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Comments of Helping Hand Tools (2HT) on the Alamitos Energy Center (AEC) Preliminary Determination of Compliance and Title V permit.

Dear Mr. Lee,

Thank you for the opportunity to comment on the Preliminary Determination of Compliance (PDOC) and Title V permit for the Alamitos Energy Center (AEC). The PDOC fails to comply with District Rule 1302 (h) because it does not require current BACT levels for the project. The permit fails to examine the collateral impacts from the use of ammonia in the SCR system. The permit fails to quantify the secondary particulate formation that will occur from the ammonia slip and SOx emissions which understates the projects particulate matter impacts. The permit fails to consider feasible mitigation measures to lessen the projects hazardous material transportation and storage impacts. The permit fails to provide an adequate demonstration that the benefits of the proposed project outweigh the environmental and social costs associated with that project. The districts analysis ignores the environmental justice population near the project and provides no mitigation for the projects particulate matter impacts.

BACT Considerations

BACT is defined in District Rule 1302 (h) as the most stringent emission limitation or control technique which has been achieved in practice for such category or class of source; or is contained in any state implementation plan (SIP) approved by the United States Environmental Protection Agency (EPA) for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source demonstrates to the satisfaction of the Executive Officer or designee that such limitation or control technique is not presently achievable; or is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific source, and cost-effective as compared to measures as listed in the Air Quality Management Plan (AQMP) or rules adopted by the District Governing Board.

VOC BACT for Combined Cycle Units

According to the PDOC “In a letter dated 6/5/15, Julie Lux, Nooter/Eriksen, provided emissions guarantees for NOx, CO, VOC, PM10, PM2.5, and NH3. The vendor has guaranteed that the project can meet a 1 ppm VOC emission limit.¹ The applicant also proposed a 1 PPM VOC limit in the original application. Despite the vendor guarantee the PDOC proposes a 2ppm VOC limit as BACT for the AEC because allegedly the project cannot meet the 1 ppm VOC limit utilizing SCAMD approved source tests.² The permit provides no evidence of this claim.

The 2ppm VOC limit is not BACT for VOC emissions. The applicant proposed and demonstrated in his BACT analysis in his previous application for the HBEP that a 1 ppm VOC limit is achievable on this class of combined cycle units and is being achieved on current natural gas fired power plants. The Russell City Energy Center in the BAAQMD has achieved in practice a 1 PPM VOC limit and this represents achieved in practice BACT. The technology is available, feasible, and it has operated in compliance for over 6 months. The PDOC must be revised as BACT for VOC for combined cycle units because it has been demonstrated in practice to be 1.0 ppmvd over 1 hour.³

BACT/LAER for PM-10/2.5 for Combined Cycle Units

The PDOC allows the facility to emit up to 8.5 pounds per hour per turbine for particulate matter emissions. The PDOC claims to utilize the Oakley Project and mentions the Russell City Energy Center in their BACT analysis. Both projects have lower PM 2.5 emission rates than required by the AEC PDOC. First the Russell City Energy Center has a lower particulate matter limit of 7.5 pounds per hour as approved by the CEC in AQ 19 (h) on August 11, 2010 Approval of the Petition to Amend.⁴ According to compliance documents submitted to the Commission

¹ POC Page 83 of 382 [Click Here](#)

² CEC staff is proposing some changes to the SCAQMD conditions provided in the PDOC. Condition of Certification **AQ-D11** (D29.3) allows for alternative tests methods to be used for source testing if there is concurrence with the U.S. EPA, ARB and SCAQMD. Staff is proposing to add this same flexibility to Condition of Certification **AQ-D13** (D29.5). CEC Staff PSA Page 115 of 928

³ http://www.energy.ca.gov/sitingcases/huntington_beach_energy/documents/applicant/AFC/Volume%20%20Appendices/HBEP_Appendix%205.1D_BACT%20Determination.pdf Page 2-9,10

⁴ docketpublic.energy.ca.gov/PublicDocuments/Compliance/01-AFC-7C/2010/AUG/TN%2058034%2008-11-10%20Order%20Amending%20the%20Energy%20Commission%20Decision.pdf Page 7

Russell City Energy Center has remained in compliance with this condition.⁵ This limit was thoroughly litigated at the EAB. It represents achieved in practice BACT.

The Oakley Project which was examined in the AEC BACT analysis utilizes the exact same equipment as proposed for the AEC combined cycle project. The Oakley Project contains a particulate matter limit of 7.4 pounds per hour. BACT for the AEC combined cycle train is 7.5 pounds per hour as achieved by the Russell City Energy Center. It is particularly important that BACT for PM 2.5 be as stringent as possible as the SCAQMD has recently been classified as serious non-attainment for PM 2.5. The PDOC provides no mitigation for 69.52 tpy of PM 2.5 emissions from the project except for offsetting approximately 3 tons of PM 2.5 emissions from the auxiliary boiler.

BACT for CO for Combined Cycle Units

The PDOC proposes a 2 ppm limit for CO emissions. A 2ppm CO limit is not BACT for CO emissions. Kleen Energy Systems was able to successfully demonstrate compliance with the CO emission limits of 0.9 and 1.5 ppmvd for unfired and fired operation, respectively.⁶ This is the appropriate BACT limit for the HBEP not 2 ppm averaged over 1 hour. The Palmdale Hybrid project has a 1.5 ppm CO limit in its PSD permit.⁷ Virginia Electric and Power Company's Warren County Facility has permitted limits of 1.2 and 1.3 ppmvd at 15% O₂.⁸

BACT for VOC for LMS-100 Units

The PDOC proposes BACT for VOC's of 2ppm averaged over 1 hour. The BAAQMD determined that the simple cycle Marsh Landing gas turbines would be able to meet a VOC emissions limit corresponding to 1 ppmvd @ 15% O₂ averaged over one hour. The simple-cycle Marsh Landing gas turbines were limited to 2.9 lb/hour or 0.00132 lb/MMBtu in the permit

⁵ [Annual Compliance Report - Year 2 and AQ-19 Page 152 -159](#)

⁶ http://www.energy.ca.gov/sitingcases/huntington_beach_energy/documents/applicant/AFC/Volume%202%20Appendices/HBEP_Appendix%205.1D_BACT%20Determination.pdf Page 2-8

⁷ After 3 year demonstration period.

⁸ <http://www.epa.gov/region9/air/permit/avenal/AvenalFinalResponse2Comments5-27-11.pdf> Page 20

conditions; these values correspond to 1 ppmvd @ 15% O₂.⁹ These limits have been achieved in practice.

Also the BAAQMD in the Mariposa FDOC, “determined that BACT for the simple-cycle gas turbines for VOC is the use of good combustion practice and abatement with an oxidation catalyst to achieve a permit limit for each gas turbine of 0.616 lb per hour or 0.00127 lb/MMbtu, which is equivalent to 1 ppm POC, 1-hr average.”¹⁰ BACT for VOC’s for the AEC LMS-100 turbines should be established as 1 ppm averaged over 1 hour in the final permit.

BACT for CO for LMS-100 units

The Applicant has proposed a CO emission limit of 4 ppmvd at 15% O₂ averaged over each hour. The district analyzed simple cycle projects in the following table.

Table 78 - Summary of Recent CO BACT Limits for Similar Simple-Cycle, Natural Gas-Fired Combustion Turbines

Facility	Permit Issuance	CO Limit @ 15% O ₂
LA City, DWP Scattergood Generating Station, California	2013	4 ppm (1-hr)
CPV Sentinel, California	2012 & 2013	4 ppm (1-hr)
Pio Pico Energy Center, California	2012	4 ppm (1-hr)
Walnut Creek Energy Park, California	2011	4 ppm (1-hr)
TID Almond 2 Power Plant, California	2010	4 ppm (3-hr)
Canyon Power Plant, California	2010	4 ppm (1-hr)
Starwood Power – Midway, California	2008	6 ppm (none)
Panoche Energy, California	2007	6 ppm (3-hr rolling)

Absent from this list is two recently permitted power plants in the BAAQMD. The Mariposa Power Plant utilizing LM -6000 units has a CO BACT limit of 2.0 ppm, which is more stringent than the 4 ppm CO limit proposed for the AEC LMS-100 turbines.¹¹ Another simple

⁹ Marsh Landing FDOC Page 39

www.baaqmd.gov/~media/Files/Engineering/Public%20Notices/2010/18404/FDOC%20062510/Marsh%20Landin%20FDOC%20June%2025%202010.ashx?la=en

¹⁰ Mariposa FDOC Page 51

www.baaqmd.gov/~media/Files/Engineering/Public%20Notices/2010/20737/FDOC%20Materials/Mariposa%20FDOC%2011-24-10.ashx?la=en

¹¹ Mariposa FDOC page 43

www.baaqmd.gov/~media/Files/Engineering/Public%20Notices/2010/20737/FDOC%20Materials/Mariposa%20FDOC%2011-24-10.ashx?la=en

cycle project in the BAAQMD the Marsh Landing Project has a 2 ppm CO limit.¹² The Marsh Landing project utilizes the Siemens SGT6-5000F simple-cycle gas turbines which has a nominal output of 190 MW. The 2.0 ppm CO limit has been achieved in practice on units varying in size from 49 MW to 190 MW in the BAAQMD and represents BACT.

BACT for PM for LMS-100 Units.

The permit for the AEC proposes a 6.24 pound per hour per turbine PM-10 limit for the LMS-100 turbines proposed for the AEC. BACT for particulate matter emissions for LMS-100 turbines was heavily litigated at the EAB recently.¹³ The original PSD permit for the Pio Pico Project proposed a 5.5 pound per hour PM limit. After a EAB remand of the permit back to the to EPA the final PSD permit for the Pio Pico Project found PM BACT to be 5 pounds per hour for the Pio Pico Project.¹⁴

More recently the applicant for the Carlsbad Energy Center proposed a 3.5 pound per hour PM rate for the LMS-100 turbine. The CEC ultimately determined that PM 2.5 BACT for the LMS -100 units in Carlsbad was 5 pounds per hour in condition AQ-35.¹⁵ The AEC permit states that, *“In a document dated 6/16/15 Christopher VU, General Electric, provided guarantees for NOx, CO, VOC, PM10, and NH3 based on a GE supplied SCR/CO catalyst.”*¹⁶ The vendor guarantee and recent permitting actions with Pio Pico and Carlsbad Energy Center require that the final permit contain a 5 pound per hour particulate matter limit as BACT.

Rule 1303

Rule 1303(b)(5)(B) requires that all major stationary sources owned or operated by the applicant in the state are subject to emission limitations and are in compliance or on a schedule

¹² Marsh Landing FDOC page 35

www.baaqmd.gov/~media/Files/Engineering/Public%20Notices/2010/18404/FDOC%20062510/Marsh%20Landing%20FDOC%20June%2025%202010.ashx

¹³[https://yosemite.epa.gov/oa/eab_web_docket.nsf/Filings%20By%20Appeal%20Number/A73AC96F4C0E14CE85257BBB006800F2/\\$File/Pio%20Pico...36.pdf](https://yosemite.epa.gov/oa/eab_web_docket.nsf/Filings%20By%20Appeal%20Number/A73AC96F4C0E14CE85257BBB006800F2/$File/Pio%20Pico...36.pdf) Page 3

¹⁴ <https://www.regulations.gov/contentStreamer?documentId=EPA-R09-OAR-2011-0978-0014&disposition=attachment&contentType=pdf> Page 6

¹⁵ Final Commission Decision Carlsbad Energy Center Page 189 of 350
docketpublic.energy.ca.gov/PublicDocuments/07-AFC-

06C/TN205625_20150803T162317_Carlsbad_Amendments_Final_Commission_Decision.pdf

¹⁶ SCAQMD ENGINEERING AND COMPLIANCE APPLICATION PROCESSING AND CALCULATIONS Page 89 of 382 Table 12

for compliance with all applicable emission limitations and standards under the Clean Air Act. Rule 2005(g)(1) requires the applicant to certify that all other major stationary sources in the state which are controlled by the applicant are in compliance or on a schedule for compliance with all applicable federal emission limitations or standards. According to the PDOC, *“In a letter dated 10/23/15, Stephen O’Kane, Manager, AES Alamos, LLC, certified that all major stationary sources that are owned or operated by AES in California are subject to emission limitations and are in compliance or on a schedule for compliance with all applicable emissions limitations and standards under the Clean Air Act.”* AES is also the owner of the Redondo Beach Power Plant. According to the EPA Compliance and Enforcement website (ECHO) the Redondo Beach Facility is a high priority violator and the facility has been out of compliance with its air quality regulations for 12 quarters in a row.¹⁷

Alternatives Analysis

Rule 1305 (b) (5) (a) requires an analysis of alternative sites, sizes, production processes and environmental control techniques, and a demonstration that the benefits of the proposed project outweigh the environmental and social costs associated with that project. Rule 2005(g)(2) requires an analysis of alternative sites, sizes, production processes and environmental control techniques for the proposed source which demonstrates that the benefits of the proposed source significantly outweigh the environmental and social cost imposed as a result of its location, construction, and modification. The applicant submitted its AFC analysis which does not contain any information whether the proposed source significantly outweighs the environmental and social cost of the project.

Whether there are cheaper and less environmentally damaging alternatives are never analyzed by any one agency including the CEC and the CPUC. The CPUC determines whether a project is needed and whether the contract is just and reasonable and does not consider other technologies. The CEC determines if other alternatives are available that meet the applicant’s objectives but never considers costs and uses the applicant project objectives as the yardstick for eliminating alternatives without ever the examining the cost of the alternatives. No agency other than the air district is tasked with the responsibility to demonstrates that the benefits of the

¹⁷ <https://echo.epa.gov/detailed-facility-report?fid=110014322170>

proposed source significantly outweigh the environmental and social cost imposed as a result of its location, construction, and modification.

Energy storage can replace the four LMS-100 peaking units and create a substantial reduction in air pollution and associated health benefits. Energy storage will be more dispatchable than the LMS-100 units and also has the added advantage of storing excess renewable energy during periods of over generation which is expected to occur frequently as California approaches its RPS standards. Energy storage is cheaper on a per MW basis than the proposed AEC LMS-100 units. AES the applicant for the AEC is currently developing a 100 MW battery for use in Los Angeles that is expected to be deployed in 2021 before the proposed LMS-100 units are scheduled to begin operation.¹⁸ While at one time storage was not a feasible alternative it is certainly a feasible alternative for one or all of the LM-100 turbines proposed for this project and must be considered in the Districts alternative analysis. In fact AES is constructing four 100 MW battery storage houses at the AEC site.

Collateral Impacts from use of Ammonia

The PDOC proposes SCR for the control of NO_x emissions from the AEC. The PDOC selects SCR over other technologies but fails to discuss the collateral impacts from the use of ammonia in the SCR. The Huntington Beach power plant owned by AES 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. AES recognizes the importance of the use of urea at its power plant. On the AES website it states that Huntington Beach is, ***“the first plant in the nation to use a urea to ammonia conversion system — eliminating the need to transport ammonia through our community.”*** A catastrophic accidental release from the ammonia storage tanks can be prevented by the use of urea at the AEC site and one of the collateral impacts from the use of SCR can be eliminated. SCAQMD district staff also recognizes the dangers of ammonia transportation and storage. SCAQMD staff stated in its analysis of rule 1105.1, *“a reduction in the use of ammonia in response to PR 1105.1, will reduce the current*

¹⁸ http://www.scientificamerican.com/article/world-s-largest-storage-battery-will-power-los-angeles/?wt.mc=SA_Twitter-Share

*existing risk setting associated with deliveries (i.e., truck and road accidents) and onsite or offsite spills for each of the refineries that use ammonia.”*¹⁹

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 FDOC should require the use of urea and prevent the hazards from the transportation, storage, and use of aqueous ammonia and possible terrorist implications. It is certainly technically feasible as the Huntington Beach Power plant owned by AES already utilizes the urea system. It is obviously available as it is in use at the HBEP.

Secondary Particulate formation from Ammonia Emissions

According to the PDOC the AEC has the potential to emit 98.85 tons per year of ammonia and 10.19 tons per year of SO_x.²⁰ Offsets are not provided for either pollutant. SO_x is a known precursor to secondary particulate matter formation. It is also well documented that ammonia emissions in the South Coast Air Quality Management District lead to the formation of secondary particulate. The SCAQMD has performed modeling for its rule 1105.1 that demonstrates that 1.5 tons of ammonia emitted can form from 1.5 tons to 6 tons of secondary particulate a day. SCAQMD has successfully defended its environmental analysis for its Rule 1105.1 in court²¹. The projects 98.5 tons of ammonia emissions per year can lead up to formation of 98.5 to 588 tons per year of secondary particulate according to the districts own analysis for Rule 1105.1.

This is a very important issue in this permit. The PDOC proposes to limit PM emissions to 69.52 tons per year but with the secondary formation of PM from the ammonia slip and SO_x the project will obviously emit more than 100 tons per year of PM 2.5 and therefore is required to meet the requirements of Appendix S.

The FDOC should analyze permits that limit ammonia slip to less than 5 ppm and determine if it is feasible to meet a lower ammonia slip limit for this facility. Several recent permits have contained potential lower ammonia slip limits based on the projects actual ammonia emissions over a trial period generally 2 years. The Energy Commission Staff has

¹⁹ **Final Environmental Assessment for: Proposed Rule 1105.1 – Reduction of PM10 and Ammonia Emissions From Fluid Catalytic Cracking Units** Page 51 of 205

²⁰ AEC Public Notice Page 5 of 81

²¹ Los Angeles County Superior Court (Case No. BS087190)

recommended that projects consider continuous ammonia monitors because the BAAQMD has established this as an optional means of verification in the license for the Marsh Landing Generating Station (District Application 18404, Final Determination of Compliance, June 2010). The District should add a similar requirement to the HBEP ATC.²²

Rule 1325

The requirements of rule 1325 are applicable to the AEC because it will emit more than 100 tons per year of PM 2.5 when the precursor emissions of ammonia are considered in conjunction with the permitted 69.52 tons per year of directly emitted PM 2.5. . Ammonia emissions of 95 tons per year are expected to create at a minimum 95 tons per year of secondary particulate matter according to the analysis conducted by the SCAQMD for Rule 1105.1. The permit does not analyze secondary PM 2.5 formation from ammonia allegedly because ammonia is now not a significant precursor to PM 2.5. The courts have upheld SCAQMD's Rule 1105.1 analysis conducted to reduce ammonia emissions from oil refineries. It now appears that the district is conveniently ignoring the court and its own Rule 1105.1 analysis to accommodate another polluting power plant in the same location.

40CFR 51 Appendix S – Federal PM2.5 New Source Review

A major polluting facility is defined as a facility located in a federal non-attainment area which has actual emissions, or a potential to emit of greater than 100 tons per year, of either PM2.5 or its precursors. According to the public notice for the permit the project can emit 69.52 tpy of direct PM 2.5, 10.19 tons of SOx , and 105.3 tpy of ammonia. When considering the unmitigated ammonia and SOx emissions the project is a major source for PM 2.5. The PDOC concludes that the project is not a major polluting facility because it concludes that ammonia and SOx emissions are not precursors. But recent court rulings require an affirmative showing that ammonia is not a precursor is necessary to conclude that ammonia emissions are not a precursor to PM 2.5. Ironically SCAQMD has performed modeling for its rule 1105.1 that demonstrates

²² docketpublic.energy.ca.gov/PublicDocuments/Regulatory/Non%20Active%20AFC's/09-AFC-4%20Oakley%20Generating%20Station/2010/December/TN%2059106%2012.1.10%20PDOC%20Comment%20Letter.pdf Page 2

that 1.5 tons of ammonia emitted can form from 1.5 tons to 6 tons of secondary particulate a day. SCAQMD has successfully defended its environmental analysis for its Rule 1105.1 in court²³.

Clean air Act §7513a. defines a major source in a serious non attainment area : For any Serious Area, the terms "major source" and "major stationary source" include any stationary source or group of stationary sources located within a contiguous area and under common control that emits, or has the potential to emit, at least 70 tons per year of PM-10. The project is allowed to emit up to 69.52 tons per year of PM. When rounded up as required by the CAA the project equals the 70 ton per year major source requirements. SCAQMD has not revised its regulations to comply with this section of the clean air act but is required to do so by August 14, 2017. If the source does not commence construction until August 14, 2017 the source is a major stationary source for particulate matter and is subject to those requirements.

Environmental Justice

The cities of Long Beach and Hawaiian Gardens have a higher percent of people living below the federal poverty level compared with those in the reference geographies of Long Beach-Lakewood Census County Division (CCD), North Coast CCD, and Anaheim-Santa Ana-Garden Grove CCD. The below poverty level population constitutes an EJ population based on poverty. The permit never mentions the environmental justice population that resides near the AEC so obviously no outreach was conducted in the EJ community.

The SCAQMD has the worst particulate matter problem and one of the worst ozone problems in the entire nation. This project exacerbates the air pollution problem because the project is not required to provide PM 2.5 offsets or SOx offsets due to the district Rule 1304(a)(2) which provides a modeling and offset exemption for utility boiler repower projects. The project in conjunction with other sources also results in a violation of the Federal NO2 standard.²⁴ The district provides no mitigation for these air quality impacts despite the presence of the environmental justice community near the project site. The districts should deny this permit and prevent further injustice to the EJ community.

²³ Los Angeles County Superior Court (Case No. BS087190)

²⁴ PDOC Page 298 of 382

Air Quality Analysis and HRA

Both the air quality analysis and the health risk assessment are defective as neither analysis includes the continued operation of units at the AEC that will not retire upon commissioning of the combined cycle units.

Respectfully Submitted,

/s/ _____

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