Clean Energy Ventures

February 10, 2020

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

QO20020111

Subject: **Joint Petition for Assignment of "Preferred" TREC Factor for Floating Photovoltaic Solar in the Transition Incentive Order**

Dear Secretary Camacho-Welch,

Please accept this letter as a joint petition on behalf of a consortium of interested parties: Solar Renewable Energy LLC, RETTEW and NJR Clean Energy Ventures ("NJRCEV"), for the assignment of Floating Solar projects to be classified in the category of "Preferred Siting" with a Transitional Renewable Energy Certificate ("TREC") factor of 1.0. 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. This letter is being sent in coordination with the New Jersey American Water Company, Inc. letter dated February 4, 2020 and provides additional information.

In conjunction with the May 23, 2018, Clean Energy Act implementation of the Legacy Solar Renewable Energy Certificate program ("SREC Program") and the related study directed to modify or replace the SREC program, the Board issued the Transition Incentive Order as an initial step transitioning the State's solar incentive structure. This new TREC program should provide continuity to support ongoing solar growth, while providing a bridge to a new successor program.

On its January 8, 2020 Board Order, the Board clarified that *"new or innovative solar technologies can file a petition with the Board requesting that these type projects be assigned a TREC factorization level."* **We are petitioning the Board to classify Floating Solar projects as a Preferred Siting category that would receive a 1.0 factor under the TREC program.** Recognition of floating solar as a new and innovative solar array deployment would align with Governor Murphy's solar and clean energy growth goals.

Case Mgmt
R. Boylan, Esq
S. Richardson, Esq
P. Owens, Esq
M. Kampner
S. Bluhm

The consortium filing this joint petition includes Solar Renewable Energy, LLC ("SRE"), developer and construction manager; RETTEW, energy performance contracting; and, NJRCEV, financer/owner-operator. Canoe Brook Solar Partners, LLC is a separate entity formed by SRE for the 8.5MWdc floating solar array at New Jersey American Water's ("NJAW") Canoe Brook Water Treatment Facility. This team is also working on many other floating solar projects in New Jersey as described below.

The rationale for our request for a Preferred Siting classification for floating solar projects is as follows:

A. Siting

1. In 2017, the New Jersey Department of Environmental Protection's (NJDEP) Bureau of Energy and Sustainability provided an update to its 2012 Solar Siting Analysis (SSA), providing state level guidance on siting solar photovoltaic ("PV") projects based on the land use/cover. Areas were classified for suitability as Preferred, Indeterminate and Not Preferred. In the update, the 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 opportunities for both water storage and power generation; a Preferred approach.

2. The NJDEP has reviewed and approved the Borough of Sayreville's 4.4MW floating solar project that was energized last year. This project, completed by SRE and RETTEW, is the largest operational floating solar project in the United States. It is also approximately 25 percent smaller in footprint than a comparable ground mount system, resulting in higher productivity per acre of land deployed for solar generation.

3. Floating solar's ability to utilize water bodies rather than ground space preserves valuable green space as well as recreational and agricultural areas within New Jersey. These characteristics conform with the BPU's preferred siting preferences.

4. A net environmental benefit to the source water is the cooling effect on the water shaded by the solar panels, which reduces algae bloom presence and water evaporation. Studies conducted in East Asia found that the evaporation of water under the floating solar array was reduced by up to 90 percent, and the thermal energy absorbed by the solar panels decreased the intensity and duration of algae outbreaks by over 50 percent.

B. Market Potential

1. 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." https://www.nrel.gov/news/press/2018/nrel-details-great-potential-for-floating-pv-systems.html

   Several other floating solar projects under development in New Jersey can contribute to the state's renewable energy goals. In addition to the 4.4 MW operating project in Sayreville, NJAW's 8.5 MW project at the Canoe Brook facility in Millburn, NJ, and a 29 MW project for Suez on the Oradell Reservoir are in the later stages of development. North Jersey Water District issued a request for proposal for a 12 MW project on the Wanaque Reservoir and we are aware of more than 50MWs of additional floating solar projects in early stage development. These projects illustrate building momentum for this approach and its potential to meaningfully contribute to the State's energy master plan of adding 12GW of new solar by 2030.

C. Technology

1. We believe technology efficiency advantages make a distinctive case for "**Preferred**" status for this new technology that combines floating solar with innovative bifacial solar panels to maximize reflectivity and generation. Our Companies are prepared to move forward with significant deployment of floating solar, should this new technology be recognized as a Preferred project type.

2. The 8.5MWdc floating solar array for Canoe Brook will be located on Reservoir 1 at the Canoe Brook location in Short Hills, Millburn Township, Essex County, New Jersey and will be composed of over 20,700 bifacial 410W solar panels, three 2500kVA 1500 V central inverters, and over 30,000 primary and secondary floats.

D. **Cost and Development Cycle**

1. The Sayreville project provides valuable insight into the cost structure of floating solar as applied in the United States (US) and in New Jersey. It also confirms the technology and siting advantages floating solar provides versus traditional ground mount systems. The cost of this project was approximately 48 percent higher than traditional ground mount systems, with a total project cost of approximately $2.05 per watt. RETTEW's experience over the past several years with similar US projects has validated the cost premium of floating solar as compared to ground mount systems, and that costs are generally in the range of $2.00 to $2.50 per watt for a typical project. Additional details are available upon request by staff.

2. In addition to higher construction costs, the cost for insurance, financing and other "soft" project costs are higher due to the increased risk and timing for this new technology.

3. The general timeline for floating solar project completion is roughly 18 to 24 months, due to the extensive permitting and other requirements necessary to engineer and construct projects of this nature.

We have made a significant investment in the Canoe Brook floating solar project, including engineering design, development and safe harboring, to retain the current 30 percent Federal Investment Tax Credit. The Canoe Brook project and the others mentioned above would significantly contribute to the Governor's and BPU's desired goals for land use, innovative technology and rapid renewable energy growth. We ask for your support for this petition request, believe that the Board's support will be essential to making these projects in support of the Governor's policy goals a success.

We thank you for your consideration to make floating solar a **"Preferred Siting"** category in the Transition Incentive Order as a new and innovative technology and best use practice. We welcome the opportunity to meet with you to further address questions or clarify any aspects of our request.

Sincerely,

Mr. Douglas Berry
President/CEO Solar Renewable Partners
Member, Canoe Brook Solar Partners, LLC

Mr. Jason Wert, PE
National Market Leader, Energy and Environmental Engineering Group
RETTEW

Mr. Larry Barth
Director of Corporate Strategy
NJR Clean Energy Ventures

Cc: Chris Savastano, Managing Director Development, NJR Clean Energy Ventures