

<p>DOCKET NO. 470B - 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. Reopening of this application based on changed conditions pursuant to Connecticut General Statutes §4-181a(b).</p>	<p>} } } } }</p>	<p>Connecticut Siting Council June 6, 2019</p>
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Opinion

Introduction

On August 17, 2016, NTE Connecticut, LLC (NTE or Applicant) applied to the Connecticut Siting Council (Council) for a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of a 550-megawatt (MW) combined cycle electric generating facility and associated electrical interconnection switchyard located at 180 and 189 Lake Road, Killingly. The original application was identified as Docket No. 470, and the proposed facility is referred to as Killingly Energy Center (KEC).

The parties to the original Docket No. 470 proceeding were NTE, Not Another Power Plant (NAPP), the Town of Killingly (Town), Sierra Club (SC), Connecticut Fund for the Environment (CFE), and Wyndham Land Trust, Inc. (WLT). Pursuant to CGS §22a-19, the Council granted NAPP, SC and WLT Connecticut Environmental Protection Act intervenor status. Pursuant to CGS §16-50n(c), the Council grouped the following Parties with the same interests: NAPP, SC and WLT (Grouped Party).

In the original Docket No. 470 proceeding, NTE planned to participate in ISO New England, Inc.’s (ISO-NE) Forward Capacity Auction (FCA) #11. NTE originally sought to receive a Capacity Supply Obligation (CSO) for the 2020-2021 Capacity Commitment Period (CCP) for KEC. NTE participated in five rounds of bidding, but subsequently withdrew from the auction before it was concluded because of concerns about cost and schedule uncertainties regarding its ongoing permitting efforts. Thus, NTE did not receive a CSO for KEC.

Under the Public Utility Environmental Standards Act, the Council’s charge is to balance the need for adequate and reliable public utility services at the lowest reasonable cost to consumers with the need to protect the environment and ecology of the state. Pursuant to CGS §16-50p, for an application for an electric generating facility, the Council shall not grant a Certificate, either as proposed or as modified by the Council, unless it shall find and determine:

- (a) A public benefit for the facility and considers neighborhood concerns with respect to the nature of the probable environmental impacts of the facility, including public safety;
- (b) the nature of the probable environmental impact of the facility alone and cumulatively with other existing facilities, including a specification of every significant adverse effect, including, but not limited to, electromagnetic fields that, whether alone or cumulatively with other effects, impact on, and conflict with the policies of the state concerning the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture and wildlife; and

- (c) why the adverse effects are not sufficient reason to deny the application.

On May 11, 2017, the Council voted to deny without prejudice NTE's application for a Certificate for KEC because the Council determined that the public benefit had not be demonstrated.

On January 19, 2018, pursuant to CGS §4-181a(b), NTE filed a motion to reopen and modify the Council's May 11, 2017 decision to deny without prejudice a Certificate to NTE for the 550-MW electric generating facility and associated electrical interconnection. (Docket No. 470A) Specifically, NTE described its steps to secure certain permits, finalize project-related agreements and make beneficial facility modifications. These efforts put NTE in a strong position to participate in FCA #12 in February 2018. However, on February 8, 2018, NTE notified the Council that KEC was not selected by ISO-NE to receive a CSO in FCA #12, and NTE withdrew its motion to the Council.

Changed Conditions

On January 18, 2019, pursuant to CGS §4-181a(b), NTE filed a Motion to Reopen and Modify (Motion to Reopen and Modify) the Council's May 11, 2017 decision to deny without prejudice a Certificate to NTE for the 550-MW electric generating facility and associated electrical interconnection. (Docket No. 470B) Specifically, NTE noted several changed conditions including, but not limited to, the following:

- a) NTE has been pre-qualified by ISO-NE to participate in FCA #13;
- b) On December 10, 2018, NTE secured approval of a minor modification to its air permit from the Connecticut Department of Energy and Environmental Protection (DEEP) to utilize improved turbine technology and increase the generation output from 550 MW to 650 MW;
- c) NTE has selected Mitsubishi Model M501JAC combustion turbine generator (CTG) to replace the originally proposed Siemens Model SGT6-8000H turbine. The Mitsubishi turbine system, besides its nominal power increase to 650 MW, includes the following benefits:
 - i. Improved efficiency;
 - ii. Continued rapid starts and dual-fuel rapid switching ability;
 - iii. Reduction in short-term particulate matter emissions rates while maintaining a similar emissions profile for balance of the associated air emissions parameters;
 - iv. Higher design turbine heat input rating and output allowing for a reduction in fuel consumption by the system's duct burners; and
 - v. Increased output at essentially no additional cost or environmental impact.
- d) NTE executed an Engineering Agreement with Yankee Gas for engineering and permitting of the lateral gas service line (to be owned and operated by Yankee Gas) to provide for the delivery of natural gas from the Algonquin gas transmission line to the proposed facility;
- e) NTE has worked with Yankee Gas in finalizing a service agreement;
- f) NTE has entered into a Water Supply Agreement with the Connecticut Water Company (CWC), dated October 31, 2017 for the delivery of up to 400,000 gallons of water per day to the proposed facility;
- g) NTE has entered in two separate Construction Agreements with CWC through which NTE has committed to pay all costs associated with the installation of a new water line connecting the CWC system to the proposed facility and the Killingly Industrial Park and for the interconnection of CWC's Plainfield and Crystal Water systems;
- h) On January 30, 2018, the Town Council approved and executed NTE's proposed Tax Stabilization Agreement (TSA) and Community Environmental Benefits Agreement (CEBA) for the proposed facility;

- i) NTE finalized the form of a Property Value Guarantee Agreement (PVG) and has committed to offer the PVG to all property owners within 2,500 feet of the proposed project site; and
- j) NTE has improved the overall layout of the proposed facility with minor repositioning of certain facility components, relocating the perimeter access road and eliminating the proposed retaining wall in the northeastern portion of the site resulting in an increased setback from sensitive on-site environmental resources.

On January 18, 2019, the Council issued a memorandum to the service list for the original Docket No. 470 proceeding requesting comments or statements of position in writing with respect to whether the Motion to Reopen and Modify should be granted or denied by February 7, 2019. CFE and the Grouped Party submitted comments in opposition to the Motion to Reopen and Modify.

At a meeting held on February 14, 2019, the Council voted to grant NTE's Motion to Reopen and Modify its May 11, 2017 decision to deny without prejudice a Certificate for the construction, maintenance and operation of a 550-MW dual-fuel combined cycle electric generating facility and associated electrical interconnection switchyard, based on changed conditions pursuant to CGS §4-181a(b). This reopened proceeding is identified as Docket No. 470B.

Project Description

The purpose of the proposed project is to construct, operate and maintain a 650 MW dual-fuel, combined cycle independent power production facility and associated equipment in the wholesale electric power market operated by ISO-NE. The facility would require electrical, natural gas, wastewater and water supply interconnections. KEC is expected to have a service life of at least 30 years and would operate as a baseload facility. During normal operation, power production from KEC would vary from approximately 47 percent load (or about 305 MW net) to 100 percent load (or about 650 MW net) depending on the ISO-NE system dispatch and ambient conditions. The KEC is comprised of two components: the Generating Facility Site and the Utility Switchyard Site. Both sites are located in the Rural Development District Zone in an area of Killingly that includes a mix of industrial and residential development. The Lake Road Generating Facility (LRGF), an approximately 800 MW combined-cycle electric generating facility certificated by the Council in 1998, is located approximately 1 mile northeast of the proposed KEC.

Generating Facility Site

The Generating Facility Site would be located on an approximately 63-acre parcel located north and west of Lake Road with an address of 189 Lake Road. It is identified in the Town of Killingly's *2010-2020 Plan of Conservation and Development* as an area intended for future industrial use. The Generating Facility Site consists of one residence and associated structures located in the southwest corner and the remainder of the property consists of undeveloped woodland, a man-made pond, wetlands and bedrock outcroppings. The site was formerly agricultural land that is now covered with a mixture of hardwood and coniferous forest. Approximately 24 acres of land would be disturbed for facility construction leaving approximately 39 acres of land undisturbed.

The Generating Facility Site would include, but not be limited to, the following buildings: the turbine building, the administrative/warehouse building, and the water treatment building. Other facility components include, but are not limited to, the plant switchyard, transmission line segment, water tanks, water demineralization trailers, fuel-oil storage tank, the heat recovery steam generator (HRSG), air cooled condenser (ACC), auxiliary boiler and backup generator.

Utility Switchyard Site

The Utility Switchyard Site would be located on an approximately 10-acre parcel located immediately across the street from the Generating Facility Site that is south and east of Lake Road with an address of 180 Lake Road. It consists predominantly of woodland with an open field, outbuildings, stone walls, a remnant foundation and a small family cemetery. Approximately 4 acres of land would be disturbed for switchyard construction leaving approximately 6 acres of land undisturbed.

The Utility Switchyard Site would be owned and operated by Eversource. The utility switchyard would be designed to be air-insulated. An existing Eversource electric transmission line right-of-way abuts the Utility Switchyard Site to the east. Two 115-kilovolt (kV) lines are on the eastern portion of the right-of-way and two 345-kV lines are on the western portion of the right-of-way. A short electric transmission line segment originating from a structure in the plant switchyard on the Generating Facility Site would cross Lake Road and terminate at a structure within the Utility Switchyard Site. Eversource will file a Petition for a Declaratory Ruling for the Utility Switchyard and its connection to the existing transmission line right-of-way at a later date.

Backup Fuel

While KEC would be predominantly a natural gas-fired facility, the proposed KEC facility would also be able to burn ultra-low sulfur distillate (ULSD) as an alternative fuel to ensure reliability. KEC's ULSD backup would protect against forfeiting capacity revenues under ISO-NE's Pay for Performance component of the FCA and also to provide the necessary level of reliability to support ISO-NE's system as a result of winter reliability concerns, even though KEC would have a reliable firm supply of natural gas fuel. NTE's ULSD fuel use would be subject to a 720-hour annual limit based on its latest DEEP Air Permit. NTE projects that ULSD would be needed, on average, for few hours per year based on historical force majeure or curtailments on the Algonquin pipeline.

Project Alternatives

NTE evaluated potential development sites throughout New England, but selected Connecticut because it was identified by NTE as having a need to supplement and replace existing aging power generating assets. Also, locations in Connecticut are closer to load centers and south of transmission and natural gas constraint points in the New England region where much of the existing generation is north of these constraints.

NTE reviewed three alternative sites in Killingly. Alternative Site 1 is located at 295 Lake Road. While there was a potential for an option agreement from the property owner, this site is constrained due to the parcel configuration and location of existing infrastructure corridors. Thus, it is unlikely to support a generating facility layout. Alternative Site 2 is located at 251 Lake Road. However, the owner was not interested in an option agreement with NTE. Thus, the third site, consisting of the Generating Facility Site and the Utility Switchyard Site, was selected for the Project.

NTE considered other technology alternatives in lieu of the proposed Project. Specifically, NTE considered solar and wind-powered electric generating technologies. However, solar and wind are intermittent resources, as opposed to flexible, baseload technologies. Furthermore, solar and wind generating technologies would only generate about 12 MW and 3 MW of capacity, respectively, at the KEC site based on the parcel size.

NTE considered energy storage, but determined that energy storage systems do not yet allow for reliable power generation across the potential demand spectrum.

NTE also considered simple cycle combustion technology, but found it to be less efficient (i.e. a higher heat rate) and better suited for peak electricity generation than baseload.

NTE also considered fuel cells as an alternative, but dismissed this option due to their lack of proven operation at a sufficiently large scale. For example, the 63.3 MW fuel cell facility approved by the Council in Petition No. 1184 was, at the time, among the largest fuel cell proposals in the world. Site impacts include about 13.7 acres of land and water consumption is approximately 300,000 gallons per day (gpd). For a fuel cell project to generate approximately 650 MW, it would result in far greater impacts than KEC.

Municipal Consultation

In an effort to keep the Killingly community informed on NTE's progress with the project and its efforts to reopen this proceeding, NTE held additional community outreach meetings on December 18, 2017 and June 20, 2018 at the Killingly High School. Notice of these community outreach meetings were published in The Bulletin and the Killingly Villager and also posted on the subject property. At these community outreach meetings, NTE described the changed conditions referenced in the Motion to Reopen and Modify; updated Killingly residents on the status of the TSA and the CEBA with the Town; and answered questions regarding the proposed KEC facility and NTE's plans to file the Motion to Reopen and Modify with the Council. NTE continues to update the KEC website (www.killinglyenergycenter.com) and make publicly available copies of all new reports, applications, materials, permits, and presentations made on behalf of KEC on the website and also in hard copy in the Killingly Public Library.

Environmental Justice

C.G.S. § 22a-20a and DEEP's Environmental Justice Guidelines require applicants seeking a permit from DEEP or the Council for a new or expanded facility defined as an "affecting facility" that is proposed to be located in an environmental justice community to file an Environmental Justice Public Participation Plan (EJPPP). The proposed facility would be an "affecting facility" under C.G.S. §22a-20a because it would be an "electric generating facility with a capacity of more than ten megawatts." However, per the 2018 Connecticut Distressed Municipalities list, the Town is no longer considered a "distressed municipality" under CGS §32-9j and is no longer subject to the Environmental Justice program. Notwithstanding, NTE plans to submit an updated final Environmental Justice Report to DEEP describing its most recent community outreach efforts.

Pursuant to C.G.S. § 22a-20a, any municipality, owner or developer may enter into a community environmental benefits agreement in connection with the affecting facility. On January 30, 2018, NTE and the Killingly Town Council approved and executed a CEBA. The CEBA has several components, including but not limited to a financial component, reference to a decommissioning plan for KEC, establishing educational scholarships for Killingly students who seek to study environmental science in college, and the purchase and planting of trees on an annual basis.

Municipal Regulate and Restrict Orders

Pursuant to C.G.S. §16-50x, any town, city or zoning commission and inland wetland agency may make orders to regulate and restrict the proposed location of an electric generating facility. The Council shall have jurisdiction over such orders and may affirm, modify or revoke such orders. Each regulate and restrict order is subject to the applicant's right of appeal within thirty days. On October 13, 2016, the Town Planning and Zoning Commission and Inland Wetlands and Watercourses Commission issued regulate and restrict orders. On October 27, 2016, NTE filed an Appeal and Response to the Town's Regulate and Restrict (ARRR) Orders. The response included the submission of a modified site plan, revised Stormwater Pollution Protection Plan, an updated Acoustic Modeling Analysis, an updated Erosion and Sedimentation Control Plan and updated Wetland Report. During the evidentiary hearing held on November 3, 2016 in the original Docket No. 470, the Council voted to incorporate NTE's ARRR Orders into the proceedings held on the application consistent with Council practice in past matters. On April 11, 2019, the Town filed written comments to provide updated responses to the Municipal Orders/ARRR Orders relative to the proposed 650 MW KEC facility. On April 24, 2019, NTE and the Town met to discuss various Municipal Orders and any

outstanding/unresolved appeals of such orders. All outstanding appeals have been resolved. The Council therefore affirms the regulate and restrict orders as modified by the agreement between NTE and the Town.

Public Benefit

Under C.G.S. §16-50p(c)(3), a public benefit exists when a facility is necessary for the reliability of the electric power supply of the state or for the development of a competitive market for electricity. Public benefit exists if the Council finds and determines a proposed electric generating facility contributes to forecasted generating capacity requirements, reduces dependence on imported energy resources, diversifies state energy supply mix and enhances reliability based on precedent established in the case of *Preston v. Connecticut Siting Council*.

In terms of the reliability of the electric power supply of the state, the Council notes that Connecticut and the rest of the ISO-NE region are inextricably interconnected and rely on each other for a reliable electricity system. Specifically, the physical power from the KEC facility would be delivered to ISO-NE and would follow the normal flow of power to where it is needed within the ISO-NE region. In short, KEC's power output would not necessarily remain within the boundaries of the State of Connecticut, and the electric reliability of the New England region (as a whole) must be considered to ensure electric reliability in Connecticut.

In addition to ISO-NE's winter energy concerns, system reliability is comprised of two aspects: resource adequacy and transmission security. Resource adequacy means having sufficient resources to meet load at all times. Transmission security means having a system that can withstand contingencies such as the loss of a transmission line, or successive losses of multiple transmission lines, or the loss of a major generating plant, during a time of high system load. Thus, the Council notes that there are three major components of system reliability: ISO-NE's winter energy concerns, resource adequacy, and transmission security.

System Reliability – Resource Adequacy

ISO-NE holds an annual auction to acquire the power system resources needed to meet projected demand for the New England region in three years' time. The annual FCA is held approximately three years before each capacity commitment period to provide time for new resources to be developed. Capacity resources can include traditional power plants, renewable generation, imports, and demand-side resources, such as load management and energy efficiency measures. Resources clearing in the auction will receive a monthly payment during the delivery year in exchange for their commitment to provide power or curtail demand when called on by ISO-NE. Resources that fail to meet their capacity commitment during a shortage event must refund part of their capacity payment, and this refunded money goes to resources that over-performed during the shortage event.

Installed capacity requirement (ICR) is a measure of the installed resources that are projected to be necessary to meet both ISO-NE's and the Northeast Power Coordinating Council's (NPCC) reliability standards, with respect to satisfying the peak load forecast for the New England Balancing Authority while maintaining required reserve capacity. Net ICR (NICR) is the installed capacity requirement for New England net of capacity credits from the Hydro Quebec interconnection and is lower than ICR. Either of these two metrics, ICR or NICR, can be considered the reliability need for capacity resources in New England. ISO-NE computes and annually updates NICR for the New England Region. There is no separate NICR for Connecticut.

While NICR is a reliability "target" for New England, the FCA rules allow the New England region to acquire more or less capacity (in MW) than NICR. If more resources clear FCA than NICR, they are not considered "surplus resources" and they would still be necessary for reliability. What has been approved by the Federal Energy Regulatory Commission (FERC) and what the wholesale regions recognize is that if more resources are procured than NICR, it still has reliability value. NICR is used to define a specific range in

which to select the most economic group of resources to meet the reliability need. Ultimately, the FCA process is to procure the most efficient set of resources to meet reliability requirements.

KEC participated in and cleared FCA#13. KEC was selected by ISO-NE to receive a seven-year capacity supply obligation (CSO) for approximately 632 MW for the capacity commitment periods of 2022 through 2029. The FCA#13 cleared a total of 34,839 MW of capacity resources or about 1,089 MW in excess of the NICR requirement of 33,750 MW. While NICR was exceeded in the FCA#13 results, as already discussed, the entire package of cleared resources (including KEC) are considered necessary to meet reliability requirements. Therefore, KEC is necessary for the reliability of the electric power supply of the New England and (by extension) Connecticut.

With regard to New England generator retirements, approximately 4,531 MW remain “at risk for retirement” in coming years by ISO-NE. The Council notes that the exact dates of all such retirements are not yet known. But nevertheless, at risk retirements remain a concern. Accordingly, the Council refers to the ISO-NE’s 2017 Regional System Plan (2017 RSP). The 2017 RSP notes that, “Sufficient resources are projected for New England through 2026, assuming no retirements and the successful completion of all new resources that have cleared the FCM. The planning analysis accounts for new resource additions that have responded to market improvements and low net-load growth, which reflects behind-the-meter photovoltaic (PV) and an increase in the forecasts of energy-efficiency resources. Although the recent trend of generation resource retirements has abated, additional resources are likely to retire. The ISO is committed to procuring adequate demand and supply resources through the FCM and expects the region to install adequate resources to meet the physical capacity needs that the installed capacity requirements (ICRs) will define for future years.”¹ (Emphasis added.) Thus, despite the possibility of some capacity resources being at risk of retiring in coming years, the Council notes that ISO-NE will continue to conduct its FCAs to procure the total amount of resources required (including both existing and new resources).

System Reliability – ISO-NE Winter Energy Concerns

The Council notes that, as more limited energy resources (e.g. solar and wind) are developed and traditional generating resources retire, the grid may not be able to supply enough energy to meet electricity demand. ISO-NE first identified this issue as a wintertime fuel-security problem, but the broader issue of year-round energy security will need to be addressed as the operational dynamics of the hybrid grid take hold.

The region is losing traditional generators that have substantial on-site fuels (e.g. nuclear, oil, or coal) and can sustain extended operations during cold weather conditions for days and even weeks on end. Without these resources, it becomes even more critical for ISO-NE to be able to effectively preserve energy supplies for forecasted cold weather conditions.

KEC would help address the energy security problem by being a resource that has fuel security via the long-term firm natural gas contract and backup ULSD fuel. KEC has entered into the same type of firm, priority natural gas transportation contract as the local natural gas distribution companies (LDCs). Most, if not nearly all, other natural gas-fired power plant owners in the New England region have chosen not to enter into such priority, long-term financial arrangements to guarantee the transportation of natural gas to their power plants.

In addition, according to the January 17, 2018 ISO-NE Operational Fuel-Security Analysis, “Additional dual-fuel capability, which will increase the inventory of stored oil available to generate electricity when other fuels are not available in sufficient quantities, would also provide a key contribution to power system reliability. However, state emissions requirements are tightening, which will limit the amount of time some generators can run on oil and obtaining permits to construct new dual-fuel generators is becoming more difficult.” Since KEC is a new dual-fuel generator, it would provide a key contribution to power system reliability in the

¹ 2017 RSP, pp. 64-65

context of ISO-NE's winter energy concerns. Thus, the Council finds that KEC is necessary for ISO-NE's winter energy concerns and power system reliability.

System Reliability – Transmission Security

In terms of transmission security, while KEC would have a transmission interconnection, KEC itself is not an electric transmission facility within the meaning of C.G.S. §16-50i(a)(1). KEC is an electric generating facility under C.G.S. §16-50i(a)(3). KEC could provide internal generation for Connecticut to reduce the potential impact of a loss of an electric transmission line that imports power to Connecticut. Thus, the Council finds that, under certain circumstances, KEC could support transmission security.

Development of a competitive market for electricity

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. The Council notes that, as an independent power production facility, the KEC project is the type of project that competitive markets were developed to create. KEC would not be relying on contracts with electric utilities in order to get built. KEC relies on market signals primarily for capacity and energy, as well as ancillary services, and it is responding to those market signals and identifying a need to build the plant. Thus, the Council believes that the proposed project certainly fits well within the "framework" of a competitive, restructured market for electricity recognizing that individual state procurement processes using Requests for Proposals (RFPs) and the ISO-NE market structure (for energy, capacity, and ancillary services) would remain competitive absent KEC.

Contributes to Forecasted Generating Capacity Requirements

As previously discussed, the FCA has a target of NICR, which differs from ICR only by the capacity credits of the Hydro Quebec interconnection. ICR is a measure of the installed resources that are projected to be necessary to meet both ISO-NE's and the NPCC reliability standards, with respect to satisfying the peak load forecast for the New England Balancing Authority while maintaining required reserve capacity. Thus, the Council finds that with KEC having cleared FCA#13, it would contribute to the forecasted capacity requirements for New England.

Reduces Dependence on Imported Energy Resources

KEC, as an electric generating capacity resource that cleared FCA#13, would provide electrical energy to the ISO-NE grid using internal generation rather than imported electrical energy from outside New England. Furthermore, the Council notes that KEC would not require any new interstate natural gas transmission lines or upgrades to such lines. KEC would only require the upgrade/replacement of the Yankee Gas connection to the existing Algonquin gas transmission line.

Diversifies State Energy Supply Mix

The Council notes that utilizing natural gas as a fuel for an electric generator, in and of itself, would not necessarily diversify the state's energy supply mix. Specifically, the DEEP 2014 Integrated Resources Plan for Connecticut states that, "There is growing concern over New England's increasing dependence on natural gas..." However, the Council notes that KEC would be a dual-fuel facility with ULSD as the backup fuel. Thus, the Council finds that natural gas combined with the ULSD backup fuel would diversify Connecticut's energy supply mix, particularly in the context of ISO-NE winter energy concerns.

Enhances Reliability

As already discussed, KEC, as a new dual-fuel generator, would provide a key contribution to power system reliability in the context of ISO-NE's winter energy concerns. Furthermore, KEC would have the ability to provide Connecticut and ISO-NE with a full range of essential reliability services including frequency response, voltage control, non-spinning reserves, automatic generation control, fast ramping capability, and flexible operating modes (i.e. baseload, cycling and peaking generation). Thus, the Council finds that the proposed project would enhance electric reliability in New England and (by extension) Connecticut.

Neighborhood Concerns

The Council held a public comment session on April 4, 2019 at the Killingly Town Hall that commenced at 6:30 p.m. and concluded at 8:25 p.m. During the public comment session, approximately 40 interested persons provided oral limited appearance statements.

While the public comment record was open, approximately 78 interested persons provided written limited appearance statements. Of the oral and written limited appearance statements in favor of the proposed facility, comments include, but are not limited to, creation of local jobs; cleaner source of energy; tax revenue; reliable energy generation; economic growth for the area; lower energy costs; and proximity to existing electric transmission and natural gas infrastructure. Of the oral and written limited appearance statements in opposition to the proposed facility, concerns include, but are not limited to, air emissions; lack of need for the energy; impacts to wetlands and watercourses; noise; increased traffic; diminished water supply; impacts to wildlife; visibility; threat of spills and explosions; property values; and construction impacts.

Public Safety

KEC would be designed, constructed and operated in accordance with federal, state, and local regulations and responsible engineering practices, including the Occupational Safety and Health Administration (OSHA) standards. The latest edition of design standards and regulations would be used to develop KEC's programs. Plans and provisions for cyber security protection would be implemented, consistent with the North American Electric Reliability Corporation (NERC), and plans and provisions for physical site security would be implemented, consistent with the Council's Whitepaper on the Security of Siting Energy Facilities.

KEC would incorporate a variety of alarms and control systems to provide early identification of emergency situations that may require plant and/or system shutdown. KEC would have an on-site fire protection system consisting of hydrants, hose stations, sprinkler systems, deluge systems, CO₂ system, and portable fire extinguishers. Fire suppression water would be supplied from KEC's 500,000-gallon raw/fire suppression water storage tank.

KEC would include a 1,000,000-gallon ULSD storage tank with secondary steel containment around the tank. The Council will require that the final fuel storage and handling plan including containment and other measures to protect against spillage when the ULSD tank is being refilled be included in the Development and Management Plan (D&M Plan).

A 12,000-gallon tank would store 19 percent aqueous ammonia for emissions control and would be located within a concrete containment area with the capacity to store 110 percent of the aqueous ammonia. The Council will require that the final plans for the safe delivery, storage and containment measures for aqueous ammonia be included in the D&M Plan.

Hydrogen would be used as a medium for cooling both generators (i.e. the STG and CTG). The hydrogen storage tube trailer would be located to the south of the turbine building in the proximity of the water tanks.

Approximately 40,000 standard cubic feet of hydrogen would be stored on site. Hydrogen would be stored in accordance with OSHA standards, National Fire Protection Association standards, and supplier recommendations.

NTE estimates that the tube trailer would be replaced approximately once per month. KEC would develop specific site safety procedures, operating procedures and an emergency response plan which would address the safe delivery, storage and usage of hydrogen. In addition, site personnel would receive both initial and continuous training in each of these areas. The Council will require that the final plans for the safe delivery storage, and usage of hydrogen at the site be included in the D&M Plan, as well as submission of the final emergency response plan.

NTE would comply with the provisions of CGS §16-50ii, including, but not limited to, avoiding the use of flammable gas to clean or blow the gas piping²; and retaining a special inspector to assist the municipal fire marshal in reviewing construction plans, conducting inspections during the construction, and the review and approval of methods for cleaning the interior of the gas piping.

An electric and magnetic field (EMF) analysis was performed that includes KEC's new 345-kV electrical interconnection and the existing electric transmission line right-of-way west of the Utility Switchyard. All projected magnetic field levels identified in the EMF Report would remain far below the International Commission on Non-Ionizing Radiation Protection acceptable exposure level of 2,000 milligauss (mG) for the general public as recognized in the Council's "Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Lines in Connecticut."

Environmental

Water Supply

KEC proposes to utilize an ACC rather than wet-cooling to minimize water use from evaporative cooling. Notwithstanding, there would be evaporative cooling in use to chill the inlet air to the combustion turbine to improve power output and efficiency at temperatures over 59 degrees F. Water is also needed for steam-cycle makeup water, water injection during ULSD firing to control NOx emissions, and potable water for internal use at the plant.

KEC's water supply would be provided by CWC, Crystal Water Division, a subsidiary of Connecticut Water Service, Inc. CWC currently serves the Town and would require no increase in permitted capacity of existing wells to meet KEC's water needs. The Eastern Regional Distribution Improvements (ERDI) would be required for water supply to KEC. This would include a new water line approximately 12,000 feet long and running in roughly a north-south direction from the Crystal System in Killingly to the Crystal-Plainfield System in Killingly. NTE would also comply with the most recent Connecticut Department of Public Health requirements. KEC's worst-case potable water consumption from CWC would be about 400,000 gpd (as a round number) when operating under full load conditions with ULSD. The worst-case water consumption under full load natural gas operation would be considerably less at about 98,400 gpd. A safe yield analysis was performed, and it was determined that CWC would have adequate water supply to serve KEC once the two water systems are connected, i.e. ERDI are completed. CWC also considered drought conditions in its analysis.

An updated water supply plan was filed by CWC in May 2018. While that update did not include projections associated with KEC, it did indicate that a connection between the Plainfield and Crystal systems was anticipated within the five-year planning period. The updated plan notes that, with the addition of the third

² NTE's contractor would likely use compressed air for such purposes.

well at the P.B. Hopkins well field (installed several years ago), there are currently no outstanding supply needs in the Crystal system. In the event that additional supply is needed, the interconnection between the Plainfield and Crystal systems would allow excess capacity to augment the Crystal system's available supply. Upon discussions with NTE, CWC reported that it does not believe it needs to make any additional revisions to its water supply plan at this time.

Wastewater

The KEC project is proposed to discharge wastewater to the Killingly sewer system. The wastewater that NTE would discharge from the proposed KEC facility would be associated with five sources listed below.

- a) Operation of the reverse osmosis demineralizer water treatment system includes a reject stream which concentrates any impurities existing in the raw water source;
- b) Equipment drains and floor drains receive wastewater from equipment drains and washdowns. These wastewaters would be directed to an oil/water separator prior to discharge;
- c) Sanitary wastewater from toilet flushes, sink drains, shower drains, and drinking fountains would be directly discharged into KEC's sewer connection;
- d) In order to maintain safe and reliable operation, the HRSG must "blow down" water from the steam cycle; and
- e) Also for safety and reliability, the CTG evaporative cooler must "blow down" water from the sump.

These five wastewater sources would flow directly via an approximately 3,100-foot sewer interconnection to the existing sewer system in Lake Road. The maximum wastewater discharge rate would be roughly 56,000 gallons per day under natural gas operation. NTE has received confirmation of the existing sewer system's ability to accept and treat the required volumes of wastewater discharge.

Air Quality

As required by the Clean Air Act, the EPA sets the National Ambient Air Quality Standards (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. Furthermore, an added margin of safety is included in calculating the standards.

The Project must meet air-quality requirements for non-attainment New Source Performance Standards, and Prevention of Significant Deterioration (PSD). The PSD regulations require compliance with Best Available Control Technology (BACT) emission rate limits, 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) limits³ and obtain emission offsets. The proposed project would meet all of these requirements.

NTE was issued its initial air permit from DEEP on June 30, 2017. On March 16, 2018, DEEP issued a modified air permit for a 550 MW facility with a Mitsubishi CTG. On December 10, 2018, NTE received its latest modified permit for KEC, taking into account the proposed 650 MW facility with a Mitsubishi M501JAC CTG, duct burner and other equipment.

As a thermal power plant greater than 25 MW, the proposed project would be subject to the Regional Greenhouse Gas Initiative (RGGI). The proposed project would comply with the requirements of RGGI. The status of the EPA Clean Power Plan (CPP) is still uncertain at this point.

³ KEC's existing air permit has the same LAER and BACT limits approved in the original KEC air permit, with the exception of a reduction to the BACT limit for particulate matter.

Notwithstanding, NTE has also committed to implement a voluntary GHG reduction program for KEC. NTE developed this program to support Connecticut's compliance with the Global Warming Solutions Act of 2008 (GWSA) to reduce GHG emissions at 80 percent below 2001 levels by 2050. Following consultation and conceptual alignment with both DEEP and SC, NTE committed to the voluntary GHG reduction program, that anticipates both reductions⁴ and offsets⁵, through which NTE would effectively eliminate GHG emissions from KEC by 2050⁶.

Visibility

The tallest feature of the proposed KEC plant would be the HRSG stack reaching 150 feet above (final) grade or about 468 feet above mean sea level (amsl). NTE selected a HRSG stack height of 150 feet because it believes it would best balance minimizing air quality impacts while minimizing visibility. Specifically, throughout the five-mile (radius) visual study area of about 50,265 acres, the Council notes that only about approximately two percent of this area or just over 1,000 acres would have views of the HRSG stack, taking into account the effects of terrain and vegetation. Such visibility area includes areas to the east and north of Lake Road. The Council also notes that the total visibility area of roughly 1,000 acres would not materially change between leaf-off and leaf-on conditions. However, the selected HRSG stack height would not generally be an intrusive visual element in the area. Moreover, KEC would have one 150-foot HRSG stack, versus three approximately 165-foot stacks at the Lake Road Generating Facility (with comparable ground elevations).

The proposed project would not be expected to materially impact The Last Green Valley National Heritage Area (LGVNH), which extends over an approximately 706,000-acre area generally located along the Quinebaug River Valley. The Airline North State Park Trail (ANSPT) runs generally in an east-west direction, and it is located approximately 1.8 miles northwest of KEC at its closest point. In most locations on the ANSPT, dense existing vegetation would be expected to screen the distant views of KEC. An approximately 32-mile portion of Route 169, from Rocky Hollow Road in Lisbon to the Massachusetts border in Woodstock, has been designated as a National Scenic Byway. A portion of Route 169 is located approximately two miles west of KEC. However, intervening topography and tall, dense vegetation would significantly screen views of KEC from this roadway.

State-designated Scenic Roads within a five-mile radius of KEC include portions of Route 244 (at a distance of 3.1 miles from KEC) and Route 97 (at distance of 4.5 miles from KEC). These State Scenic Roads are located at an even greater distance from KEC than Route 169 and views of KEC would be similarly screened by vegetation.

Ancillary buildings, equipment and storage tanks would have an industrial appearance, but would be considerably smaller than the main structures. None of these elements would substantially contribute to KEC's visual impact on the surrounding area.

KEC would be designed to maintain as much of the existing vegetation as possible. The Generating Facility Site has substantial wooded vegetation, with only the southeastern corner near Lake Road unscreened by trees. The Switchyard Site is more open along Lake Road, but much of the Switchyard Site is also heavily

⁴ Reductions could be achieved by improved combustion technologies to reduce CO₂ emissions. The proposed Mitsubishi combustion turbine could be potentially be upgraded in the future to take advantage of such technologies.

⁵ NTE does not require offsets for GHG at this time, but later on in the operating period when NTE is tight on emissions, it may need to buy GHG emissions offsets.

⁶ Specifically, NTE would reduce KEC's GHG emissions by 80 percent by 2050, and after 2050, KEC would operate with zero GHG emissions.

forested. Although clearing would be required around KEC and for the temporary work spaces, an approximately 50-foot wooded buffer along Lake Road would be maintained. Specifically, the trees for this buffer would be retained or replanted.

Noise

KEC would be considered an industrial Class C noise emitter, and its surrounding areas are considered Class A residential receptors. State of Connecticut Noise Standards⁷ for a Class C source emitting to a Class A receptor are 61 dBA daytime and 51 dBA nighttime. KEC is not located within a high-background noise area because the L₉₀ ambient measurements are below 51 dBA. Thus, the 51 dBA nighttime standard applies as the most stringent standard to be met. Specifically, KEC's 51 dBA sound level contour "curve" does extend outside of the boundaries of the Generating Facility Property. Thus, KEC would comply with the DEEP (and Town) noise control standards at all abutting properties.

To achieve compliance, NTE has incorporated several noise mitigation measures into the power plant design including, but not limited to, HRSG stack silencer system, fuel gas heater stack silencer, low-noise design ACC, and noise barriers around the southwestern property line. Specifically, one noise barrier would be approximately 430 feet long with a height of approximately 28 feet for 314 linear feet transitioning to a height of approximately 24 feet for the remaining 116 linear feet. The other noise barrier would be approximately 16 feet high and 122 feet long.

On April 11, 2019, the Town included Additional Orders of Regulation and Restriction with respect to noise mitigation measures. Specifically, the Town was concerned about the lack of alternative designs to address noise attenuation at the source areas and eliminate the need for the barriers. In the absence of alternative evaluation, the Town ordered that a full, independent and complete alternative evaluation be performed by a qualified noise expert to determine alternative approaches to noise attenuation and either eliminate the need for the property perimeter noise barriers or minimize the height and length of barriers required to comply with the Killingly and state noise regulations. Structural plans for the noise barrier would need to be submitted to the Town.

NTE agreed to comply with these additional orders. Specifically, NTE's engineering, procurement and construction (EPC) contractor is currently in the process of finishing the design. Such contractor would guarantee compliance with state and local noise control standards, but may come up with a different noise abatement plan than previously developed. NTE would go over the noise control design alternatives with the Town and indicate what NTE considers to be the best approach before filing the final plan in the D&M Plan.

Besides the currently proposed noise barriers, NTE has other proposed noise mitigation measures including, but not limited to, HRSG stack silencer, HRSG stack inlet acoustical mitigation, HRSG inlet duct acoustical shroud, fuel gas heater stack silencer, and low noise design ACC. The Council recommends that NTE utilize as many of these proposed noise mitigation measures as possible, while considering other measures that could possibly eliminate (or minimize) the need for noise barriers. The Council will require that NTE provide the final noise mitigation measures and plans to demonstrate compliance with DEEP noise standards in the D&M Plan.

Construction noise is exempt from DEEP standards per the Regulations of Connecticut State Agencies §22a-69-1.8(g). Construction noise during the day is exempt from the Town of Killingly Noise Ordinance. To the extent that any construction activities must occur after 9:00 p.m. (i.e. defined by Killingly's ordinance as the start of the nighttime), NTE would implement construction noise mitigation measures.

⁷ State of Connecticut and Town noise standards are the same for this project, with only a small difference in how the hours of daytime and nighttime are defined.

Agriculture

The site is not currently in productive agricultural use. In addition, neither the Generating Facility Parcel nor the Utility Switchyard Parcel is part of the Public 490 Program.

The only mapped Prime Farmland Soils (Ninigret-Tisbury soil series complex) and Statewide Important Farmland Soils are located in the northern portion of the Generating Facility Site. The only element of the proposed facility that would overlap with the approximately 0.5-acre of these mapped agricultural soils is a portion of KEC's stormwater management system. However, a soil scientist investigated this area of "overlap" and determined that the soils are not typical of the Ninigret-Tisbury soil complex, but rather are characterized by a thin sandy outwash deposit over a till deposit. Thus, the proposed project would not affect Prime Farmland Soils or Statewide Important Farmland Soils.

Wetlands

There are seven wetlands on the Generating Facility Site, known as Wetland A1, Wetland A2, Wetland A3, Wetland B, Wetland C, Wetland E, and Wetland X. There is one wetland located on the Utility Switchyard Site, known as Wetland D. No direct wetland impacts are expected on the Generating Facility Site. However, approximately 12,500 square feet of direct wetland impacts to Wetland D on the Utility Switchyard Site are expected in order to accommodate the utility switchyard. Alternative layouts for the utility switchyard were considered during the planning phase in an effort to avoid direct wetland impacts, but the site constraints and Eversource's required specifications for the utility switchyard did not allow complete avoidance.

A suitable site for wetland creation is the northeastern section of the Utility Switchyard Site, which is currently an open field. The wetland creation area is approximately 21,475 square feet or about 0.49 acres. At the Generating Facility Site, NTE would perform wetland restoration invasive species removal for a total of 35,000 square feet (or about 0.8 acre) for Wetland A2 and Wetland X. No significant or adverse impacts to wetlands and watercourses, either on-site or off-site, were expected to result from the originally proposed project. The originally proposed mitigation package, consisting of wetland habitat replication, enhancement and preservation was expected to more than offset the direct wetland impacts, and the currently proposed project results in all wetland buffer distances either remaining the same (as originally proposed) or in some cases increasing (e.g. for Wetland X, Wetland A2, and Wetland A3).

Wildlife

The proposed HRSG stack design avoids certain features that may be of concern with regard to bird mortality from bird strikes, based on studies, including those prepared for the U.S. Fish & Wildlife Service (USFWS). Specifically, the proposed HRSG stack design avoids lighting, guy wires or height over 300 feet.

The broad-winged hawk, a State-designated Species of Special Concern, was observed at the Utility Switchyard Site. However, it would be unlikely that the broad-winged hawk would be impacted because much unfragmented, high quality forest would remain at or near the Utility Switchyard Site.

During the acoustical survey, five bat species were identified: the eastern red bat; the big brown bat; the hoary bat, a State-designated Species of Special Concern; the silver-haired bat, a State-designated Species of Special Concern; and the little brown bat, a State-designated Endangered Species.

The four species not identified during the acoustical survey were the following: the Indiana bat, a State-designated and federally designated Endangered Species; the Northern long-eared bat (NLEB), State-

designated Endangered Species and federally designated Threatened Species⁸; the tri-colored bat, a State-designated Endangered Species; and the small footed bat.

As a precautionary measure, tree clearing for the Project would be restricted in accordance with USFWS Rule 4(d) requirements and would not occur in the months of June or July, in order to avoid the pup season for the bat species. By letter dated March 11, 2019, DEEP indicates that it concurs with this seasonal restriction as an avoidance measure for bats.

Two State-designated reptile species have been identified by DEEP in the vicinity of the KEC Site. These listed species are the wood turtle, a State-designated Species of Special Concern; and the eastern box turtle (EBT), a State-designated Species of Special Concern. While neither turtle species were found at the KEC Site, it is likely that the EBT occurs at the site, given the availability of habitats and the landscape context. It is not likely that wood turtles occur at the site, given the availability of habitats and local topography. Notwithstanding, KEC would implement a Turtle Protection Plan (TPP) for the EBT that includes, but is not limited to, silt fencing to isolate the work area during the hibernation period between November 1 and April 1 and work crew education about these two turtle species.

A survey of moth and butterfly species was performed in mid-2016. The purpose of the survey was to determine the presence of the following State-listed invertebrates identified by DEEP: the fragile dagger moth, a State-designated Species of Special Concern; the pink star moth, a State-designated Species of Special Concern; and the frosted elfin, a State-designated Threatened Species. None of the three State-designated invertebrate species were found at the KEC Site during the survey. While this does not preclude their presence, their absence during the survey and the differing habitats at the reported nearby collection sites make this possibility less likely.

NTE's proposed Lepidoptera habitat was originally proposed in the wetland mitigation area on the Switchyard Site. However, the proposed 3,700 square foot (or about 0.08-acre) Lepidoptera habitat has been relocated to the southeastern corner of the Generating Facility Site. By letter dated March 11, 2019, DEEP indicated that it concurs with NTE's Upland Lepidopteran Habitat Plan.

Historic

A Phase I Cultural Resources Reconnaissance Survey Report (Phase I Report) was prepared for the KEC project and considered both the 180 Lake Road and 189 Lake Road parcels. The assessment concluded that no further archaeological investigations are recommended. SHPO reviewed the Phase I Report and determined that there would be no effect on the historic properties, and no additional archaeological investigations are warranted.

Correspondence received from the Mashantucket Pequot Tribal Nation (MPTN) dated November 5, 2016 indicated that the MPTN concurs with the Phase I Report that no archaeological sites were identified in particular areas. No correspondence or feedback from the Mohegan Tribal Historic Preservation Office (MTHPO) has been received to date.

The layout of the Utility Switchyard would be designed to avoid adversely impacting the private Sorrow Cemetery as identified in the Option Agreement submitted on August 25, 2016. Specifically, SHPO recommends a 50-foot buffer be incorporated into the design. A 50-foot minimum buffer can be accommodated by NTE for most, but not all, areas surrounding Sorrow Cemetery.

⁸ No additional federally-designated species are expected to occur at the site.

Stormwater

The KEC Site is located in Federal Emergency Management Agency (FEMA) Zone C, an area located outside of the 100-year and 500-year flood zones. However, a small area on the Generating Facility Site, north of the KEC footprint, is designated a 100-year flood zone or FEMA Zone A.

The drainage design and water quality mechanisms have been designed in accordance with the *2004 Connecticut Stormwater Quality Manual*.

Pursuant to CGS §22a-430b, DEEP retains final jurisdiction over stormwater management. NTE would need to obtain a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Construction General Permit), and General Permit for the Discharge of Stormwater Associated with Industrial Activities. NTE would file for the Construction General Permit at least 90 days prior to construction. The Council will require that a copy of the stormwater pollution protection plan and a copy of the DEEP General Permit be submitted to the Council prior to operation.

Cost

Although the proposed project would cost about \$585,000,000, the financial risk associated with construction, operation and maintenance of the project would fall on the developer, NTE, rather than the Connecticut ratepayers.

Conclusion

The Council finds the proposed project is necessary for the reliability of the electric power supply of the state. Thus, the Council finds and determines that there is a public benefit for the facility. Based on the record of this proceeding, the Council finds and determines that the proposed project is not in conflict with the policies of the state concerning the natural environment, ecological balance, public health and safety, scenic, historic, and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture and wildlife, together with all other environmental concerns, including EMF, and balanced the interests in accordance with C.G.S §16-50p(a)(3)(B) and C.G.S §16-50p(a)(3)(C). The environmental effects that are the subject of C.G.S §16-50p (a)(3)(B) can be sufficiently mitigated and do not overcome the public benefit for the facility. Lastly, NTE and Town have resolved all outstanding appeals of the Municipal Regulate and Restrict Orders (MRRO) per CGS §16-50x. Accordingly, the Council hereby affirms the MRRO.

The Council will require NTE to submit a D&M Plan for the proposed project to include, but not be limited to, a final site plan showing all roads, structures and other improvements at the site; natural gas, water and sewer connections; erosion and sedimentation control plans; final noise mitigation measures; fuel storage and handling plan; decommissioning plan; and final construction traffic route plans.