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# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

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February 9, 2011

TO: Parties and Intervenors

FROM: Linda Roberts, Executive Director 

RE: **DOCKET NO. 190A** – Meriden Gas Turbines, LLC Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a 530 MW combined cycle generating plant in Meriden, Connecticut. Reopening of this docket pursuant to Connecticut General Statutes § 4-181a(b) limited to Council consideration of changed conditions and of the attachment of conditions to the certificate consistent with the findings and recommendations in the Final Report issued by the Kleen Energy Plant Investigation Review Panel (Nevan Commission) and the findings and recommendations in the Executive Report issued by the Thomas Commission.

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As stated at the hearing in Hartford on December 7, 2010, after the 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 Connecticut Siting Council on the Draft Findings of Fact issued on this docket by February 24, 2011.

LR/CMW/laf

Enclosure

<p><b>DOCKET NO. 190A</b> – Meriden Gas Turbines, LLC Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a 530 MW combined cycle generating plant in Meriden, Connecticut. Reopening of this docket pursuant to Connecticut General Statutes § 4-181a(b) limited to Council consideration of changed conditions and of the attachment of conditions to the certificate consistent with the findings and recommendations in the Final Report issued by the Kleen Energy Plant Investigation Review Panel (Nevas Commission) and the findings and recommendations in the Executive Report issued by the Thomas Commission.</p>	<p>} Connecticut          } Siting          } Council          January 27, 2011</p>
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**DRAFT Findings of Fact**

**Introduction**

1. On April 27, 1999, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need (Certificate) to PDC-El Paso Meriden LLC for the construction, operation and maintenance of a 530-megawatt (MW) combined-cycle electric generating facility in Meriden, Connecticut. In 2001, NRG Energy, Inc. (NRG) through Meriden Gas Turbines (MGT) became the owner of the Meriden Facility. (NRG 1, p. 1; record)
2. Condition (7) of the Council’s Decision and Order (D&O) in this docket stated that the D&O would be void if the project construction were not completed within four years of the date of the D&O or within four years of the resolution of all associated appeals. The original deadline for construction of the project was April 27, 2003. The Council has since granted NRG two extensions of the construction deadline with a current construction deadline of April 27, 2011. (NRG 1, p. 1)
3. On July 7, 2010, the Council received a request from NRG seeking a five-year extension of the construction deadline to April 27, 2016 to allow NRG to obtain funding for the project and complete construction. (NRG 1, pp. 1, 2)
4. On July 15, 2010, the Council voted to reopen the proceeding on changed conditions under Connecticut General Statutes (C.G.S.) § 4-181a(b) specifically limited to consideration of changed conditions and to the attachment of conditions to the Certificate consistent with the findings and recommendations contained in the Final Report issued by the Kleen Energy Plant Investigation Review Panel. (record)
5. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public hearing on August 24, 2010, beginning at 2:05 p.m. at the Council’s office, 10 Franklin Square, New Britain, Connecticut. (Council’s Hearing Notice dated July 23, 2010; Transcript 1, 08/24/10, 2:05 p.m. [Tr. 1], p. 3)
6. 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 40)
7. On September 22, 2010, Governor Rell issued Executive Order No. 45, banning the use of flammable gas for “gas blows” in Connecticut. (Council Administrative Notice Item 48)
8. On October 7, 2010, the Council reopened the evidentiary portion of this hearing to include the recommendations contained in the Executive Report issued by the Thomas Commission. (Council E/T meeting minutes, October 7, 2010).

9. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held an additional public hearing on December 7, 2010, beginning at 3:40 p.m. at the Legislative Office Building, 300 Capitol Avenue, Hartford, Connecticut. (Transcript 2, 12/07/10, 3:40 p.m. [Tr. 1], pp. 3, 4)
10. The party to this proceeding is NRG and Quinnipiac River Watershed Association. Intervenors to this proceeding are The Connecticut Light and Power Company, and Rivers Alliance of Connecticut Farmington River Watershed Association. (Tr. 1, pp. 6, 7)
11. Public notice of the hearings was published in the Hartford Courant, Record Journal and The Herald. (Council correspondence dated July 23, 2010; Record)

#### State Agency Comments

12. Pursuant to CGS § 16-50j(h), on July 23, 2010 and August 25, 2010, the following state agencies were solicited to submit written comments regarding potential modifications of the Certificate: Department of Environmental Protection (DEP), Department of Public Health (DPH), Council on Environmental Quality (CEQ), Department of Public Utility Control (DPUC), Office of Policy and Management (OPM), Department of Economic and Community Development (DECD), Department of Agriculture (DOAg), Department of Emergency Management and Homeland Security (DEMHS), and the Department of Transportation (DOT). (Record)
13. Pursuant to CGS § 16-50j(h), on December 8, 2010, the following state agencies were solicited to submit written comments regarding potential modifications to the Certificate: DEP, DPH, CEQ, DPUC, OPM, DECD, DOAg, DEMHS, Department of Public Safety (DPS), Department of Labor (DOL), Department of Consumer Protection (DCP), and Department of Public Works (DPW). (Record)
14. On August 13, 2010 and November 10, 2010, DPH submitted comments on the reopened proceeding. Both letters stated the same comments. DPH recommended attaching conditions to all gas-fueled power plants in Connecticut. The conditions are:
  - a) Prohibit the use of flammable gas for cleaning of fuel gas piping at power plants. Require applicants to specify what method of gas pipe cleaning would be used as an alternative to flammable gas.
  - b) Prohibit venting of flammable gas indoors and outdoors where it is in the vicinity of workers and/or ignition sources.
  - c) Prohibit work activity from occurring in areas where the concentration of flammable gas exceeds ten percent of the lower explosive limit (LEL) for that gas. Require continuous monitoring of gas levels where a build-up of gas is possible and sound alarms when concentration approaches ten percent of the LEL.
  - d) Require adherence to code requirements in the most current version of the *National Fuel Gas Code*, as outlined in the National Fire Protection Association Standard 54 (NFPA 54).
  - e) Require adherence to Occupational Safety and Health Administration (OSHA) Standards for *Process Safety Management of Highly Hazardous Chemicals*.
  - f) Require an independent Site Safety Manager for the construction phase of the project.
  - g) Require applicants to provide the Council with flammable gas safety procedures and training activities specific to contractors, workers and their representatives in development and decision making.(DPH comments dated August 12, 2010, pp. 1, 2)
15. Other comments in the DPH letter include a request that the Council specifically prohibit the inclusion of financial incentives for early completion in construction contracts on gas-fueled power plants and other facilities under Council jurisdiction. (DPH comments dated August 12, 2010, pp. 2, 3)

16. NRG would agree to comply with DPH recommendations with the exception of recommendation (d) regarding NFPA 54 and recommendation (e) regarding OSHA standards because these standards are not written for power generation and adopting into construction procedures could be problematic. (DPH comments dated August 12, 2010, p. 2; Tr. 1, p. 18)
17. The following state agencies did not file written comment on the reopened proceeding: DOT, DEP, CEQ, DPUC, OPM, DECD, DOAg, DEMHS, DPS, DOL, DCP, DPW. (Record)

**Kleen Energy Plant Investigation Review Panel (Nevas Commission)**

18. On February 7, 2010, there was an explosion at the Kleen Energy Systems, LLC facility (Kleen facility) in Middletown, Connecticut. The explosion was due to the release and ignition of natural gas from a process used to clean the natural gas pipeline using high quantities of natural gas, a procedure known as a “gas blow.” (Council Admin. Notice 38, pp. 1, 2)
19. After the explosion, Governor M. Jodi Rell established a commission, the Kleen Energy Plant Investigation Review Panel, chaired by Judge Alan Nevas (the “Nevas Commission”), that included representatives of the DEP, DOL, Connecticut State Police (including the State Fire Marshal and the Office of the State Building Inspector), DCP, and the DPUC, to identify the cause and origin of the explosion. (Council Administrative Notice Item 38)
20. The findings of the Nevas Commission were to be applied by a second, separate commission established by the Governor, the Thomas Commission, whose charge was to recommend any necessary specific legislative or regulatory changes to prevent such an event from occurring again. (Council Administrative Notice Item 37; Council Administrative Notice Item 40)
21. On June 3, 2010, the Nevas Commission issued a Final Report titled “Governor’s Commission Re: Kleen Energy Explosion – Final Report.” The Final Report included findings and recommendations regarding pipe cleaning procedures used at the Kleen facility and recommended that the Council review all gas-fired baseload power plants within its jurisdiction, including those that have already been permitted. In addition, the report included an analysis of existing regulations concerning such activities and recommended changes to regulatory criteria to prevent such an event in the future. (Council Admin. Notice 38)
22. The United States Chemical Safety and Hazard Investigation Board (USCSB), an independent federal agency, also investigated the cause of the explosion and developed its own set of recommendations to prevent similar accidents. The USCSB issued its final report on June 28, 2010. One of the recommendations of the USCSB is to ban the use of flammable gas that is released into the atmosphere as a pipe cleaning procedure at power plants. (Council Admin. Notice 39)

**Nevas Commission Findings**

23. The Nevas Commission findings are:

- a. "The Commission finds that the February 7, 2010 explosion was the product of a process used to clean a natural gas pipeline using large quantities of natural gas that came into contact with an ignition source known as a gas blow";
- b. "The Commission finds that, although the Kleen Energy construction project was heavily regulated by a variety of agencies, no agency regulated the process used – or any process that might be used such as gas purging – to clean the natural gas pipeline that was the source of the explosion"; and
- c. "The Commission finds, and recommends to the Thomas Panel, that there are significant regulatory steps that should be taken to ensure that the events of February 7, 2010 are not repeated."

(Council Administrative Notice Item 38)

24. The Nevas Commission Final Report suggested that the Thomas Commission should examine the following areas pertaining to natural gas blows:

- a. "Determine whether any other state or federal agency has developed regulatory structure applicable to natural gas pipeline cleaning";
- b. "Consult with industry experts to determine which methods of gas blowing are used and/or recommended, and identify the advantages and disadvantages of each method";
- c. "Identify the agency, or agencies, best suited to regulate the gas blow process";
- d. "Recommend the level of training and expertise necessary for that agency to effectively establish and enforce necessary cleaning regulations";
- e. "Consider recommending that the Connecticut Siting Council impose safety conditions upon any entity constructing a power plant that will employ the gas blow cleaning process";
- f. "Consider recommending that the Connecticut Department of Consumer Protection and/or the Connecticut Department of Labor identify, if appropriate, special licensing, credentials, and/or training for those assigned to effect power plant gas blows in Connecticut. Further, consider recommending that the latter agencies address whether work schedule limitations are appropriate for those assigned to perform power plant gas blows in Connecticut"; and
- g. consider the establishment of regulations concerning natural gas blow procedures.

(Council Administrative Notice Item 38)

25. The Nevas Commission Final Report contained a statement by Judge Nevas to the Council urging that the Council attach conditions to Kleen's Certificate that a) address the findings of the Nevas Commission; and b) incorporate any more specific recommendations made by the Thomas Panel. (Council Administrative Notice Item 38)

26. Additionally, Judge Nevas suggested the following:

- a. "...a coordination council consisting of pertinent state agencies be assembled to share information during the course of construction of a large power facility. The Siting Council might serve as the coordinating entity using its 'changed conditions' authority if concerns arise that there is a pattern of violations during construction";
- b. "The Siting Council should review this report and ultimately the Thomas Commission report to determine whether its 'changed conditions' authority would enable it to review all power plants within its jurisdiction to determine whether such plants warrant further attention"; and
- c. "...the Thomas Commission solicit comments and input from the Siting Council as to how the Siting Council might address concerns relative to gas-fired baseload power plant facilities that have been permitted in the past and the records which are now closed."

(Council Administrative Notice Item 38)

**Thomas Commission Findings**

27. The Thomas Commission was chaired by Commissioner James M. Thomas of the DPS and included the following members: Edward Badamo, Fire Chief of the Middletown South Fire District; Karl Baker, designee for Chairman Kevin M. DelGobbo of the DPUC and Supervisor of the Gas Pipeline Safety Unit; Dr. Vishnu Khade, design engineer of the DPW; John Olsen, President of the AFL/CIO; John Parker, Chief Building Inspector of Middletown; Robert Ross, Director of the Division of Fire, Emergency and Building Services; and Bruce J. Spiewak of the American Institute of Architects. (Council Administrative Notice Item 40)
28. At the meeting of the Thomas Commission held on August 10, 2010, Kevin M. DelGobbo, Chairman of the DPUC stated that the Nevas Commission made the following three determinations:
  - a. The February 7, 2010 explosion was the product of a process to clean a natural gas pipeline using large quantities of natural gas that came into contact with an ignition source known in the industry as a “gas blow” ;
  - b. Although the Kleen construction project was heavily regulated by a variety of agencies, no agency regulated the process used – or any process that might be used such as gas purging – to clean the natural gas pipeline that was the source of the explosion;
  - c. Recommendations to the Thomas Panel that there are significant regulatory steps that should be taken to ensure that the events of February 7, 2010 are not repeated. (Council Administrative Notice Item 40)
29. At the meeting of the Thomas Commission held on August 24, 2010, Manuel R. Gomez, Director of Recommendations from the USCSB testified that there are no standards and limited guidance regarding safely cleaning fuel gas piping. (Council Administrative Notice Item 40)
30. At the meeting of the Thomas Commission held on September 14, 2010, James J. Murphy, member of the Council testified that the Council has the authority, on its own motion, to modify the Certificates of power plant facilities at any time on a finding of changed conditions pursuant to C.G.S. §4-181a(b). Mr. Murphy also recommended statutory changes to include the DEMHS, DPS, DOL, DCP, and DPW as additional agencies with which the Council must consult and solicit comments from when an application for an electric generating facility is received by the Council. (Council Administrative Notice Item 40)
31. Also at the Thomas Commission meeting of September 14, 2010, the DPS Division of Fire, Emergency and Building Services testified to specific recommendations for adoption of the 2010 Edition of the National Fire Protection Association (NFPA) 37, adoption of the 2009 Edition of NFPA 54 including Temporary Interim Amendment (TIA) 09-3, adoption of American Society of Mechanical Engineers (ASME) B31 including a requirement that the Council require the owner to hire a special inspector for the inspection of piping installed in accordance with ASME B31, amendments to the Fire Prevention Code, C.G.S. §29-291a and adoption of the 2010 edition of NFPA 850. (Council Administrative Notice Item 40)

32. The Executive Report issued by the Thomas Commission contains the following Final Recommendations:
- a. Use of flammable gases to conduct “gas blows” should be banned in Connecticut, at least until such time as there are accepted national standards published and in place;
  - b. Requirement of special inspectors, development of safety plans and payment of cost by power plant applicant;
  - c. Assembly of a “Coordinating Council” for future power plant applications;
  - d. Attachment of conditions to certificates issued by the Siting Council that include a ban on flammable gas blows and compliance with code recommendations;
  - e. Review of existing power plants by the Siting Council to modify final decisions of power plants within its jurisdiction to determine whether such plants warrant further attention;
  - f. Adoption of the following codes and regulations by the DPS:
    - i. Amend the Flammable & Combustible Liquids Code, C.G.S. §29-320 to adopt the 2010 Edition of NFPA 37, “Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines”;
    - ii. Amend the Gas Equipment and Piping Code, C.G.S. §29-329 to adopt the 2009 Edition of NFPA 54, “National Fuel Gas Code” including Temporary Interim Amendment 09-3 and by Connecticut amendment remove the exception regarding fuel gas piping at electric utility power plants and to adopt ASME Standard B31, “Code for Pressure Piping” including mandatory compliance with Appendices IV and V of ASME B31.1 for newly constructed electric utility power plants;
    - iii. Amend the Connecticut Fire Prevention Code adopted pursuant to C.G.S. §29-291a to add new sections in the Hazardous Materials Chapter regarding “Gas Piping Cleaning Operations”;
    - iv. Amend the Fire Prevention Code adopted pursuant to C.G.S. §29-291a to delete and revise sections 29-291a-2(a) and (b) regarding “Relationship to State Fire Safety and Building Codes” and to adopt the requirements of the 2010 Edition of NFPA 850 “Fire Protection for Electric Generating Plants and High Voltage Current Converter Stations”; and
  - g. Adoption of legislation to provide for payment into a code training fund by any power plant applicant who is required to obtain Siting Council approval.  
(Council Administrative Notice Item 40)

#### **Meriden Plant - Gas Pipeline System**

33. NRG would use an external compressed air system to clean the natural gas pipeline at its Meriden facility. The “air blow” process involves using equipment to blow out the pipeline multiple times until a target placed at the outlet indicates minimal debris is left in the line and it is within the specifications of the gas turbine manufacturer. Equipment will be temporarily brought to the site, including an air-compressor, air receiver tank, and a quick-opening valve at the end of the line. (NRG 2, R. 1)
34. The air blow process would be performed by an air blow contractor, who would under the supervision of the NRG/MGT Commissioning Manager and other members of the project team. (NRG 2, R. 2)
35. NRG would typically pig the pipeline, by inserting a cleaning device in the line, as a first step to remove large debris from the pipe. Air blow of the line would still be required to clean the pipe up standards. (Tr. 1, p. 29)
36. Safety measures established during pipe cleaning will follow a Job Hazard Analysis plan. All on-site personnel would be notified of the activity. The area around the pipe exit would be framed in plywood and personnel would be cleared from the area to avoid injury and equipment damage from the cleaning process. Also, all personnel would have to use hearing protection due to expected high noise levels during the air blow process. (NRG 2, R. 3)

37. The cost of the air blow method versus the cost of the gas blow method is a function of the initial cleanliness of the pipe. Costs associated with the air blow include the rental of the equipment and the time it takes to do the work, whereas costs associated with a gas blow process include the cost of the natural gas to be used for cleaning and the supervision. Therefore, the more cleaning a pipeline requires the more expensive the gas blow method would be. (Tr. 1, p. 13)
38. The air blow cleaning process typically requires 150 to 250 pounds per square inch. (Tr. 1, p. 15)
39. Once the gas pipeline is cleaned and in place, there would be no need to clean that pipeline again. Additional pipeline cleaning would only be needed in any new or replaced section of the pipeline. (Tr. 1, p. 15)
40. NRG would be required to clean the entire one-mile length of gas pipeline between the tie-in with the interstate gas pipeline and the isolation point of the Meriden Plant. (Tr. 1, p. 17)
41. During construction of previous power generation projects, NRG met with the fire marshal of the municipality and explained the process for cleaning the pipelines using air. The fire marshal notified all nearby landowners of the upcoming pipe cleaning event with an automated telephone message. (Tr. 1, pp. 41, 42)
42. The Meriden NRG Facility is completely fenced in with security patrolling the property. A log is kept of people entering and exiting the facility. Once the Facility is operational, it will be a fully manned plant. (Tr. 2, pp. 13, 14, 25)
43. NRG would hire a safety manager to be present on-site. The safety manager would have the authority to shut down construction at the site if there were an unsafe condition. (Tr. 1, p. 58)
44. NRG currently does not have an emergency response or safety plan for the Meriden Plant. NRG would submit such a plan to the Council if so ordered. (Tr. 2, pp. 12, 13)
45. NRG would be willing to set up a reverse 911 type system to alert people in the surrounding area of activities at the Facility. (Tr. p. 14)



Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
<b>Intervenor</b>	The Connecticut Light and Power Company	<p>John R. Morissette  Manager-Transmission Siting and Permitting  The Connecticut Light &amp; Power Company  P.O. Box 270  Hartford, CT 06141-0270  (860) 665-2036  (860) 665-2611 fax  <a href="mailto:morisjr@nu.com">morisjr@nu.com</a></p> <p>Christopher R. Bernard  Manager, Regulatory Policy (Transmission)  The Connecticut Light &amp; Power Company  P.O. Box 270  Hartford, CT 06141-0270  (860) 665-5967  (860) 665-3314 fax  <a href="mailto:bernacr@nu.com">bernacr@nu.com</a></p>
<b>Intervenor</b>	Rivers Alliance of Connecticut Farmington River Watershed Association	<p>Eric Hammerling, President  Rivers Alliance of Connecticut  P.O. Box 1797  Litchfield, CT 06759</p> <p>Kevin Case  Farmington River Watershed Association  749 Hopmeadow Street  Simsbury, CT 06070</p>
<b>Party</b>	Quinnipiac River Watershed Association	<p>Mary Mushinsky  Executive Director  Quinnipiac River Watershed Association  P.O. Box 2825  Meriden, CT 06450  (203) 237-2237 (phone and fax)  <a href="mailto:qrwa@sbcglobal.net">qrwa@sbcglobal.net</a></p>

**LIST OF PARTIES AND INTERVENORS**  
**SERVICE LIST**

<b>Status Granted</b>	<b>Status Holder (name, address &amp; phone number)</b>	<b>Representative (name, address &amp; phone number)</b>
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