STATE OF CALIFORNIA
GRANT REQUEST FORM (GRF)
CEC-270 (Revised 12/2019) CALIFORNIA ENERGY COMMISSION

A) New Agreement # EPC-21-030 (to be completed by CGL office)

B) Division	Agreement Manager:	MS-	Phone
ERDD	Molly O'Hagan	51	916-776-0799

C) Recipient's Legal Name	Federal ID Number
Association for Energy Affordability, Inc.	13-3374285

D) Title of Project
Harmonized Resilience at Roosevelt Village: A zero-emissions model for supportive housing

E) Term and Amount

Start Date	End Date	Amount
5/15/2022	6/30/2024	$ 999,315

F) Business Meeting Information

☐ ARFVTP agreements $75K and under delegated to Executive Director

Proposed Business Meeting Date 5/11/2022 ☒ Consent ☐ Discussion

Business Meeting Presenter Molly O'Hagan Time Needed: 5 minutes

Please select one list serve. EPIC (Electric Program Investment Charge)

Agenda Item Subject and Description:
Association for Energy Affordability, Inc. Proposed resolution approving agreement EPC-21-030 with Association for Energy Affordability, Inc. for a $999,315 grant to fund a zero-carbon alternate design for an eight-story, 100 percent affordable housing project in San Jose, California, and adopting staff's determination that this action is exempt from CEQA. The design will be scalable, grid-resilient, and reduce costs and emissions by islanding from the main grid from 4-9 pm and reserving a minimum 20 percent of the building's peak load to be managed or curtailed in response to grid conditions, while safeguarding resident health and autonomy. (EPIC funding) Contact: Molly O'Hagan. (Staff presentation: 5 minutes.)

G) California Environmental Quality Act (CEQA) Compliance

1. Is Agreement considered a "Project" under CEQA?
   ☒ Yes (skip to question 2)
   ☐ No (complete the following (PRC 21065 and 14 CCR 15378)):

   Explain why Agreement is not considered a "Project":

2. If Agreement is considered a "Project" under CEQA:
   a) ☒ Agreement **IS** exempt.
      ☒ Statutory Exemption. List PRC and/or CCR section number: 14 CCR 15262
      ☐ Categorical Exemption. List CCR section number:
      ☒ Common Sense Exemption. 14 CCR 15061 (b) (3)

      Explain reason why Agreement is exempt under the above section:
      The grant agreement will fund feasibility, design, and planning studies for an all electric, mixed-use development, which has not been approved, adopted, or

funded by the CEC, and which will not result in the adoption of a plan that will have a legally binding effect on later activities. This falls within title 14, Cal. Code Regs. tit. 14, § 15262, Feasibility and Planning Studies: The CEC has considered environmental factors.
The grant agreement will fund the design of a mixed-use development project and the improvement of methods for possible use in advanced energy development efforts (e.g., planning, architectural, and engineering work). Activities will include information collection, stakeholder engagement, research, design, and energy and life-cycle emissions analyses and evaluation. Activities will also include economic analysis, preparation of conceptual design and construction drawings, performance modeling, and energy, emissions and load simulations. No construction or changes to the physical environment will be funded by the grant or occur during the design and analysis work. The design activities will take place in existing office buildings, and professionals will visit the proposed development site and other existing properties. Therefore, there is no possibility that the activities may have a significant effect on the environment. The grant agreement is covered by the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA. This falls within title 14, Cal. Code Regs. tit. 14, § 15061(b)(3), Common Sense Exemption.

b) Agreement **IS NOT** exempt. (consult with the legal office to determine next steps)

Check all that apply

- ☐ Initial Study
- ☐ Negative Declaration
- ☐ Mitigated Negative Declaration
- ☐ Environmental Impact Report
- ☐ Statement of Overriding Considerations

H) List all subcontractors (major and minor) and equipment vendors: (attach additional sheets as necessary)

Legal Company Name:	**Budget**
David Baker, an Architectural Corporation	$ 261,674 (match $790,815)
Taylor Engineering, LLC	$ 115,722 (match $152,487)
Shalley-Dibble, Incorporated dba Engineering Enterprise	$ 90,833 (match $104,500)
Lawrence Berkeley National Laboratory	$ 52,250
Regents of the University of California, on behalf of the Berkeley Campus (Center for the Built Environment)	$ 123,531
Rocky Mountain Institute	$ 114,000
first community housing	$ 33,250
Robert Obayashi	$ 52,250

I) List all key partners: (attach additional sheets as necessary)

Legal Company Name:

J) Budget Information

Funding Source	Funding Year of Appropriation	Budget List Number	Amount
EPIC	19-20	301.001G	$19,774
EPIC	20-21	301.001H	$979,541
			$

R&D Program Area: EDMFO: EDMF TOTAL: $ 999,315

Explanation for "Other" selection

Reimbursement Contract #: Federal Agreement #:

K) Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Nick Young

Address: 5900 Hollis St Ste R2

City, State, Zip: Emeryville, CA 94608-2098

Phone:

E-Mail:

2. Recipient's Project Manager

Name: Andrew Brooks

Address: 5900 Hollis St Ste R2

City, State, Zip: Emeryville, CA 94608-2098

Phone: 510-431-1791

E-Mail: abrooks@aea.us.org

L) Selection Process Used

☒ Competitive Solicitation Solicitation #: GFO-20-305

☐ First Come First Served Solicitation Solicitation #:

☐ Non-Competitive Bid Follow-on Funding (SB 115)

M) The following items should be attached to this GRF

1.	Exhibit A, Scope of Work		☒ Attached
2.	Exhibit B, Budget Detail		☒ Attached
3.	CEC 105, Questionnaire for Identifying Conflicts		☒ Attached
4.	Recipient Resolution	☒ N/A	☐ Attached
5.	CEQA Documentation	☐ N/A	☒ Attached

Agreement Manager	**Date**
Office Manager	**Date**
Deputy Director	**Date**

Exhibit A
Scope of Work
The Association for Energy Affordability (AEA)

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR	Task Name
1		General Project Tasks
2	X	Stakeholder Engagement and Advisory Panel
3		Operational Energy, Emissions and Loads Simulation
4		Design Drawings
5		Life-Cycle Cost and Carbon Assessment
6	X	Market Transformation
7		Evaluation of Project Benefits
8		Technology/Knowledge Transfer Activities
9		Build Phase Selection

B. Acronym/Term List

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CPR	Critical Project Review
DER	Distributed Energy Resources
MEP	Mechanical, Electrical, and Plumbing
TAC	Technical Advisory Committee
VPP	Virtual Power Plant

II. PURPOSE OF AGREEMENT, PROBLEM/SOLUTION STATEMENT, AND GOALS AND OBJECTIVES

A. Purpose of Agreement

The purpose of this Agreement is to fund a zero-carbon alternate design for an 8-story, 100% affordable housing project that is to supplement a standard full-service design contract for the project executed. The alternate design will be scalable, grid-resilient, and reduce costs and emissions by islanding from the main grid from 4-9 pm and reserving a minimum 20% of the building's peak load to be managed or curtailed in response to grid conditions, while safeguarding resident health and autonomy.

[1] Please see subtask 1.3 in Part III of the Scope of Work (General Project Tasks) for a description of Critical Project Review (CPR) Meetings.

Exhibit A
Scope of Work
The Association for Energy Affordability (AEA)

The scope is structured to avoid parallel design work by front-loading detailed peak load and storage, carbon and pricing analysis in order to inform the selection of major systems, and then covering the design development of packages of measures that achieve the zero-emissions design goals.

The proposed research seeks to determine a practical, scalable approach to solve the challenge by incorporating advanced technologies as a pathway to resilience and overcome common constraints that limit equitable access to distributed energy resources (DERs), including space, cost, and constructability. The project will demonstrate the breakthrough potential of energy storage, and load shifting solutions combined with a functional balance of thermal storage and thermal mass, then go a step further to explore the structural and envelope strategies that both streamline construction and reduce loads for a taller mid-rise building. An outcome of the design phase will be to evaluate how these complex, interdependent systems can work together and synthesize findings in design templates that evaluate the feasibility for mid-high rise, low-income multifamily projects to achieve reliability and resilience cost effectively.

B. Problem/ Solution Statement

Problem

- **No Resilience Framework:** Affordable housing finance is not structured to reward resilience, whereas under-resourced low-income and special needs residents have much to gain from enhanced grid resilience in multifamily buildings.
- **Cost barriers:** The technology exists, and best practices are highly transferable in this sector, but cost barriers have prevented a whole-building analysis of the most cost-effective and scalable pathway to zero-carbon, grid-resilient housing.
- **Emphasis on PV & Storage only:** The widespread deployment of on-site generation and energy storage systems will be a critical component in achieving ratepayer benefits and grid resiliency goals, however for MF (multi-family) mixed-use buildings a host of key design and building science issues remain poorly understood by multifamily developers. There is a lack of standardized sizing and configuration options for these technologies and little integration with thermal storage, energy efficiency, and load management controls that can improve their efficacy.
- **Lack of stakeholder engagement:** There is a lack of understanding of the impacts emerging grid-interactive controls might have on occupants, building maintenance personnel, and property managers, including health, comfort, and convenience.
- **No time:** As climate hazards rapidly accelerate with the demand for housing, the need is urgent to combine solutions - “get it right the first time”

Solution

- Our project is an opportunity to examine the challenges and solutions specific to providing grid-responsive, resilient, zero-carbon housing that serves very-low-income households and is managed by a committed, non-profit housing provider.
- The proposed research offers the opportunity to contrast different technology solutions and shed new light on trade-offs between options in terms of capital cost, operating and maintenance costs, environmental and grid impacts, and physical limitations.
- Our team is composed of well-rounded public-interest organizations with deep experience researching and deploying emerging technology and delivering successful affordable housing projects. This combination of expertise is ideal to conduct a comprehensive assessment of the most cost-effective, practical solutions and share the findings with the key stakeholders.

C. Goals and Objectives of the Agreement

Agreement Goals

The goal of this Agreement is to examine the technical and economic challenges and solutions specific to providing grid-responsive, resilient, zero-carbon housing for Roosevelt Village and similar low-income affordable households.

The proposed research will optimize technologies and approaches to simplify the pathway to an all-electric future. It will demonstrate the technical and economic feasibility of shifting to all-electric and grid interactive designs and establish standardized configurations of building construction, energy efficiency, load management and sizing for on-site generation and energy storage technologies. It will ensure that Roosevelt Village will be healthy and functional during grid outages, capable of islanding from 4-9, and interact with the grid during other real-time events, and present persistent GHG, energy and cost savings.

Ratepayer Benefits:[2] This Agreement will result in the following ratepayer benefits: This project will enhance the notion of buildings as grid assets (SB 250) by demonstrating a suite of emerging technologies—distributed energy resources (DER) platforms, behavior-based technologies, battery and thermal storage, and solar photovoltaics (PV)—and integrate with the state's 2030 renewable energy generation and energy efficiency targets. Since many of the same solutions are transferable to

[2] California Public Resources Code, Section 25711.5(a) requires projects funded by the Electric Program Investment Charge (EPIC) to result in ratepayer benefits. The California Public Utilities Commission, which established the EPIC in 2011, defines ratepayer benefits as greater reliability, lower costs, and increased safety (See CPUC "Phase 2" Decision 12-05-037 at page 19, May 24, 2012, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF).

existing buildings, the project will also bolster the urgent effort to retrofit housing in the state.

This analysis will highlight the trade-offs between technology solutions in terms of capital cost, operating and maintenance costs, environmental and grid impacts, and physical limitations. If this model can be scaled to similar buildings, then the benefit to California ratepayers will be very high.

Benefits include:

- **Lower greenhouse gas emissions** by advancing the concept of deep energy retrofits paired with microgrids and grid-interactive buildings from a promising schematic design, based on preliminary research and analysis, to a detailed engineering master plan for the Build Phase that is widely replicable for mixed-use housing in CA.
- **Improve electricity reliability** by quantifying the benefits of a building capable of islanding from the grid during the afternoon 4-9 peak, reserve a minimum 20% of the building's peak load to be managed or curtailed in response to grid conditions, enable residential end uses to be controllable through EMS and respond to real-time pricing signals
- **Improve resiliency** by focusing on a design that keeps community support infrastructure as well as the homes themselves healthy and functional during climate-related hazard events, including outages.
- **Promote a culture of dialogue among stakeholders** and validate the design with an evaluation involving underrepresented and impacted community members
- **Reduce planning uncertainty** by standardizing different configurations of building construction, energy efficiency and interconnection practices for pv generation and battery storage that can accelerate innovative financing strategies and business models with co-benefits for all stakeholders.
- **Lower the costs** by helping developers make more informed design decisions, reducing the risk of unanticipated costs during construction.

Technological Advancement and Breakthroughs:[3]
This Agreement will lead to technological advancement and breakthroughs to overcome barriers to the achievement of the State of California's statutory energy goals by evaluating a variety of high impact, market-ready technologies, many of which are currently being underutilized in multifamily applications. While the project will largely rely on readily available technologies, integrating and optimizing those technologies to achieve the grid interactivity goals of the agreement is something that has not been done before. The key area of innovation for this project will be in developing an integrated design approach that balances the need to achieve the aggressive carbon and resiliency

[3]

goals of the agreement with the need to develop feasible and practical solutions that can be cost effectively implemented at scale right now.

Some of the key technologies and systems that will require unique approaches to integrations include:

1. **Equitable Design:** Given the nature of housing needs, we take seriously the prospect of flipping a historic norm in which vulnerable and marginalized communities are excluded from the design process and benefits of technological progress, especially when it comes to grid-interactive design and advanced controls. Both the design and delivery phases will include a series of efforts to address the interests of residents, staff, and neighbors, providing a critical window into factors of resident experience and perception that often go overlooked.
2. **Accelerating Adoption of Large Low GWP High Efficiency Water Heating:** Low-GWP refrigerant options will be evaluated for domestic hot water heating equipment. The team will work out solutions that can then be applied to future projects, addressing concerns for builders and developers who are often reluctant to play the role of early adopter.
3. **Accelerating Adoption of Storage in MF Buildings:** Evaluate the potential for thermal storage solutions paired with energy storage to optimize for limited space on-site, reduce constraints on the grid and mitigate all-electric construction's contribution to the "duck-curve."
4. **Increasing Industry Understanding of Application and Approach to Resiliency:** The primary outcome of this project is to develop industry and market knowledge on a pathway to an all-electric future, addressing long-term robust operations, resilience, and near-term scalability. The market scaling and technology transfer activities will lead to widespread dissemination of knowledge and experience gained by the Project Team through the design process. Bundling load reduction, on-site supply, and back-up power, with prefabricated and offsite construction building products and technologies will serve as a point of reference for builders and developers to improve interoperability and integration to streamline the design-build process.

Agreement Objectives

The objectives of this Agreement are to:

- Develop an alternate design for Roosevelt Village that will be scalable, grid-resilient, and provide reduced costs and emissions by islanding from the main grid from 4-9 pm and during outages while safeguarding resident health and autonomy.
- Optimize the structural system and construction details for cost, carbon, and energy design integration
- Communicate lessons learned to the design and construction community in a way that facilitates broader adoption of deep-energy efficiency, microgrids, grid-

interactive controls, and advanced construction methods with reduced performance risk.

III. TASK 1 GENERAL PROJECT TASKS

PRODUCTS

Subtask 1.1 Products

The goal of this subtask is to establish the requirements for submitting project products (e.g., reports, summaries, plans, and presentation materials). Unless otherwise specified by the Commission Agreement Manager (CAM), the Recipient must deliver products as required below by the dates listed in the **Project Schedule (Part V).** All products submitted which will be viewed by the public, must comply with the accessibility requirements of Section 508 of the federal Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), and regulations implementing that act as set forth in Part 1194 of Title 36 of the Federal Code of Regulations**.** All technical tasks should include product(s). Products that require a draft version are indicated by marking **"(draft and final)"** after the product name in the "Products" section of the task/subtask. If "(draft and final)" does not appear after the product name, only a final version of the product is required. With respect to due dates within this Scope of Work, **"days"** means working days.

The Recipient shall:

For products that require a draft version, including the Final Report Outline and Final Report

- Submit all draft products to the CAM for review and comment in accordance with the Project Schedule (Part V). The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.
- Consider incorporating all CAM comments into the final product. If the Recipient disagrees with any comment, provide a written response explaining why the comment was not incorporated into the final product.
- Submit the revised product and responses to comments within 10 days of notice by the CAM, unless the CAM specifies a longer time period, or approves a request for additional time.

For products that require a final version only

- Submit the product to the CAM for acceptance. The CAM may request minor revisions or explanations prior to acceptance.

For all products

- Submit all data and documents required as products in accordance with the following:

Instructions for Submitting Electronic Files and Developing Software:

- **Electronic File Format**

- Submit all data and documents required as products under this Agreement in an electronic file format that is fully editable and compatible with the California Energy Commission's (CEC) software and Microsoft (MS)-operating computing platforms, or with any other format approved by the CAM. Deliver an electronic copy of the full text of any Agreement data and documents in a format specified by the CAM, such as memory stick.

The following describes the accepted formats for electronic data and documents provided to the CEC as products under this Agreement, and establishes the software versions that will be required to review and approve all software products:

- Data sets will be in MS Access or MS Excel file format (version 2007 or later), or any other format approved by the CAM.
- Text documents will be in MS Word file format, version 2007 or later.
- Project management documents will be in Microsoft Project file format, version 2007 or later.

- **Software Application Development**

  Use the following standard Application Architecture components in compatible versions for any software application development required by this Agreement (e.g., databases, models, modeling tools), unless the CAM approves other software applications such as open source programs:

  - Microsoft ASP.NET framework (version 3.5 and up). Recommend 4.0.
  - Microsoft Internet Information Services (IIS), (version 6 and up) Recommend 7.5.
  - Visual Studio.NET (version 2008 and up). Recommend 2010.
  - C# Programming Language with Presentation (UI), Business Object and Data Layers.
  - SQL (Structured Query Language).
  - Microsoft SQL Server 2008, Stored Procedures. Recommend 2008 R2.
  - Microsoft SQL Reporting Services. Recommend 2008 R2.
  - XML (external interfaces).

Any exceptions to the Electronic File Format requirements above must be approved in writing by the CAM. The CAM will consult with the CEC's Information Technology Services Branch to determine whether the exceptions are allowable.

MEETINGS

Subtask 1.2 Kick-off Meeting

The goal of this subtask is to establish the lines of communication and procedures for implementing this Agreement.

Exhibit A
Scope of Work
The Association for Energy Affordability (AEA)

The Recipient shall:

- Attend a "Kick-off" meeting with the CAM, the Commission Agreement Officer (CAO), and any other CEC staff relevant to the Agreement. The Recipient will bring its Project Manager and any other individuals designated by the CAM to this meeting. The administrative and technical aspects of the Agreement will be discussed at the meeting. Prior to the meeting, the CAM will provide an agenda to all potential meeting participants. The meeting may take place in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.
  The administrative portion of the meeting will include discussion of the following:
  - Terms and conditions of the Agreement;
  - Invoicing and auditing procedures;
  - Administrative products (subtask 1.1);
  - CPR meetings (subtask 1.3);
  - Match fund documentation (subtask 1.7);
  - Permit documentation (subtask 1.8);
  - Subcontracts (subtask 1.9); and
  - Any other relevant topics.

  The technical portion of the meeting will include discussion of the following:
  - The CAM's expectations for accomplishing tasks described in the Scope of Work;
  - An updated Project Schedule;
  - Technical products (subtask 1.1);
  - Progress reports (subtask 1.5);
  - Final Report (subtask 1.6);
  - Technical Advisory Committee meetings (subtasks 1.10 and 1.11); and
  - Any other relevant topics.
- Provide *Kick-off Meeting Presentation* to include but not limited to:
  - Project overview (i.e., project description, goals and objectives, technical tasks, expected benefits, etc.)
  - Project schedule that identifies milestones
  - List of potential risk factors and hurdles, and mitigation strategy
- Provide an *Updated Project Schedule, Match Funds Status Letter,* and *Permit Status Letter*, as needed to reflect any changes in the documents.

The CAM shall:

- Designate the date and location of the meeting.
- Send the Recipient a *Kick-off Meeting Agenda*.

Recipient Products:

- Kick-off Meeting Presentation
- Updated Project Schedule *(if applicable)*
- Match Funds Status Letter (subtask 1.7) *(if applicable)*
- Permit Status Letter (subtask 1.8) *(if applicable)*

CAM Product:

- Kick-off Meeting Agenda

Subtask 1.3 Critical Project Review (CPR) Meetings

The goal of this subtask is to determine if the project should continue to receive CEC funding, and if so whether any modifications must be made to the tasks, products, schedule, or budget. CPR meetings provide the opportunity for frank discussions between the CEC and the Recipient. As determined by the CAM, discussions may include project status, challenges, successes, advisory group findings and recommendations, final report preparation, and progress on technical transfer and production readiness activities (if applicable). Participants will include the CAM and the Recipient and may include the CAO and any other individuals selected by the CAM to provide support to the CEC.

CPR meetings generally take place at key, predetermined points in the Agreement, as determined by the CAM and as shown in the Task List on page 1 of this Exhibit. However, the CAM may schedule additional CPR meetings as necessary. The budget will be reallocated to cover the additional costs borne by the Recipient, but the overall Agreement amount will not increase. CPR meetings generally take place at the CEC, but they may take place at another location, or may be conducted via electronic conferencing (e.g., WebEx) as determined by the CAM.

The Recipient shall:

- Prepare and submit a *CPR Report* for each CPR meeting that: (1) discusses the progress of the Agreement toward achieving its goals and objectives; and (2) includes recommendations and conclusions regarding continued work on the project.
- Attend the CPR meeting.
- Present the CPR Report and any other required information at each CPR meeting.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient's input.
- Send the Recipient a *CPR Agenda* with a list of expected CPR participants in advance of the CPR meeting. If applicable, the agenda will include a discussion of match funding and permits.
- Conduct and make a record of each CPR meeting. Provide the Recipient with a schedule for providing a Progress Determination on continuation of the project.
- Determine whether to continue the project, and if so whether modifications are needed to the tasks, schedule, products, or budget for the remainder of the Agreement. If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Deputy Director of the Energy Research and Development Division.

- Provide the Recipient with a *Progress Determination* on continuation of the project, in accordance with the schedule. The Progress Determination may include a requirement that the Recipient revise one or more products.

Recipient Products:
- CPR Report(s)

CAM Products:
- CPR Agenda
- Progress Determination

Subtask 1.4 Final Meeting
The goal of this subtask is to complete the closeout of this Agreement

The Recipient shall:
- Meet with CEC staff to present project findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement. This meeting will be attended by the Recipient and CAM, at a minimum. The meeting may occur in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.
  The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be divided into two separate meetings at the CAM's discretion.
  - The technical portion of the meeting will involve the presentation of findings, conclusions, and recommended next steps (if any) for the Agreement. The CAM will determine the appropriate meeting participants.
  - The administrative portion of the meeting will involve a discussion with the CAM and the CAO of the following Agreement closeout items:
    - Disposition of any procured equipment.
    - The CEC's request for specific "generated" data (not already provided in Agreement products).
    - Need to document the Recipient's disclosure of "subject inventions" developed under the Agreement.
    - "Surviving" Agreement provisions such as repayment provisions and confidential products.
    - Final invoicing and release of retention.
- Prepare a *Final Meeting Agreement Summary* that documents any agreement made between the Recipient and Commission staff during the meeting.
- Prepare a *Schedule for Completing Agreement Closeout Activities*.
- Provide copies of *All Final Products* on a USB memory stick, organized by the tasks in the Agreement.

Products:
- Final Meeting Agreement Summary *(if applicable)*

- Schedule for Completing Agreement Closeout Activities
- All Final Products

REPORTS AND INVOICES

Subtask 1.5 Progress Reports and Invoices

The goals of this subtask are to: (1) periodically verify that satisfactory and continued progress is made towards achieving the project objectives of this Agreement; and (2) ensure that invoices contain all required information and are submitted in the appropriate format.

The Recipient shall:

- Submit a monthly *Progress Report* to the CAM. Each progress report must:
  - Summarize progress made on all Agreement activities as specified in the scope of work for the preceding month, including accomplishments, problems, milestones, products, schedule, fiscal status, and an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. See the Progress Report Format Attachment for the recommended specifications.
- Submit a monthly or quarterly *Invoice* that follows the instructions in the "Payment of Funds" section of the terms and conditions, including a financial report on Match Funds and in-state expenditures.

Products:

- Progress Reports
- Invoices

Subtask 1.6 Final Report

The goal of this subtask is to prepare a comprehensive Final Report that describes the original purpose, approach, results, and conclusions of the work performed under this Agreement. When creating the Final Report Outline and the Final Report, the Recipient must use the CEC Style Manual provided by the CAM.

Subtask 1.6.1 Final Report Outline

The Recipient shall:

- Prepare a *Final Report Outline* in accordance with the *Energy Commission Style Manual* provided by the CAM.

Recipient Products:

- Final Report Outline (draft and final)

CAM Product:

- Energy Commission Style Manual
- Comments on Draft Final Report Outline

- Acceptance of Final Report Outline

Subtask 1.6.2 Final Report

The Recipient shall:

- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline, Energy Commission Style Manual, and Final Report Template provided by the CAM with the following considerations:
    - Ensure that the report includes the following items, in the following order:
        - Cover page (**required**)
        - Credits page on the reverse side of cover with legal disclaimer (**required**)
        - Acknowledgements page (optional)
        - Preface (**required**)
        - Abstract, keywords, and citation page (**required**)
        - Table of Contents (**required**, followed by List of Figures and List of Tables, if needed)
        - Executive summary (**required**)
        - Body of the report (**required**)
        - References (if applicable)
        - Glossary/Acronyms (If more than 10 acronyms or abbreviations are used, it is required.)
        - Bibliography (if applicable)
        - Appendices (if applicable) (Create a separate volume if very large.)
        - Attachments (if applicable)
- Submit a draft of the Executive Summary to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments* received on the Executive Summary. For each comment received, the recipient will identify in the summary the following:
    - Comments the recipient proposes to incorporate.
    - Comments the recipient does propose to incorporate and an explanation for why.
- Submit a draft of the report to the CAM for review and comment. The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt.
- Incorporate all CAM comments into the *Final Report*. If the Recipient disagrees with any comment, provide a *Written Responses to Comments* explaining why the comments were not incorporated into the final product.
- Submit the revised *Final Report* electronically with any Written Responses to Comments within 10 days of receipt of CAM's Written Comments on the Draft Final Report, unless the CAM specifies a longer time period or approves a request for additional time.

Products:

- Summary of TAC Comments
- Draft Final Report
- Written Responses to Comments *(if applicable)*
- Final Report

CAM Product:

- Written Comments on the Draft Final Report

MATCH FUNDS, PERMITS, AND SUBCONTRACTS

Subtask 1.7 Match Funds

The goal of this subtask is to ensure that the Recipient obtains any match funds planned for this Agreement and applies them to the Agreement during the Agreement term.

While the costs to obtain and document match funds are not reimbursable under this Agreement, the Recipient may spend match funds for this task. The Recipient may only spend match funds during the Agreement term, either concurrently or prior to the use of CEC funds. Match funds must be identified in writing, and the Recipient must obtain any associated commitments before incurring any costs for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a *Match Funds Status Letter* that documents the match funds committed to this Agreement. If no match funds were part of the proposal that led to the CEC awarding this Agreement and none have been identified at the time this Agreement starts, then state this in the letter.

  If match funds were a part of the proposal that led to the CEC awarding this Agreement, then provide in the letter:
  - A list of the match funds that identifies:
    - The amount of cash match funds, their source(s) (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied.
    - The amount of each in-kind contribution, a description of the contribution type (e.g., property, services), the documented market or book value, the source (including a contact name, address, and telephone number), and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient must identify its owner and provide a contact name, address, telephone number, and the address where the property is located.
    - If different from the solicitation application, provide a letter of

commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.

- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

Products:

- Match Funds Status Letter
- Supplemental Match Funds Notification Letter *(if applicable)*
- Match Funds Reduction Notification Letter *(if applicable)*

Subtask 1.8 Permits

The goal of this subtask is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track. Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement, with the exception of costs incurred by University of California recipients. Permits must be identified and obtained before the Recipient may incur any costs related to the use of the permit(s) for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a *Permit Status Letter* that documents the permits required to conduct this Agreement. If no permits are required at the start of this Agreement, then state this in the letter. If permits will be required during the course of the Agreement, provide in the letter:
    - A list of the permits that identifies: (1) the type of permit; and (2) the name, address, and telephone number of the permitting jurisdictions or lead agencies.
    - The schedule the Recipient will follow in applying for and obtaining the permits.

  The list of permits and the schedule for obtaining them will be discussed at the Kick-off meeting (subtask 1.2), and a timetable for submitting the updated list, schedule, and copies of the permits will be developed. The impact on the project if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in progress reports and will be a topic at CPR meetings.

- If during the course of the Agreement additional permits become necessary, then provide the CAM with an *Updated List of Permits* (including the appropriate information on each permit) and an *Updated Schedule for Acquiring Permits*.
- Send the CAM a *Copy of Each Approved Permit*.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 days. Either of these events may trigger a CPR meeting.

Products:
- Permit Status Letter
- Updated List of Permits *(if applicable)*
- Updated Schedule for Acquiring Permits *(if applicable)*
- Copy of Each Approved Permit *(if applicable)*

Subtask 1.9 Subcontracts
The goals of this subtask are to: (1) procure subcontracts required to carry out the tasks under this Agreement; and (2) ensure that the subcontracts are consistent with the terms and conditions of this Agreement.

The Recipient shall:
- Manage and coordinate subcontractor activities in accordance with the requirements of this Agreement.
- Incorporate this Agreement by reference into each subcontract.
- Include any required Energy Commission flow-down provisions in each subcontract, in addition to a statement that the terms of this Agreement will prevail if they conflict with the subcontract terms.
- If required by the CAM, submit a draft of each *Subcontract* required to conduct the work under this Agreement.
- Submit a final copy of each executed subcontract.
- Notify and receive written approval from the CAM prior to adding any new subcontractors (see the discussion of subcontractor additions in the terms and conditions).

Products:
- Subcontracts *(draft if required by the CAM)*

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)
The goal of this subtask is to create an advisory committee for this Agreement. The TAC should be composed of diverse professionals. The composition will vary depending on interest, availability, and need. TAC members will serve at the CAM's discretion. The purpose of the TAC is to:

- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
  - Technical area expertise;
  - Knowledge of market applications; or
  - Linkages between the agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.
- Provide recommendations regarding information dissemination, market pathways, or commercialization strategies relevant to the project products.
- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.
- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate, to the extent the TAC members feel is appropriate, on behalf of the project in its effort to build partnerships, governmental support and relationships with a national spectrum of influential leaders.
- Ask probing questions that insure a long-term perspective on decision-making and progress toward the project's strategic goals.

The TAC may be composed of qualified professionals spanning the following types of disciplines:

- Researchers knowledgeable about the project subject matter;
- Members of trades that will apply the results of the project (e.g., designers, engineers, architects, contractors, and trade representatives);
- Public interest market transformation implementers;
- Product developers relevant to the project;
- U.S. Department of Energy research managers, or experts from other federal or state agencies relevant to the project;
- Public interest environmental groups;
- Utility representatives;
- Air district staff; and
- Members of relevant technical society committees.

The Recipient shall:

- Prepare a *List of Potential TAC Members* that includes the names, companies, physical and electronic addresses, and phone numbers of potential members.

The list will be discussed at the Kick-off meeting, and a schedule for recruiting members and holding the first TAC meeting will be developed.

- Recruit TAC members. Ensure that each individual understands member obligations and the TAC meeting schedule developed in subtask 1.11.
- Prepare a *List of TAC Members* once all TAC members have committed to serving on the TAC.
- Submit *Documentation of TAC Member Commitment* (such as Letters of Acceptance) from each TAC member.

Products:

- List of Potential TAC Members
- List of TAC Members
- Documentation of TAC Member Commitment

Subtask 1.11 TAC Meetings

The goal of this subtask is for the TAC to provide strategic guidance for the project by participating in regular meetings, which may be held via teleconference.

The Recipient shall:

- Discuss the TAC meeting schedule with the CAM at the Kick-off meeting. Determine the number and location of meetings (in-person and via teleconference) in consultation with the CAM.
- Prepare a *TAC Meeting Schedule* that will be presented to the TAC members during recruiting. Revise the schedule after the first TAC meeting to incorporate meeting comments.
- Prepare a *TAC Meeting Agenda* and *TAC Meeting Back-up Materials* for each TAC meeting.
- Organize and lead TAC meetings in accordance with the TAC Meeting Schedule. Changes to the schedule must be pre-approved in writing by the CAM.
- Prepare *TAC Meeting Summaries* that include any recommended resolutions of major TAC issues.

The TAC shall:

- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.
- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate on behalf of the project in its effort to build partnerships, governmental support and relationships with a national spectrum of influential leaders.
- Ask probing questions that insure a long-term perspective on decision-making and progress toward the project’s strategic goals.

- Review and provide comments to proposed project Draft Technology Transfer Plan.

Products:
- TAC Meeting Schedule (draft and final)
- TAC Meeting Agendas (draft and final)
- TAC Meeting Back-up Materials
- TAC Meeting Summaries

Subtask 1.12 Project Performance Metrics
The goal of this subtask is to identify key performance targets for the project. The performance targets should be a combination of scientific, engineering, techno-economic, and/or programmatic metrics that provide the most significant indicator of the research or technology's potential success.

The Recipient shall:
- Complete and submit the draft *Project Performance Metrics Questionnaire* to the CAM prior to the Kick-off Meeting.
- Present the draft *Project Performance Metrics Questionnaire* at the first TAC meeting to solicit input and comments from the TAC members.
- Develop and submit a *TAC Performance Metrics Summary* that summarizes comments received from the TAC members on the proposed project performance metrics. The *TAC Performance Metrics Summary* will identify:
  - TAC comments the recipient proposes to incorporate into the final *Project Performance Metrics Questionnaire*.
  - TAC comments the recipient does not propose to incorporate with and explanation why.
- Submit a final *Project Performance Metrics Questionnaire* with incorporated TAC feedback.
- Develop and submit a *Project Performance Metrics Results* document describing the extent to which the recipient met each of the performance metrics in the final *Project Performance Metrics Questionnaire*.
- Discuss the final *Project Performance Metrics Questionnaire* and *Project Performance Metrics Results* at the Final Meeting.

Products:
- Project Performance Metrics Questionnaire (draft and final)
- TAC Performance Metrics Summary
- Project Performance Metrics Results

Exhibit A
Scope of Work
The Association for Energy Affordability (AEA)

IV. TECHNICAL TASKS

TASK 2 STAKEHOLDER ENGAGEMENT

The goal of this task will solicit input on the technologies and approaches being considered for the project. Stakeholder groups include residents of similar properties, on-site social service and program providers, and First Community Housing asset management and property management.

Subtask 2.1 Performance Requirements

The purpose of this subtask is to define energy and resilience performance criteria at the outset of the project, based on past projects and stakeholder perspectives.

The Recipient shall:

- Conduct a series of "Shared Evaluation Walks" at existing properties in order to document successes and pitfalls of innovative systems used on previous projects within the First Community Housing portfolio. This process will include:
    - Participation of the core development and design team to establish a shared experience and awareness of the operating needs of this type of property
    - Interviews with on-site operations staff
    - Outreach to residents for participation on the design-phase advisory panel
    - A summary of key take-aways from the visits translated into success criteria that are incorporated into the **Owners Project Requirements**
- Conduct a "Resilience Planning Charrette" in order to:
    - Identify resilience assets and vulnerabilities of the site
    - Discuss and agree upon the building's desired support functions (operational and social/programmatic) before, during, and following a disruptive event.
    - Confirm Tier 1 and Tier 2 functions for microgrid design
    - Incorporate resilience goals into the *Owners' Project Requirement Summary Report*

Products:

- Owners' Project Requirement Summary Report

Subtask 2.2 Design Advisory Panel

The purpose of this subtask is to review the proposed design options with individuals that best represent the perspective of the residents and on-site staff, incorporate feedback into the final design solution, and document our community engagement strategy.

Exhibit A
Scope of Work
The Association for Energy Affordability (AEA)

The Recipient shall:

- Convene a Stakeholder Advisory Panel consisting of residents of similar properties, resident services providers and building operations personnel to:
    - Present and discuss load management, informational technologies and interface strategies for engaging residents in schematic design (Task 4.1)
    - Discuss and Identify strategies that are reasonable and legible interventions for residents in particular.
    - Re-convene the panel to review and "approve" the final design at the beginning of Construction Documents phase (Task 4.2)
- Document our methods of engaging stakeholders and gathering feedback into a *Community Engagement Plan* including:
    - Timeline of participation and target dates for events
    - Outreach materials and engagement formats for Site Walks, Resilience Charrettes (Task 2.1) and Advisory Panel convenings
    - Key messages, information accessibility and inclusion
    - Review from Project Team, Owner and City of San Jose
    - Outcomes and technical recommendations
- Attend the CPR meeting.
- Present the *CPR Report #1* at each CPR meeting.

Products:

- Community Engagement Plan
- CPR Report #1

TASK 3 ENERGY, EMISSIONS AND LOADS SIMULATION

The goal of this task is to identify and model optimized systems for Roosevelt Village to meet resilience and reliability targets, and to minimize operational energy, costs, and greenhouse gas emissions.

Subtask 3.1. Energy and Carbon Performance Modeling

The first goal of this subtask is to conduct a preliminary energy analysis calculating baseline whole building and energy end use profiles for space conditioning (heating, cooling, and ventilation), lighting, appliances, electrical plug loads, water heating end uses.

The second goal of this task is to model the economics, carbon impacts, and optimal sizing of the electrical system components for different design options evaluated in Task 3.1. The techno-economic model will be used to 1) optimally size distributed energy resources for various design scenarios; 2) assess the impact of energy efficiency measures on on-site generation and storage investments; 3) identify dispatch and control strategies that meet the goals of the solicitation, maximize benefits for tenants and the building owner, and minimize operational emissions.

Exhibit A
Scope of Work
The Association for Energy Affordability (AEA)

The modeling will be done in parallel with Task 4.1 and will be used to optimize the envelope (including exterior air barrier and internal compartmentalization targets), and to evaluate comfort and indoor air quality.

The Recipient shall:

- Collect initial building design and operation information needed to simulate a baseline model, representative of typical practice for this site.
- Hold regular design charrettes to ensure close collaboration between team members.
- Determine the most promising combinations of candidate technologies and design approaches for this particular building, ensuring that each case will meet or exceed the minimum design requirements of the solicitation (e.g., no residential grid power consumption 4-9pm).
- Develop a whole building model using EnergyPlus (and other tools
- as needed) for each case, working with team members on specific design, sizing, and selection of specific components of the model.
- For each case, simulate at least three representative years of weather and grid emissions data (e.g., the most recent historical year, 2050 mid-point scenario estimate)
- For each case, evaluate resilience by modeling the effect of adverse
- events such as power outages of differing lengths.
- Each simulation may result in the suggested outputs:
    - Peak load profiles under design day conditions
    - Annual hourly loads
    - Thermal comfort metrics
    - Indoor air quality metrics
    - Resilience metrics
    - Utility bill costs
- For each simulation, disaggregate results at the whole building level, at the end-use level (heating, cooling, DHW, lighting, etc.), and at the level of a representative sample of apartments.
- Iterate with team members working on other design and modeling subtasks as needed.
- Combine the best performing features of the above cases into a final design model of the building.
- Prepare and develop content for the *Draft Energy and Emissions Performance Model report*, to include the following at a minimum:
    - Summarize the performance of the final model compared to the baseline.
    - Summarize the findings of the modeling effort
    - Define the emerging technologies and strategies selected and why they were chosen, identifying findings that are specific to this particular site as well as those that may be more generally applicable to other projects.

    - Make recommendations to the developer's design team for considering specifying equipment
- Final design model, where feasible, simulate optimized control of DERs (thermal and electrical storage, PV, EVs, manageable plug-loads) for each design scenario. Ensure each case will meet or exceed the resiliency and reliability minimum design requirements of the solicitation (e.g., no residential grid power consumption 4-9pm, 20% peak capacity for grid-flexibility, indefinite back-up of Tier 1 loads, back-up of Tier 2 loads).
- Identify hourly tier 1,2,3 loads for the building based on energy use profiles produced in earlier modeling. Identify any opportunities for flexibility with each of these loads.
- If relevant or feasible, identify applicable rate structures, interconnection schemes (VNEM, NEM PV, etc.), ownership structures (e.g., 3rd party owned, CCA owned), and revenue potential from demand response and virtual-power-plant market participation to enable different microgrid configurations.
- Amend the *Energy and Emissions Performance Model Report* to include:
    - The results of modeling and analysis of selected microgrid system, evaluated according to the criteria developed above
    - For each case, make comparisons between recommended systems. This may include:
        - % of self-consumption
        - % of load curtailment
        - Levelized cost of energy
        - operational emissions
        - operational cost
        - trade-offs with various control strategies
    - Discuss how different load reduction equipment/strategies impact microgrid sizing, operation, and revenue
    - Discuss how different interconnection or financing schemes impact microgrid sizing, design, and revenue.
- Send Energy and Emissions Performance Model report for review and feedback with the electrical team and other researchers.
- Combine the best performing features of the above cases into a
    - final design model of the building.

Products:

- Energy and Emissions Performance Model Report (Draft/Final)

TASK 4 DESIGN DRAWINGS

The goal of this task is to document the design intent of the proposed zero-emissions alternate design package for the purposes of design team coordination, stakeholder engagement (Task 2), energy and emissions modeling (Task 3), contractor cost estimating, permit submittal, and construction documents.

Subtask 4.1. Schematic Design
The goal of this subtask is to describe and coordinate the basic components, physical constraints, and architectural impact (aesthetic, programmatic) of alternate structural systems, MEP systems, and DER scenarios that are to be compared on the basis of energy, carbon, and cost performance in Tasks 3 and 5.

The Recipient shall:

- Review and conform design scenarios to program and funding requirements, site constraints (e.g., utility connections), and Owner Project Requirements
- Estimate structural loads and lay out preliminary structural systems for alternate construction types being considered for cost and embodied emissions analysis (Task 5.1). Coordinate structural requirements with architectural design and layout.
- Conduct preliminary load calculations, requirements and diagrams for baseline and central hydronic heating and cooling system scenarios. Coordinate with structural and architectural design scenarios.
- Estimate electrical loads, electrical service area sizing, battery storage and PV requirements for an integrated electrical supply system.
- Hold regular coordination meetings as needed to resolve conflicts and exploit synergies in system integration
- Create a *Schematic Design Package* compiling sketches and diagrams of alternate design options under consideration to aid cost estimating.
- Include in the design package a diagram describing proposed microgrid configuration and control
- Create a *Basis of Design Narrative* that meets the owner's project requirements and accompanying *Outline Specification* to aid cost estimating
- Release the Design Package and Narrative to the Owner, Contractor and Team for review.

Products:

- Schematic Design Package
- Basis of Design Narrative
- Outline Specification

Subtask 4.2. Construction Drawings
The goal of this subtask is to fully describe the basic components of the zero-emissions design package, fully coordinate these components across disciplines, and to prepare documents for a complete cost estimate and revised performance model evaluation.

The Recipient shall:

- Re-evaluate and revise the Basis of Design based on the cost and energy/carbon analysis of the schematic design subtask work products in Task 3.

- Consult with City of San Jose inspection authorities to determine special code requirements
- Consult with manufacturers to successfully integrate technologies and coordinate space and other operational requirements across disciplines
- Create a *Construction Drawing Set and Specification* that fully describes the zero-emissions design package for cost estimating by the General Contractor and review by City of San Jose building officials.
- Compile the revised basis of design narrative, drawings and explanatory diagrams into a *Conceptual Design and Engineering Report*.

Products:

- Construction Drawing Set and Specification
- Conceptual Design and Engineering Report

TASK 5 BUDGET AND LIFE-CYCLE ANALYSIS

The goal of this task is to conduct a thorough evaluation of up-front costs of the systems being considered, along with embodied emissions. The up-front costs will be evaluated against predicted operating costs generated from energy modeling in Task 3 in order to identify any cost-benefit value to the owner and additional debt that can be leveraged up-front. Costs will be optimized together with life-cycle emissions to determine the acceptability of specific design options. Developing finance scenarios with and without Build Phase funds and engaging in value engineering of the proposed systems will also be essential in the project budgeting exercise.

Subtask 5.1. Advanced Construction Guidelines

The goal of this subtask is to evaluate specific alternate construction approaches for potential carbon and/or cost reduction in this sector. The results will be included in a Guide to Zero Emission Mixed-Use Construction in California (Task 6)

The Recipient shall:

- Summarize design changes to the standard design to achieve a cost-optimized mass timber version of the building (Task 4.1)
- Engage mass timber industry expert to obtain accurate costs for this mass timber building compared to the standard design (concrete podium with wood framing above) and to a full concrete building.
- Estimate embodied emissions associated with the three alternate designs, including assumed mechanical system integration
- Summarize procurement barriers for mass timber and guidelines for maximizing economic potential. The study will assess costs alongside the embodied emissions impact of each construction alternative.
- Hold coordination meetings as needed with framing subcontractor and structural engineer to discuss optimization of the wood-framed design scenario, including

how to maximize, standardize, and clearly represent prefabricated/modularized framing components
- Work with subcontractor to document cost reduction potential from structural optimization exercise
- Compile results into a *Section on Advanced Construction Opportunities* for the Zero Emission Mixed Use Construction Guide (Task 6)

Products:
- Section on Advanced Construction Opportunities

Subtask 5.2. Schematic Design Business Case Comparison
The goal of this subtask is to look holistically at the up-front cost and operating cost savings of select technologies under consideration compared to a standard design. In particular, we would evaluate the up-front costs and cost trade-offs of specific construction practices, load reduction technologies and distributed energy investments, and evaluate the magnitude of operating cost benefits.

The Recipient shall:
- Generate a detailed cost estimate for a complete standard design as it would proceed under business as usual, based on the project's outline specification and schematic drawings.
- Obtain up-front installation cost estimates for alternate mechanical systems options, microgrid components, and other discrete technologies under consideration for the zero-emissions design, as outlined in Task 4.1.
- Determine an appropriate framework and modeling tool to evaluate embodied carbon associated with materials, construction, and overall life cycle of the building.
- Estimate embodied emissions associated with discrete, high-impact design options such as batteries, refrigerant, and envelope system components to be evaluated relative to cost and carbon savings.
- Connect General Contractor and subcontractors with equipment vendors to clarify costs of emerging technologies
- Document up-front cost estimates in a *Schematic Design Price Estimate*
- Summarize the different payback periods and risk/reward profiles of different design configurations given different ownership structures. Grade them according to investment-ranking standards and revenue potential to finance Roosevelt Village and scale the model. This includes, but not limited to:
    - 3rd-party 'developer' based on non-recourse project finance
    - Utility-based, metering the energy saved at the building using real-time
    - Demand Reduction Induced Price Effect (DRIPE) a measurement of the value of demand reductions in terms of decreased wholesale energy prices.

- Summarize methodology and findings in a *Preliminary Zero-Emission Cost-Benefit Analysis Report* and incorporate previous findings from Task 3 as needed.

Products:
- Schematic Design Price Estimate
- Preliminary Zero-Emission Cost-Benefit Analysis Report

Subtask 5.3. Final Cost Estimate and Project Budgeting
The goal of this task is to finalize budget and refine the projected costs and feasibility of the final zero-emissions design package.

The Recipient shall:
- Convene First Community Asset Management and Development staff to discuss assumed operating budgets under business as usual and zero-emission design, and the financing leverage thereof
- Hold a meeting with First Community Housing and finance and sustainability consultants at California Housing Partnership to discuss financing scenarios that may support the construction budget with and without Build Phase funds, given Tax Credit program restrictions.
- Produce an itemized cost estimate of baseline and zero-emissions alternate design measures based on the Construction Drawing Set and Specification (Task 4.2)
- Set updated costs alongside financing scenarios and establish target for value engineering
- Re-evaluate design alternates for value engineering and document trade-offs in performance metrics as set forth in this application and Owners Project Requirements
- Summarize process in a *Final Cost Estimate Report***.**

Products:
- Final Cost Estimate Report

TASK 6 MARKET TRANSFORMATION
The goal of this task is to synthesize best practices in a guide for Zero Emission Mixed-Use Construction in California to document how design teams and developers can quickly identify technologies by ownership structures that can best support similar projects to Roosevelt Village.

The Recipient Shall:
- Identify the most promising configurations of prefabricated building products, building efficiency, advanced controls and demand/supply side resources and

formulate a series of packages, or scenarios for achieving interoperability and resilience, according to parameters of the building program and site, such as height/zoning, resident population, and density. Methods of information gathering may include:
    - Synthesize findings and concepts from Tasks 2, 3 & 4
    - Interview other award-recipients of the Design Phase
    - Literature review
- Compile results into an easily accessible guide, targeting multifamily developers, architects and engineers for the *Guide Zero Emission Midrise Mixed-Use Construction in California.*
- Attend the CPR meeting.
- Present the *CPR Report #2* at each CPR meeting.

Products:
- Guide to Zero Emission Midrise Mixed-Use Construction in California (Draft/ Final)
- CPR Report #2

TASK 7 EVALUATION OF PROJECT BENEFITS
The goal of this task is to report the benefits resulting from this project.

The Recipient shall:
- Complete the Initial Project Benefits Questionnaire. The Initial Project Benefits Questionnaire shall be initially completed by the Recipient with 'Kick-off' selected for the 'Relevant data collection period' and submitted to the CAM for review and approval.
- Complete the Annual Survey each year as of January 31st. The Annual Survey includes but is not limited to the following information:
    - Technology commercialization progress
    - New media and publications
    - Company growth
    - Follow-on funding and awards received
- Complete the Final Project Benefits Questionnaire. The Final Project Benefits Questionnaire shall be completed by the Recipient with 'Final' selected for the 'Relevant data collection period' and submitted to the CAM for review and approval.
- Respond to CAM questions regarding the questionnaire drafts.
- Complete and update the project profile at least once a year at a minimum by January 31st every year on the CEC's public online project and recipient directory on the Energize Innovation website (www.energizeinnovation.fund), and provide Documentation of Project Profile on EnergizeInnovation.fund, including the profile link.

- If the Prime Recipient is an Innovation Partner on the project, complete and update the organizational profile on the CEC's public online project and recipient directory on the Energize Innovation website (www.energizeinnovation.fund), and provide Documentation of Organization Profile on EnergizeInnovation.fund, including the profile link.

Products:

- Initial Project Benefits Questionnaire
- Annual Survey(s)
- Final Project Benefits Questionnaire
- Documentation of Project Profile on EnergizeInnovation.fund
- Documentation of Organization Profile on EnergizeInnovation.fund

TASK 8 TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

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

The Recipient Shall:

- Develop and submit a *Project Case Study Plan (Draft/Final)* that outlines how the Recipient will document the planning, construction, commissioning, and operation of the technology or system being demonstrated. The *Project Case Study Plan* should include:
  - An outline of the objectives, goals, and activities of the case study.
  - The organization that will be conducting the case study and the plan for conducting it.
  - A list of professions and practitioners involved in the technology's deployment.
  - Specific activities the recipient will take to ensure the learning that results from the project is disseminated to those professions and practitioners.
  - Presentations/webinars/training events to disseminate the results of the case study.
- Present the *Draft Project Case Study Plan* to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments* that summarizes comments received from the TAC members on the *Draft Project Case Study Plan*. This document will identify:
  - TAC comments the recipient proposes to incorporate into the *Final Technology Transfer Plan*.
  - TAC comments the recipient does not propose to incorporate with and explanation why.
- Submit the *Final Project Case Study Plan* to the CAM for approval.

- Execute the *Final Project Case Study Plan* and develop and submit a *Project Case Study (Draft/Final)*
- When directed by the CAM, develop presentation materials for an CEC-sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the California CEC.
- Provide at least (6) six *High Quality Digital Photographs* (minimum resolution of 1300x500 pixels in landscape ratio) of pre and post technology installation at the project sites or related project photographs.

Products:

- Project Case Study Plan (Draft/Final)
- Summary of TAC Comments
- Project Case Study (Draft/Final)
- High Quality Digital Photographs

TASK 9 BUILD PHASE SELECTION

The goal of this task is to conduct activities and prepare deliverables for the selection process for the Build Phase. These deliverables will be used to select which Design Phase projects will receive funding for the Build Phase. In addition, deliverables developed under this task will be used to amend the agreement for those projects chosen to move onto Build Phase.

The Recipient shall:

- Develop and prepare *Conceptual Design and Engineering Report*, describing drawings, design plans, and photos of an architectural-scale model of the project. At least photos from each perimeter side of the model shall be included in the report (e.g., north, east, south, and west views). The actual architectural-scale models will be on display during the team's project presentation at the event, as well as during a model showcase networking session
- Develop and submit an *Energy and Emissions Performance Model Report*, detailing the plan for software modeling of the development's expected energy and emissions performance and impacts on tenants' energy bills.
- Prepare and submit an *Emerging Technologies and Strategies Report*, describing the emerging technologies and strategies proposed to be used in the Build Phase and why they were chosen.
- Prepare and submit a *Zero-Emission Cost-Benefit Analysis Report* detailing the estimated cost difference between the zero-emission build-out compared to standard building design, construction, and operations.
- Prepare and submit a *Community Engagement Plan* documenting the strategy for soliciting and incorporating input from the community throughout the design process.

Exhibit A
Scope of Work
The Association for Energy Affordability (AEA)

- Create and submit a two-minute *Concept Video* that will air at the Zero-Emission Building Forum (i.e., Showcase Event).
- Develop and submit additional *Presentation Materials* for the Zero-Emission Building Forum, as determined and requested by the CAM.
- Provide a presentation to the Build Phase Evaluation Committee.
- Develop and submit a Build *Phase Amendment* Package that includes revisions as necessary to all of the Design Phase "full application" attachments:
    - Attachment 4 -EPIC Application Form (i.e., Design Phase application, confirmed and/or amended, as necessary, for the Build Phase)
    - Attachment 5 -EPIC Executive Summary (i.e., Design Phase application, confirmed and/or amended, as necessary, for the Build Phase)
    - Attachment 6 -EPIC Project Narrative (i.e., Design Phase application, confirmed and/or amended, as necessary, for the Build Phase)
    - Attachment 7 – Project Team Form
    - Attachment 8 – Scope of Work
    - Attachment 9 – Project Schedule
    - Attachment 10 – Budget
    - Attachment 11 – CEQA Compliance Form (Must be filled out again, to reflect at a minimum: (a) changes in the proposed project and (b) any changed external circumstances that are relevant to the prior environmental impact analysis.) (Applicant must confer with Lead Agency, if proposed project has increased in magnitude or changed in a way that is relevant to the prior environmental impact analysis.)
    - Attachment 12 – References and Work Product Form
    - Attachment 13 – Commitment and Support Letters
    - Attachment 14 – Project Performance Metrics
    - Attachment 15 --Applicant Declaration (must be filled out again)

Products:

- Conceptual Design and Engineering Report
- Energy and Emissions Performance Model Report
- Emerging Technologies and Strategies Report
- Zero-Emission Cost-Benefit Analysis Report
- Community Engagement Plan
- Concept Video
- Presentation Materials
- Build Phase Amendment Package that includes revisions to the following Design Phase attachments:
    - Attachment 4 -EPIC Application Form
    - Attachment 5 -EPIC Executive Summary
    - Attachment 6 -EPIC Project Narrative
    - Attachment 7 – Project Team Form
    - Attachment 8 – Scope of Work

- Attachment 9 – Project Schedule
- Attachment 10 – Budget
- Attachment 11 – CEQA Compliance Form
- Attachment 12 – References and Work Product Form
- Attachment 13 – Commitment and Support Letters
- Attachment 14 – Project Performance Metrics
- Attachment 15 --Applicant Declaration

V. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.

RESOLUTION NO: 22-0511-18c

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: SOLA IMPACT OPPORTUNITY ZONE FUND, LP

RESOLVED, that the State Energy Resources Conservation and Development Commission (CEC) adopts the staff CEQA findings contained in the Agreement or Amendment Request Form (as applicable); and

RESOLVED, that the CEC approves Agreement EPC-21-032 with SoLa Impact Opportunity Zone Fund, LP, for a $1,000,000 grant to design the Making Green Accessible affordable housing project with 50 or more sustainable, low-impact, zero-emissions homes in Compton, California. Centered around a mixed-use Resilience Hub, the project will provide innovative green technologies combined with an environmentally and socially conscious financial structure to establish a self-sustaining, resilient ecosystem; and

FURTHER BE IT RESOLVED, that the Executive Director or their designee shall execute the same on behalf of the CEC.

CERTIFICATION

The undersigned Secretariat to the CEC does hereby certify that the foregoing is a full, true, and correct copy of a Resolution duly and regularly adopted at a meeting of the CEC held on May 11, 2022.
AYE:
NAY:
ABSENT:
ABSTAIN:

_____
Liza Lopez
Secretariat