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December 7, 2010

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

RE: Comments Proposed Regulation Order for California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, Including Compliance Offset Protocols

Dear Chairwoman Nichols and Air Board Members:

The Geothermal Energy Association (GEA), which includes all of the geothermal energy companies that operate in California, submits the following comments on the Air Resources Board's (ARB) Proposed Regulation Order for "*California Cap On Greenhouse Gas Emissions And Market-Based Compliance Mechanisms*" ("cap and trade regulations"). GEA would like to thank you for the excellent series of public workshops on the cap and trade regulatory effort, and for the opportunity to comment on the proposed Regulation Order.

The Geothermal Energy Association is a trade association composed of U.S. companies who support the expanded use of geothermal energy and are developing geothermal resources worldwide for electrical power generation and direct-heat uses. GEA represents all of the geothermal utility scale energy producers in California and Nevada. GEA advocates for public policies that will promote the development and utilization of geothermal resources, provides a forum for the industry to discuss issues and problems, encourages research and development to improve geothermal technologies, presents industry views to governmental organizations, provides assistance for the export of geothermal goods and services, compiles statistical data about the geothermal industry, and conducts education and outreach projects.

According to 2008 data, the geothermal industry is the leading provider of GWh/year of renewable energy in California. As was recognized in the Board's AB 32 Scoping Plan and the recent adoption of the 33% Renewable Electricity Standard (RES), California's plan to meet ambitious greenhouse gas reduction goals is strategically and numerically

dependent on meeting the RES renewable energy procurement goals in the next decade.

Even prior to the passage of AB 32, the geothermal energy industry was already working closely with ARB and other state regulators to accurately quantify and report greenhouse gas (GHG) emissions. Several geothermal companies voluntarily participated in the Climate Action Registry process, and all California geothermal producers now report annual GHG emissions pursuant to the Mandatory Greenhouse Gas Emissions Reporting regulations administered by ARB. The geothermal industry has a long history of complying with various air quality reporting and emissions reductions requirements in California. The requirements of AB 32 – and the attempt to accurately gauge GHG emissions that are caused directly by geothermal energy technologies has presented various technical and policy challenges for both ARB and our industry.

As we have discussed with ARB staff and testified at various public hearings, we are supportive of the staff recommendation and decision to not create a compliance (i.e. surrender obligation) for GHG emissions from geothermal facilities. Our data and the data provided to ARB under the mandatory reporting process clearly shows that GHG emissions from geothermal facilities in California are of a de minimus nature especially when compared to carbon-intensive fossil fuel sources of “baseload” power.

In addition GHG emissions (i.e. CO<sub>2</sub>e) from geothermal facilities are not generated from a combustion process, so there is an inherent difficulty in quantifying exactly what percentage of GHG emissions are from man-made, geothermal power activities versus part of the earth’s natural CO<sub>2</sub>e emissions profile. The CO<sub>2</sub> that is “emitted” from geothermal projects is actually derived from CO<sub>2</sub> dissolved in the reservoir fluids, which under natural conditions gradually seeps out into the biosphere in the absence of human intervention. It is then gradually replenished from deeper within the earth through melting of subducted carbonate rocks and other geologic processes. This makes the task of allocating responsibility for emissions reductions under a cap and trade regime very difficult given the time scale of the system that geothermal energy relies upon.

CARB has chosen to characterize geothermal facility GHG emissions as either “fugitive” or “process” emissions for mandatory reporting purposes. These terms are essentially a proxy category for the types of GHG emissions that can be measured at geothermal facilities but are not completely accurate given that naturally occurring GHG emissions from geothermal facilities can pass through cooling stacks. Given the factors mentioned above, and given that the proposed regulation does not propose a compliance obligation for geothermal facilities, we would ask that ARB consider the following amendment to **Sections 95852 and 95852.2 to clarify that emissions from geothermal facilities do not have a compliance obligation.**

Proposed Amendment to Section 95852 and 95852.2 (changes in **bold**)

**§ 95852. Emission Categories Used to Calculate Compliance Obligations.**

(h) The compliance obligation is calculated based on the sum of (i) emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O resulted from combustion of fossil fuel; (ii) emissions of CH<sub>4</sub> and N<sub>2</sub>O resulted from combustion of all biomass-based fuel; (iii) emissions of CO<sub>2</sub> resulted from combustion of unverifiable biomass-derived fuels, as specified in section 95852.2; (iv) emissions of CO<sub>2</sub> resulted from combustion of biomass-derived fuels not listed in section 95852.2; and (v) all process and vented emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O as specified in the Mandatory Reporting Rule except for those listed in section 95852.2(g) below.

**§ 95852.2. Emissions without a Compliance Obligation.**

Emissions from the following source categories as identified in sections 95100 through 95199 of the Mandatory Reporting Regulation count toward applicable reporting thresholds but do not count toward a covered entity's compliance obligation set forth in this regulation. These source categories include:

- (a) Combustion emissions from biomass-derived fuels (except biogas from digesters) from the following sources . . . .
- (b) Biodiesel . . . .
- (c) Fuel ethanol . . . .
- (d) Municipal Solid Waste (biogenic fraction only as determined by methodology specified in ASTM D6866) . . . .
- (e) Biomethane from the following sources . . . .

**(f) emissions from geothermal generating units and geothermal facilities.**

**(g)** Fugitive and process emissions from:

- (1)** CO<sub>2</sub> emissions from hydrogen fuel cells;
- (2)** At petroleum refineries: asphalt blowing operations, equipment leaks, storage tanks, and loading operations; or
- (3)** At the facility types listed in section 95101(e) of the Mandatory Reporting Regulation, Petroleum and Natural Gas Systems: leak detection and leaker emission factors, and stationary fugitive and "stationary vented" sources on offshore oil platforms.

We believe that GEA's proposed amendment merely clarifies ARB's existing intent, while not creating any additional confusion about what is a "fugitive" versus "process" emission. We look forward to your response on this issue, and thank you for your thoughtful and constructive response in working with our industry on AB 32 implementation. If you have any questions about these comments, please call me at 530-979-7586 or via email at [john@geo-energy.org](mailto:john@geo-energy.org).

Sincerely,



John McCaull  
Western States Representative  
Geothermal Energy Association