

Comments of the Pacific Gas and Electric Company on the Committee Final Guidelines for Certification of Combined Heat and Power Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act, Public Utilities Code, Section 2480, et seq.

Docket No. 08-WHCE-1

2008 Rulemaking on Implementation of the

Waste Heat and Carbon Emissions Reduction Act

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The Pacific Gas and Electric Company (PG&E) supports efficient Combined Heat and Power (CHP) that ensures statewide GHG emissions reductions and welcomes the opportunity to submit its written responses to the “Committee Final Guidelines for Certification of Combined Heat and Power Systems under the Waste Heat and Carbon Emissions Reduction Act”¹ (or Guidelines henceforth) the California Energy Commission (CEC) developed pursuant to Public Utilities Code section 2840, et seq.

PG&E is concerned about the increase in greenhouse gas (GHG) emissions that could result from the efficiency standard proposed in the Guidelines published in January 2010. The Waste Heat and Carbon Emissions Reduction Act (AB 1613) mandated the CEC to develop guidelines that ensure that AB 1613 eligible Combined Heat and Power systems reduce waste heat² and thereby lead to a statewide reduction in emissions of greenhouse gases. Unfortunately, the currently proposed efficiency standard falls short of this mandate. It is possible for a CHP system to meet the CEC’s proposed efficiency standard yet *increase* GHG emissions. PG&E strongly urges the Commission to comply with the legislative intent of AB 1613 and ensure that *all* eligible CHP will reduce statewide GHG emissions by incorporating a standard that is based on and exceeds the carbon neutral double benchmark, akin to the CEC’s initially proposed Fuel Savings Standard.

¹ Electricity and Natural Gas Committee. Guidelines for Certification of Combined Heat and Power Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act, Public Utilities Code Section 2840 et. seq. California Energy Commission. CEC-200-2009-016-CTD.

² Assembly Bill 1613, Blakeslee. Energy: Waste Heat and Carbon Emissions Reduction Act. Chapter 713. Filed with Secretary of State October 14, 2007. § 2843. (a) 1.

As currently proposed, the efficiency standard allows certain CHP systems to *increase* statewide GHG emissions, yet still be eligible for the AB 1613 tariff.

The CHP Guidelines stipulate a uniform Energy Conversion Efficiency Standard of 62 percent. Under this efficiency standard, it is possible for a CHP system to *increase* statewide GHG emissions, yet still meet the proposed efficiency standard and thus be eligible for the AB 1613 tariff. This deficiency results from the standard's failure to compare the GHG impact of CHP with the GHG impact of meeting the same energy needs through the default option of a stand-alone boiler and grid-provided electricity.

A carbon neutral double benchmark is the appropriate way to determine whether a CHP installation decreases GHG emissions.

To determine whether a given CHP system reduces GHG emissions, one must compare its GHG emissions with the GHG emissions that would have resulted had the same amount of heat and power been generated through the default alternative generation mode: a stand-alone boiler and a conventional power plant (typically a CCGT), respectively. By conceptualizing this comparison, the *carbon neutral double benchmark* establishes the neutral line where CHP and the separate generation of heat and power result in the *same* amount of GHG emissions. This double benchmark concept is widely acknowledged³ as the proper method for assessing the GHG impact of CHP. This concept also underlies the CHP Program Measure developed by the California Air Resources Board (CARB) in the AB 32 Scoping Plan.⁴

³ E.g. U.S. Environmental Protection Agency Combined Heat and Power Partnership. 2008. Catalog of CHP Technologies, p.5.; International Energy Agency. 2008. IEA Information Paper: Combined Heat & Power and Emissions Trading: Options for Policy Makers; UK Department of Energy and Climate Change. CHP Quality Assurance Program.

⁴ California Air Resources Board. 2008. Climate Change Scoping Plan Appendices. Volume II: Analysis and Documentation, p.I-26-I-28.

The CEC's earlier draft guidelines contained the carbon neutral double benchmark.

The CEC incorporated the carbon neutral double benchmark as the “Fuel Savings Standard” in the October 2009 Staff Draft Guidelines⁵. The Fuel Savings Standard accounted for the fact that the total operating efficiency a CHP system needs to achieve in order to be carbon neutral depends on three components: (1) the relative balance between the system's electric output and thermal output (i.e. its power-to-heat ratio), (2) the efficiency with which the displaced grid-provided electricity is generated (typically expressed as a heat rate (Btu/kWh), and (3) the efficiency of the displaced boiler used to produce onsite heat.

PG&E applauded the inclusion of the Fuel Savings Standard and the recognition of the importance of taking into account each CHP system's power-to-heat ratio. PG&E endorsed the 80 percent boiler efficiency the CEC proposed in its October Staff Draft Guidelines⁶—an assumption mirrored by the CARB in its AB 32 Scoping Plan. PG&E suggested a slightly lower heat rate for the displaced grid-provided electricity⁷, but recognizes that the heat rate value assumed in arriving at the carbon neutral double benchmark is more controversial. In its comments to the October 2009 Staff Draft Guidelines, PG&E also argued in favor a standard *above* the carbon neutral double benchmark in order not only to avoid an increase in GHG, but also to guarantee real GHG savings.

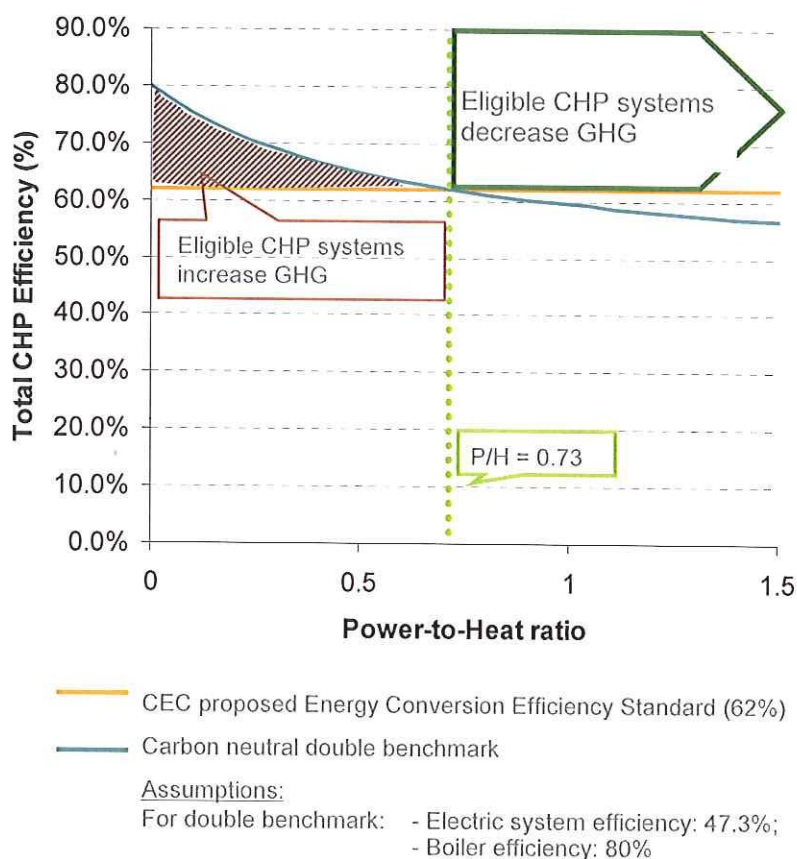
Regrettably, the CEC removed the Fuel Savings Standard in its ‘Committee Final Guidelines’ of January 2010, thereby eliminating the assurance that *all* eligible CHP systems will be at least carbon neutral.

⁵ Soinski, Ph.D., Arthur J., 2009. Guidelines for Certification of Combined Heat and Power Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act, Public Utilities Code Section 2840 et. seq. California Energy Commission. CEC-200-2009-016-SD.

⁶ Soinski, Ph.D., Arthur J., 2009. Guidelines for Certification of Combined Heat and Power Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act, Public Utilities Code Section 2840 et. seq. California Energy Commission. CEC-200-2009-016-SD.

⁷ Namely, a heat rate of 7210 Btu/kWh (including transmission and distribution losses) compared to the CEC proposed heat rate of 7750 Btu/kWh). PG&E Comments on California Energy Commission Staff Draft Guidelines for Certification of Combined Heat and Power Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act, Public Utilities Code, Section 2480, et seq. Docket No. 08-WHCE-1. October 26, 2009.

The chart below illustrates this point. The blue line labeled “carbon neutral double benchmark” shows the total efficiency a CHP system needs to attain for any given power- to-heat ratio in order to be carbon neutral, i.e. to emit the same amount of GHG as would have resulted from providing heat from an 80% efficient boiler and power from the grid.⁸ The orange line represents the 62% efficiency standard proposed by the CEC. The red shaded area indicates operating profiles where CHP systems can meet the proposed 62% efficiency standard yet actually increase GHG emissions.



The efficiency standard as currently proposed creates the risk of providing preferential access for generation that will *increase* statewide GHG emissions.

The CEC’s Guidelines determine which CHP systems are eligible for the investor-owned utilities’ (IOUs) preferential procurement status approved by the California Public Utilities Commission on December 17, 2009, in D. 09-12-042⁹. All eligible CHP systems will benefit from a feed-in tariff for their excess electricity, which IOUs are required to purchase. A key

⁸ For this analysis, PG&E used the heat rate of 7,210 Btu/kWh it proposed in the comments it filed in October 2009.

⁹ Decision Adopting Policies and Procedures for Purchase of Excess Electricity under Assembly Bill 1613.

justification for asking electric customers to subsidize CHP is the anticipated GHG benefits of these facilities. By failing to ensure that all eligible CHP will indeed reduce GHG emissions, the proposed standard undermines the justification for this preferential access.

The efficiency standard as currently proposed fails to ensure progress toward achieving the GHG reduction target of the CARB's CHP Program Measure under AB 32.

In its 2008 Scoping Plan, the CARB calculated that new, highly efficient CHP could reduce GHG emissions by 6.7 MMT per year¹⁰. If properly implemented, AB 1613 can make a significant contribution toward achieving this goal. However, the proposed efficiency standard misses this opportunity and may even be a step backward. The proposed Energy Conversion Efficiency Standard mandates a CHP efficiency that is significantly below the efficiency assumed by CARB's CHP Program Measure¹¹ and obligates IOUs to purchase power from CHP resources that may lead to an increase in statewide GHG emissions.

Conclusion

The California Energy Commission can make a significant contribution to the statewide reduction of GHG emissions through its adoption of CHP efficiency guidelines—but only if the CEC's efficiency standard for CHP is properly conceived, implemented and enforced. As presently constituted, the standard misses this opportunity, and even risks leading to an *increase* in GHG emissions in California. PG&E therefore strongly urges the CEC to re-incorporate a standard that is based on the carbon neutral double benchmark, akin to the Fuel Savings Standard initially proposed by the CEC staff. In addition, PG&E requests that the Commission consider a standard that exceeds the double benchmark to ensure that all eligible CHP systems will not only be carbon neutral, but effectively reduce GHG emissions as intended by AB 1613.

Sincerely,



MARK KRAUSSE

DIRECTOR, STATE AGENCY RELATIONS

¹⁰ California Air Resources Board. 2008. Climate Change Scoping Plan.

¹¹ The 6.7 MMT CO₂ reduction target is based on an assumed CHP efficiency of 77 percent (at a power-to-heat ratio of 0.7). See California Air Resources Board. 2008. Climate Change Scoping Plan Appendices. Volume II: Analysis and Documentation, p.I-26-I28. This efficiency value assumed by CARB, i.e. 77 percent, is substantially above the CEC's proposed 62 percent efficiency standard