STATE OF CONNECTICUT

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November 7, 2016

TO: Parties and Intervenors

FROM: Melanie Bachman, Acting Executive Director MAB

RE: **DOCKET NO. 470** – 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.

Comments have been received from the State of Connecticut, Department of Energy and Environmental Protection, dated November 7, 2016. A copy of the comments is attached for your review.

MB/MP/laf

c: Council Members

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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November 7, 2016

Robert Stein, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

RE: Killingly Energy Center
NTE Connecticut, LLC
Killingly, Connecticut
Docket No. 470

Dear Chairman Stein:

Staff of this department have reviewed the above-referenced application for a Certificate of Environmental Compatibility and Public Need for a 550-MW natural gas-fired combined cycle electric generating facility at 189 Lake Road in northwestern Killingly. A field review of the site was conducted on October 19, 2016. Based on these efforts, the following comments are offered to the Council for your use in this proceeding.

The Killingly Energy Center facility would have dual-fuel capability, with ultra-low sulfur diesel (ULSD) for a back-up fuel. A switchyard to connect the generating facility with the 345-kV Eversource transmission line constructed under Docket 424, the Interstate Reliability Project, would be constructed across Lake Road from the generating facility.

Site Description

Unlike the more typical situation, the Council has already visited the project site before DEEP has submitted its comments. This, in combination with the very detailed and thorough site description contained in the application, merits a more condensed site description in these comments. The generating facility site is mostly former agricultural land now covered with a mixture of hardwood and coniferous (white pine and hemlock) forest. Several small dumpsites are found on the generating facility site. One dumpsite west of Wetland X consists mainly of discarded appliances, gas grilles, tires, bottles and cans. The property owner said these would date from 30-40 years ago. A second site adjacent to the access road to the Dunn Preserve and on the east side of a long stone wall about midway down that road contains piping, corrugated plastic tubing, reinforcing rods (rebar) and two 55-gallon drums, mostly but not completely empty. A fairly well intact Ford Courier pick-up truck sits pretty much at the center of the generating facility site.

Some general observations about the generating facility site are that extensive grading will be required including substantial amounts of cut and fill, that this section of Lake Road contains sharp curves with poor sight lines, and that well-built and well preserved stone walls both

cross the site and bound it at Lake Road. The application mentions that Lake Road will be straightened as part of this project. This improvement would be needed to accommodate this facility, especially for larger vehicles involved in construction activities and deliveries, as well as for oil delivery trucks once the facility is operational. To the extent possible, the stone walls should be preserved, especially along Lake Road.

Another point worth noting is that on the day of DEEP's site review, and I assume at frequent other times, the noise environment at the site was dominated by sounds from a shooting range across the Quinebaug River in Pomfret. This noise source was very evident throughout the five hour DEEP site visit.

The 10-acre switchyard site, to the east of Lake Road, is generally steeper and more irregular in terrain than the generating site, particularly toward the southern end. Forest cover here is hardwood, chiefly black locust, sugar maple and ash. Shrub cover and the remnants of a grassy barnyard are found toward the northern end of this parcel. The dilapidated remnants of a barn across from the Sorrow residence and the stone wall-enclosed Lippett Family cemetery, with its dozen or so unmarked headstones, are the chief manmade features on this parcel.

Air Permit Issues

NTE's New Source Review Air Permit application is currently under review. The modeling analysis was completed on November 2, 2016. However, NTE revised the proposed layout of the facility in response to the Town of Killingly-sponsored analysis done by TRC. The ambient impact analysis will now be reviewed again with these proposed changes. Outside of any additional changes to the analysis, the permit could go to Notice of Tentative Determination in the first quarter of 2017.

Like other recent applications for natural gas-fired generating plants, NTE asserts that operation of the Killingly Energy Center will lead to improved air quality through the displacement of older, less efficient, higher emitting power plants. While this assertion is reasonable, its fulfillment is dependent upon which generation assets end up running less often or being retired. We do not know this, nor can we know this, until ISO-NE evaluates and selects bids for various electric capacity products. Therefore, a blanket statement asserting improvement in local or regional air quality arising from the operation of the Killingly Energy Center is premature.

Similarly, the statement that the Killingly Energy Center's purchase of NOx emissions credits at the required rate of 1.2:1 will permanently eliminate an upwind source or sources of NOx may be true, but there is no guarantee that a new upwind source will not displace the assumed gain in air quality. The only guarantee is that any future upwind major source of NOx emissions will likewise be reduced by an offset ratio determined by the ozone attainment area in which the unit is constructed. Therefore, the air quality benefits claimed to arise from the proposed plant, just as this those claimed for other plants, may be considered probable but cannot be postulated with absolute certainty.

The assumption is given for Table 2-2 on page 43 that the calculated emission rates are based on operation of the combustion turbine generator on ULSD for 30 days at a temperature of -10°F. While the assumption of 30 days at -10°F does not reflect a realistic meteorological

condition for Connecticut, it is a standard modeling assumption to reflect a worst case scenario for emissions.

Natural Diversity Data Base Review

Appendix F of the application contains a March 6, 2016 Preliminary Site Assessment letter from Dawn McKay of the DEEP Natural Diversity Data Base to George Lucas of REMA Ecological Services. This letter requests that site survey reports for the species identified in the Preliminary Assessment or other listed species encountered at the site be provided to DEEP. The department did not receive any of the site assessment materials contained in the Siting Council application. On November 1, Lynn Gresock of Tetra Tech contacted Dawn McKay of the NDDB and was instructed to submit an NDDB review request and the site surveys or protection strategies for listed species. We anticipate the submission of these materials soon.

Killingly Energy Center Water Needs and Supply

Operation of the Killingly Energy Center will require up to 50,000 gallons per day of water when firing natural gas when ambient temperatures are below 59°F, up to 100,000 gallons per day when firing natural gas when ambient temperatures are above 59°F, and up to 400,000 gallons per day when firing ULSD. Although the use of ULSD fuel is most likely to correspond to spells of extreme cold weather when natural gas supplies are constrained, ULSD use could conceivably occur at any time of the year, including during summer months when public potable water use is higher and available supplies are lower. With this potential in mind, DEEP supports the call by the Department of Public Health as expressed in its October 20 letter from Lori Mathieu for a detailed water supply analysis "to account for systems demands, functional limitations of the distribution system and CWC's existing commitments to sell water to other entities in addition to the registered and permitted diversion amounts for the sources of supply. This analysis must also be performed for the average day, peak day and maximum month demands." The July 29, 2016 letter from Connecticut Water Company to NTE on the opening page of Appendix H of the application acknowledges some uncertainly about the sufficiency of the available water supply in the last paragraph, where it states that "Because supply availability of any system is finite, an annual review of Connecticut Water's ability to serve the project will need to be conducted on the one year anniversary date of this letter and every year thereafter until the project is complete."

Section 5.1.1 of Appendix H discusses the potential use of Killingly sewage treatment plant (STP) effluent to supply the water needs of the Killingly Energy Center. DEEP understands the need for an extremely high level of water purity for use in the heat recovery steam generator and as injection water into the combustion mixture when ULSD is being fired. However, we would like to see a more detailed evaluation of the potential for use of Killingly STP greywater to meet the needs of the Killingly Energy Center. The Killingly STP is now in the design phase of a total plant upgrade which will improve the quality of its effluent. This timing makes the possibility of the use of STP effluent more feasible as it presents an opportunity for NTE to work with the Town to meet the water quality needs to a degree potentially requiring less treatment on-site at the power plant and which could reduce Killingly Energy Center's on-site filtration needs and chemical usage. DEEP would like to see this possibility explored further to assess its feasibility, costs and any impacts on the efficiency of the Killingly Energy Center.

NTE should be aware, and we assume Connecticut Water Company is aware, that the proposed interconnection of the Plainfield Division Wellfield into the interconnected system of the Phillip Hopkins Wellfield and the Brooklyn Wellfield will require a Diversion Permit from DEEP. Though all the withdrawal sources involved may be registered sources of supply, under Connecticut General Statutes sec. 22a-368, the registrations specify the location, capacity, frequency, and rate of withdrawal for each diversion as well as the water system in which the diverted water will be used. Implementation of the system interconnection changes the last of these parameters, thus triggering the need for a Diversion Permit.

The language of the New Source Review Air Permit will contain a list of conditions under which Killingly Energy Center is allowed to burn ULSD fuel. One of these conditions is to maintain an appropriate turnover of the on-site fuel inventory so as to protect the quality of the fuel supply. In recognition of the greater rate of plant water usage that occurs when ULSD is fired, DEEP requests that any use of ULSD which has the option of discretionary timing, such as meeting the need to turn over the fuel supply, avoid taking place during the driest periods/ highest water demand periods of the year. For planning purposes, this time period should be considered to extend from June 15 through October 15. NTE should also consult with Connecticut Water Company regarding water availability before undertaking any ULSD use that is flexible as to timing. Other examples of this would include ULSD firing to conduct routine maintenance or for emissions testing purposes.

Stormwater Permits

The Killingly Energy Center will require approval from DEEP for its stormwater discharges. As this project falls under the Locally Exempt classification, its stormwater permits would be issued by DEEP. To date, no registration has been received under either the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities or the General Permit for the Discharge of Stormwater Associated with Industrial Activities. For projects where one to twenty acres of land will be disturbed by construction activity, the registration must be submitted at least 60 days prior to the commencement of construction activities. For projects disturbing in excess of twenty acres, the registration must be received at least 90 days in advance of the commencement of construction activities. Thus, it is not unexpected that the stormwater general permit registrations would not have been submitted as of this time. More detail on these permits is available at deep.stormwater@ct.gov.

Wastewater Discharge Permit

The wastewater from the Killingly Energy Center will likely require an Individual Permit to discharge to the Killingly wastewater treatment plant. The permit would be issued by DEEP but would incorporate Killingly's local limits for discharges to its treatment plant. The application notes (p. 51) that discharges from equipment drains and floor drains will be directed to an oil/water separator prior to discharge from the plant. Waste streams from natural gas-fired power plants are typically very clean. The applicant may contact Peter Ploch of the DEEP Water Protection and Land Reuse Bureau at (860) 424-3280 in regard to the discharge permit requirements.

Wetland Mitigation Plan, Water Quality Certification

The switchyard construction will directly impact 0.287 acres of Wetland D which is immediately adjacent to the Eversource transmission line right-of-way. The application does not

contain specific details as to the location of the wetlands replication area proposed for mitigation or of the areas slated for invasive species control efforts. Conceptually, the creation of 0.39 acres of inland wetland in the immediate vicinity of the impacted wetland, the removal of invasive species including Asiatic bittersweet, Japanese barberry, multifloral rose and glossy buckthorn elsewhere on the Killingly Energy Center property, and a five-year monitoring period for the invasive species removal effort is an appropriate mitigation plan for the switchyard's wetland impacts. Assuming that review of the mitigation plan will be an element of the project's Development and Management Plan should the project receive the Council's approval, DEEP would be willing to offer its assistance in the review of the mitigation plan.

Because the wetland impact of the project is less than 0.5 acres, the Corps of Engineers will likely find it eligible for a Pre-Construction Notification rather than requiring an individual permit. If that proves to be the case, the project would qualify under our Section 401 Water Quality Certification General Permit.

Fuel Supply Questions

The DEEP Energy Bureau would like to know how the applicant made its decision on the amount of diesel fuel storage to be provided at the site. Is a 2-day supply of on-site fuel an industry standard or was that volume determined to be optimal specifically for this plant? What are the economic and facility configuration impacts of providing for additional fuel storage capacity? Would there be incremental reliability benefits from doing so?

NTE has indicated (p. 16) that it has contracted for a firm delivery of natural gas to the KEC facility. Additional detail on the context of a firm gas supply would be helpful. Specifically, has the applicant secured firm delivery for the entire pathway from the gas source to the plant? Does the firm supply contract give the plant priority with Yankee Gas, with Algonquin or with the original supplier of the gas?

The DEEP Energy Bureau may wish to submit interrogatories to the Council on plant fuel supply issues.

Miscellaneous Application Commentary and Questions

If the Killingly Energy Center is conceived as a baseload generating plant, why is it assumed to operate only 60-75% of the year (p. 61)? What factors would lead to it being off-line 25-40% of the time?

The discussion of the natural gas pipeline interconnection (Section 8.1) uses the terminology "removal and replacement" when describing the existing and new Yankee Gas pipeline connection from the Algonquin pipeline to the plant site, and it says (p. 167) that the new pipeline "will be installed in essentially the same trench from which the existing pipeline is removed....". If this construction sequence truly is "remove and replace" rather than install the new pipeline and then abandon and remove the existing one, how are the existing customers supplied with gas during the interval between the removal of the existing 2.8-mile pipeline and the installation of the new one? The Yankee Gas line is nowhere described as a looped line but the given sequence would seem to imply that is must be looped. Is the pipeline replacement/capacity expansion project under FERC or Siting Council jurisdiction?

The application cites (p. 36) the elimination of a "significant source of visual water vapor plume" as one of the benefits of a dry cooling system. A visual plume is shown emanating from the plant in Figure 22 of the Visual Impact Assessment (Appendix K). What is the source of this water vapor and under what conditions/temperature will this visual plume occur?

The statement on page 74 that KEC's stormwater management plan will be evaluated by DEEP in conjunction with a Section 401 Water Quality Certification is not accurate. Although some elements of the stormwater management plan could be considered under the Water Quality Certification review, the stormwater management plan will principally be evaluated pursuant to the General Permits for the Discharge of Stormwater from Construction Activities and from Industrial Activities.

During the DEEP site review of October 19, a visit was made to the Lake Road Generating Facility to assess the noise environment around that plant. Consistent with what the Docket 470 application describes for the Killingly Energy Center, the air-cooled condenser fans are unquestionably the most significant noise source for Lake Road Generating. For the Lake Road Generating facility, which is approximately 50% larger than the proposed Killingly Energy Center, the noise levels from the cooling fans are significant within 500' and are clearly noticeable within 1,000' as observed along Louisa Veins Drive to the west of the plant. The noise is detectable beyond 1,000' but really becomes noticeable at about that distance. If the Killingly Energy Center plant produced the same level of noise, which it may not, given its smaller size, this would imply potential noise impacts to the two homes south of the plant site which are within 1,000' or less from the location of the air-cooled condenser of the Killingly Energy Center.

Thank you for the opportunity to review this application and to submit these comments to the Council. Should you, other Council members or Council staff have any questions, please feel free to contact me at (860) 424-4110 or at frederick.riese@ct.gov.

Respectfully yours,

Frederick L. Riese

Frederick L. Riese
Senior Environmental Analyst

cc: Commissioner Robert Klee