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Comment Received From: Dr. James J. A. Blair
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Docket Number: 24-OIIP-02

Environmental Footprint of Geothermal DLE

Please see attached.

Additional submitted attachment is included below.

Cal Poly Pomona | College of Letters, Arts, and Social Sciences

February 19, 2025

Dear Commissioners:

Thank you for the opportunity to comment on today's Lithium Valley Vision workshop. I am grateful for the information shared in the presentations. I am writing to provide some corrections.

In addition to misleading information regarding timely and adequate consultation with Tribes and mischaracterizations of advocates for environmental justice, there were several questionable claims in the presentations about the environmentally "sustainable" water and carbon footprints of geothermal direct lithium extraction (DLE). These claims are not supported by scientific evidence. Presenters claimed that geothermal DLE is "clean, green lithium" and "by far the cleanest way to produce lithium," citing relatively lower acreage and land use, but not taking into consideration climate impacts, air pollution or water use. I have always been very critical of conventional methods of brine evaporation and open pit mining in my advocacy and research, and I would sincerely be very happy for the community and environment in Imperial Valley if these claims about geothermal DLE were true.

Unfortunately, however, life cycle assessments and water footprint analyses published to date have shown that this is not the case. Comparative analyses demonstrate that the climate, air and water footprints of DLE are significantly higher than conventional methods, and even higher for DLE paired with geothermal due to drilling and the significant needs of water for cooling and dilution in geothermal development.

It might sound promising if renewable sources of electricity were used for co-located lithium production, but power purchasing agreements and environmental review documents have suggested that this may not be the case. According to developers' own modeling, electrical demand of proposed lithium plants is instead sourced from "brown power," including natural gas and other fossil fuels in the electrical grid, rather than geothermal power on-site (see section 4.5.4 of Environmental Impact Report for the Hell’s KitchenPowerCo1Kitchen PowerCo1 and LithiumCoLithium Co 1 Project). Developers should be required to use renewable sources of electricity for lithium production if they claim it is clean and green.

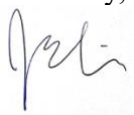
Moreover, the developers need to provide assurances that they are not double counting GHG emissions reductions. Geothermal DLE developers have not been clear on whether they plan to sell renewable energy credits from the proposed projects, or buy the credits and retire them, or sell the electricity for renewable energy portfolio standard compliance. Developers should only be able to claim GHG emissions reductions if they can provide assurances that there is no unbundling of the environmental attributes from the energy and sale of these attributes into renewable certificate or offset schemes.

Regarding water resources, companies and their consultants have claimed that they can recycle 50-80% of water from steam condensate. This would also sound very promising if it is proven to be viable. However, no details have been provided on how this will be accomplished, and it may

not be feasible given the need for a "heat sink" to absorb the great deal of thermal energy for each liter of water that needs to be condensed. Volumetric flow rates of recycled water need to be specified, and given the uncertain efficiency of the proposed condensation process, it is crucial to reference a pilot study that demonstrates its feasibility. Without such factual evidence, such claims should be carefully scrutinized, and cumulative impacts on water must be assessed.

Please see below for references of studies that indicate higher impacts on climate, air quality and water resources from DLE and/or geothermal DLE.

Sincerely,



James J. A. Blair

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