

THE E CUBED COMPANY, L.L.C.

E3

Providers of Strategic
Energy Services At
The Exponential
Interface Among

- Energy
- Economics and
- Environment

Ruben S. Brown,
M.A., M.A.L.D.,
President

September 26, 2003

Hon. Jaclyn Brilling
Acting Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

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

Dear Secretary Brilling:

The E Cubed Company, LLC, is pleased to submit our initial comments in this proceeding. We support adoption of the Clean Technology Coalition (CTC) eligibility proposal among other comments. Please note that the members of the CTC have elected to file individual initial comments and will not be filing initial comments as a coalition.

This original comment and five copies are provided to the Commission.

Very Truly Yours,

L. Keith O'Neal
Consulting Associate
The E Cubed Company,

LLC

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Case 03-E-0188- Proceeding on Motion of the Commission
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Initial Comments of the The E Cubed Company, LLC

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Introduction

A significant number of parties supplied comments at the outset of the RPS proceeding indicating that various environmentally beneficial technologies should be eligible to participate and meet the requirements of a renewable portfolio standard. Generally, these comments, including those of a group of entities called “Assembled CHP Interests,” urged the PSC to make eligibility for participation in RPS technology neutral and based on environmental performance, optimum energy efficiency and cost. These comments are still valid and the Commission should actively consider them in making its final decision in this proceeding and, therefore, these initial comments will not repeat them.

The Clean Technologies Coalition (CTC) was created during the course of this proceeding when the interests of many parties to this proceeding converged on how to determine eligibility requirements that would best advance the working objectives of RPS instead of administratively choosing a set of eligible resources based on perceived levels of benefits. CTC worked hard to develop a concept that would determine eligible resources based on the quantitative value each one brought to the attainment of RPS working objectives. With the development of a workable concept more parties subsequently signed on to the CTC proposal representing a broad array of industry participants including customers, engine and equipment manufacturers, small renewables, CHP, utilities and major energy corporations.

These initial comments of the E Cubed Company, LLC provide support for the eligibility proposal of CTC. CTC members will be filing comments in support of this proposal individually. The CTC eligibility proposal is already a part of the record in this proceeding but is attached to these comments as well.

Summary

The E Cubed Company urges the Commission to adopt the eligibility concept that was distributed to all RPS parties on June 9, 2003 entitled “Clean Technologies Coalition Eligibility Proposal based on Technology Attributes Measurement,” and that is appended

to these comments. These initial comments support the following conclusions that provide the basis for the CTC's eligibility proposal:

1. The draft RPS working objectives and the final objectives adopted by the Commission should determine the technologies that are able to participate. Those technologies that best advance the RPS objectives should, therefore, be eligible.
2. The working target should not itself determine eligibility by applying solely to an undefined set of renewable technologies. The working target should state that RPS resources should provide 25% of all generation in New York State by 2013.
3. The CTC eligibility proposal eliminates the need to administratively determine eligible participants by quantitatively determining how well each technology achieves the objectives of RPS and ranking each technology accordingly. RPS credits or premiums are then awarded according to ranking.
4. The working objectives should include and abide by administrative fairness, should include economic development for all RPS eligible resources and not just an undefined set of renewable resources, and include a reliability objective that RPS technologies should enhance, or at the very least, not detract from power system reliability.
5. If certain new and developing clean technologies are ineligible for RPS, achievement of RPS objectives, and of State energy policy goals, is diminished and further barriers for entry of these technologies are created.
6. The CTC proposal is conceptual. Implementation will require defined final criteria (e.g. greenhouse gas emissions), defined measurement of those criteria (ie units of greenhouse gas emissions), weighting factors to reflect the relative importance of RPS objectives (i.e. environmental objectives are probably higher priority than other objectives).
7. While the implementation process described above is likely arduous, it only has to be done once prior to implementation of RPS. The scoring of each technology is done once- the score will determine the RPS credit per kW of each facility that uses this technology. Ongoing administration is, therefore, simple.

8. All else equal, adoption of the CTC eligibility proposal will reduce the costs of RPS by expanding the population of eligible participants- in other words there will be more choices for loads to meet RPS requirements.
- 9.

Comments on Revised Working Objectives

Working Objectives

The collective set of draft Working Objectives put together by Judge Stein dated April 8, 2003 directly mirror New York State policy goals in developing electric generating resources to meet growing electric demand. Except for several issues associated with broadening the objectives, The E Cubed Company supports construction of an RPS that best achieves these objectives.

At the outset of this proceeding, however, the goals and objectives with respect to developing electric generating resources may have been presumed best met solely by renewable resource- fueled generation without analysis of this conclusion.

RPS can certainly be constructed to support development of renewable resource- fueled generation alone and it will go a long way toward meeting the objectives as stated in this proceeding, but it is likely that restrictions to these technologies will not optimize achievement of RPS objectives. To illustrate, solar technologies clearly should not be exclusive RPS participants because RPS objectives could be better met including other technologies with beneficial environmental attributes. Adding all renewable technologies, which is not easily defined and probably arbitrary, will improve achievement but leaving out still further environmentally beneficial technologies is likely not optimum as well.

Suppose a new non-renewable technology comes along that better meets most of the stated objectives than any current renewable technology. Should such a technology be excluded from RPS? Suppose a new and extremely efficient means of hydrogen extraction is developed but uses a small amount of fossil energy in the process. Should hydrogen powered fuel cells be excluded?

The E Cubed Company believes that RPS should focus on meeting the defined set of working objectives in the most efficient and fair manner and not focus on particular

technologies. With regard to the specific draft working objectives we recommend the following:

1. Develop an RPS that is administratively fair. While this objective is a headline among the objectives, the detail that administratively fair applies to technologies that best meet the collective set of objectives is missing.
2. The “economic development” objective should not apply solely to renewable resources but to all eligible RPS technologies.
3. A reliability objective should be added. RPS technologies should enhance, or at the very least, not detract from power system reliability.

Working Target

The creation of a target is related directly to the goals and objectives of New York State with regard to development of generating resources to meet growing electric demand. Resources that best meet the RPS working objectives, no matter the technology, must be incorporated into the working target. Therefore, the working target should state that RPS resources should provide 25% of all generation in New York State by 2013.

Eligibility

Eligibility should be based on how well each resource meets RPS objectives

The discussion above on working objectives provides the central theme of the CTC eligibility proposal. Programs and activity evolve and are implemented to achieve defined goals and objectives. Is the singular goal of RPS to develop renewable resource-fueled generation, or are there multiple working objectives with an emphasis on environmental attributes? Even if RPS should promote the development of renewable resources and new renewable technologies and even if this industry needs a jump-start in this state, that does not mean this is the entire and sole objective of RPS nor should it mean that only renewable resources are eligible. Indeed, many RPS parties have contributed to a number of working objectives that many new technologies can contribute

to including, but not limited to, fuel cells, efficient combined heat and power (CHP) distributed generation and biomass technologies. The E Cubed Company therefore urges the PSC to incorporate all environmentally beneficial technologies into an RPS.

It is difficult to determine resources with the best attributes and rank them accordingly. Many parties chose not to put any thought into this problem believing that policy makers had already determined that RPS would only include renewable resources and it was simply a question of which of the existing technologies were truly renewable, a much easier question to determine administratively than precise measurement of the attributes of various technologies. Thus, even parties with renewable interests suggested tier proposals where pre-determinations on various renewable technologies would give full credit to some renewable technologies and no credit at all to others. In other words, they would have the policy makers determine that you were either in or out.

Some parties chose to present tier systems that arbitrarily excluded many technologies and arbitrarily assigned technologies into several tiers based on perceived environmental attributes. These tier proposals generally do not recognize attributes that would further non-environmental RPS working objectives. Moreover, these tier methodologies are neither administratively fair, nor technologically neutral, nor do they best advance the working objectives of RPS.

In the end, it is logical to draw the conclusion that RPS should work toward maximum attainment of the established working objectives of RPS. Once those objectives are established as they have been in draft form, it is clear that many new and emerging technologies that, indeed, are recognized in the State Energy Plan for their beneficial environmental and efficiency attributes, can well contribute to attainment of the objectives. It becomes equally clear that if certain of these clean technologies are left out, achievement of those objectives, and of State energy policy goals, is diminished. Moreover, RPS will create favored and better financial and economic opportunities for eligible technologies and conversely prove to be a barrier for excluded technologies, even those with positive environmental attributes and that otherwise are supported by State energy policy (the market price, all else equal, for non-eligible technologies will be reduced with the advent of RPS).

The CTC proposal on Eligibility

The CTC was formed to develop a specific concept that would provide a means to quantify and rank the attributes of all technologies according to each technology's ability to advance the goals and objectives of the RPS proceeding. The intent was to supplant subjective arguments on eligibility with a means to quantify the value of all technologies, whether stand alone or behind the meter, against the goals and objectives of the proceeding, and award RPS credits based on value. The CTC achieved the development of such a concept and first distributed it to RPS parties on June 9, 2003. It is attached as part of these initial comments in this proceeding.

While the complete details of the concept are attached, its key elements are:

1. No technologies are excluded except by lack of positive attributes that meet RPS objectives.
2. Technology attribute measurement criteria are developed that are quantifiable to the extent possible and that directly reflect the RPS objectives.
3. Technology attribute measurement criteria are weighted to reflect the highest priority goals of RPS.
4. Each technology's attributes are measured against the established criteria.
5. A minimum threshold or baseline score for earning any RPS credits or RPS premium needs to be established. The threshold example in this proposal is the combined attribute score of a central station gas fired combined-cycle facility.

We invite the Commission to take note of several important characteristics of our proposal:

- The attributes of most technologies in regard to the specific criteria used in our example are quantifiable.
- Environmental criteria that match RPS environmental objectives can be weighted to appropriately reflect those technologies with particularly positive environmental characteristics such as renewable resources.

- Because of the selection of a gas fired combined cycle facility as the threshold for scoring, scores at or below this threshold will not earn credits. Thus, existing central station technologies will not earn credits.
- While the set of criteria used in the CTC example is reasonable, there was insufficient time to perform a comprehensive study on all possible criteria and thus further research and study, best informed by a working group of RPS participants, may be needed to choose final criteria.
- The scoring mechanism provided in the example is for illustrative purposes only and is not meant to prejudge either the weighting of the criteria or the quantified application of those criteria. The weighting, quantification and determination of final criteria will need to be the subject of further discussion and development in this proceeding. However, CTC has adequately demonstrated the concept in the attribute-scoring example attached.

Implementation of this proposal would require the following actions:

1. Define the specific criteria based on RPS goals and objectives
2. Define how each criterion will be measured.
3. Determine the weighting of the specific criteria based on RPS goals and objectives.
4. Calculate the premium or credit multiplier for each participant technology on the basis of 1-3 above.
5. Integrate and automate the use of the premium or credit multiplier of participant resources into the accounting and tracking methodology adopted for the RPS.

Technology attribute measurement criteria

In the attached example the following criteria are used. While these criteria serve as an example in illustration of the CTC eligibility proposal, E Cubed believes this set of criteria is responsive to the draft RPS objectives:

1. *Greenhouse gas (GHG) life cycle emissions*: this criterion would assign the most credits to technologies with the lowest emissions, and reduced credits on a

- descending scale for greater and greater emissions. It is designed to reflect the environmental objectives of RPS.
2. *Other environmental benefits*: this criterion would include but not necessarily be limited to criteria pollutant life cycle emissions and waste recovery and would be developed similar to 1.
 3. *Reduction in fossil fuel use*: this criterion awards credit to technologies that reduce the use of fossil fuels. It would be designed to reflect the environmental objectives of RPS.
 4. *Energy security and reliability*: credit is awarded to those technologies that best increase generation diversity and improve energy security and reliability.
 5. *Economic development*: credit is awarded to those technologies that best attract economic activity to New York State.
 6. *Energy costs*: credit is awarded to those technologies that are the most cost effective (this criterion could otherwise be taken account of if the RPS adopts a market approach for procurement of RPS credits).
 7. *Efficiency*: credit is awarded to those technologies that most efficiently convert fuel to energy (for example, efficiency calculations for CHP systems would include thermal output).

While the process of establishing criteria, quantifiable measures and weighting factors would require technical and policy analysis, this process need only be done once at the outset of implementation of RPS. After that, the relative scores of each technology can be automated into the accounting and tracking methodology adopted by RPS requiring little to no ongoing administration. After initial implementation of an RPS, new technologies that can qualify based on attribute performance can be easily scored since criteria and measurements are already established.

The general idea of the scoring of technologies contained more completely in the attached example is that all technologies would be “scored” according to established criteria. For instance, since solar has no emissions it would receive the highest score for emissions criteria (wind might also receive the highest score for this criteria). Other technologies would have precise and measurable emission profiles that can easily be scored. The high solar score for emissions would then be multiplied by a weighting factor assigned to the emissions criteria based on how important this criteria is to achieving the objectives of RPS. In this instance, and by way of example only, environmental criteria were judged to be twice as important as other RPS objectives and so the solar score for emissions is then multiplied by 2.

Thus, solar technologies would receive high scores on environmental attributes and, again in this example for illustration only, solar ends up with the highest score. Solar would then receive full RPS credit and other technologies with lower scores would be awarded lower RPS credits or premiums in proportion to the percent below the best score (if technology A's score is 50% below solar then it earns half the RPS credit of solar). It should also be mentioned that while CTC has chosen to include a criterion called "Energy security and reliability" in its example, and we believe this criterion important, it does not contain an element or credit for a resource's location. The CTC proposal intends this criterion to award points to technologies that increase generation diversity and support operation of the grid. The current location based marginal pricing methodology already provides higher pricing based on location and thus such a component in RPS would doubly award such resources.

As pointed out earlier and worth repeating, E Cubed believes that the criteria used in the attached example are reasonable based on the draft working objectives of RPS. However, these criteria have not stood a full and rigorous scrutiny of RPS participants, staff or the Commission, nor were we capable of selecting criteria based on final RPS working since those objectives are yet to be determined.

Customer-sited

This is an extremely important issue for many renewable technologies and many new and developing clean technologies because many facilities with these technologies only exist behind the customer meter. There is no reason not to include customer-sited resources in an RPS. All of these facilities can fully participate in the NYISO wholesale markets nearly on an equal basis with other generating resources so there is no "grid" basis to exclude them.

Moreover, customer-sited facilities are demonstrating new and innovative and clean technologies such as fuel cells, solar and landfill gas use. Some are hybrid technologies using renewable resources to supply part of a host load while using conventional but yet clean micro-turbine applications for peak and backup services. These are developing clean technologies that deserve to be recognized and can contribute toward achievement of RPS objectives.

Even facilities with environmentally beneficial technologies that remove a load from the grid should count toward the RPS working target. While there is a serious question about awarding RPS credit for such off-grid applications, there should be no doubt that such environmentally beneficial facilities are providing the same environmental benefits as grid connected facilities. Load that otherwise would have to be supplied, grid connected or not, is being supplied by environmentally beneficial technologies and RPS objectives are being advanced.

In addition, the use of CHP and other onsite resource provide a number of other important benefits. One such benefit is that onsite generation of electricity avoids line losses from the transmission and distribution of electricity over long distances, which can range up to 10% or higher. Thus, the need for generation resources in total is reduced by 10%, a huge environmental benefit. Onsite generation may also reduce the need to build new distribution or transmission facilities in constrained areas, thus avoiding the cost and environmental implications of such construction. Onsite generation can also enhance the reliability and quality of electrical service to the host facility. This may be of particular benefit to those using computers and other sensitive equipment that may suffer severe losses from downtime and loss of data from even brief interruptions of service. Numerous other industrial, commercial and residential customers can also benefit from having protection from interruptions of service due to natural or manmade disasters. Onsite generation thus enhances energy security because of its efficiency, and national security by mitigating the risks of disruptions to the electricity grid.