



GRANT REQUEST FORM (GRF)

A) New Agreement # EPC-19-032

| B) Division | Agreement Manager: | MS- | Phone |
|-------------|--------------------|-----|--------------|
| ERDD | Karen Perrin | | 916-327-1467 |

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

| D) Title of Project |
|---|
| Low-GWP Mechanical Modules for Rapid Deployment Project (LG-MM) |

E) Term and Amount

| Start Date | End Date | Amount |
|------------|-----------|--------------|
| 6/30/2020 | 3/31/2024 | \$ 1,499,926 |

F) Business Meeting Information

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

Proposed Business Meeting Date 6/10/2020 Consent Discussion

Business Meeting Presenter Karen Perrin Time Needed: 5 minutes

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

Agenda Item Subject and Description:

ASSOCIATION FOR ENERGY AFFORDABILITY. Proposed resolution approving Agreement EPC-19-032 for a \$1,499,926 grant with the Association for Energy Affordability, Inc. to develop, test, and demonstrate a pre-fabricated, scalable central mechanical system module to provide space conditioning and hot water to multifamily buildings, and adopting staff's determination that this action is exempt from CEQA. (EPIC funding) Contact: Karen Perrin.

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: Cal. Code Regs., tit 14, § 15301; Cal. Code Regs., tit 14, § 15306

Common Sense Exemption. 14 CCR 15061 (b) (3)

Explain reason why Agreement is exempt under the above section:

This project involves the installation and testing of a pre-fabricated space conditioning and hot water heating prototype system in a total of 5 apartments located in 2 existing multifamily buildings.

The systems will be temporarily integrated into the existing structure for testing and 9 months of data collection. After the data collection has concluded, the systems will be removed and the sites will be



GRANT REQUEST FORM (GRF)

restored to their original configurations. The project will result in negligible or no expansion of any existing or former uses at the sites.

This project is therefore categorically exempt from environmental review pursuant to CEQA Guidelines Section 15301 as minor alterations to existing facilities that involve no expansion of an existing or former use. This project is also categorically exempt pursuant to CEQA Guidelines Section 15306 as basic data collection, research, and resource evaluation activities that will not result in a serious or major disturbance to an environmental resource. Further, none of the exceptions to exemptions listed in CEQA Guidelines Section 15300.2 applies to this project.

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 |
|---------------------------------------|---------------|
| Lawrence Berkeley National Laboratory | \$ 465,825 |
| Rocky Mountain Institute | \$ 172,658 |
| Emanant Systems, LLC | \$ 125,720 |
| SmithGroup | \$ 81,678 |
| Mitsubishi | \$ match only |
| Sanden | \$ match only |
| TBD (installation contractor) | \$ 182,399 |

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 | \$1,499,926 |
| | | | \$ |
| | | | \$ |

R&D Program Area: EERO: Buildings

TOTAL: \$ 1,499,926

Explanation for "Other" selection



GRANT REQUEST FORM (GRF)

Reimbursement Contract #: Federal Agreement #:

K) Recipient's Contact Information

1. Recipient's Administrator/Officer

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

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-19-301
- First Come First Served Solicitation Solicitation #:

M) The following items should be attached to this GRF

- | | | |
|---|---|--|
| 1. Exhibit A, Scope of Work | <input checked="" type="checkbox"/> | Attached |
| 2. Exhibit B, Budget Detail | <input checked="" type="checkbox"/> | Attached |
| 3. CEC 105, Questionnaire for Identifying Conflicts | <input checked="" type="checkbox"/> | Attached |
| 4. Recipient Resolution | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> Attached |
| 5. CEQA Documentation | <input type="checkbox"/> N/A | <input checked="" type="checkbox"/> Attached |

Agreement Manager

Date

Office Manager

Date

Deputy Director

Date

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

I. TASK ACRONYM/TERM LISTS

A. Task List

| Task # | CPR¹ | Task Name |
|---------------|------------------------|---|
| 1 | | General Project Tasks |
| 2 | X | Market Research and Conceptual Design |
| 3 | X | Prototype and Product Literature Development |
| 4 | X | Testing and Prototype Field Demonstration |
| 5 | | Field Trial Evaluation Measurement and Verification |
| 6 | | Evaluation of Project Benefits |
| 7 | | Technology/Knowledge Transfer Activities |
| 8 | | Production Readiness Plan |

B. Acronym/Term List

| Acronym/Term | Meaning |
|---------------------|--|
| CAM | Commission Agreement Manager |
| CAO | Commission Agreement Officer |
| CPR | Critical Project Review |
| DHW | Domestic Hot Water |
| GWP | Global Warming Potential |
| HVAC | Heating, Ventilation, and Air Conditioning |
| LBNL | Lawrence Berkeley National Laboratory |
| R290 | Propane |
| TRL | Technology Readiness Level |
| ZNC | Zero Net Carbon |

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

A. Purpose of Agreement

The purpose of this Agreement is to develop a pre-fabricated central mechanical system module for retrofit applications. The mechanical module will include heating, ventilation and air conditioning (HVAC), domestic hot water, and real time energy use monitoring, control and feedback for multi-family buildings. The compact, lightweight, pre-fabricated package will be designed to be mass produced offsite and installed quickly.

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
Association for Energy Affordability, Inc.

B. Problem/ Solution Statement

Problem

The decarbonization of California's building sector has fostered the need for emerging technologies. There have been a number of barriers to implementation of deep carbon retrofits in California's multifamily building sector. In a traditional heating, ventilation, and air conditioning (HVAC) retrofit with decentralized components, the system components do not readily communicate and interconnect. In addition to the poor retrofit options, current market conditions, supply chain inefficiencies, and a lack of necessary technological solutions, make deep carbon retrofits both time intensive and costly.

Significant advances in the standardization and industrialization of the retrofit market are needed to scale the market and reduce the cost for ZNC (zero net carbon) retrofits. The European retrofit markets have successfully created modular packages that combine mechanical systems into a single or mechanical module. These single units can be implemented cost effectively because they are compact, lightweight, and combine multiple systems into a single integrated package. The units can be quickly and unobtrusively installed and integrated into an existing building. These modules, however, are not available in the US or designed for California's buildings and climate, nor do they use low Global Warming Potential (GWP) refrigerants.

Solution

The main areas of advantage beyond current state-of-the-art for the proposed mechanical module prototype include:

1. The centralization of HVAC components are more cost effective, result in faster installation time and are less disruptive to building occupants;
2. Systems are fully built in a factory ensuring minimal reliance on job-site work;
3. Components can be interconnected to significantly increase overall efficiency (e.g. heat recovery from cooling utilized for domestic hot water (DHW); central controls platform that can optimize across systems);
4. Standardization of the enclosure, connections, and assembly process to further reduce cost.

To address this critical gap in the US market, the Recipient will develop a low-GWP mechanical module prototype, optimized for the most common multifamily building typology in California. The Recipient will deploy the prototype in multifamily buildings in California. The field tests will serve as a proof of concept to American manufacturers, potential fabricators, and technology startups for in the retrofit industry. This project will also signal to overseas mechanical module manufacturers that there is a need for their products in the US market and demonstrate what is needed for California climates.

C. Goals and Objectives of the Agreement

Agreement Goals

The goal of this Agreement is to design, fabricate, and deploy a prototype mechanical module engineered to best serve California's climates and existing low-rise multifamily buildings. This module will:

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

- Develop a mechanical module and move the Technology Readiness Level (TRL) from 4 to 7 by the end of the Agreement.
- Demonstrate to manufacturers that there is a market for mechanical modules using a refrigerant under 750 GWP for multifamily retrofits.
- Provide recommendations to optimize existing products, or products in development, for California
- Guide product development to align with California’s greenhouse gas reduction goals (e.g. use of low GWP refrigerant)
- Achieve or exceed the performance metrics identified in Table 1.

Table 1- Performance Metrics

| Performance Metric | Baseline Performance ² | Target Performance | Evaluation Method ³ | Metric Significance |
|--|--|--------------------|--|---------------------|
| Heating Seasonal Performance Factor (HSPF) | 8.2 | 9.6 | HSPF test, in space heating mode only (no fan ventilation, no domestic hot water load) | high |
| Seasonal Energy Efficiency Rating (SEER) | 14.0 | 18 | Test 1: SEER test, in space cooling mode only (no fan ventilation, no domestic hot water load) Test 2: Combine SEER cooling and Uniform Energy Factor (UEF) hot water tests to see improvement from cooling refrigerant heat transfer to hot water Test 3: SEER cooling test including ventilation system in operation for Heat Recovery Ventilator (HRV) ventilation economizer cooling | high |
| Uniform Energy Factor (UEF) | NEEA Tier 3 (2.6 CCF/UEFnc) ⁴ | 3.6 UEF | Test 1: UEF test, in water heating mode only (no fan ventilation, no space heating or cooling load) | high |

² The Clivet ELFOPack (CPAR-XIN 5) can be considered a baseline technology, but because it is not currently in the US market and its European tested performance values are different from the US test methods for HSPF, SEER, UEF, and FHR, then Title 20 and code minimum baseline assumptions are used for this table.

³ While all of the tests indicated above can be performed in LBNL’s HVAC chambers, the Project Team may decide to limit the number or type of tests to only those deemed most informative and critical to the project’s success. For example, following the federal test procedures for validating SEER and HSPF values may require 2-3 weeks of testing. While those tests are critical for product certification and commercialization, they may not be necessary at this early stage of product development, and shorter term testing will still yield valuable insights into system performance efficiency.

⁴ UEFnc is the Northern California Uniform Energy Factor, which now is referred to as the Cool Climate Efficiency (CCE) as defined by the NEEA published Specification for Residential Water Heaters Advanced Water Heating Specification (formerly known as the Northern Climate Specification).

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

| Performance Metric | Baseline Performance ² | Target Performance | Evaluation Method ³ | Metric Significance |
|-------------------------|--|-------------------------------|---|---------------------|
| | | | Test 2: SEER cooling and hot water UEF tests to see improvement from cooling refrigerant heat transfer to hot water Test 3: UEF test and HSPF test to see water heater efficiency during simultaneous space heating demand. | |
| First Hour Rating (FHR) | 54 | 55 | Test 1: FHR test, in water heating mode only (no fan ventilation, no space heating or cooling load) Test 2: Combine SEER cooling and hot water FHR tests to see improvement from cooling refrigerant heat transfer to hot water Test 3: FHR test and HSPF test to see water heater first hour capacity during simultaneous space heating demands. | medium |
| Cost | \$37,000 (installed cost estimate for individual components) | \$22,200 (40% cost reduction) | Cost reductions based on scaled demand, factory based fabrication, and product integration with panelized envelope components. | medium |

Ratepayer Benefits:⁵

The Agreement will result in the ratepayer benefits of greater electricity reliability, lower costs, and increased safety. The electrification of space and water heating in multifamily buildings represent an opportunity for grid flexibility through thermal load shifting. During off peak times, the mechanical module can be programmed to heat, chill and store water, even when there is little demand in the unit. Off peak water “charging” not only reduces costs for a tenant, but also provides increased electricity reliability by putting less strain on the grid at peak times. Additionally, the interconnection of the combined mechanical systems (e.g. heat recovery from cooling utilized for DHW; central controls platform that can optimize across systems) will increase the overall efficiency to further reduce the tenant’s utility bills.

⁵ 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).

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

Technological Advancement and Breakthroughs:⁶

This Agreement will lead to technological advancement and breakthroughs to overcome barriers to achieve the State of California’s statutory energy goals. The mechanical module prototype will be optimized for California’s unique climates and buildings. The prototype will highlight the need for rapid deployment of deep retrofits in the US, demonstrate potential for energy and GHG reductions, and provide lessons learned on the design and development of future iterations.

Agreement Objectives

The objectives of this Agreement are to:

- Design and develop a mechanical module prototype for retrofits in multifamily buildings.
- Fabricate a mechanical module prototype for testing and optimization at a minimum of two multifamily buildings.
- Develop instructions or a low/no-cost licensing approach to enable manufacturers and/or fabricators to produce similar products at scale.

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)**. 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.

⁶ California Public Resources Code, Section 25711.5(a) also requires EPIC-funded projects to lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state’s statutory and energy goals.

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

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 Energy Commission's 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 or CD-ROM.

The following describes the accepted formats for electronic data and documents provided to the Energy Commission 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.
- Documents intended for public distribution will be in PDF file format.
- The Recipient must also provide the native Microsoft file format.
- 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 Energy Commission's Information Technology Services Branch to determine whether the exceptions are allowable.

EXHIBIT A
Scope of Work
Association for Energy Affordability, 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 Energy Commission 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;
- 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 and invoices (subtask 1.5);
 - Final Report (subtask 1.6);
 - Technical Advisory Committee meetings (subtasks 1.10 and 1.11); and
 - Any other relevant topics.
- Provide an *Updated Project Schedule, List of Match Funds, and List of Permits*, 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:

- Updated Project Schedule *(if applicable)*
- Updated List of Match Funds *(if applicable)*
- Updated List of Permits *(if applicable)*

CAM Product:

- Kick-off Meeting Agenda

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

Subtask 1.3 Critical Project Review (CPR) Meetings

The goal of this subtask is to determine if the project should continue to receive Energy Commission 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 Energy Commission 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 Energy Commission.

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 Energy Commission, 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 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.
- Submit the CPR Report along with any other *Task Products* that correspond to the technical task for which the CPR meeting is required (i.e., if a CPR meeting is required for Task 2, submit the Task 2 products along with the CPR Report).
- 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* and 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) Task Products (draft and/or final as specified in the task)

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

CAM Products:

- CPR Agenda
- List of Expected CPR Participants
- Schedule for Providing a Progress Determination
- 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 Energy Commission 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 state-owned equipment.
 - Need to file a Uniform Commercial Code Financing Statement (Form UCC-1) regarding the Energy Commission's interest in patented technology.
 - The Energy Commission'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 *All Draft and Final Written Products* on a CD-ROM or USB memory stick, organized by the tasks in the Agreement.

Products:

- Final Meeting Agreement Summary (*if applicable*)
- Schedule for Completing Agreement Closeout Activities
- All Draft and Final Written 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.

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

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 Fund 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. The CAM will review the Final Report, which will be due at least **two months** before the Agreement end date. When creating the Final Report Outline and the Final Report, the Recipient must use the 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 *Style Manual* provided by the CAM. (See Task 1.1 for requirements for draft and final products.)

Recipient Products:

- Final Report Outline **CAM Product:**
- 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, 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)

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

- 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)
- Ensure that the document is written in the third person.
- Ensure that the Executive Summary is understandable to the lay public.
 - Briefly summarize the completed work. Succinctly describe the project results and whether or not the project goals were accomplished.
 - Identify which specific ratepayers can benefit from the project results and how they can achieve the benefits.
 - If it's necessary to use a technical term in the Executive Summary, provide a brief definition or explanation when the technical term is first used.
- Follow the Style Guide format requirements for headings, figures/tables, citations, and acronyms/abbreviations.
- Ensure that the document omits subjective comments and opinions. However, recommendations in the conclusion of the report are allowed.
- Include a brief description of the project results in the Abstract.
- 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
- Consider incorporating all CAM comments into the Final Report. 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 Final Report 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.
- Submit one bound copy of the *Final Report* to the CAM along with *Written Responses to Comments on the Draft Final Report*.

Products:

- Final Report (draft and final)
- Written Responses to Comments on the Draft 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 Energy Commission funds.

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

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 Energy Commission 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 Energy Commission 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.

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

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 the 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*)
- Final Subcontracts (*if required by CAM*)

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

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.

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

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

- 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.

Products:

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

III. TECHNICAL TASKS

TASK 2: MARKET RESEARCH AND CONCEPTUAL DESIGN

The goal of this task is to conduct market and product research to provide conceptual designs for the mechanical module prototype.

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

The Recipient shall:

- Conduct market research on mechanical components and pre-assembled module packages available in overseas and US markets.
- Determine viability of products for California's multifamily buildings.
- Evaluate product modifications needed to make the prototype cost-effective, less time intensive for construction and installation, and more energy efficient.
- Prepare a *Summary of Available Technologies* that includes, but is not limited to: a) results of market research on mechanical components, pre-assembled module packages, information on existing technologies both in overseas markets as well as in the US market; b) evaluation of the viability for California's predominant multifamily building types, c) discussion of product modifications needed to make the prototype cost effective and more efficient for California markets, d) how researched information will be used to design the prototype.
- Conduct design meetings, consult with manufacturers, and engage in stakeholder activities to inform a *Component and Controls Specification Plan*, to include, but not be limited to, the specific mechanical components to be used for the pre-assembled module package and the technical specifications and other requirements (such as building/energy codes) to enable installation in California multifamily buildings.
- Produce high level *Design Schematic Plan* for the prototype based on the *Component and Controls Specification Plan*. The plan will include the specific components in the module and how they will function and be controlled together in a multifamily building.
- Simulate thermal modeling and heat transfer to optimize theoretical performance of systems.
- Integrate an existing control product and user module based on the design drawings.
- Produce a final detailed *Design Drawings Report* that describes the final design and fabrication of the mechanical module prototype.
- Participate in a Critical Project Review Meeting and prepare *CPR Report #1* per subtask 1.3.

Products:

- Summary of Available Technologies
- Component and Controls Specification Plan
- Design Schematic Plan
- Design Drawings Report
- CPR Report #1

TASK 3: PROTOTYPE AND PRODUCT LITERATURE DEVELOPMENT

The goals of this task are to fabricate and test the mechanical module prototype and publish an open source fabrication manual.

The Recipient Shall:

- Fabricate the prototype according to design drawings.
- Test prototype under different temperature and humidity conditions to determine system performance and validate control system to produce a *Functional Testing Report*. The Functional Testing Report will include but not be limited to operating efficiencies at various outdoor and indoor conditions, control sequence results, compressor performance,

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

validation of control functions (effective switching between heating, cooling, water heating etc.) and other key performance parameters.

- Publish a *Fabrication Manual* to enable market development and production of the mechanical module prototype for California’s multifamily buildings. The manual will include a detailed component list and assembly instructions that will enable third party manufacturers and/or fabricators to build the machine themselves.
- Create an *Installation and Operation Manual (I/O Manual)* for design and installation. This manual will provide instructions for installers and end-users.
- Participate in Critical Project Review Meeting and prepare *CPR Report #2* per subtask 1.3.

Products:

- Functional Testing Report
- Fabrication Manual
- Installation and Operation Manual
- CPR Report #2

TASK 4: TESTING AND PROTOTYPE FIELD DEMONSTRATION

The goals of this task are to 1) fabricate at least five prototype units 2) install the prototype units at a minimum of five apartments located in two or more different multifamily buildings that are located in two or more different climate zones, 3) assess their engineering feasibility, 4) monitor the installed prototypes for at least 9 months, while also conducting prototype troubleshooting as needed, and 5) prepare datasets for analysis and review. The CAM may, in writing, approve a reduction in the number of required prototype units, test sites, climate zones, and length of data collection.

The Recipient Shall:

- Confirm feasibility and availability of sites for the design configuration.
- Perform site engineering to assess the existing electrical infrastructure, electrical capacity, potential equipment locations, piping connection, condition of existing equipment, and other relevant site conditions at each test site.
- Finalize Demonstration Site List and obtain additional Site Commitment Letters, if needed.
- Produce at least 5 field deployment-ready prototypes ready for deployment in at least 5 apartments located in 2 or more different multifamily buildings in 2 or more different climate zones.
- Select an installation contractor, and with the installation contractor, oversee the installation of the mechanical module prototype at the demonstration sites.
 - Transport and install the prototypes.
 - Troubleshoot, and modify and repair, as needed.
- Develop *Monitoring Plans* for measuring and evaluating the performance of the prototype systems at each test site. The plans must discuss the approach to conducting the measurement and verification (M&V), verify the performance based on the parameters indicated in Table 1, and discuss the equipment to be monitored during pre and post module installation and the duration of each monitoring period.
- Install measurement and verification equipment needed to collect the mechanical module prototype’s performance data.

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

- Participate in Critical Project Review Meeting and prepare *CPR Report #3* per subtask 1.3.
- Perform site repairs on an as needed basis to the prototype and/or the data acquisition hardware
- Summarize data collected in the *Field Demonstration Execution and Preliminary Monitoring Report* to include but not be limited to a review of system performance, reliability, and field functionality, and a discussion of whether the goals and objectives and performance metrics identified in Section II.C were achieved.

Products:

- Demonstration Site List
- Site Commitment Letters
- Monitoring Plans
- CPR Report #3
- Field Demonstration Execution and Preliminary Monitoring Report

TASK 5: FIELD TRIAL EVALUATION, MEASUREMENT AND VERIFICATION (EM&V)

The goal of this task is to collect at least 9 months of high-resolution data on the performance of the mechanical module prototype at the five or more test sites. The CAM may, in writing, approve a reduction in the length of data collection.

The Recipient shall:

- Collect and analyze annual utility data.
- Collect field data and analyze to quantify system performance.
- Identify unexpected performance issues and adjust system to improve overall efficiency.
- Prepare an EM&V Report to discuss data collection and analysis findings for each test site and whether the module performance identified in Table 1 was achieved, and the disposition of the module at each site
- De-commission the systems and associated equipment and ship the equipment back to LBNL
- Restore the test sites back to the original configurations.

Products:

- EM&V Report

TASK 6 EVALUATION OF PROJECT BENEFITS

The goal of this task is to report the benefits resulting from this project.

The Recipient shall:

- Complete three Project Benefits Questionnaires that correspond to three main intervals in the Agreement: (1) *Kick-off Meeting Benefits Questionnaire*; (2) *Mid-term Benefits Questionnaire*; and (3) *Final Meeting Benefits Questionnaire*.
- Provide all key assumptions used to estimate projected benefits, including targeted market sector (e.g., population and geographic location), projected market penetration, baseline

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

and projected energy use and cost, operating conditions, and emission reduction calculations. Examples of information that may be requested in the questionnaires include:

- For Product Development Projects and Project Demonstrations:
 - Published documents, including date, title, and periodical name.
 - Estimated or actual energy and cost saving and estimated statewide energy savings once market potential has been realized. Identify all assumptions used in the estimates.
 - Greenhouse gas and criteria emissions reductions.
 - Other non-energy benefits such as reliability, public safety, lower operational cost, environmental improvement, indoor environmental quality, and societal benefits.
 - Data on potential job creation, market potential, economic development, and increased state revenue as a result of the project.
 - A discussion of project product downloads from websites, and publications in technical journals.
 - A comparison of project expectations and performance. Discuss whether the goals and objectives of the Agreement have been met and what improvements are needed, if any.
 - Additional Information for Product Development Projects:
 - ✓ Outcome of product development efforts, such copyrights and license agreements.
 - ✓ Units sold or projected to be sold in California and outside of California.
 - ✓ Total annual sales or projected annual sales (in dollars) of products developed under the Agreement.
 - ✓ Investment dollars/follow-on private funding as a result of Energy Commission funding.
 - ✓ Patent numbers and applications, along with dates and brief descriptions.
 - Additional Information for Product Demonstrations:
 - ✓ Outcome of demonstrations and status of technology.
 - ✓ Number of similar installations.
 - ✓ Jobs created/retained as a result of the Agreement.
- For Information/Tools and Other Research Studies:
 - Outcome of project.
 - Published documents, including date, title, and periodical name.
 - A discussion of policy development. State if the project has been cited in government policy publications or technical journals or has been used to inform regulatory bodies.
 - The number of website downloads.
 - An estimate of how the project information has affected energy use and cos or have resulted in other non-energy benefits.
 - An estimate of energy and non-energy benefits.
 - Data on potential job creation, market potential, economic development, and increased state revenue as a result of project.

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

- A discussion of project product downloads from websites, and publications in technical journals.
- A comparison of project expectations and performance. Discuss whether the goals and objectives of the Agreement have been met and what improvements are needed, if any.
- Respond to CAM questions regarding responses to the questionnaires.

The Energy Commission may send the Recipient similar questionnaires after the Agreement term ends. Responses to these questionnaires will be voluntary.

Products:

- Kick-off Meeting Benefits Questionnaire
- Mid-term Benefits Questionnaire
- Final Meeting Benefits Questionnaire

TASK 7 TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

The goal of this task is to develop a plan to make the experimental results, and lessons learned available to the public and key decision makers.

The Recipient shall:

- Prepare an *Initial Fact Sheet* at the start of the project that describes the project. Use the format provided by the CAM.
- Prepare a *Final Project Fact Sheet* at the project's conclusion that discusses results. Use the format provided by the CAM.
- Prepare a *Technology/Knowledge Transfer Plan* that includes:
 - An explanation of how the knowledge gained from the project will be made available to the public, including the targeted market sector and potential outreach to end users, utilities, regulatory agencies, and others.
 - A description of the intended use(s) for and users of the project results.
 - Published documents, including date, title, and periodical name.
 - Copies of documents, fact sheets, journal articles, press releases, and other documents prepared for public dissemination. These documents must include the Legal Notice required in the terms and conditions. Indicate where and when the documents were disseminated.
 - A discussion of policy development. State if project has been or will be cited in government policy publications or used to inform regulatory bodies.
 - The number of website downloads or public requests for project results.
 - Additional areas as determined by the CAM.
- Conduct technology transfer activities in accordance with the Technology/Knowledge Transfer Plan. These activities will be reported in the Progress Reports.
- When directed by the CAM, develop *Presentation Materials* for an Energy Commission-sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the California Energy Commission.
- 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.

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

- Prepare a *Technology/Knowledge Transfer Report* on technology transfer activities conducted during the project.

Products:

- Initial Fact Sheet (draft and final)
- Final Project Fact Sheet (draft and final)
- Presentation Materials (draft and final)
- High Quality Digital Photographs
- Technology/Knowledge Transfer Plan (draft and final)
- Technology/Knowledge Transfer Report (draft and final)

TASK 8 Production Readiness Plan

The goal of this task is to determine the steps that will lead to the manufacturing of technologies developed in this project or to the commercialization of the project's results.

The Recipient shall:

- Prepare a *Production Readiness Plan*. The degree of detail in the plan should be proportional to the complexity of producing or commercializing the proposed product, and to its state of development. As appropriate, the plan will discuss the following:
 - Critical production processes, equipment, facilities, personnel resources, and support systems needed to produce a commercially viable product.
 - Internal manufacturing facilities, supplier technologies, capacity constraints imposed by the design under consideration, design-critical elements, and the use of hazardous or non-recyclable materials. The product manufacturing effort may include "proof of production processes."
 - The estimated cost of production.
 - The expected investment threshold needed to launch the commercial product.
 - An implementation plan to ramp up to full production.
 - The outcome of product development efforts, such as copyrights and license agreements.
 - Patent numbers and applications, along with dates and brief descriptions.
 - Other areas as determined by the CAM.

Products:

- Production Readiness Plan (draft and final)

EXHIBIT A
Scope of Work
Association for Energy Affordability, Inc.

IV. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.

STATE OF CALIFORNIA

**STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION**

RESOLUTION - RE: ASSOCIATION FOR ENERGY AFFORDABILITY

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-19-032 for a \$1,499,926 grant with the Association for Energy Affordability, Inc. to develop, and test a pre-fabricated, scalable central mechanical system module to provide space conditioning and hot water to multifamily buildings. The systems will be tested in buildings located in disadvantaged or low-income communities; and

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

CERTIFICATION

The undersigned Secretariat to the Commission 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 June 10, 2020.

AYE:

NAY:

ABSENT:

ABSTAIN:

Cody Goldthrite
Secretariat