

Cummins Power Generation
1400 73rd Avenue N.E.
Minneapolis, Minnesota
55432-3796



04-DIST-GEN-1

DOCKET	
04-IEP-1 <i>Σ</i>	
DATE	MAY 13 2005
RECD.	MAY 13 2005

May 13, 2005

Commissioners John Geesman and James Boyd
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5504

RE: Combined Heat & Power/Distributed Generation Market and Policy Workshop.
Docket # 04-IEP-1E, "Achieving the Preferred Loading Order White Paper," and docket number 04-DIST-GEN-1, "Order Instituting Investigation on Exploring Issues Associated with Implementation and Distribution Planning of Distributed Generation." Also indicate "2005 Energy Report-CHP Workshop April 28, 2005"

Dear Commissioners Geesman and Boyd:

Cummins Power Generation appreciates the opportunity to submit these comments on the "Assessment of California's CHP Market and Policy Options for Increased Market Penetration (Draft Report, April 2005), prepared by EPRI for the California Energy Commission (CEC)).

Cummins Inc., a corporation of complementary business units that design, manufacture, distribute and service electrical power generation and control systems, engines and related technologies, including fuel systems, controls, air handling, filtration and emissions control products. Headquartered in Columbus, Indiana (USA), Cummins Inc. serves its customers through more than 500 company-owned and independent distributor locations in 131 countries and territories.

Cummins and its distributors in North America offer a variety of small power generation products. These include diesel synchronous generator sets, rich and lean burn reciprocating natural gas synchronous generator sets in simple cycle and combined heat and power applications, gas turbines and control systems including power transfer and interconnection equipment. Some Cummins distributors offer photovoltaic (PV) modules through agent agreements with PV companies. Cummins also has a cooperative development agreement with the US Department of Energy for the development of advanced fuel cell products systems

Policy Issues

The most commanding finding of the Report is that a power and delivery grid that includes CHP results in the greatest societal benefits. The Report also finds that benefits are greatest when exports of CHP power at wholesale electricity prices are allowed. The

reasons for these conclusions are straightforward: CHP produces energy at higher efficiencies, with no electrical line losses when compared to central station plants.

Cummins Power Generation (CPG) urges the CEC to adopt a policy that recognizes the value of CHP to the State of California (we propose and hereinafter refer to *The California CHP Policy*). The key elements would include:

1. Adoption of a CHP Portfolio Standard of at least 2000 MW of CHP by 2020.

CPG supports a statutory establishment of a defined CHP Portfolio Standard. Until such a standard is in place, the State should strongly encourage utilities to adopt and implement a CHP Portfolio strategy as part of resource adequacy.

2. Recognition that CHP is a baseload resource that provides the same capacity value as would a new central plant

CHP that provides baseload power reduces a utility's resource adequacy requirement. While CHP may displace utility sales, the utility benefits because it is relieved of at least some of the obligation of having to internally fund or borrow money to build new capacity and possibly new or upgraded T&D. The Report views the revenue loss as having to be made up by either rate increases for remaining customers or by extracting increased utility value from CHP or both (p. xv). When the revenue loss is viewed in context of the traditional rate-making paradigm, regulators are stymied as to how to proceed forward. In order to break this conundrum, we believe the paradigm must shift from a one-for-one correction, to viewing system efficiency as whole. This paradigm shift is discussed immediately below.

3. Adoption of Rate Design that captures the benefits and costs of CHP. Equally important is rate design that rewards utilities for operating their power and delivery grid in a manner that maximizes system efficiency and overall lower cost to ratepayers.

The CPUC is currently engaged in a proceeding to determine the appropriate methodology to measure the costs and benefits of DG/CHP. The CEC is engaged in an advisory capacity and we encourage the CEC to continue to advocate rate design that will lead to a system that fully recognizes and embraces the long-recognized benefits of CHP.

Determining the metrics for maximizing system efficiency and overall lower cost to ratepayers can be as direct as calculating costs with and without CHP. However, there are many factors that affect total system costs, such as T&D congestion, must-run power plants, imports and hydro power availability. We are convinced that the expertise to examine all relevant factors exists within the CEC, CPUC and expert consulting groups. We are further convinced that only when the system as a whole is examined can policy makers move themselves above the oft-blinding debate regarding the loss of utility revenues due to reduction in volumetric throughput.

This paradigm must be rethought and the focus needs to be on how to incent and reward the utility for its role in maximizing system efficiency and lowering overall costs to ratepayers. California must no longer consider the power grid as unidirectional, from central plants to endusers, but as an interoperable system that connects discrete functions

much like discrete power computing.¹ In short, the state should make every effort to expeditiously achieve *The California CHP Policy*.

4. Markets that afford utilities the option to buy power (e.g., firm capacity, energy, ancillary service) from CHP installations at the prevailing wholesale price.

Compensating for a service performed recognizes the locational value of CHP and would greatly enhance the developer or owner to size the CHP project to provide such power. Selling excess power to the utility would improve project economics and help increase CHP penetration.

5. Microgrids that employ all forms of DG and CHP, advanced metering and communication and control technologies.

Microgrids can represent a manifestation of renewable and clean DG/CHP technologies operating together to provide economic, environmental and reliability benefits. The technologies, including communication and control and advanced metering technologies exist today. The PUC expressed its desire to examine microgrids in its DG OIR and the CEC actively studies the technical and policy implications. We urge the two agencies to move with celerity to real-world demonstrations in 2005.

Technical Issue

The Report accurately identifies a key issue regarding the capability of power technologies to meet California's emission limits.

CHP and Emissions Issues

Internal combustion engines (ICE) for CHP market applications face challenging emission limits. Yet, as the Report points out, ICEs are the dominant technology in markets less than 5 MWs (p. xv). Economics and operating characteristics favor engines in CHP applications. However, if emission limits are lowered to the 2007 proposed limits, virtually all commercially proven engines will disappear as an option, and this vast sector of CHP will not be realized.

SCAQMD has argued that endusers considering CHP should buy instead from the grid. From their point of view, it is cleaner and this is indisputable if the power is coming from new combined cycle natural gas fired plants. Equally indisputable is the analysis of forecasted emissions from the CHP sector. Analyses showed that the percent contribution to the South Coast air basin was insignificant compared to baseline emissions.² When these two positions are juxtaposed, the dilemma is illuminated: at what cost to economic activity and power system efficiency (highest societal benefits) is CHP being sacrificed? We believe the prudent course of action is for the State to adopt

¹ Describing and defining the grid of the future is being led by the Gridwise Architecture Council, Gridwise Alliance and IntelliGrid. The CEC is familiar with the efforts of these groups.

² Presentation, March 28, 2005 CEC CHP Workshop, Dr. Jack Brouwer, University of California, Irvine. Based on "Final Report, Air Quality Impacts of Distributed Generation, November 30, 2004. The Report states: Realistic DG implementation scenarios introduce small basin-wide mass increments no larger than 0.43% with respect to baseline emissions (p. 166).

reasonable emission limits consistent with the performance of advanced commercially proven ICEs. Therefore, we support the Report's recommendation that field tests and demonstrations are necessary to demonstrate that low emission technologies are viable for ICE based CHP applications (p. xvii).

Conclusion

Cummins Power Generation is pleased with the strong leadership of the CEC in advancing CHP. For our part, we will participate in field tests and demonstrations of ICE capability to meet emission limits. We will also participate in real-world microgrid demonstrations.

Sincerely,

/s/ Eric Wong

Eric Wong
Manager, Business Development and Government Affairs
Cummins Power Generation

From: <eric.r.wong@Cummins.com>
To: <docket@energy.state.ca.us>
Date: 5/13/2005 2:50:45 PM
Subject: Docket Number 04-IEP-1E, "Achieving the Preferred Loading Order White Paper," and docket number 04-DIST-GEN-1, "Order Instituting Investigation on Exploring Issues Associated with Implementation and Distribution Planning of Distributed Generation."

Attached are the comments of Cummins Power Generation for:
Docket Number 04-IEP-1E, "Achieving the Preferred Loading Order White Paper," and docket number 04-DIST-GEN-1, "Order Instituting Investigation on Exploring Issues Associated with Implementation and Distribution Planning of Distributed Generation."

Eric Wong
Manager
Business Development & Government Relations
Cummins Power Generation
916-498-3339 (office)