



GFO-23-304 Pre-Application Workshop

Geothermal Energy Operations and Lithium Innovation (GEO/LI)

Energy Research and Development Division, California Energy Commission

Presenter: Chuck Gentry, Mechanical Engineer

Date: 2/2/2024



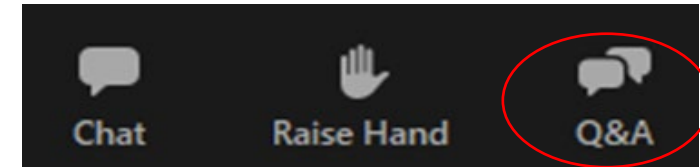
Agenda

Time	Item
10:00 am	Welcome and Introduction
10:05 am	Solicitation Background <ul style="list-style-type: none">• EPIC Research Program• Purpose of Solicitation• Available Funding
10:25 am	Application Requirements <ul style="list-style-type: none">• Project Group Requirements• Attachments• Submission Process• Evaluation Process
11:00 am	Q&As
12:00 pm	Adjourn



Housekeeping

- This workshop will be recorded and posted to the CEC website.
- Attendees will be muted during the presentation.
- Please send your questions using the Q&A window of Zoom.
- Updates to solicitation documents, including this presentation, will be posted at the Grant Funding Opportunity's webpage:



<https://www.energy.ca.gov/solicitations/2024-01/gfo-23-304-geothermal-energy-operations-and-lithium-innovation-geoli>



Commitment to Diversity

The Energy Commission adopted a resolution strengthening its commitment to diversity in our funding programs. The Energy Commission continues to encourage disadvantaged and underrepresented businesses and communities to engage in and benefit from our many programs.

To meet this commitment, Energy Commission staff conducts outreach efforts and activities to:

- Engage with disadvantaged and underrepresented groups throughout the state.
- Notify potential new applicants about the Energy Commission's funding opportunities.
- Assist applicants in understanding how to apply for funding from the Energy Commission's programs.
- Survey participants to measure progress in diversity outreach efforts.



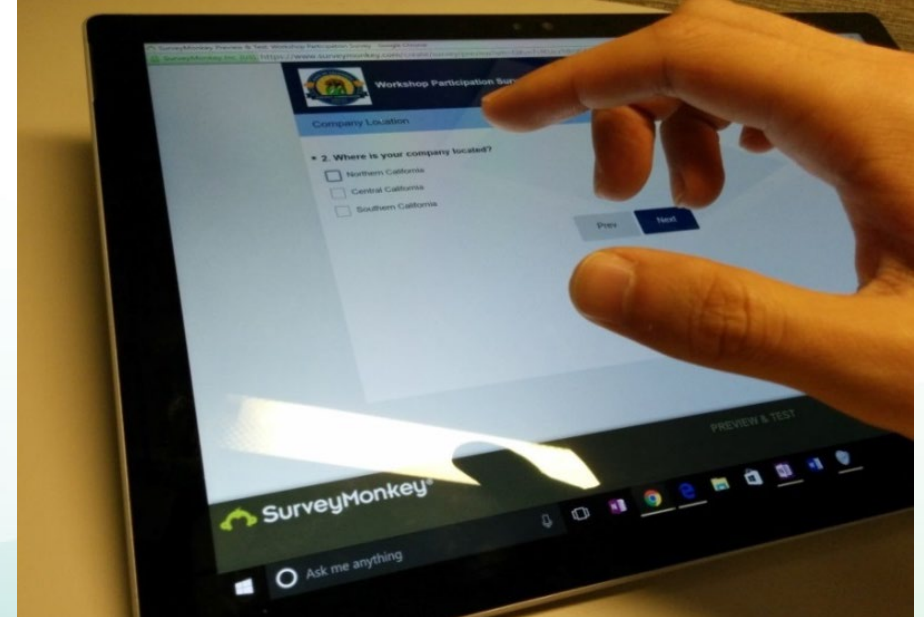
We Want to Hear From You!

Participation Survey

Survey responses will be summarized anonymously to track attendance of underrepresented groups in our workshops for public reporting purposes.

- Online participants, please use this link:
<https://forms.office.com/g/b1daq6SFyi>

Thanks!





Connect With Us

EMPOWER INNOVATION COMMUNITY EVENTS FUNDING RESOURCES ABOUT

CATALYZING THE CLEANTECH COMMUNITY

JOIN NOW →

A banner for Empower Innovation with a background of wind turbines. The text "EMPOWER INNOVATION" is in the top left, followed by navigation links: "COMMUNITY EVENTS FUNDING RESOURCES ABOUT". The main headline reads "CATALYZING THE CLEANTECH COMMUNITY" in large white letters, with a "JOIN NOW →" button at the bottom left.

CALIFORNIA ENERGY COMMISSION

California Energy Commission
Government Organization

Timeline About Photos Reviews More

A screenshot of the California Energy Commission's Facebook profile. The cover photo shows wind turbines on a hill. The profile picture is the State of California Energy Commission logo. The name "California Energy Commission" and "Government Organization" are displayed. Interaction buttons for "Liked", "Following", "Message", and "..." are visible. The navigation menu includes "Timeline", "About", "Photos", "Reviews", and "More".



Find a Partner on EmpowerInnovation.net

Empower Innovation strives to accelerate your clean tech journey with easy access to funding opportunities from the Energy Commission and other funding providers, curated resources and events, and connections to people and organizations.

FIND A PARTNER

Announce your interest in this funding opportunity and message other interested parties to find potential partners.

RESOURCES & TOOLS

Browse the collection of resources for clean tech innovators including Resource Libraries, Funding Sources, Tools, and Databases.

<https://www.empowerinnovation.net/en/custom/funding/view/41444>



EmpowerInnovation.net





Research Program Background

- The Electric Program Investment Charge (EPIC) Program is an electricity ratepayer surcharge established by the California Public Utilities Commission (CPUC) in December 2011
- The purpose of the EPIC program is to benefit the ratepayers of the three investor-owned utilities (IOUs)*
- The EPIC program funds clean energy technology projects that promote greater electricity reliability, lower costs, and increased safety



*Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Edison Co.₉



Policy Drivers

- **SB-32:** reduce GHG emissions to 40% below 1990 levels by 2030.
- **SB-X1-2:** 60% increase renewable energy resource procurement for electricity generation by 2030
- **SB-100:** 100% of electricity procured from renewable and zero-carbon energy resources by 2045
- **EO N-79-20:** 100% of in-state sales of new passenger cars and trucks and other vehicles be zero-emission by 2035.



Purpose of Solicitation

- Reduce operations and maintenance costs
 - Reduce scaling
 - Resist corrosion
- Optimize lithium recovery
 - Improve pre-treatment processes
 - Recover other minerals of value
 - Decrease waste products



Available Funding

Project Group	Available Funding	Minimum Award Amount	Maximum Award Amount
Group 1: Preventing Scaling and Corrosion in Geothermal Facilities	\$9,000,000	\$3,000,000	\$5,000,000
Group 2: Recovering Minerals and Decreasing Waste Products from Geothermal Brine	\$9,000,000	\$3,000,000	\$5,000,000
Group 3: Comprehensive Brine Management Concepts to Reduce Operating Costs and Improve Mineral Recovery	\$5,000,000	\$2,000,000	\$3,000,000



Match Funding

- **Groups 1 & 2:** match funding is required in the amount of at least 30% of the requested CEC funds.
- **Group 3:** match funding is required in the amount of at least 10% of the requested CEC funds.
- Applications with additional match or higher proportions of cash match will receive additional points during scoring.
- Match funding contributors must submit match funding commitment letters that meet the requirements. Failure to do so will disqualify the match funding commitment from consideration.



Group 1 Preventing Scaling and Corrosion in Geothermal Facilities

Funding Amount: \$9,000,000

Background:

- Salton Sea geothermal field has one of the most corrosive and high-salinity brines
- Infrastructure and process improvements needed to cost-effectively withstand highly corrosive environment and resist scaling





Group 1 Preventing Scaling and Corrosion in Geothermal Facilities

Requirements:

- Innovation to improve resistance to corrosive or high-saline brines
- Reduction in O&M costs with a targeted payback period of less than 5 years
- Starting TRL 4-5, ending at least 1 higher (TRL 5-6)
- Field demonstration with analysis of applicability to Salton Sea geothermal field if demonstration outside of this area



Group 1 Preventing Scaling and Corrosion in Geothermal Facilities

Example projects:

- Developing, and demonstrating innovative materials that resist corrosion and scaling.
- Innovative new instrumentation capable of taking real time chemical and brine flow measurements to help tune power plant controls.
- Novel corrosion control processes within existing geothermal infrastructure.

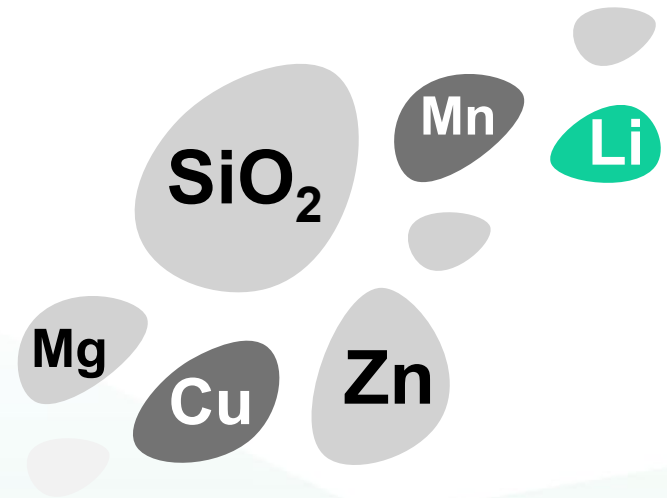


Group 2 Recovering Minerals and Decreasing Waste Products From Geothermal Brine

Funding Amount: \$9,000,000

Background:

- Salton Sea geothermal field contains high concentrations of valuable minerals
- Other minerals are also present in brine that interfere with direct lithium extraction processes





Group 2 Recovering Minerals and Decreasing Waste Products From Geothermal Brine

Requirements:

- Either: brine pre-treatment to remove interfering minerals, or a process to recover one or more co-products
- Minimization of waste streams, use of water and chemicals
- Targeted payback period of less than 5 years
- Starting TRL 3-4, ending at least TRL 5
- Field demonstration at Salton Sea geothermal field



Group 2 Recovering Minerals and Decreasing Waste Products From Geothermal Brine

Example Projects:

- Developing and demonstrating innovative new instrumentation that can measure brine chemistry in real time to improve control of the lithium pre-treatment process.
- Innovative process to recover manganese from the brine in a form that has value and can be directly sold.
- Drop-in process to separate impurities from existing precipitated silica cake to produce sellable product, significantly reducing the brine cake that is landfilled.



Group 3 Comprehensive Brine Management Concepts to Reduce Operating Costs and Improve Mineral Recovery

Funding Amount: \$5,000,000

Background:

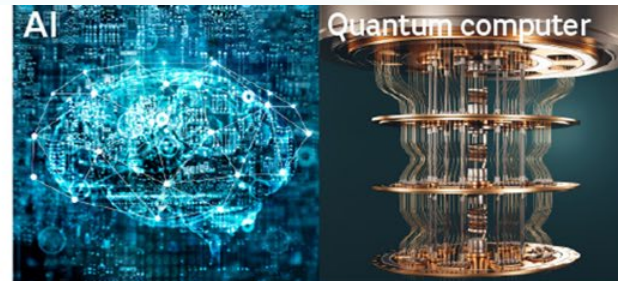
- DLE designed to be added into pre-existing geothermal systems
- Opportunity to manage entirety of brine process (power production, mineral recovery, overall efficiency and costs) using a different approach



Modeling



Sensing



Advanced information processing



Group 3 Comprehensive Brine Management Concepts to Reduce Operating Costs and Improve Mineral Recovery

Requirements:

- Comprehensive approach to brine management
- Reduction in O&M and brine management costs
- Minimization of waste streams, use of water, and chemicals
- Starting TRL 2-3, ending at least 1 higher (TRL 3-4)
- Validation of performance through models and simulations or laboratory experiments



Group 3 Comprehensive Brine Management Concepts to Reduce Operating Costs and Improve Mineral Recovery

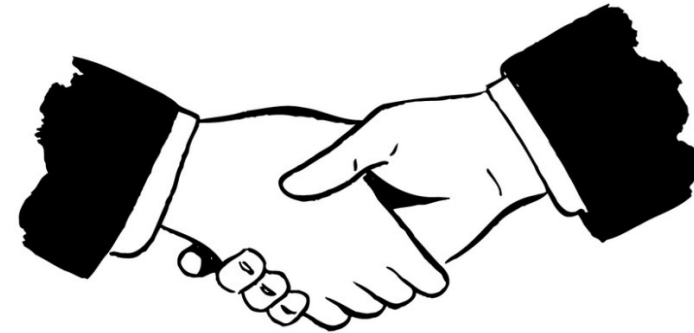
Example projects:

- Developing a predictive model to understand chemistry interactions as temperature and pressure changes in geothermal brine. Lab tests to verify data as brine travels through the system.
- Predictive model that details the most effective methods of brine treatment at different stages throughout the power production and mineral recovery processes.



Additional Requirements

- Include baseline information of current technologies
- Applicants are encouraged to seek input from, or partner with geothermal operators to ensure commercial feasibility
- Commitment letter from the geothermal site hosting pilot test (Groups 1 and 2)





Eligible Applicants

- This is an open solicitation for public and private entities.
- Applicants must accept applicable EPIC terms and conditions.
 - Standard, UC, and DOE T&Cs available online: <https://www.energy.ca.gov/funding-opportunities/funding-resources>
- Applicants are encouraged to register with the California Secretary of State, as all recipients must be registered and in good standing to enter into an agreement with the Energy Commission: <http://www.sos.ca.gov>



Application Requirements

Each Applicant must complete and include the following:

1. Executive Summary (.docx)	7. CEQA Compliance Form (.docx)
2. Project Narrative (.docx)	8. Past Projects Information Form (.docx, .pdf)
3. Project Team (.docx, .pdf)	9. Commitment and Support Letters (.pdf)
4. Scope of Work (.docx)	10. Project Performance Metrics
5. Project Schedule (.xlsx)	11. Applicant Declaration (.docx)
6. Budget (.xlsx)	12. References for Calculating Energy End-Use and GHG Emissions



Project Narrative (Attachment 2)

- This is your opportunity to explain the entirety of the project. The narrative should explain:
 - Why is your project necessary and important to California?
 - What is your project approach and how will each major task be implemented?
 - How will the project be completed in the term proposed
 - How will the project outcomes benefit electric ratepayers?
 - Address the requirements for your group as described in Section I.C.

Respond to the scoring criteria described in Section IV.F.



Scope of Work (Attachment 4)

- Tell us exactly what you are proposing to do in your project.
- Identify what will be deliver to the Energy Commission.
- Be sure to include in the technical tasks:
 - At least one product deliverable per task.
 - Address requirements in Section I.C. under Project Focus.
- Be sure to include in the Project Schedule (Attachment 5):
 - Product deliverables that correspond with the Scope of Work.
 - Realistic dates on when product deliverables can be completed.



Budget (Attachment 6)

- Identify how the Energy Commission funds and match funds will be spent to complete the project.
- Subrecipients receiving \$100,000 or more Energy Commission funds must complete a separate budget form.
- Ensure that all rates provided are **maximum** estimated rates for the entire project term and any potential increases are included.
- Travel Restrictions:
 - CEC funds should be limited to project task specific in-state travel.
 - Travel to conferences are generally not considered applicable travel for projects and should not use CEC funds.



Commitment and Support Letter Forms (Attachment 9)

- Follow guidelines provided for commitment and support letters.
 - Commitment letters are required for entities or individuals that are committing match funding, testing/demonstration sites, including the **Applicant** (prime).
 - Support letters describe a project stakeholder's interest or involvement in the project.
- All applicants must submit **at least one** support letter.
- Match funding must be supported by a match fund commitment letter(s).
- Any project partners that will make contributions to the project (other than match and sites) must submit a commitment letter.
- Limit to two pages per letter, excluding the cover page.



GFO Submission Requirements

- Applicants must have or must create a user account to submit a solicitation application. To create an account, please see the guidance **User Registration Instructions** at:

<https://www.energy.ca.gov/media/7893>

Note: One account manager per organization, but users can be added by account manager

- Applications must be submitted through the **Energy Commission Agreement Management System (ECAMS)** at: <https://ecams.energy.ca.gov/>

The screenshot displays the California Energy Commission website. At the top left is the logo, and at the top right is a search bar and a 'Sign In' button. Below the navigation bar is a 'Welcome!' message followed by 'Funding Opportunities' and a 'View Solutions' button. A large banner image shows a colorful bus, a wind turbine, solar panels, and a house. Below the banner is a paragraph: 'The California Energy Commission offers a variety of funding opportunities to advance the state's transition to clean energy and transportation through innovation, efficiency, and the development and deployment of advanced technologies.'

Below this are six featured sections:

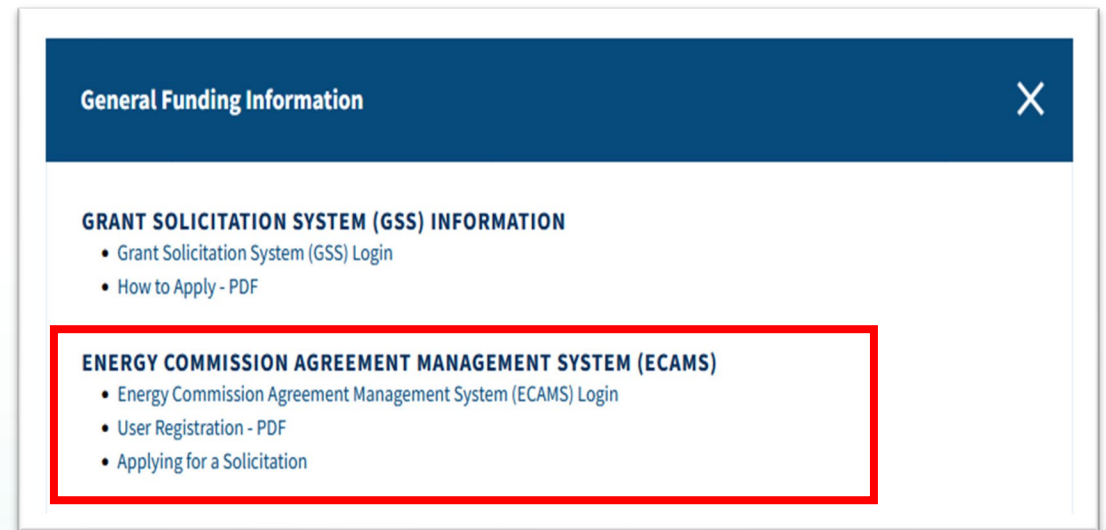
- Funding Workshops:** Find upcoming workshops to learn about solicitations, ask questions, network, and meet potential project partners.
- Awards:** Information about the California Energy Commission's awards, including notices of proposed awards and notices of selection.
- Funding Resources:** Guides, forms, templates, and other resources for individuals applying for funding opportunities that the California Energy Commission offers.
- ECAMS Grant Resources:** Templates, forms, and tools for the invoicing process and agreement management in general.
- Empower Innovation:** Empower Innovation is an initiative of the California Energy Commission, in partnership with leading California technology accelerators, fellowship programs, nonprofits, and private partners.
- Salesforce Training:** How to apply for solicitations and submit invoices.

At the bottom right, there is a 'Contact' section with the email address: ecams_salesforcesupport@energy.ca.gov



GFO Submission Requirements (cont.)

- For detailed instructions on application submittal, please see the *Applying for a Solicitation* at: <https://www.energy.ca.gov/media/7956>
- Both referenced guidance documents are available at: <https://www.energy.ca.gov/funding-opportunities/funding-resources> under General Funding Information.
- Questions with the ECAMS system should be directed to: ECAMS.SalesforceSupport@Energy.ca.gov

A screenshot of a web page titled "General Funding Information" with a close button (X) in the top right corner. The page is divided into two main sections. The first section is "GRANT SOLICITATION SYSTEM (GSS) INFORMATION" and contains two bullet points: "Grant Solicitation System (GSS) Login" and "How to Apply - PDF". The second section is "ENERGY COMMISSION AGREEMENT MANAGEMENT SYSTEM (ECAMS)" and contains three bullet points: "Energy Commission Agreement Management System (ECAMS) Login", "User Registration - PDF", and "Applying for a Solicitation". This second section is highlighted with a red rectangular border.



GFO Submission Requirements (cont.)

- Electronic files, other than those requiring signatures, must be consistent with the specific file format provided in the solicitation.
- Application documents should meet formatting requirements, and page recommendations as specified in the solicitation manual.
- Attachments requiring signatures (Application Form and Support/Commitment Letters) may be signed, scanned, and submitted in PDF format.



Submission Warning

START THE PROCESS EARLY!

- Applications must be fully submitted BEFORE the deadline listed in the solicitation manual.
- The ECAMS system will reject applications submitted after the deadline.
- Applications in the process of being submitted prior to the deadline will NOT be accepted after the deadline.
- ECAMS support is ONLY available from 8am – 5pm Monday-Friday.



Application Submission

- Register as a New User (if applicable)
- Log In
- 4-Step Application Submittal Process:
 1. Select Solicitation
 2. Enter Application Information
 3. Upload Files
 - Select documents for upload
 - Tag files with document type
 - Designate confidential documents (if applicable)
 4. Review and Submit
- Confirmation from ECAMS system that submission was successful

All steps must be complete BEFORE the submission deadline



Application Reminders

We recommend you carefully review your application before submission.

- Verify that all necessary documents have been uploaded.
- Verify that all documents uploaded are the accurate version you intend to submit as your final.
- Verify that your documents are not marked "confidential" unless the solicitation allows specific material to be confidential. Most solicitations do not allow submission of confidential information.
- Verify that your match commitment letters accurately reflect the match amounts included in your budgets, including the match provided by the prime applicant.
- Verify that support and commitment letters are included, if required.
- Verify that amounts entered within the system's budget (if any) concur with information included on uploaded budget worksheets.



How will my Application be Evaluated?

Application Screening

Admin Screening Process

- Energy Commission staff screens applications per criteria in Section IV.E.
- Criteria are evaluated on a pass/fail basis.
- Applicants must pass all screening criteria, or the application will be disqualified.

Some Reasons for Disqualification

- Application is not submitted by the specified due date and time.
- Application does not include one or more support letters.
- Application contains confidential material.



How will my Application be Evaluated?

Application Scoring

- **Evaluation Committee applies the scoring scale to the scoring criteria.**
- **Applications must obtain a minimum passing score of 52.5 points for Criteria 1-4 in order to continue evaluation.**
- **Applications must obtain a minimum passing score of 70 points for Criteria 1-7 in order to be considered for funding.**
- **Review Section IV of the manual and ensure the application provides a clear and complete response to each scoring criteria.**

Scoring Criteria	Maximum Points
1. Technical Merit	15
2. Technical Approach	25
3. Impacts and Benefits for CA IOU Ratepayers	20
4. Team Qualifications, Capabilities, and Resources	15
5. Budget and Cost-Effectiveness	10
6. CEC Funds Spent in California	10
7. Ratio of Direct Labor Costs to Indirect Costs	5
Total	100
Minimum Points to Pass	70



How will my Application be Evaluated?

Application Scoring – Preference Points

- **Passing applications (score of 70 or more from Criteria 1-7) will be considered for bonus points. Criteria for bonus points include:**
 - **Match Funding**
 - **Disadvantaged Communities**

Scoring Criteria	Maximum Points
8. Match Funds	10
9. Disadvantaged & Low-income Communities	5
Total Bonus Points	15



Match Funding Points

- Applicants may receive up to 10 additional preference points based on the criteria below:
 - Up to 5 points will be awarded based on the percentage of proposed cash relative to the total match contributions using the Match Scoring Table in the Scoring Criteria.
 - The remaining 5 points may be awarded to applications that exceed the minimum match requirements up to 100 percent using the Exceeds Minimum Match Scoring table.
 - Refer to the Solicitation Manual for more details on the match funding scoring criteria.



Disadvantaged Communities (Groups 1&2 only)

- Projects with **all test or demonstration** sites located in disadvantaged and/or low-income communities and justifies how the project will benefit these communities may receive additional points.
 - A disadvantaged community is identified by census tract and represents the 25% highest scoring tracts in CalEnviroScreen 4.0 or later versions:
<https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>
 - Low-income communities are defined as communities within census tracts with median household incomes at or below 80 percent of the statewide median income, or at or below the threshold designated as low-income by the California Department of Housing and Community Development.
<http://www.hcd.ca.gov/grants-funding/income-limits/index.shtml>



Next Steps After Grant Award

- **Notice of Proposed Award:** Shows total proposed funding amounts, rank order of applicants by project group, and the amount of each proposed award.
- **Agreement Development:** Proposal documents will be processed into a legal agreement.
- **Failure to Execute:** The Energy Commission reserves the right to cancel the pending award if an agreement cannot be successfully executed with an applicant.
- **Project Start:** Recipients may begin work on the project **only** after the agreement is fully executed (approved at an Energy Commission business meeting and signed by the Recipient and the Energy Commission).



Key Dates

Activity	Date
Solicitation Release	1/18/2024
Pre-Application Workshop	2/2/2024 at 1:00 p.m.
Deadline for Written Questions	2/9/2024 at 5:00 pm
Anticipated Distribution of Questions and Answers	Week of 2/26/24
Deadline for ECAMS Submission Support	Ongoing until 4/15/24 at 5:00 pm
Deadline to Submit Applications	4/15/2024 at <u>11:59 pm</u>
Anticipated Notice of Proposed Award Posting	Week of 6/17/2024
Anticipated Energy Commission Business Meeting	10/9/2024
Anticipated Agreement Start Date	11/1/2024
Anticipated Agreement End Date	11/1/2026 to 11/1/2027



Questions and Answers

- Please chat your question in the Question and Answers window or raise your hand and you will be called on to unmute yourself. Please remember to introduce yourself by stating your name and affiliation. (Feature found under the Participants panel)
- Keep questions under 2 minutes to allow time for others.
- Note that our official response will be given in writing and posted on the GFO webpage.



Additional Questions

Please send all questions related to GFO-23-304 to:

Laura Williams

Commission Agreement Officer

1516 Ninth Street, MS-18

Sacramento, CA 95814

(916) 879-1383

Laura.williams@energy.ca.gov

Deadline to submit questions:

Friday, 2/9/2024 5:00 PM



Thank You!

