

## CPV Vaca Station Environmental Review: Community Guide



### 1. CPV Vaca Station supports Executive Order S-14-08

*CPV Vaca Station is a state-of-the-art \$600 million private investment in California's 21<sup>st</sup> century energy infrastructure. The facility will utilize the most modern and efficient generation technology. Super clean natural gas and fast ramping turbines allow this facility to reliably support the fluctuating energy production of renewable resources while utilization of Automatic Generator Control (AGC) technology will allow this facility to ramp up or down to accommodate renewable energy availability. The sun does not always shine nor does the wind always blow but renewable resources are a critical element in America's future. These intermittent resources must be supported by modern and efficient conventional resources that provide reliable backstop electricity to California's energy grid.*

### 2. CPV Vaca Station presents no significant health risks

*The CEC utilizes impact criteria to determine the appropriate siting of power facilities rather than assessing impact on the basis of distance.*

*Section 5.9 Public Health - Presents the methodology and results of a screening human health risk assessment performed to assess potential impacts and public exposure associated with airborne emissions from the construction and operation of the CPV Vaca Station.*

#### Affected Environment

*The nearest residence to CPV Vaca Station is 800 feet south of the site. Other residences are located approximately 1,900 feet to the north and 1,600 feet to the east. Because health risks at the point of maximum impact from operation of CPV Vaca Station will be below public health significance criteria thresholds, no residential, workplace or sensitive receptors will be impacted. Sensitive receptors are locations where groups of individuals—including infants, children, the elderly, and the chronically ill—who may be more susceptible than the general population to health risks from air pollution may be found. Schools, day-care facilities, convalescent homes, and hospitals are of particular concern. A search was conducted for sensitive receptors within six miles of CPV Vaca Station.*

#### Operational Phase Impacts

*Emissions of criteria pollutants will not cause or contribute significantly to existing violations of the National Ambient Air Quality Standards or California Ambient Air Quality Standards...Finally, air dispersion modeling results show that emissions will not result in ambient concentrations of criteria pollutants that exceed or contribute significantly to existing exceedances of ambient air quality standards. These standards are intended to protect the general public with a wide margin of safety. Therefore, CPV Vaca Station will not have a significant impact on public health from emissions of criteria pollutants.*

#### Summary of Health Impacts

*Results from the screening health risk assessment based on emissions modeling indicate that there will be no significant incremental public health risks from construction or operation of the proposed project. Results from criteria pollutant modeling for routine operations indicate that potential ambient concentrations of NO<sub>2</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> would not exceed or will not contribute significantly to existing exceedances of ambient air quality standards, which protect public health with a margin of safety for the most sensitive subpopulations.*

### 3. CPV Vaca Station is needed to meet growing demand

#### 1.1.1 Project Objectives

*The CPVVS will provide needed electric generation capacity with improved efficiency and operational flexibility to help meet Northern California's long-term electricity needs. Pacific Gas and Electric Company (PG&E) has identified a near-term need for new power facilities that can*

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be on-line by or before 2015 and that can support easily-dispatchable and flexible system operation. PG&E has recently issued a Request for Offers to obtain these energy resources from qualified bidders.

### 4. Pacific Gas & Electric

*Pacific Gas & Electric is the primary local electric power and gas provider and is responsible for the safe and reliable transmission of electricity and natural gas throughout a large portion of California. Utility distribution poles range from 25 to 95 feet high depending on the amount of electricity they are designed to carry. Additionally, natural gas pipelines are constructed, owned, operated and maintained by PG&E and the route chosen for all electrical and gas distribution is within existing county rights-of-way. For additional information please contact Pacific Gas & Electric.*

### 5. CPV Vaca Station has a proven safety and emergency response system

#### Section 2.1.12 Fire Protection

*The fire protection system will be designed to protect personnel and limit property loss and plant downtime in the event of a fire. Fire water will be supplied via the EWTP's fire-water loop. The connection will be sized in accordance with National Fire Protection Association (NFPA) guidelines to provide 2 hours of protection for the onsite worst-case single fire.*

#### Section 5.16.2.4 Fire Protection

*There are four fire stations in the Vacaville City Fire Department. Fire Station #72, located at 2001 Ulatis Drive in Vacaville, is approximately 3 miles northwest of the project site and is the closest fire station to the project site. Approximate response time from Fire Station #72 to the project site would be 6 to 7 minutes.*

#### Off-Site Emergency Response to Power Plants in California (CEC Report)

*EMS and off-site fire response to natural gas-fired power plants is rarely needed. A literature search of this topic was able to find only one document that discussed emergency response to power plants and this was the Final Staff Assessment (FSA) prepared for the proposed East Altamont Energy Center by the author of this report (CEC 2002). The level of training and performance during emergencies at these facilities is obviously high and is considered highly important by plant owners. All representatives of fire departments that we spoke with recalled only a very few incidents at power plants, most of which were injuries or illnesses typical to any work environment. Detailed searches of government databases yielded very few incidents that were recorded in the last 30 years*

### 6. CPV Vaca Station lighting is designed to minimize exterior light and glare

#### Section 5.13.2.3.6 Lighting

*To reduce offsite lighting impacts, lighting at the facility would be restricted to areas required for safety and operation. Exterior lights would be hooded and would be directed on site to minimize significant light or glare. Low-pressure sodium lamps and fixtures of a non-glare type would be specified. In addition, switched lighting circuits would be provided for areas where lighting is not required for normal operations or safety to allow these areas to remain dark at most times and to minimize the amount of lighting potentially visible offsite.*

### 7. CPV Vaca Station will not affect TAFB or Nut Tree Airport

*CPV Vaca Station does not impact radar at all; the exhaust stacks are much lower than radar coverage. Additionally, CPV has met with officials at TAFB and presented the project to them. TAFB and CPV share a common belief in strong relationships and open communication amongst the economic leaders and the general public of Solano County.*

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### 8. CPV Vaca Station will be extensively landscaped

#### Section 5.13.1.4 Potential Project Visibility

*The project will not be visible from the community of Elmira or from Vacaville west of Leisure Town Road.*

#### 5.13.2.3.5 Landscaping

*The City of Vacaville has prepared a landscape plan for the Fry Road and Lewis Road edges of the project site. This landscape plan is part of a plan the City has developed for the perimeter of the larger City-owned parcel of which the project site is a part. Under this plan, a landscape buffer would be created that would extend 1,400 feet along the parcel's western edge along Vaca Station Road, would extend along the parcel's entire length along Fry Road between Vaca Station Road and Lewis Road, and would wrap around the Lewis Road side of the parcel and extend 900 feet to the northern boundary of the project site. The planting strip would begin at the edge of the road right-of-way and extend 70 feet into the parcel. The planting concept is to use two rows of trees spaced 30 feet on-center, with a 30-foot distance between the center lines of each row. The trees in the row closest to the street are expected to be Toyon or similar trees, which would be planted as 36-inch box specimens that will be approximately 6 feet tall at planting, 14 feet tall at 5 years, and 25 feet tall at maturity. The trees in the row behind are expected to be coast redwoods or similar trees, which would be planted as 36-inch box specimens that will be approximately 12 feet tall at planting, 27 feet tall at 5 years, and 125 feet or taller at maturity.*

*Accordingly, the Lease Agreement between the City of Vacaville and CPV Vaca Station states that upon the commencement date of the facility, CPV Vaca Station will reimburse the city for designing, acquiring and installing the landscape buffer around the facility.*

*Please see the attached Project Visualizations document for more information.*

### 9. CPV believes strongly in partnering with our host communities

*CPV has invested substantial amounts of time, effort and money in Vacaville and has every intention to continue to do just that. Just as we are doing all across the country, CPV believes strongly in partnering with our host communities for the life of our projects. Through the extensive permitting and contracting processes we will, in conjunction with the community, define a relationship that will exist for many years to come. Our community involvement and positive relationships are a core value demonstrated at all of our CPV development sites not to mention the eight power facilities across the country that CPV currently manages and enjoys strong relationships with the communities in which they operate.*

### 10. CPV Vaca Station will benefit our economy

*Private investment and a strong economy go hand-in-hand. CPV Vaca Station is a major private investment in Vacaville's future and economy. By providing over \$6 million annually in new revenues to the town and county, CPV Vaca Station will help support Solano County's economy. Home value is based on a variety of factors which include, location, municipal revenues, tax base as well as many others. Vaca Station is doing its part in our partnership with the City of Vacaville and Solano County in providing substantial new revenues to help boost the local economy so public schools and many other public services can benefit. As well we will continue to work to minimize impacts on the community.*

### 11. CPV Vaca Station will preserve precious natural resources

*CPV Vaca Station is a highly efficient state-of-the-art natural gas electric power generator equipped with Heat Recovery Steam Generators (HRSG's) to minimize fuel usage while maximizing energy output. Today's Combined Cycle Natural Gas Power facilities, like Vaca*

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Station are thirty percent more efficient than most conventional power facilities. Vaca Station will utilize the cleanest and most abundant fossil fuel, natural gas. In a 2008 Natural Resources Defense Council (NRDC) white-paper, the NRDC endorsed natural gas as the fossil fuel of choice for bridging the gap in America's transition to renewable resources. Utilization of the HRSG process allows the Vaca Station to capture turbine exhaust and redirect that heat to a steam turbine, thus maximizing efficiency. Additionally, use of reclaimed waste water from the adjacent Easterly Waste Water Treatment facility allows Vaca Station to fully function without any use of groundwater. Furthermore, the development of modern natural gas power plants will allow older inefficient facilities which have greater emissions profiles and do not use the Heat Recovery Steam Generator process to be retired. Finally, CPV Vaca Station complies with CEC policy - that modern natural gas facilities are needed to carry California into the 21<sup>st</sup> century.

### 12. CPV Vaca Station will have no effect on groundwater

Section 5.15 Water Resources - Provides a discussion of the existing water resources near the CPV Vaca Station site and assesses the potential effects of project construction and operations on water resources.

#### Groundwater

The CPVVS would make no direct use of groundwater resources and would have no effect on groundwater quantity or quality.

#### Process Water

The CPVVS will construct a new diameter pipeline in the utility corridor connecting the CPV Vaca Station and the EWTP. This line will provide secondary-treated recycled water. Potable water and sanitary sewer connections also will be provided through connections in this utility corridor to the treatment plant. Consistent with California Energy Commission goals and policies, only reclaimed water will be used for power plant cooling. There are no other current users of the EWTP's secondary treated water supply, which averages 6.5 mgd. Due to the high level of reliability of water from the EWTP, no backup water supply is required or planned for this project at this time. The plant will return wastewater from the on-site tertiary treatment system to the EWTP headwork's. No other process wastewaters will be discharged from the site. These wastewaters will either be recycled for plant use or will be processed through the ZLD system. The use of reclaimed water for process water and cooling is consistent with state standards and policies, including the SWRCB Resolution 75-58, which encourages use of reclaimed water for combined-cycle power plant cooling and California Water Code Sections 13550-13556, which discourage the use of potable water for non-potable purposes.

#### Water Supply for Irrigation

The proposed CPVVS will be using the existing EWTP discharge stream for cooling and plant processes, which will decrease the amount of water discharging into Old Alamo Creek. Although water supplies directly downstream of the EWTP may locally decrease during peak power plant use, there are no downstream users that depend on water from Old Alamo Creek for irrigation purposes. Old Alamo Creek is used primarily as a drain for the EWTP, which ultimately drains into the Sacramento-San Joaquin Delta. Farmers in the area receive irrigation water from various irrigation districts, including Solano Irrigation District, which distribute water received from Lake Berryessa. The CPVVS will not compete with irrigation uses for recycled water from the EWTP and for these reasons; the CPVVS will not cause significant impacts to water supplies for irrigation.

#### Flooding Potential

The CPVVS footprint including the utility lines lies entirely outside the 500-year floodplain (Zone X) as defined by the Federal Emergency Management Agency (FEMA, 1996)

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### Domestic and Sanitary Water Use

*Potable water will be used for drinking, eye washes, and safety showers. Fire protection water and service water will be provided from the City of Vacaville's potable water system.*

### Wastewater Collection, Treatment, Discharge, and Disposal

*General plant drains will collect containment area wash down and drainage from facility equipment and sample drains. Water from these areas will be collected in a system of floor drains, hub drains, sumps, and piping and routed to the wastewater collection system. Drains that potentially could contain oil or grease will first be routed through an oil/water separator. Water from the plant wastewater collection system will be recovered for use as part of the cooling tower makeup. Wastewater from combustion turbine water washes, crystallizer purges, and some chemical cleaning wastewaters will be collected in holding tanks or sumps and will be trucked offsite for disposal at an approved wastewater disposal facility. The secondary wastewater collection system will collect sanitary wastewater from sinks, toilets, showers, and other sanitary facilities, and discharge it via the facility's sanitary sewer collector system.*

## 13. CPV Vaca Station does not cross seismic faults

### Section 5.4.1.3 Seismic Setting

*No faults have been mapped crossing the CPV Vaca Station site. The Vaca Kirby Fault is considered to be inactive according to the California Geologic Survey.*

## 14. CPV Vaca Station will abide by all air quality standards

*Section 5.1 Air Quality – Describes existing air quality conditions, maximum potential impacts from the project, and mitigation measures that will keep these impacts below thresholds of significance.*

*The project will use the latest, most efficient generation technology to generate electricity in a manner that will minimize the amount of fuel needed, emissions of criteria pollutants, and potential effects on ambient air quality. The project will also include the following beneficial environmental aspects that will minimize adverse air quality:*

- *Clean-burning natural gas as fuel*
- *Dry low-NOx combustors and selective catalytic reduction (SCR) to minimize NOx emissions*
- *Oxidation catalysts to reduce emissions of carbon monoxide, volatile organic compounds and hazardous air pollutants*
- *Appropriately sized stacks to reduce ground-level concentrations of exhaust constituents*

### Ambient Air Quality Impacts

*Using the conservative assumptions described earlier, the results indicate that the project will not cause or contribute to violations of any state or federal air quality standards, with the exception of the state PM10. State PM10 standards are already exceeded in the region. The project will mitigate its PM10 impacts by providing emission offsets to fully cover its PM10 emissions.*

### Screening Health Risk Assessment

*The screening HRA results indicate that the acute and chronic hazard indices are well below 1.0, so are not significant. Under the District's risk management program, the project will be required to utilize TBACT (in this case, use of natural gas as a fuel, the use of an oxidation catalyst on the turbines, and good combustion practices constitutes TBACT). The screening HRA results indicate that, overall, the CPVVS project will not pose an unacceptable health risk at any location.*

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### 15. **There is no connection between asthma rates and CPV Vaca Station**

*While it is unfortunate that the county, without our project, has a high asthma rate, there is no established connection between asthma and electric generating facilities such as Vaca Station. Moreover the established ambient air quality standards are protective of public health and do consider the existing air quality in the region in addition to the emissions of our project.*

### 16. **Easterly Waste Water Treatment Facility**

*There are no bio-solids associated with CPV Vaca Station. Additionally all treatment of wastewater for the Vaca Station site will be completed on-site at the tertiary facility and will be disposed of in accordance with California state law. For additional information regarding the Easterly Waste Water Treatment Facility please contact the City of Vacaville.*

### 17. **CPV Vaca Station will comply with all noise regulations**

*Section 5.7 Noise – Presents an assessment of potential noise effects related to the CPV Vaca Station*

#### *Ambient Noise Survey*

*CPV Vaca Station conducted continuous ambient noise monitoring to determine the level of noise in the project area. The Day-Night Noise Level (DNL) at this location was calculated to be 68 dBA. The quietest 4-hour nighttime average was 40 dBA. The primary noise source at the monitoring location was traffic on Fry Road.*

#### *Transmission Line and Switchyard Noise Levels*

*One of the electrical effects of high-voltage transmission lines is corona. Corona is the ionization of the air that occurs at the surface of the energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. Corona is generally a principle concern with transmission lines of 345 kilovolt (kv) and higher. Because CPV Vaca Station will be connected at 230-kV voltage level, it is expected that no corona-related design issues will be encountered, and any related impacts will be less than significant.*

#### *Tonal Noise*

*At the nearby residential locations, no significant tones are anticipated. CPV Vaca Station will anticipate the potential for audible tones in the final design and specification of the plant's equipments and take necessary steps to prevent sources from emitting tones that might disturbing at the nearest receptors.*

#### *Plant Operational Noise Levels*

*Design elements to control noise emissions will likely include stack silencers, acoustical equipment enclosures/buildings, noise-abated cooling tower, and localized and property line noise barriers. Noise control measures will be incorporated in the design to maintain project noise levels of less than 44 dBA at the closest residential receptor. Doing so will ensure the project complies with the 45 dBA nighttime limit for residential land use. A project level of 44 dBA will also lead to an ambient-plus-project noise level of 45 dBA, which is within 5 dBA of the existing average nighttime of 40 dBA.*

### 18. **CPV Vaca Station will not impact soils**

*Section 5.11 Soils – Describes the potential effects of the construction and operation of CPV Vaca Station on soil resources*

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### **Affected Environment**

*The project site and lay down areas are located on land that was formerly agricultural but that has not been cultivated for more than a decade and has been redesignated for community facilities.*

### **Effects of Emissions on Soil-Vegetation Systems**

*The addition of small amounts of nitrogen to the area would result in less-than-significant impacts on soil-vegetation systems.*

### **Cumulative Effects**

*The project's effects on soil erosion, sedimentation, and compaction would not be significant with the implementation of mitigation measures. Therefore, the potential for cumulative impacts of the proposed CPV Vaca Station combined with other projects would be low.*

## **19. CPV Vaca Station complies with all existing land use ordinances**

*Section 5.6 Land Use - Provides an inventory of existing and designated land uses, including agricultural uses, in the vicinity of the CPV Vaca Station*

### **General Plan Land Use Designations within the Study Area**

*The project site is located in the City of Vacaville. The project site and construction laydown area are designated by the City as Public/Institutional (City of Vacaville, 2005). The substation site, electric transmission line route, and gas pipeline route are designated by Solano County as Agriculture (Solano County, 2006). Most of the land within the 1-mile buffer around the project site is designated for agricultural uses.*

### **Zoning Designations within the Study Area**

*The project site and construction laydown area is zoned CF (Community Facilities) by the City. This zoning allows for medical facilities, other public facilities, large institutions, and utilities determined by the Planning Commission to be of the same general character as other uses in the area. On March 4, 2008, an amendment to the City Land Use and Development Code to Add Gas-Fired Thermal Power Plants as a Permitted Use in the CF Zone District was unanimously approved. The County zoning of the substation site, electrical transmission line alignment, and gas pipeline alignment is A40 (Agricultural [40 Acres]). These proposed uses are allowed in this zone.*

***For additional information please visit our website:***

***[www.cpvvacastation.com](http://www.cpvvacastation.com)***