

**Alicia Knapp Testimony – Select Committee on California’s Lithium Economy
August 15, 2023**

- Good afternoon. My name is Alicia Knapp, and I am the president and CEO of BHE Renewables. I am happy to be here today in front of this committee to provide an update on our company’s lithium and geothermal development projects in Imperial County.
- BHE Renewables is a wholly owned subsidiary of Berkshire Hathaway Energy and develops, owns and operates solar, wind, geothermal and hydroelectric projects across the U.S., with a total combined generation capacity of just under 5,200 megawatts.
- Through our subsidiary, CalEnergy Operating Corporation, we have owned and operated 10 geothermal plants adjacent to the Salton Sea in Imperial County for over 40 years. Our plants have a total production capacity of 345 megawatts, and we are currently evaluating the opportunity to expand our operations with three new geothermal plants that could double the capacity by 2028.
- Our plants currently process about 50,000 gallons per minute of geothermal brine, which comes out of the earth at approximately 500 degrees Fahrenheit. We use the heat from the brine to produce geothermal energy and then return the brine to the geothermal reservoir.
- Approximately 75 percent of the brine is water and the other 25 percent is dissolved minerals and salts, such as manganese, zinc, silica, iron, calcium, and of course, lithium. In fact, the geothermal reservoir we’ve been using to produce clean, baseload energy in Imperial County for decades is also one of the largest lithium deposits in the world.
- As we know well, world demand for lithium is expected to grow as much as 10-fold in the next decade and will be critical for the success of the clean energy transition.
- Today, very little lithium is produced in the U.S. Nearly all global supply is mined in Argentina, Chile, China and Australia, and involves processes that cause significant environmental impacts.
- But we may be able to change this. The reservoir we’re already using to produce geothermal energy presents a unique opportunity for us to secure a domestic supply of lithium in an environmentally friendly manner. Studies estimate the geothermal reservoir in Imperial County can produce more than 600,000 tons of lithium carbonate per year and last approximately 40 years.
- Recognizing this opportunity, BHE Renewables has been developing technology to commercially recover lithium from our geothermal brine.
- In May 2020, BHE Renewables earned a \$6m matching grant from the California Energy Commission to design and build a 1/10th commercial scale demonstration project to recover lithium chloride at one of our geothermal power facilities.
- BHE Renewables matched this grant, contributed additional corporate funds and commissioned the Lithium Recovery Demonstration Facility in June 2022. We are

partnering with UC Riverside, Lawrence Berkeley National Laboratory and the Center for Energy Efficiency and Renewable Technologies to assist with knowledge transfer and technical chemical work.

- We also have plans to build a second commercial scale demonstration project to convert the lithium chloride into battery-grade lithium carbonate.
- It is important to note that the technology to recover lithium from Imperial Valley geothermal brine in an economically viable and environmentally responsible way is yet to be proven on a commercial scale. We are moving forward in incremental steps to increase the likelihood of success.
- We are currently testing direct lithium extraction technology on brine sourced directly from our operating geothermal plants. Pending the successful completion of our tests, the first commercial plant construction could begin as early as 2024, and commercial operations could begin as early as 2026.
- As mentioned earlier, we are currently developing projects which would double our geothermal output, from 345 megawatts to around 700 megawatts, as well as double our lithium-rich brine flow. The expansion includes three new geothermal plants, which, if successfully developed, could also include lithium production. Doubling our geothermal power output may roughly double the opportunity for lithium recovery.
- The geothermal projects are undergoing their permitting process with California Energy Commission and we are working to secure offtake agreements for the projects.
- To support clean, baseload energy from our geothermal projects and others, BHE Renewables and Imperial Irrigation District are pursuing major transmission upgrades to deliver the additional clean baseload energy California needs. This line will allow the company and other potential clean renewable power projects to supply over 1,000 megawatts of renewable baseload power to Californians across the state.
- BHE Renewables is committed to benefitting the communities in which we operate, and Imperial Valley is no exception. The company's current geothermal facilities employ 230 people. The lithium development and geothermal expansion projects could *each* create approximately 200 new permanent jobs. This is on top of the significant tax impacts the projects will have for Imperial County and the thousands of construction jobs associated with the projects.
- Recognizing that specific technical skills are required for both lithium and geothermal plant operations, BHE Renewables has partnered with Imperial Valley College to develop three new certification programs to equip local residents with the necessary skills for these jobs. We also have active partnerships with workforce development organizations, such as the Imperial Valley Economic Development Corporation, Imperial Valley

Regional Chamber of Commerce, Salton Sea Authority, Rotary Club, Imperial Coalition of Labor, Agriculture and Business, and Geothermal Rising.

- With both projects, however, there are challenges that BHE Renewables is working to overcome, such as construction costs, schedule delays, workforce development, and housing constraints. The community also needs significant infrastructure repairs and upgrades to support commercial developments, including bridges, roads and broadband access.
- We are working diligently with local communities and stakeholders to listen to their concerns and educate them on the benefits of the projects. Notably, that lithium production will not create significant adverse impacts on air quality and will not encroach on the Salton Sea.
- The Lithium Valley Commission has played an important role in these efforts to overcome challenges and contribute to the success of lithium development in the Imperial Valley – particularly for the local community. Through its 23 public meetings, it did an excellent job identifying key issues related to California’s lithium economy and providing recommendations, which are outlined in its December 2022 report. Berkshire Hathaway Energy was honored to serve on the commission and supports its recommendations.
- To conclude, lithium development in Imperial County could be transformative for the local community and the State of California and could provide a tremendous benefit in the form of a clean, domestic source of lithium for the nation. BHE Renewables is excited to build on our 40-year history in the region by developing geothermal and lithium projects that will play a critical role in California’s clean energy future. Thank you, again, Chair Garcia, for convening this hearing and inviting me to participate. I look forward to your questions.