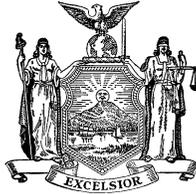


STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION



CASE 03-E-0188 - Proceeding on Motion of the Commission  
Regarding a Retail Renewable Portfolio  
Standard.

INITIAL COMMENTS OF THE STAFF OF  
THE DEPARTMENT OF PUBLIC SERVICE

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Dated: September 26, 2003  
Albany, New York

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**STATE OF NEW YORK  
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**CASE 03-E-0188 - Proceeding on Motion of the Commission  
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**INTRODUCTION AND BACKGROUND**

By an order dated February 19, 2003, the New York Public Service Commission (Commission) instituted a proceeding for the purpose of increasing the contribution of renewable resources to New Yorkers' electric energy use.<sup>1</sup> The Commission explained that implementation of a Renewable Portfolio Standard (RPS) is a desirable objective because "renewable resources represent a significant potential energy reserve, which (if properly developed) could lower air emissions and increase system reliability."<sup>2</sup>

The Commission continued:

Only about 17% of the electricity currently used in New York State is provided by renewable resources. This figure reflects a disturbing decline from 25% of four decades ago. A return to the 25% figure would be in the public interest.<sup>3</sup>

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<sup>1</sup> Order Instituting Proceeding, issued February 19, 2003 (Instituting Order).

<sup>2</sup> Id. at 2.

<sup>3</sup> Id.

Under the guidance of Administrative Law Judge Eleanor Stein and with the Instituting Order in mind, various components of an RPS have been collaboratively discussed by scores of parties representing diverse interests in more than a dozen meetings. Pursuant to the schedule and outline of discussion topics established by Judge Stein, Staff of the Department of Public Service (Staff) submits these initial comments on the major elements of an RPS.

**I. SUMMARY OF COMMENTS**

The Commission should approve and cause to be implemented an RPS applicable to all Load Serving Entities (LSEs) in New York that fulfills the Judge's proposed Working Objectives discussed below. Each LSE would be responsible for RPS compliance related to its retail electric sales, but would be offered the opportunity to choose as alternatives to individual procurement a central procurement option and/or an Alternative Compliance Fee to satisfy all or part of its requirements. Such an RPS can be achieved at a reasonable cost<sup>4</sup> while improving New

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<sup>4</sup> See the "New York Renewable Standard Cost Study Report," prepared by Staff; New York State Energy Research and Development Authority (NYSERDA); Sustainable Energy Advantage, LLC; and LaCapra Associates, dated August 28, 2003 (Staff Cost Study), at 2, 14-15. The cost of the RPS would cause average statewide bill increases of approximately .25% to .50%, depending on the type of customer.

York's environment by reducing air emissions<sup>5</sup>; diversifying the State's electricity generation mix and thereby enhancing energy security and ameliorating the effect on wholesale energy prices of higher prices for fossil fuels<sup>6</sup>; and bringing additional investment and jobs to New York.<sup>7</sup>

Resources eligible for RPS compliance should include: "new" (defined as, post-January 1, 2003) low impact hydro-power facilities (i.e., Run-of-River, no greater than 30 MW); new upgrades to existing hydro-power facilities regardless of size but without additional impoundments; very small hydro-power facilities (5 MWs or less) whether new or existing; those new biomass resources included in the Final Agreement of the Biomass Eligibility Group; new fuel cell generation; new photovoltaic (PV) generation; new tidal generation; and all wind generation regardless of vintage.<sup>8</sup> To be eligible, these generators must produce electricity in New York State or, if located outside the

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<sup>5</sup> Id. at 2, 17.

<sup>6</sup> Id. at 2, 16, 18-19.

<sup>7</sup> Id. at 20.

<sup>8</sup> Staff recommends that the list of eligible resources should be revisited during the course of the RPS program to allow for the possibility of including as eligible other emerging technologies.

New York Control Area, the generator's energy must be scheduled by the New York Independent System Operator, Inc. (NYISO).<sup>9</sup>

Staff proposes three RPS tiers: (1) a Main Tier, which would account for 99% of the new renewable generation required by the RPS; (2) an Emerging Technology Tier, which would be administered by NYSERDA in a manner similar to its administration of the System Benefit Change (SBC) program and would consist of competitive lump sum grants with future production requirements for the developing technologies of PV, fuel cells, and small wind (up to 300 KW); and (3) a Maintenance Tier for very small hydro-power with expiring above-market contracts and above-market costs.

The Emerging Technology Tier would hasten development of technologies that are not commercially viable at this time but hold the potential of future viability; due to their high costs without this investment in their development they would not be funded by the RPS program. The Maintenance Tier is intended to help existing renewable resource generators, which may have no other revenue source to offset above-market costs, have an opportunity to compete with other renewable resources for RPS support.

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<sup>9</sup> That is, the NYISO must accept an out-of-state eligible generator's bid in the Day-Ahead or Real-Time energy markets and the generator must physically produce the electricity.

## II. REVISED WORKING OBJECTIVES

### A. Working Target

Staff supports Judge Stein's proposed working target, namely, that "[b]y the year 2013, at least 25% of the electricity retailed in New York will be derived from renewable resources."<sup>10</sup> In the context of an RPS requirement applicable to LSEs wherein the word "retailed" is synonymous with the word "used," this formulation is consistent with the Instituting Order as noted on page one of these Comments. It also comports with our view that in order to derive the full potential benefits of an RPS, as described in the Instituting Order, energy must be produced in New York or, if produced elsewhere, be scheduled by the NYISO. Achievement of a 25% contribution by renewable energy would restore a historical standard that would benefit New Yorkers economically as well as in terms of environmental and health benefits.

### B. Revised Working Objectives

Staff supports all of Judge Stein's working objectives proposed in her June 19 Ruling.<sup>11</sup> The proposed objectives coincide with our understanding of the purposes of an RPS and are fully consistent with the Commission's Instituting Order.

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<sup>10</sup> Ruling Establishing Comment Procedures, issued June 19, 2003, at 3 (June 19 Ruling).

<sup>11</sup> Id. at 3-4.

### III. THE RETEC STRAW PROPOSALS

Staff accepts the Judge's invitation not to discuss RETEC's straw proposals regarding its vision of an RPS in their entirety at this point, but rather to address their specific components at the relevant points in these comments.

### IV. ELIGIBILITY

#### A. The Baseline

Staff prepared a working baseline estimate of the contribution of renewable resources to the electric energy purchased in New York, which it submitted to the parties on March 17, 2003. The data covered the period April 2001 through March 2002.

It is important to appreciate the fluidity of any baseline because of the volatility of the contribution of hydro-power resources, which account for more than 90% of the total amount of renewable energy purchased in New York State. For example, according to figures supplied by NYSERDA in its publication, *Patterns and Trends*, as well as more recent data provided by NYSERDA,<sup>12</sup> over the last five calendar years (1998-2002) New York State hydro-power generation ranged from a low of 21,831

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<sup>12</sup> December 2002, at 18. NYSERDA advises that the published 2001 figure of 24,981 gigawatt hours has been revised to 21,831 gigawatt hours.

gigawatt hours in 2001 to a high of 28,252 gigawatt hours in 1998, equivalent to a variation of about 25%.<sup>13</sup>

The parties expended a great deal of time and energy in the Eligibility Working Group discussing whether the electric energy purchased from solid waste facilities should be included in the baseline. Staff's compromise baseline proposal, which is discussed in the Judge's Summary of Working Group Discussions, issued on June 25, 2003 (June 25 Summary), is a simple and reasonable resolution of the dispute given the volatility of hydro-power generation.

**B. Target Levels**

**1. Forecast**

Staff continues to urge reliance on State Energy Plan (SEP) forecasts of overall load growth because its preparation involved the Commission and NYSERDA, which are independent of the electric energy industry.

**2. Start Date**

Assuming implementation of the RPS in early 2004, one would expect a measurable increase in the contribution of renewable generation by 2006, increasing gradually by about one percent per year for each of the succeeding seven years. Requiring LSEs

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<sup>13</sup> It is assumed that the contribution of Canadian hydro-power resources fluctuated as widely.

to begin meeting their RPS targets in 2006 would give renewable generators time to bring new generation on-line.

### **3. Interim Targets**

It makes sense to adjust the interim targets annually to match actual load growth (other than de minimus changes less than one percent) with the most recent forecast. Unforeseen implementation obstacles (causing a deficiency of at least 10 percent of the interim target) also should trigger re-evaluation of the interim targets.

#### **C. Target Resource Eligibility**

A properly designed RPS should reflect the objectives of the state's policymakers. Eligibility should be determined on the basis of the resource's environmental impacts, ability to diversify the State's energy mix, and its ability to reduce dependence on imported energy, the principal objectives of an RPS discussed in the Instituting Order.

In designing an RPS, establishing which electric generation resources are "eligible" to satisfy compliance targets is a key determination for two main reasons. The first and most obvious reason is that eligibility rules affect commercial interests. A developer intending to promote a resource that is deemed ineligible loses a commercial opportunity by the eligibility decision that is made. Accordingly, the stake of commercial interests in the eligibility decision is high.

The second main reason eligibility is a key determination is the effect such a decision has on public acceptance of the RPS program. In the current electricity market, adoption of an RPS will undoubtedly result in some increase in retail electric rates. While that increase is justified by the greater diversity provided in New York's electric energy supply portfolio, the reduction in risk of future oil and gas price spikes and supply interruptions, and the significant reduction of air emissions associated with the burning of fossil fuels, if the public is not convinced of the economic and environmental benefits of the specific resources deemed eligible it will be more difficult to gain public acceptance of the rate increase and sustain the RPS program.

It would be difficult to establish eligibility criterion based solely on the meaning of the term "renewable" because, as was evident in the collaborative meetings, the term has significantly different meanings to different people. Ideally, we would like to be able to target the RPS to electric generation resources that are environmentally benign in regard to their energy producing processes and other characteristics. Our sense is that the public largely perceives "renewable" resources to be generally environmentally benign, especially with respect to air and water pollutants such as PV and wind turbines, which produce zero-emissions and result in no water or

waste impacts in the production of electricity.<sup>14</sup> Were there enough of these resources available to power New York's electric grid at a reasonable cost, the State would truly have a renewable and sustainable means of electricity production. To move the State towards that ideal, the RPS should be designed to implement a long-term incremental strategy towards the development of local and regional environmentally responsible resources.

As noted above, one proposed Working Objective is to promote the development of additional renewable resources to add to New York's energy portfolio. This objective is not satisfied by providing cost premium payments to the owners of existing generation resources that are profitable under the existing regime or have access to other revenue sources to offset above-market costs. Accordingly, eligibility for the RPS should be limited to "new" resources, which we define as generation developed after January 1, 2003. Some very small hydropower facilities appear not to be profitable under the existing regime and not to have access to other revenue sources to offset above-market costs. As to these facilities we support eligibility regardless of vintage, in the manner discussed below regarding a

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<sup>14</sup> Staff recognizes that production of energy cannot be completely environmentally benign. For example, wind energy facilities have potential noise, aesthetic, and avian impacts, to name just a few.

Maintenance Tier. In addition, there is only a very small amount of existing wind generation and it is all of such recent vintage that it would be more efficient to not apply the vintage restriction to that technology than to set up a system to distinguish wind resources based on vintage.

### **1. Hydropower**

As a technology, hydropower has a long history and is fully commercialized. While the hydropower generation process does not create air emissions, hydropower facilities are not fully environmentally benign to the degree that they harm fish, aquatic resources and other natural resources due to erosion, turbidity, temperature and flow changes, and flooding due to impoundments. Staff supports the inclusion of new low-impact run-of-river hydropower facilities (defined as less than 30 megawatts per facility) as an eligible resource as well as new upgrades to existing hydropower facilities of any size provided such upgrades do not create new or enlarged impoundments.

### **2. Solid Waste**

New York currently has ten operating waste-to-energy electric generation facilities. The fuel or "feedstock" for these facilities is generally municipal solid waste. The ten existing facilities range in size from 2 MWs to 65 MWs and generated approximately 1,862,000 MWhs of electricity in 2002. No new waste-to-energy facility has been sited in New York State

since the Onondaga County Resource Recovery Facility was built in Jamesville in 1994.

In the Staff Cost Study we estimated that perhaps two additional 50 MW waste-to-energy facilities could be sited in New York in the 2006 through 2013 timeframe.<sup>15</sup> We share a common belief with the waste-to-energy advocates that any decision to build a new waste-to-energy facility in New York would not be driven by RPS policy or the availability of RPS cost premiums, but instead would be the result of a municipal solid waste management decision.

The Staff Cost Study demonstrates that if waste-to-energy facilities were deemed to qualify as an eligible RPS resource technology, they nevertheless would not contribute towards compliance because the necessary waste-to-energy cost premium exceeds that of all other chosen resources through year 2013 (except those in the set-aside Emerging Technology Tier) and, therefore, would never be reached in the procurement process. In addition, waste-to-energy facilities are not zero-emission

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<sup>15</sup> Recent conversations with waste-to-energy advocates in this proceeding indicate that they believe our estimate of 100 MWs of new waste-to-energy facility potential and our related cost premium estimate to be reasonable. In the Staff Cost Study, we estimated that new waste-to-energy facilities would require a 0.0309 \$/kWh cost premium that when coupled with energy revenues would provide an outlay to the generator of six cents/kWh.

facilities<sup>16</sup> and unlike new landfill gas and biomass co-firing facilities as described below, the addition of new waste-to-energy facilities may not result in a net reduction in existing air emissions.

As to the maintenance of existing waste-to-energy facilities, the purpose of an RPS is not satisfied by providing cost premium payments to the owners of existing generation resources that are profitable under the existing regime or have access to other revenue sources to offset above-market costs. If the generators require additional revenue to remain in operation, their municipal partners have the option to either pay higher "tipping fees" - the fees charged to dispose of solid waste at such a waste-to-energy facility - or in some cases, to raise special benefit real property tax assessments.

### **3. Biomass**

Staff supports inclusion of new biomass generation facilities including biomass co-firing in existing coal plants,

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<sup>16</sup> With respect to statewide air emission changes, the substitution of 100 MWs of waste-to-energy facilities for other facilities otherwise reached on the supply curve might result in a difference in emissions reductions from conventional fossil-fueled facilities depending on what renewable resource is displaced by the waste-to-energy resource. Emission and impact differences, though difficult to quantify, are also possible in the area of non-criteria pollutants (e.g., mercury, dioxins, and furan emissions). Any new generator would have to meet current permitting requirements which, depending on size, could include new source review, and meet Maximum Achievable Control Technology.

the burning of landfill gas at existing landfills, and the use of manure digestion technologies. Staff does not object to the Final Agreement, dated August 8, 2003, prepared by the Biomass Eligibility Working Group. Resources generally considered eligible include, with various qualifications and requirements, sustainable wood harvests, certain processed and treated biomass, and manure.

The co-firing of biomass feedstock in existing coal plants significantly reduces the harmful air emissions from such facilities. Although such co-firing is not a zero-emission resource, creating new opportunities for co-firing at existing facilities results in a beneficial net reduction of air emissions. Similarly, the installation of new facilities to burn landfill gas at existing facilities that would otherwise be vented or "flared" into the atmosphere results in a beneficial net reduction of air emissions. Finally, the use of manure digestion technologies to capture and burn methane that would otherwise be released into the atmosphere results in a beneficial net reduction of air emissions. Manure digestion also has secondary benefits such as reducing undesirable run-off or leachate into water supplies.

#### **4. Fuel Cells**

Fuel cells present a special case. Fuel cells offer great promise as a relatively environmentally benign and versatile

resource that can be utilized without concern about intermittency. Ideally, fuel cells will be fueled by hydrogen collected and compressed using a wind turbine or a solar array to power the collection and compression processes. However, until fuel cell technologies are fully commercialized, it is likely that natural gas will provide their primary fuel source. Allowing fuel cells that operate on natural gas to be eligible would provide an important revenue stream to fuel cell developers that we believe would significantly aid the commercialization of fuel cells fueled by hydrogen. Staff supports the inclusion of all fuel cell technologies as eligible resources regardless of their fuel source with the expectation that ultimately hydrogen-based fuel cells would become commercialized and be the fuel cell technology of choice.

**5. Photovoltaic**

Staff would include photovoltaic resources as eligible due to their environmentally benign, zero-emission characteristic.

**6. Tidal**

Staff would include tidal technologies as an eligible resource due to their environmentally benign, zero-emission characteristic.

**7. Wind Power**

Staff would include wind turbines, both land-based and off-shore, as eligible resources regardless of vintage, due to their zero-emission characteristic.

**8. Customer-sited**

Customer-sited resources include fuel cells and PV, which are discussed above and in the section addressing the Emerging Technology Tier. This category also includes combined heat and power generation (CHP) fueled by renewable resources that sell energy into the electric grid.

**D. Tiers**

Staff supports an RPS structure that consists of three procurement tiers, as follows:

**1. Main Tier**

In the Main Tier, all eligible resources described above would compete against each other on a price basis. The Main Tier would provide 99% of the incremental MWhs needed to satisfy the incremental requirement.

**2. Emerging Technology Tier<sup>17</sup>**

In the Emerging Technology Tier, PV, small wind (up to 300 kW, but generally 10 kW in size), and fuel cells would receive

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<sup>17</sup> Staff's approach is based on reasons similar to those regarding RETEC's Emerging Technology Tier, discussed in both its Individual Procurement/Compliance Method Straw Proposal and Hybrid Procurement Model Straw Proposal.

up-front incentive grants requiring MWh production targets in a manner similar to programs currently administered by NYSERDA using funds generated by the Systems Benefit Charge (SBC). These new incentives would be completely in addition to existing SBC programs. The Emerging Technology Tier is designed to provide one percent of the incremental MWhs needed to satisfy the incremental requirement.

There are three main reasons for this approach. First, these resources are generally sited by customers (not developers) "behind the meter" and do not lend themselves to administrative tracking of consumption in the same manner as large-scale wholesale transactions. This funding mechanism eliminates the need to track these generators' production. Second, the high capital costs of these resources make up-front grants a more efficient procurement method than per-kWh premium payments that would take many years for investment recovery. Third, these technologies' costs are so high that they would not be selected on the energy supply curve at all during the ten-year RPS period. For these reasons, we prefer this approach to RETEC's proposal regarding its Emerging Technology Tier, which calls for payments in the same manner as generators in the Main Tier would receive payments.

### 3. Maintenance Tier for Very Small Hydro

Included in the Baseline are a large number of very small (less than 5 MW) hydropower units. Most of these units are currently under power purchase agreements with utilities, notably Niagara Mohawk. There is a concern that some of these units, due to their size, may not be economically viable without an above-market contract. However, it may be less costly to society to maintain these units than it would be to replace them with new eligible resources.

The vast majority of these small hydropower units fall into one of two categories: (1) Qualifying Facilities (QFs) that entered into IPP contracts (now known to be above-market) prior to 1991, and (2) former Niagara Mohawk hydropower units that were sold in July, 1999 and which, currently, are owned by Reliant and sell their output under a contract that expires September 30, 2004. Because the Reliant contract has been shown to be below market,<sup>18</sup> there does not appear to be a great risk of attrition of these units due to the expiration of the contract. However, most of the old QF contracts were priced well above current market prices. As some of these contracts expire, the

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<sup>18</sup> See Case 01-M-0075, Niagara Mohawk Power Corporation, First Competitive Transition Charge Reset Compliance Filing (filed August 1, 2003), at 320 (Attachment 4, page 5 of 5) and Case 01-E-0383, Niagara Mohawk Power Corporation, Order Accepting Contract For Filing and Establishing Cost Recovery Procedures (issued June 22, 2001), at 4.

revenues sustaining the units may drop significantly, threatening the units' viability.

To address this concern, Staff proposes that small (less than 5 MW) QFs with power purchase agreements effective prior to May 20, 1996, the date of the issuance of the Commission's first major pronouncement on the restructuring of the electric industry,<sup>19</sup> be considered eligible resources as their contracts expire. Toward that end, an increment of MWhs would be added to the Main Tier's incremental acquisition requirement each year.<sup>20</sup> This tier is intended to reduce attrition, so this figure would be added to the incremental target and these resources would compete against other eligible resources.

#### **4. High Value Location Tier**

RETEC proposes in both of its straw proposals, as an incentive for renewable resource developers to build in what it calls "high value locations," a three-fold multiplier for RPS compliance purposes only, but not for the purpose of meeting the emerging technology requirements or for the purpose of disclosure. RETEC explains:

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<sup>19</sup> Case 94-E-0952, In the Matter of Competitive Opportunities Regarding Electric Service, Opinion and Order Regarding Opportunities for Electric Service, Opinion No. 96-12.

<sup>20</sup> The increment is approximately 22,000 MWhs each year. As explained in the Staff Cost Study (at 45), on average, long-term contracts affecting 7.18 MWhs would expire each year. The figure of 22,006 MWhs is derived using a 0.35 capacity factor.

The REC from an eligible generation resource in a high value location will therefore offset three RECs of the LSE's total RPS obligation. If a REC is from an emerging technology, however, it will only reduce by one the number of emerging technology attributes for which the LSE is responsible (the other two reductions will be from the non-emerging technology RPS requirement).

RETEC suggests that areas identified as severe non-attainment for ozone or non-attainment of PM<sub>10</sub> or PM<sub>2.5</sub> standards should be considered high value locations. RETEC also suggests as possible high value locations load pockets and areas identified by Staff in which substantial investments in distribution equipment are contemplated due to high-load conditions.

While Staff appreciates the motivation for this proposal, we are concerned that this approach would create more RECs than would be indicated by actual energy consumption, resulting in confusion in terms of achieving each year's target and would not, therefore, be administratively transparent or efficient. To a large extent, moreover, NYISO zones with generally the highest prices (New York City and Long Island) correspond to non-attainment areas; accordingly, developers already have an incentive to build in "high value locations." It would be reasonable, however, for procuring entities to weigh these issues in the evaluation of the bids resulting from Request For Proposals (RFPs).

**5. Resource Criteria Tier**

The proposal by the Clean Technologies Coalition to award credits based on how well any technology meets RPS goals is overly complicated and may lead to extremely subjective ratings, in contravention of Working Objective No. 6. It appears to be designed to result in the designation of natural gas as an eligible resource; this circumstance would not meet the objective of increasing fuel diversity (Working Objective No. 2). Moreover, this approach merely puts off making decisions regarding eligibility. The proposal is unnecessary given that there are simpler and more transparent ways to determine resource eligibility.

**IV. OVERALL RPS STRUCTURE**

**A. Preferred Procurement Structure**

Staff assessed the strengths and weaknesses of the central procurement model and the individual procurement model against our interests that the procurement structure should complement New York's competitive market structure and be: 1) cost-effective and efficient at meeting the other Working Objectives; 2) fairly applied to all parties; and 3) predictable in terms of market stability. For instance, one strength of the individual procurement approach is that it is in harmony with the State's competitive market structure; competition among LSEs for renewable resources may lead to greater creativity and

incentives to lower costs. Strengths of the central procurement model are the savings of administrative costs (one procurer versus dozens) and elimination of LSEs' concern about entering into long-term contracts.

With these considerations in mind, Staff recommends that LSEs have several options to satisfy their RPS obligations rather than choosing one over another.<sup>21</sup> While Staff supports placing the burden of compliance on individual LSEs, it also supports allowing LSEs to make a competitive business decision to opt in to a cooperative central procurement system that could be implemented by a state entity such as NYSERDA.<sup>22</sup>

By opting in for all or a portion of its RPS procurement needs, an LSE would be able to fulfill its obligations. The NYSERDA-like entity would conduct competitive auctions and act as an intermediary between generators and LSEs. It would provide long-term State-backed assurances sufficient to satisfy generators (and their financiers) without the LSEs having to enter into long-term procurement contracts. Based on the collaborative discussions, such an opt-in provision appears to

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<sup>21</sup> This proposal is similar in many regards to RETEC's July 23, 2003 Hybrid Procurement Model Discussion Proposal.

<sup>22</sup> An alternative compliance mechanism is yet another way LSEs could satisfy their RPS responsibilities, albeit with a risk regarding cost recovery if it is determined that this course of action resulted in an imprudently more expensive cost of satisfying the requirement.

be acceptable to utilities and ESCOs. It lessens, moreover, the problem of what to do about small ESCOs that, without the opt-in, would otherwise be at a competitive disadvantage.

Implementation details concerning the creation, use, and verification of Renewable Energy Certificates (RECs) are planned to be discussed by Working Group Four. Other implementation details, such as how an LSE is assigned its annual budget or the protocol for an LSE to advise the central procurer of its needs, will be developed in a subsequent phase of this proceeding.

**B. Individual Compliance**

Regarding the individual compliance approach developed by Working Group Two, Staff refers to a document entitled "Working Group 2 - Individual Compliance, Case 03-E-0188, Draft Straw Proposal, May 5, 2003," which is appended as Attachment A. Staff supports adoption of the "Consensus Elements" (column 1) and the "Strawman Elements" (column 2).

**C. Central Procurement**

Staff, like RETEC, prefers the state agency model to the NYISO model.<sup>23</sup> The NYISO approach would involve the NYISO's governance process and FERC's approval process, both of which can be unwieldy and challenging. The method for recovery of RPS premiums would also be controversial. In addition, having the

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<sup>23</sup> Staff relies on the documents produced by Working Group Three in reaching the conclusion regarding the preferred central procurer.

NYISO administer the program may create too great a gap between the Commission and the RPS. In contrast, the state agency model is easier to implement and administer. NYSERDA, for instance, has vast experience with programs like the RPS through its administration of the SBC program. In the last several years, the Commission and NYSERDA have forged an excellent relationship working on the SBC program.

**VI. CREDIT TRADING**

**A. Consensus Issues**

Staff agrees with the description of the consensus issues (establishment of New York-based credit trading system and establishment of an implementation track) in the ALJ's June 25 Summary (at 8-9). Accordingly, no other comments on these issues are required at this time.

**B. The Delivery Requirement**

As noted above, Staff supports the eligibility of imports of otherwise eligible resources from outside of New York, subject to a delivery requirement, namely, the energy must be scheduled by the NYISO and physically produced by that generator. A delivery requirement would provide substantial financial and environmental benefits to New York.

Without a delivery requirement, electric ratepayers would incur the premium costs of renewable resources but would forego

the *considerable* reductions in local air emissions,<sup>24</sup> energy security, and wholesale prices that would result from the reduction in fossil fuel generation in New York displaced by the delivered energy. The other advantage of a delivery requirement is that for New York's RPS to win public support, its benefits must accrue to New York. In lieu of a delivery requirement, the Commission, like other states, would likely decide to set a regional geographic eligibility boundary to prevent renewable energy credit trades that would maintain or increase air emissions in upwind areas to the detriment of New York. Such a boundary, however, would potentially create constitutional (Commerce Clause) and treaty (NAFTA) complications.<sup>25</sup>

**C. Other Open Issues**

Staff supports the criteria regarding accounting, administrative, financial, and credibility issues listed in the June 25 Summary (at 10-11). Therefore, there is no need to comment further on these issues at this time.

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<sup>24</sup> RETEC's apparent opposition to a delivery requirement seems inconsistent with its rationale for proposing a "High Value Location" Tier to encourage siting in New York non-attainment areas.

<sup>25</sup> To the extent the boundary is not geographic but is based on benefits to New York as the determinative criteria, the legal complications may be lessened. This approach, however, would significantly delay implementation of the RPS to allow time to conduct scientific studies on various types of emissions, which may be challenged in any event.

## VII. CONTRACTING STANDARDS

### A. Role of Long-Term Contracts

Most developers asserted that long-term contracts of at least 10 years' duration are necessary for a renewable fuel project to gain financing. They explained that because renewable technology is considered by investors as new and innovative and there is a dearth of operational experience upon which investors can rely to make an investment decision, it is difficult to assess construction risk. These developers believe that such factors make long-term contracts necessary.

LSEs oppose long-term contracts largely because of their experience with the Long-Range Avoided Costs (LRAC) contracts of the 1980's.<sup>26</sup> LRAC contracts were awarded when electricity prices were high. The LRAC contracts had envisioned escalating electricity prices and the payment schedules of these contracts reflected this. However, spot prices for electricity fell over time. As the price of electricity fell, the disparity between spot prices and contract prices widened. LSEs are concerned about the management of business risk if long-term contracts are mandated.

Working Group Five explored measures that might obviate the need for long-term contracts. The parties discussed covenants

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<sup>26</sup> The Commission has been reluctant to recommend use of long-term contracts for the same reason.

protecting delivery of generation, including a pre-construction bond to be refunded upon completion of construction milestones; escrow accounts; and reconsideration of credit policies. Such covenants would provide a degree of assurance to the LSEs and mitigate some of the construction risk.

The lack of experience in New York with renewable generation projects suggests that the RPS design allow some flexibility. Staff proposes that in the initial years of the RPS, LSEs and the central procurement agency probe for whether renewable programs need long-term contracts. For example, the first year auction process might call for half of the bids with long-term contracts and half without. This percentage can be adjusted in future years depending on the response. An interim period of five years would probably be long enough to provide the experience necessary to determine to what extent long-term contracts are necessary.

**B. Establishment of Contracts**

**1. Model/Template Contracts or Individual Negotiations**

Working Group Five discussed whether standard contracts or individually negotiated contracts were preferable. The majority seemed to prefer individually negotiated contracts although a consensus was not reached. Staff agrees with the majority

position because it is consistent with our desire to have the contract process encourage creativity by remaining flexible.

## **2. Preferred Contract Types**

The Working Group discussed three types of contracts: (1) power purchase agreements; (2) attributes only contracts; and (3) installed capacity contracts. Several parties suggested that contracts for just attributes may be sufficient, but because of a lack of experience with development of renewable generation, flexibility is required to respond to actual facts and circumstances to ensure that the needed renewable projects obtain financing.

### **C. Features of Bilateral Contracts**

There was no consensus reached as to the appropriate length of contracts and whether contracts should be for both attributes and energy, or attributes-only. However, parties identified essential terms for power purchase agreements as applicable for use for the purchase of energy and attributes. These terms included the EEI Master Power Purchase and Sales Agreement (with Collateral Annex); definition of transactions and confirmation process; performance obligations and assurances; force majeure; product description; credit protection mechanisms; remedies for failure to deliver; termination and early termination; and payment terms.

## **VIII. COST AND BENEFIT CONSIDERATIONS**

Regarding costs and the difference between the Staff Cost Study and the one submitted by the Joint Utilities, we refer to the letter Staff sent to the Joint Utilities on August 28, 2003, appended as Attachment B. We note in passing that Staff's Cost Study shows that the impact of the RPS on customers' bills would be modest and reasonable.

Regarding benefits, results of the MAPS modeling done for the Staff Cost Study show that implementation of an RPS would result in reductions in statewide air emissions because the dispatch of new renewable generation would cause fossil-fired generators to produce less electricity. The Staff Cost Study (at 17) explained that by adding renewable generation:

[B]y the year 2013, total nitrogen oxide (NO<sub>x</sub>) emissions in New York State are projected to be reduced by approximately 8,000 tons (19%); sulfur dioxide (SO<sub>2</sub>) by 14,000 tons (11%); and carbon dioxide (CO<sub>2</sub>) by 5,942,000 tons (12%). More notably, the emission reductions in the New York metropolitan area, including Long Island, are more significant with a 25% reduction in NO<sub>x</sub>; a 39% reduction in SO<sub>2</sub> and a 13% reduction in CO<sub>2</sub>. A reduction in these criteria emissions is an important environmental benefit because of their contribution to acid deposition (acid rain), ozone pollution (smog) and global warming and their resultant health and welfare affects on the public and the environment.

Additional benefits, with which RETEC agrees,<sup>27</sup> include fuel diversity<sup>28</sup> and economic development.<sup>29</sup>

**IX. GREEN MARKETING PROGRAMS**

Staff recommends that the Commission expeditiously explore directing utilities to join with Niagara Mohawk in implementing green marketing programs. While this approach would encourage the development of additional renewable resources in the near term before the RPS demand starts, we recommend that once the RPS starts, green power demand will be incremental to the amounts mandated under the RPS, and not used to reduce the amounts mandated under the RPS (to do otherwise would effectively defeat the purpose of green power purchases to the disappointment of such customers).

**CONCLUSION**

For all the reasons discussed above, Staff is confident that its proposed RPS would achieve the Working Objectives

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<sup>27</sup> "Clean Air, Fuel Diversity and High-Quality Jobs: Reviewing Selected Potential Benefits of an RPS in New York State," dated July 28, 2003.

<sup>28</sup> Staff Cost Study, at 18-19.

<sup>29</sup> Id. at 20.

developed by the parties and the Judge and is consistent with the objectives of the Commission's Instituting Order.

Respectfully submitted,

Saul A. Rigberg  
Assistant Counsel

Paul Agresta  
Assistant Counsel

Dated: September 26, 2003  
Albany, New York

**ATTACHMENT A**

Working Group 2 – Individual Compliance

**Case 03-E-0188**

**Draft Straw Proposal**

**May 5, 2003**

**Proposed by Usher Fogel**

**Proposed by Staff**

<u>Consensus Elements</u>	<u>Strawman Elements</u>	<u>Options Not Included</u>
<i>1. Determine participating entities.</i>		
<p>Include all the following load serving entities: Delivery Companies, COOPs, MUNIs, LIPA, NYPA, and ESCOs. Inclusion of LIPA and NYPA is subject to their right to elect not to take part in the program.</p>	<p>Do not include self-generation load in the calculations because it does not involve retail sales and the administrative burden would outweigh the benefits of inclusion. <b>The RPS program should be designed such that there will be no degradation in any participant's ability to compete in electricity markets.</b></p>	<p>(a) Participation of Self Generators.            (b) ESCO share acquired by the Delivery Utility.  <b>(c) Inclusion of ESCOs is subject to the condition that their participation in the program will not degrade their ability to compete with Delivery Companies if they are required to procure renewable resources beyond what their customers request.</b></p>
<i>2. Adjust target level.</i>		
<p>If LIPA elects not to take part, remove LIPA's load from the calculations.</p>	<p>If NYPA elects not to take part, remove NYPA's full service requirements load from the calculations.</p>	<p>Have participating entities pick up incremental RPS responsibility for the non-participating entities.</p>
<i>3. Determine individual entity target levels based on energy proportion.</i>		
<p>The targets should track actual loads by entity. Credit trading/banking is an important component of individual compliance. A true-up period should be provided to match tradable credits with load. The targets should be a</p>	<p>To ensure that all customers fairly contribute to achieving the targets, no adjustment for the existence of long-term PPAs, or full service requirements service from utilities. Do not</p>	<p>One utility wants targets to be adjusted for the existence of long-term PPAs. ESCOs receiving full requirements service from utilities may want an exclusion. A weather adjustment to targets.</p>

<p>fixed percentage applied to the actual load served. Targets should be ramped up annually. Incremental targets to be determined.</p>	<p>adjust targets for weather, instead allow credits trading and an Alternative Compliance Mechanism.</p>	
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<p><i>4. Alternative Compliance Mechanism.</i></p>		
	<p>An Alternative Compliance Mechanism will add flexibility for participants while assuring that program targets are met even when sufficient renewable energy is unavailable. Participants would have the option of meeting targets through bi-lateral contracts, trading RPS credits or paying a \$/MWh payment into an Alternative Compliance Mechanism fund. the Alternative Compliance fund would be earmarked to fund future renewable energy projects including: renewable power procurement; transmission or other system upgrades to remove barriers to renewables; and, if no reasonable renewable projects can be identified, the fund could be used for DSM programs as a last resort</p> <p>The amount of the payment (may need to be modified for tiers or raised for PVs/fuel cells) would be the lesser of \$50/MWh or 150% of the</p>	<p>One utility wants price caps by technology.</p>

	market value of renewables (market value to be either administratively determined for the applicable period or established in a price-transparent tradable credits market).	
<i>5. Determine Enforcement Mechanism.</i>		
	With an alternative compliance mechanism, there is no need for an additional penalty mechanism beyond statutory provisions.	Pre-set financial penalties for non-compliance.
<i>6. Cost Recovery for Compliance By Delivery Utilities.</i>		
The presumption is that participants would weigh the economics of the various qualifying options and choose the economically favorable option. PSC would reserve its right to review prudence of utility decisions, but in the absence of imprudence, cost recovery would be presumed for complying utilities.		

### Staff Strawman Proposal for Individual Compliance

Assumes participation by all load serving entities.

Set targets to ramp up to 25% goal for 2013

<u>Baseline Renewables</u>	<u>Target</u>	<u>Target Increment</u>	<u>% Increase from Baseline</u>	<u>Incremental as %age of total</u>	<u>Year</u>	<u>SEP Forecast</u>	<u>% Renewables</u>
28,896,189	29,185,151	288,962	1.00%	1.00%	2006	167,490,000	17.43%
28,896,189	29,763,075	577,924	3.00%	1.98%	2007	169,997,000	17.51%
28,896,189	30,918,922	1,155,848	7.00%	3.88%	2008	172,404,000	17.93%
28,896,189	33,230,617	2,311,695	15.00%	7.48%	2009	174,658,000	19.03%
28,896,189	36,120,236	2,889,619	25.00%	8.70%	2010	176,910,000	20.42%
28,896,189	39,298,817	3,178,581	36.00%	8.80%	2011	179,031,000	21.95%
28,896,189	42,477,398	3,178,581	47.00%	8.09%	2012	180,907,000	23.48%
28,896,189	45,716,661	3,239,263	58.20%	7.63%	2013	182,867,000	25.00%

<u>25% Renewables</u>	<u>% of Goal</u>
41,872,500	69.70%
42,499,250	70.03%
43,101,000	71.74%
43,664,500	76.10%
44,227,500	81.67%
44,757,750	87.80%
45,226,750	93.92%
45,716,750	100.00%

Illustrative example of the calculation of each entity's annual share of the incremental obligation based on percentage share of total sales (1<sup>st</sup> 3 years of RPS)

2006								
<u>Utility1</u>	<u>Utility 2</u>	<u>Utility3</u>	<u>ESCO1</u>	<u>ESCO2</u>	<u>NYPA</u>	<u>LIPA</u>	<u>Total</u>	
40,620,169	33,850,141	47,390,197	8,124,034	5,416,023	9,727,351	22,362,086	167,490,000	Actual sales
24.25%	20.21%	28.29%	4.85%	3.23%	5.81%	13.35%	100.00%	% of actual sales
70,080	58,400	81,760	14,016	9,344	16,782	38,580	288,962	Incremental obligation
2007								
<u>Utility1</u>	<u>Utility 2</u>	<u>Utility3</u>	<u>ESCO1</u>	<u>ESCO2</u>	<u>NYPA</u>	<u>LIPA</u>	<u>Total</u>	
41,020,169	34,250,151	47,790,197	8,524,034	5,718,598	9,852,325	22,841,526	169,997,000	Actual sales
24.13%	20.15%	28.11%	5.01%	3.36%	5.80%	13.44%	100.00%	% of actual sales
139,453	116,437	162,468	28,978	19,441	33,494	77,652	577,924	Incremental obligation

Utility1	Utility 2	Utility3	ESCO1	2008		NYPA	LIPA	Total	
				ESCO2					
41,320,169	34,550,141	48,090,197	8,824,034	6,323,134	9,961,696	23,334,630	172,404,000	0	Actual sales
23.97%	20.04%	27.89%	5.12%	3.67%	5.78%	13.53%	100.00%		% of actual sales
277,023	231,634	322,411	59,159	42,392	66,786	156,442	1,155,848		Incremental obligation

Credit trading/banking is necessary to provide flexibility in attaining targets

A true-up period should be provided to match tradable credits with load

An Alternative Compliance Mechanism is necessary to add flexibility for participants while assuring that program targets are met

- gives participants option of meeting targets through bi-lateral contracts, trading RPS credits or paying a per MWh charge into an Alternative Compliance fund
- per MWh charge would equal 150% of the mean REC trade value in the compliance period or \$50/MWh, whichever is less (may need differing caps on the charge if tier system in place)
- REC trade value is determined either administratively or in a transparent tradable credits market
- the Alternative Compliance fund would be earmarked to fund future renewable energy projects including:
  - renewable power procurement
  - transmission or other system upgrades to remove barriers to renewables
  - and, if no reasonable renewable projects can be identified, the fund could be used for DSM programs as a last resort

This model has built-in flexibility and presumes that participants will weigh the economics of the various qualifying options and select the economically favorable set of options

The PSC would reserve its right to review the decisions of utilities made to implement this program  
 Cost recovery is presumed for utilities making prudent decisions

ATTACHMENT B

STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE

THREE EMPIRE STATE PLAZA, ALBANY, NY 12223-1350

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PUBLIC SERVICE COMMISSION

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August 28, 2003

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**BY E-MAIL ONLY**

Re: Case 03-E-0188  
Information Request to the Joint Utilities

Dear Mr. Glasser, Ms. Davis & Ms. Bradley:

Our review of the *Report of Initial Analysis of Proposed New York RPS* prepared at the direction of the Joint Utilities as a summary of their initial cost study (Joint Utilities Study) and the discussions at the August 13

information conference revealed a wide divergence in approach between the Joint Utilities Study and our study summarized in our *New York Renewable Portfolio Standard Cost Study Report*. While the results of the two studies are seemingly disparate, a limited number of different input assumptions regarding the ultimate form of the tier structures, eligibility rules and procurement methods of the Renewable Portfolio Standard (RPS) can be seen to account for the vast majority of the differences (see Appendix A below). Other differences also exist due to dissimilar cost estimates for particular technologies and the inherent differences in the computer simulation models that were used. Directly addressing these differences may help clarify and converge the perspectives of the parties and provide the Commission with even better cost information. Therefore, we propose the following courses of action:

- (1) We will unilaterally re-evaluate our estimate of ICAP payments in response to questions raised about the values used and their relationship to the new "demand curve" approach to ICAP, and report the results of our re-evaluation and its impact of the remainder of the figures in our study.
- (2) We will unilaterally prepare and provide a net-present-value analysis of the results of our study.
- (3) We request that the Joint Utilities incorporate their estimate of the wholesale energy price suppression in the renewables case with their estimate of the RPS premiums required and report the net impact.
- (4) We invite the Joint Utilities to agree with us on a common set of input assumptions regarding the form of the tier structures, eligibility rules and procurement methods of the Renewable Portfolio Standard (RPS) solely for the purposes of conducting the cost studies. We are not seeking agreement on *positions* on any of these issues at this time. For that purpose we have prepared Appendix B below and ask the Joint Utilities to review the list and indicate whether they can agree to the proposed common set of input assumptions and/or provide a sensitivity analysis based on the proposed common set of input assumptions.
- (5) Finally, we have some additional questions regarding the Joint Utilities Study and ask the Joint Utilities to respond to them. Our questions are set forth below in Appendix C.

We greatly appreciate the efforts and cooperation of the Joint Utilities to date in this proceeding and look forward to their continued cooperation. In order for our further efforts to be meaningful, we request that the questions we have asked be answered as soon as possible and that all additional reports be completed and circulated no later than close-of-business Friday, September 12th so as to allow at least a full week to review and incorporate the results in our comments due on Monday, September 22.

Very truly yours,

A handwritten signature in black ink that reads "Paul Agresta". The signature is written in a cursive, slightly slanted style.

PAUL AGRESTA  
Assistant Counsel

cc.: Hon. Eleanor Stein  
RPS ListServe

## APPENDIX A

### Major Causes of Differences in Cost Impact Projections

Note: Many of these differences are not additive. Rather, they leverage the differences in results by several times their individual impact.

- **Major differences in resource eligibility and availability.**

The Joint Utilities Study assumes that a far more limited portfolio of potential resources is eligible or available to meet RPS targets than are allowed under the DPS Staff proposal. Combining a far more abbreviated and steeper supply curve in the Joint Utilities Study with a similar demand forecast to that used by the DPS results in reaching up the supply curve to very high-cost resources far more quickly than the DPS study. The major differences include:

  - **Hydro:** The Joint Utilities study omits any incremental hydro additions; the DPS study assumed low-impact hydro is eligible;
  - **Biomass Co-firing:** Biomass co-firing represents a significant source of low-cost incremental renewable energy supply in the DPS study. While the Joint Utilities Study treats it as eligible, the quantity is artificially limited to a negligible total by assuming that only 5% of New York's plants could co-fire, and limits the co-firing percentage to only 5% of fuel input;
  - **Other Biomass Sources:** The Joint Utilities Study omits all other sources of biomass considered by the DPS other than the highest cost source (Greenfield IGCC plants). Lower cost sources omitted include CHP and manure digesters, sources that were included in the DPS study. The Joint Utilities Study also limits the quantity of biomass resources available to the quantity reflected in the Greenhouse Gas Scenario from the NYSERDA Resource Assessment developed by Optimal Energy. However, this scenario is explicitly defined as one that does not reflect the demands of an RPS, acknowledging that an RPS would tap further into the technological potential, and therefore was never intended to represent such a limit;
  - **Imports:** The Joint Utilities Study omits all imports; the DPS study reflects the Staff position that imports are eligible with bundled delivery to New York, and models these imports accounting for the costs and constraints on such imports; and
  - **Wind:** All off-shore wind is omitted from the Joint Utilities Study; the DPS study assumes that off-shore wind is eligible and available, although at markedly

higher capital cost than land-based plants of similar scale.

- **The Joint Utilities Study's solar and fuel cell tier are ten times the size of the DPS's SBC-like tier.** The Joint Utilities Study forces an order of magnitude greater quantity of high-cost solar PV and fuel cells into the analysis than the 1% aggregate contribution of the SBC-like tier in the DPS analysis. Because the resources comprising this tier have costs so far in excess of the costs of the other tier, the effect of assuming that 5% of the supply comes from *each* of these high-cost sources, or 10% in total, may be to roughly double the projected compliance cost.
- **Spot versus Long-Term Contracting Methodology:** The Joint Utilities Study uses a spot market clearing price approach for all resources. In other words, *all* renewables in latter years are assumed to sell at the price at which the market clears, at the intersection of total new renewables demand and total supply. This is similar to the approach used in modeling the Massachusetts RPS, which reflect RPS rules that do not require or even encourage long-term contracting. In contrast, the Staff proposal requires long-term contracting for the incremental demand in each year (with 2 different scenarios reflecting different approaches to estimating the applicable contract price). The DPS cost study reflects this long-term contracting as defining long-term contract pricing for each incremental round of procurement. With increasing costs for subsequent rounds of procurement, the DPS costs increase somewhat over time (moderated by some degree of technological advance). If the supply curves under both analyses were the same, the Joint Utilities approach would result in higher cost than the long-term contracting approach, because the lower costs from earlier years are not locked-in over time. However, the higher cost assumptions in the Joint Utilities Study that result from the differences in resource eligibility and availability discussed above apply to all MWh, rather than the estimate of the incremental quantity procured in each year. The Joint Utilities Study's combination of spot market procurement assumption with the abbreviated supply curve therefore magnifies the difference between the studies.
- **Capital Cost of Wind:** The Joint Utilities Study's wind capital cost multipliers for subsequent "blocks" of wind are significantly higher for the higher cost blocks than

those assumed in the DPS Staff study. Because the Joint Utilities Study assumes that few other resources are available, and thus relies heavily on these more expensive wind blocks to set the entire cost of compliance, the effect of these assumptions is once again magnified.

- **The Capacity Expansion Plan:** Pending further investigation and clarification, the approach used to modify the capacity expansion plan between base case and RPS scenarios in each study may also be a major factor driving different conclusions between the staff and Joint Utilities studies. It is clear that: (a) the degree to which the capacity expansion plan is scaled back will influence the modeled downward pressure on prices (this also depends on whether prices are modeled on a market-clearing or embedded methodology), and (b) the relatively greater reliance upon intermittent wind resources by the Joint Utilities Study may drive what appears to be an greater amount of new combined cycle capacity modeled in the Joint Utilities Study's RPS case.
- **Wind Costs and Performance:** Beyond the capital cost issues addressed above, it appears that some wind costs or cost drivers in the Joint Utilities Study may be aggressive while others are conservative; further analysis is required to determine whether, in combination, the aggregate impact is conservative or optimistic.
- **Appropriate Measurement of Scenario Costs:** The DPS study estimates the costs to ratepayers (i.e., zonal market clearing prices multiplied by all NY energy requirements) in each scenario. Under this method, the suppression of market clearing prices significantly offsets the estimated costs of RECs to meet the RPS. In contrast, the Joint Utilities study appears to estimate the production costs (including fuel, O&M and capital recovery) for each scenario. Significantly, under the present market structure (in which NY power plants were divested to generating companies), most of these costs are paid by generators, not customers. Also, they do not vary strongly between scenarios. Overall, this difference in focus (i.e., customer costs vs. production costs) appears to be an important driver of the difference in reported results between the two studies.
- **Treatment of Import Costs.** The Joint Utilities study projects that a large fraction of the energy generated by

new renewables in New York will displace imports that would otherwise be needed to serve load in the state. Significantly, though, the Joint Utilities study does not appear to capture the substantial reduction in import costs that would result. This appears to be a significant contributor to the difference in RPS cost results for the two studies.

- **Financing:** The Joint Utilities Study assumed much lower cost of equity and much higher cost of debt than were used in the DPS study. Further analysis of the carrying charges (not shown on the Joint Utilities Study) is required to assess whether these differences caused material differences in results.
- **RPS Targets:** RPS percentages are somewhat higher in the Joint Utilities Study than the DPS.
- **Landfill Gas:** The Joint Utilities Study's data source, the EPA's Landfill Methane Outreach Program database, is not a comprehensive or complete source of data. The Joint Utilities study does not account for increases in methane production that result from future landfilling. The data source underlying the DPS study, which projects a greater quantity of output from this resource class, is far more comprehensive.
- **Wholesale energy price suppression.** It appears that the Joint Utilities study estimates wholesale energy price suppression in the renewable cases. The results (on the order of \$1/MWh price suppression in 2013) are significant, although somewhat smaller than in the DPS study. It is not immediately clear how, if at all, the estimated price suppression is reflected in the reported Joint Utilities study results.
- **Real versus discounted total impact:** The DPS study presents results primarily in terms of real annual cost impacts, expressed in 2003 dollars, while the Joint Utilities study results are presented primarily in net present value terms.
- **Gas Price Suppression:** The Joint Utilities Study assumed that the decline in gas consumption of 4-5% does not reduce price of gas. While the percentage may be small, its impact is on all kwh and MCF, and that makes it add up.

## APPENDIX B

### Proposed Common Set of Input Assumptions

#### Tier Structure

1. Use Two Tiers - an SBC-Like set-aside tier for PV, Small wind and Fuel Cells providing 1% of the incremental MWh's, and a Main Tier with all eligible resources competing on a price basis providing 99% of the incremental MWh's.
2. Use forecast of load and RPS percentages as follows:

Year	SEP Forecast (MWh's)	RPS Percentages
2006	167,490,000	0.94%
2007	169,977,000	1.88%
2008	172,404,000	2.82%
2009	174,658,000	3.76%
2010	176,910,000	4.70%
2011	179,031,000	5.64%
2012	180,907,000	6.58%
2013	182,866,999	7.52%

#### Eligibility Rules

Incorporate as eligible resources the following:

1. Wind;
2. Off-Shore Wind in New York's Great Lakes as well as off the shore of Long Island;
3. New biomass co-firing at existing coal plants (remove the artificial limitation on biomass co-firing - currently at 5% of 200 MW - to reflect what co-firing could realistically be tapped in the event significant additional revenues were available due to the RPS);
4. New biomass CHP;
5. New biomass Gasification;
6. New low-impact hydro (up to 30MW per facility);
7. New upgrades to existing hydro facilities (no size limit, but no new impoundments are permitted);
8. New landfill gas using internal combustion engines and micro turbines;

9. New manure digestion; and
10. Imports of all types of eligible resources from outside of New York, subject to delivery constraint (e.g. energy must be contractually transmitted to New York Control Area).

**Procurement Methods**

1. Assume long-term (ten year plus) contracts-for-differences acquired in annual incremental "slices" at the price bid (as opposed to paying all renewable resource premiums at the spot REC price).

## APPENDIX C

### Additional Questions Regarding the Joint Utilities Study

1. Please explain how, in the IPM analysis, the amounts of imports to NY and associated prices are determined.
2. For each scenario, identify the annual MWh's of imports to NY that are projected, and the associated annual cost.
3. Please explain how, in the IPM analysis, the amounts of exports from NY and associated prices are determined.
4. For each scenario, identify the annual MWh's of exports from NY that are projected, and the associated annual revenue.
5. Please provide a revised set of annual and NPV results (cite specific tables) for each scenario, treating imports to NY as costs and exports from NY as revenues (i.e., reductions to cost).
6. Please explain the method by which generation additions and retirements were made in each case. In particular, provide an example of the comparisons that are made.
7. To the extent that certain new generation units (not renewable) have been hard wired but are not yet under construction, please estimate the magnitude of costs that would be avoided if these units were not hardwired due to addition of RPS renewable resources.
8. Provide detailed project financing assumptions so we can assess whether this is a source of differences.
9. There appears to be an approximately 7,000 MWh difference in the numbers used by ICF to represent the load forecast and the corresponding numbers in the SEP 2002 forecast. Can you explain the difference?
10. Because electric generation under the Scenarios 1 and 2 is greater than the generation in the reference case and import production costs are ignored, shouldn't production cost and emissions be compared on a per MWh basis? On a per MWh basis, what is the production cost difference of the reference case, Scenario 1, and Scenario 2.
11. Do the emissions calculations take into account differences in generation levels between the 3 Scenarios? Do emissions

calculations take into account any changes in emissions due to generation characteristics of imports?

12. On page 28 of the ICF Study it states, "The NY regions did not build peaking capacity in the Reference Case, nor do they in the RPS Scenarios." Does this affect energy prices and REC prices? If yes, how are energy and REC prices affected?
13. On page 59 of the ICF Study, it appears that surrounding control area's reserve margins are declining over time. Can ICF document the validity of this assumption? What effect does this assumption have on RPS program cost?