**GFO-22-308**

**Decarbonizing Heating, Ventilation, and Air Conditioning Systems in Large Buildings**

**Addendum 1**

**August 11, 2023**

The purpose of this addendum is to notify potential applicants of changes that have been made to GFO-22-308. The addendum includes the following revisions to the Solicitation Manual and the addition of one additional form (Attachment 14). Added language appears in **bold underlined** font. Deleted language appears in ~~strikethrough~~ within brackets.

## **Solicitation Manual**

1. Cover page. **Addendum 1** GFO-[~~23~~]**22**-308 **August 2023** [~~June 2023~~]
2. Starting on page i. Footer in entire document: revision date **August 2023** [~~June 2023~~] and solicitation number should be **GFO-22-308** [~~GFO-23-308~~]
3. Page ii. Added row to table. **14** **Special Terms And Conditions For California Native American Tribes And Tribal Organizations With Sovereign Immunity**
4. Page 3. Added definition of Commercial Building. **Commercial buildings are those covered by the state’s Title 24 building energy efficiency standards and include a wide variety of nonresidential building types such as high-rise multifamily, offices, retail, restaurants, campuses, and hospitals.4 Facilities engaged in the manufacturing and processing of food, beverages, and industrial products and materials are not commercial buildings.**
5. Added footnote 4 on page 3. **Kenney, Michael, et al. 2021, California Building Decarbonization Assessment. California Energy Commission. Publication Number: CEC-400-2021-006-CMF**
6. Page 6. C. Project Focus5. **Group 1 only.** [~~Though not required, an~~] **An**

Page 6. C. Project Focus 7. Added the following bullet points:

* **Group 1 for existing buildings:** [~~, including~~] at least 12 months pre-installation and a minimum of 12 months post installation.
* **Groups 2 and 3: at least 12 months pre-installation and minimum of 12 months of post-installation (if testing the advanced HVAC system in a building), or** **at least 12 months of M&V testing of the HVAC hardware in a lab.**

1. Page 6. C. Project Focus 8. **Group 1 only.**
2. Page 6. C. Added Project Focus 9. **Partners with a mechanical system manufacturer to ensure a path for equipment deployment, servicing, and maintenance after the grant is completed (Group 1), or partners with a mechanical system manufacturer to ensure a path for equipment advancement and commercialization after the grant is completed (Groups 2 and 3).**
3. Page 7. **All ~~commercial building~~ demonstrations (Group 1) and testing in commercial buildings (optional for Groups 2 and 3) must occur in a California electric investor-owned utility (IOU) service territory, but laboratory testing (Groups 2 and 3) does not need to occur in a California IOU territory.**

* **Group 1: Technology demonstrations must occur in an existing building [~~at least one large commercial building~~] that measures over 100,000 square feet and currently has a hot water or steam heat distribution system** **or the aggregate of multiple buildings that total over 100,000 square feet if served by a central system. Demonstrations of more than one technology must include separate monitoring and verification (M&V) of project benefits to determine the impacts of each technology. For integration of demand responsive controls, the M&V must include baseline without controls and the operation with the controls to show the load reductions (e.g., shift or shed). Buildings located in and demonstrating benefits to under-resourced communities will receive additional points during scoring.**
* **Groups 2 and 3: Technology testing can be done in a laboratory or at an existing building of any size if applicable to large commercial buildings. Testing of more than one technology must include separate M&V to determine the impacts of each technology. If the test will be in a smaller building, the applicant should also explain how it would be relevant to large commercial buildings.**

1. Page 7. Change technology readiness level (TRL) for Group 1 to **5**[~~6~~] to 8
2. Page 11. Change TRL for Group 2: Current TRL 4 to **6**[~~5~~]
3. Page 11. Add: **For Group 2, testing can occur in a laboratory or an existing commercial building. If doing the latter, include** [~~Describes the demonstration building by providing~~] information on the use, operating schedule, and both baseline and proposed annual energy use and operating cost ($/year in energy cost) of the existing HVAC system.
4. Page 11.Add or amend the following in the describe the demonstrated technology section:
   * + Third sub-bullet: Estimated annual energy cost savings of the new HVAC system **compared to a system that meets current state building/appliance standards**.

* Fourth sub-bullet: Estimated performance metrics such as COP, hot water operating temperature, percent of load and equipment sizing of the advanced system **compared to a system that meets current state building/appliance standards**.
* Fifth sub-bullet: How the advanced technology will interact with and/or replace the [~~existing system or~~] incumbent standard system and meet the research goal in Table 2.

1. Page 12. Change the TRL for Group 3: Current TRL is 3 to **5** [~~4~~]
2. Page 13, add the following to the technical merit section:

* **For Group 3, testing can occur in a laboratory or an existing commercial building. If doing the latter, include** [~~If applicable, describes the demonstration building by providing~~] information on the use, operating schedule, and both the baseline and proposed annual energy use and operating cost ($/year in energy cost) of the existing HVAC system.
* Add or amend the following under demonstrated technology:
* Third bullet: Estimated annual energy cost savings of the new HVAC system **in comparison to a technology that meets current state building/appliance standards**.
* Fourth bullet: Estimated performance metrics such as COP, hot water operating temperature, percent of load, and equipment sizing of the advanced system **in comparison to a technology that meets current state building/appliance standards**.
* Fifth bullet: How the advanced technology will interact with and/or replace the [**~~existing system or~~]** incumbent standard system and meet the research goal in Table 3.

1. Page 14. Change the following language in the table: Cost-effective ground-source heat pump[~~s~~] **boring techniques**
2. Page 14. Section D. Delete the following: [**~~Disadvantaged or Low-income Communities~~** ~~For Group 1, additional points will be provided for demonstrations located in and benefitting low income or disadvantaged communities.~~]
3. Page 15. Change Deadline to Submit Applications ~~[9/15]~~**10/20/23**
4. Page 16. Change Anticipated Notice of Proposed Award Posting Date [~~11~~]**12**/15/2023
5. Page 16. Change Anticipated Energy Commission Business Meeting Date **3**[~~11~~]/**10**[~~29~~]/20[~~23~~]**24**
6. Page 22. Add footnote references:
   * Footnote 17: [**https://www.energy.ca.gov/publications/2021/low-cost-large-diameter-shallow-ground-loops-ground-coupled-heat-pumps**](https://www.energy.ca.gov/publications/2021/low-cost-large-diameter-shallow-ground-loops-ground-coupled-heat-pumps)
   * Footnote 18: [**https://www.energy.ca.gov/publications/2021/development-and-testing-next-generation-residential-space-conditioning-system**](https://www.energy.ca.gov/publications/2021/development-and-testing-next-generation-residential-space-conditioning-system)
   * Footnote 19: [**https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2021-028.pdf**](https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2021-028.pdf)
   * Footnote 20: [**https://www.smartenergydecisions.com/energy-management/2017/05/09/stanfords-4th-generation-district-energy-system**](https://www.smartenergydecisions.com/energy-management/2017/05/09/stanfords-4th-generation-district-energy-system)
7. Page 22. Second bullet: **CEC-funded research on ground-source heat pumps17; next-generation, high-efficiency heat pumps18** **~~[; and variable refrigerant flow and indirect evaporative cooling systems~~**]. Add the following reference document: **CEC-funded research on Climate Appropriate Innovations for Variable Refrigerant Flow Systems.19** **The research documented the development of a prototype of a CO2 and propane heat pump used for space heating and cooling.**
8. Page 27. Item 5, Disadvantaged & Low-income Communities, second paragraph, delete Group 2: Group 1 [~~and Group 2~~]
9. Page 28. Item B.2., add the following to Project Requirements

**2. Benefits, Technological Advancements, and Breakthroughs**

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

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

**EPIC's mandatory guiding principle is to provide ratepayer benefits, which are defined as (1) improving safety, (2) increasing reliability, (3) increasing affordability, (4) improving environmental sustainability, and (5) improving equity, all as related to California's electric system.29**

**Accordingly, the Project Narrative Form (Attachment 3) and the "Goals and Objectives" section of the Scope of Work Template (Attachment 5) must describe how the project will: (1) benefit California IOU ratepayers by improving safety, increasing reliability, increasing affordability, improving environmental sustainability, and improving equity, all as related to California's electric system; and (2) lead to technological advancement and breakthroughs to overcome barriers to achieving the state's statutory energy goals. Any estimates of energy and water savings or GHG impacts must be calculated using the References for Calculating Electricity End-Use, Electricity Demand, and GHG Emissions (Attachment 13).**

1. Footnote on page 28. **29 CPUC Decision 21-11-028, Appendix A** [**https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M425/K515/425515575.PDF**](https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M425/K515/425515575.PDF) **(revising former guiding principles within CPUC “Phase 2” Decision 12-05-037, Ordering Paragraph 2** [**http://docs.cpuc.ca.gov/PublishedDocs/WORD\_PDF/FINAL\_DECISION/167664.PDF**](http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF)**.).**

Page 29. Change the numbers of items 2, 3, and 4 under Section B to 3, 4, and 5.

1. Page 29.Change item 5 ~~[Community Based Organizations and/or~~ ]Tribal Engagement

[~~In TD&D solicitations with set aside funding for proposed projects located in and benefiting low-income, disadvantaged communities within IOU service territories, the project must allocate appropriate funding for CBO and/or tribal engagement for relevant tasks under the scope of work.~~

~~The CBO should meet, and will be evaluated on the following criteria for this solicitation:~~

* ~~Has an office in the region (e.g., air basin or county) and meets the demographic profile of the communities it serves.~~
* ~~Has deployed projects and/or outreach efforts within the region (e.g., air basin or county) of the proposed disadvantaged or low-income community.~~
* ~~Have official mission and vision statements that expressly identify serving disadvantaged and/or low-income communities.~~
* ~~Currently employs staff member(s) who specialized in and are dedicated to diversity, or equity, or inclusion, or is a 501(c)(3) non-profit.~~]

For projects located in and benefiting Tribes, the Tribe must be included on the project team and within the project budget.

1. Page 36.Add: **Special Terms And Conditions For California Native American Tribes And Tribal Organizations With Sovereign Immunity (Attachment 14)**

**This form should be completed only by California Native American Tribes and Tribal Organizations with Sovereign Immunity that apply.**

1. Page 37, Section IV.A.2. Third bullet, amend as follows:

**A minimum score of 70** [~~105.0~~] **points** is required for criteria 1-[~~8~~] **7** to be eligible for funding. In addition, the application must receive a minimum score of **52.50 points for criteria 1−4 ~~[and 70.00 points for criteria 1-7]~~** to be eligible for funding.

1. Page 40, Section E, criteria 7, amend as follows:

*If the project involves technology demonstration/ deployment activities* **(Group 1 only)**

Third bullet: The proposal includes a site commitment letter (Section IIIC.**~~[12]~~** for each demonstration/deployment site.

1. Page 43. Amend the line after SCORING CRITERIA: [~~The following scoring criteria is for Groups 1 and 2.]~~ **Note: Criterion 9 only applies to Group 1.**
2. Page 44. Amend the paragraph under SCORING CRITERIA: (Attachment [~~11~~] **13**)
3. Page 44. Amend item section reference in 2.h.: Section I.I and Section III.C. [~~D.3., and Section III.D.8~~]
4. Page 47, Delete Scoring Criteria 8, Total Possible Points for criteria 8, Total Possible Points

|  |  |
| --- | --- |
| 1. **~~[Benefits to Disadvantaged/Low-Income Communities and Localized Health Impacts (Group 1 only)~~** |  |
| **~~Disadvantaged & Low-Income Communities~~**  ~~The project benefits the disadvantaged and/or low-income community to receive additional points.~~   1. ~~Proposal identifies how the target market(s) will benefit disadvantaged and/or low-income communities.~~ 2. ~~Identifies economic impact on low-income and disadvantaged communities including customer bill savings, job creation, partnering and contracting with micro- and small-businesses, and economic development.~~ 3. ~~Describes how the project will increase access to clean energy or sustainability technologies within disadvantaged or low-income communities and how the development will benefit the communities.~~ 4. ~~Applicants have letters of support from technology partners, community-based organizations, environmental justice organizations, or other partners that demonstrate equity, feasibility, and commercial viability in low-income and disadvantaged communities.~~ | [~~5~~] |
| **~~[Total Possible Points for criteria 8~~**  **~~(Minimum Passing Score for Criteria 8 is 70% or 35.00 points)]~~** | **~~[5]~~** |
| **~~[Total Possible Points~~** | **~~105]~~** |

1. Page 48. Preference Points amend as follows:Applications must meet all minimum passing scores (Scoring Criteria 1-4 **and** 1-7**[~~, and 1-8 (Group 1 only)~~])** to be eligible for the additional points.
2. Page 48 Change item 9 to item 8. **8. Match Funds**
3. Page 49 Add item 9.

**9. Disadvantaged & Low-Income Communities (Group 1 only)**

**In order to receive or qualify for additional points, the proposed project must demonstrate benefits to the disadvantaged and/or low-income community in order to receive additional points.**

**a.** **Proposal identifies how the target market(s) will benefit disadvantaged and/or low-income communities.**

**b.** **Identifies economic impact on low-income and disadvantaged communities including customer bill savings, job creation, partnering and contracting with micro- and small-businesses, and economic development.**

**c.** **Describes how the project will increase access to clean energy or sustainability technologies within disadvantaged and/or low-income communities and how the development will benefit the communities.**

**d.** **Applicants have letters of support from technology partners, community based organizations, environmental justice organizations, or other partners that demonstrate their belief that the proposed project will lead to increased equity, and is both feasible and commercially viable in the identified low-income and/or disadvantaged communities.**

**Solicitation Attachments**

1. Added Attachment 14. **Special Terms And Conditions For California Native American Tribes And Tribal Organizations With Sovereign Immunity**
2. Updated Footer to Solicitation Attachments 1 – 5, and Solicitation Attachments 8 – 10, revision date and solicitation number should be:

**August 2023** [June 2023] **GFO-22-308** [~~GFO-23-308~~]

Eilene Cary,

Commission Agreement Officer