**STATE OF NEW YORK**
**PUBLIC SERVICE COMMISSION**

**Proceeding on Motion of the Commission Regarding a Retail Renewable Portfolio Standard**

**Case 03-E-0188**

# INITIAL COMMENTS OF

# RENEWABLE ENERGY TECHNOLOGY AND ENVIRONMENT COALITION

## Introduction

The Renewable Energy Technology and Environmental Coalition (RETEC) respectfully submits these initial comments in response to the Public Service Commission's Order Instituting Proceeding, Case 03-E-0188 (Feb. 19, 2003) ("Commission Order") and Administrative Law Judge Stein's Order Concerning Procedure and Schedule, Case 03-E-0188 (Feb. 20, 2003). RETEC represents a broad range of interests, including wind, hydropower, solar technologies, fuel cells, and public interest, consumer, and environmental organizations.[1]

At the outset, we commend the Public Service Commission ("Commission") for instituting this proceeding "to develop and implement a renewable portfolio standard for electric energy retailed in New York State" and for recognizing that a renewable portfolio standard (RPS) would be "in the public interest." Commission Order at 2. We also salute Governor Pataki for his important leadership on this issue. New York's RPS will provide the state and region with a host of environmental, energy security, and economic development benefits. We look forward to working with all stakeholders to develop and implement an RPS for new renewables to reach the Governor's goal of 25 percent of electricity sales from renewables by 2013 that will be the most successful state RPS in the nation.

These comments are organized as follows: In Section I, we address RETEC's central interests in this proceeding, identifying, where appropriate, policy objectives that arise from these interests. In Section II, we discuss general goals that should be achieved

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[1] Signatories to these comments include: American Lung Association of NY State, American Wind Energy Association, Citizens Advisory Panel (CAP), Community Energy, Inc., Natural Resources Defense Council, New York Lawyers for the Public Interest, New York Public Interest Research Group (NYPIRG), New York Renewable Energy Coalition (NYREC), New York Solar Energy Industries Association, Pace Energy Project, Plug Power, Inc., Riverkeeper, Scenic Hudson, Sierra Club Atlantic Chapter, Solar Energy Industries Association, Union of Concerned Scientists.

through the design of the RPS. In Sections I and II, each subsection begins with a summary of our interests and goals. We recognize that the RPS will need to strike a balance among these interests. In Section III, we discuss specific implementation issues that arise from and address our interests. Finally, in Section IV, we address the questions posed by the Commission in its February 19th Order.

The RETEC and the individual signatories to this submittal respectfully reserve the right to address additional issues as they may arise throughout the collaborative process and the formal proceeding.

## I. The benefits we seek from an RPS

The RPS is a public policy designed to use market forces to achieve public interest goals in the most cost-effective way. Eligible resources are chosen, targets are set by regulation, and then market forces accomplish implementation. The benefits desired from the RPS govern which resources and targets are chosen, and which market rules will be established. This section lays out RETEC's central interests in the RPS and the general benefits that our coalition expects the RPS to provide. This discussion should inform all of the key decisions to be made about the RPS.

### A. Our interest is in renewable resources that will improve the quality of the environment and public health in New York.

Our environmental and public health interests in the RPS encompass local, regional and global air pollution impacts (including climate change, acid rain, smog, mercury and particulate matter); water pollution and other aquatic impacts (including those from water intake structures); biodiversity; and forestry and land preservation.

Our interest is in sustainable new renewables that improve the quality of the environment and public health in New York without exporting externalities.

Our interest is in renewables that will displace fossil fuel generation and associated environmental and public health impacts, and that will avoid the siting of power plants, particularly in overburdened low-income communities of color.

Our interest is in renewables that emit either no air pollution or ultimately emit less air pollution than the best available alternative on a pound per megawatt-hour basis.

An RPS must foster the development of new renewable generation that will improve the local, regional and global environment.[2] To achieve this goal, resources included in the RPS should either be sustainable or have the promise of sustainability. Wind power and solar technologies clearly meet the criteria. We believe that municipal solid waste, certain types of biomass, and some types of hydropower are not now sustainable and will never

[2] For more discussion of how the RPS should target new renewables while achieving the 25 percent target, please see Section III.A.

become sustainable. Thus, these types of resources, particularly so called waste-to-energy, should not be included in the RPS.

Sustainability must also take into account environmental justice. The impacts of any resource eligible for the RPS should not fall disproportionately on any group based on race, ethnicity, national origins or income.

For resources where sustainability is highly dependent on the specifics of the application—hydro power, biomass and landfills in particular—the RPS should contain a detailed set of standards to determine eligability. At this stage, we can focus on general criteria for various technologies from which these standards would be developed. For instance, very large hydro projects involving impoundments have environmental impacts that are inherently unacceptable, and these projects should not be eligible for inclusion in the RPS. Smaller environmentally acceptable new hydropower projects should meet the following criteria:[3]

- They should provide an adequate water flow regime to protect and improve conditions for fish, wildlife, and water quality in our rivers and streams.

- They should not contribute to the degradation of aquatic or terrestrial habitat or populations of native species and should provide safe and effective fish passage and protect fish from entrainment in project turbines, and should not adversely affect state or federal threatened or endangered species.

- They should provide protection against erosion (such as at reservoir sites), and mitigate for inundated habitats wherever possible.

- They should provide for the protection and management of affected cultural and historic resources, should not adversely impact indigenous people, and it should provide for public use and access for recreation.

- If hydropower dams has been recommended for removal due to its adverse effects, the hydropower generated from them should not be considered eligible for the RPS.

- Lastly, eligible hydropower must demonstrate that its efforts in these areas are based on the best available practices identified for the projects, and not necessarily the minimum practices identified in most recent authorizations.

Similarly, the growing, harvesting and processing of biomass must be sustainable and minimize potential environmental impacts. While it is also important to consider the relative impacts of biomass vs. fossil fuel alternatives, there are clearly a range of biomass resources and technologies and some are sustainable while others are not. We

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[3] The Low-Impact Hydro Institute's guidelines can help with these standards. For more information on the Low Impact Hydro Institute please see their website www.lowimpacthydro.org.

believe that co-firing biomass has a role to play but not at fossil fuel plants that are in violation of the federal New Source Review requirements.

For landfills, it is important to recognize that at large landfills, the collection and flaring of landfill gas is required by law. The additional benefits are therefore limited to those produced from converting from a flare to energy production. Given the significant public health hazards posed by landfills, the eligibility of large landfills should be carefully evaluated. For smaller landfills, where a collection system is not required, the benefits of energy projects are many times greater and clearly warrant inclusion in the RPS.

While we strongly prefer that only technologies that rely on renewable resources be included, we also recognize that some resources must go through a development phase before they can deliver full sustainability. To this end, we support the inclusion of non-combustion resources that currently use fossil fuels but are expected to rely predominantly on renewable fuels as the technology develops. Fuel cells are the only technology that we are aware of today that meets these criteria.

This past summer, the NYS Department of Environmental Conservation recorded 292 exceedances of the 8-hr ozone health standard - more exceedances than the Department has ever previously recorded.[5] Additionally, according to the American Lung Association's annual *State of the Air* report, more than half of New York State's counties with an ozone monitor received an "F", indicating an unhealthful level of ozone in their air.

These high ozone levels present a significant threat to public health, as the smog which is formed as a result can aggravate asthma and other respiratory diseases. Ozone is a highly corrosive gas that can also affect the lung health of those who work or exercise for prolonged periods outdoors. In fact, study after study shows that when smog levels are high, more people with respiratory disease are treated at emergency rooms and/or admitted to the hospital than when levels are below health standards. Moreover, fine particles, which are emitted by the combustion of fossil fuels, have been linked to premature death, lung cancer, school and work absences, increased emergency room visits and decreased lung function in otherwise healthy individuals.

Unfortunately, these troubling statistics do not show any sign of abating. In order to avoid increasingly poor air quality and increasingly severe health effects, eligible renewable generation obviously must comply with all relevant environmental reviews and standards and also should emit either no air pollution or ultimately emit less air pollution than the best available alternative on a pound per megawatt-hour basis. While there are some technologies that may not be able to meet this emissions goal today, we believe that the RPS should contain a set of emissions standards that drive renewable resources to be cleaner over time so that by 2013 all eligible resources meet this standard.

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[5] American Lung Association of New York State, *Unhealthful to Breath: Summer Ozone Levels in New York State,* American Lung Association of New York State, 2002.

Through these types of standards, our interest is in renewables that will displace fossil fuel generation, significantly improve air quality and the associated public health impacts, and avoid the siting of power plants in overburdened low-income communities of color.

### B. Our interest is in resources that will enhance energy security for New York

Our interest is in renewables that enhance energy security for New York by increasing the diversity of our fuel mix, increasing our reliance on local fuels, generating more power at smaller power plants, and generating more power where the energy is used.

Our interest is in resources that reduce our exposure to volatile national and international energy markets.

Our interest is in resources that are inherently less vulnerable to sabotage (via physical or cyber means) and unexpected disruption.

Our interest is in resources that are built on a small scale and in a modular, independent, and potentially distributed fashion thus increasing the overall reliability of the generators and the grid.

In 1999, New York State produced about 382.7 trillion British thermal units (TBtu) of primary energy from hydro electricity, natural gas, crude oil, wood, wastes and ethanol. In that same year, New York consumed 4,207.4 TBtu. While 1999 was a low point for instate energy production, New York's instate energy production has stayed between 383 and 486 TBtu since 1985, while our consumption has grown from 3,681.5 to 4,207 TBtu. With New York producing an ever-smaller share of the energy it consumes, we are ever more at the whims of national and international fuel markets.

The story is similar in the electric sector. Whereas in 1985, New York generated nearly equal shares of its electricity from hydro, coal, nuclear, and petroleum, each contributing about 20 percent to the mix, in 1999 over 55 percent of the mix came from natural gas and nuclear. According to more the comprehensive baseline of the Commission staff, in 2002, instate renewables contributed just over 18 percent of New York's electric generation.

Renewables provide increased energy security in at least three ways. First, they diversify our energy mix making New York less vulnerable to the price volatility of any given fuel. Wind, solar, and hydro power are not subject to the price volatility that affects fossil fuels. While economic security is an important aspect of energy security, local renewable generation take this benefit to another level. Renewables are not subject to national or international market swings, and they are less vulnerable to supply disruptions due to labor, transportation, or market exigencies.

Finally, because renewables are generally developed on a smaller scale and in a more modular fashion than fossil fuel or nuclear power plants, they are less vulnerable to sabotage or accidental disruption. Distributed renewables that can be sited where the

electricity is needed provide this security benefit to the greatest extent. Not only are distributed renewables less vulnerable, they also enhance the reliability of the grid by reducing congestion, and at some point, if they penetrate an area enough, they may even be able to support the grid in that area at times of partial grid failure.

### C. Our interest is in the economic benefits of renewables.

Our interest is in renewable resources that bring economic benefits to New York.

Our interest is in creating jobs.

Our interest is in reducing New York's exposure to volatile fuel prices.

Our interest is in reducing peak fuel and transmission prices by including resources that generate electricity from free fuels, coincide with system peak, and/or are located in load pockets.

While non-hydro renewables are just getting a foothold in New York, they are thriving elsewhere and offer significant economic benefits to New York if we adopt the right policies. Wind power is providing an important opportunity to expand state and rural economies. The wind industry is the world's fastest growing energy source on a percentage basis (32 percent annually for the last five years – 1998-2002). In 2001, U.S. wind power capacity grew by a record-breaking 66 percent, as nearly 1,700 megawatts (MW) of new wind generating equipment worth $1.7 billion was installed in 16 states, according to the American Wind Energy Association (AWEA). AWEA projects that well over 1,000 MW of wind power will be installed in 2003 in the United States.

Development of fuel cells has also grown at a rapid pace. It is estimated that 13,500 people are employed in the fuel cell industry globally, and from $1 billion to $3 billion of private investment in fuel cell development is made annually.

Similarly, the solar industry has experienced explosive growth recently. The photovoltaic (PV) industry worldwide is now approximately $3 billion dollar industry. From 1994 to 2000 the worldwide grid-connected PV market grew at an average rate of 55 percent annually versus overall PV industry growth of 31 percent annually over that same time period. In 2002, the United States grid-connected PV market grew at phenomenal rate of 60 percent.[4] The megawatt-per-year PV cell production capacity worldwide has quadrupled in the last 5 years.

The potential economic benefits of continued growth in the renewable energy industry are huge. The U.S. Department of Energy's "Wind Powering America" initiative has set a goal of producing 5 percent of the nation's electricity from wind by 2020. DOE projects that achieving this goal will add $60 billion in capital investment in rural

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[4] Strategies Unlimited, 2000 and 2001 PV Market Report Findings.

America, provide $1.2 billion in new income for farmers and rural landowners, and create 80,000 new jobs during the next 20 years. According to the Union of Concerned Scientists, energy crops and crop residues could produce 14 percent of total US electricity use by 2008.[5] DOE also found that a tripling of U.S. use of biomass energy could provide as much as $20 billion in new income for farmers and rural communities.[6]

New York State, especially the New York metropolitan area, offers one the nation's best locations for siting distributed PV generation. This area receives large amounts of solar energy: average sunlight levels are only 19 percent less than Sacramento, California where the local utility is conducting the nation's largest PV-solar program. New York receives enough solar energy on less than 0.75 percent of our land area to produce enough electricity to match annual electricity consumption in the State. What distinguishes New York from sunnier regions of the nation is the very close alignment between maximum solar energy potential and the times of day and year when the demand for and cost of electricity is highest. A recent study by the SUNY Atmospheric Sciences Research Center and the Pace Energy Project indicates that the avoided cost value of electricity from distributed PV in New York City and Long Island exceeds the payments offered by the net metering tariffs just because PV generates the most electricity when wholesale electricity costs are highest.[7] PV is a high cost supply source, though costs have declined sharply, but PV is also a high value supply source because:

- it produces electricity when alternative electricity supplies often cost much more;
- it can be sized easily to match the loads it will serve;
- it can be sited on roof tops making it possible to locate it at or near the loads it serves and making siting easier than options requiring dedicated land; and
- it produces no air pollution emissions making siting in congested urban settings an environmental asset, not a liability.

- New Jobs

Renewable energy creates new high paying jobs in a wide variety of industries. This includes direct jobs installing, operating, and maintaining renewable generating facilities and jobs at manufacturing facilities that manufacture and construct all of the parts of renewable generating equipment. It also includes indirect jobs in the industries that support these activities.

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[5] "Growing Energy on the Farm: Biomass and Agriculture", Union of Concerned Scientists, Cambridge, Mass., 2001.
[6] "Renewable Energy and Agriculture: A Natural Fit", Union of Concerned Scientists, Cambridge, Mass., 2001.
[7] Richard Perez, et al. *Quantifying Residential PV Economics: Payback vs. Cash Flow Determination of Fair Energy Value*. SUNY Atmospheric Sciences Research Center. March 2003.

According to a report from the Renewable Energy Policy Project, residential scale PV is currently among the most labor intensive sources of energy on a per megawatt basis.[8] The following table summarizes the job-years per MW given various standard projects sizes for PV, wind and biomass co-firing.

| **Technology** | **Model Project Scale** | **Person-Years per MW** |
|---|---|---|
| Solar PV | 2-kW systems | 35.5 |
| Wind | 37.5 MW | 4.8 |
| Biomass Co-Firing | 100-750 MW | 3.8-21.8 |

Renewable energy also generates more new jobs per dollar invested than fossil fuel generation. On a jobs per dollar invested basis, wind and solar both produce 40 percent more jobs than coal. According to the same REPP report, $1 million invested in coal over 10 years will generate about 3.96 job-years. Wind energy will generate about 5.70 job-years and PV will generate about 5.65.

Given what a small percentage of the fossil fuels that New York consumes are found here in the state, many of the new jobs that will come from increased use of renewables are likely to be instate. For example, a study by the New York State Energy Office found that wind energy creates 27 percent more jobs in the state than the same amount of energy produced by a coal power plant and 66 percent more jobs than a natural gas power plant.

Last year, the U.S. solar manufacturing capabilities topped 100 MW. Combined with the numbers above, this suggests that the PV industry is currently supporting about 3,500 jobs in the United States. The Danish Wind Turbine Manufacturer's Association estimates that wind power creates 22 direct and indirect jobs for each MW of installed capacity, including 5 jobs/MW for installing the turbines and 17 jobs per MW related to manufacturing.

As has been demonstrated in other states, the location decisions of advanced energy companies will be heavily influenced by a favorable regulatory climate in the State. A well-constructed RPS, in addition to the R&D program financed through the SBC, will send a strong signal to energy companies that New York is a favorable location for the advanced energy technology industry.

The economic benefits of attracting new energy companies to the state are large. Plug Power, for example, employs 300 individuals in New York, at average salaries exceeding $50,000. Since 1999, Plug Power has paid over $50,000,000 to suppliers located within New York State, and Plug Power employees have paid over $6,000,000 in State income taxes. Although Plug Power has benefited from active economic development support

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[8] Singh V. and Fehrs J., *The Work that Goes into Renewable Energy*, Research Report No. 13, Renewable Energy Policy Project, November 2001. (http://www.crest.org/articles/static/1/binaries/LABOR_FINAL_REV.pdf, 3/25/03) Note as the PV becomes more commercialized, the labor intensity has been dropping and is expected to continue to drop.

from the State, the vast majority of Plug Power's financial support has come from private investment that is funded through global financial markets.

Operating and maintaining renewables can provide a long-term source of highly skilled jobs for local communities. For example, new wind projects directly create about one operation and maintenance position for every 10 MW of installed capacity. Additional jobs are created in local businesses that supply goods and services to these projects and as these employees spend their paychecks in the local economy.

- Landowner and Tax Revenues

Some forms of renewables, particularly wind power, can also provide important landowner and tax revenues. A single wind turbine can provide $2,000-$4,000/year or more in farm income even though only 3-5 percent of the land within the wind farm boundary is used for turbines and access roads. Thus, leasing payments for wind power can provide a new cash crop for farmers and ranchers. Large wind turbines use only about a quarter acre of land, including access roads, so farmers can continue to plant crops and graze livestock right up to the base of the turbines. Wind power can also provide a significant source of property tax revenue for rural areas. While local property tax rates vary widely, payments generally range from 1 to 3 percent of the value of the project. At one percent, property tax payments would provide approximately $10,000 per MW of installed wind capacity for rural communities each year. These revenues can be used to build new schools, roads, bridges, and other infrastructure.

### D. To achieve our environmental, energy security and economic interests, we support a diversity of resources.

Our interest in diversity includes geographic diversity within the state.

Our interest in diversity includes distributed renewables that are located on the customer's side of the meter.

Our interest in diversity includes emerging technologies.

A diversity of renewable resources will provide the greatest overall environmental, energy security, and economic benefits. By "diversity," we mean a mix of different types of resources located in different parts of the state. We also mean a mix of resources at different stages of commercialization. However, we do not mean equal representation of all these different types of technologies. We recognize that the benefits provided by diversity need to be balanced against the cost savings of investing in renewable technologies where the resources are the best and of investing in the most fully commercialized renewable technologies.

One of the best ways to support diversity in New York's RPS is through the inclusion of distributed generation, including generation installed on the customers' side of the meter. These technologies provide reliability benefits that larger generators cannot and thereby offset some of their incremental costs.

By providing energy directly at the point of use, distributed renewable systems reduce the need for the construction of expensive, intrusive, and maintenance-intensive transmission and distribution facilities. This avoids the lengthy and often controversial process of installing such facilities and provides a power distribution infrastructure with less power load and greater capacity to respond to changing market conditions. And finally, distributed renewables can provide, through greater transparency and increasing competition, a healthier power market.

- The RPS Should Encourage the Participation of Emerging Technologies.

Just as investing in distributed renewables provides benefits that other technologies cannot, emerging technologies can provide benefits in the long term that would otherwise not be available. For example, photovoltaics, small wind, and fuel cells continue to evolve technologically as they develop toward commercial competitiveness. They have the potential to provide substantial environmental and economic benefits. While recognizing that the RPS is a policy designed to bring market-based forces to the development of renewables, we believe that the RPS should be designed to allow these emerging technologies a reasonable opportunity to participate.

In developing these provisions, four important criteria should be met:

1. The RPS should encourage the development of a "true portfolio" – that is, a diverse array of renewable sources that will enhance energy security as well as provide an efficient blend of peaking, baseload, and intermittent generation.
2. The provisions for emerging technologies should be designed so that they can be administered efficiently within the overall structure of the RPS.
3. The provisions should be flexible enough to accommodate unforeseen technological developments.
4. Policy tools should be used to encourage further development of emerging technologies, at a cost that is reasonable within the context of the goals of the RPS. Among the tools that should be considered and compared are a distributed renewables technology band, credit multipliers, and differential price caps.[9]

In summary, an RPS should have the goal of encouraging resource diversity for technologies that have the potential for future market penetration. Investment in currently costly technologies will drive down prices in the long run, increase total MW penetration, and provide benefits specific to that resource. An RPS should allow these emerging technologies a reasonable opportunity to participate.

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[9] Technology bands require that a specific percentage of the RPS come from a single type or category of technology. Credit multipliers provide more than a single kWh worth of credit towards compliance with the RPS requirements for a type or category of technology. Some state programs place a cap on the price of renewable energy credits. A differential price cap sets different price caps for different types of categories of technologies.

## II. General goals for design of the New York RPS

As mentioned at the beginning of Section I, public interest goals must guide RPS development decisions such as what resources are eligible, what targets are set, and what rules are established for the market. This section lays out some general goals for an RPS that are more relevant to the targets and rules.

### A. To garner the benefits of renewables, we want an efficient and effective RPS.

The RPS should provide as many of the benefits from renewables as soon as possible consistent with sustained orderly development of technologies and the markets.

The RPS design should focus on megawatt-hours of renewable generation.

The RPS design should encourage the development of renewables where the best renewable resources are located to minimize costs.

The RPS design should make compliance as simple as possible to minimize transaction costs while ensuring that New York actually receives the stated benefits.

The RPS design should provide ease of verification both of compliance by providers and of the benefits captured by credits and should prevent double-counting of these benefits.

The RPS design should provide enough long-term certainty that the financial market will support the development of new projects.

The RPS design should encourage a self-sustaining and competitive renewable energy market.

The RPS design should require annual, enforceable goals to ensure that overall goals are achieved, benefits start to accrue as soon as possible, and markets have certainty.

When designing compliance mechanisms for policies such as an RPS, regulators are faced with the difficult choice between two objectives: simplicity of compliance on one end of the spectrum and complete coverage of all foreseeable issues on the other end.

While the RPS compliance mechanisms should be designed in a way that covers all essential issues and treats all stakeholders and renewable resources fairly, equitably, and in accordance with the desired public objectives, we believe that it is critically important to provide for a simple and transparent means of compliance. Ensuring that customers can understand the mechanisms of the RPS will ensure public support for its implementation. Relatively simple compliance rules help reduce public confusion and increase market acceptance.

In recognition of the fact that many renewable resources have relatively high capital costs and are often used at a scale several magnitudes smaller than conventional energy technologies, we believe that it is important to minimize transaction costs. Designing implementation mechanisms that keep transaction costs in check will lower entry barriers

for renewable resources and thereby contribute to more successful – and less costly – RPS implementation.

In order to achieve sustained orderly development of the renewables market and to achieve the ultimate goal of 25 percent of electric sales from renewables within ten years, the Commission should establish enforceable interim renewables requirements that lead to the 25 percent goal in an established time frame. These requirements should be in terms of a percentage of sales of MWh. These enforceable interim requirements will ensure orderly and timely progress toward the RPS goal by laying the groundwork for a robust renewables market.

Interim targets should ideally be set to transform markets for renewable resources such that:

- The costs of near-term and emerging renewable resources decline over time and become competitive with conventional sources of generation;
- The benefits of renewable resources accrue as soon as possible;
- Private capital markets are encouraged to invest in renewable resource projects;
- A competent infrastructure is established for the installation and maintenance of renewable resources; and
- Stakeholders can monitor progress towards fulfillment of the RPS and make mid-course corrections where necessary to meet the end goal.

Along with interim targets, we believe that it is important to include a penalty mechanism specifically for the RPS that is set at an appropriate level to ensure effective compliance with these targets. This would also ensure that renewable energy resources are actually developed and brought on-line, providing the important environmental and economic benefits intended by adopting the rule. The Commission should consider penalty mechanisms such as the Texas and Massachusetts RPS programs. These states have a non-compliance penalty equal to $50 per megawatt-hour (MWh) (with an annual adjustment for inflation based on the GDP implicit price deflator) or 200 percent of the average market value of credits for that compliance period.[10]

While establishing targets and penalties, New York's RPS should be structured to reduce the financial and regulatory risk to market participants.

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[10] For more information, see Public Utility Commission of Texas Substantive Rules, section 25.173(o)(2); and www.state.ma.us/doer/rps/225cmr.pdf

In order to ensure that new renewables are built, financial institutions must have confidence that renewables projects will have stable markets. An important aspect of establishing the necessary confidence level is to develop mechanisms to ensure that retailers enter into long-term contracts with renewables providers under appropriate circumstances. To this end, the Commission should require at least the regulated distribution utilities to enter into a portfolio of contracts, of which a significant portion are long-term.

The bright future for development of new large-scale renewable energy projects in New York State will be clouded unless the financial uncertainty roiling the generation market in today's post-Enron environment can be mitigated. As with developers of conventional generation projects, renewable project developers are facing severe capital constraints. Project success hinges critically on the developer's ability to secure long-term financing. This in turn requires - or at least is greatly facilitated by - the project developer's demonstration of an assured long-term revenue stream with a financially sound load serving entity such as the utility default supplier. Regulatory policy that explicitly requires at least the distribution utilities to enter into long-term contracts and encourages and protects all market participants' ability to enter into long-term contracts should go a long way towards addressing this pervasive financial uncertainty.[11]

Many renewable-fueled generation technologies have higher capital costs and lower operating costs than traditional generation resources. Because of this cost structure, many renewable technologies require long-term contractual commitments from credit-worthy buyers in order to attract financing. Investors appear to require commitments for renewable attributes, or both attributes and energy, of at least five years for landfill methane generators, and ten years or longer for more capital-intensive resource types such as wind.

Moreover, given renewable energy plants' relatively higher upfront capital costs and lower operating costs compared to fossil-fired plants, long-term contracts are a critical driver to reducing renewable energy's average electricity costs. As an example, for a generic wind project with typical project assumptions, moving from a 20-year contract term to a 10-year contract term increases revenue requirements by 29 percent. Given the substantial impact that contract term has on renewable energy's all-in generation costs, policies that support longer contract terms will be a key instrument for effectively and economically meeting state renewable energy targets.

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[11]Consolidated Edison's recently announced Request for Proposals for 500 MW of newly constructed in-City generation is clear evidence of the essential role that long-term contracts will play in bringing major generation projects forward, at least in the near-term.

### B. To ensure success, the RPS must also be implemented fairly and equitably.

To be successful and politically viable, the RPS design must not only deliver benefits, it must be fair and equitable.

The RPS design should be mindful of environmental justice and ensure that responsibilities, costs or impacts do not fall disproportionately on any group based on race, ethnicity, national origin, or income.

The RPS design should require compliance by ESCOs and regulated distribution utilities at the electric product level as a percentage of energy consumed set at the same level for all regions and customer classes.

The New York Power Authority, Long Island Power Authority, power cooperatives and municipal utilities should be strongly encouraged to participate in the RPS.

The RPS design should require the regulated distribution utilities to spread the costs of compliance across all regions and customer classes.

Between the regulated distribution utilities and their customers, the RPS design should assign costs of contracts for renewables to those who may benefit from these contracts in proportion to how much they may benefit.

The RPS design should require prudency determinations for cost recovery by regulated utilities where prudency is defined in terms of both least long-term cost and achieving the goals of the RPS including the construction of renewables projects.

The RPS design should minimize unique regulatory risk to utilities that may be associated with utility participation in the RPS.

The rationale for requiring that a portion of New York's electricity must be generated from renewable energy sources stems from the fact that the use of such energy sources benefits the State and society as a whole rather than merely certain ESCOs, regulated distribution utilities, customer classes or individual customers.

Accordingly, the responsibility for implementation and cost of the RPS should be spread fairly and evenly across all regions of the State and be shared by all participants, including ESCOs, regulated distribution utilities, and all customer classes served by them.

One key component of a fair and equitable distribution of responsibility is to require that the minimum renewable requirements be met by each electric supply product. The alternative, placing the requirement on energy providers, would allow providers to shift the burden to those customers that are least able and likely to leave. Not only would this be unfair, it would also completely undermine the green power market. With provider level responsibility, the first step of any provider would be to shift as much of the obligation to those customers that actively want to support renewables. The customers

would be being misled, since their purchases wouldn't actually drive any more renewables than those required by law and the green power market would be saturated. (For more discussion on the importance of compatibility between the green power market and the RPS, please see Section II.C.)

Another important feature of a fair and equitable RPS is that it should also cover New York Power Authority and Long Island Power Authority customers. While we realize that the Commission does not have jurisdiction over these entities, the policy statement issued at the end of the first phase of this process should recommend policies for the Authorities as well.

Finally, the Commission should strive to minimize the regulatory risk to the utilities that may be associated with compliance with the RPS. Consistent with its traditional oversight of utility costs of service, the Commission should scrutinize the default suppliers' purchasing practices for reasonableness and to ensure that the RPS obligation is being dispatched in a manner that serves ratepayer interests. However the unique risks associated with compliance with the RPS, especially to meet long-term contract requirements, should be identified and steps to minimize these risks should be considered.

### C. To maximize the benefits, the RPS should set the floor for renewable development in New York, while other policies spur even more renewable generation.

The RPS and green power marketing must be mutually reinforcing and additive.

Premium green power purchases should not be used in fulfillment of RPS obligations.

The policies of New York should encourage independent green power marketers.

The Systems Benefits Charge (SBC) and the Long Island Clean Energy Fund (CEF) should not pay for electric retailer compliance with the RPS, though there will be a role for these funds in facilitating the market for renewables, including the green power market.

The SBC and CEF should be additive to the RPS.

The SBC and CEF should continue to support accelerating commercialization of emerging renewables (research, development, and deployment programs) and potentially facilitating participation of certain renewable technologies in the RPS.

The emerging green power market will provide major near and long-term benefits to New York. These benefits will be synergistic with those provided by the RPS, but only if they are designed to be complementary. As long as the green power market is driving additional renewables beyond those required by the RPS, in the near-term, the green power market can provide developers with the confidence to develop projects in advance of the RPS requirements. This will keep the RPS credit market liquid and provide confidence that the RPS can function. Encouraging additional renewable development

early on will also provide more of the benefits of renewables to New York sooner. The green power market can supply the customer demand and premium dollars necessary to build highly-desirable additional renewable resources that otherwise may be too expensive to be supported through the portfolio standard. In the long-run, the green power market will remain an essential tool to drive New York beyond the legally required minimum amount of renewables established in the RPS. This will help ESCOs find the confidence to consider long-term contracts and will further reduce the risk premiums charged by financers.

- The RPS should be additive to the SBC and CEF, and must not supplant current SBC or CEF expenditures on renewable resources.

New York has great renewable potential, but it cannot all be achieved through the RPS. The SBC and CEF will continue to play a vital role in capturing as many of these benefits as possible.[12] To this end, it is essential that SBC and CEF funds not be used to simply buy down renewables that can be most effectively supported through the RPS. Conversely, the RPS must not be used to justify a redirection of SBC funds away from renewable resources. The SBC and CEF must be maintained and used to capture benefits additional to those provided by the RPS.

To the extent that the RPS is structured in such a manner that it also encourages distributed and emerging renewables, this may reduce the need for SBC investments in project level support for these generation technologies. SBC money should be focused on the continuing effort to accelerate the commercialization of renewables, and to develop renewable power industries within the State.

However, there are a number of ways in which it may be sensible for SBC and CEF programs to assist in the implementation of the RPS. These may include performing essential studies, assisting distributed renewables to participate in the credit trading mechanism, and facilitating the development and/or management of a credit trading system.

For the reasons discussed above regarding the importance of the green power market, NYSERDA should also continue to provide assistance in the growth of green power marketing in the State.

## III. Discussion of specific implementation issues

### A. The RPS should be used to drive the development of new renewables.

The renewables currently in operation in New York, primarily hydropower, form a baseline that need not be, and in fact should not be, included in the RPS. The existing

[12] As mentioned previously, while we realize that the Commission does not have jurisdiction over NYPA and LIPA, the Commission's initial policy statement should include recommended policies for both LIPA and NYPA.

renewables are not evenly distributed and their inclusion would either result in a windfall profit for the owners of existing hydro power and/or a requirement that forces downstate customers to bear the costs of building all the new renewables needed.

In keeping with our concerns for fairness and our desire to improve the environment as discussed above, we believe that the existing renewables should be considered a baseline and the RPS should be used to drive the development of new renewables only.

### B. Renewable generation attribute tracking and verification

Critical to the success of the RPS will be the establishment of a workable renewable energy tracking and verification system. Such a system will support the long-term contracts needed for investment in new renewable generation by allowing for contracts for attributes only, or attributes and energy, depending on the needs of the buyers and sellers.

Regulators and the public must have confidence that the RPS is truly resulting in a reorientation of New York State's energy mix towards more renewable and sustainable energy alternatives. Public credibility will suffer if transactions are permitted that appear to achieve compliance but in reality do not meet the underlying policy objectives (i.e., "green-washing"); or if multiple claims for the same transaction (i.e., "double counting") can be made.

Market participants are similarly vitally interested in an effective tracking and verification system. For example, a lack of clarity as to what generation can and cannot be recognized in various markets could well paralyze investment in and contracting for renewable generation. Resolution of these issues will facilitate increased investment in renewable generation sources.

Several systems for tracking and verifying renewable generation and attribute trading have been developed. While as a coalition we reserve judgment at this juncture on which of these systems (or variants thereof) should be adopted in New York for purposes of the RPS, we believe that any such system must meet the following criteria:[13]

- Minimize the cost and complexity of implementation and enforcement;
- Ensure the accuracy, veracity and uniqueness of claims; and
- Promote greater liquidity of markets by establishing well-defined property rights and by maximizing the number of buyers and sellers in a market;

[13] See, however, the separate comments regarding a generation information system of the American Wind Energy Association and the Union of Concerned Scientists and others.

### C. Incorporating distributed renewables

We recommend that mechanisms be established in the RPS to encourage generation from distributed renewables such as small wind, solar power and fuel cells. A resource band, such as used in Iowa and a credit multiplier, such as used in New Mexico, should be among the mechanisms considered and their relative effectiveness evaluated. Such requirements would ensure that important distributed renewables receive a share of the RPS.

In some cases it will be inefficient for smaller distributed renewables owners to participate directly in a credit trading market. A very simple option should be provided to customers wishing to sell the renewable attributes of their renewable distributed generation system to utilities or other marketers on an "opt-in" basis. Under this option, the distributed renewables owner would receive credits against their charges. If the net of credits versus charges were positive, the utility would make payments to the distributed renewables owner. However, customers should have the ability to sell the full market value of verified credits to the utilities or elsewhere if so desired, whether directly or through an aggregator and in contracts of any length.

We should explore allowing utilities to own, install, and operate distributed renewables units including those on the premises of willing customers, for purposes of achieving the goals of the RPS.

Renewables located in load pockets should also receive extra encouragement such as a credit multiplier. Extra credits could be available to distributed renewables when they are installed to avoid investment in transmission and other distribution facilities. The Commission may wish to retain the option to award a limited number of credit "response multipliers" such as these as a mechanism to encourage rapid renewables installation in load pockets, air quality problem areas, the installation of uninterruptible power systems for public facilities, etc.

### D. Policies related to the RPS

The Commission should ensure that related rules do not serve as impediments to the implementation of the RPS. Potential impediments should be evaluated and, in separate proceedings, addressed to ensure that they do not unreasonably impede the development of renewable resources.

Interconnection rules are a clear example of such impediments. In the absence of uniform rules that provide for predictability and reasonable costs, renewable projects can be subject to dramatically varying interconnection processes that alter the economics of some projects and block others outright. At present, the FERC is developing interconnection rules for units that participate in FERC-regulated markets. New York also has adopted rules applicable to units of 300 kW or less. The Commission should take steps to ensure that a predictable and reasonably priced interconnection process will be available to any renewable resource that may be eligible to participate in the RPS. These steps, to be taken in a separate proceeding, should include extending the

applicability of existing rules to units larger than 300 kW and to units located on network systems. California has experienced great success with a net metering and interconnection law extending up to systems of 1 MW in nameplate capacity.

Standby rates for distribution service and station power are another potential impediment. At present standby rates are being developed by each of the utilities, and renewable sources are being dealt with in separate provisions that range from inadequate to nonexistent. The Commission should take steps to ensure that renewable sources throughout the state receive standby rate treatment that is consistent with the purposes of the RPS and consistent among utility service territories.

## IV. Discussion of the Commission threshold issues

In this section, we address the fourteen threshold issues raised by the Commission in its February 20, 2003 Order. Where appropriate, our responses draw on, and refer back to, the interests that we have articulated above.

1. The types of resources that should be considered as "renewable" for the purposes of a renewable portfolio standard.

The RPS should be used to drive the development of new renewables to achieve the Governor's goal of 25 percent. Resources included in the RPS should also either be sustainable or have the promise of sustainability. Wind power and solar technologies among others meet the former criteria and fuel cells, wave, and tidal power the latter. For resources where sustainability is highly dependent on the specifics of the application—hydro power, biomass and landfills in particular—the RPS should contain a detailed set of environmental standards to determine eligibility. We believe that municipal solid waste, certain types of biomass, and some types of hydropower are not environmentally justified and are inherently unsustainable. Thus, these types of resources, particularly so called "waste-to-energy," should not be included in the RPS. See Section I.A above.

2. The appropriateness of including renewable resource energy procured from outside the State, such as hydropower from Canada or wind energy from New England.

The RPS should provide benefits to New York and should not export externalities. The RPS should not prevent participation of new renewable generation in areas where electric generation affects air quality, public health and electric supply in New York. New hydropower from Canada should be subject to the environmental and eligibility standards discussed above in response to question 1 and in Section I.A.

3. The retail suppliers that should be required to sell energy from renewable resources.

For reasons of equity, the RPS requirement should apply to each and every electric retail provider and should be applied evenly across all regions and all customer classes. A generation attribute tracking and verification system and a market for such attribute credits should help mitigate any adverse impact on ESCOs due to limited market share.

New York State should also ensure that state power authorities are also subject to the RPS requirement. See Section II.B above.

4. The impact, if any, on the ability of energy services companies' (ESCOs) abilities to compete with utilities if they are required to procure renewable resources beyond what their customers request, given the relative sizes of the loads supplied by utilities and ESCOs currently, and how such impacts might be overcome.

The use of a generation attribute trading system and other mechanisms to ensure a robust market for attribute credits should help mitigate any adverse impact on ESCOs due to limited market share. See Section III.B above.

5. The best methods for retail suppliers to procure renewable resources (e.g., construction and ownership versus purchases).

Compliance can be through the purchase of electric output of an eligible generator (with the corresponding renewable attributes) or through the purchase of tradable renewable energy certificates (RECs). Construction and ownership could also be a possibility. See Sections III.B-C above.

6. Methodologies for the recovery of costs by regulated utilities.

The Commission should strive to minimize the regulatory risk to the utilities that may be associated with compliance with the RPS. Consistent with its traditional oversight of utility costs of service, the Commission should scrutinize the default suppliers' purchasing practices for reasonableness and to ensure that the RPS obligation is being dispatched in a manner that serves ratepayer interests. However the unique risks associated with compliance with the RPS, especially to meet long-term contract requirements, should be identified and steps to minimize these risks should be considered. See Section II.B above.

7. Individual retail suppliers' targets, if appropriate.

As discussed in response to Question 3, the same RPS requirement should be applied to each and every retail provider. The RPS should be set at a percentage of electric sales, measured in kWh, and should include interim enforceable targets to increase annually for at least 10 years in order to meet the twenty-five percent renewable goal by 2013. See Sections II.A-B above.

8. The potential impact on reliability and system operations due to the addition of renewable resources, especially those resources that operate only intermittently (e.g., windmills and photovoltaics), and what, if anything, must be done to ensure that reliability is maintained.

The statewide application of modest amounts of intermittent renewable energy as proposed under the RPS would have minor, though positive effects on system reliability, cost, and operational characteristics. In addition, not all renewable resources developed to meet the RPS will be intermittent resources. Facilities using landfill gas, biomass fuels,

or fuel cells are operated on a dispatchable basis, much like traditional electricity generators.

These benefits from intermittent renewables accrue from two sources – the very high technical reliability and modularity of most renewable energy systems, and the relative predictability of the factors causing their intermittency. Large photovoltaic plants generally experience 99 percent+ daytime availability, and many wind turbine manufacturers similarly report routine facility availabilities in excess of 99 percent. This is in contrast to fossil-fueled power stations, which report 85 percent average availability, 73 percent for nuclear plants, and 88 – 90 percent for natural gas turbines and combined cycle plants (North American Electric Reliability Council Generating Availability Report 1990 – 94). Some of this downtime for traditional energy sources is due to maintenance or long lead-time events, but much of it was also caused by unpredictable breakdowns or other emergencies.

Current reserve capacity and transmission planning schemes are therefore designed by necessity to absorb the periodic, unpredictable, and complete failure of very large central station plants. Renewable systems, which tend to be much more modular than central station plants, are less likely to fail completely in such a fashion. They are far more likely to "degrade gracefully" to a "partial availability" state – for instance, when perhaps an individual wind turbine in a farm system needs to be repaired, degrading the plants' performance without cutting off output entirely.

With technical availability which is both higher and of and degrades more gracefully than that of conventional plants, the remaining source of "intermittency" is simply the availability of the renewable resource. This, of course, can be predicted days in advance with the use of existing weather data, making system planning easier and requiring a smaller reserve capacity than is currently needed to absorb periodic complete failures.

It is also worth noting that for solar and some other renewable sources, this "intermittent" period of generation corresponds, to a high degree, with the peak demand periods of the day and year when the dirtiest and most expensive "peaker" generation plants are employed. An "intermittent" source that provides greater predictability, reliability, and a more natural peak response than conventional sources could therefore be used to reduce expensive reserve margins or increase reliability thresholds. In addition, changes in wind or solar resource production also become homogenized as plants are spread out over a larger area.[14]

Finally, current Independent System Operator rules in New York recognize that there is no impact on reliability from integration of intermittent resources and have allowed for

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[14] For a more detailed empirical analysis of these and other factors, see Hirst, Eric, 2001. *Interactions of Wind Farms with Bulk Power Markets and Operations*; "Small is Profitable" by Amory Lovins of the Rocky Mountain Institute – http://www.smallisprofitable.org.

integration of wind resources without imposing imbalance penalties. Also, the fluctuation in output of such resources is small compared to fluctuations in demand.

9. The appropriate means to monitor progress toward meeting the goal and to ensure results, including possible rewards and disincentives.

The establishment of a workable renewable energy tracking and verification system will be critical to the success of the RPS. The RPS should be implemented gradually through enforceable interim targets with an annual percentage increase; this will allow for sustained orderly and achievable development of renewable energy resources. Significant penalties for noncompliance will provide the incentive for the financial investments needed. A high penalty helps to make the RPS self-enforcing and minimizes the need for administrative and enforcement mechanisms. Tradable renewable energy credits can be used for compliance, with a limited degree of banking of excess credits. See Sections II.A and III.B above.

10. The appropriateness of a "renewable attributes trading" system, and the components of any such system that might be developed.

Such a system is essential to the success of the RPS. The existing models of such systems could be adapted to meet New York's needs. Such a system can provide transparency, easy verification and encourages a competitive market place for renewable energy development. It also assures that there is no double-counting of renewable credits (each credit may only be used once and then is retired). See Section III.B above.

11. The impact, if any, on the Commission's Environmental Disclosure Label Program, and any modifications that might be needed and appropriate for that program.

The proceeding will need to determine the trading system that will be used, and any modifications to the existing Environmental Disclosure Label Program that will be needed to allow for such a system.

12. The practicality of installing new renewable facilities in the high load areas of the State. If the targeted renewables are built upstate, the impact, if any, such construction might have on the addition of new resources in the load centers where they are most needed, and the appropriate means to ensure that additional generation and transmission resources will be built where they are most needed.

Installing new renewable facilities in high load areas of New York State will be practical, chiefly through renewable distributed generation (e.g. PV and fuel cells). The inclusion and support of distributed generation within the RPS will help ensure that renewables are installed in high load areas.. Renewables located in load pockets should also receive extra encouragement such as a credit multiplier. A geographically dispersed diversity of resources should help ease transmission constraints in those hours when there is congestion. See Sections I.D and III.C above.

13. The impact, if any, the renewable portfolio standard would have on existing green marketing programs in the State, and what the State might do to support developers and green power marketers during the process of developing rules to implement the standard.

The RPS and green power marketing must be mutually reinforcing and additive. The emerging green power market will provide major near and long-term benefits to New York. These benefits will be synergistic with those provided by the RPS, but only if they are designed to be in addition to one another. See Section II.C above.

14. Changes needed, if any, by the Public Service Commission and NYSERDA in the SBC-funded renewable energy program to coordinate with the new target.

Only minor changes will be needed to the SBC-funded renewable program.. The SBC and CEF should be additive to the RPS. The SBC and CEF should not be used to fund electric retailer compliance with the RPS. However, these funds will still have a role to play in encouraging development and commercialization of certain renewable technologies. See Section II.C above.

**Conclusion**

We look forward to discussing our RPS interests and goals with Judge Stein and other stakeholders on April 7th and 8th, and to designing and implementing a successful RPS for New York State.

**Respectfully Submitted,**

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