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BOARD OF PUBLIC UTILITIES
TRENTON, NJ

February 4, 2020

Hon. Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 9th Floor
PO Box 350
Trenton, NJ 08625-0350

QO 20020111

Re: **Petition for Assignment of "Preferred" TREC Factor for Floating Photovoltaic Solar Pursuant to the Board's Transition Incentive Order**

Dear Secretary Camacho-Welch,

Please accept this letter in lieu of a more formal petition on behalf of New Jersey-American Water Company, Inc. ("NJAWC") for assignment of "Preferred" Transition Renewable Energy Certificates ("TREC") Factor. Enclosed are an original and 11 copies. Please mark the extra copy as "filed" and return it in the enclosed, self-addressed stamped envelope provided for this purpose.

In conjunction with the May 23, 2018 Clean Energy Act implementation's Legacy Solar Renewable Energy Certificate program ("Legacy SREC Program" or "SRP") and the related Study it directed to modify or replace the Legacy Solar Renewable Energy Certificate ("SREC") program, on December 6, 2019 the New Jersey Board of Public Utilities ("BPU" or the "Board") issued the Transition Incentive Order ("TI Order") that approved a new program to transition from SRP. This new program enacted by the Board created TRECs to continue New Jersey's nationally-recognized leadership in solar deployment. This program allows the Board to eliminate potential lapses in solar incentives and clarifies the SREC registration program for new applicants after the 5.1% milestone is surpassed.

The Board's January 8, 2020 Order in Docket No. QO19010068 clarified that ***"new or innovative solar technologies can file a petition with the Board requesting that***

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these type projects be assigned a TREC factorization level".[1] NJAWC believes that recognizing the utilization of new and innovative solar array deployments will further enhance New Jersey and the Board's desired outcomes relative to space usage, efficiency and solar renewable leadership.

NJAWC is working with a project team to develop an 8.5 MWdc floating solar array at our Canoe Brook Water Treatment Facility ("Canoe Brook Floating Solar Project"). This will be amongst the largest projects in the nation and has many advantages over traditional ground mount solar arrays. As such, we petition the Board for a **Preferred Siting** classification for the Canoe Brook Floating Solar Project specifically, and for floating solar arrays generally, in the TREC factorization level for the following reasons:

1. In 2017, New Jersey Department of Environmental Protection ("NJDEP") Bureau of Energy and Sustainability updated their 2012 Solar Siting Analysis ("SSA"), the essence of which provided state level guidance on siting solar photovoltaic projects based on the land use/cover. Areas were classified for suitability as Preferred, Indeterminate and Not Preferred.[2]

2. NJDEP recognized that placing PV installations on natural or artificial lakes may be a practical use. Due to the then limited number of floating PV systems on water bodies in the United States, the report classified such bodies of water as Indeterminate but stated that as the technology matures it may be practical to change the Solar Siting designation to "Preferred". Raw water reservoirs are analogous to Storm Water Basins, already classed as "Preferred" in the 2017 SSA. Where land is limited and/or desired to be protected, a floating solar array provides both water storage and power generation opportunity; a Preferred situation.

3. Off stream reservoirs and water detention basins provide an incremental advantage in design, creating a more efficient array that is partially offset by modest construction cost adders to install floating solar relative to other standard array types.

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[1] *I/M/O a New Jersey Solar Transition Pursuant to P.L. 2018. C17*, BPU Docket No. QO19010068, January 8, 2020, p. 3.

[2] *See* New Jersey Department of Environmental Protection Solar Siting Analysis Update (Dec. 2017), available at https://www.state.nj.us/dep/ages/SSAFINAL.pdf (last visited Jan. 23, 2020).

4. Floating solar provides the ability to utilize water bodies instead of valuable ground, preserving valuable green space, recreational and agricultural areas within New Jersey.

5. The net environmental benefit to the source water via cooling effect of the water on the energy generation, shading of the water which aids in reducing algae bloom presence and reduced water evaporation.

6. National Renewable Energy Laboratory ("NREL") researchers estimate that installing floating solar photovoltaics on the more than 24,000 man-made U.S. reservoirs could generate about 10 percent of the nation's annual electricity production. Their findings, published in the journal *Environmental Science & Technology*, reveal for the first time the potential for floating PV to produce electricity in the United States. Jordan Macknick, the lead energy-water-land analyst for NREL and principal investigator of the project that produced the paper "Floating PV: Assessing the Technical Potential of Photovoltaic Systems on Man-Made Water Bodies in the Continental U.S." says "We're expecting it to take off in the United States, especially in areas that are land-constrained and where there's a major conflict between solar encroaching on farmland."[3]

We believe these technology efficiency advantages, land use avoidance and environmental benefits combine to make a distinctive case for a "**Preferred Siting**" status for this new technology that combines floating solar with modern bifacial solar panels (to maximize reflectivity and generation) and NJAWC stands ready to move forward with significant deployment of floating solar, should this new technology be recognized as a Preferred project type.[4] The Canoe Brook Floating Solar Project is one of the largest (8.5MWp DC) floating arrays in North America and warrants Preferred Siting status.

The Canoe Brook Floating Solar Project will be located on Reservoir 1 at the Canoe Brook location in Short Hills, Millburn Township, Essex County, NJ and will be comprised of over 20,700 bifacial 410W solar panels, three (3) 2500kVA 1500 V central inverters and over 30,000 primary and secondary floats. There has been significant

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[3] *See* NREL Transforming Energy News Release, *NREL Details Great Potential for Floating PV Systems*, available at https://www.nrel.gov/news/press/2018/nrel-details-great-potential-for-floating-pv-systems.html (last visited Jan. 23, 2020).

[4] *See* NJAWC Comments re New Jersey Solar Transition Revised 2019/2020 Transition Incentive Staff Straw Proposal and Modeling Addendum enclosed herewith.

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investment in the Canoe Brook Floating Solar Project relative to engineering design, development and safe harboring of the current 30% Federal Investment Tax Credit

("ITC"). This project will contribute in a significant way toward New Jersey and the Board's desired renewable goals and objectives as we truly partner to make our mutual objectives of land use, technology innovation and renewable energy attainment a reality. In addition to this project, NJAWC will consider additional floating solar project opportunities that will contribute to New Jersey to take a leadership role in this new market.

We thank you for your firm consideration to grant the Canoe Brook Floating Solar Project a Preferred Siting classification, and provide floating solar **Preferred Siting classification status,** in the Transition Incentive Order as a developing technology and best use practice and welcome the opportunity to further address questions or clarify any aspects of our request.

Sincerely,

Mr. Donald C. Shields
Vice President, Engineering
New Jersey-American Water Company, Inc.

Enc.

cc: Arianne Benry, BPU
Stefanie A. Brand, Director, Division of Rate Counsel
Pamela Owen, DAG, Assistant Section Chief

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November 27th, 2019

Hon. Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities,
Post Office Box 350
Trenton, New Jersey 08625

Sent via Email to solar.transitions@bpu.nj.gov

RE: New Jersey Solar Transition Revised 2019/2020 Transition Incentive Staff Straw Proposal and Modeling Addendum

Dear Secretary Camacho-Welch,

New Jersey American Water (NJAW) appreciates the opportunity to comment on the New Jersey Board of Public Utilities (BPU) Staff Straw Proposal on the transition incentive program. New Jersey American Water is dedicated to implementing alternative sources of energy having installed 2,953 kW of solar production at our facilities since 2005.

The Straw Proposal introduces factorization that if adopted, would target the size of the subsidy to the cost of constructing each type of facility, while also considering the regulatory framework in which each project operates. NJAW believes that Artificial Lakes and Reservoirs should be classified as Preferred Siting, especially off-stream raw reservoirs.

In 2017, the New Jersey Department of Environmental Protection's (NJDEP) Bureau of Energy and Sustainability provided an update to their 2012 Solar Siting Analysis (SSA). The report was developed with the purpose of providing the NJDEP, local communities and potential solar developers with state-level guidance on siting solar photo voltaic (PV) projects based on the land use/land cover. This report classified land area for suitability in three categories Preferred, Indeterminate, and Not Preferred.

The NJDEP recognized that placing PV installations on Natural Lake and Artificial Lakes may be a practical use for these land types. Because of the limited number of installations of PV systems on water bodies, the report classified Natural Lakes, Artificial Lakes and Reservoirs as Indeterminate in this report but stated that as the technology becomes more mature it may be practical to change the Solar Siting designation to "Preferred".

In New Jersey, there are only two PV installations on bodies of water. The 112 kWdc system constructed in 2012 on NJAW's Canoe Brook Reservoir #1 at the Canoe Brook Station in Millburn, New Jersey and the 4.4 MWdc system constructed in 2019 by the Borough of Sayreville on their reservoir. In both instances, these are raw water reservoirs that supply the onsite water treatment plant. Further, in both instances, these are part of temporary storage of water diverted

from streams via pumping during times of high stream flow (Passaic River and Canoe Brook for NJAW and South River for Sayreville). They are analogous to a Storm Water Basin (Anderson Code 1499) already recognized in the NJDEP's 2017 SSA Update as "Preferred."

Where land is limited, water bodies can provide considerable areas for large solar development supporting the BPU's objective to discourage large solar projects on farmland and other greenfield sites. Providing for conjunctive utilization of the water body (the reservoir) as both raw water storage and power generation provides a better utilization of the land area.

Positioning of the solar array in the middle of a body of water situates it further from shade-causing objects such as buildings and trees. This reduces the amount of time that the array is shaded and thus increases the array's exposure to sunlight for higher energy yields. The body of water will provide cooler operating temperature of the PV array, likely resulting in better efficiency than ground and roof mounted systems. In addition, the increased distance from land means that panel soiling will be reduced; dust and dirt are not easily trapped by the panel, reducing the need for surface cleaning.

There are also water quality benefits of having solar arrays located on reservoirs. The shade provided by these floating solar arrays can also help reduce the presence of algae blooms in bodies of freshwater. Algae blooms can be dangerous for human health if they occur in a source of drinking water and can also lead to the death of plants and animals living in and around the body of water. A general reduction in reservoir raw water temperature could result in a reduction in disinfection byproducts formation at a Surface Water Treatment Plant and in the potable water distribution system. The arrays may also reduce the evaporation rate from the water bodies providing a benefit during drought conditions.

In summary, for the reasons cited above, NJAW encourages the BPU and NJDEP to classify any off-stream reservoirs and water treatment detention basins whose purpose is a raw water reservoir for temporary or seasonal storage of source water as "Preferred" as there is no land disturbance and doing so would provide net environmental benefits to the source water.

Best regards,

Donald C. Shields
Vice President, Engineering
New Jersey American Water Co. Inc.

DCS/jd

cc. NJDEP, Division of Energy Security and Sustainability
NJDEP, Division of Water Supply and Geoscience
NJBPU, Division of Water and Wastewater

VERIFICATION

STATE OF NEW JERSEY :

SS

COUNTY OF CAMDEN :

Donald C. Shields, of full age, being duly sworn, according to law, deposes and says:

1. I am the Vice President of Engineering for New Jersey-American Water Company, Inc. and authorized to make this Verification on behalf of that Company.

2. I have reviewed the within Petition, and the information contained therein is true according to the best of my knowledge, information and belief.

Sworn to and subscribed this
day of January, 2020

Minera Cabero 1-17-20

My commission expires
9/6/22