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# Response to Post-Workshop Informal Data Request Set 2

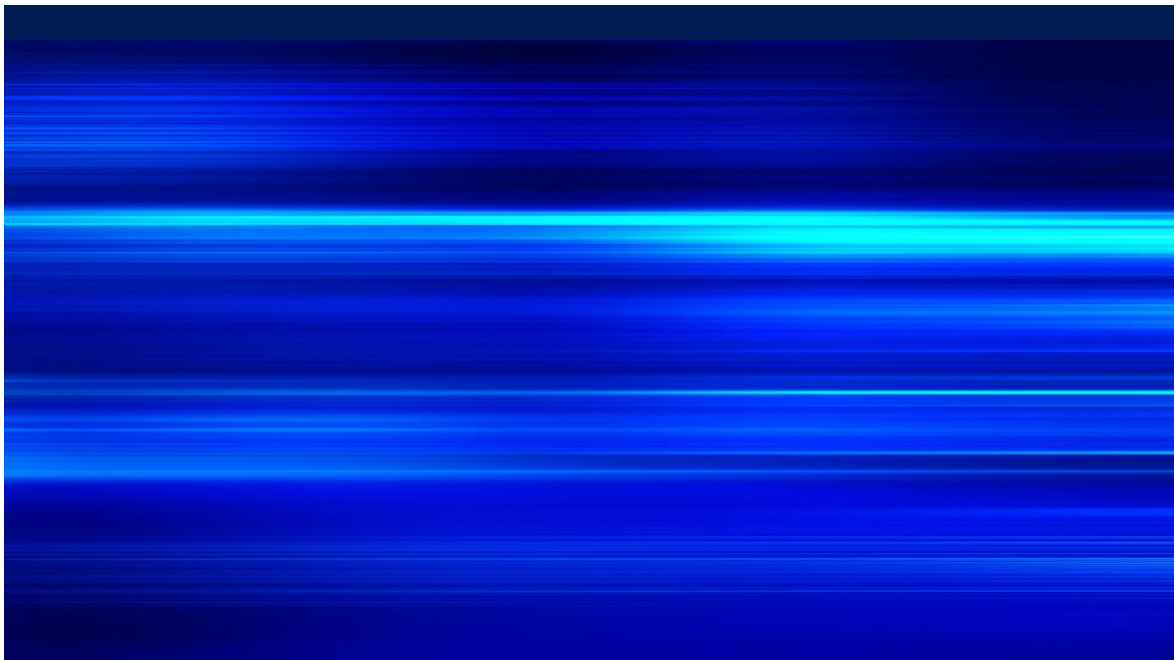
*Submitted to*  
California Energy Commission

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**Elmore North Geothermal Project (23-AFC-02)**

November 13, 2024



## Introduction

Attached are the responses from Elmore North Geothermal LLC to the California Energy Commission (CEC) Staff's *Post-Workshop Informal Data Request Set 2*, regarding the Application for Certification (AFC) for the Elmore North Geothermal Project (ENGP; 23-AFC-02).

New or revised graphics or tables are numbered in reference to the Informal Data Request number. For example, the first table used in response to Informal Data Request 28 would be numbered Table IDR28-1. The first figure used in response to Informal Data Request 28 would be Figure IDR28-1, and so on. Figures or tables from the ENGP AFC that have been revised have a "R" following the original number, indicating a revision.

Additional tables, figures, or documents submitted in response to an informal data request (for example, supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

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## Acronyms and Abbreviations

AFC	Application for Certification
APN	assessor parcel number
BRGP	Black Rock Geothermal Project
CEC	California Energy Commission
ENGP	Elmore North Geothermal Project
EPA	Environmental Protection Agency
GIS	geographic information system
IDR	Informal Data Request
MBGP	Morton Bay Geothermal Project

## 1. Air Quality and Public Health

### Background:

*U.S. EPA 2017 Guidelines on Air Quality Models (40 CFR 51 Appendix W) recommend that individual sources located in the vicinity of the source(s) under consideration for emissions limits that are not adequately represented by ambient monitoring data be accounted for by explicitly modeling their emissions. The BHER geothermal projects would be adjacent to the projects listed below. The applicant used a qualitative approach to respond to comments on the PDOCs of the projects. Intervenors questioned the qualitative approach and requested an explicit modeling of the nearby sources (e.g. CURE comments on the PSA [TN# 258994]).*

### Informal Data Request:

*Please provide an explicit cumulative air quality modeling analysis (for PM<sub>2.5</sub> and H<sub>2</sub>S) and a cumulative health risk assessment to include the following projects:*

- 1. The J.J. Elmore Power Plant with the Elmore North Geothermal Project*
- 2. The Hudson Ranch Power Plant and the Energy Source Mineral ATLAS Project with the Morton Bay Geothermal Project*
- 3. The Vulcan Power Plant and the Hoch (Del Ranch) Power Plant with the Black Rock Geothermal Project*

**Response:** The existing project, J.J. Elmore Power Plant, proposed for inclusion in the cumulative dispersion modeling and public health risk assessment has been in operation for several decades and are adequately represented in the ambient air monitoring data being used to assess the project's air quality impacts. However, due to discussions during the recent public workshops, the Applicant will be proposing changes in the Elmore North Geothermal Project's cooling tower orientation/location and the size of the freshwater pond. Therefore, the Applicant is remodeling the project's air quality and public health impacts. During this analysis, the Applicant will include the existing J.J. Elmore Power Plant in the air quality and public health impact assessments. The revised air quality and public health impact assessments are expected to be submitted by the end of December 2024.

## 2. Biological Resources

### **Background:**

*Applicant comments on the PSA included edits to acres of impacts listed in Table 5.2-5 (Elmore North, Morton Bay, Black Rock) and Table 5.2-6 (Elmore North, Black Rock).*

### **Informal Data Request:**

4. *Provide revised GIS data to support these changes or provide clarification on how these numbers were determined.*

**Response:** Revised GIS data that supports these changes will be docketed separately through the CEC's Kiteworks system.

### 3. Alternatives

#### Background:

*Informational needs for Alternatives, with overlap with Cultural and Tribal Cultural due to the need to identify potentially feasible ways to reduce potential impacts...*

#### **Informal Data Request:**

5. *Provide information on directional drilling, along with graphical illustrations for the drilling associated with ENGP and BRGP, similar to what was filed for MBGP (TN 256064).*

**Response:** Please see Figure IDR3.b-4, which was submitted as part of the *Morton Bay Geothermal Project Responses to Informal Data Request Set 1* (TN 256064). The production well courses depicted in that figure are consistent with the proposed production well courses. The well courses proposed by the Applicant have been granted confidential designation by the California Geologic Energy Management Division and should not be made publicly available.

#### **Informal Data Request:**

6. *Provide updated general arrangement figures showing the reoriented cooling towers for the three proposed projects, MBGP, ENGP, and BRGP.*

**Response:** The Applicant is currently revising the general arrangement and other figures showing reoriented cooling towers, in addition to other minor changes to the ENGP. The refinement will be docketed by the end of November 2024.



## 4. Water Resources

### Background:

*In the Preliminary Staff Assessment Technical and Mitigation Workshop of August 1, 2024, CEC staff asked if there were a level of mandatory water reduction imposed by IID that could affect power production at three BHER geothermal plants or result in plant shutdown. Samantha Neumeyer, on behalf of the applicant, stated that the answer to the question was complex and could not be easily answered at the time, but the applicant's staff would work on providing a range of likely scenarios.*

### Informal Data Request:

7. Provide the range of likely scenarios regarding geothermal plant response to mandatory water reductions.

**Response:** The facility's response to mandatory reductions will be dependent upon the circumstances surrounding the mandatory reductions, such as the duration and amount of any curtailment or the ability to obtain surplus water. In general, if there is a decrease in water supply, the amount of production brine will be decreased, resulting in a reduction in power generation. The reasons for decreasing the production brine flow are:

1. Lack of sufficient dilution water for process control. The ENGP will utilize dilution water to maintain the geothermal brine concentration below 32% total dissolved solids. As mentioned in the AFC project description, when total dissolved solids exceed approximately 32%, chloride salts begin to precipitate within the process.
2. To reduce the heat load on cooling tower to manage water demand. Makeup water to the cooling tower is required to offset water lost through evaporation. Although cooling tower makeup water will be primarily provided by condensed geothermal steam, during high ambient conditions and/or low steam production due to low brine flow, more supplemental water will be used.

Table IDR7-1 provides possible outcomes regarding operating scenarios due to decreased water; again, given the fact-dependent nature of any water reduction, it would be speculative to state how likely the following outcomes would be.

**Table IDR7-1. Water Reduction Impact on Power Generation**

Water Supply	100%	95 %	90 %	75 %	50 %
Power Generation	100%	93.5%	86.9%	67.4%	34.7%

### Background:

*Section 5.11 of the application for the BHER projects recognize the existence of subsurface agricultural "tile drains" underlying the project sites that drain groundwater with accumulated salts that would prevent crop growth. The construction activities description in the application does not appear to address the removal or mitigation of these tile drains, which could affect the ground stability of not only the water resources related project elements such as the brine ponds, water supply ponds and onsite wastewater treatment systems, but power plant facilities as well.*

### ***Informal Data Request:***

8. *Please provide details how the tile drains will be removed or mitigated during project construction to ensure the ground stability of project facilities.*

### **Response:**

#### ***Tile Drain Management Approach***

In locations where excavation reaches the depth of the drain tiles, these tiles will be extracted alongside the other materials that have been excavated. All other drain tiles will be abandoned in place.

#### ***Tile Drain Impacts to Water Resources***

Drain tiles underneath the sites are three to four inches in diameter and generally 200 to 250 feet apart. For the heaviest power plant equipment, deep foundations and excavations will be utilized, resulting in the removal of tiles. Therefore, the tiles that will remain in place will be those located beneath shallow foundations (such may be employed for the truck wash pad) or will not be under any foundations and subjected to only truck traffic. It is unlikely that a significant number of drain tiles would fill with surrounding soil. If a drain tile was to fill with surrounding soil, the surface impact would not be significant.

#### ***Tile Drain Impact to Ground Stability***

Groundwater resources have minimal potential for impact as a result of the project due to the broad concrete containments around the site that are designed to collect a potential spill from the process. Furthermore, the tiles capture and divert flow primarily when the ground is under flooded agricultural conditions. With these sites no longer under irrigation, the infrequent rainfall will trigger minimal flow to the tile drains. Additionally, the drain pipes connected to the drain tiles and leading to Imperial Irrigation District's drains will be capped to prevent any discharge. Additionally, the drain pipes connected to the drain tiles and leading to Imperial Irrigation District's drains will be capped to prevent any discharge.

## 5. Land Use, Agriculture, and Forestry

### Background:

*There was discussion at the PSA workshop(s) about additional information available regarding feasible options to satisfy COC LAND-3/MM LAND-3.*

### Informal Data Request:

9. *Please provide more specifics on the anticipated selected option/s for mitigation, along with an analysis of feasibility, and summarize any relevant research or discussion. Provide any records you have documenting consultations with the city or any land trusts on this issue.*

**Response:** Although the Imperial County Board of Supervisors is on record with the CEC supporting no agricultural mitigation for the conversion of Agricultural land, due in part to Imperial County's work on a programmatic environmental impact report for the Lithium Valley Specific Plan, the Applicant intends to satisfy Condition of Certification LAND-3, if adopted by the CEC, through payment of an agricultural mitigation fee. This is described as "Option 2" in the County's Renewable Energy and Transmission Element Programmatic Environmental Impact Report. The Applicant is discussing how to implement this Option with Imperial County.