Connecticut Water Company
93 West Main Street
Clinton, CT 06413-1600

Office: 860.669.8636
Fax: 860.669.9326
Customer Service: 800.286.5700

December 14, 2016

Mark Mirabito, Chief Operating Officer
NTE Energy
24 Cathedral Place Suite 300
Saint Augustine, FL 32084

Re: Proposed Killingly Energy Center
180/189 Lake Road, Killingly

Dear Mr. Mirabito:

I am enclosing demand and margin of safety analyses for the Connecticut Water Crystal System. These tables, which include available supply, demand and margin of safety calculations, conform to methodologies promulgated in Sec 25-32d of the Regulations of Connecticut State Agencies (individual water supply planning regulations).

Briefly, available water is the maximum amount of water a system can dependably supply from its active, approved sources, taking into account hydraulic, treatment or other limitations. Quantities of available water are assessed based on 24-hour and 18-hour pumping days for all groundwater supplies. These supply quantities are compared to system demand in order to assess each system's ability to satisfy various demands over the full fifty-year planning period and plan for additional supply development needs. Demands realized over the most recent five years are averaged and used as the basis for future projections, with the historical ratios of Maximum Month Average Day Demand (MMADD) and Maximum Day Demand (MDD) to Average Day Demand (ADD) remaining constant for demand projection purposes. ADD growth is estimated based on historical growth, known projects in the service area having significant demand consequences, or other factors, and generally ranges from 0.5 to 1.0 percent. Finally, Margin of Safety values are obtained by dividing available water by demand and are shown as decimal equivalents.

As shown in Table 1.0, available supply in the Crystal System is sufficient to meet projected water demands for the entire 50-year planning period (at the end of the period MOS remains some 89%, 49% & 35% above projected ADD, MMADD & MDD, respectively). As noted above, this analysis is based on historical demand, which includes all water used for residential, commercial, industrial and public use, as well as non-revenue water losses. While Table 1.0 does not include any demands associated with the KEC project, it does include demands realized by all other customers, including the Town of Putnam.

In order to assess the MOS with anticipated KEC demands, several modifications were necessary, and are shown in Table 2.0. First, system available supply was increased to reflect the planned interconnection with the Plainfield system. This augmentation adds some 0.54 mgd over a 24-hour pumping period (0.40 mgd on an 18-hour basis). Second, projected average day demands were increased by 0.40 mgd to reflect peak plant use when operating on distillate, while projected maximum day and maximum month average day demands were increased by 0.10 mgd to reflect plant demands when operating on natural gas and with higher ambient air temperatures, such as would be anticipated during summer peak demand periods. These potential demands are consistent with the water needs described in your letter of July 21, 2016. Note that while the ADD would not actually increase by 0.4 mgd over a full calendar year, the projection was done in order to assess the impact such a demand would have during off-peak months.

Lastly, projected MMADD and MDD figures were adjusted upward to reflect potential Putnam water demands. This was done because transfers to the Putnam system have historically tended to be less than the maximum quantity (0.8 mgd) identified in our agreement. Actual use by the Town was averaged over the historical period of record and the difference between their actual use (0.12 mgd MMADD and 0.22 MDD) and 0.8 mgd was conservatively added to future MMADD and MDD projections. Table 2.0 suggests the system would be able to maintain an adequate MOS through 2060 with both KEC as a customer and increased transfers to Putnam.

If you have any questions, please feel free to contact me at 860.664.6059.

Very truly yours,

David L. Radka
Director of Water Resources & Planning

Encs: Tables 1.0, 2.0
Cc: C. Patla

CWC Crystal System Demand Margin of Safety

DEMAND/MARGIN OF SAFETY

TABLE 1.0

CRYSTAL SYSTEM

HISTORICAL DEMAND (MGD)

						AVAILABLE SUPPLY (MGD) 2.490	2.490	3.320
Year	ADD	MMADD	MDD	MMADD/ADD	MDD/ADD	MOS ADD,18hr	MOS MMAD,18hr	MOS MDD,24hr
2011	1.24	1.66	2.42	1.33	1.95	2.01	1.50	1.37
2012	1.14	1.56	2.30	1.37	2.02	2.18	1.60	1.44
2013	1.23	1.49	2.48	1.21	2.02	2.03	1.67	1.34
2014	1.11	1.32	1.76	1.19	1.59	2.25	1.89	1.88
2015	1.25	1.54	2.22	1.23	1.77	1.99	1.62	1.50
5 Yr Mean	1.19	1.51	2.24	1.27	1.87	2.09	1.65	1.49
Maximum	1.25	1.66	2.48			1.99	1.50	1.34

PROJECTED DEMAND (MGD)

Year	ADD	MMADD	MDD	MMADD/ADD	MDD/ADD	MOS ADD,18hr	MOS MMAD,18hr	MOS MDD,24hr
2020	1.21	1.53	2.26	1.27	1.87	2.06	1.63	1.47
2030	1.23	1.56	2.30	1.27	1.87	2.02	1.60	1.44
2060	1.32	1.67	2.47	1.27	1.87	1.89	1.49	1.35

ADD = AVERAGE DAY DEMAND

MMADD = MAX. MONTH AVERAGE DAY DEMAND

MDD = MAX. DAY DEMAND

MOS = MARGIN OF SAFETY

NOTES:

HISTORICAL PRODUCTION DATA FROM TABLE 4.1.1

AVAILABLE SUPPLY VALUES FROM TABLE 4.6.1 - CRYSTAL SYSTEM ONLY

PROJECTED DEMANDS FROM TABLE 4.5.5

CWC Crystal System Demand Margin of Safety

DEMAND/MARGIN OF SAFETY TABLE 2.0

CRYSTAL SYSTEM

HISTORICAL DEMAND (MGD)

						AVAILABLE SUPPLY (MGD) 2.893	2.893	3.857
Year	ADD	MMADD	MDD	MMADD/ADD	MDD/ADD	MOS ADD,18hr	MOS MMAD,18hr	MOS MDD,24hr
2011	1.24	1.66	2.42	1.34	1.95	2.33	1.74	1.59
2012	1.14	1.56	2.30	1.37	2.02	2.54	1.85	1.68
2013	1.23	1.49	2.48	1.21	2.02	2.36	1.94	1.56
2014	1.11	1.32	1.76	1.19	1.59	2.61	2.19	2.19
2015	1.25	1.54	2.22	1.23	1.77	2.31	1.88	1.74
5 Yr Mean	1.19	1.51	2.24	1.27	1.87	2.42	1.91	1.72
Maximum	1.25	1.66	2.48			2.31	1.74	1.56

PROJECTED DEMAND (MGD)

Year	ADD	MMADD	MDD	MMADD/ADD	MDD/ADD	MOS ADD,18hr	MOS MMAD,18hr	MOS MDD,24hr
2020	1.61	2.31	2.94	1.43	1.83	1.80	1.25	1.31
2030	1.63	2.34	2.98	1.44	1.83	1.77	1.24	1.29
2060	1.72	2.45	3.15	1.42	1.83	1.68	1.18	1.22

ADD = AVERAGE DAY DEMAND

MMADD = MAX. MONTH AVERAGE DAY DEMAND

MDD = MAX. DAY DEMAND

MOS = MARGIN OF SAFETY

NOTES:

HISTORICAL PRODUCTION DATA FROM TABLE 4.1.1

AVAILABLE SUPPLY VALUES FROM TABLE 4.6.1 - INCLUDES CRYSTAL/PLAINFIELD INTERCONNECTION

PROJECTED DEMANDS FROM TABLE 4.5.5

PROJECTED DEMAND INCLUDES KEC ADD OF 0.4 MGD, MMADD OF 0.1 MGD, & MDD OF 0.1 MGD.

MMAD & MD PROJECTED DEMAND ADJUSTED FOR 0.8 MGD TRANSFER TO PUTNAM SYSTEM.