



Department of Energy Recovery Act State Memos

California



For questions about DOE's Recovery Act activities, please contact the DOE Recovery Act Clearinghouse:
1-888-DOE-RCVY (888-363-7289), Monday through Friday, 9 a.m. to 7 p.m. Eastern Time
<https://recoveryclearinghouse.energy.gov/contactUs.htm>.

All numbers and projects listed as of June 1, 2010

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American Recovery and Reinvestment Act



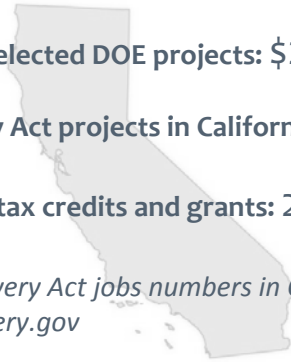
U.S. DEPARTMENT OF ENERGY • CALIFORNIA RECOVERY ACT SNAPSHOT

Funding for selected DOE projects: \$2.3 billion

DOE Recovery Act projects in California: 500

Clean energy tax credits and grants: 257

For total Recovery Act jobs numbers in California go to www.recovery.gov



California has substantial natural resources, including oil, gas, solar, wind, geothermal, and hydroelectric power. The **American Recovery & Reinvestment Act (ARRA)** is making a meaningful down payment on the nation's energy and environmental future. The Recovery Act investments in California are supporting a broad range of clean energy projects, from energy efficiency and the smart grid to solar and wind, geothermal and biofuels, carbon capture and storage, and environmental cleanup. Through these investments, California's businesses, universities, national labs, non-profits, and local governments are creating quality jobs today and positioning California to play an important role in the new energy economy of the future.

EXAMPLES OF CALIFORNIA FORMULA GRANTS

Program	State Energy Program	Weatherization Assistance Program	Energy Efficiency Conservation Block Grants	Energy Efficiency Appliance Rebate Program
Award (in millions)	\$226.1	\$185.8	\$355.1	\$35.3
	The California Energy Commission has received \$226.1 million to invest in state-level energy efficiency and renewable energy priorities.	The State of California has received \$185.8 million to scale-up existing weatherization efforts in the state, creating jobs, reducing carbon emissions and saving money for California's low-income families. Over the course of the Recovery Act, California expects to weatherize approximately 43,400 homes.	Three hundred seven communities in California have received a total of \$355.1 million to develop, promote, implement, and manage local energy efficiency programs.	The California Energy Commission has received \$35.3 million to offer consumer rebates for purchasing certain ENERGY STAR® appliances, which reduce energy use and save money for families, while helping the environment and supporting the local economy.

EXAMPLES OF CALIFORNIA COMPETITIVE GRANTS, TAX CREDITS AND LOANS

Award	\$1.37 billion	\$535 million	\$465 million	\$308 million	\$127.5 million
	BrightSource Energy was offered a conditional commitment for more than \$1.37 billion in loan guarantees to support the construction and start-up of Ivanpah Solar Complex, three utility-scale concentrated solar power plants located in California's Mojave Desert. The company estimates the project will create just over 1,000 jobs.	The Department of Energy finalized a \$535 million loan guarantee for Solyndra, Inc. to finance construction of the first phase of the company's new solar manufacturing facility in Fremont, California.	Tesla Motors closed a \$465 million loan arrangement under the Department of Energy's Advanced Technology Vehicles Manufacturing program to repurpose a manufacturing facility in Fremont, California to produce electric drive trains, electric vehicles and battery packs. The company estimates the project will create over 1,600 jobs.	Hydrogen Energy California LLC in Kern County was awarded \$308 million to design, construct, and operate a hydrogen-powered electric generating facility with carbon capture and storage.	The Sacramento Municipal Utility District in Sacramento was awarded \$127.5 million to install a comprehensive regional smart grid system.

Funding Allocation Table (Figure 1)

Total dollar amounts in this document are accurate as of June 1, 2010. Please note that Recovery Act Programs are ongoing and the dollar amounts are subject to change. Recipient locations are based on project sites rather than recipients' headquarters locations.

Recovery Act Pillar	Flagship Program Names & Funding Type ¹	Number of Selections	Selected Amount (in millions) ²
Energy Efficiency	<i>Weatherization Assistance Program (F)</i>	1	\$185.8
	<i>State Energy Program (F)</i>	1	\$226.1
	<i>Energy Efficiency and Conservation Block Grant (F)</i>	307	\$355.1
	<i>Energy Efficient Appliance Rebate (F)</i>	1	\$35.3
	<i>Building Energy Efficiency (CM)</i>	14	\$13.7
	<i>Industrial Energy Efficiency (CM)</i>	9	\$37.4
	TOTAL Energy Efficiency	333	\$853.4
Renewable Energy	<i>Solar (CM)</i>	20	\$26.7
	<i>Wind (CM)</i>	2	\$0.6
	<i>Geothermal (CM)</i>	13	\$50.2
	<i>Additional Programs (F & CM)</i>	2	\$7.5
	TOTAL Renewable Energy	37	\$85.0
Electric Grid	<i>Smart Grid Investment and Demonstrations Project (CM)³</i>	14	\$385.7
	<i>State and Local Energy Assurance and Regulatory Assistance (F)</i>	5	\$6.0
	<i>Smart Grid Workforce Training (CM)³</i>	2	\$1.5
	TOTAL Electric Grid	21	\$393.2
Transportation	<i>Transportation Electrification (CM)</i>	3	\$60.9
	<i>Clean Cities Alternative Fuel and Vehicles Program (CM)</i>	3	\$25.0
	<i>Advanced Fuels (CM)</i>	2	\$44.8
	<i>Additional Programs (CM)</i>	3	\$11.1
	TOTAL Transportation	11	\$141.8
Carbon Capture and Storage	<i>CCS Projects (CM)</i>	4	\$313.2
	<i>Geologic Characterization Projects (CM)</i>	1	\$4.8
	<i>Research and Training (CM)</i>	3	\$0.9
	TOTAL Carbon Capture and Storage	8	\$318.9
Environmental Cleanup	<i>Environmental Management Contracts (C)</i>	2	\$23.8
	TOTAL Environmental Cleanup	2	\$23.8
Science and Innovation	<i>Advanced Research Projects Agency - Energy (ARPA-E) (CM)</i>	7	\$20.8
	<i>Energy Frontier Research Centers (CM)</i>	3	\$28.4
	<i>Small Business Research (SBIR/STTR) (CM)</i>	19	\$2.7
	<i>National Laboratory Facilities (C)</i>	40	\$351.9
	<i>Additional Programs</i>	19	\$55.2
	TOTAL Science and Innovation	88	\$459.0
TOTAL - DOE Programs⁴		500	\$2,275.1
Tax Credits/ Grants ⁵	<i>Payments for Renewable Energy Generation in Lieu of Tax Credits (1603)</i>	248	\$79.1
	<i>Clean Energy Manufacturing Tax Credits (48C)</i>	9	\$235.5
	TOTAL Tax Incentives	257	\$314.6
TOTAL - DOE/Treasury + DOE		757	\$2,589.7
¹ F=Formula Grant, CM=Competitive Grant, C=Contract			
² "Selected" indicates DOE has selected a potential funding recipient, which begins the process of negotiating an agreement. This does not necessarily indicate that a final agreement has been reached.			
³ Projects may cross state boundaries, signifies HQ location.			
⁴ Total does not include administrative funds.			
⁵ Jointly administered by DOE and the U.S. Department of Treasury.			

ENERGY EFFICIENCY – 333 projects totaling \$853.4 million

Helping millions of American families cut utility bills by making homes and appliances more energy efficient, expanding the home efficiency industry in sales and manufacturing. For more information, visit <http://www.energy.gov/recovery/energyefficiency.htm>.

Award(s): \$185.8 million, Weatherization Assistance Program (WAP)

Location: Statewide

California received \$185.8 million to scale-up existing weatherization efforts in the State, creating jobs, reducing carbon emissions and saving money for California's low-income families. Over the course of the Recovery Act, California expects to weatherize approximately 43,400 homes. The total was awarded to agencies and contractors to perform home retrofits. Of that total, expenditures had reached \$8.4 million by mid-February 2010 while agencies responsible for the program were establishing proper oversight procedures. The majority of weatherization work takes place in the spring, so with procedures and infrastructure in place, 2010 should yield significantly larger results.

Award(s): \$226.1 million, State Energy Program (SEP)

Location: Statewide

The California Energy Commission received \$226.1 million to invest in state-level energy efficiency and renewable energy priorities. California will leverage its program funding to provide a statewide energy efficiency retrofit program and cost-effective clean energy system for residential, commercial and industrial buildings and facilities. The revenue savings that result from these efficiency measures will provide an ongoing source of revenue to continue implementing additional cost-effective efficiency measures. Additionally, California plans to develop and implement a public education, marketing and outreach effort to ensure the benefits and value of energy efficiency are well understood. Also, as part of California's State Energy Program, the California Energy Commission is investing funds in building a workforce to meet alternative fuel and advanced vehicle technology needs through its Green Jobs Training Program. The Commission will expand on this plan and will leverage existing partnerships with Recovery Act funding to create a more extensive green workforce focused on energy efficiency and clean energy sources.

Award(s): 307 totaling \$355.1 million, Energy Efficiency and Conservation Block Grant Program (EECBG)

Location: Statewide

Recipients: California State Energy Office, Los Angeles County, Los Angeles, San Diego County, San Jose, San Francisco, Riverside, Sacramento County, San Diego, Sacramento, Fresno, Long Beach, San Bernardino County, Kern County, Oakland, Contra Costa County, Santa Ana, Anaheim, Fresno County, Bakersfield, San Mateo County, Riverside County, Orange County, Stockton, Monterey County, Irvine, San Luis Obispo County, Sonoma County, Chula Vista, San Bernardino, Modesto, Fremont, Glendale, Huntington Beach, Ontario, Oxnard, Fontana, Moreno Valley, Rancho Cucamonga, Santa Clarita, Oceanside, Garden Grove, Santa Rosa, Pasadena, Torrance, Corona, Pomona, Hayward, Lancaster, Orange, Salinas, Palmdale, Sunnyvale, Escondido, Fullerton, Thousand Oaks, Santa Clara, Elk Grove, Concord, Visalia, El Monte, Costa Mesa, Burbank, Simi Valley, Roseville, Vallejo, Inglewood, Victorville, Downey, Berkeley, San Buenaventura (Ventura), Fairfield, Santa Monica, Richmond, West Covina, Temecula, Carlsbad, Norwalk, Carson, Redding, Compton, Rialto, Antioch, South Gate, Murrieta, El Cajon, Mission Viejo, San Mateo, Daly City, Santa Barbara, Newport Beach, Vista, Vacaville, Chino, Clovis, Santa Maria, Chico, Westminster, Alhambra, Indio, Hesperia, Hawthorne, Whittier, Livermore, Citrus Heights, Merced, San Marcos, Buena Park, Redwood City, San Leandro,

Tracy, Mountain View, Lake Forest, Baldwin Park, Napa, Lakewood, Pleasanton, Redlands, Walnut Creek, Tustin, Upland, Hemet, Palo Alto, Milpitas, Folsom, Bellflower, Rancho Cordova, Turlock, Apple Valley, Alameda, Union City, South San Francisco, Lynwood, Chino Hills, Redondo Beach, Camarillo, Montebello, Davis, Yorba Linda, Lodi, Manteca, Monterey Park, Gardena, Pico Rivera, San Rafael, Yuba City, Laguna Niguel, San Clemente, Pittsburg, National City, Huntington Park, Encinitas, Santa Cruz, Arcadia, Fountain Valley, Palm Desert, La Habra, Cupertino, Madera, Cerritos, Tulare, Paramount, Diamond Bar, Petaluma, Rosemead, Woodland, La Mesa, Perris, Porterville, Novato, Delano, Colton, Santee, Cathedral City, Rocklin, Highland, Yucaipa, Southern California Tribal Chairmen's Association, Inc. (SCTCA), Round Valley Indian Tribes of the Round Valley Reservation, Palm Springs, San Ramon, Watsonville, Poway, West Sacramento, La Mirada, Gilroy, Hanford, Glendora, Cypress, Lake Elsinore, Placentia, Covina, Rancho Santa Margarita, San Luis Obispo, Brentwood, Culver City, Azusa, Brea, Dublin, Bell Gardens, La Quinta, Ceres, El Centro, Newark, Lincoln, Danville, Aliso Viejo, San Gabriel, La Puente, Lompoc, Rohnert Park, Campbell, Rancho Palos Verdes, Monrovia, West Hollywood, San Bruno, Karuk Tribe of California, Calexico, Montclair, Morgan Hill, Coachella, Manhattan Beach, San Jacinto, Martinez, San Dimas, Temple City, Bell, Stanton, Moorpark, Claremont, Yurok Tribe of the Yurok Reservation, Dana Point, Pacifica, Pit River Tribe (includes XL Ranch, Big Bend, Likely, Lookout, Montgomery Creek and Roaring Creek Rancherias), Northfork Rancheria of Mono Indians of California, All Mission Indian Housing Authority, Hoopa Valley Tribe, Picayune Rancheria of Chukchansi Indians of California, Mooretown Rancheria of Maidu Indians of California, Manchester Band of Pomo Indians of the Manchester-Point Arena Rancheria, Smith River Rancheria (Tribe), Dry Creek Rancheria of Pomo Indians of California, Federated Indians of Graton Rancheria, Big Valley Band of Pomo Indians of the Big Valley Rancheria, Paiute-Shoshone Indians of the Bishop Community of the Bishop Colony, Enterprise Rancheria of Maidu Indians of California, Kashia Band of Pomo Indians of the Stewarts Point Rancheria, Lone Band of Miwok Indians of California, Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria (Verona Tract), Susanville Indian Rancheria, Cloverdale Rancheria of Pomo Indians of California, Berry Creek Rancheria of Maidu Indians of California, Sherwood Valley Rancheria of Pomo Indians of California, Mechoopda Indian Tribe of Chico Rancheria, Pala Band of Luiseno Mission Indians of the Pala Reservation, Tuolumne Band of Me-Wuk Indians of the Tuolumne Rancheria of California, Hopland Band of Pomo Indians of the Hopland Rancheria, Morongo Band of Cahuilla Mission Indians of the Morongo Reservation, Capitan Grande Band of Diegueno Mission Indians of California: Barona Group of Capitan Grande Band of Mission Indians of the Barona Reservation, California; Viejas (Baron Long) Group of Capitan Grande Band of Mission Indians of the Viejas Reservation, Redding Rancheria, Tule River Indian Tribe of the Tule River Reservation, Potter Valley Tribe (formerly the Potter Valley Rancheria of Pomo Indians of California), Buena Vista Rancheria of Me-Wuk Indians of California, Greenville Rancheria of Maidu Indians of California, Cher-Ae Heights Indian Community of the Trinidad Rancheria, Ramona Band or Village of Cahuilla Mission Indians of California, Guideville Rancheria of California, Elem Indian Colony of Pomo Indians of the Sulphur Bank Rancheria, Utu Utu Gwaitu Paiute Tribe of the Benton Paiute Reservation, Paiute-Shoshone Indians of the Lone Pine Community of the Lone Pine Reservation, Redwood Valley Rancheria of Pomo Indians of California, Quartz Valley Indian Community of the Quartz Valley Reservation of California, Elk Valley Rancheria, Ewiiapaayp Band of Kumeyaay Indians, Big Lagoon Rancheria, Habematolel Pomo of Upper Lake, (formerly the Upper Lake Band of Pomo Indians of Upper Lake Rancheria of California), Santa Ynes Band of Chumash Mission Indians of the Santa Ynes Reservation, La Posta Band of Diegueno Mission Indians of the La Posta Indian Reservation, Pechanga Band of Luiseno Mission Indians of the

Pechanga Reservation, Scotts Valley Band of Pomo Indians of California, Cabazon Band of Mission Indians, Agua Caliente Band of Cahuilla Indians of the Agua Caliente Indian Reservation, San Manuel Band of Serrano Mission Indians of the San Manuel Reservation, Big Pine Band of Owens Valley Paiute Shoshone Indians of the Big Pine Reservation, Bridgeport Paiute Indian Colony of California, Bear River Band of the Rohnerville Rancheria, Wiyot Tribe of Table Bluff Reservation of California, Fort Bidwell Indian Community of the Fort Bidwell Reservation of California, Augustine Band of Cahuilla Indians (formerly the Augustine Band of Cahuilla Mission Indians of the Augustine Reservation), Blue Lake Rancheria, Cahto Indian Tribe of the Laytonville Rancheria, California Tribe, Soboba Band of Luiseno Indians, Resighini Rancheria, California Valley Miwok Tribe, California (formerly the Sheep Ranch Rancheria of Me-Wuk Indians California), Grindstone Indian Rancheria of Wintun-Wailaki Indians of California, Table Mountain Rancheria, Cedarville Rancheria Tribe, San Pasqual Band of Diegueno Mission Indians of California, Cold Springs Rancheria of Mono Indians of California, Cortina Rancheria of Wintun Indians of California, Cachil DeHe Band of Wintun Indians of the Colusa Indian Community of the Colusa Rancheria, Rincon Band of Luiseno Mission Indians of the Rincon Reservation, Death Valley Timbi-Sha Shoshone Band of California, Los Coyotes Band of Cahuilla & Cupeno Indians of the Los Coyotes Reservation, Middletown Rancheria of Pomo Indians of California, Pinoleville Pomo Nation (formerly the Pinoleville Rancheria of Pomo Indians of California), Colorado River Indian Tribes of the Colorado River Indian Reservation (Arizona and California Tribe), Quechan Tribe of the Fort Yuma Indian Reservation (California and Arizona Tribe), Fort Mojave Indian Tribe, Washoe Tribe of Nevada & California (Carson Colony, Dresslerville Colony, Woodfords Community, Stewart Community, & Washoe Ranches)

Three hundred and seven communities in California have received a total of \$355.1 million to develop, promote, implement and manage local energy efficiency programs.

These grants support a wide variety of energy efficiency planning, audits and projects all across the state. Examples of EECBGs include:

- **Los Angeles County - \$37 million**

Los Angeles County received \$37 million and will use its EECBG funds to undertake several projects to improve energy efficiency and reduce its carbon emissions. The county expects these activities will create or retain several thousand jobs and will leverage more than \$160 million. The county plans to launch a self-sustaining community-scale building retrofit program with a principal goal to engage the maximum number of buildings in the State's efforts to reduce energy use, water use and carbon emissions. The county also will retrofit municipal buildings to improve their energy efficiency. In addition, the county will use EECBG funds to implement its Green Building Ordinance for new construction of residential and commercial buildings to facilitate aggressive energy and carbon emission reduction goals set by the state of California.

- **San Diego County - \$12.5 million**

San Diego County received \$12.5 million and is using its EECBG funds to undertake a number of activities to improve energy efficiency and expand the use of renewable energy around the county, including an initiative to expedite the permitting of green buildings and renewable energy projects. The county expects these projects will create or retain 40 jobs.

- San Jose - \$8.8 million**

San Jose received \$8.8 million and will use its EECBG funds to undertake three activities to improve energy efficiency and expand the use of renewable energy around the city. San Jose expects these projects will create or retain 83 jobs. The city will devote \$4.5 million of its EECBG award for the installation of such cost-effective energy efficiency measures as heating, ventilation and air conditioning (HVAC) upgrades, cool roofs, water heater replacements and lighting improvements at city facilities which have high energy costs and have been identified as good candidates for priority retrofits. The city will use \$2.3 million in EECBG funding to expand solar energy deployment in San Jose. Finally, the city will use \$2 million to replace approximately 1,500 sodium vapor streetlights with energy-efficient / programmable Light Emitting Diode (LED) lights.
- Sacramento County - \$5.4 million**

Sacramento County received \$5.4 million and will use its EECBG funds to improve energy efficiency and expand the use of renewable energy around the county, including the establishment of a financial incentive program to upgrade county facilities. The county expects these activities will create or retain more than 140 jobs. The county will establish a revolving fund to pay for energy audits and energy efficiency retrofits on county-owned and -leased facilities. The county also will fund the Sacramento Regional Energy Alliance to focus on improving existing housing stock in need of energy-efficiency upgrading.
- City of Sacramento - \$4.7 million**

The City of Sacramento received \$4.7 million and expects to commit about 45 percent of its EECBG funds to help residents and small businesses reduce their energy use and save money, 40 percent of its funds to municipal operations that reduce energy use and save money and 15 percent to create a long-term climate action plan and green building ordinance which will guide our future decisions in reducing energy use and saving money. More specifically, the city will use a share of its funds to provide residents and business owners with rebates to reduce the cost of energy efficiency improvements, establish a municipal revolving loan program to reduce municipal energy usage for perpetuity and fund an LED street light pilot to test the best LED for the city.
- Fresno - \$4.6 million**

Fresno received \$4.6 million to undertake several projects to improve energy efficiency and expand renewable use in the city, including a new revolving loan fund to assist families and businesses in the city. The city expects these activities will create or retain 89 jobs. The city will establish the Sustainable Fresno Revolving Loan Bank to create a revolving and expanding pool to make loans to eligible families and businesses installing renewable energy and energy efficiency and water conservation measures. In addition, the city plans to direct more than \$1 million in EECBG funding toward performing more than 7,000 energy and water conservation audits on homes, businesses and other facilities in the Fresno metropolitan area. In another activity, the city will devote \$1.5 million toward its first update of Fresno's zoning code since the

1960s to incorporate modern green and resource efficiency measures.

- **Long Beach - \$4.4 million**

Long Beach received \$4.4 million and is using its EECBG funds to undertake two projects to improve energy efficiency and expand renewable energy use in the city, including a new financial incentive program to encourage homeowners and business owners to install energy efficiency and renewable energy systems. The city expects these activities to create or retain 389 jobs.

- **Santa Ana - \$3.3 million**

Santa Ana received \$3.3 million and is using its EECBG funds, to undertake energy efficiency retrofits (HVAC and lighting) of city buildings and energy efficiency retrofits (lighting) at city parks. In addition, the city is installing an IceBear, a system that uses off-peak electricity to create ice, which is then used during peak load times to condense the refrigerant in lieu of an energy intensive compressor. EECBG funding is providing critical assistance to enable the City to reduce its energy usage, greenhouse gases and energy bills.

- **Sunnyvale - \$1.3 million**

Sunnyvale received \$1.3 million and will replace 1,300 high pressure sodium streetlights with LEDs as part of its EECBG-funded projects.

- **City of Pleasanton - \$693,000**

The City of Pleasanton received \$693,000 and is taking a comprehensive approach to maximizing the long-term benefits of the stimulus money, with the specific intent of leveraging partnerships, competing for other grants available and developing programs that will produce results for the long term. One example is developing a Climate Action Plan to reduce GHG and develop a sustainable economy. The city also will use a portion of money to hire a limited Energy Manager to help facilitate other grant opportunities and partnerships.

- **City of Redondo Beach - \$618,000**

The City of Redondo Beach received \$618,000 and plans to use its entire allotment to purchase energy-efficient LED streetlight fixtures. Replacing existing high pressure sodium light fixtures with LED fixtures will reduce the city's energy usage, energy cost and greenhouse gas emissions. It is estimated that the city LED lighting project will reduce annual energy costs by \$40,000-\$50,000.

- **City of Newark - \$713,000**

The City of Newark received \$713,000 and is participating in the countywide Green Package program, upgrading the energy efficiency of a HVAC system in a community center and will install test project of solar pedestrian lights. The innovative solar test project involves installing solar lighting along a busy walking path with information placards explaining the lights, the benefits of solar energy and the city efforts on climate protection.

Award(s): \$35.3 million, Energy Efficient Appliance Rebate Programs

Location: Statewide

The California Energy Commission received \$35.3 million to offer consumer rebates for purchasing certain ENERGY STAR® appliances, which reduce energy use and save money for families, while helping the environment and supporting the local economy. The rebate program saves energy by replacing inefficient appliances with more efficient ones leverages the Recovery Act funds with existing rebate programs and partnerships, keeps administrative costs low while meeting the federal monitoring and evaluation requirements, provides state and national rebate tracking and accountability and uses current ENERGY STAR consumer education and outreach materials. Three residential appliance categories were selected to be eligible to receive rebates: clothes washers, refrigerators and room / window air conditioners.

Award(s): 2 totaling \$2.1 million, Advanced Materials RD&D in Support of EERE Needs to Advance Clean Energy Technologies and Energy-Intensive Process R&D

Location: Statewide

- **University Of California-Irvine, Oakland - \$1.3 million**

The University of California-Irvine in Oakland received \$1.3 million for novel controls for time-dependent economic dispatch of combined cooling, heating and power in light industrial, commercial and institutional markets with high temperature fuel cells and gas turbines.

- **Fiscalini Farms, Modesto - \$782,000**

Fiscalini Farms in Modesto – in collaboration with University of the Pacific, Biogas Energy, Inc. and the University of California at Berkeley – received \$782,000 to measure and analyze the efficiency and regulatory compliance of a renewable energy system for power generation. The system will utilize digester gas from an anaerobic digester located at the Fiscalini Farms dairy for power generation with a reciprocating engine. The project will provide power, efficiency, emissions and cost / benefit analysis for the system and evaluate its compliance with federal and California emissions standards.

Award(s): 8 totaling \$14,000, Buildings and Appliance Market Transformation

Location: Statewide

The Buildings and Appliance Market Transformation project expands building codes, accelerates the pace of Appliance Standard test procedure development and improves the efficiency of commercial buildings' operations by training building operators and commissioning agents.

Award(s): \$10 million, Combined Heat and Power, District Energy Systems, Waste Energy Recovery Systems and Efficient Industrial Equipment

Location: Brea

Ridgewood Renewable Power, LLC, in Brea received \$10 million for its “Olinda Combined Cycle Electric Generating Plant Fueled by Waste Landfill Gas” project. The project is modifying and expanding an existing landfill gas collection system and constructing a combined cycle power generation facility at the Olinda Alpha Landfill in Brea.

Award(s): 5 totaling \$25.2 million, Improved Energy Efficiency for Information and Communication Technology

Location: Statewide

As information and communication technology (ICT) services continue to converge, these industries face increasingly similar challenges to control the power usage of their microprocessors or servers and supporting power and cooling systems. This project will select and fund applicants to conduct research, development and demonstration projects to promote new technologies that improve energy efficiency in the ICT sector.

- **SeaMicro, Incorporated, Santa Clara - \$9.3 million**

SeaMicro, Inc., in Santa Clara received \$9.3 million for its “Reducing Volume-Server Energy Use by Re-Architecting Server Components” project, which will field test redesigned server systems consisting of hundreds of low-power processors. By efficient use of tiny interconnected Central Processing Units (CPUs) within a single server, demonstration of this patented technology is expected to save 75% of the computing energy over conventional servers. The integrated hardware and software design project ensures that the energy consumed within the server is efficiently used regardless of whether the CPUs are hard at work or in "sleep" mode.

- **Yahoo! Incorporated, Sunnyvale - \$9.9 million**

Yahoo!, Inc., in Sunnyvale received \$9.9 million for its “Next Generation Passive Cooling Design for Data Centers” project, which will design and engineer a key data center for a major internet company. The integrated building design, including the building's shape and orientation and the alignment of the servers within the building, allows the data center to use outside ambient air for cooling 99 percent of the year. The relatively low initial cost to build, compatibility with current server and network models and efficient use of power and water are all key features that make this data center a highly compatible and replicable design innovation for the data center industry.

- **Power Assure, Inc., Santa Clara, \$5.1 million**

Power Assure, Inc., in Santa Clara received \$5.1 million for its “Eliminating Wasted Energy by Automatically Powering Down Servers” project, which will demonstrate software and supporting hardware which is integrated into various data center components to manage the power-state of servers. Currently, servers are always powered on even when not in use. The management software monitors server use and turns servers on and off as needed. This switch from "always on" to "always available" systems could save up to 50% of server energy use in data centers with large server farms.

- **Federspiel Controls, Inc., El Cerrito - \$584,000**

Federspiel Controls, Inc., in El Cerrito received \$584,000 for its “Active Management of Cooling Systems to Reduce Energy Consumption for the Data Center Market” project, which will demonstrate cooling control technology integrated with wireless network sensors. This project integrates variable speed fans, adjustable server fan inlets and wireless temperature sensors to continuously adjust the volume and targets for cooled air according to temperature. This can significantly reduce the cooling infrastructure for data centers, which typically consumes 25% of the electrical energy in a data center.

- **California Institute of Technology, Pasadena - \$300,000**
The California Institute of Technology in Pasadena received \$300,000 to create algorithms designed to understand the demand for services from server technology and to balance services across servers and data centers according to preferred energy use goals. The so-called "volume servers" targeted in this project are the largest consumers of data center energy, so efficiency gains can yield substantial energy savings.

Award(s): \$100,000, Industrial Assessment Centers and Plant Best Practices

Location: San Diego

San Diego State University received \$100,000 to provide eligible small and medium-sized manufacturers with no-cost energy assessments and serve as a training ground for the next generation of energy-savvy engineers.

Award(s): 6 totaling \$13.7 million, Solid State Lighting

Location: Statewide

Solid-state lighting, which uses light-emitting diodes (LEDs) and organic light-emitting diodes (OLEDs) instead of incandescent bulbs, has the potential to be ten times more energy efficient than traditional incandescent lighting. Lighting accounts for approximately 24 percent of the total electricity generated in the United States today—by 2030, the development and widespread deployment of cost-effective solid-state lighting could reduce electricity use for lighting by one-third nationally.

- **Applied Materials, Inc., Santa Clara - \$4 million**
Applied Materials, Inc. in Santa Clara received \$4 million for its project titled "Advanced Epi Tools for Gallium Nitride LED Devices." This project seeks to develop an advanced multi-chamber hybrid epitaxial growth system for LED manufacturers that has the potential to decrease operating costs, increase efficiency of LEDs and improve binning yields.
- **KLA Tencor Corporation, Milpitas - \$3.5 million**
KLA Tencor Corporation in Milpitas received \$3.5 million for its project titled "Automated Yield Management and Defect Source Analysis Inspection Tooling and Software for LED Manufacturing." This project seeks to improve the product yield for high-brightness LEDs by developing an automated optical defect detection and classification system that identifies and distinguishes harmful defects from benign defects. The proposed approach allows for traceability in defect origin and includes the hardware and correlated software package development.
- **Philips Lumileds Lighting Company, LLC, San Jose - \$1.9 million**
Philips Lumileds Lighting Company, LLC, in San Jose received \$1.9 million for its project titled "Low-Cost Illumination-Grade LEDs." This project seeks to realize a 30% yield improvement and 60% reduction in epitaxy manufacturing costs for highpower LEDs through the implementation of silicon-based epitaxial processes on large-diameter substrates. The use of silicon replaces the industry standard sapphire or silicon-carbide substrates.

- **Philips Lumileds Lighting Company, LLC, San Jose - \$1.8 million**
Philips Lumileds Lighting Company, LLC, in San Jose received \$1.8 million for its project titled “130 lm / W, 1000 lm Warm-White LED for Illumination.” This project seeks to develop an illumination-grade LED having a warm-white color range, comparable output to a 75 watt incandescent lamp and an efficacy of 130 lm / W.
- **Ultratech, Inc., San Jose - \$1.3 million**
Ultratech, Inc., in San Jose received \$1.3 million for its project titled “A Low-Cost Lithography Tool for High-Brightness LED Manufacturing.” This project seeks to develop a lithographic manufacturing tool having the benefits of higher throughput, greater yields, lower initial capital cost and lower cost of ownership. A projection stepper process will be modified and optimized for LED manufacturing. The proposed system will be able to accommodate a variety of wafer sizes and thicknesses and handle the wafer warpage typically associated with larger-diameter substrates.
- **Cambrios, Sunnyvale - \$1.2 million**
Cambrios in Sunnyvale received \$1.2 million for its project titled “Solution-Processable Transparent Conductive Hole Injection Electrode for Organic Light-Emitting Diode (OLED) SSL”. This project seeks to develop a cost-effective replacement for indium tin oxide for use as an electrode in OLED lighting devices. Indium is both rare and very expensive.

RENEWABLE ENERGY – 294 projects totaling \$ 399.6 million

Developing the clean renewable resources in order to double our supply of renewable energy and boost domestic renewable manufacturing capacity. For more information, visit <http://www.energy.gov/recovery/renewableenergy.htm>.

Award(s): 248 totaling \$79.1 million from DOE / Treasury, 1603 Payments for Renewable Energy Generation

Location: Statewide

*For current number of 1603 awards, see the weekly update at <http://www.treas.gov/recovery/1603.shtml>

- **eSolar, Inc., Lancaster - \$19.5 million**
eSolar, Inc., in Lancaster received \$19.5 million for a solar electricity project.
- **Ausra, Inc., Bakersfield - \$13.9 million**
Ausra, Inc., in Bakersfield received \$13.9 million for a solar electricity project.
- **Ameresco, Inc., Half Moon Bay - \$6.6 million**
Ameresco, Inc., in Half Moon Bay received \$6.6 million for a landfill gas project.
- **Ameresco, Inc., Pittsburg - \$2.8 million**
Ameresco, Inc., in Pittsburg received \$2.8 million for a landfill gas project.
- **SunRun Solar Tenant I, LLC, 158 Locations Statewide - \$2.8 million**
SunRun Solar Tenant I, LLC, received funds for 158 residential solar facilities.
- **Garnet Energy Corporation, North Palm Springs - \$2.7 million**
Garnet Energy Corporation in North Palm Springs received \$2.7 million for a wind project.
- **De Pue Warehouse Company, Inc., Maxwell - \$1.9 million**
De Pue Warehouse Company, Inc., in Maxwell received \$1.9 million for a solar electricity project.
- **Courtside Cellars, LLC, San Miguel - \$1.8 million**
Courtside Cellars, LLC, in San Miguel received \$1.8 million for a solar electricity project.
- **Windland Repower II, LLC, Mojave - \$1.7 million**
Windland Repower II, LLC, in Mojave received \$1.7 million for a wind project.
- **Bankers Commercial Corporation, Oxnard - \$1.6 million**
Bankers Commercial Corporation in Oxnard received \$1.6 million for a solar electricity project.
- **Geysers Power Company, LLC, Middletown - \$1.4 million**
Geysers Power Company, LLC, in Middletown received \$1.4 million for a geothermal project.
- **The Fifth Third Leasing Company, Duarte - \$1.3 million**
The Fifth Third Leasing Company in Duarte received \$1.3 million for a solar electricity project.

- **Banc of America Leasing & Capital, LLC, Highland - \$1.1 million**
Banc of America Leasing & Capital, LLC, in Highland received \$1.1 million for a solar electricity project.
- **The Fifth Third Leasing Company, San Diego - \$1.1 million**
The Fifth Third Leasing Company in San Diego received \$1.1 million for a solar electricity project.
- **Hilltop Ranch, Inc., Ballico - \$1.1 million**
Hilltop Ranch, Inc., in Ballico received \$1.1 million for a solar electricity project.
- **RE-SDS, LLC, San Anselmo - \$1 million**
RE-SDS, LLC, in San Anselmo received \$1 million for a solar electricity project.
- **G2 Energy, Ostrom Road, LLC, Wheatland - \$1 million**
G2 Energy, Ostrom Road, LLC, in Wheatland received \$1 million for a landfill gas project.
- **M&L Commodities, Inc., Stockton - \$1 million**
M&L Commodities, Inc., in Stockton received \$1 million for a fuel cell project.
- **Banc of America Leasing & Capital, LLC, Laguna Niguel - \$982,000**
Banc of America Leasing & Capital, LLC, in Laguna Niguel received \$982,000 for a solar electricity project.
- **Banc of America Leasing & Capital, LLC, Paramount - \$982,000**
Banc of America Leasing & Capital, LLC, in Paramount received \$982,000 for a solar electricity project.
- **The Fifth Third Leasing Company, San Bernardino - \$982,000**
The Fifth Third Leasing Company in San Bernardino received \$982,000 for a solar electricity project.
- **Blue Advent Partners, Chowchilla - \$973,000**
Blue Advent Partners in Chowchilla received \$973,000 for a solar electricity project.
- **Courtside Cellars, LLC, San Luis Obispo - \$915,000**
Courtside Cellars, LLC, in San Luis Obispo received \$915,000 for a solar electricity project.
- **Geysers Power Company, LLC, Middletown - \$789,000**
Geysers Power Company, LLC, in Middletown received \$789,000 for a geothermal project.
- **National City Energy Capital, LLC, San Jose - \$692,000**
National City Energy Capital, LLC, in San Jose received \$692,000 for a solar electricity project.

- **Banc of America Leasing & Capital, LLC, Chula Vista - \$680,000**
Banc of America Leasing & Capital, LLC, in Chula Vista received \$680,000 for a solar electricity project.
- **Cameron Park Senior Living, LLC, Cameron Park - \$640,000**
Cameron Park Senior Living, LLC, in Cameron Park received \$640,000 for a solar electricity project.
- **National City Energy Capital, LLC, El Cajon - \$600,000**
National City Energy Capital, LLC, in El Cajon received \$600,000 for a solar electricity project.
- **Inland Builders Supply, Inc., Blythe - \$595,000**
Inland Builders Supply, Inc., in Blythe received \$595,000 in funding.
- **SkyTrough Demonstration Project, LLC, Daggett - \$491,000**
SkyTrough Demonstration Project, LLC, in Daggett received \$491,000 for a solar thermal project.
- **National City Energy Capital, LLC, Mira Loma - \$448,000**
National City Energy Capital, LLC, in Mira Loma received \$448,000 for a solar electricity project.
- **Hayes & Lucas Ent., Inc., Waterford - \$395,000**
Hayes & Lucas Ent., Inc., in Waterford received \$395,000 for a solar electricity project.
- **Jadra, Inc., dba Plastic Package, Sacramento - \$370,000**
Jadra, Inc., dba Plastic Package in Sacramento received \$370,000 for a solar electricity project.
- **DLM Ranch, LLC, Waterford - \$357,000**
DLM Ranch, LLC, in Waterford received \$357,000 for a solar electricity project.
- **Catalina Offshore Products Inc, San Diego - \$325,000**
Catalina Offshore Products, Inc., in San Diego received \$325,000 for a solar electricity project.
- **National City Energy Capital, LLC, Sacramento - \$312,000**
National City Energy Capital, LLC, in Sacramento received \$312,000 for a solar electricity project.
- **4 Corner Growers, LLC, Chico - \$302,000**
4 Corner Growers, LLC, in Chico received \$302,000 for a solar electricity project.
- **Tioga Solar IX, Lafayette - \$262,000**
Tioga Solar IX in Lafayette received \$262,000 for a solar electricity project.
- **Tioga Solar VII, LLC, Lafayette - \$261,000**
Tioga Solar VII, LLC, in Lafayette received \$261,000 for a solar electricity project.

- **Twin Palms Apts, LLC, North Hollywood - \$143,000**
Twin Palms Apts, LLC, in North Hollywood received \$143,000 for a solar electricity project.
- **PermaCity Corporation, Long Beach - \$141,000**
PermaCity Corporation in Long Beach received \$141,000 for a solar electricity project.
- **SMV Solar, Santa Cruz Mountains - \$134,000**
SMV Solar in Santa Cruz Mountains received \$134,000 for a solar electricity project.
- **Westwood Laboratories, Inc., Azusa - \$118,000**
Westwood Laboratories, Inc., in Azusa received \$118,000 for a solar electricity project.
- **CHMP Investment, LLC, Diamond Bar - \$116,000**
CHMP Investment, LLC, in Diamond Bar received \$116,000 for a solar electricity project.
- **Babcock Enterprises, Inc., Lompoc - \$109,000**
Babcock Enterprises, Inc., in Lompoc received \$109,000 for a solar electricity project.
- **DDMMAS, LLC, San Diego - \$100,000**
DDMMAS, LLC, in San Diego received \$100,000 for a solar electricity project.
- **IC Properties, LLC, Sun Valley - \$100,000**
IC Properties, LLC, in Sun Valley received \$100,000 for a solar electricity project.
- **Bremner Farms, Chico - \$96,000**
Bremner Farms in Chico received \$96,000 for a small wind project.
- **Atherton Carmichael Apartments, LLC, Carmichael - \$90,000**
Atherton Carmichael Apartments, LLC, in Carmichael received \$90,000 for a solar thermal project.
- **Sustainable Energy Investment LP, San Rafael - \$85,000**
Sustainable Energy Investment, LP, in San Rafael received \$85,000 for a solar electricity project.
- **Duckhorn Wine Company, Philo - \$73,000**
Duckhorn Wine Company in Philo received \$73,000 for a solar electricity project.
- **Panelized Structures, Inc., Modesto - \$71,000**
Panelized Structures, Inc., in Modesto received \$71,000 for a solar electricity project.
- **Bob Vanella, Chico - \$71,000**
Bob Vanella in Chico received \$71,000 for a solar electricity project.
- **AMSOLAR Corporation, San Diego - \$60,000**
AMSOLAR Corporation in San Diego received \$60,000 for a solar electricity project.

- **James Simonds DMD, Santa Rosa - \$58,000**
James Simonds DMD in Santa Rosa received \$58,000 for a solar electricity project.
- **MacDonald & Albert, Burbank - \$54,000**
MacDonald & Albert in Burbank received \$54,000 for a solar electricity project.
- **Stephen Ashbaugh, Valley Center - \$49,000**
Stephen Ashbaugh in Valley Center received \$49,000 for a solar electricity project.
- **The Growing Place Montessori, Poway - \$49,000**
The Growing Place Montessori in Poway received \$49,000 for a solar electricity project.
- **Sierra Orchards, LP, Winters - \$47,000**
Sierra Orchards, LP, in Winters received \$47,000 for a solar electricity project.
- **Blythe Solar, LLC, Blythe - \$40,000**
Blythe Solar, LLC, in Blythe received \$40,000 for a solar electricity project.
- **Chalk Hill Vineyard, Healdsburg - \$32,000**
Chalk Hill Vineyard in Healdsburg received \$32,000 for a solar electricity project.
- **Secure Mini Storage II, LP, Palmdale - \$30,000**
Secure Mini Storage II, LP, in Palmdale received \$30,000 for a solar electricity project.
- **ReGen America Inc., Northridge - \$29,000**
ReGen America, Inc., in Northridge received \$29,000 for a solar electricity project.
- **The Design Management Group, Inc., Baldwin Park - \$28,000**
The Design Management Group, Inc., in Baldwin Park received \$28,000 for a solar electricity project.
- **"O" Village Investors, Clearlake - \$26,000**
"O" Village Investors in Clearlake received \$26,000 for a solar thermal project.
- **Solar Energy Equities, San Juan Capistrano - \$24,000**
Solar Energy Equities in San Juan Capistrano received \$24,000 for a solar electricity project.
- **Citywide Self Storage, Riverside - \$24,000**
Citywide Self Storage in Riverside received \$24,000 for a solar electricity project.
- **American Classix, Morongo Valley - \$21,000**
American Classix in Morongo Valley received \$21,000 for a solar electricity project.
- **Secure Mini Storage, Lompoc - \$20,000**
Secure Mini Storage in Lompoc received \$20,000 for a solar electricity project.

- **Club One, Inc., San Jose - \$20,000**
Club One, Inc., in San Jose received \$20,000 for a solar electricity project.
- **Blue Slide Art Tile, Point Reyes Station - \$19,000**
Blue Slide Art Tile in Point Reyes Station received \$19,000 for a solar electricity project.
- **BioFuel Oasis Cooperative, Inc., Berkeley - \$17,000**
BioFuel Oasis Cooperative, Inc., in Berkeley received \$17,000 for a solar electricity project.
- **Renewables West, San Leandro - \$16,000**
Renewables West in San Leandro received \$16,000 for a solar electricity project.
- **West Coast Air Conditioning, Oxnard - \$16,000**
West Coast Air Conditioning in Oxnard received \$16,000 for a solar electricity project.
- **Stephen Pitzer, Boulder Creek - \$15,000**
Stephen Pitzer in Boulder Creek received \$15,000 for a solar electricity project.
- **ReGen America Inc., Granada Hills - \$13,000**
ReGen America, Inc., in Granada Hills received \$13,000 for a solar electricity project.
- **Radiant Solar Technology, Philo - \$13,000**
Radiant Solar Technology in Philo received \$13,000 for a solar electricity project.
- **Thumb Skillz, LLC, Los Angeles - \$12,000**
Thumb Skillz, LLC, in Los Angeles received \$12,000 for a solar electricity project.
- **The Citizenre Corporation, Anaheim - \$12,000**
The Citizenre Corporation in Anaheim received \$12,000 for a solar electricity project.
- **Orva Electronics, Inc., Fullerton - \$11,000**
Orva Electronics, Inc., in Fullerton received \$11,000 for a solar electricity project.
- **Pinnacle Petroleum, Inc., Huntington Beach - \$9,000**
Pinnacle Petroleum, Inc., in Huntington Beach received \$9,000 for a solar electricity project.
- **The Citizenre Corporation, Anaheim - \$9,000**
The Citizenre Corporation in Anaheim received \$9,000 for a solar electricity project.
- **The Citizenre Corporation, Anaheim - \$9,000**
The Citizenre Corporation in Anaheim received \$9,000 for a solar electricity project.
- **The Citizenre Corporation, Anaheim - \$8,000**
The Citizenre Corporation in Anaheim received \$8,000 for a solar electricity project.

- **The Citizenre Corporation, Anaheim - \$8,000**
The Citizenre Corporation in Anaheim received \$8,000 for a solar electricity project.
- **Sunuity LA, Inc., Pasadena - \$7,000**
Sunuity LA, Inc., in Pasadena received \$7,000 for a solar electricity project.
- **The Citizenre Corporation, Anaheim - \$7,000**
The Citizenre Corporation in Anaheim received \$7,000 for a solar electricity project.
- **The Citizenre Corporation, Anaheim - \$7,000**
The Citizenre Corporation in Anaheim received \$7,000 for a solar electricity project.
- **The Citizenre Corporation, Anaheim - \$6,000**
The Citizenre Corporation in Anaheim received \$6,000 for a solar electricity project.
- **The Citizenre Corporation, Anaheim - \$6,000**
The Citizenre Corporation in Anaheim received \$6,000 for a solar electricity project.
- **JOA Group, Costa Mesa - \$5,000**
JOA Group in Costa Mesa received \$5,000 for a solar electricity project.

Award(s): 9 totaling \$235.5 million from DOE / Treasury, Clean Energy Manufacturing Tax Credit (48C)

Location: Statewide

- **Miasole, Santa Clara - \$91.4 million**
Miasole in Santa Clara received \$91.4 million to manufacture Solar PV Cells and modules based on an innovative thin-film production technology. These Solar PV Cells will drive lower the costs of renewable clean electricity generation.
- **CaliSolar, Inc., Sunnyvale - \$51.6 million**
CaliSolar, Inc., in Sunnyvale received \$51.6 million to build a new manufacturing facility to process silicon feedstock into finished solar cells.
- **Nanosolar, San Jose - \$43.5 million**
Nanosolar in San Jose received \$43.5 million to factory produce tools for the manufacturing of low-cost, low-GHG emission solar cells, using nanotechnology-enabled roll-to-roll processes. Tools enable high throughput production steps including printing of electronic ink, annealing, various deposition steps, cell assembly and quality control and testing of structural and functional properties of product.
- **Stion Corporation, San Jose - \$37.5 million**
Stion Corporation in San Jose received \$37.5 million to manufacture high efficiency (11-12%+) CIGS thin-film photovoltaic modules on glass. The resulting technology will aid the domestic solar energy industry.

- **Miasole, Santa Clara - \$10.5 million**
Miasole in Santa Clara received \$10.5 million to manufacture Solar PV Cells and modules based on an innovative thin-film production technology. These Solar PV Cells will drive lower the costs of renewable clean electricity generation.
- **Aerovironment, Inc, Monrovia - \$370,000**
Aerovironment, Inc., in Monrovia received \$370,000 to purchase equipment for manufacturing 25kWh LiTiO advanced battery packs and battery management systems.
- **Aerovironment, Inc., Monrovia - \$311,000**
Aerovironment, Inc., in Monrovia received \$311,000 to manufacture a patent-pending Mobile Charger that combines a battery pack with a Level 3 DC connector. It is designed for on-road service trucks to provide a quick charge to stranded battery electric vehicles similar to an “out-of-gas” situation.
- **SunEarth, Inc., Fontana - \$289,000**
SunEarth, Inc., in Fontana received \$289,000 to manufacture liquid flat plate solar thermal collectors for medium temperature domestic water heating and industrial processes and will manufacture standard and custom rolled and ultrasonically welded absorber plates and fin-tubes. The resulting technologies will be used in energy efficient solar water heaters.
- **FAFCO, Inc., Chico - \$215,000**
FAFCO, Inc., in Chico received \$215,000 to develop a next-generation low cost, polymer-based solar water heating system for homes. The complete system in a box will be low cost and easy to install.

Award(s): 2 totaling \$1.9 billion from DOE / Treasury, Loan Guarantee Program

Location: Statewide

- **BrightSource Energy - \$1.3 billion**
BrightSource Energy was offered a conditional commitment of more than \$1.3 billion in loan guarantees to support the construction and start-up of Ivanpah Solar Complex, three utility-scale concentrated solar power plants located in California’s Mojave Desert.
- **Solyndra Inc. - \$535 million**
The Department of Energy finalized a \$535 million loan guarantee for Solyndra, Inc., to finance construction of the first phase of the company's new solar manufacturing facility in Fremont, California.

Award(s): 2 totaling \$7.5 million, Community Renewable Energy Deployment

Location: Sacramento, Davis

- **Sacramento Municipal Utility District, Sacramento - \$5 million**
The Sacramento Municipal Utility District received \$5 million to implement various renewable energy projects, notably solar and three biogas projects.

- **University of California at Davis - \$2.5 million**

The University of California at Davis received \$2.5 million for a proposed Waste-to-Renewable Energy (WTRE) system, one component of a campus oriented mixed housing and commercial development venture. The system would generate power from a renewable biogas fed fuel cell. The organic waste will enter a receiving station in which it can be collected and prepared for digestion. Once the appropriate mix has been created in buffer tanks, the waste will flow to the reactor where methanogenic bacteria will generate methane and carbon dioxide, hydrogen sulfide, etc. These gases will flow to the Bio-methane Upgrade System for hydrogen sulfide and carbon dioxide removal, so that cleanup is to a level appropriate for use in a fuel cell system and the cleaned gas is stored. Housed alongside the WTRE system within the Community Energy Park will be an advanced storage battery and a 300kW fuel cell that will be fueled by the on-site biogas and provide electric power to West Village end-users.¹

Award(s): \$1.9 million, Concentrating Solar Power

Location: Rosemead

Southern California Edison Company in Rosemead received \$1.9 million for Concentrating Solar Power. This project will decommission the Solar Two site in Daggett California to free up the site for future solar development.

Award(s): 9 totaling \$19.0 million, Enhanced Geothermal Systems (EGS) Technology R&D²

Location: Statewide

- **Potter Drilling, Inc., Redwood City - \$5 million**

Potter Drilling, Inc., in Redwood City has received \$5 million for the development of a Hydrothermal Spallation Drilling System for EGS.

- **Simbol Mining Corp., Pleasanton - \$3 million**

Simbol Mining Corp. in Pleasanton received \$3 million to develop technologies for extracting valuable metals and compounds such as lithium from geothermal fluids.

- **Symyx Technologies, Inc., Sunnyvale - \$3 million**

Symyx Technologies, Inc., in Sunnyvale received \$3 million to develop an experiment-based model for the chemical interactions between geothermal rocks, supercritical carbon dioxide and water.

- **Environmental and Energy Research Institute, Covina - \$1.8 million**

The Environmental and Energy Research Institute in Covina received \$1.8 million to use a chemical model to choose new "tracer" fluids for EGS reservoir tracking.

- **The Regents of the University of California, Berkeley - \$1.8 million**

The Regents of the University of California in Berkeley received \$1.8 million to develop Silicon Carbide (SiC) pressure and temperature sensors for permanent well sensing at high temperatures.

¹ http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=15759

² Five additional EGS programs can be found in the "Science and Innovation" section within this document.

- **University of Southern California, Los Angeles - \$1.5 million**
The University of Southern California in Los Angeles received \$1.5 million to characterize fractures in Geysers geothermal field by micro-seismic data, using geophysical methods.
- **AltaRock Energy, Inc., Sausalito - \$1.5 million**
AltaRock Energy, Inc., in Sausalito received \$1.5 million to develop, test and calibrate an exploration methodology that integrates geology, geophysics and geochemistry into a conceptual model to identify potential drilling targets.
- **Science Applications International Corporation, San Diego - \$1 million**
Science Applications International Corporation in San Diego received \$1 million to develop an advanced stimulation / production predictive model for enhanced geothermal systems.
- **California State University, Long Beach - \$380,000**
California State University in Long Beach received \$380,000 to use radar technology to track "tracer" fluids as they move through fractured rock in an EGS system. They will track the pathways and heat exchange properties of the reservoir and create a model to accurately predict these properties in future projects.

Award(s): 2 totaling \$23.4 million, Geothermal Demonstrations

Location: Sausalito, Alturas

- **AltaRock Energy, Inc., Sausalito - \$21.4 million**
AltaRock Energy, Inc., in Sausalito received \$21.4 million to demonstrate EGS power generation from the Newberry Known Geothermal Resource Area.
- **Surprise Valley Electrification Corporation, Alturas - \$2 million**
Surprise Valley Electrification Corporation in Alturas has received \$2 million to build a binary power plant utilizing low temperature fluids and enable the construction of a local aquaculture facility.

Award(s): 8 totaling \$8.9 million, High-Penetration Solar Deployment

Location: Statewide

- **Sacramento Municipal Utility District , Sacramento - \$4.3 million**
The Sacramento Municipal Utility District received \$4.3 million for High-Penetration Solar Deployment. This one-year project will evaluate the value of advanced metering infrastructure, PV and storage for homes with advanced metering infrastructure and PV along with the variables of no storage, home-based storage or community-based storage.
- **City of San Jose - \$1.1 million**
The City of San Jose received \$1.1 million to implement the CaliforniaFIRST financing structure to enable property owners to finance 100 percent of the upfront capital costs of clean energy projects and repay the loan.

- **California Community Colleges Board of Governors - Regional Solar, Sacramento - \$975,000**
The California Community Colleges Board of Governors – Regional Solar in Sacramento received \$975,000 to create a state-wide standardized training curriculum and certification for PV and Solar Heating and Cooling (SHC) instructors, train-the-trainer events, professional development and curricular resources in solar training.
- **City of San Francisco - \$751,000**
The City of San Francisco received \$751,000 for its Debt-Financed Solar Water Heating Retrofits for Affordable Housing Project, which will partner with Enterprise Community Partners to pilot a solar water heating financing model for affordable housing that uses the energy savings to service the debt.
- **City of Santa Rosa - \$667,000**
The City of Santa Rosa received \$667,000 to establish a Clean Energy Advocate pilot project to provide an independent advocate to assist in the solar purchase and installation process.
- **City of San Diego - \$500,000**
The City of San Diego project received \$500,000 for its project, Solar Financing Options for Multifamily Affordable Housing, which will work to remove barriers that prevent multifamily affordable housing developments from installing PV systems.
- **University of California San Diego, La Jolla - \$500,000**
The University of California San Diego in La Jolla received \$500,000 to develop advanced modeling tools and electric power control strategies to optimize electric power value and remove or reduce the impact of PV-sourced electricity on existing microgrids and the Smart Grid.
- **City of Berkeley - \$118,000**
The City of Berkeley received \$118,000 to expand its Smart Solar outreach program to provide customized assistance, including site assessments, to property owners throughout the region.

Award(s): 11 totaling \$15.9 million, Photovoltaic (PV) Systems Development

Location: Statewide

- **Silicon Genesis Corporation, San Jose - \$3 million**
Silicon Genesis Corporation in San Jose received \$3 million to accelerate development of a silicon wafering tool that enables a dramatic reduction in silicon waste by utilizing a cleaving process as opposed to the conventional wire saw process.
- **Sierra Solar Power Inc., Fremont - \$3 million**
Sierra Solar Power, Inc., in Fremont received \$3 million to accelerate development of a high-volume manufacturing silicon epitaxy growth system.
- **Solar Junction, San Jose - \$3 million**
Solar Junction in San Jose received \$3 million to move PV incubator technology from prototype to full-scale manufacturing.

- **Alta Devices, Inc., Santa Clara - \$2.9 million**
Alta Devices, Inc., in Santa Clara received \$2.9 million to move PV incubator technology from prototype to full-scale manufacturing.
- **XeroCoat Inc., Redwood City - \$1.3 million**
XeroCoat, Inc., in Redwood City received \$1.3 million to develop and commercialize a low-cost, novel glass antireflective coating that enables high transmission of light and therefore higher energy output from any glass PV module.
- **Tetra Sun, Saratoga - \$854,000**
TetraSun in Saratoga received \$854,000 to move PV incubator technology from prototype to full-scale manufacturing.
- **Crystal Solar, Santa Clara - \$500,000**
Crystal Solar in Santa Clara received \$500,000 to develop thin crystal silicon solar cells on ceramic substrates.
- **Banyan Energy, Kensington - \$500,000**
Banyan Energy in Kensington received \$500,000 to develop a flat Aggregated Total Internal Reflection (ATIR) optic for moderate concentrating photovoltaic systems.
- **TiSol, Pasadena - \$499,000**
TiSol in Pasadena received \$499,000 to develop a viable technology for thin film deposition in open atmosphere using a unique flame synthesis methodology. This technological development targets reducing the cost and increasing the deployment of dye sensitized solar.
- **Palo Alto Research Center, Inc., Palo Alto - \$150,000**
Palo Alto Research Center, Inc., received \$150,000 to expand and accelerate photovoltaic (PV) awards that can be made under the current competitive funding opportunity.
- **Solar Red, San Jose - \$150,000**
Solar Red in San Jose received \$150,000 to develop an all-AC, building integrated, thin-film cadmium telluride PV system for asphalt shingled sloped roofs. This plug-and-play, snap-in / snap-out AC PV system will significantly reduce installation costs.

Award(s): 2 totaling \$7.8 million, Validation of Innovative Exploration Technologies

Location: Reno, Santa Rosa

- **Ram Power, Inc., Reno - \$5 million**
Ram Power, Inc., in Reno received \$5 million to use geological techniques to understand the regional geology in the Imperial Valley.
- **GeoGlobal Energy, LLC, Santa Rosa - \$2.8 million**
GeoGlobal Energy, LLC, in Santa Rosa received \$2.8 million to combine geological analysis and exploration technologies to discover hidden resources in the Basin and Range region of Nevada.

Award(s): 2 totaling \$681,000, Wind Energy Technology R&D and Testing

Location: Long Beach, Sunnyvale

- **Alpha Star Corporation, Long Beach - \$457,000**
Alpha Star Corporation in Long Beach received \$457,000 to demonstrate the ability of the GENOA advanced structural residual strength and life analysis software to predict the static and fatigue load response of a current Sandia wind turbine blade design to its design loads / environment envelope.
- **Analatom, Inc., Sunnyvale - \$172,000**
Analatom, Inc., in Sunnyvale received \$172,000 to demonstrate Analatom's Structural Health Monitoring (SHM) Artificial Intelligence (AI) software to detect and identify anomalous or abnormal behaviors in wind turbine system and component operation.

MODERNIZING THE ELECTRIC GRID – 21 projects totaling \$393.2 million

Harnessing clean energy sources and integrating them onto a modernized electric grid, while giving consumers better choices and more control over their energy use. For more information, visit <http://www.energy.gov/recovery/smartgrid.htm>.

Award(s): 4 totaling \$4.3 million, Enhancing State and Local Governments' Energy Assurance

Location: Statewide

This project focuses on building regional energy assurance capability by enhancing inter- and intra-state coordination and cooperation during energy emergencies. The project funds states to update or develop State Energy Assurance Plans incorporating new energy portfolios such as wind, renewables and biofuels. The project also funds cities to update or develop Local Energy Assurance Plans. The two sets of funding are used to hire or retrain staff to build in-house expertise in dealing with Smart Grid technologies, critical energy infrastructure interdependencies and cyber-security.

- **State of California, Sacramento - \$3.6 million**
The State of California Energy Commission received \$3.6 million for State Energy Assurance Planning.
- **City of San Jose - \$300,000**
The City of San Jose received \$300,000 for the Local Energy Assurance Planning (LEAP) Initiative.
- **City of Chula Vista - \$200,000**
The City of Chula Vista received \$200,000 for the Local Energy Assurance Planning (LEAP) Initiative.
- **City of Visalia - \$198,000**
The City of Visalia received \$198,000 for the Local Energy Assurance Planning (LEAP) Initiative.

Award(s): 6 totaling \$203 million, Smart Grid Investment Grant Program (EISA 1306)

Location: Statewide

- **Sacramento Municipal Utility District, Sacramento - \$127.5 million**
The Sacramento Municipal Utility District in Sacramento received \$127.5 million to install a comprehensive regional Smart Grid system.
- **San Diego Gas and Electric Company, San Diego - \$28.1 million**
The San Diego Gas and Electric Company in San Diego received \$28.1 million to implement an advanced wireless communications system to provide connections for 1.4 million smart meters, dynamic pricing and examples of smart equipment that will allow increased monitoring, communication and control over the electrical system.
- **City of Glendale Water and Power, Glendale - \$20 million**
City of Glendale Water and Power in Glendale received \$20 million to install 84,000 smart meters and a meter control system that will provide customers access to data about their electricity usage and enable dynamic rate programs.
- **Burbank Water and Power, Burbank - \$20 million**
Burbank Water and Power in Burbank received \$20 million to deploy multiple integrated Smart Grid technologies, including 51,000 electric smart meters and a connected smart meter network for water usage, Customer Smart Choice, Energy Demand Management programs and enhanced grid security systems.
- **City of Anaheim Public Utilities Department, Anaheim - \$5.9 million**
The City of Anaheim Public Utilities Department in Anaheim received \$5.9 million to upgrade and enhance the city's Smart Grid network and demand response systems, including installing 35,000 residential meters, as well as security and data systems, which will help reduce peak load and line losses.
- **Modesto Irrigation District, Modesto - \$1.5 million**
Modesto Irrigation District in Modesto received \$1.5 million to install 4,000 smart meters, enhance the electricity distribution system to help reduce peak demand and overall system losses and develop improved customer service programs including dynamic pricing, billing system modifications and education and outreach efforts.

Award(s): 8 totaling \$182.7 million, Smart Grid Regional and Energy Storage Demonstration Project (EISA 1304)

Location: Statewide

- **Los Angeles Department of Water and Power, Los Angeles - \$60.3 million**
Los Angeles Department of Water and Power in Los Angeles received \$60.3 million for its Smart Grid Regional Demonstration Project, a partnership with a consortium of local research

institutions. It will deploy Smart Grid systems at partners' university campus properties and technology transfer laboratories. The demonstration projects will also include gathering data on how consumers use energy in a variety of systems, testing on the next generation of cyber-security technologies and how to integrate a significant number of plug-in hybrid electric vehicles onto the grid.

- **Southern California Edison Company, Rosemead - \$40.1 million**
Southern California Edison Company in Rosemead received \$40.1 million for its Irvine Smart Grid Demonstration project, which will demonstrate an integrated, scalable Smart Grid system that includes all of the interlocking pieces of an end-to-end Smart Grid system. The project will focus on the interoperability and interactions between technologies and systems working at the same time such as communications networks, cyber-security requirements and interoperability standards.
- **Pacific Gas & Electric Company, San Francisco - \$25 million**
Pacific Gas & Electric Company in San Francisco received \$25 million for its Advanced Underground CAES Demonstration Project using a Saline Porous Rock Formation as the Storage Reservoir. They will build and validate the design, performance and reliability of an advanced, underground 300 MW Compressed Air Energy Storage.
- **Southern California Edison Company, Rosemead - \$25 million**
Southern California Edison Company in Rosemead received \$25 million for its Tehachapi Wind Energy Storage Project, which will deploy and evaluate an 8 MW utility-scale lithium-ion battery technology to improve grid performance and aid in the integration of wind generation into the electric supply. The project will evaluate a wider range of applications for lithium-ion batteries that will spur broader demand for the technology, bringing production to a scale that will make this form of large energy storage more affordable.
- **Primus Power Corporation, Alameda - \$14 million**
Primus Power Corporation in Alameda received \$14 million for its Wind Firming Energy Farm, which will deploy a 25 MW - 75 MWh EnergyFarm for the Modesto Irrigation District in California's Central Valley, replacing a planned \$78M / 50 MW fossil fuel plant to compensate for the variable nature of wind energy, providing the District with the ability to shift on-peak energy use to off-peak periods.
- **Seeo, Inc., Berkeley - \$6.2 million**
Seeo, Inc., in Berkeley received \$6.2 million for its Solid State Batteries for Grid-Scale Energy Storage project, which will develop and deploy a 25kWh prototype battery system based on Seeo's proprietary nano-structured polymer electrolytes. This new class of advanced lithium-ion rechargeable battery will demonstrate the substantial improvements offered by solid State lithium-ion technologies for energy density, battery life, safety and cost. These batteries would be targeted for utility-scale operations, particularly Community Energy Storage projects.

- **Zenergy Power, Inc., San Francisco - \$8 million**
Zenergy Power, Inc., in San Francisco received \$8 million to design, test and demonstrate technology that temporarily absorbs power to avoid blackouts. Acting like a firewall, Zenergy's Fault Current Limiter (FCL) protects power grid equipment against damaging power surges caused, for example, by short circuits or lightning strikes. The FCL significantly reduces the risk of power grid failures and interruptions in power supplies.³
- **Amber Kinetics, Inc., Fremont - \$4 million**
Amber Kinetics, Inc., in Fremont received \$4 million for its Flywheel Energy Storage Demonstration Project, which will develop and demonstrate an innovative flywheel technology for use in grid-connected, low-cost bulk energy storage applications. This demonstration effort, which partners with Lawrence Livermore National Laboratory, will improve on traditional flywheel systems, resulting in higher efficiency and cost reductions that will be competitive with pumped hydro technologies.

Award(s): \$1.7 million, State Assistance on Electricity Policies

Location: San Francisco

The California Public Utilities Commission in San Francisco received \$1.7 million to assist State Public Utility Commissions in addressing its Recovery Act electricity workload by hiring staff trained to facilitate the review of time-sensitive requests approving electric utility expenditures.

Award(s): 2 totaling \$1.5 million, Smart Grid Workforce Training

Location: Glendale, Sacramento

- **Glendale Community College, Glendale - \$750,000**
Glendale Community College in Glendale received \$750,000 to expand training curricula and programs in the Southern California region. The project will raise awareness and interest in careers in utilities, address the predicted number of workers eligible for retirement and focus on training the workforce from the local community. The project is also intended to provide an electrical engineering pathway from the community college to the university level.
- **University Enterprises, Inc. (on behalf of CSU Sacramento), Sacramento - \$750,000**
University Enterprises, Inc., in Sacramento received \$750,000 for the California Smart Grid Workforce Development Network, which will engage electric utilities, California State University campuses, California Community Colleges, labor unions and Smart Grid manufacturers to create, execute and evolve a statewide workforce development strategy. The project's collaborating utilities include PG&E, Southern California Edison and Sacramento Municipal Utility District.

³ <http://www.zenergypower.com/images/Presse/Zenergy-Power-CFS-EN.pdf>

TRANSPORTATION – 11 project totaling \$141.8 million

Investing in a new generation of advanced fuels and vehicles to reduce our dependence on foreign oil and revitalize domestic manufacturing. For more information, visit <http://www.energy.gov/recovery/vehicles.htm>.

Award(s): \$465 million from DOE / Treasury, Advanced Technology Vehicles Manufacturing Program

Location: Fremont

Tesla Motors closed a \$465 million loan arrangement under the Department of Energy's Advanced Technology Vehicles Manufacturing program to repurpose a manufacturing facility in Fremont, California to produce electric drive trains, electric vehicles and battery packs. The company estimates the project will create over 1,600 jobs.

Award(s): 3 totaling \$25 million, Clean Cities Alternative Fuel and Vehicles (AFV) Grant Program

Locations: San Bernardino, Diamond Bar

- **County of San Bernardino - \$10 million**

The County of San Bernardino has received \$10 million for the Clean Cities Alternative Fuel and Vehicles (AFV) Grant Program. This project will focus on the J.B. Hunt LNG Truck Project.

- **South Coast Air Quality Management District Building Corp., Diamond Bar - \$9.4 million**

South Coast Air Quality Management District Building Corp. in Diamond Bar has received \$9.4 million for the Clean Cities Alternative Fuel and Vehicles (AFV) Grant Program. This project will deploy 180 LNG trucks to the Ports of Los Angeles and Long Beach, which will replace 180 existing older diesel drayage trucks.

- **South Coast Air Quality Management District Building Corp., Diamond Bar - \$5.6 million**

South Coast Air Quality Management District Building Corp. in Diamond Bar has received \$5.6 million for the Clean Cities Alternative Fuel and Vehicles (AFV) Grant Program. This project will deploy 48 new heavy-duty vehicles.

Award(s): \$5.5 million, Commercial Vehicle Integration (SuperTruck) and Advanced Combustion Engine R&D

Location: Playa Vista

X-Prize Foundation in Playa Vista received \$5.5 million to focus on evaluation, education and outreach supporting the Automotive X-Prize advanced vehicle competition.

Award(s): 2 totaling 5.6 million, Enabling Fuel Cell Market Transformation

Location: Irving, Folsom

- **Plug Power, Inc., UC-Irvine area - \$3.4 million**

Plug Power, Inc., received \$3.4 million for Enabling Fuel Cell Market Transformation. This project will focus on fuel cell CHP demonstration.

- **Jadoo Power, Folsom - \$2.2 million**

Jadoo Power in Folsom received \$2.2 million for an Enabling Fuel Cell Market Transformation project. This project will focus on solid oxide fuel cell demonstration.

Award(s): 2 totaling \$44.8 million, Modify Integrated Biorefinery Solicitation Program for Pilot and Demonstration Scale Biorefineries

Location: Emeryville, Visalia

- **Amyris Biotechnologies, Inc., Emeryville - \$24.3 million**

Amyris Biotechnologies, Inc., in Emeryville received \$24.3 million to produce a diesel substitute through the fermentation of sweet sorghum. The pilot plant will also have the capacity to co-produce lubricants, polymers and other petro-chemical substitutes.

- **Logos Technologies, Inc., Visalia - \$20.5 million**

Logos Technologies, Inc., in Visalia received \$20.5 million to convert switchgrass and woody biomass into ethanol using a biochemical conversion processes.

Award(s): 3 totaling \$60.9 million, Transportation Electrification

Location: Diamond Bar, Campbell

- **South Coast Air Quality Management District Building Corp., Diamond Bar - \$45.4 million**

South Coast Air Quality Management District Building Corp. in Diamond Bar received \$45.4 million for Transportation Electrification. The overall objective of the Plug-In Hybrid Electric Medium Duty Commercial Fleet Demonstration and Evaluation Program is to develop plug-in hybrid technology for a very broad range of vehicles, create production capability as quickly as possible and establish a supporting charging infrastructure.

- **Coulomb Technologies, Inc., Campbell - \$15 million**

Coulomb Technologies, Inc., in Campbell received \$15 million to demonstrate the viability, economic and environmental benefits of an electric vehicle charging infrastructure.

- **San Francisco Community College District, San Francisco - \$500,000**

The San Francisco Community College District received \$500,000 to educate the college on electric vehicles.

CARBON CAPTURE & STORAGE – 8 projects totaling \$318.9 million

Developing clean coal technologies so we can utilize America's coal resources sustainably. For more information, visit <http://www.energy.gov/recovery/ccs.htm>.

Award(s): \$308 million, Expand and Extend Clean Coal Power Initiative Round III

Location: Kern County

Hydrogen Energy California LLC in Kern County received \$308 million to design, construct and operate a hydrogen-powered electric generating facility with carbon capture and storage.

Award(s): \$4.8 million, Geologic Sequestration Site Characterization

Location: Arcadia

Terralog Technologies in Arcadia received \$4.8 million to implement a comprehensive research program to better characterize Pliocene and Miocene sediments in the Wilmington Graben for high volume carbon dioxide storage.

Award(s): 3 totaling \$896,000, Geologic Sequestration Training and Research Grant Program

Location: Pasadena, San Diego, Stanford

- **California Institute of Technology, Pasadena - \$300,000**

The California Institute of Technology in Pasadena received \$300,000 for the Geologic Sequestration Training and Research Grant Program. This project addresses the need to measure the Dissolved Inorganic Carbons (DIC) in underground brine water at higher sensitivity, lower cost, in situ, at higher frequency and over long periods of time for the Monitoring, Verification and Accounting (MVA) of carbon dioxide sequestration. The proposed research will use molecular simulation tools to predict the Mid-IR spectra for carbon dioxide and HCO₃⁻ and also the change of Mid-Infrared (MIR) features for DICs as the pressure, pH, temperature and salinity change and preliminary verification of the spectra with very thin layer of brine water samples under high temperature and pressure. This project will employ at least 2 graduate students during the research effort.

- **San Diego State University, San Diego - \$300,000**

San Diego State University in San Diego has received \$300,000 for the Geologic Sequestration Training and Research Grant Program. This project will build a 2 / 3D simulator with comprehensive chemical processes relevant to modeling carbon dioxide injection in carbon sequestration sites. The primary focus is on the flow of carbon dioxide into a water-filled reservoir and the resulting chemical reactions.

- **Leland Stanford Junior University, Stanford - \$296,000**

Leland Stanford Junior University in Stanford received \$296,000 for the Geologic Sequestration Training and Research Grant Program. This project focuses on the development of theoretical rock physics models that can predict the changes in the mineral framework of porous rock based on geological and geochemical circumstances and the resulting changes in porosity.

Award(s): 3 totaling \$5.2 million, Industrial Carbon Capture and Storage Applications

Location: Martinex, Los Gatos, McClellan

- **C6 Resources, Martinex - \$2.6 million**

C6 Resources in Martinex received \$2.6 million for Industrial Carbon Capture and Storage Applications. One million tons of carbon dioxide will be captured from the Shell Martinez Refinery in Martinez and transported by pipeline to Solano County. Here it will be injected more than 2 miles underground into a saline formation.

- **Calera Corporation, Los Gatos - \$1.5 million**

Calera Corporation in Los Gatos received \$1.5 million to convert carbon dioxide to carbonate minerals using liquids such as brines and solid sources of base chemicals such as fly ash in a single process unit.

- **Renewable Energy Institute International (REII), McClellan - \$1.1 million**

Renewable Energy Institute International in McClellan received \$1.1 million to process carbon dioxide and natural gas in a solar reformer to produce syngas suitable for a Fischer-Tropsch process to make liquid fuels.

ENVIRONMENTAL CLEANUP – 2 projects totaling \$23.8 million

Creating jobs and reducing the legacy cold war footprint of the Department of Energy and clean up the polluted land and water resources in communities. For more information, visit <http://www.energy.gov/recovery/cleanup.htm>

Award(s): \$15.9 million, ETEC Recovery Act Project

Location: Canoga Park

The Boeing Company in Canoga Park received \$15.9 million for the ETEC Recovery Act Project. The primary purpose of the contract award is to comply with Resource Conservation and Recovery Act corrective action activities at the facility, along with maintaining the facilities in a safe and compliant shutdown mode.

Award(s): \$7.9 million, SLAC Recovery Act Project

Location: Menlo Park

C / P / E Environmental Services in Menlo Park received \$7.9 million for the SLAC Recovery Act Project, to achieve an acceleration of project completion from FY 2012 to FY 2011. The Scope of Work consists of the following: Complete all remaining soil excavation, transportation, disposal, sampling and restoration activities associated with the Bone Yard, Casting Pad / Building 18, Lower Salvage Yard, Clean Landfill, IR-1 Drainage Channel, Artificial Ridge, Building 24 / 34 Area, Sector 16 Soil Relocation Area Drainage Channel Swale, Klystron Gallery VVS sites, Sector 16 Storage Area Drainage Channel and remaining West SLAC Campus Area / IR-8 OU remedial investigation activities at four waste sites including any excavation, transportation, disposal, sampling and restoration activities.

SCIENCE AND INNOVATION – 89 projects totaling \$459.1 million

Renewing our commitment to science and innovation to ensure global competitiveness in the future. For more information, visit <http://www.energy.gov/recovery/innovation.htm>.

Award(s): \$2.7 million, Advanced Computer Architectures

Location: Berkeley

The University of California in Berkeley received \$2.7 million to facilitate and ultimately accelerate the iterative process of science-driven supercomputing system design.

Award(s): \$14.7 million, Advanced Light Source User Support Building

Location: Berkeley

The University of California in Berkeley received \$14.7 million for the design and construction of a new science Advanced Light Source (ALS) support facility at Lawrence Berkeley National Laboratory (LBNL) that includes a high bay for assembly of experimental equipment, precision component assembly areas, wet laboratories and office space in an on-going project. The Recovery Act funding applied to this effort will provide sufficient funding to fully complete the project and should allow the General Contractor to accelerate much of the design and construction activities.

Award(s): \$62.2 million, Advanced Networking Initiative

Location: Berkeley

The University of California in Berkeley received \$62.2 million for the Advanced Networking Initiative. The Lawrence Berkeley National Laboratory will use the funds to deploy a demonstration prototype national network and conduct research and development on an advanced network testbed facility that, if successful, will accelerate by several years the commercialization of 100 Gigabit per second (Gbps) networking technologies.

Award(s): 2 totaling \$31.5 million, Advanced Plasma Acceleration Facility

Location: Berkeley, Stanford

- **Regents of The University Of California, Berkeley - \$17 million**

The University of California in Berkeley received \$17 million to fund capital equipment procurement and facility modifications necessary for an existing proposal, the Facilities for Accelerator Science and Experimental Test Beams (FACET) at the SLAC National Accelerator Laboratory (SLAC) and will partially fund capital equipment procurement and facility modifications necessary for the Berkeley Lab Laser Accelerator (BELLA) at Lawrence Berkeley National Laboratory (LBNL).

- **Leland Stanford Junior University, Stanford - \$14.5 million**

Stanford University received \$14.5 million to fund capital equipment procurement and facility modifications necessary for an existing proposal, the Facilities for Accelerator Science and Experimental Test Beams (FACET) at the SLAC National Accelerator Laboratory (SLAC) and will partially fund capital equipment procurement and facility modifications necessary for the Berkeley Lab Laser Accelerator (BELLA) at Lawrence Berkeley National Laboratory (LBNL).

Award(s): 7 totaling \$20.8 million, Advanced Research Projects Agency - Energy (ARPA-E)

Location: Statewide

- **Leland Stanford Junior University, Stanford - \$5 million**
Stanford University received \$5 million to develop a comprehensive human-centered solution to track and refine energy use patterns, facilitating energy savings through the use of sensor technology.
- **Ceres, Inc., Newbury Park - \$4.9 million**
Ceres, Inc., in Newbury Park received \$4.9 million for a project focusing on genes that enable energy crops to produce more biomass using less land (and lower quality land), less water and less fertilizer than standard energy crops. This approach would provide sustainable biofeedstocks to displace oil and coal for fuels and power production.
- **Envia Systems, Hayward - \$4 million**
Envia Systems in Hayward received \$4 million to fund the Argonne / Envia Systems lithium-ion battery technology which provides the highest energy and cycle life of all lithium-ion systems available today for the plug-in hybrid electric vehicle (PHEV) and electric vehicle markets and will help facilitate meeting the stringent U.S. Advanced Battery Consortium (USABC) requirements for powering 40-mile-range PHEVs.
- **PAX Streamline, Inc., San Rafael - \$3 million**
PAX Streamline, Inc., in San Rafael received \$3 million to partner with Georgia Tech Research Institute to lead a project to adapt Blown Wing technology for wind turbines, culminating in a 100 kW prototype.
- **NanOasis Technologies, Inc., Richmond - \$2 million**
NanOasis Technologies, Inc., in Richmond received \$2 million to utilize carbon nanotubes to make industrially scalable high efficiency reverse osmosis membranes with 10 times the flux of existing membranes.
- **Porifera, Inc., Hayward - \$1.2 million**
Porifera, Inc., in Hayward received \$1.2 million to lead a team including the University of California and Lawrence Livermore National Laboratory that will integrate carbon nanotubes with polymer membranes to increase the flux of carbon dioxide capture membranes by up to 100 times.
- **The Regents of the University of California at Riverside - \$764,000**
The Regents of the University of California at Riverside (UCR) received \$764,000 to develop a new generation of fuel cell membranes that are dramatically more ion-conductive, durable and tolerant of abuse than previous devices.

Award(s): \$2.2 million, Advanced Technology R&D Augmentation

Location: Berkeley

The University of California received \$2.2 million to focus on three areas of new accelerator and detector tools at the Lawrence Berkeley National Laboratory: high field superconducting magnets made from newly discovered superconductors to raise the magnetic field intensity in accelerators and MRI devices; Superconducting RF accelerator cavities which use less electrical power to operate but are able to support high current operation; large area photo-detectors, a sensitive area of several square feet.

Award(s): \$4 million, Bioenergy Research Center Capital Equipment

Location: Berkeley

The University of California in Berkeley received \$4 million for Bioenergy Research Center Capital Equipment. Funds will be divided among the BioEnergy Science Center (BESC), managed by Oak Ridge National Laboratory (ORNL); the Joint BioEnergy Institute (JBEI), managed by the Lawrence Berkeley National Laboratory (LBNL) and the Great Lakes Bioenergy Research Center (GLBRC), managed by the University of Wisconsin.

Award(s): 2 totaling \$4.3 million, Computational Partnerships (SciDAC-e)

Location: Berkeley, Los Angeles

- **Regents of the University of California, Berkeley - \$4 million**

The University of Southern California in Los Angeles has received \$296,000. This project will provide funds for a one-time stimulus of research efforts in applied mathematics and in computer science to establish the computational foundation and the insight needed to advance the Department's mission across a wide range of areas, including developing novel, renewable and / or ecologically friendly energy sources and developing Smart Grids.

- **University of Southern California, Los Angeles - \$296,000**

The University of California in Berkeley received \$4 million for Computational Partnerships. The University of Southern California in Los Angeles has received \$296,000. This project will provide funds for a one-time stimulus of research efforts in applied mathematics and in computer science to establish the computational foundation and the insight needed to advance the Department's mission across a wide range of areas, including developing novel, renewable and / or ecologically friendly energy sources and developing Smart Grids.

Award(s): 3 totaling \$10.5 million, DIII-D Facility Upgrades

Location: San Diego, Livermore and La Jolla

General Atomics in San Diego received \$9.4 million for DIII-D Facility Upgrades, Lawrence Livermore National Security in Livermore has received \$810,000 and the University of California in La Jolla has received \$190,000. This project provides a one-time infrastructure upgrade and modernization program for the DIII-D National Fusion Facility, located at General Atomics (GA) in San Diego. The project will upgrade the auxiliary heating systems, power systems, core and edge diagnostics and support new short term postdoctoral research positions for the added diagnostic capability. The additional research capabilities enabled by this project will accelerate the advancement of understanding in plasma science, fusion science and fusion technology (the knowledge base needed for an economically and environmentally attractive fusion energy source).

Award(s): 8 totaling \$21.5 million, Energy Sciences Fellowships and Early Career Research Program
Location: Statewide

- **University of California, Berkeley - \$7.5 million**
The University of California in Berkeley received \$7.5 million for high-energy physics research and theoretical investigation of nuclear structure.
- **Lawrence Livermore National Security, Livermore - \$5.1 million**
Lawrence Livermore National Security received \$5.1 million to develop an experimental modeling program to investigate advanced divertor solutions on the National Spherical Torus Experiment and to use modular methodology to create models of how errors propagate through supercomputing systems.
- **Leland Stanford Junior University, Menlo Park - \$5 million**
Stanford University in Menlo Park received \$5 million for the generation and characterization of ultra-short electron beams for x-ray free electron lasers.
- **University of California, Irvine - \$750,000**
The University of California in Irvine received two awards totaling \$1.5 million to study nanocrystal solids and molecular electronics.
- **University of California, Santa Barbara - \$909,000**
The University of California in Santa Barbara received \$909,000 for experiments to measure the neutrino mass scale.
- **California Institute of Technology, Pasadena - \$811,000**
The California Institute of Technology in Pasadena received \$811,000 to study microorganisms.
- **University of California, Berkeley - \$750,000**
The University of California in Berkeley received \$750,000 to advance graphene physics for energy technology.

Award(s): 3 totaling \$28.4 million, Energy Frontier Research Centers
Location: Santa Barbara, Los Angeles, Berkeley

- **University of California, Santa Barbara - \$15.7 million**
The University of California, Santa Barbara received \$15.7 million to discover and develop materials that control the interactions between light, electricity and heat at the nanoscale level for improved solar energy conversion, solid state lighting and conversion of heat into electricity.
- **University of Southern California, Los Angeles - \$12.5 million**
The University of Southern California in Los Angeles received \$12.5 million to explore the light absorbing and emitting properties of hybrid inorganic / organic materials for solar energy conversion and solid state lighting.

- **University of California, Berkeley - \$172,000**

The University of California, Berkeley received \$172,000 to design and synthesize new forms of matter with tailored properties for gas separations in applications including carbon capture and sequestration.

Award(s): \$1.6 million, Enhance and Accelerate FEMP Service Functions to the Federal Government

Location: Berkeley

The University of California in Berkeley received \$1.6 million for several projects. This includes the completion of a laboratory energy management webinar for USDA nationwide and a final draft ESPC site data package template for Navy NFESC. Initial site visits have taken place at Ft. Dietrich and Ft. Collins.

Award(s): \$1.9 million, Enhanced AIP Funding at NP User Facilities

Location: Berkeley

The University of California in Berkeley received \$1.9 million for Accelerator Improvement Projects (AIP) at NP facilities to enhance operations of the facilities and contribute to the support of scientific research and the training of the next generation of nuclear scientists.

Award(s): 7 totaling \$6.3 million, Enhanced Geothermal Systems (EGS) Technology R&D

Location: Berkeley, Livermore

Lawrence Berkeley National Laboratory in Berkeley received four grants totaling \$3.4 million for Enhanced Geothermal Systems (EGS) Technology Research and Development; Lawrence Livermore National Laboratory in Livermore received three grants totaling \$2.9 million. EGS R&D will reduce the technical risk of creating and managing EGS reservoirs and will provide the tools to maintain high well production rates with low thermal drawdown which will in turn encourage the private sector to exploit EGS technology for commercial-scale deployment.

Award(s): \$2.9 million, Enhanced Operation of Major Fusion Facilities

Location: San Diego

General Atomics in San Diego received \$2.9 million for one-time augmentations of research and facility operations at fusion energy sciences facilities. This project will accelerate the advancement of understanding in plasma science, fusion science and fusion technology.

Award(s): \$17.7 million, Fundamental Research in Key Program Areas

Location: Berkeley

The University of California in Berkeley received \$17.7 million for Fundamental Research in Key Program Areas. This project will expand funding for fundamental research in biofuels including the establishment and / or enhancement of research centers and working groups. Specifically, the project includes the creation or increase in funding for three Biorefinery Research Centers (BRC) including the Great Lakes BRC, Advanced Fungible Biofuels Center, Algal Biofuels Center and the interagency Metabolic Engineering Working Group.

Award(s): 2 totaling \$38.1 million, General Plant Project Funding

Location: Menlo Park

Stanford University in Menlo Park received \$21.8 million for General Plant Project Funding; the University of California in Berkeley received \$16.3 million. This project will help revitalize the Lawrence Berkeley National Laboratory (LBNL) and the SLAC National Accelerator Laboratory by accelerating funding for non-line item capital improvements to facilities and infrastructure, including electrical upgrades, roofing, fire safety, space renovation, and transformer replacements. These improvements will reduce the laboratory's backlog of general infrastructure needs, ensuring improved readiness to perform mission work.

Award(s): \$20 million, High Energy Density Laboratory Plasma, Matter in Extreme Conditions (MEC) Instrument Project

Location: Menlo Park

Stanford University in Menlo Park received \$20 million to provide a major instrument at the SLAC National Accelerator Laboratory's Linac Coherent Light Source (LCLS) for the study of matter in extreme conditions including warm dense matter, high energy plasmas, shock phenomena and high pressures. The additional research capabilities enabled by this project will accelerate the advancement of understanding in the field of high energy density physics -- an area of research particularly relevant to extreme materials and fusion energy development -- and will bolster U.S. leadership in this internationally competitive scientific area.

Award(s): \$11 million, High Energy Density Laboratory Plasma, NDCX-II

Location: Berkeley

The University of California in Berkeley received \$11 million to purchase equipment for the Neutralized Drift Compression Experiment (NDCX-II) at Lawrence Berkeley National Laboratory.

Award(s): \$187,000, Infrastructure Improvements for General Plasma Science User Facilities

Location: Livermore

Lawrence Livermore National Security, LLC, received \$187,000 to provide improvements in infrastructure including hardware, upgraded diagnostics, new probes, improved data acquisition and analysis, which will enhance the scientific contributions of General Plasma Science (GPS) projects.

Award(s): \$13.1 million, Joint Genome Institute

Location: Berkeley

The University of California in Berkeley received \$13.1 million for the Joint Genome Institute at the Lawrence Berkeley National Laboratory. The funding will be used to purchase data storage and computing clusters, a new sequencing machine and consumable reagents for sequencing and assembling reference plant feedstock's and environmental microbial communities. The new capability for data storage and computation will bring the computing capacity better in line with the vast increases in rates of data generation. Additional information for feedstock crops such as switchgrass and Miscanthus as well as microbial communities will lead to improved identification of traits and modifications that increase productivity and sustainability of biofuels as well as facilitate conversion to carbon-neutral biofuels.

Award(s): \$15.9 million, Lab Call for Facilities and Equipment

Location: Berkeley

The University of California in Berkeley received \$15.9 million to build and operate a National User Facility for Net-Zero Energy Buildings Research at the Lawrence Berkeley National Laboratory consisting of a series of coordinated integration test beds that address key technical challenges for net-zero energy buildings.

Award(s): 2 totaling \$14.9 million, Light Source Improvements

Location: Berkeley, Stanford

The University of California in Berkeley received \$13.1 million for Light Source Improvements and Leland Stanford Junior University has received \$1.8 million. Funds will be used for the replacement of outdated original accelerator instruments and components to best realize the scientific research capabilities of SC Synchrotron Radiation Light Sources for the benefit of the scientific user community. These capital equipment resources will help enable the Light Sources to provide new advanced capabilities to characterize complex materials and structures with broad applicability to the advancement of the energy, economic and national security of the United States.

Award(s): \$33.6 million, Linac Coherent Light Source Ultrafast Science Instruments

Location: Stanford

Stanford University in Menlo Park received \$33.6 million for the Linac Coherent Light Source Ultrafast Science Instruments (LUSI) project, which will provide three major first-of-a-kind discovery-class instruments: the X-ray Pump Probe (XPP), Coherent X-ray Imaging (CXI) and the X-ray Correlation Spectroscopy (XCS).

Award(s): \$16.4 million, Magellan Distributed Computing and Data Initiative

Location: Berkeley

The University of California in Berkeley received \$16.4 million to establish a nationwide scientific mid-range distributed computing and data analysis testbed.

Award(s): \$5.9 million, Nanoscale Science Research Centers

Location: Berkeley

The University of California in Berkeley received \$5.9 million to procure new equipment at the five Nanoscale Science Research Centers (NSRCs) in order to ensure the availability of state-of-the-art capabilities for scientific users and staff. These capital equipment resources will enable the NSRCs to provide capabilities to fabricate, characterize, assemble and integrate complex materials and structures with dimensions and control on the scale of nanometers. These investments will help researchers at the NSRCs increase their understanding of the fundamentals underlying energy processes with broad applicability to the advancement of the energy, economic and national security of the United States.

Award(s): \$8 million, National Accounts Acceleration in Support of the Commercial Buildings Initiative

Location: Berkeley

The University of California in Berkeley received \$8 million to substantially reduce energy consumption in the commercial real estate sector by creating, testing and validating design concepts and providing technical assistance to commercial building owners and operators.

Award(s): 2 totaling \$1.7 million, Nuclear Data Program Initiative

Location: Berkeley, Livermore

- **University of California, Berkeley - \$950,000**

The University of California in Berkeley received \$950,000 for the Nuclear Data Program Initiative. The goal of this initiative is to recruit and train new nuclear data evaluators and compilers with the expectation of developing stable careers in this specialized field.

- **Lawrence Livermore National Security, LLC, Livermore - \$750,000**

Lawrence Livermore National Security, LLC, in Livermore has received \$750,000. The goal of this initiative is to recruit and train new nuclear data evaluators and compilers with the expectation of developing stable careers in this specialized field.

Award(s): \$1.3 million, Nuclear Science Workforce

Location: Livermore

Lawrence Livermore National Security, LLC, in Livermore received \$1.3 million to support proposals for initiatives in Applications of Nuclear Science and Technology, aimed at research and development activities in nuclear science that are relevant to applications important to the nation.

Award(s): 4 totaling \$5.8 million, Plasma Science Centers

Location: La Jolla, Berkeley, Irvine

The University of California received 4 awards totaling \$5.8 million to fund research cooperative agreements for Plasma Science Centers and accelerate the advancement of understanding in plasma science.

Award(s): 6 totaling \$2.7 million, Research and Infrastructure Augmentation at Universities in the HEP Program

Location: Statewide

Funds are granted to universities for the provision of tools and technical equipment (e.g., computing, instrumentation, and electronics) necessary to more effectively pursue the scientific goals of the HEP program, attract top students and provide world-class training for the next generation of experimental scientists.

- **University of California, Los Angeles - \$798,000**
- **University of California, Santa Barbara - \$735,000**
- **University of California, Irvine - \$600,000**
- **University of California, La Jolla - \$300,000**
- **University of California, Riverside - \$270,000**
- **San Francisco State University, San Francisco - \$11,000**

Award(s): \$7.2 million, Residential Buildings

Location: Berkeley

The University of California in Berkeley received \$7.2 million for the Residential Buildings program. This program focuses on the completion of Energy Savings retrofits, as well as targeted consumer education and outreach campaigns.

Award(s): \$29.3 million, SLI Construction

Location: Berkeley

The University of California in Berkeley received \$29.3 million for SLI Construction. The funding applied to the four modernization efforts associated with this project will allow construction to proceed more efficiently, minimizing the constraints of a protracted funding profile and providing mission ready facilities more quickly.

Award(s): 19 totaling \$2.7 million, Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Round 1

Location: Statewide

- **Membrane Technology and Research, Inc., Menlo Park - \$150,000**
Membrane Technology And Research, Inc., in Menlo Park received \$150,000 to research new approaches to energy savings using the integrated distillation-membrane processes.
- **Dehlsen Associates, LLC, Carpinteria - \$150,000**
Dehlsen Associates, LLC, in Carpinteria received \$150,000 to fund a centipod wave energy converter.
- **Phasiks, Inc., Los Alamitos - \$150,000**
Phasiks, Inc., in Los Alamitos received \$150,000 to fund a segmented fresnel CSP for community and business applications.
- **Innosense, LLC, Torrance - \$150,000**
Innosense, LLC, in Torrance received \$150,000 to build a Nanostructured Photovoltaic Device.
- **Chelix Technologies Corporation, Sunnyvale - \$150,000**
Chelix Technologies Corporation in Sunnyvale received \$150,000 to fund novel non-absorbing, visibly transparent and highly reflective NIR pigments for cool roofs applications.
- **Luminit, LLC, Torrance - \$150,000**
Luminit, LLC, in Torrance received \$150,000 to fund a solar photovoltaic holographic cogeneration system.
- **Physical Optics Corporation, Torrance - \$150,000**
Physical Optics Corporation in Torrance received \$150,000 to fund a high-temperature material microstructure nondestructive evaluation compton imaging tomography system.
- **Physical Optics Corporation, Torrance - \$150,000**
Physical Optics Corporation in Torrance received \$150,000 to fund a thermally assisted photo electrochemical hydrogen generation using a holographic concentrator.
- **Physical Optics Corporation, Torrance - \$150,000**
Physical Optics Corporation in Torrance received \$150,000 to fund a hybrid electrical and thermal energy system.

- **Pax Scientific, Inc., San Rafael - \$150,000**
Pax Scientific, Inc., in San Rafael received \$150,000 to fund a high-efficiency membrane regenerator for liquid desiccant air conditioning.
- **Optical Physics Company, Calabasas - \$150,000**
Optical Physics Company in Calabasas received \$150,000 to fund a rollable solar thermal concentrator.
- **Shakti Technologies, Inc., Palo Alto - \$150,000**
Shakti Technologies, Inc., in Palo Alto received \$150,000 to fund nanomaterials for batteries and supercapacitors.
- **Nrgtek, Inc., Yorba Linda - \$150,000**
Nrgtek, Inc., in Yorba Linda received \$150,000 to fund a solar-assisted seawater desalination system.
- **Nanoasis Technologies, Inc., Richmond - \$150,000**
Nanoasis Technologies, Inc., in Richmond received \$150,000 to fund a high flux ultra low pressure nanocomposite membrane.
- **Asylum Research Corporation, Santa Barbara - \$147,000**
Asylum Research Corporation in Santa Barbara received \$147,000 to fund a nanoscale probe system for organic photovoltaics.
- **People Power Company, Palo Alto - \$142,000**
People Power Company in Palo Alto received \$142,000 to fund the Lean Green Energy Controller Machine, a clustered smart controller for the household market.
- **Wattminder, Sunnyvale - \$140,000**
Wattminder in Sunnyvale received \$140,000 to fund performance monitoring and actionable alert messaging for building integrated photovoltaics.
- **Natel Energy, Inc., Alameda - \$111,000**
Natel Energy, Inc., in Alameda received \$111,000 to fund the optimization of blade design for the low-head linear hydroengine.
- **Svv Technology Innovations, Inc., Elk Grove - \$96,000**
Svv Technology Innovations, Inc., in Elk Grove received \$96,000 to fund a hybrid slat-array PV system with thermal co-generation.

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Recovery Act Success Stories

Energy Empowers is a U.S. Department of Energy clean energy information service. Our team produces stories featuring the people and businesses that are fueling the energy transformation and economic recovery in America. For more stories from your state, go to energyempowers.gov/California

RIVERSIDE

California city seeks to cut costs, waste with solar-powered trash compactors

This summer, Riverside, Calif., is harnessing the power of the sun in an effort aimed at slashing waste, costs and greenhouse gases.

The city used \$153,040 of its \$2,850,600 Energy Efficiency and Conservation Block Grant (EECBG) to buy 25 solar-powered compactors from Waste Management, Inc., a distributor for U.S. manufacturer BigBelly Solar.

Called BigBelly Solar Compactors, these containers have the same blueprint as regular trash cans but do just what their name implies.

Their “big bellies” can swallow about 150 gallons of trash and compact the material into a 32-gallon bin, operating entirely on solar energy.



Riverside, Calif., used a portion of its EECBG funds to buy 25 solar-powered trash compactors. | Courtesy of BigBelly Solar

BigBelly Solar Facts

- Solar energy used in one day is same amount required to make a piece of toast
- Can operate for eight years on the same energy it takes to drive a garbage truck one mile
- Batteries allow the machines to operate for two to three weeks without charging

BigBelly in Philly

- Philadelphia currently has 500 BigBelly Solar Compactors. They recently purchased 260 more through EECBG funding.
- Reduced trash pickups from 17 to 5 trips per week
- Reduced operating costs by 70%
- Waste workers moved to recycling program

For Riverside, this could translate into big savings as trash collections are expected to be reduced from daily to once a week in most areas, cutting fuel and labor costs. Cindie Perry, Riverside’s Public Works Manager, says the compactors will be partnered with recycling units to boost conservation.

“We are in the process of installation currently. We have installed a test unit and it is working well,” Perry says. “We expect once all the units are installed we will reduce fuel consumption for our fleet by 1,665 gallons annually.”

In addition to conserving fuel, the city

predicts the reduced trash collections will save 575 labor hours, which Perry says will be diverted to tasks such as removal of illegal waste and city cleanup.

“We also run a lean crew, so the driver would be able to help out other trash drivers if necessary,” Perry says.

The city expects to install all compactors and recycling units by August. The total number, however, may not stop at 25. “We absolutely hope to add more,” says Perry.

Since the compactors are powered using renewable energy, the carbon footprint of collecting the waste will be cut by 80 percent, according to BigBelly Solar.

1 billion gallons – 1 idea

Richard Kennelly, vice president of marketing for BigBelly Solar, said the idea for the compactors came from inventor Jim Poss, who has been a renewable energy and environmental entrepreneur since college.

“The need was apparent because [Poss] had read that garbage collection trucks use about 1 billion gallons of fuel per year in the U.S.,” Kennelly says. “By compacting the waste right where you and I dispose of it, that becomes a demand reduction tool to keep the trucks in the garage 80 percent of the time.”

BigBelly Solar Compactors are manufactured in Vermont and Kentucky. The company has a number of suppliers throughout the country that support more than 200 jobs, Kennelly says.

He has noticed a positive effect of the EECBG funding, which he says has increased business by enabling cities to purchase the solar compactors quickly. This also supports jobs in the supply chain while cutting operating costs for cities, Kennelly says.

BigBelly Solar first installed a solar compactor in Vail, Colo., in 2004. Since then, the company has worked to improve the collection system and now has solar compactors installed in 46 states and 30 countries.

ROSEVILLE

Recovery Act funding hundreds of jobs in Sacramento County

Solar Power, Inc. of Roseville, Calif., does almost everything in solar photovoltaics — from manufacturing and testing to home solar panel installation kits to utility-scale solar farms.

The company is using its expertise to plan two contrasting projects using bonds awarded by Sacramento County. Funded by

the Recovery Act, the \$24.7 million will finance a facility to build SPI's solar panels. At a separate location in the county, the company also plans a 10-MW solar array, generating clean energy to be sold to a local utility.

"Once we go place these bonds, the goal is to start construction in July, and then have production out of the facility by the end of the year," Jeff Pontius, SPI's vice president, says.

The bonds were granted for projects geographically located in an area designated a Recovery Zone because of a need for economic growth. Jeff estimates that construction and installation on both projects will create close to 500 jobs within a few years. Once the manufacturing facility is complete, SPI projects 105 permanent jobs there.

The factory will be SPI's second and will double the company's production capacity to a total of 100 MW-worth of panels a year. Jeff says the timing is right because their current sales potential is exceeding current capacity, and having the new production in the U.S. will also help SPI compete for funding for alternative energy projects that requires products be made in America.

Meanwhile, Jeff says the development of the solar array project is an attempt to serve utilities that want to increase their alternative energy production, in part because of state-law mandates to produce renewable electricity. It's difficult to find a site for a solar array that meets all of the requirements for solar generation, proximity to transmission lines and other needs, Jeff says. So SPI looked around for key sites that fit the requirements for immediate development.

SAN FRANCISCO

Private funds help Bay Area cities retrofit multifamily housing

An estimated 1,300 households in the San Francisco Bay Area will see improvements to their power and water efficiency over the next two years, thanks to a public-private partnership partially funded by the Recovery Act. The Affordable Multifamily Retrofit Initiative will loan money to property owners to make energy efficiency improvements to multifamily housing in San Francisco, Berkeley and Oakland, with room for participation from other Bay Area cities as well.

The program is seeded with a \$3 million Recovery Act grant through California's State Energy Program and will be administered by the San Francisco Mayor's Office of Housing. This funding will be considerably enhanced by \$1 million each in private investment capital from the Low Income Investment Fund and Enterprise Community Partners, two nonprofit community development financial institutions. Loan repayments will roll into funding for new projects in the same communities.

Chris Kramer, Senior Fellow at the Low Income Investment Fund, says the initiative will use energy auditors to identify areas where participating buildings can be more energy efficient. This could include heating and cooling, electrical systems, hot water heaters, lighting and more, in both individual units and common areas.

"The retrofits are comprehensive," he says. "The initiative will fund audits of a whole property to determine the most cost-effective and efficient retrofits to come up with the whole package."

The program is just getting started, but a few energy audits are already completed. When they're done, the organizations estimate that retrofits will reduce gas and energy usage by 25 percent per

building. They plan to work on 26 buildings with about 50 units each, for a total of 1,300 units. They also estimate that 162 jobs will be created by the program. These include energy auditors, contractors to do the retrofitting and monitoring and follow-up workers, Kramer says. Indirectly, they can also include jobs in financing and resident/property manager training.

Kramer says retrofitting projects like this are particularly difficult to undertake in the affordable-housing sector because the properties tend to have several layers of financing. However, multifamily housing retrofits offer an opportunity to lower operating costs through a single project on buildings that house multiple low income families.

Although Recovery Act funds are part of the initial capital, Kramer says LIIF hopes to make the program self-sustaining by showing private lenders that property owners will pay back the loans -- giving them a good return on their investment.

CHINA LAKE

Carports with solar panels do double duty for Navy

At Naval Air Weapons Station China Lake, heat is a fact of life. The base is located on the edge of the Mojave Desert near Ridgecrest, Calif., where the blistering summer heat can actually peel the paint off cars. Longtime desert residents know how to deal with it, but thanks to an ongoing environmental program, many base employees no longer have to do so. Since 2007, China Lake has been building carports that don't just deflect heat — they also absorb it and turn it into electricity using a series of photovoltaic solar panels lining the tops of the carports.

"They are very, very appreciated, because if you park in the sun, you have peeling paint and leather, and the seats can be very, very hot," says Peggy Shoaf, public affairs program manager for the base. "The carports really do provide quite a bit of shade and lower the temperature in the vehicle by at least 20 degrees."

They also provide a combined total of 344 MWh of electricity annually. China Lake recently broke ground on three more sets of carports, using Recovery Act funds. Separate funding went to solar panels at other buildings on base. In total, all of China Lake's solar PV projects generate enough electricity a year to power up to 1,200 houses on the grid provided by Southern California Edison, the local utility. The base estimates that it saves about \$557,000 a year from the solar panels.

"We are producing enough electricity that we can offset our increased energy use during the time when energy is in most demand, during the afternoon, which really does provide a bit of respite for Southern California Edison," Peggy says.

The ARRA funding also helped to create jobs in the Indian Wells Valley of California, since the carport and rooftop work was done by outside contractors. Peggy says the carport contractors alone hired 28 workers.

The Navy's goal is to get half its energy from renewable sources by 2020, but China Lake has set an even more ambitious goal — to be a net-zero energy consumer by then. The base is home to the Coso Geothermal Field, which should help aid its quest to become energy independent. Developed in the 1980s, the field uses the area's natural geothermic activity to produce 210 MW of energy, making it the second largest geothermal producer in the United States. That's enough to power 260,000 homes and actually earn revenue for the Navy.