

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA  
AND THE CALIFORNIA ENERGY COMMISSION**

**DOCKET**

**07-OIIP-1**

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Order Instituting Rulemaking to Implement the  
Commission's Procurement Incentive  
Framework and to Examine the Integration of  
Greenhouse Gas Emissions Standards into  
Procurement Policies

Rulemaking 06-04-009  
(Filed April 13, 2006)

AB 32 Implementation

CEC Docket  
07-OIIP-01

**REPLY COMMENTS OF THE ENERGY PRODUCERS AND USERS  
COALITION AND THE COGENERATION ASSOCIATION OF CALIFORNIA  
ON MODELING-RELATED ISSUES**

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January 18, 2008

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The Energy Producers and Users Coalition<sup>1</sup> and the Cogeneration Association of California<sup>2</sup> (jointly, EPUC/CAC) submit the following reply comments on modeling-related issues pursuant to the November 9, 2007 Administrative Law Judge's Ruling (Ruling).

**I. OVERVIEW AND SUMMARY OF RECOMMENDATIONS**

EPUC/CAC raised several concerns in their opening comments regarding the modeling of combined heat and power (CHP) resources. As noted in E3's documentation, E3 continues to work on incorporating CHP data and

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<sup>1</sup> 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, Occidental Elk Hills, Inc., and Valero Refining Company – California.

<sup>2</sup> CAC represents the power generation, power marketing and cogeneration operation interests of the following entities: Coalinga Cogeneration Company, Mid-Set Cogeneration Company, Kern River Cogeneration Company, Sycamore Cogeneration Company, Sargent Canyon Cogeneration Company, Salinas River Cogeneration Company, Midway Sunset Cogeneration Company and Watson Cogeneration Company.

assumptions into the model.<sup>3</sup> Based on this representation, EPUC provides the following comments:

- PG&E's challenge to future CHP development as a Greenhouse Gas (GHG) reduction measure ring hollow; PG&E's comments mischaracterize the CEC Report and lack a factual basis and reasoning.
- California should use caution in employing the E3 model results to set GHG policy in light of the limited time provided to E3 for the modeling effort and potential flaws in model assumptions.

EPUC/CAC look forward to future work with the Commissions and E3 in refining the model to develop a useful reference for GHG policy in the electricity sector.

## **II. PG&E'S ATTEMPT TO CREATE DOUBT REGARDING UTILITY OF CHP RESOURCES IS UNSUPPORTED AND INCONSISTENT WITH EXISTING EVIDENCE**

In its opening comments, PG&E attempts to challenge the benefits of CHP facilities and the CEC's determinations in favor of regulatory encouragement of CHP. It notes that (i) expansion of CHP resources will result in over-generation, (ii) the efficiency of CHP should be assessed by comparing CHP with combined cycle gas turbines (CCGT) and boilers, (iii) CHP facilities provide limited reliability benefits, and (iv) existing CHP "*subsidies*" are "*sufficient*." PG&E also seems to question the efficiency of future CHP additions when it argues that expansion of 2,869 MW of enhanced oil recovery (EOR) CHP in the PG&E territory is not feasible. As discussed below, PG&E's attacks are unconvincing because it mischaracterizes the results in the CEC CHP market assessment report (CEC

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<sup>3</sup> See Corrections to GHG Model Stage 1 Documentation (updated on 11/16/07), at 1.

CHP Report), fails to provide any data to support its allegations or address existing evidence which contradicts its allegations.<sup>4</sup>

**A. PG&E's Claim that the the CEC's High Deployment Scenario Will Result in Over-Generation Is Unsupported**

PG&E argues that "*CHP is a baseload, must-take resource providing no operational flexibility with the same over-generation issues as described in section IV.V. ... Thus, CHP's impact on the GHG footprint associated with PG&E's delivered electricity is unclear and may not be positive.*" PG&E seems to suggest that the addition of CHP in the CEC's high deployment scenario *could* result in over-generation. PG&E does not provide any further information upon which this claim can be evaluated; the claim must be dismissed in the absence of any reference data.

**B. PG&E's Claim That CHP Benefits Are Over-Stated Is Unsubstantiated**

PG&E argues that the "*CEC market potential study needs to be updated and modified.*"<sup>5</sup> It complains that because the CEC CHP Report does not compare CHP to new CCGTs and boilers, "*the CHP benefits are over-stated.*"<sup>6</sup> Once again, PG&E provides no data to support this statement or any explanation of why their methodology must be used to assess CHP benefits.

There are multiple ways in which policymakers can assess the benefits of CHP resources. One way, as PG&E suggests, is to compare a CHP resource to a resource that would have been built in its place, a newer CCGT or boiler.

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<sup>4</sup> See EPRI, *Assessment of California CHP Market and Policy Options for Increased Penetration: PIER Collaborative Report* (CEC CHP Report) (CEC-500-2005-173).

<sup>5</sup> PG&E Comments, at 24.

<sup>6</sup> PG&E Comments at 24.

Another reasonable way to assess CHP benefits is to compare a CHP resource to the existing resource that the CHP facility would replace. A third way is to compare CHP resources to the marginal resource. The CEC's CHP Report appears to use the second method.<sup>7</sup> Debate thus continues regarding the best approach to evaluate GHG benefits of CHP. As a result, merely because PG&E seeks a more conservative evaluation of CHP benefits does not mean that the CEC CHP market assessment potential is outdated or over-stated.

**C. Commission Decision, Testimony, and IEPR Demonstrate That CHP Resources Provide Reliability Benefits**

Citing D.03-02-068, PG&E challenges the contribution of customer generation to system reliability.<sup>8</sup> It concludes that for the same reasons as provided in D.03-02-068, "*customer-owned CHP does not contribute significantly to reliability or resource adequacy requirements.*" Contrary to PG&E's suggestion, this decision recognizes the benefits to system reliability provided by CHP. Existing testimony and the 2005 Integrated Energy Policy Report (IEPR) also clarify that CHP improves system reliability.

Decision 03-02-068 addresses distribution investment avoidance. Specifically, in that case, the Commission concluded that distributed generation has the potential to improve, and therefore benefit, system reliability in two primary ways.<sup>9</sup> First, it found distributed generation has significant potential to

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<sup>7</sup> The CEC calculated the CO<sub>2</sub> savings based on "grid power" which averaged 10,000 MMBtu/kWh. See EPRI, *Assessment of California CHP Market and Policy Options for Increased Penetration: PIER Collaborative Report* (CEC-500-2005-173) (CEC CHP Report), at 2-20.

<sup>8</sup> In particular, PG&E states that "[c]ustomer generation only provides distribution benefits under narrow circumstances."

<sup>9</sup> D.03-02-068, at 8-9.

reduce system peak demand by serving onsite load.<sup>10</sup> Second, it determined that distributed generation has some potential to defer distribution system upgrades.<sup>11</sup> The decision did not establish a valuation scheme for distributed generation but also determined that such a scheme was not necessary to ensure that distributed generation is properly incorporated into utility distribution system planning.<sup>12</sup> In short, in the process of evaluating distribution investment avoidance, D.03-02-068 determined that distributed generation provides reliability benefits.

In addition to D.03-02-068, there exists much testimony and support that demonstrates that CHP improves system reliability. First, testimony, filed in the long-term procurement case explains that CHP improves system reliability because it serves on-site load:

*CHP projects are, typically, located contiguous to the electrical loads of the thermal hosts which they serve and in most cases are in the midst of utility load centers. Thus, the amount of electrical power, which needs to flow over the utility grid (i.e., the transmission and distribution system) to serve this load, is significantly reduced. Accordingly, CHP reduces the losses associated with moving power over the wires connecting the thermal host load to more remotely located generation.*

*Moreover, the use of CHP in a geographical area that relies heavily on the transmission system may result in the avoidance or deferral of expansion costs and relieve transmission congestion that might otherwise exist.*<sup>13</sup>

These benefits are also recognized by the IEPR:

*CHP, or combined heat and power (CHP), is the most efficient and cost-effective form of DG, providing numerous benefits to California including reduced energy costs, more efficient fuel use, fewer environmental*

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<sup>10</sup> *Id.*, at 8.

<sup>11</sup> *Id.*, at 9.

<sup>12</sup> *Id.*, at 9-10.

<sup>13</sup> Prepared Direct Testimony of James A. Ross and Donald W. Schoenbeck, filed in R.06-02-013 on March 2, 2007, at 40.

*impacts, improved reliability and power quality, locations near load centers, and support of utility transmission and distribution systems.*<sup>14</sup>

*CHP is a key component of generation delivered to the grid. CHP represents approximately 17 percent of the state's generation and is often key to preserving grid reliability.*<sup>15</sup>

*CHP effectively reduces greenhouse gas emissions and both transmission and distribution congestion. CHP facilities are located in local load centers where system operators often struggle to maintain local reliability. CHP also provides significant resources during peak demand periods, which help mitigate operational problems involved with meeting peak demand.*<sup>16</sup>

Second, CHP resources have a high capacity factor which demonstrates that they are very reliable resources.<sup>17</sup> SCE's total CHP facilities under contract, for example, have operated at an average 89% capacity factor.<sup>18</sup> Finally, a system comprised of many small generating units is more reliable than a system with fewer large generating units because it is better capable of handling forced outages.<sup>19</sup>

**D. Provisions Which Exist to Encourage CHP Do Not Provide Blanket "Subsidies" To CHP**

In its opening comments, PG&E claims that:

*there are sufficient subsidies in place to enable evaluation of expansion of efficient, cost-effective CHP including: implementation of the recently-enacted AB 1613; ...recently-determined QF payments; waiver of stand-by exports for much CHP; and exemption from DWR power charges.*<sup>20</sup>

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<sup>14</sup> IEPR, at 76.

<sup>15</sup> IEPR, at 77.

<sup>16</sup> IEPR, at 80.

<sup>17</sup> Prepared Direct Testimony of James A. Ross and Donald W. Schoenbeck, filed in R.06-02-013 on March 2, 2007, at 39.

<sup>18</sup> *Id.*, at 39.

<sup>19</sup> *Id.*, at 39.

<sup>20</sup> PG&E Comments, at 25.

The characterization of these provisions as blanket CHP subsidies is misleading and inaccurate. AB 1613 and the standby-charge waiver are available only to small-scale CHP; plants above 20MW qualify for none of these benefits. Moreover, contrary to PG&E's assertions, avoided cost payments and exemptions from the DWR power charge cannot be accurately characterized as subsidies.

AB 1613 "*authorize[s] the Commission to require an electrical corporation to purchase excess electricity . . . delivered by a combined heat and power system . . .*"<sup>21</sup> As defined by the statute, qualifying CHP must be sized to meet the eligible customer-generator's on-site thermal demand.<sup>22</sup> An "*eligible customer-generator*" is one that generates no more than 20 MW. According to the IEPR, "*[t]here are more than 770 active CHP projects in California totaling 9,000 MW, with nearly 90 percent of this capacity from systems greater than 20 MW.*"<sup>23</sup> As such, this legislation will provide incentives for only about 10% of CHP. It is grossly misleading to suggest that it is available to CHP as a whole.

Like AB 1613, the standby-charge waiver, codified in Public Utilities Code § 353.1 is only available to a limited number of CHP facilities. Specifically, the standby-charge waiver is available for those facilities that are less than 5MW. The IEPR provides that "*CHP systems smaller than 5 MW represent only about 3 percent of total CHP capacity in the state.*"<sup>24</sup> Again, the standby-charge waiver is not available to most CHP and PG&E overstates its case.

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<sup>21</sup> See AB 1613.

<sup>22</sup> P.U.C. Code §2840.2(b)(1).

<sup>23</sup> IEPR, at 76.

<sup>24</sup> IEPR, at 77.



PG&E also characterizes the “*recently-determined QF payments*” as “*subsidies.*” Presumably, PG&E’s reference to “QF payments” is to the avoided cost payments established in D.07-09-040. By definition, paying a QF an “avoided cost” is aimed to keep the utility revenue neutral. The QF is paid an amount equal to the cost the utility would have incurred “but for” the QF. Consequently, there is no “subsidy” provided in these payments.<sup>25</sup>

Similarly, PG&E attempts to label the CHP exemption from the Department of Water Resources (DWR) power charge a subsidy. There exists no support for this characterization. In fact, a prior Commission decision clarifies that customer generation was exempted from the DWR power charge simply because the Commission determined *it did not cause* the resulting costs:

*Granting exceptions to certain portions of the CRS for customer generation up to 3000 MW will not result in any cost-shifting among customers, since costs for those MW were not incurred by DWR.*<sup>26</sup>

PG&E’s characterization of the DWR exemption as a subsidy is therefore inaccurate and inconsistent with existing records and Commission findings.

#### **E. PG&E’s Conclusions Regarding Feasibility of CEC’s High Deployment Scenario Are Misguided**

PG&E attempts to challenge the high deployment scenario of the CEC CHP report by arguing that its service territory cannot absorb another 2,869 MW of new CHP export as baseload generation. It also argues that “[t]o add 2,800 MW of export generation with the same thermal efficiency as EOR CHP . . . is not a tenable assumption.”<sup>27</sup> While PG&E correctly notes the relative high efficiency

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<sup>25</sup> Webster’s II New College Dictionary, Houghton Mifflin Company, at 1099 (1995).

<sup>26</sup> D.03-04-030, at finding of fact ¶ 20.

<sup>27</sup> PG&E Comments, at 24.

of CHP serving EOR operations, PG&E misinterprets and contorts the determinations in the CEC report to suit its purpose.

In the high deployment scenario, the CEC contemplates the addition of 2,869 MW of new CHP *to the state*, not merely to the PG&E service territory.<sup>28</sup> Table 7-18, in fact clarifies that only 1,572 MW of the 2,869 MW would be in PG&E's service territory.<sup>29</sup>

PG&E also seems to imply that the entire 2,869 MW of CHP export potential must be EOR CHP.<sup>30</sup> While EOR CHP is efficient,<sup>31</sup> the CEC report did not begin to suggest that the additional CHP deployment would be in the oil fields. It concludes, in fact, that two-thirds of the remaining technical potential for CHP is in the *commercial and institutional* sectors.<sup>32</sup> Tables in Section B of the report further demonstrate that the potential for additional CHP is very diverse rather than limited to EOR CHP. Consequently, PG&E's apparent suggestion that further oil reserves must be developed to support additional CHP is misplaced.

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<sup>28</sup> See CEC CHP Report, at 2-1; Table ES 2, at viii.

<sup>29</sup> CEC CHP Report, at G-5.

<sup>30</sup> PG&E Comments, at 24 ("*For example, the Aggressive Market Access case projects 2,869 MW of new export MW compared to a little more than 900 MW of EOR based CHP electrical generation presently in the PG&E area.*")

<sup>31</sup> Existing cogeneration projects have achieved thermal efficiencies in the enhanced oil recovery application of about 80%. See *Prepared Testimony of James A. Ross and Donald W. Schoenbeck*, filed in R.04-04-003/R.04-04-025.

<sup>32</sup> CEC CHP Report, at 2-6.

## **F. PG&E's CHP-Related Modeling Recommendations Require Further Examination.**

PG&E focuses much of its efforts challenging the general benefits of CHP.

It does, however, include two modeling recommendations that require discussion:

- (i) CHP should be modeled as a must-take baseload resource
- (ii) Estimates of GHG reductions for efficient CHP should be calculated using a new CCGT and boiler as alternatives

Once again, PG&E's recommendations offer little explanation or support. While EPUC/CAC agree that the model must make assumptions on these two points, PG&E's recommendations should not be blindly adopted without further technical examination in the E3 modeling effort.

## **III. POLICYMAKERS MUST USE CAUTION IN RELYING ON THE E3 MODEL RESULTS TO SET LONG-TERM STATE GHG POLICY.**

The opening comments noted several shortcomings and limitations of the model. Among other things, stakeholders expressed concern about the general use of estimates, unverified publicly available data, inaccuracies in assumptions, missing data, realistic limitations that are not reflected in the model, and the use of an unverified emissions target:

- IEP expresses concern about the use of Phase I results to estimate transmission costs and the use of publicly available data;<sup>33</sup>
- DRA observes that there are “*many uncertainties in any model.*” It cautions therefore that while “[m]odels can be useful in setting upper/lower bounds and predicting relative cost-effectiveness . . . it would be dangerous to base policy decisions entirely on the output of a model;”<sup>34</sup>
- SoCalGas/SDG&E states that “[t]hese types of models are helpful in setting overall direction and estimating the rough magnitude of actions

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<sup>33</sup> IEP Comments, at 3-4

<sup>34</sup> DRA Comments, at 4.

*needed to reach a goal. However, this model will not accurately predict how each of these actions will develop over time, and therefore will not determine which of these actions is the most cost-effective;*<sup>35</sup>

- GPI generally observes that “[w]hile the model itself appears to be well thought out [sic], and takes into account all of the known variables today, we are concerned about the utility of the entire modeling exercise. The problem is that the uncertainties in this kind of analysis are no large that they tend to swamp any results that are produced;”<sup>36</sup>
- WPTF generally notes that “while the modeling approach used by E3, namely the development of reference cases and target scenarios and the GHG calculator, may be used to explore various electricity generation scenarios in the year 202, WPTF considers that its applicability as a tool for evaluating alternative policy options and overall sectoral costs is limited;”<sup>37</sup>
- AReM observes that electric service providers have not been considered and integrated into the E3 model;<sup>38</sup> and
- NCPA notes that E3’s model focuses “almost exclusively” on IOUs and “do not provide accurate or adequate information on other aspects of the electricity sector, including publicly owned utilities.”<sup>39</sup>

With respect to CHP, as noted in the opening comments of EPUC/CAC, there are several issues in the model that require modification.<sup>40</sup> Together these comments highlight some of the issues that the Commission must take into consideration when it reviews the model’s results. In other words, while the model can help clarify some of the cost implications of implementing a GHG regulatory scheme, it should not be used blindly to establish policy for the reasons highlighted by parties.

In addition to potential inaccuracies, the Commission should keep in mind the limited time that E3 has had to work on the model. It is fair to say that E3 has not had a significant amount of time to work on this enormous modeling task.

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<sup>35</sup> SoCalGas/SDG&E, at 7.

<sup>36</sup> GPI Comments, at 6.

<sup>37</sup> WPTF, at 2.

<sup>38</sup> AReM, at 4.

<sup>39</sup> NCPA Comments, at 2.

<sup>40</sup> See generally EPUC/CAC Opening Comments.

The Commission's request for proposal is dated March 21, 2007. It anticipated a contract commencement date of June 19, 2007. E3 held its kick-off meeting on September 21, 2007 and its initial results were posted in November. In short, given the large scope of this project, it is unclear if E3 has been provided sufficient time to produce a reliable model that can be used to establish long-term policy.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Evelyn Kahl".

Evelyn Kahl  
Michael Alcantar

Counsel to the Energy Producers and  
Users Coalition and the Cogeneration  
Association of California

January 18, 2008

## CERTIFICATE OF SERVICE

I, Karen Terranova hereby certify that I have on this date caused the attached **Reply Comments of the Energy Producers & Users Coalition and the Cogeneration Association of California on Modeling Related Issues** in R.06-04-009 to be served to all known parties by either United States mail or electronic mail, to each party named in the official attached service list obtained from the Commission's website, attached hereto, and pursuant to the Commission's Rules of Practice and Procedure.

Dated January 18, 2008 at San Francisco, California.

A handwritten signature in black ink, reading "Karen Terranova". The signature is written in a cursive style with a long horizontal flourish at the end.

Karen Terranova