**Pre-Application Workshop Questions and Answers - Updated**

GFO-23-317 – Energy Storage Innovations to Support Grid Reliability

[~~August 8, 2024~~] **August 15, 2024**

Disclaimer

The following answers are based on California Energy Commission (CEC) staff’s interpretation of the questions received. It is the Applicant’s responsibility to review the purpose of the solicitation and to determine whether or not their proposed project is eligible for funding by reviewing the Eligibility Requirements within the solicitation. The CEC cannot give advice as to whether or not a particular project is eligible for funding, because not all proposal details are known.

# General/Administrative Questions

1. **If the total award is $10M and the match share is 25% does this mean the recipient actually receives $10M in reimbursement from the CEC, or do they receive $7.5M (less the match contribution) in reimbursement funds from the CEC or do they have a total of 12.5M for the project, $10M in CEC reimbursement and $2.5M in match funds?**

The total award is defined as the total amount the CEC will reimburse, so if the total award is $10 million, the recipient will receive $10 million in reimbursement from the CEC and will contribute $2.5 million in match funding in support of the project.

1. **Can an applicant apply for both Group 1 and Group 2 under this solicitation?**

Yes, an applicant can apply for both Group 1 and Group 2 *if the applications are for two distinct projects.* Applicants may submit multiple applications, though each application must address only one of the project groups identified above. If an applicant submits multiple applications that address the same project group, each application must be for a distinct project (i.e., no overlap with respect to the technical tasks described in the Scope of Work).

From Page 3 of the Solicitation Manual: “Applicants may submit multiple applications, though each application must address only one of the project groups identified above. If an applicant submits multiple applications that address the same project group, each application must be for a distinct project (i.e., no overlap with respect to the technical tasks described in the Scope of Work).”

1. **I'd like to confirm that one business entity is eligible to submit both a group 1 and group 2 application for different storage technologies at different technology readiness levels. Based on the application screening criteria on page 41, this appears to be the case. If so, would receiving both awards be possible, or is a business entity limited to one award?**

Yes, one business entity, or applicant, is eligible to submit applications for both Group 1 and Group 2, however, each application must be for a distinct project. It is possible for one business entity to receive both awards.

Please refer to Page 3 of the Solicitation Manual: “Applicants may submit multiple applications, though each application must address only one of the project groups identified above. If an applicant submits multiple applications that address the same project group, each application must be for a distinct project (i.e., no overlap with respect to the technical tasks described in the Scope of Work).”

1. **Are in-kind match funds reimbursed differently than cash match funds by the CEC?**

Match funds, both cash and in-kind (non-cash), are not reimbursed by the CEC. Match funds are contributions provided by the applicant, subrecipients, or other parties. The project recipient will be required to document and support match funds in the same way they document and support CEC reimbursable expenses.

1. **If an applicant is applying for multiple CEC grants for the same project, can match funds be used more than one time? For example, if we apply for 3 different grants for one project, and the total match share requirement is $2.5M for each grant, can we use the same $2.5M for each grant application if it's all going to the same project? Or do we need $2.5M x 3 = $7.5M in total match funds? Does this change if the match is cash versus in-kind?**

Match funds are reserved for the proposed project and cannot be used for more than one project. CEC funding cannot be counted as match funding towards another CEC project. Using the included example, the recipient would need $7.5M in total match, as each individual grant expressly requires $2.5M in match. No, this does not change if the match is cash versus in-kind.

1. **Can the recipient decide what type of match funding is available at different periods during the project agreement? For example, if the grant requires $2.5M in match funding. The recipient has $1M in equipment (in-kind) match and $1.5M in cash match funding. Can the recipient place the equipment match in the beginning of the Agreement period and the cash match later during the Agreement period? Does the timing matter or is the CEC flexible so long as the total match requirement is satisfied?**

The recipient can account for and invoice their match funding sources at any time during the agreement period provided the total match is consistent with the match pledged in the application and all match requirements are satisfied.

1. **If equipment is purchased by the recipient and those funds are reimbursed by the CEC, are there any restrictions on the recipient using that equipment to secure additional 3rd party financing that is required to construct the project?**

Yes, there are restrictions. The EPIC Standard Terms & Conditions, at section 14, Equipment, provide:

“As between the Recipient and CEC, title to equipment acquired by the Recipient with grant funds will vest in the Recipient. The Recipient may use the equipment in the project or program for which it was acquired as long as needed, regardless of whether the project or program continues to be supported by grant funds. However, the Recipient may not sell, lease, encumber the property (i.e., place a legal burden on the property such as a lien), or even transfer possession of it during the Agreement term without the CAM’s prior written approval.”

Thus, CEC would have to approve of using equipment purchased with CEC funds to secure 3rd party financing.

1. **Is July 29th the last date I can email you questions about this GFO?**

The last date to submit technical questions about the solicitation was July 17, 2024 at 5:00 p.m. Applicants can submit administrative questions to the Commission Agreement Officer, Enrico.Palo@energy.ca.gov, until the application deadline.

1. **Do all partner entities need to be CA-based? Aside from the % of funds spent in CA, is there any additional benefit to partnering with a UC vs. with NREL (Colorado based)?**

Prime Recipients, sub-recipients, and project partners do not need to be based in California, but they do need to be registered and in good standing with the California Secretary of State (sos.ca.gov). There is no preference to partnering with a University of California institution versus an out-of-state national lab (ie. NREL), other than the percentage of funds spent in California.

1. **Are California IOU's eligible to participate in the team of these projects, in the form of subrecipient, cost share contributor, and/or site host?**

Yes. IOUs are eligible to participate as project partners or subrecipients, cost share contributors, or site hosts.

1. **For equipment purchases using CEC funds, are those restricted to CA only?**

Equipment purchases using CEC funds are not restricted to California. However, purchasing equipment from outside of CA with CEC funds would lower the overall percentage of CEC funds spent in CA and could result in a lower score under CEC Funds Spent in California. Recipients are not allowed to spend CEC funds outside of the United States; however, foreign-made components/equipment can be purchased through a US based supplier/importer.

See page 33 of the solicitation manual: “The budget must NOT identify that CEC funds will be spent outside of the United States or for out-of-country travel. However, match funds may cover these costs if there are no legal restrictions.”

1. **Are there any specific restrictions on funding equipment purchases - in particular country of origin? For example, could grant funds be used to purchase needed equipment or components for the project from Chinese manufacturers?**

Recipients are not allowed to spend CEC funds outside of the United States. There is no restriction on buying equipment or components from Chinese or other foreign manufacturers provided those products are legal to purchase under US law and are purchased through a US based supplier/importer. Equipment or components can be bought from any country if the purchase and goods are legal under US law and are not from countries under sanction (for example, Russia, North Korea, and Iran). Goods manufactured in the US in general, and California in particular, are preferred.

See Page 33 of the solicitation manual: “The budget must NOT identify that CEC funds will be spent outside of the United States or for out-of-country travel. However, match funds may cover these costs if there are no legal restrictions.”

1. **I have a question on the mechanics of cost reimbursement for project awards. The energy storage technology provider would be a subrecipient on our project proposal. If awarded, they would incur significant costs (> $4M) to produce and install the storage system at the host site.**

**When the subrecipient submits their documentation & cost reimbursement invoice to the project, does CEC require that the prime recipient pay the subrecipient invoice in full before requesting reimbursement from the CEC? In this scenario, the prime applicant would likely need to establish a revolving credit line with a local bank to pay the high invoice amount.**

**Alternatively, if the subrecipient invoice, along with all proper documentation of costs expended, is enough for CEC to reimburse the project team, then it would simplify the mechanics of getting cost reimbursement to subrecipient(s), particularly for the hardware equipment that can exceed $4M.**

Recipients are permitted to invoice for CEC reimbursement once a cost is incurred (the recipient is legally obligated to pay). Recipients will be required to provide supporting documentation of the incurred costs and should pay all incurred costs within 14 calendar days of receiving CEC payment.

See Section 8: Payment of Funds in the [Standard EPIC Terms and Conditions](https://www.energy.ca.gov/sites/default/files/2024-02/EPIC_Grant_Ex_C_Standard_General_TCs_ECAMS_compliant_2023-11-29_ada.pdf).

1. **Will there be any feedback given between the go/no go decision in Phase 1 and Phase 2 application due date for specific areas that reviewers would like teams to address?**

No. Applicants will not receive feedback on their Phase 1 abstracts.

1. **Are entities allowed to be part of more than one proposal as long as they are only the prime applicant on one? For example, can an entity by a prime applicant on one proposal while also being a subrecipient on another proposal led by a different prime applicant?**

Yes. Entities are allowed to serve on more than one project team (as a prime or subrecipient) and should be prepared to carry out their proposed responsibilities for all awarded projects.

1. **If we only receive the answer to our question by July 29th, it barely leaves us enough time to begin our application if we are truly a fit. Is there any way to expedite the response to our question; it is critical to continuing our application work.**

The workshop held on July 8, 2024, served as the only opportunity to receive preliminary responses to questions in advance of the July 29th posting date.

1. **What are the requirements for a non-California based business to compete for these funds?**

Out of state applicants are eligible to apply; however, if successful they must be registered and in good standing with the CA Secretary of State prior to entering into an agreement with the CEC. For Group 2, demonstration sites must be located in CA IOU territory.

1. **This solicitation is open to all public and private entities. Just to make sure that I understand correctly, do eligible applicants include tribes/tribal organizations as well as academic institutions, such as universities? I noticed that the solicitation manual references tribal as well as University of California grant recipients throughout the manual.**

Tribes, tribal organizations, and academic institutions are all eligible to apply for this solicitation.

1. **Does the ownership structure of the company affect the award? For example, if the entity is a California corporation does the percentage of foreign ownership impact either the eligibility or the scoring?**

No, the ownership structure of the company will not affect the award. The company's percentage of foreign ownership does not affect eligibility or scoring, so long as they are registered and in good standing with the CA Secretary of State.

1. **We understand that projects under this GFO must fall within CPUC jurisdiction. Are exceptions made for tribal areas that administer their own utilities? We were interested in building a technology demonstration that would benefit a California tribal community that administers its own services (particularly water and broadband).**

Demonstration sites must fall within California electric investor-owned utility (IOU) territory. These IOUs are Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric. Water and broadband utilities do not affect demonstration site eligibility.

1. **We have a question of clarification about format requirements for the Phase 1 Pre-Application Project Abstract. We would like to know: 1) If the CEC has provided a template for applicants to follow? 2) If not, are there requirements on font-size, line spacing, margins, figure sizes, references? We looked at the Solicitation Manual and Attachment A for the pre-application abstract. While both are clear on page limits, and the questions that the abstract must address, they do not appear to provide further guidance on format. If there is another of the solicitations documents that we should be reviewing, please just point us to that. The reason we ask is that Federal government FOA typically provide specific guidance on these format requirements, as well as provide a template on which to base the application.**

CEC staff provided a template for the Phase 1 Pre-Application Abstract and recommend using the default formatting in that document to prepare your responses. However, there are no strict document format requirements aside from page limits.

1. **If our demonstration energy storage system is part of a microgrid and combined with solar, does CEC consider the solar portion a fundable item? If not and, say, the host site pays for the solar, could the cost of solar be considered cost-share?**

Solar cannot be purchased with CEC funds for this project, but it can be included in the project’s cost share (match funding). The solicitation manual has been updated to reflect this clarification.

1. **Do we need to be registered with the California Secretary of State before registering on the ECAMS portal website? Do we need to be registered before submitting a Phase 1 application?**

Applicants are encouraged to register with the California Secretary of State before applying, as all recipients must be registered and in good standing to enter into an agreement with the Energy Commission: <http://www.sos.ca.gov>. It is not required to do so before submitting a Phase 1 application.

1. **Do letters of support from past projects with Tribal Nations and Disadvantaged Communities count as Letters of Support or must they come from the proposed project partners?**

Letters of commitment or support are required from the proposed project partners and must be specific to the proposed project for the Phase 2 application. Additional letters of support from past projects may provide evidence of prior successful work but are not specifically required.

1. **Are letters of commitment necessary for an application with no subrecipients for applicants in Group 1?**

A letter of commitment is required from all match funding contributors including the prime applicant themselves. All applications, independent of group, must have at least one letter of commitment.

1. **Can Group 1 Funds be used in pursuit of a safety certification, for example, UL or NFPA?**

Yes. Group 1 funds may be used in pursuit of a safety certification if it is part of the proposed project.

1. **For match funding, we are planning to pay for some of the field installation and commissioning work. For field work covered by match funding, are we required to hire contractors registered to perform public works?**

No, contractors do not need to be registered to perform public works. Contractors need only to be registered with the CA Secretary of State and legally able to perform the work contracted for.

1. **We are still confirming a demonstration site aligned with CEC interest, but may not be able to confirm this before the Phase 1 deadline. Can the site be changed between Phase 1 and Phase 2? If so, can the site be changed to a DAC/LIC/Tribal site for a Phase 2 submission?**

Yes. The site can be changed between Phase 1 and Phase 2, as securing a demonstration site is not a requirement for Phase 1. The demonstration site can also be changed to a DAC/LIC/ Tribal site between Phase 1 and Phase 2.

1. **Is there any kind of consideration on the evaluation piece, especially in phase one, that we can suggest a few demonstration sites and then we can decide on the final one in phase two?**

The Phase 1 Abstract requires the applicant describe the proposed demonstration site; however, this site can be changed for the Phase 2 application. It is not required that the applicant include a finalized demonstration site in Phase 1 application materials, so long as the applicant describes a proposed site or location. The finalized demonstration site information must be included in the Phase 2 application due October 30, 2024.

1. **There is no budget information required as part of the pre-application submission materials or checklist, and budget information isn't part of the pre-application selection criteria. However, there is full budget information in ECAMS attached to this pre-application. Are we meant to provide that level of detail with the pre-application or is it a placeholder for the full application?**

Applicants do not need to provide budget information for the Phase 1 Abstract submission in ECAMS. Budget information will be required for the Phase 2 application.

1. **I have a suitable project with national lab and wondering if we can apply for this funding as a private -lab team.**

This solicitation is open to all public or private entities with the exception of publicly owned electric utilities. A project team consisting of a national lab and an industry partner would be eligible to apply for this GFO.

1. **Are all applications to GFOs publicly available after they are submitted or are only the winning applications made publicly available?**

All applications submitted may become publicly available following the posting of the Notice of Proposed Awards (NOPA) in accordance with the California Public Records Act.

See the confidentiality section on page 40 of the solicitation manual: “Though the entire evaluation process from receipt of applications up to the posting of the NOPA is confidential, all submitted documents will become publicly available records and property of the State after the CEC posts the NOPA or the solicitation is cancelled.”

1. **Can you also provide a transcript of the chat notes?**

The workshop recording and corresponding transcript are posted on the GFO workshop webpage: <https://www.energy.ca.gov/event/funding-workshop/2024-07/pre-application-workshop-gfo-23-317-energy-storage-innovations>.

The links posted in the chat are all found in the workshop presentation document: <https://www.energy.ca.gov/sites/default/files/2024-07/GFO-23-317_Pre-Application_Workshop_Presentation_ada.pdf.>

1. **Would CEC funding be administered as a cost reimbursement? If so, how many months should applicants budget between cost expenditure and receiving reimbursement via an awarded grant?**

Yes, CEC funding is administered as cost reimbursement for invoices submitted by the recipient to the CEC. Once invoices are received by the CEC, they will be reviewed for approval within 30 days. Once the invoice is approved, it will be sent to the State Controller’s Office, which has 15 days to send a check to the recipient.

1. **Are letters of support/commitment required for Phase 1 Abstract evaluation? Can one organization submit two proposals, one under Group 1 and another under Group 2**

For the Phase 1 Abstract evaluation, at least one letter of commitment or support is required. The applicant can include a letter of support from project partners, end users, or other stakeholders.

One organization can submit multiple proposals as long as they are for separate and distinct projects.

1. **Will a log of the Q&A here be made available?**

Yes. All questions received during the workshop and in writing have been captured in this document.

1. **Is the additional cost match (5 points for in-kind matching) only scored if the first 5 points for cash-based cost match is met?**

These two criteria are evaluated and scored independently. If a recipient provides only non-cash match and receives no points for Criteria 8a, the application can still receive points for criteria 8b if they provide a larger amount of match funding than the minimum requirement.

1. **Is there a profit cap for Direct Labor for the cost buildup?**

Prime recipients are not allowed to claim profit on awarded grants. Subrecipients are allowed to claim up to 10% profit on CEC funds only.

1. **Would CEC have any resources to connect IOUs to potential applicants for demonstration sites?**

The applicant can register on the Empower Innovation website for this solicitation to seek project partners: [https://www.empowerinnovation.net/en/custom/funding/view/43393.](https://www.empowerinnovation.net/en/custom/funding/view/43393)

1. **Are there different restrictions on funding spent in CA/out of CA, from either CEC funds or cost-match funds?**

Please see Section I.K. and Section I.L in the solicitation manual for more information about match funding and funds spent in CA, respectively. Only CEC funds may count towards funds spent in California.

1. **Is there a down selection of candidate projects between Phase 1 and Phase 2?**

There could be a down selection of projects between Phase 1 and Phase 2 if projects do not pass the Phase 1 abstract evaluation. However, it is possible for all projects to pass Phase 1 and move on to Phase 2.

1. **Is combining two separate grant awards allowable to fund distinct (completely separate) budgets and costs within the same overall system and/or serving overlapping loads allowable under these [LDES and EPIC] programs? To be clear, costs would be clearly delineated and separately charged between the two grants with the match for each grant coming from different non-State funding sources that do not overlap.**

The combining of grant funds for one project is not allowable. An applicant that is already a grantee of an LDES award can apply for an award under GFO-23-317, but the funds from the two awards cannot be combined. If the two awards are kept entirely separate (no mingling of moneys, separate nonoverlapping match, separate and distinct scopes of work, etc.) and the result is that the community is better served, that would be permissible.

1. **Our company is a WA-based US company, and our partner is an IL-based US company. Are there any extra requirements for us to apply for this GFO? Since we are from other states, will CEC provide some resource helping us to find demonstration partners in CA?**

The applicant must be registered and be in good standing with the California Secretary of State (<https://www.sos.ca.gov/>).

Companies looking for project partners should register on the Empower Innovation website for this solicitation: <https://www.empowerinnovation.net/en/custom/funding/view/43393>. More detailed instructions on how to register were discussed during the Pre-Application Workshop, which is posted to the solicitation page.

1. **Are out of state companies eligible to apply to this solicitation?**

Yes. Out of state companies are eligible to apply to this solicitation provided they meet all the solicitation requirements, including registering and being in good standing with the California Secretary of State.

1. **There is a blank space asking for "CEC Share Value" and "Match Share Value" in each tab. Can you stipulate what is supposed to go here for each tab, specifically under "Subrecipients & Vendors"? Do you want a dollar amount here, a percentage, etc?**

The CEC share value is the amount of CEC reimbursable funding in dollars allocated to a specific budget category. The Match Share Value is the amount of match funding in dollars the recipient is allocating towards a budget category. See Section I.K. in the solicitation manual for more information on match funding.

1. **Is there a minimum or maximum number of commitment or support letters that must be submitted with the Phase 1 abstract submission?**

Applicants must submit at least one letter of commitment or support for the Phase 1 abstract submission.

1. **If we are chosen to advance to Phase 2, do we resubmit support and commitment letters in Phase 2, and can the letters be revised or substituted at that time?**

Yes. If a recipient advances to Phase 2, they should resubmit all support or commitment letters with the Phase 2 application. These letters can be revised or substituted at that time.

1. **A commitment letter binds the author to financially or in-kind contribute to the project, while a support letter simply indicates they will benefit from or plan to support the project, correct?**

Yes, this is correct.

1. **If we tentatively anticipate a vendor, subaward, or other collaborator, but are not completely certain if they will be involved in the project, do we need a letter of support / commitment with the Phase I abstract?**

No. At least one letter of support or commitment is required for the Phase 1 abstract submission. If the vendor, subrecipient, or other collaborator is not confirmed, the recipient can include a letter or letters from a different entity.

1. **Do we include the cover page (Attachment 9) for each letter submitted with the Abstract?**

Yes. As described in Section 3 of Attachment 9, applicants should include the chart as a cover page for each letter of commitment or support submitted.

1. **When you ask for a pilot site address in the ECAMS system software, what is your expectation, given we have multiple candidates? Leave it blank, or give an address - but it might change for Phase 2?**

Applicants can leave the site address blank if unknown. Applicants should describe their potential sites in the Abstract.

1. **The Phase 1 application guidance does not state a detailed budget has to be provided for Phase 1, but the ECAMS portal is asking for an online submission of budget details - do we fill this out with high level totals, or is this supposed to be populated with all the Phase 2 detail?**

No budget information is required in ECAMS or the application materials for Phase 1. This information should be provided for Phase 2.

1. **Is [the total amount requested on the first page of ECAMS] the amount requested from the CEC or the total project amount including the matching contribution?**

The total amount requested on the first page of ECAMS is the amount of CEC reimbursable funding requested, not including the match contribution.

# Technical Questions

1. **Given the highlighted section below, we are pairing [our Thermal Energy Storage Battery] with renewable generation in large industrial refrigeration systems. Typical load on these buildings is >1MW which we can optimize and shift large amounts of load depending on grid conditions. Is this considered a "Hybrid storage resource" and would this solution qualify for this GFO?**

**“Group 2 projects must demonstrate “electricity in – electricity out” storage systems with a power output of 100 kW or greater. Projects that consist of multiple individual storage systems are eligible if they add up to at least 100 kW and still demonstrate stacking of multiple services using the same system. *Hybrid storage resources paired with renewable generation and sharing the same point of interconnection are eligible*.”**

Yes, this is considered a hybrid storage resource since it includes both generation and storage. Thermal energy storage is an eligible technology as long as there is electricity output of at least 100kW. A thermal energy storage system that is paired with renewable generation such as solar or wind is eligible if it meets the other requirements of the solicitation (TRL, at least 2 grid services provided, etc.)

1. **Would V2X, EVSE and/or Charging Management Software (CMS) projects be eligible under the Group 2?**

Vehicle-to-grid or vehicle-to-building technologies are not eligible for this solicitation. Energy storage demonstrations in Group 2 must include stationary energy storage that participates in at least two grid services. Electric vehicle supply equipment and charging management software projects are not eligible if they are being used in EV or mobility applications.

1. **For a phase 2 application, what is the expected percentage of funds used directly on installation and demonstration versus funds used toward technology improvement that would accelerate reaching the given LCOS target or otherwise improving safety or reliability of the system? Are there any categories of technology improvements CEC would not fund?**

The percentage of funds used for installation versus technology improvement is at the applicant’s discretion. Applicants are encouraged to budget project expenses based on their project’s needs to meet the goals of the solicitation. The energy storage technology should be at a TRL of 6 or 7 in order to be eligible for Group 2 demonstration projects. Any technology improvements related to the demonstration of the energy storage system are considered eligible.

1. **For energy storage technologies to qualify for Group 2, do the proposed technologies need to be at the minimum specified TRL level at the time of application, or is permissible to show that the energy storage technology will achieve the required TRL level either at the start of the agreement with the CEC or achieved at the end of the project demonstration?**

The technology for the proposed project must be at the specified TRL level, 6 or 7 for Group 2, at the time of application.

1. **For Group 1 - TRL of 3,4,5 is defined at which level of the technology? for e.g. in battery tech, is this at the cell, pack or system level?**

The level of technology depends on the innovation the applicant is trying to commercialize. If the technology innovation is at the cell level and the commercial end product is a cell or cell component, then TRL should be assessed based on the cell. If the innovation and commercialized product is an energy storage system, then the TRL should be assessed at the system level.

1. **How is LCOS calculated? As the methodology is different for different ESS technologies, can we define our own method based on DOE program guidelines?**

The calculation method for LCOS can be chosen by the applicant, but a useful guide for calculating LCOS can be found in the DOE Energy Storage Grand Challenge Cost and Performance Assessment: (<https://www.energy.gov/sites/default/files/2022-09/2022%20Grid%20Energy%20Storage%20Technology%20Cost%20and%20Performance%20Assessment.pdf>)

The applicant should describe the assumptions, values, and calculations behind the LCOS reported.

1. **For Group 1, how do you want us to address the LCOS calculations? For example, if we have a battery project and the innovation is at the cell level - should we address the savings at the storage block level with LCOS calculated from capital cost and projected lifetime of the cells or do you expect estimates of the full LCOS of a full ESS site? Given that many of the assumptions needed for a full calculation will be unknown for Group 1 how will the LCOS calculations be evaluated?**

Since this solicitation is specifically interested in grid-related stationary storage, the LCOS should account for a full ESS system that could be installed on a site. For Group 1, applicants should make clear any assumptions, calculations, and values used in their ultimate estimation of LCOS.

1. I**n connection with [GFO-23-317], a target of the grant is the ability to lay a pathway to ultimately achieving an LCOS of >$50/MWh. The footnote to that target refers to a DOE paper containing LCOS analysis that we are familiar with. We are also familiar with the LCOS methodology used by Lazard in its published annual LCOS study. In each of these methodologies, there is an assumption of a charging cost. Are we correct in assuming that the grant target of <$50/MWh is net of any such charge costs? Typically, we would run our LCOS with a charging cost, but then report the LCOS figure both including and excluding the charging cost.**

[~~The LCOS calculation should take into account the charging cost of the system as this is a cost required to operate over the system’s lifetime.~~] **The LCOS target of $0.05/kWh, or $50/MWh, does not include the electricity charging cost of the storage system.**  Applicants are allowed to report LCOS with and without a charging cost and should clearly label the values as such.

1. **For Group 1 or Group 2 - Is there a recommended demonstration size? 1 kWh, 10 kWh, or 1 MWh? Would multiple units of a particular size also be considered while evaluating proposals?**

There is no recommended demonstration size. It is up to the applicant to determine the optimum size based on the grid use cases chosen and the cost-effectiveness of the CEC funds requested. Multiple energy storage units of a smaller size are eligible but must meet a total system size of at least 100kW.

1. **I’m reaching out on behalf of a California small business that develops a smart energy management platform that offers advanced storage and EV charging. Combining advanced grid energy storage and EV vehicle charging, the solution seemingly fits well with the requirements of Group 2 of the Energy Storage Innovations to Support Grid Reliability GFO. However, after watching the webinar, it remains unclear to us if we fit the call for two reasons:**

**We aren’t clear as to what “a non-innovative or non-unique use case” truly means. Does our use case seem sufficiently innovative/unique? We understand that there is an effort to de-emphasize vehicle technology for the sake of reducing overlap between various CEC efforts. Does this preclude us from award?**

A smart energy management platform that provides grid services is eligible, even if it is also used for EV charging, provided the other Group 2 requirements are met.

It is the applicant’s responsibility to describe how their demonstration’s use cases, site location, or technology type represent an innovative combination.

1. **Are Group 1 proposals allowed to address more than one energy storage technology in the same proposal or should a proposal focus solely on one type of energy storage technology?**

Group 1 proposals could target innovations that might ultimately be applicable to multiple energy storage technologies. Multiple components of the system can be researched or advanced simultaneously as part of the same project.

1. **Are Group 1 proposals allowed to work with more than one energy storage manufacturer in the same proposal to improve their technology if each of them are working on the same class of energy storage technology (i.e. two companies both focused on the same battery chemistry, for example)?**

Project applicants can work with more than one energy storage manufacturer as part of their project team. Applicants should clearly describe the role of each partner or sub-recipient in the full application.

1. **Can Group 2 projects be demonstrated in a lab environment or are they required to be demonstrated at a project site?**

Group 2 demonstrations must be demonstrated at a real-world project site and must provide grid services.

1. **Can CEC please define “conventional” use cases for Li-ion batteries? We believe several of the services described in Table 1 can already be “stacked” using conventional Li-ion technology. For example, would combining the “microgrid/islanding” use case and “voltage support” use case using Li-ion batteries be considered “conventional” under this grant solicitation?**

This depends on the project site, location, and other benefits; but in general, Li-ion batteries have already been commercially used for microgrid/islanding capability and voltage support/ ancillary services. It is up to the applicant to identify how their demonstration’s use cases and its benefits are innovative.

1. **Would creating solutions for a grid-constrained site be considered a “conventional” use case?**

Energy storage to alleviate grid congestion at the transmission or distribution level could be considered an innovative use case.

1. **Looking at Table 1 in the solicitation manual, the grant requires applicants to “stack” at least two services using the same storage asset. Could you please clarify if you mean combining any two of the gray checkboxes in Table 1? Or do you mean, for example, combining all of the gray checkboxes across at least two of the rows in the table?**

In Table 1, each gray checkbox is an eligible grid service. The proposed project must provide at least two grid services with the energy storage asset.

1. **Can CEC please enumerate or define “commercially competitive” energy storage technologies? For example, are Na-ion batteries considered novel.**

Commercially competitive energy storage technologies include those already widely available on the market, such as Li-ion batteries, pumped hydroelectric energy storage, or lead-acid batteries. Sodium-ion batteries would be considered an emerging chemistry.

1. **Does the grant require a novel use-case and a non-Li battery chemistry? Would demonstrating novel use cases with Li-Ion batteries be sufficient?**

The grant does not require demonstrations to use both a non-Li battery chemistry energy storage and a novel use-case. Projects demonstrating innovative or novel use cases with a Li-ion battery system are eligible.

1. **Would an application be eligible if it proposed a full-scale commercial project 100+MW as the demonstration after the necessary TRL is moved from 6-7 to 9, provided the commercial project is fully financed (outside the CEC award), and completed (including permitting, construction and 12-month operation is completed within the award period of 2025-2029?**

The solicitation requirement of at least 100kW is a minimum power requirement given by CAISO’s interconnection rules. Applicants can propose systems larger that 100kW and may receive preference in the scoring process accordingly. The requirements of this grant include building a demonstration and testing it for 12 months within the agreement term, so applicants must include these tasks in their CEC application and the project Scope of Work. Outside funding can be included as match funding for the CEC project. All of the project’s match funding must be secured and committed by the Phase 2 application deadline. The TRL of the technology must be 6 or 7 at the time of application for the CEC award.

1. **How do you define the roundtrip efficiency? Is it specific for the DC-DC (such as solar to battery storage), or does it also cover the power conversion to and from the AC grid?**

The roundtrip efficiency is the ratio of energy discharged from a specific state of charge to the energy received to return to that state of charge at the system level before the inverter, if applicable. Staff has amended the language around roundtrip efficiency in the solicitation manual to provide this clarification.

1. **We work with repurposed Li-ion batteries. We understood from the workshop that there is no reason to think demonstrations using repurposed EV batteries would be excluded from this opportunity. But the GFO also states, "Commercial Li-ion batteries deployed with conventional use cases, such as behind-the-meter customer storage are discouraged." This is confusing to us because there are behind-the-meter use cases for both commercial and repurposed Li-ion batteries that satisfy many requirements in Table 1 of the GFO. Would we be discouraged from using repurposed batteries in any behind-the-meter application?**

The solicitation is referring to off-the-shelf, new commercial Li-ion batteries. Repurposed end-of-life EV batteries can be eligible if the applicant can demonstrate that the combination of grid use cases, storage technology, and project location is innovative.

1. **Would a novel, pre-commercial energy-storage solution that repurposes Li-ion batteries from EVs qualify as a Group 2 project?**

Yes, energy storage solutions that repurpose end of life EV batteries are eligible for Group 2 provided they meet the other Group 2 requirements.

1. **The GFO states that Group 2 projects must demonstrate “electricity in – electricity out” storage systems with a power output of 100 kW or greater." Does this require that the host site actually have a 100kW of peak demand? For instance, would a project be considered ineligible if the site never has an annual peak demand over 80 kW?**

The 100kW minimum requirement aligns with FERC and CAISO’s minimum storage size requirement to be able to participate in the CAISO markets. Staff encourages applicants to site their demonstration somewhere with adequate peak demand to meet the 100kW minimum. This project is eligible but may score lower than a demonstration that serves a site’s actual load.

<https://www.caiso.com/Documents/BusinessRequirementsSpecificationRedlined-FERCOrder841Non-GeneratorResourceModel.pdf>

1. **[For Group 2 projects] Can the [non-lithium] battery be used as a UPS (Uninterrupted Power Source)/ back up power for the demonstration site? Or does the battery have to be readily available to the utility at all times? If YES to the above, and the battery can be used as a UPS, how much of that energy is available to the site recipient?**

Yes, a non-Li battery can be used as backup power for the demonstration site and does not need to be readily available to the utility at all times. The demonstration must meet the other requirements of the solicitation, including providing at least two grid services (backup power counts as one) and being operational for at least 12 months.

The project team should decide the proportion of energy going to each grid use case that maximizes customer and grid benefits.

1. **Kindly share the parameters of the demand flexibility (year-round) within the following parameters: How many maximum duration (hours /event) will the utility use the battery per day? What is the maximum daily frequency (hours /event)? What is the minimum hours between events?**

It is up to the applicant to decide these parameters and their frequency of market participation to best meet the needs of their project.

1. **What percentage does the BESS need to hit to be considered reaching the target demand flexibility stated above? ie. the BESS needs to meet the demand of the grid 85% of the time for the project to be considered successful.**

Project success is measured on holistic benefits to the grid and/or customer site, so there is no specific target. Applicants should identify their target metrics and why they are reasonable in the proposal.

1. **What is the nominated capacity percentage for all demand response events, as measured at the start of the event? ie. the BESS is operating at 85% of the energy efficiency that it was nominated for the project to be considered successful. Will the demo site/end-user be signing a PPA? Are applicants encouraged or required to collaborate with other organizations, a GC or stakeholders on their projects? Can we apply as a Technology procurement firm partnered with a battery manufacturer or do we need a GC as well?**

The project team must determine the required capacity for their system to provide power in demand response events. In addition, the recipient should determine whether they need to sign a PPA with their demonstration site. Applicants can include other organizations, stakeholders, or contractors in their project as partners or subrecipients. It is up to the applicant how they structure their team and budget, so a technology procurement firm can apply on its own or with other project partners.

1. **Our technology has been installed and proven under TRL levels 9 and 10 in many projects across Australia and a few in the USA. Does a new project in California qualify for the grant and count as falling within the requested TRL of 6-7? (The technology will not be presently installed at the proposed site)**

No. Technologies must fall into the TRLs of 6 or 7 at the time of application in order to be eligible for Group 2 demonstration funding.

1. **Is the recipient signing a tolling agreement or a net metering agreement? What are the cost parameters?**

It is up to the recipient to determine the agreements they must sign in order to provide the grid services they propose. If projects involve customer-sited solar and storage, for example, then the recipient would likely enroll in a NEM tariff.

1. **Is there an expectation of final TRL reached over the course of the proposed project? Will an emphasis be placed on projects that move all the way to TRL 8 or 9?**

There is not an expectation that technologies move to a specific final TRL, though the intent of the grant funding is to support efforts that move the TRL further towards commercialization. Applicants should describe both the current and target TRL of the technology in the proposal.

1. **Are applicants that provide a materials or component manufacturing innovation in Group 1 required or encouraged to show existing partnerships that would enable the innovation to reach the ESS market (i.e. cell/pack manufacturers)? Would these fall under commitment letters or some other form factor?**

Existing partnerships to enable commercialization are not required but could show a high level of market readiness. These can be included as letters of commitment or support.

1. **We are developing a system integration, control, and management solution that enable phase change material (PCM) based thermal energy storage product to be easily deployed in buildings. Our solution will significantly reduce design and commissioning costs of PCM thermal energy storage systems, while optimizing the system to support grid operation and reducing customers’ energy costs. We do not make PCM thermal energy storage products but aim to provide an integration framework to enable different types PCM thermal energy storage products to be easily incorporated into building heating, cooling, and water heating systems. Does a project demonstrating this system integration solution eligible for group 1 funding?**

Yes. A system integration, control, and management technology is eligible for Group 1.

1. **Geological thermal energy storage (GeoTES) is a process whereby solar heat is collected and circulated through a sandstone reservoir to store said heat, and later, after thermal maturation of the reservoir, collect this heat for the production of electric power. GeoTES is a clean, zero emission power generation process. However, the fluid circulation portion of the process requires power. For example, for a 10MW peaking GeoTES power plant (producing ~60MWh of net electric energy), about 15MWh of electric energy will be required during daylight hours, for the harvesting and depositing of solar heat. If a GeoTES plant were to use surplus PV power for this heat harvest/deposit activity, whereby a 15MWh of daytime energy absorption of grid-fed energy would deliver ~60MWh of energy back to the grid during nighttime hours, would such a net delivery of energy (~45MWh) be an acceptable process to qualify for this subject FOA, or will such a proposal be rejected out of hand?**

An energy storage facility can source the necessary power required to operate from the grid or co-located generation resources like wind or solar power.

1. **Is solid state Li-metal battery with recyclable design eligible technology?**

If the commercial end use of the solid-state Li-metal battery is stationary storage, then the technology is eligible. If the end use of these batteries is high performance vehicles, aviation, mobility, etc., then this technology would not be eligible. The applicant must describe in the application how their technology results in an end use of stationary energy storage.

1. **Is vehicle-to-grid (V2G) eligible under Group 2?**

No, vehicle-to-grid technologies are not eligible for this solicitation.

1. **What are considered non-innovative or non-unique use cases for Group 2?**

Non-innovative or non-unique use cases are considered use cases where specific types of energy storage technologies are already a commercially competitive solution in California. It will be up to the applicant to describe the innovation or uniqueness of their project’s combination of energy storage technology, grid service use cases, and location.

1. **Under Group 2, the materials indicate that chemical storage technologies are not eligible. Does that only refer to hydrogen, or all forms of chemical storage (e.g. ammonia)? If all chemical storage is not eligible, why?**

Chemical energy storage is eligible for this solicitation if it does not use hydrogen or hydrogen carriers in fuel cell, linear generator, or combustion applications. The solicitation manual has been updated to reflect this change.

1. **We have a mechanical (elastic potential) energy storage application, which adds a chemical element via adsorption or bonding. Does that added chemical component disqualify us? If not, if that added gas were hydrogen, as opposed to a different element, does that disqualify us.**

Chemical energy storage is eligible for this solicitation if it does not use hydrogen or hydrogen carriers in fuel cell, linear generator, or combustion applications. The solicitation manual has been updated to reflect this change.

1. **Would commercially available Li-ion energy storage qualify for Group 2 under certain use cases? If so, what would be considered an innovative combination of at least 2 use cases?**

Yes, commercial Li-ion could qualify for this solicitation with certain use cases. It will be up to the applicant to describe how their grid use cases for Group 2 demonstration projects are innovative or unique.

1. **The criteria is for a round-trip efficiency of >50% for DC:DC. Our technology stores and generates power in AC. Can we just report the AC:AC roundtrip efficiency?**

Yes. If the technology stores and supplies AC power, reporting the AC efficiency of the system is acceptable.

1. **Are zinc-ion batteries with a target of $35/kWh for stationary storage at TRL4 eligible? Do I need a lab in CA now?**

Zinc-ion batteries are an eligible technology for this solicitation. $35/kWh appears to be a system cost based on the capacity of the energy storage and system capital cost. For this solicitation, applicants must convert this cost into a projected levelized cost over the whole lifetime of the energy storage system.

A useful guide for calculating LCOS can be found at this link: <https://www.energy.gov/sites/default/files/2022-09/2022%20Grid%20Energy%20Storage%20Technology%20Cost%20and%20Performance%20Assessment.pdf>. Stationary storage at a TRL of 4 is eligible for Group 1 funding.

Lab work does not necessarily need to be completed in CA, though it would make it easier to reach a higher percentage of funds spent in CA, which will score more favorably in the scoring process.

1. **What criteria do you plan to use to distinguish between batteries for storage and batteries for EVs? Both are batteries, so is it cost, duration, safety, or other factors?**

The applicant must describe the end use for their battery or energy storage technology. Applicants should highlight how their technology innovation benefits a stationary storage use case.

1. **Please comment on the solicitation interest in residential vs commercial vs industrial applications.**

Applicants can propose demonstrations for any of those end-use applications. There is no preference for the type of end-use application but selection of the end-use must meet the requirements of the solicitation. Applicants should describe how their demonstration is an innovative combination of technology type, use case, and location and the corresponding system benefits.

1. **Where can a developer get information on the value of grid distribution infrastructure deferral and/or existing bottlenecks?**

It is up to the applicant to source the appropriate resources necessary to support their proposed project. It may be useful to reach out to the utility in the demonstration site area for more information on existing bottlenecks.

1. **The solicitation for Group 1 states that the technology should improve cost, performance, safety, and supply chain diversification over existing technologies. Does the CEC have benchmark KPIs for each metric for existing technologies?**

There is no specific benchmark KPI for existing technologies that the CEC will use in evaluating applications. The applicant should make reasonable estimates of their technology’s improvements over existing technologies and provide any calculations or assumptions made to justify these estimates. The Energy Storage Grand Challenges report from Pacific Northwest National Laboratory provides recent estimates for cost and performance metrics for a number of energy storage technologies and may be a useful resource: <https://www.pnnl.gov/sites/default/files/media/file/ESGC%20Cost%20Performance%20Report%202022%20PNNL-33283.pdf>

1. **For a Group 2 applications, what is the expectation (percentagewise) in terms of $s spent installing/operating the demonstration vs. $s spent testing improvements in LCOS, safety, and new grid services?**

There is no expectation for how much should be spent on building the demonstration vs. improving the product functionality.

1. **Our solution benefits grid reliability but also energy reliability for the buildings. Should we focus on the grid reliability alone in our application or will it benefit if we also provide reliability of power availability while grid fails?**

Applicants should describe allthe benefits provided by their system, including but not limited to, resiliency, environmental impact, greenhouse gas reduction, and community benefits.

1. **Can you tell us more about the calendar life question? You mentioned 10 years.**

One target performance metric for this solicitation is a calendar life of the energy storage system of at least 10 years. This metric is based on an average calendar life value of incumbent Li-ion battery energy storage systems. Applicants for Group 2 funding category should describe in their application how their proposed innovation, technology, or project will enable a pathway to a 10-year calendar life for their energy storage system. The demonstration system for this project does not need to be operational for 10 years. The demonstration system is required to be operational for 1 year during the agreement term in order to meet the solicitation requirements.

1. **For Group 2 thermal energy storage projects, can projects get around the no heat output requirement if they can show that the quality of the heat produced could be supplied to a retrofitted gas or steam turbine (while still meeting RTE requirements)?**

Group 2 demonstration projects must deliver electricity and participate in at least two grid services. Thermal energy storage demonstrations must result in electricity output to be eligible for this solicitation.

1. **We do battery swapping services, and we also manufacture battery swapping systems for light and heavy-duty vehicles. I understand that there is this DOE methodology [for calculating LCOS], but when you start layering services, that gets a little bit complicated. So, for instance, with battery swapping, we have an existing battery swapping station, but we may need to develop the capabilities to actually deliver the grid services that are being sought as part of the CEC grant funding opportunity. So how do you actually calculate that when you have the entire station, but then you have the enabling technology that's layered on top of that?**

The LCOS should take into account the cost of the energy storage system, absent the cost of the rest of the vehicle swapping station infrastructure. In reporting the LCOS value, state any assumptions or estimates used in order to calculate this value.

1. **Would battery swapping stations with stationary storage be eligible under group two?**

If the stationary batteries at the swapping station provide at least two grid services and meet the other requirements of the solicitation, then that technology would be eligible.

1. **[Cost efficiency scoring factors] tend to privilege software solutions over hardware solutions. How are you dealing with that contradiction?**

The application is scored holistically to take into account all of the benefits of a project, not just the cost. In addition, project cost is not a specific scoring criterion, but it may factor into the Budget and Cost Effectiveness category. As a note, Group 2 of this solicitation is focused on energy storage demonstrations, so many of these projects will be innovations on the system hardware, not software.

1. **Is [match funding] going to be scored on some sort of an S curve? Unless [match scoring criteria] is designed properly, it incentivizes people who are already going to be doing the project to just ask for a little bit of bonus on top of a project that they're already going to perform and to commit while only requesting a small portion of the needed funds from CEC.**

Match funding is scored in two sub-categories. The first accounts for match funding committed as cash compared to in-kind funding. The second accounts for how much match funding is committed over the minimum match requirement. There are 5 possible points for the second category, so while it will help applicants to commit higher match amounts than the minimum, it is a smaller portion of the score than other categories, like Technical Merit, Technical Approach, or Impacts to CA Ratepayers.

Please refer to the match funding scoring criteria on page 56 of the solicitation manual for information on scoring.

1. **[In reference to Group 1] By supply chain sustainability, does that refer more specifically to the robustness of the supply chain in terms of security or robustness of the supply chain, or does that also include things like lifecycle, environmental impacts of the supply chain, or both?**

It can include both. Supply chain sustainability is a broad category that is meant to capture many types of benefits, including but not limited to diversification of materials, security of supply chain, environmental impact, and lifecycle emissions reductions.

1. **We're an energy storage provider [of second life batteries] and looking to partner with potential developers who may need our services.**

We recommend broad outreach and networking efforts including but not limited to going to the Empower Innovation website and registering as an energy storage supplier looking for a partner on this solicitation’s page: [https://www.empowerinnovation.net/en/custom/funding/view/43393"https://www.empowerinnovation.net/en/custom/funding/view/43393](https://www.empowerinnovation.net/en/custom/funding/view/43393%22https:/www.empowerinnovation.net/en/custom/funding/view/43393).