub> and NO<sub>x</sub> gases into their acid counterparts can take several days. During this time, the pollutants would have traveled hundreds of miles from the original source. Thus, the emissions from the Project would have little or no contribution to the acidity of the precipitation that falls on the surrounding area, therefore the impacts would be negligible.</p> <p>In addition, the Project will directly offset 115 percent of its NO<sub>x</sub> emissions, and it will further reduce regional NO<sub>x</sub> emissions by displacing the operation of existing less efficient generation. This will help reduce regional nitrogen and nitric acid deposition. See also Section 4.3.4.2 – Additional Impact Analysis (Acid and Nitrogen Deposition).</p>
James Utter, Friends of the Great Swamp	Because the proposed CVE plant is in the Harlem Valley depression, it is subject to reduced air mixing and increased fog formation, both of which increase the impacts of air pollution. This specific location also has a special challenge since the Dover Junior and Senior High Schools are on the eastern slope of this valley.	34-7	<p>The meteorological data used in the modeling represents five years of hourly observations. Within this data set are numerous periods of calm to near calm conditions with thermal inversions and associated ground fog. The modeling analysis also directly takes the surrounding terrain into account. Under these conditions, impacts to the schools were determined to be negligible. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) and Section 4.3.3.3 – Air Quality, Public Health and the School Complex.</p>

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James Utter, Friends of the Great Swamp	Air pollution seems to be a most critical remaining issue. Therefore, we recommend that all available technology be utilized to minimize the amount of air pollution released and that air quality specialists be consulted to ascertain that a safe level is achieved. Furthermore, we urge CVE to establish and maintain an air quality monitoring system which includes a station at the Dover High School, to provide continuing information on the ambient levels of major air pollutants and that plant operations be adjusted whenever safe limits are exceeded.	34-8	Stringent pollution control measures will be incorporated in the Project design to meet LAER/BACT as applicable and as described in Section 4.3 of the DEIS. The Project will comply with air quality standards established by the USEPA and NYSDEC to protect public health. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) for additional information. In addition, once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken.
John Fila, Wingdale Resident	The almost certainty of altering the micro-climate here in the valley. As you know, the proposed site in Dover is in a valley portion of the Taconic mountains. A valley such as this, depending on uncontrollable atmospheric conditions and geological features can have a micro-climate imposed on it. This condition may be negatively impacted by a temperature inversion or by blocking out sunlight, both of which are possible effects of this facility. The residents of Dover exist in this micro-climate, not at the Poughkeepsie airport- which was used in the applicant’s study.	35-1	Anemometer data from the Dutchess County airport were selected for use in the Air Quality Modeling Protocol, which was thoroughly reviewed and approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project’s plumes will experience, given their height. Five years of hourly meteorological data were used in the modeling, including numerous hour of calm to near calm winds and thermal inversions. For the air dispersion modeling analysis, a receptor grid consisting of 1,710 receptors contained within five nested (overlapping) Cartesian grids was used out to a distance of 8 km from the stacks. Topographic (terrain) conditions therefore reflect the actual elevations of each of the 1,710 receptor locations input into the model and the surface roughness and other similar parameters input to the model reflect specific local conditions. Impacts to receptors in the valley under these conditions have been demonstrated to be negligible. Further, the frequency and extent of water vapor plumes will not be sufficient to block out

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			sunlight. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography).
Ryan Courtien, Town Supervisor, Town of Dover	ES-12: “Higher emitting” or “Higher GHG emitting”? The term “higher emitting” needs to be better explained.	37-10	The Project will displace the operation of existing less efficient units that emit more GHGs and criteria pollutants per unit of energy generated.
Ryan Courtien, Town Supervisor, Town of Dover	What are the type and locations of emissions offsets?	37-22	VOC offsets were obtained from the shutdown of a 3M facility upwind of the Project site in Pennsylvania and NO <sub>x</sub> offsets were from shutdowns of various New York State facilities. The offsets were approved by the NYSDEC as directly contributing to ozone formation in Dutchess County.
Ryan Courtien, Town Supervisor, Town of Dover	There needs to be an air monitor in the Town, the best place for this would be the Dover Middle / High School due to its central location, proximity to the proposed plant and possible educational benefits.	37-24	<p>As discussed in more detail in Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex), Project air quality impacts at the Dover Middle and High School complex will be negligible. Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken.</p> <p>CVE is in discussion with the Town of Dover regarding a number of areas of interest, including potential monitoring at the schools; while not necessary for confirming the Project’s compliance with stringent air quality standards, the town may decide through its local review process that this type of activity should be a component of the community benefit package.</p>

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<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Ryan Courtien, Town Supervisor, Town of Dover	1-2: The DEIS states “Due to the project’s superior efficiency it will be dispatched ahead of high emitting generators, causing those units to operate less frequently, thereby yielding a net air quality benefit across the region.” The primary consideration in dispatching seems to be emissions over cost; is this true?	37-38	<p>The “superior efficiency” referenced in the comment refers to the Project’s more efficient technology, which allows the Project to produce electricity with less fuel. This results in a lower fuel cost, which is the primary consideration in NYISO’s dispatch decision, and also results in lower emissions, as more electricity can be produced by burning the same amount of fuel.</p> <p>The <i>Security-Constrained Economic Dispatch Analysis</i> (DEIS Appendix 1-A) forecasts decreases in both service costs, <u>and</u> emissions of NO<sub>x</sub>, SO<sub>2</sub>, and CO<sub>2</sub> under various scenarios. The Dispatch Analysis projects annual reductions in load-weighted costs to serve the New York Pool of up to \$275 million; annual NO<sub>x</sub> reductions in the New York Pool of up to 618 tons; annual SO<sub>2</sub> reductions in the New York Pool of up to 1,082 tons; as well as a decrease in total annual emissions of CO<sub>2</sub>. The Dispatch Analysis was performed using industry standard modeling programs (i.e., MAPS). The Dispatch Analysis also describes the methodologies and assumptions underlying its projections, with links to additional sources of information.</p>
Ryan Courtien, Town Supervisor, Town of Dover	1-7: Approximately 282.5 feet tall seems to be rather exact.	37-42	Calculation of Good Engineering Practice (GEP) stack height does result in exact dimensions. The use of the word “approximately” in this case was not necessary, and will not be used in the FEIS with regard to GEP stack height calculation.
Ryan Courtien, Town Supervisor, Town of Dover	1-11: What affect, if any, will the heat from the plume have on local (project property and surrounding properties) temperatures?	37-49	Temperatures of the Project property and surrounding properties will not be affected by the stack exhaust temperature. With heat, the stack exhaust will rise and cool at heights significantly higher than the 282.5-foot stacks, such that ground level temperatures will not be changed as a result.
Ryan Courtien, Town Supervisor, Town of Dover	1-18: The risks of using hydrogen gas for cooling need to be explained.	37-51	CVE will utilize hydrogen-cooled generators to increase the efficiency of the power plant. Hydrogen-cooled generators have been widely used and safely operated in the power generation industry for many years and are designed so that hydrogen cannot escape into the atmosphere and cause a hazardous environment (hydrogen, when mixed with air, poses a combustion risk). As a safety precaution, the generator would only use high-purity hydrogen (hydrogen

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			<p>that is completely free of air molecules). In addition, the generators' stators are designed for maximum safety and are strong enough to limit the effects of a combustion event to only the generator casing and enclosed parts.</p> <p>The hydrogen mobile storage area and system will be designed in accordance with the most stringent National Fire Protection Association (NFPA) 50A requirements pertaining to hydrogen storage systems, in addition to any local building codes. The storage area and system will be protected by a fence and concrete bollards and will be located so that it is accessible to delivery equipment and sufficiently distant from transmission lines, buildings, ventilation or air intakes, and property lines. Testing of the piping, tubing, and fittings after installation shall be performed and proven gastight at maximum pressure. In addition, electric power, lighting, and controls shall be designed to prevent any potential electrical ignition sources.</p> <p>The hydrogen storage facility will include emergency isolation valves, and will require annual inspection and maintenance by a qualified representative of the equipment owner.</p>
<p>Ryan Courtien, Town Supervisor, Town of Dover</p>	<p>Appendix 4A: Table 2: Why is ambient temperature in Fahrenheit and Stack Temperature in Kelvin? One temperature scale should be used.</p>	<p>37-80</p>	<p>Ambient air temperature, as relates to combustion turbine operating conditions, is commonly presented in units of degrees Fahrenheit (°F). Conversely, dispersion modeling commonly uses metric inputs, consistent with the data input requirements of USEPA air quality models. For this reason, stack temperature, which is used as an input for the dispersion modeling analysis, is presented in degrees Kelvin (K).</p>
<p>Ryan Courtien, Town Supervisor, Town of Dover</p>	<p>Appendix 4A: Table 2: Units such as "m/s" and "g/s" (presumably meters per second and grams per second respectively) should be noted as to their meaning.</p>	<p>37-81</p>	<p>Meters per second (m/s) and grams per second (g/s) are used as inputs for the dispersion modeling analysis.</p> <p>All units referred to in the section are defined in the list of acronyms and abbreviations.</p>

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Ryan Courtien, Town Supervisor, Town of Dover	Appendix 4A: Table 2: In Table 1, emissions are in lb/hr and in Table 2 they are g/s. This lack of consistency in units only serves to confuse the public.	37-82	Table 1 of Appendix 4-A of the DEIS provides emission rates used for determining regulatory applicability. Regulatory applicability thresholds are commonly expressed in English units such as pounds per hour (lb/hr) or tons per year (tpy). For this reason, emissions in Appendix 4-A, Table 1 of the DEIS are expressed in English units. Appendix 4-A, Table 2 of the DEIS provides information used in the dispersion modeling analysis. Inputs for dispersion modeling are commonly expressed in metric units. For this reason, emission rates in Table 2 are provided in g/s.
Ryan Courtien, Town Supervisor, Town of Dover	Figure 4-5: Site Elevations is deceptive as it does not show the true height of the stacks.	37-83	This drawing convention is typical where one element of a drawing would otherwise extend outside of the printable area. Note that all plant renderings and analyses included as part of Section 6.2 – Visual Resources and Aesthetics are visually representative of true stack height.
Ryan Courtien, Town Supervisor, Town of Dover	Figure 4-6: Comparisons of CO <sub>2</sub> is too basic comparing this project to all power plants as an average. This bar graph should be broken out into all other power sources (other natural gas, coal, oil, nuclear, hydro, solar, wind, etc.) knowing that some bars would be zero and Cricket Valley would fall somewhere in between.	37-84	Table 4-35 of the DEIS compares CO <sub>2</sub> emission rates for the proposed Project with a range of alternate fuels and technologies. As noted, wind, solar and nuclear technologies do not directly emit CO <sub>2</sub> . For all other fuels and technologies, the proposed Project emits less CO <sub>2</sub> per megawatt-hour of energy produced.
Ryan Courtien, Town Supervisor, Town of Dover	The Town of Dover Town Board has provided comments through our regular consultants on Section 4 and will be hiring an independent consultant to give further comment in the coming months.	37-85	The Town of Dover has hired an additional air quality expert, funded by CVE, to assist the Town Board in their review of the Project.
Stephen and Cate Wilson, Wingdale	CVE claims their plant would be the cleanest in the state – by U.S. regulation they must meet the lowest demonstrated rates of emissions. This isn't saying much	38-4	The air dispersion modeling presented in the DEIS took into account existing air quality levels and the contributions of other sources within the region. As noted, the proposed Project will be more efficient and lower emitting than even the cleanest existing fossil fuel-fired power plants in New York. For example, CO <sub>2</sub>

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Residents	given that the lowest rates are likely from inefficient older plants and that many of the government studies used as basis points have not been updated since the early part of this century. The standard should be set against current and local area measurements within Dover specifically.		permit levels proposed for the Project are among the lowest levels ever issued for a power plant in the U.S. These comparisons include fossil fuel-fired power plants that were permitted within the last few years and projects which began operations in 2010 and 2011.
Stephen and Cate Wilson, Wingdale Residents	... air pollution [is] of considerably greater concern during the lengthy construction period required to build the plant if it is approved. The DEIS again discusses ... air impacts upon "the more distant residential properties", but does not specifically address impacts on locations in immediate proximity. Not only our home, but others and the Dover Middle School and High School locations will be impacted by this for three or more years if the project does not complete on schedule.	38-7	The Project will utilize construction Best Management Practices (BMPs) to control air emissions such as dust, applying water or wetting agents to exposed and dry soils when necessary. In addition, demolition procedures will be strictly monitored to ensure fugitive dust is controlled. See Section 4.3.5 – Construction-Related Impacts for a discussion of impacts on surrounding properties related to construction.
Stephen and Cate Wilson, Wingdale Residents	The DEIS does not address issues related to prolonged exposure to the admittedly excessive...air pollution that will results from the construction process.	38-8	NYSDEC regulations require the use of BMPs during construction, including measures to suppress dust emissions, as described in Section 4.5.8 of the DEIS. Potential impacts on traffic during construction of CVE are addressed in Section 4.5.7 of the DEIS. Air emissions from construction equipment must meet USEPA standards for off-road vehicles. As a result, air quality impacts from construction activities are expected to be insignificant and temporary.

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Susan Holland, Ulster Park Resident	...The DEC’s mission includes supporting environmental justice...We simply do not need a new natural-gas-fired power plant to be built in the beautiful Hudson Valley region...there are far too many problems with this project, as other reviewers of the DEIS have already commented on in detail...we must only permit and create projects that rely on renewable energy sources to satisfy our energy needs. “Natural” gas is most certainly not such a source and has proven to be “dirtier” than coal.	39-1	<p>As discussed in Section 6.7.4 of the DEIS, the Project fully complies with state and federal Environmental Justice guidelines by demonstrating that it will not have a significant adverse or disproportionate impact on any Environmental Justice Community of Concern. Environmental justice areas are generally defined as communities or facilities housing disadvantaged groups, such as low-income or minority populations. As discussed in DEIS Section 6.7.4, there are no environmental justice populations proximate to the Project.</p> <p>The need for the Project is discussed in detail in Section 1.1 of the DEIS. In addition, the Project will be required to obtain a Certificate of Public Convenience and Necessity from the New York State Public Service Commission (NYSPSC); that process will ensure that the Project is in the public interest. A Petition was submitted to the NYSPSC on November 1, 2011 and will be the subject of review in 2012.</p> <p>It is acknowledged that renewable energy projects are an important part of the region’s energy portfolio. The Alternative Analysis in Section 7.6.1 of the DEIS considered wind and solar alternatives and concluded that neither technology is suited to the Project’s purpose and need, to supply 1,000 MW of <u>baseload</u> electricity to the grid. Wind and solar are intermittent resources, and could take tens of thousands of acres of land to generate the same amount of electricity as the proposed Project. Further, the proposed Project is not incompatible with wind and solar and will in no way preclude development of these types of projects on sites that are suitable for those technologies.</p> <p>Natural gas is the cleanest-burning fossil fuel alternative available, with emission rates of criteria pollutants and GHG far lower than coal or oil.</p>

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Cristina Bleakley, Dover Resident	What impact will this enormous plant have in Dover and surrounding areas, especially when we live in a valley and our air is already so poor? I think it is imperative to have an outside company do all the studies here in Dover so we can better understand the impact this plant will have in our air.	40-2	The air quality modeling analyses were thoroughly reviewed by USEPA and NYSDEC air quality staff, beginning with the modeling protocol. Comments were received from the agencies at several points in the process as provided in Appendix 4-A of the DEIS. In addition, comments were received from the Town of Dover’s third party consultants on the DEIS, including air quality comments from the Town Planner’s air quality expert (AKRF). Those comments are addressed in this FEIS. The Town of Dover has also hired an additional air quality expert, funded by CVE, to assist the Town Board in their review of the Project.
Cristina Bleakley, Dover Resident	Did Cricket Valley take in consideration the air quality around the parking area? How are they going to control air quality at the plant site and the parking site? How are they going to keep the dust that the traffic will create?	40-8	See Section 4.3.5 – Construction-Related Impacts. Dust control measures will be utilized at the Project Development Area and remote Laydown Site as described in Section 2.3.5 and Section 4.5.8 of the DEIS.
Constance DuHamel, Wingdale Resident	For Harlem Valley and Litchfield County residents however, overall emissions reduction across the rest of New York State is not the immediate public health issue; the issue for our region is how much more polluted the air will be in eastern Dutchess, western Connecticut and the Berkshires, with the Cricket Valley Energy 1000 megawatt power plant coming on line.	41-1	The cumulative air quality modeling analysis in the DEIS demonstrates that regional sources impact air quality locally. In addition, ozone, the only pollutant for which Dover is not in attainment of ambient air quality standards, is a regional pollutant. That is, the sources of emissions that have the greatest effect on ozone levels in Dover are located well upwind.  Nevertheless, the results of the air quality dispersion modeling demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS either locally or regionally. Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) provides further detail.
Constance DuHamel, Wingdale	From that perspective, how does NYS plan to monitor the negative impact on the health of the children at the Dover Middle/High School?	41-2	As discussed further in Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) Project impacts at the Dover Middle/High School will be negligible. Once operational, the Project will be equipped with continuous emissions monitors which monitor

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Resident			<p>stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken. Emissions reports are provided to NYSDEC quarterly, summarizing the continuous emissions data. In the event that permit limits are exceeded, NYSDEC must be notified immediately.</p> <p>CVE is in discussion with the Town of Dover regarding a number of areas of interest, including potential monitoring at the schools; while not necessary for confirming the Project's compliance with stringent air quality standards, the town may decide through its local review process that this type of activity should be a component of the community benefit package.</p>
Constance DuHamel, Wingdale Resident	Additionally, the measure of the impact of the proposed 1000 megawatt power plant on our region should be cumulative, taking into consideration the relatively poor air quality we are reported to have already, and the extent to which emissions will hang in the air in our valley.	41-3	The DEIS includes a cumulative air quality dispersion modeling analysis that demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population. See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) for more detail.

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Constance DuHamel, Wingdale Resident	...I propose that an air quality monitoring station be sited here, on the campus of the Dover Middle & High Schools, with the data collected by the Cary Institute of Ecosystem Studies, and submitted to the EPA. The residents of the Harlem Valley should not have to rely on the industry practice of self-monitoring, when our children's health is at stake and the industry has objectives often at odds with our own.	41-4	As discussed further in Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex) Project impacts at the Dover Middle/High School will be negligible. Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken. Emissions reports are provided to NYSDEC quarterly, summarizing the continuous emissions data. In the event that permit limits are exceeded, NYSDEC must be notified immediately.  CVE is in discussion with the Town of Dover regarding a number of areas of interest, including potential monitoring at the schools; while not necessary for confirming the Project's compliance with stringent air quality standards, the town may decide through its local review process that this type of activity should be a component of the community benefit package.
Constance DuHamel, Wingdale Resident	The monitoring of asbestos removal takes place out of Kingston, downwind from the project, because that was the closest monitoring station equipped to collect that data. Does that make sense to anyone here? My father died of pulmonary fibrosis. His pulmonologist, Dr, Edsel of Columbia Presbyterian, said when the World Trade Center was built, asbestos fibers were found as far north as Boston. It is in that direction the prevailing winds blow, and we want our monitoring stations in the way of the prevailing winds, when they blow.	41-5	Prior to construction, existing buildings will be demolished and removed. As part of this process, building materials will be tested for asbestos containing materials and all such material will be removed by licensed asbestos removal contractors. These contractors are trained in asbestos abatement using best practices to eliminate the potential for exposure such as using appropriate containment to protect public health.

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	<p>And when they don't, we will know exactly how much more is accumulating in the Harlem Valley, and breathed in by our children, as they continue to engage in outdoor activities, including practice and games for team sports.</p>		
<p>Constance DuHamel, Wingdale Resident</p>	<p>That the Town of Dover retain an independent air quality expert to review the DEIS on our behalf. The fees will be paid by Cricket Valley Energy in much the same way AKRF's services were paid by Dover Knolls. After reading the Air Quality section of the DEIS, it is clear an industry expert is required to vet this project on the town's behalf: To that end, I recommend Camp, Dresser &amp; McKee, now CDM, to check the data, analysis and conclusions in the CVE DEIS. The hydrogeologist hired by the Coalition for the Responsible Growth of Dover found enough errors in the data, analysis and conclusions from the Dover Knolls pump tests, as presented in the Dover Knolls DEIS, that DEC suggested the Town of Dover and AKRF, the Town Board's planner, incorporate our report in their analysis of the Dover Knolls DEIS.</p>	<p>41-6</p>	<p>CVE provided funding to the Town of Dover to allow for independent consulting review of the DEIS and for a review of the environmental impacts related to air quality. The Town of Dover selected AKRF and Berger Engineering for independent review of the DEIS and Dr. Bruce Egan, to supplement the existing expertise for a review of the environmental impacts related to air quality.</p>

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<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Constance DuHamel, Wingdale Resident	That Cricket Valley Energy provide for and initially fund the operation of an asthma clinic for the people of the Harlem Valley.	41-7	The air dispersion modeling analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population.
Constance DuHamel, Wingdale Resident	That the Great Swamp and the fens of the Harlem Valley be considered as Class 1 properties as defined in the Cricket Valley Energy DEIS. The National Park Service owns lands within a 100 <i>kilometer</i> (km) radius (the Appalachian Trail crosses through the Great Swamp in Pawling,) federal funding from US Fish and Wildlife were procured to assist in purchasing the Slocum-Mostachetti Preserve in the Great Swamp, and of the 100 or so fens in New York State, roughly 80% of them are in the Harlem Valley.	41-10	The unique value of the natural resources throughout the Harlem Valley is acknowledged. As a part of this Project, CVE plans to place approximately 79 acres of wetlands adjacent to the Swamp River in permanent conservation.  The DEIS includes a set of air quality related value assessments in relation to PSD Class 1 Areas. These areas were designated by Congress and the analyses included in the DEIS for these areas are specific requirements of PSD permit applications.  In addition, the results of the air quality, sensitive soils and vegetation, and acid deposition analyses in the DEIS indicate that the proposed Project will not adversely impact locally important natural resources.
Constance DuHamel, Wingdale Resident	As Class 1 look-alikes, Cricket Valley Energy would monitor their unique ecosystems, not necessarily before construction begins, but certainly during the three years during construction and before the project is up and running. There are many research sites already in place in the Harlem Valley, and Cricket Valley could partner with them in their studies, thereby reducing the costs of initiating a research project.	41-11	As discussed on the response to Comment No. 41-10, the Project's impacts on locally important natural resources will be negligible. CVE has agreed to sponsor a Swamp River Stream Gauging program in coordination with the Housatonic Valley Association.

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<p>Robert Herzog, Wingdale Resident</p>	<p>The DEIS shows its biases within its first paragraphs, stating the plant will supply “needed electricity to the New York State bulk power grid,” despite the NYISO conclusions. Cricket Valley tries to make an argument for displacement – building a new plant burning natural gas would displace other, less efficient plants. The major displacement that will take place will be to move point sources of pollution from other locations to the Town of Dover.</p> <p>The attempt to circumvent the NYISO’s finding that there is no need to build new capacity by citing the benefits of displacing other more polluting plants is specious. The DEIS states: “Due to the project’s superior efficiency it will be dispatched ahead of higher emitting generators, causing those units to operate less frequently, thereby yielding a net air quality benefit across the region.”</p> <p>The NYISO in fact dispatches based on price, not pollution, choosing the lowest marginal cost production at any given moment. As the New York Energy Consumers’ Council states, “Generators bid in prices for their capacity based on their marginal costs (e.g. fuel), and the NYISO</p>	<p>42-3</p>	<p>The “superior efficiency” referenced in the comment refers to the Project’s more efficient technology, which allows CVE to produce electricity with less fuel. This results in a lower fuel cost, which is the primary consideration in NYISO’s dispatch decision, as suggested by the commenter. Producing electricity with less fuel also results in lower emissions, which is a beneficial environmental result of dispatching the CVE Project.</p> <p>The <i>Security-Constrained Economic Dispatch Analysis</i> (DEIS Appendix 1-A) forecasts decreases in both service costs, and emissions of NO<sub>x</sub>, SO<sub>2</sub>, and CO<sub>2</sub> under various scenarios. The Dispatch Analysis forecasts annual reductions in load-weighted costs to serve in the New York Pool of up to \$275 million; annual NO<sub>x</sub> reductions in the New York Pool of up to 618 tons; annual SO<sub>2</sub> reductions in the New York Pool of up to 1,082 tons; and a slight decrease in total annual emissions of CO<sub>2</sub>. See Section 4.3.6 – Emissions Displacement. The dispatch analysis provided in Appendix 1-A of the DEIS is based on the marginal cost dispatch order and day ahead pricing process, which the commenter describes, using the most widely accepted economic dispatch model in the industry, GE MAPS. The Dispatch Analysis also describes the methodologies and assumptions underlying its projections, with links to additional sources of information.</p> <p>As discussed in detail in Section 1.4.3 of this FEIS the need for the plant and its consistency with NYISO projections is clear.</p> <p>The Project’s regional emissions displacement includes reductions in emissions from sources that directly contribute to air quality in the entire region, including Dover. This is clearly evidenced by the results of cumulative air quality modeling which demonstrates that distant sources, due to the magnitude of their emissions, have impacts far exceeding that of the proposed Project.</p>

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	<p>accepts bids to fill its projected demand requirements in each zone. This is called the Locational-based Marginal Pricing (LBMP) Day Ahead Market (DAM). In an effort to arrive at the most efficient market price, lowest bids are considered highest merit and those generators are dispatched first (i.e. base loaded); highest bids are considered lowest merit. This is called the merit order bid stack.”</p> <p>That process means that hydro, coal and nuclear plants will always be first in line. While older plants may be less efficient, they have also been partially or fully amortized in rate bases, meaning they may also be competitive on price with a newer facility built at, and requiring a return on, current construction costs. Furthermore, oil is already the lowest merit source of generation for the State, supplying only about 1,200 hours during highest peak demand periods in the year. By contrast, nuclear and hydro are highest merit, supplying base load all 8,760 hours in the year. So the most polluting and expensive plants are already being displaced by existing capacity and load management.</p>		

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Robert Herzog, Wingdale Resident	The DEIS's own findings regarding greenhouse gas (GHG) emissions indicate how spurious the displacement argument is. According to the DEIS, the introduction of the Cricket Valley plant actually increases the production of one of the most serious of GHG, CO <sub>2</sub> , by around 2% annually for the New York State power pool. The total impact on CO <sub>2</sub> production with Cricket Valley online is a decrease of .1% - one tenth of one percent. And that is based on the assumptions that the Cricket Valley-hired consultants are projecting, which would be a best case scenario. In short, local GHG will increase, along with other air pollutants...while the best case projected for this plant is a negligible positive environmental impact.	42-4	<p>The <i>Security-Constrained Economic Dispatch Analysis</i>, Appendix 1-A to the DEIS, forecasts the CVE Project's impacts on emissions of CO<sub>2</sub>, the primary GHG, and Section 4.6.5 of the DEIS also discusses the Project's potential GHG emissions, consistent with the NYSDEC's Greenhouse Gas Policy.</p> <p>As discussed in FEIS Section 4.3.1.1, the Project will represent the lowest emitting fossil-fuel-fired power plant of its kind ever constructed. Further, the Project will reduce regional emissions of all air pollutants and GHGs by displacing the operation of older, less efficient and higher emitting power plants in the region. As shown on Table 4-36 of the DEIS, operation of the Project is expected to result in the displacement of CO<sub>2</sub> emissions from other power plants in the region, yielding a net <u>reduction</u> in regional CO<sub>2</sub> emissions of over 650,000 tons per year. Displacement benefits also average approximately 1,500 tons per year of NO<sub>x</sub> and 4,300 tons per year of SO<sub>2</sub> for the period modeled, 2015 through 2020.</p> <p>Increasing baseload electric generation capacity while reducing regional emissions is completely consistent with New York's air quality and climate change goals and objectives. GHGs are global pollutants; therefore, in which power pool emissions occur is of no consequence. As shown from the economic dispatch analysis, the Project will reduce the total GHG burden by an average of 653,242 tons per year over the period from 2015 to 2020. These values do not represent "best case" estimates, rather, they represent the most likely scenario based on clearly identified independent projections of fuel and electricity costs using the most widely accepted model and input data set available.</p>

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Alan Surman, Dutchess County Legislator	So a big concern would be air dispersion...I think consideration and extra thought should be put into the height of the stacks, even if they're slightly unsightly, to make sure that we have sufficient dispersion of the carbon dioxide coming out. It's again, a very, very clean plant, but we don't want this settling in the valley.	T1-5	The height of the stacks was determined using USEPA's Good Engineering Practice criteria and model. Constructing stacks at Good Engineering Practice height helps ensure compliance with all applicable state and federal regulations, including air quality standards established by the USEPA and NYSDEC. The three stacks were also co-located (clustered together) to enhance dispersion. This occurs when closely located buoyant plumes are emitted, as the individual flow rates of each plume are additive, resulting in a greater plume height, thus allowing more dispersion before the dispersed emissions reach ground level. This dispersion technique goes above and beyond Good Engineering Practice requirements and adds considerable cost to the Project, but results in lower ambient air quality impacts.
William Sena, Dover Resident	I live right on top of the hill, up at High Meadows...there's over a hundred homes up there...We're on top of a mountain, and it is like a valley. And I'm kind of concerned with the gases, you know, and the smell...I don't want it to be like when you're driving down the Jersey Turnpike, you know that smell when you drive by those tanks. I'm sure they followed all the rules and everything else for the environment, but when you drive by there, you can still smell it.	T1-7	No emissions from the facility would exceed odor recognition thresholds.
William Sena, Dover Resident	...The most concern I would think of is the air, the air, you know, coming out of the plant.	T1-10	The DEIS and air permit applications have carefully considered air quality impacts. These analyses were conducted using the best tools and information available and thoroughly reviewed by USEPA and NYSDEC meteorologists and engineers at various points in the process. As demonstrated in the DEIS, the Project will not cause or significantly contribute to a violation of NAAQS or NYAAQS nor significantly degrade air quality currently in compliance with those standards.

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<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Lorraine O'Neill, Town Board, Town of Dover	... You are blaming Dover's deteriorated air quality on outside sources. I'd like to know what they are. And are you trying to say that this facility will not deplete our air quality? Because, according to the air quality reports that I received, it will. And I believe -- this is my opinion -- that it is inappropriate that it was stated that it will help the tax base and school revenue, which it will, but is that in replacement of clean air?	T1-13	See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex). Note that air quality knows no boundaries, however, and local air quality is influenced by upwind sources.  The air dispersion modeling analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population. An inventory of the emission sources used in the cumulative modeling analyses is provided in Appendices 4-A and 4-B in the DEIS.
Peg Day, Wingdale Resident	The stacks, what exactly do they exhaust or release? Carbon dioxide was mentioned earlier. Is there any chance that methane is released? And is that released purposefully, or could it be released accidentally?	T1-19	Emissions from the stacks include mostly air, with smaller concentrations of combustion byproducts, which are the exact same products of combustion that are emitted from a natural gas-fired furnace or stove. As such, the largest constituents in the exhaust stream are identical to those found in air, which include nitrogen, oxygen, carbon dioxide, water vapor and argon. Pollutant emissions from the proposed Project that were reviewed with respect to the NNSR and PSD programs include NO <sub>x</sub> , VOCs, CO, SO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , sulfuric acid, and greenhouse gases, including carbon dioxide, methane, and nitrous oxide. These emissions are controlled by LAER/BACT as described more fully in Section 4.3 of the DEIS.
Ilana Nilsen	...I'd like to know more about the plume that's predicted to come off that smoke stack, not only what it will be carrying, but where it's going to fall, where it's going to take off and drop.	T1-22	Section 4 of the DEIS includes a comprehensive discussion of what constituents will be emitted from the facility and the resulting impacts. See Section 4.3.3 – Dispersion Modeling and Compliance Demonstration for a detailed discussion.
Cate Wilson, Wingdale	The project, and I quote, "The project will be a new major source of air emissions." Still, it will purchase emissions offsets." It goes on	T2-5	USEPA and NYSDEC require that major sources of ozone precursors (NO <sub>x</sub> and VOC) first incorporate BACT/LAER in selecting stringent emissions control. The CVE Project has done so. However, even with low emissions that comply with

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Author	Comment	Comment Number	Response
Resident	<p>to talk about that a little bit. I think that... probably more needs to be said about what these carbon credits, these emission credits are and why they're necessary for a project that is supposed to produce minimal emissions to begin with. It seems to me that it's a fancy way of getting around the law as opposed to really ...not making air emissions... And I just think that this whole business of getting credit for what we emit, it's okay if you emit it here because we gave somebody else back something over there, is really not an appropriate way to address the problem.</p>		<p>regulatory standards, the desire to work towards a net regional emissions reduction of ozone precursors means that USEPA and NYSDEC also require projects to obtain emissions offsets prior to issuing an air permit. Emission offsets must be obtained from sources that have implemented a permanent, enforceable and quantifiable emissions reduction. The Project has secured offsets equal to 115 percent of its maximum permitted emissions of NO<sub>x</sub> and VOC from sources located in areas determined by USEPA and NYSDEC to contribute to ozone levels in Dutchess County.</p> <p>The Project will be required to comply with CSAPR, a cap-and-trade program required by the USEPA to reduce emissions of ozone season NO<sub>x</sub> (a precursor to ozone) and annual NO<sub>x</sub> and SO<sub>2</sub> (precursors to fine particulates). Under this cap-and-trade program, plants holding excess allowances will be able to sell or trade allowances to those without sufficient allowances. The number of allowances will gradually decrease, encouraging the retrofit of additional NO<sub>x</sub> and SO<sub>2</sub> controls on sources, or retirement of those plants; thereby reducing regional emissions and encouraging the development of cleaner sources of electricity. A detailed description of CSAPR is provided in Section 4.3.1.1.</p> <p>New York is also a participant in the Regional Greenhouse Gas Initiative (RGGI) a regional CO<sub>2</sub> cap-and-trade program. As such, the Project will be required to obtain CO<sub>2</sub> allowances to cover its annual emissions. Similar to other regional cap-and-trade programs, this program is intended to encourage the use of energy sources, like CVE, that are more efficient in terms of greenhouse gas emissions.</p> <p>Participation in the above cap-and-trade programs, as well as the requirement to obtain offsets in no way relieves the Project of the requirement to minimize emissions. The CVE Project will apply LAER and BACT – which are the Lowest Achievable Emission Rate technologies and Best Available Control Technology – as applicable by individual pollutant. With these controls, the Project will be</p>

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Author	Comment	Comment Number	Response
			<p>among the cleanest fossil-fuel-fired power plants ever constructed. The allowance program requirements are in addition to these emissions control requirements, not a substitute for them.</p> <p>See Section 4.3.1.4 – Regulatory Updates and Discussion (Miscellaneous Regulatory Updates for more information.</p>
Cate Wilson, Wingdale Resident	We are in a place here in this little valley where for many, many years, we've enjoyed what I can only call a pristine environment. It's completely and totally outside the normal level of places where most people live. We have a better environment than what is standard. So now we have a project that proposes to increase the...air, et cetera, emissions to a level that's within acceptable realms, but acceptable compared to somebody else's.	T2-6	In addition to requiring new projects to demonstrate compliance with NAAQS, USEPA's PSD program establishes "increments" that new projects need to comply with to ensure that in addition to meeting health-based ambient air quality standards, air quality is not allowed to degrade from existing levels that are better than standards. In order to be especially protective of air quality, worst case background air quality levels are used in the NAAQS compliance assessment.
Peter Rustenberg, Sherman, CT	...And the air comes to Connecticut. Yet Connecticut is not involved in any formal or informal way. I think that's a mistake...And large towers that emit nitric oxide, sulphuric acid, radiation, and other pollutants...also go beyond political boundaries.	T2-25	Air impact analyses conducted for the Project have included consideration of impact potential throughout the airshed, including Connecticut. Formal consultation with the Connecticut Department of Environmental Protection was an element of the air modeling protocol. See Section 4.3.3.4 – Dispersion Modeling and Compliance Demonstration (Political Boundaries) for more information. No radiation will be emitted from the proposed Project.

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<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Jim Utter, Friends of the Great Swamp	Air quality is another serious issue. Several of you raised that point. You can't burn fossil fuel without creating pollution. That doesn't happen. These things are natural products. They're not renewable, but they are natural products. And the result from putting decomposition on organic materials that have -- we know they all have nitrogens and sulfurs and all these other chemicals. When you burn them, they go someplace. So when you concentrate the burning of a fossil fuel in one place, you really have to be very careful with what you do with the air going out of it because it's going to contain pollutants.	T2-35	See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex). As discussed, detailed consideration of Project emissions has occurred, as well as a demonstration that the Project meets all regulatory requirements for air quality.
Stancy DuHamel, Wingdale Resident	... The two schools, the middle and the high school, they're within just over a mile from this plant. I mean, those are our kids; they've got to be considered. It's not for us, who have old lungs, and some of us are ex-smokers like myself, it's, you know, so that -- for the kids, they are new lungs, and they really...need the expert advice.	T3-5	See Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex). The air dispersion modeling analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population. Air quality impacts at the school complex, for all pollutants and averaging times, were determined to be insignificant.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
Mark Chipkin, Pawling Resident	...It is a serious issue...when we talk about adding more fossil -- more carbon dioxide and other types of greenhouse gases into our atmosphere, and I certainly agree that this is worth taking an extra look and having another party analyze this, because there's lots of questions that are unanswered...	T3-8	The air quality analyses undertaken were reviewed by USEPA and NYSDEC meteorologists at several points in the process. In addition, comments were received from the Town of Dover's third party consultants on the DEIS, including air quality comments from the consultant's air quality expert. Those comments are addressed in this FEIS. In addition, the Town of Dover has hired an independent air modeling expert, funded by CVE, to assist in the review of the Project by the Town Board.
Mark Chipkin, Pawling Resident	...The other thing I wanted to mention is that in taking all this water and producing all those greenhouse gases, I don't see much here in terms of what Cricket Valley Energy is giving back...And yes, I know that there'll be some -- there'll jobs created, but I don't want jobs for pollution, that's not -- that's not a good trade-off to me...	T3-10	<p>The Project incorporates significant benefits by minimizing water needs, maximizing water recycling and eliminating the need for process wastewater discharge, all of which are a financial commitment to good stewardship. In addition, through displacement of older, less efficient power plants in the region, the Project will result in a net <u>reduction</u> of over 650,000 tons per year of GHG emissions.</p> <p>The Project will remediate an abandoned industrial site, including both the Project Development Area and the former Rasco parcel. This remediation will include restoration of previously impacted wetlands on the site, which will have a positive impact on water resources.</p> <p>CVE has engaged in a wide variety of community outreach efforts (such as Advisory Working Groups, Open Houses, and newsletters) to share Project information and listen to concerns and priorities of the Dover community and its neighbors. Project design refinements and potential community benefits have resulted from these discussions; these conversations continue as CVE works with the Town of Dover Town Board to discuss components of a formal community benefits package. For example, CVE has been working with local land acquisition groups, including the Oblong Land Conservancy, to place the land west of the Metro-North rail line, approximately 79 acres, into permanent conservation. In addition, CVE continues to support the advancement of Dover's youth through a scholarship, awarded annually to a graduating Dover High</p>

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Author	Comment	Comment Number	Response
			<p>School Senior pursuing an advanced degree in engineering or environmental science. The Project will also fund and execute the cleanup of an abandoned industrial complex which currently represents a potential environmental liability.</p> <p>The Project will comply with environmental regulations intended to safeguard the environment and community. Other Project features such as jobs, taxes, and scholarships are important community benefits, but in no way are considered to be a replacement for good environmental stewardship.</p>
Chris Wood, Pawling Resident, Oblong Land Conservancy	<p>...In relation to air quality...the project will be a major, new source of air emissions, and as laymen, it will seem to us as though the air quality modeling on data obtained from Poughkeepsie Airport, something more is required. Initially, adjustments had been made for the change in topography and ground cover, but we are concerned that this modeling may not properly represent conditions in the project development area. For example, the Harlem Valley is frequently subjected to air inversions, and the Village of Pawling, being located at the lowest elevations, is likely to be subjected to the effects of this. We believe that the air dispersion models must be in developed based upon local conditions.</p>	T3-21	<p>Anemometer data from the Dutchess County airport were selected for use in the Air Quality Modeling Protocol, which was approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project's plumes will experience, given their height. Five years of hourly meteorological data were used in the modeling, including numerous hour of calm to near calm winds and thermal inversions. Topographic (terrain) conditions reflect the actual elevations of each of the 1,710 receptor locations from in and near the Harlem Valley input into the model and the surface roughness and other similar parameters input to the model reflect specific local conditions. Impacts to receptors in the valley under these conditions have been demonstrated to be negligible. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography).</p>
Chris Wood, Pawling Resident, Oblong Land	<p>...We believe that a specialist air quality firm must be engaged by the Town of Dover to review the DEIS and make specific recommendations thereof.</p>	T3-22	<p>The air quality analyses undertaken were reviewed by USEPA and NYSDEC meteorologists at several points in the process. In addition, comments were received from the Town of Dover's third party consultant on the DEIS, including air quality comments from the consultant's air quality expert. Those comments are addressed in this FEIS. The Town of Dover has also hired an additional</p>

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Conservancy			independent air modeling expert, funded by CVE, to assist in the review of the Project by the Town Board.
Tyler Davis, Dover Plains Resident	...It seems like no matter what happens, even with the best technology available, the town of Dover will take a hit when it comes to ...air quality... and to me, that's a problem, because it seems like we're not gonna benefit directly by anything, that there is some type of grid on a regional level, on a national level. What about us? If we're gonna have this huge thing in our town, I want something back.	T3-29	<p>Through displacement of older, less efficient power plants in the region, the Project will result in a net <u>reduction</u> of over 650,000 tons per year of GHG emissions. CVE has engaged in a wide variety of community outreach efforts (such as Advisory Working Groups, Open Houses, and newsletters) to share Project information and listen to concerns and priorities of the Dover community and its neighbors. Project design refinements and potential community benefits have resulted from these discussions; these conversations continue as CVE works with the Town of Dover Town Board to discuss components of a formal community benefits package.</p> <p>For example, CVE has been working with local land acquisition groups, including the Oblong Land Conservancy, to place the land west of the Metro-North rail line, approximately 79 acres, into permanent conservation. In addition, CVE continues to support the advancement of Dover's youth through a scholarship, awarded annually to a graduating Dover High School Senior pursuing an advanced degree in engineering or environmental science. The Project will also fund and execute the cleanup of an abandoned industrial complex which represents a potential environmental liability.</p> <p>The Project will comply with environmental regulations intended to safeguard the environment and community. Other Project features such as jobs, taxes, and scholarships are important community benefits, but in no way are considered to be a replacement for good environmental stewardship.</p>

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Author	Comment	Comment Number	Response
<p>Mike Purcell, Pawling Resident</p>	<p>...There were several chapters in the "Air" section, but that the studies were conducted at Dutchess County Airport...One of the things that I see, I get up early, especially in the Harlem Valley, every morning there's this – these fog rises right before dawn, and it's usually gone about 45 minutes after sunrise but it rises very high, and the thing that struck me about the data from Dutchess County Airport is that the topography over there is much different than in the Harlem Valley.</p> <p>So, I started looking at a <i>United States Geological Survey (USGS)</i> map and I noticed that in the CVE documents it says that, you know, the stack – the building -- the finished...building is gonna be around 450 feet, 440 feet, above sea level and then the stack is 282 feet, so that puts it at about 732 feet above sea level, and in the Harlem Valley we have all these hills on...East Mountain, Preston Mountain, Rattlesnake Hill, the other side, you got Sawmill Hill and Pell Lake up there on the west side and...a lot of them are about 1200 feet, so I was thinking...what's gonna happen to these emissions coming out of the stack?</p>	<p>T3-34</p>	<p>See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography). Anemometer data from the Dutchess County airport were selected for use in the Air Quality Modeling Protocol, which was thoroughly reviewed and approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project's plumes will experience, given their height. Five years of hourly meteorological data were used in the modeling, including numerous hours of calm to near calm winds and thermal inversions.</p> <p>Topographic (terrain) conditions reflect the actual elevations of each of the 1,710 receptor locations from in and near the Harlem Valley input into the model and the surface roughness and other similar parameters input to the model reflect specific local conditions. Because the exhaust plume is very buoyant due to its temperature, it will quickly rise above any fog in the area. Impacts to receptors in the valley under these conditions have been demonstrated to be negligible. Impacts at higher terrain are predicted to be higher than the valley, however, the maximum projected impacts, taking existing air quality levels and contributions from other sources into account will not cause or significantly contribute to violations of the ambient air quality standards established by USEPA and NYSDEC to protect the most sensitive individuals.</p>

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Author	Comment	Comment Number	Response
Mike Purcell, Pawling Resident	...The other thing I noticed was that the nitrogen oxide emissions exceed the EPA threshold. According to the documents, it says that 100 tons per year is NO <sub>x</sub> , they call it, nitrogen oxide, that's 100 tons per year, and it said that the potential emissions for Cricket Valley is 256 tons per year, oh, so I was wondering about that, like what would happen...	T3-35	When a project exceeds a major source threshold, it is required to be reviewed under the PSD and/or NNSR program, as applicable. In turn, this program requires: application of BACT to minimize emissions; a demonstration that the project will not cause an exceedance of the NAAQS; a demonstration that the project will not degrade air quality that currently meets standards (PSD "increments"); a demonstration that the project will not adversely affect sensitive soils or vegetation; a demonstration that the project will not adversely affect air quality related values at the nearest designated pristine (Class 1) area; an assessment of indirect secondary growth impacts; and a demonstration that the project will not significantly and disproportionately impact designated environmental justice communities. These analyses have been completed for the CVE Project and were described in Section 4 of the DEIS. Based upon CVE's compliance with these requirements, NYSDEC has issued the draft PSD Permit.
Mike Purcell, Pawling Resident	...Then I was thinking, well, how high is the plume coming out of the stack, so I found out that the middle of the plume is about 500 feet above the stack, so that's at, roughly, 1,200 feet, but, you know, most of the winds are usually blowing west to east, southwest to northeast, sometimes they come out to northwest. Up on that east ridge, when I'm working up there a lot of times, you'll see that it's colder up there and that the wind comes out of the north a lot, so I was wondering what impact that's gonna have on the emissions, because it seems to me that anything that's in the Hudson Valley just gets blown into those summits up there up on	T3-36	See the response to Comment No. T3-34 and Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography). Elevations of the ridge tops west and east of the Project's stacks were input to the air quality model, which specifically accounts for terrain that is above plume height. The maximum air quality impacts reflected in the DEIS, which fully comply with all health-based standards, specifically accounted for this terrain.

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Author	Comment	Comment Number	Response
	East Mountain.		
Mike Purcell, Pawling Resident	<p>...I found out more about nitrogen oxide, is that nitrogen in the atmosphere is very abundant, it's...the most abundant gas in the atmosphere, and that it's also a form of pollution.</p> <p>So, I read this document called "Nitrogen Pollution in the Northeastern United States" and it talked about sources and management options, and one of the reasons that Long Island Sound's got problems is nitrogen pollution, and that 15 to 25 percent of that comes out of the atmosphere from power plants. So, you know, if we have this added emissions in the Harlem Valley, what's that gonna do to our watershed... if the nitrogen readily absorbs to water vapor? So, if you have fog or if you have some instance where it's raining or it's precipitation or clouds, this stuff can adhere to the water molecules and it stays in the water, it doesn't really reabsorb into the ground too well, but it does get into the streams and waterways. And once nitrogen's in there it's like a nutrient, so you get algae growing and things like that and then you have problems with the...fish and wildlife, too much nitrogen in your drinking water, you get those problems. So, I was wondering about that and like what has</p>	T3-37	<p>In accordance with the New York State Acid Deposition Control Act, a "Source Specific Acidic Deposition Impacts" analysis was conducted to provide quantification of the Project's contribution to the New York State total deposition of sulfates and nitrates at 18 defined receptors in New York State, New England, and Canada. The DEIS included analyses of impacts of Project emissions on sensitive vegetation and soils as well as contributions to acid deposition and ambient concentrations of NO<sub>2</sub>. The analyses concluded that the Project's impacts would not have a significant impact on sensitive natural resources.</p> <p>Further, by displacing regional emissions of NO<sub>x</sub> from older, higher emitting generators, as well as directly offsetting 115 percent of the Project's NO<sub>x</sub> emissions, nitrogen deposition to Long Island Sound will decrease.</p> <p>See Section 4.3.4.2 – Additional Impact Analysis (Acid and Nitrogen Deposition) and the response to Comment No. 19-8.</p> <p>As discussed in Section 5 – Water Resources of the FEIS, CVE has committed to install a stream gauging station downstream of the Project on the Swamp River, which will be capable of monitoring water quality.</p>

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Author	Comment	Comment Number	Response
	<p>Cricket Valley done or what are they gonna do about monitoring that, because I looked at where their monitoring stations are, there's one in Torrington, Connecticut, at a wastewater treatment plant, and there's one up in Cornwall, Connecticut, Cornwall Hill, and... that doesn't really tell me what's happening...in Dover, in Amenia, in Pawling, so I was... wondering why wasn't that addressed in the DEIS.</p> <p>You know, this is our town, it's our neighborhood, yet it's...impacted by nitrogen. ...There's gotta be a solution. So, I thought, well, why not test the water as it is now in these headwater systems, because there's...supposed to be swamps and stuff up on top of West Mountain, East Mountain, the lakes and rivers. That's what really supplies our aquifers. As the rain comes down to the top of these mountains and drains down to the valley bottom, it recharges our drinking water, it's part of that system, so you might want to know what you have now before you do anything else, and then, you know, moving on, you can test it.</p> <p>So, there has been some testing done like that. I was part of a study that checked the macroinvertebrate communities in the</p>		

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	Swamp River Watershed, and two of the sites found acid depositions, which could be from, you know, who knows what, but most likely from acid rain, which is caused by nitrogen oxide, so it might be something to keep looking at.		
Mike Purcell, Pawling Resident	...I don't know how many [studies] Cricket Valley's done in the field here, and there's probably plenty they could do by monitoring...air, you can maybe get some baseline studies to see...what's out there, because...the Harlem Valley's a real special place...	T3-39	CVE worked closely with the public and agencies to define appropriate scopes of study for the Project, and has documented findings in the DEIS. It is correct that each site has unique attributes that must be considered; it is also the case that this site presents a unique opportunity to construct and operate the Project within the existing developed footprint of an abandoned industrial complex. Air quality monitoring is addressed in more detail in response to Comment No. T3-37.
Alan Surman, Dutchess County Legislator	...my major concern is the height of the smokestacks, just to make sure that this gets high enough for its expulsion, and if they take care of that, I think that'll pretty much answer most of your concerns.	T3-42	See response to Comment No. T1-5 regarding Good Engineering Practice stack height and plume dispersion.
Manna Jo Green, Environmental Director for Hudson River Sloop Clearwater	The problem with fossil fuel is that it does generate greenhouse gases, so we not only have a dangerous situation in terms of nuclear power, an aging, really seriously deteriorating facility...but there is a very real danger of global warming and sea level rise is predicted within this century to be anywhere from four to six feet depending on how fast things melt and...how quickly the temperature rises.	T3-61	The proposed Project will generate greenhouse gases; CO <sub>2</sub> will be the predominant GHG emitted from the Project. However, CO <sub>2</sub> permit levels proposed by the Project are among the lowest permit levels ever issued for a power plant in the U.S. Emissions of VOCs (expressed as methane) and nitrous oxide (N <sub>2</sub> O) are considered negligible when compared to total CO <sub>2</sub> emissions, and would not be considered significant to climate change issues. In addition, these compounds are also controlled, to varying degrees, by the SCR system and the oxidation catalyst. Further, through displacement of the operation of existing less efficient units, this Project will reduce regional GHG emissions.

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Author	Comment	Comment Number	Response
Manna Jo Green, Environmental Director for Hudson River Sloop Clearwater	And I also just want to mention one other thing and it has to do with what we call environmental justice. The plant in Astoria is a fossil-fuel plant and it's in a very, very densely populated area. The other issue that Entergy has raised that we disagree with but -- is that if Indian Point closes, that more gas-fired peaker plants will be burning in inner cities, so that's gonna put the pollution rate in areas that have very high asthma rates, in children and elderly, you know, that could raise that if that were the alternative, so people are thinking that this is a cleaner alternative, and that is not to minimize the air impacts on your community, and that's what, you know, we'd like to help you to minimize.	T3-63	One of the Project's air permit application requirements was to demonstrate compliance with Environmental Justice criteria, including ensuring that the Project would not significantly nor disproportionately impact any qualifying Environmental Justice community. The Project has demonstrated compliance with this provision. Further information on Environmental Justice communities is included in Section 6.7.4 of the DEIS.
Jill Way, Dover Resident	It is truly hard to balance economic development and environmental protection, and I'm here really to ask for one thing, that through maybe a collaborative arrangement or mutual agreement the Applicant and the Lead Agent could agree to extend the August 1 deadline for the Town Board to make comment so that the Town Board would then have the time to consider and retain an expert on air quality.  While I know that we have a Town Engineer and some other experts, I don't believe that we have an expert who can actually take a	T3-65	CVE provided funding to the Town of Dover to allow for independent consulting review of the DEIS and for a review of the environmental impacts related to air quality. The Town of Dover selected AKRF (the Town Planner) and Berger Engineering (the Town Engineer) for independent review of the DEIS and Dr. Bruce Egan, to supplement the existing expertise for a review of the environmental impacts related to air quality.

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Author	Comment	Comment Number	Response
	hard look at the particular geography and the air quality impacts in the Harlem Valley using a modeling – modeling data or data from western Dutchess County is not the same, and other folks have spoken about that, so I'm not gonna go over it, I think we all get the concept. And so, please, Town Board, would you consider hiring this air quality expert.		
Lydia Odunsi, Wingdale Resident	... this here gentleman...said this plant would decrease carbon dioxide -- I'd like you to explain to us how you come to that scientific decision, because we haven't had no decrease in carbon dioxide in New York for the past -- I can't say -- 10, 15 years ago, we've been having increase because of the cars, the emissions, so if you can give us a little -- brief notes about how you come to that scientific decision that the carbon dioxide will decrease, because if we have the scientific solution for decrease the carbon dioxide in the air, there would be no asthma, no all this new sickness now that everybody faces, and we can use that technology, too, for different departments so that we can be able to breathe in fresh air. That's why now we're planting more trees, to get more oxygen, if I'm right, you know.	T3-67	<p>The Project will be more efficient and lower emitting than even the cleanest existing fossil fuel-fired power plants in New York. CO<sub>2</sub> permit levels proposed by the Project are among the lowest permit levels ever issued for a power plant in the U.S. Further, as demonstrated by the displacement analysis in Appendix 1-A of the DEIS (and summarized in Section 4.3.6), it will result in a net reduction of over 650,000 tpy of CO<sub>2</sub> emissions through displacement of the operation of existing less efficient and higher emitting power plants.</p> <p>The cumulative air quality modeling analysis included consideration of the maximum permitted emission levels from existing point sources in the valley and demonstrated that the Project, in combination with other existing sources and existing background air quality levels, will fully comply with NAAQS and NYAAQS set to be protective of the health of the most sensitive individuals, and will not appreciably degrade existing air quality.</p>

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
Jessica Wade, Dover Resident	<p>In a recent report from the Lung Association in 2011, they stated that the Hudson Valley's air quality is stagnant and there has been no improvement in it and that it failed for the ozone and particular pollution.</p> <p>...I don't feel comfortable just having a plant in an area where there is no wind and the nitrous oxide and methane and carbon dioxide that's constantly being pumped every day is in our air and not lingering on somewhere else and we're there breathing all of those emissions in every day and it's not going anywhere. So, after years of that, and this plant is supposed to go on for 40 years, after years of that, how is it going to affect us? Well, I, for one, don't like the idea of my mom and dad and grandmother having to stay behind and breathing in those pollutants and possibly developing lung cancer, it's a decrease in your lung function, and I don't want my community members to have to go through that as well. I'm moving out and I don't have to deal with this, but I still care.</p>	T3-68	<p>As discussed in the responses to similar comments above, the air modeling dispersion analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for more information.</p>

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
<p>Alex Ackerman, Wingdale Resident</p>	<p>...I lived in The Bronx for 30 years of my life. I moved up here...to get away from the pollution and everything else. And you're saying how if they don't build it here, it'll be more pollution in Queens or wherever it may be, well, that's why I take a two-hour ride and invest my time and my energy, so they [my family] don't have to breathe that air...</p> <p>...Having my children what, a half a mile, a quarter a mile away, from stacks that are emitting God knows what, having them breathe that, that's exactly the reason I moved away from The Bronx, that's why they're here, so they could breathe good, clean fresh air.</p>	<p>T3-71</p>	<p>The air modeling dispersion analysis demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS which have been established by the USEPA and NYSDEC, respectively, to ensure the protection of the health of the most sensitive segments of the population.</p>
<p>Ashley Ley, AKRF</p>	<p>I understand that there have been a lot of questions about air quality. We do have professionals who are experts in air quality on our staff that will take a look at the chapter and that have been reviewing the chapter...</p>	<p>T3-75</p>	<p>We are in receipt of all comments from the Town Planner (AKRF) and have responded to those comments, which relate to air, water, land use, and community character, as part of this FEIS.</p>
<p>Chris Galayda, Town Board</p>	<p>... something I have said from the beginning in all the workshops that I attended is that there should be an air monitoring station in Dover...Now, if they put it at the school, if they had an air monitoring service in Dover and put it in the school, it would benefit the state because they would get much more accurate models, it would benefit the county,</p>	<p>T3-79</p>	<p>An air monitoring station at the Dover High School campus is discussed further in Section 4.3.3.3 – Dispersion Modeling and Compliance Demonstration (Air Quality, Public Health, and the School Complex). Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken.</p>

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
	okay, because they would also get much more accurate models. If they put it at the school...the school could run a program and teach these children how to monitor the air quality...		
Chris Galayda, Town Board	The other thing is -- I'm not a fan of, is carbon credits. You're basically buying the right to pollute; you know, you're basically saying, we'll pay for somebody else not to pollute somewhere else so that we can pollute here, and that's something that I'm not completely a fan of, you know, so I think that all the data in the DEIS should be answered to not include any kind of – you know, numbers can look however you want numbers to look like, but they should not reflect any type of difference based on carbon credits.	T3-80	The Project will be more efficient and lower emitting than even the cleanest existing fossil fuel-fired power plants in New York. CO <sub>2</sub> permit levels proposed by the Project are among the lowest permit levels ever issued for a power plant in the U.S. New York is a participant in the Regional Greenhouse Gas Initiative, a carbon cap-and-trade program that aims to reduce regional GHG emissions through market-based incentives. In compliance with that program, CVE will need to obtain one CO <sub>2</sub> allowance for each ton emitted. The regional GHG reductions forecast by the economic dispatch analysis do not rely on allowances, they are forecast actual reductions in GHG emissions based on the reduced operation of less efficient plants that will result from the introduction of a superior, lower emitting power plant into the grid. Further, participation in this cap-and-trade program is mandatory, and it in no way relieves the facility from meeting any emissions standards or requirements, including demonstration of BACT for greenhouse gas emissions, as well as NYSDEC's newly promulgated new source performance standard for CO <sub>2</sub> emissions. See Section 4.3.6 – Emissions Displacement and the response to Comment No. T2-5 for further detail regarding displacement.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
Stancy DuHamel, Wingdale Resident	...we could ask them to size the project so that they're not going over...emissions thresholds...That's what an expert would be able to tell you, at what point does the size bring emissions ... down to our acceptable levels. I don't want to rely on AKRF for that. I want an air quality expert to come in and tell us what those air quality levels are and how the plant can meet those levels.	T3-86	The NYSDEC and USEPA, both governmental agencies with a mission to protect the public health and the environment, have concluded that emissions are at acceptable levels to protect the health of the most sensitive members of the population. CVE provided funding to the Town of Dover to allow for independent consulting review of the DEIS and for a review of the environmental impacts related to air quality. The Town of Dover selected AKRF (the Town Planner) and Berger Engineering (the Town Engineer) for independent review of the DEIS and Dr. Bruce Egan, to supplement the existing expertise for a review of the environmental impacts related to air quality.
Stancy DuHamel, Wingdale Resident	... mitigation is cheaper and more effective than remediation. And who's gonna enforce it? The DEC, the DEC that allowed Rasco's predecessor to leave junk all over that property and then bring in another contaminated soil project over our aquifer. We don't want to rely on DEC to be enforcing excess emissions ... or anything like that. I want us to meet our standards before that point goes up.	T3-87	The Project has incorporated substantial mitigation through use of careful siting and design features, as well as preservation, clean-up, restoration and wetland creation activities, including clean-up of the former Rasco parcel. CVE intends to carefully monitor compliance with all regulations. Project emissions will be continuously monitored and reported to NYSDEC which shares enforcement responsibility with USEPA.
Jurgen Wekerle, Sierra Club	You're not gonna be able to mitigate the air quality issues, not on this region, not on the structure, and definitely not on Connecticut downwind.	T3-93	Air impact analyses conducted for the Project have included consideration of impact potential throughout the airshed, including Connecticut. The analyses demonstrated that the proposed Project, taking existing air quality levels and the contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Gary Napp, EnviroMet	...on p. 23 of the Air State Facility Permit, DEC lists a heat rate of 7,605 Btu/kWh on a Lower Heating Value (LHV) basis. The applicant should confirm that this is correct and that the value is not on a Higher Heating Value (HHV) basis. In their draft EIS they had the value but did not list the basis.	RAP-1	The heat rate limit of 7,605 Btu/kWh is based on Lower Heating Value (LHV).
Suilin Chan, U.S. Environmental Protection Agency	My question is why the facility is only required to conduct a thermal efficiency test on just one of the three combustion turbines annually, and not all three. Is there a specific reason for monitoring just one of the three turbines? Would testing one turbine per year yield sufficient and reliable data that are representative of the other 2 turbines?	RAP-2	The thermal efficiency between the three identical turbines is not expected to vary, such that annually testing one of the three on a rotating basis, ensuring that each turbine is tested once every three years, will be sufficient. The plant will also monitor and record parametric data (fuel use and electricity output) on an hourly, daily and monthly basis that would detect any abnormal degradation in heat rate.
Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents	Air quality remains a big concern for me due to the fact that we reside in a very narrow valley with large mountains surrounding us on the east and west resulting in frequent air inversions. Attached is an eye witness account from an experienced hang glider, Jim Wise, who detailed the air quality conditions and air inversions in March 1988 when at that time the Town of Dover was targeted for a burn plant. I don't think the air inversions in our valley have drastically changed or mysteriously disappeared since that time.	RAP-3	Anemometer data from the Dutchess County Airport (Wappinger Falls) were selected for use in the Air Quality Modeling Protocol, which was approved by USEPA and NYSDEC, because those data were collected at a location in a similarly oriented north-south valley that closely matches the degree of terrain channeling that the Project's plumes will experience, given their height. The meteorological data used in the modeling represents five years of hourly observations. Within this data set are numerous periods of calm to near calm conditions with thermal inversions. The modeling analysis specifically accounted for the terrain associated with the mountains on either side of the valley. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography) for more information. CVE's air modeling results, carefully reviewed and approved by NYSDEC and USEPA, show that the Project will not cause or significantly contribute to violations of ambient air quality standards.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents	Dover, being a poorer and economically challenged community of Dutchess County, still appears to be targeted and attract more polluting uses. It still reminds me of what has happened in poor communities in the Bronx and New York City and the resulting health problems and high asthmatic rates among children of those communities.	RAP-4	The Project site was selected to take advantage of the opportunity to restore an abandoned industrial facility to productive use in a manner consistent with the site’s zoning and the community’s land use planning objectives. As discussed in Section 4.5.7.3 of the DEIS, the Project will not have a significant adverse or disproportionate impact on any economically disadvantaged (environmental justice) community. Further, the results of the modeling analyses, which were thoroughly reviewed and approved by USEPA and NYSDEC, demonstrate that the Project will fully comply with NAAQS and NYAAQS that were established to protect the health of the most sensitive individuals, including asthmatics.
Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents	<p>You cannot compare air quality at Ninham Mountain in Putnam County in the Hudson Valley or Thomaston (which I never even heard of) to our small valley in Harlem Valley. We are separated by mountains and Ninham is not even near Dover. I must keep repeating Dover is in a narrow valley contained on the east and on the west by high mountains.</p> <p>You need to obtain current and accurate information as to air quality in the Harlem Valley. You need a benchmark. How can you possibly accurately evaluate and compare the air quality once the plant begins operations.</p>	RAP-5	Existing ambient air quality data were obtained from a network of air quality monitors surrounding the site that is operated by NYSDEC and the Connecticut Department of Environmental Protection (see Figure 4-3 of the DEIS). These locations and monitoring data were carefully considered by USEPA and NYSDEC when they approved the data as a conservative representation of baseline regional air quality. See Section 4.3.3.1 – Dispersion Modeling and Compliance Demonstration (Meteorology and Topography). The modeling analysis itself was based upon the topography in Dover and specifically accounted for the terrain associated with the mountains on either side of the valley and other specific land use and cover related parameters.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

<b>Author</b>	<b>Comment</b>	<b>Comment Number</b>	<b>Response</b>
Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents	Also, what can be done about the air quality at that time if it is shown to be drastically more polluting? It is highly unlikely that the plant will be shut down once constructed. DEC just issues permits.	RAP-6	Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Monitoring data are reported to NYSDEC. NYSDEC must be immediately notified in the event of any exceedance of a permitted emission limit. Any plant upset that would cause emissions to approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken, as required by law.
Evelyn Chiarito and Joseph Chiarito, Dover Plains Residents	Credits from other locations that have cut down on their emissions cannot possibly reduce our more polluted air. It just doesn't make any sense. Poor air quality is such a serious health impacting issue.	RAP-7	The Project's requirement to obtain emissions offsets (Emissions Reduction Credits) relates to the nonattainment status of the entire northeast U.S. with respect to the NAAQS for ozone (smog). Smog forms in the atmosphere as a chemical reaction involving NO <sub>x</sub> and VOC in the presence of strong sunlight. It is a regional pollutant in that NO <sub>x</sub> and VOC emissions that influence ozone concentrations in Dover are emitted from sources well upwind of the area. Conversely, NO <sub>x</sub> and VOC emissions in Dover will influence ozone formation well downwind. To mitigate for its NO <sub>x</sub> and VOC emissions, in addition to applying LAER technology for NO <sub>x</sub> and VOC emissions, the Project has secured offsets of these pollutants equal to 115 percent of its maximum permitted annual emissions from locations determined by NYSDEC and USEPA to contribute to ozone levels in Dutchess County.

**Table 4-1 Responses to Comments on the DEIS Regarding Air Quality**

Author	Comment	Comment Number	Response
Fred Sellars, ARCADIS	<p>We have a few minor comments on the re-noticed draft air permit below.</p> <ol style="list-style-type: none"> <li>1. Item 21.2. Please check the CO<sub>2</sub> test method. Shouldn't it be Method 3A instead of Method 7E?</li> <li>2. Items 26.2, 30.2 and 31.2. The PM lbs/MMBtu values for duct firing and non-duct firing both appear as 0.006 lb/MMBtu. We believe you meant 0.005 lb/MMBtu for no duct firing and 0.006 lb/MMBtu for duct firing. The permit should also note that the lb/MMBtu values reflect Higher Heating Value (HHV) and ISO conditions.</li> <li>3. Item 75.2. The ammonia limit of 5 ppmvd should note that this value is @ 15% O<sub>2</sub>.</li> </ol>	RAP-8	<p>These comments relate to minor corrections and clarifications to specific permit language, which will be addressed by the NYSDEC in the final air permit.</p>

#### 4.3.1 Regulatory Updates and Discussion

##### *4.3.1.1 Cross-State Air Pollution Rule*

On March 10, 2005, USEPA issued the Clean Air Interstate Rule (CAIR), which requires reductions in emissions of NO<sub>x</sub> and SO<sub>2</sub> from large fossil fuel-fired electric generating units using a cap-and-trade system. CAIR provides both annual emissions budgets and ozone season emission budgets, depending on the state. On July 11, 2008, the U.S. Court of Appeals for the D.C. Circuit (the Court) issued an opinion vacating and remanding CAIR. However, on December 23, 2008, the Court granted rehearing only to the extent that it remanded CAIR to USEPA without vacating it. The December 23, 2008 ruling left CAIR in place until the USEPA issued a new rule to replace CAIR in accordance with the July 11, 2008 provisions. On July 6, 2011, the USEPA issued the Cross-State Air Pollution Rule (CSAPR) which replaces CAIR. Under CSAPR, New York is still required to implement provisions for annual NO<sub>x</sub> and SO<sub>2</sub> emissions and ozone season NO<sub>x</sub> emissions.

As described in Section 4.1 of the DEIS, Title 6 of NYCRR Parts 243, 244 and 245 establish New York's CAIR programs. New York has not yet updated its rules and regulations to respond to the new CSAPR. In the interim, the Project will be required to comply with the existing provisions under the New York CAIR program. It is anticipated that the requirements for a new facility under CSAPR will be similar to those under the CAIR program.

Under CSAPR, the Project will be required to obtain NO<sub>x</sub> and SO<sub>2</sub> allowances which will be allocated to sources by NYSDEC. Under this cap-and-trade program, plants holding excess allowances will be able to sell or trade allowances to those without sufficient allowances. The number of allowances will gradually decrease, encouraging the retrofit of additional NO<sub>x</sub> and SO<sub>2</sub> controls on sources, or retirement of those plants; thereby reducing regional emissions and encouraging the development of cleaner sources of electricity. NYSDEC is in the process of promulgating CSAPR regulations with which the Project will comply.

As quantified in Appendix 1-A of the DEIS, by displacing the operation of older, less efficient and higher emitting electric generating units, the Project will help New York achieve substantial reductions in regional NO<sub>x</sub> and SO<sub>2</sub> emissions and help the state's compliance with CSAPR.

##### *4.3.1.2 Fine Particulate Matter*

NYSDEC guidance document CP-33, Assessing and Mitigating Impacts of Fine Particulate Matter, provides interim direction for evaluating the impacts of fine particulate matter

emissions from proposed facilities. Documentation from NYSDEC indicates that this policy shall apply until the PM<sub>2.5</sub> NAAQS are fully implemented in the State of New York. The PM<sub>2.5</sub> NAAQS have been fully implemented, and, therefore, more recent guidance takes precedence. In addition, the current guidance for modeling of PM<sub>2.5</sub>, and the approach taken in the Air Dispersion Modeling Analysis, meets or exceeds the requirements under CP-33. The Project has demonstrated compliance with the PM<sub>2.5</sub> NAAQS.

#### *4.3.1.3 PSD Permit*

As presented in Section 4.1 of the DEIS, the proposed Project has the potential to emit PM<sub>10</sub> and PM<sub>2.5</sub>. Generally, PM emitted from natural gas combustion has a diameter less than or equal to 2.5 microns, and would therefore be designated as both PM<sub>10</sub> and PM<sub>2.5</sub>. As such, estimated emissions and the associated air quality dispersion modeling analysis presented in the DEIS for PM<sub>10</sub> and PM<sub>2.5</sub> would also apply to PM. The NYSDEC has incorporated a total PM emission limit into the revised draft air permit.

The USEPA has provided proposed language for incorporating the greenhouse gas emission limits proposed in the DEIS into the PSD permit. The NYSDEC revised and re-noticed the Draft PSD permit in December 2011, incorporating greenhouse gas emissions limits and emission reduction credit (ERC) requirements.

#### *4.3.1.4 Miscellaneous Regulatory Updates*

In response to comments suggesting updates to the regulatory descriptions provided in Section 4 of the DEIS, CVE provides the following:

- Section 4.1.2.4 of the DEIS provides the requirement that sources regulated under PSD permits must be in compliance with the Endangered Species Act of 1973. Pursuant to this requirement, Appendix 4-A of the DEIS provides copies of correspondence with USFWS. In addition, Section 3.0 of the DEIS provides a detailed description of the natural resources within the CVE Project Development Area and surrounding Property, including wetland resources, vegetative communities, wildlife habitat, and protected species.

- Table 4-1 of the DEIS has been updated to reflect the recent revocation of the 3-hour and 24-hour primary SO<sub>2</sub> standards by the USEPA. The updated table is provided in Appendix 4-A. Because the 3-hour and 24-hour NYAAQS are still in effect, the air dispersion modeling analysis also includes these averaging periods.
- As stated in Section 4.1.2 of the DEIS, the USEPA has implemented the tailoring rule, which incorporates GHG emissions into the PSD permitting program. The first phase of the rule, which began on January 2, 2011, required that new facilities already subject to PSD due to other pollutant's emissions, and emitting greater than 75,000 tpy of CO<sub>2</sub> equivalents, include GHG emissions in their PSD permits. The second phase, which began in July 1, 2011, required that new facilities emitting greater than 100,000 tpy of CO<sub>2</sub> equivalents obtain a PSD permit for those emissions.
- On July 12, 2012, NYSDEC adopted new regulations (6 NYCRR Part 251) establishing CO<sub>2</sub> emissions standards for new major electric generating facilities. The new regulations require new facilities to meet CO<sub>2</sub> limits (based on a 12-month rolling average) of either 925 lb of CO<sub>2</sub> per megawatt-hour gross electrical output or 120 lb of CO<sub>2</sub> per MMBtu of input. The Project will fully comply with this standard.
- Because the proposed Project is comprised of electricity generating units, it will be subject to the provisions of the Mandatory Reporting Rule under 40 CFR Part 98. This rule requires reporting of GHGs data and other relevant information from large sources and suppliers in the United States.
- 6 NYCRR Part 227 sets Reasonably Available Control Technology (RACT) limits for emission sources. In addition to setting limits for NO<sub>x</sub>, this regulation also sets a maximum PM emissions limit of 0.1 lb/MMBtu for large stationary combustion sources with a maximum heat input greater than 250 million British thermal units per hour (MMBtu/hr). The proposed Project is in compliance with this limit.

Tables 4-30 and 4-31 of the DEIS provide maximum annual and short-term impacts of non-criteria pollutants for comparison to NYSDEC guideline concentrations. These tables have been updated to reflect the most recently published guideline concentrations from October 2010. The annual guideline concentrations (AGC) for acrolein, barium and chromium have been updated. The short term guideline concentrations (SGC) for acrolein, beryllium and mercury have been updated. Predicted impacts of non-criteria pollutants are all below the guideline concentrations. Updated versions of Tables 4-30 and 4-31 from the DEIS are provided in Appendix 4-A.

The proposed Project is a major source of NO<sub>x</sub> and VOC, both precursors to ozone, which is a nonattainment pollutant. A major source in a designated nonattainment area is required to obtain emissions offsets in an amount equal to 1.15 times its potential emission rate. For the proposed Project, potential emissions of NO<sub>x</sub> and VOC are 279.4 tpy and 118.1 tpy, respectively. As such, the Project is required to purchase 321.3 tpy of NO<sub>x</sub> offsets and 135.8 tpy of VOC offsets. Emissions offsets have been obtained from existing sources located in the same nonattainment area as the proposed source or in an adjacent “upwind” nonattainment area whose emissions have been demonstrated to contribute to nonattainment in the area within which the proposed source is located. These offsets were obtained from existing sources that have shut down and agreed to a permanent, enforceable, quantifiable and surplus emissions reduction. The offsets have been certified by the NYSDEC.

#### 4.3.2 Control Technology Assessment

##### 4.3.2.1 CO Emissions

CO air quality impacts from the entire Project, including the auxiliary boiler, are insignificant. Section 4.3 of the DEIS provided a BACT analysis for CO from the combustion turbines, auxiliary boiler and emergency engines. It was determined that CO BACT for the auxiliary boiler was utilization of good combustion practices to achieve an emission limit of 0.037 lb/MMBtu, resulting in a potential emission rate of 5.06 tpy. Installation of a CO catalyst to further control this low level of emissions is not considered cost effective because of the limited annual hours of operation of the auxiliary boiler. Generally, an oxidation catalyst for this type of equipment would cost approximately \$500,000 in capital cost. Not including annual operating costs, the annualized cost is approximately \$71,200, assuming a 10 year equipment life and 7 percent interest rate. The resulting cost to control is \$14,100 per ton of CO removed, which is not considered cost effective given the very low CO emission rate and insignificant air quality impact. As described in the DEIS, utilization of good combustion control as BACT is consistent with other determinations as provided in the RACT/BACT/LAER Clearinghouse.

##### 4.3.2.2 NO<sub>x</sub> Emissions

Section 4.3 of the DEIS provided a BACT/LAER analysis for NO<sub>x</sub> from the combustion turbines, auxiliary boiler and emergency engines. It was determined that BACT/LAER for NO<sub>x</sub> from the combustion turbines was use of dry low NO<sub>x</sub> burners in combination with SCR to achieve an emission limit of 2 parts per million by volume (ppm<sub>v</sub>) at 15 percent oxygen, with and without duct burning. The BACT/LAER analysis indicates that SCR is a commercially available and effective means for controlling NO<sub>x</sub> for combined cycle combustion turbines of

this size. A commenter suggested that SCONO<sub>x</sub> would also be a viable alternative for controlling NO<sub>x</sub> emissions. SCONO<sub>x</sub> is a technology that utilizes catalytic oxidation to oxidize NO<sub>x</sub> to nitrogen dioxide (NO<sub>2</sub>), which is then absorbed on the treated surface of the SCONO<sub>x</sub> catalyst. While this technology has been used for smaller scale facilities, with limited success, it has never been commercially demonstrated for a combined cycle facility the size of the CVE Project. In addition, vendor literature suggests that SCONO<sub>x</sub> would achieve a NO<sub>x</sub> emission rate of 2 ppm<sub>v</sub> at 15 percent oxygen, which is the same as the level achieved with SCR. For these reasons, SCR was presented as the top choice for control of NO<sub>x</sub> emissions from an F-series combined cycle turbine such as that proposed.

#### 4.3.3 Dispersion Modeling and Compliance Demonstration

##### 4.3.3.1 Meteorology and Topography

The Project Development Area is located along Route 22 south of Dover Furnace Road, Dover, New York, in the Ten Mile River Valley. The valley is about 5 km (3 miles) wide and oriented north-south, with a ridge of elevated terrain rising steeply within 1.5 km west of the Project Development Area, including Bald Mountain (1,266 feet above mean sea level [msl]), West Mountain (1,286 feet msl), and Dobar Mountain (1,086 feet msl) and a parallel ridge beginning almost 4 km east-northeast of the Project Development Area, including Schaghticoke Mountain (1,325 feet msl) and continuing to the north.

Compared to the surrounding area, near surface winds in this terrain setting would be channeled along the valley, toward north-south transport directions. Winds at the valley floor would not be representative of those experienced at plume height. Winds at plume height would be less constrained by topography, since the valley is wider and open in more directions at 500 to 1,000 feet above the valley floor. The valley topography is illustrated in Figure 1-1 of the DEIS.

For these reasons, meteorological data from the National Weather Service Station at the Dutchess County airport were proposed as modeling inputs in the Air Quality Modeling Protocol, which was approved by USEPA and NYSDEC. The anemometer at Dutchess County Airport is also located within a north-south valley, which closely matches the degree of terrain channeling that the Project's plumes will experience, given their height.

Impacts from the CVE Project were predicted at every receptor for every hour for a five-year modeling period (2005-2009), representing a total of 43,824 hours. This meteorological data set spans the full range of dispersion conditions (wind direction, wind speed, time of day) that

would be encountered at the site, including stable (inversion) conditions and conditions with very low wind speeds.

It is interesting to note that the maximum predicted impacts occur during periods of moderate to high wind speeds from the east, resulting in the location of maximum predicted impact to be located in uninhabited areas at the top of the ridge to the west of the Project's stacks (the area near West Mountain). AERMOD predicts much lower impacts at receptors in the valley under all meteorological conditions. Several periods of very low wind speeds from the north or south, especially during calm nighttime conditions, are included in the meteorological data set used in the modeling. During those conditions, impacts to receptors within the valley, including the High School, were found to be negligible. Meteorological inputs using near surface winds measured in the valley would have lower wind speeds and more channeling by local topography, compared to winds measured at the airport. Using near-surface winds measured in the valley as AERMOD inputs, instead of data measured at the airport, would most likely have eliminated the highest impacts predicted in the modeling analysis.

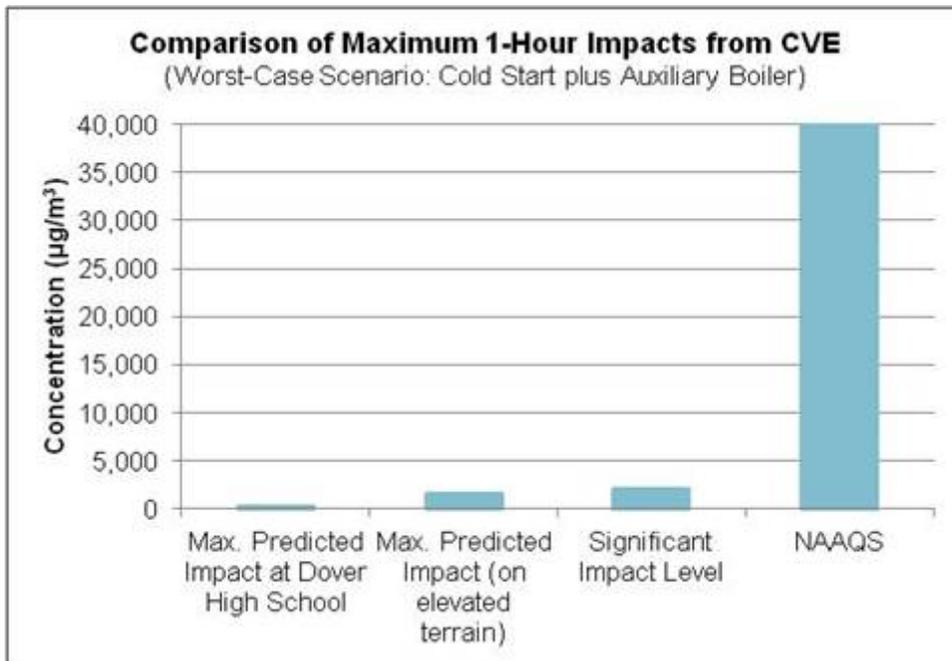
The operating scenarios that yielded the highest predicted impacts for each pollutant and averaging time were identified in Section 4.5 of the DEIS. The maximum predicted impacts for any modeled year from these scenarios were evaluated relative to Significant Impact Levels (SILs) to determine whether cumulative interactive modeling was warranted for any pollutant. The maximum predicted impacts for the Project (including ancillary sources) are provided in Table 4-21 of the DEIS. Table 4-21 of the DEIS also presents the turbine operating scenario and year of meteorological data that resulted in the worst-case predicted impact. (As indicated in Table 4-21, for 1-hour average SO<sub>2</sub> and NO<sub>2</sub>, and for 24-hour and annual average PM<sub>2.5</sub>, USEPA guidance [USEPA 2010a, USEPA 2010b, and USEPA 2010d] recommends that significant impacts be evaluated by averaging the maximum impacts for the five years of meteorological data. As such, the maximum values predicted for each year at each receptor were averaged, and the highest of these 5-year average maximum values is reported.)

The highest predicted impacts from the Project occur at higher terrain elevations. AERMOD predicted much lower impacts at receptors in the valley, including Dover High School. Figure 4-1 compares the maximum 1-hour average impact for CO predicted at Dover High School to the maximum impact predicted on elevated terrain. These results indicate clearly that AERMOD predicts very low impacts at the High School; predicted maximum impacts are similarly low for all receptors along the valley floor.

For the air dispersion modeling analysis, a receptor grid consisting of 1,710 receptors contained within five nested (overlapping) Cartesian grids was used out to a distance of 8 km

from the stacks. For cumulative air quality modeling for 1-hour NO<sub>2</sub>, the outer grid was extended to a distance of 30 km from the Project. This area extends west to the Hudson River and east about 20 km into Connecticut.

Receptor elevations were assigned using the USEPA's AERMAP software tool (version 06341; USEPA, 2004b), which is designed to extract elevations from USGS National Elevation Dataset (NED) data at 1/3 arc second resolution in GeoTIFF format (USGS, 2002). This represents the highest resolution digital terrain data available from the USGS.



**Figure 4-1. Comparison of Maximum 1-hour Impacts from the Project at Dover High School and at Maximum Receptor (Worst-Case Scenario: Cold Start plus Auxiliary Boiler)**

Surveyed topographic information was available for the Project Development Area. The developed base elevation of the stack will be 436 feet msl, which includes consideration of site grading to 435 feet msl as provided by the design engineers. The nearest terrain at or above stack height is an uninhabited area about 1.4 km (4,600 feet) to the west of the Project Development Area.

Based on review of available data, ambient monitors located in Dutchess County and adjacent counties were selected for the determination of background ambient air quality concentrations of SO<sub>2</sub>, NO<sub>2</sub>, CO, PM, and ozone to be used in the air quality impact assessment. Background concentrations are intended to represent regional air quality. Modeling is used to assess the impact of the CVE Project and other local emission sources, as discussed in Section 4.5 of the DEIS. A NYSDEC monitoring station in Dutchess County, at the Cary Institute of Ecosystems Studies in Millbrook, 11 miles northwest of the Project Development Area, measures ground-level ozone (O<sub>3</sub>). The nearest monitor for SO<sub>2</sub> and PM<sub>10</sub> is the Mt. Ninham site, located in Carmel (Putnam County), 17 miles south of the Project Development Area. For PM<sub>2.5</sub>, monitors are located in Newburgh (Orange County), 25 miles southwest of the Project Development Area; Cornwall, Connecticut (Litchfield County), 18 miles northeast of the Project Development Area; and Thomaston, Connecticut (Litchfield County), 26 miles east of the Project Development Area. For NO<sub>2</sub> and for CO, the nearest monitor is located in Thomaston, Connecticut. Three of these sites are rural, consistent with the Project surroundings; the Newburgh site is located in a more heavily developed area. Figure 4-3 of the DEIS shows the locations of these monitoring sites. Table 4-5 of the DEIS summarizes identification and location information for the monitoring sites.

#### 4.3.3.2 Stack Height and Configuration

A GEP stack height analysis was conducted to evaluate whether the plumes emitted from the turbine stacks would be subject to building wake effects. If a stack is sufficiently close to a large building or other structure, the plume can be entrained in the building's wake. The resulting "downwash" reduces the effective release height and leads to increased ground-level ambient concentrations. Building downwash effects must be evaluated when a stack is less than "formula" GEP stack height. Formula GEP stack height is defined as:

$H_{GEP} = H_B + 1.5L_B$  where:

- $H_{GEP}$  = formula GEP stack height;
- $H_B$  = the building's height above stack base; and
- $L_B$  = the lesser of the building's height or maximum projected width.

A second definition of GEP stack height is "regulatory" GEP stack height. Regulatory GEP stack height is either 65 meters (m) or formula GEP stack height, whichever is greater. Sources are not allowed to take credit for reduced ambient air concentrations that result from stacks that are higher than regulatory GEP stack height. Under some circumstances, additional stack height credit can be achieved by taking account of potential wake effects from nearby terrain (USEPA, 1995). The CVE Project is located more than 800 m from the nearest

terrain obstacles that are comparable to building heights; the provisions in USEPA guidance relating to “terrain induced downwash” therefore do not apply as the terrain is too far from the stacks to induce downwash.

#### *4.3.3.3 Air Quality, Public Health, and the School Complex*

As discussed in detail in Section 4 of the DEIS, CVE undertook comprehensive air quality impact analyses employing state-of-the-art air quality dispersion modeling, following a modeling protocol approved by the NYSDEC and USEPA. The analyses demonstrated that the proposed Project, taking existing air quality levels and the maximum permitted contributions of other sources into account, will neither cause nor significantly contribute to any violation of the NAAQS or NYAAQS. The USEPA established primary and secondary NAAQS for criteria pollutants that are designed to protect public health and welfare. The results of clinical and epidemiological studies were used to establish the primary NAAQS to protect public health, including the health of “sensitive” populations. The secondary NAAQS protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The NYSDEC has adopted the federal NAAQS as well as its own additional pollutant standards.

For pollutants whose predicted impacts are below USEPA-defined SILs, impacts are considered insignificant and no further modeling was required. For two standards, the 24-hour  $PM_{2.5}$  standard and the 1-hour  $NO_2$  standard, Project impacts exceeded these screening levels, and a cumulative modeling analysis taking into consideration existing ambient air quality levels and the maximum permitted contributions from other sources was completed. These analyses are documented in Sections 4.5.4 and 4.5.5 of the DEIS. Specific sources included in the modeling are delineated in Appendix 4-B of the DEIS.

While the High School represents a sensitive receptor relatively close to the CVE Project site, conservative air quality modeling reviewed and approved by USEPA and NYSDEC has demonstrated that impacts will be insignificant at this location, and at all locations within the valley, as summarized in Figure 4-1.

As discussed in Section 4.5.3 of the DEIS, the USEPA has adopted Significant Monitoring Concentrations (SMC) to evaluate the need for preconstruction monitoring by proposed new sources. As shown in Table 4-21 of the DEIS, Project impacts are predicted to be well below SMC levels, indicating that preconstruction monitoring is not warranted.

Once operational, the Project will be equipped with continuous emissions monitors which monitor stack emissions continuously. Any plant upset that would cause emissions to

approach or exceed permitted levels would immediately be detected and appropriate measures, including plant shut-down, would be taken. These actions would, therefore, not need to rely on an ambient monitor located offsite.

Further, as cumulative air quality modeling has demonstrated, other nearby sources, including existing minor sources in the valley as well as larger sources more distant, impact air quality levels throughout the valley. Therefore, it would not be possible to discern specific contributions from the proposed Project as distinct from other sources on air quality levels measured at a monitor in the valley.

Finally, the NYSDEC maintains a network of air quality monitors that reliably establish background levels throughout the region. USEPA has approved the use of this monitoring network as a reasonable gauge of existing air quality in the area.

Note that CVE is in discussion with the Town of Dover regarding a number of areas of interest, including potential monitoring at the schools; while not necessary for confirming the Project's compliance with stringent air quality standards, the Town may decide through its local review process that this type of activity should be a component of the community benefit package.

#### *4.3.3.4 Political Boundaries*

The modeling region selected to assess potential air quality impacts in the DEIS extended to a distance of 8,000 m (approximately 5 miles). Modeling results clearly demonstrate that impacts beyond that distance would be below SILs for all pollutants and averaging times, except for 1-hour NO<sub>2</sub>. The modeling region for 1-hour NO<sub>2</sub> was extended to a distance of 30 km (18.75 miles) in order to encompass the Significant Impact Area (SIA) for that pollutant. These distances were determined without regard for political boundaries.

The Connecticut Department of Environmental Protection was notified regarding the Project and supplied emissions data for the Connecticut sources included in the cumulative air quality modeling analyses (21 separate sources) as well as ambient air quality monitoring data reported in the DEIS for stations in Connecticut (see Appendices 4-A and 4-B of the DEIS). The Massachusetts Department of Environmental Protection was also contacted for emissions data for any major sources within 56 km of the Project site, and confirmed that no major sources in Massachusetts are located within this distance.

#### 4.3.3.5 NO<sub>2</sub> Modeling

Additional modeling was required to determine the SIA for 1-hour average NO<sub>2</sub>, using the “ozone limiting” Plume Volume Molar Ratio Method (PVMRM) option available with AERMOD. USEPA guidance on modeling procedures to determine compliance with the 1-hour average NAAQS for NO<sub>2</sub> is summarized in two companion memoranda (USEPA, 2010b; USEPA, 2010c), and a subsequent “clarification” memorandum, dated March 1, 2011 (USEPA, 2011). These memoranda present a 3-tier screening procedure and assign an interim SIL of 4 parts per billion (7.5 micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ]). PVMRM is a “Tier 3” screening method for estimating NO<sub>2</sub> impacts, as described in the June 28, 2010 USEPA memorandum (USEPA, 2010c). The receptor grid was expanded to cover a region extending 30 km in all directions around the Project site, with receptors for the added area placed at 1 km spacing. The maximum impact is predicted at a receptor 2 km west of the Project Development Area, in the vicinity of the peak 24-hour impact for PM<sub>2.5</sub>. All of the receptors with predicted impacts above the SIL are on elevated terrain. The maximum distance to a receptor with significant impact is 29.6 km east-northeast of the Project Development Area. Cumulative impact modeling for 1-hour average NO<sub>2</sub> is presented in Section 4.5.5 of the DEIS.

#### 4.3.4 Additional Impact Analysis

##### 4.3.4.1 Photochemical Ozone Formation

Section 4.5 of the DEIS presented an ambient air quality analysis which demonstrates compliance with all applicable NAAQS, NYAAQS and PSD increments. Proposed new sources subject to PSD review must demonstrate that they do not cause or significantly contribute to a violation of the NAAQS or NYAAQS and are in compliance with PSD increments. The USEPA and NYSDEC recognize that photochemical air pollution (ozone or smog) is regional in nature. Potential ozone impacts are assessed based on regional emissions of VOC and NO<sub>x</sub>, which in the presence of strong sunlight, form ozone through a series of chemical reactions in the atmosphere. Because this phenomenon occurs over a broad area through contributions of NO<sub>x</sub> and VOC from numerous large and small sources, an ozone modeling analysis for an individual emission source is not required as part of New Source Review. Rather, potential Project contributions to ozone formation are addressed through emission offset requirements, as discussed in Section 4.1.1.2 of the DEIS.

Emissions offsets are obtained from reductions in emissions from existing sources. To be used as offsets, the emissions reductions must meet certain tests. The emissions reductions must be permanent, enforceable, quantifiable, and be over and above any emissions reductions that would have otherwise been required by regulation. The NYSDEC must certify

that the emission reductions meet these requirements. Because the Project is located in an ozone nonattainment area designated as “Moderate,” the Project must offset 115 percent of its maximum permitted annual NO<sub>x</sub> and VOC emissions. The offsets must reflect reductions in actual (as opposed to potential) emissions from a donor source that is located in an area determined by NYSDEC and USEPA to directly contribute to ozone nonattainment at the location of the proposed new source. The Project has obtained 321.3 tons per year of NO<sub>x</sub> and 135.8 tons per year of VOC offsets that have been certified by the NYSDEC.

#### *4.3.4.2 Acid and Nitrogen Deposition*

The USEPA and NYSDEC recognize that acidic deposition of sulfates and nitrates is also regional in nature, and they assess potential impacts based on regional emissions of SO<sub>x</sub> and NO<sub>x</sub>. In accordance with the New York State Acid Deposition Control Act, a “Source Specific Acidic Deposition Impacts” analysis was conducted to provide quantification of the Project’s contribution to the New York State total deposition of sulfates and nitrates at 18 defined receptors in New York State, New England, and Canada. The analysis followed the methodology presented in the March 4, 1993 memorandum from Leon Sedefian of NYSDEC to Impact Assessment and Meteorology Staff (NYSDEC, 1993).

Local impacts from acid precipitation formed due to the Project are highly unlikely because the processes that convert SO<sub>2</sub> and NO<sub>x</sub> gases into their acid counterparts will take many hours to several days. During this time, the pollutants would have traveled hundreds of miles from the original source. Thus, the emissions from the Project would have little or no contribution to the acidity of the precipitation that falls on the surrounding area. Furthermore, impacts at greater distances would be negligible due to the wide dispersion of these gases. The regional nature of acid precipitation was demonstrated by the National Acid Precipitation Assessment Program (NAPAP), the most comprehensive study of this issue to date and is not inconsistent with research findings from the Hubbard Brook Field Station in New Hampshire.

#### *4.3.4.3 Plume Visibility*

Two distinct plume visibility impact assessments were undertaken in the DEIS. The first, in Section 4.5.6 of the DEIS involves the potential for plume blight as measured by brightness and contrast (color shift) that could be caused by emissions in the Project’s plume. As detailed in that section, the Project will not have noticeable plume impacts at the nearest state park, James Baird State Park, located 17 km (10.7 miles) from the Project.

The second type of plume visibility analysis is for water vapor emitted from the stack, which can condense under certain meteorological conditions and form a visible white, cloud-like plume. This type of visible plume was evaluated in Section 6.2 of the DEIS, Visual Resources and Aesthetics, with simulations of what such a visible water vapor plume would look like from various locations in Dover.

#### *4.3.4.4 Aqueous Ammonia*

Ammonia, which is used as the reagent in the Project's SCR emissions control system, is itself regulated by the USEPA and the NYSDEC. As discussed in Section 4.6.3 of the DEIS, the ammonia for the Project's SCR system will be stored as a 19 percent aqueous solution. While the regulatory threshold for ammonia under the accidental release provisions of the Clean Air Act is 20 percent, the Project has adopted the same level of protection (secondary containment via a reinforced concrete containment dike around the storage tanks) and has performed the same accidental consequence analysis as would be required were the ammonia at a greater concentration. The accidental consequence analysis examined a hypothetical worst-case spill scenario assuming the entire volume of a storage tank was released into the diked containment area. Under such a scenario, ammonia concentrations offsite would not exceed Acute Exposure Guideline Levels established by the National Research Council and, therefore, pose no appreciable risk to any offsite receptor, including passengers on the Metro-North trains that traverse the Property west of the Project Development Area.

A trace amount of un-reacted ammonia ("ammonia slip") will be emitted in the plant's exhaust. Even directly in the exhaust plume, the maximum ammonia concentration would be 5 parts per million, well below the ammonia odor recognition threshold of 17 parts per million. Ground-level concentrations would only be a tiny fraction of this level. Therefore, there will be no odor associated with the emission of trace amounts of ammonia in the exhaust. Typical background concentrations of ammonia range from a few parts per billion to as high as 50 parts per million in heavy agricultural areas due to use of ammonia-based fertilizers. The proposed Project will have no discernible impact to ammonia levels in the area.

#### 4.3.5 Construction-Related Impacts

NYSDEC regulations require the implementation of BMPs during construction, including measures to suppress dust emissions, as described in Section 4.5.8 of the DEIS. Potential impacts on traffic during construction of the Project are addressed in Section 4.5.7 of the DEIS. Air emissions from construction equipment must meet USEPA standards for off-road

vehicles. As a result, air quality impacts from construction activities are expected to be insignificant and temporary.

#### 4.3.6 Emissions Displacement

The emissions displacement analysis was provided as Appendix 1-A of the DEIS. GE Energy Global Development and Strategic Initiatives' Energy Applications and Systems Engineering group conducted an economic dispatch study of the effect of adding the proposed project to the New York electrical grid. The analysis utilized GE Energy's Multi-Area Production Simulation (MAPS) modeling software package to complete the analysis. MAPS is a widely accepted model for completing this type of analysis. The results of the analysis demonstrate that the Project will decrease the cost of electricity in the region and reduce emissions of air pollutants by reducing the frequency that older, less efficient and higher emitting units are called upon to supply electricity to the grid.

The New York Independent System Operator controls the supply of electricity in New York State by dispatching (turning on and off) power plants that are connected to the grid as well as the import and export of electricity to and from adjoining grids. Generally, plants are dispatched on the basis of their marginal cost (i.e., cheaper units are called upon to run before more expensive units) although transmission constraints and other considerations cause some plants to be dispatched "out of merit." These constraints are taken into consideration by the model.

The model uses load and fuel price forecasts using independent projections of electricity demand and fuel price projections as documented in Appendix 1-A of the DEIS. The model also takes into account future costs generators will need to pay for emissions allowances mandated by the various emissions "cap-and-trade" programs in effect across the region.

The model was run with and without the proposed Project to simulate how frequently the Project would be dispatched and, for each hour that it was dispatched, which units would have operated were the Project not in place. The specific units that are "displaced" by the Project vary throughout each projection year, with the total displacement benefit averaging 653,242 tons per year of CO<sub>2</sub>, 1,475 tons per year of NO<sub>x</sub>, and 4,301 tons per year of SO<sub>2</sub> for the period modeled, 2015 through 2020. This benefit is accrued because the proposed Project will be more efficient and lower emitting than even the cleanest existing fossil fuel-fired power plants in New York.

Because the Project will reduce regional emissions of air pollutants and greenhouse gases, while increasing baseload electric generation capacity, it is consistent with New York's air

quality and climate change goals and objectives, and will conform with all of New York's environmental requirements.

#### 4.3.7 Greenhouse Gases

Section 4.6.5 of the DEIS addresses direct emissions of GHGs from the Project. The principal GHG emitted from Project sources is CO<sub>2</sub>. Methane and nitrous oxide also will be emitted in smaller quantities. Because these gases differ in their ability to trap heat, one ton of CO<sub>2</sub> in the atmosphere has a different effect on warming than one ton of methane and one ton of nitrous oxide. For example, methane and nitrous oxide have 21 times and 298 times the global warming potential of CO<sub>2</sub>, respectively. CO<sub>2</sub> is the predominant GHG emitted from the Project. Trace amounts of VOCs (expressed as methane) and nitrous oxide would be emitted in varying quantities depending on operating conditions. However, emissions of VOCs and nitrous oxide are considered negligible when compared to total CO<sub>2</sub> emissions, and would not be considered significant to climate change issues. In addition, these compounds are also controlled, to varying degrees, by the SCR system and the oxidation catalyst. Potential emissions of GHGs associated with the Project are provided in Table 4-2 of the DEIS. These emissions are expressed as CO<sub>2</sub> equivalents (CO<sub>2</sub>e), which take into account the global warming potentials of other GHGs such as methane and nitrous oxide.

Pursuant to USEPA regulations, a GHG BACT analysis was conducted, with CO<sub>2</sub> as the focus pollutant, and is presented in Section 4.3 of the DEIS. As demonstrated by this analysis, there are no combined cycle power plants currently utilizing carbon capture and sequestration (CCS), and although theoretically feasible, this technology is not commercially available. In addition, based upon the large costs associated with the capture, transportation and storage of CO<sub>2</sub>, in addition to the large parasitic load, CCS is considered cost prohibitive and economically infeasible for the Project. As such, CCS was not considered a viable control option. Rather, installation of high efficiency, state-of-the-art, combustion turbine technology combusting only commercially available, pipeline quality natural gas in the turbines, was determined to be BACT. CO<sub>2</sub> permit levels proposed by the Project are among the lowest levels ever issued for a power plant in the U.S.

In addition, on July 12, 2012, NYSDEC adopted new regulations (6 NYCRR Part 251) establishing CO<sub>2</sub> emission standards for new major electric generating facilities. The Project fully complies with these standards.

#### 4.4 Conclusions

The Project represents a state-of-the-art natural gas-fired combined cycle power plant that incorporates LAER and BACT technology to minimize emissions to the lowest levels ever achieved for a project of its type. It also is among the lowest greenhouse gas emissions rate of any fossil-fuel-fired project ever constructed. The Project has secured NO<sub>x</sub> and VOC emissions offsets in amounts of 115 percent of the Project's emissions from permanently shut down facilities that NYSDEC and USEPA have determined contributed to air quality in Dutchess County. In addition, the Project will displace the operation of existing older, less efficient, and higher emitting power plants yielding a net reduction in GHG and criteria pollutant emissions region-wide.

The Project has completed a comprehensive cumulative air quality impact analysis that does not take credit for the emissions reductions that will accrue through the purchase of offsets and displacement. The air quality modeling analysis used USEPA- and NYSDEC-approved state-of-the-art models and techniques and was reviewed by those agencies at several steps in the application process. The modeling analysis demonstrates that the Project will neither cause nor contribute to a violation of the NAAQS/NYAAQS which have been set to protect the health of the most sensitive individuals. Further, by complying with PSD increments, the Project has demonstrated that it will not degrade air quality from existing levels that comply with air quality standards.

#### 4.5 References

- NYSDEC, 1993. "Source Specific Acidic Deposition. Impacts for Permit Applications," L. Sedefian. March 4, 1993.
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- USEPA, 2004a. *User's Guide for the AMS/EPA Regulatory Model – AERMOD*, EPA-454/B-03-001. September 2004.
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- USEPA, 2010a, "Modeling Procedures for Demonstrating Compliance with PM<sub>2.5</sub> NAAQS", Steven Page, Director, EPA Office of Air Quality Planning & Standards. March 26, 2010.

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USEPA, 2010c, *"Applicability of Appendix W Modeling Guidance for the 1-hour NO<sub>2</sub> NAAQS,"* Steven Page, Director, EPA Office of Air Quality Planning & Standards. June 28, 2010.

USEPA, 2010d, *"Guidance Concerning the Implementation of the 1-hour SO<sub>2</sub> NAAQS for the Prevention of Significant Deterioration Program,"* Steven Page, Director, EPA Office of Air Quality Planning & Standards. August 23, 2010

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