



PRE-APPLICATION WORKSHOP

GFO-20-301 BRIDGE 2020:

Bringing Rapid Innovation Development to Green Energy

GFO-20-302 RAMP 2020:

Realizing Accelerated Manufacturing and Production for Clean Energy Technologies

July 2020

Energy Research and Development Division

California Energy Commission

Workshop Agenda

- Welcome and Introduction
 - Diversity Survey
 - EPIC Program
- BRIDGE 2020 GFO-20-301
- RAMP 2020 GFO-20-302
- Application Requirements
 - Attachments
 - Submission Process
- Q&As
- Adjourn

BRIDGE 2020

www.energy.ca.gov/solicitations/2020-06/bringing-rapid-innovation-development-green-energy-bridge-2020

RAMP 2020

www.energy.ca.gov/solicitations/2020-06/realizing-accelerated-manufacturing-production-ramp-2020



Virtual Housekeeping

This public workshop conducted remotely via Zoom is recorded.

3 ways to comment

1. Use the “raise hand” feature in Zoom,
2. Over the telephone: dial *9 to “raise hand” and *6 to mute/unmute you phone line, or
3. Type your question in the Q&A window.

Please limit comments to 3 minutes.

Written comments can be submitted through the e-commenting system at:
<https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=19-ERDD-01>



Find a Partner on EmpowerInnovation.net



Empower Innovation strives to accelerate your cleantech 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 cleantech innovators including Resource Libraries, Funding Sources, Tools, and Databases.



EmpowerInnovation.net



EPIC Background

- The Electric Program Investment Charge (EPIC) is funded by an electricity ratepayer surcharge established in 2011 by the California Public Utilities Commission.
- Benefits ratepayers of state's electric investor-owned utilities (PG&E, SCE, and SDG&E).
- Funds clean energy technology projects: greater electricity reliability, lower costs, and increased safety.
- Projects must lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory energy goals.

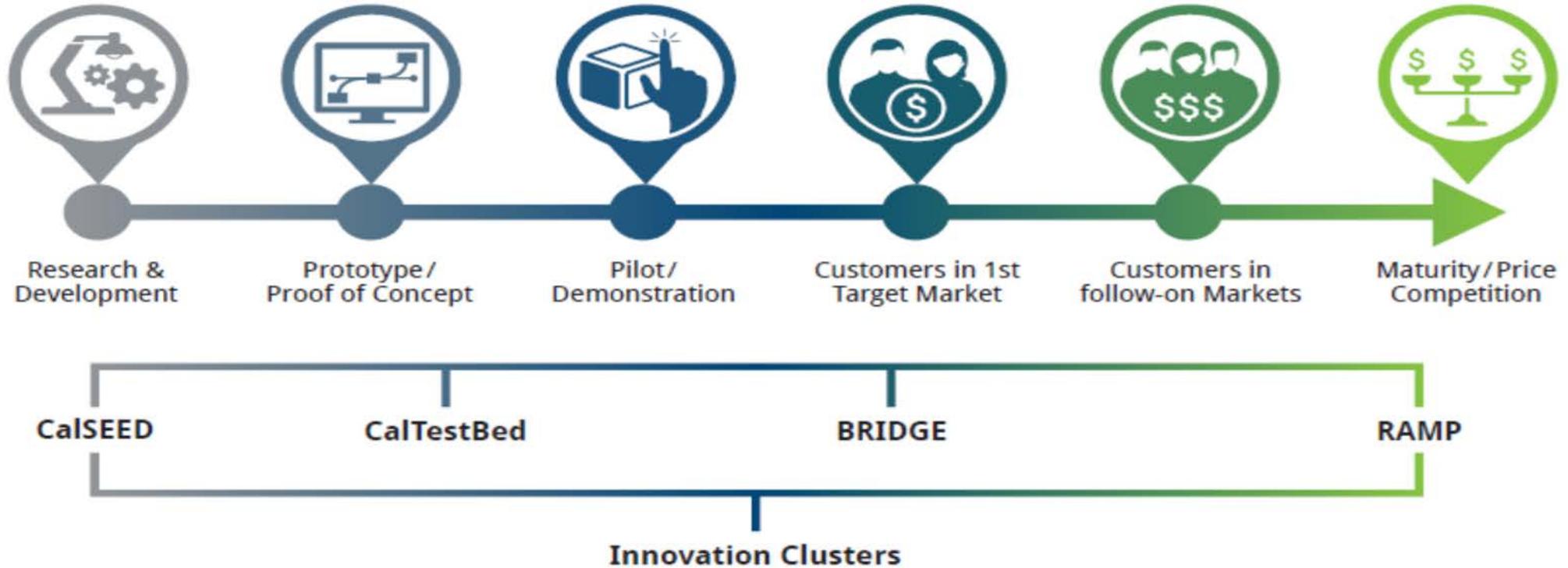


EPIC Background (cont.)

- Established to fund investments to advance clean energy technologies and approaches for the benefit of investor-owned utility electricity ratepayers.
- EPIC creates new energy solutions, fosters regional innovation, and brings clean energy ideas to the marketplace:

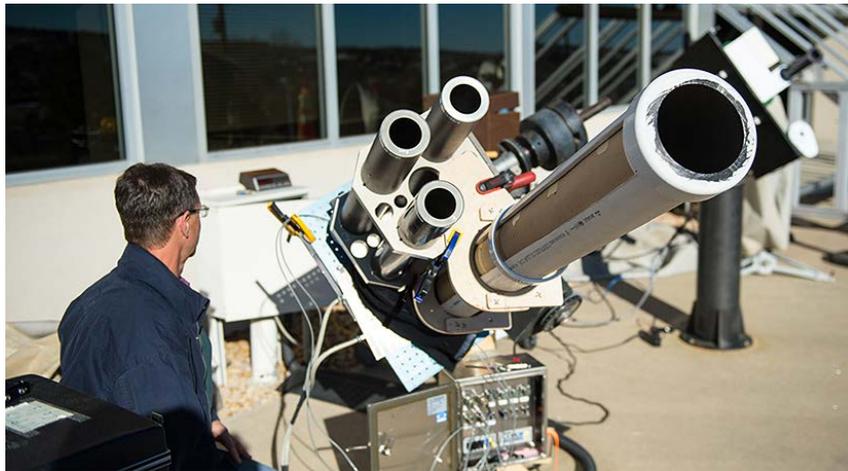


Entrepreneurial Ecosystem



Bringing Rapid Innovation Development to Green Energy (BRIDGE)

GFO-20-301



BRIDGE 2020

Solicitation Purpose

- Provide follow-on funding for the most promising energy technologies that have previously received funding from an eligible Energy Commission program or United States federal agency.
- BRIDGE 2020 seeks to:
 1. Help companies minimize time between funding rounds.
 2. Mobilize more early stage capital in the clean energy space by providing matching investments alongside investors and commercial partners.

Applied Research and Development

TRL 6 or Below as defined by DOE

Technology Demonstration and Deployment

TRL 7 or 8 as defined by DOE



Requirements for Groups

Zero- & Negative- Carbon Generation

- Geothermal
- Emerging thin film solar PV materials (perovskites, quantum dot)
- Solid-state energy harvesting (thermoelectric, thermionic, piezoelectric)
- Bioenergy

Power Electronics/Power Conditioning

- High-efficiency plug-load devices
- Solid-state distribution system components (transformers, inverters, circuit breakers)
- Ultra-fast electric transportation charging
- High-power electric drive for medium- and heavy-duty vehicle application
- High-efficiency computing
- Industrial motors and equipment

Energy Efficiency

- Solid-state lighting
- Non-vapor compression cooling
- Enabling technologies for advance electric heat pumps
- Advance materials and coatings for fenestration and building envelopes
- Wastewater treatment, recycling, reuse

Energy Storage

- Enabling technologies for lithium sulfur and lithium-metal batteries
- Flow batteries
- Ultra- or super-capacitors
- Non-lithium electrochemical battery
- Enabling technologies for green hydrogen for long duration energy storage

Artificial Intelligence/Machine Learning/Advanced Sensing

- Building Automation
- Smart Manufacturing and Industrial Processes
- Precision Irrigation
- Virtual Power Plants
- Climate and Weather Risk Prediction to electric infrastructure and services
- Advanced Sensors



Available Funding

Project Group	Available Funding	Minimum Award Amount	Maximum Award Amount (Non-DAC)	Maximum Award Amount (LI or DAC) ¹	Minimum Match Funding (% of EPIC Funds Requested)
Group 1: Energy Efficiency	\$10,000,000	\$1,000,000	\$3,000,000	\$3,500,000	50%
Group 2: Energy Storage	\$10,000,000	\$1,000,000	\$3,000,000	\$3,500,000	50%
Group 3: Artificial Intelligence/Machine Learning/Advanced Sensing	\$10,000,000	\$750,000	\$1,500,000	\$2,000,000	50%
Group 4: Advanced Power Electronics/Wide Bandgap Semiconductor Device	\$10,500,000	\$1,000,000	\$3,000,000	\$3,500,000	50%
Group 5: Zero- and Negative Carbon Emissions Generation	\$10,500,000	\$1,000,000	\$3,000,000	\$3,500,000	50%

¹Applications that will be conducting a real-world demonstration of the proposed technology in a disadvantaged- or low-income community can request an additional \$500,000 in EPIC funding, provided they can still meet the minimum match share requirement.



Match Funding Requirements

- Match funding is required in the amount of at least 50% of the requested EPIC project funds.
- Applicants must provide proof that they have received the match funding investment within 18 months of the application due date for the application round they are applying for.
- Match funding contingent upon the BRIDGE 2020 award is allowable, however the applicant must furnish proof of receipt of match funding before approval at a Business Meeting.
- **Eligible Match Funding Types**
 - Angel Investment
 - Corporate Strategic Investment
 - Foundation Investment
 - Venture Capital Investment
- **Examples of non-Eligible Match Funding Types**
 - Government grants
 - 'In-Kind' match



Key Dates

Activity	Date
Solicitation Release	July 24, 2020
Pre-Application Workshop	July 30, 2020
Deadline for Written Questions	August 07, 2020 by 5:00 p.m.
Anticipated Distribution of Questions and Answers	Week of August 31, 2020
Deadline to Submit Applications (first round)	October 09, 2020 by 5:00 p.m.
Anticipated Notice of Proposed Award Posting Date	30 days after each proposal submittal deadline
Anticipated Energy Commission Business Meeting Date	45 days after each NOPA
Anticipated Agreement Start Date	45 days after the Business Meeting
Anticipated Agreement End Date	4 years after the applicable application deadline



Key Dates (cont.)

Activity	Date
1 st Round Deadline to Submit Applications	October 09, 2020 by 5:00 p.m.
2 nd Round Deadline to Submit Applications	February 05, 2021 by 5:00 p.m.
3 rd Round Deadline to Submit Applications	June 11, 2021 by 5:00 p.m.
4 th Round Deadline to Submit Applications	October 08, 2021 by 5:00 p.m.

This solicitation includes **four application rounds**.

Applicants that submit a proposal for Round 1 or Round 2 and are not selected, may reapply for Round 3 or Round 4. However, they must wait at least one round between proposal submissions.

Funds under this solicitation are **first-come, first-served**.

For instance, if \$30,000,000 is awarded after the first round, and the remainder is awarded in the second round, no more funds will be made available for the third and fourth rounds.



Technical Merit & Need

Q1. What market research, including customer discovery, has been conducted to determine if the technology is commercially viable?

Q2. What target markets, if any, have been identified from this market research? What is the current or anticipated size of each of these target markets in California?

Q3. What competitive advantages does the proposed technology have over incumbents in each of the target markets? What performance targets need to be reached to realize these competitive advantages?



Technical Merit & Need (cont.)

Q4. What technical and commercialization milestones have been realized since the previous Energy Commission or U.S. federal agency award completed or near-completion?

Examples include the following:

- Independent performance testing conducted.
- Cost modeling completed.
- Acceptance into an incubator or accelerator program.

Q5. (TDD in DAC only) What steps and actions will the project team take as part of the agreement - or has already taken - to ensure the project aligns with the priorities of the community?



Attachment 14: Previous Project Performance Award

Applicants must complete all sections of the **Previous Project Performance Award** (Attachment 14). Please remember to sign.

Email the form to BRIDGE@energy.ca.gov

BRIDGE applicants should not send this form to Energy Commission staff to complete and sign unless the California Energy Commission is the agency that funded the previous award.

If verification is needed by the government project manager, follow-up with the previous funding agency to ensure verification is sent.



Realizing Accelerated Manufacturing & Production (RAMP) for Clean Energy Technologies

GFO-20-302



RAMP 2020

Solicitation Purpose

This solicitation provides assistance to help clean energy entrepreneurs successfully advance their emerging best-of-class innovative technology to the Low-Rate Initial Production (LRIP) stage.

There is up to **\$15,069,250** to fund projects under this solicitation.

What is Low-Rate Initial Production stage?

LRIP is the first step in making the transition from highly customized hand-built prototypes, which are used for performance testing and vetting the production process, to the mass-produced end product produced in the Full-Rate Production phase.



Solicitation Purpose

This solicitation will provide funding to help clean energy start-up companies reach a Manufacturing Readiness Level 8.

What does Manufacturing Readiness Level 8 mean?

“Technologies should have matured to at least TRL 7. Detailed system design is complete and sufficiently stable to enter low rate production. All materials, manpower, tooling, test equipment and facilities are proven on pilot line and are available to meet the planned low rate production schedule. Manufacturing and quality processes and procedures have been proven in a pilot line environment and are under control and ready for low rate production. Known producibility risks pose no significant challenges for low rate production. Cost model and yield and rate analyses have been updated with pilot line results. Supplier qualification testing and first article inspection have been completed.”²

²Manufacturing Readiness Level (MRL) Deskbook Version 2.0. The Office of the Secretary of Defense Manufacturing Technology Program, May 2011, http://www.dodmrl.com/MRL_Deskbook_V2.pdf.



Requirements for Technology

Zero- & Negative- Carbon Generation

- Geothermal
- Emerging thin film solar PV materials (perovskites, quantum dot)
- Solid-state energy harvesting (thermoelectric, thermionic, piezoelectric)
- Bioenergy

Power Electronics/Power Conditioning

- High-efficiency plug-load devices
- Solid-state distribution system components (transformers, inverters, circuit breakers)
- Ultra-fast electric transportation charging
- High-power electric drive systems for medium- and heavy-duty vehicle applications
- High-efficiency computing
- Industrial motors and equipment

Artificial Intelligence/Machine Learning/Advanced Sensing

- Advanced sensors and sensing equipment

Energy Efficiency

- Solid-state lighting
- Enabling technologies for advance electric heat pumps
- Non-vapor compression cooling
- Advanced materials and coatings for fenestration and building envelopes
- Wastewater treatment, recycling, reuse

Energy Storage

- Enabling technologies for lithium sulfur and lithium-metal batteries
- Non-lithium electrochemical batteries
- Ultra- or super-capacitors
- Flow batteries
- Thermal storage
- Flywheels
- Storage as part of mobile microgrid



Available Funding

There is up to **\$15,069,250** to fund projects under this solicitation. Source of funds come from the Market Facilitation Program Area of EPIC.

Minimum Award Amount	Maximum Award Amount	Minimum Match Funding (% of EPIC Funds Requested)
\$1,000,000	\$3,000,000	50%

Examples of Eligible Match Funding Types:

Government grants (Non-CEC), Cash-in-hand from reserves and/or revenue, Match funds from the Prime applicant or subcontractor, and 'In-Kind' match



Key Dates

Activity	Date
Solicitation Release	July 24, 2020
Pre-Application Workshop	July 30, 2020
Deadline for Written Questions	August 07, 2020 by 5:00 p.m.
Anticipated Distribution of Questions and Answers	Week of August 31, 2020
Deadline to Submit Applications	October 30, 2020 by 5:00 p.m.
Anticipated Notice of Proposed Award Posting Date	Week of November 16, 2020
Anticipated Energy Commission Business Meeting Date	March 2021
Anticipated Agreement Start Date	April 2021
Anticipated Agreement End Date	March 31, 2024



Technical Merit & Need

- Q1. What is the value proposition of the technology? What potential competitive advantages does it have over current benchmark or best-in-class solutions?
- Q2. What is the target market(s) for the technology and what is the size of each in California? What independent analysis, reports or studies support these estimates?
- Q3. What steps has the applicant taken to determine there is market demand for this technology?
- Q4. What pilot demonstrations or field trials have been conducted that demonstrate the technology is ready to move to LRIP?



Technical Merit & Need (cont.)

- Q5. What steps have already been taken to determine the manufacturing requirements for the technology? For example, what are the key cost, manufacturing, and scalability risks associated with the proposed technology and how will these risks be addressed?
- Q6. What steps have been taken to establish the supply chain that supports low-rate production volume, and to address potential risks to scale-up production volume?
- Q7. What entities have or in the future may legal rights to the technology and what those rights?
- Q8. How may the project be impacted due to other entities having legal rights to the technology?



Technical Approach

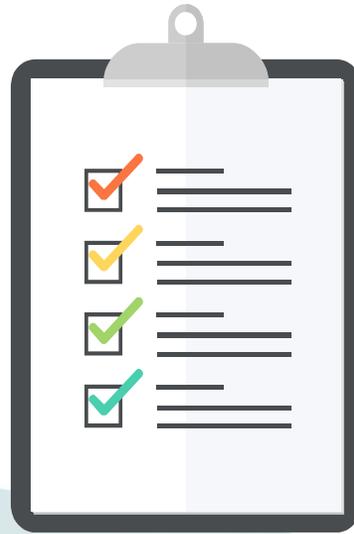
- The proposed steps the applicant will take to bring the technology to a MRL of 8 by the end of the project.
- The estimated lead time for all equipment expenses, with a priority list of when equipment should be ordered to prevent delays to the project schedule. Note that some equipment may need to be ordered immediately after the execution of the project to prevent delays to the schedule.

Please be **comprehensive** and **clear** when describing each step of advancement for the technology to reach MRL 8 within the project timespan.





Application Requirements for both Funding Opportunities



Check the Attachment Templates for Instructions

Purpose

The purpose of this solicitation is to fund applied research and development projects that will support the development of next-generation climate projections to support electricity sector resilience and delivery of data in a manner that informs energy sector planning and research through stakeholder engagement, development of rigorous analytics, and development of a data platform. Research products will contribute to the foundation for California's anticipated Fifth Climate Change Assessment.

ADDITIONAL INFORMATION

- Pre-Application Workshop Presentation (See Solicitation Files)
- Pre-Application Workshop Attendee List (See Solicitation Files)

SOLICITATION FILES

-  [00 GFO-19-311 Solicitation Manual ADA.docx](#)
-  [01 GFO-19-311 Att 01 EPIC Application Form ADA.docx](#)
-  [02 GFO-19-311 Att 02 Executive Summary ADA.DOCX](#)
-  [03 GFO-19-311 Att 03 Project Narrative ADA.docx](#)
-  [04 GFO-19-311 Att 04 Project Team Form ADA.DOCX](#)
-  [05 GFO-19-311 Att 05 Scope of Work Template ADA.docx](#)
-  [06 GFO-19-311 Att 06 Project Schedule ADA.xlsx](#)
-  [07 GFO-19-311 Att 07 Budget Forms ADA.xlsx](#)

Instructions for Each Attachment can be Found Inside the Attachment Template



Applicant Eligibility

This solicitation is open **ONLY** to private for-profit companies and individuals with ownership rights to the intellectual property that is being developed under the proposal.

The following entities are NOT ELIGIBLE to be prime applicants for this solicitations:

- Public and private universities
- National Labs
- Utilities
- Private non-profit research organizations
- End-use customers of the proposed technology



Technology Transfer Expenditures

A minimum of 5 percent of CEC funds requested should go towards technology transfer activities.

Eligible spending is dependent on the project type in the following solicitation categories:

- Applied Research and Development
- Technology Demonstration and Deployment
- Market Facilitation



Technology Transfer Expenditures: Applied Research and Development

The goal is to conduct activities that will accelerate the commercial adoption of the technology being supported under this agreement.

Eligible Activities:

- Scale-up analysis including manufacturing analysis, independent design verification, and process improvement efforts.
- Technology verification testing.
- Legal services or licensing to secure necessary intellectual property to further develop the technology.
- Market research, business plan development, and cost-performance modeling.



Technology Transfer Expenditures: Technology Demonstration and Deployment

The goal is to ensure the technological learning that resulted from the demonstration(s) is captured and disseminated to the range of professions that will be responsible for future deployments of this technology or similar technologies.

Eligible Activities:

- All activities outlined for applied research and development

Required Activities:

- Conduct and submit a project case study documenting the planning, construction, commissioning, and operation of the technology or system being demonstrated.
- Present the case study to the Technical Advisory Committee



Technology Transfer Expenditures: Market Facilitation

The goal is to ensure the learning that resulted from this project is captured and disseminated so that similar efforts build on the lessons learned.

Required Activities:

- Conduct and submit a project case study documenting the planning, construction, commissioning, and operation of the technology or system being demonstrated.
- Present the case study to the Technical Advisory Committee



Submitting an Application

Electronic Submission

- Preferred method of Delivery is the Energy Commission Grant Solicitation System, available at: <https://gss.energy.ca.gov/>
- Electronic files must be in Microsoft XP (.doc format) and Excel Office Suite formats, unless originally provided in solicitation in another format.
- Attachments requiring signatures should be scanned and submitted in PDF format.
- Complete Budget Forms (Attachment 7) must be in Excel format.
- First time users must register as a new user to access system.
- Instructions on how to register and submit an application:
https://www.energy.ca.gov/sites/default/files/2019-05/GSS_How_to_Apply.pptx



Stage One – Administrative Screening

Criteria are evaluated on a pass/fail basis.

Applicants must pass all screening criteria to be considered for Stage Two.

Example Reasons for Failing Screening

- The application was not submitted by the specified due date and time.
- The requested funding is outside of the specified minimum/maximum range.
- The project completion date is beyond the specified agreement end date.
- The Match Commitment Letters do not confirm the match required.
- The application contains confidential material.



Stage Two - Technical Scoring

Scores based on these elements:

Applicant Past Performance with Energy Commission

Budget and Cost-Effectiveness

Technical Merit and Need

CEC Funds Spent in California

Technical Approach

Ratio of Direct Labor to Indirect Costs

Impacts and Benefits for California IOU Ratepayers

Team Qualifications, Capabilities, and Resources

Additional Match Funds (bonus points)

Disadvantaged & Low-Income Communities (bonus points)



Technical Scoring Scale

% of Possible Points	Interpretation	Explanation for Percentage Points
40-60%	Inadequate	Response addresses the requirements being scored, but there are one or more omissions, flaws, or defects or the requirements are addressed in such a limited way that it results in a low degree of confidence in the proposed solution.
70%	Adequate	Response adequately addresses the requirements being scored. Any omission(s), flaw(s), or defect(s) are inconsequential and acceptable.
75%	Between Adequate and Good	Response better than adequately addresses the requirements being scored. Any omission(s), flaw(s), or defect(s) are inconsequential and acceptable.
80%	Good	Response fully addresses the requirements being scored with a good degree of confidence in the applicant's response or proposed solution. No identified omission(s), flaw(s), or defect(s). Any identified weaknesses are minimal, inconsequential, and acceptable.
85%	Between Good and Excellent	Response fully addresses the requirements being scored with a better than good degree of confidence in the applicant's response or proposed solution. No identified omission(s), flaw(s), or defect(s). Any identified weaknesses are minimal, inconsequential, and acceptable.
90%	Excellent	Response fully addresses the requirements being scored with a high degree of confidence in the applicant's response or proposed solution. Applicant offers one or more enhancing features, methods or approaches exceeding basic expectations.
95%	Between Excellent and Exceptional	Response fully addresses the requirements being scored with a better than excellent degree of confidence in the applicant's response or proposed solution. Applicant offers one or more enhancing features, methods or approaches exceeding basic expectations.
100%	Exceptional	All requirements 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.



Key Dates

Activity	BRIDGE 2020	RAMP 2020
Deadline for Written Questions	August 07, 2020 by 5:00 p.m.	
Anticipated Distribution of Questions & Answers	Week of August 31, 2020	
Deadline to Submit Applications	October 09, 2020 by 5:00 p.m.*	October 30, 2020 by 5:00 p.m.

* This date is for Round 1 of application submissions.



Written Questions & Answers

Please send all related questions in electronic form to:

BRIDGE – Angela Hockaday
Commission Agreement Officer
Angela.Hockaday@energy.ca.gov
1516 Ninth Street, MS-18
Sacramento, CA 95814

RAMP – Crystal Presley-Willis
Commission Agreement Officer
Crystal.Presley-Willis@energy.ca.gov
1516 Ninth Street, MS-18
Sacramento, CA 95814

Deadline to submit questions: **August 7, 2020 by 5:00pm**



Questions & Comments

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3 ways to comment

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