



GRANT REQUEST FORM (GRF)

A) New Agreement # EPC-19-012 (to be completed by CGL office)

B) Division	Agreement Manager:	MS-	Phone
ERDD	Kadir Bedir	51	916-327-1411

C) Recipient's Legal Name	Federal ID Number
Franklin Energy Services, LLC	26-1375644

D) Title of Project
Affordable Space Conditioning and Domestic Hot Water Systems with Low Emissions and High Performance

E) Term and Amount

Start Date	End Date	Amount
5/20/2020	3/31/2024	\$ 1,499,925

F) Business Meeting Information

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

Proposed Business Meeting Date 5/13/2020 Consent Discussion

Business Meeting Presenter Time Needed: 5 minutes

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

Agenda Item Subject and Description:

FRANKLIN ENERGY SERVICES, LLC. Proposed resolution adopting California Environmental Quality Act (CEQA) findings and statement of overriding considerations for Franklin Energy Services, LLC's space conditioning and hot water system project and approving Agreement EPC-19-012 with Franklin Energy Services, LLC.

- i. CALIFORNIA ENVIRONMENTAL QUALITY ACT FINDINGS.
 - a. Pacifica Landing Site. Findings that based on the Lead Agency, Contra Costa County's, July 8, 2019 approval of the Pacifica Landing development project and general plan amendment and corresponding findings and conditions of approval, Mitigated Negative Declaration, Mitigation Monitoring Program, and Initial Study, the work under the proposed project presents no new or increased environmental impacts beyond those already considered and mitigated.
 - b. East Garrison Site. Findings that based on the Lead Agency, Monterey County's, Final Subsequent Environmental Impact Report, Resolution 05-264 and associated findings, Mitigation Monitoring and Reporting Plan, and Statement of Overriding Considerations, the work under the proposed project presents no new significant or more severe environmental impacts beyond those already considered and mitigated where possible; and adopting a statement of overriding considerations for significant immitigable impacts.



- c. Existing Residential Buildings in Southern California. Adopting staff's determination that the work under the proposed project at these sites is exempt from CEQA.

- i. FRANKLIN ENERGY SERVICES, LLC'S SPACE CONDITIONING AND HOT WATER SYSTEM PROJECT. Agreement with Franklin Energy Services, LLC for \$1,499,925 grant to develop, test, and demonstrate a combined space conditioning and hot water system, incorporating built-in load shifting that will deliver clean, affordable space conditioning and domestic hot water to existing and new homes. The integrated pod will be installed in residential homes to demonstrate cost-effectiveness, load flexibility, and GHG emissions reductions.

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":



GRANT REQUEST FORM (GRF)

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

Explain reason why Agreement is exempt under the above section:

- 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
Harvest Thermal, Inc.	\$ \$866,220
Kohlex, LLC	\$ \$78,000
TBD (Engineering)	\$ \$90,000

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	\$1,499,925

R&D Program Area: EERO: Buildings

TOTAL: \$ 1,499,925

Explanation for "Other" selection

Reimbursement Contract #: Federal Agreement #:



K) Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Karin Burns
Address: 300 Frank H Ogawa Plz Ste 620
City, State, Zip: Oakland, CA 94612-2056
Phone: (510) 298-5497, ext. 3819
E-Mail: kburns@franklinenergy.com

2. Recipient's Project Manager

Name: Amy Dryden
Address: 300 Frank H Ogawa Plz Ste 620
City, State, Zip: Oakland, CA 94612-2056
Phone: 510 -298 - 5497
E-Mail: adryden@franklinenergy.com

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 type="checkbox"/> N/A | <input checked="" 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
Franklin Energy Services, LLC**

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR	Task Name
1		General Project Tasks
2		Project Planning and Design
3	X	Integrated POD Design, Testing, and Production
4		Software Architecture, Development and Deployment
5	X	Installation and Quality Assurance
6		Data Analysis and Project Evaluation
7		Evaluation of Project Benefits
8		Technology/Knowledge Transfer Activities
9		Production Readiness Plan

B. Acronym/Term List

Acronym /Term	Meaning
CAO	Commission Agreement Officer
CPR	Critical Project Review
DHW	Domestic Hot Water
GHG	Greenhouse Gas
HVAC	Heating, Ventilation, and Air Conditioning
TAC	Technical Advisory Committee

Exhibit A
Scope of Work
Franklin Energy Services, LLC

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

A. Purpose of Agreement

The purpose of this Agreement is to develop, test, and demonstrate a combined space conditioning and hot water system, incorporating built-in load shifting that will deliver clean, affordable space conditioning and domestic hot water (DHW) to existing and new homes. The system will include a single, high-efficiency, and low global warming potential heat pump; a standard-affordable hot water tank operating as a thermal battery; and an efficient air handler to be installed in pilot projects to demonstrate cost-effectiveness and GHG emissions reductions.

B. Problem/ Solution Statement

Problem

Heating, hot water, and cooling represent the top three energy uses in California households, contributing significantly to GHG emissions. Electric heating, ventilation, and air conditioning (HVAC) solutions are the best solution to meet the state's climate goals, but the options currently available are expensive to purchase, install, and operate. They often require the use of separate heat pumps for heating and hot water, and typical operation patterns overlap with grid peak times, resulting in higher bills for ratepayers, electric grid system costs, GHG emissions, and air pollution. Conventional heat pumps also use refrigerants with high global warming potential. To enable the large-scale transition to lower emissions solutions, there is an urgent need for electric alternatives that pollute less, are affordable to install and operate, and are suitable for new homes and retrofits.

Solution

The project will develop, test, and demonstrate a combined space conditioning and hot water system, incorporating built-in load shifting that will deliver clean, affordable space conditioning and domestic hot water (DHW) to existing and new homes. In addition, the project will support contractors to advance market capacity for design and installation. A central control unit, designed for easy and consistent installation will manage and optimize the operation of three main components: a single, high-efficiency and low global warming potential heat pump; a standard affordable hot water tank operating as a thermal battery; and an efficient air handler. The system is inherently affordable to purchase and install, incorporating standard off-the-shelf components and only one heat pump. Load shifting using the thermal battery allows system operation to be optimized for time-of-use rates, and to minimize GHG emissions while ensuring smooth and quiet heat delivery. Load shifting capabilities and efficient operation of a heat pump together has the potential to deliver ratepayer bill reductions of 30 to 40 percent compared to natural gas solutions for most homes. These systems will be deployed in several markets to demonstrate feasibility and proof of concept in the field.

Exhibit A Scope of Work Franklin Energy Services, LLC

The project will seek to address the following market barriers:

- Lack of information: Poor understanding of design and installation of combination systems. Complicated and expensive installs result in lack of adoption for both new and existing homes.
- Performance risks: Lack of agreement between design and actual performance for key emerging technologies, which can translate into either unanticipated operating costs for early adopting projects or lack of compliance credit for projects that seek to demonstrate compliance at the design stage.
- Energy costs and operation risks: Lack of understanding of the impacts emerging technologies might have on energy costs as well as occupants and maintenance including comfort, affordability, and convenience.

C. Goals and Objectives of the Agreement

Agreement Goals

The goal of this Agreement is to demonstrate the technical and economic potential for cost-effective combination systems to deliver energy cost savings and GHG emission reductions for new and existing residential homes with individual systems and move the Technology Readiness Level (TRL) up to TRP 7 by the end of the project.

Ratepayer Benefits: This Agreement will result in the ratepayer benefits:

- Lower costs: The proposed system will offer combined space conditioning and DHW with thermal storage and load shifting. The single heat pump and storage tank reduces equipment and installation costs relative to separate systems. Its high efficiency and load shifting reduce energy costs compared to natural gas. The control unit minimizes complicated piping, creating consistency and efficiency in installations.
- Greater reliability: The control unit will provide greater reliability for optimized operation and operational costs without relying on occupants to adjust controls or behavior.
- Increased safety: Removal of natural gas reduces the risk of fires and explosions in homes, particularly in the event of an earthquake, enhancing public safety. The use of a water tank for load shifting is inherently safe and stable.
- Economic development: The reduction of energy costs frees up disposable income, supporting local economies. The overall affordability of the solution enables higher uptake and an accelerated replacement cycle, driving more local installation jobs.
- Environmental benefits: By optimizing the system for efficiency and decoupling the time of electricity purchase from the use of space conditioning and hot water, the system can use electricity when it is cheaper and cleaner, resulting in emissions reductions of 80 to 90 percent for most homes.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- Public health: Eliminating combustion gases from space and water heating results in better air quality in homes by preventing carbon monoxide and other particulates from combustion.
- Consumer appeal: The occupants can reap the comfort and affordability benefits without having to manage the system themselves or change behavior. The system will incorporate Internet of Things capabilities, providing users with full control, data, and charts.

Technological Advancement and Breakthroughs: 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 providing significant reductions in the following areas:

- GHG emissions reductions: Between 70 and 90 percent compared to natural gas and 85 to 95 percent compared to conventional heat pumps without load shifting
- Operational cost reductions: Up to 30 percent compared to existing heat pump technology and 30 to 40 percent compared to existing natural gas technology

The GHG reductions and operational cost reductions will be realized through thermal storage and load shifting. The team will demonstrate target storage capacity and equivalent kWh storage by volume in diverse housing types.

This Agreement will lead to the following technological advancements and breakthroughs to achieve state energy goals:

- Thermal storage and load shifting: Demonstrate the impact of thermal storage using technology to reduce demands for grid power and mitigate the impacts of all-electric construction on the "duck curve" including water heating and space heating and potential for cooling with clean "battery" to support broader adoption.
- Knowledge sharing: Advancing market adoption of low carbon combination systems with controls by reducing permitting, design, and installation barriers
- Low carbon homes: Demonstrate cost-effectiveness and benefits of lower carbon homes with high-efficiency combination systems, with integrated controls and load shifting, and reduced construction costs over business-as-usual and conventional heat pump technology
- Code compliance: Identify methods and analyses to support algorithms for code compliance software to give proper credit to advanced technologies, such as thermal storage and higher system performance
- Human interactions: Demonstrate the performance of convenient, stable-temperature, quiet, comfortably delivered space heating through heat output modulation and safe and pollution-free heating by eliminating in-home fossil fuel distribution and combustion

Exhibit A Scope of Work Franklin Energy Services, LLC

Agreement Objectives

The objectives of this Agreement are to:

- Validate load shifting performance for water heating and space heating, and validate industry acceptance of cost-effective combination systems with controls through demonstration projects
- Communicate lessons learned to the residential design and construction community in a way that facilitates broader adoption of practices with reduced performance risk
- The performance metrics for this project include the improvements on the following: (1) uniform energy factor (UEF), (2) first hour rating (FHR), (3) tank size (in gallons), (4) heating seasonal performance factor (HSPF), (5) refrigerant global warming potential (GWP), (6) cost reductions in system installations and operation, and (7) load shifting performance (a percentage of the peak coincident load).
- Verify that the project can meet the performance metrics indicated in Table 1.

Table 1: Performance Metric of Selected Technology

Performance Metric	Baseline Performance HPWH + Air source heat	Target Performance	Evaluation Method	Metric Significance
UEF	2.0 - 3.55	4	Product specification	Energy efficiency
FHR (gallons)	53-65	111	Product specification	System capacity to meet demand
Tank size (gallons)	50	80-160	System specification	Sizes thermal “battery” and load shifting capacity
HSPF (if applicable)	8.8	11.6	Field testing	Efficiency and heating performance
GWP	R134a: 1430	1	Specification	Low GHG emissions
Installed System Cost (equipment and installation)	Varies by location and vintage \$13.5k - \$14.9k new; \$16.5k- 20.6k retrofit	10% reduction for pilot phase	Actual cost compared to published baseline	Affordability and adoptability by contractors and developers
Other: Load shifting	No load shifting	≥ 80% of peak-coincident load	Field testing	Affordability and Emission reductions
Other: Operational Costs	No load shifting	10–30% reduction	Field testing	Affordability based TOU rates

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

Exhibit A
Scope of Work
Franklin Energy Services, LLC

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.

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.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

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.

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

Exhibit A
Scope of Work
Franklin Energy Services, LLC

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

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

Exhibit A
Scope of Work
Franklin Energy Services, LLC

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
Franklin Energy Services, LLC

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:

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- 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.

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.*)

Exhibit A
Scope of Work
Franklin Energy Services, LLC

Recipient Products:

- Final Report Outline (draft and final)

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)
 - 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.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- 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. 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:

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- 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:

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- 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.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- Notify and receive written approval from the CAM prior to adding any new subcontractors (see the discussion of subcontractor additions in the terms and conditions).

Products:

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

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)

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

- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
 - Technical area expertise;
 - Knowledge of market applications; or
 - Linkages between the agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.
- Provide recommendations regarding information dissemination, market pathways, or commercialization strategies relevant to the project products.

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.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

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.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- 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

Exhibit A
Scope of Work
Franklin Energy Services, LLC

IV. TECHNICAL TASKS

TASK 2: PROJECT PLANNING AND DESIGN

The goals of this task are to:

- Identify and define optimized systems for each pilot test site for the combination systems, minimizing project operating costs and GHG emissions and maximizing cost-effectiveness.
- Identify at least twenty-five (25) heat pump units to be tested in Single Family (SF) homes or Multifamily (MF) residences with individual systems, or at least five (5) heat pump units to be tested for MF residences with central systems to be installed in two different climate zones.
- Support design teams and contractors to prepare for installation.

The Recipient shall:

- Work with the partner low-income housing developers to identify their specific design goals in their residential projects and select the pilot test sites.
- All test sites must be located in an IOU service territory and in a Disadvantaged and/or Low Income Community. Disadvantaged Communities are communities defined as areas representing census tracts scoring in the top 25 percent in CalEnviroScreen 3.0 (<http://oehha.maps.arcgis.com/apps/View/index.html?appid=c3e4e4e1d115468390cf61d9db83efc4>). Low-income communities are communities within census tracts with median household incomes at or below either of the following levels: a) 80 percent of the statewide median income; or b) the applicable low-income threshold listed in the state income limits updated by the Department of Housing and Community Development and filed with the Office of Administrative Law pursuant to subdivision (c) of Section 50093 of the Health and Safety Code.
- Sample size shall consist of a minimum of at least fifteen units tested in SF homes or MF residences. These minimum sample sizes must be used for testing in each of two different and distinct climate zones.
- Project planning and design shall include mitigation of post-project impacts on the test site(s). This may include, but is not limited to, replacement of tested technologies with a permitted system at the end of the agreement or compensating test sites for lost revenue.
- Collect detailed building design information required for modeling purposes
- Analyze project design as necessary to determine system optimization
- Assist property owner in finalizing the scope of work for energy and water measures to be installed
- Develop equipment specifications for energy efficiency measures. Specifications will be suitable for inclusion in contractor bid documents and contracts.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

Specifications will in all cases meet or exceed applicable building energy efficiency standards leveraging Task 3 and 4 products

- Review and comment as necessary on pre-installation project scopes, including installation specifications, leveraging Task 3 and 4 products
- Provide education and training of design and installation teams on installation requirements, leveraging Task 3 and 4 products
- Develop comparative whole-building computer simulation models using CEC's Title 24 Energy Building Energy Efficiency Standards for assessment software and other tools to demonstrate the performance of different configurations and the way a building would respond to changes in the energy systems
- Develop project-specific monitoring plans for all installations including, but not limited to, a description of the end uses to be monitored, the rationale for why monitoring is required, predicted performance based on calculations or other analyses, and a description of data collection processes
- Define site inspections to verify installations and systems operation
- Support construction design document development
- Prepare *Summary of Projects and Design Specifications* to include but not be limited to: the summary of each test and site, including all energy efficiency measures and system measures, final specifications and expected performance, modeling results, description of training support provided for design, an installation support outline, monitoring plans, and planned site inspections.

Products:

- Summary of Projects and Design Specifications

TASK 3: INTEGRATED POD DESIGN, TESTING, AND PRODUCTION

The goals of this task are to:

- Design the heating and hot water pod (or H+HW Pod) as an installation element, and to test the prototyped H+HW Pod prior to manufacturing, where the H+HW Pod contains an electronic controller, pumps, valves, and fittings sufficient to control load shifted heat pump operation, storage (state of charge), and heat delivery.
- Test the prototyped H+HW Pod prior to manufacturing.

The Recipient shall:

- H+HW Pod shall be designed to utilize low or zero-GWP refrigerants (based on 100-year time horizon global warming potentials¹) that meet the requirements of the California Cooling Act (SB1013).

¹ https://ww2.arb.ca.gov/sites/default/files/2018-06/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- Design must meet Uniform Plumbing Code Requirements (UPC).
- Design shall target to meet or exceed NEEA Tier 3.0 specification.²
- Develop *H+HW Pod Prototype Design Requirements* document for H+HW Pod design prior to prototype build, including, but not limited to:
 - Form factor with mounting, electrical, and plumbing inlet/outlet locations
 - Interface definitions for air handler unit, heat pump, and storage tank
 - Details of serviceable elements and access points
 - Manufacturability analysis
 - Packaging and transport design
 - Materials suitability analysis
 - Supporting design calculations for parasitic heat loss, fluid flow restriction
 - Analysis of safety
 - Analysis of design suitability for national electric code and uniform plumbing code/California plumbing code requirements
 - Complete design project at design subcontractor
- Manufacture needed H+HW Pods and finalize support documentation for deployment.
- Prepare test plan for H+HW Pod prototype including, but not limited to:
 - Handling and installation test
 - Pressure test
 - Thermal loss test
 - Energy consumption test
 - Measurement accuracy test
 - Air handler control test
 - Heat pump control test
 - Repetitive operational cycling test
- Prepare *H+HW Pod Installation Manual* with specifications for H+HW Pod including, but not limited to:
 - Tools and parts requirements
 - Site limitations and suitability requirements
 - Safety requirements
 - Commissioning instructions
 - Possible error conditions and corrections
 - Submittal documents
 - Perform installation test of H+HW Pod in home (or simulated home) environment
- Complete integrated H+HW Pod performance testing in laboratory environment and in-home environment
 - Confirm all items described in installation manual
 - Document findings and corrective recommendations

² https://neea.org/img/documents/Advanced-Water-Heating-Specification_181010_152257.pdf

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- Prepare *H+HW Pod Design and Technology Testing Report*
 - Provide a summary of design specifications, the plan to test specifications and the results of test procedures.
 - Provide results of performance testing and document findings and corrective recommendations
 - Provide an energy measurement and verification (M&V) analysis to evaluate whether the proposed prototype achieved project performance metrics in Table 1.
- Prepare *CPR Report #1* and participate in a CPR meeting per subtask 1.3.

Products:

- H+HW Pod Prototype Design Requirements
- H+HW Pod Installation Manual
- H+HW Pod Design and Technology Testing Report (draft and final)
- CPR Report #1

TASK 4: SOFTWARE ARCHITECTURE DEVELOPMENT AND DEPLOYMENT

The goal of this task is to develop system software architecture considering the project needs.

The Recipient shall:

- Develop the H+HW Pod's operating script/requirements including automation limits and evaluation for likely error conditions
- Develop deployment and update scripts for the H+HW Pod controller software
- Define acceptable limits and evaluation for likely error conditions in the H+HW Pod controller
- Document sensor acquisition and system controls algorithm
- Develop user interface mock-up
- Develop and integrate three components of software architecture: H+HW Pod controller, web application, and a mobile application; each will connect to the cloud for data and system management.
- Develop web application role-driven functionality for developers (software developers and testers), administrator, and end user/owner (of a H+HW Pod), and demonstrate developer and owner roles
- Conduct software testing that includes unit testing, functional testing, and user-acceptance testing following the Agile Project Management method.
- Utilize Agile Project Management methodology to develop continually working sequence of software deliverables including, but not limited to:
 - Hardware commissioning process
 - Installation of software
 - Accounts management

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- Data acquisition and management, locally and in the cloud
- System control of components and sensors
- User interface
- “Push” upgrade capability
- Logging and reporting of error conditions
- Demonstrate software field-update push capability
- Develop the ability to install production release software on all systems prior to deployment
- Respond to any bugs or system performance problems identified during deployment and operation
- Prepare *Software Development and Deployment Report*
 - Provide details of the software development process and other activities conducted under Task 4.

Products:

- Software Development and Deployment Report (draft and final)

TASK 5: INSTALLATION AND QUALITY ASSURANCE

This task includes evaluating quality assurance of the control unit used in H+HW Pod, and system installation and verification. Task goals are to:

- Provide site developers with technical support for equipment installations through quality assurance and operations training.
- Support systems installation to ensure safe, timely, and fully operational deployment of test systems
- Install monitoring equipment to support project evaluation.

The Recipient shall:

- Interview contractors and owners to explore opportunities and potential problem areas
- Conduct site inspections to confirm plans against as-built conditions and implemented energy efficiency measure installation quality and performance testing as identified in Summary of Projects and Design Specifications
- Identify building energy and water related features, including building envelope, lighting, HVAC, DHW, plug loads, and water end-uses among homes participated in H+HW Pod demonstrations.
- Collect field inspection documentation and performance testing results from special inspectors on sites
- Install monitoring equipment necessary to evaluate system and electricity consumption performance; install end-use monitoring equipment to record baseline

Exhibit A
Scope of Work
Franklin Energy Services, LLC

equipment operating hours, indoor temperature and humidity, and end-use energy and water consumption

- Configure internal systems for data storage and analysis
- Train installation contractors
- Oversee the installations and provide on-site support at time of installation
- Complete a minimum of 15 residential installations to demonstrate the proposed H+HW Pod technology for each of at least two different and distinct climate zones.
- Prepare a *H+HW Quality Assurance and Monitoring Report* to include, but not be limited to: a summary of all field inspections, as-built conditions, monitoring equipment installed, and approach to monitoring to evaluate performance.
- Prepare *CPR Report #2* and participate in a CPR meeting per subtask 1.3.

Products:

- H+HW Quality Assurance and Monitoring Report
- CPR Report #2

TASK 6: DATA ANALYSIS AND PROJECT EVALUATION

The goals of this task are to:

- Document and evaluate hot water delivery and space conditioning for both performance and load shifting
- Evaluate operations and maintenance (O&M) to sustain long-term savings (utility savings and GHG savings)
- Document how energy is used in homes related to space and water heating loads
- Evaluate code algorithms for thermal storage and optimized system performance
- Analyze data for economic and environmental impacts

The Recipient shall:

- Monitor data acquisition and system performance throughout trial duration, subject to owner's acknowledgment and approval and for a period of at least nine (9) months (Summer, Winter, and Spring/Fall) under real-world operating conditions
- Complete weekly data review to verify system performance and trouble-shoot any issues
- Review utility bills and other operating data
- Review engineering models and compare to monitored data and utility bills if accessible
- Evaluate additional opportunities to streamline design, sizing, and installation for contractors
- Evaluate end-use consumption for space conditioning and DHW primarily; evaluate additional end-use consumption (lighting, cooking, plug loads) for total energy use

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- and GHG impacts
- Compare rated performance, actual performance, and modeled performance for specific technologies
 - Compare deployed technology and system to baseline characteristics identified in Table 1 and to specific baseline for developer/contractor
 - Evaluate the technology's ability to achieve higher performance and energy savings over current conventional equipment
 - Evaluate and estimate the reduced system cost, when commercially available
 - Identify the limiting factors influencing the cost of tested technology and make technological recommendations for overcoming these factors with the potential to minimize costs.
 - Use hourly data, comparing modeled consumption and actual consumption, to evaluate technologies impact that could be modeled in the computer simulation
 - Compare project performance and expectations provided in Table 1 to actual project performance and accomplishments to achieve load shifting and GHG savings (after a minimum of nine months of data collection)
 - Identify and evaluate elements to be included in knowledge transfer plan to increase deployment of technology to building owners, designers and operators.
 - Administer resident surveys to understand impact on operations; the surveys will include (but are not limited to) satisfaction with:
 - Hot water delivery
 - Ability to operate heating systems
 - Comfort
 - Develop customized O&M manuals for each property
 - Monitor data acquisition and system performance throughout trial duration for a minimum of 9 months (Summer, Winter, and Spring/Fall), subject to owner or resident's acknowledgment and approval
 - Prepare *Data Analysis and Evaluation Report* to include, but not be limited to:
 - results detailing all the work undertaken in Task 6,
 - summaries for each project site,
 - overall performance for each test site,
 - O&M manuals and recommendations,
 - site surveys showing energy use, load shifting and energy and GHG savings,
 - recommendations for further study,
 - Discussion of the energy measurement and verification (M&V) analysis to evaluate whether the project met the performance targets in Table 1
 - Further research needs for economic feasibility
 - Prepare *Code and Research Report*, to include, but not be limited to, recommendations for code compliance algorithms for specific end uses and recommendations for further studies to inform code algorithms for new

Exhibit A
Scope of Work
Franklin Energy Services, LLC

technologies and identify specific codes (e.g., Title 24) targeted and resulting outreach efforts to code setting bodies.

Products:

- Data Analysis and Evaluation Report (draft and final)
- Code and Research Report (draft and final)

TASK 7: 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 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 savings, 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.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

- 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 cost, 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.
 - 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 8: TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

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

Exhibit A
Scope of Work
Franklin Energy Services, LLC

The Recipient shall:

- Prepare an *Initial Fact Sheet* at 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.
- 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 9: 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.

Exhibit A
Scope of Work
Franklin Energy Services, LLC

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.
 - Further proof-of-concept activities with IOUs via their emerging technology programs and Community Choice Aggregators that pursue electrification policies and incentives.
 - Targeted marketing activities for early adopters of clean energy technology
 - Partnerships with HVAC manufacturers and installers, architects, and developers, in addition to Sanden and Airscape.
 - Other areas as determined by the CAM.

Products:

- Draft Production Readiness Plan
- Final Production Readiness Plan

V. Project Schedule

Please see the attached Excel spreadsheet.

M e m o r a n d u m

To: EPC-19-012

Re: CEQA Analysis and Recommendations

Date: May 01, 2020

From: Kadir Bedir

Telephone: 916-327-1411

Subject: California Environmental Quality Act (CEQA) Analysis and Recommendations for EPC-19-012

I am an Electric Generation System Specialist in the Research and Development Division, California Energy Commission (CEC), and am the CEC's Agreement Manager for proposed Agreement EPC-19-012 ("Agreement") with Franklin Energy Services, LLC (the grant "Recipient")

This memo will describe my CEQA analysis and recommendations for all proposed Agreement sites:

- (1) New construction -- East Garrison in Monterey County;
- (2) New construction -- Pacifica Landing in Contra Costa County; and
- (3) Retrofits – Existing Buildings in Alameda, Ventura, Los Angeles, Orange, and San Diego Counties.

(1) CEQA analysis and recommendations for the East Garrison Agreement site in Monterey County

The proposed East Garrison site is multi-use development that includes new housing units in Monterey County (the "Project").

Pursuant to my work in developing the Agreement, I have reviewed the lead agency, County of Monterey's California Environmental Quality Act ("CEQA") documents for the following community planning documents:

- East Garrison Specific Plan¹
 - Final Subsequent Environmental Impact Report for Specific Plan²
 - Resolution No. 05-264 of the Monterey County Board of Supervisors which includes³:
 - Findings regarding less than significance impacts, potentially significant impacts that are reduced to less than significant due to mitigation measures, and significant unavoidable adverse impacts
 - Certification of the Final Subsequent Environmental Impact Report
 - Adoption of Mitigation Monitoring and Reporting Plan
 - Statement of Overriding Considerations determination
 - Mitigation Monitoring and Reporting Plan⁴

Based on my review and consideration of the above documents, it is my independent and professional opinion that, since the above CEQA documents have been finalized, there have been no new project, circumstance or conditions changes and no new, additional, or increased significant environmental impacts have occurred. Furthermore, I have not identified any new

¹ <https://www.co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/current-major-projects/east-garrison>

² <https://www.co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/current-major-projects/east-garrison/final-subsequent-environmental-impact-report>

³ <https://www.co.monterey.ca.us/home/showdocument?id=24608>. See <https://www.co.monterey.ca.us/home/showdocument?id=59517> for documentation of vote count and approval (S-11).

⁴ https://www.fora.org/Board/2015/Packet/Additional/Exh_B_InterimCTS_MitigationMonitoringPlan2014-09-02%20v2.pdf

information that would change the conclusions of the County's CEQA documents, or render those conclusions inadequate.

It is also my independent and professional opinion that the work to be performed under the Agreement falls within the scope of Monterey County's CEQA documents, and that the Agreement will not result in any new significant environmental impacts. The mitigation measures identified and adopted by the lead agency in the Mitigation Monitoring and Reporting Plan reduce some of the potentially significant impacts to less than significant levels. Given the substantial social and economic benefits that will accrue to Monterey County and to the region from the implementation of the Project, it is my opinion that the Project's identified benefits outweigh the Project's identified significant unavoidable and inmitigable adverse environmental impacts.

I have not identified any new mitigation measures, within the CEC's authority, that would lessen or further mitigate the impacts of the existing project. Monterey County has authority to require implementation of the mitigation measures and such measures are within its jurisdiction.

The reasons for my conclusions are as follows:

The Agreement may include a main construction component: Switching fuel types for some appliances installed in the new buildings (i.e., moving from gas appliances to electric appliances). The Agreement would fund advanced control systems for heat-pump space conditioning and water heating appliances for approximately eleven multi family residences within the East Garrison Plan areas. All of the construction and equipment operation for the Agreement will be within the activities evaluated by the CEQA documents identified in this memo. The scope of work of the Agreement has no omissions from, or conflicts of information with, Monterey County's environmental documents as listed above.

East Garrison Environmental Review:

The lead agency CEQA documents identified impacts that were less than significant; potentially significant, but reduced to less than significant by mitigation measures; and significant unavoidable adverse environmental impacts that are outweighed by the Project benefits so that the adverse effects were determined to be acceptable.

Some of the environmental impacts found to be potentially significant, were reduced to less than significant levels by the mitigation measures required by the lead agency. These impacts and mitigation measures include the following:

Geology and Soils: Potential Impacts associated with seismic hazards, landslides, erosion, hazards to people due to soil failure and corrosion of building materials. The mitigation measures for geology include:

- Appropriate setbacks shall be maintained from the existing top of slope for the perimeter bluff areas as recommended by a licensed geotechnical engineer for permanent improvements and structures. The setback area shall be placed in a conservation easement.
- Proposed fill slopes shall be adequately keyed into competent older dune deposits and subdrained.

- The Geotechnical Engineer shall observe and document all grading activities and shall be informed when import materials are planned for the site.

Noise: Potential Impacts associated with construction-related noise and vibration, traffic-related noise, and community noise associated with the development and use of the community. The mitigation measures for noise include:

- Construction activities shall be limited to avoid nighttime construction to the hours between 7:00 a.m. and 6:00 p.m. on weekdays and between 8:00 a.m. and 5:00 p.m. on Saturdays. Construction shall not be allowed on Sundays or national holidays.
- The contractor shall locate all stationary noise-generating equipment, such as pumps and generators, as far as possible from noise-sensitive receptors.

Biological Resources: Potential Impacts associated with consistency with the Habitat Management Plan, disturbance of plant communities, loss of wildlife habitats, loss of special status plant species and loss of special status animals. The mitigation measures for biological resources include:

- A forester, arborist, or other tree care professional shall be involved in the review and development of final grading and construction plans to protect trees that occur either at project or grading margins.

Cultural Resources: Potential impacts associated with the potential to uncover archaeological resources during earth moving activities. The mitigation measures for cultural resources include:

- A qualified archaeologist shall monitor the site during all potential ground disturbance activities.
- The archaeologist shall prepare a monitoring plan that details the procedures that shall occur in the event that cultural resources are uncovered.
- At a minimum, all excavation shall cease within 5 meters of the discovery until it is evaluated by a qualified cultural resource specialist and/or County coroner, as applicable.

Aesthetics: Potential Impacts associated with altering the visual characteristics of the site and surrounding area and the introduction of new sources of light and glare. The mitigation measures for aesthetics include a landscaping plan incorporating tree plantings to reduce the visibility of structures shall be prepared.

Public Services and Utilities: Potential Impacts associated with increased demand for fire protection and emergency medical services. The mitigation measures for public services include:

- A financial analysis to determine an adequate financing mechanism for the ongoing staffing and operational costs of the fire station shall be completed. This analysis should address the alternatives of using a combination of a proportionate share of the applicable property tax and/or a developer imposed special tax.

Hazardous Materials: Potential Impacts associated with exposure of construction personnel to hazardous materials including lead-based paint and asbestos. The mitigation measures for hazardous materials include:

- The applicant shall hire a certified hazardous materials consultant to conduct pre-demolition soil removal at one building, perform post demolition soil sampling, and remove hot spots identified in the post-demolition sampling.

Implementation of the above mitigation measures will reduce potential impacts associated with cultural resources to a **less than significant** impact.

There were 12 specific environmental impact topics evaluated in the East Garrison project (shown below). It is my independent and professional opinion that the Agreement will not have any impact on the following environmental areas and will not change the impacts identified in Monterey County's CEQA documents.

1. Land Use and Planning

The proposed Agreement will not have any impact on land use or planning, and will not change the impacts identified in Monterey County's CEQA documents.

2. Geology/Soils

The proposed Agreement will not have any impact on geologic or soils resources, and will not change the impacts identified in Monterey County's CEQA documents

3. Hydrology/Water Quality

The proposed Agreement will not have any impact on water quality, and will not change the impacts identified in Monterey County's CEQA documents.

4. Transportation and Circulation

The proposed Agreement will not have any transportation or traffic impacts, and will not change the impacts identified in Monterey County's CEQA documents.

5. Air Quality

The proposed installations of high-efficiency appliances under the Agreement would not increase local air emissions. To the contrary, the Agreement would reduce the overall on-site emissions from the sites identified. The Agreement would reduce greenhouse gas emissions through: (1) replacement of natural gas burning appliances with electrically powered appliances; and (2) reduction of net energy consumption through the installation of high efficiency appliances. Therefore, no new significant air emissions, beyond those originally identified in Monterey County's CEQA documents, either for criteria pollutants or toxics, would occur should the Energy Commission approve the proposed Amendment.

6. Noise

The proposed Agreement will not have any noise impacts, and will not change the impacts identified in Monterey County's CEQA documents.

7. Biological Resources

The proposed Agreement will not have any impact on biological resources, and will not change the impacts identified in Monterey County's CEQA documents.

8. Cultural Resources

The proposed Agreement will not have any impact on cultural resources, and will not change the impacts identified in Monterey County's CEQA documents.

9. Aesthetics

The proposed Agreement will not have any impact on aesthetics, and will not change the impacts identified in Monterey County's CEQA documents.

10. Population, Housing, and Employment

The proposed Agreement will not have any population or housing impacts, and will not change the impacts identified in Monterey County's CEQA documents.

11. Public Services and Utilities

Electricity: The Agreement will not significantly impact total electrical demand beyond that originally identified in Monterey County's CEQA documents. The Agreement will install multiple heat pump space conditioning systems and water heaters that have the ability to reduce electricity consumption during peak demand hours. As such, the activities funded by the Agreement will not have a significant impact upon electrical demand.

Natural Gas: The activities funded by this Agreement will reduce total natural gas demand below that originally identified in Monterey County's CEQA documents. The Agreement will substitute high efficiency heat pump space conditioning systems and heat pump water heaters with smart control systems for conventional natural gas furnaces and water heaters in multiple homes. As such, the activities funded by the Agreement will reduce the Project's impact upon natural gas demand.

12. Hazardous Materials

The proposed Agreement will not have any hazardous materials impacts, and will not change the impacts identified in Monterey County's CEQA documents.

Statement of Overriding Consideration:

The lead agency adopted a statement of overriding considerations identifying the following environmental impacts as having significant inmitigable impacts:

- **Transportation and Circulation:** Potential Impacts associated with incremental worsening to existing unacceptable levels of service at some project intersections or cause an exceedance of acceptable levels of service at intersections and roadway segments

- **Air Quality:** Potential Impacts associated with temporary air emissions from earth moving activities and an increase in air emissions from community operations.
- **Cultural Resources:** Potential Impacts associated with the demolition of eleven National Register of Historic Places-eligible buildings and altering the integrity of the East Garrison National Register Historic District.
- **Public Services and Utilities:** Potential Impacts associated with increased water demand and construction of new water supply and infrastructure.
- **Cumulative Impacts** (related to air quality and transportation and circulation).

Monterey County, after balancing the specific economic, legal, social, technological and other benefits of the Project, determined that the unavoidable adverse environmental impacts may be considered acceptable due to the identified benefits outweighing the unavoidable, adverse environmental impacts and adopted a Statement of Overriding Considerations in reaching its decision to approve the Project. Monterey County considered each of the following benefits as sufficient to support approval of the Project in accordance with CEQA:

1. *Achievement of the County's Goals and Objectives:* The East Garrison Specific Plan provides a comprehensive strategy for the development within an area designated for growth in the General Plan Housing Element. The Project furthers numerous goals of the General Plan and Greater Monterey Peninsula Area Plan (GMPAP), including affordable housing and smart growth elements.
2. *Proximity to Employment Opportunities:* The East Garrison Specific Plan provides housing in an area that will serve large employment centers identified in the former Fort Ord. The community itself is proposed to have 114 Live/Work units, 100,000 square feet of studio/public facilities, 75,000 square feet of commercial areas, and civic uses.
3. *Preservation:* The Project provides for the rehabilitation, reuse, preservation and maintenance of historic buildings .
4. *Hazardous Material Clean Up:* Removal of hazardous materials, including remediation/removal of soil contaminated with lead-based paint will take place as part of the Project.
5. *Infrastructure* .Provide infrastructure improvements that can be utilized by regional users, such as Laguna Seca County Park, the Bureau of Land Management, and future users of County and other agency lands within the former Fort Ord.
6. *Revenue Neutrality* . Structure the East Garrison Community operations and maintenance such that roads, drainage, law enforcement, parks, open space, lighting, transit, and fire services provided within the community are fully funded by the community and does not affect the County's General Fund.

Given the substantial social and economic benefits that will accrue to Monterey County and to the region from the Project, it is my opinion that the Project's identified benefits override the Project's identified significant unavoidable and immitigable environmental impacts. The Project provides infrastructure, affordable housing and smart grown with proximity to jobs. It also results in the removal of hazardous materials including contaminated soils and paint and the preservation and maintenance of historical buildings in the area. This outweighs the potentially significant impacts associated with the Project's expected increase in traffic, water use, and the demolition of certain historical buildings. Therefore, I recommend adopting the CEQA findings and a Statement of Overriding Considerations as described above for the East Garrison site for the Franklin Energy Services, LLC's energy efficient HVAC and water heater demonstration

project and approving its inclusion in Agreement EPC-19-012 with Franklin Energy Services, LLC.

(2) CEQA analysis and recommendations for the Pacifica Landing Agreement site in Contra Costa County

The proposed Pacifica Landing site is multifamily housing development in Contra Costa County (the “Project”).

Pursuant to my work in developing the Agreement, I have reviewed the lead agency, County of Contra Costa’s, California Environmental Quality Act (“CEQA”) documents including the following:

- Contra Costa County July 9, 2019 Board of Supervisors action approving the Project; adopting a Mitigated Negative Declaration and Mitigation Monitoring Program for the Project; and approving an amendment to the general plan for the Project.⁵
- CEQA Environmental Checklist Form (Initial Study)⁶
- Contra Costa County Project Findings and Conditions of Approval⁷
- Mitigation Monitoring Program⁸

Based on my review and consideration of the above documents, it is my independent and professional opinion that, since the above CEQA documents have been finalized, there have been no new Project, circumstance or conditions changes and no new, additional, or increased significant environmental impacts have occurred. Furthermore, I have not identified any new information that would change the conclusions of Contra Costa County’s CEQA documents, or render those conclusions inadequate.

It is also my independent and professional opinion that the work to be performed under the Agreement falls within the scope of Contra Costa County’s CEQA documents, and that the Agreement will not result in any new significant environmental impacts. The lead agency CEQA documents found some less than significant impacts and some potentially significant impacts. However, the mitigation measures identified and adopted by the lead agency in the Mitigation Monitoring Program reduced all potentially significant impacts to less than significant levels. I have not identified any new mitigation measures, within the CEC’s authority, that would lessen or further mitigate the impacts of the existing project. Contra Costa County has authority to require implementation of the mitigation measures, and such measures are within its jurisdiction.

The reasons for my conclusions are as follows:

The Agreement may include a main construction component: Switching fuel types for some appliances installed in the new buildings (i.e., moving from gas appliances to electric appliances). The Agreement would fund advanced control systems for heat-pump space conditioning and water heating appliances for approximately three single-family residences

⁵ http://64.166.146.245/public/print/ag_memo_pdf_popup.cfm?seq=38419&rev_num=0&mode=CUSTOM

⁶ http://64.166.146.245/docs/2019/BOS/20190709_1308/38419_8%20-%20SD13-9340_CEQA_IS.pdf

⁷ http://64.166.146.245/docs/2019/BOS/20190709_1308/38419_SD13-9340_COA_BOS_7-9-19..pdf

⁸ http://64.166.146.245/docs/2019/BOS/20190709_1308/38419_SD13-9340_MMP.pdf

(townhomes) at the Pacifica Landing Project site. All of the construction and equipment operation for the Agreement will be within the activities evaluated by the CEQA documents identified in this memo. The scope of work of the Agreement has no omissions from, or conflicts of information with, Contra Costa County's environmental documents as listed above.

Habitat for Humanity Pacifica Landing Project Environmental Review:

There were 19 specific environmental impact topics evaluated in the Pacifica Landing project (shown below), including the significance. Many of the impacts were found to be less than significant. For the impacts that were found to be potentially significant, Contra Costa County adopted a mitigation monitoring program, which is incorporated in the conditions of approval, concerning the following elements to reduce those impacts to less than significant levels:

- Air Quality
- Cultural Resources
- Noise
- Tribal Cultural Resources

The environmental impacts listed above were reduced to less than significant levels by the mitigation measures required by the lead agency. These mitigation measures included the following:

Air Quality Impact Mitigation: Bay Area Air Quality Management District, Basic Construction Mitigation Measures shall be implemented during project construction and shall be included on all construction plans. These measures include watering all exposed surfaces two times a day during the construction, speed limits on unpaved roads, covering all haul trucks transporting soil, and other mitigation measures.

Cultural Resources Impact Mitigation: If deposits of prehistoric or historical archaeological materials are encountered during ground disturbance activities, all work within 30 yards of these materials shall be stopped until a professional archaeologist who is certified by the Society for California Archaeology (SCA) and/or the Society of Professional Archaeology (SOPA), and the Native American tribe that has requested consultation and/or demonstrated interest in the project site, have had an opportunity to evaluate the significance of the find and suggest appropriate mitigation(s) if deemed necessary. The report should be submitted to the Northwest Information Center and appropriate Contra Costa agencies. If human remains are of a Native American origin, work within 50 feet of the discovery will be redirected the Native American Heritage Commission must be notified for further action.

Noise Impact Mitigation: The applicant shall make a good faith effort to minimize project-related disruptions to adjacent properties, and to uses on the site such as fitting mufflers on internal combustion engines and locating stationary noise-generating equipment as far away from existing residences as possible. Additionally, all construction activities have limited hours or daily operation and are prohibited on state and federal holidays.

It is my independent and professional opinion that the Agreement will not have any impact on the following environmental areas evaluated by the lead agency and will not change the impacts identified in Contra Costa County's CEQA documents as described below.

1. Aesthetics

The proposed Agreement will not have any impact on aesthetics, and will not change the impacts identified in Contra Costa County's CEQA documents.

2. Air Quality

The proposed installations of high-efficiency appliances under the Agreement would not increase local air emissions. Therefore, no new significant air emissions, beyond those originally identified in Contra Costa County's CEQA documents, either for criteria pollutants or toxics, would occur should the Energy Commission approve the proposed Agreement.

3. Biological Resources

The proposed Agreement will not have any impact on biological resources, and will not change the impacts identified in Contra Costa County's CEQA documents.

4. Cultural Resources

The proposed Agreement will not have any impact on cultural resources, and will not change the impacts identified in Contra Costa County's CEQA documents.

5. Geology/Soils

The proposed Agreement will not have any impact on geologic or soils resources, and will not change the impacts identified in Contra Costa County's CEQA documents.

6. Greenhouse Gas Emissions

The Agreement would reduce the overall on-site emissions from the sites identified. The Agreement would reduce greenhouse gas emissions through: (1) replacement of natural gas burning appliances with electrically powered appliances; and (2) reduction of net energy consumption through the installation of high efficiency appliances.

7. Hazardous Materials

The proposed Agreement will not have any hazardous materials impacts and will not change the impacts identified in Contra Costa County's CEQA documents.

8. Hydrology and Water Quality

The proposed Agreement will not have any impact on water quality, and will not change the impacts identified in Contra Costa County's CEQA documents.

9. Land Use and Planning

The proposed Agreement will not have any impact on land use or planning, and will not change the impacts identified in Contra Costa County's CEQA documents.

10. Noise

The proposed Agreement will not have any noise impacts, and will not change the impacts identified in Contra Costa County's CEQA documents.

11. Population and Housing

The proposed Agreement will not have any population or housing impacts, and will not change the impacts identified in Contra Costa County's CEQA documents.

12. Transportation and Traffic

The proposed Agreement will not have any transportation or traffic impacts, and will not change the impacts identified in Contra Costa County's CEQA documents.

13. Utilities and Service Systems

Electricity: The Agreement will not significantly impact total electrical demand beyond that originally identified in Contra Costa County's CEQA documents. The Agreement will install multiple pump space conditioning systems and water heaters that have the ability to reduce electricity consumption during peak demand hours. As such, the activities funded by the Agreement will not have a significant impact upon electrical demand.

Natural Gas: The activities funded by this Agreement will reduce total natural gas demand below that originally identified in the County's CEQA documents. The Agreement will substitute high efficiency heat pump space conditioning systems and heat pump water heaters with smart control systems for conventional natural gas furnaces and water heaters in multiple single family homes. As such, the activities funded by the Agreement will reduce the project's impact upon natural gas demand.

(3) Existing Buildings in Alameda, Ventura, Los Angeles, Orange, and San Diego Counties.

CEQA Guidelines, 14 CCR section 15301, Existing Facilities, exempts the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use.

Some of the proposed Agreement sites will be existing residential buildings that will undergo retrofits as part of this Agreement. These sites are exempt under 14 CCR section 15301, because they will involve retrofitting existing residential buildings consisting of minor alterations and operation of existing facilities with little or no expansion of existing or former use. The retrofits will include replacement of old inefficient HVAC and water heating equipment along with installation of monitoring devices and hardware and software that optimize the energy use. These activities will involve no expansion of existing or former use.

The Agreement will also include research and development that will consist of the operation and minor alteration of existing laboratory facilities within their existing or former use.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES CONSERVATION AND
DEVELOPMENT COMMISSION

RESOLUTION - RE: FRANKLIN ENERGY SERVICES, LLC

WHEREAS, the Energy Commission is considering proposed Agreement EPC-19-012, Affordable Space Conditioning and Domestic Hot Water Systems with Low Emissions and High Performance (hereinafter EPC-19-012), a grant to fund the development, testing, and demonstration of a combined space conditioning and hot water system, incorporating built-in load shifting that will deliver clean, affordable space conditioning and domestic hot water to existing and new homes (the Project); and

WHEREAS, the Project proposed technology will be installed and demonstrated at multiple sites in California; and

WHEREAS, for the East Garrison new home construction Project site, Monterey County is the Lead Agency for purposes of the California Environmental Quality Act (CEQA); and

WHEREAS, Monterey County adopted a Final Subsequent Environmental Impact Report, CEQA findings regarding environmental impacts, a Mitigation, Monitoring, and Reporting Plan, and a Statement of Overriding Considerations for East Garrison, which are linked in the Energy Commission staff CEQA memo posted on the Energy Commission website (collectively, the Monterey County CEQA Documents); and

WHEREAS, where possible mitigation measures were adopted by Monterey County for East Garrison to reduce potentially significant impacts to less than significant levels and where significant or potentially significant impacts were found to be unavoidable and inmitigable, Monterey County adopted a Statement of Overriding Considerations that the project's social, environmental, and economic benefits outweigh its identified significant unavoidable and inmitigable environmental impacts; and

WHEREAS, for the Pacifica Landing new home construction Project site, Contra Costa County is the Lead Agency for purposes of CEQA; and

WHEREAS, Contra Costa County approved an Initial Study for Pacifica Landing and adopted CEQA findings, conditions of approval, Mitigated Negative Declaration, and a Mitigation Monitoring Program for Pacifica Landing, which are linked in the Energy Commission staff CEQA memo posted on the Energy Commission website (collectively, the Contra Costa County CEQA Documents); and

WHEREAS, Contra Costa County adopted mitigation measures for Pacifica Landing that reduced all potentially significant impacts to less than significant levels; and

WHEREAS, the rest of the Project sites will consist of the operation, maintenance, and minor alteration of existing facilities and mechanical equipment, involving negligible or no expansion of use; and

Prior to acting on Agreement EPC-19-012, the Energy Commission desires to make certain findings pursuant to CEQA Guidelines, title 14, sections 15091, 15092, 15093, 15096, and 15162:

NOW THEREFORE, BE IT RESOLVED:

1. To the extent relevant to EPC-19-012, the Energy Commission has considered the information contained in the Monterey County CEQA Documents and the Contra Costa County CEQA Documents identified above (collectively referred to as the Lead Agency CEQA Documents);
2. As a responsible agency for the East Garrison and Pacifica Landing Project sites, the Energy Commission finds that the work to be performed under the Project falls within the scope of the Lead Agency CEQA Documents and there is no new information or changes to the Project, impacts or conditions that would change their conclusions or render them inadequate;
3. Any changes to East Garrison and Pacifica Landing Project sites that can lessen or avoid significant or potentially significant environmental impacts are within the jurisdiction of Monterey County or Contra Costa County and have already been adopted as they relate to their respective Project sites; and
4. The Energy Commission has not identified any additional feasible alternatives or mitigation measures within its power for the East Garrison and Pacifica Landing Project sites that would substantially lessen or avoid any significant environmental Project impacts;

BE IT FURTHER RESOLVED,

that the Energy Commission finds, on the basis of the entire record before it, including the Monterey County CEQA Documents identified above, that where possible mitigation measures were incorporated to prevent significant environmental impacts or on balance social, environmental, and economic benefits including smart growth, affordable housing, historical building preservation, and clean up of hazardous materials, outweigh the unavoidable and immitigable adverse transportation, air quality, cumulative, cultural resource, and public services and utilities impacts for the East Garrison site; and

BE IT FURTHER RESOLVED,

that the Energy Commission finds, on the basis of the entire record before it, including the Contra Costa County CEQA Documents identified above, that the mitigation measures incorporated by Contra Costa County will prevent any significant environmental impacts for the Pacifica Landing site; and

BE IT FURTHER RESOLVED, that the Energy Commission finds the remaining existing facilities Projects sites are within the Existing Facilities CEQA exemption found in section 15301 of the CEQA Guidelines; and

BE IT FURTHER RESOLVED, that the Executive Director or his or her designee is authorized to prepare and file on behalf of the Energy Commission, a Notice of Determination for the East Garrison and Pacifica Landing Project sites and a Notice of Exemption for the existing facilities Project sites; and

BE IT FURTHER RESOLVED, that the Energy Commission approves Agreement EPC-19-012 with Franklin Energy Services, LLC for \$1,499,925; and

BE IT FURTHER RESOLVED, that the Executive Director or his designee shall execute the same on behalf of the Energy Commission.

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 California Energy Commission held on May 13, 2020.

AYE: [*List Commissioners*]

NAY: [*List Commissioners*]

ABSENT: [*List Commissioners*]

ABSTAIN: [*List Commissioners*]

Cody Goldthrite,
Secretariat