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In the Matter of: Docket No. 12-AFC-02

Application for Certification for the
HUNTINGTON BEACH ENERGY PROJECT

ENERGY COMMISSION STAFF’S RESPONSE AND COMMENTS
TO THE REVISED PRESIDING MEMBER’S PROPOSED DECISION
AND RESPONSE TO COMMENTS

On October 9, 2014, the committee assigned to hear this matter filed the Revised Presiding Member’s Proposed Decision (RPMPD). Energy Commission staff has read and considered the RPMPD for the Huntington Beach Energy Project. Staff submits the following comments on the RPMPD, noting that corrections should be made to certain proposed conditions of certification to maintain consistency within the document. Staff also submits the following response to comments filed by Helping Hand Tools.

DATED: October 21, 2014

Respectfully submitted,

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I. AIR QUALITY

1. RPMPD Page APP-43, Appendix A, minor edit:

**AQ-10** The 1100 lbs/net MWH CO2 limit is averaged over 12 rolling months. This limit only applies if the capacity factor of the unit is equal to or exceeds 60% on an annual basis.

II. VISUAL RESOURCES

1. RPMPD Page APP-155, Appendix A, VIS-1, recommend rejection of newly proposed language that is internally inconsistent:

Certain proposed changes to VIS-1 are internally inconsistent. In the RPMPD, the opening paragraph to VIS-1 provides:

> Prior to submitting the master drawings and master specifications list for the project to the Chief Building Official (CBO) and the Compliance Project Manager (CPM), the project owner shall prepare and submit a Visual Screening and Enhancement Plan for Project Structures (Plan) that includes methods and materials to visually screen and treat surfaces of publicly visible power plant structures. (Condition of Certification GEN-2 in the Facility Design section of the Commission Decision addresses requirements pertaining to the master drawings and master specifications list.) [Italics added for emphasis]

The RPMPD proposes a change to the verification language in VIS-1 as follows:

**VERIFICATION:** No more than At least 30 45 calendar days before after submitting the master drawings and master specifications list to the CBO (in accordance with the requirements of GEN-2), the project owner shall submit a Visual Screening and Enhancement Plan for Project Structures to the CPM for review and approval. The project owner shall, simultaneously with the submission to the CPM, submit seven copies of the Visual Screening and Enhancement Plan to the City of Huntington Beach Planning and Building Department and one copy to the Executive Director of the Coastal Commission for review and comment. [Italics added for emphasis]

The opening paragraph of VIS-1 requires that the project owner prepare and submit the Visual Screening and Enhancement Plan prior to submitting the master drawings and master specifications list. But the new language in the Verification allows that Plan to be submitted no more than 45 calendar days after submitting the master drawings and master specifications list.

Also, Condition of Certification GEN-2 in the Facility Design section of the RPMPD addresses submitting the master drawings and specifications list to the CPM and CBO and requires including the architectural visual screening enhancements in that submittal (see GEN-2 on page APP-5, Appendix A of the RPMPD). In order to be able to include details regarding the architectural screening structures in the GEN-2 submittal, review and approval of those structures must be completed before submitting the master drawings and specifications list to the CBO. The project’s architectural screens and power plant structures are engineered structures requiring concurrent evaluation by the CBO.
The new language as proposed in the RPMPD could result in issues regarding the timing of submittals, review, and approval of the Visual Screening and Enhancement Plan. To cure this inconsistency, staff recommends restoring the original text under the “Verification” section of VIS-1.

2. RPMPD page APP-156, Appendix A, VIS-1, minor edit:

The end of this sentence, “for review and comment,” should not be stricken. Staff requests restoration of the original text to clarify the City’s reviewer role.

3. RPMPD page APP-160, Appendix A, VIS-2, recommend rejection of newly proposed language, and a minor edit:

The RPMPD proposes a change to the verification language in VIS-2 as follows:

**VERIFICATION:**

No more than 45 calendar days before site mobilization after submitting the master drawings and master specifications list to the CBO (in accordance with the requirements of GEN-2), the project owner shall submit the Perimeter Screening and On-site Landscape and Irrigation Plan to the CPM for review and approval. The project owner shall, simultaneously with the submission to the CPM, submit seven copies of the Perimeter Screening and On-site Landscape and Irrigation Plan to the City of Huntington Beach Planning and Building Department and one copy to the Executive Director of the Coastal Commission for review and comment. [Italics added for emphasis]

Staff appreciates that the Committee has taken an interest in providing uniformity to the conditions of certification, and to that end has included reference to GEN-2. However, staff also notes that the Perimeter Screening and On-site Landscape and Irrigation Plan is unrelated to the schedule for the master drawings and specifications list required under GEN-2, and therefore recommends that reference to GEN-2 be deleted from this condition of certification. To facilitate implementation of VIS-2, staff recommends restoring the original text under the “Verification” section of VIS-2.

Lastly, staff notes that reference to the California Coastal Commission remains at the end of the first paragraph under “Verification” and recommends that it be stricken.

4. RPMPD, page APP-160, Appendix A, VIS-2, minor edit:

Under “Verification”, the end of the second paragraph, the phrase “for review and comment,” should not be stricken.

5. RPMPD page APP-163, Appendix A, VIS-3, minor edit:

Staff requests the word, “color,” be inserted in the first full sentence near the top of the page. The edited sentence should read:

The Construction Screening, Landscape Protection, and Site Restoration Plan shall provide **color** images showing options for site perimeter screening materials.

6. RPMPD page APP-163 and APP-164, Appendix A, VIS-3, recommend rejection of newly proposed language that is internally inconsistent:
The RPMPD proposes a change to the verification language in VIS-3 as follows:

**VERIFICATION:** At least 60 No later than 45 calendar days after submittal of the documentation required by GEN-2 before the start of site mobilization, the project owner shall submit a Construction Screening, Landscape Protection, and Site Restoration Plan to the CPM for review and approval. Simultaneously with the submission of a Construction Screening, Landscape Protection, and Site Restoration Plan to the CPM, the project owner shall submit seven copies of a Construction Screening, Landscape Protection, and Site Restoration Plan to the City of Huntington Beach Planning and Building Department for review and comment. [Italics added for emphasis]

Staff notes, as in comment 3, above, that the Construction Screening, Landscape Protection, and Site Restoration Plan is unrelated to the schedule for the master drawings and specifications list required under GEN-2, and therefore recommends that reference to GEN-2 be deleted from this condition of certification.

Staff believes that the schedule change for submitting the Construction Screening, Landscape Protection, and Site Restoration Plan is inconsistent with the requirement to install site perimeter screening fencing and construction exclusion and parking area fencing before the start of ground disturbance at the project site (see the third full paragraph on page APP-164). To cure this inconsistency, staff recommends restoring the original text under the “Verification” section of VIS-3.

7. RPMPD page APP-170, Appendix A, minor edit:

Under the “Verification” section for VIS-6, there is a typographical error in the second paragraph on the page that should be corrected. The word “plant” should be changed to “plan.”

### III. STAFF RESPONSE TO COMMENTS FILED BY HELPING HAND TOOLS

1. **BACT for GHG Emissions and GHG Alternatives Emission Limits**

   a. **HBEP Comparison with Combustion Turbine Combined Cycle (CTCC)**

   **Comment from Helping Hand Tools (Tools):** “…The HBEP GHG emissions are higher than any combined cycle project recently approved by the CEC... The heat rate of the HBEP is up to 22% worse than the average modern combined cycle project. A review of current average heat rates in 2013 shows that the HBEP emits 14%-31% more GHG emissions than vintage plants approved by the CEC between 2000-2003… There is no reason to approve a combined cycle plant such as the HBEP with its low efficiency...”

   **Staff Response:** Tools takes an incredibly simple concept and attempts to make it complicated to obscure the obvious – that the cheapest and most efficient power plants get dispatched first, but for some locational and reliability needs.

   In replacing relatively low capacity factor units at HBGS 1 and 2 and RBGS 6 and 8, HBEP is proposing higher capacity factors than these units’ current actual capacity factors. However, to realize operations at any value approaching the proposed capacity factors, HBEP would have to
be more efficient than whatever facilities it would displace. It is obvious that HBEP would be more efficient than HBGS 1 and 2 and RBGS 6 and 8, and would have to compete on the open market to realize more MWhs and capacity factor beyond those of HBGS 1 and 2 and RBGS 6 and 8. HBEP is not designed as a highly efficient CTCC, but rather as flexible generation that would operate with frequent starts and stops, including ramping up and down as the system needs dictate on a minute-by-minute basis.

The operation of HBEP would balance thermal efficiency and facility flexibility (i.e. rapid start and fast ramping capabilities) across a wide range of operating load points, as indicated by its design as a multi-stage power generating facility and its operation in a high renewable / low GHG electricity system. HBEP would be designed and operated to achieve more flexibility to meet the electrical needs of an electrical system with a lot of intermittent/variable wind and solar elements. Highly efficient CTCC power plants do not necessarily have the flexibility inherent in the HBEP design.1

b. HBEP Comparison with Combustion Turbine Simple Cycle (CTSC)

Comment from Tools: “…the HBEP GHG emissions are higher than recently approved peaker plants. The HBEP has a projected CO2 emission rate 7% higher than the Sentinel Peaking Project which utilizes GE LM-100 peaking technology… The Sentinel peaking project has a 7% lower heat rate…”

Staff Response: Tools attempts to draw a comparison between the emissions from HBEP and the Sentinel Peaking Project. However, there is no evidence in the record regarding the Sentinel Peaking Project. While it would be improper for the Commission to consider evidence that has not been introduced into the record, for the sake of responding to public comment staff nevertheless offers the following:

Tools attempts to over-simplify an incredibly complicated issue when comparing HBEP to other technologies, such as the simple cycle technologies used on CPV Sentinel and Walnut Creek Energy Park projects (neither of which are a part of this proceeding). While these use the most efficient simple cycle combustion turbine generators (CTGs) currently available (the GE LMS100), the proposed heat rate (MMBtu/MWh) and CO2 emission (lbs CO2/MWh) of HBEP are lower than the actual heat rates of the operating LMS100s. Based on reported data, the heat rates of the above two peaking projects range from 9.48 to 10.24 Btu/MWhr and the CO2 emissions range from 1,109 lbs/MWh to 1,198 Lbs/MWh. Actual heat rates will always vary by hour, season, time of day, maintenance interval, duty cycle, load points, elevation, and ambient temperature and humidity. For HBEP, the applicant and staff attempted to incorporate these effects into the calculated heat rate and emission factors. However, actual operations may still result in differences because market conditions will dictate actual use if HBEP becomes operational. Further, as California builds out their renewable generation, new and existing plants will be relegated to different roles that will evolve over time as intermittent/variable facilities come online, further changing actual GHG performance and rendering the simplistic comparisons by Tools moot at best, and misleading at worst.

Please note the number cited by Tools for the Sentinel project, while not a part of the HBEP evidentiary record, is based on theoretical values from that particular Energy Commission

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1 Please see “CALIFORNIA ELECTRICITY AND GREENHOUSE GASES” (Exhibit 2000, TN#202405, FSA, pages 4.1-95 to 4.1-105) and the response to “Power Plant Efficiency” for more details about the comparison between HBEP design and combined cycle configurations.
Decision. The actual operating data demonstrated that the Sentinel project has higher heat rate and CO₂ emission values than in the Energy Commission Decision for Sentinel.

c. HBEP and System-wide Heat Rate

Comment from Tools: “…The evidence shows that the HBEP has a heat rate in excess of the WECC Average... The Energy Commission established a precedent decision in the Final Commission Decision for the Avenal Energy Project (CEC 2009b), finding as a conclusion of law that any new natural gas-fired power plant certified by the Energy Commission must not increase the overall system heat rate for natural gas plants which is the weighted average heat rate for operating natural gas fired power plants in the WECC. This project with its excessive heat rate actually increases average heat rates in the WECC…”

Staff Response: HBEP will not violate the Avenal precedent decision (December 2009, 08-AFC-1, CEC-800-2009-006-CMF), which concluded that “[a]ny new natural-gas-fired power plant that we certify must:

- not increase the overall system heat rate for natural gas plants;
- not interfere with generation from existing renewables or with the integration of new renewable generation; and
- take into account the two preceding factors, reduce system-wide GHG emissions.”

Again, Tools attempts to bring in matters that are not in the evidentiary record and therefore cannot be considered by the Commission in its decision. Staff nevertheless offers the following explanation in order to respond to public comment:

As shown in a recent Energy Commission staff paper titled “Thermal Efficiency of Gas-Fired Generation in California—2014 Update,” there are year-on-year variations in systemwide heat rates (Figure 1, shown below), which are expected as the system works through droughts, the retirement of SONGS and economic downturns. But overall systemwide heat rate trends are down, decreasing from approximately 10,300 Btu/kWh in 2001 to just over 8,500 Btu/kWh in 2013. However, given that the form and function of new natural gas facilities are evolving, Tools cannot demonstrate that HBEP would cause the overall systemwide heat rate to increase as facility-on-facility displacement is complex and variable. This is also addresses the long construction period –if, upon completion, the last HBEP power block is less competitive than the first power block, it would be dispatched less frequently than the earlier power blocks would be dispatched. The more competitive and more efficient gas-fired generation will always be providing the integration and ancillary services needed in a high renewable/low GHG market. As shown in Figure 1, the overall natural gas heat rate should continue to improve and system-wide GHG emissions will continue to decrease, even with HBEP in service.

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2. Federal New Source Performance Standard

Comment from Tools: “…In order to meet the federal GHG standards the project will not be able to operate under 90% load with only 1 turbine/HRSG operating and 80% load with two or three turbine/HRSG operating. The usefulness of the project in integrating renewables is severely limited since the project will not be able to operate under 80% load due to the Federal GHG performance standard…”

Staff Response: As discussed more fully above, actual GHG emissions from operation of HBEP would vary depending on actual operations and market conditions and cannot be finalized until actual operations occur. The estimated annual GHG performance of HBEP is 1,054 lb CO₂e/MWh, which would exceed US EPA proposed New Source Performance Standard (NSPS) for GHG emissions, 1,000 lbs CO₂/MWh. The rule is currently in draft form and has not yet been made final. Once the rule is finalized, HBEP may be required to limit certain operation profiles in order to meet federal GHG NSPS; HBEP could meet this standard by reducing its flexibility somewhat (for example, fewer hours at 70 percent turbine load.)

Tools speculates that efforts by the project owner to improve efficiency or reduce certain operational configurations to comply with the NSPS render the project nearly unable to provide any integration or ancillary grid services. This assertion is false. Operators have managed evolving regulatory and customer requirements with project and process modifications from time immemorial. It is not reasonable to assert that HBEP would be obsolete upon startup, and staff expects and would require HBEP to comply with all applicable LORS.

3 Exhibit 2000, TN#202405, FSA, page 4.1-91
3. **BACT for CO, VOC and PM10**

*Comment from Tools:* “…The PMPD and the FDOC propose a 2ppm limit for CO emissions. A 2ppm CO limit is not BACT or LEAR for CO emissions… The FDOC and the PMPD propose a 2ppm VOC limit as BACT for the HBEPP. The 2ppm VOC limits is not BACT/LEAR for CO emissions4... The FDOC and the PMPD propose to control PM10/PM 2.5 emissions to 9.5 lb/hr with duct burners... The 7.5 pounds per hour limit represents BACT for this project since the Russell City Energy Center employs similar technology as the HBEPP and has achieved this limit in practice…”

*Staff Response:* Once again, Tools attempts to bring in matters that are not in the evidentiary record, in this case an attempted comparison to the Russell City Energy Center, matters that therefore cannot be considered by the Commission in its decision. Staff nevertheless offers the following reply in order to respond to public comment:

The SCAQMD made the BACT determination for criteria pollutants based on a top-down analysis. Energy Commission staff agree with the BACT determination, and SCAQMD did not receive any comments from ARB or the US EPA. Staff notes that emission would be fully mitigated, and direct emissions impacts have been modeled to ensure emissions rates from the unit would not cause new exceedances of the standards. Lastly, differences in CO emission concentrations of 2 ppm or 1.5 ppm, or for VOC at 2ppm or 1 ppm are not environmentally significant. Since the Russell City Project was designed as a baseload facility, it is not useful to compare to the flexible HBEPP design regarding PM, as emission rates vary with duct burning and duty cycle.

4. **District Rule 1325**

*Comment from Tools:* “…The PMPD is incorrect according to the AFC the project has the potential to emit 108 tons per year of PM 2.5 therefore the project is required to provide PM 2.5 offsets and the FDOC and the PMPD violate district Rule 1325…”

*Staff Response:* After the AFC was filed, the applicant has changed its proposed operating profile by reducing the number of duct burning hours from 1200 hrs/year to 470 hours/year. This enabled AES to slightly increase non-duct-burner hours of operation (from 5,000 hrs/year to 5,900 hours/year) and keep PM2.5 emission below 100 tons/yr (@ 99.3 tons/yr). The FDOC and the FSA correctly use the updated operating profile. Therefore, Tools’ comment on PM2.5 emissions selectively uses obsolete information. If HBEPP becomes operational, annual source testing would be conducted to confirm that PM2.5 emissions do not exceed 100 tons/year using the US EPA Methods 201A/202 as called for in the rule, consistent with the federal Clean Air Act requirements for PM2.5 which form the basis for this rule.

5. **Secondary Particulate formation from Ammonia Emissions**

*Comment from Tools:* “…But the PMPD ignores the formation of secondary particulate from the projects 5 ppm ammonia slip which according to SCAQMD analyses will form as much as 251.9 tons to 1,511 tons of secondary particulate a year which is 2 to 15 times more PM10/PM2.5 than directly emitted from the project. In order to comply with CEQA the secondary particulate formation must be mitigated…”

4 *Tools* is incorrect in referring to “CO emissions” in this instance. The comment should have been made with respect to VOC emissions.
**Staff Response:** Energy Commission and SCAQMD staff recommend limiting ammonia slip emissions to 5 ppm. This level of control is appropriate for avoiding unnecessary ammonia emissions, consistent with measures employed to reduce emissions of all nonattainment pollutant precursors to the lowest possible levels. Experience (and source tests) has shown that ammonia emissions typically start out low when the catalyst is new and increase slowly over the life of the catalyst until they reach their permitted emissions level. At this time, the catalyst is either cleaned or replaced. Most regions in California are “ammonia rich”. That is, they are not ammonia limited. Dairies and fertilizer application contribute significantly to ammonia levels in rural areas, while automobile exhaust catalysts contribute ammonia in urban areas. In addition, mitigating SOx and NOx emissions from HBEP also avoids significant secondary PM10/PM2.5 impacts and reduces secondary particulate matter impacts to a less than significant level.

6. **Hazardous Materials – Ammonia**

**Comment from Tools:** “The existing Huntington Beach power plant has a urea to ammonia conversion unit. Currently urea pellets are transported and converted to ammonia onsite at the power plant. Use of urea pellets eliminates the impacts of transportation and storage of large amounts of ammonia for use in the SCR. That is the current environmental baseline. The PMPD proposes to allow the use of a 19% aqueous ammonia solution which has dangerous transportation and storage impacts. CEC Staff recognizes these impacts and even the potential for impacts from seismic activity. ‘An earthquake could also cause failure of the secondary containment system (berms and dikes), as well as the failure of electrically controlled valves and pumps. The failure of all of these preventive control measures might then result in a vapor cloud of hazardous materials that could move off site and affect residents and workers in the surrounding community.’ Despite this risk the PMPD allows the use of aqueous ammonia degrading the existing environmental baseline and endangering the local community in violation of CEQA.

The storage of large amounts of aqueous ammonia also presents security issues related to terrorist attacks requiring additional security onsite to prevent such incidents. The use of urea pellets eliminates that risk. The PMPD should preserve the existing environmental baseline and prevent the transportation and use of aqueous ammonia and its acknowledged hazards.”

**Staff Response:** Staff analyzed the risk of tank failure during an earthquake in the FSA and found “that tank failures during seismic events are not probable and do not represent a significant risk to the public.” (Ex.2000, TN #202450, FSA, page 4.4-14) Staff’s evaluation of the proposed project, with proposed mitigation measures, indicates that the hazardous material use of 19% aqueous ammonia will pose no significant impact to the public. Therefore, the proposed use of aqueous ammonia is an acceptable alternative to the urea to ammonia conversion system currently used by the HBGS on-site.

Staff modeled a potential worst-case event involving the total loss of containment of the entire contents of the full tank, and found that with the secondary containment requirements of condition of certification HAZ-4 the resulting air-borne plume would not produce hazardous concentrations of ammonia vapor beyond the facility’s fence line (Ex.2000, TN #202450, FSA, page 4.4-10).

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5 Exhibit 2000, TN#202405, FSA, page 4.1-25
Staff also reviewed the risks of a terrorist attack during construction and operation and proposed conditions of certification HAZ-7 and HAZ-8 for construction and operations site security which would “ensure that neither this project nor a shipment of hazardous material is the target of unauthorized access” (Ex.2000, TN #202450, FSA, page 4.4-15). Tools’ comment regarding the use of aqueous ammonia is therefore without merit.

7.  Construction Emissions

Comment from Tools: “…The mitigation effectiveness of the street sweeping program has not been quantified and possibly may not be feasible due to traffic volumes on the Pacific coast Highway… The evidence in the record is that the street sweeping program may not be feasible and currently has no method of quantifying the mitigations effectiveness which is a violation of CEQA…”

Staff Response: The revised PMPD reflects the updated Construction Particulate Matter Mitigation Plan. A street sweeping program is not the only mitigation measure available for HBEP. As defined by AQ-SC6, construction emission reduction measures may also include local ban of leaf blowing or blowers; sodding of local parks or playfields; fireplace or woodstove replacements; offsets or emission reduction credits; or other measures that can provide local emission reductions coincident in timing with construction emissions. HBEP is required to prepare and implement a Construction Particulate Matter Mitigation Plan (CPMMP) that details the steps to be taken and the reporting requirements necessary. The plan must quantify the emissions reductions (equivalent to the reduction of at least 8.26 lbs/day PM10 and 0.79 lbs/day PM2.5 during the construction phase of the project). The plan must be reviewed and approved by Energy Commission staff before the project starts any ground disturbance.

Comment from Tools: “…The PMPD and the analyses in this proceeding fail to quantify the cumulative construction impacts of the Poseidon desalination plant constructing simultaneously with the HBEP construction which is expected to last 7 years. The PMPD recognizes the existence of the Poseidon Project but provides no discussion of the cumulative air quality construction impacts…”

Staff Response: The application for Poseidon Desalination project has been withdrawn by the Poseidon applicant. It is unknown whether this separate project is likely to be built at any time.

8.  Compliance Status of all Facilities in California

Comment from Tools: “…AES owns and operates the Redondo Beach Project which has been a High Priority Violator of the clean air act for the last twelve quarters in a row according to the EPA. Accordingly the air permit cannot be issued until the Redondo Beach facility comes into compliance with SCAQMD Rule 1303…”

Staff Response: Tools attempts to bring in matters that are not in the evidentiary record, in this case an attempted comparison to the AES Redondo Beach facility, a matter that therefore cannot be considered by the Commission in its decision in the HBEP. Staff nevertheless offers the following reply in order to respond to public comment:

Tools cites the information from EPA’s ECHO website. However, that information is incorrect. Staff has checked with EPA Region 9 and SCAQMD’s enforcement personnel regarding the compliance status of AES Redondo Beach facility. Both agencies confirm that the Redondo Beach facility is currently in compliance with all permit requirements and no violations are
currently open. All the previous violation cases have been addressed and closed, although the ECHO website is not up to date. Therefore, AES is in compliance with Rule 1303 b (5) B requirements, and the issuance of a permit for HBEP permit would not be affected by any potential violations at Redondo Beach or any other AES facility.