

BRIGHTLINE DEFENSE PROJECT

SOLAR POWER AS “PEAKER” POWER:

**The Impact of the California Energy Commission’s
Chula Vista Power Plant Decision on
San Francisco and the State**

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I. Introduction

On June 17, 2009, the California Energy Commission (CEC) issued a landmark decision that denied an application for a natural gas-fired gas turbine power plant in large part based on the recognized efficacy of rooftop solar photovoltaic (PV) power. This ruling impacts San Francisco’s future proposals for peak power generation and strongly implies that gas-fired “peakers” will be measured against urban PV generation in terms of costs and power needs. After beginning with a brief background of the Chula Vista Energy Upgrade Project, this policy paper will discuss the CEC’s authority and the impact of its decision upon San Francisco and California.

A. Background

On August 10, 2007, MMC Energy, Inc. (Applicant) submitted an Application for Certification with the CEC to construct and operate the Chula Vista Energy Upgrade Project (CVEUP). The Applicant wanted to replace and upgrade equipment at the Chula Vista Power Plant, located on a 3.8-acre parcel in the City of Chula Vista. This site is currently occupied by Applicant’s Chula Vista Power Plant, a 44.5 megawatt (MW) simple-cycle, natural gas-fired peaking power plant using Pratt & Whitney FT4 Twinpac technology.

In effect, the proposal would have permitted the construction of a new power plant to replace an eight-year-old existing plant. The proposed CVEUP was a nominal 100 MW peaking facility designed to address a 25 MW “reliability gap” in Chula Vista identified by the California Independent System Operator (ISO). Primary equipment for the generating facility would have included two 50 MW General Electric (GE) Energy LM6000 natural gas-fired turbine-generators and associated infrastructure.

The ISO has similarly identified a 25 MW reliability gap in the City and County of San Francisco, meaning that the ISO projects a need for 25 MW of in-city electrical generation to keep the lights on if two power lines into the city were to fail on the hottest day in ten years. Currently, the 362 MW aging Potrero Power Plant is kept running to meet that demand, continuously polluting San Francisco’s environmental justice communities of Potrero Hill and Bayview-Hunters Point. The ISO will consider the ongoing need for all or some of the Potrero Plant at its September 11, 2009 Board of Governors meeting.

B. The CEC Decision

On June 17, 2009, the CEC denied certification of the proposed Chula Vista Energy Upgrade Project based on several grounds. In particular, the CEC highlighted the lack of analysis of alternatives such as urban PV generation in the Application for Certification. Moreover, the CEC stated that Applicant’s alternatives analysis failed to meet California Environmental Quality Act (CEQA) requirements and the requirements of the CEC’s CEQA-equivalent process.

II. Sources of Authority for the California Energy Commission

Both statutory and common law define the CEC's authority and mandate careful analysis and weighing of alternatives in new energy projects. It is within the following framework that the CEC's Chula Vista decision stands for the proposition that urban solar PV generation must be analyzed as a feasible alternative to any proposed construction of new gas-fired power generation.

A. The CEQA grants authority to the CEC to deny licenses to proposed energy projects that do not discuss feasible alternatives.

State law subjects energy projects such as the CVEUP to CEC licensing jurisdiction. (Pub. Res. Code, § 25500 et seq.) During licensing proceedings, the CEC acts as lead state agency under CEQA. (Pub. Res. Code, §§ 25519(c), 21000 et seq.) The CEC's regulatory process, including the evidentiary record and associated analyses, is functionally equivalent to the preparation of an Environmental Impact Report (EIR). (Pub. Res. Code, § 21080.5.) A license issued by the CEC stands in lieu of other state and local permits. The CEC's licensing decisions thus have far-reaching implications for state and local laws on power plant siting.

This authority is relevant when discussing feasible alternatives to proposed projects. For proposed projects such as the CVEUP that have been exempted from the Notice of Intention requirements by Public Resources Code section 25540.6(a), the CEC is required to examine “. . . the feasibility of available site and facility alternatives . . . which substantially lessen the significant adverse impacts of the proposal on the environment.” (20 Cal. Code Regs., § 1765; 14 Cal. Code Regs., § 15252.) This inquiry is consistent with the traditional EIR process and CEQA Guidelines.

B. The CEC considers feasible alternatives to include alternative fuel sources.

As the CEC stated in assessing the CVEUP, “a rule of reason” guides the range of alternatives considered. In other words, the CEC considers only alternatives that “would avoid or substantially lessen any of the project's significant effects while still continuing to attain most of the basic objectives of the project.” (14 Cal. Code Regs., §15126.6(e).) In the CVEUP project, the Applicant attempted to require the use of natural gas as a project objective and thus eliminate consideration of alternative fuel sources. However, the CEC took Applicant to task for setting “a too-narrow project objective artificially limiting the range of potential alternatives.” (CEC Decision, Docket #07-AFC-4, p. 29.) As a result, prudent future applicants before the CEC should not narrowly define their parameters to exclude alternative fuel sources.

Under both the traditional EIR process and its “functionally equivalent” process through the CEC, the key issue is whether the selection and discussion of alternatives fosters informed decision making and informed public participation. (*Laurel Heights Improvement Association of San Francisco v. The Regents of the University of California* (1988) 47 Cal.3d 376.) Taking this into account, the CEC uses feasibility as the threshold for analyzing alternative fuel sources, evaluating environmental, economic, legal, social, technological, and other considerations. (Pub. Res. Code § 21061.1; 14 Cal. Code Regs., § 15364.)

In the Chula Vista application, the CEC applied these case law and statutory principles and determined that urban PV generation will satisfy most of the basic project objectives while reducing or avoiding any significant impacts. This finding has broad energy policy implications.

III. The Chula Vista Decision's Effect on San Francisco and California

A. Urban PV Generation as a Litmus Test

While it has been argued that central station solar resources may require too much land to be effective, the CEC criticized the Applicant and CEC staff for effectively eliminating urban PV generation from the application's alternatives analysis. In considering economic, technological, social, environmental, and legal factors, the CEC found persuasive several key points in considering the feasibility of urban PV generation.

1. Rooftop solar PV generation is cost-effective and efficient.

The CEC found that installing PV on rooftops and over parking lots would match or exceed the project's output. (CEC Decision, p. 29.) In its analysis of urban PV generation, the CEC cited the testimony of Bill Powers, P.E., an engineer with over 25 years of experience in the energy field. Mr. Powers concluded that there was little or no difference between the cost of energy provided by a project such as the CVEUP compared with the cost of energy provided by PV. (CEC Decision, p. 30.) The CEC accepted this uncontroverted testimony and adopted Mr. Powers' conclusion. (CEC Decision, p. 30.) Therefore, urban PV generation is economically a feasible alternative.

Mr. Powers has subsequently written that there is little difference between the cost of energy of a 150 MW thin-film PV array to assure 75 MW of net reliable summer afternoon peaking power at 100 degrees Fahrenheit and 100 MW of state-of-the-art gas turbine capacity at the same conditions. (Bill Powers, "CEC Cancels Gas-Fed Peaker," Natural Gas & Electricity Journal, August 2009, p. 9.)

Another important component of the CEC's decision is the acknowledgment of the fact that solar power is inherently "peak power." Specifically, "PV does provide power at a time when demand is likely to be high – on hot, sunny days." (CEC Decision, p. 30.) Upon cross-examination by Applicant, Mr. Powers testified that while solar peak does not identically match demand peak, "storage technologies exist which could be used to manage this." (CEC Decision, p. 30.)

Existing and emerging storage capabilities will increasingly address potential distribution and technology concerns. As Mr. Powers has elaborated, "energy management and battery storage further allow a PV system to supply peak output through the late afternoon summertime demand peak." (Powers, p. 10.) Additionally, urban PV would avoid the high cost of new transmission lines and high line losses in the range of 15 percent during peak demands. (Powers, p. 11.)

Finally, rooftop PV would not consume any acreage, overcoming the long-standing assumption that solar power is necessarily land-intensive. Photovoltaic arrays mounted on existing flat warehouse roofs or on top of vehicle shelters in parking lots would not interfere with

the other functions of warehouses and parking lots. (CEC Decision, p. 29-30.) This would sidestep any social problems in installing and operating this technology, further suggesting the “feasibility” of PV generation as defined in the CEC’s statutory guidelines.

2. Urban PV generation is clean and helps meet renewable energy targets.

Of course, urban PV generation also has positive environmental effects. In studying alternatives to CVEUP, the CEC recognized that solar generation has “little or no air pollutant emissions and visible plumes.” (CEC Decision, p. 29.) In contrast to natural gas “peakers” which emit nitrogen and sulfur oxides, greenhouse gases, and particulate matter when utilized, solar power eliminates these contaminants to a degree that will only increase as storage and distribution technologies continue to develop. Additional benefits include renewable energy credits generated by PV and the reduction of our state’s dependence on a secure supply of natural gas.

Urban PV generation also helps California achieve its goals in the California Solar Initiative and Renewables Portfolio Standard (RPS) program. The RPS program requires investor-owned utilities to procure 20 percent of their electricity sales from renewable sources by 2010, and the state is further considering legislation to add a goal of 33 percent by 2020. The California Solar Initiative has a goal to install 3,000 MW of new customer solar projects by 2016, further eliminating the need for new natural gas peaker installations and holding the promise of phasing out existing gas power plants.

B. Impact on San Francisco’s Reliability Gap

In San Francisco, urban PV generation may be the missing link that renders the Potrero Power Plant obsolete. Since at least 2004, the Independent System Operator had identified the need for 200 MW of new natural gas-fired generation to replace the Potrero Plant, and the ISO’s hesitation to revisit the assumptions underlying the city’s perceived reliability gap nearly forced San Francisco to spend \$273 million installing four of the same type of gas turbines that were denied in the Chula Vista decision. The leadership of a coalition of city officials, environmentalists, and community activists prompted ISO to re-analyze San Francisco’s electricity grid in the summer of 2008, and ISO found that only 150 MW was required, a number that dropped to 25 MW in early 2009.

It is clear that if the ISO’s calculation does not drop to zero by the ISO Board of Governors’ September 2009 meeting, the Chula Vista decision logically, if not statutorily, requires the consideration of rooftop solar power to replace the Potrero Power Plant. San Francisco policymakers have unanimously declared that closure of the Potrero Plant is the city’s foremost environmental justice objective, and the plant’s owner, Mirant, has signed an agreement that it will close the facility upon ISO’s approval.

The nuance in the case of San Francisco is that the CEC’s rulings are technically not binding on the ISO. The CEC, however, is the state’s exclusive power plant siting agency according to section 25500 Public Resources Code, suggesting that the Chula Vista decision should be persuasive, if not binding, upon the ISO. The ISO perceives a 25 MW reliability gap in San Francisco as in Chula Vista, and the CEC has declared rooftop PV to be the state’s preferred alternative to new natural gas-fired generation.

IV. Conclusion

In the Chula Vista decision, the CEC found Applicant and the CEC staff's analysis of a PV alternative insufficient to comply with the requirements of CEQA, the Warren-Alquist Act, and those statutes' respective regulations. Consequently, future applications for similar projects will require a more in-depth analysis of the urban PV alternative.

As photovoltaic solar arrays on rooftops and over parking lots are considered viable alternatives to gas-fired power plants, San Francisco has the opportunity to take a leadership role in advancing solar power as "peaker" power. San Francisco can demonstrate that its robust GoSolarSF rebate program, municipal solar installations, and plans under community choice aggregation will lead to well over 50 MW of urban PV generation and combine with upgrades to the local electrical grid to eliminate the need for the deleterious Potrero Power Plant by bridging the ISO's declared 25 MW reliability gap.

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Brightline Defense Project is a non-profit civil rights advocacy organization dedicated to protecting and empowering communities. Brightline's efforts have led to the prevention of a new power plant in Southeast San Francisco and increased employment opportunities for economically disadvantaged residents, particularly in the green jobs sector.

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