Jones River Watershed Association

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April 22, 2016

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114
Attn: Ms. Holly Johnson

RE: Draft Environmental Impact Report, Canal Unit 3, EEA # 15407

Dear Secretary Beaton,

On behalf of the Jones River Watershed Association (JRWA), we submit the following comments concerning the above referenced DEIR. JRWA's mission is to protect, enhance and restore the quality of natural resources in Southeastern Massachusetts, in particular the Jones River and Cape Cod Bay. A portion of our program work is dedicated to supporting clean and reasonably sited energy solutions that avoid environmental degradation and are protected against climate change impacts. It is in this context we provide the following comments.

Addition of Unit 3

NRG describes that its new Unit 3 will be highly efficient with state-of-the-art emissions control technologies and near-zero liquid discharge design to reduce water demand. However, Unit 3 will still be an additional source of greenhouse gas emissions. We generally do not support projects that will cause additional reliance on fossil fuels in Massachusetts, but we are supportive of the newer, more efficient technologies, the use of lower-emission fuels, and the lower water demand that will be part of Unit 3 operations. However, we strongly believe that the construction of Unit 3 should be an opportunity to take NRG's already existing Units 1 and 2 permanently offline. NRG describes Units 1 & 2 as "physically unable to complete in [the Locational Forward Reserve] market" and "are vintage technology." Table 2.3-1 shows the average capacity factor for Units 1 and 2 over the last five years was only 2%. These outdated and environmentally harmful units should be decommissioned before Unit 3 is brought on-line. Given that Unit 3 is being proposed as a 40-year plant and it appears that NRG's Air Quality Operating Permit for Units 1 and 2 expired on January 9, 2014, EEA should require further offset for the additional fossil fuel facility by requiring that the two obsolete units be taken offline to eliminate water use and impacts to marine life. When operating, Units 1 and 2 have the capacity to use up to 518 million gallons per day (MGD) through two cooling water intake structures causing significant entrainment/impingement of marine organisms and pollutant discharges. Furthermore, Unit 3 should be decommissioned at the end of its 40-year lifespan and no license extensions should be permitted for any fossil fuel emitting use.

Intermittent Use

According to the DEIR, Unit 3 will operate during times of peak energy demand (up to 4,380 hours per year) and will run mostly on natural gas, with up to 720 hours per year using ULSD oil as the back-up fuel. However, in NRG's December 3, 2015 Petition to the EFSB for project approval, the company stated that the backup oil would be used 1,440 hours per year (not 720 hours). NRG also states that ULSD will only be used "when natural gas is not reasonably available." It should be made clearer under which specific circumstances ULSD would be required. The Final EIR should clarify the circumstances and hours of use proposed for ULSD. Limits should be imposed in any Certificate that will give the Commonwealth the greatest opportunity to radically reduce our greenhouse gas emissions and adhere to a strict timetable.

Spills and Releases

As outlined by NRG, ULSD will be transported to the site by barge and approximately 4,000 feet of new pipeline will be constructed to connect oil to various tanks on the property. There is already a history of multiple oil spills associated with this facility (e.g., in 1969 an oil tanker heading to the plant grounded itself releasing nearly 200,000 gallons, in 2003 98,000 gallons were released, etc.). The 2003 spill of heavy fuel oil left the Buzzards Bay environment and economy severely impacted: thousands of fish and birds died, shellfish beds were contaminated and nearly 100 miles of shoreline were affected. Cleanup activities technically ceased in 2007, however about 135 acres of shellfish beds remained closed much longer due to residual oil at these sites. One area opened to shellfishing in 2012, but part of the area just south of Hoppy's Landing in Fairhaven still remains closed today.[1]

Buzzards Bay, Cape Cod Bay, Cape Cod Canal, and the surrounding environment are at continued risk from oil spills by further barge shipments to NRG's Unit 3, as well as from inevitable methane releases from the new pipeline, storage tanks, and production train. The environmental and economic consequences of these spills and releases should be outlined by NRG -- including the likely trajectory and dispersion of oil under various ocean and weather conditions, and the effects of oil on various biological resources, particularly endangered, threatened and rare species. An estimated number of spills/releases per year and the average size of those spills/releases should be included, as well as plans for prevention, response, and mitigation.

Regulatory agencies (MassDEP, MassDPH, EFSB) should specify circumstances and limitations under which companies using and expanding fossil fuel use will take complete responsibility for the accidents (e.g., oil spills, methane leaks) that inevitably occur in the transportation/transmission of these fuels. Responsibilities should include immediate cleanup and remediation in order to limit negative environmental impacts and restore natural resources to previous or improved health status. Companies should be required to develop and maintain robust environmental mitigation

[1] Based on a phone call to the Fairhaven Shellfish Warden, 4/22/16.

accounts that can be drawn on to effectively respond to a variety of accidents or when emissions exceed permitted levels.

Natural gas for NRG's Unit 3 project will be delivered by an interconnection to the Algonquin Gas Transmission Pipeline (Spectra Energy) and will require about 3,500 feet of new pipeline to be constructed. In order to justify the construction of an additional fossil fuel facility, NRG should identify, provide a mitigation plan and funding to control methane leaks and provide reliable upgrades over the life-cycle of the facility. Anything short of a total commitment to control methane releases is not acceptable. NRG's new Unit 3 will put more demand on the Algonquin pipeline and create additional pipeline infrastructure. There should be a fee required of the operator of this facility – and others that use the pipeline – to pay for efforts to search for, prevent, and stop venting methane leaks.

Permits

In Section 1.4 in the DEIR, NRG outlines that its National Pollutant Discharge Elimination System "Stormwater Permit" application for Unit 3 construction and operation is yet to be filed. U.S. EPA should not issue a new NPDES permit until all Clean Water Act permits and pollution control technologies used by the facility are updated. NRG's current Units 1 and 2 operate under an expired NPDES permit – one of the longest expired NPDES permits in the nation. EPA determined in 2008 that closed-cycle cooling was Best Technology Available (BTA) for reducing entrainment and made a number of corresponding changes to the conditions of the August 2008 Final NPDES Permit. However the owner at that time, Mirant, appealed. The final NPDES permit requiring closed-looped cooling was never issued and Units 1 and 2 operate in accordance with the original permit issued in 1989 and expired in 1994. This means that, when operational, NRG's Canal Station uses outmoded systems that cause excessive damage to the marine environment. It is unacceptable that the expired NPDES permit for Units 1 & 2 is glossed-over while expansion of the facility is considered. In addition to closed loop systems, additional technologies could now be considered. However if Unit 1 & 2 are retired and replaced by Unity 3, BTA updates for Units 1 & 2 to limit discharges and intake of cooling water from Cape Cod Bay should not be necessary.

Land Alteration and Climate Change

To account for flooding, NRG describes the project site as being raised to an elevation above the 100-year floodplain. Furthermore, NRG states that the design of the project must also address flood adaptation strategies to mitigate future risk associated with sea level rise. Project features and critical components will be elevated to at least 16 feet above mean sea level (AMSL), above the FEMA 100-year flood elevation of 14 feet AMSL plus an allowance for future sea level rise. NRG determined that a 2-foot rise in sea level would be expected over the 40-year life of the project.

NRG uses a 2-foot sea level rise because it represents a "conservative projection." While we support the use of sea level rise values based on NOAA and USACE since they are nationally accepted and established estimates, NRG should use the most conservative value which is the NOAA high value of

2.93 by 2060. NRG clearly admits that its site will potentially be impacted by sea level rise of nearly 3 feet above MSL (based on NOAA data) until the permit expires in 2060. NRG should also discuss potential for rising groundwater tables, subsidence, and increase in erosion to impact the site, as well as combined effects of surge and mounting waves with extreme storm events. It is not clear that the combined effect scenario was considered. In other words if storm surge and flooding is combined with excessive precipitation (e.g., ice, snow or rain), then how will the site be protected?

The DEIR explains that floor elevations of critical components will be at an elevation of 16 feet AMSL or 6 feet above the existing grade and 2 feet above the existing 100-year flood zone elevation. Consideration should be given to ensuring access to all major components in foul flooded conditions, so that the facility can be maintained during extraordinary weather related events, and rising sea levels, and no adverse environmental consequences are caused from failing infrastructure. The integrity of the entire site should be preserved, not just critical components and the most conservative estimate identified in the petition (2.93 feet) should be used.

It is also important to recognize that permits for energy facilities are regularly extended. While it's difficult to predict future permitting activity, the most conservative approach should be adopted in terms of climate change impacts, so that access to and functioning of the entire site are preserved if permits are extended for longer than 40 years. NRG should clearly state the economic design life of the facility so that proper conservative planning can be in force.

NRG reports that the average annual precipitation at the proposed site is about 48 inches (1981-2010) and the average annual temp is 50.6^{o}F (1981-2010). It's important to recognize predicted changes in local precipitation and temperature over the lifetime of the facility. Not only should historical data be assessed, but also future climatic conditions that are projected to increase precipitation amounts and temperatures, particularly in the Northeast U.S. Several studies suggest that precipitation amounts are expected to increase in the future due to climate change and have been projected to increase by 20-30 percent by 2070 to 2100.[2] Specifically in the Northeast, it has been shown that heavy rainfall events are increasing (about 70% from 1958-2012) and are projected to increase further in the coming years due to climate change.[3]

Air Quality and Emissions

JRWA supports that Unit 3 would be using advanced emissions control equipment, however it will still be a source of emissions. The DIER explains that the project will secure NOx emissions offsets through the shutdown of the Lovett Generating Station in New York. However, this in no way reduces impacts or increases environmental benefits to the affected population near the NRG's facility. NRG should secure offsets on a more local level.

[2] Stratz S.A. and F. Hossain. 2014. Probable maximum precipitation in a changing climate: Implications for dam design. Journal of Hydrologic Engineering. 19(12): 06014006; Kunkel K.E., Karl T.R., Easterling D.R., Redmond K., Young J., Yin X., and P. Hennon. 2013. Probable maximum precipitation and climate change. Geophysical Research Letters 40(7): 1402-1408.

[3] Melillo J.M., Richmond T.C., and G.W. Yohe, Eds. 2014. Climate change impacts in the United States: the third national climate assessment. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2.

While some greenhouse gas mitigation measures are discussed in the DEIR, NRG should outline specific ways it will mitigate emissions on a more local level. Again, JRWA believes that decommissioning Units 1 & 2 would be a way to mitigate the continued decline of air quality and atmospheric health by Unit 3.

NRG briefly mentions in the DEIR that CH4 and N2O will be emitted during combustion in varying quantities depending on operating conditions but these emissions will be negligible compared to total CO2 emissions. While we understand that CO2 is likely the largest source of emissions from Unit 3, NRG almost solely focuses on CO_2 emissions but at no point does the company discuss methane (CH_4) emissions or mitigation at any length. According to U.S. EPA, CH_4 is more efficient at trapping radiation than CO_2 and has a 25x greater impact on climate change over a 100-year period.[4] A recent study (2016) used satellite data and ground observations and found that methane is leaking into the atmosphere in massive quantities in the U.S. Between 2002 and 2014, U.S. methane emissions increased by more than 30%, accounting for 30-60% of an enormous spike in methane found in the global atmosphere.[5] This is clearly a serious problem and could undermine any efforts to reduce greenhouse gas emissions – the issue needs to be addressed in the FEIR. While Spectra Energy appears to have a methane reduction program, it is not mentioned in the DEIR and is therefore unclear what NRG's commitment to aggressively control methane emissions actually is.

NRG is also pursuing the development of a 1.5-MW community solar project, which is expected to displace 734 tons per year of greenhouse gases. We are in support of this project, as long as questions about the appropriateness of the siting location are resolved.

NRG references testimony provided by the Daymark Group at several points throughout the DEIR. The testimony indicates that, based on a 10-year study, the Unit 3 project would result in a net reduction of overall cumulative CO2 emissions in the region by more than 143,600 tons. It also indicates that the project will offset its own greenhouse gas emissions and will lead to overall reductions in regional emissions. Based on our review of the testimony included as part of Appendix E in the DEIR, we noticed that the study only looks at CO2 emissions, and again we believe that other emissions (e.g., methane) should be considered. Second, the testimony indicates that when operating on the back-up oil fuel, the unit would produce a higher rate of CO2. The testimony reads: "When natural gas pricing or supply conditions cause a switch to oil, the emission rate for the facility will be higher, as would be the case for other resources that switch to oil in those periods." It is unclear if oil use is reflected when NRG claims that Unit 3 would result in a net reduction of overall cumulative CO2 emissions in the region by more than 143,600 tons.

[4] EPA. 2016. Overview of greenhouse gases: methane emissions. http://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html

[5] Turner AJ, et al. 2016. A large increase in U.S. methane emissions over the past decade inferred from satellite data and surface observations. Geophysical Research Letters. 43: doi:10.1002/2016GL067987.

Hazardous Materials

As described throughout the DEIR, there will be a number of hazardous materials stored onsite. NRG should outline the quantity of hazardous materials that will be stored onsite for the Unit 3 project and how this compares to hazardous materials currently being stored on the site.

NRG also states that two existing 60,000-gallon steel tanks will to be used for storage of aqueous NH3. The existing tanks are not currently enclosed in a building, but a new structure will be installed to enclose these tanks. We full support efforts to enclose and protect tanks and other project components from the elements and coastal hazards, especially those containing hazardous substances. However, NRG doesn't explicitly explain why these tanks will be enclosed. This should be explained in the FEIS.

Water & Water Use

Stormwater: NRG reports in the DEIR that the stormwater management system, as currently designed, is collected and discharged to the Cape Cod Canal via an existing outfall and to a wetland system and an offsite drainage swale through two other outfalls. NRG reports that no new outfalls will be needed for Unit 3 and the existing active outfalls will receive discharges from the new project. The proposed stormwater management system will incorporate low-impact development (LID) techniques and Best Management Practices (BMP) and will improve existing stormwater runoff conditions on the site through the installation of new vegetated infiltration basins. During Project operation, the proposed stormwater management system will improve the system by collecting stormwater in vegetated infiltration basins rather than discharging directly into the Cape Cod Canal or any wetland resource area. JRWA supports the use of LID techniques and BMPs, but the FEIR should clarify whether the project's new storm water management system will address only new discharges, or whether the existing storm water discharge pollution will also be updated and improved. Additionally, all BMP techniques are not created equal and therefore the FEIR should explain why the design will improve protections at sea level and into the future.

Water use: According to the DIER, Unit 3 will be served by two on-site water wells for various processes. It is unclear which of these wells are registered pursuant to the Water Management Act (WMA). According to NRG, the active wells (Well Nos. 2 and 3) are authorized for withdrawal under an existing WMA Registration (#42226109). However, the WMA Registration permit JRWA obtained from MassDEP indicates that wells #1 and #2 are those registered by the WMA permit that expires in December 31, 2017. This needs to be clarified. Does WMA Registration permit #42226109 allow withdrawals from Well No. 3? If not, NRG should apply for the appropriate WMA permit for well #3, and public comments should be allowed.

NRG reports that there is no salt water suspected on the site and overall water quality is considered excellent based on site-specific lab results from 1974 (page 11-2). Our coastal environment is very different than it was more than 40 years ago and new analyses should be carried out to properly characterize the site and any salt water intrusion that could affect underground infrastructure or the

wells, and include future sea level rise and other coastal changes over the lifetime of the facility. NRG does indicate that "water quality from the existing wells is routinely monitored and any change in water quality would be noted and addressed, as appropriate." However, JRWA is unclear why results from 1974 water quality tests are cited if more updated results are available.

***Discharge*:** NRG indicates that there will be no direct discharges of facility wastewater to the environment. Instead, wastewater will be collected in an underground tank and periodically trucked offsite. Whether there is a schedule for checking the stability of underground tanks and pipes, and how leaks will be detected should be outlined. As sea levels rises, so will groundwater levels on the site, and whether salt water intrusion will be an issue for NRG's underground infrastructure should be more thoroughly addressed.

***Septic*:** NRG reports that sanitary wastewater is managed through an on-site sanitary septic system. Since the new amount of sanitary/ domestic water used and generated by the proposed Unit 3 will be small (compared to the volume consumed and generated by existing operations), no modifications to the existing septic system are anticipated. However, considering sea level rise and rising groundwater table levels due to climate change, it seems that the vulnerability of this system should be discussed as well as any plans to mitigate associated problems or update the system since it will continue to be used for the 40-year lifespan of the unit.

Plant and Animal Species and Habitat

In Section 2.4.6 of the DEIR, NRG states that the project will not impact state-listed threatened or endangered species and the site has no significant natural resources or state or federally listed species on the project site. However, a portion of the property overlaps with habitat associated with two Species of Concern (least and common terns). NRG reports no impacts will occur from the proposed facility. Impacts to protected species from all activities associated with the constructions and operation Unit 3 should be outlined, including potential releases of oil and other hazardous substances. As outlined in the DIER, there is a history of hazardous waste releases on the site (and off the coast) and impacts to endangered, threatened and rare species should be discussed.

In NRG's Dec. 3, 2015 Petition to EFSB for project approval, critically endangered North Atlantic right whales and associated critical habitat are briefly discussed; however this species is completely omitted from the DEIR. While right whales are clearly not found on the facility site, leaks and spills don't adhere to boundaries. Potential impacts – including to food sources – and the range of physiological and toxic effects that can occur should be outlined by NRG. Right whales are known to travel through the Cape Cod Canal. Individual adults, mother-calf pairs, and larger groups have been sighted near the plant (see image below).[6]

[6] For example, more than a dozen right whales were spotted near the mouth of the Cape Cod Canal in April 2015. See https://www.bostonglobe.com/metro/2015/04/30/more-than-dozen-right-whales-spotted-near-mouth-cape-cod-canal/uLdwSd2udL6tJ9Y81orIuO/story.html

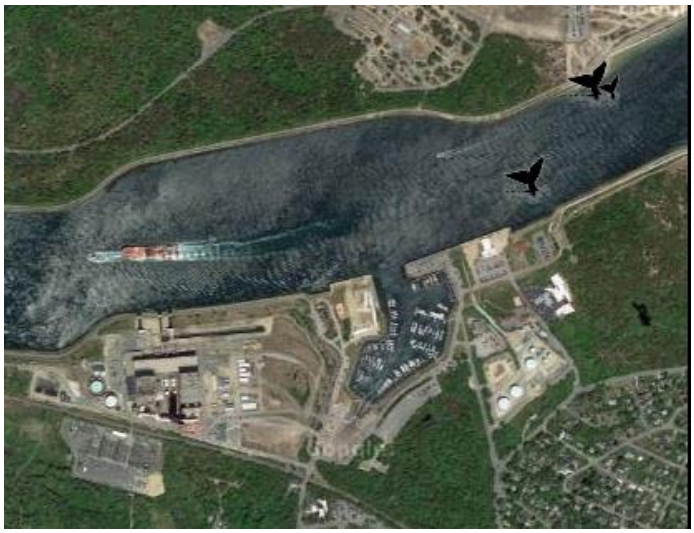

Image: NOAA NEFSC Interactive Sightings Map (www.nefsc.noaa.gov/psb/surveys). Canal Station is seen in bottom left of image. Four right whale sightings near NRG's facility were confirmed by NOAA (including a mother-calf pair) in 2005 & 2014.

In late Jan. 2016, NOAA announced that right whale critical habitat areas were significantly expanded (including almost all of the Gulf of Maine and all of Cape Cod Bay). Spills and leaks could most certainly impact right whale critical habitat and these issues should be discussed in the FEIR.

Alternatives Analysis

In Section 3.2, NRG outlines alternate technologies including wind and solar, as well as combined-cycle and simple-cycle combustion turbine technology. However, no consideration was given to ocean current energy systems. Given the enormous volume of water constantly flowing through the Cape Cod Canal, this technology deserves consideration and an update from NRG, given their location on the Canal. There are several different technologies that seem to be available and worth comment.

Energy Market

The relationship in the energy market between Units 1, 2, & 3 are discussed in Section 2.3.2.2 of the DEIR. While not directly related to NRG's discussion, we are deeply concerned that Massachusetts is becoming overly-reliant on natural gas and NRG's project is a further step in that direction. Our state is already heavily dependent on this source -- more than 50 percent of our in-state electricity generation currently comes from natural gas. Becoming overly-reliant on natural gas creates financial risk, places the economy and consumers at risk from fluctuating gas prices, weakens efforts to cut emissions, and more. We applaud the recent announcement by Kinder-Morgan to suspend development of yet another pipeline. NRG will be supported by gas from Canada and the Marcellus Shale. Impacts to these regions are not trivial and consequences are far-reaching. Again, Unit 1 & 2 should retire before Unit 3 is fired up.

The U.S. Department of Energy has projected that the cost of natural gas will rise as demand increases. This means consumers will eventually have to pay more once costs go up. Too much natural gas also undermines long-term carbon emission reductions. While natural gas electrical generation produces much less carbon emissions than coal or oil, it still produces emissions. It is important to consider the life-cycle of an energy source to appreciate the true impacts. Drilling, storage, extraction, and pipeline activities associated with natural gas result in methane leaks. Compared to carbon dioxide, methane is a far more potent greenhouse gas that could escalate climate problems.

In order to justify the construction of an additional fossil fuel facility, funds should be set aside to identify and mitigate methane leaks. Otherwise, additional construction should not be permitted or tolerated. Natural gas for NRG's proposed facility will be delivered via an interconnection to the Algonquin Gas Transmission pipeline and a new approximately 3,500 foot pipeline will be required to deliver natural gas to the NRG facility. Use of Unit 3 will put more demand on the Algonquin pipeline and create additional pipeline infrastructure. There should be a fee required of the operator of this facility – and others that use the pipeline – to pay for efforts to search for, prevent, and stop methane leaks.

Our state's plan, including the role of natural gas, will define our energy future for many decades to come. Our state will be investing billions to replace outdated nuclear, coal and oil facilities with new infrastructure. Instead of relying solely on natural gas for short-term gains, the state should recognize the long game and ensure adoption of energy policies that support further development of renewable energy resources, protect against climate change impacts and environmental degradation, and protect consumers. We ask that EEA please consider recommending phasing out and eliminating NRG's Units 1 & 2 to offset and advance new energy policies.

Thank you,

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