STATE OF CALIFORNIA

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 12/2019) CALIFORNIA ENERGY COMMISSION

A) New Agreement # EPC-21-028 (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
Electric Power Research Institute, Inc.	23-7175375

D) Title of Project
Net Positive Resilient All-Electric Affordable Housing at Pacific Station North Transit Center in Downtown Santa Cruz

E) Term and Amount

Start Date	End Date	Amount
5/16/2022	6/30/2024	$ 1,000,000

F) Business Meeting Information

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

Proposed Business Meeting Date 4/26/2022 ☐ Consent ☒ Discussion

Business Meeting Presenter Michael Ferreira Time Needed: 5 minutes

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

Agenda Item Subject and Description:

Electric Power Research Institute, Inc. Proposed resolution approving Agreement EPC-21-028 with Electric Power Research Institute, Inc. for a $1,000,000 grant to fund the design of emerging technologies and building systems integration to enable a ZNE, all-electric, transit-integrated affordable multifamily community with 94 apartments and embedded with mixed-use commercial usage in downtown Santa Cruz, and adopting staff's determination that this action is exempt from CEQA. (EPIC funding) Contact: Michael Ferreira. (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:
     - ☒ Categorical Exemption. List CCR section number: 14 CCR 15332
     - ☐ Common Sense Exemption. 14 CCR 15061 (b) (3)

Explain reason why Agreement is exempt under the above section:

14 CCR section 15332 provides that projects characterized as in-fill development are categorically exempt from environmental review if the projects meet the following conditions: (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations. (b) The proposed development occurs within

city limits on a project site of no more than five acres substantially surrounded by urban areas. (c) The project site has no value, as habitat for endangered, rare or threatened species. (d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality. (e) The site can be adequately served by all required utilities and public services.

The City of Santa Cruz, as lead agency, determined and documented that the proposed project qualifies for the section 15332 categorical exemption for infill development. The project is consistent with General Plan and zoning land use designations and density and all applicable General Plan policies and zoning regulations. The 0.7-acre site is located within city limits, is less than five acres in size and is surrounded by urban residential and commercial development in the downtown area. The project site was fully developed within the last two years and is not within mapped areas of potential sensitive habitat areas as depicted on City plans, and there are no known endangered or threatened species due to site's location within a developed urban area. Thus, the project has no value as habitat for endangered, rare, or threatened species. The project site is located in close proximity to the river and will be required to comply with the city regulations that require bird-safe development. The proposed project is not expected to result in significant effects relating to traffic or air emissions in that the project site is located directly adjacent to the Santa Cruz Metro Center, the main transit center for the City of Santa Cruz, and the residences will be within walking and biking distance to employment, commercial goods and services, and recreational opportunities. Parking for the commercial and office uses is located within shared parking facilities that service the Downtown area and the project will be required to pay into the district for parking deficiencies that will fund future improvements and maintenance of these shared facilities. The project will be required to comply with City stormwater requirements and a noise study will be required prior to building permit issuance to ensure compliance with the city's noise ordinance. Thus, the project would not result in significant impacts related to traffic, noise, air quality, or water quality. The site can be adequately served by all required utilities and public services, as existing utilities infrastructure already serves the project area and is sized sufficiently to serve the proposed use.

Additionally, the lead agency determined that none of the potential exceptions to the section 15332 categorical exemptions under section 15300.2 apply to the project or the project site.

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**
EPRI International	$ 0 (Match only)
Mithun, Inc.	$ 99,300
City of Santa Cruz	$ 50,920

Legal Company Name:	Budget
First Community Housing	$ 94,864
PAE Consulting Engineers, Inc.	$ 98,800
Redwood Energy, Inc.	$ 74,705

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	18-19	301.001F	$500,000
EPIC	20-21	301.001H	$500,000

R&D Program Area: EDMFO: EDMF TOTAL: $ 1,000,000

Explanation for "Other" selection

Reimbursement Contract #: Federal Agreement #:

K) Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Zach Allan

Address: 3420 Hillview Ave

City, State, Zip: Palo Alto, CA 94304-1355

Phone: (650) 855-8989

E-Mail: zallen@epri.com

2. Recipient's Project Manager

Name: Zach Allan

Address: 3420 Hillview Ave

City, State, Zip: Palo Alto, CA 94304-1355

Phone: (650) 855-8989

E-Mail: zallen@epri.com

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
Electric Power Research Institute, Inc.

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR	Task Name
1		General Project Tasks
2		Development and Design; Energy & Building Envelope
3		Community Engagement
4	X	Site Readiness, Permitting/Pre-construction
5		Evaluation of Project Benefits
6		Technology/Knowledge Transfer Activities
7		Build Phase Selection

B. Acronym/Term List

Acronym/Term	Meaning
AHJ	Authority Having Jurisdiction
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CLT	Cross-Laminated Timber
CPR	Critical Project Review
DR	Demand Response
DSRIP	Demand Side Resource Integration Platform
EDR	Energy Design Rating
ERV	Energy Recovery Ventilation
GHG	Greenhouse Gas
GWP	Global Warming Potential
HP	Heat Pump
HVAC	Heating, Ventilation, & Air Conditioning
IAQ	Indoor Air Quality
LEED	Leadership in Energy and Environmental Design
LCA	Life-Cycle Analysis
PV	Photovoltaic
SHGC	Solar Heat Gain Coefficient
TAC	Technical Advisory Committee
VRF	Variable Refrigerant Flow
WSHP	Water Source Heat Pump

EXHIBIT A
Scope of Work
Electric Power Research Institute, Inc.

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

A. Purpose of Agreement

The purpose of this Agreement is to fund the design of emerging technologies and building systems integration to enable a zero-net energy, all-electric, transit integrated affordable multifamily community with approximately 94 apartments and embedded with mixed use commercial usage. This community is designed as a zero-carbon and climate resilient building focused on positive, equitable outcomes for low-income residents. Energy efficient, zero emission design approaches will significantly cut *operational* carbon, while a mass timber structural system significantly reduces *embodied* carbon and sequesters carbon on site. This project will include approximately 94 deeply affordable housing units, ~9,000 SF of second floor office space, and ~10,000 SF of ground floor commercial space including a regional bus transit hub, located on the 2-acre urban infill site in Santa Cruz, CA. This project will be an exemplary demonstration of how to integrate leading energy-efficiency technologies, tools and construction practices affordably and innovatively into the design and construction of mixed-use mid-rise developments that are equitable, climate-resilient, and cost-competitive.

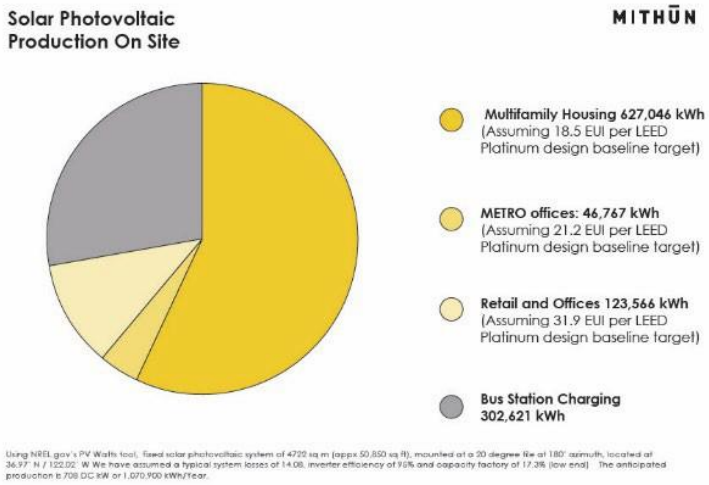
B. Problem/ Solution Statement

Problem

The challenge of affordable housing availability bedevils the state of California and the country as a whole. However, much of the affordable housing stock is inefficient, leaky, and uncomfortable. Achieving the state goals for a net zero carbon economy by 2045 will require every one of our current new buildings to get as close to carbon neutrality as possible. What is needed are beacons and showcases that illustrate to developers around the state on how to design zero carbon buildings that are still cost effective, improve health outcomes, and reduce the energy burden for the disadvantaged populations in the state. At the same time, climate resilience and adaptation are becoming imperatives in our state, and we need to demonstrate how these low carbon buildings can enhance resilience and adaption.

Solution

The design of the community will aim to reduce and/or eliminate carbon footprint across all elements – embodied, operational and transportation. This will be the first of its kind mass timber multifamily building in the Central Coast, with a holistic decarbonization approach covering operational, embodied and transportation emissions. Thoughtful architectural design – from massing to solar shading and wall assemblies – responds to local climatic conditions and will result in a high performance, energy efficient building. A large 1.0 MW solar photovoltaic array above bus loading bays will provide zero-emission clean energy supply for the common areas, residential units, commercial /mixed use spaces, electric bike stands and reduce the urban heat island effect with green infrastructure. As the Santa Cruz Metro bus fleet eventually transitions to all electric buses, the station will provide electric charging capacity on site. The project will demonstrate the viability of "no gas line" mixed use commercial with retail food service using 'warming kitchen' with induction stoves, microwave ovens, steam trays, and insulated cookware. This project will innovate with the use of Mass Timber CLT Type IV Construction for the building structure. To reduce GWP impacts of structural and non-structural concrete, the team will include specifications for the composition of concrete that maintains adequate strength and durability while also reducing GHG emissions using the highest possible percentage of cement-replacements, or SCMs. The team will implement data-driven Life Cycle Assessment (LCA) throughout the design process to continuously analyze and mitigate environmental impacts.



Estimated Energy Budget for Community

The project energy design will use centralized mechanical systems with master metering that makes advantageous use of the large PV array. The project will use their substantial design expertise to achieve a 30% EDR reduction before solar compared to the upcoming new 2022 Multifamily building code (which is already 15% below 2019 code). Key energy efficiency measures will include high performance insulation to substantially improve both insulation levels of the envelope as well as air sealing, eliminating duct losses and high efficiency VRF HVAC systems, with an aim to reduce power intensity of lighting by 50% compared to baseline. This project will implement central heat pumps water heaters with external thermal energy storage and electric dryers. Innovative emerging technologies that will be applied in the project include:

- Low power heat pump dryers such as ones from Miele
- Low GWP refrigerant (CO2) air-source and water-source heat pump technologies from Sanden, Mayekawa and Mitsubishi, with potential waste heat recovery (e.g., Sharc Piranha)

- Very high efficiency centralized HVAC systems with low GWP refrigerants such as VRF systems in combination with ERVs to reduce HVAC energy use by 30%.

These systems will be designed for control by both tenants and the building owner (to prevent abuse and high bills) with capability for demand response. Controllable systems that provide 20% load reduction capability will include OpenADR capable HVAC system control, controllable thermostats with “hotel” mode, a CTA-2045 capable central water heating system with built in thermal storage for solar self-consumption and built-in lighting controls that allow dimming and turning off low priority lighting (and in accordance with T24 code). To aggregate the DERs, EPRI’s Open Demand Side Resource Integration Platform (developed through EPC 15-075) will be used along with its capability to deliver real time pricing to end devices. This platform architecture with the energy data management system will be used for demand response and bidding into CAISO. This platform is already proven to be able to provide 5 min rate signaling to end devices, which is a requirement for the MiDAS effort being undertaken by the CEC. This capability was proven in a prior EPIC project, EPC 15-075. The integration of microgrid controllers with DSRIP (from prior projects like EPC 16-068) will be used to achieve all the requirements for load reduction and resilient operation in islanded mode. The system architecture for DER aggregation, removing grid power draw during peak and islanding is shown in the figures below.

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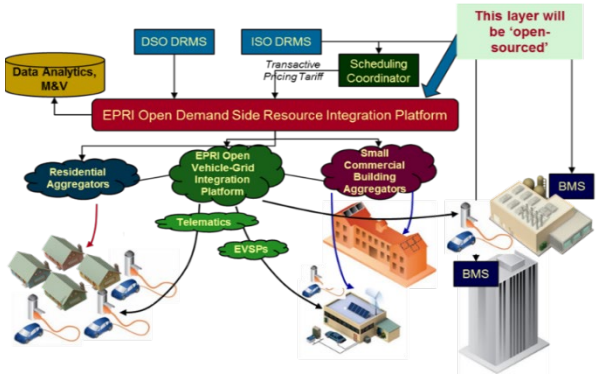
<td> 
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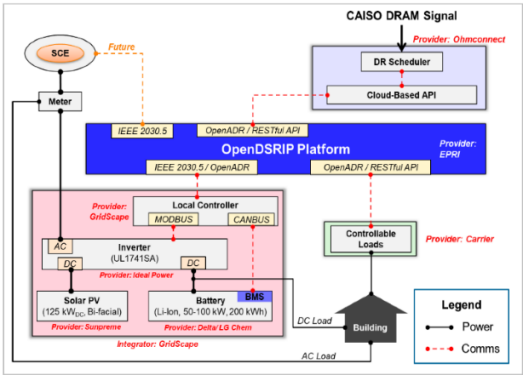
<td> 
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<td>OpenDSRIP DER aggregation platform</td>
<td>DC connected microgrid design w/ ISO DR</td>
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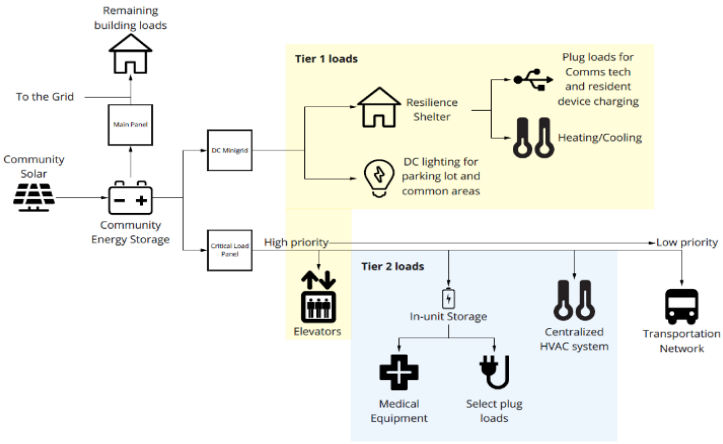
Beyond the project's climate-change *mitigation* strategies via operational and embodied carbon reduction, the design also incorporates climate-change *adaptation* and resilience principles. Fundamentally, the project includes a tight thermal building envelope, intentional massing and shading which improve energy performance and 'passive survivability' of future climate impacts. Perhaps of most importance is the way in which the microgrid will provide critical power to the community room to double as a "resilience hub" with the ability to island. This proposed power system would power critical building systems that support resident well-being, such as air conditioning and filtration (during heat waves and wildfire incidents), refrigeration (for storing essential medications), basic power and light (including for charging personal devices), and cooling for data and wi-fi so that community members can connect to the internet. The resilience hub's operability minimizes disruption in low-income residents' lives and will directly support residents' wellbeing, health, and security. It will also mitigate the disproportionate and inequitable impacts of climate change and environmental injustice felt in disadvantaged communities. For many utilities, customers who require resiliency may also qualify for their low-income programs. This project proposes an innovative approach to ensuring resilience of power supply for customers, this is achieved through a combination of:

1. Weatherization
2. Thermal Energy Storage
3. Fire resilient building skin
4. Rethinking Building Electric Infrastructure
5. Tiering critical loads



Illustrative example of the innovative resilience electrical infrastructure

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Design an all-electric, net zero affordable multifamily community with a site density of 139 dwellings per acre, with an approximate 50% reduction in tenant energy burden, a 40% reduction in embodied carbon, and a 90% reduction in operational carbon.
- Eliminate net energy use from the community between the hours of 4 and 9 PM while ensuring uninterrupted, renewable based power for Tier 1 loads, which will comprise 10% of total energy use of the building.

EXHIBIT A
Scope of Work
Electric Power Research Institute, Inc.

Ratepayer Benefits:[1] This Agreement will result in the following ratepayer benefits:

- Enabling State Policy Goals: By demonstrating how to achieve all-electric, zero operational carbon communities with substantially reduced embodied carbon, at zero to low incremental cost, this project will provide a template to demonstrate that can be adopted by new developments around the state in a race to achieve the goals of SB 100.
- Greater Electricity Reliability. This project will provide new data, analysis, and designs for cost effective all-electric and net zero residential communities, which will improve reliability with the integration of energy efficiency, demand control, and renewable power with buildings and the smart grid.
- Climate Adaptation Benefits for affordable housing customers: This project will demonstrate a much higher level of resilience for affordable housing occupants by:
    - A better envelope that reduces the impacts of climate change driven heat waves
    - A better HVAC system that can reduce their energy burden while still being able to provide protection against smoke related IAQ issues
    - An innovative electrical architecture that can provide support to individual apartments during PSPS and other disruptions to enable in-unit medical devices and critical devices to operation
    - Creating an emergency shelter concept for underserved communities that enables provision of basic services during times of disruption

Lower Costs. Significant savings in money, resources, operation and maintenance, energy, and greenhouse gases are available. Both ratepayers and customers benefit from implementing ZNE residential communities.

Technological Advancement and Breakthroughs:[2] 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

1. Eliminating operational carbon emissions through full electrification and offsetting with site based solar
2. Reduce fossil fuel usage in transportation by co-locating with the transit center, reducing car usage and enabling electrification of the bus fleet.
3. Evaluate a whole series of emerging technologies for implementation within this community and spending in depth time on understanding the readiness and applicability of these technologies, which may include:

[1] 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).

- Building Envelope: achieving near passive house design, 0.22 u-factor window directionally optimized for SHGC, infrared paint, sun shading strategies to include landscape as well as projections
- HVAC: Lunos thru wall ERV, Centralized system w/ intake slots for framed filters, Ephoca Unit level HRV based HP, thermal storage integrated with WSHP, centrally controllable mesh/Wi-Fi networked thermostats
- Water Heating: CO2 centralized heat pump water heaters, additional thermal storage, R-12 insulation for storage, Waste Heat drain recover, localized in-unit heat pumps
- Lighting: 115+ Lumens/watt lighting, networked exterior lighting, dark sky enhanced lighting, sensing/dimming light, Fully DR compatible lighting controls
- Plugs and Appliances: Color coded switch for turning off a set of receptacles, smart strips, dedicated resilience socket, R-600 fridge, glass top stove, heat pump or condensing dryers, low water driers, Low GWP commercial refrigerants
- Renewable & Zero Peak Loads- Bifacial PV for parking lot applications, evaluate DSRIP as a centralized energy management and energy information platform
- Resilience: Parallel AC-DC architecture within buildings for resilience, a designed "emergency shelter" type community center with multiple phone charging stations and internet access; Tier 1 loads optimized for renewable based continuous operation.
- Low Embodied Carbon Design: Concrete and cement reduction strategies, low-carbon concrete mixes and mass timber framing.

Agreement Objectives

The objectives of this Agreement are to:

- Conduct economic analysis to ensure that tenants reduce their energy burden (net of all energy bills) by 50% or more after VNEM allocations
- Develop a plan and design the building to reduce carbon embedded in the building and released during the construction process by 40%
- Apply energy management of end use devices and systems, along with deploying energy storage and managing EV chargers to eliminate net energy use from the building between 4 and 9 pm
- Design the electrical systems in the building to be capable of islanding and shedding discretionary loads to provide power to Tier 1 critical loads indefinitely and Tier 2 critical loads for 24 hours
- Evaluate a series of innovative emerging technologies that are in early commercial stage for incorporation within the building design
- Work with the community to understand their drivers around energy use, indoor air quality and total energy burden.
- Obtain permits for construction with the innovative design

EXHIBIT A
Scope of Work
Electric Power Research Institute, Inc.

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:

<u>For products that require a draft version, including the Final Report Outline and Final Report</u>

- 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.

<u>For products that require a final version only</u>

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

<u>For all products</u>

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

EXHIBIT A
Scope of Work
Electric Power Research Institute, Inc.

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.

EXHIBIT A
Scope of Work
Electric Power Research Institute, Inc.

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.

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).

EXHIBIT A
Scope of Work
Electric Power Research Institute, Inc.

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 finalize key performance targets for the project based on feedback from the TAC and report on final results in achieving those targets. 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 project performance metrics from the Initial Project Benefits Questionnaire, developed in the Evaluation of Project Benefits task, to the CAM.
- Present the draft project performance metrics 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 Initial Project Benefits Questionnaire, developed in the Evaluation of Project Benefits task.
  - TAC comments the Recipient does not propose to incorporate with and explanation why.
- 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 Benefits Questionnaire, developed in the Evaluation of Project Benefits task.
- Discuss the Project Performance Metrics Results at the Final Meeting.

Products:

- TAC Performance Metrics Summary
- Project Performance Metrics Results

IV. TECHNICAL TASKS

TASK 2: DEVELOPMENT AND DESIGN; ENERGY & BUILDING ENVELOPE

The goal of this task is to understand the co-benefits of robust building envelope and energy performance modeling including thermal comfort modeling and/or daylight modeling analysis. Whole building LCA will be included as to quantify embodied carbon and other environmental impacts in material selection and overall building design. Emerging technologies that may be explored include, but are not limited to:

- Building Envelope: achieving near passive house design, 0.22 u-factor window directionally optimized for SHGC, infrared paint, sun shading strategies to include landscape as well as projections
- HVAC: Lunos thru wall ERV, Centralized system w/ intake slots for framed filters, Ephoca Unit level HRV based HP, thermal storage integrated with WSHP, Centrally controllable mesh/Wi-Fi networked thermostats, advanced duct distribution system to reduce fan power / electric loads.
- Water Heating: CO2 centralized heat pump water heaters, additional thermal storage, r-12 insulation for storage, Waste Heat drain recover, localized in-unit heat pumps
- Lighting: 115+ Lumens/watt lighting, networked exterior lighting, dark sky enhanced lighting, sensing/dimming light, Fully DR compatible lighting controls
- Plugs and Appliances: Color coded switch for turning off a set of receptacles, smart strips, dedicated resilience socket, R-600 fridge, glass top stove, heat pump or condensing dryers, low water driers, Low GWP commercial refrigerants
- Renewable & Zero Peak Loads: Bifacial PV for parking lot applications, OpenDSRIP as a centralized energy management and energy information platform
- Resilience: Parallel AC-DC architecture within buildings for resilience, a designed “emergency shelter” type community center with multiple phone charging stations and internet access; Tier 1 loads optimized for renewable based continuous operation.
- Low Embodied Carbon Design: Concrete and cement reduction strategies, low-carbon concrete mixes and mass timber framing
- Metering Topology vs. operational benefits: Master/tenant metering paradigms to understand first costs and future migration feasibility, overlaying this with cash-flow implications for both the building /owner operator and affordable-unit tenants

The Recipient shall:

- Evaluate interactions between envelope systems noted in option selection matrix and produce energy modeling reports for code, baseline, and emerging technology options. Produce *Energy Modeling Report*
- Leverage energy modeling results to produce *Load Management Report*
- Conduct a Resilience Strategies Analysis that will include implementation of following: passive design strategies, increase fire resistance at exterior building envelope, resiliency hub (resilience energy infrastructure), and IAQ mitigations in unhealthy air events
- Leverage the Resilience Strategies Analysis to prepare *Resiliency Architecture Report*.
- Perform life cycle assessment of environmental impact for the whole building, both construction materials and construction strategies, utilizing the Tally Environmental Impact tool and prepare report on life cycle assessment.
- Prepare *Life Cycle Environmental Impact Report*
- Advance the design and integration of systems in collaboration with Owner and consultants.
- Coordinate preliminary Project Manual Division 1 requirements with Owner. Generate and coordinate technical specifications; identify preliminary scope of delegated design services.
- Prepare for and participate in Life Safety and Energy Code pre-application meetings with the local jurisdiction officials.
- Prepare materials for Design Review and participate in Design Review Presentations.
- Establish cost plan for iterative design packages
- Prepare *Architectural & Mechanical Design Documents*

Products:

- Energy Modeling Report
- Load Management Report
- Resiliency Architecture Report
- Life Cycle Environmental Impact Report
- Architectural & Mechanical Design Documents

TASK 3: COMMUNITY ENGAGEMENT

The goals of this task are to obtain pre-occupancy evaluation from stakeholders, including tenants, developers, and property management. In order to properly vet the proposed emerging technologies multiple charettes, discussions and surveys will be conducted throughout the design and permitting process. Educational sessions for prospective affordable housing tenants and local community will also include a separate children's session on energy use.

The Recipient shall:

- Organize monthly review of proposed systems with developer and property/asset management teams and develop and maintain the *Equipment and Material List*.
- Conduct pre-occupancy evaluation and educational sessions with proposed tenants, to include utility allowance calculation for participants
- Prepare *Operation and Management Manual* for property management review, to include list of equipment manuals and maintenance procedure summaries for discussion regarding possible risks and opportunities
- Analyze data and publish findings from surveys in a *Survey Report* detailing the analysis.

Products:

- Equipment and Material List
- Operation and Management Manual
- Survey Report

TASK 4: SITE READINESS, PERMITTING/ PRE-CONSTRUCTION

The goals of this task are to incorporate the design analysis and systems selection into permit documents and work with the City of Santa Cruz towards an approved set of permit documents.

The Recipient shall:

- Work with the City of Santa Cruz on completion of zoning parcel maps, securing site control and developer agreements for all four parcels.
- CEQA, entitlements, and Costal Commission approval for this project have been secured- all design development & permitting will fall under these conditions of approvals or through accepted alternate means and methods.
- Advance design and coordination with other disciplines; develop details necessary to communicate design intent.
- Conduct design charette activities working with contractors, device manufacturer and site owner and prepare *Design Report* for review and pricing
- Generate and submit a *Building Permit Application.* Respond to permit review comments. Submit permit drawing package.
- Develop a *Sustainability Plan* and *LEED Scorecard* to advise the owner about the necessary Sustainability Plan adjustments to achieve LEED platinum.
- Update Sustainability Plan and LEED scorecard as necessary
- Coordinate and update Division One and architectural specification sections.
- Coordinate and compile technical specification sections produced by the design consultants; define the extent of delegated design services.
- Identify delegated design services and incorporate the necessary performance and design criteria in specifications.
- Following Building Permit Application, develop remaining construction details and specifications.

- Develop *Construction Drawings and Project Specification Manual for Bid Package*
- Develop *Permit Drawing Package* required for permitting by the local AHJ and submit permit once approved.
- Initiate pre-construction coordination meetings.
- Receive *permit approvals* by local Authority Having Jurisdiction
- Prepare *CPR Report* and participate in a CPR meeting in accordance with subtask 1.3.
-

Products:

- Design Report
- Building Permit Application
- Sustainability Plan and LEED Scorecard (Draft/Final)
- Permit Drawing Package
- Construction Drawings and Project Specification Manual for Bid Package
- Permit Approvals
- CPR Report

TASK 5: 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 6: 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 7: 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.

- 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: 22-0426-5b

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: Electric Power Research Institute, Inc.

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-21-028 with Electric Power Research Institute, Inc. for a $1,000,000 grant to fund the design of emerging technologies and building systems integration to enable a ZNE, all-electric, transit-integrated affordable multifamily community with 94 apartments and embedded with mixed-use commercial usage in downtown Santa Cruz; 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 April 26, 2022.
AYE:
NAY:
ABSENT:
ABSTAIN:

Liza Lopez
Secretariat