BEFORE THE CALIFORNIA ENERGY COMMISSION
OF THE STATE OF CALIFORNIA

In the Matter of: 2008 Rulemaking on Implementation of the Waste Heat and Carbon Emissions Act Pursuant to Assembly Bill 1613	Docket No. 08-WHCE-1

COMMENTS OF THE ENERGY PRODUCERS AND USERS COALITION ON COMBINED HEAT AND POWER TECHNICAL GUIDELINES

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April 27, 2009

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I. INTRODUCTION AND SUMMARY

The Energy Producers and Users Coalition (EPUC)[1] offers the following comments on the Commission Staff's proposed Combined Heat and Power Technical Guidelines (Small CHP Guidelines). EPUC members are owners, operators and potential developers of CHP installations larger than Assembly Bill 1613's 20 MW threshold. EPUC's stake in the outcome of this proceeding thus is limited. Nonetheless, the coalition offers a few observations regarding the guidelines and the April 13, 2009, workshop. In summary:

- AB 1613 specifies a minimum efficiency level of 60% and does not allow for modification of this floor by the Commission;
- If, as ARB suggested, the state's goal is to achieve greenhouse gas (GHG) reductions of roughly 6.7 million metric tonnes of carbon dioxide equivalent ($MMTCO_2e$), California should encourage any CHP installation that produces fewer GHG emissions than would the separate heat and power (SHP) alternative.

[1] EPUC is an ad hoc group representing the electric end use and customer generation interests of the following companies: Aera Energy LLC, BP West Coast Products LLC, Chevron U.S.A. Inc., ConocoPhillips Company, ExxonMobil Power and Gas Services Inc., Shell Oil Products US, THUMS Long Beach Company, and Occidental Elk Hills, Inc.

- The Guidelines should make clear that both topping and bottoming cycle facilities are included in the program.

In addition, EPUC requests that the Commission constrain the scope of its conclusions in this proceeding to the scope of AB 1613: small CHP. The Commission should undertake consideration of large CHP issues in coordination with the California Public Utilities Commission's upcoming large CHP rulemaking.

II. THE COMMISSION SHOULD MAXIMIZE THE NUMBER OF PROJECTS THAT CAN PARTICIPATE BY FLEXIBLY INTERPRETING THE MANDATED 60 PERCENT EFFICIENCY FLOOR.

One of the issues presented for discussion at the Workshop was whether a "*minimum 60 percent efficiency requirement (on a Higher Heating Value basis*)" is the appropriate standard to achieve the objectives of AB 1613 or whether a higher or lower standard would be preferable.[2] EPUC submits that this question is not relevant to the Commission's proceeding in light of the statute's mandate.

AB 1613 Sets the Minimum Efficiency Requirement at 60%. Public Utilities Code §2843(e)(1) provides:

> *An eligible customer-generator's combined heat and power system **shall meet** an oxides of nitrogen (NOx) emissions rate standard of 0.07 pounds per megawatthour and **a minimum efficiency of 60 percent**. A minimum efficiency of 60 percent shall be measured as useful energy output divided by fuel input. The efficiency determination shall be based on 100-percent load.*

The statute does not say that the CHP system "may" meet, or that the standard "should be" 60 percent unless the Commission finds otherwise. The 60 percent

[2] Notice of Electricity and Natural Gas Committee Workshop: Combined Heat and Power Guidelines Workshop. http://www.energy.ca.gov/wasteheat/notices/2009-04-13_committee_workshop.html

standard is meant to operate as a mandate. Consequently, neither the Commission nor the parties will be well served by examining the AB 1613 threshold.

Only one efficiency-related issue remains for Commission decision. Should the 60 percent standard be based on lower or higher heating value? EPUC supports a flexible approach to this determination.

Commission Staff seem inclined, as indicated in the Workshop Notice, to employ a 60 percent HHV determination, rather than LHV. As noted during the workshop, use of an HHV determination raises the minimum standard by 6-7 percent. While HHV is perhaps the most commonly used in natural gas sales and transportation, and the State's Self Generation Incentive Program used HHV, LHV is the approach used by the Federal Energy Regulatory Commission regulations implementing the Public Utilities Regulatory Policies Act of 1978. Consequently, the proper focus in answering this question must be, as the Commission articulated, which approach maximizes the program benefit.

Obviously, using an HHV determination will have a limiting effect on the types of projects that qualify. As Eric Wong pointed out in his presentation at the

Technology	Steam Turbine[1]	Recip. Engine	Gas Turbine	Microturbine	Fuel Cell
Overall efficiency (HHV)	80%	70-80%	70-75%	65-75%	55-80%

Workshop, the Oak Ridge National Laboratory's December 2008 report found an average efficiency in the nation's 2006 CHP fleet of 66.6 percent.[3] ORNL staff

[3] Presentation of Eric Wong, Cummins Inc. at April 13, 2009 Workshop. http://www.energy.ca.gov/wasteheat/documents/2009-04-13_workshop/presentations/Eric_Wong_Cummins_Inc.pdf

and consultants stated that the range of efficiencies in this 3100 system average was 53-75 percent. Don Schoenbeck, on behalf of EPUC, showed that based on 2005 data, the average CHP fleet efficiency in Southern California Edison Company's territory was 59.4 percent HHV.[4] Again, efficiencies range widely, from below 40 percent to nearly 90 percent, depending upon the application. In addition, a Catalog of CHP Technologies, issued by the Environmental Protection Agency's Combined Heat and Power Partnership in December 2008, shows that CHP efficiencies range from 50 percent to 80 percent, depending on technology. [5]

Given these data, it seems that the Commission should err on the lower efficiency interpretation, 60 percent LHV, if it chooses to maximize the number of systems that can participate in the program. Alternatively, the Commission could establish the standard as 60 percent HHV or, if projects are able to demonstrate GHG savings over the SHP option, 60 percent LHV.

III. THE GUIDELINES SHOULD ADDRESS BOTH TOPPING AND BOTTOMING CYCLE CHP SYSTEMS.

AB 1613 defined "combined heat and power system" as follows:

> (a) *"Combined heat and power system" means a system that produces both electricity and thermal energy for heating or cooling from a single fuel input that meets all of the following:*
> *(1) Is interconnected to, and operates in parallel with, the electric transmission and distribution grid.*
> *(2) Is sized to meet the eligible customer-generator's onsite thermal demand.*
> *(3) Meets the efficiency standards of subdivisions (a) and (d),*

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[4] Presentation of Don Schoenbeck at April 13, 2009 Workshop. http://www.energy.ca.gov/wasteheat/documents/2009-04-13_workshop/presentations/Don_Schoenbeck_Energy_Producers_and_Users_Coalition.pdf

[5] Catalog of CHP Technologies, U.S. EPA Combined Heat and Power Partnership, December 2008, Table III.

and the greenhouse gases emissions performance standard of subdivision (f) of Section 2843.

This definition carries some ambiguity. Subdivision (a) defines CHPC as a system that produces "thermal energy for heating or cooling." In a bottoming cycle facility, the thermal energy is not used for heating or cooling, but for electricity generation. Subpart (2) exacerbates the ambiguity. While it applies to topping cycle CHP, it does not apply to bottoming cycle CHP; bottoming cycle systems have no "onsite thermal demand."

While the words of the statute raise ambiguity, the legislature could not have meant to exclude bottoming cycle CHP – perhaps the most pure form of energy efficiency among CHP systems. The Commission thus should set guidelines for both topping and bottoming cycle facilities. For purposes of meeting the 60 percent standard, the Commission should calculate the efficiency in the same way it has been done under PURPA. In short, absent supplemental firing, the system should be deemed pure energy efficiency, exceeding a 60 percent standard. If supplemental firing is included, the efficiency should be calculated using the supplemental fuel in the efficiency calculation.

IV. THE COMMISSION SHOULD CONSTRAIN ITS FINDINGS IN THIS PROCEEDING TO SMALL CHP.

The rulemaking initiating this proceeding made perfectly clear that its focus was implementation of AB 1613, which is limited to systems of 20 MW or less. Discussion issue 2 articulated in the Notice of Workshop, however, asked "*Is there an optimum efficiency for achieving the greatest total GHG emissions reductions from all new CHP systems (including 20 MW and above)*?" EPUC

submits that given the scope of the rulemaking and the legislative mandate, the proceeding should remain focused on small CHP systems. When the CPUC moves forward with its upcoming large CHP rulemaking, the two commissions should coordinate their efforts.

Respectfully submitted,

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April 27, 2009