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September 19, 2012

Clerk of the Board  
California Air Resources Board  
1001 I Street  
Sacramento, California 95814

Subject: Comments of CalEnergy Operating Corporation on California Air Resources Board's "Notice of Public Hearing to Consider Amendments to the Mandatory Reporting of GHG Emissions, the AB 32 Cost of Implementation Fee Regulation and the California Cap on GHG Emissions," dated August 1, 2012.

Dear Chairwoman Nichols and Air Board Members:

I am writing to you on behalf of CalEnergy Operating Corporation (CalEnergy) to provide comments in response to the California Air Resources Board's (ARB) "Notice of Public Hearing to Consider Amendments to the Mandatory Reporting of GHG Emissions, the AB 32 Cost of Implementation Fee Regulation and the California Cap on GHG Emissions," dated August 1, 2012.

CalEnergy owns and operates approximately 350 megawatts of installed geothermal, non-utility, independently owned generation resources in the Imperial Valley, California. CalEnergy is working to develop additional geothermal energy production projects.

CalEnergy geothermal facilities tap the Salton Sea Known Geothermal Resource Area (SSKGRA). This resource is known for having extremely prolific wells producing high temperature and high salinity brine. The wells routinely produce over 1,000,000 pounds per hour of brine. The reservoir temperature can exceed 600°F and salinity is over 220,000 parts per million total dissolved solids – about seven times the salinity of sea water. The geothermal reservoir is considered one of the largest liquid dominated reservoirs in the world with an estimated electrical capacity of over 2,000 megawatts. Over the past 40 years of development, CalEnergy and its predecessors have concluded that the most cost effective and environmentally friendly (extremely low water usage) way to harness this energy is using flash technology. However, due to the high temperature and salinity of the resource, accurately measuring and reporting greenhouse gas emissions are very difficult.

CalEnergy supports the goals of AB 32 and the Renewable Portfolio Standard to reduce greenhouse gas emissions and increase renewable energy production. CalEnergy supports the goal of aligning and harmonizing California greenhouse gas reporting with the U.S. Environmental Protection Agency regulations and the Western Climate Initiative reporting structure. CalEnergy also supports updating emissions calculation methods by preparing and submitting an updated methodology for ARB approval in May 2012.

CalEnergy offers these comments regarding independent verification section 95130 in the current proposed regulations and requests ARB assistance with two related CalEnergy requests to the executive director in conjunction with greenhouse gas reporting. The first request is for approval of the CalEnergy methodology for calculating greenhouse gas emissions, submitted to ARB for approval May 25, 2012; and the second request is for extension of the current deadline for use of sulfur hexafluoride in tracer gas testing required for the CalEnergy methodology submitted to ARB June 29, 2012.

CalEnergy believes the current proposal for independent verification increases geothermal energy production costs without corresponding benefit. Geothermal energy production is exempted from greenhouse gas reporting under the U.S. Environmental Protection Agency greenhouse gas regulations. ARB regulations require geothermal energy production to report greenhouse gas emissions; however, geothermal energy production does not have an obligation under cap-and-trade regulations.

Previous ARB regulations required independent verification of geothermal greenhouse gas emissions every three years. The initial independent verification cost CalEnergy over \$44,000 for four facilities with a total generating capacity of 350 megawatts. ARB changed the requirement for independent verification in 2011 to require annual independent verification with two levels of verification detail. The cost for the independent verification for CalEnergy was over \$25,000 in 2011.

ARB staff proposed deleting language from section 95130 that subjects facilities that have less than 25,000 metric tons carbon dioxide equivalent of annual emissions to acquiring verification services. These proposed changes were made because the U.S. EPA methods were not rigorous enough to support the needs of the cap-and-trade program and the state-wide greenhouse gas inventory program. The current proposal does not exempt renewable geothermal energy production without an obligation under the cap-and-trade regulations as was discussed with ARB staff.

Geothermal energy production does not have an obligation under cap-and-trade. Geothermal greenhouse gas emissions are carefully calculated, reported and certified using the California Greenhouse Gas Reporting System (Cal e-GGRT) based on the U.S. EPA system. CalEnergy believes this method is accurate and the proposed regulations increase costs without corresponding benefit. CalEnergy respectfully requests the requirement for independent verification be eliminated for geothermal energy production without an obligation under cap-and-trade. Alternatively, CalEnergy requests the



requirement for independent verification for geothermal energy production be returned to the original three-year schedule.

CalEnergy initial greenhouse gas reporting method uses tracer enthalpy testing to determine the amount of heat removed from the geothermal resource and the ARB default emission factor. This method was approved in an email by ARB staff in 2010 and has been accepted by independent verification in 2009 and 2011.

CalEnergy worked with ARB staff to prepare a site-specific methodology for calculating greenhouse gas emissions and submitted this request for ARB executive director approval on May 25, 2012. CalEnergy has been assured by ARB staff this methodology will be approved; however, ARB staff have been unable to provide a date this methodology will be approved.

ARB approval of the CalEnergy site-specific methodology to more accurately report greenhouse gas emissions is important for two reasons. First, to more accurately report greenhouse gas emissions as required by ARB. ARB default emission factor over estimates greenhouse gas emissions by a factor of two. CalEnergy believes the proposed methodology is the most accurate method to calculate greenhouse gas emissions using tracer enthalpy testing to determine both the amount of heat and the greenhouse gas composition in the geothermal reservoir. Second, while the U.S. EPA exempted geothermal from annual greenhouse gas emission reporting, EPA did not exempt geothermal from the Title V air operating permit and Prevention of Significant Deterioration (PSD) permit requirements. EPA established a 100,000 ton per year threshold for Title V and a 75,000 ton per year threshold for PSD. Using the ARB geothermal default factor would subject CalEnergy Region 1 and Region 2 facilities to Title V permit requirements; however, CalEnergy greenhouse gas emissions are below the threshold when using the more accurate site-specific methodology.

ARB approval of the CalEnergy request on June 29, 2012, to continue using sulfur hexafluoride for tracer enthalpy testing is essential until a suitable alternative has been identified and proven in commercial applications is essential to continued use of tracer enthalpy testing to accurately report greenhouse gas emissions. CalEnergy used less than one pound of sulfur hexafluoride gas in 2011 and anticipates use of sulfur hexafluoride in tracer enthalpy testing will be less in 2012.

CalEnergy supports reduction of greenhouse gas emissions by increasing geothermal energy production. Geothermal energy production is base load renewable generation with low greenhouse emissions, approximately 1/5 of natural gas-fired energy production. Geothermal energy production facilities provide needed renewable energy production, capital investment and creation of both short- and long-term jobs.

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CalEnergy thanks staff for their attentiveness to CalEnergy requests which will aid in encouraging continued operation and development of additional geothermal energy production projects in California.

Please call or email me if you have questions or need additional information.

Sincerely,

A handwritten signature in blue ink that reads "Craig E. Parker" followed by a stylized monogram.

Craig E. Parker  
Director, IPP Environmental Services  
CalEnergy Operating Corporation  
7030 Gentry Road  
Calipatria, California 92233  
760-348-4204 Office  
760-604-2649 Cell  
ceparker@calenergy.com

cc: Ms. Joelle (Hulbert) Howe, ARB  
Patrick Gaffney, ARB  
Steve Church, ARB  
Alexander Schriener, CalEnergy  
Karl Gawell, GEA