

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

Solar Energy Industry Association ) Docket No. RM12-10 -000

**UNITED STATES CLEAN HEAT & POWER ASSOCIATION MOTION TO INTERVENE**

The United States Clean Heat & Power Association ("USCHPA") moves to intervene<sup>1</sup> in the rulemaking requested by the petition of the Solar Energy Industries Association ("SEIA") filed on February 16, 2012 to update aspects of the small generator interconnection rules and procedures ("SGIP")<sup>2</sup>. SEIA states that SGIP have become unduly discriminatory and unreasonable barriers to distributed generation ("DG") access as the DG marketplace grows. USCHPA agrees.

**I. Summary of Motion to Intervene**

The U.S. Clean Heat & Power Association ("USCHPA") is the voice of the combined heat and power (CHP) industry. USCHPA is a trade association whose membership includes manufacturers, suppliers, and developers of combined heat and power (CHP) systems. Its interests are affected by the actions proposed by SEIA. No other entity can represent the interests of USCHPA and its members.

USCHPA's motion to intervene seeks:

1. Improvements and simplification in small generator interconnection procedures to unlock existing and new heretofore "gridlocked" small generator resources, including a substantial proportion of the more than 82 GW of CHP in the US,

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<sup>1</sup> USCHPA moves the Commission pursuant to Rules 211 and 214 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission ("Commission"), 18 C.F.R. §§ 385.211 and 385.214, and the February 28, 2012 "Notice of Petition for Rulemaking" issued by the Commission.

<sup>2</sup> Standardization of Small Generator Interconnection Agreements and Procedures, Order No. 2006, FERC Stats. & Regs. ~ 31,180, ("Order No. 2006"), order on reh'g, Order No. 2006-A, FERC Stats. & Regs. ~ 31,196 (2005) ("Order No. 2006-A"); order on reh'g, Order No. 2006-B, FERC Stats. & Regs. ~ 31,221 (2006) ("Order No. 2006-B").

2. Reconsideration of the 15% of minimum line load screen in order to deal with the distinctions necessary for both smaller combined heat and power generation utilizing natural gas and other fuels in addition to solar resources as request by the petitioner,
3. Reduction in opportunities for line segment planners/managers to delay or discriminate in the processing of individual interconnection requests that is as great a problem for the CHP industry as it may be for the solar industry (we acknowledge that there are currently many more applications to interconnect solar facilities submitted to some structured electricity markets and transmission owners of FERC jurisdictional facilities than applications submitted for CHP facilities.)
4. Recognition that technological advances in measurement and sensing technology in the smarter grid environment are moving beyond the need for and use of arbitrary benchmarks in the planning process that constrain distributed resource deployment and utilization,
5. Routine availability to small generation developers and operators utilizing all fuels of line segment loading data by time intervals and other variables, including minimums, averages, maximums, network and zonal peaks and minimums as well as control area peaks and minimums,
6. Recognition that revision of the SGIP at FERC is precedential and can influence the simplification of interconnection procedures for generators utilizing all fuels at the State level.
7. Recognition that there are emerging micro-CHP technologies that may soon join PV as

a mass deployment technology in the US and that there are more than 120,000 micro-CHP units in residences and small commercial establishments around the world. Most of these fit under the 10 kW threshold in SGIP. USCHPA will offer later in the proceedings a review of the under 10 kW screen, and

8. Recognition that interconnection for net metering is an opportunity for renewables in over forty states and that almost twenty states now allow net metering of CHP under a variety of conditions involving small generator and large generator facilities as defined by LGIP and SGIP.

## **II. Statement of Interest and Rationale**

CHP is the simultaneous generation of electricity and useful thermal energy, both products typically being used locally. Based upon historical patterns of usage contained to the generating “site” and immediate environs and historical patterns of interconnection arrangements much of the Nation’s CHP capability is “gridlocked.” USCHPA’s interest in this proceeding is to help unlock existing and new CHP capability that would otherwise be “gridlocked” -- that is, “unlock gridlocked” small generation resources and make them accessible to the smarter grid. The existing stock of CHP is the prime candidate for evolution into microgrids which can isolate under certain conditions but which can interact with the grid under other conditions. National policy dictates that microgrids are one of the tripod legs of the nation’s smart grid policy. (USDOE, July 2009)

Currently supplying twelve percent (12%) of U.S. generating capacity, CHP systems can reach efficiencies above eighty percent (80%). There is approximately 82 GW of CHP installed in the U.S., which achieves a savings of 248 million metric tons of CO<sub>2</sub> annually. Approximately 1.7 GW was

added between 2005 and 2011.<sup>3</sup> It is obvious that the existing stock is much greater than the pace of new additions. The existing CHP base is an extensive resource to make available for strengthening the US Energy system as well as new CHP. It is just beginning to be tapped for more effective interconnection to grid.

Recognizing the diversity, reliability, and environmental benefits of CHP, a recent CHP Settlement in California<sup>4</sup> broadens that local focus for CHP projects above 5 MW in size, objective and practice by opening up export from existing and new CHP to provide products and services such as energy, capacity and ancillary services. This reformation requires the repositioning and interfacing of interconnection procedures as distinct between FERC jurisdictional facilities and those that are not. The CAISO administered FERC jurisdictional and the non-FERC jurisdictional interconnection processes are being interfaced and integrated. Many facilities may move from one type to the other.

The reformation continued in 2011 and 2012 with respect to interconnection practices related to distribution facilities. In that regard a number of settling parties on March 15, 2012 submitted an agreement to the California Public Utility Commission (“CPUC”) to revise Rule 21, which since 2001 had addressed the interconnection of distributed generation in the distribution system. The settlement confronts many of the issues raised by SEIA in its petition before the Commission a month earlier in the instant docket and provides negotiated technical solutions that address all forms of distributed generation, including CHP. Whether or not they are ultimately the solutions that the Commission

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<sup>3</sup> Chittum, Anna and Kaufman, Nate, Challenges Facing Combined Heat and Power Today: A State- by- State Assessment, September 2011, American Council for an Energy- Efficient Economy, Report Number IE111.

<sup>4</sup> **CHP Program Settlement Agreement Term Sheet - October 8, 2010** (approved by the California Public Utility Commission on December 21, 2010.)

1.2.1.3 The purpose of the State CHP Program is to encourage the continued operation of the State’s Existing CHP Facilities, and the development, installation, and interconnection of new, clean and efficient CHP Facilities, in order to increase the diversity, reliability, and environmental benefits of the energy resources available to the State’s electricity consumers.

should or will embrace in this docket regarding the use of screens to expedite interconnection processing remains to be seen.

It is clear that the combination of California precedents, i.e. the CHP settlement that became policy in December 2010 to accelerate the conversion of existing CHP and new clean efficient interconnected CHP above five (5) megawatts (“>5 MW”) involving both CAISO and State guidelines and the Rule 21 settlement reforms that now are in the approval process, both provide a basis for aggressive action by the Commission in this docket with respect to simplifying interconnection procedures for solar and CHP, presumably as well for other generation sources. The Rule 21 settlement proposes measures to deal with screens from 1 kW upward. USCHPA is not a party to either set of California proceedings and is still reviewing the terms of the settlement as it may apply to CHP that has been “gridlocked” below the 5 MW threshold covered by the CHP Settlement’s interconnection processes. On the basis of the California actions alone the Commission needs to broaden this docket to include CHP at a minimum.

In the northeastern structured electricity markets the role of CHP in demand response is undergoing fresh scrutiny as the Commission moves to allow more adequate compensation for energy in relation to demand resources, capacity and ancillary services remuneration and procedures. Facilitating interconnection activity to FERC jurisdictional facilities with respect to electricity storage is on the near term agenda in the structured electricity markets in California and the Northeast and elsewhere. Electricity storage may be on either side of the point of common coupling.

The above arguments may suggest a course of future action regarding existing and potential “gridlocked” CHP that has not needed FERC jurisdictional interconnection status prior to this time. In California old agreements that combined interconnection arrangements and contracts for products are

being replaced by discrete contracts for products/services and interconnection agreements. That process may occur elsewhere, if gridlocked CHP can find access to new markets. Access to some markets comes through appropriate interconnection procedures, technical arrangements and interconnection agreements.

USCHPA recognizes that if new CHP installations above 20 MW do interconnect to FERC jurisdictional facilities they do so under direct application of the FERC large generator interconnection procedures (LGIP).<sup>5</sup> Existing CHP projects above 20 MW (“>20MW”) at the time of the LGIP Order in 2003 may not have distinct interconnection and commercial agreements. For CHP projects no larger than twenty megawatts (= $\leq$ 20 MW) most CHP projects have not interconnected under the direct application of the FERC SGIP. These are largely what we are calling “gridlocked” sites. They may offer substantial potential strength and flexibility to structured electricity markets and the entire grid system that becomes more available as smart grid and microgrid policies and practices take root.

The SGIP Fast track process employing minimum penetration screens in question in this proceeding are contained in the SGIP as it applies to projects no larger than two megawatts (= $\leq$ 2 MW).

An analysis performed by The E Cubed Company, LLC (“E Cubed LLC”) of the incremental CHP projects in nine northeastern states (Pennsylvania and northeastward) identified in the 2011 ACEEE CHP Assessment<sup>6</sup> and the underlying database maintained for the US Department of Energy by ICF/EEA identifies 263 projects totaling 436.1 MW in installed capacity at an average of 1.7 MW per facility. This indicates that the average project could be subject to the two megawatt and under

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<sup>5</sup> Large Generator Interconnection Procedures (LGIP) Order No. 2003-C.

<sup>6</sup> The 2011 State-by-State Assessment of Combined Heat and Power in the United States prepared by the American Council for the Energy Efficient Economy (“2011 ACEEE CHP Assessment”) noted above in footnote 3 tallies the incremental development as 1,700 MW (1.7 GW) of CHP in the United States between 2005 and 2011, which approximately parallels the period since the enactment of Order 2006, 2006A and 2006B setting up the SGIP. This status-of-the-industry report provides a useful description of challenges to the industry, including a discussion on challenges involving interconnection.

screen that is addressed by the SEIA petition to review the small generator interconnection standards. The E Cubed LLC analysis is attached as Exhibit A.

In USCHPA's preliminary survey of NYISO there have been few, if any, small generator projects that may be evaluated using the 15% of minimum load screen for facilities  $\leq 2$  MW, possibly only one involving CHP and none involving PV. There was only one solar project processed for FERC jurisdictional interconnection by the NYISO and that is a 40 MW +/- PV installation recently operational at the site of the Brookhaven National Laboratory and developed by BP Solar. Brookhaven Lab also serves as the Northeast Solar Research Center. There is an additional 700 kW PV installation that is open to anyone to use as a laboratory installation. It did not enter the NYISO process.

In USCHPA's preliminary survey of PJM interconnection queues, E Cubed LLC first examined among other things the number of CHP projects in NJ and PA since 2006 totaled in the 2011 ACEEE Study.

1. NJ =18 projects totaling 14.1 MW averaging 0.8 MW.
2. PA=25 projects totaling 80.9 MW averaging 3.2 MW.
3. Thus we observe 43 CHP projects totaling 95 MW averaging 2.2 MW.

E Cubed has performed a preliminary review of the 1178 PJM interconnection applications in its wholesale interconnection queues (queues A-Y) during the 1997 to 2012 period.

4. There were 27 smaller NG-fired projects  $\leq 20$  MW processed in queues A-Y. (1997-2012)
5. There were 8 smaller NG-fired projects  $\leq 20$  MW processed in queues R-Y. (2006-2012)
6. 7 of these were in NJ and PA. 2 are in-service. 5 are still under study.

We note the difference above between the levels of CHP projects in NJ and PA since 2005 in the EEA/ACEEE data (43) and the numbers of projects that appeared at the PJM to enter an interconnection queue in the same time period (7). We can assume that the smaller group that applied to the PJM IC queues looked outward rather than inward and wanted access to greater markets and flexibility. We will evaluate further in order to inform the continuing intervention.

If a new small CHP facility ( $\leq 20$  MW) is proposed to connect to the transmission system or to a FERC jurisdictional distribution system under current SGIP procedures then the SGIP still applies. We understand that the 15% screen can be utilized below 2 MW (" $<2$  MW"). We agree with SEIA that this size limit should be eliminated or raised as they suggest as fallback to 10 MW.

We understand that the SGIP does not apply to small generator projects, e.g. CHP, that participate in demand response programs of a structured electricity market (RTO/ISO), a transmission provider or a distribution provider.

Industry estimates indicate the technical potential for additional CHP at existing sites in the U.S. is between 130 and 170 GW, plus an additional 10 GW of waste heat recovery CHP. As indicated above 1.7 GW of new CHP is reported since 2005. This is generating capacity that is readily available, provided policies are established to support further CHP deployment. Policies to facilitate interconnection of potential CHP capacity and energy additions enhance the potential contributions that CHP can make.

CHP lowers demand on the electricity delivery system, reduces reliance on traditional energy supplies, makes businesses more competitive by lowering their energy costs, reduces greenhouse gas and criteria pollutant emissions, and refocuses infrastructure investments toward next-generation energy systems. Already harnessed by many industrial, commercial, and institutional facilities, CHP is



a proven and effective energy resource that can be immediately deployed to help address current and future national and global energy needs by incorporating commercially available and domestically produced technology.

Unfortunately these attributes can also be viewed as competitive to some wholesale generating resources using any fuel, to some transmission and distribution utilities that rely upon assets and/or throughput as the basis for revenue, to other forms of energy efficiency and to some regulators who want to protect “ratepayers.”

Thirty-one states have some form of interconnection standards that complement the FERC standards and are often reflective of the FERC standards. Changes made to the SGIP at FERC if enacted in response to the SEIA petition will likely influence changes in many states. The distributed power and CHP industry came to FERC in 2000-2001 and negotiated in the ANOPR process that ultimately led to both the Large Generator Interconnection Procedure (“LGIP”) and the SGIP. We are prepared to return to the rulemaking process and the negotiating table.

### **III. COMMUNICATIONS**

All communications with USCHPA regarding this matter should be addressed to:

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## **VII. CONCLUSION**

USCHPA respectfully requests that the Commission accept its motion to intervene in the instant rulemaking to update certain provisions of Order No. 2006 consistent with the findings and recommendations herein.

Respectfully submitted this 27th day of March 2012,

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### **ATTACHMENTS:**

Exhibit A – 2005-2011 New CHP Projects

Recent CHP Installations in the nine states of the Northeast.

Retrieved And Adapted from the American Council on Energy Efficient Economic (ACEEE) 2011 CHP State-By-State-Assessment

By The E Cubed Company, LLC

Docket No. RM12-10 USCHPA Exhibit A

Challenges Facing Combined Heat and Power Today:

A State-by-State Assessment

Anna Chittum and Nate Kaufman

Sep-11

Report Number IE111

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STATE	CT	ME	MA	NH	NJ	NY	PA	RI	VT	Results
Numbers in (#nn) are rank in US										
New CHP Sites (2005-2010)	62 (#3)	2 (#34)	34 (#4)	4 (#19)	18 (#7)	101 (#2)	25 (#5)	7 (#18)	10 (#9)	263
New CHP Capacity (2005-2010) MW	186.4 (#2)	4.5 (#31)	41.8 (#13)	.8 (#40)	14.1 (#22)	102.8 (#5)	80.9 (#9)	1.6 (#38)	3.2 (#34)	436.1
Average Capacity per site (2005-2010) MW	3.0	2.2	1.2	0.2	0.8	1.0	3.2	0.2	0.3	1.7
Total Primary Energy Consumption (2008)										
Trillion BTU	810 (#34)	469 (#42)	1,473 (#26)	311 (#46)	2,637 (#13)	3,988 (#5)	3,900 (#7)	220 (#49)	154 (#51)	13962
Average Gas Price (2009) \$ per MCF	11.06 (#22)	14.35 (#5)	16.81 (#2)	NA	11.31 (#20)	12.27 (#12)	12.10 (#14)	14.93 (#4)	12.73 (#9)	13.20
Average Electricity Price (2010) ¢/kWh	17.44 (#2)	12.73 (#13)	14.64 (#7)	14.75 (#6)	14.88 (#4)	16.46 (#3)	10.42 (#16)	14.20 (#8)	13.16 (#11)	14.30

DATA ON NEW CHP SITES AND CAPACITY WERE OBTAINED BY THE CHP INVENTORY AND DATABASE MAINTAINED BY ICF INTERNATIONAL ON BEHALF OF USDOE.

<http://www.eea-inc.com/chpdata/index.html>

DATA ON TOTAL PRIMARY ENERGY CONSUMPTION AND AVERAGE GAS AND ELECTRIC PRICES WERE OBTAINED BY ACEEE FROM USDOE EIA SOURCES