

State of California
California Energy Commission
Minutes of the September 13, 2017, Energy Commission Business Meeting

The meeting was called to order by Chair Weisenmiller. The Pledge of Allegiance was led by Chair Weisenmiller.

Present:

Robert B. Weisenmiller, Chair

Karen Douglas, Commissioner

J. Andrew McAllister, Commissioner

David Hochschild, Commissioner

Janea A. Scott, Commissioner

The Commission honored retiring Executive Director Rob Oglesby with a resolution commemorating his career and contributions to the California Energy Commission. The Commission also honored the Petroleum Market Advisory Committee with a resolution commemorating their contributions to the California Energy Commission.

THE COMMISSION WILL CONSIDER AND MAY TAKE ACTION ON 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. PETROLEUM MARKET ADVISORY COMMITTEE (PMAC). Proposed resolution to dissolve the Petroleum Market Advisory Committee. The PMAC's efforts are reflected in a final report, which summarizes the PMAC's activities and recommendations to the Energy Commission. Dissolution will be effective September 14, 2017. Contact: Ryan Eggers.

Commissioner Scott moved and Commissioner McAllister seconded approval of Item 1. The vote was unanimous (5-0).

2. ENERGY COMMISSION COMMITTEE APPOINTMENTS. Possible approval of appointments to the Energy Commission's Standing Committees and Siting Case Committees. Contact: Kevin Barker. (Staff presentation: 5 minutes)

Item 2 was held. No action taken.

3. SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY. Proposed order approving the Executive Director's recommendation that the Southern California Public Power Authority's Power Purchase Agreement with ONGP LLC for the procurement of geothermal energy from the Ormat Northern Nevada Geothermal Portfolio Project be ~~found compliant with the Emissions Performance Standard for Local Publicly Owned Electric Utilities pursuant to Senate Bill 1368 (California Code of Regulations, Title 20, Sections 2900-2913).~~ Contact: Michael Nyberg (Staff presentation: 5 minutes)

Commissioner Hochschild moved and Commissioner Douglas seconded approval of Item 3. The vote was unanimous (5-0).

4. CONSOL HOME ENERGY EFFICIENCY RATING SERVICES (CHEERS). Proposed resolution approving CHEERS's applications for certification as a California Home Energy

Rating System (HERS) provider for HERS raters conducting field verification and diagnostic testing for energy efficiency measures in nonresidential buildings to demonstrate compliance with the 2013 and 2016 *Building Energy Efficiency Standards* and certification of the CHEERS HERS data registry as a residential data registry under the 2013 and 2016 *Building Energy Efficiency Standards*. Contact: Rashid Mir. (Staff presentation: 5 minutes)

Commissioner McAllister moved and Commissioner Scott seconded approval of Item 4. The vote was unanimous (5-0).

5. BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY (SLAC). Proposed resolution approving Agreement EPC-17-020 with the Board of Trustees of the Leland Stanford Junior University, on behalf of the US Department of Energy's SLAC National Accelerator Laboratory for a \$2,340,000 grant to research, develop and demonstrate vehicle-grid integration in non-residential facilities to quantify the impacts of electric vehicle (EV) charging show the flexibility of smart charging; and to develop controls to manage the smart charging to minimize grid impacts and customer costs. (EPIC funding) Contact: Ostap Loredo-Contreras (Staff presentation: 5 minutes)

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 5. The vote was unanimous (5-0).

6. DEVELOPMENT, DEMONSTRATION AND DEPLOYMENT OF ENVIRONMENTALLY AND ECONOMICALLY SUSTAINABLE BIOMASS-TO ENERGY SYSTEMS FOR THE FOREST AND FOOD WASTE SECTOR, GFO-15-325. This solicitation sought proposals to fund applied research and development (AR&D) and technology demonstration and deployment (TD&D) activities to advance bioenergy electricity generation. Consistent with the 2015-2017 EPIC Investment Plan and in coordination with the California Public Utilities Commission, the solicitation addresses three bioenergy funding initiatives. This solicitation is also responsive to the Governor's 10-30-2015 Proclamation of a State of Emergency to protect communities against unprecedented tree die-off. (EPIC funding) Contact: Gina Barkalow. (Staff presentation: 5 minutes)
 - a. FALL RIVER RESOURCE CONSERVATION DISTRICT. Proposed resolution adopting California Environmental Quality Act Findings for Fall River Resource Conservation District's Burney-Hat Creek Bioenergy project and approving Agreement EPC-17-019 with Fall River Resource Conservation District.
 - i. CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS. Findings that, based on the lead agency Shasta County's addendum to the final Environmental Impact Report and Mitigation Monitoring and Reporting Program, the work under the proposed project presents no new significant or substantially more severe environmental impacts beyond those already considered.
 - ii. FALL RIVER RESOURCE CONSERVATION DISTRICT'S BURNEY-HAT CREEK BIOENERGY PROJECT. Agreement with Fall River Resource Conservation District for a \$5,000,000 grant to develop, demonstrate, evaluate and commercially operate a 2.8 megawatt forest biomass to electricity facility in the Burney-Hat Creek area in Shasta County. The project will promote sustainable forest management practices, reduce the risk of catastrophic wildfire, and utilize feedstock

from areas identified as High Hazard Zones due to the high number of dead and dying trees.

- b. UNIVERSITY OF CALIFORNIA, DAVIS. Proposed resolution adopting the California Environmental Quality Act Findings for University of California, Davis project “Demonstrating the Potential for On-Site Electricity Generation from Food Waste Using Containerized Anaerobic Digestion Units” and approving Agreement EPC-17-018 with the Regents of the University of California, on behalf of the Davis campus.
- i. CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS. Findings that, based on the United States Department of the Navy’s Environmental Assessment and Finding of No Significant Impact made in accordance with the National Environmental Performance Act for the work performed at Naval Base Ventura County Port Hueneme, and that any work outside of the Naval Base will be conducted on the University of California, Davis campus in a laboratory setting and existing facilities, the work under the proposed project will not have a significant environmental impact.
 - ii. UNIVERSITY OF CALIFORNIA, DAVIS DEMONSTRATING THE POTENTIAL FOR ON-SITE ELECTRICITY GENERATION FROM FOOD WASTE USING CONTAINERIZED ANAEROBIC DIGESTION UNITS PROJECT. Agreement with University of California, Davis for a \$2,411,007 grant to fund the design, installation, and assessment of a compact, containerized anaerobic digestion system as an on-site solution at the Naval Base Ventura County Port Hueneme for converting food waste to electricity, heat, and fertilizer. The project benefits of this integrated, small-scale system will be analyzed based on the performance of the pilot unit, but will also be extrapolated to reflect the potential of broader adoption statewide.

Commissioner Douglas disclosed that she is a professor at UC Davis King Hall and that UC Davis is involved in Item 6b. Commissioner Douglas moved and Commissioner Scott seconded approval of Item 6. The vote was unanimous (5-0).

7. CALIFORNIA CLEAN ENERGY FUND DBA CALCEF VENTURES. Proposed resolution approving 20 grant applications totaling \$3,000,000 from the Electric Program Investment Charge (EPIC) program’s California Sustainable Energy Entrepreneur Development (CalSEED) Initiative Solicitation 17-01. These grants are the second and final set of competitively selected awards from Solicitation 17-01 and are for \$150,000 each. (EPIC funding) Contact: Joshua Croft. (Staff presentation: 15 minutes)
- a. OPUS 12 - Chemicals and Fuels from Renewable Electricity, \$150,000. The goal of this project is to finish development on a prototype device that uses electricity and a metal catalyst to more efficiently recycle carbon dioxide into cost-competitive chemical products for industrial processes. This technology provides a two-pronged approach for industrial facilities to decarbonize their energy use. First, it recycles carbon dioxide into usable chemical products at competitive prices. Second, because this technology enables chemical products to be produced onsite and on-demand, industrial facilities can coordinate production with time periods that experience an overabundance of renewable electricity generation.

- b. GLINT PHOTONICS, INC. - Low Cost Energy-Saving Configurable Lighting, \$150,000. The goal of this project is to develop and test an LED technology that can generate a wide variety of spot, flood, and asymmetric light patterns to properly illuminate areas of differing dimensions and characteristics. This technology enables significant energy savings by placing light only where it's needed which reduces the total energy used for illumination. The technology has a minimal lighting profile which can limit the impact of lighting on the building envelopes.
- c. POWERFLEX SYSTEMS, LLC - Adaptive Charging Network for EV and Renewables, \$150,000. The goal of this project is to implement, test, and refine an advanced charging network that will use smart charging algorithms to include input from the EV driver, the facility operator, and the grid to dispatch optimal charging rates to the network of smart chargers. The software will be developed to provide flexibility for driver preferences, building or power constraints, renewable energy generation, and grid conditions.
- d. SUNSWARM COMMUNITY SOLAR - Sunswarm Community Solar Software, \$150,000. The goal of this project is to develop and test new methodologies for community engagement to create an online, open community solar marketplace. Sunswarm will leverage its savings calculation engine as well as the results of this project to reduce customer acquisition costs for community solar developers and those savings can be passed on to the customer.
- e. HALO INDUSTRIES, INC. - Advanced Wafering for Drastic Solar Cost Reduction, \$150,000. The goal of this project is to further develop an advanced solar wafering technology that uses a crack propagation mechanism to produce thin wafers needed for solar cells. This innovation may drastically reduce material waste in the fabrication process which will lower the overall cost of the PV system.
- f. SEPION TECHNOLOGIES - EV BOOST, \$150,000. The goal of this project is to develop the composition for a nanocomposite membrane for Li-metal anodes in Lithium-ion batteries. Li-metal anodes that use this membrane to avoid dendrite growth can have a 2x improvement in energy density over the standard Li-ion battery using graphite anodes. This will enable electric vehicles that can go much further on a single charge.
- g. PARC, A XEROX COMPANY - Membrane-based Electrochemical CO2 Removal System, \$150,000. The goal of this project is to develop a membrane-based system that senses and removes carbon dioxide passing through an HVAC system. The system can be installed as a retrofit onto an existing HVAC system and can greatly reduce HVAC energy use related to heating or cooling outside air that must be introduced into buildings to maintain air quality.
- h. SOUTH 8 TECHNOLOGIES - Lithium Metal Battery, \$150,000. The goal of this project is to develop and test a liquefied gas electrolyte chemistry for a next-generation lithium-ion battery. This non-hazardous solvent will allow for increased voltage in the battery cells and wider ranges of operating temperatures which will expand the value batteries are able to provide for the grid.
- i. ARCTICA SOLAR - Next Gen Solar Heating & Cooling, \$150,000. The goal of this project is to develop and test a low cost, high performance modular product designed to deliver solar heated air in colder temperatures and induce natural convective cooling in warmer temperatures. This technology can augment existing HVAC equipment to lower the building's heating and cooling energy load. The

product is designed with the same form and fit as today's solar PV panels and does not require customer assembly.

- j. MARK MILES CONSULTING INC. - Ejector Heat Pump for Low Cost Solar Water Heating, \$150,000. The goal of this project is to design, build, and test a system that applies an ejector heat pump to improve the performance of a solar water heater. The system is designed to extract additional thermal energy from the atmosphere to augment the heat delivered to a water supply. This innovation may enhance to overall performance of the solar water heater at a minimal increase in cost.
- k. PARC, A XEROX COMPANY - Energy Storage and Electrochemical Desalination, \$150,000. The goal of this project is to develop and test a flow battery which produces desalinated water during battery discharge. The system is predicted to match the operating performance of existing technologies for both electrical storage and desalination while attaining an overall cost reduction.
- l. ENERDAPT, INC. - HVAC Optimization & Proactive Maintenance Software, \$150,000. The goal of this project is to develop and test software that plugs directly into existing HVAC control systems and uses a cloud-based platform to proactively identify equipment replacement and upgrade opportunities. The business model is designed to address the split-incentive problem by cutting energy costs for the occupant while not charging the building owner for the monitoring service. Instead, EnerDapt would monetize the platform via splitting the energy savings.
- m. NATIVUS - Rotary Heat Exchanger - Air Conditioner & Heater, \$150,000. The goal of this project is to develop a scalable heat exchanger technology that combines the heat exchanger and fan into a single rotating design. This innovative design increases the rate of air changes on the heat exchanger surface and results in significant energy efficiency gains, noise reduction, a smaller footprint, and cost savings.
- n. INTERTIE INCORPORATED - EV ChargePod, A Clean Energy Enabler, \$150,000. The goal of this project is to bench test an EV charging system that uses energy storage and PV to provide faster charging to EVs without impacting the grid. This solution will act as a miniature microgrid that makes optimal use of the available power sources for EV charging at a minimal impact to the grid. The EV ChargePod is designed to supply an 80% charge in 10 minutes.
- o. THE SUSTAINABLE ECONOMIES LAW CENTER - Permanent Community Energy Cooperative, \$150,000. The goal of this project is to pilot a crowdfunding ownership model that gives communities the ability to own equity in renewable energy technologies. This community energy cooperative model overcomes the legal, financial, technical, and social barriers to community ownership of energy and can increase community engagement and investments in renewable energy technology.
- p. CORRELATE INC. - Virtual Energy Manager Platform, \$150,000. The goal of this project is to develop software that deploys machine based energy decision support tools, data infrastructure, and human expertise paired with energy management frameworks to create low cost, custom, strategic energy programs for buildings. This will help small businesses and organizations realize many of the benefits of a dedicated energy manager that typically would not have the resources to evaluate and pursue.

- q. MAXOUT RENEWABLES - Maxout Polyveryter, \$150,000. The goal of this project is to develop a solar power smart string inverter technology that is inexpensive, failure resistant, and is more effective at maximizing solar power output. The smart string inverter combines an optimizer that processes power imbalances between solar panels with a highly redundant network of DC to AC converters. This technology can decrease the overall cost of owning and maintaining a solar PV system while making the system more efficient and failure resistant.
- r. CUBERG, INC. - Better Batteries with Next Gen Electrolytes \$150,000. The goal of this project is to continue development of a battery cell chemistry for a safe, high energy density lithium-ion battery. Cuberg uses lithium metal technology with an electrolyte that is designed to limit dendrite growth and flammability – two common barriers to adoption of lithium metal batteries.
- s. LUCENT OPTICS, INC. - Daylight Harvesting Window Film, \$150,000. The goal of this project is to develop and test a light redirecting window film that improves lighting levels in buildings up to 50 feet from windows. The additional daylight harvested by the film creates a healthy, naturally lit environment for building occupants, without glare or hot spots, and dramatically reduces the need for artificial lights. When combined with automated lighting controls, the proposed solution is expected to significantly save energy used for lighting.
- t. SANLIANG ZHANG - Super-Long-Life, Ultra-High-Power Hybrid Battery, \$150,000. The goal of this project is to develop a long life, high power battery for stationary energy storage and stop-start automobiles. The technology merges a supercapacitor with a lithium-ion battery to achieve excellent cycling stability and power performance while capturing the high energy density characteristics of a lithium-ion battery.

Commissioner Hochschild moved and Commissioner McAllister seconded approval of Item 7. The vote was unanimous (5-0).

- 8. COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY. Proposed resolution adopting California Environmental Quality Act Findings for County Sanitation Districts of Los Angeles County's (CSD LA County) Biogas Conditioning System Project and approving Agreement ARV-17-009 with CSD LA County. (ARFVTP funding) Contact: Andrew Hom. (Staff presentation: 5 minutes)
 - a. CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS. Findings that, based on the lead agency CSD LA County's Initial Study and Mitigated Negative Declaration, the work under the proposed project presents no new significant or substantially more severe environmental impacts beyond those already considered and mitigated.
 - b. ~~CSD LA COUNTY'S BIOGAS CONDITIONING SYSTEM PROJECT.~~
 Agreement with CSD LA County for a \$2,500,000 grant to construct a biogas conditioning system and associated gas conveyance pipelines to upgrade 400 scfm of biogas into 761,000 DGE of renewable natural gas (RNG) per year for use for transportation fuel. The proposed project will utilize biogas from the co-digestion of 124 tons per day of pre-landfilled food waste in the existing anaerobic digesters at the CSD LA County's Joint Water Pollution Control Plant in the city of Carson, CA. The RNG, with a carbon intensity of -20.31 or less, will be sold at an existing

public-access compressed natural gas dispensing station located on-site and owned by CSD LA County.

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 8. The vote was unanimous (5-0).

9. DISCUSSION OF ENERGY COMMISSION PROGRESS RE IMPLEMENTATION OF THE CLEAN ENERGY AND POLLUTION REDUCTION ACT OF 2015 (SB 350). Staff presentation regarding progress on implementation of SB 350 requirements, including administration of the California Renewables Portfolio Standard program, review of local publicly owned electric utility integrated resource plans, revision of Commission data collection regulations to improve demand forecasting, identification of progress in meeting the bill's goals of 50% renewables procurement and doubling of energy efficiency, implementation of widespread transportation electrification, and preparation and publication of the study required by Public Resources Code section 25327 regarding barriers for low-income customers to energy efficiency, weatherization, and renewable energy investments. Contact: Michael Sokol. (Staff presentation: 5 minutes)
 - a. DISADVANTAGED COMMUNITY ADVISORY GROUP. Staffs update on development of the joint California Public Utilities Commission and California Energy Commission Disadvantaged Community Advisory Group required by SB 350. As mandated by SB 350, the advisory group will review and provide advice on programs proposed to achieve clean energy and pollution reduction and determine whether those proposed programs will be effective and useful in disadvantaged communities. Contact: Alana Mathews. (Staff Presentation: 5 minutes)

Staff presented Information Item 9.

10. **Minutes:** Possible approval of the August 9, 2017 Business Meeting minutes.

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 10. The vote was unanimous (5-0).

11. **Lead Commissioner or Presiding Member Reports.** The Commissioners reported on their recent activities.
12. **Closed Session for Personnel Matters:** The Chair announced pursuant to Government Code section 11126(a), the Energy Commission will go into closed session to address personnel matters and the Commissioners will go into closed session with Legal Counsel pursuant to Government Code Section 11126(e) on the following item set forth in the agenda: Item 13f.
 - Helping Hand Tools and Robert Simpson v. Energy Commission (San Francisco Superior Court Case # CPF-17-515576)
13. **Chief Counsel's Report:** The Chief Counsel gave a report.
- ~~14. **Executive Director's Report.** The Executive Director gave a report.~~
15. **Public Adviser's Report.** None.
16. **Public Comment:** *Kerry Siekmann, Terramar

Appearances:

(*by telephone)

Severin Borenstein, Haas School of Business Economic Analysis and Policy Group at U.C. Berkeley

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Kathleen Foote, California Attorney General's Office

Daniel S. Hashimi, Southern California Public Power Authority

Jill D. Brigham, U.C. Davis

Mathew O. Hart, West Biofuels

Jay Lenzmeier, CHEERS

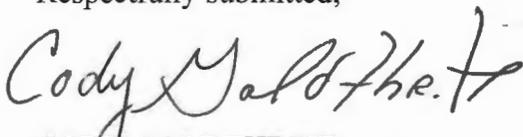
Rahm Orenstein, ORMAT

Andre Schmidt, Los Angeles County Sanitation District

Derrick Tang, California Clean Energy Fund

There being no further business, the meeting was adjourned.

Respectfully submitted,



CODY GOLDTHRITE
Secretariat

