

## **CHAPTER 5.0 – ALTERNATIVES ANALYSIS**

### **5.1 INTRODUCTION AND OVERVIEW**

CEQA requires that an EIR describe a range of reasonable alternatives to the Proposed Project, or to the location of the Proposed Project, which could feasibly avoid or lessen any significant environmental impacts while substantially attaining the basic objectives of the project. An EIR should also evaluate the comparative merits of the alternatives. This chapter describes potential alternatives to the Proposed Project that were considered, identifies alternatives that were eliminated from further consideration and reasons for dismissal, and analyzes available alternatives in comparison to the potential environmental impacts associated with the Proposed Project.

Key provisions of the CEQA Guidelines (§15126.6) pertaining to the alternatives analysis are summarized below:

- The discussion of alternatives shall focus on alternatives to the Proposed Project or its location that are capable of avoiding or substantially lessening any significant effects of the Proposed Project, even if these alternatives would impede to some degree the attainment of the Proposed Project objectives or would be more costly.
- The No Project Alternative shall be evaluated along with its impact. The No Project analysis shall discuss the existing conditions at the time the Notice of Preparation is published. Additionally, the analysis shall discuss what would be reasonably expected to occur in the foreseeable future if the Proposed Project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a “rule of reason”; therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. Alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the Proposed Project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the Proposed Project need to be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and informed decision-making. Among the factors that may be taken into account when addressing the feasibility of alternatives are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan contingency, regulatory limitation, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to the alternative site. An EIR need not consider an alternative whose effects cannot be reasonably identified, whose implementation is remote or speculative, and that would not achieve the basic Project Objectives.

## **5.2 PROJECT OBJECTIVES**

The Project has the following objectives:

- To produce quantities of lithium, manganese, zinc, and other strategic minerals from geothermal brine for commercial sale
- To collocate near a geothermal flash plant to minimize the distance required to pipe the brine between the geothermal plant and the mineral extraction plant
- To provide a supplemental domestic source of lithium, a designated critical material identified by the U.S. Department of Energy
- To minimize and mitigate any potential impact to sensitive environmental resources within the Project area

## **5.3 ALTERNATIVES CONSIDERED BUT REJECTED**

Several alternatives could be considered for the Project which address the Project size or development of a similar project elsewhere in the Project area. A range of alternatives that are “reasonable” for analysis have been defined by the County and are discussed below in Section 5.4 Alternatives Analyzed. The following section describes alternatives or alternative concepts that were given consideration but rejected from further analysis in the EIR due to their infeasibility.

### **5.3.1 Reduced Project Size Alternative**

The possibility of reducing the overall size of the Project was considered; however, this alternative was deemed infeasible. The Project has been designed using three different components crafted by three different companies, each having very specific parameters. Considering the components currently on market and available for sale to the Applicant, the current scale of the Project is the smallest system possible to execute Project objectives. The various vessels associated with the Project all have to match each other to ensure proper function of the facility and to uphold safety standards. Engineers have not been able to identify a feasible way to scale the Project down. As a result, the reduced Project alternative was considered but rejected from further review.

### **5.3.2 Other Project Location Alternative**

The potential for relocating the Project to another site in the area was considered but deemed infeasible. Locations further from the HR1 facility would require a longer pipeline system between the HR1 facility and the Project site. A post clarifier brine delivery pipeline from HR1 to the Project’s process area and a depleted brine return pipeline from the process area to HR1 will be constructed on one or more pipe racks. Longer pipelines between the two sites would increase the travel time of post clarifier brine and depleted brine, increasing the cooling time of the brine during transfer. The chemistry required for mineral extraction is temperature-dependent; thus, increased cooling of the brine would not allow for the Project to operate as required. As a result, the other Project location alternative was considered but rejected from further review.

## **5.4 ALTERNATIVES ANALYZED**

In accordance with CEQA Guidelines Section 15126.6(d), each alternative is evaluated in sufficient detail to determine whether the overall environmental impacts would be less, similar, or greater than the corresponding impacts of the Project. Furthermore, each alternative is evaluated to determine whether the Project objectives would be substantially attained by the alternative.

### **5.4.1 No Project Alternative**

Section 15126.6(e) of the CEQA Guidelines requires analysis of a No Project alternative that (1) discusses existing site conditions at the time the NOP is prepared or the Draft EIR is commenced and (2) analyzes what is reasonably expected to occur in the foreseeable future based on current plans if the Project were not approved. Potential effects for the No Project Alternative were compared to the environmental topics that were analyzed as a part of this Draft EIR.

The No Project Alternative would mean that the Project would not be constructed. No additional lithium, manganese, zinc, and other strategic minerals from geothermal brine would be processed for commercial sale and no additional supplemental supply of lithium for domestic use would be available. Under the No Project Alternative, the Project site would remain in its existing condition, which would mean a majority of the site would remain vacant. The No Project Alternative would continue to take geothermal brine waste from the existing HR1 plant and inject it back into the ground instead of allowing for a secondary extraction process to extract additional minerals prior to injection back into the ground.

#### **Air Quality**

Under the No Project Alternative, construction of the Project would not occur and the Project site would remain as it currently exists, mostly vacant. Moreover, long-term operational emissions would also be eliminated. Although the Proposed Project's air quality impacts would be less than significant, the potential impacts to air quality would be reduced under the No Project Alternative.

#### **Biological Resources**

The No Project Alternative would result in no change in conditions within the Project boundaries. While impacts under the Proposed Project would be less than significant with mitigation, as no construction is proposed, the No Project Alternative would avoid the need for pre-construction Burrowing Owl surveys. Like the Proposed Project, the No Project Alternative would not affect riparian habitat or other sensitive natural community, wetlands, wildlife corridors, or native wildlife nursery sites; conflict with local policies or ordinance protecting biological resources; or conflict with the provisions of a Habitat Conservation Plan. Although the Proposed Project's biological resource impacts would be less than significant with mitigation, impacts to biological resources under the No Project Alternative would be considered reduced compared to the Project.

#### **Cultural**

Under the No Project Alternative, no excavation and trenching would occur. Therefore, potential impacts to undiscovered human remains would have no potential to occur. Although the Proposed Project's cultural resources impacts would be less than significant, the potential impacts to cultural resources would be reduced under the No Project Alternative.

## **Energy**

Under the No Project Alternative, the need for fuel and electricity for Project construction would not increase, as no construction would occur. The use of electricity, water, or natural gas during operations would not increase. As with the Proposed Project, impacts to energy would be less than significant; however, impacts would be reduced under the No Project Alternative.

## **Geology and Soils**

Under the No Project Alternative, no new structures would be built, avoiding exposure to potential seismic hazards. Likewise, no impacts associated with seismic ground shaking, expansive soils, or paleontological resources would occur under the No Project Alternative. Although the Proposed Project's geology and soils impacts would be less than significant with mitigation, impacts to geology and soils under the No Project Alternative would be considered reduced compared to the Project.

## **Greenhouse Gas**

Under the No Project Alternative, construction of the Project would not occur; and the Project site would remain as it currently exists, mostly vacant. Operational greenhouse gas impacts would not occur under the No Project Alternative. The Proposed Project's greenhouse gas impacts would be less than significant; however, the potential impacts to greenhouse gases would be reduced under the No Project Alternative.

## **Hazards and Hazardous Materials**

The No Project Alternative would not involve the transport, use, and disposal of hazardous materials, as no construction or operation would occur. Although the Proposed Project's impacts related to hazards and hazardous materials would be less than significant, impacts associated with accidental release during hazardous materials transport, use, and disposal would be reduced under the No Project Alternative.

## **Hydrology and Water Quality**

Under this Alternative, the Project site would remain in its current condition, and no grading or development would occur. Existing stormwater flows across the Project site would continue to occur, and the existing hydrologic and drainage patterns would remain unchanged. Changes to hydrology and water quality during construction of the Project would not occur, and no water would be required for construction or operation. While the Proposed Project would result in less than significant impacts, impacts under the No Project Alternative would be reduced when compared to those of the Proposed Project.

## **Noise**

No short-term construction-related noise impacts would occur under the No Project Alternative, as no mineral extraction plant would be built. Operational noise would be similar to the Project because truck trips between the No Project Alternative and the Project would be substantially similar due to the presence of the neighboring HR1 facility. Noise impacts associated with the Proposed Project would be less than significant; however, under the No Project Alternative, impacts would be reduced when compared to the Project.

## **Transportation**

No construction traffic would be generated in association with the No Project Alternative because no mineral extraction plant would be constructed. Additionally, fewer truck trips would occur under the No Project Alternative, resulting in less impacts and no need to mitigate the potential safety impact at the intersection of Highway 111 and McDonald Road. Although with mitigation, Project impacts to transportation would be less than significant, impacts under the No Project Alternative would be reduced when compared to the Project.

## **Tribal Cultural Resources**

Under the No Project Alternative, the Project site would remain in its existing condition. Maintaining the site in its existing condition would not affect any Tribal Cultural Resources in the vicinity of the site. Additionally, no new ground-disturbing activities would occur; therefore, the potential to disturb or unearth human remains would be reduced when compared to the Proposed Project. Although the Proposed Project's Tribal Cultural Resource impacts would be less than significant, the potential impacts to Tribal Cultural Resources would be reduced under the No Project Alternative.

## **Utilities and Service Systems**

Under the No Project Alternative, no new structures would be built, avoiding the need for new and expanded utility connections. Likewise, no impacts associated with water, electricity, stormwater, and solid waste would occur under the No Project Alternative. Neither the No Project Alternative nor the Project would result in unmitigable impacts to water, wastewater, natural gas, telecommunications, or solid waste. However, impacts to utility and service systems would be reduced under the No Project Alternative.

## **Conclusion and Relationship to Project Objectives**

The No Project Alternative would not change existing conditions at the Project site. The No Project Alternative would result in mostly reduced environmental effects compared to the Proposed Project's less than significant impacts. However, under the No Project Alternative, impacts to transportation would be considered greater and potentially significant without the mitigation to install a northbound left-turn pocket lane to improve the current safety hazards at this intersection.

The No Project Alternative would not develop the site to fully utilize the existing geothermal operations on the HR1 site. Additionally, the No Project Alternative would not help the County provide a supplemental domestic source of lithium, a designated critical material identified by the U.S. Department of Energy. Furthermore, by not producing lithium under the No Project Alternative, the need for lithium production to meet certain technical processing needs would remain and may result in future mining projects other than and potentially with greater impacts than the Proposed Project. While the No Project Alternative would also minimize and mitigate any potential impacts to sensitive environmental issues, the No Project Alternative would not meet any other Project objectives. The Project's objectives and the ability for the No Project Alternative to meet those objectives are summarized in Table 5.0-1.

**Table 5.0-1: Comparison of Alternatives – Project Objectives**

Project Objectives	Ability of Alternatives to Meet Project Objectives
	No Project
To produce quantities of lithium, manganese, zinc, and other strategic minerals from geothermal brine for commercial sale	Unable to meet Project objective.
To collocate near a geothermal flash plant to minimize the distance required to pipe the brine between the geothermal plant and the mineral extraction plant	Unable to meet Project objective.
To provide a supplemental domestic source of lithium, a designated critical material identified by the U.S. Department of Energy	Unable to meet Project objective.
To minimize and mitigate any potential impact to sensitive environmental resources within the Project area	Able to meet Project objective.

**5.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

As previously discussed, only one alternative was considered feasible and analyzed in this analysis. A comparison of the Project’s impacts and the No Project Alternative impacts is shown in Table 5.0-2. The No Project Alternative would be considered the environmentally superior alternative, as it would avoid or reduce all of the potential impacts associated with construction and operation of the Project. Additionally, the No Project Alternative would not allow for full utilization of the existing HR1 site and would not allow for a secondary extraction process to extract additional minerals prior to injection back into the ground. The No Project Alternative would not meet most of the Project objectives including that it would not (1) produce quantities of lithium, manganese, zinc, and other strategic minerals from geothermal brine for commercial sale; (2) collocate a mineral extraction plant near a geothermal flash plant to minimize the distance required to pipe the brine between the geothermal plant and the mineral extraction plant; or (3) provide a supplemental domestic source of lithium, a designated critical material identified by the U.S. Department of Energy. Furthermore, by not producing lithium under the No Project Alternative, the need for lithium production to meet certain technical processing needs would remain and may result in future mining projects other than and potentially with greater impacts than the Proposed Project.

CEQA Guidelines requires that, if the No Project Alternative is determined to be the environmentally superior alternative, an environmentally superior alternative must also be identified among the remaining alternatives. However, reducing the Project size and relocating the Project to another site in the area were deemed to be infeasible alternatives. Thus, the only environmentally superior alternative identified is the No Project Alternative.

**Table 5.0-2: Comparison of Environmental Issues**

Environmental Issue Area	Project	No Project Alternative
Air Quality	Less than Significant	Reduced (Less than Significant)
Biological Resources	Less than Significant with Mitigation	Reduced (Less than Significant)
Cultural Resources	Less than Significant	Reduced (Less than Significant)
Energy	Less than Significant	Reduced (Less than Significant)
Geology and Soils	Less than Significant with Mitigation	Reduced (Less than Significant)
Greenhouse Gas	Less than Significant	Reduced (Less than Significant)
Hazards and Hazardous Materials	Less than Significant	Reduced (Less than Significant)
Hydrology and Water Quality	Less than Significant	Reduced (Less than Significant)
Noise	Less than Significant	Reduced (Less than Significant)
Transportation	Less than Significant with Mitigation	Reduced (Less than Significant)
Tribal Cultural Resources	Less than Significant	Reduced (Less than Significant)
Utilities and Service Systems	Less than Significant with Mitigation	Reduced (Less than Significant)