

BEFORE THE CONNECTICUT SITING COUNCIL

In re: NTE Connecticut, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a 550-megawatt dual-fuel combined cycle electric generating facility and associated electrical interconnection switchyard located at 180 and 189 Lake Road, Killingly, Connecticut

Docket No. 470

Filed: April 24, 2017

PROPOSED FINDINGS OF FACT OF THE SIERRA CLUB

A. Proceedings Before the Council

1. On August 17, 2016, NTE Connecticut LLC (NTE) submitted an application to the Connecticut Siting Council (Council) for the approval of the construction, maintenance, and operation of a for a 550-megawatt dual-fuel combined cycle electric generating facility and associated electrical interconnection switchyard located in the town of Killingly, Connecticut.¹
2. On September 14, 2016, Not Another Power Plant submitted a Request for Party Status and Notice of CEPA Intervention as a Party to the Council.
3. On September 28, 2016 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, and the filing of pre-hearing testimony.
4. On October 20, 2016, the Council held a public comment hearing in the Town of Killingly for the public to make statements into the record.
5. On October 25, 2016, the Sierra Club submitted a Request for Party Status and Petition to Intervene to the Council.
6. On October 26, 2016, the Connecticut Fund for the Environment submitted a Request for Party Status to the Council.
7. On October 27, 2016, The Wyndham Land Trust submitted a Request for Party Status to the Council.

¹ NTE Exhibit #1 (Application for a Certificate of Environmental Compatibility and Public Need filed by NTE Connecticut, LLC, received August 17, 2016, and attachments).

8. On November 3, 2016, the Council held an initial evidentiary hearing in this matter. During the hearing, the Council granted the intervention petitions of the Sierra Club, Connecticut Fund for the Environment, and the Wyndham Land Trust. The Council grouped the Sierra Club, Not Another Power Plant, and The Wyndham Land Trust pursuant to Conn. Gen. Stat. 16-50n(c).²
9. Evidentiary hearings were continued on November 3, 2016; November 15, 2016; December 15, 2015; January 10, 2017; and January 26, 2017, whereupon the record was closed.³
10. On February 13, 2017, NTE filed a motion to reopen the record for the limited purpose of introducing evidence related to the results of the Forward Capacity Auction 11 conducted by the Independent System Operator of New England (ISO-NE), and to modify the briefing schedule.
11. On March 2, 2017, the Council granted NTE's motion to reopen the record and modify the briefing schedule.
12. On March 23, 2017, the Council held a final evidentiary hearing in this matter.

B. The Proposed Project

13. NTE proposes to construct the Killingly Energy Center (KEC or the Facility) on Lake Road in Killingly, Connecticut.⁴
14. KEC will generate approximately 550 MW of electricity utilizing primarily natural gas, with Ultra Low Sulfur Distillate (ULSD) as a limited use backup fuel.⁵
15. ULSD use will be limited in accordance with KEC's air permit to instances when natural gas is not available, and for no more than 720 hours on rolling annual basis.⁶ KEC's air permit will not authorize the Facility to burn ULSD on an economic basis.⁷
16. Generation of the Facility may range from 40% load to 100% load during normal operation.⁸ NTE anticipates that the capacity factor of the Facility will be between 65 and 85%.⁹
17. KEC is designed for a service life of at least 30 years.¹⁰ However, the Facility could be in service for up to 50 years.¹¹

² See Council Memorandum Regarding Requests, Motions and the Continuation of the Evidentiary Hearing (Nov. 7, 2016).

³ See Council Memorandum Regarding the Close of the Evidentiary Record (Jan. 26, 2017).

⁴ NTE Exhibit #1, at ES-1.

⁵ *Id.* at 38.

⁶ *Id.*

⁷ Hr'g Tr. 465:24-466:5 (Nov. 15, 2016) (Gresock).

⁸ *Id.*

⁹ Hr'g Tr. 290:7-9 (Nov. 3, 2016) (Bradley).

¹⁰ NTE Exhibit #1, at 39.

18. The natural gas combined cycle technology proposed for KEC is already “light years ahead in terms of flexibility and efficiency” compared to the Lake Road Generating Station, a natural gas combined cycle facility constructed less than 15 years ago down the road from the site of the proposed KEC facility.¹²
19. Natural gas combined cycle technologies continue to improve in efficiency.¹³

C. Public Need

20. To ensure that sufficient resources will be available to meet peak system loads in the future, ISO-NE holds an annual auction through which resource can obtain capacity supply obligations three years in the future.¹⁴
21. ISO-NE calculates a capacity target—the Net Installed Capacity Requirement (NICR)—which is calibrated to the level of system reliability established by the North American Electric Reliability Corporation (NERC).¹⁵ ISO-NE then develops a downward sloping demand curve that is calculated to ensure that, on average, the ISO procures sufficient resources to meet NERC’s reliability standards.¹⁶ The auction rules allow ISO-NE “to acquire more or less than the capacity target, providing flexibility to acquire additional capacity and enhanced reliability at a cost-effective price.”¹⁷
22. ISO-NE’s 11th Forward Capacity Auction for the Capacity Commitment Period of June 1, 2020 to May 31, 2021 (FCA 11) concluded on February 6, 2017.¹⁸
23. 40,463 MW of resources, including KEC,¹⁹ participated in the auction to provide a capacity target of 34,075 MW.²⁰ This capacity target had been reduced by 720 MW based on forecasted demand reductions from ISO-NE’s forecast of behind-the-meter solar PV growth.²¹
24. The auction closed at a system-wide clearing price of approximately \$5.30/kW-month, procuring 35,835 MW to be available in 2020-2021.²² The auction cleared 1,760 MW of surplus capacity (i.e., capacity in excess of the NICR).²³

¹¹ Hr’g Tr. 409:25-410:2 (Nov. 15, 2016) (Eves); *see also* Hr’g Tr. 522:14-523:7 (Nov. 15, 2016) (Paterno/Eves)

¹² Hr’g Tr. 1103:14-16 (Jan. 26, 2017) (Paterno).

¹³ Hr’g Tr. 293:18-19 (Nov. 3, 2016) (Bradley); *see also* Hr’g Tr. 318:15-17 (Nov. 3, 2016) (Bradley); Hr’g Tr. 735:21-736:2 (Nov. 15, 2016) (Paterno).

¹⁴ *See* NTE Exhibit #1, Appendix B-2 at 12.

¹⁵ Hr’g Tr. 471:6-21 (Nov. 15, 2016) (Paterno).

¹⁶ NTE Exhibit #24 (Redacted Rebuttal Testimony of Ethan Paterno), at 5:13-19.

¹⁷ Grouped Parties Admin. Notice Item #27 (ISO-New England, Inc., Press Release Auction Acquires Power System Resources Needed for 2020-2021 at a Lower Price, February 9, 2017), at 1.

¹⁸ *Id.*

¹⁹ Hr’g Tr. 1155:6-8 (Mar. 23, 2017) (Shortlidge).

²⁰ Grouped Parties Admin. Notice Item #27, at 1.

²¹ *Id.* at 1.

²² *Id.*

25. No major existing generation facilities retired in FCA 11.²⁴ Likewise, no large new generators cleared in the auction.²⁵ KEC did not obtain a capacity supply obligation in the auction.²⁶
26. Although no new large generators cleared, 640 MW of new energy-efficiency and demand-reduction measures cleared and will be available in 2020-2021.²⁷
27. Actual net summer peak load and net energy for load are no longer increasing and have begun to decline.²⁸ In ISO-NE's 2016 Capacity, Energy, Loads & Transmission (CELT) Report, net annual energy load in both Connecticut and New England is expected to decline by 0.22% and 0.25% per year through 2025.²⁹ New England peak summer demand is projected to increase by 0.17%/year (a total of 418 MW over 10 years) and Connecticut peak summer demand is projected to be essentially flat (adding only 35 MW between 2016 and 2025).³⁰ ISO-NE credits energy efficiency and behind-the-meter solar for flattening annual energy use and slowing peak demand growth.³¹
28. In New England, ISO-NE's forecasted 10-year compound annual growth rate for net summer peak demand declined from 1.61% in the 2010 CELT to 0.17% in the most recent 2016 CELT.³² The forecasted 10-year compound annual growth rate for net summer peak was 1.61% in the 2010 CELT, 1.30% in the 2011 CELT, 0.79% in the 2012 CELT, 0.88% in the 2013 CELT, 0.67% in the 2014 CELT, 0.54% in the 2015 CELT and 0.17% in the 2016 CELT.³³
29. New England's winter reserve margins, based on seasonal claimed capability, range from 60 to 70 percent up until year 2024.³⁴ When based on capacity supply obligations instead of seasonal claimed capabilities, winter reserve margins through 2024 uniformly exceed 49 percent.³⁵ ISO-NE's required reserve margin is 15 percent.³⁶
30. FCA 11 cleared 35,835 MW of capacity.³⁷ The winter net peak load forecast for 2020/21 is 21,029 MW.³⁸ This results in a reserve margin for the 2020/2021 period of more than 70 percent.

²³ *Id.* at 1-2.

²⁴ *Id.* at 1.

²⁵ *Id.*

²⁶ Grouped Parties Admin. Notice Item #28 (ISO-New England, Inc. FCA Results Filing in FERC Docket No. ER17-1073-000, February 28, 2017), Attachment A (ID 38663).

²⁷ Grouped Parties Admin. Notice Item #27, at 1.

²⁸ Grouped Parties Exhibit #8 (Redacted Testimony of Robert Fagan, Nov. 15, 2016), at 34, Fig. 2 & 3.

²⁹ *Id.* at 37, Tbl. 5.

³⁰ *Id.* at 37, Tbl. 6.

³¹ Council Admin. Notice Item #29 (ISO-New England, 2017 Regional Electricity Outlook, January 2017), at 18.

³² Grouped Parties Exhibit #8, at 45, Fig. 6.

³³ *Id.*

³⁴ *Id.* at 54, Table 8.

³⁵ *Id.*

³⁶ *Id.* at 9.

³⁷ Grouped Parties Admin. Notice Item #27, at 1.

31. Had KEC cleared its capacity in FCA 11, it would have replaced an equal number of MW of capacity from an existing at-risk (non-gas) generator, which would not have cleared.³⁹ Consequently, adding KEC would have not have resulted in a net gain in non-gas capacity in New England.
32. ISO NE has established a Pay for Performance mechanism that will go into effect in the winter of 2018/2019 during the capacity commitment period associated with FCA 9.⁴⁰ Pay for Performance is a market-based incentive to promote winter reliability by rewarding facilities that perform well during scarcity conditions and penalizing those that fail to respond.⁴¹
33. ISO-NE has determined that adding dual-fuel capability is the most economic option available to existing gas-only generators under the Pay for Performance rules.⁴²
34. Facilities—including gas-only generators—that have accepted capacity supply obligations in FCA 9, 10 and 11 will be subject to Pay for Performance requirements.⁴³
35. During the summer of 2016, there were 16,711 MW of dispatchable, flexible resources available in New England.⁴⁴ In 2025, New England will have about 20,000 MW of flexible generation.⁴⁵
36. New England's levels of fast-ramping resources exceed those in the California ISO region, which has 10,000 to 15,000 MW of flexible dispatchable capacity for 2017.⁴⁶
37. The California ISO system supports roughly 15,000 MW of renewable resources.⁴⁷
38. Massachusetts intends to have 600 MW of advanced energy storage online by 2025.⁴⁸ Energy storage can help to integrate variable renewable resources into the system.⁴⁹
39. Two large transmission import resources from Quebec are seeking to be connected to the New England grid.⁵⁰ If successful, these lines would provide on the order of 2,000 MW of new capacity resources to New England.⁵¹ At a 75% annual average capacity factor, the two

³⁸ Grouped Parties Exhibit #8, at 54, Table 8.

³⁹ Hr'g Tr. 1170:10-14 (Mar. 23, 2017) (Shortlidge); *see also* Hr'g Tr. 1195:12-1196:5 (Mar. 23, 2017) (Shortlidge).

⁴⁰ Council Admin. Notice Item #20 (ISO-New England, 2015 Regional System Plan, November 5, 2015), at 138.

⁴¹ *Id.* at 138-39.

⁴² Council Admin. Notice Item #28, at 3.

⁴³ *See* Council Admin. Notice Item #20, at 138.

⁴⁴ Grouped Parties Exhibit #11, at 7 n.21; *see also* Grouped Parties Admin. Notice Item #10, Tab 1.3.

⁴⁵ Grouped Parties Admin. Notice Item #10, Tab 1.3.

⁴⁶ Grouped Parties Exhibit #11, at 6.

⁴⁷ *Id.* at 6-7.

⁴⁸ Grouped Parties Admin. Notice Item #15 (Mass. Dept. of Energy & Env'tl. Affairs Energy Storage Initiative, State of Charge Study).

⁴⁹ Hr'g Tr. 502:17-22 (Nov. 15, 2017) (Bradley).

⁵⁰ Grouped Parties Exhibit #8, at 27.

⁵¹ *Id.*

transmission lines would carry over 13 million MWh per year, or 10% of New England's net annual energy needs.⁵²

40. Massachusetts recently enacted legislation that requires the Commonwealth's distribution companies to jointly and competitively solicit proposals for clean energy generation (including firm service hydroelectric generation from hydroelectric generation alone or new Class I renewable portfolio standard eligible resources that are firmed up with firm service hydroelectric generation).⁵³ Provide that reasonable proposals have been received, the distribution companies are required to enter into cost-effective long-term contracts for clean energy generation for an annual amount of electricity equal to approximately 9.45 million megawatts-hours.⁵⁴
41. The New England region currently relies on natural gas to produce 44 percent of its net electricity needs and its total generating capacity.⁵⁵ This figure could exceed 50 percent by 2024.⁵⁶
42. The Connecticut 2014 Integrated Resource Plan identified a "growing concern over New England's increasing dependence on natural gas as an electric generation fuel, and the implications resulting from such dependence in terms of reliability and cost."⁵⁷
43. Gas sets the price for wholesale electricity about 70 percent of the time in New England.⁵⁸
44. In a grid that is dominated by generation powered by a single fuel type, which sets the marginal price the large majority of the time, ratepayers bear the risk of that fuel type increasing in price.⁵⁹
45. NTE's firm gas contract does not establish a fixed price for natural gas for the duration of the contract.⁶⁰ Instead, it uses a daily index price.⁶¹
46. Natural gas prices are projected to increase at least to some degree.⁶² If natural gas prices rise in the coming years, this increase will be passed along to ratepayers in their electricity bills.

⁵² *Id.* at 27-28.

⁵³ Grouped Parties Admin. Notice Item #16 (The 189th General Court of the Commonwealth of Massachusetts, Massachusetts Bill H. 4568: An Act to Promote Energy Diversity, filed on July 31, 2016).

⁵⁴ *Id.*

⁵⁵ Grouped Parties Exhibit #8, Attachment 7 (Analysis Group, Power System Reliability in New England: Meeting Electric Resource Needs in an Era of Growing Dependence on Natural Gas, November 2014), at i.

⁵⁶ *Id.*

⁵⁷ Council Admin. Notice Item #69 (State of Conn., Dept. of Energy & Env'tl. Protection, 2014 Integrated Resource Plan for Connecticut, March 17, 2015), at 23.

⁵⁸ Grouped Parties Exhibit #8, Attachment 13 (Brandien Testimony to FERC), at 1.

⁵⁹ Hr'g Tr. 682:3-10 (Dec. 15, 2016) (Paterno).

⁶⁰ Hr'g Tr. 682:11-18 (Dec. 15, 2016) (Paterno/Bradley).

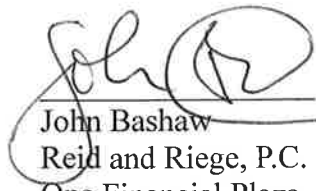
⁶¹ *Id.*

⁶² Council Admin. Notice Item #69, at 51 ("The expected increase in energy prices over the 2014–2024 timeframe is mostly due to a moderate increase in natural gas prices."); *see also id.* at 52 (projecting increase in natural gas prices from \$3.94/MMBtu to \$6.22/MMBtu in nominal dollars between 2014 and 2024).

D. Consistency with State Policy

47. The Facility would have the potential to emit up to 1,993,260 tons of greenhouse gases (carbon dioxide equivalents) annually.⁶³
48. Connecticut's annual economy-wide greenhouse gas emissions in 2013 were 40.9 million metric tons of carbon dioxide equivalents when measured on a generation basis, and 43.0 million metric tons when measured on a consumption basis.⁶⁴
49. The potential emissions of KEC are equal to approximately 4.6 to 4.9% of the State's total greenhouse gas emissions depending upon whether the calculation is made on a consumption or a generation basis.
50. Public Act 08-98 (the Global Warming Solutions Act) was enacted in 2008 and establishes Connecticut's climate change goals. The Global Warming Solutions Act commitments Connecticut to reducing statewide greenhouse gas emission levels to at least 80% below 2001 levels by 2050.⁶⁵
51. NTE stated at the January 26, 2017 hearing that it was looking at committing to reduce the facility's greenhouse gas emissions 80 percent from the time the plant is operational to 2050 consistent with Connecticut's Global Warming Solutions Act.⁶⁶ Although not part of the record before the Council, NTE submitted a proposed greenhouse gas reduction program to the Connecticut Department of Energy and Environmental Protection on February 3, 2017 to reduce the Killingly Energy Center's greenhouse gas emissions annually, beginning in 2031, culminating in 2050 with either the shut-down of the Facility or further operation subject to net-zero greenhouse gas emissions.

Respectfully submitted this 24th of April, 2017,


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⁶³ NTE Exhibit #1 at 95.

⁶⁴ Grouped Parties Admin. Notice Item #6 (Conn. Dept. of Energy and Env'tl. Protection, Office of Climate Change, Technology and Research, 2013 Connecticut Greenhouse Gas Emissions Inventory, 2013), at 3.

⁶⁵ Conn. Gen. Stat. § 22a-200a(a)(2).

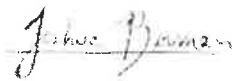
⁶⁶ Hr'g Tr. 1129:21-25 (Jan. 26, 2017) (Mirabito).

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This 24th day of April, 2017.



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