Petition for Text Amendments to the Town of Dover Zoning Code

EXHIBITS

Submitted by:
Cricket Valley Energy Center, LLC
P.O. Box 407
Dover Plains, NY 12522
EXHIBITS

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EXHIBIT A
Site Map of Proposed Project
FIGURE 1-2

LAND USE DISTRICT MAP
CRICKET VALLEY

Legend
- Property
- Project Development Area
- Approximate Parcel Boundary
- Approximate Land Use Districts

- RU - Rural
- RC - Recreation
- CO - Commercial
- M - Manufacturing

SOURCE:
1. Aerial - Dutchess County 1-foot Resolution
2004 Natural Color Orthoimagery
NYS Digital Orthoimagery Program
NYS Office of Cyber Security & Critical Infrastructure Coordination

Town of Dover, Dutchess County, New York

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EXHIBIT B
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Exhibit B
Artist’s Rendering of the CVE Facility

Aerial View looking ENE, Route 22 in foreground, Swamp River in background, ConEd/Iroquois Rights-of-Way depicted in top right
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Artist’s Rendering of the CVE Facility

Ground View of the Facility looking ENE, Administrative Building and Parking in foreground, Main plant buildings & stacks in background
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11. Building F (storage building)

12. Building G (with steel chimney)
13. Building H (with brick chimney)

14. Building I

15. Gas Holder
16. Collapsed Steel Building

17. Large Storage Tank and associated building

18. Water Tower and associated building
19. Drum and white material disposal near northern wetland.

20. Swale and banks leading to north wetland.

22. Drum and debris near edge of north wetlands.

23. Pump station near Swamp River.

24. Hydraulic fluid pail (empty) east of Swamp River.
25. Concrete pad (near access road to Site).
EXHIBIT F
NYSDEC Notice of Completeness
Draft Environmental Impact Statement
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC)

ANNOUNCEMENT OF PUBLIC COMMENT PERIOD, and
COMBINED NOTICE OF COMPLETE APPLICATION,
NOTICE OF ACCEPTANCE OF
DRAFT ENVIRONMENTAL IMPACTS STATEMENT (DEIS) and
PUBLIC HEARING

Date: May 25, 2011

Applicant: Cricket Valley Energy Center, LLC, 31 Milk Street, Boston, MA 02109.

Application Number: DEC # 3-1326 00275/00002 - Article 24 Freshwater Wetlands
DEC # 3-1326 00275/00003 - Section 401 Water Quality Certification
DEC # 3-1326 00275/00003 - Part 201 Air State Facility;

Project Description: The Cricket Valley Energy Center (CVE) will consist of a combined cycle natural gas powered 1,000-megawatt (MW) electric generating facility and interconnection substation.

The CVE facility will generate approximately 1,000 MW of electricity, fueled only by natural gas. The CVE facility will use “combined cycle” generation technology, one of the most efficient technologies for producing electricity. The facility will be comprised of three combined-cycle units, each consisting of a combustion turbine generator (CTG), a Heat Recovery Steam Generator (HRSG) with supplemental duct firing, and a steam turbine generator (STG). Auxiliary equipment will include a low nitrogen oxide (NOx) natural gas-fired auxiliary boiler, needed to keep the HRSGs warm during periods of turbine shutdown and to provide sealing steam during startups, and four diesel-fired black start generators, each with a maximum power rating of 3 MW. The four black start generators will be used to re-start the facility in the event of a total power loss on the local or regional transmission grid.

The project will be equipped with state-of-the-art emissions control technology, including dry low NOx (DLN) burners and selective catalytic reduction (SCR) technology to control emissions of NOx, and an oxidation catalyst to control carbon monoxide (CO) and volatile organic compounds (VOC) emissions. A continuous emissions monitoring system (CEMS) will be utilized to ensure and document facility compliance with applicable emissions standards. Water use will be minimized by the use of air cooled condensers (ACC). Process water supply will be provided from new on-site bedrock wells. A zero liquid discharge (ZLD) system will recycle and reuse water internally, reducing the need for process water and ensuring that no process wastewater will be discharged. The facility will employ best management practices (BMPs) for stormwater management, which will include a system that reflects existing drainage patterns and incorporates a wet extension detention pond, small bioretention facilities, and roof top rain capture to maintain peak rates of discharge and minimize the potential for erosion and sedimentation.
There will be several storage tanks on-site, including a 1,000,000-gallon raw water storage tank, used to supply the facility’s water needs and for fire protection; a 250,000-gallon demineralized water storage tank; and two 30,000-gallon aqueous ammonia storage tanks. A secondary safety containment area, designed to hold 110 percent of the entire volume of the tanks, will be provided around the ammonia storage tanks, consistent with New York State requirements. There also will be on-site storage of small quantities of ultra-low sulfur diesel (ULSD) fuel and lubricating oils. ULSD storage will be limited to the fire pump’s integrated 650-gallon fuel tank and the four emergency black start generators, each with an integrated 1,000-gallon fuel tank. As required, all tanks, equipment and vessels containing ULSD fuel and/or lubricating oils will be located inside a concrete safety containment, sump or curbed dike area for spill control and management.

There will be two utility interconnections at the facility. The electricity generated from the facility will be transmitted via a 700-foot on-site overhead interconnect to the existing Consolidated Edison Company of New York (ConEd) 345 kilovolt electric transmission line located north of the Project Development Area. A new switchyard and substation, incorporating gas-insulated switchgear to minimize footprint requirements, will be built at the facility. Natural gas will be the sole fuel for the facility, transported via a new 500-foot, 12-inch gas pipeline from the Iroquois pipeline, just north of the Project Development Area.

**Project Location:** The project is located at the former Mica Products industrial site at NYS Route 22 in the Town of Dover, Dutchess County. The project site totals 131 acres, which includes 74 acres (west of the Metro-North rail line) within the Great Swamp Critical Environmental Area; and a 57-acre Project Development Area east of the railroad line. The Project Development Area is bounded by NYS Route 22 to the east; to the south by industrially zoned property owned by Howlands Lake Partners, LLC; to the west by the Metro-North rail line; and to the north by an existing ConEd electric transmission right-of-way.

**Air Permit Applications**

**Air Permits:** The Applicant has filed individual applications seeking the issuance of a preconstruction permit pursuant to 6 N.Y. Compilation of Codes, Rules and Regulations (NYCRR) §201-6.1(b) and Subpart 201-5. DEC Staff concludes that the applications for this permit are complete within the meaning of 6 NYCRR §621.2(f) and has tentatively determined to issue the permits. Consequently,DEC Staff has prepared a draft permit pursuant to 6 NYCRR §621.7(b)(7).

DEC Staff has determined that the conditions in the draft preconstruction permit authorize the construction and operation of the proposed facility and assure conformance of the facility with all applicable State and federal air pollution control regulations including the requirements of 6 NYCRR Parts 201, 225, 227, 231, 242, 243, 244, 245 and 257, as well as all New Source Performance Standards (NSPS) at 40 Code of Federal Regulations (CFR) Part 60. Information regarding the demonstration of the Lowest Achievable Emission Rate (LAER) or Best Available Control Technology (BACT) or both is included within the DEIS and draft air permit.
Freshwater Wetlands / Water Quality Certification

**Freshwater Wetlands Permits.** Pursuant to Environmental Conservation Law (ECL) §24-0105 and the Clean Water Act Part 401 Water Quality Certification, the Applicant has filed an application with DEC for a permit for fill in state-jurisdictional freshwater wetlands, disturbance to state-regulated adjacent areas, and a water quality certification for activities related to the Freshwater Wetlands permit and additional activities on the site under the jurisdiction of the U.S. Army Corps of Engineers. DEC Staff concludes that the applications for these permits are complete within the meaning of 6 NYCRR §621.2(f) and has tentatively determined to issue a permit. Consequently, DEC Staff has prepared a draft permit.

DEC Staff has determined that the conditions in the draft permit authorize the proposed activities and assure conformance of the facility with the standards for permit issuance set forth in 6 NYCRR §663.5.

**State Pollutant Discharge Elimination System (SPDES)**

The Applicant intends to seek coverage under the SPDES General Permit for Storm Water Discharges from Construction Activities (GP-0-10-001). The facility is utilizing a zero waste discharge system; therefore, an industrial SPDES permit for the discharge of wastewater is not required.

**Additional Regulatory Provisions**

**NYS Public Service Law (PSL):** This project requires a Section 68 Certificate of Public Convenience and Necessity (CPCN) from the New York State Public Service Commission (PSC).

**NYS ECL and Implementing Regulations:** In addition to the specific statutes and regulations cited above, the subject preconstruction air permit applications as well as the freshwater wetlands permit and the water quality certification are being processed by the DEC pursuant to ECL Article 3, Title 3 (General Functions), ECL Article 17 (Water Pollution Control), ECL Article 19 (Air Pollution Control), ECL Article 24 (Freshwater Wetlands) and 6 NYCRR Subparts 201-6 (Permits and Registrations) and 231-2 (Requirements for Emission Sources Subject to §§172 and 173 of the Clean Air Act , 42 USC §7502 and §7503 on or after November 15, 1992), Part 621 (Uniform Procedures), Parts 750-758 (State Pollutant Discharge Elimination System) and the Clean Water Act Part 401 Water Quality Certification.

**State Environmental Quality Review (SEQR) Status:** The DEC Staff has determined that the proposed project is a Type I action as designated by 6 NYCRR §617.4(b)(6)(i). A Draft Environmental Impact Statement (DEIS) has been prepared and the Department, as lead agency, has determined the DEIS is adequate for public review. Pursuant to 6 NYCRR §617.9(a)(4) the Department has made the determination to hold a public hearing, the details of which are provided below in the legislative hearing section of this notice.
**State Historic Preservation (SHPA) Status:** A cultural resource survey has been completed. Based on the information provided in the survey report, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) has determined that the project will have “No Effect” on cultural resources at the Project Development Area; and the project is unlikely to have an adverse impact on cultural resources at the Laydown Site, provided that CVE completes the Phase 1B survey at the site prior to commencing construction. The Department must consult further with OPRHP before making a final determination on the permits.

**Coastal Zone Management:** This project is not located in a Coastal Management Area and therefore is not subject to the Waterfront Revitalization and Coastal Resources Act.

**Tentative DEC Staff Position and Document Availability:** DEC Staff has reviewed Cricket Valley Energy’s application materials and supporting documentation and has determined that they are complete pursuant to 6 NYCRR Part 621. A tentative determination has been made to approve this application and prepare draft permits. It has been determined that all air program statutory and regulatory criteria can be met through the imposition of special permit conditions. For the 201-6 draft air preconstruction permit, the DEC has incorporated control technologies and emission limits proposed by the Applicant, and has independently developed additional conditions to ensure compliance with all regulatory requirements. The background documentation of this determination is available in the “fact sheets” and the administrative record for the project.

The application materials, fact sheets, the draft air preconstruction permit, and draft freshwater wetlands permit/water quality certification are available for review at the following locations during normal business hours between 9:00 a.m. and 4:00 p.m., Monday through Friday:

1. NYS DEC Division of Environmental Permits, 625 Broadway, Albany, NY 12233-1750. Contact: Stephen Tomasik, Project Manager, at (518) 486-9955; and

2. NYS Department of Environmental Conservation, Region 3 Headquarters, 21 South Putt Corners, New Paltz, New York 12561. Contact: Alexander Ciesluk at (845) 256-3041.

The DEIS, application materials, fact sheets, the draft air permit, and the draft Freshwater Wetlands permit/Water Quality Certification are also available for review at the following locations during normal business hours.

1. Town of Dover Town Hall
   126 East Duncan Hill Road
   Dover Plains, New York 12522
   (845) 832-6111
   WebMaster@TownofDoverNY.us

2. Dover Plains Library
   1797 Route 22
   Wingdale, New York 12522
   (845) 832-6605
   library@doverplainslibrary.org
Written Comments: All written comments concerning the DEIS, draft air permit, or draft Freshwater Wetlands permit/Water Quality Certification must be submitted to the DEC Contact Person listed below by July 25, 2011. Comments sent by regular mail must be postmarked no later than July 25, 2011. Email and Fax comments must be received by 5 P.M. (EDT), July 25, 2011.

All public comments on these permits will be reviewed by DEC Staff to determine whether they raise substantive and significant issues that warrant further review through adjudication. Specific comments must be supported by full documentation and references should be limited to readily available information.

Public Hearings Sessions

Legislative Public Hearing: Legislative hearing sessions to receive unsworn statements from the public on the DEIS, applications and the draft permits, described above, will be held before Administrative Law Judge (ALJ) Helene Goldberger at 3 P.M. and 6 P.M. on Tuesday, June 28, at the Dover High-Middle School Auditorium, 2368 Route 22, Dover Plains, New York. All persons, organizations, corporations, or government agencies which may be affected by the proposed project are invited to attend the public hearing and to submit oral or written comments. It is not necessary to file in advance to speak at the legislative hearing. Lengthy statements should be in writing and summarized for oral presentation. Reasonable time limits may be set for each speaker to afford everyone an opportunity to be heard. Equal weight will be given to both oral and written statements. The hearing location is fully accessible to persons with mobility impairment. Interpreter services shall be made available to deaf persons at no charge upon written request to the ALJ at least 10 days prior to the hearing, pursuant to the State Administrative Procedures Act.

Contact:
Stephen M. Tomasik
NYS Department of Environmental Conservation
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, New York 12233-1750
Voice: (518) 402-9167
Fax: (518) 402-9168
derprmt@gw.dec.state.ny.us
EXHIBIT G
Project Noise – Areas of...
Property Lines not in compliance with 50 dBA noise ordinance:
1. Metro North Rail Line

Aerial Photograph of Project Area with Isopleths of Project Related Sound (dBA @ 2 meters above ground)
6.4 Noise

This section characterizes the noise environment surrounding the project site and provides an assessment of the noise impacts of the construction and operation of the project. The noise impact assessment generally follows the procedures and information developed by NYSDEC (2000) and United States Environmental Protection Agency (USEPA) (1978).

To document the existing environmental sound levels and to assist in defining appropriate acoustic design goals for the project, CVE retained Cavanaugh Tocci Associates, Inc. to evaluate the acoustic environment in the community surrounding the project site (Cavanaugh Tocci Associates, 2010). This evaluation includes a review of applicable noise regulations, the results of an extensive sound monitoring program, and the results of computer modeling of the acoustic impact of the proposed project’s construction and operational phases.

The objectives of this sound study evaluation were:

- To quantify and characterize the existing sound environment in the community surrounding the project.

- To define project acoustic design goals based upon the existing acoustic environment and applicable noise regulations.

- To estimate the acoustic impact of construction and operation of the proposed project in the surrounding community.

Appendix 6-E includes a glossary of acoustical terminology and the results of continuous sound measurements.

6.4.1 Applicable Laws, Regulations and Policies

Noise is a feature of all environments and is considered objectionable only when it is inconsistent with its environment; by being either too loud or by being distinctive in character (i.e., tonally or temporally varying). The purpose of environmental noise regulations is to provide a logical and equitable relationship between facility noise and existing environmental sound. To this end, acoustic design goals for the project have been established based on state guidelines and local noise regulations that are protective of the
community sound environment. The NYSDEC guidelines and Town of Dover regulations applicable to sound produced by the project are summarized below.

6.4.1.1 NYSDEC Noise Policy

NYSDEC issued a Program Policy Memorandum entitled “Assessing and Mitigating Noise Impacts” (October 6, 2000 revised February 2, 2001) to provide guidance for departmental evaluation of noise impacts from proposed or existing facilities. The memorandum provides guidance in determining when facility sound constitutes a significant impact in the following statements:

- “The goal for any permitted operation should be to minimize increases in sound pressure level above ambient levels at the chosen point of sound reception. Increases ranging from 0-3 dBA\(^8\) should have no appreciable effect on receptors. Increases from 3-6 dBA\(^\) may have potential for adverse noise impact only in cases where the most sensitive of receptors are present. Sound pressure level increases of more than 6 dBA\(^\) may require a closer analysis of impact potential depending on existing SPL’s\(^9\) and the character of surrounding land use and receptors.”

- “In non-industrial settings the SPL should probably not exceed ambient noise by more than 6 dBA at the receptor. An increase of 6 dBA\(^\) may cause complaints. There may be occasions where an increase of 6 dBA\(^\) might be acceptable.”

\(^8\) The modifier “A” should be included here as it customary to evaluate environmental sound levels using the A-weighted scale dBA, that is, A-weighted decibels. The human ear is most sensitive to sound in the 500 Hz to 5,000 Hz frequency range. Above and below this range, the ear becomes progressively less sensitive. To account for this feature of human hearing, sound level meters filter acoustic signals to correspond to the varying sensitivity of the human ear to sound at different frequencies. This filtering is called A weighting. Sound level measurements that are obtained using this filtering are referred to as A-weighted sound levels and are signified by the identifier, dBA. A-weighted sound levels are widely used for evaluating human exposure to environmental sounds.

\(^9\) SPL’s – Sound pressure levels
• “The addition of any noise source, in a non-industrial setting should not raise the ambient noise level above a maximum of 65 dB(A). This would be considered the “upper end” limit since 65 dB(A) allows for undisturbed speech at a distance of three feet.”

• “Ambient noise SPLs in industrial or commercial areas may exceed 65 dB(A) with a high end of approximately 79 dB(A) (EPA 550/9-79-100, November 1978).”

The guidance also indicates that the appropriate metric to evaluate existing and project-related ambient sound is the equivalent sound level \( L_{eq} \) as stated below:

• “Equivalent Sound Level is considered to be directly related to the effects of sound on people since it expresses the equivalent magnitude of the sound as a function of frequency of occurrence and time.”

• “The \( L_{eq} \) value provides an indication of the effects of sound on people. It is also useful in establishing the ambient sound levels at a potential source.”

6.4.1.2 Town of Dover Noise Regulations

The Code of the Town of Dover defines limits with respect to environmental sound associated with the proposed project in two separate chapters:

• Chapter 107 – Noise

• Chapter 145 – Zoning - Section 145-40(C)

Relevant aspects of the Code are listed below.

Chapter 107 defines the following general standard as unlawful:

*The creation of any unreasonably loud, disturbing and unnecessary noise is prohibited. Said noise shall be prohibited when it is of such character, intensity and duration or of any type or volume that a reasonable person would not tolerate under the circumstances and that is detrimental to the life, health or welfare of any individual or would cause or create a risk of public inconvenience, annoyance or alarm.*
Chapter 107(B)(5) also prohibits construction noise between the hours of 9 p.m. and 7 a.m. except in case of an urgent necessity in the interest of public safety.

Chapter 145-40(C)(2) defines the following property-line sound level limits:

- 60 dB(A) between the hours of 7:00 a.m. and 8:00 p.m.
- 50 dB(A) between the hours 8:00 p.m. and 7:00 a.m.

Chapter 145-40(C)(4) provides exemptions from the aforementioned lot line sound limits including:

- Noises emanating from construction and maintenance activities between 8:00 a.m. and sunset, Monday through Friday.
- The noises of safety signals, warning devices, emergency pressure-relief valves or other emergency warning signals.

6.4.2 Existing Area Sound Levels

An environmental sound survey (Appendix 6-E) was conducted to quantify and characterize the existing acoustic environment in the vicinity of the proposed project. In order to document the time-varying characteristics of environmental sounds in the project area, the sound monitoring program implemented both long-term continuous sound measurements, and short-term intermittent sound measurements. The results of the survey allow both quantitative and qualitative analyses of the acoustical environment surrounding the project.

6.4.2.1 Sound Monitoring Locations

A review of the existing land use in the community was conducted to identify the closest and most representative receptor locations. In addition, the measurement locations were selected to obtain an adequate spatial representation of the ambient noise environment. Five measurement locations were selected. These locations are identified in Figure 6.4-1, and are described below.
• Location 1: The former Green Acres Conference Center (approximately 2,900 feet northwest of the center of the main power block of the proposed project). This location represents the nearest noise-sensitive receptor to the northwest of the Project Development Area.

• Location 2: The ConEd right of way near #3 Vincent Road (approximately 2,100 feet north of the center of the main power block of the proposed project). This location conservatively represents residences and the Dover High School/Middle School complex further to the north.

• Location 3: Residence at the address of #7 Cricket Hill Road (approximately 1,200 feet northeast of the center of the main power block of the proposed project). This location represents the closest residence to the Project Development Area.

• Location 4: East property line across the street from #2238 NYS Route 22 (approximately 1,000 feet southeast of the center of the main power block of the proposed project). This location represents commercial uses along NYS Route 22 as well as residential areas further east.

• Location 5: North Chippawalla Road (approximately 3,000 feet south of the center of the main power block of the proposed project). This location represents areas to the south of the Project Development Area.

6.4.2.2 Continuous Monitoring

To identify typical patterns in environmental sound levels, and to quantify time-varying ambient sound levels in the community, continuous monitoring was performed at all five sound monitoring locations. The continuous monitors were installed for a seven-day period (168 hours) starting at 2:00 p.m. on September 16, 2009.

For the continuous measurements, sound levels were monitored using Rion NL 31 environmental noise monitors outfitted with ½-inch electret microphones, and windscreens. The instruments were calibrated before and after the measurement period using a Larson Davis Instruments model CA-250 acoustical calibrator. The monitors, microphones, and signal processing conform to American National Standards Institute (ANSI) S1.4 for Type 1 precision sound measurement instrumentation, and all instruments used have current calibration certificates traceable to the National Institute of
Standards and Technology (NIST). For this study, the monitors were programmed to record the following hourly A-weighted environmental noise descriptors:

- Maximum sound level ($L_{\text{max}}$);
- Minimum sound level ($L_{\text{min}}$);
- Percentile sound levels ($L_{99}$, $L_{90}$, $L_{50}$, $L_{10}$, and $L_{01}$); and
- Equivalent sound level ($L_{\text{eq}}$).

Figures 6.4-2 through 6.4-6 present graphs of the measured hourly $L_{\text{eq}}$ sound levels at each of the five measurement locations. Since the hourly $L_{\text{eq}}$ sound levels also vary from hour to hour, these figures also include the “nominally lowest” hourly $L_{\text{eq}}$ sound level. The “nominally lowest” hourly $L_{\text{eq}}$ sound level is calculated by averaging the lowest measured hourly equivalent sound level ($L_{\text{eq}(1\text{-hour})}$) that occurred in each of the seven 24-hour periods that were monitored. This value represents a conservative estimate of the typical lowest hourly $L_{\text{eq}}$ sound levels that occur during the quietest periods. A complete listing of all hourly measurement results at each monitoring location can be found in Appendix B of the Baseline Sound Study attached as Appendix 6-E.

6.4.2.3 Intermittent Monitoring

Intermittent sound measurements were performed for 10-minute intervals at all five selected measurement locations to provide additional noise information, including the frequency distribution of sound levels into octave bands. The measurements were conducted during daytime hours (1:30 p.m. to 3:30 p.m.) on September 16, 2009, and early morning hours (12:00 midnight to 2:00 a.m.) on September 17, 2009. The measurements were conducted with a Bruel and Kjaer Instruments Type 2250 sound level analyzer outfitted with a ½-inch electret microphone and windscreen. The instrument was calibrated before and after each use with a Bruel and Kjaer Instruments Type 4231 acoustical calibrator. During all measurements, the meter was mounted on a tripod with the microphone situated approximately 5 feet above the ground. These instruments conform to ANSI S1.4 for Type 1 precision sound measurement instrumentation and have current calibration certificates traceable to the NIST.

The data collected during the attended 10-minute monitoring intervals is compiled in Appendix C within the Baseline Sound Study attached as Appendix 6-E. The data presentation format has three chief elements. The first is a listing of A-weighted descriptors on the upper left hand side of each figure. Note that the statistical descriptors ($L_n$) are presented in order of decreasing value. Logically, the $L_{\text{max}}$ is the highest sound level reached during the 10-minute interval; the $L_{01}$ is the next highest since it is
exceeded only 1 percent of the time interval, and so forth. The $L_{eq}$ is shown shaded, as this value is the key descriptor used in evaluating ambient sound levels.

The second element in these figures is a 1/3-octave band spectrum of the $L_{eq}$ sound pressure level. This spectrum is used to identify the presence of distinct tonal characteristics and to quantify the frequency content associated with the background sounds.

The third element at the bottom of these figures is a graphic level record, or time-history, of the A-weighted sound level in 1-second increments recorded over the 10-minute interval. The “peaks” in the time-history identify transient events associated with passing cars, aircraft activity, etc.

### 6.4.2.4 Weather Conditions During Sound Measurements

During the majority of the continuous monitoring the weather was suitable for measuring environmental sounds (i.e., no precipitation and light winds). Our review of hourly meteorological data obtained from the National Weather Service monitoring station at the Poughkeepsie-Dutchess County Airport indicates that that rain occurred for a brief period at approximately 12:00 noon on September 17, 2009 and that elevated wind gusts occurred during the afternoon of September 18, 2009. These short intervals of inclement weather have little or no impact on the statistical analysis of environmental sound for this study.

### 6.4.2.5 Sound Measurement Survey Results

Table 6.4-1 provides a summary of the results of the environmental sound survey. Ambient sound in the community is dominated by traffic on NY Route 22 and local roads. Hourly equivalent sound levels typically follow a diurnal pattern, with the lowest levels occurring in the early morning hours when traffic is at a minimum. Regular train activity on the rail line west of the Project Development Area also contributes high-level transient sounds. Finally, noises produced by birds, insects, and wind blowing through foliage and over tall grasses are sources of background sound at all locations in the project vicinity. These indigenous sounds depend on many factors including weather and time of year.
Table 6.4-1: Summary of Measured Environmental Sound Levels (dB(A))

<table>
<thead>
<tr>
<th>Measurement Location</th>
<th>Long Term</th>
<th>Intermittent Measurements</th>
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<tbody>
<tr>
<td></td>
<td>9/16 – 9/23</td>
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<tr>
<td></td>
<td>Nominally</td>
<td>Daytime</td>
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<td></td>
<td>Lowest</td>
<td>9/16/09</td>
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<td>Hourly</td>
<td>13:30 – 15:30</td>
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<tr>
<td></td>
<td>$L_{eq}$</td>
<td>$L_{eq-10min}$</td>
</tr>
<tr>
<td>Location 1 – Green Acres Conf. Center</td>
<td>36</td>
<td>46</td>
</tr>
<tr>
<td>Location 2 – ConEd ROW near 3 Vincent Road</td>
<td>41</td>
<td>53</td>
</tr>
<tr>
<td>Location 3 – #7 Cricket Hill Road</td>
<td>40</td>
<td>55</td>
</tr>
<tr>
<td>Location 4 – 2238 NYS Route 22</td>
<td>51</td>
<td>59</td>
</tr>
<tr>
<td>Location 5 – North Chippawalla Road</td>
<td>48</td>
<td>56</td>
</tr>
</tbody>
</table>

6.4.2.6 Facility Acoustic Design Goal

Table 6.4-1 includes a column labeled “Facility Acoustic Design Goal.” In accordance with the NYSDEC Program Policy Memorandum, facility noise will not be expected to produce a significant impact if it does not raise existing sound levels by more than 6 dB(A). To this end the project has conservatively chosen the “nominally lowest” measured hourly $L_{eq}$ as the basis for impact assessment with respect to the NYSDEC Program Policy Memorandum. In order to limit sound level increases to 6 dB(A) or less, facility sound levels will need to be controlled to no more than 5 dB(A) above the measured “nominally lowest” hourly $L_{eq}$. In addition, to comply with the Town of Dover noise regulations, facility sound at property lines must not exceed the most stringent nighttime sound level limit of 50 dB(A).

6.4.3 Predicted Project Noise Impacts

6.4.3.1 Acoustic Modeling Methodology

Project-related sound impacts will be associated with sound emissions from many individual project-related sound sources. To evaluate the acoustic impact of the proposed project, environmental sound modeling was conducted for each individual sound source at the proposed project. These impacts were then combined to produce an estimate of cumulative environmental sound levels produced by the project. The acoustic modeling requires information on equipment sound emission characteristics, the location of the source relative to the receiver, and information on how the noise may propagate from the source to the receiver. Estimates of operational sound levels produced by the project were calculated using CadnaA environmental sound modeling software (Version
3.7.123 DataKustic GmbH). The CadnaA sound modeling software uses algorithms and procedures described in International Standard ISO 9613-2:1996 “Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation.” The methodology described in this standard provides estimates of A-weighted sound levels for meteorological conditions that are favorable for the propagation of sound (downwind with a wind speed of 1 – 5 m/s). This methodology is also valid for sound propagation under well-developed moderate ground-based temperature inversions, which commonly occur on clear, calm nights.

Receptor sound levels for all significant project related sound sources were calculated using the following data and corrections:

- Source sound power level (in octave bands);
- Source directivity;
- Distance between source and receptor (geometric divergence);
- Atmospheric absorption (10 degrees Celsius and 70 percent relative humidity);
- Reflections from building and barrier structures;
- Screening by obstacles (from earth contours and or man-made structures); and
- Propagation over the ground (ground effect).

6.4.3.2 Construction Noise

6.4.3.2.1 Construction Sound Sources

Construction of the project will occur over approximately a 36-month period. The construction phases will include overlapping activities for initial site clearing/demolition/preparation, major foundations, steel and building erections, equipment delivery and sitting, piping and electrical installation, and commissioning and startup. The following is a high level sequence of these activities:

- Installation of construction stormwater and erosion control measures; demolition and removal of existing structures; clearing, potential minimal blasting, and rough grading; and construction of office trailers, utilities, and parking (site clearing and excavation).

- Installation of major foundations and underground utilities including yard piping and electrical duct banks (excavation and foundations).

- Erection of structural steel and buildings; and the delivery and setting of major equipment (erection).
• Installation of interconnection piping and wiring, balance of plant equipment, controls and instrumentation, and final grading (erection).

• Testing, commissioning, and startup of the systems, final road tops, landscaping, and complete facility (finishing).

6.4.3.2.2 Construction Sound Estimates

Construction noise is highly variable because many construction machines operate intermittently, and the types of machines in use at a construction site change with the construction phase. Appendix D within the Baseline Sound Study attached as Appendix 6-E provides a list of common construction equipment, and typical maximum sound levels produced by this equipment.

The USEPA has published data on noise produced by typical construction machinery (USEPA, NTID300.1, December 31, 1971). The USEPA document also includes a procedure for predicting energy-average (that is, \( L_{eq} \)) construction noise levels based upon typical construction practices in the United States. The model distinguishes between type of construction (“housing,” “office building,” “industrial,” and “public works”) and between construction phase (“site clearing,” “excavation,” “foundations,” “erection” and “finishing”). The model is based upon:

• The number of each item of equipment typically present at a site in each given phase of construction;

• The operating duty cycles of this equipment; and

• The average noise levels from the equipment during operation.

The USEPA procedure for estimating construction noise impacts provides typical equivalent levels \( (L_{eq}) \) at a distance of 50 feet from the noise source for two conditions: “all pertinent equipment present at site,” and “minimum required equipment present at site.” The USEPA levels for the worst of these two conditions during construction of industrial facilities are listed in Table 6.4-2 (row labeled, “USEPA Model @ 50 feet”). Since specific information on types, quantities, and operating schedules of construction equipment is not available at this point in project development, information from the USEPA document has been used to estimate sound produced by construction for each construction phase at each of the five receptor locations. To estimate construction related sound levels at distant receptors, 50-foot sound levels have been reduced using standard divergence attenuation based on receptor distance to the approximate center of
the Project Site. This estimate is conservative since the only attenuating mechanism considered was divergence. Shielding effects from buildings and earth contours, and atmospheric absorption are not included in the calculations.

Table 6.4-2 also presents estimates of $L_{eq}$ sound levels at each of the five selected receptor locations. These estimates are those that would be experienced by people outdoors. Sound levels indoors would be reduced by 10 – 15 dB(A) (open windows) and 20-30 dB(A) (closed windows). Noise associated with project construction will occasionally be noticeable at the nearest receptor properties, particularly during the "excavation" phase of construction which may include; rock splitting, blasting, and pile driving. Construction-related sound at the more distant residential properties is expected to be consistent with typical daytime background sounds, and will have only minimal impacts. Because of the temporary nature of the construction noise, no adverse long-term effects are anticipated.

### Table 6.4-2: Estimates of Project Construction Sound Levels (dB(A)) at Selected Receptors

<table>
<thead>
<tr>
<th>Location</th>
<th>Ground Clearing</th>
<th>Excavation</th>
<th>Foundations</th>
<th>Erection</th>
<th>Finishing</th>
</tr>
</thead>
<tbody>
<tr>
<td>USEPA Model @ 50 Feet</td>
<td>84</td>
<td>89</td>
<td>78</td>
<td>85</td>
<td>89</td>
</tr>
<tr>
<td>Location 1 Green Acres Conf. Center</td>
<td>49</td>
<td>54</td>
<td>43</td>
<td>50</td>
<td>54</td>
</tr>
<tr>
<td>Location 2 ROW near 3 Vincent Road</td>
<td>52</td>
<td>57</td>
<td>46</td>
<td>53</td>
<td>57</td>
</tr>
<tr>
<td>Location 3 7 Cricket Hill Road</td>
<td>56</td>
<td>61</td>
<td>50</td>
<td>57</td>
<td>61</td>
</tr>
<tr>
<td>Location 4 2238 SR-22</td>
<td>58</td>
<td>63</td>
<td>52</td>
<td>59</td>
<td>63</td>
</tr>
<tr>
<td>Location 5 North Chippawalla Road</td>
<td>49</td>
<td>54</td>
<td>43</td>
<td>50</td>
<td>54</td>
</tr>
</tbody>
</table>
6.4.3.2.3  Special Construction Events (Blasting and Steam Blows)

As indicated above, during the site preparation phase of construction, controlled use of explosives to fracture and excavate rock (blasting) may occur. Sound produced by this activity would be very intermittent and would be controlled by using blast mats and minimizing charge size. If required, controlled blasting would only occur during daylight hours, when background sounds are significantly higher. Sounds produced by the controlled blasts are not expected to be disruptive at any of the nearby occupied properties. As discussed in Section 2.3.2, CVE will implement a detailed safety plan and a comprehensive public outreach plan should blasting be required. The public outreach plan will detail the approach to communicating blasting plans to the surrounding community and emergency officials.

Prior to initial steam turbine powering, steam blows are used to clear debris and surface scale from steam piping that could potentially damage steam turbine blades. The sound generated during this process can be significant if it is not properly controlled. Mitigation for this sound will include the use of temporary steam blow silencers which will be selected to limit sound impacts to less than 70 dB(A) at the nearest residences. This process is brief in duration, typically lasting 2 – 3 minutes per blow. Approximately 30 – 50 blows are required to clean the lines, which occurs over a 2 – 3 week period. This type of event will be limited to weekday daytime hours only and will be communicated to the public via a comprehensive public outreach plan.

6.4.3.2.4  Construction Vehicular Traffic Noise

Noise produced by traffic associated with the construction of the project will have a negligible impact in the surrounding community. This is because of the high volume of traffic that already exists on roads where construction related traffic is expected to occur (e.g., NYS Route 22).

6.4.3.2.5  Construction Sound Mitigation Measures

The Project will meet the NYSDEC and Town of Dover noise policies during the construction period. Construction noise is difficult to control because of the mobile nature of its sources, and the flexibility of schedule inherent in most construction work. However, construction is also temporary in nature. In order to mitigate the possible effect of noise caused during the temporary construction period, the following steps will be taken:

- Construction activity will be concentrated to a limited on-site area at significant distances from receptor properties.
• Construction producing significant noise levels will be limited to daylight hours, to the extent possible. Some limited activities, such as concrete pours, will be required to occur continuously until completion for the benefit of public safety (i.e., concrete and structural integrity). During daytime hours, background sound in the surrounding area increases significantly due to traffic activity on NYS Route 22. For the most part, at nearby residences, sound produced by construction activities is expected to be masked by or consistent with traffic related sounds.

• Federal regulations limiting truck noise will be followed.

• The construction equipment manufacturers’ sound muffling devices will be used, and will be kept in good repair throughout the construction process.

6.4.3.3 Operational Noise

6.4.3.3.1 Facility Sound Sources

Principal sources of environmental sound produced by the power plant are listed below and detailed in Figure 6 and 7 of Appendix E contained within the Baseline Sound Study & Environmental Sound Evaluation attached as Appendix 6-E:

• Air cooled condensers (3 units - 16 cells/unit)
• Fin-fan coolers (3 units - 15 cells/unit)
• Combustion turbine exhausts through the HRSG stacks (3 stacks)
• Combustion turbine air inlets (3 air inlets)
• Turbine compartment ventilation fans (3 roof penetrations)
• Exhaust compartment ventilation fans (3 roof penetrations)
• Transformers (3 combustion turbine generators, 3 steam turbine generators, 3 auxiliary)
• Power generation building structures which includes:
  o Combustion turbine/generator primary enclosure (3 units)
  o Steam turbine and generator (3 units)
  o Heat recovery steam generators (3 HRSGs)
  o Boiler feed pumps
  o Building ventilation
6.4.3.3.2 Facility Sound Mitigation Measures

The design and engineering of specific sound control features will be completed during the detailed design phase of the project. However, for sound level modeling, the following noise abatement options were incorporated into the project’s conceptual design:

- Low noise air cooled condensers with a maximum sound level of 51 dB(A) at a distance of 400 feet from the edge of a single tower (16 cells).

- Low-noise fin-fan coolers with a maximum sound level of 45 dB(A) at a distance of 400 feet from the edge of a single unit (15 cells).

- Depending on the sound attenuating characteristics of the HRSG system, a duct silencer may be required in the exhaust outlet duct or stack. A maximum sound level of 42 dB(A) at a distance of 400 feet perpendicular to a single stack has been assumed.

- The combustion turbine air intake will require duct silencers. A maximum sound level of 40 dB(A) at a distance of 400 feet perpendicular to a single inlet has been assumed.

- Reduced noise transformers with a National Electrical Manufacturers Association (NEMA) ST-20 sound rating of 70 dB(A) or less.

- The combustion turbines, steam turbines, and generators will be enclosed with vendor-supplied equipment to reduce equipment noise within the power generation building. Duct silencers will be required to mitigate sound produced by turbine compartment and exhaust compartment ventilation fans.

The combustion turbines, HRSGs, steam turbines, generators, boiler-feed pumps, and other auxiliary equipment will be housed within various building structures. Sound transmitted through the walls and roofs of these buildings is based on average interior sound levels of 85 dB(A). The walls and roofs of the buildings will be constructed of 2-inch thick insulated metal panels with 22-gauge sheet metal on the interior and exterior sides. To account for penetrations of the panels for ventilation, the analysis assumed that 10 percent of all building surfaces are acoustic louvers and de-rated the acoustic performance of the building façades of approximately a Sound Transmission Class (STC) 25 rating. In addition, all building ventilation equipment (louvers, and exhaust fans), and entryways will be carefully oriented, and/or acoustically treated to meet project acoustic design goals.
6.4.3.3 Facility Operational Sound Estimates

Figure 6.4-7 presents an aerial photograph of the project area and includes isopleths of estimated sound levels produced by the project. Table 6.4-3 provides a summary of the results of computer modeling of project-related sound at various sensitive receptors surrounding the site.

Table 6.4-3: Estimates of Project Operational Sound Levels (dB(A)) at Selected Receptors

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing Background</th>
<th>Estimate of Facility Operating Sound Level</th>
<th>Background plus Facility</th>
<th>Increase above Existing Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptor 1 – Green Acres Conf Ctr.</td>
<td>36</td>
<td>37</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>Receptor 2 – 3 Vincent Road</td>
<td>41</td>
<td>33</td>
<td>42</td>
<td>1</td>
</tr>
<tr>
<td>Receptor 3 – 7 Cricket Hill Road</td>
<td>40</td>
<td>45</td>
<td>46</td>
<td>6</td>
</tr>
<tr>
<td>Receptor 4 – 2238 NYS Route 22</td>
<td>51</td>
<td>45</td>
<td>52</td>
<td>1</td>
</tr>
<tr>
<td>Receptor 5 – North Chippawalla Rd</td>
<td>48</td>
<td>32</td>
<td>48</td>
<td>0</td>
</tr>
</tbody>
</table>

As demonstrated by the isopleths on Figure 6.4-7 and Table 6.4.3, the project’s operational sound levels attenuate to below existing ambient levels over a relatively short distance from the Project Development Area. The predicted sound levels increase 6 dB(A) or less above the nominally lowest hourly $L_{eq}$ at all acoustically sensitive receptors surrounding the project. Sound level impacts further to the north (Dover High School/Middle School complex) and east (residences along Cricket Hill Road) will be less than those shown in Table 6.4-3 and generally imperceptible at distances beyond the coverage of the receptors analyzed. Thus, the project is not expected to produce a significant acoustic impact at these nearest receptors and therefore meets the requirements of NYSDEC guidelines.

Once the facility is fully operational, CVE will measure the actual project operational sound levels at the selected residents and property lines. These measurements and associated report will be conducted by a third party licensed acoustical engineer in accordance with industry practices and any applicable state and local regulatory requirements.

Figures 9 through 13 in the Baseline Sound Study and Environmental Sound Evaluation (Appendix 6-E)) includes plots of octave band estimates of project-related sound at the
five selected receptors. These data indicate that facility sound is devoid of prominent discrete tones, and will be consistent with existing background sounds in the community.

The Town of Dover zoning ordinance defines sound limits at project property lines, therefore the maximum project-related sound levels at each of the nearest property lines have also been estimated and are listed below:

- North property line: 48 dB(A)
- East property line: 48 dB(A)
- South property line: 58 dB(A) (at the proposed property line)
- West property line: 59 dB(A)

Despite the incorporation of state-of-the-art design and engineering components to mitigate facility sound, there are locations along two property lines where noise mitigation measures will not mitigate so as to be totally compliant with the performance standards set forth in Section 145-40. While the project is expected to comply with the most restrictive night time sound level limit (50 dB(A)) of the Town of Dover Zoning Code at the north and east property lines, the west property line abutting the Metro-North rail line and the southern proposed property line abutting other industrial zoned property are expected to be non-compliant (> 50 dB(A)). However, these properties are not occupied by noise-sensitive uses. To the contrary, the non-compliant property lines abut a railroad track and a proposed industrial facility.

CVE proposes to address this non-compliance by petitioning the Town Board to amend the Town of Dover Zoning Code (Section 145-40) so as to permit the anticipated noise levels. To ensure that sensitive noise receptors (i.e., residences) are not adversely affected, this amendment would apply only where a proposed industrial use abuts other properties zoned Industrial. Such amendment, permitting no sound level to exceed 60 dB(A) between the hours of 8:00 p.m. and 7:00 a.m. — only where abutting an manufacturing/industrial zoning district — recognizes the legislative intention of permitting certain property to be used for industrial uses while not negatively affecting community character and residential uses. A minor legislative amendment to the Code could be accomplished via the italicized text below:
SECTION 145-40(C)

(2) No person, firm or corporation shall allow the emission of sound which, as measured at the property lines, has a sound level in excess of:

(a) Sixty decibels on the A-weighted scale between the hours of 7:00 a.m. and 8:00 p.m.; and

(b) Fifty decibels on the A-weighted scale between the hours of 8:00 p.m. and 7:00 a.m., unless the property line is abutting an “M” zoning district in which case no sound level shall exceed sixty decibels on the A-weighted scale between the hours of 8:00 p.m. and 7:00 a.m.

6.4.4 Conclusions

CVE has carefully considered noise impacts to the surrounding community in developing the project layout and in the selection of facility components and orientation. As such, the project is not expected to produce a significant noise impact and will meet the requirements of NYSDEC and local noise guidelines.

To demonstrate compliance with NYSDEC noise guidelines and the local Town of Dover Zoning Code, CVE conducted a sound evaluation study to quantify and characterize the existing acoustic environment in the vicinity of the proposed project. Results of the noise modeling for project construction activities indicates that noise will occasionally be noticeable at the nearest residential properties, particularly during the excavation phase of construction. Construction-related sound at the more distant residential properties is expected to be consistent with typical daytime background sounds, and will have only minimal impacts. Because of the temporary nature of the construction noise, no adverse long-term effects are anticipated.

Results of the noise modeling for project operation indicate that the project will comply with applicable NYSDEC guidelines at all of the five measurement locations analyzed. The project is not expected to produce a significant acoustic impact at these nearest residences.

While the project is expected to comply with the most restrictive night time sound level limit of the Town of Dover Zoning Code at the north and east property lines, the west property line abutting the Metro-North rail line and the southern proposed property line abutting other industrially zoned property are expected to be non-compliant. However, these properties
are not occupied by noise-sensitive uses. CVE is requesting a minor amendment to the Town of Dover Zoning Code so as to permit the anticipated noise levels without negatively impacting community character and residential uses.

6.4.5 References


EXHIBIT H
Project Fence Height – Areas of Non-Compliance