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December 14, 2010

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

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

Dear Chairwoman Nichols and Board Members:

With more than four decades of experience, Ormat Technologies, Inc. is the only vertically integrated company primarily engaged in the geothermal and recovered energy power business. The company designs, develops, owns and operates geothermal and recovered energy-based power plants. Ormat has engineered and built power plants, that it currently owns or has supplied to utilities and developers worldwide, totaling approximately 1300 MW of gross capacity.

In California alone, Ormat owns and operates 228 megawatts of geothermal generation in Imperial and Mono Counties and is planning to add an additional 90 megawatts over the next few years. Ormat, along with the other geothermal companies that operate in California, have met with ARB staff over the last several years as the regulations to implement AB 32 have been proposed. We are supportive of the staff recommendation and decision to not create a compliance requirement (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 emission 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_{2e}) 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' natural CO_{2e} emissions profile. The CO_2 that is "emitted" from geothermal projects is actually derived from CO_2 dissolved in the geothermal fluids, which under natural conditions gradually seep 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 measures at geothermal facilities but are not completely accurate given that naturally occurring GHG emissions from geothermal facilities can pass through cooling towers. Given the factors mentioned above, and given that the proposed regulation does not propose a compliance

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6225 Neil Road, Reno, NV, 89511 • Telephone (775) 356-9029 • Facsimile (775) 356-9039

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obligation for geothermal facilities, **<u>we ask that the ARB consider the following amendment to Sections 95852 and 95852.2 to clarify that emission from geothermal facilities do not have a compliance obligation.</u>**
Proposed Amendment to Section 9582 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_2, CH_4 and N_2O resulted from combustion of fossil fuel; (ii) emissions of CH_4 and N_2O resulted from combustion of all biomass-based fuel; (iii) emissions of CO_2 resulted from combustion of unverifiable biomass-derived fuels, as specified in section 95852.2; and (iv) emissions of CO_2 resulted from combustion of biomass-derived fuels not listed in section 95852.2; and (v) all process and vented emissions of CO_2, CH_4, and N_2O 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_2 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 this amendment proposed by the geothermal industry in California 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 and thank you for working with the geothermal industry on AB 32 implementation. If you have any questions about Ormat or our comments please contact Charlene Wardlow at 775-336-0155 or via email at cwardlow@ormat.com.

Sincerely,

Paul Thomsen
Director Policy and Business Development

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