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April 27, 2009

California Energy Commission
1516 Ninth Street
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**RE: AB 1613: Waste Heat and Carbon Emissions Reduction Act
Guideline Development, April 13, 2009 Workshop**

DOCKET

08-WHCE-1

DATE April 27 2009

RECD. April 27 2009

Dear Commissioners:

San Diego Gas & Electric Company (SDG&E) and Southern California Gas Company (SoCalGas) herein respectfully submit their comments on the CEC Staff Proposal presented at the April 13, 2009 Workshop.

Staff Proposal #1: Net Generating Capacity shall be \leq 20 MW

Net generating capacity would be defined as equal to the full load continuous rated capacity of prime mover/generator at International Organization for Standardization Conditions as packaged and delivered minus ancillary equipment electrical loads needed to operate the generator.

SDG&E/SoCalGas: Agree.

Staff Proposal # 2: CHP System Efficiency shall be \geq 60% Higher Heating Value (HHV), 100% Load, Standard Conditions

System Efficiency would equal useful energy output divided by fuel input. "Useful" would be defined as "made available for use" consistent with FERC and CARB's Regulation for Mandatory Reporting of GHG Emissions. Useful Energy Output would be defined as the sum of useful electricity output including useful mechanical output, useful chemical output, and useful thermal output. Fuel input is the quantity of fuel times its heating value. All energy outputs and the fuel input would be converted to a common unit using accepted conversion factors.

SDG&E/SoCalGas: While SDG&E/SoCalGas agree with the CHP definition used by the CEC Staff, it conflicts with the legislation. According to AB 1613, "Combined heat and power system" means a system that produces both electricity and thermal energy for heating or cooling from a single fuel." Since AB 1613 does not allow for mechanical or chemical energy use (only referring to thermal energy), mechanical or chemical energy use should not be part of the efficiency calculation.

Likewise, when considering bottoming cycle cogeneration, the calculation of efficiency cannot ignore the input fuel converted to heat in the industrial process based on the AB 1613 definition. The single fuel used for electricity production and thermal use implies that the energy for the thermal process has to be included as well as the production of electricity. Therefore, bottoming cycle CHP should be considered on the same basis as topping cycle for AB 1613 consideration.

Staff Proposal # 3: Waste Heat Utilization

Staff proposes that the requirements mirror PURPA and PUC 216.6 for the SGIP. Namely, that at least 5 percent of the facility's total annual energy output would be required to be in the form of useful thermal energy and the useful annual power output plus one-half the useful annual thermal energy output equals not less than 42.5 percent of any natural gas and oil energy input on a LHV basis. In addition, the CHP system should be sized to be no smaller than the minimum connected on-site thermal load and no larger than the maximum connected on-site thermal load.

SDG&E/SoCalGas: Again looking at the legislation, AB 1613 states the CHP system should be “sized to meet the eligible customer-generator’s onsite thermal demand” and to meet the efficiency requirements. Therefore, the CHP system should be sized to be “no larger than the maximum connected on-site thermal load” is the extent of the requirement. None of the additional criteria need to be considered except to the extent the CHP generation has a legal requirement to meet certain FERC standards to be able to make sales to the utility.

Staff Proposal #4: Environmentally Beneficial with respect to CO2Emissions

The CHP System, as designed, should have 5 percent lower annual CO2 emissions than the alternative. The comparison would be between CHP System CO2 emissions and separate systems CO2 emissions. The CHP emissions would be calculated as the annual fuel consumption times the emission factor of the input fuel. For the separate system alternative, Staff proposes to use the TIAX LLC’s *Cost-Benefit Analysis of the Self-Generation Incentive Program* (Report CEC-300-2008-010-F). The electricity generation alternative is a natural gas-fired power plant with an emission factor of 1,100 lb/MWh; the heat energy alternative is an 85% efficient natural gas-fired boiler; and the cooling alternative, if applicable, is a 60% efficient electric chiller.

SDG&E/SoCalGas: The 1,100 lbs/MWh figure should not be used as a benchmark for GHG reduction. It was derived as being higher than the CO2 emissions from least efficient existing combined cycle gas turbine (CCGT). Going forward, the comparison for GHG reduction should be with an emissions rate in the range of 880 lbs./MWh based on a new CCGT (e.g., 7,000 btu/kWh) and line loss factor (e.g., 8%). But as was shown in the afternoon at the workshop, 60% efficient (HHV) is about the same emissions as an 85% efficient boiler and a new CCGT if line losses are included. Therefore, if the CHP unit meets 60% efficiency, there does not need to be a separate GHG reduction calculation unless the input fuel is different than natural gas.

Staff Proposal # 5: Documentation of Compliance with Specific Requirements

Staff proposes to establish templates for reporting and calculating the following: efficiency; waste heat utilization; NOx emissions compliance, including a copy of Air Quality District Operating Permit; and, at least 5 percent annual GHG reductions.

SDG&E/SoCalGas: The verification of compliance with the efficiency requirements, sizing based on thermal load, and NOx standards would be consistent with AB 1613. However, the GHG reduction calculation is not generally required as discussed above.

Staff Proposal #6: Performance Verification and Compliance Plan

Staff proposes that the CEC be responsible for assuring 1) total system efficiency is $\geq 60\%$; 2) NOx emissions are ≤ 0.07 lb/MWh calculated in accordance with AB 1613, and 3) CO2 emissions are $\leq 1,100$ lb/MWh with monitoring and reporting to be performed according to accepted standards.

SDG&E/SoCalGas: SDG&E and SoCalGas agree with the Staff recommendation that the CEC be responsible for initial compliance and periodic audit of continued compliance. The verification of compliance with the efficiency requirements, sizing based on thermal load, and NOx compliance would be within the CEC's expertise given its familiarity with power plants through the licensing process and, as mentioned at the workshop, the CEC has experience in auditing.

However, the CEC should also be responsible for assuring compliance with the requirement that the system is being sized appropriately for its thermal load (waste heat utilization) and should make a determination whether a CHP facility qualifies as "new CHP."

A repowered CHP system should be treated as a "new" system that is eligible for benefits under the provisions of AB 1613. Retrofitting and upgrading an existing facility with new technology to meet sizing and efficiency standards, which would otherwise be less efficient and more polluting, will increase energy efficiency and decrease GHG emissions. Considering repowered CHP facilities as "new" CHP systems under AB 1613 provides an incentive to upgrade or retrofit existing CHP equipment that may not be used, not being cost-effective to run; or may not be performing to current emissions and efficiency standards.

These "new" CHP systems, if constructed, would provide more efficient and less polluting distributed energy to support state policy. The CEC could provide guidelines to facilitate the qualification process for repowered facilities to be considered "new." Besides meeting the requirements of AB 1613, these guidelines could include requirements such that the modification is designed and intended to extend the CHP life by five years or more, and/or a requirement that a facility that did receive CPUC or CEC incentives not still be in the warranty period.

Yours sincerely,

