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Mr. John Heiser
California Energy Commission
1516 Ninth Street, MS-40
Sacramento, CA 95814-5512
john.heiser@energy.ca.gov

Re: Sierra Club Comments on Carbon Sequestration and Greenhouse Gas Emissions (08-AFC-8A)

Please find enclosed Sierra Club's Comments on Carbon Sequestration and Greenhouse Gas Emissions in the above-referenced docket. This document has been e-filed with the Commission and served on parties via the Commission's e-filing system.

Please let me know if you have any questions. Thank you.

Respectfully submitted,

Andrea Issod, Staff Attorney
Sierra Club Environmental Law Program
85 Second St, Second Floor
San Francisco, CA 94105
andrea.issod@sierraclub.org
(415) 977-5544

CARBON SEQUESTRATION AND GREENHOUSE GAS EMISSIONS
(PSA Section 4.3)

I. CO_2 Capture and Sequestration Efficiencies

In numerous instances throughout the document, the PSA/DEIS emphasizes that HECA would capture about 90 percent of the carbon dioxide ("CO_2") in the syngas stream and sequester this captured gas in the Elk Hills Oil Field via enhanced oil recovery ("EOR").[1] Sierra Club is concerned that these simplified statements may be misleading. For clarification and to facilitate comparison to other current and future sequestration projects, Sierra Club recommends adding statements to the effect that a) 90 percent CO_2 capture efficiency from the syngas would only be achieved during mature, steady-state operations without accounting for any venting, startup/shutdown or malfunction events; b) the CO_2 capture under these optimal conditions corresponds to about 78 percent of the fuel carbon input[2]; and c) CO_2 emissions and power consumption associated with EOR activities would reduce the effective CO_2 sequestration efficiency. Sierra Club recommends that CEC Staff and DoE add these qualifying statements throughout the document; alternatively, Sierra Club recommends that any discussion of CO_2 capture and sequestration efficiency be presented on a fuel carbon basis.

II. Estimated HECA Operating Greenhouse Gas Emissions with Sequestration

The PSA presents estimates of HECA's annual carbon dioxide-equivalent ("CO_2e") greenhouse gas ("GHG") emissions with sequestration (in metric tonnes CO_2e/year) for three scenarios: *Early Operations* (first two years, maximum permitted natural gas use and venting), *Mature Operations* (fewer upsets), and *Expected Mature Syngas Operations* (no upsets, little natural gas-firing). Sierra Club has several concerns regarding these estimates.

First, the PSA provides an emissions estimate of 540,557 tons CO_2e/year from HECA's <u>stationary sources</u> for the *Early Operations* scenario and states that all permits would be based on this limit.[3] Sierra Club notes that Permit Condition 81 in the Final

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[1] *See*, for example, PSA, pp. 1-7, 1-24, 3.1-3, 4.3-37, 4.5-3, 4.5-3, 4.15-12, 4.16-4, 5.4-4, 6-13, Alternatives Table 2 (pp. 6-22, 6-35, 6-37, 6-42, and 6-49), and Section 7 (U.S. Department of Energy, Environmental Consequences), p. 2 and Table 2-1.

[2] Based on carbon balances provided with HECA, Response to PSA/DEIS Information Requests, Set 1, August 2013, Figures CS-7-1 and CS-7-2: (208,670 lb C/hour for EOR) / [(198,020 lb C/hour coal) + (68,650 lb C/hour petcoke)] = 0.783.

[3] PSA, Carbon Sequestration and Greenhouse Gas Emissions Tables 4 and 5, p. 4.3-33 and 4.3-34, and Footnote a to Table 4.

Determination of Compliance ("FDOC") issued by the San Joaquin Valley Air Pollution Control District ("Air District") is inconsistent with CEC Staff's estimate as it limits CO_2e emissions from the entire stationary source to 593,965 tons per rolling 12-month period. Similarly, the PSA estimates annual emissions from the CO_2 vent at 174,113 tons CO_2e/year whereas FDOC Permit Condition 80 limits venting to 193,394 tons CO_2 per rolling 12-month period.[4] (The FDOC's permit limits do not include mobile sources.) Sierra Club respectfully requests that CEC Staff clarify these discrepancies and, if appropriate, recommend a revision of the FDOC's Permit Conditions 80 and 81.

Second, for compliance demonstration with the above specified annual CO_2e emissions limit for the entire stationary source, FDOC Permit Condition 81 requires:

> The permittee shall calculate the CO_2e emissions for each calendar month and shall maintain such records onsite for District review. Calculations shall be based on: monthly fuel consumption at the facility and emission factors of fuel (natural gas and diesel CO_2e emission factors shall be based on accepted emission factors and syngas CO_2e factors shall be based on the amount of carbon in the syngas based on latest monitoring data used to demonstrate carbon removal efficiency); CO_2 vent flowrate and the latest monitoring data; nitric acid emission rate (lb-N_2O/ton of HNO_3 produced) from the latest source test and production; recharge records of circuit breakers; and fugitive emission calculations based on component count and emission factors from EPA document Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), Table 2-1, SOCMI Average Emissions Factors and the applicable control efficiency for those components; and urea absorber hours of operation and vendor guarantee of CO_2e emission factor. [District Rule 2410][5]

Given the complexity of estimating annual CO_2e emissions from this facility, the discrepancies between the Air District's and CEC Staff's calculations, the continual revisions provided by the Applicant, as well as the disagreements between CEC Staff and the Applicant as to what should and should not be included, Sierra Club finds that this condition is too vague for enforcing the specified permit limit and recommends that CEC Staff develop a protocol that specifically lays out the formulas and origin of input parameters for each individual emission source and provide this protocol for review in the Final Staff Assessment ("FSA").

Third, because the PSA's emission estimates rely on emission factors that take into account pre-combustion capture of CO_2 and combustion of hydrogen-rich fuel, the 14 percent captured CO_2 that would be diverted to fertilizer production is not

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[4] San Joaquin Valley Air Pollution Control District, FDOC, p. Appendix A-65, available at http://docketpublic.energy.ca.gov/PublicDocuments/08-AFC-08A/TN200420_20130909T091800_Notice_of_Final_Determination_of_Compliance.pdf.

[5] *Ibid*.

accounted for in the computation of SB 1368 compliance. Because, as CEC Staff recognizes, the carbon in fertilizer is only temporarily fixed, it cannot be considered sequestered and must be accounted for.

Fourth, all three operating scenarios presented by the PSA implicitly assume that all of the captured CO_2 (that is not diverted to fertilizer production) would be transported to the Elk Hills Oil Field where it would be used for enhanced oil recovery and sequestered. Sierra Club questions whether this assumption holds true for the entire *Early Operations* scenario and requests a discussion.

Fifth, in response to CEC Staff's request for a binding contract with Occidental of Elk Hills, Inc. ("OEHI"), HECA responded that the company "anticipates that the duration of an agreement for the sale and purchase of CO_2 would be 20 years, with a 5-year renewal option that would be effective upon the mutual agreement of the parties."[6] Sierra Club agrees with CEC Staff that a binding contract with OEHI is necessary for certification because carbon sequestration is an integral component of the project, but notes that a 20-year contract is not adequate to demonstrate CO_2 sequestration for the projected 25-year operating life of HECA.[7] The PSA's proposed Condition of Certification GHG-2 provides that HECA "shall cease operations of the gasifier if … OEHI permanently stops accepting CO_2 for sequestration." Sierra Club requests clarification that this condition categorically ties HECA's operations to CO_2 sequestration by OEHI and that the entire facility including its manufacturing complex would be forced to shut down permanently in case a binding contract with OEHI for the remaining five years cannot be secured. Sierra Club requests clarification how the stated lifespan of OEHI's EOR and sequestration operation of 20 years can be reconciled with HECA's proposed operating life of 25 years, which has been assumed as the basis for analyses throughout the PSA/DEIS.[8,9] Sierra Club requests a discussion of how analyses conducted for the PSA/DEIS (greenhouse gases, cost-effectiveness analyses, etc.) would be affected if the facility's operating life were assumed at 20 years rather than 25 years. Given the extended two-year period for *Early Operations*, which is considerably longer than for commissioning of a natural gas-fired combined-cycle plant and accounts for between 8 and 10 percent of HECA's projected lifetime, and the fact that greenhouse gases must be assessed on a long-term basis, Sierra Club suggests that computations for demonstrating compliance with the SB 1368 EPS should take into account amortized CO_2 emissions from this two-year period over the projected

[6] HECA, Responses to PSA/DEIS Information Requests – Set 2, p. CS-1-1.

[7] PSA, p. 1-4.

[8] PSA, p. 1-7.

[9] Elsewhere, the PSA indicates that "the proposed CO_2-EOR component … would have a project lifespan of 20 to 40 years (OXY 2012f, Attach A177-2)." (*See* PSA, p. 4.10-11.) However, review of the cited source does not appear to indicate a project lifespan greater than 20 years.

operating life of the Project. Given the uncertainty regarding continued CO_2 sequestration by OEHI after expiration of the initial 20-year contract, Sierra Club suggests that this demonstration should conservatively rely on a 20-year lifetime. Sierra Club inquires whether HECA could potentially apply for an operating permit with the Air District for a 49.9 MW generating facility based on synthetic operating limits and continue to operate the fertilizer manufacturing complex, thereby removing the facility from CEC jurisdiction.

Sixth, the PSA presents greenhouse gas emissions estimates for *Mature Operations* and *Expected Mature Syngas Operations.* These estimates are considerably lower than those estimated for *Early Operations*, upon which permit limits are based. Sierra Club suggests that CEC Staff include a condition of certification in the FSA incorporating the lower emissions estimates for mature operations of the facility. Sierra Club also requests clarification that HECA may not apply for emission reduction credits (or equivalent) by demonstrating that the facility experiences fewer upsets and hours of CO_2 venting than permitted after the Early Operations period.

III. Compliance with Environmental Performance Standard under Senate Bill 1368

The PSA presents estimates of HECA's greenhouse gas emission performance with sequestration (in metric tonnes CO_2/MWh) for three scenarios (early operations, mature operations, and expected mature syngas operations)[10] for demonstrating compliance with the emission performance standard ("EPS") for baseload facilities of 1,100 lb CO_2/MWh (0.5 metric tonnes/MWh) developed by regulations adopted by the CEC and the California Public Utilities Commission ("CPUC") pursuant to Title 20, California Code of Regulations for compliance with Senate Bill 1368.[11] Sierra Club understands that CEC Staff's estimates are subject to revision pending additional information by the Applicant.[12] Sierra Club provides the following comments and questions for CEC Staff's consideration:

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[10] The PSA, Carbon Sequestration and Greenhouse Gas Emissions Table 9, p. 4.3-44, Footnote A provides the following explanation for these scenarios: "Early operations, which are assumed to occur during the first two years of operation, include maximum permitted amounts of natural gas use and CO_2 venting that could occur early in HECA facility operation and OEHI CO_2 EOR component operation when both are undergoing initial commissioning and operators are learning how to operate most efficiently alone and in concert. For the mature operations case, which is assumed to occur after the first two years of operation, the applicant assumes that there are fewer upsets requiring CO_2 venting due to optimization of operations that occurs over time. Finally, the applicant expects that mature operations could occur with very little natural gas firing, startup/shutdown only, and with no CO_2 venting. This expected mature syngas operations case represents the best case scenario for GHG emissions during mature operations. All permits would be based on the limits in the Early Operations case, which is the worst-case scenario that staff has used to determine LORS compliance; the other two cases were provided by the applicant for informational purposes for expected versus permitted emissions."

[11] PSA, Carbon Sequestration and Greenhouse Gas Emissions Table 9, p. 4.3-44.

[12] For example, *ibid,* Footnote d.

a) Air Separation Unit Power Requirements

Sierra Club supports CEC Staff's approach to include the approximately 100 MW of power needed for the air separation unit ("ASU") in the power plant efficiency analysis[13] and the computation of compliance with the SB 1368 EPS[14] since it is an integral component of the proposed oxygen-blown gasification system. The ASU is an essential part of the HECA project since it supplies the high-purity oxygen necessary to operate the Applicant's selected oxygen-blown Mitsubishi gasifier at the specified gross output[15] and is required for cost-effective CO_2 capture.[16]

The Applicant contends that the ASU should not count toward its power demand in the CEC's efficiency analysis or in SB 1368 EPS computations because it is contracting with a third party to own and operate the equipment. The ASU is located onsite and must be included in the environmental performance calculations since it is an essential component of the gasification system. HECA should not be given an unfair advantage in its calculation of greenhouse gas emissions performance just because it would contract oxygen production with a third party rather than being the owner of the onsite equipment. Not accounting for the ASU's substantial power demand by contracting out the responsibility to a third party rather than electrically integrating the unit into the design of the facility frustrates the intent of SB 1368, which is to reduce

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[13] PSA, Efficiency Table 1, p. 5.3-7.

[14] PSA, Carbon Sequestration and Greenhouse Gas Emissions Table 9, p. 4.3-44.

[15] Oxygen for chemical reactions occurring during gasification can be provided by either air or high-purity oxygen. Air-blown gasifiers produce a much lower calorific value-syngas than oxygen-blown gasifiers. It has been estimated that the nitrogen in the air typically dilutes the syngas by a factor of three compared to oxygen-blown gasification. Therefore, while a syngas calorific value of 300 Btu/scf might be typical from an oxygen-blown gasifier, an air-blown gasifier typically produces syngas with a calorific value of only 100 Btu/scf. (*See* National Energy Technology Laboratory, The Gas Turbine Handbook, Jeffrey Phillips, 1.2.1 Different Types of Gasifiers and Their Integration with Gas Turbines, 2006; available at http://www.netl.doe.gov/technologies/coalpower/turbines/refshelf/handbook/1.2.1.pdf.) Here, the Applicant's approach attempts to take credit for the higher calorific value of the syngas generated by the oxygen-blown gasifier (which results in a higher annual MWh output than if an air-blown gasifier were used), but declines to account for the electricity demand associated with producing this higher-calorific syngas.

[16] Further, only oxygen injection results in the production of flue gas with a high enough CO_2 content to make pre-combustion CO_2 capture cost-efficient.[16] (*See*: National Energy Technology Laboratory, The Gas Turbine Handbook, Jeffrey Phillips, 1.2.1 Different Types of Gasifiers and Their Integration with Gas Turbines, 2006; available at http://www.netl.doe.gov/technologies/coalpower/turbines/refshelf/handbook/1.2.1.pdf: ("Air-blown gasifiers also have a negative impact on CO_2 capture. Because of the dilution effect of the nitrogen, the partial pressure of CO_2 in air-blown gasifier syngas will be one-third of that from an oxygen-blown gasifier. This increases the cost and decreases the effectiveness of the CO_2 removal equipment.")) Here, the Applicant's approach attempts to take credit for CO_2 capture and sequestration without accounting for the electricity demand associated with producing a gas stream that enables cost-efficient CO_2 capture in the first place.

greenhouse gas emissions associated with electricity generation contracted by California utilities.

Importantly, the DoE in its funding of research and development ("R&D") for integrated gasification combined-cycle ("IGCC") plants (with and without carbon capture) regarding net electricity output, net plant efficiency, and compliance with proposed greenhouse gas emission performance standards specifically addresses the electricity demand for the ASU as part of the gasification process[17] and financially supports R&D of advanced ASUs with reduced power demand.[18] The ASU is also

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[17] *See*, for example, U.S. Department of Energy, National Energy Technology Laboratory, The Gas Turbine Handbook, Gary J. Stiegel, Massood Ramezan, and Howard G. McIlvried, 1.2 Integrated Coal Gasification Combined Cycle (IGCC), 2006; available at http://www.netl.doe.gov/technologies/coalpower/turbines/refshelf/handbook/1.2.pdf. ("Cost effective and efficient gas separation technologies are vital in the production of hydrogen from coal. Gas separation operations occur in two major areas: the separation of oxygen from air for use in the gasifier and the separation of the shifted synthesis gas into pure H_2 and CO_2 streams. Cryogenic technologies are currently employed for the production of oxygen; however, these plants are very capital and energy intensive. *The cryogenic air separation unit in an IGCC plant* typically accounts for 12-15% of the total plant capital cost and *can consume upwards of 10% of the gross power output of the plant*.") *Emphasis* added.

U.S. Department of Energy, National Energy Technology Laboratory, Cost and Performance Baseline for Fossil Energy Plants, Volume 3a: Low Rank Coal to Electricity: IGCC Cases, DOE/NETL-2010/1399, May 2011; available at http://www.netl.doe.gov/energy-analyses/pubs/LR_IGCC_FR_20110511.pdf. (DoE's analysis of net output and net plant efficiency for IGCCs without and with carbon capture: "*The ASU accounts for approximately 55 percent of the total auxiliary load* in both [IGCC non-carbon capture] cases, distributed between the main air compressor, the oxygen compressor, the nitrogen compressor, and ASU auxiliaries" and "*The ASU* [for both IGCC carbon capture cases] *accounts for approximately 57 percent of the total auxiliary load*, distributed between the main air compressor, the oxygen compressor, the nitrogen compressor, and ASU auxiliaries.") *Emphasis* added.

U.S. Department of Energy, National Energy Technology Laboratory, Assessment of Power Plants that Meet Proposed Greenhouse Gas Emission Performance Standards, DOE/NETL-401/110509, November 5, 2009; available at http://www.netl.doe.gov/energy-analyses/pubs/CA_GHG_Grol_042310.pdf. ("*The ASU accounts for approximately 74 percent, 64 percent, and 57 percent of the total auxiliary load in Case 1 [non-carbon capture], Case 2 [carbon capture], and Case 3 [carbon capture]*, respectively.") *Emphasis* added.

U.S. Department of Energy, National Energy Technology Laboratory, Gasification Systems, Feed Systems; available at http://www.netl.doe.gov/technologies/coalpower/gasification/feed-systems.html. ("*The cryogenic air separation unit (ASU) in a conventional IGCC plant* typically accounts for 12 to 15 percent of the overall capital cost of the plant, and *requires a large parasitic power load* primarily to operate gas compressors.") *Emphasis* added.

Elaine Everitt, National Energy Technology Laboratory, Integrated Gasification Combined Cycle, Gasification and IGCC: Status and Readiness, Wyoming Coal Gasification Symposium, Casper, Wyoming, February 28, 2007; available at http://www.westernresearch.org/sersymposia/coalgas4wy/presentations/Wyoming%20Everitt%20%281%29_2.pdf: (*See* Table *IGCC Performance Results* for net power, energy efficiency, and energy penalty for three gasifiers with and without CO_2 capture which account for auxiliary load of ASU.)

[18] *See*, for example, U.S. Department of Energy, National Energy Technology Laboratory, Gasification Systems – Feed Systems, Recovery Act: Development of Ion-Transport Membrane Oxygen Technology

considered an integral part of an IGCC plant in the published literature,[19] by EPA[20], gasifier manufacturers[21], and in the permitting process for other IGCC plants including the Taylorville Energy Center ("TEC").[22]

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for Integration in IGCC and Other Advanced Power Generation Systems, Air Products and Chemicals, Inc., Project No. FC26-98FT40343; available at http://www.netl.doe.gov/technologies/coalpower/gasification/projects/40343.html. ("Process engineering and economic evaluations of integrated gasification combined cycle (IGCC) power plants comparing ITM Oxygen with a state-of-the-art cryogenic air separation unit are aimed to show that the installed capital cost of the air separation unit and the installed capital of IGCC facility are significantly lower compared to conventional technologies, *while improving power plant output and efficiency*.") *Emphasis* added.

U.S. Department of Energy, National Energy Technology Laboratory, Development of Ion Transport Membrane (ITM) Oxygen Technology for Integration in IGCC and Other Advanced Power Generation Systems, Project Facts; available at http://www.netl.doe.gov/publications/factsheets/project/FC26-98FT40343.pdf. ("*The focus of the Gasification Technologies Program is to support R&D that offers the potential to substantially improve* the cost, *efficiency*, and environmental performance *of gasification systems*. Within this R&D portfolio, *novel approaches are being investigated for oxygen (O_2)*, H_2, and CO_2 separation under varying operating conditions.") *Emphasis* added.

[19] *See*, for example, Stephen Mills, International Energy Administration, Clean Coal Centre, Coal-fired CCS Demonstration Plants, 2012, CCC/207 ISBN 978-92-9029-527-3, October 2012; available at http://newsletter.naseo.org/news/newsletter/documents/2012-11-30-Coal-fired-CCS-demonstration-plants-2012-by-Stephen-Mills.pdf: ("There is ongoing development of plant components such as the air separation unit (ASU), gasifier, water-gas shift (WGS) reactor, and gas turbines." … "*In pre-combustion capture processes, energy is expended at several stages. These include operation of the air separation unit*, the loss of chemical energy due to the associated shift reaction, the addition of heat (steam) to the syngas to increase the water content prior to the shift reaction, and compression of the captured CO_2.") *Emphasis* added.

Suzanne Ferguson, Geoff Skinner, Jaco Schieke, Kwi-Cheng Lee, Eva van Dorst, High Efficiency Integrated Gasification Combined Cycle with Carbon Capture via Technology Advancements and Improved Heat Integration, Energy Procedia 00, (2013) 000–000; available at http://www.fwc.com/publications/tech_papers/files/High%20Efficiency%20IGCC.pdf: ("For the IGCC flow scheme with carbon capture it was shown that *improvements to the* gasification, gas turbine, CO_2 compression and *air separation unit (ASU) power loads could be expected to achieve an overall efficiency improvement* of six percentage points compared to the current typical IGCC base case. This translated to an increased net power output of nearly 14%.") *Emphasis* added.

[20] *See*, for example, U.S. Environmental Protection Agency, p. 4-1, New Coal-Fired Power Plant Performance and Cost Estimates, Project 12301-003, prepared by Sargent & Lundy, SL-009808, August 28, 2009; available at http://www.epa.gov/airmarkets/resource/docs/CoalPerform.pdf: ("*Because the ASU requires a significant amount of power for air compression, full integration between the [combustion turbine generator] and ASU can improve IGCC plant efficiency*.") (Coal reactivity determines the amount of oxygen necessary to effectively gasify the coal in an IGCC. Of the three coals compared, bituminous is the least reactive, requires the most oxygen, and therefore requires a larger ASU. *The ASU* constitutes a significant portion of the total plant cost. It *directly affects auxiliary power consumption*, and its size can therefore substantially affect plant capital and O&M costs.") *Emphasis* added.

U.S. Environmental Protection Agency, Response to Public Comments on Rule Amendments Proposed May 3, 2011 (73 FR 33642) (Dec. 2011); available at http://www.epa.gov/ttn/atw/utility/epa-hq-oar-2911-0044-draft-5819-1.pdf: ("Furthermore, *the primary parasitic power requirements for an IGCC facility* that account for the primary differences between the net and gross efficiency with a PC boiler *are the gas* *b) Annualized OEHI Construction Emissions*

Sierra Club requests an explanation of the rationale behind CEC Staff's decision not to include annualized OEHI construction emissions in the computation of the combined HECA/OEHI emissions performance for compliance with the SB 1368 EPS.

c) SB 1368 EPS Compliance Protocol

Given the complexity of estimating the CO_2 emissions performance for this facility and disagreements between CEC Staff and the Applicant over what should and should not be included in the computations, Sierra Club recommends that CEC Staff provide the CO_2 Emissions Performance Compliance Plan ("EPCP") proposed in Condition of Certification GHG-1 for review in the FSA. The plan should include a protocol for determining compliance with SB 1368 EPS that specifically lays out the formulas for determining HECA's net annual average power output and estimating HECA's net annual average CO_2 emissions.[23] The protocol should specify the origin of all input parameters for each individual emission source and equipment that must be accounted for to determine HECA's greenhouse gas emissions performance.

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compressors (air separation unit main compressor, oxygen compressor, and nitrogen compressor. *Correspondingly, the gross parasitic power requirements for an IGCC facility would also subtract out the electric power required to run these compressors*.")

[21] *See*, for example, Siemens, Integrated Gasification Combined Cycle, Process; http://www.energy.siemens.com/hq/en/fossil-power-generation/power-plants/integrated-gasification-combined-cycle/integrated-gasification-combined-cycle.htm#content=Process: ("Main IGCC Power Plant Subsystems include: gasification plant including preparation of the feedstock, raw-gas cooling via water quench or heat recovery systems, optional water-gas shift reactor, gas purification system with sulfur removal/recovery and optional CO_2 removal, *air separation unit*, combined cycle unit with gas turboset, heat recovery steam generator and steam turboset.") *Emphasis* added.

[22] *See*, for example, The Erora Group, TEC IGCC Feasibility Analysis, January 2005; available at http://www.catf.us/resources/filings/BACT_LAER/johnson_letter_appendices/appendix%2011.taylorville%20IGCC%20Feasibit_Main%20Body.pdf: ("*It is important to examine net capacity rather than gross capacity because the IGCC facility consumes significantly more power internally (to power the air separation unit*) than does a [pulverized coal] facility.") *Emphasis* added. ("*The IGCC design for the TEC … can be described as encompassing three (3) technology blocks: air separation*, gasification and syngas scrubbing, and power generation.") *Emphasis* added.

[23] Title 20, CCR § 2903.a: Except as provided in Subsection (b), a powerplant's compliance with the EPS shall be determined by dividing the powerplant's annual average carbon dioxide emissions in pounds by the powerplant's annual average net electricity production in MWh. Emphasis added.

d) California Public Utilities Jurisdiction

During the September 17-19, 2013 PSA/DEIS workshop, the Applicant suggested that compliance with the SB 1368 EPS should be deferred to the CPUC for jurisdiction. Sierra Club agrees with CEC Staff's position that the CEC is required to ensure HECA's compliance with all LORS prior to certification. Sierra Club requests that Staff discuss the possibility that HECA could contract to supply out-of-state power needs if the CPUC does not approve the project.