

**CALIFORNIA ENERGY COMMISSION**

1516 NINTH STREET  
SACRAMENTO, CA 95814-5512  
www.energy.ca.gov

**NOTICE OF PROPOSED AWARDS (NOPA)****GRANT FUNDING OPPORTUNITY (GFO) GFO-16-306****Addressing Air Quality and Environmental Impacts of Conventional and Emerging Electricity Sector Technologies in a Changing Climate****January 13, 2017**

On September 7, 2016, the California Energy Commission (Energy Commission) released a competitive solicitation to fund projects Applied Research and Development (AR&D) projects that will explore pathways to reduce the environmental, public health, and air quality impacts of the electricity system, develop tools to inform projections of climate change impacts on the energy sector, and analyze the energy efficiency and climate impacts of alternative refrigerants. Up to \$5,200,000 Electric Program Investment Charge (EPIC) funding is available to fund applications in seven project groups:

- **Group 1:** Investigating the Impacts of “Lake Effect” from Solar Energy-Generating Facilities on Avian Behavior
- **Group 2:** Headstart Mitigation Strategy for Desert Tortoises
- **Group 3:** Net Atmospheric Greenhouse Gas Emissions from Forest-Derived Woody Biomass and Field Residues Utilization for Energy Generation
- **Group 4:** Characterization and Measurements of Particulate Matter from Cooling Towers and Plume Modeling
- **Group 5:** Comprehensive Environmental Life Cycle Assessment of Emerging Energy Storage Systems to Identify Barriers and Solutions for their Utility-Scale Deployment
- **Group 6:** Development of Hybrid Downscaling Techniques for Climate Scenario Modeling to Improve Projections for Renewable Sources of Energy and Energy Infrastructure
- **Group 7:** Investigating Alternative Refrigerants for Refrigeration and Space Conditioning

The Energy Commission received fourteen proposals by the due date of November 15, 2016. Each of the submitted proposals was screened, reviewed, evaluated, and scored according to the solicitation’s criteria. All fourteen proposals passed the Stage One Application Screening.

The attached “Notice of Proposed Awards” identifies each applicant selected and recommended for funding by Energy Commission staff and includes the recommended funding amount and score. The total amount recommended is \$5,692,367.

Funding of proposed projects resulting from this solicitation is contingent upon the approval of these 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 application to this solicitation and is also posted on the Energy Commission's website at:

[www.energy.ca.gov/contracts/](http://www.energy.ca.gov/contracts/).

For information, please contact Angela Hockaday at (916) 654-5186 or

[Angela.Hockaday@energy.ca.gov](mailto:Angela.Hockaday@energy.ca.gov).

**Angela Hockaday**

Commission Agreement Officer



# California Energy Commission

GFO-16-306

Addressing Air Quality and Environmental Impacts  
of Conventional and Emerging Electricity Sector Technologies in a Changing Climate

**Notice of Proposed Award**

Project Group 1: Investigating the Impacts of “Lake Effect” from Solar Energy-Generating Facilities on Avian Behavior

1/13/2017

| Rank Number            | Project Applicant    | Title  | Energy Commission Funds Requested | Energy Commission Funds Recommended | Match Funds      | Score | Award Status   |
|------------------------|----------------------|--|-----------------------------------|-------------------------------------|------------------|-------|----------------|
| <b>Proposed Awards</b> |                      |  |                                   |                                     |                  |       |                |
| 1                      | US Geological Survey | Toward Reducing Wildlife Impacts and Ratepayer Costs of Renewable Energy | \$499,785                         | \$499,785                           | \$714,030        | 93.43 | <b>Awardee</b> |
| <b>Grand Total</b>     |                      |  | <b>\$499,785</b>                  | <b>\$499,785</b>                    | <b>\$714,030</b> |       |                |



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**Notice of Proposed Award**

**Project Group 2: Headstart Mitigation Strategy for Desert Tortoises**

1/13/2017

| Rank Number            | Project Applicant  | Title  | Energy Commission Funds Requested | Energy Commission Funds Recommended | Match Funds      | Score | Award Status   |
|------------------------|--|--|-----------------------------------|-------------------------------------|------------------|-------|----------------|
| <b>Proposed Awards</b> |  |  |                                   |                                     |                  |       |                |
| 1                      | Zoological Society of San Diego d/b/a San Diego Zoo Global | Improving Head-Starting Strategies and Conservation Management of Desert Tortoises                                 | \$499,605                         | \$499,605                           | \$390,288        | 87.10 | <b>Awardee</b> |
| 2                      | Regents of the University of California, Davis             | Mitigating Impacts of Solar Energy on Desert Tortoises: Indoor Rearing and Release of Headstarted Desert Tortoises | \$493,089                         | \$493,089                           | \$333,088        | 80.45 | <b>Awardee</b> |
| <b>Grand Total</b>     |  |  | <b>\$992,694</b>                  | <b>\$992,694</b>                    | <b>\$723,376</b> |       |                |



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**Notice of Proposed Award**

**Project Group 3: Net Atmospheric Greenhouse Gas Emissions from Forest-derived Woody Biomass and Field Residues Utilization for Energy Generation**

1/13/2017

| Rank Number                  | Project Applicant                                       | Title   | Energy Commission Funds Requested | Energy Commission Funds Recommended | Match Funds      | Score | Award Status    |
|------------------------------|---|---|-----------------------------------|-------------------------------------|------------------|-------|-----------------|
| <b>Proposed Awards</b>       |   |   |                                   |                                     |                  |       |                 |
| 1                            | Humboldt State University Sponsored Programs Foundation | California Biopower Impact Project  | \$1,000,000                       | \$1,000,000                         | \$131,575        | 85.17 | <b>Awardee</b>  |
| <b>Passed But Not Funded</b> |   |   |                                   |                                     |                  |       |                 |
| 2                            | Lawrence Berkeley National Laboratory                   | Coupling Biogeochemical Modeling and Life-Cycle Assessment to Ensure Sustainable Use of Forest and Field Biomass                | \$1,000,000                       | \$0                                 | \$110,760        | 78.17 | <b>Finalist</b> |
| 3                            | Spatial Informatics Group, LLC                          | Net Atmospheric Greenhouse Gas Emissions from Forest-Derived Woody Biomass and Field Residues Utilization for Energy Generation | \$994,658                         | \$0                                 | \$185,655        | 77.17 | <b>Finalist</b> |
| <b>Grand Total</b>           |   |   | <b>\$2,994,658</b>                | <b>\$1,000,000</b>                  | <b>\$427,990</b> |       |                 |



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**Notice of Proposed Award**

**Project Group 4: Characterization and Measurements of Particulate Matter from Cooling Towers and Plume Modeling**

1/13/2017

| Rank Number            | Project Applicant                                  | Title  | Energy Commission Funds Requested | Energy Commission Funds Recommended | Match Funds | Score | Award Status   |
|------------------------|--|--|-----------------------------------|-------------------------------------|-------------|-------|----------------|
| <b>Proposed Awards</b> |  |  |                                   |                                     |             |       |                |
| 1                      | The Regents of the University of California, Davis | Assessing Cooling Tower PM2.5 and PM10 Emissions using Advanced Instrumentation, Plume Transects, and Plume Modeling | \$700,000                         | \$700,000                           | \$0         | 80.25 | <b>Awardee</b> |
| <b>Grand Total</b>     |  |  | <b>\$700,000</b>                  | <b>\$700,000</b>                    | <b>\$0</b>  |       |                |



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**Notice of Proposed Award**

**Project Group 5: Comprehensive Environmental Life Cycle Assessment of Emerging Energy Storage Systems  
to Identify Barriers and Solutions for their Utility-Scale Deployment**

1/13/2017

| Rank Number                  | Project Applicant  | Title  | Energy Commission Funds Requested | Energy Commission Funds Recommended | Match Funds      | Score | Award Status    |
|------------------------------|--|--|-----------------------------------|-------------------------------------|------------------|-------|-----------------|
| <b>Proposed Awards</b>       |  |  |                                   |                                     |                  |       |                 |
| 1                            | The Regents of the University of California, Irvine                | A Comparative, Comprehensive Life Cycle Assessment of the Environmental and Human Health Impacts of Emerging Energy Storage Technology Development                 | \$600,000                         | \$600,000                           | \$186,219        | 86.00 | <b>Awardee</b>  |
| <b>Passed But Not Funded</b> |  |  |                                   |                                     |                  |       |                 |
| 2                            | Lawrence Berkeley National Laboratory                              | Environmental Life Cycle Assessment, Barrier Identification and Proposed Solutions for Utility-Scale Deployment of Stationary Energy Storage Systems in California | \$600,000                         | \$0                                 | \$127,200        | 83.33 | <b>Finalist</b> |
| 3                            | Electric Power Research Institute                                  | The California Battery Environmental and Economic Analysis and Research (CalBEEAR) Project   | \$600,000                         | \$0                                 | \$184,999        | 82.17 | <b>Finalist</b> |
| 4                            | The University Corporation-California State University, Northridge | Comprehensive Environmental Life Cycle Assessment of Emerging Energy Storage Systems to Identify Barriers and Solutions for their Utility-Scale Deployment         | \$600,000                         | \$0                                 | \$0              | 72.00 | <b>Finalist</b> |
| <b>Grand Total</b>           |  |  | <b>\$2,400,000</b>                | <b>\$600,000</b>                    | <b>\$498,418</b> |       |                 |



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**Notice of Proposed Award**

**Project Group 6: Development of Hybrid Downscaling Techniques for Climate Scenario Modeling  
to Improve Projections for Renewable Sources of Energy and Energy Infrastructure**

1/13/2017

| Rank Number            | Project Applicant                                      | Title  | Energy Commission Funds Requested | Energy Commission Funds Recommended | Match Funds | Score | Award Status   |
|------------------------|--|--|-----------------------------------|-------------------------------------|-------------|-------|----------------|
| <b>Proposed Awards</b> |  |  |                                   |                                     |             |       |                |
| 1                      | The Regents of the University of California, San Diego | Advanced Statistical-Dynamical Downscaling Methods and Products for California Electricity System Climate Planning | \$1,399,888                       | \$1,399,888                         | \$0         | 88.90 | <b>Awardee</b> |
| <b>Grand Total</b>     |  |  | <b>\$1,399,888</b>                | <b>\$1,399,888</b>                  | <b>\$0</b>  |       |                |





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**Notice of Proposed Award**

Project Group 7: Investigating Alternative Refrigerants for Refrigeration and Space Conditioning

1/13/2017

| Rank Number            | Project Applicant  | Title  | Energy Commission Funds Requested | Energy Commission Funds Recommended | Match Funds      | Score | Award Status        |
|------------------------|--|--|-----------------------------------|-------------------------------------|------------------|-------|---------------------|
| <b>Proposed Awards</b> |  |  |                                   |                                     |                  |       |                     |
| 1                      | Lawrence Berkeley National Laboratory                            | Benefits and Challenges in Deployment of Low GWP A3 Refrigerants in Residential and Commercial Cooling Equipment | \$500,000                         | \$500,000                           | \$500,000        | 84.00 | <b>Awardee</b>      |
| <b>Did Not Pass</b>    |  |  |                                   |                                     |                  |       |                     |
| 2                      | Air Conditioning, Heating and Refrigeration Technology Institute | Understanding A3 Flammable Refrigerants Leak and Ignition Risk   | \$313,608                         | \$0                                 | \$90,000         |       | <b>Did Not Pass</b> |
| <b>Grand Total</b>     |  |  | <b>\$813,608</b>                  | <b>\$500,000</b>                    | <b>\$590,000</b> |       |                     |