STATE OF CALIFORNIA

GRANT REQUEST FORM (GRF)

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

A) New Agreement # EPC-22-003 (to be completed by CGL office)

B) Division	Agreement Manager:	MS-	Phone
ERDD	Elise Ersoy		916-776-0753

C) Recipient's Legal Name	Federal ID Number
Smartville, Inc.	84-2188846

D) Title of Project
Accelerate Development of Smartville Second-Life Battery Repurposing Platform

E) Term and Amount

Start Date	End Date	Amount
9/9/2022	3/31/2026	$ 2,000,000

F) Business Meeting Information

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

Proposed Business Meeting Date 8/10/2022 ☐ Consent ☒ Discussion

Business Meeting Presenter Liet Le Time Needed: 5 minutes

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

Agenda Item Subject and Description:

SMARTVILLE, INC.. Proposed resolution approving Agreement EPC-22-003 with Smartville, Inc. for a $2,000,000 grant to accelerate its modular assembly energy storage system product development for second-life batteries, and adopting staff's determination that this action is exempt from CEQA. With this funding, the recipient will avoid potential funding shortfalls as it moves quickly from a successful pilot project to commercialization. The project will 1) iterate on the existing battery energy storage system design with the objective of reducing fabrication and build costs, 2) create an initial production facility at its headquarters in Carlsbad, California, and 3) retrofit the pilot site from a previous EPIC project with an updated version of Smartville's energy storage product. (EPIC funding) Contact: Liet Le.

G) California Environmental Quality Act (CEQA) Compliance

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

   Explain why Agreement is not considered a "Project":

2. If Agreement is considered a "Project" under CEQA:
   a) ☒ Agreement **IS** exempt.
      ☐ Statutory Exemption. List PRC and/or CCR section number:
      ☒ Categorical Exemption. List CCR section number:
      Cal. Code Regs., tit. 14, § 15301
      ☐ Common Sense Exemption. 14 CCR 15061 (b) (3)

Explain reason why Agreement is exempt under the above section:

Code of Regulations, title 14, section 15301 provides that projects which consist of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, and which involve negligible or no expansion of use. This project is exempt under Cal. Code Regs., tit 14, section 15301 because the energy storage capacity will be added to an existing system while maintaining and supporting existing operations and onsite facility and equipment functions. Electrical equipment upgrades will occur within an existing warehouse and laboratory facility. For these reasons, the project will have no significant effect on the environment and fits within section 15301.

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**
The Regents of the University of California, on behalf of the San Diego campus	$ 95,000
Sunwest Engineering, Inc.	$ 95,000
National Electric Works Incorporated	$ 75,000
Summit Electrical, Inc.	$ 50,000

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	20-21	301.001H	$324,897
EPIC	21-22	301.001I	$1,675,103

R&D Program Area: EGRO: Renewables TOTAL: $ 2,000,000

Explanation for “Other” selection

Reimbursement Contract #: Federal Agreement #:

K) Recipient's Contact Information

1. Recipient's Administrator/Officer

Name: Trish Tran
Address: 2227 Faraday Ave Ste A
City, State, Zip: Carlsbad, CA 92008-7213
Phone: 530-312-0252
E-Mail: trish@smartville.io

2. Recipient's Project Manager

Name: Michael Ferry
Address: 2151 Las Palmas Dr
City, State, Zip: Carlsbad, CA 92011-1525
Phone: 510-305-2944
E-Mail: mferry@smartville.io

L) Selection Process Used

☐ Competitive Solicitation Solicitation #:
☐ First Come First Served Solicitation Solicitation #:
☒ Other: (e.g., non-competitive bid/sole source, program specific follow-on funding)

M) The following items should be attached to this GRF

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

Agreement Manager **Date**

Office Manager **Date**

Deputy Director **Date**

Exhibit A
Scope of Work
Smartville, Inc.

I. TASK ACRONYM/TERM LISTS

A. Task List

Task #	CPR[1]	Task Name
1		General Project Tasks
2		Design, Engineer, and Validate MOAB Version 2 (MOAB V2)
3	X	Establish LRIP Facility for MOAB V2
4		Install MOAB V2 at Previous Demonstration Site
5		Demonstrate and Operate MOAB V2
6		Evaluation of Project Benefits
7		Technology/Knowledge Transfer Activities

B. Acronym/Term List

Acronym/Term	Meaning
BOM	Bill of Materials
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CEC	California Energy Commission
CPR	Critical Project Review
ESS	Energy Storage System
EV	Electric Vehicle
LRIP	Low-Rate Initial Production
MOAB	Modular Assembly Battery
NRTL	Nationally Recognized Testing Laboratory
Recipient	Smartville, Inc.
SOH	State-of-Health
TAC	Technical Advisory Committee
V1	Version 1
V2	Version 2

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

A. Purpose of Agreement

The purpose of this Agreement is to fund the accelerated development and commercialization of the recipient's second-life EV battery repurposing platform and initiate a Low-Rate Initial Production (LRIP) pilot line for the manufacturing of Smartville Inc.'s (Recipient) Modular Assembly Battery (MOAB) unit, a universal electric vehicle (EV) battery energy storage system (ESS) building block.

[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
Smartville, Inc.

B. Problem/ Solution Statement

Problem

As California approaches its goal of 5 million zero-emission vehicles on the road by 2030 (Brown, Executive Order B-48-18), there is an increasing need to find alternative applications for the vehicle batteries after they have reached the end-of-life in the vehicle application. However, the cost-effectiveness of reusing second-life EV batteries is hindered by lengthy and costly processes of logistics and repurposing, compromised system performance, and long-term safety and reliability concerns.

Solution

Under its existing CEC grant (EPC-19-038), Recipient developed and demonstrated a prototype battery energy storage system that addressed many of the challenges associated with repurposing EV batteries for stationary grid storage, including the mitigation of battery imbalances inherent to used lithium-ion batteries as well as the low-cost integration of batteries with multiple form factors and electrical and thermal characteristics.

Recipient's solution centers on its battery energy storage system called MOAB unit that includes vertically-integrated designs and components for communication and power control interfaces, DC-switching and pre-charge controls, isolation and common mode current protections, and thermal and environmental controls. In this project, Recipient will seek to reduce fabrication and build costs compared to its prototype MOAB Version 1 (V1) design developed under EPC-19-038 and achieve the required standards certifications to offer MOAB as a competitive product in the California market under relevant jurisdictional permitting and financial sectors.

The MOAB product is designed to leverage Recipient's unique second-life battery data intelligence architecture to optimize repurposed battery operations and lifecycle management. Over the past three years, Recipient has developed proprietary machine learning modeling tools to extract key aging information and predict repurposed EV battery lifecycles for second-use energy storage products. Recipient will establish a Low-Rate Initial Production (LRIP) MOAB V2 facility at its headquarters in Carlsbad, CA. Informed by Recipient's data and machine learning models, the production line will screen incoming used batteries for qualification in the MOAB product line and multiple customer use cases. Batteries will then be integrated into the MOAB energy storage system with a production process optimized for labor cost reductions. Finally, a full-range testing setup will be established to benchmark power, communications, and safety constraints of the product.

C. Goals and Objectives of the Agreement

Agreement Goals

The goals of this Agreement are to:

- Finalize the design and pre-production engineering of Recipient's MOAB Version 2.
- Demonstrate operation of MOAB Version 2 (V2) at a utility customer site for a minimum of 12 months.
- Establish an initial LRIP facility and process for MOAB V2.
- Dramatically decrease the cost of Recipient's MOAB product per-unit build.
- Lower per-unit production labor hours to increase unit production yields.

- Improve repurposed EV battery operations through battery controls that unify used battery State-of-Health (SOH) and extend the overall lifecycle of retired EV batteries.
- Address lithium-ion supply chain issues through the reuse of battery assets available within California.

Ratepayer Benefits:[2] This Agreement will result in the ratepayer benefits of greater electricity reliability, lower costs, and increased safety by developing and demonstrating a low-cost, scalable, and commercially-available battery energy storage system utilizing repurposed electric vehicle batteries.

The work conducted under EPC-19-038 has validated a replicable approach to repurposing retired EV batteries for stationary applications. This approach holds the promise to provide readily available and low-cost stationary storage to the exponentially growing energy storage market in California, addressing a critical need and resulting in direct benefits to energy storage customers as well as all ratepayers through accelerated deployment of systemwide energy storage resources.

Additionally, the technology and production roadmap directly addresses the mandate set forth in Assembly Bill 2832 (Dahle, 2018), which aimed "at ensuring that as close to 100 percent as possible of lithium-ion vehicle batteries in the state are reused or recycled at end-of-life in a safe and cost-effective manner . . . policy recommendations shall reflect entire life cycle considerations for lithium-ion vehicle batteries, including, but not limited to . . . opportunities and barriers to the reuse of those batteries as energy storage systems after they are removed from the vehicle."

By accelerating its commercialization timeline via this follow-on funding agreement, the recipient will be able to offer a competitively priced battery energy storage product more quickly to California's utility customers and overall energy storage market, directly contributing to additional energy storage resources becoming operational on an accelerated schedule.

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 enabling the use of repurposed EV batteries for stationary grid storage.

Leveraging a series of research and development projects under U.S. DOE ARPA-E OPEN, ARPA-E AMPED, and CEC sponsored programs, Recipient has developed processes that execute proprietary cycling and "life balancing controls" of used EV batteries to accurately predict and manage long-term performance while providing energy storage services to the power grid, allowing these batteries to function as reliable, safe, warrantied, and cost-effective grid storage assets that maximize battery lifecycle compared to State-of-the-Art (SOA) methods. Through previous scientific and project validation activities, Recipient's life balancing controls with repurposed EV battery packs have demonstrated reductions in aggregate battery system

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

state-of-health (SOH) standard deviation by 50%, leading to an estimated 30% lifecycle extension compared to benchmark repurposing approaches.

In a study published by McKinsey & Company in April 2019 titled *Second-life EV batteries: The newest value pool in energy storage*,[3] the authors estimated a global capacity of used EV battery availability of 170 gigawatt-hours (GWh) per year by 2030, with 35% of this capacity in the U.S. Using the CEC's 2017 estimate of 40% of U.S. capacity in California, this estimate translates to 23.8 GWh of retired EV battery packs in California.

Through its technology development and scaled commercialization, Recipient calculates that it can generate an average of $2,500 per metric ton of retired electric vehicle battery packs. Using a conservative value of 100 kWh of used EV battery capacity per metric ton of EV battery pack, Recipient's value creation is equivalent to $25/kWh of used EV batteries, or $1,000 per used EV battery pack assuming 40 kWh of available and usable capacity for repurposing in secondary applications.

Agreement Objectives

The objectives of this Agreement are to:

- Finalize design of MOAB V2.
- Establish initial LRIP facility and processes for MOAB V2.
- Demonstrate MOAB V2 in real-world 12-month installation at utility customer location.

[3] Hauke Engel, Patrick Hertzke, and Giulia Siccardo, *Second-life EV batteries: The Newest Value Pool in Energy Storage*, www.mckinsey.com (April 30, 2019), https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/second-life-ev-batteries-the-newest-value-pool-in-energy-storage (last accessed July 8, 2022).

III. TASK 1 GENERAL PROJECT TASKS

PRODUCTS

Subtask 1.1 Products

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

The Recipient shall:

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

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

For products that require a final version only

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

For all products

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

Instructions for Submitting Electronic Files and Developing Software:

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

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

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

- **Software Application Development**
  Use the following standard Application Architecture components in compatible versions for any software application development required by this Agreement (e.g., databases, models, modeling tools), unless the CAM approves other software applications such as open-source programs:
  - Microsoft ASP.NET framework (version 3.5 and up). Recommend 4.0.
  - Microsoft Internet Information Services (IIS), (version 6 and up) Recommend 7.5.
  - Visual Studio.NET (version 2008 and up). Recommend 2010.
  - C# Programming Language with Presentation (UI), Business Object and Data Layers.
  - SQL (Structured Query Language).
  - Microsoft SQL Server 2008, Stored Procedures. Recommend 2008 R2.
  - Microsoft SQL Reporting Services. Recommend 2008 R2.
  - XML (external interfaces).

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

MEETINGS

Subtask 1.2 Kick-off Meeting

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

The Recipient shall:

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

  The administrative portion of the meeting will include discussion of the following:
  - Terms and conditions of the Agreement;
  - Invoicing and auditing procedures;
  - Administrative products (subtask 1.1);
  - CPR meetings (subtask 1.3);
  - Match fund documentation (subtask 1.7);

- Permit documentation (subtask 1.8);
- Subcontracts (subtask 1.9); and
- Any other relevant topics.

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

- The CAM's expectations for accomplishing tasks described in the Scope of Work;
- An updated Project Schedule;
- Technical products (subtask 1.1);
- Progress reports (subtask 1.5);
- Final Report (subtask 1.6);
- Technical Advisory Committee meetings (subtasks 1.10 and 1.11); and
- Any other relevant topics.

- Provide *Kick-off Meeting Presentation* to include but not limited to:
  - Project overview (i.e., project description, goals and objectives, technical tasks, expected benefits, etc.)
  - Project schedule that identifies milestones
  - List of potential risk factors and hurdles, and mitigation strategy

- Provide an *Updated Project Schedule, Match Funds Status Letter,* and *Permit Status Letter*, as needed to reflect any changes in the documents.

The CAM shall:

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

Recipient Products:

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

CAM Product:

- Kick-off Meeting Agenda

Subtask 1.3 Critical Project Review (CPR) Meetings

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

CPR meetings generally take place at key, predetermined points in the Agreement, as determined by the CAM and as shown in the Task List on page 1 of this Exhibit.

However, the CAM may schedule additional CPR meetings as necessary. The budget will be reallocated to cover the additional costs borne by the Recipient, but the overall Agreement amount will not increase. CPR meetings generally take place at the CEC, but they may take place at another location, or may be conducted via electronic conferencing (e.g., WebEx) as determined by the CAM.

The Recipient shall:

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

The CAM shall:

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

Recipient Products:

- CPR Report(s)

CAM Products:

- CPR Agenda(s)
- Progress Determination

Subtask 1.4 Final Meeting

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

The Recipient shall:

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

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

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

REPORTS AND INVOICES

Subtask 1.5 Progress Reports and Invoices

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

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

Products:
- Progress Reports
- Invoices

Subtask 1.6 Final Report
The goal of this subtask is to prepare a comprehensive Final Report that describes the original purpose, approach, results, and conclusions of the work performed under this Agreement. When creating the Final Report Outline and the Final Report, the Recipient must use the CEC Style Manual provided by the CAM.

Subtask 1.6.1 Final Report Outline

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

Recipient Products:
- Final Report Outline (draft and final)

CAM Product:
- Energy Commission Style Manual
- Comments on Draft Final Report Outline
- Acceptance of Final Report Outline

Subtask 1.6.2 Final Report

The Recipient shall:
- Prepare a *Final Report* for this Agreement in accordance with the approved Final Report Outline, Energy Commission Style Manual, and Final Report Template provided by the CAM with the following considerations:
  - Ensure that the report includes the following items, in the following order:
    - Cover page (**required**)
    - Credits page on the reverse side of cover with legal disclaimer (**required**)
    - Acknowledgements page (optional)
    - Preface (**required**)
    - Abstract, keywords, and citation page (**required**)
    - Table of Contents (**required**, followed by List of Figures and List of Tables, if needed)
    - Executive summary (**required**)
    - Body of the report (**required**)
    - References (if applicable)
    - Glossary/Acronyms (If more than 10 acronyms or abbreviations are used, it is required.)
    - Bibliography (if applicable)
    - Appendices (if applicable) (Create a separate volume if very large.)
    - Attachments (if applicable)
- Submit a draft of the Executive Summary to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments on Draft Final Report* received on the Executive Summary. For each comment received, the recipient will identify in the summary the following:
  - Comments the recipient proposes to incorporate.
  - Comments the recipient does propose to incorporate and an explanation for why.

- Submit a draft of the report to the CAM for review and comment. The CAM will provide written comments to the Recipient on the draft product within 15 days of receipt.
- Incorporate all CAM comments into the *Final Report*. If the Recipient disagrees with any comment, provide a *Written Responses to Comments* explaining why the comments were not incorporated into the final product.

- Submit the revised *Final Report* electronically with any Written Responses to Comments within 10 days of receipt of CAM's Written Comments on the Draft Final Report, unless the CAM specifies a longer time period or approves a request for additional time.

Products:

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

CAM Product:

- Written Comments on the Draft Final Report

MATCH FUNDS, PERMITS, AND SUBCONTRACTS

Subtask 1.7 Match Funds

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

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

The Recipient shall:

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

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

    - If different from the solicitation application, provide a letter of commitment from an authorized representative of each source of match funding that the funds or contributions have been secured.
- At the Kick-off meeting, discuss match funds and the impact on the project if they are significantly reduced or not obtained as committed. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of additional match funds.
- Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds are reduced during the course of the Agreement. Reduction of match funds may trigger a CPR meeting.

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

Subtask 1.8 Permits
The goal of this subtask is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track. Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement, with the exception of costs incurred by University of California recipients. Permits must be identified and obtained before the Recipient may incur any costs related to the use of the permit(s) for which the Recipient will request reimbursement.

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

  The list of permits and the schedule for obtaining them will be discussed at the Kick-off meeting (subtask 1.2), and a timetable for submitting the updated list, schedule, and copies of the permits will be developed. The impact on the project if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in progress reports and will be a topic at CPR meetings.
- If during the course of the Agreement additional permits become necessary, then provide the CAM with an *Updated List of Permits* (including the appropriate information on each permit) and an *Updated Schedule for Acquiring Permits*.
- Send the CAM a *Copy of Each Approved Permit*.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 days. Either of these events may trigger a CPR meeting.

Products:
- Permit Status Letter
- Updated List of Permits *(if applicable)*

- Updated Schedule for Acquiring Permits *(if applicable)*
- Copy of Each Approved Permit *(if applicable)*

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

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

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

TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)
The goal of this subtask is to create an advisory committee for this Agreement. The TAC should be composed of diverse professionals. The composition will vary depending on interest, availability, and need. TAC members will serve at the CAM's discretion. The purpose of the TAC is to:
- Provide guidance in project direction. The guidance may include scope and methodologies, timing, and coordination with other projects. The guidance may be based on:
  - Technical area expertise;
  - Knowledge of market applications; or
  - Linkages between the agreement work and other past, present, or future projects (both public and private sectors) that TAC members are aware of in a particular area.
- Review products and provide recommendations for needed product adjustments, refinements, or enhancements.
- Evaluate the tangible benefits of the project to the state of California, and provide recommendations as needed to enhance the benefits.
- Provide recommendations regarding information dissemination, market pathways, or commercialization strategies relevant to the project products.
- Help set the project team's goals and contribute to the development and evaluation of its statement of proposed objectives as the project evolves.
- Provide a credible and objective sounding board on the wide range of technical and financial barriers and opportunities.

- Help identify key areas where the project has a competitive advantage, value proposition, or strength upon which to build.
- Advocate, to the extent the TAC members feel is appropriate, on behalf of the project in its effort to build partnerships, governmental support, and relationships with a national spectrum of influential leaders.
- Ask probing questions that insure a long-term perspective on decision-making and progress toward the project's strategic goals.

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

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

The Recipient shall:

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

Products:

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

Subtask 1.11 TAC Meetings

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

Exhibit A
Scope of Work
Smartville, Inc.

The Recipient shall:

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

The TAC shall:

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

Products:

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

Subtask 1.12 Project Performance Metrics

The goal of this subtask is to finalize key performance targets for the project based on feedback from the TAC and report on final results in achieving those targets. The performance targets should be a combination of scientific, engineering, techno-economic, and/or programmatic metrics that provide the most significant indicator of the research or technology's potential success.

The Recipient shall:

- Complete and submit the project performance metrics section of the *Initial Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task, to the CAM.
- Present the draft project performance metrics at the first TAC meeting to solicit input and comments from the TAC members.

- Develop and submit a *TAC Performance Metrics Summary* that summarizes comments received from the TAC members on the proposed project performance metrics. The *TAC Performance Metrics Summary* will identify:
    - TAC comments the Recipient proposes to incorporate into the *Initial Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task.
    - TAC comments the Recipient does not propose to incorporate with and explanation why.
- Develop and submit a *Project Performance Metrics Results* document describing the extent to which the Recipient met each of the performance metrics in the *Final Project Benefits Questionnaire*, developed in the Evaluation of Project Benefits task.
- Discuss the *Project Performance Metrics Results* at the Final Meeting.

Products:

- TAC Performance Metrics Summary
- Project Performance Metrics Results

Exhibit A
Scope of Work
Smartville, Inc.

TECHNICAL TASKS

TASK 2: DESIGN, ENGINEER, AND VALIDATE MOAB VERSION 2 (MOAB V2)

The goals of this task are to: (1) Iterating the existing MOAB V1 design with the objective of reducing fabrication, materials, and build costs compared to Recipient prototype MOAB V1 design.

The Recipient shall:

- Engage with a custom design and manufacturing engineering firm to iterate design of MOAB V1.
- Prepare a draft *MOAB V2 Manufacturing and Production Report*, including but not limited to:
    - Bill of materials (BOM), manufacturing, and labor cost breakdown
    - Electrical and mechanical designs of MOAB V2
    - Overview of certification process with UL and OSHA's Nationally Recognized Testing Laboratories (NRTL)
- Submit the draft *MOAB V2 Manufacturing and Production Report* to the CAM for feedback and incorporate changes as requested in the final *MOAB V2 Manufacturing and Production Report*.

Products:

- MOAB V2 Manufacturing and Production Report (draft and final)

TASK 3: ESTABLISH INITIAL LRIP FACILITY FOR MOAB V2

The goal of this task is to establish an initial LRIP facility and processes for MOAB V2.

The Recipient shall:

- Build-out a production line to:
    - Screen incoming used EV batteries for qualification in the MOAB product line and multiple customer use cases
    - Integrate screened used EV batteries into the MOAB ESS
    - Benchmark power, communications, and safety constraints of the product
- Prepare a *LRIP Facility Interim Summary Report* to describe progress leading up to completing the initial LRIP Facility and *LRIP Facility Summary Report* to describe the finalized LRIP facility and processes for MOAB V2, which shall each include but not be limited to:
    - Layout of the production line in the initial LRIP facility
    - Labor/production processes for production line
    - Logistical, electrical equipment, and facility upgrades needed for the initial LRIP facility
    - Safety protocols for the initial LRIP facility
    - Estimated production flow and production rate
- Submit the draft *LRIP Facility Interim Summary Report* and *LRIP Facility Summary Report* to the CAM for feedback and incorporate changes as requested in the final *LRIP Facility Interim Summary Report and LRIP Facility Summary Report*.
- Prepare and provide CPR Report #1 and participate in a CPR meeting, in accordance with subtask 1.3 (CPR Meetings).

Products:

- LRIP Facility Interim Summary Report (draft and final)
- LRIP Facility Summary Report (draft and final)
- CPR Report #1

TASK 4: INSTALL MOAB V2 AT PILOT DEMONSTRATION SITE

The goal of this task is to deploy and demonstrate the new MOAB V2 system at the pilot demonstration site.

The Recipient shall:

- Install MOAB V2 system at the pilot demonstration site at the existing University of California, San Diego Campus Library Annex.
- Prepare a draft *MOAB V2 Deployment and Demonstration Report* shall include but not limited to:
    - Site modifications (i.e., electrical upgrades, land improvements, etc.)
    - Operational strategies
- Submit the draft *MOAB V2 Deployment and Demonstration Report* to the CAM for feedback and incorporate changes as requested in the final *MOAB V2 Deployment and Demonstrate Report*.

Products:

- MOAB V2 Deployment and Demonstration Report (draft and final)

TASK 5: DEMONSTRATE AND OPERATE MOAB V2 FOR 12 MONTHS

The goals of this task are to: (1) Demonstrate the performance of MOAB V2 for at least 12 months; and (2) Demonstrate automated operations of the upgraded subcomponents and customer-oriented demonstration to maximize use case benefits to the site host.

The Recipient shall:

- Demonstrate for at least 12 months the performance of MOAB V2. The demonstration will include planned testing routine of demand charge reduction, solar arbitrage, and critical load back up under simulated power outage.
- Demonstrate automated operation and customer-oriented demonstration to maximize use case benefits to the site host.
- Prepare a *6-Month Test and Data Collection Report* and *12 Month Test and Data Collection Report*, which shall each include but not limited to:
    - Performance and cost data based on objectives of, at minimum: demand charge reduction, solar arbitrage, and critical load back-up under simulated power outage
    - Performance and cost data based on the automated operation determined by the customer (site's) objective (demand charge reduction, solar arbitrage, and critical load back-up)
- Submit the draft *6-Month Test and Data Collection Report* and *12-Month Test and Data Collection Report* to the CAM for feedback and incorporate changes as requested in the final *6 Month Test and Data Collection Report* and *12-Month Test and Data Collection Report*.

Products:

- 6-Month Test and Data Collection Report (draft and final)
- 12-Month Test and Data Collection Report (draft and final)

TASK 6: EVALUATION OF PROJECT BENEFITS

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

The Recipient shall:

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

Products:

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

TASK 7: TECHNOLOGY/KNOWLEDGE TRANSFER ACTIVITIES

The goal of this task is to ensure the learning that resulted from this project is captured and disseminated so that similar efforts build on the lessons learned.

The Recipient shall:

- Develop and submit a *Project Case Study Plan* that outlines how the Recipient will document the planning, establishment, and operation of the project. The *Project Case Study Plan* should include:
    - An outline of the objectives, goals, and activities of the case study.

  - The organization that will be conducting the case study and the plan for conducting it.
  - A list of professions and practitioners involved in the project's development.
  - Specific activities the recipient will take to ensure the learning that results from the project is disseminated to those professions and practitioners.
  - Presentations/webinars/training events to disseminate the results of the case study.
- Present the Draft Project Case Study Plan to the TAC for review and comment.
- Develop and submit a *Summary of TAC Comments* that summarizes comments received from the TAC members on the draft *Project Case Study Plan*. This document will identify:
  - TAC comments the recipient proposes to incorporate into the *Final Technology Transfer Plan*.
  - TAC comments the recipient does not propose to incorporate and explanation why.
- Submit the final *Project Case Study Plan* to the CAM for approval.
- Execute the final *Project Case Study Plan* and develop and submit a *Project Case Study.*
- When directed by the CAM, develop presentation materials for a CEC sponsored conference/workshop(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the CEC.
- Provide at least (6) six *High Quality Digital Photographs* (minimum resolution of 1300x500 pixels in landscape ratio) of pre and post technology installation at the project sites or related project photographs.

Products:

- Project Case Study Plan (draft and final)
- Summary of TAC Comments
- Project Case Study (draft and final)
- High Quality Digital Photographs

IV. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.

RESOLUTION NO: 22-0810-10

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION: Smartville, Inc.

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

RESOLVED, that the CEC approves Agreement EPC-22-003 with Smartville, Inc. for a $2,000,000 grant to accelerate its modular assembly energy storage system product development for second life batteries. With this funding, the recipient will avoid potential funding shortfalls as it moves quickly from a successful pilot project to commercialization. The project will 1) iterate on the existing battery energy storage system design with the objective of reducing fabrication and build costs, 2) create an initial production facility at its headquarters in Carlsbad, California, and 3) retrofit the pilot site from a previous EPIC project with an updated version of Smartville's energy storage product ; and

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

CERTIFICATION

The undersigned Secretariat to the CEC does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the CEC held on August 14, 2022.

AYE:
NAY:
ABSENT:
ABSTAIN:

_____
Liza Lopez
Secretariat