



August 27, 2013

1516 Ninth Street
Hearing Room A – First Floor
Sacramento, California 95814

10 a.m.

(Wheelchair Accessible)

THE COMMISSION WILL CONSIDER THE FOLLOWING ITEMS:

1. CONSENT CALENDAR. (Items on the Consent Calendar will be taken up and voted on as a group. A commissioner may request that an item be moved and discussed later in the meeting.)
 - a. CALICO SOLAR PROJECT (08-AFC-13C). Possible approval of the request by Calico Solar, LLC, to withdraw its amendment petition and terminate the Energy Commission certification for the Calico Solar Project. The 663.5-megawatt project was certified by the Energy Commission on December 1, 2010. Staff recommends termination of the certification. Contact: Craig Hoffman.
 - b. SUTTER POWER PLANT (97-AFC-2C). Possible approval of the project owner's petition to transfer the ownership of the Sutter Power Plant from Calpine Construction Finance Company, LP, to CCFC Sutter Energy, LLC, and a request that the Commission formally acknowledge the change of the facility name from Sutter Power Plant to Sutter Energy Center. Contact: Beverly Bastian.
 - c. BEACON SOLAR ENERGY PROJECT (08-AFC-2C). Consideration of the project owner's request to terminate the Energy Commission certification for the Beacon Solar Energy Project as of May 13, 2013 (the date of the letter requesting the termination). The Commission certified this project, located in Kern County, as a nominal 250-megawatt, parabolic trough, solar thermal facility on August 25, 2010. Contact: Eric Veerkamp.
 - d. CASCADE CLEAN ENERGY, INC. Possible approval of Amendment 1 to Agreement PIR-10-011 with Cascade Clean Energy, Inc. to make minor administrative changes and extend the agreement by six months through March 31, 2014, due to unanticipated repairs and maintenance required at the demonstration site. There are no changes to the agreement amount. (PIER electricity and natural gas funding) Contact: Linda Schrupp.
 - e. GEOMECHANICS TECHNOLOGIES, INC. Possible approval of Amendment 2 to Agreement PIR-10-062 with Terralog Technologies to novate the existing agreement to GeoMechanics Technologies, Inc. from Terralog Technologies. There is no scope, budget or term change with this amendment. (PIER electricity funding) Contact: Cheryl Closson.

- f. LAWRENCE BERKELEY NATIONAL LABORATORY. Possible approval of Amendment 2 to Contract 500-10-052 with the Department of Energy's Lawrence Berkeley National Laboratory, for removal of Task 2.15 which is being cancelled due to inability to find a suitable demonstration site for a waste heat recovery project. Task 2.14 will be amended to include additional deliverables and a data center demonstration project. (PIER electricity funding) Contact: Heather Bird.
 - g. TMDGROUP, INC. Possible approval of staff's recommendation to accept tmdgroup, inc.'s Letter of Resignation, dated April 29, 2013, which will terminate the Alternative and Renewable Fuels and Vehicle Technology Program's marketing and outreach contract (contract 600-11-007). Due to changes in program needs, the Energy Commission no longer requires the services provided under this contract. (ARFVTP funding) Contact: David Nichols.
 - h. CALIFORNIA EMPLOYMENT DEVELOPMENT DEPARTMENT. Possible approval of Agreement 150-13-001 for a \$43,538 interagency agreement with the California Employment Development Department to provide data regarding clean energy sector employment within California. (ERPA funding). Contact: Pierre duVair.
 - i. ENERGY COMMISSION AUDIT COMMITTEE. Possible approval of an Energy Commission Audit Committee. Government Code section 13886 requires that any governing body that oversees a state agency establish an audit committee that generally meets the frameworks set forth by the American Institute of Certified Public Accountants. Contact: Drew Bohan.
2. ENERGY COMMISSION COMMITTEE APPOINTMENTS. Possible approval of appointments to the Energy Commission's Standing Committees and Siting Case Committees. Contact: Kevin Barker. (5 minutes)
 3. LOS ESTEROS CRITICAL ENERGY FACILITY PHASE 2 (03-AFC-2C). Possible approval of a petition to modify Air Quality Conditions of Certification in regard to Monitoring, Initial Source Testing, and other Administrative Conditions. The applicant is not proposing any changes to emission limits or controls. Contact: Craig Hoffman. (10 minutes)
 4. WALNUT ENERGY CENTER PROJECT (02-AFC-4C). Possible approval of a Petition to increase the back-up water supply limit of 51 acre feet per year to 180 acre feet per year when recycled water is not available. Contact: Joseph Douglas. (10 minutes)
 - ~~5. VICTORVILLE 2 POWER PLANT PROJECT. Consideration of Petition for Reconsideration from Robert Landwehr regarding the Commission's June 2013 Decision to Extend the 5-year Construction Deadline for the Victorville 2 Power Plant Project. Contact: Rebecca Westmore. (10 minutes)-(Postponed)~~
 6. LODI ENERGY CENTER (08-AFC-10C). Consideration of a petition to amend 12 Air Quality Conditions of Certification for the Lodi Energy Center to allow increased emissions during startup, to allow gas turbine tuning necessary for periodic maintenance and calibration, to amend the minimum temperatures for the Selective Catalytic Reduction system to start ammonia injection, and to change the specifications of the volumetric fuel flow meter. Contact: Eric Veerkamp. (10 minutes)
 7. REDONDO BEACH ENERGY PROJECT (12-AFC-03). Contact: Patricia Kelly. (10 minutes)
 - a. Commission consideration of the Executive Director's data adequacy recommendation for the Redondo Beach Energy Project (RBEP). The proposed RBEP is a natural gas-fired, combined-cycle, air-cooled, 496-megawatt electrical

generating facility that would be constructed on the site of, and eventually replace, the Redondo Beach Generating Station located at 1100 North Harbor Drive in the City of Redondo Beach, Los Angeles County.

- b. Possible appointment of a siting committee for the Redondo Beach Energy Project.
8. NONRESIDENTIAL BUILDING ENERGY EFFICIENCY STANDARDS (Docket No. 13-BSTD-02). Consideration of a petition by Mr. George Athans of Athans Enterprises, Inc., to conduct a rulemaking proceeding to stay implementing the 2013 Nonresidential Building Energy Efficiency Standards, as they relate to new buildings only, for three - or at least two - years. Contact: Pippin Brehler. (10 minutes)
9. TRUSTEES OF THE CALIFORNIA STATE UNIVERSITY. Possible approval of the 13 highest ranking grant applications totaling \$1,208,638 from the Public Interest Energy Research (PIER) program's Energy Innovations Small Grant Solicitation 13-01. There are two projects totaling \$189,917 under Transportation Electric, one project for \$95,000 under Transportation Natural Gas, two projects totaling \$189,877 under Natural Gas and eight projects totaling \$733,844 under Electric. (PIER electricity and natural gas funding). Contact: Raquel E. Kravitz. (10 minutes)
- a. Transportation Electric (13-01TE)
 - i) University of California Merced, Merced, CA, *Cost-Effective Thermal Management Design for Electric Vehicle Batteries*, Ma, Yanbao, \$95,000. This project proposes to increase EV battery life by reducing uneven temperature distribution in the batteries by providing an efficient cooling design at the cell level. It also proposes to reduce battery weight, volume and manufacturing cost by at least 20 percent in the battery cooling systems of electric vehicle batteries. If successful, this project will accelerate EV adoption by reducing the system cost and improving the life of the EV batteries, which will help California meet its Zero-Emissions Vehicle Mandate.
 - ii) University of California, Davis, Davis, CA, *Intelligent Energy Management for Solar Powered EV Charging Stations*, Zhao, Hengbing, \$94,917. This project proposes to determine the feasibility of introducing real-time weather forecast and actual load statistics into the energy management of solar powered electric vehicle charging stations with battery storage. This project will use forecast data from major weather services via the internet and historical demand profiles for charging stations as inputs to this management system. This project will also use software to determine optimum charge/discharge periods to maximize the use of renewable energy and reduce draws of grid power in high demand/cost periods. If successful, this project will be the first electric vehicle charging station in the US that is solar powered with battery storage that includes weather forecasts and load requests.
 - b. Transportation Natural Gas (13-01TNG)
 - i) Whole Energy Pacifica, Corte Madera, CA, *Utilizing Glycerin to Produce Renewable Natural Gas for Transportation Use*, Wahl, Martin, \$95,000. This project proposes to determine the feasibility of designing a skid-mounted biogas scrubbing system to assess the effectiveness of using glycerin to remove contaminants from raw biogas to produce biomethane. This skid-mounted biogas scrubber will utilize counter-flow absorption, replacing the water with glycerin.

Glycerin used as a scrubbing solution can effectively remove hydrogen sulfide, water vapor, carbon dioxide and other contaminants found in raw biogas. If this project is successful, this technology has the potential to increase biomethane production by 10 percent annually.

c. Natural Gas (13-01G)

- i) Altex Technologies Corporation, Sunnyvale, CA, *High Efficiency and Turndown and Low Power Ultra-low Emissions Burner*, Kelly, John T., \$94,877. This project proposes to determine the feasibility of fabricating a high efficiency and ultra-low emissions burner to meet emission requirements while increasing burner efficiency. This project will use a standard matrix burner and adds a supplementary partially premixed fuel/air injector at the downstream end of the burner to improve efficiency. In addition, this project will alter the supplementary burner output, and increase the turndown ability relative to ultra-low NOx burners.
- ii) CHA Corporation, McClellan, CA, *Cracking Raw Fuels for Hydrogen Stations Without Greenhouse Gas Emission*, Cha, Chang, \$95,000. This project proposes to determine the feasibility of producing on-site hydrogen for hydrogen fueling stations using a single microwave reactor that combines desulfurization and hydrocarbon cracking to eliminate the emission of carbon dioxide and other air pollutants. This process is a way of efficiently and cost-effectively producing hydrogen from natural gas. If successful, this project will allow hydrogen stations to directly supply hydrogen to fuel cell electric vehicles without greenhouse gas emissions.

d. Electric (13-01E)

- i) Paulsson, Inc., Van Nuys, CA, *An Ultra-Compact Fiber-Optic Seismic Sensor for Geothermal Applications*, Paulsson, Björn, \$95,000. This project proposes to determine the feasibility of using ultra-compact, fiber-optic seismic sensors to create a 3D image and monitor geothermal reservoirs. This project will design borehole seismic sensors that can operate at temperatures up to 300°C and pressures up to 30,000 psi in the corrosive environments found in geothermal wells. These fiber-optic based sensors can be attached to either the inside or outside of geothermal well casings, eliminating the need to drill a larger borehole when deploying the sensors. If successful, this project will allow for cost-effective long-term site characterization and monitoring studies at geothermal exploration sites.
- ii) California Institute of Technology, Pasadena, CA, *Paintable Spectrally Selective Window Coatings for Efficient Cooling*, Grubbs, Robert Howard, \$95,000. This project proposes to determine the feasibility of developing window coatings that selectively reflect solar thermal radiation to reduce energy cooling costs while maintaining visible light transparency for commercial and residential buildings. This project will use copolymer-based materials that are easy to apply and can be painted on as retrofittable window coatings to reflect infrared and UV light. If successful, this product will reduce an annual residential energy bill by nearly 20 cents per square foot of floor space.
- iii) University of California, San Diego, La Jolla, CA, *Cloud Speed Sensor*, Kleissl, Jan, \$95,000. This project proposes to determine the feasibility of a tripod-

mounted Cloud Speed Sensor system to improve short-term solar power performance and variability forecast. This project will use a common solar sensor that provides instant measurement of direction and speed of passing, variable clouds and provide real-time measurement, enabling grid operators to respond quickly and efficiently to real-time changes in local cloud cover. If successful, this project will increase the accuracy of solar plant ramp rate predictions by 25 percent.

- iv) Miami University, Oxford, OH, *Using Patterned Surface Wettability for Improved Frosting/Defrosting Performance*, Sommers, Andrew, \$83,042. This project proposes to determine the feasibility of using different surface patterns and surface tension gradients to grow a thinner, denser frost layer on air conditioners to improve the defrosting performance. The goal of this project is to study the effect of frost build-up on the air-side surface of these systems and to examine the relative ability of various surfaces to improve the defrosting performance. Although the principal investigator is based in Ohio, over 80 percent of this project funding is with San Jose State University in San Jose, CA. If successful, this project will reduce California ratepayers' air-conditioner kWh consumption and it will save an estimated \$100 per heat exchanger per year.
- v) GridCom Technologies, Inc., Bakersfield, CA, *Quantum-Protection System for Secure Grid Automation Communications*, Earl, Duncan, \$95,000. This project proposes to determine the feasibility of a smart grid communications protection device that improves machine to machine communication encryption by using quantum key distribution to randomly generate encrypted keys. Quantum key distribution enables two parties to produce a shared random secret key known only to the parties that are communicating. This process enables a secure and more reliable authentication and encryption solution that overcomes the drawbacks and reduces the cost of conventional encryption processes.
- vi) University of California, Los Angeles, Los Angeles, CA, *Low Band Gap Antimony-Based Thermophotovoltaics Grown on Gallium Arsenide Substrates*, Huffaker, Diana, \$81,015. This project proposes to determine the feasibility of developing a more efficient thermophotovoltaic device that can convert waste heat into electricity. This project will explore using a lower cost material that has the potential to increase the conversion efficiency of the thermophotovoltaic cell.
- vii) University of California, San Diego, La Jolla, CA, *Dampening System Oscillations Utilizing Phasor Measurement Units and Photovoltaic Inverters*, Torre, William, \$95,000. This project proposes to determine the feasibility of building and installing a control system interface with phasor measurement units (PMU) and photovoltaic inverters. This project will test and model grid dynamics using signal techniques applied to the PMU data and will identify the best approach for photovoltaic inverters to ease grid oscillation. If successful, this project will improve utility dispatch of electricity generation while accommodating increased penetration levels of photovoltaics.
- viii) University of California, Davis, Western Cooling Efficiency Center, Davis, CA, *Heat Pump Assisted Diurnal Heat Rejection System*, Modera, Mark, \$94,787. This project proposes to determine the feasibility of designing and constructing a residential conventional split air condenser with a water exchanger. This proposed project is a cost-effective residential retrofit that reduces and partially shifts

cooling load to off-peak. The split system will take advantage of existing air conditioning components by operating the condensing section at a reduced temperature and moving air through the condenser and operating the exchanger section by replacing fan energy with an efficient process of pumping a small amount of water instead of a large amount of air. The project will determine the expected performance from this system under various weather conditions over the course of one year and determine energy saved and peak load shift when installed in various California climate zones.

10. CALIFORNIA STATE UNIVERSITY, SAN DIEGO. Possible approval of Amendment 9 to Contract 500-98-014 with the Trustees of the California State University, San Diego, to extend the Energy Innovations Small Grant (EISG) Program by 36 months through March 31, 2017, with an additional \$1,775,000 of PIER Natural Gas Funds to the Natural Gas portion of the EISG research program. The purpose of this amendment is to add funds and time to allow for additional solicitations for the Natural Gas, Electricity, Transportation Electricity and Transportation Natural Gas research programs. (PIER electric and natural gas funding) Contact: Raquel Kravitz. (5 minutes)
11. WRIGHTSPEED, INC. Possible approval of Agreement ARV-13-001 with Wrightspeed, Inc., for a \$5,789,452 grant to expand and improve Wrightspeed's existing manufacturing facility including partial conversion of current space to accommodate the company's manufacturing line requirements. The manufacturing facility produces range-extended electric drive retrofit kits. The kits will be used to convert the powertrain of medium-duty trucks for significantly increased fuel efficiency. (ARFVTP funding) Contact: Andre Freeman. (5 minutes)
12. EMPLOYMENT TRAINING PANEL. Possible approval of Amendment 2 to Interagency Agreement 600-09-016 with the California Employment Training Panel (ETP) to augment the agreement by \$1,238,124 for continued workforce training under the Alternative Renewable Fuel and Vehicle Technology Program (ARFVTP), and to extend the term by 13 months to March 30, 2017. (ARFVTP funding) Contact: David Nichols. (5 minutes)
13. UNIVERSITY OF CALIFORNIA, DAVIS. Possible approval of Amendment 1 to Contract 600-11-005 with The Regents of the University of California on behalf of the Davis campus to augment the agreement by \$117,154, for a new total agreement amount of \$2,887,226. The augmentation will be utilized to conduct a research study on the Plug-in Hybrid and Electric vehicle (PEV) Dealership Experience by examining the relationship and transactions between new car dealers and owners of PEVs in order to inform policies for market development of PEVs in California. (ARFVTP funding) Contact: Jim McKinney. (5 minutes)
14. **Minutes:** Possible approval of the July 10, 2013, Business Meeting Minutes.
15. **Lead Commissioner or Presiding Member Reports.** A Lead Commissioner on a policy matter may report to the Commission on the matter and discussion may follow. A Presiding Member on a delegated committee may report to the Commission on the matter and discussion may follow.
16. **Chief Counsel's Report:** The Energy Commission may adjourn to closed session with its legal counsel [Government Code Section 11126(e)] to discuss any of the following matters to which the Energy Commission is a party:
 - a. *In the Matter of U.S. Department of Energy (High Level Waste Repository), (Atomic Safety Licensing Board, CAB-04, 63-001-HLW).*

- b. *BNSF Railway Company v. US Department of Interior, California Energy Commission* (U.S. District Court Central District of California-Riverside, CV 10-10057 SVW (PJWx)).
- c. *Rick Tyler, et al v. Governor of California, Edmund G. Brown, Jr., et al.* (Alameda County Superior Court, RG12619687).
- d. *Asphalt Roofing Manufacturers Association v. California Energy Commission* (Sacramento County Superior Court, 34-2012-80001195).
- e. *PECG v. Brown*, Alameda County Superior Court Case Nos: RG10494800 et al. (Furlough Litigation).
- f. *American Public Gas Association v. U.S. Department of Energy*, Case No. 11-1485 (D.C. Cir. Dec. 23, 2011).
- g. *Communities for a Better Environment and Center for Biological Diversity v. Energy resources Conservation and Development Commission, and California State Controller* (Alameda Superior court, RG13 681262).

The Energy Commission may also discuss any judicial or administrative proceeding that was formally initiated after this agenda was published; or determine whether facts and circumstances exist that warrant the initiation of litigation; or that constitute a significant exposure to litigation against the Commission.

17. **Executive Director's Report.**

18. **Public Adviser's Report.**

19. **Public Comment:** People may speak up to three minutes on any matter concerning the Energy Commission, with the exception of items appearing elsewhere on this agenda or items related to pending adjudicative (certification or enforcement) proceedings.

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Adjournment of Hearings and Meetings: Depending upon time available and the orderly management of proceedings, the Commission may order adjournment (recess or postponement) of any noticed hearing or meeting, to be continued to the next day, another specific date or time, or to the next business meeting, as appropriate. Any such adjournment will be noticed at the time the order of adjournment is made (Government Code §§11128.5, 11129).