**Questions and Answers**

**GFO-24-305**

**Developing Next Generation, All Electric Heat Pumps Using Low Global Warming Potential Refrigerants**

**Energy Research and Development Division – Electric Program Investment Charge (EPIC) Program**

**Table of Contents**

[General/Administrative 3](#_Toc197365598)

[Match Funding 3](#_Toc197365599)

[Project Scope – All Groups 4](#_Toc197365600)

[Project Scope – Group 1 6](#_Toc197365601)

[Project Scope – Group 3 6](#_Toc197365602)

[Applicant Eligibility 7](#_Toc197365603)

**Disclaimer:** The following answers are based on the California Energy Commission (CEC) staff’s interpretation of the questions received during the pre-application workshops and those submitted in writing prior to the deadline of March 25, 2025. It is the Applicant’s responsibility to review the purpose of the solicitation and to determine whether their proposed project is eligible for funding by reviewing the Eligibility Requirements within the Solicitation Manual. The CEC cannot advise as to whether a particular project is eligible for funding, because not all application details are known.

# General/Administrative

1. **Question:** How would this grant’s funding schedule work if one were able to finish the progress objectives ahead of schedule and on budget? Are the payment disbursement dates flexible based on progress or fixed over the five-year term?

**Answer:** The CEC will reimburse the recipient, subrecipient, and any lower-tiered level of sub-subrecipient for actual and allowable grant expenses incurred during the agreement term. To be reimbursed, the recipient must invoice the CEC for its actual incurred cost. Per the EPIC Terms and Conditions, the recipient may request repayment from the CEC at any time during the Agreement term and earlier than the agreement end date, but no more frequently than monthly.

Please note that the solicitation manual will be amended to update anticipated key dates, including the deadline for application submissions from May 15, 2025 to May 30, 2025.

# Match Funding

1. **Question:** Is match funding from international manufacturers or entities allowed? If so, are there any additional reporting requirements (aside from having documents and receipts translated into English if needed)?

**Answer**: Match funding from international manufacturers or entities is allowed without additional reporting requirements. However, please note the special termination cause (EPIC Terms and Conditions, Section 16.d) triggered in the event of contracts entered with Russia and Russian entities and individuals. Other possible restrictions that could apply to international manufacturers or entities include U.S. federal laws, including federal export control laws that prohibit certain activities between U.S. and foreign companies. These examples are not meant to be an exhaustive list of possible restrictions on a foreign company trying to obtain or participate in a CEC grant.

Additionally, please be aware that 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. **Question:** Are there any additional points for exceeding the 20% minimum match funding requirement? The scoring criteria in the application manual do not reflect any benefit, but we would like to confirm as this deviates from past CEC solicitations.

**Answer:** Applications must include a minimum 20% total match share percentage. The CEC encourages applicants to exceed the minimum 20% match share and to include in their Project Narrative that the match funds exceed the minimum requirement, but the CEC does not offer preference points in the scoring criteria for doing so. However, applicants that provide more than the minimum 20% match funding may be scored more favorably in the Budget and Cost Effectiveness categories. For more information, please see Solicitation Manual, Section V.F. (Stage Two: Application Scoring - Scoring Criteria #5).

# Project Scope – All Groups

1. **Question:** The solicitation is written to include a residential demonstration as an option. We are developing a product designed for single family residential applications, but for practical reasons we would like the testing that is part of our proposed project to occur in a small commercial/institutional building in which we can more easily control space conditioning and domestic hot water loads (to be representative of residential loads). Does this meet the GFO requirements, or does the testing have to be in a residential building?

* **Answer:** Pilot testing must be done in a laboratory as described in the requirements for all project groups. Projects and technologies are also encouraged to include a field demonstration. If an optional field demonstration is also conducted, it must occur in a residential building. Additionally, all field demonstrations must occur in a California electric investor-owned utility (IOU) service territory; laboratory testing does not need to occur in an IOU territory.

1. **Question:** Are there any specific tests or requirements that the CEC is looking for to run the equipment in a laboratory setting? Are applicants allowed to define the testing procedures and parameters for any component, feature, or functionality of the heat pump equipment or system to meet the lab testing requirement?

**Answer:** Each applicant may propose testing that is applicable to the proposed technology. The testing plan should reflect the goals as described in the solicitation manual. Please see Solicitation Manual Section I. C. Project Focus, and Solicitation Scoring Criteria for more information.

1. **Question**: Would long-term field testing that captures real-world operational conditions of the proposed system meet the laboratory testing requirement in the GFO? E.g. testing a heat pump product installed in a location within California with the heat pump located in an uncontrolled outdoor environment?

**Answer**: Long-term field testing is encouraged, but does not replace laboratory testing. Please see Question 5 for more information regarding testing requirements.

1. **Question**: How much flexibility is there on the Technology Readiness Level (TRL) requirements? There seem to be products on the market outside the US that meet many of the requirements in the solicitation. Would it be acceptable to work with the manufacturer to make adjustments or add features to these existing products so they can be suitable for the US market?

**Answer**: Yes, applicants can work with an international manufacturer to make adjustments to an existing heat pump to fit the US market. If the developed product has modifications or features that are not the same as the existing foreign product, the TRL would likely be lower than that for an existing (unmodified) product. In any case, please note that there is a requirement for all groups that the proposed project/technology progress at least one TRL level by the end of the agreement. The starting TRL is expected to be 3-4. Please also see Question 2 for more information regarding working with international manufacturers.

1. **Question:** If the proposed R&D effort is focused on improving heat pump performance through controls or secondary systems, would it be acceptable to perform lab testing of those innovations using a representative heat pump that utilizes a refrigerant above the limit set in the GFO if that performance data can be translated to a system that operates with an ultra-low refrigerant?

**Answer:** The systems in all 3 groups must use the GWP levels identified in the solicitation manual (i.e., Group 1 projects and technologies must use refrigerants with GWP ≤ 150, whereas Group 2 and 3 projects and technologies must use refrigerant ≤ 10).

1. **Question:** Regarding cost competitiveness, does that mean systems with storage need to be competitive with conventional systems without storage? Or is the storage component not considered in this comparison?

**Answer:** Projects are encouraged to incorporate thermal energy storage. The comparison of costs includes unit costs, operational costs, and maintenance costs. These would be compared to a conventional heat pump without storage. The CEC encourages applicants to describe how the proposed system exceeds the requirements in the Project Narrative.

1. **Question:** Are the proposed technologies supposed to be sized for specific California climate zones or should the technologies be climate zone agnostic?

**Answer:** Project requirements do not include a sizing requirement for specific California climate zones. Applicants must articulate how their proposed design and testing will bring benefit and impacts to California IOU ratepayers. The performance testing in laboratories and modeling of the proposed system should consider all California climate zones.

# Project Scope – Group 1

1. **Question:** Group 1 is calling for a low GWP 120V heat pump water heating (HPWH) system. Would the CEC accept a different design approach, for example a 120V all-electric, on-demand water heating system, if it accomplishes the project’s performance objectives more effectively?

**Answer:** No. Group 1 proposals must meet the low-GWP 120V HPWH requirement to be eligible for funding under Group 1 as described in the solicitation manual**.** The different design approach would be outside the scope of the solicitation and would not meet the requirements laid out in the solicitation manual.Please refer to Section 1.C (Project Focus) in the Solicitation Manual for more information.

# Project Scope – Group 3

1. **Question:** Should technologies under Group 3 address BOTH single and multi family applications?

**Answer:** Group 3 systems must include either (1) single family residential buildings, or (2) multifamily buildings. A Group 3 applicant may decide to, but does not need to, address both single family residential building and multifamily building in its application. Please refer to the Solicitation Manual Section I. C. Project Focus, Solicitation Scoring Criteria, and Question 12 below for more information.

1. **Question:** Doonly single-family homes require a larger 2+ ton model? Can a multifamily building use a 1.3 ton heat pump?

**Answer:** Yes, a 1.3 ton heat pump for a multifamily building is acceptable and meets the requirement for Group 3 projects. Only single-family residential buildings must have a 2 to 5 ton capacity heat pump.

Only Group 3 has a heat pump tonnage requirement. The Group 3 requirement initially prescribed a 2 to 5 ton capacity for single family residential buildings, or up to 20 tons for multifamily buildings**. We are amending this language in the solicitation manual to clarify that Group 3 projects and technologies must have heat pump system capacities of 1 to 20 tons for multifamily buildings.**

In multifamily buildings, both centralized and individual unit systems are allowed, **as long as they are sized appropriately for their application.**

# Applicant Eligibility

1. **Question:** What should a Recipient do if theyare an out of state C-Corp? What forms do they need to fill out to register and be in good standing" with the State of California to be eligible for the grant?

**Answer:** All recipients, subrecipients, and vendor corporations that transact intrastate business in California are required to be registered and in good standing with the California Secretary of State (SOS) prior to its agreement being recommended for approval at a CEC Business Meeting. “Transacting Intrastate Business” is defined by the California Corporations Code as entering into repeated and successive transactions of business in the state, other than interstate or foreign commerce.

If the entity claims it is not transacting intrastate business in California, the applicant may provide a supporting justification for review by CEC. However, even if the CEC does not make an entity register with the SOS for purposes of participating in a CEC award, this does not mean the entity is legally relieved from having to register or will not face legal consequences if it does not. CEC does not make such decisions on behalf of the SOS and entities are strongly encouraged to consult with their own legal counsel for advice about the need to register.

If the entity is required to be registered but is not currently registered with the SOS, it should contact the SOS’s office as soon as possible to avoid potential delays in beginning the proposed project. For more information, contact the SOS’s Office via their website at <https://www.sos.ca.gov/>.

1. **Question:** Would a residential field site located in a disadvantaged community with simulated occupancy representing loads meet the eligibility requirements for points under Scoring Criteria 8?

**Answer:** No**,** a residential field site located in a disadvantaged community with simulated occupancy representing loads would not qualify as a field site demonstration. Per Scoring criterion #8 in the Solicitation Manual, to be eligible for preference points, field testing must be located in and demonstrate benefits to a low-income or disadvantaged community. Applicants may use this mapping tool to determine whether the field site is located is in a disadvantaged or low-income community: <https://gis.carb.arb.ca.gov/portal/apps/experiencebuilder/experience/?id=5dc1218631fa46bc8d340b8e82548a6a&page=Priority-Populations-4_0>

Please note that the solicitation manual will be amended to clarify that simulated occupation does not meet the requirements to obtain preference points under Scoring Criteria #8.

1. **Question:** We are based in Massachusetts and most likely would be unable to spend any of the grant funding in California which I saw from the GFO was worth a significant amount of points in the overall proposal score. Before we put a lot of effort into developing a proposal for this, I wanted to check to see if the lack of spending in CA is going to make it extremely difficult to be selected for the award. Can the CEC give a sense of what range of scores typically result in successful proposals?

**Answer:** EPIC-funded projects are required by statute to benefit California IOU ratepayers. The proposed projects under this solicitation will therefore need to explain and demonstrate how the project will benefit California IOU ratepayers and provide clear, plausible, and justifiable potential benefits. For more information, see Solicitation Manual, Section V.F. (Stage Two: Application Scoring - Scoring Criteria #3).

Additionally, pursuant to Scoring Criterion #6, projects that maximize the spending of CEC funds in California can receive up to 10 points. Match funds may help to offset funds spent outside of California. To maximize spending in California, past competitive applicants have utilized match funds for their out of state expenses and used CEC funds for expenses within California. You may refer to CEC’s solicitation webpage: <https://www.energy.ca.gov/funding-opportunities/solicitations> to view previous Notice of Proposed Awards.

Finally, to increase funds spent in California, CEC’s Empower Innovation website may provide opportunities to collaborate with California-based recipients. You may utilize Empower Innovation ([Empower Innovation](https://www.empowerinnovation.net/en/page/resources-and-tools-en)) to indicate your interest in partnering opportunities and identify potential partnerships.