April 7, 2003

Solar Energy Industries Association
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Honorable Janet Hand Deixler
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12210

Dear Secretary Deixler:

Please find enclosed an original copy (Microsoft Word format) of the comments of the Solar Energy Industries Association regarding Case 03-E-0188 - Proceeding on Motion of the Commission Regarding a Retail Renewable Portfolio Standard. All parties to this proceeding are being served by email. Three copies have been provided to the PSC via First Class Mail. If you have nay questions, please contact me as above.

Respectfully Submitted,

Glenn Hamer

Executive Director

Cc: Active Parties list by Colin Murchie, SEIA

NEW YORK STATE RENEWABLES PORTFOLIO STANDARD

INDUSTRY REQUIREMENTS & OBJECTIVES

PROMOTING THE BENEFITS WHILE REDUCING THE COSTS

SOLAR ENERGY INDUSTRIES ASSOCIATION

SUPPLEMENTAL COMMENTS TO RETEC COALITION

1. THE FACTS

- ✓ New York State is privileged with an abundance of solar energy. The National Renewable Energy Laboratories' PVWATTS system shows that a photovoltaic array located in Manhattan would generate 83% of the energy per year as would the same array in Los Angeles.

- ✓ Solar energy systems provide benefits that other renewable technologies do not because they can be located directly with negative minimum impact in densely populated urban areas and produce reliably during peak demand periods during the middle of the day, when electricity is most scarce and most expensive.

- ✓ Support of solar technologies will create new, highly skilled jobs in New York State that are sustainable over time.

- ✓ Solar technologies are modular and generally receive little public controversy when installed, and can be brought on-line rapidly to address changing local conditions.

2. REGULATED ENERGY SUPPLIERS

The RPS should apply to all retail electric service providers.

3. ELIGIBLE RENEWABLE RESOURCES

For the purposes of an RPS, the following technologies should be included:

- o Solar Electric Generation – Photovoltaic (PV) & Solar Thermal

- o Generation Offset Technology - Solar Heaters

  - ▪ Solar water heaters are an essential component to any RPS because they actively reduce the consumption of electricity through a renewable resource. The purpose of an RPS is, first and foremost, to reduce the consumption of traditional, polluting forms of energy. Solar heaters are mature, low cost, easily installed. (the other part infers that PV or solar thermal could) Arizona and Nevada are two states that have recognized the importance of including this renewable technology within their RPS. For reference, the nation of Israel currently displaces the equivalent of 6% of its total electricity consumption with residential water heating systems.

- o Wind

- o Other technologies as approved by the Renewable Energy Technology & Environmental Coalition (RETEC).

4. THE IMPORTANCE OF RENEWABLE DIVERSITY

It is no coincidence that Governor Pataki specifically mentioned solar during his State of the State address as a renewable resource that New York's RPS should include. Solar technologies promote energy security, public health, environmental justice, new jobs, a more reliable electric system, stable rates and a cleaner environment.

Unfortunately, certain renewable technologies, such as photovoltaics and fuel cells, are not at the development stage where they are cost competitive with other renewable technologies for baseload power, despite significant cost reductions. Photovoltaics, for instance, have come down in cost fourfold in the last 15 years alone and are quite competitive in many time-of-use or real-time pricing applications. Because an electric utility will tend to purchase the lowest priced renewable energy, without incorporating associated long-term costs and benefits,, that lowest price renewable generation will account for the majority of the portfolio at the expense of other important renewable technologies, if specific policy conditions are not introduced. thereby denying the state the important

public economic, social and environmental benefits associated with generation diversity, as has unfortunately already occurred in some of the early state RPS programs.

In New York, such portfolio domination by a single technology type such as, for example, commercial wind would counter the purpose of an RPS. Besides simply offsetting pollution and encouraging non-fossil fuel electric generation, an RPS should have the goal of encouraging resource and technology diversity for technologies that have the potential for future market penetration. Large-scale utility procurement of high value solar and other distributed technologies would have the immediate public benefit of reduced peak electric demand on the system, which drives down rates for all utility customers, as well as reduced transmission and distribution constraints. Moreover, large-scale procurement from distributed renewable generation technologies will drive down prices in the long run and provide accelerated public benefits specific to that resource. An RPS policy that promotes a true "portfolio" of renewable resource types should ensure these distributed renewable technologies a reasonable opportunity to participate.

A portfolio standard that clearly favors one or two renewable resources over all others will fail to receive the benefits that are available from a more diverse portfolio. Solar photovoltaics, for example, have the ability to perform onsite, thus reducing congestion on the grid network, load pockets, and any associated infrastructural maintenance or installation costs. Solar technologies can also continue to provide the customer with power when grid connection is terminated during an emergency, - a particularly valuable capability for public and security facilities. Perhaps most valuable in a state chronically suffering from peak supply problems, PV performs at predictably high efficiencies during New York peak demand periods. These are benefits that few other renewable resources can provide.

The events of September 11, and the subsequent Con Edison transformer explosion in New York City, have reinforced the importance of energy security in New York State. All other things being equal, a generating system with many small generating units is more reliable than a "hub and spoke" system consisting of a few, large generating units that rely on restricted avenues of supply and distribution. A diverse portfolio, not one that relies heavily on one or two renewable resources, is critical to ensuring this security.

A diverse portfolio also tends to alleviate intermittency concerns by allowing electricity to be generated when one technology is not operating at peak capacity due to weather conditions, fuel supply, or unforeseen contingencies. By reducing the dependence on any one technology, supplier, fuel, or set of sites, price volatility can be reduced. The overall principle is similar to that exhibited by a well-designed portfolio of stocks. Diversified technologies allow a more efficient blend of peaking, baseload, and intermittent generation. Solar output, for instance, tends to be highest during the peak demand periods of the day. Therefore, system operators have greater flexibility in choosing the cleanest, most efficient transmission and generation schemes for their current situation.

Encouragement of a wide variety of technologies also ensures that the market will remain stable and competitive. Should an individual provider of a given renewable energy technology encounter technical or financial difficulties, or should large central projects encounter unforeseen financial, environmental, or legal obstacles, renewable technology diversity will ensure that there are no sudden price cliffs. It also ensures that the immediate local benefits of clean energy generation (job creation and air quality, among others,) will accrue to areas across the state, both downstate and upstate, with their unique mixes of resource availability. Commercial scale wind, biomass farms, and hydropower will be much more limited in their geographic distribution than solar technologies.

Though almost all renewable technologies are growing very rapidly, each is dominated by a relatively small number of dominant suppliers. An RPS which attracts a diverse set of technologies to the state will also attract a larger, more diversified, and more economically vibrant energy technology base to the state.

For all of these benefits and more, the New York State RPS should consider a true portfolio of diverse resources as one of its top priorities.

5. MECHANISMS TO ENSURE DIVERSITY To achieve technology and resource diversity, technology or resource bands should be established within the RPS at levels that will encourage further development of generation sources such as solar at a reasonable cost. There are two effective options that could be employed:

- ✓ A specific "diversity" requirement, expressed in percentage terms, for solar technology.
    - For example, requiring that not less than 10 percent of the portfolio standard be generated (or offset in the case of solar water heaters) from solar renewable energy systems, with half from

photovoltaics specifically. Arizona and Nevada both have resource requirements of this nature that ensure a share of the portfolio for solar technologies. New Jersey will likely institute a band of this type for their RPS.

OR

- Requiring that not less than 25 percent of the portfolio standard shall be generated (or offset in the case of solar water heaters) from distributed renewable energy systems. Iowa's proposed RPS, for instance, includes an explicit 20% requirement of this sort.

    - Additionally providing a triple solar credit multiplier for application under an RPS enforcement mechanism for solar technologies to reflect the cost differential between different renewable technologies (see next section).

The first proposal, simply requiring that a percentage of RPS requirements come from solar, , is the simplest, most direct, easiest to enforce, and most effective mechanism – hence its ready implementation on the part of several states. A distributed band and credit multiplier mechanism provides greater latitude to other non-solar generation technologies to participate in the RPS - thereby potentially diluting the total amount of generation reserved for solar - but has the added benefit of providing maximum publicly realized distributed generation benefits to the New York electric system. . Credit multipliers in isolation, without an accompanying solar or distributed generation band, are not an adequate mechanism.

6. Credit Trading System

We recommend the creation of a renewable energy credit (REC) trading system to expedite the production of renewable energy systems and to allow utility flexibility in reaching their portfolio standard. A properly designed system will allow credit banking and credit trading between customers and utilities.

REC property rights must be vested with must stay with the owner of the generation unless and until the owner decides to sell these attributes in a contract arrangement of their choosing. We also echo the RETEC's language on the promotion and protection of long-term contracts so as to enable advance project financing.

As has already been discussed, different renewable technologies are currently at different price points. The credit trading mechanism can therefore be used as an additional tool for leveling the renewable playing field between equally valuable renewable technologies that cannot yet compete equally on the open market on the basis of wholesale electricity price alone. A credit multiplier can serve as a vehicle to account for external, non-price benefits of solar electric power, or difficult to quantify economic benefits of distributed generation. These include the ability to site solar electric generation in urban areas with existing load constraints, or the economic importance of spreading renewable resource generation evenly at the point of demand, anywhere in the state, rather than being limited to resource or land availability as is the case with large wind or biomass generators. Arizona and New Mexico are two states that have recognized the importance of this mechanism for achieving resource diversity.

In addition, the PSC should retain the right to award some limited-time credit "response multipliers" as mechanisms to encourage rapid renewables installation when it is considered desirable for the public benefit. This could potentially be a means of encouraging rapid renewable responses to load pockets, air power quality problem areas, etc. An exciting possibility for the PSC would be to use this mechanism to perhaps encourage the installation of renewably-powered uninterruptible power supply (UPS) capabilities at critical public facilities.

Once again, credit multipliers offer the affected utilities the flexibility to choose those renewable resources that work best for them, but are not in and of themselves sufficient to spur solar development in a state.

7. Methods for supplier procurement of renewable resources

- Behind the Meter Generation

- In order to provide the benefits of smaller systems without excessive transaction costs, the production output of small wind or photovoltaic system should be capable of being determined by an appropriate and conservative annual GIS and weather data, as determined by the Commission, in conjunction with the total nameplate capacity of the installed system. (A potentially appropriate methodology for such an estimation can be viewed at http://rredc.nrel.gov/solar/codes_algs/PVWATTS/version2/) It is this production output that may generate credit for the purposes of complying with the portfolio standard, except in cases where the PSC determines that more accurate metering systems are preferable or required despite the increased transaction cost. A combination of modern equipment ratings, weather data, and GIS technologies can provide a highly accurate estimation of system output without the need for direct metering in many cases.

  A relatively simple option should be provided to customers wishing to sell the renewable attributes of their generation system to their providing utilities on a strict "opt-in" basis and with explanatory text which makes the consequences of this choice clear. However, customers should retain the ability to sell their credits to the utility or elsewhere and via any mechanism of their choice, especially including via long-term contracts, if so desired.

- For a solar water heater system that reduces the consumption of electricity from the grid, the total installed nameplate capacity of the solar water heater system shall be deemed to produce energy that the provider generated or acquired from a renewable energy system for the purposes of complying with its portfolio standard. For the purposes of this rule, solar water heaters will be credited 1kWh of electricity produced for each 3,415 British Thermal Units of heat produced by the solar water heater. Again, the output should be verified by appropriate GIS and meteorological data sources according to the OG-300 standards for such systems, and be tested and verified by an independent third-party organization with empirical data demonstrating the accuracy of these methods.

  - Net Export

    - If a customer has excess electricity that will be exported onto the grid and the utility has not subsidized the installed distributed system, or instituted some arrangement with the customer, the utility may claim renewable credit for the excess electricity only if it has purchased that credit from the customer, as discussed above.

8. RECOMMENDATIONS FOR RECORDING

It is recommended that the utilities shall be required to present reports detailing sources and kW production of net export purchases and kW capacity and sources of subsidized behind the meter generation.

The PSC may wish to institute a system of auditing these claims and include some mechanism for site visits to verify the installation and continued operation of these systems.

9. RECOVERY OF COSTS BY AFFECTED UTILITIES

We are in agreement with the position taken by the Renewable Energy Technology & Environmental Coalition.

10. IMPACT OF INTERMITTENT RENEWABLE RESOURCES ON GRID SYSTEM

We are in agreement with the position taken by the Renewable Energy Technology & Environmental Coalition.

11. REWARDS AND PENALTIES

Significant price penalties must exist for non-compliance and such penalties must be set at a strict multiple of prevailing market prices for each renewable resource type under enforcement. In other words, the price based penalty for non-procurement of solar or distributed generation should be based on the prevailing market rate for these particular compliance credits, rather than a blanket average rate, so as to accurately reflect the differential wholesale market price of these different renewable technology types. Such penalties will serve to promote self-

regulation by the utilities, and to prevent any attempts to simply pay the penalty rather than establishing appropriate generation. All penalties levied shall be reinvested back into renewable energy systems, whether via the SBC or other mechanisms, and would preferably promote those resources that are not yet cost-competitive in the marketplace.

12. Geographic diversity

It is worth noting that solar technologies offer unique opportunities for geographic permeation throughout the state. Extensive surveying of solar resources has already been completed (see the PVWATTS link and reference above,) and small, modular solar systems can be installed relatively rapidly even in the densest urban areas or in areas with substantial environmental or habitat concerns. These benefits can only be realized in a policy environment which provides an even playing field for such technologies.

13. Green market programs

"Green Pricing" programs should only be available in cases where a utility may wish to increase their consumption of renewable energy above the baseline provided by the RPS. Customers desiring to purchase a "premium" product with high renewable content should not be thereby relieving the utility of its regulated responsibilities.

14. SBC-Funded programs

We are in agreement with the position taken by the Renewable Energy Technology & Environmental Coalition.

15. Renewable energy imports

Renewable energy imports from other states should only be allowed if the RPS of those states very closely mirrors the RPS of New York in terms of acceptable renewables, credit multipliers for various technologies, and resource band requirements.

In reality, a synonymous RPS is unlikely, and therefore, we discourage net imports into New York State, as they may unintentionally subvert the aims and goals of the New York RPS.