

-----Original Message-----

**From:** Swaylik Craig [<mailto:CSwaylik@njng.com>]

**Sent:** Tuesday, January 10, 2012 8:13 AM

**To:** 'publiccomments@njcleanenergy.com'

**Cc:** 'Grossman, Bruce (SJG)'; 'Gary Marmo'; Winka, M; Peracchio Anne-Marie

**Subject:** Review criteria

All,

The following criteria was used to rank the CHP proposals when we originally launched the CHP program:

- System efficiency (out of 40)
- Technical feasibility (out of 20)
- Environmental performance (out of 20)
- Project completion potential (out of 10)
- General programmatic objectives (out of 2)
- Electric congestion area (out of 2)
- Smart Growth area (out of 2)
- Island capability (out of 2)
- Emergency management facility (out of 2)

Overall, this should be a good starting point for ranking future projects. The Smart Growth criteria can be eliminated and there are still questions about what defines an electric congestion area, so, minor tweaks are called for.

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**MURRAY E. BEVAN**  
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January 12, 2012

**VIA ELECTRONIC AND REGULAR MAIL**

Michael Winka  
Director, Office of Clean Energy  
New Jersey Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625-0350  
[mwinka@bpu.state.nj.us](mailto:mwinka@bpu.state.nj.us)

***Re: Comments on the Large CHP/Fuel Cell Program***

Dear Director Winka:

On behalf of our client, Bloom Energy ("Bloom"), we support the Large Combined Heat and Power/Fuel Cell Program ("Large CHP/FC Program") currently being designed by the Large CHP/FC Working Group<sup>1</sup> ("Working Group") formed by the Board of Public Utility's Office of Clean Energy. Bloom believes that the Large CHP/FC Program should have a positive impact in assisting New Jersey to reach its energy efficiency and greenhouse gas reduction goals by encouraging large energy consumers to engage in more energy efficiency projects.

Bloom's energy server is a breakthrough solid oxide fuel cell technology that generates clean, highly-efficient power onsite. These fuel cells operate at a much higher temperature (800°-1000° C) than other distributed generation technologies, including traditional CHP systems. This temperature range enables Bloom's technology to achieve extremely high

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<sup>1</sup> Although, as a potential recipient of incentives under the Large CHP/FC Program, Bloom is not a member of the Working Group and will not send representatives to future Working Group meetings, a Bloom representative did attend the initial Working Group meeting on January 5, 2012, which was open to all parties regardless of whether or not they intend to seek incentives under the program.

electrical efficiencies – exceeding 50% efficiency (LHV net AC) — which requires capturing the waste heat generated from high temperature operation and recycling it back within the system (internally) to boost overall electrical efficiency.

As the manufacturer of such highly efficient energy servers, Bloom is pleased that the Working Group plans to provide incentives for fuel cells powered by natural gas within the Large CHP/FC Program. In particular, Bloom supports the Working Group's plan to include fuel cells within the program and to establish an adequate incentive level, which, under current customer economics, requires a higher incentive level than CHP.

Although Bloom is generally supportive of the Large CHP/FC Program and the inclusion of fuel cells powered by natural gas within this program, Bloom is concerned that the incentive levels which were proposed at the initial Working Group meeting are simply not high enough to attract certain-sized customers in light of the incentive levels and project cap provided for CHP and fuel cell projects under a separate and mutually exclusive<sup>2</sup> Office of Clean Energy program for projects up to 1 MW (the "Small CHP/FC Program"). For example, while it was suggested that an incentive level of approximately \$.45/watt with a \$2.5 million cap would be available for CHP projects powered by non-renewable fuel sources under the Large CHP/FC Program, much larger incentives of up to \$2.25/watt with a \$2.25 million project cap<sup>3</sup> are currently provided for CHP projects powered by non-renewable fuel sources under the Small CHP/FC Program. Although the Small CHP/FC Program only provides incentives up to 1 MW, projects of any size are allowed to participate. Thus, CHP projects in the 1-3 MW range could participate in and receive a greater overall incentive from the Small CHP/FC Program than the Large CHP/FC

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<sup>2</sup> Board staff has indicated that parties will be allowed to participate in either the Large CHP/FC Program or Small CHP/FC Program, but not both programs.

<sup>3</sup> Under the Small CHP/FC Program, CHP Powered by a Non-Renewable Fuel Source is entitled to an incentive of \$1.00/watt with a utility match of \$1.00/watt, i.e. \$2.00/watt total, for up to 500 kW, and \$.50/ watt with a utility match of \$.50/watt, i.e. \$1.00/watt total, from 500 kW to 1000 kW. If customers applying for these incentives have participated in the New Jersey Clean Energy Program's Pay for Performance program, they are entitled to receive an additional \$.25/ watt, up to an additional \$250,000. Thus, the total incentive could be as high as \$2.25/ watt up to a program cap of \$2,250,000.

Program. Not only would such “gaming of the system” thwart the goals of each program to incent large and small CHP and FC projects, respectively, but it also presents a serious risk that the more modestly funded<sup>4</sup> Small CHP/FC Program will be rapidly depleted of funds, preventing worthy projects smaller than 1 MW from receiving these much needed incentives.

Such potential to “game the system” would be exacerbated among customers installing fuel cells powered by natural gas who would be even more motivated to seek incentives under the Small CHP/FC Program than customers installing CHP. At \$.45/watt for fuel cells<sup>5</sup> with a project cap of \$2 million, under the Large CHP/FC Program, for example, any customers installing a fuel cell project under 7 MW would be better off economically if they sought incentives for the first 1 MW of the project under the Small CHP/FC Program.<sup>6</sup>

To prevent “gaming of the system,” Bloom suggests that incentive levels under the Large CHP/FC Program be made large enough to encourage customers using over 1 MW to participate in this program rather than the Small CHP/FC Program. Bloom believes the best way to steer customers over 1 MW towards the Large CHP/FC Program would be to offer a declining incentive, whereby customers would receive a proportionately lower incentive for each subsequent MW of power their CHP or fuel cell system produces. Such a declining incentive structure would have the dual benefits of encouraging a high number of participants within Large

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<sup>4</sup> In the current budget cycle for 2012, the Large CHP/FC Program is allotted \$55 million, while the Small CHP/FC Program is allotted \$20 million.

<sup>5</sup> This number is provided by way of example. Bloom understands that the Working Group is planning to establish a higher incentive level for fuel cells than CHP. However, the specific incentive levels for the large CHP/FC program were not discussed at the initial Working Group meeting.

<sup>6</sup> Under the Small CHP/FC Program, “Fuel Cells without Waste Heat Utilization” powered by natural gas are entitled to an incentive of \$1.50/watt with a utility match of \$1.50/ watt, i.e. \$3.00/watt total, up to \$2 million. If customers applying for these incentives have participated in the New Jersey Clean Energy Program’s Pay for Performance program, they are entitled to receive an additional \$.25/ watt, up to an additional \$250,000. Thus, the total incentive could be as high as \$3.25/watt up to a program cap of \$2.25 million.

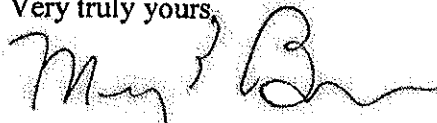
Unless a customer installed a fuel cell project that was 7 MW or higher (in which \$.45 x 7 MW would exceed the \$3.00 x 1 MW), it would appear not to make economic sense to apply for incentives under the Large CHP Program, especially since the program caps being discussed are essentially the same as the Small CHP/FC Program at \$2 to \$2.5 million.

Michael Winka  
January 12, 2012  
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CHP/FC program, while also ensuring that a high level of overall energy efficiency is achieved from the program.

Once again, Bloom wants to express its whole-hearted support for the Large CHP/FC Program and the inclusion of fuel cells within the program. Bloom urges the Working Group to establish incentive levels that are high enough to steer *all* customers installing projects above 1 MW, and not just customers installing significantly larger projects above the 5-6 MW range, towards the Large CHP/FC Program, rather than the Small CHP/FC Program. Please do not hesitate to contact me should you have any questions or concerns.

Very truly yours,



Murray E. Bevan

CHP/FC Working Group - Response to Winka's Memo of 1/5/2012

The NJDEP certainly supports the advancement of CHP systems in NJ. However, even though CHP systems fueled by natural gas or other fuel distillates would result in regional reductions of CHG and criteria pollutants emissions and provide electricity to benefit NJ residents, there is a potential for increases in localized emissions, which may have negative impacts to environmental justice areas and residents with respiratory ailments. Therefore, CHP projects receiving State incentives should be held to a higher performance standard than business as usual. Consequently, the recommended evaluation criteria from NJDEP in response to the questions in item 12 of Mike Winka's memo are as follows:

**1. What should be the minimum requirements for a project being considered for incentives?**

NJDEP Response:

Somewhat similar to prior NJ-supported CHP projects where the minimum requirements should include the following:

- A minimum thermal efficiency of 65%.
- Primary fuel type must be natural gas or equivalent (in terms of emissions).
- Ability to acquire appropriate NJDEP permits.

**2. What criteria should be used to evaluate/rank projects?**

NJDEP Response:

Criteria for evaluating and ranking projects must include the following:

- Thermal efficiency values (to encourage the development of more efficient CHP systems).
- Reduced annual levels of criteria pollutants and GHG emissions associated with the combustion of the primary fuel. The goal is to encourage additional measures (whether through cleaner fuels or control devices) for reducing criteria pollutants and GHG emissions.

**3. What incentive levels should be available for different technologies and project sizes?**

NJDEP Response:

Incentive levels should be based on a combined analysis of requested funding per annual electricity generated, and emitted criteria pollutants and GHG emissions rather than technology types and/or sizes. This would be achieved through the following:

- Establish an acceptable baseline value for the requested funding per annual electricity generated (\$/MWh) for selecting and ranking projects. In this category, proposals with higher \$/MWh values will score lower than those with lower values.
- Using natural gas as the primary fuel, determine the baseline allowable annual criteria pollutants (tons/MMBtu) and GHG (tons/MMBtu) emissions based on a system that is 65% efficient. Projects that demonstrate lower emissions values with higher thermal efficiency systems should receive higher scores and possibly considered for increased funding amounts.



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**John F. Stanziola**

*Director, Government & Regulatory Affairs*

Office of Clean Energy

publiccomments@njcleanenergy.com

To Mike Winka and CHP Working Group:

On behalf of the South Jersey Gas Company ("South Jersey") I would like to thank you for allowing us the opportunity to provide comments to the Board of Public Utilities ("BPU") on the proposed Combined Heat and Power ("CHP") Program development. South Jersey would like to commend the BPU for providing interested parties the opportunity to participate in the process. It is our belief that this process will result in a more balanced and effective CHP program in the future. CHP provides greater efficiency as an alternative to the separate generation of electricity and thermal energy. As discussed in great detail within the New Jersey Energy Master Plan, CHP development can help assist the State achieve its overall energy goals while providing an economic stimulus if successfully implemented.

The BPU's Office of Clean Energy ("OCE") has solicited comments on three specific issues related to the development of a CHP Request for Proposal. In response to the OCE request, South Jersey offers the following comments:

**1. *What Should be the Minimum Requirements for a Project Being Considered for Incentives?***

South Jersey is of the opinion that proposed CHP projects should meet certain minimum qualifications in order to receive incentives. In developing program requirements the OCE should establish minimum application requirements similar to the following established in its 2006 CHP program solicitation:

- a) The system must be installed in New Jersey. The applicant must contribute to the Societal Benefits Charge fund. Only CHP equipment installed on the customer side of the meter is eligible.
- b) New installations with new equipment are eligible for incentives; expansions of an existing facility with new equipment are also eligible for incentives. Equipment must be sized to serve all or a portion of the electrical load at the customer site. The generating system is sized to meet the customer's electrical loads
  1. For demand-metered customers – no more than 100% of historical annual consumption or peak demand;
  2. For non-demand metered customers – no more than 125% of historical annual consumption.



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*Director, Government & Regulatory Affairs*

- c) The system must achieve annual system efficiency of at least 60%, based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation. Systems below 60% thermal efficiencies can be considered by the Board if it is determined the Project can produce significant environmental benefits above and beyond traditional CHP. System warranty must be all-inclusive for at least 5 years, or a 5 year service contract.

We believe these qualifications worked well at that time and are also applicable today. Additionally we would suggest that any potential CHP developer provide financial information which would demonstrate its financial capabilities to complete the proposed project.

**2. *What Criteria Should be Used to Evaluate/Rank Projects?***

South Jersey believes that certain criteria must be established in evaluating a potential CHP application. The ranking/evaluation system must at a bare minimum take into consideration the potential impacts and benefits a proposed CHP will provide. A few areas the OCE should consider is:

- a) Additional scoring credits should be provided to projects for more efficiency.
- b) Additional scoring credits should be provided for the reduction of transmission and distribution congestion and payment for the installation of reliable capacity.
- c) Additional scoring credits should be provided for environmental benefits.

**3. *What Incentive Levels Should be Established for Different Technologies and Project Sizes?***

South Jersey believes that incentives are extremely important in the potential development of CHP projects. We suggest that the OCE consider the following factors in determining an appropriate incentive structure for large CHP projects:

- a) Incentives should be designed based upon technologies and project sizes.
- b) Incentives should be limited to grants and not include financing programs.
- c) Establish an incentive and method for the utilization of CHP produced thermal energy during the summer period. A major sticking point for successful CHP projects in NJ is the ability to utilize all of the produced thermal energy over a full 12 month period. Many facilities in NJ are marginal economically because they have a strong year round electric demand, but lack thermal demand in the summer months. If separate incentives were created to help offset the



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additional costs in the summer periods, we believe the potential customer base for economically viable CHP opportunities would significantly increase.

South Jersey would also like to encourage the OCE to contact industries that best fit the CHP model such as hospitals, universities, and state owned properties. The OCE should solicit information to assist in determining why there has been minimal CHP development and the actions required to drive them in the future.

South Jersey believes that CHP can advance the State's Energy Master Plan goals, and would like to thank the working group and the Board again, for the opportunity to provide comments for the Large Scale CHP program.

Sincerely,

John F. Stanziola  
Director of Regulatory and Government Affairs  
South Jersey Gas

# 2012 NJ OCE LARGE CHP/FC PROGRAM COMMENT FILING

Prepared for:

New Jersey, Board of Public Utilities  
Office of Clean Energy

Prepared by:

US DOE Mid-Atlantic Clean Energy Application Center

January 17, 2012

Policy Filing



U.S. DEPARTMENT OF ENERGY

**Mid-Atlantic Clean Energy Application Center**

*Promoting CHP, District Energy, and Waste Heat Recovery*

## NOTICES AND ACKNOWLEDGEMENTS

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**Confidentiality:** This filing is considered public information

**Report preparation:** This report was prepared by Gearoid Foley, an MA-CEAC Senior Advisor and President of Integrated CHP Systems Corp., 50 Washington Road, Princeton Junction, NJ 08550, Phone: (609) 799-2340 and email: gearoid@ichps.com and Richard Sweetser an MA-CEAC Senior Advisor and President of *EXERGY* Partners Corp. 12020 Meadowville Court, Herndon, VA 20170, Phone: (703) 707-0293 and email: rsweetser@exergypartners.com.

**Purpose:** The purpose of this filing is to provide comments on the proposed NJ BPU OCE 2012 Large CHP/FC Program and to support the adoption of combined heat and power (CHP) systems in New Jersey.

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## COMMENTS

We appreciate the opportunity to provide comments on the Office of Clean Energy's 2012 proposed Large CHP/FC Program. The comments here are derived from our work relating to the implementation of combined heat and power, district energy and waste heat recovery both in NJ as well as throughout the Mid-Atlantic region.

### Need for Comprehensive Review of Programs to serve CHP Market

We recognize and appreciate New Jersey's renewed commitment to Combined Heat and Power through policies supported by the Final Energy Master Plan issued in December, by the Department of Environmental Protection's streamlined permitting process, and through the substantial funding that the Board of Public Utilities has allocated for Combined Heat and Power and Fuel Cell applications in the 2012 Budget for New Jersey's Clean Energy Program (NJCEP), as well as the development of new program paths to eliminate barriers to implementation. In order to ensure that these efforts properly support the market as intended and strive to get the best value for ratepayers, it is critical to consider how the various program paths relate to each other. Further it is appropriate to consider the impact of some program NJCEP features that were intended to establish statewide consistency across territories that may or may not have a utility matching program for CHP incentives.

Specifically, the proposed Large CHP/FC Program should be coordinated with the new OCE's Small CHP/FC Program in order to preserve the intent of both programs to support both small (under 1 MW) and large (over 1 MW) CHP and FC plants. The new Small CHP/FC Program offers higher incentives that are required to support large CHP/FC systems and this program should be designed to prevent the application of these higher incentives to large projects in order to maximize the benefit of the program. Further NJCEP's small CHP program currently allows for a total incentive cap of \$2 million which in effect makes the Small CHP Program more attractive for large CHP projects up to 3.5 MW at an estimated capital cost of \$3,250 including 5-year maintenance. For non-renewable CHP, the current Small CHP Program would allow such a project an incentive of \$571 per kW which is in excess of the suggested amounts for the Large CHP Program. Projects of between 1 MW and 3.5 MW would receive disproportionately larger incentives that they would through the proposed Large CHP Program. This could result in oversubscription of the Small CHP Program which has less funds and ultimate denial of many small CHP and FC projects that otherwise would receive funding. We suggest that as part of this effort to accept stakeholder input on the Large CHP solicitation process that the Board also consider feedback on the level of the incentive cap within the small program.

### Incentive Structure

A tiered incentive system should be adopted to appropriate more program funds for smaller projects that have a higher capital cost per unit output and include additional support for projects that require cooling. The suggested breakout is as follows. This has been designed to work in coordination (not competition) with the new Small CHP Program assuming the total project cap has been adjusted to \$1 million. This structure would prevent depletion of the Small CHP Program funds by larger projects and meet the intent of the overall CHP Program.

|                                |                                       |
|--------------------------------|---------------------------------------|
| Non-Renewable CHP, 1 MW - 3 MW | \$0.65 per Watt + 20% for cooling     |
| 3.001 MW to 6 MW               | \$0.55 per Watt + 20% for cooling     |
| > 6.001 MW                     | \$0.45 per Watt + 20% for cooling     |
| Project Maximum Rebate         | \$2,500,000 + 20% for cooling         |
| Maximum % of Project Cost      | 30% without cooling, 40% with cooling |

### **Solicitation Schedule**

In order to avoid review 'gridlock', the funds should be released in three to four separate issues. This would both ease the burden on the review process as well as build confidence in the program. It is highly unlikely that a near-term single issue of all the available funds would result in full subscription because potential client confidence in such programs is low.

### **Application Process and Minimum Criteria**

A comprehensive application process requiring pre-engineering level development of the application, selection of equipment, determination of loading and proposed system electric and thermal load factor on an annualized basis as well as an investment grade economic evaluation should be required. This is a necessary component to avoid allocation of funds to projects that are ill conceived and which will ultimately not proceed or will not be maintained in operation over the long term. The review process will require employment of technically competent personnel to evaluate the information provided and determine the value to the ratepayer of the proposed project.

Program funds should be released in multiple competitive solicitations that would be designed to award plants that provide the best overall value to the NJ ratepayer in terms of MWh's per dollar of efficient and clean power generation. Applicant projects should be evaluated on the basis of their meeting strict qualification criteria as well as their economic value to the owner. Projects must first meet the basic qualification criteria as follows:

1. CHP system must be 1 MW or larger according to the prime mover's total continuous duty electric generating capacity at standard ISO conditions.
2. The CHP system must be installed in New Jersey.
3. The applicant must be a contributor to the Societal Benefits Charge fund.
4. Only stationary CHP equipment installed on the customer side of the meter is eligible. This shall include prepackaged generating systems.
5. The proposed system must be capable of meeting all requirements of the NJ DEP for the proposed equipment and be able to obtain an air permit. All accessory and exhaust after treatment equipment and associated capital and operating costs required to meet emissions limits must be included in the proposal.
6. The proposal must provide a pre-CHP and post-CHP emissions profile including emissions associated with the offset of grid electric power and fossil fuel for thermal energy that is displaced by the proposed CHP plant according to the EPA CHP Emissions Calculator.
7. Equipment must be sized to serve all or a portion of the electrical load at the customer site. The proposed generating system is sized to meet the customer's electrical loads for demand-metered customers – no more than 100% of historical annual consumption or peak demand. Historical annual consumption is for the most recent twelve (12) month period. New additions or expansions to existing facilities will be considered - detailed information of load assumptions must be submitted with the application.
8. Equipment must be new, commercially available and permanently installed. The following are not eligible for incentives: renewable source-fueled systems (*Renewable fueled projects must be submitted to the Renewable Energy Market Manager through the REIP Program under the NJCEP*); portable and emergency backup power systems; used, refurbished, temporary, pilot, or demonstration equipment; systems that use diesel fuel, other types of oil or coal for continuous operation.

9. Expansion of an existing facility with new equipment is also eligible for incentives, however only the incremental expansion would be eligible for the incentive. The combined capacity of the proposed expansion and existing generators are held to sizing requirements listed in item 5 above.
10. CHP systems with waste heat utilization must achieve annual system efficiency of at least 60% and fuel cells without heat recovery must achieve annual system efficiency of at least 45%. The annual system efficiency shall be based on higher heating value and calculated from the total prime mover output in Btu plus the total heat recovered for useful purposes in Btu divided by the higher heating value of the fuel input in Btu. Mechanically-developed energy may be included in the efficiency evaluation.
11. CHP system warranty must be all-inclusive for at least five years. The warranty must cover the major components of the system eligible for the incentive, to protect against breakdown or degradation in electrical output of more than ten percent from the originally rated electrical output. The warranty shall cover the full cost of repair or replacement of defective components or systems, including coverage for labor costs to remove and reinstall defective components or systems. In the event the system warranty does not meet program requirement, customer must purchase an extended warranty or a five year maintenance/service contract. The cost of the five year warranty or service contract may be considered as part of the cost of the project.

#### Evaluation and Review Process

Once projects have been determined to meet the minimum qualification requirements described above, they will then be graded in a competitive manner targeting value to the ratepayer and likelihood of long term success according to the following criteria:

- Annualized system fuel utilization efficiency above minimum criteria (10%)
- Environmental performance (15%)
- Economic viability (40%)
- Projected system startup date (5%)
- Project clarity (10%)
- Local marginal pricing, as determined by the PJM interchange for the electric service area in which the project is located (10%)
- Islanding capability (5%)
- Emergency Management Center (5%)

All applications received by the deadline would be ranked according to the above criteria and the top ranked projects would be awarded funds until the total funds were committed. In the event of under subscription by qualified projects, any remaining funds from early rounds would be made available in subsequent rounds. In the event of over subscription by qualified projects, non-approved qualified projects would be entitled to apply for subsequent rounds of funding. The application process would allow at least one month for applicants to prepare the application and would provide a cut-off date for receiving applications. After this date, all applications that met the minimum qualifications will be graded according to the above criteria. In the event of multiple applications receiving the same score, the applications with the earliest application date will be given preference.

The above described competitive evaluation will include a detailed review of economic viability of the project so that applications of highest value to the owner are incentivized. This shall ensure that incentivized projects have the highest likelihood of being implemented and properly maintained through the entire life of the project and in this way provide the most benefit to the ratepayer. The economic viability review shall look at

the project cost per Watt, project run time, total annualized energy cost offsets, total operations and maintenance costs and the project impact on reducing energy costs to the owner.

Applications will include a comprehensive technical worksheet that must be completed in full and supported with historical energy use data or energy load calculations for new facilities or expansions of existing facilities. The assumptions on facility loads, energy costs, maintenance and operation costs, engine electric and thermal load factor, thermal utilization, etc. will be subject to review and verification. Applicants that grossly overstate loads, load factors, actual efficiencies or any other data will be subject to rejection.

#### **Fuel Cell Carve-Out**

In recognition of the fact that Fuel Cell projects are based on a developing clean energy technology that currently has a high capital cost per Watt which will negatively impact their ability to compete with CHP on an economic basis, a carve out of 10% of the total funds available should be set aside as the minimum amount devoted to fuel cell applications. If this were not fully subscribed at the end of a specific period then this money could be returned to the program for all technologies.

#### **Payment Schedule & Inclusions**

The payment schedule should allow for 20% of the incentive amount to be paid upon release of purchase order to the major equipment manufacturer, 60% upon completion or project installation and 20% of the project incentive to be paid one year after project inspection and acceptance and confirmation the project is achieving the minimum efficiency threshold. We suggest that this retained payment is not less than 20% and would be paid after a 12-month data review proved that the system met its efficiency obligations. If the project failed to meet this obligation then a second chance to provide data would be provided. The availability of this final payment should be maintained through 24 months after system acceptance. It needs to be recognized that complete commissioning of a CHP system together with thermal loads can take six months or longer after system start-up as it is somewhat ambient temperature dependent.

The warranty or service contract should be a comprehensive contract with specific scope requirements that must maintain a specific availability of equipment. The suggested availability is 85%. This does not require the host facility to operate the system 85% of the time but does require that the system is able to operate at least 85% of the time. The availability limit should not be set at maximum thresholds of 95% which would only serve to add additional insurance costs to the project unnecessarily.

The list of eligible project costs should delineate thermal cooling technology costs such as chillers, desiccants, cooling towers and accessories required by the system that are driven by the CHP system but are not necessarily directly connected to the system. These are covered in the program through the increased incentive and should be an allowable project cost.

## **FOLLOW UP**

I and my colleagues are available to discuss any of the above issues and will continue to support New Jersey in its efforts to develop a clean, cost effective and reliable power market through effective utilization of CHP in line with the NJ Board of Public Utility and Department of Energy's goals.



**UTC Power**

A United Technologies Company

UTC Power Corporation  
195 Governor's Highway  
South Windsor, CT 06074

January 17, 2012

Michael Winka  
Director Office of Clean Energy NJBPU  
POB 350 - 44 S Clinton Ave  
Trenton, NJ 08625-0350

Re: Response to the Office of Climate and Energy's Request for Comment on the Large FCCHP  
Program Requirements, Incentive Structure and Project Evaluation Criteria

Comments of UTC Power

Dear Mr. Winka:

UTC Power, a subsidiary of United Technologies Corporation, submits the following comments based on the public request from the Office of Climate and Energy's with regard to the FCCHP (Fuel Cell and Combined Heat and Power) program structure.

Respectfully submitted,

Lisa C. Ward  
Business Development Specialist

STATE OF NEW JERSEY  
OFFICE OF CLIMATE AND ENERGY

New Jersey Office of Climate and Energy (OCE) : Large Fuel Cell and Combined Heat and Power Program

COMMENTS OF UTC POWER

**I. Introduction**

UTC Power ("UTCP") is a United Technologies company located in South Windsor and employing 430 people in the development, design, production and service of fuel cell technology for use in stationary, transportation, and space and defense applications. We appreciate the opportunity to comment on the large fuel cell and combined heat and power program in the state of New Jersey.

We offer the following as comments with regard the Large CHP Program Working Group Memo, dated January 5<sup>th</sup>, 2012, written by the New Jersey Board of Public Utilities representative, Michael Winka.

**II. Comments**

**A. Project Incentive and Bidding (Item 1)**

We recommend that a maximum incentive bid be defined but with the retained allowance for a project to bid lower, in order to be more competitive.

**B. Incentive Funding as a Grant versus a Loan (Item 2)**

- a. To facilitate project progress, incentive funding for large combined heat and power (CHP) and/or fuel cell projects should be offered 100% as a grant versus a loan. Financing is less likely to move projects along as quickly as needed to meet the Energy Master Plan (EMP) goals for MW of CHP/fuel cell installations by the year 2020.
- b. Additionally, we recommend that the grant provide for an upfront capacity payment of a minimum 50% at the beginning of the project, with the remaining incentive funding being paid out over three years on a \$/kW-h performance basis.



### **C. Project Competition Factors (Item 3)**

Projects that enter a bid for the solicitation should compete based on the following factors:

- a. Overall system efficiency on a HHV basis (recommended efficiency regardless of heat utilization should be 50-60% HHV).
- b. Environmental benefit: technologies that meet strict air emissions requirements (such as CARB) would have greater environmental benefit than technologies that are considered clean energy technology but do not meet strict emissions requirements.
- c. Public benefit: clean technologies that can operate isolated from the grid should be considered over clean technologies that only offer grid connect operation. The societal impact of operating isolated from the grid can be significant in the event of state wide emergencies, such as a prolonged power outage.

### **D. Incentive Structure Differences Based On Technology and/or Project Size (Item 4)**

Incentive funding should be allocated based on the technology type, with Class 1 renewable technologies receiving higher incentive rates than combined heat and power only projects. Similarly, technologies that qualify as Class 1 renewable generation with CHP as an option and which can, additionally, operate isolated from the grid, should be given the highest incentive level.

### **E. Offer Incentive Funding in Cycles Throughout the Year (Item 5)**

UTC Power agrees with offering several solicitations throughout the year, but recommends that each solicitation provide for a reasonable amount of program funding, which is set for the initial solicitation only and reviewed and reset throughout the year for all remaining solicitations based on the response to and funding allocation from the initial solicitation.

### **F. O&M Contract Requirement (Item 7)**

UTC Power agrees that a long-term operating and maintenance (O&M) contract should be included as part of the overall project cost and should be required for submission of the project for incentive funding. UTC Power respectfully suggests that all O&M contracts require a ten year commitment.



**G. Air Criteria Limits and Permitting (Item 10)**

- a. Air emission criteria should be specified for each project that applies for funding through the program. In order to meet the New Jersey Energy Master Plan (EMP), projects installed using this program funding should have to meet specified air emissions requirements to qualify.
- b. UTC Power agrees with allowing a project to be considered without a DEP permit in hand at the time of application. The DEP permit requirement should be clearly specified at some point within the incentive funding distribution timeline.

**H. Item 12a: What should be the minimum requirements for a project being considered for incentives?**

The minimum technical requirement for a project should simply be a 55% HHV total efficiency.

**I. Item 12b: What criteria should be used to evaluate/rank projects?**

We recommend that projects meeting all minimum requirements set forth by the program should be evaluated on a first come, first served.

**J. Item 12c: What incentive levels should be available for different technologies and project sizes?**

For fuel cell and combined heat and power projects up to two megawatts, an appropriate incentive level would be \$2,500/kilowatt or \$2.50/Watt. The working group may want to consider higher incentive prices for projects that also incorporate technologies that can operate isolated from the grid.



### III. Conclusion

Thank you for the opportunity to comment on the Large Fuel Cell and Combined Heat and Power program structure. We would be pleased to provide you with additional information or clarification as needed.

Respectfully Submitted:

By: \_\_\_\_\_

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January 17, 2012



CHRIS CHRISTIE  
Governor

KIM GUADAGNO  
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STEFANIE A. BRAND  
Director

January 17, 2012

**Via Overnight Delivery and Electronic Mail**

Honorable Kristi Izzo, Secretary  
New Jersey Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
P.O. Box 350  
Trenton, New Jersey 08625-0350

**Re: New Jersey Clean Energy Program-Combined Heat & Power/Fuel Cell  
Working Group**

Dear Secretary Izzo:

Enclosed please find an original and ten copies of comments submitted on behalf of the New Jersey Division of Rate Counsel in response to the office of Clean Energy's January 9, 2012 request for comments in connection with the above-captioned matter. Copies of the comments are being provided to all parties by electronic mail and hard copies will be provided upon request to our office.

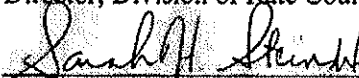
We are enclosing one additional copy of the comments. Please stamp and date the extra copy as "filed" and return it in our self-addressed stamped envelope.

Thank you for your consideration and assistance.

Respectfully submitted,

STEFANIE A. BRAND  
Director, Division of Rate Counsel

By:

  
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**Large Combined Heat and Power (CHP) Working Group:  
Comments on the Development of a Request for Proposals**

Initial Comments of the New Jersey

Division of Rate Counsel

January 17, 2012

The Division of Rate Counsel ("Rate Counsel") would like to thank the Office of Clean Energy ("OCE") for the opportunity to provide initial comments on the development of a large Combined Heat and Power ("CHP")/Fuel Cell ("FC") request for proposal ("RFP"). Rate Counsel reserves the right to make additional comments as the OCE and the Large CHP working group ("working group") develop the CHP program. These comments should not be construed to apply to any other program, such as utility proposals or programs seeking to promote the development of CHP pursuant to N.J.S.A. 26:2C-45.

A meeting of the working group was convened on January 5, 2012 to elicit discussion on the process of developing an incentive structure for the large CHP/FC program. By email notice on January 9 2012, the OCE requested comments on three specific items of discussion resulting from the working group meeting.

- 1) What should be the minimum requirements for a project being considered for incentives?
- 2) What criteria should be used to evaluate/rank projects?
- 3) What incentive levels should be available for different technologies and project sizes?

Rate Counsel makes the following general comments on the development of a large CHP program.

At a fundamental level, the goals of a solicitation for CHP and/or fuel cells need to be better developed and articulated. The final 2011 Energy Master Plan ("EMP") calls for the development of 1,500 MW of new distributed generation and CHP resources "where net

economic and environmental benefits can be demonstrated.”<sup>1</sup> It should not be presumed that distribution generation is limited to CHP and fuel cells. The EMP also does not advocate for procuring CHP or fuel cells at any cost.

In addition, the working group has not established whether and to what extent incentives, in the form of financing and/or rebates, are necessary to support the development of CHP, nor what type of incentives are most needed. For example, in contrast to statements made at the January 5, 2012 working group meeting that development of CHP will ultimately hinge on rebates, Rate Counsel notes that a 2011 American Council for an Energy Efficient Economy (“ACEEE”) report on challenges facing CHP found that “finding sufficient financing” is a barrier to greater CHP deployment in New Jersey.<sup>2</sup> It is not clear how financing mechanism would be valued by developers of large CHP projects, and whether financing mechanisms would be sufficient in lieu of rebates for large CHP projects. Rate Counsel also notes that, to its knowledge, no analysis has been conducted to determine whether the Combined Heat and Power and Fuel Cells program, being administered by TRC will put the state on track to meet its goals for CHP development, or whether the Combined Heat and Power and Fuel Cells program is a better means to promote the development of CHP. Rate Counsel also recommends that the working group examine how a ratepayer funded large CHP incentive program would benefit affiliates of New Jersey natural gas distribution companies.

Rate Counsel strongly recommends that prior to considering the three questions raised in the January 9 notice, the OCE investigate the type and amount of incentives, if any, that would be necessary to support the development of CHP. This investigation should at least (1) include a survey to determine barriers facing potential CHP hosts and CHP developers; (2) consider payback years of various CHP systems of different sizes, and (3) include a cost-benefit analysis (e.g., the total resource cost test and utility cost test) of CHP projects.

Provided that the results of this investigation call for an incentive program for CHP, Rate Counsel supports a production-based (kWh) incentive structure similar to the CHP incentive

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<sup>1</sup> 2011 New Jersey Energy Master Plan, December 6, 2011, p. 5.

<sup>2</sup> Anna Chittum and Nate Kaufman. *Challenges Facing Combined Heat and Power Today: A State-by-State Assessment*. Report Number IE111, September 2011. Available at [aceee.org](http://aceee.org)

structure adopted in the 2009 “Solicitation for Applications to Develop Combined Heat and Power Energy Facilities Serving New Jersey Commercial and Industrial Customers”.

If the results of this investigation support implementation of an incentive program for CHP, Rate Counsel also supports a competitive bidding approach to select CHP projects. Rate Counsel recommends that the stakeholder group explore the feasibility of using various criteria, including incentives costs to ratepayers, to select CHP projects. Other criteria may also include cost benefit ratios (e.g., the total resource cost benefit test ratio), levelized cost of power, capacity factor, and proximity to load centers.