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## Alternatives

### **Alternatives: Appendix B(f)(1)**

#### **Information Required:**

Please provide a discussion of the range of reasonable alternatives to the project, or to the location of the project, including the no project alternative, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and an evaluation of the comparative merits of the alternatives.

#### **Response:**

As explained in the AFC, with implementation of reasonable and feasible mitigation measures, there will be no significant effects from the proposed Project. The Applicant, however, provides this discussion of the infeasibility of alternative technologies, additional discussion regarding feasible alternative sites, and the potential impacts of the feasible alternative sites in an effort to fully address Staff's request. The evaluation of the comparative merits of the alternatives is included in Table 3.4-2 and the response to Alternatives: Appendix B(f)(2) below.

#### **Infeasible Alternative Technologies**

Based on the objectives described in the AFC, Section 3.1 Project Objectives, and 3.4.17 Comparison of Alternatives, the Applicant determined that the No Project Alternative is not feasible when considering the environmental, engineering and economic merits of the Project. It must also be noted that the Request for Proposals (RFP) prepared by San Diego Gas and Electric Company (SDG&E) was responded to by numerous parties, with each respondent proposing a technology or mix of technologies that they believed would meet the needs of the RFO. Simple cycle turbine technology was rejected by SDG&E as not adequate to meet its power demands for providing flexible and efficient peaking and load-shaping power (see Section 3.5.1.2, Conventional Simple-Cycle Combustion Turbine Processes, of the AFC). In addition, the Wärtsilä engine and natural gas fuel supply was specified by SDG&E in the Power Purchase Tolling Agreement (PPTA) with the Applicant. Therefore, alternative power generation technologies and alternative fuel technologies are not technically feasible for this Project.

The Applicant determined that alternative power generation technologies did not meet the project objectives and screening criteria as described in the AFC, Section 3.5.1.12 Comparison of Power Generation Technologies. The Applicant determined that fuel technology alternatives did not meet the project objectives as described in the AFC, Section 3.5.2 Fuel Technology Alternatives. The Applicant determined that NO<sub>x</sub> control alternatives did not meet the project objectives as described in the AFC, Section 3.5.3 NO<sub>x</sub> Control Alternatives. The Applicant determined that heat rejection alternatives did not meet the project objectives as described in the AFC, Section 3.5.4 Heat Rejection Alternatives as Wärtsilä does not offer another cooling option with their large reciprocating engines.

#### **Feasible Alternatives**

Section 3.3.2 of the AFC described three site alternatives that were deemed infeasible due to lack of site control. Upon obtaining further feedback from the landowners since the AFC was filed, there is reason to believe that the parcels could potentially be acquired; therefore although

the Applicant does not currently have site control for the alternative sites, site control is possible. All three alternatives would feasibly obtain most of the basic objectives of the Project. The Project will comply with all applicable LORS, and will help to meet the local energy capacity and reliability needs of the area and will result in environmental impacts that are less than significant. Where needed to assure that environmental impacts remain below significance thresholds, mitigation has been built in to the Project design which is described in the AFC.

Each site was evaluated on the basis of the AFC environmental areas, and estimated engineering and economic costs associated with the various perceived mitigation measures. Table 3.4-2 summarizes institutional factors, engineering/construction feasibility, length of linear features, and whether a site is feasible or not from an environmental impacts perspective as compared to the proposed Project.

**Table 3.4-2 Comparison of the Proposed Project and Alternatives**

Characteristic	Proposed Project	Alternative A	Alternative B	Alternative C
<b>Institutional Factors</b>				
Site control	Yes	No	No	No
Ability to obtain required permits	Feasible	Less feasible	Less feasible	Less feasible
<b>Engineering/Construction Feasibility</b>				
Underground transmission line required	Yes	Yes	Yes	No
New power plant access road construction required	Yes	Yes	Yes	Yes
Equal or more difficult engineering constraints for new power plant access road than proposed project	n/a	Yes	Yes	Yes
Equal or greater site grading requirements than proposed project	n/a	Yes	Yes	Yes
Equal or greater engineering costs than proposed project	n/a	Yes	Yes	Yes
<b>Length of Linear Features</b>				
Length of power plant access road (feet)	2,000	4,800	6,400	8,700
Length of gas lateral (feet)	2,032	4,764	6,416	8,669
Length of gen tie (feet)	5,600	2,200	800	1,500
Total length of linear features (feet)	9,632	11,764	13,616	18,869
<b>Environmental Factors<sup>1</sup></b>				
Cultural resources impacts with mitigation	-	Greater than	Greater than	Greater than
Land use impacts with mitigation	-	Equal to	Equal to	Equal to
Noise impacts with mitigation	-	Equal to	Equal to	Equal to
Traffic and transportation impacts with mitigation	-	Greater than	Greater than	Greater than
Visual resources impacts with mitigation	-	Equal to	Greater than	Greater than
Socioeconomics impacts with mitigation	-	Equal to	Equal to	Equal to
Air quality impacts with mitigation	-	Greater than	Equal to	Equal to
Public health impacts with mitigation	-	Equal to	Equal to	Equal to
Hazardous materials handling impacts with mitigation	-	Equal to	Equal to	Equal to

Characteristic	Proposed Project	Alternative A	Alternative B	Alternative C
Worker health and safety impacts with mitigation	-	Equal to	Equal to	Equal to
Waste management impacts with mitigation	-	Equal to	Equal to	Equal to
Biological resources impacts with mitigation	-	Greater than	Greater than	Greater than
Water resources impacts with mitigation	-	Equal to	Equal to	Equal to
Agriculture and soils impacts with mitigation	-	Equal to	Equal to	Equal to
Paleontological resources impacts with mitigation	-	Equal to	Equal to	Equal to
Geological hazards and resources impacts with mitigation	-	Equal to	Equal to	Equal to

<sup>1</sup> Environmental impacts of alternative sites categorized as greater than, equal to, or less than the proposed Project.

### Alternative A

The Applicant does not currently have site control for Alternative A, however upon obtaining further feedback from the landowners; there is reason to believe that the parcel could potentially be acquired. Alternative A would result in greater impacts to air quality and transportation than the proposed Project, but may result in a slight reduction in the impact to cultural resources and biological resources for construction of the gen tie line.

Regarding length of linear features, the length of the power plant access road for Alternative A would be 2,800 feet longer than the proposed Project. The length of the gas lateral for Alternative A would be 2,732 feet longer than the proposed Project. The length of the gen tie line for Alternative A would be 3,400 feet shorter than the proposed Project and would substantially lessen impacts over the proposed Project. Environmental impacts associated with the construction of a longer gen tie (e.g., increased surface disturbance and potential disturbance of sensitive biological and cultural resources) would be decreased if Alternative A were constructed. However, the longer power plant access road and gas lateral in Alternative A would result in an increase in potential impacts to biological and cultural resources. As the total length of linear features for Alternative A is greater than the proposed Project, the impacts to biological and cultural resources from Alternative A would be slightly greater than the proposed Project.

Alternative A presents greater difficulty than the proposed Project regarding institutional and environmental factors. Air quality impacts would be greater because Alternative A would be located next to an existing 4.5 MW landfill gas combustion facility (with two large flares) that operates 24 hours a day 7 days a week. The cumulative effects of closely situated Alternative A and the landfill gas facility would be greater than if the Project were located elsewhere. As a result of the increased air quality impacts, air permitting would be more difficult for Alternative A than the proposed Project.

Transportation impacts during construction would be greater for Alternative A over the proposed Project because more construction traffic would be necessary to construct the longer access road over steeper terrain. Additionally, as the turning radius for the access road would be very difficult to engineer; the transport of materials to Alternative A would be more difficult than the proposed Project, which may result in more traffic impacts.

There are no advantages regarding engineering/construction feasibility with Alternative A as compared to the proposed Project. Alternative A would require an underground transmission line and a new power plant access road as would the proposed Project. From an engineering perspective, Alternative A presents difficulties as the power plant access road would be longer and would have to traverse steeper terrain. Alternative A would be subject to equal or greater site grading requirements and equal or greater engineering costs than the proposed Project.

### **Alternative B**

Alternative B presents greater difficulty than the proposed Project regarding institutional and environmental factors. The Applicant does not currently have site control for Alternative B; however upon obtaining further feedback from the landowners, there is reason to believe that the parcel could potentially be acquired. Alternative B would result in greater impacts to visual resources and transportation than the proposed Project, but may result in a slight reduction in the impact to cultural resources and biological resources for construction of the gen tie line.

Regarding length of linear features, the length of the power plant access road for Alternative B would be 4,400 feet longer than the proposed Project. The length of the gas lateral for Alternative B would be 4,384 feet longer than the proposed Project. The length of the gen tie line for Alternative B would be 4,800 feet shorter than the proposed Project and would substantially lessen impacts in comparison with the proposed Project. Environmental impacts associated with the construction of a longer gen tie (e.g., increased surface disturbance and potential disturbance of sensitive biological and cultural resources) for the proposed Project would be decreased if Alternative B were constructed, however the proposed Project impacts to biological and cultural resources are less than significant. However, the longer power plant access road and gas lateral in Alternative B would result in an increase in potential impacts to biological and cultural resources. As the total length of linear features for Alternative B is greater than the proposed Project, the impacts to biological and cultural resources from Alternative B would be slightly greater than the proposed Project.

Visual impacts would be greater for Alternative B over the proposed Project. Recreational users of Mission Trails Park and travelers on Highway 52 would have a nearly unobstructed view of the Alternative B site from where Highway 52 crosses Spring Canyon.

Due to the greater amount of land disturbance within the Mission Trails Park expansion plan boundary resulting from the longer power plant access road and gas lateral and the increased visual impacts when compared to the proposed Project, the Applicant would expect more push back from the City of San Diego with regard to Alternative B, and therefore, the ability to obtain required permits for this alternative would be less feasible than the proposed Project.

Transportation impacts during construction would be greater for Alternative B over the proposed Project because more construction traffic would be necessary to construct the longer access road over steeper terrain. The access road to the site would present engineering and logistical challenges. The access road grade cannot be greater than 6 percent per SDG&E requirements. Due to the extremely steep slope on this parcel; engineering an access road to these specifications would be difficult in this terrain. Additionally, although construction of the access road may be feasible, the Applicant may not be able to obtain an easement for the access road. The costs of constructing the access road for Alternative B (including obtaining the easement and engineering the access road) would likely be greater than the costs of constructing the access road for the proposed Project.

There are no advantages regarding engineering/construction feasibility with Alternative B as compared to the proposed Project. Alternative B would require an underground transmission line and new access road as would the proposed Project. From an engineering perspective, Alternative B presents difficulties as the power plant access road would be longer and would have to traverse steeper terrain. Alternative B would be subject to equal or greater site grading requirements and equal or greater engineering costs than the proposed Project.

### **Alternative C**

Alternative C presents greater difficulty than the proposed Project regarding institutional and environmental factors. The Applicant does not currently have site control for Alternative C; however upon obtaining further feedback from the landowners, there is reason to believe that the parcel could potentially be acquired. Alternative C would result in greater impacts to visual resources and transportation than the proposed Project, but may result in a slight reduction in the impact to cultural resources and biological resources for construction of the gen tie line.

Regarding length of linear features, the length of the power plant access road for Alternative C would be 6,700 feet longer than the proposed Project. The length of the gas lateral for Alternative C would be 6,637 feet longer than the proposed Project. The length of the gen tie line for Alternative C would be 4,100 feet shorter than the proposed Project and would substantially lessen impacts over the proposed Project. Environmental impacts associated with the construction of a longer gen tie (e.g., increased surface disturbance and potential disturbance of sensitive biological and cultural resources) would be decreased if Alternative C were constructed. However, the longer power plant access road and gas lateral in Alternative C would result in an increase in potential impacts to biological and cultural resources. As the total length of linear features for Alternative C is greater than the proposed Project, the impacts to biological and cultural resources from Alternative C would be slightly greater than the proposed Project. No underground transmission line would be required for Alternative C; in this respect, Alternative C would substantially lessen the effects over the proposed Project. Environmental impacts associated with construction of the underground transmission line (e.g., surface disturbance and potential disturbance of sensitive biological and cultural resources) would be avoided if Alternative C were constructed. However, the proposed Project impacts to biological and cultural resources are less than significant.

Visual impacts would be greater for Alternative C as compared to the proposed Project. Recreational users of Mission Trails Park and travelers on Highway 52 would have a nearly unobstructed view of the Alternative C site from where Highway 52 crosses Spring Canyon.

Due to the greater amount of land disturbance within the Mission Trails Park expansion plan boundary resulting from the longer power plant access road and gas lateral and the increased visual impacts when compared to the proposed Project, the Applicant would expect more push back from the City of San Diego with regard to Alternative C, and therefore, the ability to obtain required permits for this alternative would be less feasible than the proposed Project.

Transportation impacts during construction would be greater for Alternative C over the proposed Project because more construction traffic would be necessary to construct the longer access road over steeper terrain. The access road to the site would present engineering and logistical challenges. The access road grade cannot be greater than 6 percent per SDG&E requirements. Due to the extremely steep slope on this parcel, engineering an access road to these specifications would be difficult in this terrain. Additionally, although construction of the access

road may be feasible, the Applicant may not be able to obtain an easement for the access road, though it is feasible. The costs of constructing the access road for Alternative C (including obtaining the easement and engineering the access road) would likely be greater than the costs of constructing the access road for the proposed Project.

The elimination of the underground transmission line is the only advantage from the engineering/construction feasibility perspective of Alternative C as compared to the proposed Project. Alternative C would require a new power plant access road as would the proposed Project. Alternative C presents difficulties as the power plant access road would be longer and would have to traverse a steeper terrain. Alternative C would be subject to equal or greater site grading requirements and equal or greater engineering costs than the proposed Project.

**Alternatives: Appendix B(f)(2)**

**Information Required:**

Please provide the comparison of engineering, economic, and environmental merits of feasible alternatives to the project.

**Response:**

Alternatives A, B and C were determined to feasibly attain most of the basic objectives of the project. Regarding environmental factors, air quality impacts would be greater and permitting would be more difficult for Alternative A than the proposed Project. Transportation impacts would be greater for all alternatives than the proposed Project. Visual impacts would be greater for Alternatives B and C than the proposed Project. The permitting requirements for all three alternatives would be less feasible than the proposed Project.

Regarding engineering/construction feasibility, the engineering/construction requirements for all alternatives are greater than or equal to the proposed Project for new power plant access road construction, engineering constraints for new power plant access road, site grading requirements, and engineering costs. The proposed Project and Alternatives A and B require construction of an underground transmission line, but Alternative C does not.

Regarding lengths of linear features, the lengths of the gen tie lines for all three alternatives are shorter than the proposed Project. In this respect, all alternatives would reduce impacts over the proposed Project because environmental impacts associated with the construction of a longer gen tie (e.g., increased surface disturbance and potential disturbance of sensitive biological and cultural resources) would be decreased if any of the alternative sites were constructed. However, the lengths of the power plant access road and gas lateral for all three alternatives are longer than the proposed Project. The overall impacts to biological and cultural resources from all three alternatives would be slightly greater than the proposed Project.