STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of the	**)**	**Case 05-M-0090**
the System Benefits Charge III	**)**	
	)	

Comments of the Solar Energy Industries Association and the New York Solar Energy Industries Association – Mar 3, 2005

To what extent have the goals and objectives established by the Commission been achieved?

To date, NYSERDA's programs have been designed to energize and incite the PV market via "capacity building", focusing on programs that:

- provide loan subsidies to help buy down the loan rates at 70 participating banks in New York state by 4% over a maximum of 10 years.
- supply financial assistance to industry stakeholders for market development activities that will result in increasing the deployment of end-use PV systems.
- educate the public about PV through workshops, courses, brochures, and case studies;
- provide teacher training;
- offer financial support to institutions for the development of accredited PV training and continuing education programs;
- provide financial incentives for marketing support for installers and dealers;
- develop a highly trained solar workforce through instruction and certification by the North American Board of Certified Energy Practitioners (NABCEP), a nationally relevant organization, critical to the advancement of the industry, and which now has its national headquarters in New York;
- encourage competition and "plug and play" installations to reduce costs;
- support equipment suppliers;
- conduct independent system design reviews and inspections to help ensure quality control of installations.
- help consumers to learn about solar electric systems;
- Demonstrate solar power on schools through the School Power Naturally program, which familiarizes students with renewable energy through interactive lesson plans and real-time data.

- develop a highly trained solar workforce; and
- emphasize quality control.

These programs have been effective in building public familiarity with, and acceptance of, solar. In this, they have been effective as the "capacity building" measures they were designed to be. The industry shares a perception that New York is fertile ground for increased PV deployment. NYSERDA's assiduous work has leveled many of the barriers that hamper deployment in other states, and ample capacity to meet current and future targets has been established in the state. With the recent addition of growing fuel cell manufacturers Plug Power and MTI, and the new and expanding thin-film solar production capacity of DayStar Technologies, a growing clean energy "industry cluster" in upstate New York is beginning to have self-catalyzing effects in making New York one of the more attractive areas for what is expected to be one of the fastest-growing industries of the 21st century.

However, we must realize that much of this capacity is latent potential. In the New York market, trained installers frequently met a willing and educated public that simply was not able to pay for solar energy. The size of the market has remained small due to a simple lack of financial capacity for these very capital-intensive technologies, and any market development strategy must address this ever-present barrier aggressively and comprehensively.

NYSERDA's SBC programs to date have performed extremely well in the tasks to which they were assigned. From marketing, outreach, and financing to installer training, nearly all the elements of a successful solar market are in place in New York. However, even the best-trained installers addressing the best-educated populace cannot ignore the capital cost hurdle inherent to renewable energy devices.

This has been the sole shortcoming – and the "rate limiter" – in deployment of solar energy in the state. While NYSERDA should be applauded for the success of their multifaceted market development program, the simple fact remains that the amount of solar developed in the state bears a direct and causal relationship to the amount of available buydown funding.

It is our hope that the RPS will provide a larger, more reliable funding stream for solar, and one free of the unpredictability of the "start and stop" Program Opportunity Notice (PON) system. We also understand that the increased installations contemplated under the RPS will themselves require increased training, outreach, and quality assurance. However, we would still venture to observe that capacity building activities cannot in and of themselves generate a market, while a market can to some degree build capacity (as with manufacturer-sponsored marketing and training activities.)

It is our understanding that in coming years, the SBC will begin to shift responsibility for deployment activities onto the RPS. This is appropriate and desirable, particularly for the financing of large projects. However, the administrators of this program should additionally develop and retain a consciousness that, especially as regards distributed generation, the increased deployment of actual equipment is the ultimate requirement of a thriving and self-sustaining market. The SBC should incorporate this aim into their metrics of success for renewable energy programs, and should remain open to high-value or novel deployment programs that may serve needs or develop capacities not addressed in the RPS.

<u>Should the SBC program continue beyond its current expiration date of June 30, 2006? If so, for what duration should the SBC be extended and at what funding level?</u>

We believe the SBC program should continue beyond its current expiration date and respectfully suggest that it be extended for no less than five years - preferably ten.. This extension, and the governmental support it implies, would provide increased surety to the investment community, which is just beginning its first major inroads into a technology area many still perceive as high-risk.

An analogy can be drawn from the history of the electric utilities; like the early utilities, the renewable energy industry is at a juncture where the best and most reliable means of reducing prices and

increasing efficiency is through economies of scale. In the case of the utilities, it was the granting of government-sanctioned monopoly franchises (the most powerful of all subsidies) that gave the investment community enough assurance of return on investment to fund the building of larger, more efficient plants. Only captive load provided a sufficient enough rate base to repay the debt service for larger plants with certainty. In return, the utilities had to guarantee an obligation to serve all customers regardless of population density.

While the solar industry is highly competitive rather than monopolistic, the financial services industry must still feel comfortable through a lower degree of risk to make the proper investments. Extension of SBC in a major state like New York provides an alternative means of reassuring the investment community that they may invest in the necessary scale-up to reduce alternative energy costs.

Of course, this scale up has already begun to some degree, and in order to speed its progress, we feel that overall SBC funding should be increased.

Firstly, there is an increased interest in these technologies that justifies expanding the funding used for other than buydown purposes. The solar industry has undergone rapid expansion in the past several years worldwide, and we anticipate that this growth will be amplified in New York by the increased RPS requirements for solar. While the RPS may be able to shoulder a great deal of the expenditures made for direct deployment, there will be an increasing need to provide quality dealer and installer infrastructure that the RPS cannot meet, due to its statutory construction. The SBC program has an opportunity to substantially decrease the cost of the RPS, while increasing its public benefit, by leveraging past experience to develop capacity going forward. This capacity building up and down the entire value chain is essential if the industry is to “take root” and become truly sustainable.

Additionally, although NYSERDA has provided a substantial level of PV training and certification programs (as via the much-admired NABCEP program), there is no training available to aid installers in learning basic business practices and marketing of PV in their prospective service areas. This training will become increasingly critical in ensuring the thriving functioning of the “customer sited” tier of the RPS, which will depend on rapid adoption and market participation by many individual electric consumers. This training could include cost/benefit analysis, sales techniques and methods, marketing tools, the dissemination of facts and figures pertaining to renewables, etc.

Many solar installers are highly technical businesspeople. However, presenting dry facts regarding the benefits of renewable energy is sometimes not enough to persuade potential clients to invest in one of these systems – what’s more, the financial aspects of the RPS will require detailed explanation – and rapid diffusion to thousands of potential consumers – if they are to have their desired effects on the market. Knowledge of proven techniques and additional marketing information would greatly help in generating new installations and building a thriving market in the state.

A novel and relatively inexpensive measure for NYSERDA to undertake would be to develop and promote a “PV installer limited license,” allowing PV installers to make installations in areas where licensed electricians are required. This license would limit a PV installer to the installation of PV systems and associated apparatus such as circuit breakers, inverters, sub-panels, etc., without requiring the detailed (and expensive) knowledge of other electric components that is required for a full electrician’s license. The licensing exam would encompass portions of the NEC that pertain to the PV system and electrical systems interfaces without necessitating the eligibility requirements and scope of a regular electrician exam.

Installers desiring to obtain this license would be offered classroom training and hands-on workshops (also funded by NYSERDA via the SBC) covering the scope of the exam prior to being eligible to become licensed. In lieu of this training, the PV installer would show work experience and history of successful installations and pass a written exam.

This limited license would ensure safety, quality, and safe ongoing operation, while decreasing the average cost of installations by eliminating the necessity to a licensed electrician in those communities

with such a requirement – while ensuring that installations were carried out by practitioners with detailed solar-specific knowledge.

Have conditions changed since the establishment of the SBC that would necessitate a change in the overall goals and objectives of the SBC? If so, what changes are recommended?

Two significant non-policy events since the establishment of the systems benefits charge would suggest new directions for the SBC program. The attacks of September 11, 2001 graphically illustrated the vulnerability of this country destruction of its critical infrastructure. Numerous sources indicate that the power industry is among the most desirable targets for terrorist attacks, as an incapacitated electrical grid causes cascading failures across all other critical infrastructure and economic sectors.

The blackout of August 14, 2003, further emphasized the vulnerability of the electric system to unplanned events. In the current, centralized paradigm of the power grid, the import of any failure tends to be magnified into a self-reinforcing crisis that can incapacitate essential services over large areas for a significant period of time.

These events highlighted that this vulnerability of the grid is effectively amplified by a vulnerability *to* the grid that extends across all areas of the state government's service responsibilities. Critical infrastructure from the State Police on down to individual traffic signals depend on grid power. Helpless to respond to outages that are always unpredictable, and possibly becoming more frequent, they can only amplify the distress and economic damage they cause in local communities.

The deployment of distributed renewable energy technologies is an obvious, intuitive means of addressing this vulnerability, and an avenue for the deployment of technologies separate from, and unlikely to be served by, the RPS. It would bring benefits to every commercial and residential customer in the state in the form of increased state government capability and responsiveness.

The Systems Benefits Charge program should therefore consider a substantial and strategic program for the targeted deployment of clean, distributed generation on critical government facilities.

For those intimately familiar with the development path of the gas turbine, currently the most favored technology for electric energy production, it was the subsidy of massive government procurement for security needs that largely made this possible. Procurement by the US Air Force, Army, Navy and Marine Corps air arms provided cost reductions leading to the gas turbine's crossover into the civilian aviation field, and eventually its usage as a prime mover in the power production industry. A procurement initiative by the State of New York, in partnership with other progressive states, can help to provide those economies of scale in production that are driving year-over-year cost redcutions.

How might the SBC programs be adjusted given the Commission's order, issued September 24, 2004, regarding a Renewable Portfolio Standard (Case No. 03-E-0188)?

Until more is known on how NYSERDA will view the balance between the SBC and the RPS, this is a difficult question to answer. If we assume that the Commission intends for the RPS to handle *all* deployment of customer-sited resources, future SBC funds should be more directed toward those "capacity building" functions that improve the effectiveness of, even as they cannot be handled by, the RPS program.

However, we feel that the benefits charge could still find very high value investments in direct technology deployment – as with the usage on state facilities mentioned above, or in new, focused installation incentives.

What specific program(s) should be eliminated, expanded or created?

As noted elsewhere in our responses, we do believe that there is a need for an expanded role for general public awareness and marketing of renewable energy in general as well as by technology. The industry itself, populated as it is by many small players, often without marketing resources, needs the help that can only be supplied through SBC funds to get the message out on the advantages of renewable energy.

NYSERDA has done an excellent job with the publication of its booklets, brochures and other marketing tools, but a majority of the population is still "in the dark" on solar and other renewable energy technologies, and NYSERDA may wish to explore new programs to address this gap.

Elsewhere in our comments, we have also described the need for increased renewable energy deployment on the part of the state itself, as a means of providing improved service to all New York residents.

We would add one additional program to this list. While the Commission has expressed a desire to move the "customer sited" tier of the NY RPS to a performance – based incentive by 2008, there is almost no experience with such an incentive for such small systems in the United States, let alone in the New York market. We suggest that the Commission could obtain high-value knowledge (and contribute greatly to the smooth operation and transition of the RPS,) by establishing a pilot performance-based incentive program, so as to identify the pitfalls and opportunities inherent in such a scheme, and develop internal administrative capacity, before attempting the transition.

Attorney Thomas J. Starrs, Chairman of the American Solar Energy Society, in his paper *Designing A Performance-Based Incentive For Photovoltaic Markets* delivered at the 2004 Portland, Oregon ASES conference (Attached as Attachment A) suggests that performance-based incentives:

- Are more efficient, because they create incentives for manufacturers, installers, and customers to be more attentive to energy performance; and

- Are likely to defuse political concerns about system quality and performance, since the system providers and/or the customers will only be paid in proportion to the amount of energy produced by the system.

He goes on to propose a simple, easily administered incentive framework that includes the following elements:

- A five-year stream of payments that provides financial support equivalent to existing rebate programs (assuming good system performance);

- The mandatory use of utility-grade metering equipment to measure performance; and

- Self-reporting of annual electricity generation to the funding agency, backed by an audit program and severe penalties for misstating energy production.[1]

Of course, no matter the merits of a potential performance-based incentive, without some additional mechanism to overcome the high first cost of a PV system, it remains a "rich person's technology," available only to those able to generate significant liquidity.. We therefore feel it is essential that the NYSERDA Energy Smart Loan Subsidy Program be provided with adequate resources and adaptability to aid consumers in overcoming the barrier of high first cost.

We should, however, remember that the RPS program is still relatively new, and industry and consumers have little experience with its operation and incentives. While we understand the Commission's desire to eventually supplant direct customer incentives with the RPS, the sudden cessation of the current upfront incentives could cause widespread consumer confusion, a momentary but disastrous gap in sales, and the distortion of existing renewable energy investment plans in the state. If it is the Commission's desire

to eliminate SBC-funded consumer incentives, we strongly urge that they be "phased out" to provide market consistency as evaluation proceeds on the customer-sited tier of the RPS, rather than eliminated suddenly and entirely.

How can future SBC funded programs be more responsive to the needs of New York's energy consumers?

The ultimate consumer should be given as much knowledge as possible concerning which program or programs best suit their needs, with an understanding that energy conservation and load management are a necessary prerequisite for self-generation.

However, past programs have over-emphasized the role of consultants in program design, sometimes to the detriment of participation from in-state stakeholders. NYSERDA should formally involve representatives from the renewable energy industry in the early stages of implementing both incentive and education programs, to provide insights into the needs of consumers and installers

Responsiveness and market functioning would also be greatly facilitated by providing a single, central "go-to" resource for potential customers seeking to enter the market (and find installers in their area.) NYSERDA has already provided much of this infrastructure by setting up the Clean Power Estimator on its web site that can provide outputs and economic analyses on the use of photovoltaics. However, work remains to make solar a commonplace item, thoroughly demystified and available to the everyday consumer.

How can SBC funded programs be marketed more effectively?

With the increased number of renewable energy practitioners entering the market, it is essential to expand public awareness of the NYSERDA programs in order to generate enough business to support them. Access to the NYSERDA website is limited to people who are already aware of these programs or are already generally inclined towards the renewable fields and seeking funding in those areas. We have found, however, that the general public lack awareness of NYSERDA's programs – or of the agency itself.

The small businesses that make up the bulk of New York's installation capacity lack the resources to address this marketing shortfall. Funding for targeted marketing activities, including participation by the agency and renewable energy businesses, in home and farm expos and trade shows would result in increased awareness of both NYSERDA's programs and of installers operating in the local areas.

Some preliminary discussions have discussed the possibility of establishing a "Speaker's Bureau" program enlist qualified dealers/installers to go into the field to speak with community groups on the advantages of renewable energy. NYSERDA would develop the basic materials to be used, in order to ensure that certain impartial information was supplied, but would allow latitude for speakers to insert certain specific information upon approval of the Authority. This would tend to increase public awareness of the renewable energy programs at low cost, and in partnership with local industry.

Should SBC funds be extended to programs that encompass research and development into retail and/or wholesale electric market competitiveness issues, or transmission and/or distribution of the State's energy resources?

We believe there is an interaction between the use of renewable energy sources and the development of retail and wholesale electric market competitiveness. We also believe that where possible, distributed generation and adaptive grid technology should be used to the maximum extent possible to supplant the construction of large transmission lines. Distributed generation, including renewables, can be used in such a way that they add greater resilience and surety to the overall system.

We would be interested to see NYSERDA develop a framework for examining these benefits, which are too often lost in the large-scale analysis frameworks that exist, which tend to take as a given the paradigm of 100% central station, transmission-interconnected generators.

Should the scope of the SBC program be expanded to include programs for natural gas customers?

We concur with other commenters that the SBC program should, in fact, be so extended, so as to give the state some means for exploring a responsive to the growing volatility, and crisis level of current natural gas prices.

What kinds of programs would benefit New York's gas consumers?

In the past, cost-effective solar air and water heating devices that could substantially reduce gas demand in the state have gone relatively neglected under the SBC program due to regulatory sensitivity about cross-subsidization of fuels. This situation is likely to persist under the RPS, which is incapable of incentivizing or accounting for the use of direct thermal energy, but we feel that a natural gas SBC could begin work with these promising technologies.

Domestic solar water heating devices can reduce a home's gas bills by 50% or more, while commercial solar make-up air or water heating devices can generate millions of dollars' worth of gas displacement with minimal lead time and technical complexity; both offer a potentially excellent return on investments to the states' ratepayers.

Programs should include rebates modeled on the successful existing rebate programs for select, certified and quality-approved solar thermal heating, solar hot air and solar domestic hot water systems that directly displace the use of natural gas. This could take the form of either a flat dollar rebate, a percentage of the cost of the system, or a capacity-based buydown.

Which classes of customers would be served most effectively by a natural gas SBC program?

All gas customers in the residential, commercial industrial and agricultural sectors should be included in any solar programs that could supplement or supplant the use of natural gas.

What should be the initial duration of a natural gas SBC, and should that term coincide with the extension of an electric SBC, if the electric SBC is extended?

The term should coincide with the extension of the electric SBC, which would allow a year for administrative and procedural development, while remaining responsive to the ongoing gas crisis. As stated earlier we believe that the SBC should run for a minimum of five years, and preferably 10, to provide a some level of surety to the investment community.