

CALIFORNIA ENERGY COMMISSION

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**PHASE-1 RESULTS**

**Advance Breakthrough and Piezoelectric-Based Systems Development to Increase
Market Penetration of Distributed Renewable Generation
EPIC GFO-16-302
October 6, 2016**

On July 27, 2016, the California Energy Commission (Energy Commission) released a 2-phase competitive solicitation to fund applied research and development activities to advance breakthrough energy generation technologies and piezoelectric-based systems to dramatically increase efficiencies, reduce costs and enable generation from additional renewable resources. Up to \$7 million in Electric Program Investment Charge (EPIC) funding is available to fund projects in:

- Group 1: Advance Breakthroughs in Distributed Renewable Energy Technologies
- Group 2: Development of Piezoelectric-Based Systems

The Energy Commission received twenty abstracts by the due date of September 9, 2016. Each abstract was screened on a pass/fail basis using the criteria in the solicitation. Ten proposals passed the Screening process.

The attached table, titled "Phase-1 Results", includes information such as the requested funding amount by applicant and identifies the applicants selected for invitation to participate in Phase 2, involving submission of a complete formal application.

Funding of proposed projects resulting from this solicitation is contingent upon the proposed projects being selected for award during Phase 2 and approval of selected projects at a publicly noticed Energy Commission Business Meeting and execution of a grant agreement. If the Energy Commission is unable to timely negotiate and execute a funding agreement with an applicant, the Energy Commission, at its sole discretion, reserves the right to cancel or otherwise modify the pending award, and award the funds to another applicant.

In addition, the Energy Commission reserves the right to: 1) add to, remove, or shift funding to make additional awards and 2) negotiate with successful applicants to modify the project scope, schedule, and/or level of funding.

This notice is being mailed to all parties who submitted an abstract to this solicitation and is also posted on the Energy Commission's website at: www.energy.ca.gov/contracts/.

For information, please contact Diana Parmley at (916) 651-9409 or diana.parmley@energy.ca.gov.

Diana Parmley
Commission Agreement Officer



California Energy Commission

GFO-16-302

Advance Breakthrough and Piezoelectric-Based Systems Development to Increase Market Penetration of Distributed Renewable Generation

Phase-1 Results

Group 1: Advance Breakthroughs in Distributed Renewable Energy Technologies

October 6, 2016

Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
PASSED					
1	Altex Technologies Corporation	Altex Advanced Thermo Electric Generator System (AATEGS)	\$1,300,000	\$130,000	Passed
2	Lawrence Berkeley National Laboratory	Low-Cost High-Reliability Thermoelectrics for Waste Heat Conversion	\$2,000,000	\$3,500,000	Passed
3	The Regents of the University of California, San Diego	Scaling Reliable, Next-Generation Perovskite Solar Cell Modules	\$1,450,000	\$145,967	Passed
4	The Regents of the University of California, San Diego	Optical Printing of High-Efficiency Piezoelectric Polymer Composites for Distributed Renewable Energy Technologies	\$450,000	\$0	Passed
7	AltaRock Energy, Inc.	Thermoelectric Generator Application and Pilot Test in a Geothermal Field	\$1,280,000	\$120,000	Passed
12	PowerVerde Inc.	Increasing Performance and Economics of Distributed Power Generation Using an Advanced High Temperature Wet Steam Cycle	\$1,000,000	\$500,000	Passed
Total			\$7,480,000	\$4,395,967	



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Phase-1 Results

Group 1: Advance Breakthroughs in Distributed Renewable Energy Technologies

October 6, 2016

Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
DID NOT PASS					
5	Taylor Energy	Advanced Engine Power Cycle Enabled by Steam-Compression-Ignition	\$1,999,000	\$0	Did Not Pass
6	The Regents of the University of California, Berkeley	Reliable Distributed Energy Networks: Nanogeneration, Big Sensing and Big Data for Renewables Integration	\$2,000,000	\$0	Did Not Pass
8	The Regents of the University of California, Irvine	Thermoelectric Energy Harvesting of Low-Grade Heat using Phase-Controlled Electrodeposited Materials and Radiative Cooling Surfaces	\$1,075,000	\$0	Did Not Pass
9	SLAC National Accelerator Laboratory	ROLL-PV: Rapid Optimization of Low-Cost Lightweight Photovoltaics	\$2,000,000	\$200,000	Did Not Pass
10	Pyro-E LLC	Ultrathin Piezoelectric Energy Harvester for Mechanical Energy Harvesting	\$600,000	\$80,000	Did Not Pass
11	Sierra Energy	Component Breakthroughs to Sierra Energy's FastOx® Waste Gasification System to Increase Market Penetration of Distributed Renewable Energy	\$2,000,000	\$0	Did Not Pass
13	The Regents of the University of California, San Diego	Harvesting Body Motion Energies by Wearable Triboelectric Nanogenerators and Power Management Circuits	\$500,000	\$129,652	Did Not Pass
14	Clean Green Emission Free, LLC	Green-Clean Hydroelectric Generation	\$840,000	\$172,601	Did Not Pass
15	Warang USA	Solid Renewable Fuel from Excess Renewable Sources and Salt Sources	\$1,770,000	\$0	Did Not Pass
Total			\$12,784,000	\$582,253	



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Phase-1 Results

Group 1: Advance Breakthroughs in Distributed Renewable Energy Technologies

October 6, 2016

Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
Grand Total			\$20,264,000	\$4,978,220	



California Energy Commission

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Advance Breakthrough and Piezoelectric-Based Systems Development to Increase Market Penetration of Distributed Renewable Generation

Phase-1 Results

Group 2: Development of Piezoelectric-Based Systems

October 6, 2016

Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
PASSED					
1	The Regents of the University of California, Merced	Ultra-High Power Density Roadway Piezoelectric Energy Harvesting System	\$2,000,000	\$0	Passed
2	Pyro-E LLC	Force Multiplier Actuated Piezoelectric Energy Harvester for Roadway Energy Recovery	\$1,000,000	\$100,000	Passed
3	University of Southern California	Mechanical Vibration Sensing and Electricity Generation (MeVSEG) by Advanced Piezoelectric Energy Harvesting Technologies	\$1,200,000	\$110,000	Passed
4	TRS Technologies	Efficient Piezoelectric Single Crystal Harvester for Energy Generation from Renewable Sources	\$1,900,000	\$10,000	Passed
Total			\$6,100,000	\$220,000	
DID NOT PASS					
5	Neodynetics Corporation	Piezoelectric Power Surface	\$1,000,000	\$0	Did Not Pass
Total			\$1,000,000	\$0	
Grand Total			\$7,100,000	\$220,000	