October 19, 2015

Rajinder Sahota
Assistant Division Chief – Climate Program
California Air Resources Board
1001 "I" Street
Sacramento CA, 95814

Filed Electronically

RE: Comments of EnergySource on October 2, 2015 Workshop To Discuss Amendments to the California Cap-and-Trade Program - Geothermal Generation and Lithium Processing

Dear Ms. Sahota,

EnergySource provides the following comments on the ARB's October 9, 2015 Cap-and-Trade Workshop. EnergySource is an independent, renewable energy generation company with geothermal energy projects and interests located in the Salton Sea Geothermal Resource area. In addition to furthering California's GHG emission reduction goals, EnergySource's projects create high-paying employment opportunities in some of California's most economically disadvantaged communities.

Energy Source's comments focus on two topics. First, as the ARB evaluates post-2020 Cap-and-Trade program changes, it should continue to recognize the value of geothermal energy and continue to list emissions from geothermal units, including geyser steam and fluid, as emissions without a compliance obligation. Second, EnergySource supports the inclusion of new Emissions Intensive Trade Exposed ("EITE") industry designations. In particular, the inclusion of a new product-based benchmark for lithium hydroxide would help ensure that lithium production occurs domestically in California, reduces future emissions leakage, and furthers California's GHG and Zero Emission Vehicle ("ZEV") goals.

1. ARB Should Continue the Important Policy Directives Recognizing that Emissions from Geothermal Energy Qualify as Emissions Without a Compliance Obligation.

The emissions from geothermal energy are not related to the power generation from the combustion of carbon-based fuels, but rather from the geothermal wells occurring naturally in important known geothermal areas such as the Salton Sea. The Geothermal generation can displace fossil generation, resulting in considerable GHG emission reductions. The ARB has recognized that the Renewable Portfolio Standard ("RPS") program is a keystone in the State's efforts to reduce GHG emissions and that geothermal can play an important role in the State's low carbon future. For example, in the first update to the AB 32 Scoping Plan, the ARB correctly observed the inherent potential of geothermal generation to further these important state policies:

> Meeting the 2050 goal requires dramatically cutting GHG emissions from energy generation. Options to decarbonize electricity generation include: renewable energy generation, geothermal energy generation, renewable DG, solar space and water heating, natural gas coupled with CCUS, and nuclear energy. . . Using geothermal power's potential as a flexible resource should be encouraged and its ancillary benefits to the grid should be recognized in power pricing agreements.[1]

The attributes of geothermal are appropriately recognized by the ARB through the conclusion that emissions from geothermal energy fall squarely within Section 95852.2 (emissions without a compliance obligation). The rationale for the inclusion of emissions from geothermal in section 95852.2 was based, in part, on the notion that geothermal energy is an integral component of the State's GHG and RPS strategies.[2] In order to encourage the continued development of these important RPS resources, EnergySource requests that the ARB reiterate its continuing commitment to this important policy directive by retaining geothermal emissions in Section 95852.2 in the ARB's post 2020 revisions to the Cap-and-Trade.

2. <u>The ARB Should Evaluate New Product-Based Benchmarks.</u>

The ARB should consider new product-based benchmarks and EITE designations. EnergySource understands that the ARB may consider new EITE designations for activities that have no GHG emissions, but are nevertheless trade exposed due to their electricity usage. As explained below, the ARB should also consider new product-based designations for developing markets, such as domestic lithium mining and processing.

Lithium hydroxide is a critical product in the deployment of battery storage, ZEVs, and other zero emissions technologies. Indeed, the term "gigafactory" has worked its way into the lexicon precisely because of the direct relationship between lithium, batteries, and electrification of the transportation sector. Currently, lithium is mined and developed in other jurisdictions (e.g., Nevada, Chile, etc.) with little or no GHG emissions controls applicable to these mining activities. Traditional lithium mining and processing activities using conventional resources are land use intensive and GHG intensive. Consequently, the growing global market demand for lithium and California's ZEV policies has the potential to increase GHG emissions in the mining sector because predominately fossil-fuel based resources are employed in traditional lithium mining and processing operations.

There is a better alternative. Lithium can be processed in California using geothermal steam and electricity. The development of a new EITE designation for lithium mining (NAICS Code #212393) and the designation of lithium hydroxide as a product-based benchmark would enable a new California-based industry for low to zero emissions lithium development. The product

[1] See AB 32 Scoping Plan Update, Electricity and Natural Gas Working Paper, March 14, 2014, available at: http://www.arb.ca.gov/cc/scopingplan/2013_update/energy.pdf

[2] See October 28, 2010 ISOR, page IX-40, available at: http://www.arb.ca.gov/regact/2010/capandtrade10/capisor.pdf

benchmark would also protect the developing California-based lithium industry from trade exposure in jurisdictions where GHG emissions from lithium mining and processing are not controlled.

In previous iterations of the Cap-and-trade Rulemaking, the ARB stated a preference for "one product: one benchmark." Lithium hydroxide is the preferred product in the battery market today and would be the appropriate product-based benchmark for lithium mining (212393). Since the California based production and supply is still in development, the ARB should evaluate the current production methods used domestically and globally to establish a benchmark, looking to these and other information sources of data (e.g., US EPA reporting data for out of state sources or EU ETS data).

EnergySource has identified at least two data sources for developing a benchmark for lithium hydroxide that merit further consideration. First, the lithium mining facility in Nevada may serve as a regionally appropriate benchmark that primarily uses precipitation and filtration methods to produce lithium salts. However, the facility does not produce lithium hydroxide. To develop an accurate benchmark, the ARB would need to account for the additional processing done at subsequent processing facility(s) to turn lithium salts into lithium hydroxide. This production system is similar to the majority of current global production. Second, a portion of the global lithium supplies come from ore (spodumene). This production system consists of two sub-processes, mining and beneficiation followed by sulfuric acid digestion. The GHG emissions attributable to this process can be modeled in available software.[3] There are also other sources of data on international lithium processing and mining activities, though the data may be more difficult to obtain and verify to the same high standards imposed on U.S. industries. Nevertheless, these sources of information may be instructive in developing a product-based benchmark.

The potential to develop a domestic lithium supply in some of California's more economically challenged communities and minimize future emissions leakage merits the ARB's close and careful consideration. EnergySource looks forward to the opportunity to work with the ARB and stakeholders to develop a sound product-based standard for lithium mining and processing. We also welcome the opportunity to explore other product-based standards for additional metals and minerals that may be produced associated with geothermal energy production.

Conclusions

EnergySource requests that the ARB reiterate its commitment to encouraging geothermal development by continuing to include geothermal emissions within Section 95852.2. Moreover, and of great potential to California's energy future and global emissions reductions, the creation of a new product-based benchmark for lithium mining and processing would avoid trade exposure and emissions leakage by allowing low to zero-GHG lithium mining and processing in California to compete with conventional mining sources. The development of a lithium

[3] E.g., Ecoinvent database version 2.2 can approximate the impacts for this production.

benchmark would also further the State's ZEV goals in support of the electrification of the transportation sector through a clean, dependable and ample domestic supply of lithium.

EnergySource appreciates the opportunity to submit these comments and welcomes the opportunity to discuss our proposal for a lithium product based benchmark at greater length with the ARB staff. I can be reached via email at DBenson@energysource.us.com.

Respectfully submitted,

/s/

Derek Benson, Vice President, Power Development
EnergySource