

DOCKETED

Docket Number:	12-AFC-02
Project Title:	Huntington Beach Energy Project
TN #:	202961
Document Title:	Opening Brief of Monica Rudman
Description:	Monica Rudman's opening brief on Huntington Beach Energy Project
Filer:	Monica Rudman
Organization:	Monica Rudman
Submitter Role:	Intervenor
Submission Date:	8/20/2014 2:13:19 PM
Docketed Date:	8/20/2014

**In a Proceeding Before the
STATE OF CALIFORNIA
State Energy Resources
Conservation and Development Commission**

In the Matter of:

Huntington Beach Energy Project

DOCKET NO. 12-AFC-02

**MONICA RUDMAN'S OPENING BRIEF ON THE HUNTINGTON BEACH
ENERGY PROJECT**

In accordance with the Siting Committee's direction, I respectfully submit the following opening brief.

Introduction

Thank you for providing an opportunity to participate in the siting process for the proposed Huntington Beach Energy Project (HBEP). While I'm employed at the California Energy Commission as an energy specialist, I also grew up in Huntington Beach and my mother still lives there. The views expressed here are my own and do not represent the views of the Energy Commission.

I started following this siting process because I wanted to learn about the impacts of HBEP and because I didn't want the concerns of Huntington Beach residents to be overlooked. As a condition of me being able to participate in this proceeding, I am not allowed to use the Energy Commission's resources. I have worked on reviewing this project on my own time and have not been able to consult Energy Commission staff regarding any questions I've had. My area of expertise is in Energy Efficiency so I've had to learn a lot through out the process. Given how difficult the review of a siting case has proved to be, with such a broad scope of concerns and issues, this has been a challenge. I am very impressed with the technical abilities and knowledge of the Energy Commission staff. Any errors in my analysis are my own.

I am also inspired by the stories that I have heard regarding the creation of the Energy Commission. It was created during a time when there were plans to build nuclear power plants up and down the coast. Energy Commission staff, many of whom I have met, was able to show that energy efficiency was a superior alternative. Plenty of naysayers said that this would lead to massive blackouts and economic disaster. Now in hindsight, given all the headaches that San Onofre Nuclear power plant has recently caused, imagine if California's coastline was dotted with nuclear power plants rather than the once through cooled power plants.

California is now at another decision point. No one wants blackouts. Its hard to site power plants –there always seems to be local resistance. So it's tempting to site every power project as insurance. But the energy crisis in 2000 was caused by market manipulation and not by a lack of power plant facilities. The more recent massive blackout in San Diego was caused by human error. If San Onofre were running today people would be talking about the problems that it would be causing due to overgeneration. So lets take a deep breath and develop solutions to the real problems. Yes, the electricity system was designed around having generators located near the coast to push power through the lines. But the California Independent System Operator has been working to solve voltage support problems.

As a Huntington Beach local, I grew up a mile downwind from Huntington Beach Generating Station. I went to Edison High School and saw the plants stacks everyday and more plumes than I can count. So maybe you can disparage me and call me a NIMBY. But there are some locations that are simply not suitable. Now that I have spent some time reviewing the facts, I'm very concerned about the effects that building and operating a new gas fired power plant in Huntington Beach will have on health, safety, the environment, and the electricity system.

I know that it is vital to ensure that the lights stay on, but energy needs can be reliably and affordably met by reducing energy demand through energy efficiency and demand response and by increasing the use of cleaner resources such as solar photovoltaics. California is now at a crossroads and rather than over building fossil-fueled power plants; it is time to develop facilities, programs and procedures that support policy goals and which have fewer adverse impacts. In addition, these preferred resources will create even more jobs than the fossil-fueled power plants and many have the added benefits of lowering energy bills. Reducing businesses and people's energy costs leaves more money to spend on other goods and services.

Air Quality Impacts

Both South Coast Air Quality Management District (SCAQMD) and California Energy Commission (Energy Commission) staff agree that all of HBEP's emissions of nonattainment criteria pollutants and their precursors (NOx, VOC, PM10, PM2.5, and SOx) are considered significant and must be mitigated (Exh.1139 p. 29).

Since PM10 is among the most harmful of all air pollutants, using this pollutant as an illustration of the air quality and health impacts of the HBEP is instructive. When inhaled, PM10 particles evade the respiratory system's natural defenses and lodge deep in the lungs. PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and

reduce the body's ability to fight infections. Children, pregnant women, the elderly and those with existing health problems are especially vulnerable to the non-cancer effects of air pollution. (Exh. 4000) Examples of non-cancer effects are asthma attacks, heart attacks and increases in daily mortality and hospitalization for heart and respiratory disease.

The project developers are proposing to use Rule 1304 (a) (2) to transfer capacity from existing power plants to HBEP to get an exemption from the requirement that they offset the emissions by purchasing emission reduction credits on the open market. Existing power plants that would shut down are the HBGS's boiler units 1 and 2 and Redondo Beach's boiler units 6 and 8. So Redondo Beach's gain would be Huntington Beach's loss.

According to SQAMD's Final Determination of Compliance (FDOC), PM10 emissions from operating 6 turbines at the new HBEP, as permitted, will be 99.3 tons a year (Exh.1139 p. 144). However, the rolling two year average summary of PM10 emissions from operating HBGS's boilers 1 and 2 was 8.75 tons (Exh.1139 p.144). Redondo Beach units were operated very infrequently so they would have emitted even less. The principle is that shutting down the old inefficient power plants and replacing them with new ones would result in air quality improvements. However, this doesn't hold when the old power plants are rarely operated. So even though it uses newer technologies, *operating* HBEP would result in a massive increase in emissions.

In addition, PM10 emissions generated as a result of construction activities occurring over a 7.5 year period will be even more marked and must be added to emissions from operations. PM10 emission from construction would create significant impacts during most of the 90 month construction period and exceed the 24-hour standard (Exh. 2000 p. 4.1-18).

The modeling of impacts underestimates the effects on local people because the weather data used does not accurately represent the weather found in Huntington Beach's coastal subclimate. Because of lack of alternative data, the air quality modeling used weather data from the station near John Wayne Airport (Exh.1139 p. 34). However, the weather there is not similar enough to weather conditions in Huntington Beach to be accurate. The weather in Huntington Beach has a stronger coastal influence and is characterized by frequent foggy days and nights due to inversions (Exh. 4030). The airport on the other hand is located inland and has more clear and windy days (Exh. 4029 pp. JA2-1, JA2-8, JA2-9, JA2-12). In Huntington Beach, when the air is still, the emissions will tend to remain in the area (Exh. 4027 and Exh. 4028). This means that the harmful emissions will be more concentrated in Huntington Beach and have a greater negative impact locally than as modeled so the impacts are even more significant to local children and the elderly than the analysis shows.

For relatively short-term construction activities that essentially cease before

operation of the power plant, Energy Commission staff proposes mitigation that consists of controlling construction equipment tailpipe emissions and fugitive dust emissions to the maximum extent feasible. For operating emissions, mitigation includes both the Best Available Control Technology and emission reduction credits and other valid emission reductions to mitigate emissions of nonattainment criteria pollutants and their precursors. The applicant and staff initially agreed to a comprehensive street sweeping compliance condition, (although they cannot sweep the beach across the street free of particulates, exposing children and other members of the public (Exh. 4004)). Staff and the applicant have now agreed to a condition involving minimal effort on AES' part and which suggests many strategies that will now require Huntington Beach residents to bear the burden of reducing particulates (see AQ-SC6).

Emission reductions generated by acquiring SCAQMD credits will result in offsetting reductions of emissions somewhere in the South Coast air basin. SCAQMD has stated that they will give funds to the city of Huntington Beach for projects to offset the emissions. Solar PV and street lighting projects are being considered. However, the former project will not reduce local emissions and while the street lighting project will reduce maintenance requirements and thus a small amount of tailpipe emissions, it will not come close to compensating for the increased emissions from HBEP. It is very likely that some credits will be used to fund projects located away from Huntington Beach. While I'm happy that some people will breath cleaner air due to the improvements funded with emission reduction credits, I believe that Huntington Beach's residents and other people impacted by the project may still inhale harmful particulate pollution generated from the project, particularly on days when the air is still. There are several schools located very near the proposed HBEP. Edison High and Eader Elementary schools are the closest. In fact, the location of HBEP units 1 and 2 on the site will move power-generating facilities much closer to Eader Elementary School (which is located at 9291 Banning Avenue) than the existing HBGS. Residential neighborhoods also are located quite close.

Further, as a very popular beach destination, people from all over Orange County and the LA basin visit Huntington Beach. It seems ironic that a family living in an area with bad air quality that might view spending a day at the beach as a low cost, healthy family outing might, in fact, be further exposing their kids to harmful pollution.

With the significant levels of emissions from the project, I'm very concerned about the health risks posed to Huntington Beach residents and to all people whom would breath the air affected by the proposed project.

Environmental justice is defined in California law (Government Code section 65040.12) as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies." It doesn't seem fair that people in Huntington Beach will continue to be disproportionately impacted by electricity generation

even though the benefits from power generated in Huntington Beach accrue to people living throughout the entire Southern California area. Huntington Beach's residents have already lived near a generating plant for more than 50 years; it is time for better alternatives.

Most of the emissions will not be locally mitigated, but even if they are, they will not be reduced in real time. So a child on the beach (or at home or at school) who has inhaled harmful pollutants would not have that effect reversed with a mitigation that occurs later in time. Committee should find that the air quality impacts of the project are significant.

Also, the California Coastal Commission' proposes to mitigate the HBEP's adverse impacts on coastal access by altering their construction parking plans. Instead of using 225 beach parking places for construction parking, the Coastal Commission suggests moving the parking to where the proposed Poseidon Desalination project was to be located and to the Ascon Landfill project cleanup site. While I agree that construction parking is not the best use of beach parking spaces, unfortunately, this move will place parking and other construction activities too close to Edison High School and Eader Elementary School. This proposed move might very well place schoolchildren into the range of where they are in danger of being exposed to the maximum level of the project's pollution impacts. The Coastal Commission's proposed change should only be considered after assessing the alterations that this would make to traffic routes, fugitive dust emissions and other air quality impacts, rerunning the air quality and health modeling and analysis, informing the public and reapplying for permits at SCAQMD. It is not right that school kids be exposed to increased pollutants from this change without careful review of the potential impacts, especially with a 7.5-year construction and demolition period.

Greenhouse Gases

HBEP will emit a staggering amount of greenhouse gases. According to SCAQMD's FDOC, if operated as permitted, the turbines will emit 7.8 billion tons of CO₂ per year (Exh.1139 p.28). HBEP will be setting back the progress that California has been making to reduce greenhouse gases from the electricity system and is contrary to the California Global Warming Solutions Act of 2006 (Assembly Bill 32, Nunez, Chapter 488, Statutes of 2006), California's greenhouse gas reduction law.

The thermal efficiency of gas-fired generation is typically described by measuring its heat rate. The heat rate of a power plant expresses how much fuel is necessary (measured in Btu (British Thermal Units)) to produce one unit of energy (measured in kWh (kilowatt hour)). The HBEP is designed to operate at various outputs and have the ability to quickly ramp up and down. This ability, however, means that, overall as operated, HBEP will have a high heat rate. The project, when operated with fully permitted normal hours and fully permitted start

up and shut downs, will have a overall net heat rate of 9,013.3 Btu/kWh and assuming 8% equipment degradation rate will have a heat rate of 9,734.4 Btu/kWh. (Exh. 4035 p.119).

The heat rate of California's natural gas fired generation is obtained by dividing the total fuel used by the total energy produced. A lower heat rate indicates a more efficient system. From 2001 to 2011 in California the average heat rate of all non-cogeneration forms of gas-fired generation has declined from 9,997 Btu/kWh to 7,855 Btu/kWh¹. HBEP will have a higher heat rate than the average heat rate of non-cogeneration gas fired power plants in the current electricity system.

The heat rate is directly correlated to fuel use and greenhouse gas output. California has established a greenhouse gas emission performance standard of 1,100 pounds of CO₂ per net Megawatt hour. SQAQMD FDOC says that with operations at the fully permitted normal hours and fully permitted start up and shut downs that CO₂ will be 1,053.7 lb CO₂ netMWH @HHV (with no equipment degradation) and assuming 8% equipment degradation the CO₂ emissions are 1,138 lb CO₂ netMWH @HHV. The FSA also says that the greenhouse gas emission performance standard is about to be revised downward to 1,000 pounds of CO₂ per net Megawatt hour and HBEP does not meet the new lower revised standard. In addition, other sources of greenhouse gases will be released from the project; sulfur hexafluoride leaks from circuit breakers will contribute an added 6.8 tons CO₂e per year. (Exh. 4035 p.119). These are significant impacts and are grounds for denying HBEP.

The FSA and SQAQMD FDOC assert that HBEP's fast ramping capabilities are needed to integrate renewable power generation in the electricity system. They go on to conclude that since renewables are a power source that emits almost no greenhouse gases, HBEP's greenhouse gas impacts are less than significant.

However, the record does not contain solid evidence to support this conclusion. The FSA presents a very qualitative analysis of HBEP's criticality for renewable integration (Exh. 2000 pp. 4.1 -104-105), one which is based on another analysis done for the Avenal power plant siting case, located in Fresno County.

However, the electricity system is not seamlessly connected in one large statewide pool. In fact, HBEP is located in a load pocket in SCE's service territory, so any renewables that it seeks to integrate should be located within the load pocket as well. So, the Avenal Decision regarding a power plant located in Fresno County can't be used to form a basis of need for ramping resources in other constrained locations.

¹ Nyberg, Michael. 2013. *Thermal efficiency of Gas Fired Generation in California: 2012 Update*. California Energy Commission. CEC-200-2013-002

Staff asserts that HBEP will reduce greenhouse gas emissions because in a competitive market it will displace less efficient power plants. (Exh. 2000 p. 4.1-104) With HBEP's very high heat rate of 9,013.3 Btu/kWh (without equipment degradation) and 9,734.4 Btu/kWh (with equipment degradation) there are not many less efficient power plants in the local reliability area that are available to be shut down if HBEP were to come on line. Nevertheless, we know exactly what power plants are being displaced by the HBEP. By the terms of the agreement with SCAQMD under Rule 1304, HBEP is displacing HBGS units 1, 2, and Redondo Beach units 6 and 8. We also know what level of greenhouse gases these plants have emitted. As stated earlier, they have emitted far less than would the new HBEP.

The actual past emissions of the units to be shut down is the proper metric against which to compare HBEP. If HBGS units 1, 2, and Redondo Beach units 6 and 8 were to operate as frequently as AES has proposed for HBEP (ie 6,835 hours per year) (SCAQMD FDOC p144) they might emit more GHGs. But since they don't operate that frequently, other resources within the electricity system have already displaced some of their capacity. So it would be double counting to use their *potential* to emit GHGs rather than their *actual* GHG emissions. So when comparing HBEP to what is being replaced, HBEP would actually increase system wide greenhouse gas emissions.

Also, the FSA does not account for the reality that electricity markets are not strictly competitive in structure. Many power purchase agreements are bi-lateral. These agreements remove certain power plants from competing in markets. So it's possible that gas fired power plants with lower heat rates would not replace a power plant with a relatively high heat rate. As a condition of certification, the Energy Commission must not allow the HBEP to have a reliability must run contract that supports paying a premium for this expensive source of electricity.

It's not clear what initial assumptions were used to inform the Avenal decision. Factors, such as the level of future forecasted energy demand, the assumed quantities of resources additions, the type and location of resource additions (renewable, conventional, etc.), and presumed transmission upgrades would all be very critical determinates of any conclusion. Also, the Energy Commission issued the Avenal decision in 2009 and since that time system conditions have changed. However, the FSA did not provide documentation of its assumptions and which, if any, were updated.

The FSA does not provide an estimate of what quantity of flexible resources staff believes is needed to integrate renewables in SCE's service territory. Surely the quantity needed isn't infinite. Flexible resources have been added since the Avenal decision and currently, in SCE's service territory alone, the Energy Commission is reviewing proposed fast ramping power plant projects totaling 5,742 MWs of capacity. Is that too little, just enough or too much? The applicant and staff's evidence is silent on this point.

In contrast, the Office of Ratepayer Advocates (ORA) recently used a Plexos model to evaluate the need for gas-fired resources using several scenarios with up to date assumptions (for example, they all exclude San Onofre Nuclear power plant). ORA found that many modeled scenarios indicate shortages of resources occurring for a very brief interval during one day of one summer month with surplus capacity the rest of the hours during the year. With high levels preferred resources there is surplus capacity even during the tightest hours of the year. (Exh. 4032 p.4). Based on ORA's modeling results, they recommend limiting any procurement authorization to preferred resources. Further, ORA did not include the levels of energy storage that are now required under the CPUC's LTPP decision which would reduce any need for flexible resources.

It is the California Public Utilities Commission (CPUC) who is the ultimate decision maker on what quantity and type of new resources are needed by the electricity system. The Decision by ALJ Gamson of the CPUC finds that in 2015 the LA Basin does not need additional flexible capacity (Exh. 4031 p.119); the CPUC has not yet ruled on whether new flexible capacity is needed beyond 2015.

Recently, the United States Environmental Protection Agency, released a proposed rule to regulate carbon emissions from existing power plants under Clean Air Act § 111(d). The goal of the proposed rule is that carbon dioxide emissions from the power sector should be 30 percent below 2005 levels by 2030. Each state would have its own rate-based carbon dioxide emission standard (lbs of CO₂/MWh), but may demonstrate compliance by meeting either the target rate or by converting the rate into a mass-based emission standard (e.g., tons of CO₂/state/year). Named the Clean Power Plan, states are required to draft plans to meet their emission targets but have significant flexibility in developing an approach.

The FSA states that the Energy Commission's decision on the Avenal Project (that fast ramping resources allows for renewable integration and thus reduces greenhouse gases) is precedent setting. However, the Energy Commission should first perform a rulemaking process to develop a new regulation if it wishes to clarify how power plants fit into AB 32. Since the Energy Commission and other state agencies will have to develop a plan to address greenhouse gas emission from power plants and since the agencies that are involved in energy issues are making great pains to coordinate policy and to speak with one voice, it is premature for the Energy Commission to act alone and say that the HBEP will have a less than significant impact on greenhouse gas emissions.

The greenhouse gas emissions from HBEP are significant. They are in violation of California current laws and standards. In sum, there is no basis for the assertion that HBEP has less than significant greenhouse gas impacts.

Adaptation Policy

Climate change is fundamentally altering the environment and context in which state actions occur. New development and communities must be planned and designed for long-term sustainability in the face of climate change. If a thorough assessment of the climate change impacts on HBEP does not happen during the Energy Commission's CEQA equivalent siting process, the assessment will not happen. It is California State policy that if climate risks are to be addressed effectively, climate risk considerations need to be integrated into the design and implementation of all state operations and programs (Exh. 4021 p.8). The Energy Commission has a responsibility to be diligent in its assessment regarding the impacts of climate change. Consequently, the Energy Commission should revise its siting project review procedures by adding a new, separate section on climate change and adaptation effects to the staff assessments.

According to the Natural Resources Agency's public review draft, as discussed in the Ocean and Coastal Ecosystems and Resources section, sea level rise threatens several existing coastal power plants, including Huntington Beach (Exh. 4021 p.100). This point is also made in other documents (Exh. 4022 p.48 and Exh. 4023 p.63). Flood damage could remove these facilities from service and require electricity from other, often more expensive, sources. Similarly, transmission and distribution infrastructure needed to serve HBEP is vulnerable both to increased temperatures and wildfire. Higher temperatures would result in a reduction in transformer and substation capability, an increase in transmission and distribution line losses, and a decrease in the capacity of a fully loaded transmission line. For example, higher nighttime temperatures impede cooling of transformers, which renders them less efficient the next day. In the worst cases they may even fail. Thus, with high temperatures, less electricity is available for customers than if climate change had not occurred. Researchers expect the likelihood of wildfires occurring near large transmission lines to increase dramatically in parts of California by the end of the century. A power line disabled by a fire can take days or weeks to repair and alternate power may need to be procured from other sources. (Exh. 4022 pp. 1-3)

The FSA says that even with a two-foot rise in sea level by 2050, the HBEP site would be sufficiently above sea level to ensure reliability. In the evidentiary hearing, staff added to that assessment by explaining that with sea level rise, HBEP would be surrounded by water becoming an island. Even though the impact of storm surges and battering from floating objects are not adequately assessed, and neither the applicant nor staff considered the impact of sea level rise on the infrastructure serving HBEP (transmission and distribution lines and gas pipelines could be affected (Exh. 4022 p. 8)) and even though the substation located in Huntington Beach is at risk of inundation from sea level rise (Exh. 4022 pp.52-53), the prediction that HBEP would become an island is adequate evidence of a significant impact.

Ultimately, it is unwise to site a critical facility that uses natural gas as a fuel source in a location vulnerable to sea level rise and tsunamis. As said in an Energy Commission Public Interest Energy Research Program report by Lawrence Berkeley National Laboratory increased electricity production costs due to sea level rise could be avoided by moving plants to higher elevations (Exh. 4022 pp. 3 and 55). In order to minimize the adverse effects of sea level rise and storms, it is important to carefully consider decisions regarding areas vulnerable to flooding, inundation and erosion. California's policy is to take the following action: "The state should not build or plan to build, lease, fund or permit any significant new structures or infrastructure that will require new protection from sea level rise, storm surges or coastal erosion during the expected life of the structure, unless there is compelling need consistent with the public trust doctrine or existing law" (Exh. 4021 p.173). Preferred resources such as energy efficiency and demand response will contribute to resilience against the impacts of climate change and should be used instead of the fossil fueled generating technologies.

It is California state policy to safeguard against climate risk. Government at all levels should work together to address climate change challenges. Strategy seven involves cross sector themes that include "promoting collaborative and iterative processes for crafting and refining climate risk management strategies" (Exh. 4021 p.3). In that spirit, since they have expertise regarding the site and the coast, the California Coastal Commission's comments regarding the site hazards should be considered as of equal merit as any party to the HBEP proceeding. They clearly are very concerned about the site's hazards from seismic events, sea level rise, flooding, and tsunamis.

However, the Coastal Commission recognizes other agencies may find the facility important from energy system perspective so when they say "we recognize that the state's electrical grid has developed a reliance on having some generating facilities located at or near coastal locations" they seem to be assuming that the HBEP is a critically needed facility. This assumption takes them outside their area of expertise. Statements such as "we recognize its role in grid support" should not be given equal merit, as would a finding by an energy agency. As I discuss later, the CPUC has found a need for a minimum of 1,000 MW and a maximum of 1,500 MW of gas-fired generation in the SCE territory and this does not have to be supplied by HBEP. Also, synchronous condenser projects that offer grid support can be located at substations and at San Onofre's site and need not necessarily be located in Huntington Beach.

The proper siting sequence is for the Energy Commission is to evaluate HBEP's compliance with LORS and then see if the need for the project justifies an override. It is quite apparent that the site is so fraught with geological hazards that it is very hard to justify this location as an appropriate site for a critical facility, especially one whose operations are so dependent on natural gas and which will contain a 24,000 gallon tank to store 19% aqueous ammonia.

When HBEP is found not in compliance with California Adaptation Policy and other LORs, the CPUC and the Energy Commission is the proper decision maker (not the Coastal Commission) on whether HBEP is critically needed by the system or if other natural gas fired power plants under consideration and preferred resources would satisfy electricity system resource requirements. In fact, the record shows that there is a sufficient potential quantity of other proposed gas fired power plant projects in the SCE territory and HBEP is not critically needed.

Geology and Public Safety

As pointed out by the California Coastal Commission and in the FSA, the HBEP sits close to the south branch of the Newport-Inglewood fault zone and is near other faults all of which present hazards. The site is prone to lateral movement and liquefaction of soils. The site is not really a good choice for building a critical facility as a power plant especially since it uses a flammable fuel source. Thankfully, to date, earthquakes have not damaged structures to the point that explosions or fires have followed.

Many earthquake faults traverse Huntington Beach and the city is located over oil fields. Relevant parties associated with offshore wells near Huntington Beach have permits to frack those wells (Exh. 4024). Given the geology in Huntington Beach, other local wells may be fracked to extract oil. Well fracking operations have been linked to increased seismic activity (Exh. 4025). During the evidentiary hearing, staff agreed that fracking leads to increased seismicity. This increases the risks that HBEP's structures will be adversely affected. In addition, fracking in one location in an oil field can put pressure on existing wells in other locations on the same fields. Since there are abandoned oil wells on the project site, these wells are weak spots and the potential of fracking to damage them to the point that they leak (even when the fracking occurs offsite) has not been assessed.

It is preferable to not site a critical facility in a location where it can present a risk to public safety.

However, if the project is approved, the Energy Commission should require Coastal Commission compliance recommendations. AES should conduct an in-depth, site-specific analysis of the potential for lateral spread and determine what measures will be needed to avoid or reduce this potential. AES will not be able to conduct a full investigation until it removes facilities from the site. As a special condition, AES should have its structural and geotechnical engineers devise a structural foundation capable of accommodating up to 38 inches of lateral soil spread and provide confirmation from licensed structural engineer at key points in the project. To ensure the project remains structurally stable in the face of potential liquefaction, thereby minimizing risks from hazards and ensuring that

appropriate engineering and building practices are used, I propose requiring that AES, prior to permit issuance, obtain confirmation from licensed structural engineers that all facility structures are designed to resist liquefaction-induced settlement and other hazards from earthquakes.

While building standards require that the structure be built so as to be safe, the verification and enforcement procedures should be specified as part of the licensing process. While the burden of enforcing building standards it is often left to local government officials, local governments are already resource constrained and may not be able to address this additional work. Plus the specialized nature of the project means that will be more appropriate for engineers with power plant construction and geology expertise to certify compliance with the building standards along with safety requirements.

Finally, the applicant should prove that they have adequate insurance coverage to cover harm to nearby properties, residents and beachgoers in the event of a catastrophe.

Visual Resources

The project site is in the state's Coastal Zone. Section 30251 of the California Coastal Act requires that the scenic and visual qualities of coastal areas be considered and protected as resources of public importance. Permitted development must be sited and designed to restore and enhance visual quality in visually degraded areas where feasible.

In 2001, when it considered whether to retool HBGS because of California's electricity emergency, the Energy Commission acknowledged that repowering units 3 and 4 meant that the facility would not be as efficient, clean or visually unobtrusive as a state of the art power plant². The Energy Commission decision thanks the people of Huntington Beach because "absent responding to the current emergency, the AES project does not present sufficient justification to perpetuate the vintage Huntington Beach power plant on a coastline of world-renowned scenic, recreational and environmental value." The Energy Commission has already made the finding that the coastline near the proposed project has a high significance and should be considered a scenic vista. The quality of the coast has not degraded since this decision was issued and the matter should not be litigated again.

When compared to HBGS, HBEP will still dominate the views on the coast and have a significant impact on a scenic vista with high viewer concern. While the proposed project will have a lower height than the existing HBGS and the applicant is proposing to screen it with a 100-foot faux-surfboard structure, it will

² Commission Decision: Huntington Beach Generation Station Retool Project. May 2001. (00-AFC-13) P800-01-016

still be located primarily among one and two story buildings and be visible from a great distance. However, it isn't correct to compare HBEP to HBGS since the applicant has said that the existing HBGS units 3 and 4 are scheduled to be demolished regardless of the outcome of HBEP. So project structures to be located where HBGS units 3 and 4 are currently located should be assessed relative to a baseline of the site without HBGS units 3 and 4.

The applicant and staff omitted a key observation point from consideration on the Newport coast. Please refer to Figure 1. to see a picture of the view from the Newport Beach Pier on a winter morning. (Exh. 4006). The HBEP faux surfboard façade will be about the same height as the square part of the existing HBGS. Even though the taller stacks of the existing HBGS will be replaced with lower stacks, it is clear that HBEP will still dominate the views north of the Newport Pier. Further, the addition of a colorful faux surfboard façade with its unique shape will actually increase the visual discordance of the project relative to its surroundings.

Figure 1. Picture of Huntington Beach Generating Station taken from Newport Pier



Source: Monica Rudman

Figure 1 was taken on Christmas morning when few people are on the beach. If

this picture were to be taken on a summer day, there would be large crowds of people whose views would be adversely affected by the power plant. Huntington City Beach, Huntington State Beach and Newport Beach are major destinations and, annually, these beaches host millions of local, state, U.S. and international visitors³. A survey estimated that these beaches have about 30 million annual visitors (Exh. 4007). Six times as many visitors go to Huntington and Newport beaches as go to Yosemite and more visitors go there than go to Disneyland⁴. Viewers' exposure and visual sensitivity are high and the HBEP impacts are significant.

Further, when assessing HBEP under Prevention of Significant Deterioration regulations, SCAQMD looked at how the project would affect visibility at Federal Class I locations (wilderness areas) and Class II locations (such as state parks). Initially, SCAQMD assessed the following class II locations: Crystal Cove State Park, Water Canyon State Park, Chino Hills State Park and San Mateo Canyon Wilderness Area. The impact of the HBEP combined with the impact of the existing emissions was just barely below the allowable threshold at Crystal Cove and Water Canyon state parks. On request, they assessed the effects of HBEP on visibility at Huntington Beach State Park, which is located across the street from the proposed project and which, as a state park, is also a Class II location. When analyzing the visibility impacts at this location, SCAQMD found that plume contrast and color contrast exceed Class I significance thresholds and that if the location would be treated the same as Class I locations, mitigation would be required. (Exh. 4035 p. 44). While the beaches at Huntington and Newport are not officially Class I destinations surely their importance to California as major destinations should require that their visual aspects be prevented from deteriorating.

Water Supply

For process water, the proposed HBEP will use about 115 acre feet per year of potable water provided by the city of Huntington Beach. In addition, during the construction phase, the applicant proposes to use potable water for dust suppression. Average potable water use during construction would be about 18,000 gallons per day and around 24,000 gallons per day during hydrostatic testing and commissioning. Commissioning is expected to take about 60 days. The expected water use for domestic purposes would be about 1 gallons per minute, or about 1.2 acre feet per year (Exh. 2001 p. 4.9-6).

The Metropolitan Water District provides Huntington Beach with surface water

³ <http://www.huntingtonbeachca.gov/visitors/>

⁴ Yosemite averages 4 million visitors per year. See <http://www.yosemitgold.com/yosemite/profile.html> . The two Disneyland theme parks, three Disneyland hotels and the downtown Disney shopping and entertainment district are averaging 24 million visitors per year. See: <http://www.ocbj.com/news/2014/may/07/disneyland-resort-q2-attendance/>

supplies sourced from the Colorado River and from northern California via the State Water Project⁵.

Any use of potable water for industrial uses when recycled water is available is clearly contrary to state water policy. The state's policies discourage the use of freshwater (surface water) and groundwater for industrial purposes. The Warren-Alquist Act promotes all feasible means of water conservation (Pub. Resources Code, Div. 15, § 25000 et seq.). SWRCB Resolution 77-1 promotes the use of reclaimed water for non-potable uses and to supplement existing surface and groundwater supplies. SWRCB Resolution 2009-0011 promotes the use of reclaimed water as a means to achieve sustainable local water supplies and to reduce greenhouse gases. Orange County is required under the Water Conservation Act of 2009 (Senate Bill x7-7, Steinberg, Chapter 7. Statutes 2009), to achieve a 20% or more reduction in per capita water use by 2020 and has chosen to build upon existing programs, while leveraging regional and local agency programs, partnerships, and resources.

The applicant and staff have not provided sufficient evidence that using non-potable water is infeasible. Both CEQA and the Coastal Act define the term feasible to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors." Cal. Pub. Res. Code Section 30108.

A potential source of non-potable water could be from wastewater treatment plants operated by the Orange County Sanitation District (OCSD). OCSD operates two plants. Reclamation Plant Number One is located on Ellis Street in Fountain Valley and Treatment Plant Number Two is located at 22212 Brookhurst Street in Huntington Beach. The FSA, found a potential route from Reclamation Plant Number One along Hamilton Avenue to HBEP to be infeasible (Exh. 2000 pp. 4.9-15). This is because available utility space is being reserved for the proposed Poseidon desalination project. However, Poseidon has withdrawn their application so the Committee should consider its needs irrelevant to this proceeding.

The OCSD's budget says that large quantities of treated effluent are discharged into the ocean from Treatment Plant Number Two and stated that identifying opportunities for recycling the treated effluent is an upcoming focus area (Exh. 4036 ES). This is strong evidence in favor of its feasibility for HBEP. While the FSA discusses data from the applicant regarding the costs of running the pipes from Treatment Plant Number Two along Pacific Coast Highway, and finds the costs to be high relative to the costs of purchasing potable water, they do not independently assess or confirm those cost estimates. Also, since Pacific Coast Highway is a major road, it is mostly likely to be more costly to place recycled water facilities along side of it when compared to other routes. More likely, the purple pipes could start from Treatment Plant Number Two on Brookhurst Street

⁵ Municipal Water District of Orange County website.

and probably could be placed under the Huntington State Beach and Huntington City Beach parking lots that are located in parallel to Pacific Coast Highway. Although during the evidentiary hearing staff acknowledged this route as the most practical one, the costs of this route are not presented. Also, it doesn't seem as if staff and the applicant explored opportunities for cost saving and cost sharing partnerships. Hotels further north on Pacific Coast Highway potentially could use treated wastewater for irrigation purposes and public agencies can provide financial and technical resources to assist in developing the required infrastructure⁶.

The applicant is claiming that using recycled water is infeasible because the pipes would traverse areas with geological hazards. However, routing the recycled water pipes from the Treatment Plant Number Two and placing them under the beach parking lots parallel to Pacific Coast Highway would actually minimize exposure to earthquake fault lines. The pipe would most likely traverse a fault only where Brookhurst Street meets the ocean.

Also, if HBEP would be permitted to use potable water, the Energy Commission might be accused of economic discrimination since the Energy Commission has required other power plants that use dry cooling to use recycled water for industrial purposes. Two plants, approved and under construction, the Oakley Generation Station and the Pio Pico Project are supposed to use water recycled from wastewater facilities. In addition, the Preliminary Staff Assessment for El Segundo Power Redevelopment (Dry Cooling Amendment) says that the plant would use recycled water for industrial operations and construction purposes.

Presumably the recycled water requirement imposes additional costs on those facilities. Meaningful comparisons of the capital and operating costs that the other plants face with those faced by HBEP should be used to support any determination of feasibility. If the Energy Commission unevenly applies the law regarding recycled water, then power plant projects, such as HBEP, that are not required to follow the law, will have lower costs and could potentially undercut other power plants when submitting bids into the energy market. The Committee should be careful to apply the same feasibility standards to all proposed projects so as not to grant an unfair competitive advantage to a few.

In the light of the severe drought facing California, the Committee should find that the use of reclaimed or recycled water for industrial and dust suppression uses would be feasible.

Reliability of Energy Supplies

⁶ As presented in the evidentiary hearing, the US Bureau of Reclamation Water Smart Program grants and Proposition 84 grants have assisted similar projects.

HBEP is not needed to ensure reliable energy supplies. The California Public Utilities Commission's 2012 Long Term Procurement Planning Proceeding (LTPP) determines the need for new resources. The LTPP was divided into four tracks. Track 1 and Track 4 decisions determined what Southern California Edison (SCE) will be authorized to procure by the year 2022. SCE must procure a minimum of 1,000 Megawatts (MWs) of gas-fired generation and no more than 1,500 MWs of gas-fired generation.

While HBEP is located in SCE's service territory, other proposed gas fired power plants projects in SCE's service territory under review at the Energy Commission include Alamitos Energy Center (1,936 MWs), El Segundo Power Redevelopment (435 MWs), and Redondo Beach Repower (496 MWs). In addition, power plants approved or under pre-construction in SCE service territory are City of Palmdale Hybrid Gas and Solar Plant (520 MWs of gas) and Watson Cogeneration and Steam reliability Project (85 MW). A combination of these resources could serve the identified need.

In the past, because of Huntington Beach's location, the power purchased from HBGS was designated as "reliability must run" or "reliability must take" and the price was subject to a negotiated contract with the CAISO (other power plants bid into the CAISOs markets and thus competed to provide service). Common sense tells us that when a private business' product is designated as essential that that business holds a great deal of market power and can usually extract very high prices for their product. This high price is then passed on to energy consumers. This situation should not be allowed with HBEP.

Also, the HBGS has been used in schemes to manipulate the energy market ⁷. During the 2001 energy crisis, this market manipulation was very costly to consumers. Additionally, in July 2013, FERC ruled that JPMorgan and other trading firms used improper trading tactics involving HBGS to generate \$52 million in excess profits in California between 2009 and 2011.

The City of Huntington Beach and its residents have had a history of being cooperative with the owners and operators of HBGS. In 2001, because of the energy crisis, and in order to help with the emergency situation, the City of Huntington Beach agreed to an expedited certification of a retooling of units 3 and 4. One condition of the 2001 emergency certification that was proposed and discussed was that if the applicant was found to be involved in market manipulation that the license would be revoked. This condition did not get adopted.

⁷ See FERC, Make Whole Payments and Related Bidding Strategies. Order Approving Stipulation and Consent Agreement. Issued July 30, 2013. Docket Nos. IN11-8-000 and IN13-5-000. Also see: <http://www.sacbee.com/2013/07/17/5574303/jp-morgan-reportedly-could-settle.html>

In order to protect Huntington Beach residents and all ratepayers and to help insure reliable energy supplies, I request that a condition for certification should clearly require that AES or whoever is the appropriate party comply with all market regulating laws and that the party's violation of those laws could result in the revocation of its license.

Project Description: Agreement to Construct and Demolishment Plans

AES explains that the existing HBGS units 3 and 4 are owned by Edison Mission Huntington Beach, LLC, and are operated under contract by AES Huntington Beach (Exh. 1001 p.1-1). The AFC says that units 3 and 4 are scheduled to be permanently retired from service by November 2012. In conflict, however, on March 2, 2010, AES filed a petition with the Energy Commission to extend the license for the HBGS Units 3 and 4, for an additional 10-year period (September 30, 2011 to December 31, 2020). The purpose was to convert the units to synchronous condensers and enter into a Reliability Must Run (RMR) contract with the California Independent System Operator (CAISO) to provide reactive power needed for voltage support with the closure of San Onofre Nuclear Generating Station.

Energy Commission staff reviewed the amendment and prepared an analysis approving the proposed extension. The CAISO also took the unusual action of approving this project in an expedited manner. In the process, however, a dispute emerged. After some maneuvering by lawyers and taking the matter before FERC for a decision, the synchronous condensers project was finally approved. A summary of this dispute is instructive because it foreshadows what might occur with HBEP unless agreements and permissions are acquired and provided to the Energy Commission as part of the project description.

AES said that a RMR contract required getting agreement from JPMorgan (Exh. 4009 pp.3-4). A review of the evidence demonstrates that JPMorgan was resistant to providing or waiving their consent or stipulating that their consent was not required (Exh. 4009 pp.4). JPMorgan said that feasible alternatives would be a load-shedding scheme or having AES transfer emission credits to Units 3 and 4 so that they can operate as generators (Exh. 4009 p. 10). Ultimately, FERC concluded that in this situation that JPMorgan's consent was not required. This allowed the synchronous condenser project to move forward and it is now installed and operating and AES is getting paid for its services. However, FERC's document (Exh. 4009 p. 11) states that JPMorgan claims that their consent is needed prior to AES being able to add new generation infrastructure. This could be reasonably foreseen as to create a problem for HBEP since new generation infrastructure is integral to the HBEP and I see no proof that AES has obtained that consent.

In their AFC for HBEP, AES describes their plans to build HBEP Block 2 on the same location as HBGS Units 3 and 4. AES' application for the HBEP is predicated on some unspecified entity demolishing the existing HBGS' units 3 and 4 to make way for the new HBEP Block 2. The AFC says that the "existing HBGS Units 3 and 4 are licensed by the Energy Commission and demolition is authorized under that license and will proceed irrespective of the HBEP (Exh. 1001 p.2-1)." The AFC (Exh. 1001 Figure 2.2-2) describes the demolition schedule. HBGS Unit 4 is supposed to be dismantled starting in July of 2015; the first task being to obtain permits, a process planned to take 21 days. Dismantling of HBGS Unit 3 is to commence in January 2016. However, it is unclear that these dates will be met and that the original demolition plans are still feasible since they are prior the end of the RMR contract with the CAISO.

Construction of Block 2 of HBEP is supposed to start the first quarter of 2018. When Block 2 is completed, starting 10/20 and ending 9/22, HBGS Units 1 and 2 are to be demolished. Accordingly, the environmental analyses (including air quality, public health and visual impacts) of the project's effects assume that all of the HBGS units will be demolished. Unfortunately, the AFC does not state what business entity will be responsible for the demolition. Demolition costs will not be zero and there is not a demonstrated financial benefit accruing to the responsible party from demolishing units. While AES may believe that they have a gentlemen's agreement with JPMorgan, given JPMorgan's past behavior, it would be better that they present evidence to the Siting Committee that there is a legally binding agreement.

The applicant has not proven that they have a realistic project description until they: a) clearly identify the entity(ies) that will take on the financial burden of demolishing Units 3, 4, 1 and 2; b) provide proof of agreements that the responsible entity(ies) will follow through with the demolitions and will keep to the original schedule; c) provide proof of consent from JPMorgan allowing the construction of HBEP; d) demonstrate that the CAISO will allow an early end date to the RMR contract for synchronous condensers; and e) obtain any other required permits. AES must provide proof of enforceable agreements prior to the Energy Commission's decision or the project is not defined. Obtaining these agreements should be feasible given that AES already presented a schedule where they planned to take 21 days to obtain permits (Exh. 1001 Figure 2.2-2).

Land Use

The proposed HBEP site was chosen because the existing HBGS has been there since the 1950's and supporting infrastructure is in place. While reusing this infrastructure currently connected to HBGS would be expedient, this is not compatible with the Huntington Beach General Plan.

Public Resources Code Section 30101 defines "coastal development or use as any development or use which requires a site on or adjacent to the sea to be

able to function at all.” The existing HBGS is defined as a coastal-dependent energy facility within the city of Huntington Beach. However, as pointed out by city staff, the proposed HBEP is not a coastal dependent energy facility. It will not use ocean water for cooling, as this technology is no longer allowed due to its impact on oceans and wildlife resources. Therefore it is not allowed under the Huntington Beach General Plan that allows for coastal dependent facilities on the site. The HBEP could be located away from the coast and still operate. It does not comply with local land use law.

Socioeconomics

HBEP would employ an average of 192 workers per month during the 7.5-year demolition and construction period (Exh. 1001 p.5.10-9). Construction workforce would peak during months 82 and 83 with 236 workers onsite. HBEP would require 33 full-time employees during project operation; one plant manager, one operations leader, one maintenance leader, one environmental engineer, one maintenance planner, twenty power plant operators, five controls specialty workers, two mechanics and one administrative worker (Exh. 1001, pg. 5.10-13). Once operational, the HBEP would permanently employ 33 workers. Currently, 33 workers are employed at the Huntington Beach Generation Station (Exh. 2000 p.4.8-12). Consequently, once the existing units are demolished and new ones built, the net employment impact compared to the current conditions would be zero. It cannot be said that the project produces a socioeconomic benefit, especially when alternative uses of the land could generate more jobs. Nearby hotels employ over 300 workers.

Also, according to Governor Brown’s Clean Energy Jobs Plan, investments in renewables, demand response and energy efficiency produces more jobs than gas-fueled power plants.

Alternatives Analysis

The alternatives analysis is flawed and incomplete. Energy Commission siting regulations require the examination of the feasibility of available site and facility alternatives to the Applicant’s proposal which substantially lessen the significant adverse impacts of the proposal on the environment (Cal. Code Regs., tit. 20, § 1765).

In addition, the California Environmental Quality Act (CEQA) Guidelines require an evaluation 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. (Cal. Code Regs., tit. 14 § 15126.6(a). In addition, the analysis must address the No-Project-Alternative (Cal. Code Regs., tit. 14, § 15126.6(e)).

The CEQA lead agency should:

- (1) Evaluate a No-Project Alternative.
- (2) Identify alternatives that were initially considered but then rejected from further evaluation.
- (3) Identify the environmentally superior alternative among the other alternatives⁸.

The No-Project Alternative analyzed in the FSA doesn't qualify as a No-Project alternative since it is defined as upgrading HBGS units to use recycled water. This upgrade would require construction of accommodating facilities and structures that would trigger an additional CEQA review process to assess the impacts. This is not a No-Project but rather an alternative project. It doesn't restore or enhance the coast. See attached exhibits for pictures of what this alternative looks like. (Exhs. 4002, 4003, 4004 and 4012) Also, it fails to meet the basic project objectives of providing flexible power to accommodate renewables. The Energy Commission should not accept this alternative as meeting the requirements.

The FSA did not present the public with information regarding an CEQA equivalent No-Project Alternative which informs the public about what would happen on the site if the HBEP does not get approved. Several questions remain unanswered in that case. Would HBGS units 1-4 be closed but remain on the site? Would they be demolished? Would the synchronous condenser project remain?

Also, the FSA did not assess an Environmental Superior Alternative that would consist alternatives that meet the objectives of the project. Feasible alternatives include energy efficiency, demand response, and energy storage. These alternatives are valuable to integrate renewable generation. For example *Teaching the Duck to Fly* by Jim Lazar lists ten strategies to integrate renewables that use existing technologies and which can be implemented in short time (Exh. 4011). In the near future, it is possible for distributed generation and an intelligent grid to provide cleaner, more affordable and more reliable energy that will keep the US competitive in a global economy (Exh. 4010).

Conclusion

We should be moving the electricity system forward to one where we have clean energy, higher quality power and a resilient system rather than continuing to rely too heavily on centralized fossil fueled generation and long distance transmission. HBEP will emit too many tons of greenhouse gases and other pollutants, disturb threatened and endangered species on the adjacent wetland, be unpleasantly visible to millions of people on California's most popular beach,

⁸ (Cal. Code Regs., tit. 14, §15126.6)

be too vulnerable to seismic events and flooding, use potable water during one of California's worst droughts and create too few jobs.

For the foregoing reasons, the Energy Commission should deny HBEP.

Respectfully submitted,

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Dated August 20, 2014