

PROGRAM OPPORTUNITY NOTICE

Advancing Utility-Scale Clean Energy Generation



PON-13-303

<http://www.energy.ca.gov/contracts/index.html>

State of California

California Energy Commission

May 2014

(Deletions made after May 2014 are in strikethrough format. Additions are in bold, underlined text.)

Table of Contents

I. INTRODUCTION	1
A. PURPOSE OF SOLICITATION	1
B. KEY WORDS/TERMS.....	1
C. APPLICANTS' ADMONISHMENT.....	2
D. BACKGROUND.....	2
E. FUNDING	5
F. KEY ACTIVITIES SCHEDULE.....	7
G. PRE-APPLICATION WORKSHOP	7
H. QUESTIONS	8
II. ELIGIBILITY REQUIREMENTS	9
A. APPLICANT REQUIREMENTS.....	9
B. PROJECT REQUIREMENTS	9
III. APPLICATION ORGANIZATION AND SUBMISSION INSTRUCTIONS.....	13
A. APPLICATION FORMAT, PAGE LIMITS, AND NUMBER OF COPIES	13
B. APPLICATION DELIVERY	14
C. APPLICATION ORGANIZATION AND CONTENT	14
IV. EVALUATION AND AWARD PROCESS	18
A. APPLICATION EVALUATION.....	18
B. RANKING, NOTICE OF PROPOSED AWARDS, AND AGREEMENT DEVELOPMENT	18
C. GROUNDS TO REJECT AN APPLICATION OR CANCEL AN AWARD	19
D. MISCELLANEOUS.....	20

ATTACHMENTS

1	Application Form <i>(requires signature)</i>
2	Executive Summary Form
3	Fact Sheet Template
4	Project Narrative Form
5	Project Team Form
6	Scope of Work Template
6a	Project Schedule <i>(excel spreadsheet)</i>
7	Budget Forms <i>(excel spreadsheet)</i>
8	CEQA Compliance Form <i>(requires signature)</i>
9	Reference and Work Product Form
10	Contact List Template
11	Commitment and Support Letter Form <i>(letters require signature)</i>

I. Introduction

The purpose of this solicitation is to fund applied research and development projects that develop emerging utility-scale renewable energy generation technologies and strategies to improve power plant performance, reduce costs, and expand the resource base. Projects must fall within one of the following project groups:

- **Group 1: Thermal Energy Storage for Concentrating Solar Power**
Develop new and enhanced tools and technologies that improve the cost and efficiency of thermal energy storage, leading to increased capacity and dispatchability of concentrating solar power and improved understanding of grid benefits.
- **Group 2: Solar and Wind Forecasting and Modeling**
Develop and validate advanced solar and wind forecasting and modeling tools to increase the accuracy and reliability of forecasts, reduce the costs of solar and wind generation integration for utilities, and assist grid operators in variable and intermittent resource management.
- **Group 3: Geothermal Energy Generation Facilities**
Increase the efficiency and extend the operating life of existing geothermal energy generation facilities by improving reservoir management techniques and system design, and enhancing grid support through flexible generation and ancillary services.

Applicants may submit more than one application, though Each application may address only one of the three research areas **project groups** identified above. **If an applicant submits more than one application that addresses the same project group, each application must be for a distinct project (i.e., no overlap with respect to the tasks described in the Scope of Work, Attachment 6).** See Part II of this solicitation for project eligibility requirements. Applications will be evaluated as follows: Stage One proposal screening and Stage Two proposal scoring.

A. KEY WORDS/TERMS

Word/Term	Definition
Applicant	The respondent to this solicitation
Application	An applicant's formal written response to this solicitation
CAM	<i>Commission Agreement Manager</i> , the person designated by the Energy Commission to oversee the performance of an agreement resulting from this solicitation and to serve as the main point of contact for the Recipient
EPIC	<i>Electric Program Investment Charge</i> , the source of funding for the projects awarded under this solicitation
Energy Commission	California Energy Commission
IOU	<i>Investor-owned utility</i> , including Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Edison
NOPA	<i>Notice of Proposed Award</i> , a public notice that identifies award recipients

Word/Term	Definition
Principal Investigator	The lead scientist or engineer for the applicant's project, who is responsible for overseeing the project; in some instances, the Principal Investigator and Project Manager may be the same person
Project Manager	The person designated by the applicant to oversee the project and to serve as the main point of contact for the Energy Commission
Project Partner	An entity or individual that contributes financially or otherwise to the project (e.g., match funding, provision of a demonstration site), and does not receive Energy Commission funds
Recipient	The recipient of an award under this solicitation
Solicitation	This entire document, including all attachments and exhibits ("solicitation" may be used interchangeably with "program opportunity notice")
State	State of California

B. APPLICANTS' ADMONISHMENT

This solicitation contains application requirements and instructions. Applicants are responsible for **carefully reading** the solicitation, asking appropriate questions in a timely manner, ensuring that all solicitation requirements are met, submitting all required responses in a complete manner by the required date and time, and **carefully rereading** the solicitation before submitting an application. In particular, please carefully read the **Screening/Scoring Criteria and Grounds for Rejection** in Part IV, and the terms and conditions located at: <http://www.energy.ca.gov/research/contractors.html>.

Applicants are responsible for the cost of developing applications. This cost cannot be charged to the State. All submitted documents will become public records upon the posting of the Notice of Proposed Award.

C. BACKGROUND

1. Electric Program Investment Charge (EPIC) Program

This solicitation will award projects funded by the EPIC, an electricity ratepayer surcharge established by the California Public Utilities Commission (CPUC) in December 2011.¹ The purpose of the EPIC program is to benefit the ratepayers of three investor-owned utilities (IOUs), including Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Edison. The EPIC funds clean energy technology projects that promote greater electricity reliability, lower costs, and increased safety.² In addition to providing IOU ratepayer

¹ See CPUC "Phase 1" Decision 11-12-035, December 15, 2011, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/156050.PDF.

² See CPUC "Phase 2" Decision 12-05-037, May 24, 2012, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.

benefits, funded projects must lead to technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state's statutory energy goals.³

Annual program funds total \$162 million per year, 80% of which will be administered by the California Energy Commission and 20% of which will be administered by the IOUs.

2. Program Areas, Strategic Objectives, and Funding Initiatives

EPIC projects must fall within the following **program areas** identified by the CPUC:

- Applied research and development;
- Technology demonstration and deployment; and
- Market facilitation

In addition, projects must fall within one of 18 general focus areas (“**strategic objectives**”) identified in the Energy Commission’s EPIC Investment Plan⁴ and within one or more specific focus areas (“**funding initiatives**”) identified in the plan. This solicitation targets the following program area, strategic objective, and funding initiatives:

- **Program Area:** Applied Research and Development
- **Strategic Objective S4:** Develop Emerging Utility-Scale Renewable Energy Generation Technologies and Strategies to Improve Power Plant Performance, Reduce Costs, and Expand the Resource Base
 - **Funding Initiative S4.1:** Develop advanced utility-scale thermal energy storage technologies to improve the performance of concentrating solar power
 - **Funding Initiative S4.2:** Develop innovative tools and strategies to increase utility-scale renewable energy power plant performance and reliability
 - **Funding Initiative S4.3:** Develop advanced technologies and strategies to improve the cost-effectiveness of geothermal energy production

3. Applicable Laws, Policies, and Background Documents

This solicitation addresses the energy goals described in the following laws, policies, and background documents. Please see Sections One and Two above for links to laws, policies, and background documents specific to EPIC.

Laws/Regulations

- **Assembly Bill (AB) 32 (“The Global Warming Solutions Act of 2006”)**

AB 32 created a comprehensive program to reduce greenhouse gas (GHG) emissions in California. GHG reduction strategies include a reduction mandate of 1990 levels by 2020 and a cap-and-trade program. AB 32 also required the California Air Resources Board (ARB) to develop a Scoping Plan that describes the approach California will take to reduce GHGs. ARB must update the plan every five years.

Additional information: <http://www.arb.ca.gov/cc/ab32/ab32.htm>

³ California Public Resources Code, Section 25711.5(a), <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=prc&group=25001-26000&file=25710-25712>.

⁴ http://www.energy.ca.gov/research/epic/documents/final_documents_submitted_to_CPUC/2012-11-01_EPIC_Application_to_CPUC.pdf.

Applicable Law: California Health and Safety Code §§ 38500 et. seq.

- **Renewables Portfolio Standard (Senate Bill (SB) X1-2, Statutes of 2011-12, First Extraordinary Session)**

SB X1-2 requires that all California electricity retailers adopt the goals of 20 percent of retail sales from renewable energy sources by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.

Applicable Law: California Code of Regulations, Title 24, Part 6 and associated administrative regulations in Part 1

- **Assembly Bill (AB) 2514 - Energy Storage Systems (Statutes of 2010)**

AB 2514 required the CPUC to determine targets for the procurement of viable, cost-effective energy storage systems by load-serving entities. The CPUC adopted the procurement targets in Decision 13-10-040, issued on October 17, 2013 (see the summary of Decision 13-10-040 in the “Policies/Plans” section below).

Additional information: <http://www.cpuc.ca.gov/PUC/energy/electric/storage.htm>

Applicable Law: California Public Utilities Code §§ 2835 et. seq., and § 9620 (http://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_2501-2550/ab_2514_bill_20100929_chaptered.pdf)

Policies/Plans

- **CPUC Decision 13-10-040, “Decision Adopting Energy Storage Procurement Framework and Design Program” (2013)**

The Decision establishes policies and mechanisms for energy storage procurement, as required by AB 2514 (described above). The IOU procurement target is 1,325 megawatts of energy storage by 2020, with installations required no later than the end of 2024.

Additional information: <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M079/K533/79533378.PDF>

- **Governor’s Clean Energy Jobs Plan (2011)**

In June 2011, Governor Jerry Brown announced a plan to invest in clean energy and increase efficiency. The plan includes a goal of producing 20,000 megawatts (MW) of renewable electricity by 2020 by taking the following actions: addressing peak energy needs, developing energy storage, creating efficiency standards for buildings and appliances, and developing combined heat and power (CHP) projects. Specific goals include building 8,000 MW of large-scale renewable and transmission lines, 12,000 MW of localized energy, and 6,500 MW of CHP.

Additional information: http://gov.ca.gov/docs/Clean_Energy_Plan.pdf

- **Integrated Energy Policy Report (Biennial)**

California Public Resources Code Section 25302 requires the Energy Commission to release a biennial report that provides an overview of major energy trends and issues facing the state. The IEPR assesses and forecasts all aspects of energy industry

supply, production, transportation, delivery, distribution, demand, and pricing. The Energy Commission uses these assessments and forecasts to develop energy policies.

Additional information: <http://www.energy.ca.gov/energypolicy>
Applicable Law: California Public Resources §§ 25300 et. seq.

Reference Documents

Refer to the link below for information about past research projects and activities:

- <http://www.energy.ca.gov/research/>

D. FUNDING

1. Amount Available and Minimum/ Maximum Funding Amounts

There is up to \$9,500,000 available for grants awarded under this solicitation. The total, minimum, and maximum funding amounts are listed below for each project group.

Project Group	Available Funding	Minimum award amount	Maximum award amount
Group 1: Thermal Energy Storage for Concentrating Solar Power	\$3,000,000	\$750,000	\$1,500,000
Group 2: Solar and Wind Forecasting and Modeling	\$3,500,000	\$500,000	\$1,000,000
Group 3: Geothermal Energy Generation Facilities	\$3,000,000	\$500,000	\$3,000,000

2. Match Funding Requirement

Match funding is not required for this solicitation. However, applications that include match funding will receive additional points during the scoring phase.

- **“Match funds”** include: (1) “cash in hand” funds; (2) equipment; (3) materials; (4) information technology services; (5) travel; (6) subcontractor costs; (7) contractor in-kind labor costs; and (8) “advanced practice” costs. Match funding sources include the prime contractor, subcontractors, and pilot test sites (e.g., test site staff services). “Match funds” do not include Energy Commission awards, future/contingent awards from other entities (public or private), or the cost or value of the project work site.
 - **“Cash in hand” funds** means funds that are in the recipient’s possession and are reserved for the proposed project, meaning that they have not been committed for use or pledged as match for any other project. “Cash in hand” funds include funding awards earned or received from other agencies for the proposed technologies or study (but not for the identical work). As applicable, proof that the funds exist as cash is required at the project kick-off meeting.
 - **“Equipment”** means an item with a unit cost of at least \$5,000 and a useful life of at least one year. **Purchasing equipment with match funding is encouraged** because there are no disposition requirements at the end of the

agreement for such equipment. Typically, grant recipients may continue to use equipment purchased with Energy Commission funds if the use is consistent with the intent of the original agreement.

- **“Materials”** means tangible project items that cost less than \$5,000 and have a useful life of less than one year.
 - **“Information Technology Services”** means the design, development, application, implementation, support, and management of computer-based information systems directly related to the tasks in the Scope of Work. All information technology services in this area must comply with the electronic file format requirements in Subtask 1.1 (Products) of the Scope of Work.
 - **“Travel”** means all travel required to complete the tasks identified in the Scope of Work. Travel includes in-state and out-of-state travel, and travel to conferences. Use of match funds for out-of-state travel and travel to conferences is encouraged.
 - **“Subcontractor Costs”** means all costs incurred by subcontractors for the project, including labor and non-labor costs.
 - **“Contractor in-Kind Labor Costs”** means contractor labor costs that are not charged to the Energy Commission.
 - **“Advanced Practice Costs”** means costs not charged to the Energy Commission that represent the incremental cost difference between standard and advanced practices, measures, and products used to implement the proposed project. For example, if the cost of purchasing and/or installing insulation that meets the applicable building energy efficiency standard is \$1/square foot and the cost of more advanced, energy efficient insulation is \$3/square foot, the Recipient may count up to \$2/square foot as match funds.
- Match funds may be spent only during the agreement term, either before or concurrently with EPIC funds. Match funds also must be reported in invoices submitted to the Energy Commission.
 - All applicants providing match funds must submit commitment letters that: (1) identify the source(s) of the funds; (2) justify the dollar value claimed; (3) provide an unqualified (i.e., without reservation or limitation) commitment that guarantees the availability of the funds for the project; and (4) provide a strategy for replacing the funds if they are significantly reduced or lost. Please see Attachment 11, Commitment and Support Letter Form.

3. Change in Funding Amount

The Energy Commission reserves the right to:

- Increase or decrease the amount of funding allocated for this solicitation.
- Allocate any additional funds to passing applications, in rank order.
- Reduce funding to an amount deemed appropriate if the budgeted funds do not provide full funding for agreements. In this event, the Recipient and Commission Agreement Manager will reach agreement on a reduced Scope of Work commensurate with available funding.

E. KEY ACTIVITIES SCHEDULE

Key activities, dates, and times for this solicitation and for agreements resulting from this solicitation are presented below. An addendum will be released if the dates change for activities that appear in **bold**.

ACTIVITY	DATE	TIME (PST or PDT)
Solicitation Release	5/15/14	
Pre-Application Workshop	5/27/14	10:00 a.m.
Deadline for Written Questions	5/28/14	5:00 p.m.
Distribution of Questions and Answers	6/13 19 /14	
Deadline to Submit Applications	7/22/14	3:00 p.m.
Anticipated Notice of Proposed Award Posting Date	9/17/14	
Anticipated Energy Commission Business Meeting Date	11/12/14	10:00 a.m.
Anticipated Agreement Start Date	12/1/14	
Anticipated Agreement End Date	12/31/17	

F. PRE-APPLICATION WORKSHOP

Energy Commission staff will hold one Pre-Application Workshop to discuss the solicitation with applicants. Participation is optional but encouraged. Applicants may attend the workshop in-person, via the internet (WebEx, see instructions below), or via conference call on the date and at the time and location listed below. Please call (916) 654-4381 or refer to the Energy Commission's website at www.energy.ca.gov/contracts/index.html to confirm the date and time.

Date and time: May 27, 2014 at 10:00 AM

Location: California Energy Commission
1516 9th Street
Sacramento, CA 95814
Hearing Room B

WebEx Instructions:

- To join the WebEx meeting, go to <https://energy.webex.com> and enter the meeting number and password below:
Meeting Number: 924 891 228
Meeting Password: meeting@10
Topic: PON-13-303 Pre-Application Workshop
- To Logon with a Direct Phone Number: After logging into WebEx, a prompt will appear on-screen for a phone number. In the "Number" box, enter your area code and phone number and click "OK" to receive a call for the audio of the meeting. International callers may use the "Country/Region" button to help make their connection.
- To Logon with an Extension Phone Number: After you login, a prompt will ask for your phone number. Select "CANCEL." Call **1-866-469-3239** (toll-free in the U.S. and Canada). When prompted, enter the meeting number above and the unique Attendee ID number listed in the top left area of the screen after login. International callers may dial in using the "Show all global call-in numbers" link (also in the top left area).

Telephone Access Only:

Call **1-866-469-3239** (toll-free in the U.S. and Canada). When prompted, enter the meeting number above. International callers may select their number from <https://energy.webex.com/energy/globalcallin.php>.

Technical Support:

- For assistance with problems or questions about joining or attending the meeting, please call WebEx Technical Support at **1-866-229-3239**. You may also contact Michael Sokol at (916) 327-1416.
- System Requirements: To determine whether your computer is compatible, visit: <http://support.webex.com/support/system-requirements.html>.
- Meeting Preparation: The playback of UCF (Universal Communications Format) rich media files require appropriate players. Please determine whether the players are installed on your computer by visiting: <https://energy.webex.com/energy/systemdiagnosis.php>.

G. QUESTIONS

During the solicitation process, direct questions to the Commission Agreement Officer listed below:

Angela Hockaday, Commission Agreement Officer
California Energy Commission
1516 Ninth Street, MS-18
Sacramento, California 95814
Telephone: (916) 654-5186
FAX: (916) 654-4423
E-mail: Angela.Hockaday@energy.ca.gov

Applicants may ask questions at the Pre-Application Workshop, and may submit written questions via mail, email, and FAX. However, all questions must be received by the deadline listed in the "Key Activities Schedule."

A question and answer document will be e-mailed to all parties who attended the Pre-Application Workshop and provided their contact information on the sign-in sheet. The questions and answers will also be posted on the Commission's website at: <http://www.energy.ca.gov/contracts/index.html>.

Any verbal communication with a Commission employee concerning this solicitation is not binding on the State and will in no way alter a specification, term, or condition of the solicitation. Therefore, all communication should be directed in writing to the assigned Commission Agreement Officer.

II. Eligibility Requirements

A. APPLICANT REQUIREMENTS

1. Eligibility

This solicitation is open to all public and private entities and individuals.

2. Terms and Conditions

Each grant agreement resulting from this solicitation will include terms and conditions that set forth the recipient's rights and responsibilities. By signing the Application Form (Attachment 1), each applicant agrees to enter into an agreement with the Energy Commission to conduct the proposed project according to the terms and conditions that correspond to its organization, without negotiation: (1) University of California terms and conditions; (2) U.S. Department of Energy terms and conditions; or (3) standard terms and conditions. The standard terms and conditions are located at <http://www.energy.ca.gov/research/contractors.html>. The University of California and U.S. Department of Energy terms and conditions are under negotiation and will be posted once finalized.

Failure to agree to the terms and conditions by taking actions such as failing to sign the Application Form or indicating that acceptance is based on modification of the terms will result in **rejection** of the application. Applicants **must read** the terms and conditions carefully. The Energy Commission reserves the right to modify the terms and conditions prior to executing grant agreements.

3. California Secretary of State Registration

California business entities and non-California business entities that conduct intrastate business in California and are required to register with the California Secretary of State must do so and be in good standing in order to enter into an agreement with the Energy Commission. If not currently registered with the California Secretary of State, applicants should contact the Secretary of State's Office as soon as possible. For more information, visit the Secretary of State's website at: www.sos.ca.gov.

B. PROJECT REQUIREMENTS

1. Applied Research and Development Stage

Projects must fall within the "applied research and development" stage, which includes activities that support pre-commercial technologies and approaches intended to solve specific problems in the electricity sector. By contrast, the "technology demonstration and deployment" stage involves the installation and operation of pre-commercial technologies or strategies at a scale that reflects actual operating, performance, and financial characteristics and risks.⁵ Applied research and development activities include early, pilot-scale testing activities that are necessary to demonstrate the feasibility of pre-commercial technologies.

⁵ See pages 1 and 2 of the EPIC Investment Plan, <http://www.energy.ca.gov/2012publications/CEC-500-2012-082/CEC-500-2012-082-SF.pdf>.

2. Group 1: Thermal Energy Storage for Concentrating Solar Power

Projects must involve the development of new and enhanced tools and technologies that improve the cost and efficiency of thermal energy storage (TES), leading to the increased capacity and dispatchability of concentrating solar power (CSP), improved understanding of grid benefits, and lower overall levelized cost of energy for this technology. Specifically, projects must focus on the integration of TES and heat transfer fluids with CSP. Proposals addressing heat transfer fluids and storage media or systems must explain how the proposed technology advancement can reach commercial status by 2020 and contribute to meeting the U.S. Department of Energy's SunShot Initiative goal of reducing the total installed cost of solar energy systems to \$.06 per kilowatt-hour (kWh) by 2020.⁶ Funded activities include:

- **Development of Alternative or Improved Technological Approaches to TES**
 - **Heat Transfer Fluids**

Develop alternative or improved heat transfer fluids with greater thermal capacity that can transfer and store thermal energy. Such fluids preferably will have extreme thermal stability, high thermal conductivity, high fluid density, low vapor pressure and freezing points, be environmentally safe, and be able to improve overall plant efficiency and costs.
 - **Storage media, systems, and components**

Develop alternative or improved thermochemical, sensible, or phase-change storage media that have greater thermal capacity and thermal stability, higher energy density, and optimized charging and discharging. Develop more efficient tank and storage components and systems through the use of alternative materials or system designs.
- **Assessment of the Potential for Power Plant and System-Wide Optimization of TES**
 - **Modeling**

Develop advanced computer models to optimize plant design, conduct CSP system analysis, and identify opportunities for improvement in the performance and cost of CSP with TES systems. Modeling is needed for CSP-TES systems with different plant and technology configurations.

Advanced modeling tools will help to: (1) determine the economic tradeoffs and market effectiveness of adding substantial coupled CSP-TES capacity; (2) quantify the co-benefits of CSP-TES, including energy and ancillary service values and a comparison to other grid-scale storage options and/or renewables integration scenarios; and (3) align various energy storage studies, such as those recently conducted by the National Renewable Energy Laboratory (NREL).⁷

3. Group 2: Solar and Wind Forecasting and Modeling

Projects must involve the development and validation of advanced solar and wind forecasting and modeling tools and technologies to: increase the accuracy, reliability, and value of generated forecasts; reduce the costs of solar and wind integration for utilities; assist grid

⁶ http://www1.eere.energy.gov/solar/sunshot/mission_vision_goals.html.

⁷ See NREL's *An Analysis of Concentrating Solar Power with Thermal Energy Storage in a California 33% Renewable Scenario* (March 2013), at <http://www.nrel.gov/docs/fy13osti/58186.pdf>.

operators in variable and intermittent resource management and planning; and model the grid impacts of wind and solar intermittency in real time.

Current forecasting techniques for solar and wind generation are limited in their ability to accurately predict resource availability across the minutes-ahead, hours-ahead, and day-ahead timescales. For example, current forecasting techniques cannot accurately predict short-term ramp events that can prove costly for utilities, and they do not account for the value of solar and wind energy generation at specific times relative to peak demand. Projects must address these limitations in order to provide increasingly accurate solar and wind forecasts to grid operators and utilities.

Funded activities include:

- **Improve the data acquisition capabilities, reliability, and cost of ground-mounted solar and wind observation instrumentation**, by increasing accuracy and repeatability, increasing automation, reducing maintenance requirements, decreasing component costs, and optimizing deployment configurations for wind and solar sensor arrays.
- **Develop solar and wind forecasting tools** that are capable of accurately modeling and predicting the behavior of grid-connected wind and solar electricity generation. These tools should be able to accurately forecast short-term ramp events, predict daily and seasonal resource variability, and provide other functions to increase the value of forecasts to the California Independent System Operator, electricity utilities, and IOU ratepayers.
- **Improve solar and wind forecasting accuracy** (as measured in mean absolute error (MAE), root mean square error (RMSE), and other relevant error metrics) in order to reduce the need for strategies to compensate for intermittency, such as scheduling ramping capacity, generator reserves, and other ancillary services. This can include research to develop new error metrics that accurately assign value to forecasts for time-specific periods of generation, such as during peak demand.
- **Integrate high-accuracy wind and solar forecasts to increase the value of other energy resources**, including energy storage, demand response, electric vehicle charging integration, and efficient operations of controllable loads within a given region. This may include potential strategies that use high-resolution renewables forecasting to efficiently operate a localized renewable energy plant, control non-critical loads, and integrate other distributed energy resources, such as in a microgrid application.

4. Group 3: Geothermal Energy Generation Facilities

Projects must address the challenges associated with the continued operation of geothermal energy in California by refining reservoir management techniques and improving the efficiency of geothermal generation. Projects will help to broaden the role of geothermal energy in addressing grid regulation and support issues by improving the ability of power plants to: operate in either baseline production or flexible mode as needed; and provide additional ancillary services to the grid. Funded activities include:

- **Development of advanced technologies and tools, and research on improvements to the techniques and modeling tools needed for reservoir management.** Examples of tools include downhole, high-temperature tools and

- **Development of advanced system designs and components, and integration of thermal or other storage technologies, and alternative working fluid controls and management techniques** for increasing the efficiency, flexibility, capacity, and regulation and grid support capability of modern geothermal plants.
- **Development of advanced materials, methods, and strategies that: reduce and control scaling, corrosion, and wear in wells and power plant system components; and lower the cost of well construction in challenging geothermal environments.**

5. Ratepayer Benefits, Technological Advancements, and Breakthroughs

California Public Resources Code Section 25711.5(a) requires EPIC-funded projects to:

- Benefit electricity ratepayers; and
- Lead to technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state’s statutory energy goals.

The CPUC defines “ratepayer benefits” as greater reliability, lower costs, and increased safety.⁸ Accordingly, the Project Narrative Form (Attachment 4) and the “Goals and Objectives” section of the Scope of Work Template (Attachment 6) must describe how the project will: (1) benefit California IOU ratepayers by increasing reliability, lowering costs, and/or increasing safety; and (2) lead to technological advancement and breakthroughs to overcome barriers to achieving the state’s statutory energy goals.

6. Measurement and Verification Plan

Include a Measurement and Verification Plan in the Project Narrative (Attachment 4) that describes how actual project benefits will be measured and quantified, such as by pre and post-project energy use (kilowatt hours, kilowatts) and cost.

⁸ CPUC “Phase 2” Decision 12-05-037 at page 19, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.

III. Application Organization and Submission Instructions

A. APPLICATION FORMAT, PAGE LIMITS, AND NUMBER OF COPIES

The following table summarizes the application formatting and page limit requirements:

<p>Format</p>	<ul style="list-style-type: none"> • Font: 11-point, arial (excluding excel spreadsheets) • Margins: No less than one inch on all sides (excluding headers and footers) • Spacing: Single spaced, with a blank line between each paragraph • Pages: Numbered and printed double-sided • Labeling: Tabbed and labeled as required in Sections B and C below • Binding: Original binder clipped; all other copies spiral or comb bound (binders discouraged) • File Format: MS Word version 1997-2003 or version 2007 or later (.doc or .docx format), excluding excel spreadsheets • File Storage: Electronic files of the application must be submitted on a CD-ROM or USB memory stick
<p>Page Limits</p>	<ul style="list-style-type: none"> • Page limits are as follows: <ul style="list-style-type: none"> ○ Executive Summary (Attachment 2): two pages ○ Fact Sheet (Attachment 3): two pages ○ Project Narrative Form (Attachment 4): ten pages ○ Project Team Form (Attachment 5): two pages for each resume ○ Reference and Work Product Form (Attachment 9): two pages for project descriptions ○ Commitment and Support Letter Form (Attachment 11): two pages, excluding cover page The following attachments may not cumulatively exceed sixty pages: <ul style="list-style-type: none"> ○ Executive Summary Form ○ Fact Sheet Template ○ Project Narrative Form ○ Project Team Form ○ Scope of Work Template (Attachment 6) • There are no page limits for the following: <ul style="list-style-type: none"> ○ Application Form (Attachment 1) ○ Budget Forms (Attachment 7) ○ CEQA Compliance Form (Attachment 8) ○ Contact List Template (Attachment 10)
<p>Number of Copies of the Application</p>	<ul style="list-style-type: none"> • Six hard copies (including one copy with original signatures) • One electronic copy (on a CD-ROM or USB memory stick)

B. APPLICATION DELIVERY

Include the following label information on the mailing envelope:

Applicant's Project Manager Applicant's Name Street Address City, State, and Zip Code	PON-13-303 Contracts, Grants, and Loans Office, MS-18 California Energy Commission 1516 Ninth Street, 1st Floor Sacramento, California 95814
--	--

Applications must be delivered to the Energy Commission's Contracts, Grants, and Loans Office in a sealed package (in person or via U.S. mail or courier service) during normal business hours, prior to the date and time specified in the "Key Activities Schedule" in Part I of this solicitation. Applications received after the specified date and time are considered late and will not be accepted. Postmark dates of mailing, e-mail, and facsimile (FAX) transmissions are not acceptable in whole or in part, under any circumstances.

C. APPLICATION ORGANIZATION AND CONTENT

1. Submit applications in the order specified below.
2. Label the proposal application cover "Program Opportunity Notice PON-13-303" and include: (a) the title of the application; and (b) the applicant's name.
3. Separate each section of the application by a tab that is labeled with the tab number and section title indicated below.

Tab/Attachment Number	Title of Section
1	Application Form
2	Executive Summary
3	Fact Sheet
4	Project Narrative
5	Project Team
6	Scope of Work
7	Budget
8	CEQA Compliance Form
9	References and Work Product
10	Contact List
11	Commitment and Support Letters

Below is a description of each required section of the application:

1. **Application Form (Attachment 1)**

This form requests basic information about the applicant and the project. The application must include an original form that includes all requested information and is signed by an authorized representative of the applicant's organization.

2. Executive Summary Form (Attachment 2)

The Executive Summary must include: a project description; the project goals and objectives to be achieved; an explanation of how the goals and objectives will be achieved, quantified, and measured; and a description of the project tasks and overall management of the agreement.

3. Fact Sheet Template (Attachment 3)

The project fact sheet must present project information in a manner suitable for publication (if the project receives funding, the Energy Commission may use the fact sheet to publicize the project). The fact sheet must follow the template, which includes a summary of project specifics and a description of the issue addressed by the project, a project description, and anticipated benefits for the state of California.

4. Project Narrative Form (Attachment 4)

This form will include the majority of the applicant's responses to the Scoring Criteria in Part IV. The project narrative must be consistent with the Scope of Work and budget.

5. Project Team Form (Attachment 5)

Identify by name all key personnel⁹ assigned to the project, including the project manager and principal investigator (if applicable). Clearly describe their individual areas of responsibility. Include the information required for each individual, including a resume (maximum two pages, printed double-sided).

6. Scope of Work Template (Attachment 6)

Applicants must include a completed Scope of Work for each project, as instructed in the template. The Scope of Work identifies the tasks required to complete the project. It includes a project schedule that lists all products, meetings, and due dates. All work must be scheduled for completion within 36 to 48 months of the project start date, as indicated in the "Key Activities Schedule" in Part I.

Electronic files for **Parts I-IV** of the Scope of Work are in **MS Word**. **Part V** (Project Schedule) is in **MS Excel**.

7. Budget Forms (Attachment 7)

The budget forms are in MS Excel format and consist of seven worksheets. Detailed instructions for completing them are included at the beginning of Attachment 7. **Read the instructions before completing the worksheets.** Complete and submit information on **all** budget worksheets. The salaries, rates, and other costs entered on the worksheets will become a part of the final agreement.

- 1) All project expenditures (match share and reimbursable) must be made within the approved agreement term. Match share requirements are discussed in Part I of this solicitation. The entire term of the agreement and projected rate increases must be considered when preparing the budget.
- 2) The budget must reflect estimates for **actual** costs to be incurred during the agreement term. The Energy Commission may only approve and reimburse for actual costs that are properly documented in accordance with the grant terms and

⁹ "Key personnel" are individuals that are critical to the project due to their experience, knowledge, and/or capabilities.

conditions. Rates and personnel shown must reflect the rates and personnel the applicant would include if selected as a Recipient.

- 3) The proposed rates are considered capped and may not change during the agreement term. The Recipient will only be reimbursed for **actual** rates up to the rate caps.
- 4) The budget must **NOT** include any Recipient profit from the proposed project, either as a reimbursed item, match share, or as part of overhead or general and administrative expenses (subcontractor profit is allowable). Please review the terms and conditions and budget forms for additional restrictions and requirements.
- 5) The budget must allow for the expenses of all meetings and products described in the Scope of Work. Meetings may be conducted at the Energy Commission or by conference call, as determined by the Commission Agreement Manager.
- 6) Applicants must budget for permits and insurance. Permitting costs may be accounted for in match share (please see the discussion of permits in the Scope of Work, Attachment 6).
- 7) **Prevailing wage requirement:** Applicants must pay prevailing wages (i.e., rates pre-determined by the California Department of Industrial Relations) to all workers employed on public works projects that exceed \$1,000. Public works projects involve demolition, installation, repair, or maintenance work. If the proposed project involves such work, the Applicant must assume that the project is a public work and budget accordingly unless it obtains a determination from the California Department of Industrial Relations or a court of competent jurisdiction that the project is not a public work. Please see the terms and conditions for additional information about the prevailing wage requirement.

8. California Environmental Quality Act (CEQA) Compliance Form (Attachment 8)

The Energy Commission requires the information on this form to facilitate its evaluation of the project under CEQA (Public Resources Code Section 21000 et. seq.), a law that requires state and local agencies in California to identify, award, and mitigate the significant environmental impacts of their actions. The form will also help applicants to determine CEQA compliance obligations by identifying which parts of the project may trigger CEQA. If the project includes only activities that do not trigger CEQA (such as paper studies), the worksheet will help to identify and document this.

Failure to complete the CEQA process in a timely manner may result in cancellation of the award and allocation of funding to the next highest-scoring project.

9. Reference and Work Product Form (Attachment 9)

- 1) Section 1: Provide applicant and subcontractor references as instructed.
- 2) Section 2: Provide a list of past projects detailing technical and business experience of the applicant (or any member of the project team) that is related to the proposed work. Identify past projects that resulted in market-ready technology, advancement of codes and standards, and/or advancement of state energy policy. Include copies of up to five of the applicant or team member's recent publications in scientific or technical journals related to the proposed project, as applicable.

10. Contact List Template (Attachment 10)

The list identifies the names and contact information of the project manager, administrator, and accounting officer.

11. Commitment and Support Letter Form (Attachment 11)

A commitment letter commits an entity or individual to providing the service or funding described in the letter. A support letter details an entity or individual's support for the project.

1) Commitment Letters

- If match funding will be provided, applicants must submit a **match funding** commitment letter signed by each representative of the entity or individual that is committing to providing match funding. The letter must: (1) identify the source(s) of the funds; and (2) guarantee the availability of the funds for the project.
- If the project involves pilot testing, the applicant must include a letter signed by an authorized representative of the proposed test site that commits to providing the site for the proposed activities.
- **Project partners** that are making contributions other than match funding or a test site must submit a commitment letter signed by an authorized representative that: (1) identifies how the partner will contribute to the project; and (2) commits to making the contribution.

2) Support Letters

All applicants must include at least one support letter from a project stakeholder (i.e., an entity or individual that will benefit from or be involved in the project) that: (1) describes the stakeholder's interest or involvement in the project; (2) indicates the extent to which the project has the support of the relevant industry and/or organizations; and (3) describes any support it intends (but does not necessarily commit) to provide for the project, such as funding or the provision of a test site.

IV. Evaluation and Award Process

A. APPLICATION EVALUATION

Applications will be evaluated and scored based on responses to the information requested in this solicitation. To evaluate applications, the Energy Commission will organize an Evaluation Committee that consists primarily of Energy Commission staff. The Evaluation Committee may use technical expert reviewers to provide an analysis of applications. Applications will be evaluated in two stages:

1. Stage One: Application Screening

The Contracts, Grants, and Loans Office and/or the Evaluation Committee will screen applications for compliance with the Screening Criteria in **Section E** of this Part. **Applications that fail any of the screening criteria will be rejected.**

2. Stage Two: Application Scoring

Applications that pass Stage One will be submitted to the Evaluation Committee for review and scoring based on the Scoring Criteria in **Section F** of this Part.

- The scores for each application will be the average of the combined scores of all Evaluation Committee members.
- **A minimum score of 70.00 points** is required for the application to be eligible for funding. In addition, the application must receive a score of **49.00 points** for criteria **1–4** to be eligible for funding.
- **Clarification Interviews:** The Evaluation Committee may conduct optional in-person or telephone interviews with applicants during the evaluation process to clarify and/or verify information submitted in the application. However, these interviews may not be used to change or add to the content of the original application. Applicants will not be reimbursed for time spent answering clarifying questions.

B. RANKING, NOTICE OF PROPOSED AWARDS, AND AGREEMENT DEVELOPMENT

1. Ranking and Notice of Proposed Awards

Applications that receive a minimum score of 70.00 points for all criteria will be ranked according to their score.

- The Energy Commission will post a **Notice of Proposed Award (NOPA)** that includes: (1) the total proposed funding amount; (2) the rank order of applicants; and (3) the amount of each proposed award. The Commission will post the NOPA at its headquarters in Sacramento and on its website, and will mail it to all parties that submitted an application. Proposed awards must be approved by the Commission at a business meeting.
- **Debriefings:** Unsuccessful applicants may request a debriefing after the release of the NOPA by contacting the Agreement Officer listed in Part I. A request for debriefing must be received **no later than 15 calendar days** after the NOPA is released.
- The Energy Commission reserves the right to:
 - Allocate any additional funds to passing applications, in rank order; and
 - Negotiate with successful applicants to modify the project scope, schedule, and/or level of funding.

2. Agreements

Applications recommended for funding will be developed into a grant agreement to be considered at an Energy Commission Business Meeting. Recipients may begin the project only after full execution of the grant agreement (i.e., approval at a business meeting and signature by the Recipient and the Energy Commission).

- **Resolution Requirement (*for government agency recipients only*):** Prior to approval of the agreement at a business meeting, government agency recipients (e.g., federal, state, and local governments; air/water/school districts; joint power authorities; and state universities) must provide a resolution that authorizes the agency to enter into the agreement and is signed by a representative authorized to execute the agreement and all documents related to the award.
Resolutions must include: (1) a brief description of the project; (2) the award amount; and (3) an acceptance of the award.
- **Agreement Development:** If approved at a business meeting, the Contracts, Grants, and Loans Office will send the Recipient a grant agreement for approval and signature. The agreement will include the applicable terms and conditions and will incorporate this solicitation by reference. The Energy Commission reserves the right to modify the award documents (including the terms and conditions) prior to executing any agreement.
- **Failure to Execute an Agreement:** If the Energy Commission is unable to successfully execute an agreement with an applicant, it reserves the right to cancel the pending award and to fund the next highest-ranked, eligible application.
- **Agreement Amendment:** The executed agreement may be amended by mutual consent of the Energy Commission and the Recipient. The agreement may require amendment as a result of project review, changes in project scope, and/or availability of funding.

C. GROUND TO REJECT AN APPLICATION OR CANCEL AN AWARD

Applications that do not pass the screening stage will be rejected. In addition, the Energy Commission reserves the right to reject an application and/or to cancel an award if the following circumstances are discovered at any time during the application or agreement process:

- The application contains false or intentionally misleading statements or references that do not support an attribute or condition contended by the applicant.
- The application is intended to erroneously and fallaciously mislead the State in its evaluation and the attribute, condition, or capability is a requirement of this solicitation.
- The application does not literally comply or contains caveats that conflict with the solicitation, and the variation or deviation is material.
- The applicant has previously received funding through a Public Interest Energy Research (PIER) agreement, has received the PIER royalty review letter (which the Energy Commission annually sends out to remind past recipients of their obligations to pay royalties), and has not responded to the letter or is otherwise not in compliance with repaying royalties.
- The applicant has received unsatisfactory evaluations from the Energy Commission or another California state agency.
- The applicant is a business entity that is not in good standing with the California Secretary of State.
- The applicant has not demonstrated that it has the financial capability to complete the project.

- The application is not submitted in the format specified in Part III, Sections A, B, and C of the solicitation.

D. MISCELLANEOUS

1. Solicitation Cancellation and Amendment

It is the policy of the Energy Commission not to solicit applications unless there is a bona fide intention to award an agreement. However, if it is in the State's best interest, the Energy Commission reserves the right to do any of the following:

- Cancel this solicitation;
- Revise the amount of funds available under this solicitation;
- Amend this solicitation as needed; and/or
- Reject any or all applications received in response to this solicitation.

If the solicitation is amended, the Energy Commission will send an addendum to all parties who requested the solicitation, and will also post it on the Energy Commission's website at: www.energy.ca.gov/contracts. The Energy Commission will not reimburse applicants for application development expenses under any circumstances, including cancellation of the solicitation.

2. Modification or Withdrawal of Application

Applicants may withdraw or modify a submitted application before the deadline to submit applications by sending a letter to the Agreement Officer listed in Part I. Applications cannot be changed after that date and time. An Application cannot be "timed" to expire on a specific date. For example, a statement such as the following is non-responsive to the solicitation: "This application and the cost estimate are valid for 60 days."

3. Confidentiality

Though the entire evaluation process from receipt of applications up to the posting of the NOPA is confidential, **all submitted documents will become public records** after the Energy Commission posts the NOPA or the solicitation is cancelled. **The Energy Commission will not accept or retain applications that identify any section as confidential.**

4. Solicitation Errors

If an applicant discovers any ambiguity, conflict, discrepancy, omission, or other error in the solicitation, the applicant should immediately notify the Energy Commission of the error in writing and request modification or clarification of the solicitation. The Energy Commission will provide modifications or clarifications by written notice to all parties who requested the solicitation, without divulging the source of the request for clarification. The Energy Commission will not be responsible for failure to correct errors.

5. Immaterial Defect

The Energy Commission may waive any immaterial defect or deviation contained in an application. The Energy Commission's waiver will not modify the application or excuse the successful applicant from full compliance with solicitation requirements.

6. Disposition of Applicant's Documents

Upon the posting of the NOPA, all applications and related materials submitted in response to this solicitation will become property of the State and public records. Applicants who seek the return of any materials must make this request to the Agreement Officer listed in Part I, and provide sufficient postage to fund the cost of returning the materials.

E. STAGE ONE: APPLICATION SCREENING

<p align="center">SCREENING CRITERIA</p> <p><i>The Application must pass ALL criteria to progress to Stage Two.</i></p>	<p align="center">Pass/Fail</p>
<p>1. The application is received by the Energy Commission’s Contracts, Grants, and Loans Office by the due date and time specified in the “Key Activities Schedule” in Part I of this solicitation.</p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>
<p>2. The application addresses only one of the eligible project groups, as indicated on the Application Form.</p> <p><u>If the application addresses the same project group as another application submitted by the same applicant, the projects are distinct (i.e., there is no overlap with respect to the tasks described in the Scope of Work, Attachment 6).</u></p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>
<p>3. The requested funding falls within the minimum and maximum range specified in Part I of this solicitation.</p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>
<p>4. The applicant and project meet the Eligibility Criteria in Part II of this solicitation.</p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>
<p>5. The application is complete, meaning that it: (1) includes all documents required in Part III, Section C; (2) includes all information required within each document; and (3) is signed where required by an authorized representative.</p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>
<p>6. The project date does not extend past the anticipated agreement end date specified in the “Key Activities Schedule” in Part I.</p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>
<p>7. If the project involves pilot testing:</p> <ul style="list-style-type: none"> • The Application Form identifies one or more test site locations. • All test sites are located in a California electric IOU service territory (PG&E, SDG&E, or SCE) 	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> N/A (project does not involve pilot testing)</p>
<p>8. The application does not contain any confidential information or identify any portion of the application as confidential.</p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>
<p>9. The applicant has not included a statement or otherwise indicated that it will not accept the terms and conditions, or that acceptance is based on modifications to the terms and conditions.</p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>
<p>10. The proposal includes one or more support letters as described in Attachment 11. Any pilot test or project partner commitment letters meet the requirements of Attachment 11.</p> <p><i>(If the proposal includes one or more match funding commitment letters that do not meet the requirements of Attachment 11, the proposal will be disqualified from consideration for match funding points).</i></p>	<p><input type="checkbox"/> Pass <input type="checkbox"/> Fail</p>

F. STAGE TWO: APPLICATION SCORING

Proposals that pass ALL Stage One Screening Criteria will be evaluated based on the Scoring Criteria on the next page and the Scoring Scale below (with the exception of criteria 6–8, which will be evaluated as described in each criterion). Each criterion has an assigned number of possible points, and is divided into multiple sub-criteria. The sub-criteria are not equally weighted. The Project Narrative (Attachment 4) must respond to each sub-criterion, unless otherwise indicated.

- The total minimum passing score is **70.00 out of 100 points**.
- The minimum passing score for **criteria 1–4 is 49.00 points**. The points for criteria 5–8 will only be applied to proposals that achieve the minimum score for criteria 1–4.

SCORING SCALE

% of Possible Points	Interpretation	Explanation for Percentage Points
0%	Not Responsive	<ul style="list-style-type: none"> • The response fails to address the criteria. • The omissions, flaws, or defects are significant and unacceptable.
10-30%	Minimally Responsive	<ul style="list-style-type: none"> • The response minimally addresses the criteria. • The omissions, flaws, or defects are significant and unacceptable.
40-60%	Inadequate	<ul style="list-style-type: none"> • The response addresses the criteria. • There are one or more omissions, flaws, or defects or the criteria are addressed in a limited way that results in a low degree of confidence in the proposed solution.
70%	Adequate	<ul style="list-style-type: none"> • The response adequately addresses the criteria. • Any omissions, flaws, or defects are inconsequential and acceptable.
80%	Good	<ul style="list-style-type: none"> • The response fully addresses the criteria with a good degree of confidence in the applicant’s response or proposed solution. • There are no identified omissions, flaws, or defects. Any identified weaknesses are minimal, inconsequential, and acceptable.
90%	Excellent	<ul style="list-style-type: none"> • The response fully addresses the criteria with a high degree of confidence in the applicant’s response or proposed solution. • The applicant offers one or more enhancing features, methods, or approaches that exceed basic expectations.
100%	Exceptional	<ul style="list-style-type: none"> • All criteria are addressed with the highest degree of confidence in the applicant’s response or proposed solution. • The response exceeds the requirements in providing multiple enhancing features, a creative approach, or an exceptional solution.

SCORING CRITERIA

The Project Narrative (Attachment 4) must respond to each criterion below, unless otherwise indicated.

Scoring Criteria	Maximum Points
<p>1. Technical Merit and Need</p> <ul style="list-style-type: none"> a. Provides a clear and concise description of the goals, objectives, technological or scientific knowledge advancement, and innovation in the proposed project. b. Explains how the proposed project will lead to technological advancement and breakthroughs that overcome barriers to achieving the state's statutory energy goals. c. Summarizes the current status of the relevant technology and/or scientific knowledge, and explains how the proposed project will advance, supplement, and/or replace current technology and/or scientific knowledge. d. Justifies the need for EPIC funding, including an explanation of why the proposed work is not adequately supported by competitive or regulated markets. e. Discusses the degree to which the proposed work is technically feasible and achievable. f. Provides a clear and plausible measurement and verification plan that describes how energy savings and other benefits specified in the application will be determined and measured. 	20
<p>2. Technical Approach</p> <ul style="list-style-type: none"> a. Describes the technique, approach, and methods to be used in performing the work described in the Scope of Work. Highlights any outstanding features. b. Describes how tasks will be executed and coordinated with various participants and team members. c. Identifies and discusses factors critical for success, in addition to risks, barriers, and limitations. Provides a plan to address them. d. Describes how the knowledge gained, experimental results, and lessons learned will be made available to the public and key decision-makers. 	20

Scoring Criteria	Maximum Points
<p>3. Impacts and Benefits for California IOU Ratepayers</p> <ul style="list-style-type: none"> a. Explains how the proposed project will benefit California Investor-Owned Utility (IOU) ratepayers with respect to the EPIC goals of <u>greater reliability</u>, <u>lower costs</u>, and/or <u>increased safety</u>). b. Provides clear, plausible, and justifiable quantitative estimates of potential benefits for California IOU electricity ratepayers, including the following (<i>as applicable</i>): annual electricity and thermal savings (kilowatt-hour and therms), peak load reduction and/or shifting, energy cost reductions, greenhouse gas emission reductions, air emission reductions (e.g., NOx), and water use and/or cost reductions. c. States the timeframe, assumptions, and calculations for the estimated benefits, and explains their reasonableness. d. Identifies impacted market segments in California, including size and penetration or deployment rates, with underlying assumptions. e. Discusses any qualitative or intangible benefits to California IOU electricity ratepayers, including timeframe and assumptions. f. Provides a cost-benefit analysis that compares project costs to anticipated benefits. Explains how costs and benefits will be calculated and quantified, and identifies any underlying assumptions. g. <i>Group 1 Projects Only</i>: If the proposed project involves development of a technology that addresses heat transfer fluids and storage media or systems, explain how the technology can reach commercial status by 2020 and contribute to meeting the U.S. Department of Energy’s SunShot Initiative goal of reducing the total installed cost of solar energy systems to \$.06 per kilowatt-hour (kWh) by 2020 (see http://www.nrel.gov/docs/fy13osti/58186.pdf). 	<p>20</p>
<p>4. Team Qualifications, Capabilities, and Resources</p> <ul style="list-style-type: none"> a. Describes the organizational structure of the applicant and the project team. Includes an <u>organizational chart</u> that illustrates the structure. b. Identifies key team members, including the project manager and principal investigator (<i>include this information in Attachment 5, Project Team Form</i>). c. Summarizes the qualifications, experience, capabilities, and credentials of the key team members (<i>include this information in Attachment 5, Project Team Form</i>). d. Explains how the various tasks will be managed and coordinated, and how the project manager’s technical expertise will support the effective management and coordination of all projects in the application. e. Describes the facilities, infrastructure, and resources available to the team. f. Describes the team’s history of successfully completing projects (e.g., 	<p>10</p>

Scoring Criteria	Maximum Points
<p>RD&D projects) and commercializing and/or deploying results/products.</p> <p>g. Identifies past projects that resulted in a market-ready technology <i>(include this information in Attachment 9, Reference and Work Product Form)</i>.</p> <p>h. References are current, meaning within the past three years <i>(include this information in Attachment 9, Reference and Work Product Form)</i>.</p> <p>i. Identifies any collaborations with utilities, industries, or others. Explains the nature of the collaboration and what each collaborator will contribute.</p> <p>j. Demonstrates that the applicant has the financial ability to complete the project, as indicated by the responses to the following questions:</p> <ul style="list-style-type: none"> • Has your organization been involved in a lawsuit or government investigation within the past ten years? • Does your organization have overdue taxes? • Has your organization ever filed for or does it plan to file for bankruptcy? • Has any party that entered into an agreement with your organization terminated it, and if so for what reason? • For Energy Commission agreements listed in the application that were executed (i.e., approved at a Commission business meeting and signed by both parties) within the past five years, has your organization ever failed to provide a final report by the date indicated in the agreement? <p>k. Support or commitment letters (for match funding, test sites, or project partners) indicate a strong level of support or commitment for the project.</p>	
<p>Total Possible Points for criteria 1–4 (Minimum Passing Score for criteria 1–4 is <u>49.00</u>)</p>	<p>70</p>
<p>5. Budget and Cost-Effectiveness</p> <p>a. Justifies the reasonableness of the requested funds relative to the project goals, objectives, and tasks.</p> <p>b. Justifies the reasonableness of costs for direct labor, non-labor (e.g., indirect overhead, general and administrative costs, and subcontractor profit), and operating expenses by task.</p> <p>c. Explains why the hours proposed for personnel and subcontractors are reasonable to accomplish the activities in the Scope of Work (Attachment 6).</p> <p>d. Explains how the applicant will maximize funds for technical tasks and minimize expenditure of funds for program administration and overhead.</p>	<p>10</p>

Scoring Criteria	Maximum Points												
<p>6. EPIC Funds Spent in California</p> <p>Projects that spend EPIC funds in California will receive points as indicated in the table below. “Spent in California” means that: (1) Funds under the “Direct Labor” category and all categories calculated based on direct labor in the B-4 budget attachments (Prime and Subcontractor Labor Rates) are paid to individuals who pay California state income taxes on wages received for work performed under the agreement; and (2) Business transactions (e.g., material and equipment purchases, leases, rentals, and contractual work) are entered into with a business located in California.</p> <p>Airline ticket purchases and payments made to out-of-state workers are not considered funds “spent in California.” However, funds spent by out-of-state workers in California (e.g., hotel and food) are considered funds “spent in California.”</p> <table border="1" data-bbox="191 785 1062 982"> <thead> <tr> <th>Percentage of EPIC funds spent in CA (derived from budget attachment B-2)</th> <th>Percentage of Possible Points</th> </tr> </thead> <tbody> <tr> <td>>60%</td> <td>20%</td> </tr> <tr> <td>>70%</td> <td>40%</td> </tr> <tr> <td>>80%</td> <td>60%</td> </tr> <tr> <td>>90%</td> <td>80%</td> </tr> <tr> <td>>100%</td> <td>100%</td> </tr> </tbody> </table>	Percentage of EPIC funds spent in CA (derived from budget attachment B-2)	Percentage of Possible Points	>60%	20%	>70%	40%	>80%	60%	>90%	80%	>100%	100%	15
Percentage of EPIC funds spent in CA (derived from budget attachment B-2)	Percentage of Possible Points												
>60%	20%												
>70%	40%												
>80%	60%												
>90%	80%												
>100%	100%												
<p>7. Ratio of Direct Labor and Fringe Benefit Rates to Loaded Labor Rates</p> <p>The score for this criterion will derive from the Rates Summary worksheet (Tab B-7) in the budget forms, which compares the weighted direct labor and fringe benefits rate to the weighted loaded rate. This ratio, as a percentage, is multiplied by the possible points for this criterion.</p>	5												
<p>Total Possible Points (Minimum Passing Score is <u>70</u>)</p>	100												
<p>8. Match Funding (Optional)</p> <ul style="list-style-type: none"> Each match funding applicant must submit a match funding commitment letter that meets the requirements of Attachment 11. Failure to meet these requirements will disqualify the proposal from consideration for match funding points. Any match funding pledged in Attachment 1 must be consistent with the amount or dollar value described in the commitment letter(s) (e.g., if \$5,000 “cash in hand” funds are pledged in a commitment letter, Attachment 1 must match this amount). Failure to meet this requirement will disqualify the proposal from consideration for match funding points. 3 points for this criterion will be awarded based on the percentage of match funds relative to the EPIC funds requested. This ratio will be multiplied by 5 to yield the points, and rounded to the nearest whole number. <p>For example: If requested EPIC funds are \$1,000,000 and match funds</p>	5												

Scoring Criteria	Maximum Points
<p>are \$500,000, the match funding ratio is 0.50. The proposal will be awarded 2 points ($3 \times 0.50 = 1.5$, rounded to the nearest whole number = 2).</p> <ul style="list-style-type: none"> The remaining 2 points for this criterion will be based on the level of commitment, dollar value justification, and funding replacement strategy described in the match funding commitment letter (see Attachment 11). The proposal scoring scale in Section G will be used to rate these criteria. 	