STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

April 17, 2015

TO: Parties and Intervenors

FROM: Melanie Bachman, Acting Executive Director MAB

RE: **DOCKET 192B-** CPV Towantic, LLC Motion to Reopen and Modify the June 23, 1999 Certificate of Environmental Compatibility and Public Need based on changed conditions pursuant to Connecticut General Statutes §4-181a(b) for the construction, maintenance and operation of a 785 MW dual-fuel combined cycle electric generating facility located north of the Prokop Road and Towantic Hill Road intersection in the Town of Oxford, Connecticut.

As stated at the hearing in New Britain on March 26, 2015, after the Connecticut Siting Council (Council) issues its draft findings of fact, parties and intervenors may identify errors or inconsistencies between the Council's draft findings of fact and the record; however, no new information, evidence, argument, or reply briefs will be considered by the Council.

Parties and Intervenors may file written comments with the Council on the Draft Findings of Fact issued on this docket by April 24, 2015.

MB/MP/cm

Enclosure

DOCKET 192B- CPV Towantic, LLC Motion to Reopen and Modify the June 23, 1999 Certificate of Environmental Compatibility and Public Need based on changed conditions pursuant to Connecticut General Statutes §4-181a(b) for the construction, maintenance and operation of a 785 MW dual-fuel combined cycle electric generating facility located north of the Prokop Road and Towantic Hill Road intersection in the Town of Oxford, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		April 10, 2015

DRAFT I
Findings of Fact

INTRODUCTION

Procedure

1. On June 23, 1999, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) to Towantic Energy, LLC for the construction, maintenance, and operation of a 512 megawatt (MW) electric generating facility located approximately 4,000 feet north of the Prokop Road and Towantic Hill Road intersection in the Town of Oxford, Connecticut. A Development and Management Plan (D&M Plan) for construction of the facility was approved by the Council on March 1, 2001. (Council Administrative Notice Item No. 40)

2. On February 2, 2012, CPV Towantic Holding Company, LLC and Towantic Energy Holdings, LLC, the parent company of Towantic Energy, LLC, entered into an agreement pursuant to which CPV Towantic Holding Company, LLC acquired a majority interest in Towantic Energy, LLC. Thereafter, Towantic Energy, LLC was renamed CPV Towantic, LLC (hereinafter referred to as "CPV" or "Certificate Holder"). On April 12, 2012, pursuant to a Notification of Name Change submitted by the Certificate Holder on March 7, 2012, the Council approved the transfer of the Certificate to CPV. The transfer of the Certificate was conditioned upon the consent of CPV to comply with the terms, limitations and conditions contained in said Certificate and on the timely payment of apportioned assessment charges for the facility under Connecticut General Statutes (C.G.S.) §16-50v. (Council Administrative Notice Item No. 40)

3. On November 3, 2014, the Certificate Holder submitted to the Council and the service list for the original Docket 192 proceeding a Petition to Reopen and Modify the June 23, 1999 Certificate based on changed conditions pursuant to C.G.S. §4-181a(b) (Motion to Reopen). The Motion to Reopen was submitted with an Environmental Overview in Support of Petition for Changed Conditions (EOSPCC) and a report on the New England Wholesale Power Market Changes from 1999-present (NEWPMC). On November 4, 2014, the Council sent a memo to the service list for the original Docket 192 proceeding requesting comments or statements of position in writing by November 12, 2014. (CPV 1; CSC Memorandum re Docket 192B, dated November 4, 2014)

4. At a meeting held on November 13, 2014, the Council voted to grant the Certificate Holder's Motion to Reopen. As part of the vote, the Council reopened Docket 192 in its entirety and did not limit the proceedings to the changed conditions presented in the Motion to Reopen. (CSC Memorandum re Docket 192B, dated November 4, 2014)

5. At a meeting held on December 11, 2014, the Council voted to approve the schedule for processing Docket 192B with a public field review and public hearing in the Town of Oxford on January 15, 2015. (CSC Meeting Minutes, December 11, 2014).

6. On December 18, 2014, the Council held a pre-hearing conference on procedural matters for parties and intervenors to discuss the requirements for pre-filed testimony, exhibit lists, administrative notice lists, expected witness lists, filing of pre-hearing interrogatories and the logistics of the public inspection of the site scheduled for January 15, 2015 at the office of the Council, 10 Franklin Square, New Britain, Connecticut. (CSC Pre-Hearing Conference Memoranda, dated December 12, 2014 and December 19, 2014).

7. The Council and its staff conducted a public inspection of the site on January 15, 2015, beginning at 1:30 p.m. During the field inspection, the Certificate Holder flew a red balloon with a diameter of approximately five feet at each of the proposed stack locations to simulate the height of the proposed stacks. During the field review, the balloons reached a height of 980 feet above mean sea level (amsl), which is the 150-foot stack height above the proposed final grade level. The Federal Aviation Administration (FAA) asked CPV not to launch the balloons until 7:30 a.m. due to sunrise. Accordingly, the first balloon was raised at 7:35 a.m., and the second balloon was raised at 8:05 a.m. The balloons were aloft until 4:00 p.m. for the convenience of the public. The weather conditions for the balloon flight were relatively favorable with lighter winds than anticipated as well as clear visibility. (Council's Pre-Hearing Memorandum, dated December 19, 2014; Transcript 01/15/15, 3:05 p.m. [Tr. 1], pp. 39-40)

8. Pursuant to Section 16-50j-21 of the Regulations of Connecticut State Agencies (RCSA), the Certificate Holder erected a sign at the site north of the Prokop Road and Towantic Hill Road intersection on December 30, 2014. Specifically, the sign was located just north of the Spectra access road on the eastern side of Woodruff Hill Road. The sign presented information regarding the project and the Council's public hearing. (CPV 10c; CPV 12, response 1)

9. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public hearing on Thursday, January 15, 2015, beginning with an evidentiary session at 3:00 p.m., and continued with a public comment session at 6:30 p.m., at the Oxford High School, Auditorium, 61 Quaker Farms Road, Oxford, Connecticut. (Council's Hearing Notice dated December 12, 2014; Tr. 1, p. 3; Transcript 01/15/15, 6:30 p.m. [Tr. 2], p. 5)

10. The evidentiary hearings were continued on January 29, February 10, 24, March 12, 24, and 26, 2015 at the office of the Council, 10 Franklin Square, New Britain, Connecticut. (Tr. 2, p. 261; Transcript 01/29/15 [Tr. 3], p. 355; Transcript 02/10/15 [Tr. 4], p. 539; Transcript 02/24/15 [Tr. 5], p. 742; Transcript 03/12/15 [Tr. 6], p. 1; Transcript 03/24/15 [Tr. 7], p. X; Transcript 03/26/15 [Tr. 8], p. 1)

11. CPV Towantic, LLC is the Certificate Holder. Other parties and intervenors to this proceeding are as follows:

Party	Intervenor
Jay Halpern – Citizens for Defense of Oxford	Town of Middlebury
Town of Oxford	The Connecticut Light and Power Company*
Naugatuck Valley Chapter Trout Unlimited	Raymond Pietrorazio
The Pomperaug River Watershed Coalition	Town of Southbury
	GE Energy Financial Services, Inc.
	Borough of Naugatuck and the Borough of Naugatuck Water Pollution Control Authority
	Wayne McCormack
	Naugatuck River Revival Group, Inc.
	Westover Hills Subdivision Homeowners
	Westover School
	Greenfields, LLC and Marian Larkin

	Lake Quassapaug Association, LLC
	Middlebury Land Trust, Inc.
	Quassy Amusement Park
	Middlebury Bridle Land Association
	Dennis Kocyla
	Naugatuck Valley Audubon Society
	Oxford Flying Club

*The Connecticut Light and Power Company changed its name to The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource).
(Tr. 6, p. 31; Record)

12. During a meeting held on December 11, 2014, a meeting held on January 8, 2015 and the public hearing held on January 15, 2015, the Council grouped the following parties and intervenors pursuant to C.G.S. §16-50n(c):
    a. The Pomperaug River Watershed Coalition (PRWC); the Naugatuck Valley Chapter of Trout Unlimited (NVCTU); the Naugatuck River Revival Group (NRRG); Lake Quassapaug Association, LLC (LQA); the Middlebury Bridle Land Association (MBLA); Dennis Kocyla and the Naugatuck Valley Audubon Society (NVAS) (hereinafter referred to as the "Community Group"); and
    b. Mr. Ray Pietrorazio; the Town of Middlebury and the Middlebury Land Trust (MLT), (hereinafter referred to as the "Middlebury Group")

    (Council Meeting Minutes dated December 11, 2014; Council Memorandum dated December 12, 2014; Council Meeting Minutes dated January 8, 2015; Council Memorandum dated January 16, 2015)

State Agency Comments

13. Pursuant to C.G.S. §16-50j (g), on December 12, 2014 and March 27, 2015, the following state agencies were requested to submit written comments regarding the reopened proceeding: Department of Energy and Environmental Protection (DEEP); Department of Agriculture (DOAg); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Emergency Services and Public Protection (DESPP); Department of Consumer Protection (DCP); Department of Labor (DOL); Department of Construction Services (DCS); Department of Transportation (DOT); the Connecticut Airport Authority (CAA) and the State Historic Preservation Office (SHPO). (Council Hearing Package, dated December 12, 2014; CSC Memorandum Re State Agency Comments, dated March 27, 2015)

14. On December 29, 2014, the Council received comments from the CAA requesting the Certificate Holder provide a copy of the FAA Form 7460 – "Notice of Proposed Construction or Alteration" - and a copy of any plume drift analysis. (CAA Comments, dated December 26, 2014)

15. On January 7, 2015, the Council received comments from the DPH indicating the project is not within a public water supply source water area and that since the project proposes to connect to the Heritage Water Company (HWC) public water system to obtain process water and drinking water, the project must comply with the backflow prevention requirements, is required to have annual tests performed by a certified DPH Backflow Prevention Device Tester and is required to perform inspections by a certified DPH Cross Connection Survey Inspector. DPH further recommended that the Certificate Holder demonstrate that the proposed facility minimizes the use of potable water and optimizes water conservation opportunities. (DPH Letter dated January 7, 2015)

16. On January 28, 2015, the Council received comments from the DEEP noting the benefits provided by the facility's use of dual-fuel capability, recommending the investigation of opportunities to augment the volume of on-site storage for contingencies, recommending establishment of wetland vegetation in the bottoms of the two proposed stormwater treatment basins as a mitigation measure and identifying the following permit requirements:
    a. New Source Review permits for the two combustion turbines, the emergency diesel generator, the diesel fire pump and the natural gas-fired auxiliary boiler;
    b. Title V Permit to be issued after the facility goes into operation;
    c. Wastewater Discharge Permit to be issued after the facility goes into operation;
    d. General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities or a General Permit for the Discharge of Stormwater Associated with Industrial Activities to be applied for prior to commencement of construction activities; and
    e. Section 401 Water Quality Certification under the Army Corps of Engineers (ACOE) Programmatic General Permit.

    (DEEP Letter dated January 28, 2015)

17. On March 6, 2015, the Council received comments from the SHPO indicating that no historic properties would be affected by construction of the facility. (SHPO Letter dated March 4, 2015)

18. The following agencies did not respond to the Council's request for comment on the reopened proceeding: DOAg, CEQ, PURA, OPM, DECD, DOT, DESPP, DCP, DOL and DCS. (Record)

Certificate Status

Jurisdiction, General

19. The Council has exclusive jurisdiction over electric generating facilities pursuant to C.G.S. §16-50i(a)(3) of the Public Utility Environmental Standards Act. Under C.G.S. §16-50k, "... no person shall... commence the preparation of the site for, commence the construction or supplying of a facility... that may, as determined by the Council, have a substantial adverse environmental effect in the state without first having obtained a certificate of environmental compatibility and public need... issued with respect to such facility... by the Council." (C.G.S. §16-50i(a)(3); C.G.S. §16-50k(a); C.G.S. §16-50x)

20. The Certificate issued by the Council on June 23, 1999 for the construction, maintenance and operation of a 512 MW electric generating facility located approximately 4,000 feet north of the Prokop Road and Towantic Hill Road intersection in the Town of Oxford, Connecticut is valid until June 1, 2016. (Council Administrative Notice Item No. 40)

Development and Management Plan

21. On October 20, 2000, the Certificate Holder submitted and sought approval of the D&M Plan for the approved facility in accordance with Condition No. 2 of the Council's June 23, 1999 Decision and Order (D&O). (Council Administrative Notice Item No. 40)

22. On November 20, 2000, the Town of Middlebury, Citizens for Defense of Oxford, Naugatuck Valley Chapter of Trout Unlimited, William Stowell and Mira Schachne (Petitioners) submitted a petition for a declaratory ruling that the D&M Plan is inconsistent with the Council's D&O. At a meeting held on November 2, 2000, the Council requested parties and intervenors to Docket 192 submit comments on the D&M Plan and on the petition for a declaratory ruling. (Council Administrative Notice Item No. 47)

23. On November 22, 2000, January 19, January 23 and February 13, 2001, the Certificate Holder submitted responses to interrogatories and comments on the petition for a declaratory ruling, as well as submitted the draft air and waste discharge permits and the final Federal Aviation Administration (FAA) determination. On December 15, 2000, the Certificate Holder submitted a revised D&M Plan. (Council Administrative Notice Item No. 47)

24. On March 8, 2001, the Council found that the D&M Plans were consistent with the Council's D&O, state policy and municipal orders, found that the D&M Plans were protective of the environment and offered reasonable and adequate mitigation, and approved the D&M Plans. The Council also denied the petition for a declaratory ruling submitted by the Petitioners. (Council Administrative Notice Item No. 47)

25. The Petitioners appealed from the Council's decision to deny the petition for a declaratory ruling. The appeal was dismissed by the Connecticut Superior Court on February 27, 2002. The Court found that the Council did not act unreasonable, arbitrarily, illegally or in abuse of its discretion in denying the petition for a declaratory ruling. (Council Administrative Notice Item No. 47; *Town of Middlebury, et al v. Connecticut Siting Council,* 2002 Conn. Super. LEXIS 610 (Conn. Super. Ct. 2002))

Requests for Extensions

26. Pursuant to Condition No. 9 of the Council's D&O, unless otherwise approved by the Council, the D&O shall be void if all authorized construction was not completed within four years of the effective date of the D&O or within four years after all appeals of the D&O have been resolved. (Council Administrative Notice Item No. 40)

27. An appeal to the Connecticut Superior Court was taken from the Council's decision by the Citizens for the Defense of Oxford (CDO). CDO asserted that the Council made two errors of law in failing to find a need for the facility as a necessary precursor to its finding a public benefit of the facility and in failing to require the Certificate Holder to provide it with information about the impact of the proposed withdrawal of water from the Pomperaug River by the proposed facility. This appeal was dismissed on November 14, 2000. That decision was further appealed to the Connecticut Appellate Court, but the appeal was withdrawn on or about May 19, 2001, thus establishing a facility construction deadline of May 29, 2005 in accordance with Condition No. 9 of the Council's D&O. (Council Administrative Notice Item No. 40; *Citizens for Defense of Oxford v. Connecticut Siting Council,* 2000 Conn. Super. LEXIS 2994 (Conn. Super. Ct. 2000))

28. On December 3, 2003, the Certificate Holder filed a request to extend the Certificate deadline 45 months beyond the final resolution of the pending appeal of the Department of Environmental Protection (DEP) air emission permits. This would allow the Certificate Holder to complete an electrical interconnection agreement with the independent system operator and provide the time needed to secure financing. On March 4, 2004, the Council granted a 13 month extension of the Certificate deadline to June 26, 2006. This extension was granted to coincide with the DEP air emission permit deadline. The DEP deadline is a milestone by which the Certificate Holder would need to refile a Best Available Control Technology analysis for air emissions. (Council Administrative Notice Item No. 40)

29. On September 28, 2005, the Certificate Holder filed a motion to reopen Docket No. 192 to eliminate the dual-fuel capability requirement and to eliminate the current deadline for construction. On November 17, 2005, the Council denied the Certificate Holder's request to reopen and made its own motion to reopen Docket No. 192 on changed conditions pursuant to C.G.S. §4-181a(b). On December 20, 2005, Calpine, the parent owner of Towantic Energy, LLC, submitted a bankruptcy filing with the United States Bankruptcy Court that automatically stays all administrative proceedings. On April 20, 2006, the Certificate Holder advised the Council that it had requested relief from the automatic stay from the United States Bankruptcy Court and requested a 90-day extension of the Certificate deadline. On May 17, 2006, the Council considered the Motion for Relief from the Automatic Stay granted by the United States Bankruptcy Court and granted a 90-day extension of the Certificate deadline to September 26, 2006. (Council Administrative Notice Item No. 40; Council Administrative Notice Item No. 41)

30. On April 22, 2006, the Certificate Holder and Intervenor General Electric Energy Financial Services (GE-EFS) jointly submitted a filing with the Council stating that GE-EFS was investigating a possible purchase of the Certificate from the Certificate Holder. The Certificate Holder further stated that GE-EFS needed to complete comprehensive research and analysis of project data, including a review of the project's status and economics, and gain approval by senior management before proceeding with the purchase. Consequently, the Certificate Holder and GE-EFS requested a 120-day extension of the Certificate deadline from September 26, 2006 to January 24, 2007. On August 31, 2006, the Council granted this extension. (Council Administrative Notice Item No. 40)

31. On December 7, 2006, the Town of Middlebury, Raymond Pietrorazio, Citizens for Defense of Oxford, Mira Schachne and William Stowell (Petitioners) filed a petition for a declaratory ruling with the Council requesting that the Council rule that its prior extensions of the Docket 192 Certificate are void and that, since the power plant has still not yet been built, the Certificate expired. On January 4, 2007, the Council denied the petition on the following bases:
    a. C.G.S. §16-50p(a)(1) gives the Council the discretion to insert time limits in its approvals;
    b. If the Council inserted a time limit without the words, "Unless otherwise approved by the Council," or similar words fulfilling the same function, the amendment procedure of C.G.S. §16-50k(c) and C.G.S. §16-50*l*(d), and the changed conditions provisions of C.G.S. §4-181a(b) are the only means of extending such time limits;
    c. If the above-cited statutory provisions were the only means of extending the time limits, even with the language, "Unless otherwise approved by the Council," the phrase would be meaningless surplusage;
    d. By inserting the language, "Unless otherwise approved by the Council," the Council intended to be able to extend the time limit in the Docket 192 Decision without amending or modifying that decision and did make such reservation;
    e. C.G.S. §16-50p(a)(1) permits such a time limitation with such a reservation to so extend such limitation; and
    f. The time extensions rendered by the Council in Docket 192 are valid and any extension of the Certificate is likewise valid.

    (Council Administrative Notice Item No. 48)

32. The Petitioners appealed from the Council's decision to deny the petition for a declaratory ruling. The appeal was dismissed by the Connecticut Superior Court on November 1, 2007. The Court found that there is nothing in the statutes that negates the ability of the Council to make a flexible deadline a "condition" of a Certificate under C.G.S. §16-50p(a) rather than a matter for amendment. (Council Administrative Notice Item No. 48; *Town of Middlebury, et al v. Connecticut Siting Council,* 2007 Conn. Super. LEXIS 2897 (Conn. Super. Ct. 2007))

33. On January 18, 2007, the Council granted an extension of the Certificate to include completion of construction of the electric generating facility not later than January 24, 2011, with the condition that GE Energy Financial Services, Inc. and/or any of its subsidiaries complete the acquisition of Towantic Energy LLC or the Certificate not later than January 24, 2008. (Council Administrative Notice Item No. 40)

34. On September 17, 2007, Towantic Energy Holdings, LLC, an affiliate of GE Energy Financial Services, Inc. purchased 100 percent of the membership interests in Towantic Energy, LLC. (Council Administrative Notice Item No. 40)

35. On October 20, 2010, the Certificate Holder filed a request to extend the Certificate deadline to June 1, 2016 to obtain a power purchase agreement and complete construction of the facility. On November 8, 2010, the Council granted an extension of the Certificate deadline to June 1, 2016. (Council Administrative Notice Item No. 40)

36. The Certificate Holder, as part of its November 4, 2014 Motion to Reopen, requests an extension of the construction deadline to June 1, 2019 to provide reasonable time to permit, engineer, finance, and construct the updated facility. (CPV 1, p. 14)

Reopenings

Docket 192A

37. On November 17, 2005, the Council denied the Certificate Holder's request to reopen Docket No. 192 to eliminate the dual-fuel capability requirement and to eliminate the current deadline for construction and made its own motion to reopen under C.G.S. §4-181a(b) to consider whether changed conditions existed to justify reversing or modifying the Council's June 23, 1999 final decision in this docket. (Council Administrative Notice Item No. 41)

38. A public hearing was held on July 26, 2006 at which time the Council heard evidence on whether the following changed conditions justify reversing or modifying the June 23, 1999 Certificate:
    a. Changes in financing and market conditions for power purchases;
    b. Certificate banking;
    c. Traffic impact;
    d. Natural gas supply and cost;
    e. Status of air emission permits;
    f. Condition of buy-out with the Town of Oxford;
    g. Financial support of the Pomperaug River Watershed Coalition;
    h. Elimination of dual-fuel capability;
    i. Vertical exhaust plume effects on aviation in light of changes at the Waterbury/Oxford Airport and changes in FAA requirements, permits and studies;
    j. Waterbury/Oxford Airport Noise Study;
    k. Extension of the construction schedule;
    l. Regional Greenhouse Gas Initiative; and
    m. Federal Energy Regulatory Commission (FERC) approved forward capacity auction.

    (Council Administrative Notice Item No. 41)

39. In its decision on the reopened proceeding, the Council found that the need for the facility, extension of time for the Certificate, open-ended deadline to complete construction, air emission permits, traffic, noise, land use and water issues did not constitute changed conditions. The Council determined that although the remaining matters constituted changed conditions, in this particular case, the remaining matters were not sufficient to cause the Council to modify or revoke its June 23, 1999 final decision in Docket 192 and the remaining matters were dismissed. (Council Administrative Notice Item No. 41)

Docket NT-2010

40. On February 7, 2010, there was an explosion at the Kleen Energy Systems, LLC facility in Middletown, Connecticut. The Kleen Energy Plant Investigation Review Panel (Nevas Commission) was established to identify the cause and origin of the explosion. The Nevas Commission issued a Final Report on June 3, 2010 that included a recommendation that the Council review all gas-fired baseload power plants within its jurisdiction. Thereafter, a second commission was established, the Thomas Commission, to recommend any necessary specific legislative or regulatory changes to prevent such an event in the future. (Council Administrative Notice Item No. 35; Council Administrative Notice Item No. 43; Council Administrative Notice Item No. 44)

41. On September 21, 2010, the Thomas Commission issued an Executive Report that included recommendations for regulatory changes that could be accomplished by executive order, state legislation and/or the adoption of regulations. (Council Administrative Notice Item No 35; Council Administrative Notice Item No. 44)

42. During a public meeting held on October 21, 2010, the Council moved to reopen the evidentiary records of all of its jurisdictional, natural gas fired electric generating facilities limited to Council consideration of changed conditions and the attachment of conditions to the certificates and declaratory rulings consistent with the findings and recommendations in the Executive Report issued by the Thomas Commission. Docket 192 was among the reopened final decisions. (Council Administrative Notice Item No 35)

43. On March 17, 2011, the Council issued a final decision in Docket NT-2010 that included attachment of the following conditions to the Docket 192 Certificate:

    a. The use of natural gas as a fuel pipeline/system cleaning medium for construction or any future facility modification shall be prohibited.

    b. Submit the following information to the Council 15 days prior to any future fuel pipeline/system cleaning operations related to construction or any future facility modification:
        i. Identification of the cleaning media to be used;
        ii. Identification of any known hazards through use of the selected cleaning media;
        iii. Description of how known hazards will be mitigated, including identification of any applicable state or federal regulations concerning hazard mitigation measures for such media;
        iv. Identification and description of accepted industry practices or relevant regulations concerning the proper use of such media;
        v. Provide detailed specifications (narratives/drawings) indicating the location and procedures to be used during the pipe cleaning process, including any necessary worker safety exclusion zones;
        vi. Identification of the contractor or personnel performing the work, including a description of past project experience and the level of training and qualifications necessary for performance of the work;

vii. Contact information for a special inspector hired by the Certificate Holder who is a Connecticut Registered Engineer with specific knowledge and experience regarding electric generating facilities or a National Board of Boiler and Pressure Vessel Inspector and written approval of such special inspector by the local fire marshal and building inspector; and

viii. Certification of notice regarding pipe cleaning operations to all state agencies listed in General Statutes § 16-50j(h), the Department of Consumer Protection, Department of Labor, Department of Public Safety, Department of Public Works, Department of Emergency Management and Homeland Security, and the local Fire Marshal.

c. Compliance with the following codes and standards, as adopted and amended by the Department of Public Safety and/or the Authority Having Jurisdiction, for any future fuel pipeline/system cleaning operations related to construction or any future facility modification, as applicable:
   i. NFPA 37 (2010 edition);
   ii. NFPA 54 (2009 edition);
   iii. NFPA 54 Temporary Interim Amendment 09-3 (August 25, 2010);
   iv. NFPA 850 (2010 edition);
   v. NFPA 850 Temporary Interim Amendment 10-2 (November 9, 2010);
   vi. ASME B31 (2007); and
   vii. ASME B31.1 Appendices IV and V (2007).

d. Submit a copy of an Emergency Response/Safety Plan within 90 days of the date of this decision that identifies any revisions since the initial filing of the Development and Management Plan, if applicable, and that includes, but is not limited to the following:
   i. A description of the results of any simulated emergency response activities with any state and/or local emergency response officials;
   ii. Details of any facility site access system that accounts for all personnel entering and leaving the facility; and
   iii. Establishment of an emergency responder/local community notification system for on-site emergencies and planned construction-related activities that could cause community alarm. The system shall include notification to the following: local emergency responders, city or town officials, state legislators, and local residents that wish to participate.

e. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

f. If applicable, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

g. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

h. The Certificate Holder shall provide the Council with not less than 30 days written notice that the facility plans to cease operation.

i. If the Certificate Holder is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

(Council Administrative Notice Item No. 35)

Operating Reports

44. Condition No. 5 of the Council's June 23, 1999 D&O required the Certificate Holder to provide quarterly progress reports to include the status of permits, starting with the effective date of the D&O and ending with the commencement of facility operation, or as directed by the Council. (Council Administrative Notice Item No. 40)

45. According to the second quarter 2014 report filed by the Certificate Holder on December 4, 2014, the status of permits at that time was as follows:
    a. On July 29, 2014, the Certificate Holder submitted a response letter to DEEP on two conditions contained in DEEP's February 26, 2014 letter for the wastewater treatment and discharge system for the facility;
    b. On August 5, 2014, the Certificate Holder hosted an Open House in the Town of Oxford to provide information on the changed conditions to the facility and to answer questions;
    c. On August 5, 2014, the Certificate Holder submitted letters to the Mashantucket Pequot Tribal Nation and the Mohegan Tribe requesting confirmation with SHPO's previous determination that the proposed facility has no impact on historic and archaeological resources to which correspondence was submitted to the Certificate Holder confirming agreement with SHPO's determination on August 9, 2014;
    d. On August 15, 2014, the Certificate Holder published notice in the New Haven Register of its intent to submit air permit applications;
    e. On August 21, 2014, the Naugatuck Water Pollution Control Authority unanimously approved the Certificate Holder's discharge request subject to the plant manager's review;
    f. On August 26, 2014, the Certificate Holder submitted its application for a No Hazard Determination for the 2 stacks to the FAA;
    g. On September 5, 2014, the Certificate Holder submitted its air permit applications to DEEP;
    h. On September 9, 2014, the Certificate Holder augmented its FAA filing with 5 additional structures;
    i. On September 12, 2014, the Certificate Holder augmented its FAA filing with 1 additional structure; and
    j. On September 24, 2014, DEEP issued a Notice of Sufficiency Letter for the Certificate Holder's air permit applications.

    (Council Administrative Notice Item No. 40)

46. The third and fourth quarter 2014 reports are still outstanding. (Record)

Changed Conditions

47. The Certificate Holder identifies the following changed conditions since the June 23, 1999 Certificate was issued:
    a. The creation and evolution of the New England wholesale electric market, including recent significant changes to the design of the ISO-New England Forward Capacity Market (FCM);
    b. The need for new electric capacity in New England and the need to procure that capacity through market mechanisms;
    c. Advances in combustion turbine technology that increase efficiency, lower emission rates, and provide additional operating flexibility;
    d. Changes in the regulation of wholesale and retail electric markets;
    e. Changes in natural gas supply, transportation infrastructure and pricing;
    f. Changes in environmental regulation of electric generating facilities, including new and emerging regulations limiting carbon dioxide; and
    g. Changes in financial market requirements for obtaining project financing for electric generating facilities.

    (CPV 1, Motion to Reopen, p. 3)

48. The purpose of the Motion to Reopen is for the modified facility to operate more efficiently than the approved facility while providing the benefit of clean, reliable, low-cost energy and needed electric capacity to Connecticut and the New England region. (CPV 1 – Motion to Reopen, p. 2)

PROPOSED REVISED PROJECT

Public Benefit

49. Pursuant to Public Act 98-28, An Act Concerning Electric Restructuring, generators of electricity may compete with each other for the development of electric generation. (Council Administrative Notice Item No. 40 - Docket No. 192 Finding of Fact No. 8)

50. Created in 1997, ISO New England (ISO-NE) is the independent, not-for-profit corporation responsible for the reliable operation of New England's electric power generation and transmission system, overseeing and ensuring the fair administration of the region's wholesale electricity markets, and managing comprehensive regional electric power planning. (CPV 22, response 12 - ISO Press Release p. 3)

51. In 1999, the wholesale electric markets were in their infancy in New England. Ownership of generation resources by vertically integrated utilities with guaranteed cost recovery was in the process of being transferred to competitive entities that were dependent on the competitive wholesale markets to compensate them for the cost of operating their generation facilities and to allow them the opportunity to recover their investment. Over the past decade, these markets have evolved with overlapping reliability and public policy needs. (CPV 1, NEWPMC, p. 44)

52. The output from the CPV plant will be sold into the competitive wholesale energy markets in New England. This output would be used to reliably serve customers both in Connecticut as well as the New England region. (CPV 24, response 6)

53. According to the Council's Forecast of Connecticut Electric Loads and Resources Report in Docket No. F-2012/2013 and dated December 12, 2013, "This Council has considered Connecticut's electric energy future and finds that even taking into account the most conservative prediction, the ISO-NE 90/10 forecast, the electric generation supply during 2013-2022 will be adequate to meet demand." This analysis is based on the electric generation in Connecticut (and import into Connecticut) versus the ISO-NE 90/10 forecast for Connecticut itself, not the New England region as a whole. (Council Administrative Notice Item No. 32, pp. 25, 38, and 51)

54. According to ISO-NE's 2014 Regional System Plan, the New England region is expected to require 424 MW in 2019/2020 to meet the installed capacity requirement. This is expected to increase to a shortage of 1,155 MW by 2023/2024. This takes into account load and energy efficiency forecasts and only known retirements totaling approximately 3,200 MW. CPV's plant would provide nearly 800 MW towards this deficit. (CPV 1, NEWPMC, pp. 3 and 5; Council Administrative Notice Item No. 11, p. 11)

55. Since 1999, approximately 498 MW of existing generation has retired from Connecticut. More recently, 547 MW of existing generation in Connecticut has announced its retirement by 2017 and 2,173 MW of existing generation is considered "at risk" of future retirement according to ISO-NE. (CPV 17i)

56. Approximately 2,888 MW of existing generation within New England (but outside of Connecticut) is expected to retire by mid-2017. Specifically, of the 2,888 MW, the 604 MW Vermont Yankee Nuclear Power Plant retired in late 2014. (CPV 1, NEWPMC, p. 7; Tr. 1, pp. 43-44)

57. ISO-NE holds an annual auction to acquire the power system resources needed to meet future demand for the New England region. The annual Forward Capacity Market Auction (FCA) is held three years before each capacity commitment period to provide time for new resources to be developed. (CPV 22, response 12 – ISO-NE Press Release, pp. 1 and 3)

58. Resources that clear the FCA receive a monthly capacity payment in exchange for their commitment to provide power or curtail demand when called upon by ISO-NE. The capacity market is separate from the energy market, where resources compete on a daily basis to provide power, and are paid for the electricity they produce. (CPV 22, response 12 – ISO-NE Press Release, p. 3)

59. CPV participated and was selected in ISO-NE's ninth FCA (FCA9) which began and ended on February 2, 2015. This auction is for the June 1, 2018 through May 31, 2019 commitment period. The auction cleared approximately 1,000 MW of new capacity, including the proposed CPV facility at 725 MW. This is on the order of the summer rating of the plant of 740 MW at 90 degrees Fahrenheit (F) and burning natural gas. (CPV 22, response 12; Tr. 686-687; CPV 1, EOSPCC, p. 7)

60. The 2014 Integrated Resource Plan (2014 IRP) from DEEP states that, "New resources cleared in FCA9, including a 725 MW combined-cycle plant located in Connecticut, will help the reliability needs for 2018. The 2014 IRP projects that resources within Connecticut are expected to be sufficient to meet Connecticut's Local Sourcing Requirement through 2024, although Connecticut generation prices will be affected by regional supply/demand conditions. If the resources cleared in FCA9 do not come online by the 2018 timeframe, the region will experience a capacity shortfall, which will increase prices for all ratepayers in the region, including Connecticut." (Council Administrative Notice Item No. 59 – 2014 IRP, p. 76; CPV 33, p. 5)

61. The addition of CPV's plant to the New England resource base displaces generation from other electric generation facilities that have higher emissions per megawatt-hour (MWh). These plants being displaced have lower efficiency and higher emissions rates and are primarily fueled by oil, coal, and less efficient natural gas-fired units. The projected reductions in air emissions are listed below.

	CO_2	SO_2	NO_x
	Tons per year	**Tons per year**	**Tons per year**
Without CPV Facility			
2018	34,081,270	16,812	7,047
2020	33,837,885	14,432	6,495
With CPV Facility			
2018	33,810,816	16,396	6,581
2020	33,369,264	11,965	5,693
Difference			
2018	(270,454)	(416)	(466)
2020	(468,621)	(2,466)	(802)

(CPV 1, NEWPMC, pp.46 and 49)

62. The addition of CPV's plant would result in a reduction of wholesale energy costs to consumers. The data are listed below.

	Without CPV Facility ($M)	**With CPV Facility ($M)**	**Benefit ($M)**
2018	$10,358	$9,901	$458
2019	$10,105	$9,824	$281
2020	$10,042	$9,470	$572
2021	$10,581	$10,073	$507
2022	$10,662	$10,284	$378
2023	$10,936	$10,514	$422
2024	$11,251	$10,851	$400
2025	$11,638	$11,266	$372
2026	$11,955	$11,711	$244
2027	$12,457	$12,126	$331
2028	$12,547	$12,222	$325

(CPV 1, NEWPMC, p.45)

63. By 2024, assuming a typical residential customer usage of 700 kilowatt-hours (kWh) for Eversource Energy, CPV's plant would result in a reduction of about $2.57 per month or about $30.84 per year in a typical Eversource residential customer's bill. (CPV 13j)

64. According to the University of Connecticut's Center for Economic Analysis (CCEA) study, during the construction and operational phases of the proposed project, CCEA estimates that the project would create more than 2,300 and 1,800 jobs, respectively. (CPV 24, response 3)

Proposed Site

65. The proposed site includes a 20.3-acre property located immediately north of the Woodruff Hill Road cul-de-sac. The property is owned by CPV. (CPV 1, EOSPCC, Drawing C-300)

66. On May 2014, CPV entered into an Option Agreement for the Purchase of Real Property associated with a 6-acre parcel, designated Lot 9A in the Woodruff Hill Industrial Park. This parcel is located adjacent to and immediately south of the 20.3-acre property. This parcel would be used to accommodate stormwater management requirements. (CPV 1, EOSPCC, p. 11)

67. Similar to the original property, Lot 9A has gently rolling topography, ranging from 810 to 860 feet amsl. (CPV 1, EOSPCC, p. 11)

68. The site totaling about 26 acres is located in the Town of Oxford's Woodruff Hill Industrial Park and is generally bounded to the north by an Eversource electrical transmission right-of-way (ROW) and Algonquin Gas Transmission ROW, to the east and south by a Spectra Energy (Spectra) gas compressor station and access road, and to the west by Woodruff Hill Road. The site is dominated by a complex of mature, even-aged, hardwood forests and open fields with wetland inclusions primarily isolated to the northern and western portions of the site. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 1)

69. Both parcels are located within the Industrial District zone. (CPV 1, EOSPCC, Tab – Sounds Survey and Analysis Report, p. 20 – Figure 12)

70. The nearest residential structure is located approximately 870 feet southeast of the nearest fence line of the proposed facility. (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, Figure 2)

71. The nearest recreational use is the Larkin State Bridle Trail, located approximately 1,940 feet to the southeast of the nearest fence line of the proposed facility. (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, Figure 2; Tr. 6, pp. 91-92)

Proposed Project

72. The project includes construction of a 785 MW* natural gas-fueled power plant with ultra-low sulfur distillate oil (ULSD) as a backup fuel and an associated switchyard, power plant equipment areas, parking areas, and related storage facilities.

*This is based on net power plant output at 59 degrees F, natural gas as the fuel, and the plant at 100 percent capacity.
(CPV 1, EOSPCC, Tab C, Category 2 Permit Application, Volume II, p. 2; CPV 1, EOSPCC, pp. 2 and 7)

73. The project would use a combined-cycle configuration with two GE F7A.01 combustion-gas turbines and one steam turbine. The previously-approved combined cycle configuration utilized two GE F7A.03 in addition to the steam turbine. The GE F7A.03 combustion turbines were the most efficient at the time of the original approval. The proposed GE F7A.01 turbines are currently the most efficient and flexible available. (CPV 1, EOSPCC, pp. 3 and 5)

74. The GE F7A.01 have a 5.4 percent improvement in efficiency because of its lower heat rate of 6,401 British Thermal Units (Btu) per kilowatt-hour (kWh) as compared to the approved GE F7A.03 turbines with a heat rate of 6,770 Btu/kWh. (CPV 1, EOSPCC, p. 6)

75. The complete power output comparison of the proposed power plant versus the approved power plant is listed below depending on various conditions.

Approved GE Frame 7FA.03	**At 0 Degrees F**	**At 59 Degrees F**	**At 90 Degrees F**
Natural Gas			
Gas Turbines (2 units)	367.37 MW	332.52 MW	294.52 MW
Steam Turbine	189.95 MW	189.58 MW	164.70 MW
Facility Load	(10.04 MW)	(10.04 MW)	(10.04 MW)
Total Plant Net Output	547.28 MW	512.06 MW	449.18 MW
ULSD			
Gas Turbines (2 units)	371.51 MW	350.10 MW	312.43 MW
Steam Turbine	186.90 MW	188.24 MW	165.67 MW
Facility Load	(10.11 MW)	(10.11 MW)	(10.11 MW)
Total Plant Net Output	548.30 MW	528.23 MW	467.99 MW
Proposed GE Frame 7HA.01	**At 0 Degrees F**	**At 59 Degrees F**	**At 90 Degrees F**
Natural Gas			
Gas Turbines (2 units)	556.00 MW	524.34 MW	487.63 MW
Steam Turbine (with duct firing)	280.46 MW	280.47 MW	271.48 MW
Facility Load	(20.91 MW)	(20.12 MW)	(18.98 MW)
Total Plant Net Output	815.55 MW	784.69 MW	740.13 MW
ULSD			
Gas Turbines (2 units)	531.12 MW	494.51 MW	453.75 MW
Steam Turbine (with duct firing)	200.54 MW	207.78 MW	193.09 MW
Facility Load	(18.29 MW)	(17.56 MW)	(16.17 MW)
Total Plant Net Output	713.37 MW	684.75 MW	630.67 MW

(CPV 1, EOSPCC, p. 7)

76. The proposed combustion turbines would also have state-of-the-art emissions performance in terms of absolute emissions rates in parts per million (PPM). (See section on Air Quality Issues.) (CPV 1, EOSPCC, pp. 8-9)

77. Electricity from the project would be interconnected into three existing 115-kV transmission lines located next to the northwest corner of the subject property. (CPV 1, EOSPCC, pp. 10, Figure 2 and p. 39)

78. The major buildings on the site would include the following: (1) the turbine building, an approximately 161-foot by 92-foot by 37-foot high building to house the steam turbine generator; (2) the administrative/control/electrical building, an approximately 186-foot by 60-foot by 52-foot high building attached to the turbine building. (CPV 1, EOSPCC, p. 13 – Figure 3)

79. The heat recovery steam generators (HRSG) would be located immediately south of the combustion turbines. The HRSG's recover heat from the gas turbine exhaust and provide steam to power the steam turbine generator in order to generate even more power than from the combustion turbines alone, thus providing a "combined cycle." (CPV 1, EOSPCC, p. 10 – Figure 2; Council Administrative Notice Item No. 40 - Docket No. 192 Finding of Fact No. 121)

80. Two plant exhaust stacks, each 150 feet in height, would be located at the end of each HRSG. (CPV 1, EOSPCC, p. 12, Figure 3)

81. The air cooled condenser structure (ACC) would measure approximately 250 feet by 270 feet by 85 feet high. The ACC would cool and condense the steam exhaust from the HRSG using air cooling without using a wet surface cooler. This design is intended to reduce water consumption. (CPV 1, EOSPCC, pp. 10 and 12, Figures 2 and 3. Tr. 1, pp. 49-50)

82. An auxiliary cooling system fin fan condenser (also without wet surface cooling to save water) would measure approximately 100 feet long and 37 feet wide and would provide cooling for the major machinery of the plant. (CPV 1, EOSPCC p. 10, Figure 2; Tr. 8, p. 131)

83. The plant would have 1.5 MW diesel backup generator to supply in-house power in the event of a power outage. If approved, details of the fuel storage and containment would be included in the D&M Plan. (Tr. 8, pp. 128-130)

84. The proposed electrical switching station would comprise an approximately 77,000 square foot area surrounded by an eight-foot high fence, at a location on the northern end of the power plant facility. The 115-kV switchyard would utilize a breaker and a half configuration including the following major components: 12 terminal structures with associated foundations; 14ea. 115-kV circuit breakers with associated foundations; 37 disconnect switches with associated foundations; 18 surge arresters; six line traps; 27 capacitor coupled voltage transformers; six station service voltage transformers with associated foundations; and one control enclosure to contain all control and relaying panels for relaying and control, Supervisory Control and Data Acquisition (SCADA) system panels, communications panels, security panels; fire protection system, a set of batteries and direct current system, alternating current system, and bathroom facility. (CPV 1, EOSPCC, p. 9 – Figure 2; Eversource Energy 2, pp. 2-3)

85. The proposed switching station is air-insulated, rather than gas insulated design. Eversource agrees with the air-insulated design. If approved, ISO-NE would have to be notified if the Council required a gas-insulated switchyard. (Tr. 6, p. 41)

86. Two water storage tanks would each contain 875,000 gallons of demineralized water. The water tanks would be 42 feet tall. (CPV 1, EOSPCC, pp. 10 and 11)

87. The plant would have two water demineralization trailers located on the western side of the plant, adjacent to the water storage tanks. (CPV 1, EOSPCC, p. 9 – Figure 2)

88. A fuel oil storage tank would store 1,500,000 gallons of ultra-low sulfur distillate fuel oil (ULSD). This tank would be located within a secondary steel containment structure. The ULSD tank would be 42 feet tall. (CPV 1, EOSPCC, p. 10 – Figure 2)

89. The power plant would be served by municipal water and sewer service. (CPV 1, EOSPCC, Tab C, Category 2 Permit Application, Volume II, p. 2)

90. All stormwater structures would be designed to handle a 100-year storm event. (Cite March 24th Transcript)

91. Approximately 3,000 linear feet of driveway would be constructed on the subject property for accessing the facility along with the associated stormwater drainage system and stormwater quality measures. (CPV 1, EOSPCC, Tab C, Category 2 Permit Application, Volume II, p. 2)

92. Access to the site property would be via Woodruff Hill Road, an existing cul-de-sac. The proposed plant access road on the subject property would be constructed off of Woodruff Hill Road. (CPV 1, EOSPCC, p. 31 – Figure 6)

93. The project would be designed in compliance with the *2004 Stormwater Manual* and the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control.* (Tr. 8, p. 112)

94. The estimated construction cost of the proposed project is:

Equipment, Procurement and Construction	$761M
Owner's Costs*	$239M
Total Estimated Costs	**$1B**

*Owners costs include development, financing, permitting, land acquisition, spare parts, etc.
(CPV 3, response 9; CPV 20, response 7)

Permits and Approvals

ACOE

95. ACOE has completed its review of CPV's Connecticut General Permit Category 2 application and does not have any comments. The ACOE has verbally approved the project under the Connecticut In Lieu Fee Program to mitigate for the project's unavoidable loss impact to wetlands. (CPV 3, response 11)

DEEP

96. CPV's General Permit for the Discharge and Stormwater and Dewatering Wastewaters from Construction Activity was re-issued by DEEP on August 21, 2013, with an effective date of October 1, 2013. (CPV 1, EOSPCC, p. 17)

97. CPV's General Permit for the Discharge of Stormwater Associated with Industrial Activity became effective on October 1, 2011 and was modified on December 3, 2013. Prior to construction and operation, CPV's Stormwater Pollution Protection Plan would be updated to the most current design and standards and filed with DEEP in accordance with this permit. (CPV 1, EOSPCC, pp. 17-18)

98. CPV has received its Wastewater Discharge Permit from DEEP with conditions. CPV is awaiting action on its permit with the Borough of Naugatuck Water Pollution Control Authority (WPCA) permit for wastewater discharge. Action on the permit application was tabled by WPCA on January 22, 2015. (CPV 1, EOSPCC, p. 29 and Tab A; Borough of Naugatuck 2)

99. CPV filed a permit application for Stationary Sources of Air Pollution/New Source Review Permit dated September 8, 2014 with DEEP. (CPV 4, response 9)

100. CPV has received its 401 Water Quality Certification for DEEP for the project with comments/conditions including but not limited to the monitoring of wetland plantings within Stormwater Renovation Areas "A" and "B" and implementing construction measures designed to protect the Eastern Box Turtle. (CPV 3, response 11; CPV Administrative Notice Item No. 37; Tr. 8, p. 112)

FAA

101. The FAA review history for the site is listed in the table below.

Date	Action
6/21/1999	FAA issued a Determination of No Hazard for original location of stacks at elevation of 146 feet or 980 feet AMSL (1999-ANE-52-OE).
2/17/2000	Towantic moved the stack locations about 300 feet and raised the elevation to 150 feet AGL.
9/15/2000	The Determination of No Hazard was extended to 2/25/2002.
1/31/2001	The FAA denied a petition for discretionary review, rejecting a claim about water vapor impacts and the stack relocations.
7/24/2002	The Determination of No Hazard was extended to 1/24/04.
2004 through 2007	The work on the project was suspended due to bankruptcy proceeding of project's then owner.
3/31/2008	Form 7460-1 was filed for two stacks (150 feet AGL or 981 feet AMSL) and five other buildings in the development. The FAA initiated Aeronautical Studies 2008-ANE-OE and six others.
5/20/2008	A Notice of Presumed Hazard was issued by the FAA for the two stacks and three other structure. The issues raised were the TERPS Circling Minimum Descent Altitude (exceeded by 18 feet), the Part 77 surfact (exceeded by 105 feet), and Traffic Pattern Altitude. (2008-ANE-416-OE and 2008-ANE-417-OE)
Balance of 2008	Exchange of information to support circularization. During the circularization process, a single complaint was registered relative to stack exhaust.
3/19/2009	An FAA Determination of No Hazard was issued for the 150-foot stacks (981 AMSL and within 50 feet of the identified location). Lighting was required, and the determination expired on 9/9/2010. (2008-ANE-416-OE and 2008-ANE-417-OE)
4/15/2009	Petition for discretionary review submitted by Mr. Raymond Pietrorazio citing FAA's analysis failing to take into consideration the effects of emissions in the Determination of No Hazard.
8/5/2009	The FAA denies request for discretionary review and reaffirms its Determination of Hazard for Stacks #1 and #2 (2008-ANE-416-OE and 2008-ANE-417-OE) and other site structures (2008-ANE-420-OE through 2008-ANE-422-OE), sets expiration date for determinations of 3/5/2011.
3/3/2011	Extensions to Determination of No Hazard were granted for Air Cooled Condenser (2008-ANE-420-OE), Main Building (2008-ANE-421-OE) and Switchyard Towers (2008-ANE-422-OE).
6/13/2011	New applications were submitted to the FAA for Stacks #1 and #2 (2011-ANE-1219-OE) and Switchyard Towers (2008-ANE-422-OE).
6/17/2011	Determination of No Hazard was issued for two oil storage tanks (2011-ANE-825-OE and 2011-ANE-826-OE).
9/6/2011	The FAA issued Notice of Presumed Hazard (2011-ANE-1219-OE and 2011-ANE-1220-OE).
2/2012	The Applicants withdrawn and aeronautical studies terminated due to pending

	addition of new joint venture partner and schedule uncertainty.
6/6/2014	Form 7460-1 was filed for the two stacks (981 feet AMSL with base elevation of 831 feet) relocated farther east.
8/19/2014	Notice of Presumed Hazard was issued citing the VFR Horizontal Surface Expanded Category "A" Circling Approach Procedure (2014-ANE-931-OE and 2014-ANE-932-OE).
8/21/2014	Aeronautical study was terminated to adjust graded base elevation.
8/26/2014	Form 7460-1 was filed for the two stacks (980 feet AMSL with a base elevation of 830 feet), with 1A accuracy surveys (2014-ANE-1770-OE and 2014-ANE-1771-OE).
9/9/2014	Form 7460-1 was filed for the majority of other project-related structures that would penetrate the VFR Horizontal Surface, with 1A accuracy surveys.
9/12/2014	Form 7460-1 was filed for the four corners of the administrative/control/engineering building, with 1A accuracy survey. All elements of the project are linked for FF review purposes.
11/17/2014	Notices of Presumed Hazard were issued for each facility element, as expected, citing the VFR Horizontal Surface.
1/16/2015	The date by which further study, including a circularization for public comment, will be requested by CPV.

102. The closest runway of the nearby Waterbury-Oxford Airport to the closest proposed stack is 3,846 feet or 0.63 nautical miles. The stacks would reach a height of 980 feet amsl. (CPV 29, Additional FAA Information, p. 1)

103. Under instrument flight rule (IFR) conditions, the pilots would have to maintain a minimum elevation of 1,280 feet amsl, which is a distance of at least 300 feet above the proposed stacks, and should rely on their instruments to maintain the published altitude. (CPV 29, Additional FAA Information, p. 1)

104. If pilots are properly following applicable requirements and protocols, under visual flight rule (VFR) conditions they must maintain a minimum altitude of 1,700 feet amsl or about 720 feet above the stacks of the proposed facility. In addition, the FAA regulation 14 CFR §91.119 requires aircraft under VFR conditions to maintain a minimum of 500 feet above objects, including stacks and, 14 CFR §91.13 requires pilots to not behave in a reckless manner. (CPV 29, Additional FAA Information, p. 1)

105. Plumes from the stacks could have areas of potentially severe turbulence approximately 28 or 29 feet above the top of the stacks. The 90th percentile height ranged from 126 to 133 feet above the stacks.(Tr. 3, p. 177-178)

106. Visible plumes from the stacks would only interrupt the controller's line of sight for very short periods. Specifically, at 41 to 109 nautical miles per hours (i.e. knots), which is the typical range for a Cessna 172 light sport aircraft, a plane would travel 69 to 184 feet per second. As a result, a light sport aircraft would expected to traverse a thermal plume in approximately two to five seconds. Given that a plume would only limit the controller's visibility for a very short period of time, there is no reason for a pilot to alter their course based on visibility issues. (CPV 29, Additional FAA Information, pp. 1-2)

107. The stacks were relocated slightly eastward in the proposed project in order to minimize, to the extent possible, intrusion on the airport surfaces and increase the distance from the airport in general. With the relocations and reducing the final grade by one foot, penetrations were limited to just one single area: the VFR horizontal surface. (CPV 1, EOSPCC, p. 9; Tr. 1, p. 55)

108. From a pilot's perspective, the height of the proposed stacks is not expected to be a concern. (Tr. 5, pp. 622-624)

109. CPV anticipates that the stacks would be lit using a lighting scheme similar to that imposed in the most recent FAA Determination of No Hazard for the two 150-foot stacks (which expired in 2011). The stack lighting is anticipated to include dual lighting, which includes medium intensity flashing red lights for nighttime operation and medium intensity flashing white lights for daytime and twilight operations. (CPV 12, response 8)

110. The FAA circularization review process, commenced on or about January 16, 2015, involves a request to the FAA to circularize the application contents. The FAA then reaches out to a number of stakeholders, including the CAA, CDOT, the Waterbury-Oxford Airport, local government flying clubs, air pilot associations, etc. for comments and feedback. FAA would use that to conduct an analysis that could take up to 120 days from filing or until approximately May 16, 2015. Ultimately, CPV is seeking a final Determination of No Hazard. (CPV 3, response 10; Tr. 1, p. 51-52, 55)

Water Use

111. The project would require water primarily for the following uses: steam cycle makeup, water injection during oil firing to control nitrogen oxides (NO_x) emissions, evaporative coolers, and potable water. (CPV 1, pp. 27-28, Figures 5 and 6)

112. As an air-cooled facility, the proposed plant is expected to be significantly more water-efficient. A wet-cooled facility, which is not being proposed, would require about five to six million gallons per day. Since the previous configuration, CPV has eliminated the wet surface air cooler for auxiliary plant cooling and use thin fan cooling also to increase water use efficiency. Processed water is also recycled to save water. (Tr. 1, pp. 49-50)

113. Water would be supplied to CPV's plant by the Heritage Village Water Company (HVWC). The quantity of water to be supplied by HVWC to this air-cooled facility is expected to be in the range of 33.9 to 40.8 gallons per minute (gpm) or 48,816 to 58,752 gallons per day (gpd) when the fuel is natural gas and the ambient temperature is not high enough to use evaporative coolers, e.g. 59 degrees F or less. (CPV 1, EOSPCC, p. 26; Tr. 1, p. 49-50)

114. When the fuel is natural gas and the evaporative coolers are in operation, the quantity of water supplied to CPV by HVWC would be in the range of 98.2 gpm to 102.2 gpm or 141,408 gpd to 147,168 gpd. (CPV 1, EOSPCC, p. 26)

115. Under the previously approved configuration, prior water demand was expected to be 41 gpm while firing natural gas with instantaneous demands of approximately 144 gpm, with water demand not exceeding 100,000 gpd. (CPV 1, EOSPCC, p. 26)

116. If the supply of natural gas is interrupted and ULSD is used as a fuel, the quantity of water required would be in the range of 663 to 712 gpm or 954,720 gpd to 1,025,280 gpd. This higher water usage is a result of the water that would be injected into the gas turbines to control NOx emissions. (CPV 1, EOSPCC, p. 26)

117. Under the previously approved configuration, the expected water demand for oil firing was 749,000 gpd. (CPV 1, EOSPCC, p. 26)

118. Under the previously approved configuration, the expected water withdrawal limit from HVWC was 152 gpm or 218,000 gpd. CPV does not plan to exceed this limit. However, if excess supplies are available and HVWC is able to sell such an excess, CPV would utilize that if conditions warranted it. For example, if a dispatch request from ISO-NE were made that might extend beyond the existing water storage, and CPV could forecast that, then CPV might use the additional water supply from HVWC first, depending on the request size from ISO-NE. (CPV 1, EOSPCC, p. 26; Tr. 1, 50-51)

119. The balance of the project's water requirements are expected to be met by on-site storage. (CPV 1, EOSPCC, p. 26)

120. CPV expects that it could limit any additional supplies to only winter heating months, e.g. November through March. (CPV 1, EOSPCC, p. 26)

121. HVWC's most current water supply plan is the HVWC 2009 Water Supply Plan. PURA reviewed the plan in its November 26, 2009 Decision in Docket No. 09-10-14. DPH has reviewed and provided comments on the plan, but has not yet approved it. DPH will require that HVWC file a new water supply plan by December 31, 2015. (CPV 3a)

122. By letter dated November 20, 2014, CPV requested the availability of water for the project from HVWC. Specifically, the amounts of water CPV requested at various times of the year are listed below.

Dates	Quantity of Water in gpd	Quantity of Water on Peak Day in gpd
January 1st through April 15th	68,500	218,000
April 16th though October 15th	77,500	150,000
October 16th through December 31	39,500	218,000

(CPV 7, response 1, p. 1)

123. By letter dated December 23, 2014, HVWC indicated that it has adequate water supply at this time to provide water to the proposed project, based on CPV's estimated usage noted in its November 20, 2014 letter, subject to the following:

a) A plan from an engineering firm showing the name of the owner, name of the project, and the developer's name;
b) The approximate starting date, phasing completion dates, and final completion dates;
c) Estimated quantities of water required for each of the dates provided, and calculations on how the water quantities are determined;
d) Conformance and compliance with HVWC standards and applicable state, county, and local codes, statutes, and ordinances and any other requirements that may apply;
e) The availability replies on the Diversion and Sale of Excess Water permits (PERMIT #2010-01 & 200902232GP, collectively "The Permits") that authorize Connecticut Water Company (CWC) to sell up to 500,000 gallons of water per day to HVWC. If in spite of HVWC's good faith effort to do so, HVWC is unable to renew and/or extend The Permits or otherwise secure an alternative water supply source of similar quantity, HVWC cannot guarantee that sufficient water supply will be available to satify the quantity needed by CPV; and
f) The request for availability of water must be reviewed on an annual basis until a "HVWC Advanced Refundable Contract" has been signed and activated; and
g) CPV must make a formal request for service as required by HVWC Rules and Regulations.

(CPV 7, response 1, pp. 2-3)

124. The Permits associated with the water supply connection with the Connecticut Water Company (CWC) will expire in 2017 unless renewed or extended. (Community Group 11, p. 1)

125. HVWC's existing facilities are sufficient to meet CPV's water supply requirements. The equipment additions that would be needed for the proposed project are listed below.
    a) Tap and metering station at the proposed facility's point of interconnection (located at the facility boundary) with HVWC's existing water line; and
    b) A Pumping station that has been pre-funded by CPV in accordance with an agreement with the Town of Oxford.

    (CPV 20, response 16)

126. Each water demineralization trailer could demineralize water at the maximum allowed water in-flow of 218,000 gpd. The trailer could operate for four to five days at the flow rate. Thus, the trailer would not be a water "bottleneck" because it could treat enough water for the projected maximum run time of 52 hours at maximum water usage. (Tr. 8, pp. 122-123)

127. The frequency with which the demineralization trailers would be exchanged is dependent on the facility dispatch, particularly in summer months when high ambient temperatures dictate use of the evaporative coolers. During the periods of highest use, approximately four to five demineralization trailers would be exchanged. During cooler periods, less than three trailers per month would be required. Increased water usage during ULSD operations would require more frequent exchanges of demineralization trailers, but such an increase would likely constitute less than one additional trailer exchange per week. (CPV 20, response 9)

Water Discharge

128. The project is proposed to discharge wastewater to the Oxford municipal sewer system, which in turn discharges to the Naugatuck Wastewater Treatment Plant. (CPV 1, EOSPCC, p. 29; CPV Transcript 3/26)

129. The wastewater that CPV would discharge from the proposed facility would be associated with three distinct sources listed below.

    a) Stormwater collected in contained areas but unrelated to facility processes or the potable water supply;
    b) Domestic use (sinks and toilets); and
    c) Service uses including turbine building floor drains, equipment drains from the steam cycle, and fire protection. The turbine building floor drain discharge would consist of potable water with the addition of oil and suspended solids resulting from the floor and equipment washdown.

    (CPV 5, response 3)

130. The plant would include an oil/water separator such that any oils from equipment wash-down that flow into the floor drain would be trapped by the oil/water separator and reduced to ten parts per million prior to discharge to wastewater. (Tr. 1, p. 48)

131. A comparison of the wastewater discharge of the proposed 785 MW facility configuration versus the already approved 512 MW facility configuration is listed below.

	512 MW Plant Summer and Natural Gas Operation	512 MW Plant Winter and Fuel Oil Operation	785 MW Plant Summer and Natural Gas Operation	785 MW Plant Winter and Fuel Oil Operation
Discharge to Sewer (gpm)	58.8	53.9	4.5	4.5
Discharge to Sewer (gpd)	84,672	77,616	6,480	6,480

(CPV 5, response 1)

132. However, CPV is currently evaluating the possibly of a modifying the design so that no stormwater would be discharged into wastewater. The final details would be included in the D&M Plan. (Tr. 8, p. 133)

Project Fuel

Natural Gas

133. The Spectra Energy Algonquin natural gas transmission line ROW is located immediately north of the subject property. (CPV 1, EOSPCC, p. 33, Figure 7)

134. CPV is currently working with Spectra Energy regarding the details of the natural gas connection routes. One option would be going directly north on the site and tapping both lines directly to the adjacent northern boundary of the site. A second route would involve crossing Spectra Energy's property (to the east) and running the line north and tapping both lines on the northern end of Spectra Energy's property. (Tr. 5, pp. 680-681; CPV 1, EOSPCC, p. 33, Figure 7)

135. CPV's proposed facility requires approximately 500 to 525 pounds per square inch gauge pressure (psig) for gas supply. The maximum pressure on the two Spectra Energy lines that would be connected to the facility would be over 600 psig. Notwithstanding, on-site gas compression may be required. (Tr. 5, p. 680; CPV 32, Section 4, Gas Interconnection Update)

136. If required, a gas compressor on the subject property would require a relatively small amount of surface area. A final determination regarding the gas compressor and its design would be included in the D&M Plan.
(CPV 32, Section 4, Gas Interconnection Update)

137. Natural gas has a heat content of about 1,030 Btu per standard cubic foot. (Tr. 8, pp. 115-116)

138. CPV would have interruptible rather than firm natural gas service. (Tr. 5, p. 681)

139. Under maximum load/output conditions, CPV would consume approximately 5,531 million Btu of natural gas per hour. (Tr. 8, p. 115)

140. Sufficient natural gas is expected to be available for at least 335 days per year. (Tr. 1, p. 67)

ULSD

141. The proposed project would also be able to burn ULSD as an alternative fuel. The remaining up to 30 days (or 720 hours) per year when natural gas is unavailable would be met via ULSD fuel pursuant to a 720-hour annual limit based on the DEEP air permit. (CPV 1, EOSPCC, pp. 8 and 26; Tr. 1, p. 67)

142. ULSD would only be used during periods of natural gas unavailability. (Tr. 1, p. 48)

143. ULSD has a heat content of approximately 18,000 to 19,000 Btu per pound. (Tr. 5, p. 679)

144. Neglecting limitations associated with water consumption for emissions control, there would be sufficient on-site ULSD storage for 68 hours of operation. Thus, with a 1,500,000-gallon tank, the maximum ULSD consumption rate would be on the order of 22,059 gallons per hour. However, water would be the limiting factor that would limit ULSD run time to 52 hours. (CPV 3, response 8)

145. The 1,500,000-gallon ULSD tank on the proposed site would be protected by secondary containment. (CPV 1, EOSPCC, p. 10, Figure 2)

146. There is expected to be sufficient turnover of ULSD such that there are no concerns about the long-term integrity of ULSD to be stored in the tanks with respect to bacteria, moisture, or breakdown of the fuel. (Tr. 1, p. 47-48)

147. When operating on ULSD, the facility would also require four oil tanker truck deliveries per hour between the hours of 7 AM and 6 PM until the facility's oil storage tank has been fully replenished. (CPV 20, response 9)

Electrical Interconnection

148. The CPV power plant facility would have an overhead connection from its 115-kV switchyard to three existing overhead 115-kV transmission lines: the #1990, #1575, and #1585 lines. These lines run in a northeast/southwest direction adjacent to the northwest corner of the subject property. (Eversource 3, response 1; CPV 1, EOSPCC, p. 10, Figure 2)

149. Six new transmission structures would be needed to tie the new switching station into the existing transmission lines. These new structures would be self-supporting steel monopole transmission line structures on drilled shaft foundations. The poles would be between 80 and 110 feet tall. (Eversource 2, p. 3)

150. The new transmission structures would be comparable in height to the existing structures. (Tr. 8, p. 132)

151. Eversource would not prefer an underground transmission connection. (Tr. 6, p. 49)

152. As part of the interconnection process, ISO-NE completed technical studies that determined that no upgrades would be required for the #1990 line or for the #1575 line and their appurtenances as a result of CPV's proposed facility. However, the studies found that the #1585 line from the CPV plant going north to the Bunker Hill Substation (located approximately six miles to the north) would need to be upgraded. Eversource is currently performing an engineering evaluation to determine exactly how to upgrade the #1585 line. Eversource anticipates that minimal structure changes and re-conductoring of the line would be required to a larger size conductor. Eversource would seek Council review and approval after the design is complete. (Eversource 3, response 1; Tr. 6, p. 34-38 and 44)

153. Eversource's design would comply with the most current version of the Council's Best Management Practices for Electric and Magnetic fields. (Tr. 6, p. 38)

154. Since there are no changes in the voltage of the transmission lines to which the project would interconnect, there would be no increase in electric fields. (CPV 24, response 18)

155. The switchyard itself would not increase magnetic fields. Transmission line magnetic field data would be provided once the #1585 line upgrade design is complete. (Tr. 39)

156. Minor increases in magnetic field levels previously identified in the D&M Plan for the certificated project would be updated during the D&M Plan phase. (CPV 24, response 18)

157. CPV would own a disconnect switch on the high-side of its step-up transformers. That disconnect switch would represent the demarcation point between CPV and Eversource. Eversource would own the connection after the disconnect switch, the entire switchyard, the overhead transmission connections, and the new transmission structures. (Tr. 6, pp. 44-45)

158. Should CPV's project be approved, Eversource also requests that it be authorized to construct, own, and operate all equipment associated with the interconnection including but not limited to the switching station and six transmission line structures. (Eversource 2, p.3; Tr. 6, p. 48)

159. On August 8, 2014, ISO-NE determined that the proposed CPV project would not have a significant adverse impact on the transmission system. (Council Administrative Notice Item No. 14)

Project Construction

160. Site preparation would include but not be limited to clearing, the installation of erosion and sedimentation controls, and constructing a temporary stabilized construction entrance. (CPV 1, EOSPCC, Tab C, Category 2 Permit Application, Volume I, p. A-16)

161. Of the approximately 26.2-acre site, approximately 22.1 acres would be disturbed by construction, leaving 4.1-acres or 15.6 percent of the site undisturbed. (CPV 1, EOSPCC, Tab C, Category 2 Permit Application, Volume II, p. 2)

162. CPV estimates that there would be approximately 228,969 cubic yards of cut and 76,889 cubic yards of fill used in constructing the proposed project. As a result, the net fill to be moved off-site is approximately 152,080 cubic yards. (CPV 10h)

163. Throughout the operation of the facility, the majority of the traffic associated with CPV's typical operation on natural gas would be limited to personal transportation used by the 20 to 25 full-time employees responsible for operating the plant. (CPV 20, response 9)

164. Chemical deliveries, such as aqueous ammonia or hydrogen, would result in approximately two to four truck deliveries per month, depending on the facility's dispatch frequency. (CPV 20, response 9)

165. Major deliveries associated with maintenance-related traffic would be very infrequent, with such events occurring over a one to two week period every three to five years, depending on the facility's frequency of dispatch. (CPV 20, response 9)

166. If approved by the Council and given the ISO-NE FCA9 auction results, CPV estimates that the project would issue Notice to Proceed for construction in the second half of 2015 to support a commercial operation date of June 2018. It is also possible, based on market conditions, that construction could be delayed for one year, initiating construction in the second half of 2016 and anticipating commercial operation by June 2019. No greater delays are anticipated. However, ISO-NE allows up to a one-year deferral as a contingency. (CPV 1, EOSPCC, p. 14; Tr. 8, pp. 125-126)

Facility Operation

167. The proposed facility would initially operate as a baseload facility with an annual capacity factor on the order of 70 to 74 percent*. Typically, combined cycle facilities operate as baseload facilities early in their useful life and as intermediate facilities later in their useful life.

*The projected first year of service, 2018, would have a lower capacity factor because it would not be a full calendar year of run time.
(CPV 3, response 2; CPV 1, NEWPMC, p. 44)

168. The proposed project includes the addition of duct firing. Duct firing provides incremental capacity in the steam cycle at a very low cost per kW and at relatively good efficiency. Specifically, duct firing at 90 degrees F can add 53 MW in the summer with an incremental heat rate of 8,224 Btu/kWh, and in the winter, it can add 32 MW with an incremental heat rate of 8,234 Btu/kWh at 20 degrees F. (CPV 1, EOSPCC, p. 9)

169. The proposed facility has an overall efficiency of about 53.5 percent without duct firing. With duct firing, the overall efficiency of the plant is on the order of 51 percent. (Tr. 1, pp. 44-45)

170. CPV would bid its incremental duct firing capacity into the ISO-NE energy market based on its associated incremental heat rate on a daily basis. CPV's duct firing would be dispatched by ISO-NE when market conditions dictate that additional capacity is required. (CPV 3, response 6)

171. CPV's plant would be capable of providing spinning reserves, but based on the current market conditions, it is not economical to do so. (CPV 3, response 2)

172. The General Electric D602 steam turbine could "hot start" (or startup at eight hours after shutdown or less) in approximately 35 minutes. The steam turbine could "warm start" (or startup at 48 hours after shutdown) in approximately 92 minutes. The steam turbine could "cold start" (or startup at 72 hours after shutdown or more) in approximately 138 minutes. (CPV 3, response 5)

173. The GE 7HA.01 gas turbine could transfer from full load operations on ULSD to full load operation on natural gas in about 26 minutes. (CPV 3, response 7)

174. The plant is not proposed to have black start capability. However, CPV has applied with ISO-NE investigate the possibility of an upgrade to black start capability. A final determination would depend on technical feasibility, ISO-NE and Federal Energy Regulatory Commission approval of a CPV-specific compensation mechanism, and successful incorporation into the DEEP air permit. The black start issue would be addressed in the D&M Plan. (Tr. 1, pp. 81-82; CPV 10f; Tr. 5, p. 687)

175. The proposed facility is expected to have a service life in excess of 35 to 40 years. (Tr. 4, p. 448)

Fire Protection and Safety

176. CPV would comply with the most current Occupational Safety and Health Administration standards, including National Fire Protection Association 56 PS "Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Pipeline System," which requires that only inert gasses or compressed air be used for all cleaning of pipes. Flammable natural gas would not be used to clear CPV's natural gas lines. CPV anticipates using compressed air for such a purpose. Such measures would be in compliance with the findings and recommendations in the executive report issued by the Thomas Commission. (CPV 1, EOSPCC, p. 39; Tr. 5, p. 681-682)

177. The plant would be equipped with emergency gas shut-off valves, natural gas detectors, and other safety-related instrumentation including pressure sensors to detect a loss of natural gas pressure. (Tr. 02/24/2015 p. 681-683)

178. The plant's transformers would be separated by fire walls. (Tr. 8, p. 116)

179. CPV would retain a special inspector to assist the municipal fire marshal in reviewing the construction plans and conducting inspections pursuant to CGS §16-50ii. (Tr. 1, pp. 52-53)

180. CPV would remit a fee to the co-training fund to be used in the training of local fire marshals on complex issues of electric generating facility construction in accordance with CGS §29-251c. (Tr. 1, p. 52)

181. CPV would develop an emergency response/safety plan in cooperation with all local public safety officials, Waterbury-Oxford Airport personnel, DESPP (f/k/a Connecticut Department of Public Safety), and other emergency response officials. If the project is approved, CPV would file such a report with the Council within 90 days. (Tr. 1, pp. 53-54; Council Administrative Notice Item No. 35 – Docket No. NT-2010, Final Decision)

182. Hydrogen and aqueous ammonia would be stored on site for emissions-related purposes. There would be curbing in place around the aqueous ammonia storage area to protect against accidental release aqueous ammonia. The curbing is designed for 110 percent of the aqueous ammonia storage capacity. Details of safe storage and/or containment measures for aqueous ammonia and hydrogen would be included in the D&M Plan, if approved. (Tr. 8, pp. 126-128)

ENVIRONMENTAL EFFECTS

Visibility

183. The most prominent features of the proposed project which are expected to be visible would be the two 150-foot exhaust stacks which would reach a height of 980 feet amsl. (CPV 1, Figure 3 – Revised CPV Towantic Energy Center Elevation Drawing)

184. The stack height of 150 feet results in compliance with all ambient air quality standards and also balances visibility and aircraft navigation and FAA approval. Optimizing the stack height is a balance of all of those factors. (Tr. 4, p. 385)

185. Within a two-mile study area, the exhaust stacks would be visible year-round from 372 acres and seasonally visible from 3,335 acres. (CPV 10e)

186. Approximately 90 residences would have year-round views of the exhaust stacks within the study area. Approximately 538 residences would have seasonal view of the power plant within the same study area. The year-round views are based on a conservative average tree height of 50 feet. The seasonal views are based on a conservative "bare earth" model that that only considers intervening terrain or changes in elevation, not intervening vegetation. This is depicted on a Viewshed Map. See Figure 8. (CPV 3, response 13)

187. According to the Viewshed Map, seasonal views of the stacks are possible along portions of the Bridle Trail to the south and southeast of the proposed plant. Some limited year-round views are also possible in select portions of the trail to the south and southwest of the proposed facility. (CPV 3, response 13; CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, pp. 18-19; Tr. 6, p. 92)

188. Relocation of the stacks slightly changes near views, but more distant views of the stacks would remain essentially the same. (Tr. 8, pp. 113-114)

189. The 85-foot ACC could not be reduced in height because it would reduce the air flow and plant efficiency and output or would require additional fans. (CPV 20, response 4)

190. An earthen berm was considered by CPV to reduce visual impacts, but it was rejected because it would need to occupy approximately four to five additional acres that are not available at the site. (CSC 20, response)

Exhaust Plumes

191. The exhaust plumes emitted from the stacks are colorless and transparent except under certain conditions. The visibility of plumes is a function of humidity and temperature. Generally, visible plumes are rare at temperatures above 40 degrees F. Visible plumes are more prevalent in cold (i.e. less than 40 degrees F) or very humid conditions such as near 100 percent relative humidity. (Tr. 5, pp. 566-568, 694; CPV 20, response 11)

192. After a plume exits the 22-foot diameter stack, by the time it reaches a few hundred feet above the stack, it would be very roughly 300 to 400 feet wide. (Tr. 5, pp. 575-576)

193. The exit velocity at full load at the top of the stack is 56.2 feet per second for natural gas and 68.8 feet per second for ULSD. At 250 feet above the stack, it reduces to 19.1 feet per second for natural gas and 26.7 feet per second for ULSD. At 500 feet above the stack, the exit velocity reduces to 14.0 feet per second for natural gas and 17.5 feet per second for ULSD. (CPV 12, responses 10 and 11; CPV 13b; CPV 20, response 10)

194. The exit stack temperature at full load at the top of the stack under still air conditions is 183.3 degrees F for natural gas and 294.5 degrees F for ULSD. At 250 feet above the stack, the temperature would be 79.3 degrees F for natural gas and 93.8 degrees F for ULSD. At 500 feet above the stack, the temperature would be 65.6 degrees F for natural gas and 69 degrees F for ULSD. Increased wind velocity would more rapidly decrease temperature. Ambient air temperature would also have an effect, with cold weather resulting in more rapid plume cooling. (CPV 12, response 12; CPV 13b; CPV 20, response 10)

195. The worst-case heights of the exhaust plumes as measured from the stack base or ground level for the proposed facility versus the approved facility are listed in the table below.

	Proposed Facility Natural Gas*	Proposed Facility ULSD*	Approved Facility Natural Gas*	Approved Facility ULSD*
Plume Height from Stack Base**	1610.72 feet	2348.42 feet	1442.29 feet	1878.75 feet

*This is based on 100 percent generating capacity.
**For the heights of the plumes above the top of the stacks, subtract 150 feet from these figures.
(Larkin 6, Review of Plume Rise and Meteorological Issues Regarding the Proposed CPV Towantic Energy Center, Modeling Parameter Comparisons; Tr. 8, pp. 103-104)

Noise

196. CPV performed a noise assessment study for the proposed project, including ambient noise monitoring and noise modeling. The noise monitoring took place on June 16 and 17, 2014, and represents current noise levels in the area. Monitoring was conducted at four locations: Towantic Hill Road, Oxford; Prokop Road, Oxford; Washington Drive, Middlebury; and Longmeadow Road, Oxford.

Measurements at these locations are shown in the chart below:

Measured Ambient Noise Levels						
Location	Measured Noise Levels (dBA)					
	Daytime			Nighttime		
	L_{90}	L_{10}	L_{eq}	L_{90}	L_{10}	L_{eq}
54 Towantic Hill Road, Oxford	30	52	52	27	32	41
72 Prokop Road, Oxford	35	51	49	33	39	37
444 Washington Drive, Middlebury	35	51	50	38	44	41
14 Longmeadow Road, Oxford	48	51	50	48	49	49

(CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, pp. 7, 9,13, and 20 – Figure 12)

197. The proposed site is in an industrially zone area, Class C, and the nearest noise sensitive area is the Class A residential area beginning with the Middlebury Town Line, approximately 535 feet north of the proposed project. State of Connecticut Noise Standards for a Class C source emitting to a Class A receiver are 61 dBA daytime and 51 dBA nighttime. Noise emitted cannot exceed 70 dBA at an industrial noise zone. (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, pp. 2,6 and 20 – Figure 12; Council Administrative Notice Item No. 56; Middlebury Group 6a)

198. CPV used the Cadna-A computer noise model to predict noise levels expected from the proposed project. (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, pp. 2,6 and 20 – Figure 12)

199. Noise mitigation measures included in the project and the noise analysis are listed below.

a) All turbines and generators are housed in acoustical enclosures equipped with acoustic silencers and attenuators as required to reduce noise emissions from ventilation operations, fans, and make-up air units;
b) Low noise gas heaters or lube oil heater, or housing this equipment in acoustical structures;
c) Steam system vents equipped with silencers;
d) Safety and relief valves that release high pressure steam equipped with silencing, to the extent permitted by the American Society of Mechanical Engineers code;
e) Large pumps associated with the HRSG and power trail (i.e. boiler feed water pumps and fuel oil forwarding pumps) enclosed in acoustical structures;
f) A low noise auxiliary fin fan cooler and the use of a acoustical barrier wall to reduce off-site sound levels and push noise from the equipment away from residential areas;
g) A combustion turbine inlet silencing package designed to reduce air inlet sound power levels to 104 dBA immediately in front of the air inlet face;
h) Acoustical lagging on the steam ducts from the steam turbine generator building to the air cooled condenser headers and the use of high efficiency control valves;
i) Acoustical lagging of the combustion turbine generator exhaust diffuser as it exits the turbine compartment and enters the heat recovery steam generator;
j) A stack silencing package inclusive of the heat recovery steam generator would be designed to achieve a total 90-degree directional sound power level of 104 dBA to reduce sound pressure levels leaving the flue in the stack structure;
k) National Electrical Manufactures Association low-noise-rated step-up transformers associated with the combustion turbine generator and the steam turbine generator, combined with the use of fire walls and acoustical barriers would further serve to reduce off-site transformer noise levels; and
l) A low-noise air cooled condenser would be specified in the design, with the use of low noise fans or acoustical inlet louvers to be applied as necessary to achieve far-field acoustical design targets.

(CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, pp. 18-19)

200. Calculated facility noise and projected future ambient noise levels for the same four locations monitored above (see Figure 7) are estimated in the chart below:

Location	Projected Sound Levels*
Towantic Hill Road (1)	40
Prokop Road (2)	44
Washington Drive (3)	42
Longmeadow Road (4)	33

*The figures in the chart incorporate extensive noise control measures (listed in FOF #183). (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, pp. 2,6 and 20 – Figure 12)

201. The proposed facility would be in compliance with State of Connecticut and Town of Oxford standards, provided that the proposed noise control measures are employed. (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, p. 22)

202. Construction noise is exempt from DEEP standards. Construction noise during the day is exempt from Town of Oxford Noise Ordinance. (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, pp. 18-19; Middlebury Group 6a)

203. There would be an increase in noise during transient events such as start-up or if the plant trips off and/or the steam turbine trips off, but proposed project would also meet the applicable standards for impulse noise. (Tr. 8, p. 114)

204. The nearest residential structure located to the southeast is located outside of the 51 dBA sound contour. Thus, noise levels at this residential structure would comply with applicable noise standards. (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, Figure 12)

205. The Bridle Trail is located outside of the 45 dBA noise contour. Thus, noise levels at the Bridle Trail associated with the power plant project would be less than 45 dBA. (CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, pp. 18-19; Tr. 6, p. 92)

Traffic

206. CPV expects an average of approximately 16 construction trucks per day and 300 worker vehicles at the site per day throughout the duration of the construction schedule. (CPV 20, response 9)

207. Truck traffic would generally follow this proposed route:

a) Exit 16 off Interstate 84
b) Strongtown Road (Route 118 South)
c) Left onto Airport Road
d) Left onto Christian Street
e) Right onto Juliano Drive
f) Left onto E-Commerce Road (subject to this road being completed)
g) Left onto Woodruff Hill Road to site.

(CPV 20, response 9; Tr. 6, p. 62-63, and 72)

208. In accordance with a permit from ACOE, construction of E-Commerce Road is expected to begin by 2016 and be completed by 2017. (Tr. 6, p. 62-63, and 72)

Historic and Archaeological Effects

209. Research regarding cultural, historic, and archaeological resources at the site when the Council application was filed in 1998 indicated that the site had never experienced development, and the natural gas pipelines and transmission lines were the only historic improvements made on or near the land. (CPV 1, EOSPCC, p. 38)

210. A Phase I Cultural Resource Survey was conducted in October 1998 by Historical Perspectives, Inc. on the 20-acre parcel. The assessment concluded that no further cultural resource investigation of the site was recommended. The survey was reviewed by the Connecticut State Historic Preservation Office (SHPO), which determined that there would be no effect on the state's historic, architectural, and archaeological resources. (CPV 1, EOSPCC, p. 38)

211. The SHPO was contacted by CPV on May 8, 2014 to request a review of the subject property, including the additional 6-acre parcel. By letter dated May 15, 2014, the SHPO noted that no historic properties would be affected by the expanded undertaking. By letter dated March 4, 2015, SHPO reiterated that same position. (CPV 1, EOSPCC, p. 38; SHPO Comments dated March 4, 2015)

212. Correspondence received from the Mashantucket Pequot Tribal Nation (MPTN) dated August 9, 2014 indicated that the MPTN concurs with the SHPO's opinion. (CPV 1, EOSPCC, p. 38 and Attachment G - Correspondence from MPTN)

213. Correspondence from the Mohegan Tribal Historic Preservation Office dated December 22, 2014, indicated that the Mohegan Tribe found that no properties of historic, cultural, or religious significance to the MT would be affected by the project as it is proposed. (CPV 3, response 12)

Geology of the Proposed Site

214. The site is located in Federal Emergency Management Agency (FEMA) Zone X, an area located outside of the 100-year and 500-year flood zones. (CPV 1, EOSPCC, Tab C – ACOE's Connecticut General Permit Application, Attachment A - Joint Application Narrative, p. A-9)

215. A geotechnical investigation was performed to determine the nature and competency of the subsurface materials for the power plant project and a report was issued in January 2001. The investigation disclosed subsurface conditions consisting of glacial till soils. These soils consisted of medium dense to very dense silty sands and low plasticity silts, with minor amounts of fine to coarse gravel. These glacial till soils occasionally contained cobbles and boulders. (CPV 13e, Geotechnical Investigation Report, p. i)

216. Groundwater encountered during the test boring drilling operations and in three installed piezometers was highly variable. As a result, a test pit investigation was conducted. The investigation indicated that typically water at the site accumulates in the upper medium dense silty sands, and is generally unable to penetrate to the lower more dense silty soils, which appear to be acting as a confining unit. The water flow into the excavations was observed to be generally slow due to both the dense state of the subsurface soils and large amounts of fines in the materials. (CPV 13e, Geotechnical Investigation Report, p. ii)

217. Groundwater levels are expected to fluctuate with daily and seasonal climatic conditions. Due to the silty nature of the soils on-site, localized groundwater may be encountered in shallow excavations especially if construction commences after a rainy season and/or heavy rainfall. Localized groundwater, if encountered during construction, may be controlled using conventional sump pump techniques. (CPV 13e, Geotechnical Investigation Report, p. 7)

218. The site is not located within an Aquifer Protection Area. Notwithstanding, CPV would continue to protect existing groundwater by providing secondary containment for all aboveground storage tanks and the implementation of a Spill Control and Countermeasures Plan and a Stormwater Pollution Protection Plan outlining best management practices to be updated from the previous D&M Plan. (CPV 1, EOSPCC, p. vi and 37)

219. Excess excavated site soils are, in general, suitable for use as both structural and controlled fill. However, due to the high fines content in these soils, precaution should be taken in order to assure that the material does not become excessively wet. Specifically, stockpiles of excavated soils should be covered to protect the materials from being excessively wet. (CPV 13e, Geotechnical Investigation Report, p. ii)

Wetlands

220. Wetland 1 is a dense glacial till hillside seep wetland meadow ystem with scattered shrubs characterized by a relatively narrow clearing surrounded to the north and south by a mature upland forest. Wetland 1 is located in the western portion of the subject property. See Figure 5. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 4)

221. A permit was granted by the Oxford Inland Wetland Agency on February 22, 1999 that included provisions for filling this entire wetland system, which was identified at the time as a 2,850 square feet watercourse/wetland area. An attempt to fill this wetland occurred on February 2010. A February 10, 2010 inspection by Civil1 Engineering indicated that approximately one to two feet of common fill and topsoil were placed over the wetland, which was graded and leveled. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 4)

222. An investigation of this wetland 1 area reveals some disturbance apparently associated with the work performed in 2010. However, most of the disturbance to the wetland soils is associated with the top 0.5 to 1.0 feet characterized by topsoil fill high in organic matter, underlain by native wetland soil profiles. The hydrology of this wetland system does not appear to be significantly altered by the previous disturbance, and vegetation is dominated by hydrophytes species. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 4)

223. Wetland 2 is a complex of forested, scrub/shrub, and emergent seep wetland habitats formed by dense glacial till. The majority of Wetland 2 (approximately 10,561 square feet) is not located on the subject property, with only the western edge of Wetland 2 located in the northwest corner of the site. Eversource's overhead electrical transmission right of way (ROW) bisects the eastern upper reaches of Wetland 2. Wetland 2 generally drains east to west across a moderately west-facing slope, formed in dense glacial till. See Figure 5.
(CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 5; CPV 1, EOSPCC, Tab C, Category 2 Permit Application, Volume I, p. A-8)

224. Evidence of mechanical compaction in the form of tire ruts and gravel surfaces is prevalent throughout this utility ROW resulting in shallow ponding water at the time of inspection. Numerous green and pickerel frogs were observed in the shallow pools artificially created by the tire ruts. Green and pickerel frogs are not vernal pool species, and they are not endangered, threatened, or special concern species. They are abundant and generally disturbance tolerant. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 5; CSC set 2, question 18; Tr. 8, p. 136)

225. Wetland 3 is a small hillside seep wetland system that has experienced high levels of anthropogenic activity. Wetland 3 is generally located at the confluence of the Eversource ROW and Woodruff Hill Road cul-de-sac. As such, the hydrology and nature of Wetland 3 has been highly altered from previous filling activities associated with Eversource maintenance and upgrading of the electrical transmission ROW, resulting in disturbed wetland profiles, surface compaction, and altered vegetation communities. See Figure 5. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 6)

226. Wetland 3 received hydrology from the surrounding uplands to the north and east via seasonal overland flow and groundwater exfiltration, as well as a PVC pipe conveying flows from a dug drainage swale located along the east side of Woodruff Hill Road on the site. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 6)

227. Wetland 4 (approximately 178 square feet) is a very small, isolated man-made depressional wetland feature located in a generally flat, forested upland area. This depression was artificially created in dense well drained glacial till soils, apparently the result of a dug test pit that was improperly backfilled. See Figure 5. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 7; CPV 1, EOSPCC, Tab C, Category 2 Permit Application, Volume I, p. A-9)

228. The anthropogenic feature has formed a small depression that intercepts the seasonally high groundwater table as evident by a review of disturbed hydric soil profiles. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 7)

229. Direct impacts to Wetlands 1 and 4 would result from constructing the proposed project. Accordingly, the project is regulated by ACOE as a Category 2 project. (CPV 1, EOSPCC, Tab B, Wetland Investigation, p. 7)

230. As part of CPV's Category 2 permit application, field inspections were performed on June 26, 2014, July 3, 2014, and July 12, 2014 in association with the wetland investigation. No early spring inspections were conducted in 2014 to determine if obligate vernal pool species egg masses were present or not in any of the four identified wetland areas. However, no vernal pool indicator species larvae were observed during a June 26, 2014 inspection, when the presence of larvae would be anticipated. In addition, no vernal pool indicator species metamorphs or adults were observed during any of the three inspection dates. Therefore, a vernal pool survey that might have been conducted in spring 2015 does not appear warranted. (CPV 12, response 19)

231. CPV has an Invasive Species Control Plan (ISCP) per its ACOE Category 2 Permit Application. The ISCP is intended to be implemented only during the construction period. However, CPV would be willing to implement this ISCP for three years following completion of construction with the following success standards:

    a) Management of invasive species would only focus on the target invasive plant species identified in the referenced ISCP;
    b) Remedial action would occur to control target invasive plant species if they are found to encompass more than 10 percent total aerial coverage; and
    c) Annual monitoring reports would include an evaluation of these success standards, and any remedial action would be submitted to the Council no later than December 31 of each year.

(CPV 12, response 7)

232. Since the direct impacts to wetlands cannot be avoided, CPV proposes to compensate for these impacts by making a payment into the Connecticut In-Lieu Fee Program (CT ILF Program). (CPV 1, EOSPCC, Tab C, Category 2 Permit Application, Volume I, Attachment A, p. A-3)

233. The CT ILF Program was established on August 21, 2013 as a joint venture between ACOE and Audubon Connecticut, the Connecticut program of the National Audubon Society, Inc. (NAS). The CT ILF Program requires an applicant for an ACOE permit to pay a compensation fee in lieu of other forms of compensatory mitigation. This recognizes that targeting larger areas specifically identified for ecological value may provide greater benefit than smaller, on-site replication areas. ACOE would calculate the per-acre fee that must be paid prior to the commencement of construction. (CPV 1, EOSPOCC, pp. 18-19)

Site Ecology

234. The nearest Important Bird Area as identified by the NAS is the Naugatuck State Forest, located approximately 1.65 miles to the southeast of the proposed facility. Due to the distance of the Naugatuck State Forest from the subject property and that the subject property's open field is of insufficient size to support grassland bird species habitat, the Naugatuck State Forest Preserve IBA would not experience an adverse impact resulting from the development of the proposed facility. (CPV 12, response 5)

235. The lighting system for the proposed stacks achieves bird-friendly benefits in accordance with USFWS' recommendations and FAA's guidance. Specifically, it uses flashing lights (white during the day and red at night), rather than non-flashing red lights that have been associated with avian fatalities at towers. Finally, with the bird-friendly lighting scheme, relatively short stack heights of 150 feet, and lack of guy wire, no adverse impact to migrating species is anticipated by the proposed facility. (CPV 12, response 8)

236. The stack tops and sides of the stacks, while hot during operation, do not represent attractive perching sites for birds. The stack test platforms and associated ladders, however, are more suitable perching locations. These features safely support stack testers during plant operations and would not represent surfaces too hot for bird perching. (CPV 12, response 9)

237. There are no federally-listed threatened or endangered species, critical habitat, or National Wildlife Refuges located within the vicinity of the project. (CPV 1, EOSPCC, p. 38 and Tab F, Letter from USFWS)

238. Four State-designed Species of Special Concern are known to occur on or within the vicinity of the proposed facility site. These species are the Red bat, the Hoary bat, Silver-haired bat, and Eastern box turtle. (CPV 1, EOSPCC, Attachment G, DEEP Letter dated July 10, 2014)

239. Red bats are considered tree roosting bats. Typically, larger diameter trees such as 12 inches diameter or greater are more valuable to these bats. (CPV 1, EOSPCC, Attachment G, DEEP Letter dated July 10, 2014)

240. Hoary bats roost high in large coniferous and deciduous trees. (CPV 1, EOSPCC, Attachment G, DEEP Letter dated July 10, 2014)

241. Silver-haired bats typical roost sites include tree foliage, tree hollows, and crevices behind loose bark, but they are most likely to be found near water. (CPV 1, EOSPCC, Attachment G, DEEP Letter dated July 10, 2014)

242. Eastern box turtles inhabit old fields and deciduous forests, which can include power lines and logged woodlands. The adults are completely terrestrial but the young may be semi-aquatic and hibernate on land by digging down in the soil from October to April. (CPV 1, EOSPCC, Attachment G, DEEP Letter dated July 10, 2014)

243. In its comments, DEEP provided recommendations to protect the four species as noted below.
    a) Work shall not be conducted between May 1st through August 15th to protect bats;
    b) Long-term impacts to bats could be minimized by retaining large diameter coniferous and deciduous trees wherever possible, particularly close to brooks and streams;
    c) Where possible, avoid installing sediment and erosion control materials from late August through September and from March through mid-May because these two time periods are when amphibians and reptiles are most active, moving to and from wetlands to breed;
    d) A staggered silt fence layout is recommended to allow animals to pass through;
    e) Utilize erosion control options that do not contain netting such as net-less blankets or hay bales to prevent snakes from becoming tangled and trapped;
    f) Reconfigure/lower the grade of slopes so products without netting can be utilized;
    g) Siltation and erosion control measures should be recovered as soon as soils are stable so as to not impede reptile and amphibian migrations between wetlands and uplands;
    h) If rip-rap is going to be used, consider covering the rip rap with local stream bank material;
    i) Stockpiles of soil should be cordoned off with silt fencing so turtles do not attempt to try and nest in them;
    j) Any plantings should be composed of species native to northeastern United States and appropriate for use in riparian habitat.

    (CPV 1, EOSPCC, Attachment G, DEEP Letter dated June 10, 2014)

244. CPV plans to protect mature trees beyond the limits of disturbance of the project. (CPV 15, response 6, p. 1)

245. Due to the proposed project's construction schedule for about 2.5 years, CPV believes that a seasonal restriction (as recommended by DEEP) is not feasible. However, in order to avoid impact to bat roosting habitat, CPV proposes the following protective measures that are equally protective of bat species. The measures are listed below.
    a) Tree clearing activities shall be completed between November 1 and April 30 to avoid potential impact to bat roost habitat through the removal of possible roosting trees prior to the start of the bat's active roosting season (May 1 to August 15).
    b) If clearing activities are not completed by May 1st, the recommended seasonal restriction would be observed.

    (CPV 15, response 6, p. 1)

246. With adherence to the Bat Protection Program as listed by CPV above, the proposed project would not have an adverse impact on bat species. (CPV 15, response 6, p. 1)

247. While it is possible that Eastern box turtles may be found at the site, the likelihood is low because they are not typically found at the elevations associated with the proposed project site. Notwithstanding, CPV has been consulting with DEEP. CPV believes that placement of staggered erosion and sedimentation controls to allow animal passage through the construction zone would only put animals in harm's way and is not recommended. CPV recommends an isolation barrier that prevents animals from entering the construction zone. (Tr. 8, pp. 86-87; CPV 15, response 6, p. 2)

248. No permanent erosion control products or reinforced silt fence would be used for CPV's project. Temporary erosion and sedimentation control products would be used and would include erosion control blankets and fiber rolls composed of processed fibers mechanically bound together to form a net-less continuous matrix or netting composed of planar woven natural biodegradable fiber to avoid/minimize wildlife entanglement. (CPV 15, response 6, p. 2)

249. The site contains habitat suitable for the eastern ribbon snake, a State-designated Species of Special Concern and the spotted turtle, a species anticipated to be listed as a Species of Special Concern in 2015. As a result, CPV proposes to perform biological surveys for these target species (as well as the Eastern box turtle) during spring 2015. (CPV 15, response 6, pp. 2-3)

250. CPV also proposes a breeding bird survey to be conducted between May 20th and June 15th. (CPV 15, response 6, pp. 3-4)

251. Following completion of both site surveys (by approximately June 2015), a report would be drafted, and the results and any further recommended conservation strategies would be provided in the D&M Plan. (CPV 15, response 6, p. 4; Tr. 8, p. 74)

Air Quality Issues

252. Air quality in the Oxford area does not currently meet the National Ambient Air Quality Standards (NAAQS) for ozone, which is created by a photochemical reaction involving nitrogen oxides (NO_x). Connecticut, like most of the Northeast, is considered to be in an area of non-attainment for ozone. (Tr. 3, p. 240)

253. The proposed project must meet requirements for New Source Performance Standards (NSPS), and Prevention of Significant Deterioration (PSD). The PSD regulations require compliance with Best Available Control Technology (BACT) emission rate limits and Connecticut Ambient Air Quality Standards (CAAQS) and NAAQS. Major new stationary sources of non-attainment pollutants in non-attainment areas must demonstrate compliance with Lowest Achievable Emission Rate (LAER) limits and obtain emission offsets. The proposed project would meet all of these requirements. (CPV 1, EOSPCC, p. 17, 22-26)

254. The project would be subject to LAER for NO_x. Dry low-NOx combustion in conjunction with selective catalytic reduction (SCR) would control NOx emissions when firing natural gas. Water injection with SCR would control NOx emissions when firing ULSD. (CPV 1, EOSPCC, p. 22)

255. An oxidation catalyst would control emissions of carbon monoxide (CO) and volatile organic compounds (VOC). Emissions of sulfur dioxide (SO_2), particulate matter with a diameter of less than 10 microns (PM_{10}), particulate matter with a diameter of less than 2.5 microns ($PM_{2.5}$), and sulfuric acid (H_2SO_4) would be controlled through good combustion practices and selection of the cleanest available fuels. (CPV 1, EOSPCC, p. iv through vi, 22)

256. The emissions rate comparison of the approved turbine configuration versus the proposed turbine configuration is listed below.

Emissions based on Natural Gas Consumption	**Emissions for the Approved GE 7FA.03 (parts per million)**	**Emissions for Proposed GE 7HA.01 Design (parts per million)**
NOx	2.0	2.0
VOC	1.2	1.0
CO	2.2	0.9
$PM_{10}/PM_{2.5}$	0.008 lb/MMBtu	0.0038 lb/MMBtu
SO_2	0.00081 lb/MMBtu	0.0015 lb/MMBtu

H_2SO_4	0.00072 lb/MMBtu	0.0011 lb/MMBtu

Emissions based on ULSD Consumption	Emissions for the Approved GE 7FA.03 (parts per million)	Emissions for Proposed GE 7HA.01 Design (parts per million)
NOx	5.9	5.0
VOC	2.0	2.0
CO	2.0	2.0
$PM_{10}/PM_{2.5}$	0.019 lb/MMBtu	0.020 lb/MMBtu
SO_2	0.0015 lb/MMBtu	0.0015 lb/MMBtu
H_2SO_4	0.00086 lb/MMBtu	0.0012 lb/MMBtu

(CPV 1, EOSPCC, pp. 9, 22-23)

257. The increase in emissions rates for SO_2 and H_2SO_4 reflect a change in assumptions regarding the sulfur content of the natural gas that would be supplied through the regional system. The proposed project reflects a higher sulfur content assumption of 0.5 grains per 100 cubic feet of natural gas in order to comport with the United States Environmental Protection Agency's (EPA) definition of pipeline quality natural gas under Acid Rain regulations. This change is beyond CPV's control. (CPV 1, EOSPCC, p. 24)

258. A comparison of maximum annual emission rates for the proposed facility versus the approved facility is listed below.

Pollutant	Maximum Potential Emission (tons/year)		
	Emissions for the Approved GE 7FA.03 (tons/year)	Emissions for Proposed GE 7HA.01 Design (tons/year)	Difference in Estimated Actual Emissions (tons/year)
NOx	133.6	189.3	+55.7
VOC	26.4	49.0	+22.6
CO	171.8	128.9	-42.9
$PM_{10}/PM_{2.5}$	196.6	153.3	-43.3
SO_2	14.2	39.4	+25.2
H_2SO_4	11.4	25.3	+13.9
GHG	1,969,087	2,656,017	686,930

(CPV 1, EOSPCC, p. 24)

259. The project would be subject to the federal Acid Rain Program, under which CPV must obtain enough SO_2 allowances to cover the total expected emissions of SO_2. In addition, CPV must obtain enough NO_x allowances to offset ozone season NO_x emissions under the Clean Air Interstate Rule, as implemented by Connecticut. (CPV 1, EOSPCC, p. 26)

260. The project would also be subject to the Regional Greenhouse Gas Initiative (RGGI) which would require CPV to obtain allowances each year to match its annual CO_2 emissions. (CPV 1, EOSPCC, p. 17)

261. As required by the Clean Air Act, the EPA sets the NAAQS through a rigorous scientific process at levels determined to be protective of the health of the most sensitive individuals such as children, the elderly, chronic asthmatics, and people with other pulmonary diseases. In additional, an added margin of safety is included in the standards. (CPV 13q)

262. The proposed project's emissions impacts are below the Significant Impact Level (SIL) for all pollutants except for NO_2 and $PM_{2.5}$. NO_2 levels exceed both the annual SIL and the 1-hour SIL. In addition, the 24-hour $P_{2.5}$ SIL is exceeded. For pollutants with predicted modeled concentrations above a SIL, cumulative modeling with other existing regional sources was conducted for those pollutants, in accordance with DEEP guidance. With such modeling, CPV confirmed that the resulting total concentrations for NO_2 and $PM_{2.5}$ are below their corresponding NAAQS concentration standards, even conservatively assuming that all NO_x emitted would be converted to NO_2 for 1-hour concentrations. (CPV 1, EOSPCC, p. 25)

263. The proposed facility's maximum worst-case modeled $PM_{2.5}$ conservatively assuming year-round ULSD firing (even though ULSD usage is limited to 720 hours per year) is 0.21 micrograms per cubic meter ($\mu G/m^3$). This level would occur very close to the fence line of the proposed facility and would drop off rapidly with distance. When this is added to existing background levels of 9.2 $\mu G/m^3$, compliance with the NAAQS annual average limit of 12 $\mu G/m^3$ would be achieved at the point of maximum impact, as well as everywhere else in the area. See Figure 6. (CPV 13q)

264. While all areas are in compliance, CPV modeled several specific locations for $PM_{2.5}$. The results are listed below.

Location	Maximum $PM_{2.5}$ Concentration from the Proposed Power Plant in $\mu G/m^3$	Percentage of NAAQS	Percentage of Existing Levels
Middlebury Town Line	0.15	1.3	1.6
Oxford Greens	0.12	1.0	1.3
Naugatuck State Forest	0.07	0.6	0.8
Westover School	0.04	0.3	0.4
Quassy Amusement Park	0.03	0.25	0.3

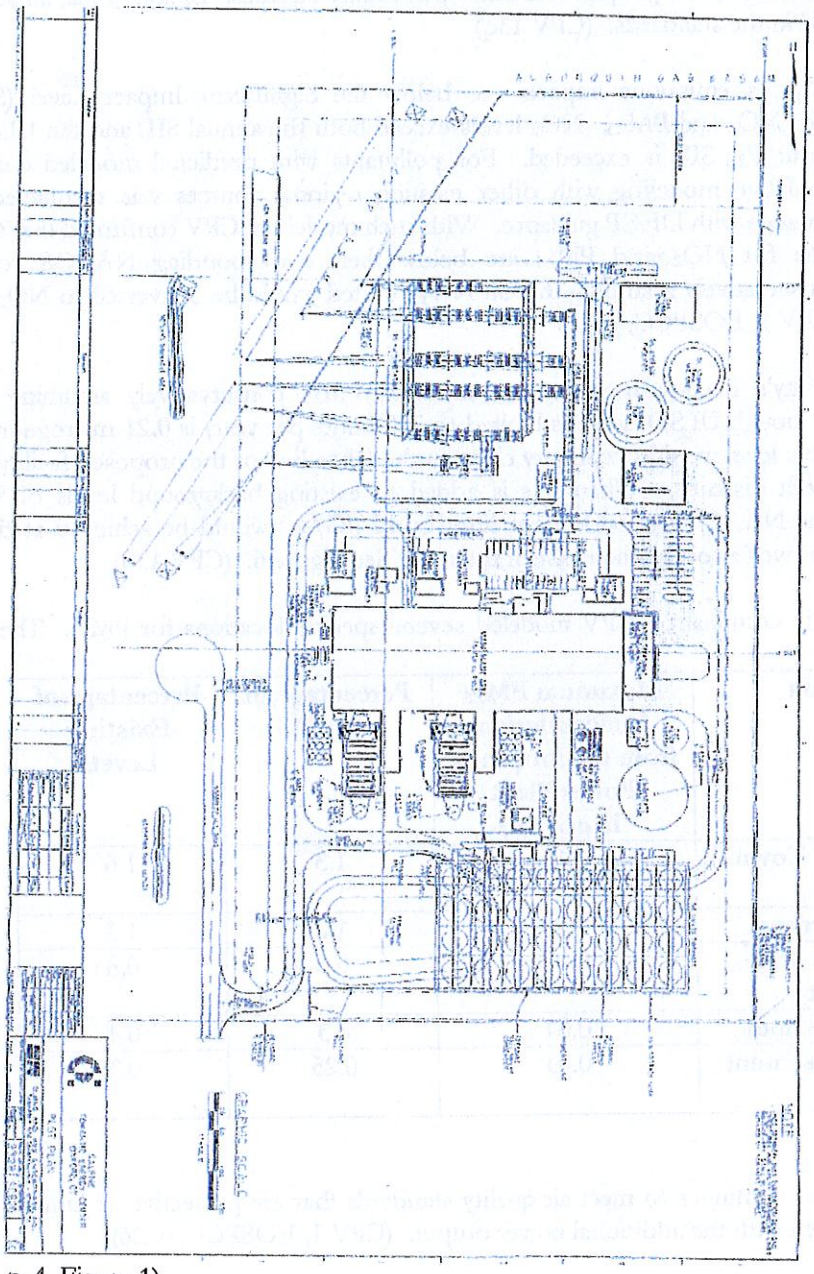
(CPV 13q)

265. The proposed project continues to meet air quality standards that are protective of human health and the environment, even with the additional power output. (CPV 1, EOSPCC, p. 26)

Solid and Hazardous Waste

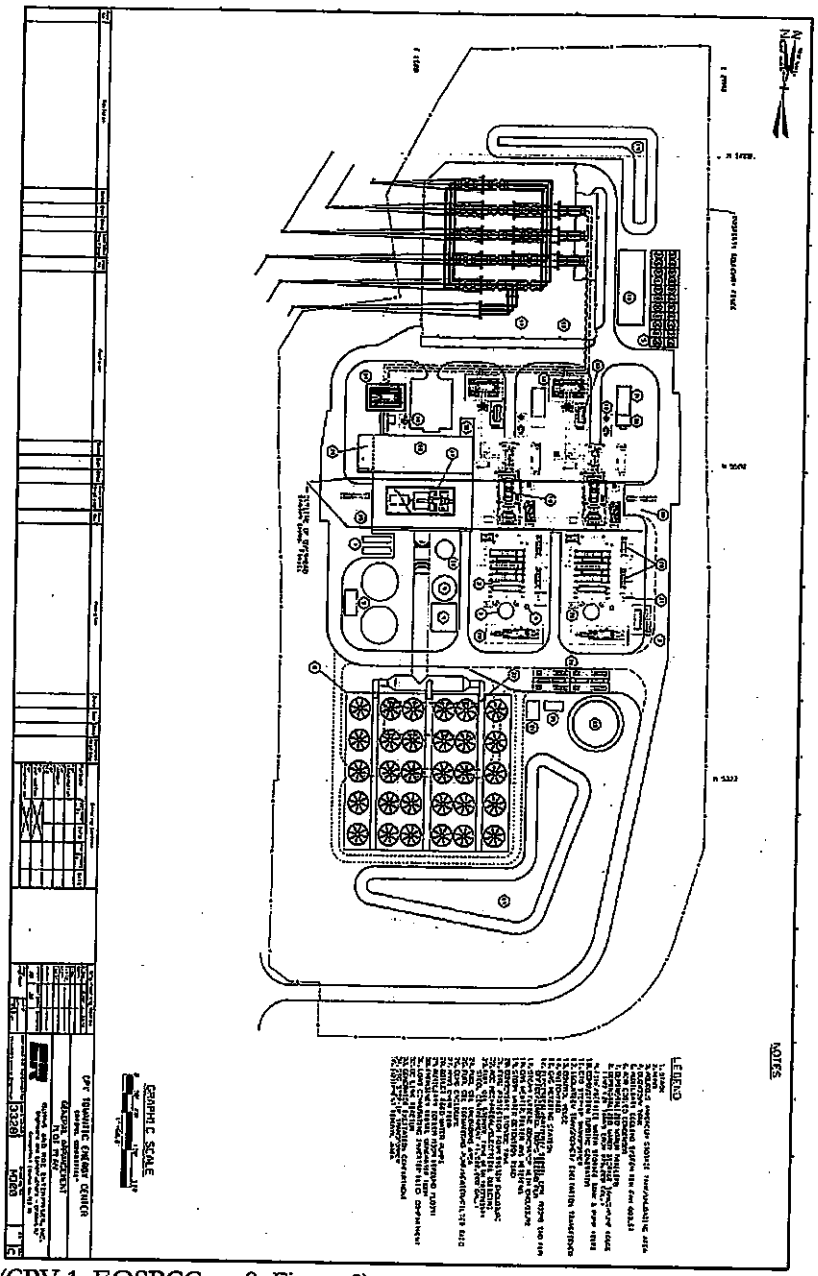
266. As noted in the previously approved configuration, solid waste and debris that cannot be recycled, reused, or salvaged would be removed by licensed contractors and disposed at either local or regional approved facilities. No change in anticipated construction or operational solid waste generation or disposal is anticipated as a result of the proposed project. (Council Administrative Notice Item No. 40 - Docket No. 192 Finding of Fact No. 121; CPV 1, EOSPCC, p. 39)

Figure 1 – Approved Site Plan



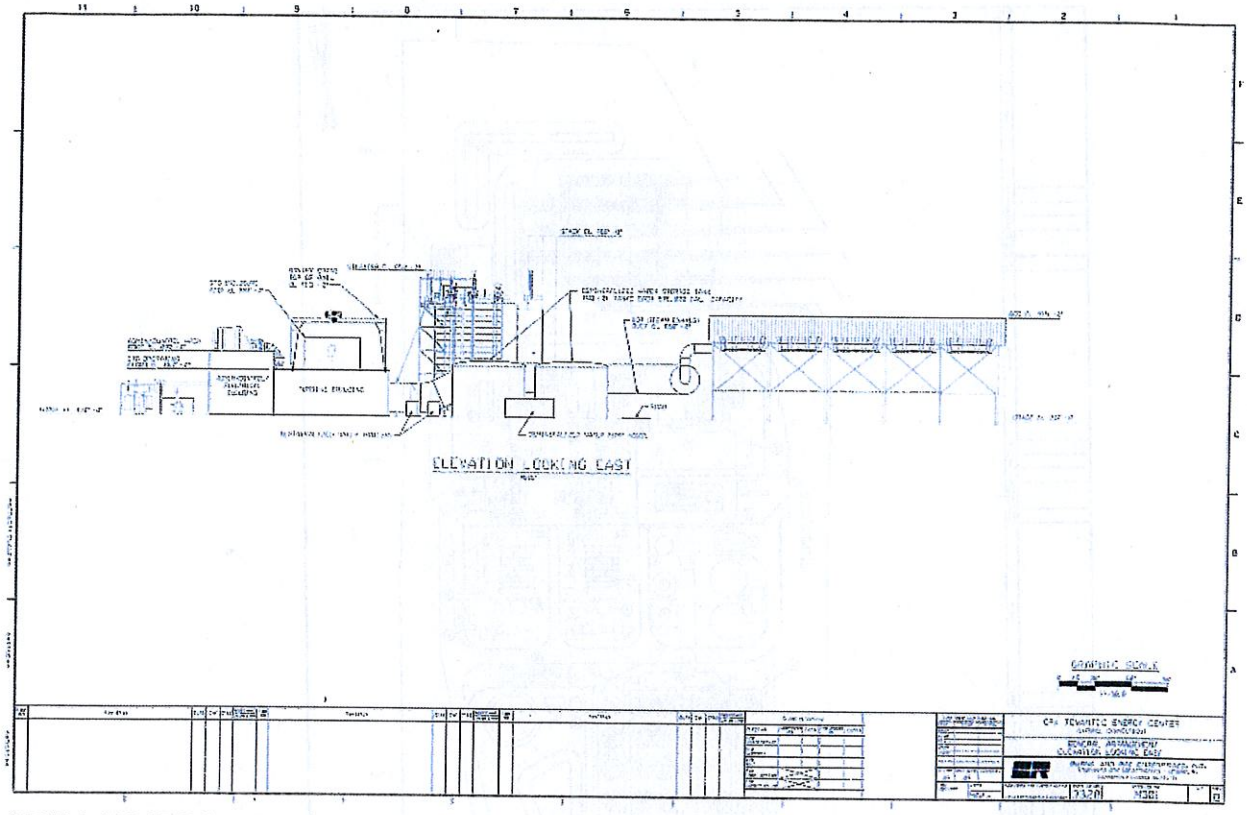
(CPV 1, EOSPCC, p. 4, Figure 1)

Figure 2 – Proposed Site Plan



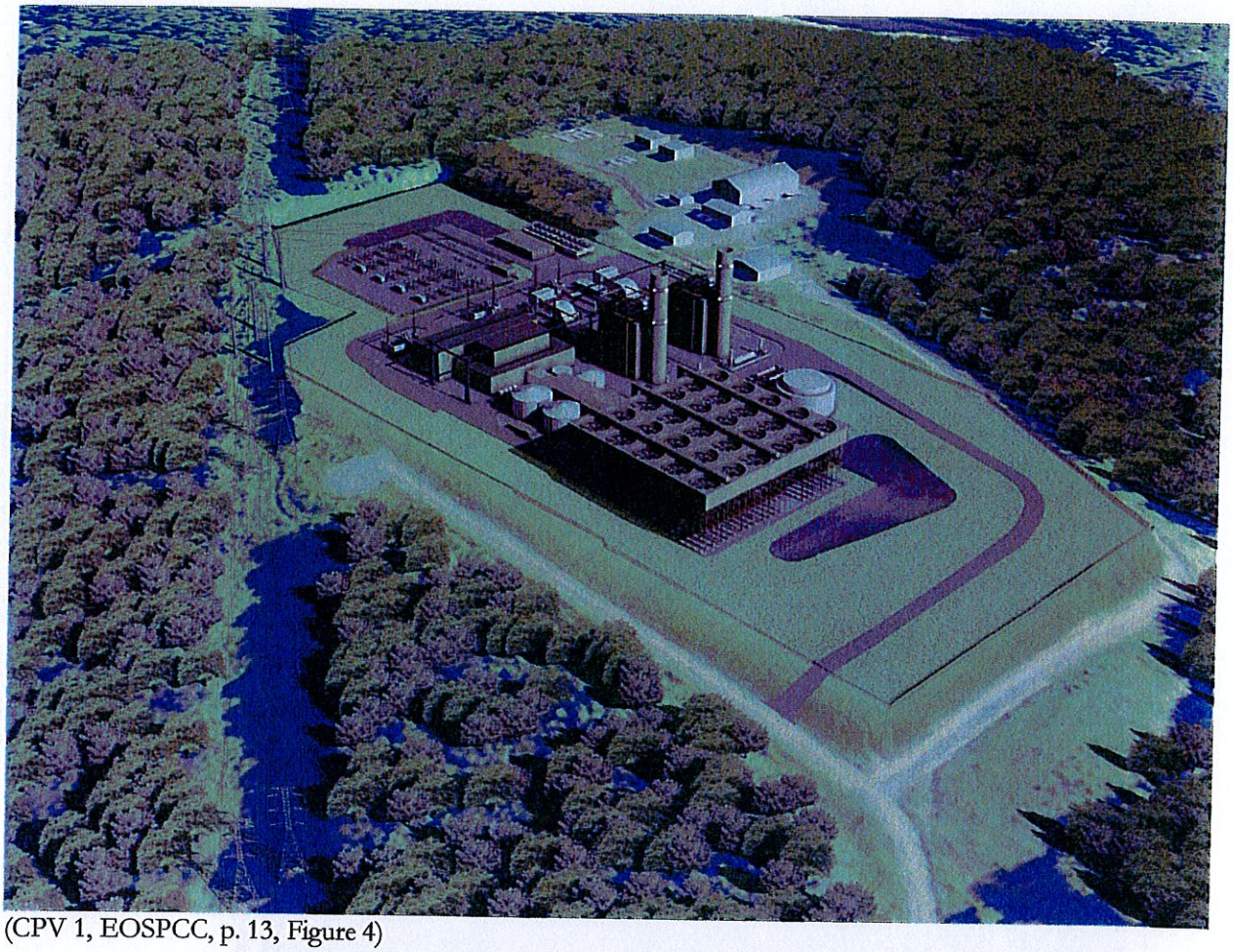
(CPV 1, EOSPCC, p. 9, Figure 2)

Figure 3 – Proposed Site Plan Elevation View



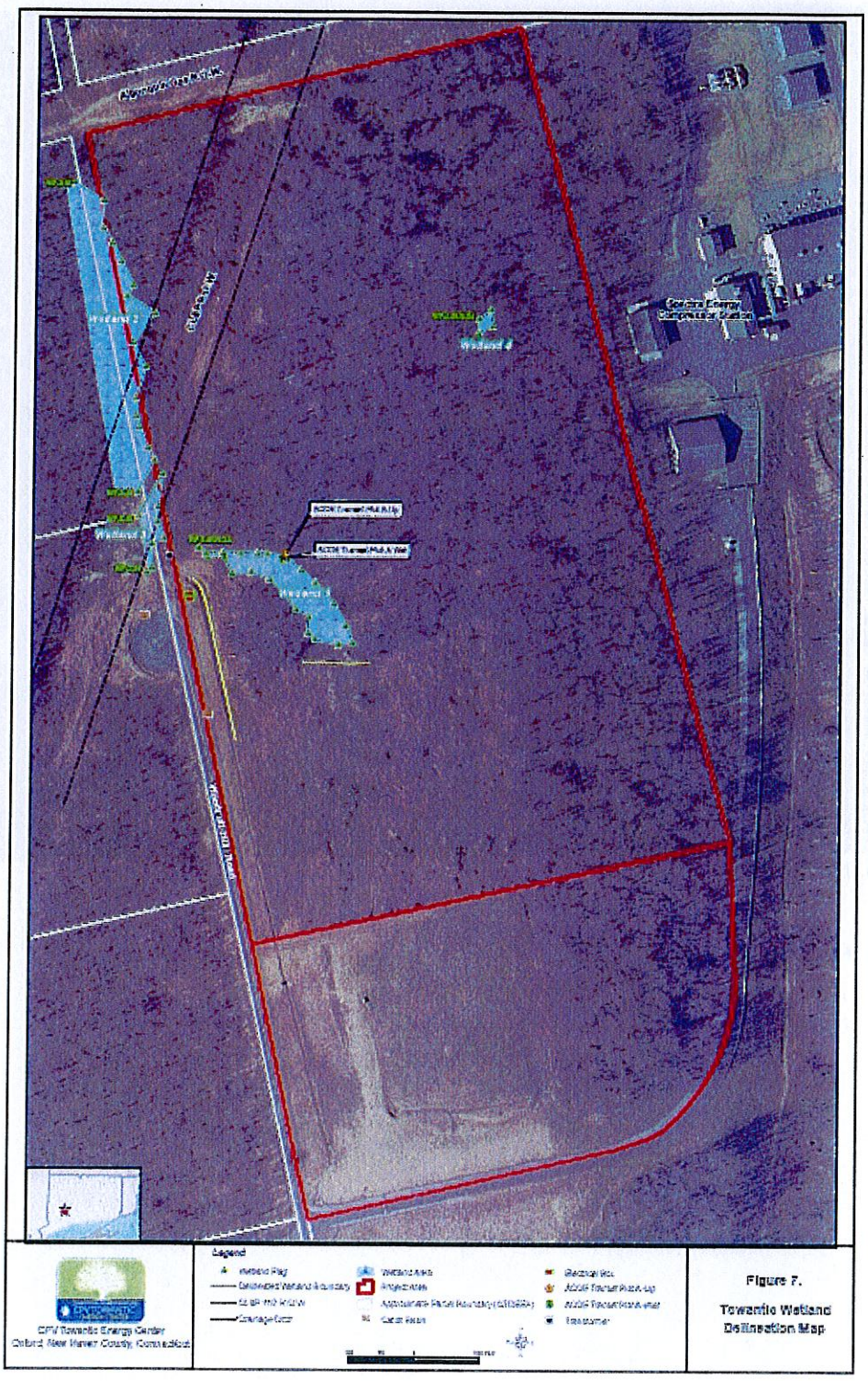
(CPV 1, EOSPCC, p. 12, Figure 3)

Figure 4 – Photo Rendering of Plant



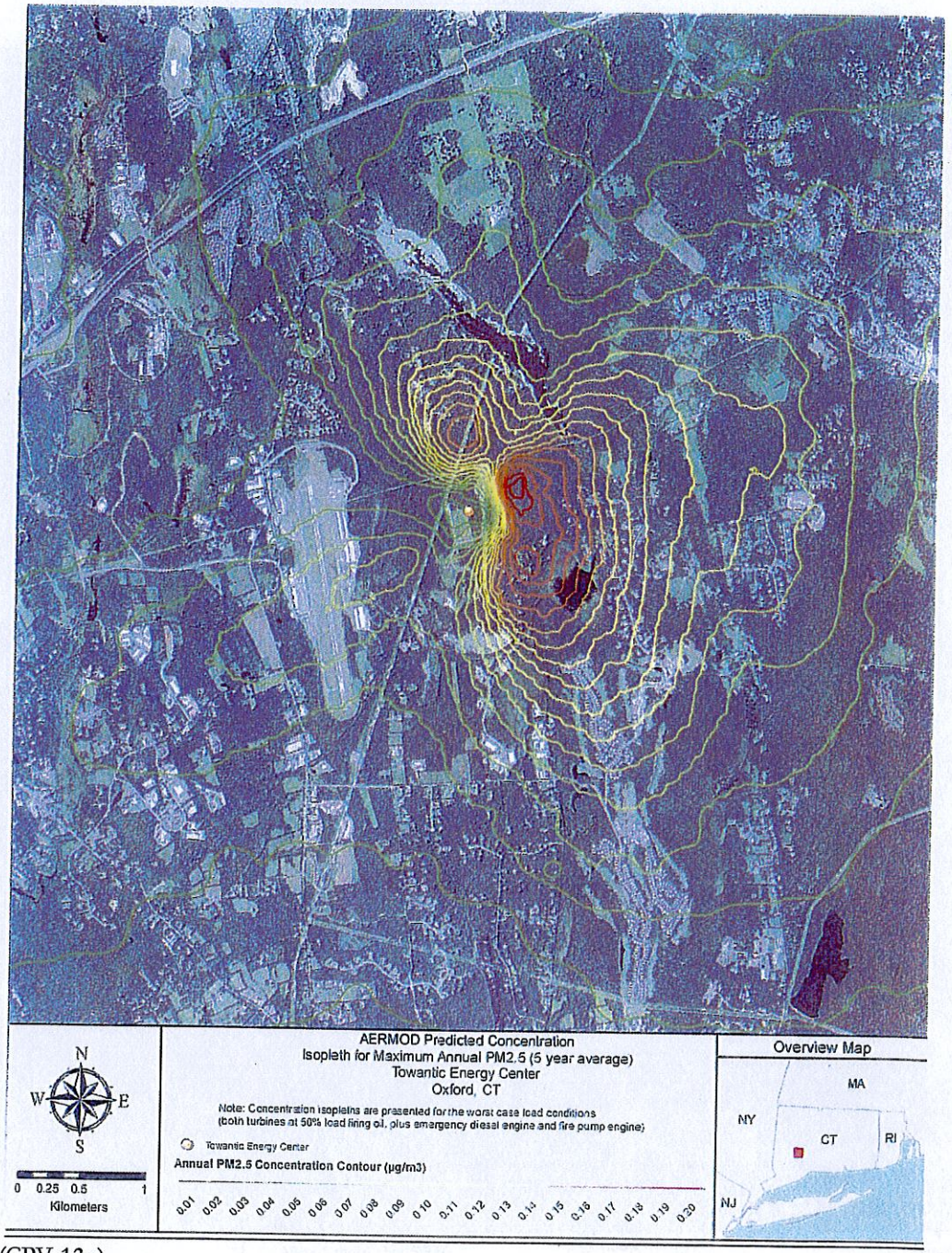
(CPV 1, EOSPCC, p. 13, Figure 4)

Figure 5 – Wetland Map



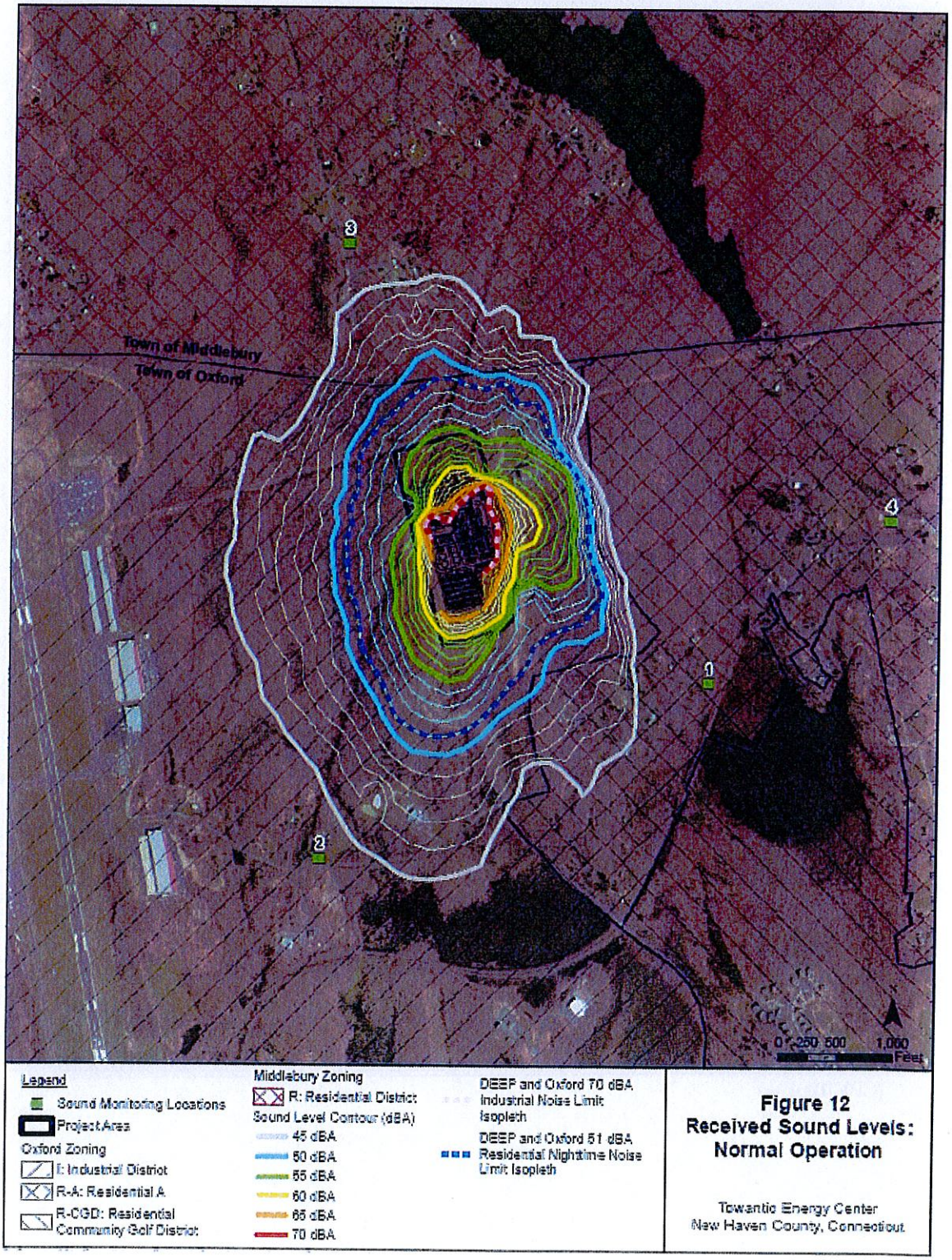
(CPV 1, Figure 7)

Figure 6 – $PM_{2.5}$ Dispersion Map



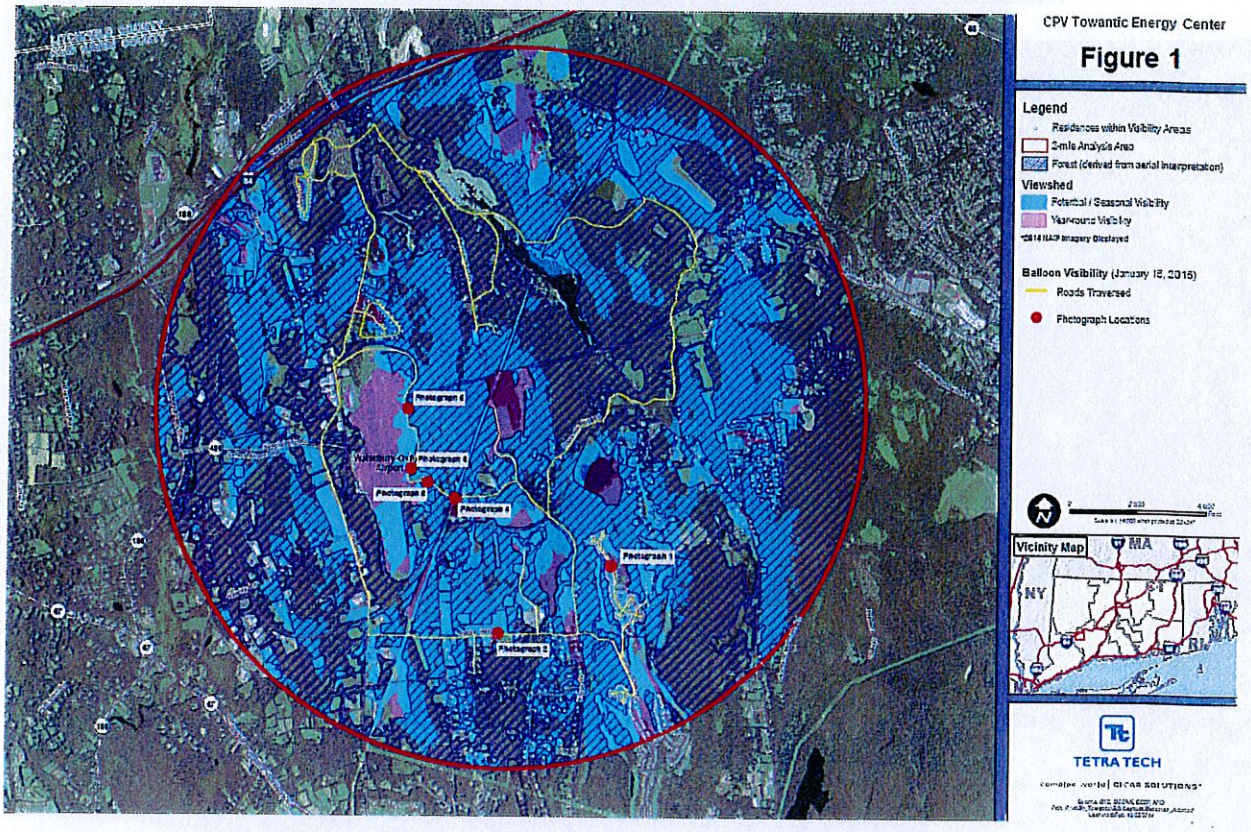
(CPV 13q)

Figure 7 – Projected Sound Levels



(CPV 1, EOSPCC, Tab D – Sounds Survey and Analysis Report, p. 20, Figure 12)

Figure 8 – Viewshed Map



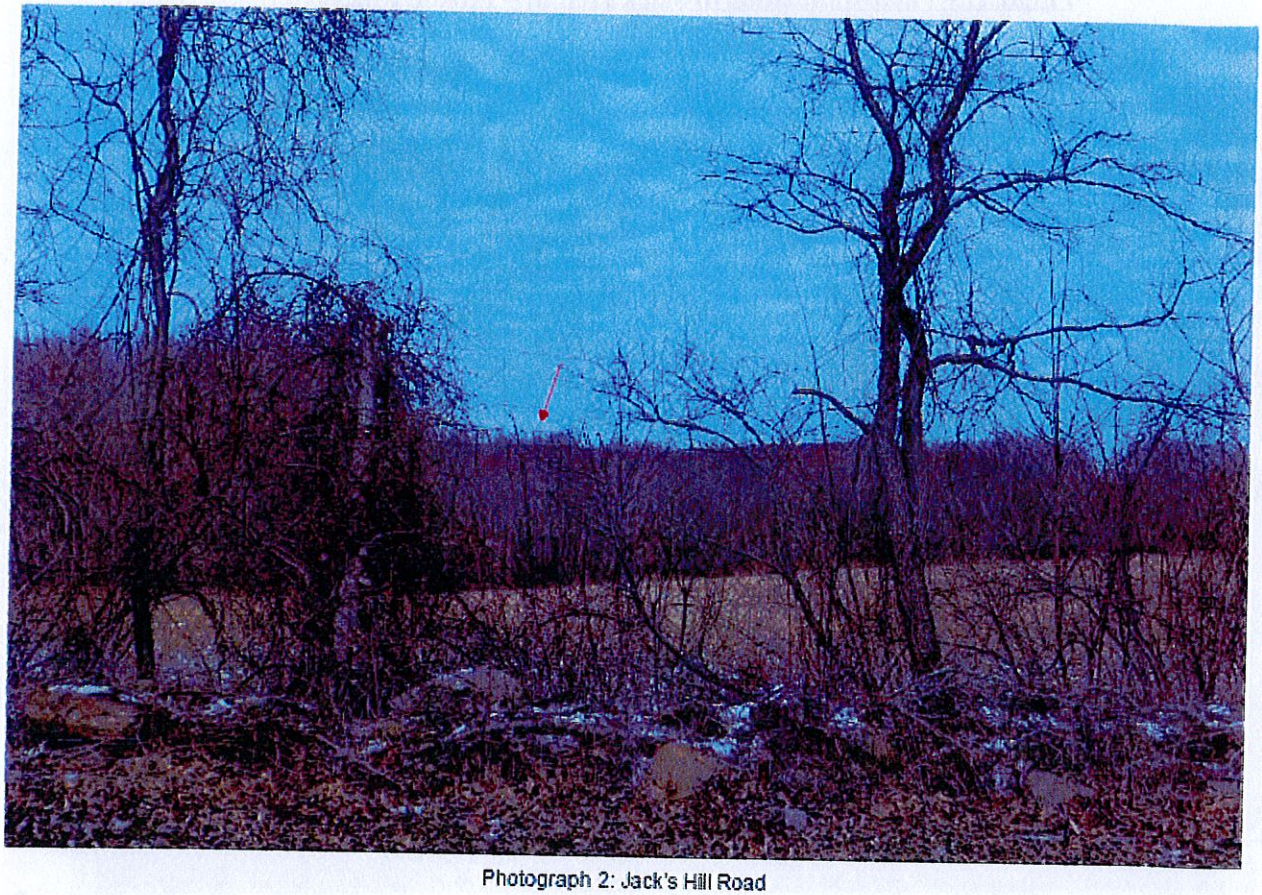
(CPV 10e, Viewshed Map)

Figure 9 – Photo-simulation of Stack Height – Oxford Green

Photograph 1: Oxford Green

(CPV 10e, Photo-simulation #1)

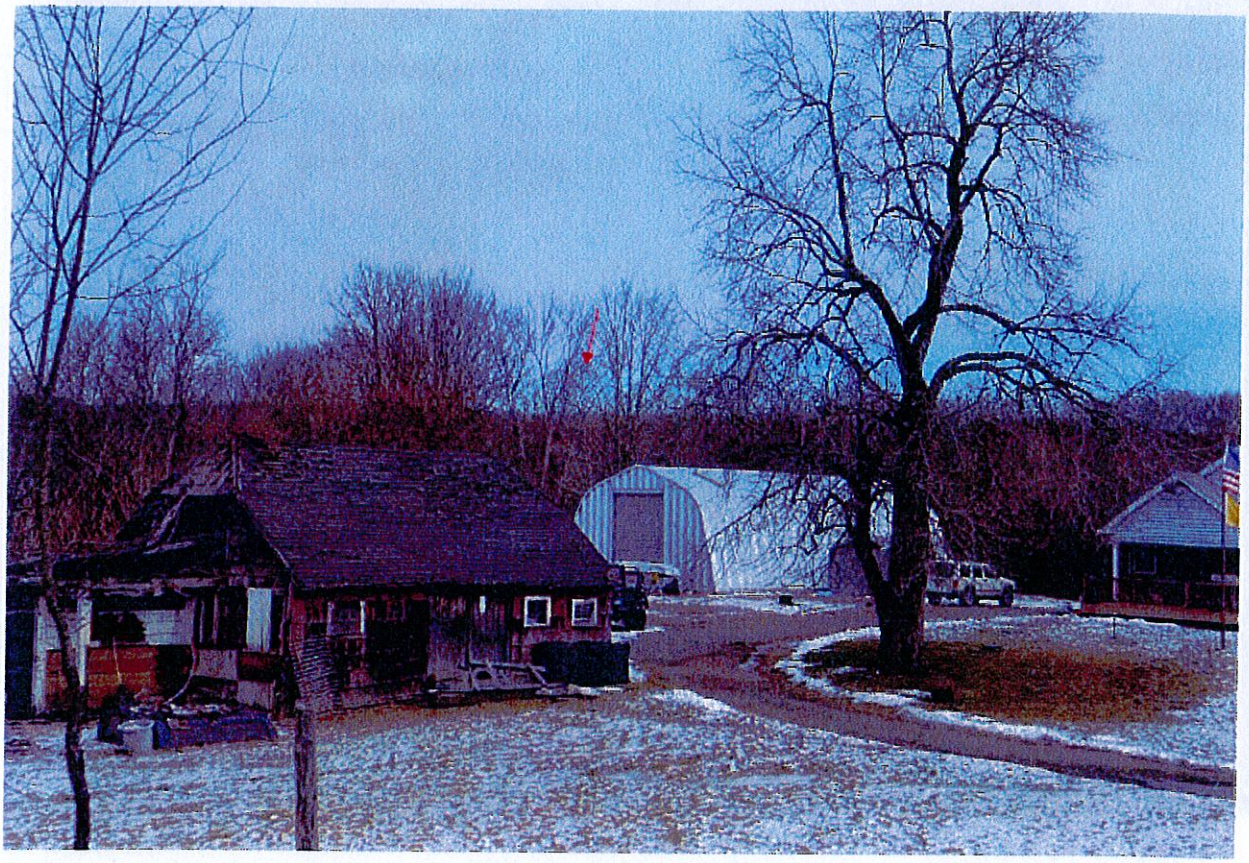
Figure 10 – Photo-simulation of Stack Height – Jack's Hill Road



Photograph 2: Jack's Hill Road

(CPV 10e, Photo-simulation #2)

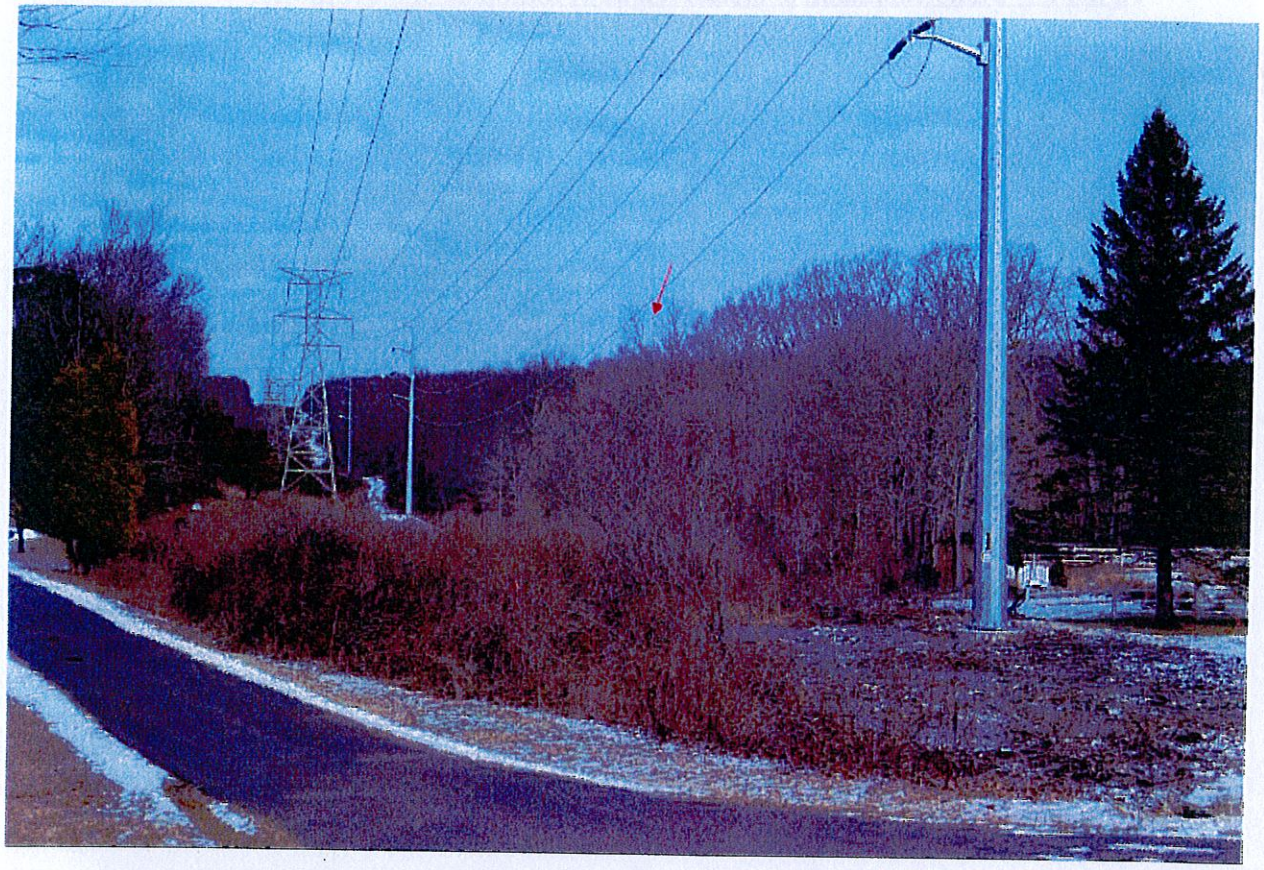
Figure 11 – Photo-simulation of Stack Height – Prokop Road



Photograph 3: Prokop Road

(CPV 10e, Photo-simulation #3)

Figure 12 – Photo-simulation of Stack Height – Prokop Transmission ROW



Photograph 4: Prokop Transmission ROW

(CPV 10e, Photo-simulation #4)

Figure 13 – Photosimulation of Stack Height – North Side of the Airport

Photograph 5: North Side of the Airport

(CPV 10e, Photo-simulation #5)

Figure 14 – Photosimulations of Stack Height – South Side of the Airport

Photograph 6: South Side of the Airport

(CPV 10e, Photo-simulation #6)