

Proposal Concerning Modifications to LIPA's Tariff for Electric Service

Requested Action:

The Long Island Power Authority ("LIPA") staff proposes revisions to the LIPA Tariff for Electric Service to authorize the purchase of an additional 100 MW solar photovoltaic ("PV") renewable resources from customers for a fixed term of 20 years at a fixed price for the entire term. The proposed purchase offer would be included under Service Classification No. 11 – Buy-Back Service.

Background:

On October 25, 2012, the Trustees, in their resolution regarding the Generation and Transmission Request for Proposals, also authorized staff to purchase up to an additional 100 MW of solar PV generation under LIPA's *Clean Solar Initiative* Feed-in Tariff.

The term "Feed-in Tariff" has been adopted throughout the industry to describe an offer to purchase a specific type of renewable generation from willing developers at a fixed price per kWh for a fixed period of time. Under this proposal for solar PV generation, the offer price would be established as a "market clearing price" that would apply to every developer that meets the criteria specified in the Tariff, up to the maximum level of enrollment (i.e., 100 MW).

The federal Public Utility Regulatory Policy Act ("PURPA") requires utilities (including LIPA) to pay the utility's avoided cost for generation from qualifying facilities ("QFs"), which includes the output from solar PV generation. LIPA has determined that it can use a Feed-In Tariff to support paying its avoided cost to pay for solar PV generation. Federal Energy Regulatory Commission ("FERC") precedents support auctions and other similar bid arrangements for QF resources (solar, wind, biomass, etc.) to establish the avoided cost for such QF resource.

Once a customer is enrolled under the Feed-In Tariff, that customer would receive the fixed price for 20 years pursuant to a non-negotiable, standard form Power Purchase Agreement ("PPA"), which, among other things, would memorialize the agreement with LIPA related to the terms of the Tariff. The PPA may assist the customer with obtaining financial resources for the project, since it would reflect a commitment on the part of LIPA to purchase the output of the facility for the fixed term at a fixed price. The currently approved PPA was slightly modified to reflect the few modifications reflected in this 100 MW Feed-in Tariff offering.

The Trustees have already authorized the purchase up to 50 MW of distributed solar PV generation located on our customers' premises to supplement the existing purchases from the two utility-scale solar facilities completed in 2011-12 and the ongoing Solar Pioneer and Solar Entrepreneur rebate programs. The 35 MW allotment for the largest units in

the first Feed-in Tariff was effectively oversubscribed within the first day that customers could apply, but the smaller size categories have not been fully subscribed, as shown in the table below.

**Applications for Enrollment in the First 50 MW
Feed-in Tariff for Solar Photo-voltaic Generation**

<u>Facility Size</u>	<u>Available Enrollment</u>	<u>Qualified Applications</u>
50 kW to 150 kW	5,000 kW	2,785 kW
150 kW to 500 kW	10,000 kW	9,753 kW
Excess 500 kW	<u>35,000 kW</u>	<u>204,741 kW</u>
	50,000 kW	217,279 kW

Staff proposes to enroll an additional 100 MW of solar PV generation. Customers who enroll in the Feed-in Tariff must sell 100% of the output from their eligible generation directly to LIPA. Each customer site must offer between 100 kW and 2,000 kW of solar generation to participate. A separate meter will be installed to measure the output directly at the generator. None of the output of the eligible generation would be available to serve the customer’s own load and by definition, a customer that participates in the Feed-in Tariff cannot participate in net metering. Similarly, a customer that has received a rebate from LIPA’s solar program or received other funding from LIPA (such as a research and development grant) cannot participate in the Feed-in Tariff, and conversely, a customer that has enrolled in the Feed-in Tariff cannot receive a solar generation rebate.

Benefits of a Feed-in Tariff

The Feed-in Tariff structure has been adopted in several States including Vermont, California, Florida and Hawaii, as well as abroad. The Feed-in Tariff pricing structure gives greater certainty to the renewable resource owners who require a steady stream of revenue to support their fixed investment. It also provides advantages to LIPA in that LIPA would only pay for renewable generation that is actually delivered by the participant over the twenty-year life of the PPA, as that generation is produced. This has several benefits compared to the rebate program.

First, it spreads the cost of the program over the life of the contract. Spreading the cost over 20 years, as the benefits are received, is much more affordable to LIPA’s customers both now and in the future, compared to the upfront recovery of rebate expenses that is currently provided for under the Efficiency & Renewables Charge.

Second, it reduces the risk of under-performance by the installation after the rebate has been paid. Under the rebate program structure, the customer receives the benefit as soon as the solar resource is attached to our system. If performance degrades over time, or the system fails in whole or in part, the rebate has already been paid, and the other customers bear the loss from non-performance. Here, LIPA only pays for the energy that is actually produced.

Third, there is no loss of revenue under the Feed-in Tariff proposal. Under the current New York State net metering laws, which are incorporated into LIPA's tariff, a retail customer with solar generation, wind or fuel cell generation avoids LIPA's full retail rates for every kWh of generation they produce. Since the participants in the Feed-in Tariff would have their generators directly connected to the LIPA system, and are not serving their own loads, there would be no lost revenue associated with that generation. The Feed-in Tariff would create a direct power purchase transaction and LIPA's retail revenues would be preserved as originally intended.

Program Considerations

LIPA's experience with the first 50 MW Feed-in Tariff leads Staff to propose some changes to the implementation of the program for this next round of allotments. The proposed changes for this round of the Feed-in Tariff include:

- A size limit between 100 kW and 2,000 kW (2 MW) for eligible projects;
- A price bidding process to determine the rate; and
- An additional payment for projects located at specific substations on the South Fork, based on the value of deferring transmission reinforcements.

Among the lessons learned from the initial 50 MW allotment for solar PV generation under the Feed-in Tariff, was that extremely large projects required significantly more consideration and time to reach commercial operation, which added to the overall uncertainty that the projects would realize benefits to LIPA's customers, when compared to smaller projects. In order to better manage the application process, and realize the benefits of renewable generation on the system sooner, Staff proposes to limit the size of any single installation to 2 MW. Multiple systems, up to 2 MW each, may be proposed at adjacent locations by the same customer throughout the service area, but such projects will be viewed and selected independently and cannot be interconnected as a common system at any time during the term of the PPA. In addition, staff proposes to raise the minimum size from 50 kW to 100 kW. This will help to keep the number of potential projects to a more manageable size, which will tend to minimize the effort needed to administer the program.

In order to better determine the most cost-effective price to pay for solar photovoltaic resources, Staff is proposing to use an auction process to set the price for energy purchases. Since LIPA is seeking to purchase a standardized product at a fixed rate for a 20 year period, it is relatively simple for bidders to offer a specified price, and relatively simple for LIPA to rank the bids in economic order to determine the appropriate market-clearing price for that generation. Consistent with other economic markets, including the New York Independent System Operator ("NYISO") markets for energy and capacity, Staff proposes to rank the price offers from lowest to highest. Bidders would be accepted in order from lowest to highest bid price, up to the lower of 100 MW (based on nameplate capacity net of inverter losses), or 90% of the offered capacity. The auction clearing price would be set at the last bid price accepted and all accepted bidders would be paid this clearing price. The purpose of the 90% limit is to assure that none of the

accepted bidders is able to exercise market power. The proposed tariff provides specific rules in the event of ties.

Staff considered an alternative pricing approach where each successful bidder is paid the price they bid, as opposed to the clearing price. Staff recommends the clearing price model because it is an established approach within the NYISO and the other ISO's in the United States for capacity and energy, and has been recognized by the Federal Energy Regulatory Commission ("FERC"). Additionally, the clearing price model is recognized by economists as providing potentially lower prices to consumers because it simplifies the bidding strategies of the generators. When generators know that they will receive the clearing price, they are incentivized to propose their lowest acceptable price in order to gain the most favorable spot at the front of the bidding queue. When generators know that they will be paid their bid price, there is more of an incentive to speculate on the price that other bidders will offer, which is usually higher than the lowest price that the generator would accept, and would produce higher price bids. For this reason, the electric markets throughout the United States have adopted the clearing price approach, and Staff recommends the same pricing model for this round of the Feed-in Tariff. Finally, Staff believes that a standard price for all generators is more appropriate for a tariff rather than having to establish separate prices for each individual PPA.

Staff also proposes to establish a locational price adder for interconnection of solar PV generation to certain substations within the LIPA system located on the South Fork, east of the Canal substation, where operating constraints and capacity limitations would otherwise require LIPA to invest in transmission system upgrades at the expense of all customers. A location-based adder for avoided transmission upgrade costs has the benefit of transparency of costs and is consistent with the PURPA avoided cost concept.

LIPA is facing an immediate need to invest approximately \$84 million in transmission upgrades east of the Canal substation; further transmission additions and additional generation will be required to meet projected future load growth. Targeted application of solar PV generation in this area could defer the immediate investment and reduce or defer future expenditures, resulting in estimated net present value savings of \$60 million assuming that 40 MW of solar generation can be developed at these locations. In the event that less than 40 MW of capacity is selected in these areas from the auction process, then no premium will be paid to any of these customers, as LIPA will likely need to pursue the transmission alternatives and no costs would be avoided.

The following distribution substations have been identified as preferential locations, and staff proposes to pay a cost-based premium of \$0.070 per kWh to bidders that will attach to circuits originating out of any of these substations.

**Listing of Preferred Substations
for Solar Photo-voltaic Generation under the Feed-in Tariff**

9B.....	Southampton
9DF.....	Deerfield
9E.....	Buell
9HH.....	Hither Hills
9L.....	East Hampton
9R.....	Bridgehampton
9U.....	Montauk
9Z.....	Amagansett

Modifications to the Feed-in Tariff Solar Power Purchase Agreement

Minor changes are required to the Feed-in Tariff Solar Power Purchase Agreement to reflect the proposed changes in the Tariff. Those changes are:

- Decreasing the maximum size of eligible units from 20,000 kW to 2,000 kW;
- Updating the price to reflect the results of the proposed auction and the premium for locations east of the Canal Substation if applicable;
- Revising the determination of the target Commercial Operation Date, and any authorized extension of the Commercial Operation Date, to the extent necessary for developers; and
- A new title to designate it as the second Feed-in Tariff.

Financial Impacts:

The cost of the Feed-in Tariff would be recorded as purchases of electricity under Service Classification No. 11 Buy-Back Service¹, and recovered from customers through the Power Supply Charge².

The financial impact of enrolling 100 MW of solar generation under the Feed-in Tariff for 20 years will depend on the clearing price that is ultimately established through the auction and the avoided costs of generation. However, it can be stated that the cost of this round of the Feed-in Tariff will reflect the market price to procure such resources and that LIPA retains the right to reject any bid price in excess of what LIPA determines it would agree to pay. The premium paid for South Fork locations should be financially neutral since it should approximate the avoided cost with the recognition that the cost will

¹ Currently, LIPA purchases energy from more than a dozen qualifying facilities under SC-11, including four resource recovery plants, two landfills and several cogeneration or combined –heat-and-power (CHP) facilities. In addition, the costs incurred under the initial 50 MW are purchased under SC-11. The costs of all these purchases are currently recovered through the Power Supply Charge.

² This treatment is identical to other purchases of generation from renewable resources such as the BP Solar and EnXco solar projects, the Bear Swamp (Brookfield) hydropower contract and the first 50 MW Feed-in Tariff.

flowed entirely through the FPPCA while the benefit accrues partially to the power supply charge and partially to delivery rates.

LIPA expects to purchase approximately 157.7 million kWhs per year from the 100 MW of solar generation that is being solicited, which displaces generation that would have been purchased from other sources. Because the auction has not yet occurred, the clearing price has not yet been ascertained. However, if the auction produces a clearing price of 22¢ per kWh as was offered in the first Feed-in Tariff, the purchase would cost LIPA approximately \$34.7 million per year. The reduction in cost by not making these other purchases is estimated to be 7.65¢ per kWh, or \$12.1 million per year, based on the 2013 approved budget assumptions, for a net cost of \$22.6 million per year.

Several factors suggest that this estimate of net cost may be on the high side. Costs for solar panels have come down since the initial Feed-in Tariff was developed, and Staff anticipates that the clearing price will be lower than 22¢ per kWh.

Also, avoided costs will vary, depending on market conditions as they develop over the next 20 years. Experience with the first six months of 2013 showed actual fuel costs were higher than budgeted, although there is no way to determine whether this trend will continue. Finally, our experience with solar photovoltaic performance during 2012 demonstrated that the higher production during summer daytime hours allowed LIPA to avoid an additional 1¢ per kWh for solar generation, compared to the typical annual generation load profile. That would reduce our estimate of net costs by an additional \$1.6 million per year.

By offering a premium to solar generation located in the areas of the distribution system that are most constrained and most likely to need expensive capacity upgrades over the next few years, Staff expects the premium payments under the Feed-in Tariff to offset the construction costs that would otherwise be required. Staff estimates that LIPA might be able to defer or avoid expenditures with a net present annual value of \$60 million that would otherwise be incurred in the next 20 years. These cost savings represent incremental savings to LIPA customers and make the strategic deployment of solar generation even more beneficial for economic reasons, in addition to environmental reasons. The net present value savings of more than \$60 million spread over 40 MW of solar generation under the Feed-in Tariff for 20 years amounts to \$0.070 per kWh.

Proposed Tariff Changes:

1. **Expand Service Classification No. 11 – Buyback Service to include the purchase of additional solar photovoltaic generating resources at a fixed price for a specified term.**

Affected Tariff Leaves: 254, 255, 255A, 255B and 255C

Reason for Tariff Change

To effect that part of the Board of Trustee's resolution dated October 25, 2012 with regard to generation and transmission, which called for 100 MW of additional customer-owned solar renewable generation under the Feed-in Tariff.

2. Modify the Feed-in Tariff Solar Power Purchase Agreement .

Affected Tariff Leaves: Addendum

Reason for Tariff Change

To conform certain terms and conditions of the standard power purchase agreement to the modifications proposed for the Tariff for Electric Service

Summary of Proposed Changes:

In summary, the proposed changes to LIPA's Tariff for Electric Service would improve LIPA's ability to purchase renewable generating resources in a cost-effective manner, consistent with the Board's resolution dated October 25, 2012.

The proposed revised Tariff Leaf Nos. 254, 255, 255A, 255B and 255C, the draft *Statement of Feed-in Tariff Rate* and the proposed *Solar Power Purchase Agreement for the Second Feed-in Tariff* are attached.