

GRANT REQUEST FORM (GRF)

CEC-270 (Revised 10/2015)

CALIFORNIA ENERGY COMMISSION

New Agreement EPC-17-035 (To be completed by CGL Office)

ERDD	Yu Hou	43	916-327-1544
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DOE- Lawrence Berkeley National Laboratory	94-2951741
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Building Healthier and More Energy-Efficient Communities in Fresno and the Central Valley

5/1/2018	1/31/2022	\$ 1,100,000
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☐ ARFVTP agreements under \$75K delegated to Executive Director.

Proposed Business Meeting Date	4/11/2018	<input type="checkbox"/> Consent	<input checked="" type="checkbox"/> Discussion
Business Meeting Presenter	Katharina Snyder	Time Needed:	5 minutes

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

Agenda Item Subject and Description

LAWRENCE BERKELEY NATIONAL LABORATORY. Proposed resolution approving agreement EPC-17-035 with Lawrence Berkeley National Laboratory for a \$1,100,000 grant to develop a holistic community action plan to achieve climate benefits and air quality improvements through energy efficiency measures, electrification, and distributed energy resources in the residential building and light-duty and medium-duty (LDV, MDV) transportation sectors in San Joaquin Valley. (EPIC funding) Contact: Yu Hou

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":
 Agreement will not cause direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because The purpose of the agreement is to collect existing data, develop models, and finally draft action plan for the city. No project activity will disturb the environment.

2. If Agreement is considered a "Project" under CEQA:
☐ a) Agreement **IS** exempt. (Attach draft NOE)
☐ 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 ☐ Environmental Impact Report
☐ Negative Declaration ☐ Statement of Overriding Considerations
☐ Mitigated Negative Declaration

Legal Company Name:	Budget
The Local Government Commission	\$ 50,000
Every Neighborhood Partnership	\$ 86,900
Rising Sun Energy Center	\$ 90,000
Home Energy Analytics	\$ 30,000
	\$
	\$
	\$
	\$
	\$

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CALIFORNIA ENERGY COMMISSION

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

Legal Company Name:

Funding Source	Funding Year of Appropriation	Budget List No.	Amount
EPIC	16-17	301.001D	\$1,100,000
			\$
			\$
			\$
			\$
			\$
R&D Program Area: EGRO: EA			\$1,100,000
Explanation for "Other" selection			
Reimbursement Contract #:		Federal Agreement #:	

Name:	Betsy Quayle	Name:	Max Wei
Address:	1 Cyclotron Rd	Address:	1 Cyclotron Rd, MS 90R2002
City, State, Zip:	Berkeley, CA 94720-8099	City, State, Zip:	Berkeley, CA 94720-0001
Phone:	510-486-7391 /	Fax:	- -
E-Mail:	BEQuayle@lbl.gov	E-Mail:	mwei@lbl.gov

☒ Competitive Solicitation
 Solicitation #: GFO-16-311
☐ First Come First Served Solicitation

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

Agreement Manager

Date

Office Manager

Date

Deputy Director

Date

EXHIBIT A Scope of Work

A. Task List

Task #	CPR ¹	Task Name
1		General Project Tasks
2		Data Collection and Analysis
3	X	Scenario Modeling and Options Analysis
4		Action Plan and Recommendations
5		Evaluation of Project Benefits
6		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CBES	Commercial Building Energy Saver
CBO	Community-based Organization
CPR	Critical Project Review
DER	Distributed Energy Resources
ECM	Energy Conservation Measure
EE	Energy Efficiency
GHG	Greenhouse gases
HVAC	Heating, Ventilation, and Cooling
LDV	Light-Duty Vehicle
MDV	Medium-Duty Vehicle
LGC	Local Government Commission
NREL	National Renewable Energy Lab
SJV	San Joaquin Valley
TAC	Technical Advisory Committee

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

A. Purpose of Agreement

The purpose of this Agreement is to develop a holistic community action plan to achieve climate benefits and air quality improvements through energy efficiency measures, electrification, and distributed energy resources in the residential building and light-duty (LDV) and medium-duty (MDV) transportation sectors in the city of Fresno.

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

EXHIBIT A

Scope of Work

Problem/ Solution Statement

Problem

Fresno is a disadvantaged community with high unemployment and poor air quality. The high pollution load contributes to adverse health outcomes. Fresno's children suffer from asthma at rates much higher than in California as a whole². The disadvantaged communities in Fresno also suffer from lack of air-conditioning or cannot afford to run air conditioning during hot summer months, which significantly impact occupant health. At the same time, access to clean technology options (e.g. solar PV, major energy efficiency upgrades, battery-electric vehicles) is constrained in disadvantaged communities by many structural barriers. These barriers include lack of access to capital, transactional and informational barriers, and lack of trust in utilities and contractors. Rental units are subject to the split incentive problem where landlords do not have an incentive to make energy efficiency upgrades if they do not pay the utility bills, and residents have low incentive to purchase energy efficient equipment as renters.

Solution

A cornerstone of this project will be to solicit and incorporate community concerns and inputs into the action plan. The recipient will work to build trust and educate the community by being responsive to their concerns about access to clean energy options, build awareness of current programs, and to elicit community inputs on proposed new programs. Secondly, the recipient will demonstrate "total cost" (direct costs and externality benefits) analysis approaches and quantitative metrics to prioritize energy efficiency air quality improvement, and qualitatively consider other non-energy benefits such as comfort, productivity, and climate-change resilience. The recipient will align GHG reduction measures and local air quality improvement to help prioritize measures, promote adoption of cleaner vehicles, and build greater awareness of the health benefits of clean energy. This project will work within the community to build trust and awareness (on the "demand side") while also providing the "supply side" urban scenarios that better align GHG reduction measures and local air quality improvement. These advances and innovations can then be applied more generally to other disadvantaged cities across California.

LBNL has the multi-disciplinary capabilities to deliver the objectives of this research, with a breadth of modeling and analytical capability unique to LBNL. Our capabilities include big-data experience and analysis expertise, working with large sets of utility data from prior projects (for example, the CPUC Demand Response Potentials study), extensive expertise in cost-benefit analysis for various building energy efficiency and electrification technologies, well-established modeling tools such as the Distributed Energy Resources Customer Adoption Model (DER-CAM) for micro-grids, CBES (built upon OpenStudio and EnergyPlus) for individual buildings, CityBES (built upon CBES) for urban buildings, and custom application of models for indoor and outdoor air quality with closed-form health and environmental impact models. Both CityBES and indoor and outdoor health quality models have been demonstrated in multiple geographies, demonstrating that the approach developed here for Fresno can be replicated for other locations. LBNL also has developed and demonstrated tools to select packages of building retrofits (Noris et al., 2013) to maximize energy savings and air pollutant exposure reduction that are an example of urban scenario modeling. These capabilities allow us to create a holistic and comprehensive community action plan for Fresno covering energy efficiency measures, electrification options, and distributed resource options in the residential sector and for light- and medium-duty vehicles.

² Based on the CalEnviroScreen <https://oehha.ca.gov/calenviroscreen/maps-data> Fresno scores above 90% for most regions of city. The tool has dropdown menus of key factors.

EXHIBIT A

Scope of Work

B. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Support the state's policy goals of by developing a holistic plan to improve access to clean energy technologies in disadvantaged communities
- Provide an actionable plan that utilizes “big data” for prioritized deployment of energy efficiency measures, electrification, and distributed energy-resources resource deployment in the Fresno area to achieve climate benefits and local air quality improvements. Big data may include large data sets of utility energy consumption and load shapes and/or large time-resolved data sets detailing criteria emission sources in Fresno.
- Incorporate grassroots input throughout the project duration
- Build the plan in such a way that it is extendable to other areas of the Central Valley such as Bakersfield and Stockton
- Provide a plan that is applicable both in the near term (next 4 years) and mid-term (4-8 years)

Ratepayer Benefits:³ This Agreement will improve access to clean energy technologies in disadvantaged communities. This will facilitate reduced energy costs for retrofitted buildings and for electrified end uses such as electric vehicles and electric trucks as well as improved air quality. Increasing energy efficiency in buildings can help to offset the expansion of the grid and contain grid related costs that otherwise would occur with electrification and without energy efficiency (EE) gains in buildings. Greater usage of microgrids with energy storage can increase local power supply reliability and resilience to grid blackouts. Greater EE, demand response, and microgrids with storage can reduced peak demand in the summer and mitigate the risk for grid outages. In the event of a grid outage, microgrids with storage and “islanding” capability can provide greater resilience by providing power for critical service needs.

Technological Advancement and Breakthroughs:⁴ 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 state-of-the-art information and analyses on the impacts of prioritized and integrated measures of energy efficiency, electrification, distributed-energy-resources, and ZEVs in the Fresno area on climate benefits and air quality improvements. Field survey and validation testing will provide inputs on appropriate implementation strategies and selection of systems and technologies to overcome barriers associated with site characteristics and user responses. Monitoring of energy use and air quality in typical households within the disadvantage communities will provide accurate and realistic inputs in the analysis for large scale implementation of similar programs.

³ California Public Resources Code, Section 25711.5(a) requires projects funded by the Electric Program Investment Charge (EPIC) to result in ratepayer benefits. The California Public Utilities Commission, which established the EPIC in 2011, defines ratepayer benefits as greater reliability, lower costs, and increased safety (See CPUC “Phase 2” Decision 12-05-037 at page 19, May 24, 2012, http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF).

⁴ California Public Resources Code, Section 25711.5(a) also requires EPIC-funded projects to lead to technological advancement and breakthroughs to overcome barriers that prevent the achievement of the state's statutory and energy goals.

EXHIBIT A

Scope of Work

Agreement Objectives

The objectives of this Agreement are to:

- Understand, incorporate and address community concerns around access energy efficiency improvements, electrification, DER, local air quality issues, and zero- emission vehicles (ZEVs)
- Collect and analyze utility big data to understand energy usage patterns and evaluate opportunities for energy efficiency measures and deployment
- Incorporates lessons learned about the efficiency of community-scale retro-fit packages and build out similar approaches for Fresno
- Quantify air quality, health, productivity and other benefits that will result from specified improvements in EE, electrification, and distributed energy resources in residential buildings and zero-emission vehicles
- Model EE and DER measures for total societal cost (“total cost”) across several areas of Fresno in an analysis framework of “urban scenarios” that include customer costs and non-energy benefits
- Track state, utility, and local policy efforts to improve affordability and access and prioritize or recommend modifications or additional policies and programs which may be most helpful

II. TASK 1 GENERAL PROJECT TASKS

PRODUCTS

Subtask 1.1 Products

The goal of this subtask is to establish the requirements for submitting project products (e.g., reports, summaries, plans, and presentation materials). Unless otherwise specified by the Commission Agreement Manager (CAM), the Recipient must deliver products as required below by the dates listed in the **Project Schedule (Part V)**. Products that require a draft version are indicated by marking “**(draft and final)**” after the product name in the “Products” section of the task/subtask. If “(draft and final)” does not appear after the product name, only a final version of the product is required. With respect to due dates within this Scope of Work, “**days**” means working days.

The Recipient shall:

For products that require a draft version

- 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.
- Submit the final product to the CAM once agreement has been reached on the draft. The CAM will provide written approval of the final product within 15 days of receipt, unless otherwise specified in the task/subtask for which the product is required.
- If the CAM determines that the final product does not sufficiently incorporate his/her comments, submit the revised product to the CAM within 10 days of notice by the CAM, unless the CAM specifies a longer time period.

For products that require a final version only

- Submit the product to the CAM for approval.

EXHIBIT A

Scope of Work

- If the CAM determines that the product requires revision, submit the revised product to the CAM within 10 days of notice by the CAM, unless the CAM specifies a longer time period.

For all products

- Submit all data and documents required as products in accordance with the following Instructions for Submitting Electronic Files and Developing Software:

- **Electronic File Format**

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

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

- Data sets will be in MS Access or MS Excel file format (version 2007 or later), or any other format approved by the CAM.
- Text documents will be in MS Word file format, version 2007 or later.
- Documents intended for public distribution will be in PDF file format. The Recipient must also provide the native Microsoft file format.
- Project management documents will be in Microsoft Project file format, version 2007 or later.

- **Software Application Development**

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

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

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

EXHIBIT A

Scope of Work

MEETINGS

Subtask 1.2 Kick-off Meeting

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

The Recipient shall:

- Attend a “Kick-off” meeting with the CAM, the Commission Agreement Officer (CAO), and any other Energy Commission staff relevant to the Agreement. The Recipient will bring its Project Manager and any other individuals designated by the CAM to this meeting. The administrative and technical aspects of the Agreement will be discussed at the meeting. Prior to the meeting, the CAM will provide an agenda to all potential meeting participants. The meeting may take place in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

The administrative portion of the meeting will include discussion of the following:

- Terms and conditions of the Agreement;
- Administrative products (subtask 1.1);
- CPR meetings (subtask 1.3);
- Match fund documentation (subtask 1.7);
- Permit documentation (subtask 1.8);
- Subcontracts (subtask 1.9); and
- Any other relevant topics.

The technical portion of the meeting will include discussion of the following:

- The CAM's expectations for accomplishing tasks described in the Scope of Work;
 - An updated Project Schedule;
 - Technical products (subtask 1.1);
 - Progress reports and invoices (subtask 1.5);
 - Final Report (subtask 1.6);
 - Technical Advisory Committee meetings (subtasks 1.10 and 1.11); and
 - Any other relevant topics.
- Provide an *Updated Project Schedule*, *List of Match Funds*, and *List of Permits*, as needed to reflect any changes in the documents.

The CAM shall:

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

Recipient Products:

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

CAM Product:

- Kick-off Meeting Agenda

EXHIBIT A

Scope of Work

Subtask 1.3 Critical Project Review (CPR) Meetings

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

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

The Recipient shall:

- Prepare a *CPR Report* for each CPR meeting that: (1) discusses the progress of the Agreement toward achieving its goals and objectives; and (2) includes recommendations and conclusions regarding continued work on the project.
- Submit the CPR Report along with any other *Task Products* that correspond to the technical task for which the CPR meeting is required (i.e., if a CPR meeting is required for Task 2, submit the Task 2 products along with the CPR Report).
- Attend the CPR meeting.
- Present the CPR Report and any other required information at each CPR meeting.

The CAM shall:

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

Recipient Products:

- CPR Report(s)
- Task Products (draft and/or final as specified in the task)

CAM Products:

- CPR Agenda
- List of Expected CPR Participants

EXHIBIT A

Scope of Work

- Schedule for Providing a Progress Determination
- Progress Determination

Subtask 1.4 Final Meeting

The goal of this subtask is to complete the closeout of this Agreement.

The Recipient shall:

- Meet with Energy Commission staff to present project findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement. This meeting will be attended by the Recipient and CAM, at a minimum. The meeting may occur in person or by electronic conferencing (e.g., WebEx), with approval of the CAM.

The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be divided into two separate meetings at the CAM's discretion.

- The technical portion of the meeting will involve the presentation of findings, conclusions, and recommended next steps (if any) for the Agreement. The CAM will determine the appropriate meeting participants.
- The administrative portion of the meeting will involve a discussion with the CAM and the CAO of the following Agreement closeout items:
 - Disposition of any state-owned equipment.
 - Need to file a Uniform Commercial Code Financing Statement (Form UCC-1) regarding the Energy Commission's interest in patented technology.
 - The Energy Commission's request for specific "generated" data (not already provided in Agreement products).
 - Need to document the Recipient's disclosure of "subject inventions" developed under the Agreement.
 - "Surviving" Agreement provisions such as repayment provisions and confidential products.
 - Final invoicing and release of retention.
- Prepare a *Final Meeting Agreement Summary* that documents any agreement made between the Recipient and Commission staff during the meeting.
- Prepare a *Schedule for Completing Agreement Closeout Activities*.
- Provide *All Draft and Final Written Products* on a CD-ROM or USB memory stick, organized by the tasks in the Agreement.

Products:

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

REPORTS AND INVOICES

Subtask 1.5 Progress Reports and Invoices

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

EXHIBIT A

Scope of Work

The Recipient shall:

- Submit a monthly *Progress Report* to the CAM. Each progress report must:
 - Summarize all Agreement activities conducted by the Recipient for the preceding month, including 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.
 - Provide a synopsis of the project progress, including accomplishments, problems, milestones, products, schedule, fiscal status, and any evidence of progress such as photographs.
- Submit a monthly or quarterly *Invoice* that follows the instructions in the “Payment of Funds” section of the terms and conditions. In addition, each invoice must document and verify:
 - Energy Commission funds received by California-based entities;
 - Energy Commission funds spent in California (*if applicable*); and
 - Match fund 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 and approve 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 a 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.
- Submit a draft of the outline to the CAM for review and comment.
- Once agreement has been reached on the draft, submit the final outline to the CAM. The CAM will provide written approval of the final outline within 10 days of receipt.

Recipient Products:

- Final Report Outline (draft and final)

CAM Product:

- Style Manual

Subtask 1.6.2 Final Report

The Recipient shall:

- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline and the Style Manual provided by the CAM.
- Submit a draft of the report to the CAM for review and comment. Once agreement on the draft report has been reached, the CAM will forward the electronic version for Energy Commission internal approval. Once the CAM receives approval, he/she will provide written approval to the Recipient.

EXHIBIT A

Scope of Work

- Submit one bound copy of the Final Report to the CAM.

Products:

- Final Report (draft and final)

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:

- 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.
- A copy of 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*)

EXHIBIT A

Scope of Work

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

Subtask 1.8 Permits

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

The Recipient shall:

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

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

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

Products:

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

Subtask 1.9 Subcontracts

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

The Recipient shall:

- Manage and coordinate subcontractor activities in accordance with the requirements of this Agreement.
- Incorporate this Agreement by reference into each subcontract.
- Include any required Energy Commission flow-down provisions in each subcontract, in addition to a statement that the terms of this Agreement will prevail if they conflict with the subcontract terms.
- If required by the CAM, submit a draft of each *Subcontract* required to conduct the work under this Agreement.

EXHIBIT A

Scope of Work

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

Products:

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

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)

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

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

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

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

The Recipient shall:

- Prepare a *List of Potential TAC Members* that includes the names, companies, physical and electronic addresses, and phone numbers of potential members. The list will be discussed at the Kick-off meeting, and a schedule for recruiting members and holding the first TAC meeting will be developed.
- Recruit TAC members. Ensure that each individual understands member obligations and the TAC meeting schedule developed in subtask 1.11.
- Prepare a *List of TAC Members* once all TAC members have committed to serving on the TAC.

EXHIBIT A

Scope of Work

- 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.

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

III. TECHNICAL TASKS

TASK 2 DATA COLLECTION AND ANALYSIS

The goals of this task are to: (1) compile existing data from the City of Fresno, PG&E, and other sources; (2) collect energy auditing and indoor air quality data; (3) develop and deploy an energy survey for residents and other groups in Fresno; (4) analyze the collected data

The Recipient shall:

- Define appropriate non-disclosure agreements and data security protocols with City of Fresno and PG&E for data sharing and data security.
- Identify and compile existing data
 - Compile data from City of Fresno on building energy audits, demographic data by neighborhood and building vintage data
 - Compile data from PG&E, e.g. appliance survey data and interval electricity data
 - Compile data from Energize Fresno and Transformative Climate Communities
 - Compile data from other sources, e.g. energy efficiency cost data from the recipient's projects on ZNE residential homes and ZNE commercial building retro-fit packages
 - Compile energy efficiency packages from prior projects on community-scale energy efficiency deployment
 - Compile cost data from various sources including Commercial Building Energy Saver (CBES) ECM database, RSMeans, NREL efficiency measures database
- Prepare a online energy survey for Fresno residents and other groups e.g. landlords, business owners
 - Ask questions on energy use, air quality and health concerns
 - Develop understanding of general levels of comfort and energy/climate awareness, etc.
 - Assess percentage of recipients who are single family home owners versus renters and what fraction of renters pay their utility bills, etc.
 - Provide a paper copy of the *Fresno Energy Survey* to the CAM
- Coordinating with the CAM to conduct a community workshop # 1 to seek inputs and feedback on the energy survey topics
- Conduct site surveys and measurements
 - Screen and select target areas in Fresno. The areas must be identified as Disadvantaged communities by CalEnviroScreen 3.0.
 - Develop potential participants based on pre-existing lists from Community Based Organizations (CBO) partner
 - Conduct site visits and collect information on HVAC use, fan hoods, energy service concerns, etc.
- Review technology options available currently and in 5-7 years
 - Compile detailed literature review and market review of emerging energy technologies e.g., electric trucks, battery storage, thermal storage, electric heat pump technology
- Review current policies, programs and options available currently and in 5-7 years
 - Collect information from City, partner Local Government Commission (LGC), CPUC, PG&E, local CBOs to assess applicability to Fresno and barriers to greater participation
 - Catalog proposed programs or planned programs at the state or local level
 - Assess the efficacy and strengths and weaknesses of these options and programs together with the City of Fresno and project partner LGC.

EXHIBIT A

Scope of Work

- o Track state, utility, and local policy efforts to improve affordability and access and prioritize which may be most applicable for Fresno.
- Analyze data sets collected above
 - o Classify key commonalities in energy use or appliance adoption among buildings and residences in Fresno
 - o Identify energy-use patterns and opportunities for energy efficiency measures from PG&E interval data
 - o Design energy efficiency packages from key commonalities and promising energy efficiency measures
 - o Identify key barriers to implementation among community access and financing, split-incentives, lack of awareness, program complexity, capital access, etc.
- Generate *Fresno Data Analysis Report* that includes but not limited to, findings from existing data, results and analysis from the online survey, feedback from community workshop, review of current technology options, energy policies and programs, and data analysis.

Product:

- Fresno Energy Survey
- Fresno Data Analysis Report (Draft and Final)

TASK 3 SCENARIO MODELING AND OPTIONS ANALYSIS

The goal of this task is to develop a screening assessment of the residential and LDV/MDV transportation sectors to identify the most promising options for total costs including GHG savings and health benefits across energy efficiency measures, electrification, and distributed energy resources.

The Recipient shall:

- Perform a screening assessment of the residential, and LDV/MDV transportation sectors
 - o Identify options for GHG savings across energy efficiency measures, electrification, distributed energy resources, and micro-grids.
 - o Leverage other programs and data e.g., the list of recommended projects and analysis for retrofits from Energize Fresno or proposed project for Transformative Climate Communities can be used as inputs to health/environmental impact modeling and comparison of efficiency vs electrification measures.
 - o Develop potential standard energy efficiency packages and/or community aggregated retrofits based on survey data and energy audit database
 - o Calculate the life cycle costs, considering any federal, state, or local incentives taken into account.
 - o Utilize CBES and CityBES to perform building simulations to evaluate energy savings, energy cost savings and other non-energy benefits of retrofit measures.
 - o Estimate the potential energy and financial benefit from community solar PV adoption assuming a range of incentives and policies.

EXHIBIT A

Scope of Work

- o Evaluate micro-grid options with the DER-CAM tool⁵.
- o Quantify air quality and health benefits from each measure using closed form impact models such as EASIUR.
- o Quantify indoor health quality using simulation tools.
- o Qualitatively assess other non-energy benefits such as comfort and productivity.
- o Develop various figures of merit for comparing the outputs, e.g. maximal GHG savings, maximal health benefits, traditional cost effectiveness metrics such as payback time, and hybrid metrics which include GHG, health benefits and other non-energy benefits.
- o Develop easily understood illustrative guides (brochures) with fact sheets, key results, and examples and counter examples for sharing with community
- Coordinate with CAM to conduct community workshop #2 to seek inputs and feedback on the screening analysis
- Select key areas of focus for deeper-dive analysis and prioritized urban scenarios in second year of project.
 - o Develop urban scenarios with various scales of adoption and size of projects for key areas of focus defined above
 - o Integrate both current and proposed policy and program options that complement urban scenarios
 - o Estimate total costs (direct costs and externality valuations) of urban scenarios in 2021 timeframe and 2025 timeframe.
 - o Compare urban scenarios based on total costs, air quality benefits, qualitative non-energy benefits and viability in terms of market adoption and/or deployment in disadvantaged communities with existing and potential policies and programs
- Identify “low hanging fruit” opportunities for health benefits such as plans to reduce or eliminate the use of open hearth fireplace for heat in the winter
- Produce *Urban Scenarios Report* that includes, but not limited to results and activities from Task 3.
- Conduct CPR meeting and provide *CPR Report* as described in subtask 1.3

Products:

- Urban Scenarios Report (Draft and Final)
- CPR Report

TASK 4 ACTION PLAN AND RECOMMENDATIONS

The goal of this task is to develop an action plan for the City of Fresno in terms of prioritized actions, key opportunities and benefits, and recommendations.

The Recipient shall:

- Compare overall impacts of urban scenarios in Task 2
- Identify promising urban scenarios will be identified based on the set of options that combine the best total costs and alignment of GHG reductions and local health benefits.

⁵ The Distributed Energy Resources Customer Adoption Model (DER-CAM) is a powerful and comprehensive decision support tool developed at LBNL that primarily serves the purpose of finding optimal distributed energy resource (DER) investments in the context of either buildings or multi-energy microgrids. <https://building-microgrid.lbl.gov/projects/der-cam>

EXHIBIT A

Scope of Work

- Consult with project partners LGC and City of Fresno for past experiences and key learnings in early program work and technology deployment
- Work with the City and partner LGC to assess what regulations, incentives, or policies would need to be modified or change to facilitate implementation of the identified attractive urban scenarios.
- Integrate key learnings and financing options derived from partner LGC's funding platform work in Energize Fresno project.
- Generate specific recommendations and policy/program modifications to help mitigate or overcome key barriers to implementation
- Assess urban scenarios combining tasks above to generate a preliminary community action plan and recommendations.
- Shared the preliminary community action plan with the community via a workshop led by CBO Every Neighborhood Partnership.
 - Seek inputs from members of the community and community groups, and community feedback will be incorporated into a revised plan.
- Determine a final community action plan by vetting promising options against barriers for implementation; current and proposed policies, financing options; and community and partner inputs.
- Document the applicability to other dense urban areas in Central Valley and provide documentation of the approach and community involvement. The information should be included in the *Community Action Plan* as a chapter on state-wide application pathway.
- Produce *Community Action Plan* that includes, but not limited to prioritized actions, key opportunities and benefits, and recommendations.

Products:

- Community Action Plan (draft and final)

TASK 5 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 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.

EXHIBIT A

Scope of Work

- 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 6 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.

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

EXHIBIT A

Scope of Work

Products:

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

TASK 7 PRODUCTION READINESS PLAN

This task is not applicable to the project as it aims to develop a holistic actionable energy and environmental plan for disadvantaged communities in Fresno.

IV. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION - RE: DOE-LAWRENCE BERKELEY NATIONAL LABORATORY

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

RESOLVED, that the Energy Commission approves Agreement EPC-17-035 from GFO-16-311 with DOE-Lawrence Berkeley National Laboratory for \$1,100,000, to develop a holistic community action plan to achieve climate benefits and air quality improvements through energy efficiency measures, electrification, and distributed energy resources in the residential building and light-duty and medium-duty (LDV, MDV) transportation sectors in San Joaquin Valley; and

FURTHER BE IT RESOLVED, that the Executive Director or his/her 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 April 11, 2018.

AYE: [List of Commissioners]

NAY: [List of Commissioners]

ABSENT: [List of Commissioners]

ABSTAIN: [List of Commissioners]

Cody Goldthrite,
Secretariat