

State of California
California Energy Commission
Minutes of the June 14, 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

Janea A. Scott, Commissioner

The Chair announced that Items 2 and will be held and that Commissioners McAllister and Hochschild are absent.

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. INTERNATIONAL BUILDING PERFORMANCE SIMULATION ASSOCIATION-USA REGIONAL AFFILIATE. Proposed resolution approving Agreement 400-16-007 with International Building Performance Simulation Association-USA Regional Affiliate for a \$10,000 co-sponsorship contract to support the International Building Performance Simulation Association's Building Simulation 2017 Conference. (ERPA funding) Contact: Martha Brook.
 - b. DOE-NATIONAL RENEWABLE ENERGY LABORATORY. Proposed resolution approving Agreement 800-16-002 with Department of Energy's National Renewable Energy Laboratory (NREL) for a \$500,000 contract to provide technical support to forecast distributed energy resources in California for the Integrated Energy Policy Report (IEPR). This agreement was previously approved at the February 15, 2017 Business Meeting. The scope of work with NREL is being changed from providing a model to direct technical assistance in forecasting distributed energy resource adoption. (ERPA funding) Contact: Asish Gautam.
 - c. ERGSOL, INC. Proposed resolution approving Amendment 1 to Grant Agreement PIR-15-010 with ergSol, Inc. to change the demonstration site location, reallocate the budget and extend the grant term by one year. The total Energy Commission funding amount remains unchanged. (Natural Gas Research funding) Contact: David Weightman.
 - d. H-D SYSTEMS, LLC. Proposed resolution approving Agreement 800-16-005 with H-D Systems, LLC for a \$44,845 contract to update the Energy Commission's datasets of medium- and heavy-duty vehicle fuel economy and sales price projections for model years 2016 through 2030. This data is needed to estimate future fuel consumption and the penetration of alternative fuel vehicles for the 2017 Integrated Energy Policy Report (IEPR). (ERPA funding) Contact: Sudhakar Konala.

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 1. The vote was 3-0.

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. ENERGY EFFICIENCY COMPARISON. Proposed resolution approving the staff report detailing the energy efficiency comparison between the 2016 Building Energy Efficiency Standards and the International Energy Conservation Code - 2015. Contact: Mark Alatorre. (Staff presentation: 10 minutes)

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 3. The vote was 3-0.

4. BERKELEY ECONOMIC ADVISING AND RESEARCH, LLC. Proposed resolution approving Agreement 300-16-002 with Berkeley Economic Advising and Research, LLC for a \$249,320 contract to analyze the economic implications for disadvantaged communities of multiple long-term energy scenarios, taking climate change and California energy policy into account. (ERPA funding) Contact: Sonya Ziaja. (Staff presentation: 5 minutes)

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 4. The vote was 3-0.

5. THE ENERGY COALITION. Proposed resolution approving Agreement 400-16-008 with The Energy Coalition for a \$957,390 contract to provide statewide education and outreach for the implementation of Building Energy Use Data Access, Benchmarking, and Public Disclosure Program, facilitate energy-related workforce and industry alignment, and facilitate an energy efficiency collaborative as directed by the 2015 Existing Buildings Energy Efficiency Action Plan and the 2016 Action Plan Update. (ERPA funding) Contact: Laith Younis. (Staff presentation: 5 Minutes)

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 5. The vote was 3-0.

6. NAVIGANT CONSULTING, INC. Proposed resolution approving Agreement 800-16-006 with Navigant Consulting, Inc. for a three-year \$1.5 million contract to provide technical assistance to the Energy Commission related to establishing and assessing annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses of retail customers by January 1, 2030 as prescribed by Senate Bill 350. (Air Pollution Control funding) Contact: Elena Giyenko. (Staff presentation: 5 minutes)

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 6. The vote was 3-0.

7. ACCENTURE LLP. Proposed resolution approving agreement 16-409.00-012 with Accenture LLP for a \$499,756 contract to support the development of the Energy Analytics and Information Platform, also known as the Energy Data Lake. (ERPA funding) Contact: Cody Rogers. (Staff presentation: 5 minutes)

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 7. The vote was 3-0.

8. GEOTHERMAL GRANT AND LOAN PROGRAM, GFO-16-509. This solicitation sought proposals to fund eligible local jurisdictions and eligible private entities for geothermal energy-related projects in California for recovery of lithium, metals, agricultural products, or other beneficial minerals from highly mineralized geothermal brines that met additional specific requirements. (Federal Trust funding) Contact: Elisabeth de Jong. (Staff presentation: 5 minutes)

- a. ENERGYSOURCE MINERALS, LLC. Proposed resolution approving Agreement GEO-16-006 with EnergySource Minerals, LLC for a \$2,500,000 grant to develop a robust engineering package and accurate capital budget for a facility that will extract lithium and mineral co-products from geothermal brines using processes and equipment from the water treatment, metal processing and chemical processing industries. An existing pilot facility will be used for a small scale demonstration of the extraction process and extracted lithium product.

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 8. The vote was 3-0.

9. GEOTHERMAL GRANT AND LOAN PROGRAM, GFO-16-505. This solicitation sought proposals to fund eligible local jurisdictions and eligible private entities for geothermal energy-related projects in California. (GRDA funding) Contact: Elisabeth de Jong. (Staff presentation: 10 minutes)

- a. MODOC JOINT UNIFIED SCHOOL DISTRICT. Proposed resolution adopting California Environmental Quality Act Findings for the Modoc Joint Unified School District Geothermal Expansion and approving Agreement GEO-16-001 with the Modoc Joint Unified School District.
 - i. CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS. The Energy Commission will consider adoption of a resolution finding that, for purposes of CEQA, no further environmental review is required because it involves two local projects (1) one has previously been found to be exempt from CEQA by the City of Alturas, and (2) the prior Mitigated Negative Declaration prepared for the other project by the City of Alturas is still valid and the work under the proposed grant agreement presents no new significant or substantially more severe environmental impacts beyond those already considered and mitigated pursuant to CEQA Guidelines section 15162.
 - ii. MODOC JOINT UNIFIED SCHOOL DISTRICT GEOTHERMAL EXPANSION. Agreement GEO-16-001 with the Modoc Joint Unified School District for an \$880,000 grant to expand the existing geothermal heating system by constructing additional retrofits and heating system upgrades at Modoc High School, Modoc Middle School, and Alturas Elementary School; and extending the geothermal piping to the planned Modoc Medical Center site.
- b. IMAGEAIR, INC. Proposed resolution approving Agreement GEO-16-003 with Imageair, Inc. for a \$604,928 grant to demonstrate the use of satellite interferometric synthetic aperture radar (InSAR) to observe and characterize surface deformation in geothermal fields. The proposed project will monitor surface deformation in geothermal fields in southern California (Salton Sea, North Brawley, and Heber) and eastern California (Coso), and show how surface deformation and induced seismicity data can help geothermal reservoir assessment and management.

- c. GREENFIRE ENERGY, INC. Proposed resolution approving Agreement GEO-16-004 with GreenFire Energy, Inc. for a \$1,482,408 grant to prepare and execute a small-scale demonstration of CO₂-based geothermal power generation. This project will use ECO₂G™ technology for exploitation of geothermal energy in existing geothermal fields, plus extension into new fields, while producing power at competitive costs.
- d. COUNTY OF MODOC. Proposed resolution approving Agreement GEO-16-005 with the County of Modoc for a \$1,638,022 grant to drill a geothermal resource confirmation exploratory well to a target depth of 4,000 feet, generate well logs, and develop a reservoir model to further characterize the presence of a geothermal reservoir in Surprise Valley near Surprise Valley Hot Springs.

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 9. The vote was 3-0.

- 10. LIGHT-DUTY VEHICLE HYDROGEN REFUELING INFRASTRUCTURE, GFO-15-605. This solicitation sought proposals to expand the network of publicly accessible hydrogen refueling stations for California's light-duty fuel cell electric vehicles. The Energy Commission will make available Capital Expense (Cap-X) funding in addition to Operation and Maintenance (O&M) funding for stations funded under this solicitation. (ARFVTP funding) Contact: Phil Cazal. (Staff presentation: 5 minutes)
 - a. FIRSTELEMENT FUEL, INC. Proposed resolution approving Agreement ARV-16-029 with FirstElement Fuel, Inc. for a \$1,972,785 grant to develop a hydrogen refueling station at 337 East Hamilton Avenue, Campbell, CA 95008 to serve the growing number of hydrogen powered zero emission vehicles deployed in California. This station will increase the reliability of the hydrogen refueling network in the Santa Clara area and the surrounding communities.
 - b. FIRSTELEMENT FUEL, INC. Proposed resolution approving Agreement ARV-16-030 with FirstElement Fuel, Inc. for a \$1,972,785 grant to develop a hydrogen refueling station at 350 Grand Avenue, Oakland, CA 94610 to serve the growing number of hydrogen powered zero emission vehicles deployed in California. This station will increase the reliability of the hydrogen refueling network in the Berkeley area and the surrounding communities.
 - c. FIRSTELEMENT FUEL, INC. Proposed resolution approving Agreement ARV-16-031 with FirstElement Fuel, Inc. for a \$1,897,785 grant to develop a hydrogen refueling station at 5333 University Drive, Irvine, CA 92612 to serve the growing number of hydrogen powered zero emission vehicles deployed in California. This station will increase the reliability of the hydrogen refueling network in the Orange County area and the surrounding communities.
 - d. FIRSTELEMENT FUEL, INC. Proposed resolution approving Agreement ARV-16-032 with FirstElement Fuel, Inc. for a \$1,905,285 grant to develop a hydrogen refueling station at 14478 Ventura Boulevard, Sherman Oaks, CA 91423 to serve the growing number of hydrogen powered zero emission vehicles deployed in California. This station will increase the reliability of the hydrogen refueling network in the Greater Los Angeles-Sherman Oaks area and the surrounding communities.
 - e. FIRSTELEMENT FUEL, INC. Proposed resolution approving Agreement ARV-16-033 with FirstElement Fuel, Inc. for a \$1,882,785 grant to develop a hydrogen refueling station at 16001 Beach Boulevard, Huntington Beach, CA 92647 to serve the growing number of hydrogen powered zero emission vehicles deployed

in California. This station will increase the reliability of the hydrogen refueling network in the Orange County area and the surrounding communities.

- f. **FIRSTELEMANT FUEL, INC.** Proposed resolution approving Agreement ARV-16-034 with FirstElement Fuel, Inc. for a \$1,875,285 grant to develop a hydrogen refueling station in 5494 Mission Center Road, San Diego, CA 92108 to serve the growing number of hydrogen powered zero emission vehicles deployed in California. This station will increase the reliability of the hydrogen refueling network in the San Diego area and the surrounding communities.
- g. **FIRSTELEMANT FUEL, INC.** Proposed resolution approving Agreement ARV-16-035 with FirstElement Fuel, Inc. for a \$1,882,785 grant to develop a hydrogen refueling station at 1866 Lincoln Boulevard, Santa Monica, CA 90405 to serve the growing number of hydrogen powered zero emission vehicles deployed in California. This station will increase the reliability of the hydrogen refueling network in the Greater Los Angeles Area and the surrounding communities.
- h. **FIRSTELEMANT FUEL, INC.** Proposed resolution approving Agreement ARV-16-036 with FirstElement Fuel, Inc. for a \$1,950,285 grant to develop a hydrogen refueling station at 1296 Sunnyvale Saratoga Road, Sunnyvale, CA 94087 to serve the growing number of hydrogen powered zero emission vehicles deployed in California. This station will increase the reliability of the hydrogen refueling network in the Santa Clara area and the surrounding communities.
- i. **AIR LIQUIDE ADVANCED TECHNOLOGIES U.S., LLC.** Proposed resolution approving Agreement ARV-16-037 with Air Liquide Advanced Technologies U.S., LLC for a \$1,712,461 grant to develop a hydrogen refueling station at 12754 State Highway 33, Santa Nella, CA 95322 to serve the growing number of hydrogen powered zero emission vehicles deployed in California. This station will connect the other hydrogen refueling stations in San Francisco Bay Area with the Southern California Los Angeles-San Diego region.

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 10. The vote was 3-0.

- 11. **CALIFORNIA CLEAN ENERGY FUND DBA CALCEF VENTURES.** Proposed resolution approving eight grant applications totaling \$1,200,000 from the Electric Program Investment Charge program's California Sustainable Energy Entrepreneur Development (CalSEED) Initiative, which is administered by the California Clean Energy Fund (CalCEF) under Energy Commission Agreement No. 300-15-007. CalCEF issued Solicitation 17-01 and these competitively selected grants are being proposed for funding at \$150,000 each. (EPIC funding) Contact: Joshua Croft. (Staff presentation: 10 minutes)
 - a. **SUNVAPOR, INC. - Industrial Solar Steam for Rural Central Valley, \$150,000.** The goal of this project is to demonstrate a patent-pending solar collector that disruptively reduces the cost of solar steam by prototyping and testing in real world conditions at the Horizon Nut processing plant in the Central Valley. They are redesigning the parabolic trough collector by using low-cost, high strength, low-embodied energy, self-assembled, biodegradable, fiber-reinforced materials, instead of steel in the construction of the Parabolic Trough Collector.
 - b. **LILAC SOLUTIONS, INC. - Lithium Extraction with Ion Exchange Materials, \$150,000.** The goal of this project is to develop a manufacturing process for a unique ion-exchange material for lithium extraction. The project will refine techniques for processing oxide powder, which is the active component during lithium extraction. The project is intended to lower the costs of lithium ion battery production by increasing the effectiveness of the lithium extraction process. This

novel ion-exchange process for lithium extraction is expected to streamline operations, boost lithium recovery from 50 percent to 80 percent, and make new brine resources accessible.

- c. OPCODEYS, INC. - Ultra-High Efficiency Energy Control Using Light, \$150,000. The goal of this project is to demonstrate a high voltage, optically controlled, solid-state power electronic device for high efficiency electric power grid control. This device operates at a higher voltage and at an order of magnitude faster switching frequency which will enable better electric fault detection and recovery.
- d. CODECYCLE LLC - CodeCycle, \$150,000. The goal of this project is to expand and demonstrate an Online Design Assistance Tool and an iPad inspection application to streamline the compliance process for building officials, contractors, and engineers. Inputs and inspection processes will be organized atop building plans, greatly increasing transparency and accountability while allowing design teams to evaluate code compliance in real-time. Prioritized inspections focus a building official's time on those measures with the greatest energy impact. Integration of all stakeholders in a cloud-based format easily transfers validated building data between design teams, contractors, and building officials.
- e. BK LITEC INC. - S1 Outdoor & Industrial IoT LED lamp, \$150,000. The goal of this project is to demonstrate an industrial, IoT enabled, LED bulb that operates at a thermal resistance level 30 times lower than conventional LED light engines. This results in thermal heat dissipation performance that is efficient enough to eliminate the need for a heat sink in the LED light. Testing previously conducted by a packaging R&D lab of one of the U.S.'s largest LED manufacturers showed a 30 percent efficiency improvement compared to their highest performing packages when using the same LED chip.
- f. MOEV INC. - Next Generation of Storage - Virtual Battery, \$150,000. The goal of this project is to demonstrate a system that uses software algorithms to combine machine learning, Cloud computing and IoT to enable customer-facing 'virtual energy storage'. The system integrates vehicle to grid (V2G), stationary storage, DER, and grid conditions while monitoring and predicting the changes to the availability of each component.
- g. GENERAL ENGINEERING & RESEARCH - High Efficiency Magnetic Refrigeration, \$150,000. The goal of this project is to demonstrate a hydrogen liquefaction system and demonstrate economical high efficiency hydrogen storage. It is expected that magnetic refrigeration could provide up to 50 percent more energy efficiency compared to traditional vapor compression cycle technologies, without using environmentally hazardous materials. The proposed project has the potential to contribute to a fundamental understanding of magnetocaloric effect and also advance the state-of-the-art in refrigeration technologies.
- h. SARATOGA ENERGY RESEARCH PARTNERS, LLC - High-Power Long-Life Batteries for Grid Storage, \$150,000. The goal of this project is to develop a breakthrough electrolysis process to synthesize low-cost carbon nanotubes (CNTs) from carbon dioxide. CNTs provide an exceptional array of properties that enable the manufacture of low-cost, high cycle life, safer lithium-ion batteries that are ideally suited for grid storage applications. The total energy requirement for Saratoga's CNT synthesis process including post-production purification and processing is estimated to be an order of magnitude less energy intensive than catalytic chemical vapor deposition, the state-of-the-art process. The company has established that its process has potential to manufacture CNTs significantly cheaper than today's market price for CNTs.

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 11. The vote was 3-0.

12. FEDERAL COST SHARE UNDER THE ELECTRIC PROGRAM INVESTMENT CHARGE, PON-14-308. This solicitation sought proposals to provide cost share funding to eligible applicants that apply for and receive an award from eligible Federal Funding Opportunity Announcements (FOAs) and meet the requirements stipulated in this solicitation. (EPIC funding) Contact: Karen Perrin. (Staff presentation: 5 minutes)

- a. DOE-LAWRENCE BERKELEY NATIONAL LABORATORY. Proposed resolution approving Agreement EPC-16-067 with the Department of Energy's Lawrence Berkeley National Laboratory for a \$100,000 grant to provide cost-share to leverage a \$1,500,000 US Department of Energy award to develop a cost-effective, thermal insulation material. The R-value of the proposed insulation is expected to be 2-4 times higher than conventional insulation, and will also be thinner than conventional insulation, making retrofits easier because it takes much less space. This material could be used to retrofit many under or un-insulated buildings in California.

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 12. The vote was 3-0.

13. NUVVE CORPORATION. Proposed resolution approving agreement EPC-16-061 with Nuvve Corporation for a \$4,200,000 grant to demonstrate large scale electric vehicle fleet integration impacts on the grid, as well as to assess and provide quantification of potential benefits of plug-in electric vehicle's as grid assets amid a suitable population of vehicle users in concentrated and distributed areas. (EPIC funding) Contact: Ostap Loredon-Contreras. (Staff presentation: 5 minutes)

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 13. The vote was 3-0.

14. SOLAR+: TAKING THE NEXT STEPS TO ENABLE SOLAR AS A GRID ASSET, GFO-16-309. This solicitation sought proposals to fund technology development, pilot demonstrations, and full-scale demonstrations to advance the deployment and grid integration of distributed solar resources through the use of energy storage, smart inverters, and advanced forecasting and modeling techniques. (EPIC funding) Contact: Angela Gould. (Staff presentation: 5 minutes)

- a. ELECTRIC POWER RESEARCH INSTITUTE, INC. Proposed resolution approving Agreement EPC-16-068 with Electric Power Research Institute, Inc. for a \$2,976,991 grant to demonstrate the use of a package of technologies with community-scale integrated solar and storage to reduce the energy and carbon footprint in a low-income multi-family community within a disadvantaged community.
- b. ADVANCED MICROGRID SOLUTIONS, INC. Proposed resolution approving Agreement EPC-16-069 with Advanced Microgrid Solutions, Inc. for a \$2,729,943 grant to demonstrate the Phase III functions of a PV smart inverter identified by the Rule 21 Smart Inverter Working Group and a bi-directional storage inverter with an advanced communications gateway.
- c. ELECTRIC POWER RESEARCH INSTITUTE, INC. Proposed resolution approving Agreement EPC-16-070 with Electric Power Research Institute, Inc. for a \$1,832,770 grant to fund a demonstration of an integrated, interoperable, cost-effective, and scalable solution that integrates distributed front-of-meter energy storage with smart PV inverters and solar forecasting. This solution will

address grid readiness limitations and enable multi-tiered value stacking for distributed energy resources, particularly in areas with high penetrations of existing rooftop PV.

- d. NATURAL CAPITALISM SOLUTIONS, INC DBA CLEAN COALITION. Proposed resolution approving Agreement EPC-16-073 with Natural Capitalism Solutions, Inc., dba Clean Coalition for a \$1,994,687 grant to utilize energy storage at a large public housing complex in San Francisco's Mission District to support solar photovoltaic generation.
- e. UNIVERSITY OF CALIFORNIA, RIVERSIDE. Proposed resolution approving Agreement EPC-16-077 with The Regents of the University of California, on behalf of the Riverside Campus's Center for Environmental Research & Technology for a \$2,110,657 grant to demonstrate a community-scale solar photovoltaic and energy storage system, integrated with a smart inverter, on a low-income, multi-tenant supportive housing building. The system will provide energy cost savings, reactive power support and demand response services to residents and the distribution grid.
- f. ELECTRIC POWER RESEARCH INSTITUTE, INC. Proposed resolution approving Agreement EPC-16-079 with Electric Power Research Institute, Inc. for a \$2,935,822 grant to evaluate the smart inverter functions recommended by the Smart Inverter Working Group for CA Rule 21, Phase III, to address the challenges posed by increasing PV penetrations on the distribution grid such as reverse power flows, generation variability, large voltage variations and increased cyber security risks.

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 14. The vote was 3-0.

- 15. NATURAL GAS ENGINE IMPROVED EFFICIENCY RESEARCH AND DEVELOPMENT, GFO-16-507. This solicitation sought proposals to develop and demonstrate advanced medium- and heavy-duty natural gas engine technologies that improve engine efficiency and emissions performance. This research will lead to the development of technologies that will reduce the efficiency gap between spark-ignited stoichiometric natural gas engines and diesel engines, making natural gas vehicles more viable in the heavy-duty vehicle market. (PIER NG funding) Contact: Peter Chen. (Staff presentation: 5 minutes)
 - a. TRANSIENT PLASMA SYSTEMS, INC. Proposed resolution approving Agreement PIR-16-024 with Transient Plasma Systems, Inc. for a \$899,139 grant to research and develop a production intent prototype of a low-energy non-thermal plasma ignition system that can reduce maintenance requirements, improve fuel economy, and reduce emissions of heavy-duty natural gas engines. The ignition system will be demonstrated across the full operating range of a near-zero emission natural gas engine to show increased combustion stability at high pressure, high exhaust gas recirculation conditions.
 - b. SOUTHWEST RESEARCH INSTITUTE. Proposed resolution approving Agreement PIR-16-025 with Southwest Research Institute for an \$891,580 grant to research, develop, and demonstrate dedicated exhaust gas recirculation on a low NOx 12-liter natural gas engine. The engine will be modified to use dedicated exhaust gas recirculation with an optimized turbocharger, high-energy ignition, and advanced after-treatment to increase engine efficiency and reduce exhaust emissions.

- c. NORTH AMERICAN REPOWER, LLC. Proposed resolution approving Agreement PIR-16-026 with North American Repower, LLC for a \$900,000 grant to develop and optimize an advanced system for natural gas engines used in heavy-duty vehicles. The technology involves advancement in the analysis, design, and control of several engine subsystems to overcome known risks and achieve both high fuel efficiency and ultra-low, near zero emissions.

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 15. The vote was 3-0.

16. NATURAL GAS STORAGE INFRASTRUCTURE SAFETY AND INTEGRITY RISK MODELING RESEARCH GRANTS, GFO-16-508. This solicitation sought proposals to fund research grant agreements focused on developing advanced risk assessment models including new methods, methodologies, and approaches to improve natural gas storage infrastructure safety and integrity management in California. (PIER NG funding) Contact: Mike Gravely. (Staff presentation: 5 minutes)
 - a. DOE-LAWRENCE BERKELEY NATIONAL LABORATORY. Proposed resolution approving Agreement PIR-16-027 with the Department of Energy's Lawrence Berkeley National Laboratory for a \$2,975,761 grant to develop an Integrated Risk Management and Decision-Support System to enable facility operators and risk managers to more effectively characterize, model, and manage the safety and integrity of underground gas storage infrastructure in California.
 - b. DNV GL FORMERLY KNOWN AS DET NORSKE VERITAS (U.S.A.). Proposed resolution approving Agreement PIR-16-028 with DNV GL formerly known as DET NORSKE VERITAS (U.S.A.), Inc. for a \$2,398,939 grant to develop and demonstrate an advanced risk assessment methodology for managing the safety and integrity of Underground Gas Storage (UGS) assets in California. The project will partner with two major gas storage companies in California to develop and demonstrate a Bow-tie (BT) Bayesian network (BN) risk assessment model (BT-BN model).

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 16. The vote was 3-0.

- ~~17. CITY OF SAN RAFAEL. Proposed resolution approving Agreement 005-16-ECD for a \$1,234,492 loan at one percent interest to the City of San Rafael to reduce energy consumption and costs at multiple end-use locations. Energy efficiency measures include retrofitting or replacing building and street lighting fixtures, enhancing existing energy management control systems with new sensors and automated analysis, and retro commissioning large mechanical systems. This project is estimated to save 1,013,110 kWh and 8,000 therms, reduce 396 tons carbon dioxide equivalent (CO₂e) in greenhouse gas emissions, and save the city \$164,175 in energy costs annually. Based on the estimated savings and loan amount, the simple payback is 7.5 years. (ECAA funding) Contact: Armando Ramirez. (Staff presentation: 5 minutes)~~

No discussion of or action taken on Item 17.

18. PRINCETON JOINT UNIFIED SCHOOL DISTRICT. Proposed resolution approving Agreement 004-16-ECG with Princeton Joint Unified School District for a \$500,000 loan for an 110.55kWdc and a 40.2kWdc ground mounted fixed photovoltaic project. The project combined is estimated to save the district 229,089 kWh electricity, resulting in annual energy cost savings of \$41,831 and 79 tons of greenhouse gases emissions reduction. Based on the loan amount, the simple payback is 12 years. (ECAA-Ed Program Funding) Contact: Nelson Peña. (Staff presentation: 5 minutes)

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 18. The vote was 3-0.

19. LOCAL GOVERNMENT CHALLENGE, GFO-16-404. This solicitation sought proposals to fund projects that stimulate innovation in building energy efficiency and develop or implement climate action plans. (Federal funding) Contact: Anne Fisher. (Staff presentation: 5 minutes)
- a. ENERGY COUNCIL. Proposed resolution approving Agreement LGC-16-001 with the Energy Council for a \$1,000,000 grant to launch a project that will accelerate multi-family building upgrades in Bay Area jurisdictions.
 - b. CITY OF SAN DIEGO. Proposed resolution approving Agreement LGC-16-002 with the City of San Diego Environmental Services Department for a \$1,991,444 grant to launch an advanced Smart City Open Urban Platform (SCOUP) network which will automatically track, benchmark, and reduce greenhouse gas (GHG) emissions and energy use associated with its municipal facilities. This platform will help the City meet its Climate Action Plan (CAP) target to reduce municipal building consumption by 15 percent by 2020 and by an additional 25 percent by 2035, as well as its CAP action to create a Municipal Energy Strategy and Implementation Plan.
 - c. CITY OF DEL MAR. Proposed resolution adopting California Environmental Quality Act Findings for City of Del Mar's Civic Center Energy Efficiency Enhancements Project, and approving LGC-16-003 with the City of Del Mar.
 - i. CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS. Findings that, based on the lead agency City of Del Mar's Environmental Impact Report and Notice of Determination, the work under the proposed project presents no new significant or substantially more severe environmental impacts beyond those already considered and mitigated.
 - ii. CITY OF DEL MAR'S CIVIC CENTER ENERGY EFFICIENCY ENHANCEMENTS PROJECT. Agreement LGC-16-003 with the City of Del Mar for a \$388,893 grant to install a 62.6 kW Photovoltaic (PV) system on the roof of the new city hall currently under construction with a completion date of May 2018, and install a battery energy storage system (ESS) to provide a minimum of 5 hours backup or supplemental power. This project is a collaboration with the Center for Sustainable Energy in San Diego to disseminate information on the energy savings and performance metrics provided by the PV/ESS system, and application of lessons learned to other building projects in Del Mar.
 - d. SAN BERNARDINO COUNCIL OF GOVERNMENTS. Proposed resolution approving Agreement LGC-16-004 with the San Bernardino Council of Governments for a \$250,635 grant to fund eight local jurisdictions to update the 2014 San Bernardino County Regional Greenhouse Gas Reduction Plan. The eight sub-regional partner cities include Adelanto, Barstow, Big Bear Lake, Hesperia, Needles, Twentynine Palms, Victorville, and Yucca Valley.
 - e. COUNTY OF SAN LUIS OBISPO. Proposed resolution approving Agreement LGC-16-005 with the County of San Luis Obispo for a \$327,206 grant to fund a transferable pilot project study identifying the technical, social, and organizational feasibility of deep neighborhood based energy savings in a disadvantaged community. The grant will also fund a Zero Net Energy Neighborhood

Feasibility, Design, and Implementation Study that capitalizes on this existing energy efficiency work and more strategically directs those efforts.

- f. CITY OF SANTA CRUZ. Proposed resolution approving Agreement LGC-16-006 with the City of Santa Cruz for a \$523,672 grant to add Building Automation System software and hardware to the Police Station and the City Hall Annex. These measures, along with previous implemented measures will reduce the City's energy use by 41.8 percent since 2008, thereby achieving its Climate Action Milestone of reducing energy use in municipal buildings by 40 percent by 2020 from 2008.
- g. VENTURA COUNTY REGIONAL ENERGY ALLIANCE. Proposed resolution approving Agreement LGC-16-007 with the Ventura County Regional Energy Alliance, working in collaboration with the County Environmental Council of Santa Barbara, for a \$427,544 grant to develop Community and Municipal Energy Action Plans (EAPs) for four communities in Santa Barbara and Ventura counties. Additionally, these funds will also be used to develop an EAP template that can be used by cities within the two counties to develop EAPs in the future, and to develop a Business Energy Efficiency Pilot Program.
- h. MARIN CLEAN ENERGY. Proposed resolution approving Agreement LGC-16-008 with Marin Clean Energy for a \$1,720,343 grant to design and implement a replicable Community Choice Aggregator program to remove barriers to deployment of distributed energy resources. The project will help implement the goals of Senate Bill 350 to increase existing building efficiency and increase renewable energy generation and storage.
- i. MARIN GENERAL SERVICES AUTHORITY. Proposed resolution approving Agreement LGC-16-009 with Marin General Services Authority for a \$275,008 grant to implement the Resilient Neighborhoods program, which is a grassroots effort to reduce residential building energy use. The project will help implement the goals of Senate Bill 350 to increase existing building efficiency and local government Climate Action Plan goals.
- j. GATEWAY CITIES COUNCIL OF GOVERNMENTS. Proposed resolution approving Agreement LGC-16-010 with the Gateway Cities Council of Governments (COGs) for a \$466,000 grant to prepare a Climate Action Planning Framework. Many members of the Gateway Cities COGs have not adopted Climate Action Plans (CAPs), and the CAP Framework will help members adopt CAPs and take additional steps toward reducing their greenhouse gas emissions.
- k. CITY OF SANTA BARBARA. Proposed resolution approving Agreement LGC-16-011 with the City of Santa Barbara for an \$186,708 grant to develop a detailed City of Santa Barbara Zero Net Energy (ZNE) Roadmap and Implementation Plan. The Plan will include energy efficiency and renewable energy upgrade measures for city owned buildings that will achieve ZNE and an implementation plan for installation by 2030.
- l. CITY OF SAN LEANDRO. Proposed resolution approving Agreement LGC-16-012 with the City of San Leandro for a \$1,995,963 grant to implement new high efficiency LED lighting, a new Building Automation System, and 1 MW solar photovoltaic power generation system at the city's Water Pollution Control Plant. The project will help implement the goals of the city's Climate Action Plan, which includes the goal to reduce community emissions 25 percent below 2005 levels by 2020.
- m. CITY OF GALT. Proposed resolution approving Agreement LGC-16-013 with the City of Galt for a \$645,800 grant to develop a Climate Action Plan,

Transportation Corridor Management Plan, and Master Plan. The three plans are part of Galt's 2030 General Plan goals to ensure the city's growth proceeds in compliance with State and regional climate goals.

Commissioner Douglas moved and Commissioner Scott seconded approval of Item 19. The vote was 3-0.

20. 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 percent 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)

Staff presented Information Item 20.

21. **Minutes:** Possible approval of the May 10, 2017 Business Meeting minutes.

Commissioner Scott moved and Commissioner Douglas seconded approval of Item 21. The vote was 3-0.

22. **Lead Commissioner or Presiding Member Reports.** The Commissioners reported on their recent activities.
23. **Chief Counsel's Report.** The Chief Counsel gave a report.
24. **Executive Director's Report.** The Executive Director gave a report.
25. **Public Adviser's Report.** None.
26. **Public Comment.** Claire Warshaw gave public comment.

Appearances:

(*by telephone)

Joe Gagliano, California Fuel Cell Partnership

Deepa Lounsbury, California Clean Energy Fund

Derrick Tang, California Clean Energy Fund

Derek Benson, EnergySource Minerals, LLC

Bob Oesterreich, Air Liquide

Tim Brown, First Element Fuel

Gerhard Ahtelik, California Air Resources Board

Gia Vacin, Governor's Office of Business and Economic Development

Darryl Anderson, Modoc Joint Unified School District

Elizabeth Guzman, Modoc Joint Unified School District

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Mariana Eneva, Image Air
John Muir, Greenfire Energy
Roy Mink, Warner Mountain Energy
Jackie Birdsall, Toyota
Jerome Gregeois, Hyundai
Mathew Forest, Mercedes Benz
Nish Mehta, Nuvve
Michael Kocsis, Southwest Research Institute
John Reed, North American Repower
Yingqi Zhang, Lawrence Berkeley National Lab
Narasi Fridhar, DNV GL
Jason Anderson, Cleantech San Diego (via Public Advisor's Office)

There being no further business, the meeting was adjourned.

Respectfully submitted,



CODY GOLDTHRITTE
Secretariat

