

Alternatives

9.1 Introduction

The California Environmental Quality Act (CEQA) requires consideration of “a range of reasonable alternatives to the project, or to the location of the project, 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 evaluate the comparative merits of the alternatives” [14 CCR. 15126.6(a)]. Thus, the focus of an alternatives analysis should be on alternatives that “could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects” [14 CCR 15126.6(c)]. The CEQA Guidelines further provide that “[a]mong the factors that may be used to eliminate alternatives from detailed consideration in an Environmental Impact Report (EIR) are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts” (*Id.*).

A range of reasonable alternatives that could feasibly attain most of the basic objectives of the proposed Eastshore Energy Center (Eastshore) are identified and evaluated in this section including the “No Project” alternative (that is, not developing a new power generation facility), alternative site locations for constructing and operating Eastshore, alternatives to the linear facilities (electric, natural gas, and water and wastewater), alternative configurations to the internal combustion engine arrangement currently proposed for Eastshore, and alternative power generation technologies.

The basic objectives of the proposed project are:

- To provide much-needed reliable local power supply (intermediate and peak generation) at 115 kV to the Eastshore substation to meet the area’s demand.
- To safely construct and operate a nominal 115.5-MW (net), natural-gas-fired, intermediate/peaking load generating facility.
- To deliver electricity to the Pacific Gas & Electric Company’s (PG&E) Eastshore Substation at 115 kV without system upgrades.
- To provide voltage support to the regional 230 kV transmission system.
- Develop a project within the timeframes and performance criteria required by the executed PG&E/Eastshore Energy, LLC power purchase agreement (PPA).

9.2 No Project Alternative

9.2.1 Description

If the No Project alternative is selected, Eastshore Energy, LLC would not receive authorization to construct and operate a new power generation facility. As a result, the proposed facility site would not be developed and would potentially be used for some other use, consistent with the zoning. Energy that would have been produced by the proposed facility would need to be generated by another source and imported to northern California and used to balance generation against load needs. Common available sources include older power generation facilities that operate less efficiently and release larger quantities of air pollutants than the proposed facility. Additionally, none of these existing sources would be able to provide local generation for the City of Hayward while allowing PG&E to supply the greater Bay Area with additional energy from its 230 kV transmission system.

The purpose of a power plant, such as the Eastshore project, is to generate and provide electric power to PG&E's customers. To generate and sell power in today's market, generating facilities need to be built and operated so as to be cost-effective and competitive with existing resources. The purpose of the Eastshore project is specifically to provide the City of Hayward with a local source of generation (increasing local reliability) while providing voltage support for PG&E's 230 kV transmission system.

The No Project alternative is not considered feasible because it does not meet either PG&E's or Eastshore's plans for the development of a new, more efficient power generation facility needed to increase local power generation and PG&E system reliability, reduce dependence on imported power, or the general objective of replacing existing, less efficient generation facilities.

9.2.2 Potential Environmental Impacts

The Eastshore project will produce electricity to be sold into PG&E's service area while consuming less fuel and discharging fewer air emissions for each energy unit generated when compared to other existing, older fossil fuel generation facilities. This is a beneficial environmental impact.

Potential environmental impacts from the No Project alternative would result in greater fuel consumption and air pollution because new power plants, including the Eastshore project, would not be brought into operation to displace production from older, less efficient plants that have higher air emissions. An analysis of the environmental impacts from the No Project alternative is provided below in Subsection 9.3.2.3.

9.3 Proposed and Alternative Sites

9.3.1 Proposed Site

The Eastshore project will be located on 6.22 acres of land at 25101 Clawiter Road. The site is located within the General Plan designated, Industrial Corridor, in the City of Hayward, in Alameda County, surrounded by industrial and commercial uses. A power plant would be consistent with the General Plan and zoning designations.

The Eastshore project parcel is currently covered by a large industrial building and asphalt paving. The site and building were previously used as a metal stamping facility for the manufacture of automobile parts until mid-2004. Currently, the site is being offered for lease by Eastshore Energy, LLC to third parties for general warehousing operations. Any such leases will be terminated in the fall of 2007, prior to the start of plant construction. The building, foundations and existing paved surfaces will be demolished as part of the Eastshore project construction.

The Eastshore project will connect to PG&E's electric transmission system at the Eastshore Substation, approximately 1.1 mile south of the project site. The proposed route overcrosses Clawiter Road and runs south along the east side of Clawiter Road for approximately 3,400 feet before an approximate 200-foot over-crossing of SR--92. The route continues west along Eden Landing Road, south along Production Avenue east along Investment Boulevard and south between existing buildings for approximately an additional 1,900 feet into the Eastshore Substation. The total distance that the new 115 kV line will run contiguous with the existing 12 kV distribution line is about 3,600 feet. A new overhead transmission line will be installed in an existing PG&E electric distribution line corridor which may require widening the existing right-of-way (ROW) and the replacement of 10 to 12 new transmission pole structures with new structures designed to accommodate both the existing 12 kV distribution lines and the new 115 kv transmission line. Interconnection at the Eastshore Substation 115 kV bus is expected to increase local transmission and distribution capabilities during peak demand hours and provide much needed voltage support for the existing 230 kV system, which also interconnects to the Eastshore Substation.

The project will connect with PG&E's natural gas pipeline 153 which is approximately 200 feet away from the project site on the opposite side of Clawiter Road. PG&E will interconnect the project by installing a 4½-inch outside diameter pipeline via an underground bore originating at the project site, boring under Clawiter Road and the existing Union Pacific Railroad (UPRR) ROW, and connecting to PG&E's existing gas line.

The Eastshore project will use very little makeup water, since engine cooling is accomplished with a closed loop system. Since there will be no requirement for purified water, a demineralized water system will not be required. Site water usage will be primarily for potable water, largely for personal consumptive and sanitary purposes, and for landscape irrigation and wash-down cleaning. As a result, site consumption will average approximately 1.0 gpm during periods of plant operation. These water requirements will be served through an existing connection to the City of Hayward municipal water main in Clawiter Road located immediately adjacent to the project site.

Sanitary waste water will be discharged to the City of Hayward sewer system. Process waste water or service water that has the potential for contamination will be discharged to a holding tank for testing. Under normal conditions this waste water is expected to meet sewer discharge chemical composition limits and will be subsequently discharged to the sanitary sewer. In the unlikely event that the waste water composition exceeds the allowable sewer discharge limits, it will be conveyed off site by a licensed contractor for treatment and disposal.

The facility would be located in an area with many industrial uses, including the Berkeley Farms processing center and the Roman Haas facility near the project site. The industrial context of the Clawiter corridor from Industrial Boulevard south to SR-92 consists of industrial uses ranging from light manufacturing, automobile repair and parts facilities, the Berkeley Farms milk processing facility and some commercial office space. The closest residential uses to the project, that are potentially sensitive noise receptors, are located about 1,100 feet east of the site.

9.3.2 Alternative Sites

In order to meet the project objectives, Eastshore Energy, LLC reviewed four alternative sites. Figure 9.3-1 shows the location of the alternative sites.

9.3.2.1 Alternative Site Selection Criteria

The following criteria was developed and applied to evaluate the alternative sites' suitability for the Eastshore project. These criteria include the following:

- **Proximity to infrastructure** – The site needs to be located in close proximity to PG&E's Eastshore Substation, a high-pressure major gas transmission system (with 75 pounds per square inch gauge [psig] minimum), a potable water source, and a sewer system.
- **Environmental viability** – The site should have few or no environmentally sensitive areas and should allow development with no significant environmental impacts (e.g., no sensitive or critical habitats [wetlands or grasslands]).
- **Compatible with surrounding community** – The site should be suitable for the development of a power plant that is compatible with the uses designated under the Zoning Ordinance.
- **Site Control** - The site should be of sufficient land area (6 to 10 acres) and for this technology have an aspect ratio (length:width) of about 2.6:1 (or greater for smaller areas), while maintaining a minimum width of not much less than that provided by the Eastshore site. The aspect ratio value for this technology is driven by several factors: 1) the modularity of the technology; 2) the need, driven by engine performance considerations, to line the engines up in a columnar fashion; 3) the need to maintain sufficient clearances both between engines and at the generator end of each gen set for maintenance access, 4) the need to allow for a minimum exhaust gas straight run length in order to attain acceptable SCR performance, and 5) clearance around the perimeter of the power block to allow for sound attenuation between the power block and the site property line.

In addition, the site should be void of any site encumbrances (physical or administrative obstructions to using the property), close to available linear corridor right-of-ways, a construction laydown area, and be available for sale or long-term lease.

- **Compliance with LORS** – The site should allow for the construction and operation of the facility in compliance with all laws, ordinances, regulations, and standards (LORS).

The alternative site locations, shown in Figure 9.3-1, were evaluated using the above criteria. The site characteristics are summarized in Table 9.3-1 and described in the following

subsections along with additional site details that were taken into consideration when determining whether or not each site was suitable for the expected configuration of the Eastshore project.

TABLE 9.3-1
Comparison Using Site Selection Criteria

| Alternative Site | Parcel Size (acres) | Land Use Compatibility | Available Linear Facilities* | Environmental Sensitivity | Distance to Residential (Approximately) |
|--|---------------------|------------------------|--|---------------------------|---|
| Eastshore Energy Center (proposed site) – Site 1 | 6.22 | Zoned: Industrial | PW: existing line adjacent to site G: 200 feet T: 1.1 miles to PG&E S: existing line adjacent to site | Low | 1,100 feet |
| PG&E land adjacent to Eastshore Substation – Site 2 | <15 acres | Zoned: Industrial | PW: tap into existing line adjacent to site G: 2000 feet T: 200 feet S: tap into existing line adjacent to site | Low | 2,200 feet |
| Pallet Yard – Site 3 | <5 acres | Zoned: Industrial | PW: tap into existing line adjacent to site G: 4,500 feet T: 5,000 feet S: tap into existing line adjacent to site | Low | 5,800 feet |
| Industrial/ Commercial buildings/yards near Eastshore substation – Sites 4-6 | <5 acres | Zoned: Industrial | PW: tap into existing line at each site adjacent to site G: 400 feet to 3,000 feet T: 1,300 feet to 5,100 feet S: tap into existing line adjacent to site | Low | Ranges from 1,100 feet to 4,400 feet |
| City of Hayward Water Pollution Control Facility – Site 7 | <6 acres | Zoned: Industrial | PW: tap into existing line at each site adjacent to site G: 4,500 feet T: 4,300 feet S: tap into existing line adjacent to site | Low | 4,300 feet |

Notes:

* PW: = potable water; G: = natural gas; T= electric transmission (connection to Eastshore Substation); S: = sewer line.

9.3.2.2 Alternative Site Description

In this section, each of the alternative sites is described and analyzed based on its feasibility for use. Environmental considerations are presented in Subsection 9.3.2.3.

9.3.2.2.1 PG&E Property Adjacent to the Eastshore Substation. The PG&E site would be situated on property owned by PG&E, located about 1 mile due south of the proposed site. The site is surrounded by industrial uses, e.g. light industrial uses and associated office space in concrete tilt-up buildings, and is zoned Industrial. A power plant would be consistent with the zoning.

Use of the PG&E Eastshore substation site would require construction of a new switchyard and transmission line approximately 200 feet long connecting to the Eastshore Substation, a natural gas pipeline approximately 2,200 feet long connecting to PG&E's Line 153, and existing potable water and sewer line connections adjacent to the site.

The facility would be located within the Industrial Corridor within the City of Hayward surrounded by industrial uses. The closest residential uses to the project, which are potentially sensitive noise receptors, are located approximately 2,200 feet east of this site. There is a school located approximately 4,400 feet east of this site.

9.3.2.2.2 Pallet Yard. The Pallet Yard site would be situated on private property, located about 3,600 feet west of the proposed site. The site is surrounded by industrial uses, and is zoned Industrial. A power plant would be consistent with the zoning.

Use of the Pallet Yard site would require construction of a new switchyard and transmission line, an approximate 5,000 foot connection to the existing 115 kV transmission line corridor along Clawiter Avenue (and connection to the Eastshore Substation), an approximate 4,500 feet long natural gas pipeline connection to PG&E's Line 153 along the UPRR ROW, and connections to the existing potable water and sewer line connections located adjacent to the site.

The facility would be located within the Industrial Corridor within the City of Hayward surrounded by industrial uses. The closest residential uses to the project, which are potentially sensitive noise receptors, are located approximately 5,800 feet east of the project site. There is a school located approximately 7,400 feet east of this site.

9.3.2.2.3 Industrial/Commercial Buildings/Storage Yards Near the Eastshore Substation. There are several industrial/commercial buildings/storage yards in the area near the Eastshore substation. These buildings /yards are surrounded by industrial uses and are within the City of Hayward and are zoned Industrial. A power plant would be consistent with the zoning. These buildings/yards are shown as Sites 4-6; (Site 4) Depot Road site (storage yards), (Site 5) 26599 Corporate Avenue, and (Site 6) 26460 Corporate Avenue as shown on Figure 9.3-1.

Use of any of the buildings/yards near the Eastshore Substation site would also require construction of a new switchyard and transmission line ranging from 1,300 feet for Site 5 to connect to the existing 115 kV transmission line corridor along Clawiter Avenue and approximately 1,600 feet for Site 6 and 5,100 feet for Site 4 to connect to the existing Eastshore substation, a natural gas pipeline connection to PG&E's Line 153 within the UPRR ROW ranging from approximately 400 feet for Site 6 and approximately 3,000 feet for Site 4 and 2,200 feet for Site 5, and an expectation that water and sewer connections are located adjacent to each site and that each site would have the ability to connect to these services. These sites currently have water and sewer service, but an upgrade could be required. In most cases the buildings would have to be demolished, sites would have to be cleared of all debris, and re-graded to accommodate the power plant.

For these sites, the facility locations for each site are located within the Industrial Corridor within the City of Hayward surrounded by industrial uses. The closest residential uses to the sites, which are potentially sensitive noise receptors, would range from 1,100 feet for Site

6 to 2,700 and 4,400 feet respectively for Sites 5 and 4. There is a school located 5,500 feet from Site 4 and approximately 3,500 and 2,900 feet respectively for from Sites 5 and 6.

9.3.2.2.4 City of Hayward's Water Pollution Control Facility Property. The undeveloped property located adjacent to and east of the City of Hayward's Water Pollution Control (WPCF) is located at 3700 Enterprise, 1,500 feet northwest of the proposed site. The site is surrounded by industrial uses, within the City of Hayward, and is zoned Industrial. A power plant would be consistent with the zoning.

Use of the WPCF site would also require construction of a new switchyard and transmission line approximately 4,300 feet long connecting to PG&E's Eastshore substation. The minimal project water requirements could be met from using tertiary treated recycled water from the City of Hayward's WPCF plant or through a connection to the City of Hayward's potable water line located adjacent to the site. A new 4,500-foot long gas line connecting to PG&E's gas supply Line 153 system within the UPRR ROW would also be needed. Sewer service would be provided from the City of Hayward from sources adjacent to the site. Additionally, an existing PG&E transmission line over-crosses the property. The facility would be located within the Industrial Corridor within the City of Hayward surrounded by industrial uses. The closest residential uses to the project, which are potentially sensitive noise receptors, are approximately 4,300 feet from the site. The closest school is located approximately 5,500 feet from the site.

9.3.2.3 Environmental Considerations

In this section, the potential environmental impacts of the four alternative sites and the No Project alternative are discussed. Potential environmental impacts from use of the proposed site are presented in more detail in each of the 16 environmental subsections of Section 8 of the AFC. Table 9.3-2 (located at the end of this section), provides a summary of the impacts of each alternative site in comparison to the proposed site. Unless otherwise stated, it is assumed that the No Project alternative would not provide the benefits of the project, would not meet the basic project objectives of the Eastshore Energy, LLC, and would not result in the impacts associated with the project.

9.3.2.3.1 Air Quality. The plant's configuration and operation would be essentially the same from an air quality perspective at every location. The type and quantity of air emissions from the alternative sites would be identical. However, the impacts on the human population and the environment may differ slightly because of the location of residences and other human uses in the project vicinity. Local terrain is similar at all sites and not likely to significantly change impacts. All of these sites are in the same air basin and offsets acquired by Eastshore Energy, LLC would be equally appropriate for every site. Potential impacts of the project to residents are discussed in Subsection 8.6, Public Health, and potential impacts on animals are discussed in Subsection 8.2, Biological Resources.

It is expected that electricity generated from the proposed project and alternatives would support PG&E by acting to balance generation against load demand. Under the No Project alternative, it is likely that older plants, which create more air pollution than the proposed project, would remain online. In addition, electrical losses would result from the transmission of power over longer distances without this intermediate peaking facility.

Thus, for the No Project Alternative, the air quality would be significantly worse than if the plant were not built.

9.3.2.3.2 Biological Resources. Special status species that are recorded, or that potentially occur in the region, are the same for all sites. Based upon the CNDDDB search conducted for the proposed project, all alternatives site are within the potential habitat range of two Special Status Species, the Contra Costa goldfields (*Lasthenia conjugens*) and the salt marsh harvest mouse. All four sites are located within the City of Hayward Industrial Corridor with little to no habitat for special status species, and are developed, having the ground covered by either gravel or asphalt, with no natural biological habitat. It is anticipated that none of the sites would directly affect threatened or endangered species from development of the project site.

With the No Project alternative, the sites would remain in the current state and no additional biological impacts would occur.

9.3.2.3.3 Cultural Resources. All four alternative sites are expected to have similar cultural impacts. Each site is located within the City of Hayward Industrial Corridor with few historic structures. Additionally, all four sites are located in an area that has been highly disturbed by past and current industrial operations. A record search of the area was performed by staff of the California Historical Resources Information System (CHRIS) Northwest Information Center (Sonoma State University). This search determined that cultural resource sensitivity is generally low.

With the No Project alternative, there would be no impact to archeological or historic resources, although the sensitivity is low.

9.3.2.3.4 Land Use. The proposed site and the four alternative sites are located within the City of Hayward in areas zoned Industrial. With the No Project alternative, the land uses would remain as they are, and are presumed to be consistent with existing land use plans and policies.

9.3.2.3.5 Noise. The closest residence to the proposed site is 1,100 feet to the east of the site on Depot Road. Sources of environmental noise in the project area include the numerous industrial operations, significant heavy truck traffic on local roads, and the nearby railroad lines. Noise from industrial activities occurs on a 24-hour basis. The proposed Eastshore project will produce noticeable noise during operations, but the noise levels will be in compliance with City of Hayward's requirements for development in the Industrial Corridor.

All other alternative sites are located the same or further from nearby residences. The closest residence to the Eastshore substation site is located approximately 2,200 feet to the west of the site. The closest residence from the Pallet Yard is 5,800 feet. The closest residences to the industrial buildings/yards (Sites 4-6) range from 1,100 to 4,400 feet from these sites. The closest residences to the WCPF site are 4,300 feet west. Sources of environmental noise in the area include industrial operations, truck traffic, and railroad lines. A power plant would produce noticeable noise during operations, but the noise levels would be in compliance with the City's requirements.

The No Project alternative would not result in further immediate development in these areas and ambient noise levels would likely remain unaffected.

9.3.2.3.6 Public Health. All four alternative sites, and the proposed site, are located within 1 mile of sensitive receptors such as schools, hospitals, churches, residential areas, or other facilities that would potentially be considered sensitive receptors for public health. However, public health impacts are generally related to air quality, which is not expected to result in significant impacts. At a screening level, the sites appear equivalent with respect to this environmental resource.

Under the No Project alternative, land uses would remain the same, therefore, there would be no change to public health.

9.3.2.3.7 Worker Health and Safety. Potential impacts on worker health and safety are activity-specific rather than site-specific. Regardless of the location, the Eastshore project will prepare appropriate health and safety plans to protect workers and reduce the potential for injuries. Therefore, the worker health and safety impacts from all of the alternative sites are equivalent.

Under the No Project alternative, there would be no construction and, therefore, no impacts to workers.

9.3.2.3.8 Socioeconomics. All sites are located in the City of Hayward in Alameda County. The City of Hayward is one of 14 incorporated cities within Alameda County, and it is likely that most local purchases for construction and operation supplies would be made in Alameda County. Since the point of sale and the county of sale receive the greater portion of sales taxes that are not retained by the state, the local impacts would be similar among the alternatives since they are all located in Alameda County.

Workforce would likely come from San Francisco Bay Area counties; however, confirmation from the Building and Construction Trades Council of Alameda County and the State of California Employment Development Department show that the workforce in Alameda County will be adequate to fulfill the Eastshore project's labor requirements for construction. Due to the proximity of these counties, the origin of the workforce would not change among the alternative sites. Environmental justice issues would also be similar for all of the sites.

With the No Project alternative, no economic benefit would be realized within the region of influence.

9.3.2.3.9 Agriculture and Soils. The proposed site and the four alternative sites are sited in areas with heavy industrial uses. All four sites have a relatively low capability to support commercial crop production. The proposed and alternative sites will not affect any Prime Farmlands or other important farmlands because the sites and surrounding areas have already been developed for urban land uses (industrial, commercial, and residential). However, the project may affect some minor areas of land used for agricultural production under utility right-of-way.

Under the No Project alternative, soils currently used for agricultural purposes would not be affected.

9.3.2.3.10 Traffic and Transportation. All of the sites are easily accessible via Interstate 880 (I-880) and SR 92). The area can be accessed by heading west and then south from the Industrial Avenue exit and north from the Clawiter exit from SR92. The project site and linears would be accessed by arterial and collector roads; however, the entire area is served through a north/south, east/west grid of roads making construction traffic easily dispersed throughout the road network.

UPRR and Burlington Northern Santa Fe (BNSF) have three main rail lines in Alameda County. These railroads connect the Port of Oakland to the City of Richmond, Santa Clara County, and San Joaquin County via Niles Canyon. A UPRR rail corridor crosses Clawiter Road just north of the Eastshore site boundary. A rail spur is available to the Eastshore site.

Proximity to rail lines would allow heavy equipment (generator sets and radiator components) to be shipped by rail. Therefore, the proximity of the proposed site to the UPRR system site would have an advantage from a traffic perspective.

The No Project alternative would have no impact on traffic.

9.3.2.3.11 Visual Resources. The potential for visual resource impacts associated with each of the sites varies depending on the relative visibility of the sites from roads, residences, the San Francisco Baylands and recreational users of the San Francisco Bay, and the length and potential visibility of any new transmission lines that the power plant would require. Visual impacts are also a function of the surrounding facilities.

All four alternative sites and the proposed project site are located in the City of Hayward Industrial Corridor. However, due to the density and size of the surrounding industrial buildings, the projected viewshed is limited to adjacent streets for the proposed Eastshore site, and the other sites. However, the Pallet Yard, the industrial storage yard located at 3862 Depot Road (Site 4), and the WPCF site (Site 7) are closer to the San Francisco Bay and could potentially result in visual impacts to recreational users of the Baylands and the Bay.

The No Project alternative would avoid visual impacts from the development of a power plant and would avoid introducing additional tall structures such as exhaust stacks and transmission lines into an already industrial setting.

9.3.2.3.12 Hazardous Materials Handling. The same quantity of hazardous materials would be stored and used at all four locations. Delivery of aqueous ammonia and other hazardous materials is typical in the region because of widespread industrial uses in this area. Additional deliveries for the facility would be consistent with existing conditions.

The No Project alternative would avoid the transportation, use and storage of hazardous materials during construction and operation of a power plant.

9.3.2.3.13 Waste Management. The same quantity of waste will be generated at the proposed site and all alternative sites. The environmental impact of waste disposal would not differ significantly between the alternative sites.

The No Project alternative would eliminate the need to dispose of liquid and solid waste from the construction and operation of the power plant.

9.3.2.3.14 Water Resources. The minimal potable water requirements for the proposed project would be provided by the City of Hayward. Use of recycled wastewater may be possible, although the minimal water requirements would not warrant the cost required to install the pipeline or the actions required to properly treat the water for operational use once on site. Therefore, all sites are generally equivalent with respect to water use. All four alternative sites would need to connect to the City of Hayward's potable water line which is expected to be located adjacent to all of the sites; however, it is confirmed that the proposed site has potable water already available at the property line.

The No Project alternative would not create an additional demand for recycled water, and therefore, it would not spur the development of additional capacity of the recycled water system.

9.3.2.3.15 Geologic Hazards and Resources. Due to the screening level of this analysis and proximity of the sites to each other, no site-specific seismic analysis was performed. The potential for seismic impacts would be essentially the same for all sites and could be addressed in plant design.

The No Project alternative would not affect geological hazards or resources.

9.3.2.3.16 Paleontological Resources. The Eastshore project area is located on a gently sloping alluvial fan about 1.5 miles east of the southeastern shore of San Francisco Bay. The entire project site is underlain by unconsolidated Holocene age alluvial fan deposits equivalent to the Temescal Formation, which also includes recent Bay muds and "salt-marsh deposits". Older, Pleistocene-age alluvial fan and mud deposits called the Alameda Formation underlay the Temescal formation at the project site. In some areas the transition between the Temescal and the older Alameda formation occurs at a depth of approximately 12 to 15 feet.

The occurrence of fossil sites near the project site and alternative sites are within similar geologic environments indicating a potential for scientifically important fossil remains being encountered by earth-moving activities during this project. All of the sites are situated on alluvial deposits that are at least in part equivalent to the Temescal Formation. The potential of encountering sediments of high paleontological sensitivity is likely, *when* these activities extend to a depth sufficient (approximately 10 to 12 feet) to encounter undisturbed sediments.

However, grading and construction activities for the proposed project are not anticipated to excavate below 6 feet below the existing ground surface, all of the sites are considered to have a low potential for paleontological impacts. The same construction depth assumption could be used for the alternative sites. In any case, with the implementation of mitigation measures, paleontological impacts for all of the sites could be mitigated below the level of significance.

The No Project alternative would not affect paleontological resources.

9.4 Selection of the Proposed Site

Table 9.4-1 compares the important siting criteria of the proposed Eastshore site with the other alternatives. As shown in the table, no alternative site would feasibly attain most of

the basic objectives of the project while also avoiding or substantially lessening any potentially significant environmental effects of the project. Table 9.3-2 (located at the end of this section) also presents a summary of the environmental considerations discussed above.

TABLE 9.4-1
Comparison of the Proposed Site and Alternative Site Locations

| Characteristic | Eastshore (proposed) Site 1 | PG&E Substation Site Site 2 | Pallet Yard Site 3 | Industrial Buildings/Yards Sites 4-6 | WPCF Site Site 7 |
|---|-----------------------------------|--------------------------------------|--------------------------|--|------------------------|
| Ability to Control Site | Yes | No | No | No | No |
| Size of parcel (parcel must be 6 to 10 acres) | Yes | Yes | No | No | No |
| Site Encumbrances | No | Yes | No | No | Yes |
| Appropriate zoning | Yes | Yes | Yes | Yes | Yes |
| Proximity to sensitive noise receptors | 1,100 feet north | 2,200 east | 5,800 east | Ranges from 1,100 to 4,400 feet | 4,300 feet |
| Traffic Impacts | Yes | Yes | Yes | Yes | Yes |
| Potential visual sensitivity | Low | Low | Moderate | Low/Moderate | Moderate |
| Ability to use water consistent with State Water Resources Control Board policy | Yes | Yes | Yes | Yes | Yes |
| Distance to potable water line | Adjacent to site | Adjacent to site | Adjacent to all site | Adjacent to site | Adjacent to site |
| Existing gas supply | 200 feet | 2,000 feet | 4,300 feet | Ranges from 400 feet to 3,000 feet | 4,500 feet |
| Transmission Interconnection | 1.1 miles | 200 feet | 5,000 | Ranges from 1,300 feet to 5,100 feet | 4,300 feet |

The Eastshore site has some advantages such as nearby industrial buildings with tall features such as stacks and tall processing equipment, proximity to rail lines, proper zoning, and minimal biological and cultural sensitivity and linear corridors of reasonable length. However, the Eastshore site is closest to residential receptors.

All four alternative sites are located within the City of Hayward Industrial Corridor on land zoned and used for industrial purposes. The four alternative sites are also located near industrial uses that operate 24 hours per day, 7 days per week, and they are further from existing residences. All sites would have an equivalent ambient noise level.

The Eastshore site is located close to linear facilities such as water, sewer, and gas. It will require construction of a new transmission line to interconnect to the PG&E system. A natural gas line would also need to be constructed at this site, approximately 200 feet long. The nearest residence is located approximately 1,100 feet from the Eastshore site; expected

noise from the plant site will be reduced by the noise mitigation design and is not expected to cause a significant impact at this location.

The site on PG&E property located next to the Eastshore substation site has advantages in that it is slightly farther from residential receptors, thereby minimizing potential noise impacts, and is located adjacent to the Eastshore substation and a short connection PG&E's electric transmission system. However, PG&E will not enter into a contract with the Eastshore Energy, LLC to allow private development at this site. Therefore, this site is disqualified as a viable alternative.

The various industrial buildings and yards shown as Sites 4-6 and the Pallet Yard shown on Figure 9.2-1 have some advantages in that they are further from residential receptors, with the exception of Site 6 which is approximately 1,100 feet from the closest residence. The linear connections would vary from a 1,300 feet connection to the Eastshore substation from Site 5 to a 1,600 feet connection for Site 6 and a 5,100 feet connection for Site 4 and a 5,000 feet connection for the Pallet Yard to the substation. Additionally, both the Pallet Yard and Site 4 are closer to the Baylands, Bay, and the SR 92 gateway to Hayward, resulting in the potential for visual impacts to recreational users. However, all of the sites are less than the 6 acres required to develop a plant using the Wartsila technology, thus disqualifying them as viable alternatives.

The WPCF site is also further from residential areas than the proposed project minimizing potential noise impacts. However, this site is closer to the Baylands, the Bay, and visible from SR 92 gateway to Hayward, resulting in the potential for visual impacts to recreational users and travelers along SR 92. Additionally, the WPCF is less than 6 acres and has an existing overhead electric transmission line running diagonally across the property which would further reduce usable area. Even though the site is less than 6 acres, the property and the site does not meet the aspect ratio described above. Thus these factors disqualify this site as a viable alternative.

9.5 Alternative Linear Corridors

Linear facilities required for Eastshore include a 115 kV electric transmission line, natural gas supply line, potable water line and sewer line (see Figure 2.1-1). The proposed linear facilities are presented in Section 2.0, Project Description; Section 5.0, Electric Transmission; Section 6.0, Natural Gas Supply; and Section 7.0, Water Supply. This section compares the alternative routes. The comparison is made among the following categories:

- **Institutional Factors.** Institutional factors are an assessment of the ease of obtaining rights-of-way, public agency support, required permits, etc.
- **Engineering/Construction Feasibility.** Engineering/construction feasibility is an assessment of how the pipeline can be physically placed along a given route.
- **Length of Linear Feature.** Length of line is important because cost and potential environmental impacts are usually functions of length.

- **Environmental Factors.** Environmental factors are an initial assessment of which routes would have the least impact on the environment. Environmental impacts must be either not significant or mitigatable to a less-than-significant level.

9.5.1 Potable Water Supply

Potable water will be provided from the City of Hayward's potable water system using existing water mains in Clawiter Road. Because an existing water supply connection with adequate capacity is already located onsite, no alternatives were considered.

9.5.2 Sanitary Sewer Line

An existing City of Hayward sanitary sewer line with adequate capacity is located onsite and will be utilized for all plant discharges. Because of an existing connection, no alternatives were considered.

9.5.3 Natural Gas Supply Line

Natural gas will be delivered to the site via a 4.5-inch-outside diameter pipeline which will interconnect to the existing PG&E gas pipeline 153 located across Clawiter Road from the site. This dedicated 4.5-inch pipeline will be installed under Clawiter Road. Because PG&E Line 153 has adequate capacity, is less than 200 feet in length from the site, and can be interconnected using a direct route to the site, no alternatives were considered.

9.5.4 Electric Transmission Lines

A new approximately 1.1-mile long 115 kV transmission (gen-tie) line will interconnect Eastshore to the existing PG&E Eastshore substation. Three possible routes to the Eastshore substation were considered. These routes are shown on Figure 9.5-1.

Route 1 – Proposed Route

The proposed route, Route 1, overcrosses Clawiter Road from the onsite switchyard and runs south along the east side of Clawiter Road for approximately 3,400 feet before an approximate 200-foot over-crossing of SR 92. The route then continues west along Eden Landing Road, south along Production Avenue east along Investment Boulevard and south between existing buildings for approximately an additional 1,900 feet into the Eastshore Substation. The total distance that the new 115 kV line will run contiguous with the existing 12 kV distribution line is about 3,600 feet

Route 2 – Union Pacific Rail Corridor

Alternative Route 2 would travel approximately 150 feet over-crossing Clawiter Road and then turning southeast parallel to the existing UPRR corridor on private property easements on the west side of the railroad tracks for approximately 4,000 feet (over-crossing SR 92 west of the SR 92/Industrial Blvd. interchange where the UPRR crosses SR 92), then turn west running contiguous with and parallel to the existing PG&E 230 kV transmission line ROW for approximately 1,850 feet, entering the PG&E Eastshore substation from the east. This route would have a mixture of overhead and underground installation depending on local conditions, overhead clearances and availability of easements.

Route 3- Grant to Eastshore 115 kV

The 115-kV transmission line would tap into the existing 115-kV Grant-Eastshore transmission line which runs in a northwest-to-southeast orientation approximately 1 mile west of the project site. The proposed 115 kV transmission tap line would follow Route 1, then turn west along Enterprise Avenue and connect to the existing 115-kV Grant-Eastshore line approximately 0.4 mile west of Clawiter Road. However, this option was rejected by PG&E during the Facility Study because of the complexity of the tap connections and the need to re-conductor up to 10 miles of various segments of the existing 115-kV circuits beyond the tap points. The cost of such re-conductoring would be extremely high.

9.5.5.2.4 Environmental Factors. Each of the routes would have similar impacts in most of the environmental areas because they will be constructed using similar methods and cross similar habitat. The differences between routes, although minor, likely exist in the areas described below. It should be noted that these differences are slight and construction of either of the alternative routes would not likely result in significant adverse impacts.

- **Air Quality.** Impacts would occur as a result of emissions from construction equipment. Because construction techniques would be similar, there would be little difference from construction of either route, except to the extent under-grounding is required on the railroad route. Emissions from the drilling equipment would be slightly greater for the underground portion of the route.
- **Biological Resources.** Each of the transmission routes would generally follow roads and rights-of-way that are partly disturbed. No significant site-specific natural habitats or resources have been identified at this time. Small sites can be avoided if discovered through small changes within the transmission line corridor and span length. However, there is a slight possibility of bird collisions. Route 2 being slightly longer would increase the length of line that might result in bird collisions.
- **Cultural and Paleontological Resources.** Cultural and paleontological resource sensitivity is not high throughout the area because of the highly disturbed character of both routes.
- **Noise.** As with air quality impacts, noise impacts would be primarily a function of the duration and type of construction. The construction activities would occur during daytime hours and would be of short duration.
- **Public Health.** Public health is a function of air quality and, therefore, would indicate the same preferences as air quality. In addition, the new transmission line would emit electric and magnetic fields (EMF). As described in Section 5.5, there is no conclusive evidence that EMF has a health impact. The EMF analysis in Section 5.5 indicates that the area of impact is small. EMF impacts are expected to be insignificant in each case.
- **Traffic and Transportation.** Traffic impacts would likely be greater along Routes 1 and 3 because they are adjacent to surface roads. Construction would take place during the off-peak hours so as not to impede traffic flow along these surface roads. Also, construction would be of short duration at any one location. Although Route 2 would avoid surface roads, it would potentially interfere with UPRR operations and would be difficult to obtain easements from UPRR for construction and maintenance of the line.

- **Land Use.** Routes 1 and 3 would be constructed largely within City of Hayward public rights-of-way. Route 2 would require private property easements and/or UPRR easements for a majority of its length. Since these easements would be difficult to obtain, this route is considered less viable.
- **Visual.** All three routes will be constructed in existing electric line corridors and/or industrial areas where visual impacts will be minimal.

Conclusion

Since there is no significant difference from an environmental standpoint, the route with the least cost impact, Route 1, has been chosen.

9.6 Alternative Project Configurations

The proposed project configuration of Eastshore is the result of considering a variety of design and operating limitations. The main factors affecting the configuration include available reciprocating engine sizes, economies of scale for both construction and operation of the plant, fuel supply, power transmission capacities, and forecast market demand for electrical power. Multiple reciprocating engine suppliers were evaluated for the Eastshore; e.g., Cummins, Caterpillar, Waukesha, and MAN B&W. Wartsila manufactures one of the largest gas-fired, spark-ignited, lean burn, reciprocating engines globally. The evaluations included the review of engineering and commercial information; the review of technologies on the basis of cost, schedule, performance, power, heat rate and environmental considerations with respect to power generation emissions. Based on these evaluations, the decision was made to select Wartsila.

A configuration using 14 Wartsila model 20V34SG natural gas-fired, spark-ignited reciprocating engines provides improved plant equivalent availability by having more generators with fewer megawatts per generator. In a 1x1 gas turbine-steam turbine combined cycle configuration, a gas turbine outage or trip will force a shutdown of the entire plant. In a 2x1 configuration, a single gas turbine outage or trip would shut down half the plant. By extension, a 14x1 configuration will retain about 93 percent of total plant capacity when one of the units is unavailable. Additional discussion supporting the chosen technology is provided below in Section 9.6.1.

9.6.1 Benefits of Chosen Technology

The Eastshore project will be powered by 14 lean burn Wartsila 20V34SG (spark ignited) reciprocating engines. This plant is optimal in terms of the proximity to the Eastshore Substation, plant capacity, engine size, efficiency and flexibility. As a plant, the use of multiple 8.4MWe engines provides excellent flexibility and performance, including excellent heat rates, rapid ramp rates, spinning reserves, non-spinning reserves and voltage support. Compared to other manufacturers' spark-ignited reciprocating engines, the Wartsila engine is the largest, most efficient and most technologically mature spark ignited lean burn unit available. Compared to combustion turbine technology these units offer better heat rates over the entire operating range, less water consumption and better ramp rates without being penalized for starting or stopping.

The following main points better detail the value for using these Wartsila 20V34SG units for the Eastshore project.

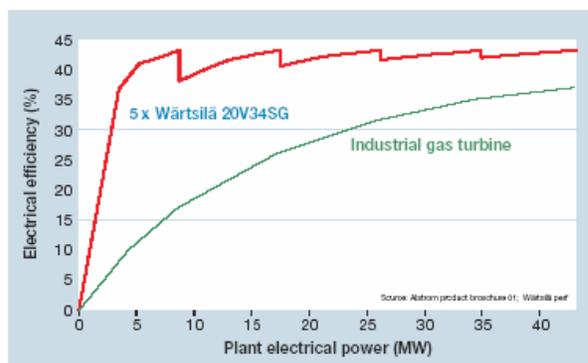
Excellent plant efficiency and operating flexibility: One, multiple or all units can be operated at one time or in any combination (e.g., cascading) at various power levels to maximize plant efficiency near the plant's most efficient net heat rate of less than 8,800 BTU/kWh (HHV). The Wartsila 34SG unit ranks as the most efficient of the spark-ignited gas engines today, having an electrical efficiency of nearly 45 percent (LHV). See the chart below for "cascading" and efficiency data.

Reliable and technologically mature system design: Wartsila has been designing, manufacturing and installing reciprocating engines world-wide since 1942. Since year 2000, 222 34SG engines have been installed in power plants representing over 1400 MW of power. The plant is designed using modules and each engine runs in parallel to the others - offering redundancy and allowing each to be taken offline for maintenance while allowing the remaining units to operate. The engines are also designed to operate over a wide temperature range and have excellent durability and minimal effect from thermal fatigue. No derating of plant capacity will occur at temperatures between 32°F and 100°F.

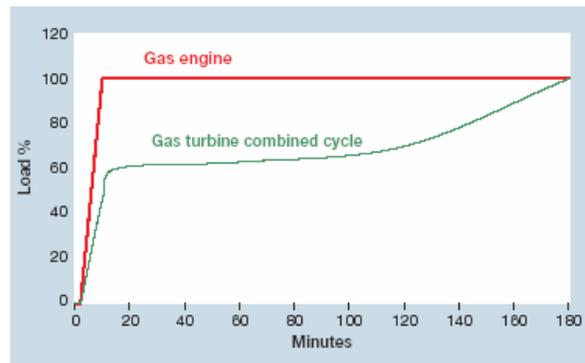
Excellent plant and engine start-up capability: Flexibility is also provided by way of the ability of each engine or the Plant to start and come to full load within 10 minutes. This quick ramp rate allows all engines to be available for spinning and non-spinning reserves to support PG&E's capacity needs. See the chart below for "10 minute ramping comparison".

Minimal water usage: The Wartsila 20V34SG plant is designed using a closed-loop water cooling system resulting in the plant having negligible water consumption (e.g., 1 gpm at full load operations). As opposed to typical combustion turbine technology, no water is used for energy enhancement or NO_x control. The Raw Water Consumption Chart below shows the typical water usage for different power plants, including the closed radiator cooling system being applied at this Eastshore plant.

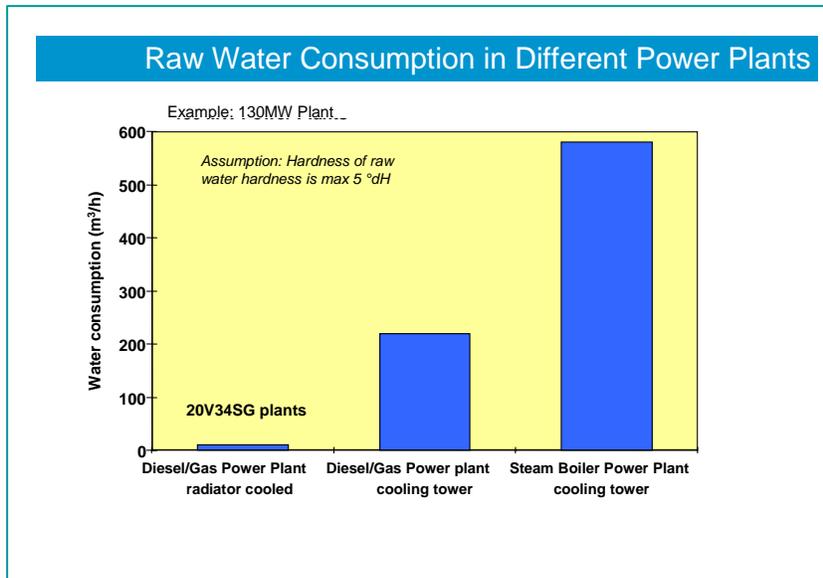
Wartsila 20V34SG Plants - Cascading and 10 Minute Ramping Comparisons



The multi-unit gas engine power plant has very high part-load efficiency.



Start-up and loading of a gas engine power plant compared to a gas turbine combined cycle.



Based upon the discussion above and the detailed discussion above, the Wartsila reciprocating engines were selected to meet all of the project's objectives. Further, the quick start capability, requiring less than 10 minutes to achieve full load, low air emission levels, minimal water needs, and relatively moderate generator sizes (8 MW per engine), make this technology suitable to provide local reliability for the City of Hayward and voltage support for the PG&E transmission system.

9.7 Alternative Technologies

Other generation technologies considered for the Eastshore project are grouped according to the fuel used:

- Oil and natural gas traditional power plants or combustion turbines
- Water
- Biomass
- Solar
- Wind

Alternative technologies were evaluated with respect to commercial availability, implementability, and cost-effectiveness.

9.7.1 Oil; Natural Gas; Conventional and Supercritical Boiler/ Steam Turbine, or Simple Cycle Combustion Turbines

These technologies are commercially available, and could be implemented. However, because of relatively low efficiency at low load or fuel type, traditional fossil units can emit a greater quantity of air pollutants per kilowatt-hour generated at reduced load than a multi-unit reciprocating engine configuration, and will suffer an efficiency penalty when compared to multiple reciprocating engines that offers high efficiency and dispatchability across the entire load range. Eastshore Energy, LLC did include a simple cycle turbine configuration consisting of two natural gas-fired LM6000 simple cycle gas turbines as an

option in its proposal to PG&E's RFO. PG&E selected and awarded a contract to Eastshore Energy, LLC based on the proposed multi-unit reciprocating engine configuration. Use of an alternate technology would now violate the terms of this executed agreement.

9.7.2 Water

These technologies use water as "fuel," and include hydroelectric, geothermal, and ocean energy conversion.

9.7.2.1 Hydroelectric

Most of the sites for hydroelectric facilities have already been developed in California and any remaining potential sites face lengthy environmental licensing periods. It is highly unlikely that this technology could be implemented within 3 to 5 years. More fundamental, there are no hydroelectric sites in the general area that would support a power plant that would interconnect with PG&E's Eastshore substation.

9.7.2.2 Geothermal

Geothermal development is not viable at the Eastshore project location because suitable thermal vents and strata are not present. Therefore, it was eliminated from consideration.

9.7.3 Biomass

Major biomass fuels include forestry and mill wastes, agricultural field crop and food processing waste, and construction and urban wood wastes. Their cost and emissions impacts tend to be high relative to reciprocating engine units burning natural gas. Further, this fuel would need to be trucked to Eastshore, with the potential for a significant impact on local traffic volumes.

9.7.4 Solar

Most of these technologies collect solar radiation, heat water to create steam, and use the steam to power a steam turbine/generator. Power is only available while the sun shines so the units do not supply power that can be cycled up or down to follow demand. The cost of solar power is relatively high when compared to technologies burning natural gas, and the acreage required per MW generated is also high. As a result, the acreage needed to site a 115.5 MW net facility in the Hayward area makes this option unfeasible.

9.7.5 Wind Generation

In California, the average wind generation capacity factor has been 25 to 30 percent and, like solar, cannot be cycled up and down to track demand. The cost of generation is generally above the cost of combined-cycle units burning natural gas. There are no wind generation sites located within the City of Hayward.

9.8 References

California Energy Commission. 1995. 1994 Biennial Electricity Report (ER94), P300-95-002. November.

TABLE 9.3-2
Summary Comparison of Environmental Effects of Alternative Project Sites

| Resource | Eastshore (Proposed) Site 1 | PG&E Substation Site Site 2 | Pallet Yard Site 3 | Various Industrial Buildings/Yards Sites 4-6 | WPCF Site Site 7 |
|----------------------|--|---|---|--|---|
| Air Quality | Emissions from the plant would be the same at every location. It is assumed that offsets would be available for every site. Construction impacts would be in the mid-range since this site would require 1.1 miles of transmission line construction. Air impacts would be expected to be insignificant. | Emissions from the plant would be the same at every location. It is assumed that offsets would be available for every site. Construction impacts would be in the mid-range since this site would require 200 feet to interconnect to the transmission system and 2,000 feet of gas supply pipeline construction. Air impacts would be expected to be insignificant. | Emissions from the plant would be the same at every location. It is assumed that offsets would be available for every site. Construction impacts would be greatest for this site since this site would require 5,000 feet to connect to the PG&E transmission system and 4,500 feet connect to the PG&E gas system. However, air impacts would be still expected to be insignificant. | Emissions from the plant would be the same at every location. It is assumed that offsets would be available for every site. Construction impacts would be in the mid-range since these sites would require from 1,300 feet to 5,100 feet of construction to interconnect to PG&E's electrical system and 400 feet to 3,000 feet to connect to PG&E's gas supply system. Air impacts would be expected to be insignificant. | Emissions from the plant would be the same at every location. It is assumed that offsets would be available for every site. Construction impacts would be in the mid-range since this site would require 4,300 feet of construction to connect to the PG&E electrical transmission system and 4,500 feet to connect to the PG&E gas supply system. Air impacts would be expected to be insignificant. |
| Biological Resources | The site is located in an industrial area providing little to no usable habitat for wildlife. The project site is surrounded on four sides by industrial uses. No sensitive habitat is present. | The site is located in an industrial area providing little to no usable habitat for wildlife. The project site is surrounded on four sides by industrial uses. No sensitive habitat is present. | The site is located in an industrial area providing little to no usable habitat for wildlife. The project site is surrounded on four sides by industrial uses and salt flats. No sensitive habitat is present. | These sites are located in industrial areas providing little to no usable habitat for wildlife. The site areas are surrounded on four sides by industrial uses. No sensitive habitat is present. | The site is located in an industrial area providing little to no usable habitat for wildlife. The project site is surrounded on four sides by industrial uses. No sensitive habitat is present. |

TABLE 9.3-2
Summary Comparison of Environmental Effects of Alternative Project Sites

| Resource | Eastshore (Proposed) Site 1 | PG&E Substation Site Site 2 | Pallet Yard Site 3 | Various Industrial Buildings/Yards Sites 4-6 | WPCF Site Site 7 |
|--------------------|--|--|--|--|---|
| Cultural Resources | The Eastshore Area of Potential Effect has been surveyed. Based on this survey, this location is expected to have low cultural sensitivity. With implementation of appropriate mitigation measures, it is anticipated that any potential cultural resource impacts could be mitigated below the level of significance. | A cultural resource search has not been performed for this site. However, based on the location of this site and its proximity to the proposed site, this site is anticipated to have low cultural sensitivity. With implementation of appropriate mitigation measures, it is anticipated that any potential cultural resource impacts could be mitigated below the level of significance. | A cultural resource search has not been performed for this site. However, based on the location of this site and its proximity to the proposed site as well as its proximity to the Russell City Energy Center (RCEC) site (which reached a similar conclusion related to cultural resources), this site is anticipated to have low cultural sensitivity. With implementation of appropriate mitigation measures, it is anticipated that any potential cultural resource impacts could be mitigated below the level of significance. | A cultural resource search has not been performed for these sites. However, based on the location of this site and its proximity to the proposed site and the RCEC site (which reached a similar conclusion related to cultural resources), these sites are anticipated to have low cultural sensitivity. With implementation of appropriate mitigation measures, it is anticipated that any potential cultural resource impacts could be mitigated below the level of significance. | A cultural resource search has not been performed for this site. However, based on the location of this site, near the RCEC site and the Eastshore site that has been surveyed, this site is anticipated to have low cultural sensitivity. With implementation of appropriate mitigation measures, it is anticipated that any potential cultural resource impacts could be mitigated below the level of significance. |
| Land Use | The site is zoned Industrial in the City of Hayward. A power plant is consistent with this zoning. | The site is zoned Industrial in the City of Hayward. A power plant is consistent with this zoning. | The site is zoned Industrial in the City of Hayward. A power plant is consistent with this zoning. | The site is zoned Industrial in the City of Hayward. A power plant is consistent with this zoning. | The site is zoned Industrial in the City of Hayward. A power plant is consistent with this zoning. |

TABLE 9.3-2
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| Resource | Eastshore (Proposed) Site 1 | PG&E Substation Site Site 2 | Pallet Yard Site 3 | Various Industrial Buildings/Yards Sites 4-6 | WPCF Site Site 7 |
|--------------------------|--|---|---|---|---|
| Noise | The plant's noise output would be approximately the same at all sites. The closest residence from the site is 1,100 feet. No significant noise or vibration impacts are expected. | The plant's noise output would be approximately the same at all sites. The closest residence is 2,200 feet from the plant site. No significant noise or vibration impacts are expected. | The plant's noise output would be approximately the same at all sites. The closest residence is 5,800 feet from the sites. No significant noise or vibration impacts are expected. | The plant's noise output would be approximately the same at all sites. The closest residence ranges from 1,100 feet to 4,400 feet. No significant noise or vibration impacts are expected. | The plant's noise output would be approximately the same at all sites. The closest residence is 4,300 feet. No significant noise or vibration impacts are expected. |
| Public Health | The impacts are directly related to air quality impacts described above, considered to be less than to be significant. | The impacts are directly related to air quality impacts described above, considered to be less than to be significant. | The impacts are directly related to air quality impacts described above, considered to be less than to be significant. | The impacts are directly related to air quality impacts described above, considered to be less than to be significant. | The impacts are directly related to air quality impacts described above, considered to be less than to be significant. |
| Worker Health and Safety | No difference. | No difference. | No difference. | No difference. | No difference. |
| Socioeconomics | Potential impact to schools and public services are anticipated to be the same at all locations. Construction workforce would have to travel about the same for each location. Same benefit to Alameda County from purchase of goods and services. | Potential impact to schools and public services is anticipated to be the same at all locations. Construction workforce would have to travel about the same for each location. Same benefit to Alameda County from purchase of goods and services. | Potential impact to schools and public services is anticipated to be the same at all locations. Construction workforce would have to travel about the same for each location. Same benefit to Alameda County from purchase of goods and services. | Potential impact to schools and public services is anticipated to be the same at all locations. Construction workforce would have to travel about the same for each location. Same benefit to Alameda County from purchase of goods and services. | Potential impact to schools and public services is anticipated to be the same at all locations. Construction workforce would have to travel about the same for each location. Same benefit to Alameda County from purchase of goods and services. |
| Agriculture and Soils | Would represent no loss of agricultural uses in County. | Would represent no loss of agricultural uses in County. | Would represent no loss of agricultural uses in County. | Would represent no loss of agricultural uses in County. | Would represent no loss of agricultural uses in County. |

TABLE 9.3-2
Summary Comparison of Environmental Effects of Alternative Project Sites

| Resource | Eastshore (Proposed) Site 1 | PG&E Substation Site Site 2 | Pallet Yard Site 3 | Various Industrial Buildings/Yards Sites 4-6 | WPCF Site Site 7 |
|-------------------------------|---|---|---|--|---|
| Traffic and Transportation | Several intersections operate at unacceptable levels in the area of the proposed project site and alternatives. Construction traffic will increase the occurrences of these levels. The UPRR runs adjacent to the site and would allow for heavy equipment to be delivered by rail. Potentially significant impacts are expected as a result of construction traffic. | Several intersections operate at unacceptable levels in the area of the proposed project site and alternatives. Construction traffic will increase the occurrences of these levels. The UPRR runs approximately 2,000 feet from the site and would allow for heavy equipment to be delivered by rail. Potentially significant impacts are expected as a result of construction traffic. | Several intersections operate at unacceptable levels in the area of the proposed project site and alternatives. Construction traffic will increase the occurrences of these levels. The UPRR runs approximately 4,500 feet from the site and would allow for heavy equipment to be delivered by rail. Potentially significant impacts are expected as a result of construction traffic. | Several intersections operate at unacceptable levels in the area of the proposed project site and alternatives. Construction traffic will increase the occurrences of these levels. The UPRR runs near the sites, ranging from 400 feet to 3,000 feet and would allow for heavy equipment to be delivered by rail. Potentially significant impacts are expected as a result of construction traffic. | Several intersections operate at unacceptable levels in the area of the proposed project site and alternatives. Construction traffic will increase the occurrences of these levels. The UPRR runs 4,500 feet from the site and would allow for heavy equipment to be delivered by rail. Potentially significant impacts are expected as a result of construction traffic. |

TABLE 9.3-2
Summary Comparison of Environmental Effects of Alternative Project Sites

| Resource | Eastshore (Proposed) Site 1 | PG&E Substation Site Site 2 | Pallet Yard Site 3 | Various Industrial Buildings/Yards Sites 4-6 | WPCF Site Site 7 |
|-----------------------------|--|--|--|--|---|
| Visual Resources | The plant would be located in an industrial area and surrounded on all four sides by several industrial uses. Residences in the vicinity are at a similar elevation and would have restricted views of the site. With mitigation measures, impacts would be less than significant. | The plant would be located in an industrial area and surrounded on all four sides by several industrial uses. Residences in the vicinity are at a similar elevation and would have restricted views of the site. With mitigation measures, impacts would be less than significant. | The plant would be located in an industrial area and surrounded on all four sides by several industrial uses and salt flats. Residences in the vicinity are at a similar elevation and would have restricted views of the site. However, the site may cause potentially significant visual impacts from the Baylands and Bay recreational users. It is expected that with mitigation measures, impacts would be less than significant. | The plant would be located in an industrial area and surrounded by industrial uses. Site 4 could be visible from the Baylands, the Bay, and the SR 92 gateway to Hayward. Residences in the vicinity are at a similar elevation and would have restricted views of the site. Visual impacts are expected to be potentially significant; however, with mitigation measures, including facility facades, impacts would be less than significant. | The plant would be located in an industrial area and surrounded by industrial uses. Residences in the vicinity are at a similar elevation and would have restricted views of the site. Visual impacts are expected to be potentially significant; however, with mitigation measures, including facades, impacts would be less than significant. |
| Hazardous Material Handling | Aqueous ammonia shipments would travel on SR 92 and exit at Clawiter or Industrial Avenues to the site. Residences are near this route; however, the plant would be designed to prevent significant off-site consequences to residences from an ammonia leak. | Aqueous ammonia shipments would travel on SR 92 and exit at Clawiter to the site. Residences are near this route; however, the plant would be designed to prevent significant off-site consequences to residences from an ammonia leak. | Aqueous ammonia shipments would travel on SR 92 and exit at Clawiter or Industrial Avenues to Depot Road to get to the site. Residences are near this route; however, the plant would be designed to prevent significant off-site consequences to residences from an ammonia leak. | Aqueous ammonia shipments would travel on SR 92 and exit at Clawiter or Industrial Avenues (and to Depot for Site 4) to the sites. Residences are near this route; however, the plant would be designed to prevent significant off-site consequences to residences from an ammonia leak. | Aqueous ammonia shipments would travel on SR 92 and exit at Clawiter Avenue to Enterprise Avenue to the site. Residences are near this route; however, the plant would be designed to prevent significant off-site consequences to residences from an ammonia leak. |
| Waste Management | No difference. | No difference. | No difference. | No difference. | No difference. |

TABLE 9.3-2
Summary Comparison of Environmental Effects of Alternative Project Sites

| Resource | Eastshore (Proposed) Site 1 | PG&E Substation Site Site 2 | Pallet Yard Site 3 | Various Industrial Buildings/Yards Sites 4-6 | WPCF Site Site 7 |
|---------------------------|--|--|-----------------------------------|---|-----------------------------------|
| Water Resources | Minimal water use for operations. | Minimal water use for operations. | Minimal water use for operations. | Minimal water use for operations. | Minimal water use for operations. |
| Geologic Hazards | No difference. | No difference. | No difference. | No difference. | No difference. |
| Paleontological Resources | Low sensitivity. | Low sensitivity. | Low sensitivity. | Low sensitivity. | Low sensitivity. |



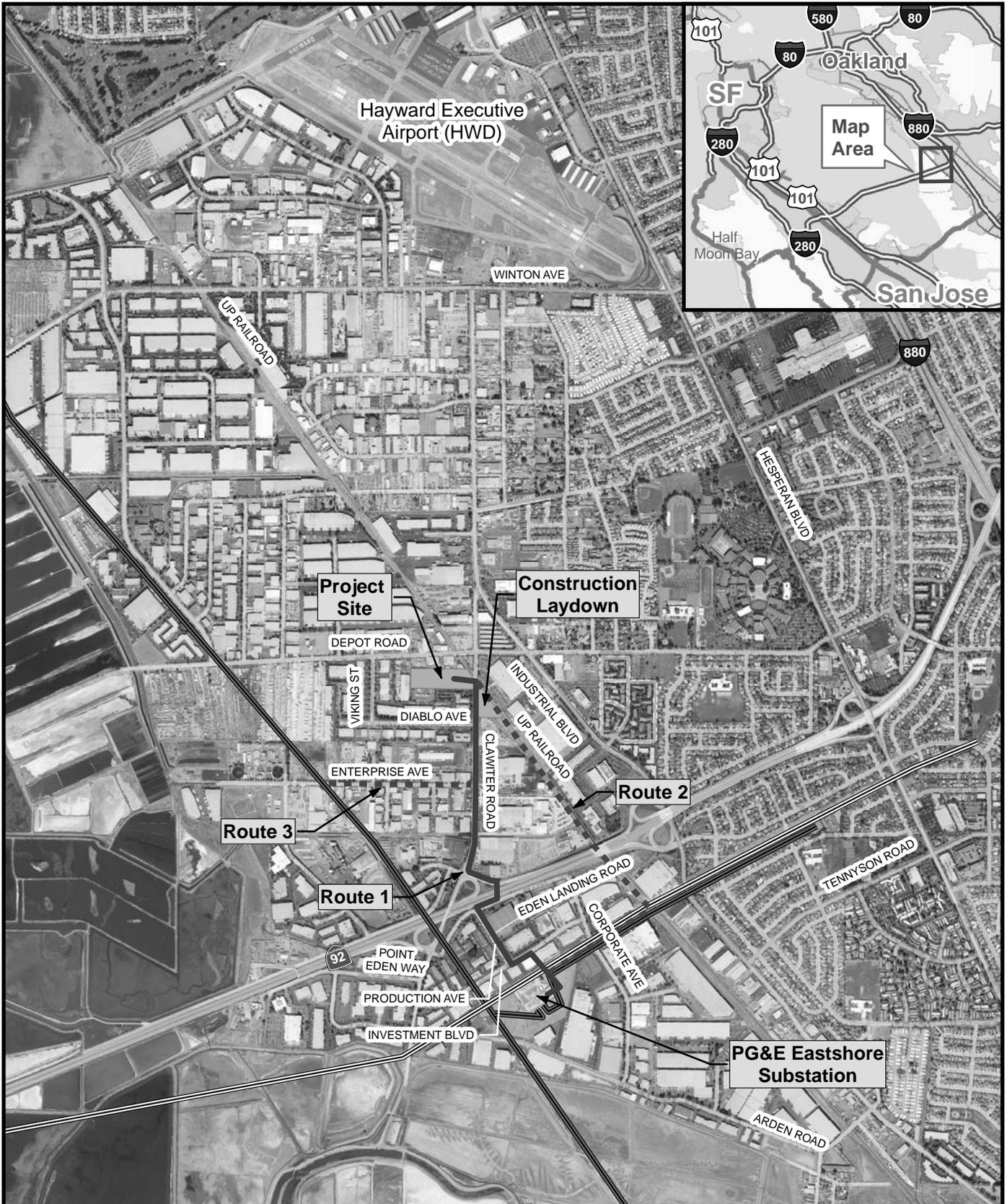
LEGEND

-  Site Location
-  Transmission Line Route

LOCATION KEY

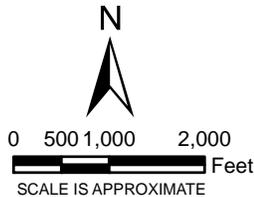
- 1. 25101 Clawiter - Proposed Site
- 2. PG&E Eastshore Substation
- 3. Pallet Yard Site
- 4. Depot Road Site
- 5. 26599 Corporate Ave.
- 6. 26460 Corporate Ave.
- 7. City of Hayward WPCF Site 3700 Enterprise

**FIGURE 9-3.1
ALTERNATIVE SITE
LOCATIONS
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA**



LEGEND

- Site Location
- Proposed Route
- Alternate Route
- Existing 115 kV Transmission Line
- Existing 230 kV Transmission Line



**FIGURE 9.5-1
ALTERNATIVE TRANSMISSION
LINE ROUTES**
EASTSHORE ENERGY CENTER
HAYWARD, CALIFORNIA