

Exhibit A
Scope of Work
ANTELOPE VALLEY WATER STORAGE, LLC

1 **I. TASK ACRONYM/TERM LISTS**

2 **A. Task List**

3

Task #	CPR ¹	Task Name
1		General Project Tasks
2	X	Design and Construction of WSWB Facilities
3		Regeneration Wells Retrofit
4	X	Operations and Field Tests
5		Economics and Metrics
6		Grid Integration
7		Statewide Application
8		Project Benefits
9		Technology/Knowledge Transfer Activities

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B. Acronym/Term List

Acronym/Term	Meaning
APH	Aquifer Pumped Hydro - The energy storage technology discussed in this application. This technology is a form of pumped storage and uses the groundwater aquifer as the lower reservoir and a small, earthen reservoir on the ground surface as the upper reservoir. The individual Aquifer Pumped Hydro unit consists of a reversible pump/turbine, a well, and related equipment. The pump/turbine generates electricity from water flowing down the well hole. It stores electricity at other times by pumping water up the well to the surface using electric power.
CAM	Commission Agreement Manager
CAO	Commission Agreement Officer
CPR	Critical Project Review ¹
DAC	Disadvantaged Communities
IOU	Investor Owned Utilities
NEM	The APH technology is behind-the-meter and will require a Net Energy Metering (NEM) interconnection/agreement with SCE. For the demonstration, the stored energy will be discharged to provide on-peak power to SCE during the evening ramp up and recharged off-peak.
PSPS	Public Safety Power Shutoff
Regeneration	Regeneration wells are retrofitted for pumped storage to release energy as well as extract water
SCE	Southern California Edison
Seasonal Storage	Seasonal storage means the storage of energy during months of surplus renewables, typically in the spring, and the discharge of that energy during months of energy shortage, typically in the summer
SGMA	The Sustainable Groundwater Management Act (SGMA) aims to manage California's groundwater basins sustainably. The Central Valley is currently over-drafted. Pumping is greater than the recharge, causing subsidence. To

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.

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Acronym/Term	Meaning
	fix this problem, SGMA requires that all basins reduce extractions to match recharge. This may require additional recharge, fallowing of farmland, or both.
TAC	Technical Advisory Committee
WSWB	Willow Springs Water Bank

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

A. Purpose of Agreement

The purpose of this Agreement is to fund a behind the meter demonstration of a non-lithium ion energy storage technology, Aquifer Pumped Hydro (APH) that can provide a minimum of 10 hours of energy storage/discharge capability at a minimum rating of 200 kilowatts. The project will improve understanding of APH and define the value and benefits of longer duration energy storage using APH technology provides over lithium ion energy storage.

B. Problem/ Solution Statement

Problem

The increased emphasis on resiliency in the state is driving the need for longer duration energy storage backup capabilities. Longer duration energy storage and energy discharge is needed to respond to an unplanned grid outage, curtailment risk, Public Safety Power Shutoffs (PSPS) and to increase renewables penetration. Disadvantaged Communities (DAC) and low-income communities are especially vulnerable to preemptive shutoffs. Many of them cannot afford emergency generators. As wildfires become more common, new energy storage/discharge technology is needed that can provide economical, standalone power when the grid is down.

The California grid is facing three issues that could benefit from longer duration energy storage:

1. **Evening Ramp Up:** There is not enough power for the grid during the 5-hour evening ramp up (from 4:00 to 9:00 p.m.) as solar goes offline but consumers turn on appliances. The 2-4 hour discharge of lithium batteries has trouble covering the 5-6 hour ramp up period.
2. **Public Safety Power Shutoffs (PSPS):** Increased wildfire risks have forced Investor Owned Utilities (IOU) to shut down transmission lines during high wind events. For example, in October of 2019, power to 800,000 customers (2.5-3.0 M people) was shutoff due to wildfire risks. These preemptive shutoffs created major disruptions and may have contributed to at least one death.²

² https://en.wikipedia.org/wiki/2019_California_power_shutoffs

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1 3. **Overgeneration:** In non-summer months, especially in the springtime, there is a glut
2 of solar energy in the afternoons and a dearth of generation in the early evening
3 hours. This creates risks of overgeneration and curtailment of renewables.
4

5 Over 90% of the energy storage systems built to date in California use lithium ion
6 batteries. Excessive reliance on lithium batteries can create materials and minerals
7 shortages, and safety issues from thermal runaway. Also, lithium batteries have a limited
8 lifetime due to the number of cycles that can be performed, typically 500 to 1,500. With
9 daily use, a lithium battery is worn out in about 3 years. Old lithium batteries create a
10 disposal problem. They are also limited to a 2-4 hour discharge, which is not enough to
11 cover the evening ramp up.
12

13 **Solution**

14 A groundwater storage facility in eastern Kern County, Willow Spring Water Bank
15 (WSWB), will be used for demonstration. Groundwater will be used to fill and drain a
16 small surface reservoir. Five existing wells at WSWB with nameplate capacities ranging
17 from 112 kW (150 HP) to 225 kW (300 HP) will be retrofitted to also act as generators.
18 At 30 percent generation efficiency, each individual WSWB well will produce 34kW to 67
19 kW of power. The technology is behind-the-meter and will require a Net Energy Metering
20 (NEM) interconnection agreement with Southern California Edison (SCE). For the
21 demonstration, the stored energy will be discharged to provide on-peak power to SCE
22 during the evening ramp up and recharged off-peak. The end-user customer, WSWB,
23 will benefit from the differential between on and off-peak SCE rates.
24

25 These facilities will be operated for one year to demonstrate that 10-hour discharges
26 can be produced reliably. The regeneration wells will be operated to provide 200 kW
27 of energy discharge using local groundwater. They will also be operated with
28 imported water to show 100+ hour energy discharge during simulated PSPS
29 outages.
30

31 **C. Goals and Objectives of the Agreement**

32 **Agreement Goals**

33 This Agreement is to demonstrate and define the necessary technical, financial, and
34 operational resources to assess the potential of energy storage/discharge with APH to
35 provide continuous energy discharge during grid outages, during peak periods, and
36 during PSPS events; which provide end-user benefits that may drive wide-scale
37 adoption of the technology in California.
38

39 The goals specifically are:

- 40 • Demonstrate how APH offers the end user customer the opportunity to receive
41 increased reliability, resiliency, cost saving and other services during times of
42 power interruptions;
43
- 44 • Identify how continuous energy discharge with APH can be applied to avoid
45 disruption of power supply to critical facilities like hospitals, nursing homes, and
46 emergency charging centers during PSPS events;
- 47 • Demonstrate how energy storage with APH can provide extra energy discharge
48 during the summer evening ramp up; and provide seasonal storage to address

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1 absorption of surplus renewables in the winter and spring on the weekends
2 during off-peak or super off-peak hours, thereby mitigating renewable
3 curtailment;

- 4
- 5 • Demonstrate how the behind-the-meter APH technology can incentivize
6 participation by IOU customers; and
- 7 • Demonstrate the commercial potential of the APH technology in California due to
8 the distributed nature of wells, benefits for transmission congestion, distribution
9 reliability, end-user energy shifting and scalability.

10
11 **Ratepayer Benefits:**³ This Agreement is intended to result in California ratepayer
12 benefits including: (1) reduced peak power cost, (2) power during PSPS event, (3)
13 longer life cycle than lithium battery, and (4) rapid implementation especially within
14 DACs. APH can also be used to inject water into contaminated aquifers where clay
15 layers prevent conventional recharge with percolation, diluting contamination and
16 improving water quality. The benefits will be measured and verified during the
17 demonstration test. The intended benefits are detailed in Table 3: Benefits and Co-
18 Benefits in the Project Narrative of the Recipient’s proposal. Ratepayer benefits will be
19 obtained from:

- 20 • Reliability improvements for the grid from 10 hours to 100+ hours of energy
21 discharge for PSPS event;
- 22
- 23 • Cost benefits are expected from lower installation cost, lower life cycle cost,
24 competitive capacity costs and reduced transmission needs due to distributed
25 power sources; and
- 26
- 27 • Safety benefits due to no thermal runaway risk and less GHGs due to improved
28 renewables penetration.

29
30 **Technological Advancement and Breakthroughs:**⁴ This Agreement is intended to
31 lead to technological advancement and breakthroughs to overcome barriers to the
32 achievement of the State of California’s statutory energy goals by providing a cost-
33 effective resilient and reliable APH energy storage technology that will address the need
34 for longer term energy storage and discharge during grid outages and PHPS events,
35 growth in peak load, evening ramp up, over-supply and curtailment issues, and the need
36 for ancillary services.

37
38 Expected technological advancement and breakthroughs are summarized as follows:

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.

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- 1 • Energy storage at a capacity cost (\$381/kWh) that is comparable to lithium ion
- 2 batteries (~\$470 per kWh based on \$1876/kW installation cost and 4-hour
- 3 discharge for lithium);
- 4 • Discharge durations of 10 hours or longer;
- 5 • Ability to absorb renewables during non-summer season and provide seasonal
- 6 storage;
- 7 • Continuous power (200 kW) for critical facilities during PSPS events (up to 7
- 8 days using imported water);
- 9 • Scalable and rapid implementation due to the use of existing infrastructure and
- 10 US-made equipment;
- 11 • Targeted development in low-income and DAC communities;
- 12 • Distributed storage for transmission congestion relief, distribution reliability, and
- 13 deferral of upgrades;
- 14 • Use of imported recharge water to reduce energy costs and provide recharge co-
- 15 benefits; and
- 16 • No local safety risk due to waste disposal, thermal runaway, and leakage,
- 17 especially to DACs.

18 When the IOU and investment community gain confidence in APH technology and its
19 long-term performance then the market breakthrough is:

- 20 • IOUs solicit procurements for energy storage/discharge programs with incentives
- 21 for agricultural and municipal pumpers that intend to mitigate the impacts by the
- 22 Sustainable Groundwater Management Act (SGMA) and PSPS events.

23
24 **Agreement Objectives**

25 The objectives of this Agreement are detailed under 7 major tasks:

- 26
- 27 • Design and Construction of WSWB facilities: Complete the design/build process
- 28 for a 200 kW APH system to conduct a demonstration of the APH energy
- 29 storage/discharge capabilities at WSWB
- 30 • Regeneration Wells Retrofit: Design and retrofit wells to enable the injection of
- 31 water to enable energy storage and discharge for the well regeneration system
- 32 • Operations and Field Tests: Perform real-time field demonstration and monitor
- 33 performance of APH system to determine costs, technical constraints, and define
- 34 operating parameters
- 35 • Economics and Metrics: Determine the economics of the APH technology by
- 36 assessing utility tariffs, interconnection requirements, and various operational
- 37 metrics
- 38 • Grid Integration: Determine how to integrate long duration energy storage using
- 39 APH technology (>10 hours) into the grid and grid values to identify the
- 40 integration pathway for long duration energy storage
- 41 • Statewide Application: Provide an estimate of the potential for APH technology in
- 42 California's Central Valley by estimating the number of wells available for
- 43 injection and corresponding horsepower
- 44 • Project Benefits: Provide an assessment of resilience, reliability, cost savings,
- 45 and safety benefits for the IOU ratepayers. These benefits will be verified
- 46 including: (1) reduced peak power cost, (2) power during PSPS event, (3) longer

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1 life cycle than lithium battery, and (4) rapid implementation especially within
2 DACs

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4 Key Project Deliverables:

- 5 • A template (spreadsheet tool) for developing 200 kW sites throughout California – a
6 checklist that an interested party can use to perform a feasibility assessment, perform
7 an initial economic assessment, install the necessary equipment, and monitor the
8 operation of the project;
- 9 • A template for the interconnection agreements (net-energy metering) needed to
10 function as a 200kW behind-the-meter long duration energy storage system, including
11 additions needed for combining two 200-kW modules into a single 400-kW energy
12 storage system;
- 13 • A survey of statewide APH locations that could store energy economically to benefit
14 end-users.; and
- 15 • A survey of low-income and DACs that would be good candidates for APH
16 technology.
- 17
18

19 **III. TASK 1 GENERAL PROJECT TASKS**

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21 **PRODUCTS**

22 **Subtask 1.1 Products**

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

31
32 **The Recipient shall:**

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

- 34 • Submit all draft products to the CAM for review and comment in accordance with the
35 Project Schedule (Part V). The CAM will provide written comments to the Recipient on
36 the draft product within 15 days of receipt, unless otherwise specified in the task/subtask
37 for which the product is required.
- 38 • Consider incorporating all CAM comments into the final product. If the Recipient
39 disagrees with any comment, provide a written response explaining why the comment
40 was not incorporated into the final product.
- 41 • Submit the revised product and responses to comments within 10 days of notice by the
42 CAM, unless the CAM specifies a longer time period, or approves a request for
43 additional time.
- 44

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1 For products that require a final version only

- 2 • Submit the product to the CAM for acceptance. The CAM may request minor revisions or
3 explanations prior to acceptance.
4

5 For all products

- 6 • Submit all data and documents required as products in accordance with the following
7 Instructions for Submitting Electronic Files and Developing Software:
8

9 ○ **Electronic File Format**

- 10 ▪ Submit all data and documents required as products under this Agreement in
11 an electronic file format that is fully editable and compatible with the Energy
12 Commission's software and Microsoft (MS)-operating computing platforms, or
13 with any other format approved by the CAM. Deliver an electronic copy of the
14 full text of any Agreement data and documents in a format specified by the
15 CAM, such as memory stick or CD-ROM.
16

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

- 21 ▪ Data sets will be in MS Access or MS Excel file format (version 2007 or later),
22 or any other format approved by the CAM.
23 ▪ Text documents will be in MS Word file format, version 2007 or later.
24 ▪ Documents intended for public distribution will be in PDF file format.
25 ▪ The Recipient must also provide the native Microsoft file format.
26 ▪ Project management documents will be in Microsoft Project file format,
27 version 2007 or later.
28

29 ○ **Software Application Development**

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

- 34 ▪ Microsoft ASP.NET framework (version 3.5 and up). Recommend 4.0.
35 ▪ Microsoft Internet Information Services (IIS), (version 6 and up)
36 Recommend 7.5.
37 ▪ Visual Studio.NET (version 2008 and up). Recommend 2010.
38 ▪ C# Programming Language with Presentation (UI), Business Object and Data
39 Layers.
40 ▪ SQL (Structured Query Language).
41 ▪ Microsoft SQL Server 2008, Stored Procedures. Recommend 2008
42 R2.
43 ▪ Microsoft SQL Reporting Services. Recommend 2008 R2.
44 ▪ XML (external interfaces).
45

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

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1
2 **MEETINGS**

3 **Subtask 1.2 Kick-off Meeting**

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

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8 **The Recipient shall:**

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

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

- 18
- 19 ○ Terms and conditions of the Agreement;
 - 20 ○ Administrative products (subtask 1.1);
 - 21 ○ CPR meetings (subtask 1.3);
 - 22 ○ Match fund documentation (subtask 1.7);
 - 23 ○ Permit documentation (subtask 1.8);
 - 24 ○ Subcontracts (subtask 1.9); and
 - 25 ○ Any other relevant topics.

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

- 27
- 28 ○ The CAM’s expectations for accomplishing tasks described in the Scope of Work;
 - 29 ○ An updated Project Schedule;
 - 30 ○ Technical products (subtask 1.1);
 - 31 ○ Progress reports and invoices (subtask 1.5);
 - 32 ○ Final Report (subtask 1.6);
 - 33 ○ Technical Advisory Committee meetings (subtasks 1.10 and 1.11); and
 - 34 ○ Any other relevant topics.

- 35
- 36 • Provide an *Updated Project Schedule, List of Match Funds, and List of Permits*, as
37 needed to reflect any changes in the documents.

38 **The CAM shall:**

- 39
- 40 • Designate the date and location of the meeting.
 - 41 • Send the Recipient a *Kick-off Meeting Agenda*.

42 **Recipient Products:**

- 43
- 44 • Updated Project Schedule *(if applicable)*
 - 45 • Updated List of Match Funds *(if applicable)*
 - 46 • Updated List of Permits *(if applicable)*

47 **CAM Product:**

- 48
- 49 • Kick-off Meeting Agenda

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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:

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- 1 • CPR Agenda
- 2 • List of Expected CPR Participants
- 3 • Schedule for Providing a Progress Determination
- 4 • Progress Determination

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8 **Subtask 1.4 Final Meeting**

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

10
11 **The Recipient shall:**

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

17
18 The technical and administrative aspects of Agreement closeout will be discussed at the
19 meeting, which may be divided into two separate meetings at the CAM's discretion.

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

40
41 **Products:**

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

45
46 **REPORTS AND INVOICES**

47 **Subtask 1.5 Progress Reports and Invoices**

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1 The goals of this subtask are to: (1) periodically verify that satisfactory and continued progress
2 is made towards achieving the project objectives of this Agreement; and (2) ensure that invoices
3 contain all required information and are submitted in the appropriate format.
4

5 **The Recipient shall:**

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

15
16 **Products:**

- 17 • Progress Reports
- 18 • Invoices

19
20 **Subtask 1.6 Final Report**

21 The goal of this subtask is to prepare a comprehensive Final Report that describes the original
22 purpose, approach, results, and conclusions of the work performed under this Agreement. The
23 CAM will review the Final Report, which will be due at least **two months** before the Agreement
24 end date. When creating the Final Report Outline and the Final Report, the Recipient must use
25 the Style Manual provided by the CAM.
26

27 **Subtask 1.6.1 Final Report Outline**

28
29 **The Recipient shall:**

- 30 • Prepare a *Final Report Outline* in accordance with the *Style Manual* provided by the
31 CAM. (See *Task 1.1* for requirements for draft and final products.)
32

33 **Recipient Products:**

- 34 • Final Report Outline (draft and final)

35
36 **CAM Product:**

- 37 • Style Manual
- 38 • Comments on Draft Final Report Outline
- 39 • Acceptance of Final Report Outline

40
41 **Subtask 1.6.2 Final Report**

42
43 **The Recipient shall:**

- 44 • Prepare a *Final Report* for this Agreement in accordance with the approved Final Report
45 Outline, Style Manual, and Final Report Template provided by the CAM with the
46 following considerations:
 - 47 ○ Ensure that the report includes the following items, in the following order:
 - 48 ▪ Cover page (**required**)

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- 1 ▪ Credits page on the reverse side of cover with legal disclaimer (**required**)
- 2 ▪ Acknowledgements page (optional)
- 3 ▪ Preface (**required**)
- 4 ▪ Abstract, keywords, and citation page (**required**)
- 5 ▪ Table of Contents (**required**, followed by List of Figures and List of
- 6 Tables, if needed)
- 7 ▪ Executive summary (**required**)
- 8 ▪ Body of the report (**required**)
- 9 ▪ References (if applicable)
- 10 ▪ Glossary/Acronyms (If more than 10 acronyms or abbreviations are used,
- 11 it is required.)
- 12 ▪ Bibliography (if applicable)
- 13 ▪ Appendices (if applicable) (Create a separate volume if very large.)
- 14 ▪ Attachments (if applicable)
- 15 ○ Ensure that the document is written in the third person.
- 16 ○ Ensure that the Executive Summary is understandable to the lay public.
- 17 ▪ Briefly summarize the completed work. Succinctly describe the project
- 18 results and whether or not the project goals were accomplished.
- 19 ▪ Identify which specific ratepayers can benefit from the project results
- 20 and how they can achieve the benefits.
- 21 ▪ If it's necessary to use a technical term in the Executive Summary,
- 22 provide a brief definition or explanation when the technical term is first
- 23 used.
- 24 ○ Follow the Style Guide format requirements for headings, figures/tables, citations,
- 25 and acronyms/abbreviations.
- 26 ○ Ensure that the document omits subjective comments and opinions. However,
- 27 recommendations in the conclusion of the report are allowed.
- 28 ○ Include a brief description of the project results in the Abstract.
- 29 • Submit a draft of the report to the CAM for review and comment. The CAM will provide
- 30 written comments to the Recipient on the draft product within 15 days of receipt
- 31 • Consider incorporating all CAM comments into the Final Report. If the Recipient
- 32 disagrees with any comment, provide a written response explaining why the comment
- 33 was not incorporated into the final product
- 34 • Submit the revised Final Report and responses to comments within 10 days of notice by
- 35 the CAM, unless the CAM specifies a longer time period or approves a request for
- 36 additional time.
- 37 • Submit one bound copy of the *Final Report* to the CAM along with *Written Responses to*
- 38 *Comments on the Draft Final Report*.

Products:

- Final Report (draft and final)
- Written Responses to Comments on the Draft Final Report

CAM Product:

- Written Comments on the Draft Final Report

MATCH FUNDS, PERMITS, AND SUBCONTRACTS

Subtask 1.7 Match Funds

The goal of this subtask is to ensure that the Recipient obtains any match funds planned for this

Exhibit A
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ANTELOPE VALLEY WATER STORAGE, LLC

1 Agreement and applies them to the Agreement during the Agreement term.

2
3 While the costs to obtain and document match funds are not reimbursable under this
4 Agreement, the Recipient may spend match funds for this task. The Recipient may only spend
5 match funds during the Agreement term, either concurrently or prior to the use of Energy
6 Commission funds. Match funds must be identified in writing, and the Recipient must obtain any
7 associated commitments before incurring any costs for which the Recipient will request
8 reimbursement.

9
10 **The Recipient shall:**

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

15
16 If match funds were a part of the proposal that led to the Energy Commission awarding
17 this Agreement, then provide in the letter:

- 18 ○ A list of the match funds that identifies:
 - 19 ■ The amount of cash match funds, their source(s) (including a contact name,
20 address, and telephone number), and the task(s) to which the match funds
21 will be applied.
 - 22 ■ The amount of each in-kind contribution, a description of the contribution type
23 (e.g., property, services), the documented market or book value, the source
24 (including a contact name, address, and telephone number), and the task(s)
25 to which the match funds will be applied. If the in-kind contribution is
26 equipment or other tangible or real property, the Recipient must identify its
27 owner and provide a contact name, address, telephone number, and the
28 address where the property is located.
 - 29 ■ If different from the solicitation application, provide a letter of commitment
30 from an authorized representative of each source of match funding that the
31 funds or contributions have been secured.
- 32 • At the Kick-off meeting, discuss match funds and the impact on the project if they are
33 significantly reduced or not obtained as committed. If applicable, match funds will be
34 included as a line item in the progress reports and will be a topic at CPR meetings.
- 35 • Provide a *Supplemental Match Funds Notification Letter* to the CAM of receipt of
36 additional match funds.
- 37 • Provide a *Match Funds Reduction Notification Letter* to the CAM if existing match funds
38 are reduced during the course of the Agreement. Reduction of match funds may trigger
39 a CPR meeting.

40
41 **Products:**

- 42 • Match Funds Status Letter
- 43 • Supplemental Match Funds Notification Letter (*if applicable*)
- 44 • Match Funds Reduction Notification Letter (*if applicable*)

45
46 **Subtask 1.8 Permits**

47 The goal of this subtask is to obtain all permits required for work completed under this
48 Agreement in advance of the date they are needed to keep the Agreement schedule on track.
49 Permit costs and the expenses associated with obtaining permits are not reimbursable under

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1 this Agreement, with the exception of costs incurred by University of California recipients.
2 Permits must be identified and obtained before the Recipient may incur any costs related to the
3 use of the permit(s) for which the Recipient will request reimbursement.
4

5 **The Recipient shall:**

- 6 • Prepare a *Permit Status Letter* that documents the permits required to conduct this
7 Agreement. If no permits are required at the start of this Agreement, then state this in the
8 letter. If permits will be required during the course of the Agreement, provide in the letter:
9 ○ A list of the permits that identifies: (1) the type of permit; and (2) the name,
10 address, and telephone number of the permitting jurisdictions or lead agencies.
11 ○ The schedule the Recipient will follow in applying for and obtaining the permits.
12

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

- 18 • If during the course of the Agreement additional permits become necessary, then
19 provide the CAM with an *Updated List of Permits* (including the appropriate information
20 on each permit) and an *Updated Schedule for Acquiring Permits*.
21 • Send the CAM a *Copy of Each Approved Permit*.
22 • If during the course of the Agreement permits are not obtained on time or are denied,
23 notify the CAM within 5 days. Either of these events may trigger a CPR meeting.
24

25 **Products:**

- 26 • Permit Status Letter
27 • Updated List of Permits (*if applicable*)
28 • Updated Schedule for Acquiring Permits (*if applicable*)
29 • Copy of Each Approved Permit (*if applicable*)
30

31 **Subtask 1.9 Subcontracts**

32 The goals of this subtask are to: (1) procure subcontracts required to carry out the tasks under
33 this Agreement; and (2) ensure that the subcontracts are consistent with the terms and
34 conditions of this Agreement.
35

36 **The Recipient shall:**

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

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1
2
3
4

Products:

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

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TECHNICAL ADVISORY COMMITTEE

Subtask 1.10 Technical Advisory Committee (TAC)

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

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

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

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

The Recipient shall:

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

Products:

- List of Potential TAC Members

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- 1 • List of TAC Members
- 2 • Documentation of TAC Member Commitment
- 3

4 **Subtask 1.11 TAC Meetings**

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

7
8 **The Recipient shall:**

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

21
22 **The TAC shall:**

- 23 • Help set the project team's goals and contribute to the development and evaluation of its
24 statement of proposed objectives as the project evolves.
- 25 • Provide a credible and objective sounding board on the wide range of technical and
26 financial barriers and opportunities.
- 27 • Help identify key areas where the project has a competitive advantage, value
28 proposition, or strength upon which to build.
- 29 • Advocate on behalf of the project in its effort to build partnerships, governmental support
30 and relationships with a national spectrum of influential leaders.
- 31 • Ask probing questions that insure a long-term perspective on decision-making and
32 progress toward the project's strategic goals.

33 **Products:**

- 34 • TAC Meeting Schedule (draft and final)
- 35 • TAC Meeting Agendas (draft and final)
- 36 • TAC Meeting Back-up Materials
- 37 • TAC Meeting Summaries
- 38

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IV. TECHNICAL TASKS

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. **Subtask 1.1 (Products)** describes the procedure for submitting products to the CAM.

Note: Under the grant agreement’s terms and conditions, the solicitation and the Recipient’s proposal under that solicitation are incorporated by reference into the grant agreement (Exhibit C, section 2). The original Recipient’s proposal included more work and equipment, at a larger cost, than reflected in this Scope of Work (which corresponds to a lesser cost). Where there are differences in the number or characteristics of work or equipment, such as the number of wells to be refitted, the description in this Scope of Work supersedes the description in the original proposal. By mutual agreement, conflicting numbers or characteristics of work or equipment in the original proposal are not incorporated by reference from the Recipient’s original proposal.

TASK 2: DESIGN AND CONSTRUCTION OF WSWB APH FACILITIES

The goal of this task is to provide project administration, engineering design, and construction services for WSWB facilities.

Subtask 2.1, Engineering Design and Construction Services for APH Systems

The Recipient shall:

- Determine best project delivery approach such as Design/Bid/Build or Progressive Design/Build with GMP, etc. for engineering design of 200 kW APH system at WSWB, construction management, and inspection services to retrofit 5 wells for regeneration, including pipes, 25 acre-feet onsite reservoir, and power supply components for 5 wells, including single SCE meter for Net Energy Metering
- Develop and execute a *Commissioning Plan* with consultation from the CAM and the TAC
- Develop and execute an *Operations and System Test Plan* to cover 12 months with consultation from the CAM and the TAC.
- Provide to CAM *Facility Certification, Start-up and Commissioning Documents*, to include, but not limited to: design drawings, specifications, and as-built drawings, as well as the start-up, operating, and decommissioning plans.
- Prepare *CPR Report #1* and attend CPR Meeting per subtask 1.3.

Products:

- Commissioning Plan
- Operations and System Test Plan
- Facility Certification, Start-up, and Commissioning Documents
- CPR Report #1

Subtask 2.2 Design Build Project Delivery Services to Construct a 200 kW APH System

The Recipient shall:

- Provide labor, materials and equipment to manage, design and construct the facilities described in subtask 2.1 above.

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- 1 • Provide to *CAM Delivery Method Report*, to include but not be limited to:
2 recommendations on project delivery methods, including an assessment of traditional
3 design/bid/build and alternative design/build delivery methods to save time.
4

5 **Products:**

- 6 • Delivery Method Report
7
8

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TASK 3: REGENERATION WELLS RETROFIT

The goal of this task is to retrofit wells to enable energy release for the well regeneration systems.

The Recipient shall:

- Summarize lessons learned from other APH well sites and related facilities;
- Provide consulting on engineering design and construction to retrofit wells to install regeneration systems;
- Provide consulting for 1 year of operations during testing period
- Provide consulting on interpretation of operational results during testing period and how they relate to the lessons learned at other sites.
- Provide *Regeneration Well Retrofit Lessons Learned Technical Memorandum*

Products:

- Regeneration Well Retrofit Lessons Learned Technical Memorandum

TASK 4: OPERATIONS AND FIELD TESTS

The goal of this task is to conduct 1 year of operations to demonstrate the 200kW APH system

The Recipient shall:

- Create and execute a *Measurement and Verification Plan* with consultation from the CAM on metrics. Metrics shall include, but not be limited to the following: value that longer-duration energy storage provides with specific information on increased resiliency, higher reliability, added cost savings from peak load reductions, load shifting, providing increased services to the electric grid during times of grid stability challenges; value of longer-duration storage when compared to the normal 2-4 hours of storage current systems provide.
- Measurement and Verification Plan will include the collection and measurement and verification (M&V) of data on the installation over the one-year demonstration period. The duration of data collection may be reduced with prior CAM written approval. M&V includes plots of charge/discharge power levels, storage efficiencies, and ambient temperatures, as a function of time.
- Conduct one-year operations to test and demonstrate the APH system and create a *1-Year Operations Report* that includes, but is not limited to, the following details:
 - Provide engineering and design services to manage the operation, maintenance and repair of the 200 kW APH system for 12 months during the demonstration period;
 - Provide management, all labor and materials to operate, maintain and repair the 200 kW APH system for 12 months during the demonstration period;
 - Implementation of operations and system plan for 12 months;
 - Operate for 4 summer months for 5 hours each weekday during evening ramp up to shift peak load;
 - Operate periodically during the 8 months of winter and spring to absorb surplus renewables for seasonal storage and to establish well plugging constraints;
 - Operation of APH system to demonstrate for a minimum of 10-hour discharge periods; Operate system to demonstrate PSPS power for 7 days (168 hrs.);

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- Results of execution of the Measurement and Verification Plan;
- Determine clogging constraints using imported water; and
- Develop life cycle maintenance requirements.
- Prepare *CPR Report #2* and attend CPR Meeting per subtask 1.3.

Products:

- Measurement and Verification Plan (draft and final)
- 1 Year Operations Report (draft and final)
- CPR Report #2

TASK 5: ECONOMICS AND METRICS

The goal of this task is to determine the economics and define metrics for a standalone 200kW APH system. Discuss the primary benefits the system will deliver to the recipient, end user, and the grid including increased reliability, resiliency, safety and other services during times of power interruptions caused by weather, grid system failures or public safety power shutoffs.

Subtask 5.1 Determine APH System Costs and Economics

The Recipient shall:

- Determine initial installation cost for 200 kW unit using a 3R Valve retrofit;
- Determine cost of interconnection and controls, and utility tariff for NEM contract implications;
- Investigate separate interconnection for each well vs single point of interconnection for multiple wells; and
- Determine economics of operation, maintenance and replacement cost over a 30-year life cycle; and
- Survey low-income and DACs and determine communities that would be good candidates where APH could economically store energy to benefit end-users.
- Develop a template for interconnection agreements to help others navigate the process.
- Provide to CAM, a *Technical Memo on Metrics and Economics*
- Provide to CAM, a *Template for Interconnection Agreement*

Products:

- Technical Memo on Metrics and Economics
- Template for Interconnection Agreement

Subtask 5.2 Determine APH System Grid Value and Metrics

The Recipient shall:

- Determine value of APH during PSPS event when the grid is down;
- Establish metrics for APH and grid integration; and
- Benefits of modular expansion of APH using less than 200 kW per module and the potential to provide 400 kW with two 200-kW modules.
- Provide an *APH Application/Evaluation Template* to CAM.

Products:

- APH Application/Evaluation Template

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ANTELOPE VALLEY WATER STORAGE, LLC

TASK 6: GRID INTEGRATION

The goal of this task is to determine how to integrate long duration energy storage using APH Technology (>10 hours) into the grid.

The Recipient shall:

- Determine value of >10 hours of discharge, including possible bimodal loads;
- Determine value of standalone power supply to DACs when the grid is de-energized;
- Value the distribution of APH units in the Central Valley for reduced transmission needs;
- Value the ability of APH to start rapidly during evening ramp up or in unplanned outage;
- Optimize renewables penetration, GHG reductions, and reliability for evening ramp up;
- Assess benefit of Demand Response using onsite storage to shut down wells on-peak;
- Provide a *Technical Memo on Grid Integration*

Products:

- Technical Memo on Grid Integration

TASK 7: STATEWIDE APPLICATION

The goal of this task is to assess and determine the potential statewide application of APH technology to wells in California.

The Recipient shall:

- Determine the total number of high capacity wells (~1,000 gallons per minute) in the Central Valley;
- Determine potential horsepower of wells that could be used to generate power;
- Assess horsepower on a county by county level, starting with Kern County;
- Determine number of wells close enough to imported water canal to inject imported water;
- Assess use of existing wells and percent of time idle, including when in the day;
- Determine anticipated number of wells permanently idled due to SGMA land following;
- Provide to CAM, a *Technical Memo on Statewide Application*.

Products:

- Technical Memo on Statewide Application

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ANTELOPE VALLEY WATER STORAGE, LLC

TASK 8: SEASONAL STORAGE

The goal of this task is to assess and determine the potential statewide application of APH technology to wells in California.

The Recipient shall:

- Determine the ability of APH combined with Willow Springs Water Bank to provide seasonal storage of energy. Energy will be stored by shifting when water is delivered to Southern California. The seasonal shift is from the summer months to the non-summer months when there is an expected surplus of renewables and a risk of curtailment. Imported State Water Project water will be pre-delivered to WSWB, using more energy during non-summer months. It may be possible to recharge some of this imported water using APH, making the process more efficient. The pre-delivered water will be replaced by pumping stored water from WSWB back into the California Aqueduct in the summer. APH makes pumping of stored groundwater in the summer more efficient.
- Provide CAM a *Technical Memo on Seasonal Storage Using APH*

Products:

- Technical Memo on Seasonal Storage Using APH

TASK 9: PROJECT BENEFITS

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

The Recipient shall:

- Complete three Project Benefits Questionnaires that correspond to three main intervals in the Agreement: (1) *Kick-off Meeting Benefits Questionnaire*; (2) *Mid-term Benefits Questionnaire*; and (3) *Final Meeting Benefits Questionnaire*.
- Provide all key assumptions used to estimate projected benefits, including targeted market sector (e.g., population and geographic location), projected market penetration, baseline and projected energy use and cost, operating conditions, and emission reduction calculations. Examples of information that may be requested in the questionnaires include:
 - For Product Development Projects and Project Demonstrations:
 - Published documents, including date, title, and periodical name.
 - Estimated or actual energy and cost savings, and estimated statewide energy savings once market potential has been realized. Identify all assumptions used in the estimates.
 - Greenhouse gas and criteria emissions reductions.
 - Other non-energy benefits such as reliability, public safety, lower operational cost, environmental improvement, indoor environmental quality, and societal benefits.
 - Data on potential job creation, market potential, economic development, and increased state revenue as a result of the project.

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- 1 ▪ A discussion of project product downloads from websites, and publications in
2 technical journals.
- 3 ▪ A comparison of project expectations and performance. Discuss whether the
4 goals and objectives of the Agreement have been met and what improvements
5 are needed, if any.
- 6 ▪ Additional Information for Product Development Projects:
 - 7 • Outcome of product development efforts, such copyrights and license
8 agreements.
 - 9 • Units sold or projected to be sold in California and outside of California.
 - 10 • Total annual sales or projected annual sales (in dollars) of products
11 developed under the Agreement.
 - 12 • Investment dollars/follow-on private funding as a result of Energy
13 Commission funding.
 - 14 • Patent numbers and applications, along with dates and brief descriptions.
- 15 ▪ Additional Information for Product Demonstrations:
 - 16 • Outcome of demonstrations and status of technology.
 - 17 • Number of similar installations.
 - 18 • Jobs created/retained as a result of the Agreement.
- 19 ○ For Information/Tools and Other Research Studies:
 - 20 ▪ Outcome of project.
 - 21 ▪ Published documents, including date, title, and periodical name.
 - 22 ▪ A discussion of policy development. State if the project has been cited in
23 government policy publications or technical journals, or has been used to
24 inform regulatory bodies.
 - 25 ▪ The number of website downloads.
 - 26 ▪ An estimate of how the project information has affected energy use and
27 cost, or have resulted in other non-energy benefits.
 - 28 ▪ An estimate of energy and non-energy benefits.
 - 29 ▪ Data on potential job creation, market potential, economic development,
30 and increased state revenue as a result of project.
 - 31 ▪ A discussion of project product downloads from websites, and
32 publications in technical journals.
 - 33 ▪ A comparison of project expectations and performance. Discuss whether
34 the goals and objectives of the Agreement have been met and what
35 improvements are needed, if any.
 - 36 • Respond to CAM questions regarding responses to the questionnaires.

37
38
39 The Energy Commission may send the Recipient similar questionnaires after the Agreement
40 term ends. Responses to these questionnaires will be voluntary.

41
42 **Products:**

- 43 • Kick-off Meeting Benefits Questionnaire
- 44 • Mid-term Benefits Questionnaire
- 45 • Final Meeting Benefits Questionnaire

46

Exhibit A
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TASK 10: 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(s) on the project.
- When directed by the CAM, participate in annual EPIC symposium(s) sponsored by the California Energy Commission.
- Provide at least (6) six *High Quality Digital Photographs* (minimum resolution of 1300x500 pixels in landscape ratio) of pre and post technology installation at the project sites or related project photographs.
- Prepare a *Technology/Knowledge Transfer Report* on technology transfer activities conducted during the project.

Products:

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

V. PROJECT SCHEDULE

Please see the attached Excel spreadsheet.

ENERGY RESEARCH, DEVELOPMENT, AND DEMONSTRATION AGREEMENTS
Exhibit A - Scope of Work
Antelope Valley Water Storage, LLC
V. PROJECT SCHEDULE - GROUP 1

Agreement Term: 3-11-2021 to 6-28-2024

ork, "days" means working days.

nd may require approval by the CEC's Executive Director or his/her designee.

Task/ Subtask #	Task/Subtask Name	Meeting Name	Product(s)	Due Date
1	General Project Tasks			
1.1	Products			
1.2	Kick-off Meeting	Kick-off Meeting		4/19/2021
			Updated Project Schedule <i>(if applicable)</i>	7 days after determination of the need to update the documents
			Updated List of Match Funds <i>(if applicable)</i>	7 days after determination of the need to update the documents
			Updated List of Permits <i>(if applicable)</i>	7 days after determination of the need to update the documents
			CAM Product	
		Kick-off Meeting Agenda	7 days prior to the kick-off meeting	
1.3	CPR Meeting	CPR Meeting #1		1/19/2022
		CPR Meeting #2		1/19/2023
			CPR Report	15 days prior to the CPR meeting
			Task Product(s)	15 days prior to the CPR meeting
		CAM Products		
			CPR Agenda	5 days prior to the CPR meeting
			List of Expected CPR Participants	5 days prior to the CPR meeting
			Schedule for Providing a Progress Determination	15 days after CPR meeting
	Progress Determination	As indicated in the Schedule for Providing a Progress Determination		
1.4	Final Meeting	Final Meeting		3/18/2024
			Final Meeting Agreement Summary <i>(if applicable)</i>	7 days after the final meeting
			Schedule for Completing Agreement Closeout Activities	7 days after the final meeting
			All Draft and Final Written Products	7 days after the final meeting
1.5	Progress Reports and Invoices	Progress Reports		10 days after the first of each month
		Invoices		10 days after the first of each month or quarter

ENERGY RESEARCH, DEVELOPMENT, AND DEMONSTRATION AGREEMENTS

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Antelope Valley Water Storage, LLC
V. PROJECT SCHEDULE - GROUP 1**

Task/ Subtask #	Task/Subtask Name	Meeting Name	Product(s)	Due Date
1.6	Final Report			
1.6.1	Final Report Outline		Draft Final Report Outline	8/24/2023
			Final Report Outline	As determined by the CAM
			CAM Product (s)	
			Style Manual	At least 2 months prior to the final report outline due date
			Comments on Draft Final Report Outline	10 days after receipt of the Draft Final Report Outline
			Approval of Final Report Outline	10 days after receipt of the Final Report Outline
1.6.2	Final Report		Draft Final Report	10/19/2023
			Final Report	12/27/2023
			Written Responses to Comments on the Draft Final Report	11/21/2023
			CAM Products	
			Comments on Draft Final Report	15 days after receipt of the Draft Final Report
1.7	Match Funds		Match Funds Status Letter	2 days prior to the kick-off meeting
			Supplemental Match Funds Notification Letter (<i>if applicable</i>)	10 days after receipt of additional match funds
			Match Funds Reduction Notification Letter (<i>if applicable</i>)	10 days after any reduction of match funds
1.8	Permits		Permit Status Letter	2 days prior to the kick-off meeting
			Updated List of Permits (<i>if applicable</i>)	10 days after determination of the need for a new permit
			Updated Schedule for Acquiring Permits (<i>if applicable</i>)	10 days after determination of the need for a new permit
			Copy of Each Approved Permit (<i>if applicable</i>)	7 days after receipt of each permit
1.9	Subcontracts		Draft Subcontracts (<i>if required by the CAM</i>)	As determined by the CAM
			Final Subcontracts	As determined by the CAM
1.10	Technical Advisory Committee (TAC)		List of Potential TAC Members	2 days prior to the kick-off meeting
			List of TAC Members	7 days after finalization of the TAC
			Documentation of TAC Member Commitment	7 days after receipt of the documentation
1.11	TAC Meetings	TAC Meeting #1		5/29/2021
		TAC Meeting #2		3/9/2022
		TAC Meeting #3		3/9/2023
			Draft TAC Meeting Schedule	20 days after the kickoff meeting
			Final TAC Meeting Schedule	10 days after the first TAC meeting
			Draft TAC Meeting Agendas	20 days prior to each TAC meeting
			TAC Meeting Back-up Materials	21 days prior to each TAC meeting
			Final TAC Meeting Agenda	7 days prior to each TAC meeting
			TAC Meeting Summaries	10 days after each TAC meeting

ENERGY RESEARCH, DEVELOPMENT, AND DEMONSTRATION AGREEMENTS
Exhibit A - Scope of Work
Antelope Valley Water Storage, LLC
V. PROJECT SCHEDULE - GROUP 1

Task/ Subtask #	Task/Subtask Name	Meeting Name	Product(s)	Due Date
Technical Tasks				
2	Design and Construction of WSWB Facilities			
2.1	Engineering Design and Construction Services for APH Systems		Commissioning Plan	8/2/2021
			Operations and System Test Plan	11/1/2021
		CPR Meeting #1	Facility Certification, Start-Up, and Commissioning Documents	12/13/2022
2.2	Design Build Project Delivery Services to Construct a 200 kW APH		Delivery Method Report	12/29/2022
3	Regeneration Wells Retrofit		Regeneration Well Retrofit Lessons Learned Technical Memorandum	12/14/2023
4	Operations and Field Tests		Draft Measurement and Verification Plan	6/1/2022
			Final Measurement and Verification Plan	9/14/2022
			Draft 1 Year Operations Report	9/14/2023
		CPR Meeting #2	Final 1 Year Operations Report	12/14/2023
5	Economics and Metrics			
5.1	Determine APH System Costs and Economics		Technical Memo on Metrics and Economics	7/29/2021
			Template for Interconnection Agreement	8/26/2021
5.2	Determine APH System Grid Value and Metrics		APH Application/Evaluation Template	12/30/2021
6	Grid Integration		Technical Memo on Grid Integration	2/24/2022
7	Statewide Application		Technical Memo on Statewide Application	3/31/2022
8	Seasonal Storage		Technical Memo on Seasonal Storage Using APH	4/29/2022
9	Project Benefits		Kick-off Meeting Benefits Questionnaire	4/29/2021
			Mid-term Benefits Questionnaire	7/12/2022
			Final Meeting Benefits Questionnaire	3/4/2024
10	Technology/Knowledge Transfer Activities		Draft Initial Fact Sheet	3/30/2021
			Final Initial Fact Sheet	5/4/2021
			Draft Final Project Fact Sheet	12/5/2023
			Final Project Fact Sheet	1/11/2024
			Draft Presentation Materials	1/11/2024
			Final Presentation Materials	2/15/2024
			High Quality Digital Photographs	3/1/2024
			Draft Technology/Knowledge Transfer Plan	1/15/2024
			Final Technology/Knowledge Transfer Plan	2/15/2024
			Draft Technology/Knowledge Transfer Report	2/2/2024
Final Technology/Knowledge Transfer Report	3/4/2024			

**EXHIBIT A, ATTACHMENT A-1
CONTENT AND FORMAT OF PROGRESS REPORTS**

**PROGRESS REPORT for
Long Duration 200 kW Energy Storage with Aquifer Pumped Hydro
Projections, EPC-20-008
Month, Year**

Recipient Project Manager:
Commission Agreement Manager: Joseph Sit

What we planned to accomplish this period

[This is taken directly from the section on “What we expect to accomplish during the next period” from the last progress report.]

What we actually accomplished this period

[Concise description of major project activities and accomplishments. Include ratepayer benefits achieved to date]

How we are doing compared to our plan

[Explain the differences, if any, between the planned and the actual accomplishments. Describe what needs to be done, if anything, to get back on track.]

Significant problems or changes

[Describe any significant technical or fiscal problems. Request approval for significant changes in work scope, revised milestone due dates, changes in key personnel assigned to the project, or reallocation of budget cost categories. If none, include the following statement: “Progress and expenditures will result in project being completed on time and within budget.”]

What we expect to accomplish during the next period

[Concise description of major activities and accomplishments expected. This will be transferred to the next progress report]

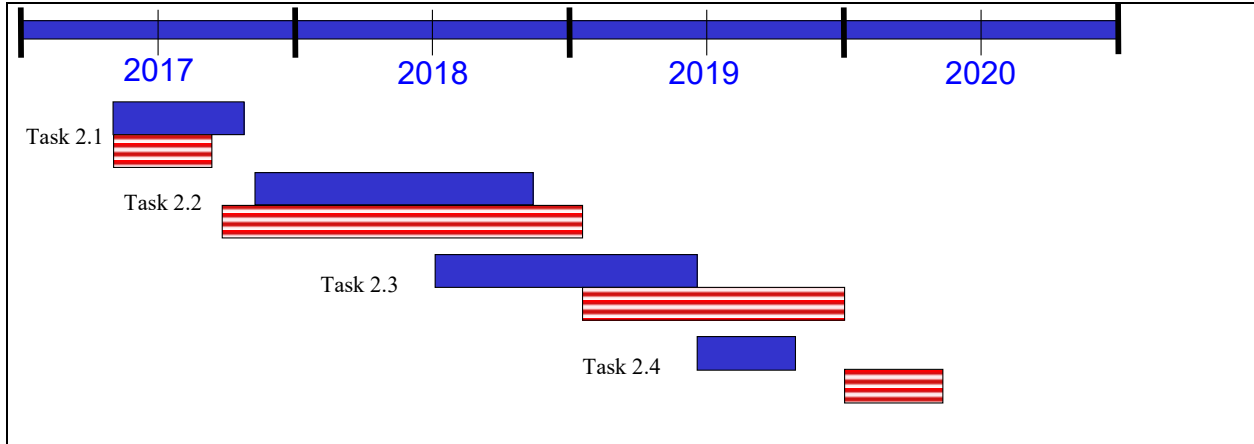
Status of Milestones and Products:

[This should be the complete list as contained in the revised scope of work and Exhibit B. Highlight differences between actual and planned. This can be an excel attachment from the Exhibit A Project Schedule with additional “Actual” and “Status (%)” columns.]

**EXHIBIT A, ATTACHMENT A-1
CONTENT AND FORMAT OF PROGRESS REPORTS**

Description	Start Date		Due Date		Status (%)
	Planned	Actual	Planned	Actual	
Identify top 3 assessment candidates	4/15/17	4/15/17	5/1/17	5/1/17	On time 100%
Develop test plan	4/20/17	4/10/17	7/7/17	6/10/17	Ahead 100%
Analyze experimental data	5/1/17	6/1/17	1/1/18	2/1/18	Delayed 25%

EXHIBIT A, ATTACHMENT A-1 CONTENT AND FORMAT OF PROGRESS REPORTS



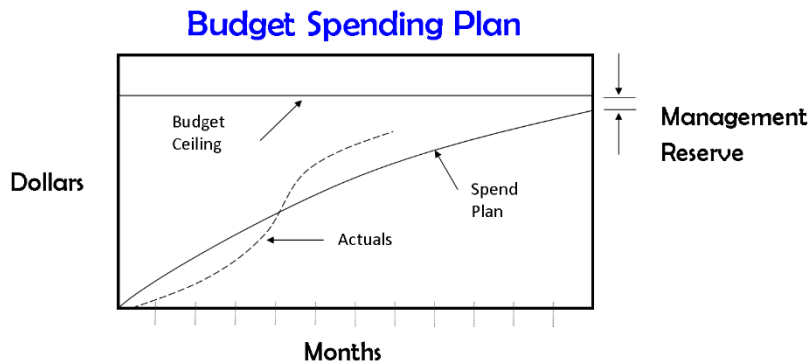
Overall schedule for the project.

[Planned is solid blue, actual is red striped. This work flow diagram needs to correlate with the schedule in Exhibit B. This example has been prepared as a Word Picture, but a comparable Excel diagram, Microsoft Project schedule, or Gantt chart is acceptable.]

Overview of Fiscal Status: (See invoices for detail.)

[It is useful to track the rate of expenditure of project funds. The most useful way to do this is to compare the actual expenditure rate with the planned expenditure rate. You get the planned rate at the beginning of the project, so it becomes a baseline. If you change course at a critical project review, you should show the original and the modified baseline, and then track against the new one.]

[Report on the status of actual expenditures and progress in relation to the original Spend Plan.]



[Report estimates of Commission and match expenditures at a task level including: total budget amount, estimated amount spent to date, and estimated amount spent since last progress report. If making changes to the planned budget totals since the last progress report, please use the ~~strikethrough~~ format on the old amount and add the new amount using the **bold and underline** format.]

EXHIBIT A, ATTACHMENT A-1 CONTENT AND FORMAT OF PROGRESS REPORTS

Overview of Budget Expenditures:

The Energy Commission Contract Manager may request the expenditures be provided in Table 1. Input the proposed budget from the project narrative in the second column. CAM may modify table as needed. Please note that table is an estimate and only used to help track progress of tasks.

**Table 1: Task breakdown Commission and match expenses to date
Covering Period From Start Date: _____ To End Date: _____**

Task	Estimated Commission Expenses to Date	Total Anticipated Commission Budget	% Complete
1.0 [insert task title]			
2.0 [insert task title]			
3.0 [insert task title]			
4.0 [insert task title]			
5.0 [insert task title]			
6.0 [insert task title]			
7.0 [insert task title]			
8.0 [insert task title]			

Photographs:

[Include photographs where appropriate to document progress. The photos shall be shot with high quality digital photos.]

Evidence of Progress:

[Attach evidence of the progress being made (e.g., test data, product mock-ups, field site descriptions, preliminary analyses, meeting minutes) to the progress reports to allow the Commission Agreement Manager to review progress and gauge the quality of research results.]

[The progress report on each project should be approximately 1-2 pages long (plus photographs) and take about 1 hour to prepare for each reporting period.]

Category Budget
(see instructions)

Antelope Valley Water Storage, LLC

Small Business Micro Business Disabled Veteran Business Enterprise

Contractor/Recipient Subcontractor

Cost Category	Energy Commission Reimbursable Share	Match Share	Total
Direct Labor	\$ 858,041	\$ -	\$ 858,041
Fringe Benefits	\$ 175,000	\$ -	\$ 175,000
Total Labor	\$ 1,033,041	\$ -	\$ 1,033,041
Travel	\$ 3,439	\$ -	\$ 3,439
Equipment	\$ -	\$ -	\$ -
Materials/Miscellaneous	\$ 400,000	\$ -	\$ 400,000
Subcontractors	\$ 4,900,000	\$ 3,200,000	\$ 8,100,000
Total Other Direct Costs	\$ 5,303,439	\$ 3,200,000	\$ 8,503,439
Indirect Costs	\$ 70,470	\$ -	\$ 70,470
Profit (not allowed for grant recipients)	\$ -	\$ -	\$ -
Total Indirect and Profit	\$ 70,470	\$ -	\$ 70,470
Grand Totals	\$ 6,406,950	\$ 3,200,000	\$ 9,606,950
Amount of funds to be Spent in California**	\$ 5,751,950		
Percentage of Funds to be spent in California	90%		

Exhibit B

Direct Labor (Unloaded)
(see instructions)

Antelope Valley Water Storage, LLC

Hourly Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per hour)	# of Hours	Energy Commission Funds	Match Share	Total
Mark Beuhler	General Manager	\$ 200.00	2677	\$ 401,660	\$ -	\$ 401,660
TBD	Program Manager	\$ 150.00	2624	\$ 262,418	\$ -	\$ 262,418
Tommy Ta	Assistant Environmental Scientist	\$ 45.00	4200	\$ 193,963	\$ -	\$ 193,963
Hourly Direct Labor Totals				\$ 858,041	\$ -	\$ 858,041

Monthly Salary Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per month)	# of Months	Energy Commission Funds	Match Share	Total
		\$ -		\$ -	\$ -	\$ -
Monthly Direct Labor Totals				\$ -	\$ -	\$ -

				Energy Commission Funds	Match Share	Total
Direct Labor Grand Totals				\$ 858,041	\$ -	\$ 858,041

Exhibit B

Fringe Benefits
(see instructions)

Antelope Valley Water Storage, LLC

Fringe Benefit Base Description (Employee or Job Classification/Title)	Max. Fringe Benefit Rate (%)	Direct Labor Costs (\$)	Energy Commission Funds	Match Share	Total
General Manager, Willow Springs Water Bank; Base: Direct Labor Costs	17.00%	\$ 401,660	\$ 68,282	\$ -	\$ 68,282
Program Manager, Willow Springs Water Bank; Base:Direct Labor Costs	20.00%	\$ 262,418	\$ 52,484	\$ -	\$ 52,484
Assistant Environmental Scientist; Base: Direct Labor Costs	29.00%	\$ 193,963	\$ 54,234	\$ -	\$ 54,234
Fringe Benefit Totals		\$ 858,041	\$ 175,000	\$ -	\$ 175,000

Exhibit B

Travel
(see instructions)

Antelope Valley Water Storage, LLC

Task No.	Traveler's Name and/or Classification	Departure and Destination	Trip Purpose	Energy Commission Funds	Match Share	Total
Pre-Approved Travel						
1.2	Mark Beuhler	Glendale to Sacramento and Return	Kick-off Meeting	\$ 456	\$ -	\$ 456
1.3	Mark Beuhler	Glendale to Sacramento and Return (x2)	Critical Project Review (CPR) Meetings	\$ 912	\$ -	\$ 912
1.4	Mark Beuhler	Glendale to Sacramento and Return	Final Meeting	\$ 456	\$ -	\$ 456
Not Pre-Approved Travel						
2 & 4	Mark Beuhler	TBD	Meetings with Subcontractors for Coordination/ field site visits	\$ 815	\$ -	\$ 815
5 thru 9	Mark Beuhler	TBD	Team meetings at locations in California to be determined	\$ 800	\$ -	\$ 800
Total:				\$ 3,439	\$ -	\$ 3,439

Equipment
(see instructions)

Antelope Valley Water Storage, LLC

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
					\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Materials & Miscellaneous

(see instructions)

Antelope Valley Water Storage, LLC

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
4	Purchase imported water	Imported water used for well injection to generate power during demonstration and testing. 80 Acre-Feet of imported water to be purchase.	80	\$ 500	\$ 40,000	\$ -	\$ 40,000
4	Purchase pipe and fittings, small valves, tools and miscellaneous materials.	To perform maintenance and repair of well equipment and piping during demonstraton period. About 3,400 Feet of 12" pipeline to be installed.	3400	\$ 105	\$ 360,000	\$ -	\$ 360,000
Total:					\$ 400,000	\$ -	\$ 400,000

Exhibit B

Subcontracts (see instructions)

Antelope Valley Water Storage, LLC						
Task No.	Subcontractor Name	Purpose	CA Business Certifications DVBE/SB/MB/None	Energy Commission Funds	Match Share	Total
2.1 & 4	HDR Engineering, Inc.	<p>Task 2.1: Provide Project Administration, Engineering Design and Construction Services for APH System at WSWB:</p> <ul style="list-style-type: none"> • Manage this project task and participate in project meetings thru project duration; • Perform engineering design for 400 kW APH system; and • Provide construction management and inspection services to construct the 400 kW system facilities. <p>Task 4: Provide professional services to conduct 1 year of operations to determine technical constraints and define operating parameters for the 400 kW APH system.</p> <ul style="list-style-type: none"> • Provide engineering and design services to manage the operation, maintenance and repair of the 400 kW APH system for 12 months during the demonstration period; • Provide management, labor and materials to operate, maintain and repair the 400 kW APH system for 12 months during the demonstration period; and • Develop an operations and test plan for 12 months and implement the operations and test plan. 	None	\$ 1,100,000	\$ -	\$ 1,100,000
2.2	TBD - Design Build Contractor	<p>Provide Design Build Project Delivery Services to Construct the 400kW APH System at WSWB:</p> <ul style="list-style-type: none"> • Provide labor, materials and equipment to manage, design and construct the complete the 400 kW system facilities. 	TBD	\$ 2,050,000	\$ 2,750,000	\$ 4,800,000
3	3RValve, LLC	<p>Provide consulting services for Well Regeneration Systems for design and construction to retrofit wells to install regeneration systems during the 1 year operations testing period and consult on interpretation of operational results during testing period.</p>	None	\$ 350,000		\$ 350,000
4	Rosamond Community Services District	<p>Provide professional services to conduct 1 year of field operations and testing to demonstrate the 400 kW APH system</p> <ul style="list-style-type: none"> • Provide management, field labor and materials to operate, maintain and repair the 400 kW APH system for 12 months during the demonstration period; and • Assist in developing an operations and test plan for 12 months and implement the operations and test plan. 	None	\$ 70,000		\$ 70,000
5.1	Water and Energy Consulting Inc.	<p>Evaluate economics of the proposed APH system by assessing utility tariffs, interconnection requirements, and various operational and other metrics.</p>	None	\$ 350,000	\$ 450,000	\$ 800,000
5.2 & 6	Energy and Environmental Economics, Inc.	<p>Task 5.2: Evaluate and determine the proposed APH system grid value and metrics.</p> <p>Task 6: Evaluate nature and value of estimated benefits and grid integration pathway for APH long duration energy storage.</p>	SB	\$ 500,000		\$ 500,000
7	Larry Dale Associates	<p>Assess and determine the potential statewide application of APH technology to wells in California Central Valley by estimating the number of wells available for injection and corresponding horsepower.</p>	None	\$ 480,000	\$ -	\$ 480,000
Total:				\$ 4,900,000	\$ 3,200,000	\$ 8,100,000

Exhibit B

Indirect Costs and Profit

(see instructions)

Antelope Valley Water Storage, LLC

Indirect Cost(s)

Name of Indirect Cost	Maximum Rate	Indirect Cost Base Description	Indirect Cost Base Amount	Energy Commission Funds	Match Share	Total
Indirect Overhead	8.28%	Direct Labor	\$ 858,041	\$ 70,470	\$ -	\$ 70,470
Total:				\$ 70,470	\$ -	\$ 70,470

Profit

(Profit is not allowed for Grant Recipients)

Profit Rate	Profit Base Description	Profit Base Amount	Energy Commission Funds	Match Share	Total
0.00%		\$ -	\$ -	\$ -	\$ -
Total:			\$ -	\$ -	\$ -

Category Budget

(see instructions)

Name of Organization	TBD Design Build Aquifer Pump Hydro
-----------------------------	-----------------------------------------------

Small Business Micro Business Disabled Veteran Business Enterprise

Contractor/Recipient Subcontractor

Cost Category	Energy Commission Reimbursable Share	Match Share	Total
Direct Labor	\$ -	\$ -	\$ -
Fringe Benefits	\$ -	\$ -	\$ -
Total Labor	\$ -	\$ -	\$ -
Travel	\$ -	\$ -	\$ -
Equipment	\$ -	\$ -	\$ -
Materials/Miscellaneous	\$ -	\$ -	\$ -
Subcontractors	\$ -	\$ -	\$ -
Total Other Direct Costs	\$ -	\$ -	\$ -
Indirect Costs	\$ -	\$ -	\$ -
Profit (not allowed for grant recipients)	\$ -	\$ -	\$ -
Total Indirect and Profit	\$ -	\$ -	\$ -
Grand Totals	\$ 2,050,000	\$ 2,750,000	\$ 4,800,000
Amount of funds to be Spent in California**	\$ 2,050,000		
Percentage of Funds to be spent in California	100%		

Direct Labor (Unloaded)
(see instructions)

TBD Design Build Aquifer Pump Hydro

Hourly Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per hour)	# of Hours	Energy Commission Funds	Match Share	Total
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
Hourly Direct Labor Totals				\$ -	\$ -	\$ -

Monthly Salary Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per month)	# of Months	Energy Commission Funds	Match Share	Total
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
		\$ -		\$ -	\$ -	\$ -
Monthly Direct Labor Totals				\$ -	\$ -	\$ -

	Energy Commission Funds	Match Share	Total
Direct Labor Grand Totals	\$ -	\$ -	\$ -

Fringe Benefits

(see instructions)

TBD Design Build Aquifer Pump Hydro

Fringe Benefit Base Description (Employee or Job Classification/Title)	Max. Fringe Benefit Rate (%)	Direct Labor Costs (\$)	Energy Commission Funds	Match Share	Total
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
	0.00%	\$ -	\$ -	\$ -	\$ -
Fringe Benefit Totals		\$ -	\$ -	\$ -	\$ -

Travel
(see instructions)

TBD Design Build Aquifer Pump Hydro

Task No.	Traveler's Name and/or Classification	Departure and Destination	Trip Purpose	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
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				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
Total:				\$ -	\$ -	\$ -

Equipment
(see instructions)

TBD Design Build Aquifer Pump Hydro

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
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				\$ -	\$ -	\$ -	\$ -
				Total:	\$ -	\$ -	\$ -

Materials & Miscellaneous

(see instructions)

TBD Design Build Aquifer Pump Hydro

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
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				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Subcontracts

(see instructions)

TBD Design Build Aquifer Pump Hydro

Task No.	Subcontractor Name	Purpose	CA Business Certifications DVBE/ SB/MB/None	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
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				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
Total:				\$ -	\$ -	\$ -

Indirect Costs and Profit

(see instructions)

TBD Design Build Aquifer Pump Hydro

Indirect Cost(s)

Name of Indirect Cost	Maximum Rate	Indirect Cost Base Description	Indirect Cost Base Amount	Energy Commission Funds	Match Share	Total
	0.00%		\$ -	\$ -	\$ -	\$ -
	0.00%		\$ -	\$ -	\$ -	\$ -
	0.00%		\$ -	\$ -	\$ -	\$ -
	0.00%		\$ -	\$ -	\$ -	\$ -
	0.00%		\$ -	\$ -	\$ -	\$ -
Total:				\$ -	\$ -	\$ -

Profit

(Profit is not allowed for Grant Recipients)

Profit Rate	Profit Base Description	Profit Base Amount	Energy Commission Funds	Match Share	Total
0.00%		\$ -	\$ -	\$ -	\$ -
Total:			\$ -	\$ -	\$ -

Category Budget
(see instructions)

Name of Organization	HDR Engineering, Inc.
-----------------------------	-----------------------

- Small Business
 Micro Business
 Disabled Veteran Business Enterprise
 Contractor/Recipient
 Subcontractor

Cost Category	Energy Commission Reimbursable Share	Match Share	Total
Direct Labor	\$ 475,163	\$ -	\$ 475,163
Fringe Benefits	\$ 213,823	\$ -	\$ 213,823
Total Labor	\$ 688,986	\$ -	\$ 688,986
Travel	\$ 16,877	\$ -	\$ 16,877
Equipment	\$ -	\$ -	\$ -
Materials/Miscellaneous	\$ 100,000	\$ -	\$ 100,000
Subcontractors	\$ 57,600	\$ -	\$ 57,600
Total Other Direct Costs	\$ 174,477	\$ -	\$ 174,477
Indirect Costs	\$ 150,864	\$ -	\$ 150,864
Profit (not allowed for grant recipients)	\$ 85,673	\$ -	\$ 85,673
Total Indirect and Profit	\$ 236,537	\$ -	\$ 236,537
Grand Totals	\$ 1,100,000	\$ -	\$ 1,100,000
Amount of funds to be Spent in California**	\$ 1,100,000		
Percentage of Funds to be spent in California	100%		

Direct Labor (Unloaded)
(see instructions)

HDR Engineering, Inc.

Hourly Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per hour)	# of Hours	Energy Commission Funds	Match Share	Total
Aaron Meilleur	Project Principal	135.53	35	\$ 4,743	\$ -	\$ 4,743
Albert Rodriguez	Quality Coordinator	127.06	67	\$ 8,513	\$ -	\$ 8,513
Steve Friedman	Project Manager	118.59	667	\$ 79,098	\$ -	\$ 79,098
TBD	Task Lead	101.65	792	\$ 80,504	\$ -	\$ 80,504
TBD	Senior Project Engineer I	93.18	65	\$ 6,056	\$ -	\$ 6,056
TBD	Senior Project Engineer II	84.71	345	\$ 29,223	\$ -	\$ 29,223
TBD	Project Engineer I	76.23	106	\$ 8,081	\$ -	\$ 8,081
TBD	Project Engineer II	67.76	522	\$ 35,373	\$ -	\$ 35,373
TBD	Staff Engineer I	59.29	159	\$ 9,428	\$ -	\$ 9,428
TBD	Staff Engineer II	50.82	624	\$ 31,714	\$ -	\$ 31,714
TBD	Technician I	42.35	2,203	\$ 93,303	\$ -	\$ 93,303
TBD	Technician II	33.88	96	\$ 3,253	\$ -	\$ 3,253
TBD	CAD Manager	67.76	636	\$ 43,098	\$ -	\$ 43,098
TBD	CAD Technician	50.82	154	\$ 7,827	\$ -	\$ 7,827
TBD	Senior Accountant	67.76	47	\$ 3,185	\$ -	\$ 3,185
TBD	Project Accountant	50.82	265	\$ 13,468	\$ -	\$ 13,468
TBD	Project Coordinator	42.35	432	\$ 18,296	\$ -	\$ 18,296
Hourly Direct Labor Totals				\$ 475,163	\$ -	\$ 475,163

	Energy Commission Funds	Match Share	Total
Direct Labor Grand Totals	\$ 475,163	\$ -	\$ 475,163

Fringe Benefits

(see instructions)

HDR Engineering, Inc.

Fringe Benefit Base Description (Employee or Job Classification/Title)	Max. Fringe Benefit Rate (%)	Direct Labor Costs (\$)	Energy Commission Funds	Match Share	Total
All Classifications	45.00%	\$ 475,163	\$213,823	\$ -	\$ 213,823
Fringe Benefit Totals		\$ 475,163	\$ 213,823	\$ -	\$ 213,823

Travel
(see instructions)

HDR Engineering, Inc.

Task No.	Traveler's Name and/or Classification	Departure and Destination	Trip Purpose	Energy Commission Funds	Match Share	Total
Pre-Approved Travel						
1	Project Manager	Irvine to Willow Springs (18 round trips)	Meetings with Recipient	\$ 2,289	\$ -	\$ 2,289
1	Task Lead	San Diego to Willow Springs (18 round trips)	Meetings with Recipient	\$ 4,147	\$ -	\$ 4,147
2	Project Manager	Irvine to Willow Springs (3 round trips)	Site Visits	\$ 380	\$ -	\$ 380
2	Task Lead	San Diego to Willow Springs (3 round trips)	Site Visits	\$ 691	\$ -	\$ 691
2	Task Lead	Irvine to Willow Springs (5 round trips)	Construction Administration	\$ 634	\$ -	\$ 634
2	Project Manager	Irvine to Willow Springs (5 round trips)	Construction Administration	\$ 634	\$ -	\$ 634
2	Project Engineer II	Irvine to Willow Springs (6 round trips)	Construction Administration	\$ 760	\$ -	\$ 760
2	Technician I	Irvine to Willow Springs (13 round trips)	Construction Observation	\$ 2,031	\$ -	\$ 2,031
4	Task Lead	Sacramento to Burbank Airports (6 round trips) and drive to Willow Springs	Onsite Operations Meetings	\$ 2,016	\$ -	\$ 2,016
4	Technician I	Irvine to Willow Springs (26 round trips)	Onsite Operations Meetings	\$ 3,295	\$ -	\$ 3,295
Total:				\$ 16,877	\$ -	\$ 16,877

Equipment
(see instructions)

HDR Engineering, Inc.

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Materials & Miscellaneous

(see instructions)

HDR Engineering, Inc.

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
1	Printing	Project management	7100	\$ 0.50	\$ 3,550	\$ -	\$ 3,550
5	Printing	Design coordination between team members	7200	\$ 0.50	\$ 3,600	\$ -	\$ 3,600
6	Printing	Operations coordination between team members	7200	\$ 0.50	\$ 3,600	\$ -	\$ 3,600
5	Per Diem	Construction observation room and board	235	\$ 150	\$ 35,250	\$ -	\$ 35,250
6	Per Diem	Testing room and board	200	\$ 150	\$ 30,000	\$ -	\$ 30,000
5	Vehicle Rental for daily observation	Construction Observation	12	\$ 1,000	\$ 12,000	\$ -	\$ 12,000
6	Vehicle Rental for daily testing	Testing	12	\$ 1,000	\$ 12,000	\$ -	\$ 12,000
Total:					\$ 100,000	\$ -	\$ 100,000

Subcontracts

(see instructions)

HDR Engineering, Inc.

Task No.	Subcontractor Name	Purpose	CA Business Certifications DVBE/ SB/MB/None	Energy Commission Funds	Match Share	Total
5	TBD	Geotechnical Drilling	SB	\$ 33,600	\$ -	\$ 33,600
5	TBD	Survey	SB	\$ 24,000	\$ -	\$ 24,000
Total:				\$ 57,600	\$ -	\$ 57,600

Indirect Costs and Profit

(see instructions)

HDR Engineering, Inc.

Indirect Cost(s)

Name of Indirect Cost	Maximum Rate	Indirect Cost Base Description	Indirect Cost Base Amount	Energy Commission Funds	Match Share	Total
Indirect Overhead	31.75%	Direct Labor	\$ 475,163	150,864	\$ -	\$ 150,864
Total:				\$ 150,864	\$ -	\$ 150,864

Profit

(Profit is not allowed for Grant Recipients)

Profit Rate	Profit Base Description	Profit Base Amount	Energy Commission Funds	Match Share	Total
10.00%	Direct Labor + Fringe + Travel + Indirect Costs	\$ 856,727	\$ 85,673	\$ -	\$ 85,673
Total:			\$ 85,673	\$ -	\$ 85,673

Category Budget
(see instructions)

Name of Organization	Energy and Environmental Economics, Inc.
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Small Business Micro Business
 Contractor/Recipient Subcontractor Disabled Veteran Business Enterprise

Cost Category	Energy Commission Reimbursable Share	Match Share	Total
Direct Labor	\$ 175,439	\$ -	\$ 175,439
Fringe Benefits	\$ 69,707	\$ -	\$ 69,707
Total Labor	\$ 245,145	\$ -	\$ 245,145
Travel	\$ 2,155	\$ -	\$ 2,155
Equipment	\$ -	\$ -	\$ -
Materials/Miscellaneous	\$ -	\$ -	\$ -
Subcontractors	\$ -	\$ -	\$ -
Total Other Direct Costs	\$ 2,155	\$ -	\$ 2,155
Indirect Costs	\$ 207,441	\$ -	\$ 207,441
Profit (not allowed for grant recipients)	\$ 45,259	\$ -	\$ 45,259
Total Indirect and Profit	\$ 252,700	\$ -	\$ 252,700
Grand Totals	\$ 500,000	\$ -	\$ 500,000
Amount of funds to be Spent in California**	\$ 500,000		
Percentage of Funds to be spent in California	100%		

Direct Labor (Unloaded)

(see instructions)

Energy and Environmental Economics, Inc.

Hourly Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per hour)	# of Hours	Energy Commission Funds	Match Share	Total
Arne Olson	Senior Partner	\$ 157.26	20	\$ 3,145	\$ -	\$ 3,145
Snuller Price	Senior Partner	\$ 157.26	20	\$ 3,145	\$ -	\$ 3,145
Eric Cutter	Director	\$ 112.83	120	\$ 13,539	\$ -	\$ 13,539
Jimmy Nelson	Managing Consultant	\$ 91.67	120	\$ 11,001	\$ -	\$ 11,001
Michael Sontag	Senior Consultant	\$ 85.86	400	\$ 34,344	\$ -	\$ 34,344
Roderick Go	Senior Consultant	\$ 85.86	240	\$ 20,606	\$ -	\$ 20,606
Oliver Garnett	Consultant III	\$ 83.11	240	\$ 19,946	\$ -	\$ 19,946
Huai Jiang	Consultant III	\$ 83.11	80	\$ 6,649	\$ -	\$ 6,649
Clea Kolster	Consultant III	\$ 83.11	120	\$ 9,973	\$ -	\$ 9,973
Robbie Shaw	Consultant III	\$ 83.11	80	\$ 6,649	\$ -	\$ 6,649
Charles Duff	Consultant II	\$ 74.88	80	\$ 5,990	\$ -	\$ 5,990
Gabe Mantegna	Consultant II	\$ 74.88	120	\$ 8,986	\$ -	\$ 8,986
Xiaoxuan Hou	Consultant II	\$ 74.88	40	\$ 2,995	\$ -	\$ 2,995
Oluwafemi Sawyerr	Consultant II	\$ 74.88		\$ 2,995	\$ -	\$ 2,995
Sruthi Davuluri	Consultant	\$ 70.76	120	\$ 8,492	\$ -	\$ 8,492
Sumin Wang	Consultant	\$ 70.76	120	\$ 8,492	\$ -	\$ 8,492
Adrian Au	Consultant	\$ 70.76	120	\$ 8,492	\$ -	\$ 8,492
Hourly Direct Labor Totals				\$ 175,439	\$ -	\$ 175,439

500,000

Monthly Salary Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per month)	# of Months	Energy Commission Funds	Match Share	Total
		\$ -		\$ -	\$ -	\$ -
Monthly Direct Labor Totals				\$ -	\$ -	\$ -

				Energy Commission Funds	Match Share	Total
Direct Labor Grand Totals				\$ 175,439	\$ -	\$ 175,439

Travel
(see instructions)

Energy and Environmental Economics, Inc.

Task No.	Traveler's Name and/or Classification	Departure and Destination	Trip Purpose	Energy Commission Funds	Match Share	Total
5.2 & 6	<i>Director</i>	San Francisco to Sacramento and return	Project Meeting (TAC, CPR, etc)	\$ 270	\$ -	\$ 270
5.2 & 6	<i>Senior Consultant</i>	San Francisco to Sacramento and return	Project Meeting (TAC, CPR, etc)	\$ 270	\$ -	\$ 270
5.2 & 6	<i>Consultant II</i>	San Francisco to Sacramento and return	Project Meeting (TAC, CPR, etc)	\$ 270	\$ -	\$ 270
5.2 & 6	<i>Consultant II</i>	San Francisco to Sacramento and return	Project Meeting (TAC, CPR, etc)	\$ 269	\$ -	\$ 269
5.2 & 6	<i>Consultant III</i>	San Francisco to Sacramento and return	Project Meeting (TAC, CPR, etc)	\$ 269	\$ -	\$ 269
5.2 & 6	<i>Consultant III</i>	San Francisco to Sacramento and return	Project Meeting (TAC, CPR, etc)	\$ 269	\$ -	\$ 269
5.2 & 6	<i>Consultant II</i>	San Francisco to Sacramento and return	Project Meeting (TAC, CPR, etc)	\$ 269	\$ -	\$ 269
5.2 & 6	<i>Consultant II</i>	San Francisco to Sacramento and return	Project Meeting (TAC, CPR, etc)	\$ 269	\$ -	\$ 269
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
Total:				\$ 2,155	\$ -	\$ 2,155

Materials & Miscellaneous

(see instructions)

Energy and Environmental Economics, Inc.

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Subcontracts
(see instructions)

Energy and Environmental Economics, Inc.

Task No.	Subcontractor Name	Purpose	CA Business Certifications DVBE/ SB/MB/None	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -
Total:				\$ -	\$ -	\$ -

Indirect Costs and Profit

(see instructions)

Energy and Environmental Economics, Inc.

Indirect Cost(s)

Name of Indirect Cost	Maximum Rate	Indirect Cost Base Description	Indirect Cost Base Amount	Energy Commission Funds	Match Share	Total
Indirect	105.31%	Direct Labor	\$ 175,439	\$ 184,750	\$ -	\$ 184,750
General and Administrative (G&A)	12.93%	Direct Labor	\$ 175,439	\$ 22,691	\$ -	\$ 22,691
	0.00%		\$ -	\$ -	\$ -	\$ -
	0.00%		\$ -	\$ -	\$ -	\$ -
	0.00%		\$ -	\$ -	\$ -	\$ -
Total:				\$ 207,441	\$ -	\$ 207,441

Profit

(Profit is not allowed for Grant Recipients)

Profit Rate	Profit Base Description	Profit Base Amount	Energy Commission Funds	Match Share	Total
10.00%	Total direct labor, fringe, indirect and G&A	\$ 452,586	\$ 45,259	\$ -	\$ 45,259
Total:			\$ 45,259	\$ -	\$ 45,259

Category Budget
(see instructions)

Name of Organization	Larry Dale Associates
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- Small Business
 Micro Business
 Disabled Veteran Business Enterprise
 Contractor/Recipient
 Subcontractor

Cost Category	Energy Commission Reimbursable Share	Match Share	Total
Direct Labor	\$ 154,250	\$ -	\$ 154,250
Fringe Benefits	\$ -	\$ -	\$ -
Total Labor	\$ 154,250	\$ -	\$ 154,250
Travel	\$ 3,932	\$ -	\$ 3,932
Equipment	\$ -	\$ -	\$ -
Materials/Miscellaneous	\$ -	\$ -	\$ -
Subcontractors	\$ 306,000	\$ -	\$ 306,000
Total Other Direct Costs	\$ 309,932	\$ -	\$ 309,932
Indirect Costs	\$ -	\$ -	\$ -
Profit (not allowed for grant recipients)	\$ 15,818	\$ -	\$ 15,818
Total Indirect and Profit	\$ 15,818	\$ -	\$ 15,818
Grand Totals	\$ 480,000	\$ -	\$ 480,000
Amount of funds to be Spent in California**	\$ 480,000		
Percentage of Funds to be spent in California	100%		

Direct Labor (Unloaded)

(see instructions)

Larry Dale Associates

Hourly Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per hour)	# of Hours	Energy Commission Funds	Match Share	Total
Larry Dale	Economist, Project Manager	\$ 250.00	617	\$ 154,250	\$ -	\$ 154,250
Hourly Direct Labor Totals				\$ 154,250	\$ -	\$ 154,250

Monthly Salary Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per month)	# of Months	Energy Commission Funds	Match Share	Total
Monthly Direct Labor Totals				\$ -	\$ -	\$ -

	Energy Commission Funds	Match Share	Total
Direct Labor Grand Totals	\$ 154,250	\$ -	\$ 154,250

Fringe Benefits

(see instructions)

Larry Dale Associates

Fringe Benefit Base Description (Employee or Job Classification/Title)	Max. Fringe Benefit Rate (%)	Direct Labor Costs (\$)	Energy Commission Funds	Match Share	Total
Larry Dale is Sole Proprietor of Larry Dale Associates therefore Fringe benefits and not applicable.	0.00%		\$ -	\$ -	\$ -
Fringe Benefit Totals		\$ -	\$ -	\$ -	\$ -

Materials & Miscellaneous

(see instructions)

Larry Dale Associates

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Equipment
(see instructions)

Larry Dale Associates

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Travel
(see instructions)

Larry Dale Associates

Subtask No.	Traveler's Name and/or Classification	Departure and Destination	Trip Purpose	Energy Commission Funds	Match Share	Total
Pre-Approved Travel						
1.1	Larry Dale	Berkeley, CA to Sacramento, CA (roundtrip)	Project Kickoff meeting (x2)	\$ 218	\$ -	\$ 218
7	Larry Dale	Berkeley, CA to Fresno, CA (roundtrip)	Meeting with pump manufacturers, water agencies, farms and stakeholders (x2)	\$ 400	\$ -	\$ 400
7	Larry Dale	Berkeley, CA to Bakersfield, CA (roundtrip)	Meeting with pump manufacturers, water agencies, farms and stakeholders (x2)	\$ 400		\$ 400
7	Larry Dale	Berkeley, CA to Antelope Valley, CA (roundtrip)	Meeting with pump manufacturers, water agencies, farms and stakeholders (x2)	\$ 400		\$ 400
7	Larry Dale	Berkeley, CA to Antelope Valley, CA (roundtrip)	Meeting with pump manufacturers, water agencies, farms and stakeholders (x2)	\$ 400		\$ 400
7	Larry Dale	Berkeley, CA to Fresno, CA (roundtrip)	Meeting with pump manufacturers, water agencies, farms and stakeholders (x2)	\$ 400		\$ 400
1.4	Larry Dale	Berkeley, CA to Sacramento, CA (roundtrip)	Final Meeting (x2)	\$ 218	\$ -	\$ 218
Non Pre-approved Travel						
5 thru 9	Larry Dale	Berkeley, CA to TBD, CA (roundtrip)	Team meetings at locations in California to be determined (x2)	\$ 1,496	\$ -	\$ 1,496
Total:				\$ 3,932	\$ -	\$ 3,932

Subcontracts

(see instructions)

Larry Dale Associates

Task No.	Subcontractor Name	Purpose	CA Business Certifications DVBE/SB/MB/None	Energy Commission Funds	Match Share	Total
7	Gary Fitts	Programming Data Analysis	none	\$ 80,000	\$ -	\$ 80,000
7	Mike Carnall	Engineering, Economics	none	\$ 96,000	\$ -	\$ 96,000
7	TBD	Hydrology, Groundwater	none	\$ 50,000	\$ -	\$ 50,000
7	Sarah Lewis	GIS, data analysis	none	\$ 80,000	\$ -	\$ 80,000
Total:				\$ 306,000	\$ -	\$ 306,000

Indirect Costs and Profit

(see instructions)

Larry Dale Associates

Indirect Cost(s)

Name of Indirect Cost	Maximum Rate	Indirect Cost Base Description	Indirect Cost Base Amount	Energy Commission Funds	Match Share	Total
None		Larry Dale is Sole Proprietor of Larry Dale Associates and does not charge indirect costs.		\$ -	\$ -	\$ -
Total:				\$ -	\$ -	\$ -

Profit

(Profit is not allowed for Grant Recipients)

Profit Rate	Profit Base Description	Profit Base Amount	Energy Commission Funds	Match Share	Total
10.00%	Direct Labor + Travel	\$ 158,182	\$ 15,818	\$ -	\$ 15,818
Total:			\$ 15,818	\$ -	\$ 15,818

Category Budget

(see instructions)

Name of Organization	Water and Energy Consulting (WEC)
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Small Business Micro Business Disabled Veteran Business Enterprise
 Contractor/Recipient Subcontractor

Cost Category	Energy Commission Reimbursable Share	Match Share	Total
Direct Labor	\$ 301,640	\$ 400,000	\$ 701,640
Fringe Benefits	\$ -	\$ -	\$ -
Total Labor	\$ 301,640	\$ 400,000	\$ 701,640
Travel	\$ 20,338	\$ -	\$ 20,338
Equipment	\$ -	\$ -	\$ -
Materials/Miscellaneous	\$ -	\$ -	\$ -
Subcontractors	\$ -	\$ -	\$ -
Total Other Direct Costs	\$ 20,338	\$ -	\$ 20,338
Indirect Costs	\$ 28,022	\$ 50,000	\$ 78,022
Profit (not allowed for grant recipients)	\$ -	\$ -	\$ -
Total Indirect and Profit	\$ 28,022	\$ 50,000	\$ 78,022
Grand Totals	\$ 350,000	\$ 450,000	\$ 800,000
Amount of funds to be Spent in California**	\$ 38,000		
Percentage of Funds to be spent in California	11%		

Direct Labor (Unloaded)

(see instructions)

Water and Energy Consulting (WEC)

Hourly Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per hour)	# of Hours	Energy Commission Funds	Match Share	Total
Lon W. House	Principal	\$ 180.00	3,898	\$ 301,640	\$ 400,000	\$ 701,640
Hourly Direct Labor Totals				\$ 301,640	\$ 400,000	\$ 701,640

Monthly Salary Rates

Employee Name	Job Classification / Title	Labor Rate (\$ per month)	# of Months	Energy Commission Funds	Match Share	Total
		\$ -		\$ -	\$ -	\$ -
Monthly Direct Labor Totals				\$ -	\$ -	\$ -

	Energy Commission Funds	Match Share	Total
Direct Labor Grand Totals	\$ 301,640	\$ 400,000	\$ 701,640

Fringe Benefits

(see instructions)

Water and Energy Consulting (WEC)

Fringe Benefit Base Description (Employee or Job Classification/Title)	Max. Fringe Benefit Rate (%)	Direct Labor Costs (\$)	Energy Commission Funds	Match Share	Total
Lon House is Sole Proprietor so no fringe benefits are requested.	0.00%	\$ -	\$ -	\$ -	\$ -
Fringe Benefit Totals		\$ -	\$ -	\$ -	\$ -

Travel
(see instructions)

Water and Energy Consulting (WEC)

Task No.	Traveler's Name and/or Classification	Departure and Destination	Trip Purpose	Energy Commission Funds	Match Share	Total
5.1	Lon House	Tucson Arizona to Los Angeles and WSWB site and return (14 trips)	Team meetings in California at project sites to be determined	\$ 20,338	-	\$ 20,338
Total:				\$ 20,338	-	\$ 20,338

Equipment
(see instructions)

Water and Energy Consulting (WEC)

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Materials & Miscellaneous

(see instructions)

Water and Energy Consulting (WEC)

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Subcontracts

(see instructions)

Water and Energy Consulting (WEC)

Task No.	Subcontractor Name	Purpose	CA Business Certifications DVBE/ SB/MB/None	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -
Total:				\$ -	\$ -	\$ -

Indirect Costs and Profit

(see instructions)

Water and Energy Consulting (WEC)

Indirect Cost(s)

Name of Indirect Cost	Maximum Rate	Indirect Cost Base Description	Indirect Cost Base Amount	Energy Commission Funds	Match Share	Total
Overhead including, fees, utility studies and other interconnection and project performance evaluation tests.	11.12%	Direct Labor	\$ 603,302	\$ 28,022	\$ 50,000	\$ 78,022
Total:				\$ 28,022	\$ 50,000	\$ 78,022

Profit

(Profit is not allowed for Grant Recipients)

Profit Rate	Profit Base Description	Profit Base Amount	Energy Commission Funds	Match Share	Total
0.00%		\$ -	\$ -	\$ -	\$ -
Total:			\$ -	\$ -	\$ -

Category Budget
(see instructions)

Name of Organization	3RValve LLC
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- Small Business Micro Business
 Contractor/Recipient Subcontractor Disabled Veteran Business Enterprise

Cost Category	Energy Commission Reimbursable Share	Match Share	Total
Direct Labor	\$ 78,000	\$ -	\$ 78,000
Fringe Benefits	\$ 38,883	\$ -	\$ 38,883
Total Labor	\$ 116,883	\$ -	\$ 116,883
Travel	\$ 13,103	\$ -	\$ 13,103
Equipment	\$ -	\$ -	\$ -
Materials/Miscellaneous	\$ -	\$ -	\$ -
Subcontractors	\$ 98,916	\$ -	\$ 98,916
Total Other Direct Costs	\$ 112,019	\$ -	\$ 112,019
Indirect Costs	\$ 98,272	\$ -	\$ 98,272
Profit (not allowed for grant recipients)	\$ 22,826	\$ -	\$ 22,826
Total Indirect and Profit	\$ 121,098	\$ -	\$ 121,098
Grand Totals	\$ 350,000	\$ -	\$ 350,000
Amount of funds to be Spent in California**	\$ 7,000		
Percentage of Funds to be spent in California	2%		

Direct Labor (Unloaded)

(see instructions)

3RValve LLC

Hourly Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per hour)	# of Hours	Energy Commission Funds	Match Share	Total
Kent Madison	Project Manager	\$ 150.00	520	\$ 78,000	\$ -	\$ 78,000
		\$ -		\$ -	\$ -	\$ -
Hourly Direct Labor Totals				\$ 78,000	\$ -	\$ 78,000

Monthly Salary Rates

Employee Name	Job Classification / Title	Maximum Labor Rate (\$ per month)	# of Months	Energy Commission Funds	Match Share	Total
		\$ -		\$ -	\$ -	\$ -
Monthly Direct Labor Totals				\$ -	\$ -	\$ -

	Energy Commission Funds	Match Share	Total
Direct Labor Grand Totals	\$ 78,000	\$ -	\$ 78,000

Fringe Benefits
(see instructions)

3RValve LLC

Fringe Benefit Base Description (Employee or Job Classification/Title)	Max. Fringe Benefit Rate (%)	Direct Labor Costs (\$)	Energy Commission Funds	Match Share	Total
All Classifications	49.85%	\$ 78,000	\$ 38,883	-	\$ 38,883
Fringe Benefit Totals		\$ 78,000	\$ 38,883	-	\$ 38,883

Travel
(see instructions)

3RValve LLC

Task No.	Traveler's Name and/or Classification	Departure and Destination	Trip Purpose	Energy Commission Funds	Match Share	Total
3	Kent Madison	Pasco to Los Angeles or Sacramento (8 round trips)	Team meetings in California sites to be determined	\$ 13,103	\$ -	\$ 13,103
				\$ -	\$ -	\$ -
Total:				\$ 13,103	\$ -	\$ 13,103

Equipment
(see instructions)

3RValve LLC.

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Materials & Miscellaneous

(see instructions)

3RValve LLC

Task No.	Description	Purpose	# Units	Unit Cost	Energy Commission Funds	Match Share	Total
				\$ -	\$ -	\$ -	\$ -
Total:					\$ -	\$ -	\$ -

Subcontracts

(see instructions)

3RValve LLC

Task No.	Subcontractor Name	Purpose	CA Business Certifications DVBE/ SB/MB/None	Energy Commission Funds	Match Share	Total
2,3	Wapiti Consulting	Engineering Design and Construction Services	None	\$ 98,916	\$ -	\$ 98,916
Total:				\$ 98,916	\$ -	\$ 98,916

Indirect Costs and Profit

(see instructions)

3RValve LLC

Indirect Cost(s)

Name of Indirect Cost	Maximum Rate	Indirect Cost Base Description	Indirect Cost Base Amount	Energy Commission Funds	Match Share	Total
Indirect Overhead	125.99%	Direct Labor	\$ 78,000	\$ 98,272	-	\$ 98,272
Total:				\$ 98,272	-	\$ 98,272

Profit

(Profit is not allowed for Grant Recipients)

Profit Rate	Profit Base Description	Profit Base Amount	Energy Commission Funds	Match Share	Total
10.00%	Direct Labor + Fringe + Travel + Indirect Costs	\$ 228,258	\$ 22,826	-	\$ 22,826
Total:			\$ 22,826	-	\$ 22,826

EXHIBIT C
ELECTRIC PROGRAM INVESTMENT CHARGE (EPIC) STANDARD
GRANT TERMS AND CONDITIONS

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ATTACHMENT 1: CONFIDENTIAL PRODUCTS AND PROJECT-RELEVANT PRE-EXISTING AND INDEPENDENTLY FUNDED INTELLECTUAL PROPERTY

EXHIBIT C

TERMS AND CONDITIONS

1. **Introduction**

This grant agreement (Agreement) between the California Energy Commission (Energy Commission, or Commission) and the Recipient is funded by the Electric Program Investment Charge (EPIC), an electricity ratepayer surcharge authorized by the California Public Utilities Commission (CPUC).

This Agreement includes: (1) the Agreement signature page (**form CEC-146**); (2) the scope of work (**Exhibit A**); (3) the budget (**Exhibit B**); (4) these terms and conditions (**Exhibit C**); (5) any special terms and conditions that address the unique circumstances of the funded project (**Exhibit D**); (6) a contacts list (**Exhibit E**); (7) all attachments; and (8) all documents incorporated by reference.

All work and expenditure of funds (Commission-reimbursed and/or match share) must occur within the Agreement term specified on the CEC-146 form.

2. **Documents Incorporated by Reference**

The documents below are incorporated by reference into this Agreement. These terms and conditions will govern in the event of a conflict with the documents below, with the exception of the documents in subsections (f) and (g) below. Where this Agreement or California laws and regulations are silent or do not apply, the Energy Commission will use the federal cost principles and acquisition regulations listed below as guidance in determining whether reimbursement of claimed costs is allowable. Documents incorporated by reference include:

Solicitation Documents (*if award is made through a competitive solicitation*)

- a. The funding solicitation for the project supported by this Agreement
- b. The Recipient's proposal submitted in response to the solicitation

CPUC Decision

- c. Decision 13-11-025 (Decision Addressing Applications of the California Energy Commission, Pacific Gas and Electric Company, San Diego Gas & Electric Company and Southern California Edison Company for Approval of their Triennial Investment Plans for the Electric Program Investment Charge Program for the Years 2012 through 2014) <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M081/K773/81773445.PDF>

Federal Cost Principles (*applicable to state and local governments, Indian tribes, institutions of higher education, and nonprofit organizations*)

- d. 2 Code of Federal Regulations (CFR) Part 200, Subpart E (Sections 200.400 et seq.)

Federal Acquisition Regulations (*applicable to commercial organizations*)

- e. 48 CFR, Ch.1, Subchapter E, Part 31, Subpart 31.2: Contracts with Commercial Organizations (supplemented by 48 CFR, Ch. 9, Subchapter E, Part 931, Subpart 931.2 for Department of Energy grants)

Nondiscrimination

- f. 2 California Code of Regulations, Section 11099 et seq.: Contractor Nondiscrimination and Compliance

General Laws

- g. Any federal, state, or local laws or regulations applicable to the project that are not expressly listed in this Agreement

3. Standard of Performance

In performing work under the Agreement, the Recipient, its subcontractors, and their employees are responsible for exercising the degree of skill and care required by customarily accepted good professional practices and procedures for the type of work performed.

4. Due Diligence

The Recipient must take timely actions that, taken collectively, move this project to completion. The Commission Agreement Manager will periodically evaluate the project schedule for completion of Scope of Work tasks. If the Commission Agreement Manager determines that: (1) the Recipient is not diligently completing the tasks in the Scope of Work; or (2) the time remaining in this Agreement is insufficient to complete all project tasks by the Agreement end date, the Commission Agreement Manager may recommend that this Agreement be terminated, and the Commission may terminate this Agreement without prejudice to any of its other remedies.

5. Products

- a. **“Products”** are any tangible item specified for delivery to the Energy Commission in the Scope of Work, such as reports and summaries.

- The Recipient will submit all products identified in the Scope of Work to the Commission Agreement Manager, in the manner and form specified in the Scope of Work.
- The Recipient will also submit all products prepared during the invoicing period to the Accounting Office along with the invoice, as specified in subsection (c) of Section 8 (Payment of Funds).

If the Commission Agreement Manager determines that a product is substandard given its description and intended use as described in this Agreement, the Commission Agreement Manager, without prejudice to any of the Commission’s other remedies, may refuse to authorize payment for the product and any subsequent products that rely on or are based upon the product under this Agreement.

- b. Confidential Products

Please see Section 18 (Confidentiality) for instructions regarding confidential products.

- c. Rights in Products

The Energy Commission owns all products identified in the Scope of Work, with the exception of products that fall within the definition of “intellectual property.” The Recipient owns all intellectual property developed under this Agreement (please see the “Intellectual Property” section).

The Recipient has a non-exclusive, non-transferable, irrevocable, worldwide, perpetual license to use, publish, translate, modify, and reproduce products that do not fall within the definition of “intellectual property.”

d. Failure to Submit Products

Failure to submit a product required in the Scope of Work may be considered material noncompliance with the Agreement terms. Without prejudice to any other remedies, noncompliance may result in actions such as the withholding of future payments or awards, or the suspension or termination of the Agreement.

e. Final Report and Payment

The Recipient may only submit a request for the final payment (including any retention) after the final report is completed, submitted to the Commission Agreement Manager, and Energy Research and Development Division management has verified satisfactory completion of work.

f. Legal Statements on Products

- 1) All documents that result from work funded by this Agreement and are released to the public must include the following statement to ensure no Commission endorsement of documents:

LEGAL NOTICE

This document was prepared as a result of work sponsored by the California Energy Commission. It does not necessarily represent the views of the Energy Commission, its employees, or the State of California. Neither the Commission, the State of California, nor the Commission’s employees, contractors, or subcontractors makes any warranty, express or implied, or assumes any legal liability for the information in this document; nor does any party represent that the use of this information will not infringe upon privately owned rights. This document has not been approved or disapproved by the Commission, nor has the Commission passed upon the accuracy of the information in this document.

- 2) The Recipient will apply copyright notices to all documents prepared for this Agreement that are released to the public (including reports, articles submitted for publication, and all reprints) using the following form or any other form that may be reasonably specified by the Energy Commission.

“@[Year of first publication of product] [the Copyright Holder’s name]. All Rights Reserved.”

6. Amendments

a. Procedure for Requesting Changes

The Recipient must submit a written request to the Commission Agreement Manager for any change to the Agreement. The request must include:

- A brief summary of the proposed change;

- A brief summary of the reason(s) for the change;
- Justification for the change; and
- The revised section(s) of the Agreement, with changes made in underline/ strikethrough format.

b. Approval of Changes

No amendment or variation of this Agreement shall be valid unless made in writing and signed by both of the parties except for the Commission's unilateral termination rights in Section 16 of these terms. No oral understanding or agreement is binding on any of the parties. Changes to the Agreement must be approved at a Commission business meeting or by the Executive Director (or his/her designee).

The Commission Agreement Manager or Commission Agreement Officer will provide the Recipient with guidance regarding the level of Commission approval required for a proposed change.

c. Personnel or Subcontractor Changes

All changes below require advance written approval by the Commission Agreement Manager, in addition to the appropriate level of Commission approval as described in subsection (b).

1) Replacement of Personnel, Subcontractors, and Vendors

The Commission Agreement Manager must provide advance written approval of the replacement of any personnel except undergraduate students.

2) Assignment of New Personnel to an Existing Job Classification

If the Recipient or a subcontractor seeks to assign new personnel to a job classification identified in Exhibit B, the Recipient or subcontractor must submit the individual's resume and proposed job classification and rate to the Commission Agreement Manager for approval. The proposed rate may not exceed the maximum rate identified for the job classification. Neither the Recipient nor any subcontractor may use the job classifications or rates of their subcontractors for personnel.

If the individual performs any work prior to the effective date of the amendment documenting the change, the Recipient will bear the expense of the work.

3) Promotion of Existing Personnel (Applies to Recipients and major subcontractors)

Promotion of existing Recipient and major subcontractor personnel to rates higher than those listed for their current classification in Exhibit B will not be approved. If the actual rates (e.g., direct labor rates, fringe benefit rates, and indirect rates) exceed the approved rates in the Budget, the difference may be charged to the agreement as a match share expenditure.

- 4) Addition of job classifications and changes in hours.
- 5) Increased direct operating expenses and rates that exceed the expenses and rates identified in Exhibit B.

7. Contracting and Procurement Procedures

This section provides general requirements for agreements entered into between the Recipient and subcontractors for the performance of this Agreement.

a. Contractor's Obligations to Subcontractors

1) The Recipient is responsible for handling all contractual and administrative issues arising out of or related to any subcontracts it enters into for the performance of this Agreement.

2) Nothing contained in this Agreement or otherwise creates any contractual relation between the Commission and any subcontractors, and no subcontract may relieve the Recipient of its responsibilities under this Agreement. The Recipient agrees to be as fully responsible to the Commission for the acts and omissions of its subcontractors or persons directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by the Recipient.

The Recipient's obligation to pay its subcontractors is an independent obligation from the Commission's obligation to make payments to the Recipient. As a result, the Commission has no obligation to pay or enforce the payment of any funds to any subcontractor.

3) The Recipient is responsible for establishing and maintaining contractual agreements with and reimbursing each subcontractor for work performed in accordance with the terms of this Agreement.

b. Flow-Down Provisions

Subcontracts funded in whole or in part by this Agreement must include language conforming to the provisions below, unless the subcontracts are entered into by the University of California (UC) or the U.S. Department of Energy (DOE) national laboratories. UC may use the terms and conditions negotiated by the Energy Commission with UC for its subcontracts. DOE national laboratories may use the terms and conditions negotiated with DOE (please contact the Commission Grants Officer for these terms).

- Standard of Performance (Section 3)
- Legal Statements on Products (included in Section 5, "Products")
- Travel and Per Diem (Section 9)
- Prevailing Wage (Section 10)
- Recordkeeping, Cost Accounting, and Auditing (Section 11)
- Equipment (Section 14)
- Indemnification (Section 17)
- Confidentiality (Section 18)
- Pre-Existing and Independently Funded Intellectual Property (Section 19)
- Intellectual Property (Section 20)
- Royalty Payments to the Commission (Section 21)

- Access to Sites and Records (included in Section 22, “General Provisions”)
- Nondiscrimination (included in Section 23, “Certifications and Compliance”)
- California Taxpayer Access to Publicly Funded Research Act (Section 24)
- Survival of the following sections:
 - Equipment (Section 14)
 - Recordkeeping, Cost Accounting, and Auditing (Section 11)
 - Pre-Existing and Independently Funded Intellectual Property (Section 19)
 - Intellectual Property (Section 20)
 - Royalty Payments to the Commission (Section 21)
 - Access to Sites and Records (included in Section 22, “General Provisions”)
 - California Taxpayer Access to Publicly Funded Research Act (Section 24)

Subcontracts funded in whole or in part by this Agreement must also include the following:

- A clear and accurate description of the material, products, or services to be procured.
- A detailed budget and timeline.
- Provisions that allow for administrative, contractual, or legal remedies in instances where subcontractors breach contract terms, in addition to sanctions and penalties as may be appropriate.
- Provisions for termination by the Recipient, including termination procedures and the basis for settlement.
- A statement that further assignments will not be made to any third or subsequent tier subcontractor without additional advance written consent of the Commission.

c. Audits

All subcontracts entered into for the performance of this Agreement are subject to examination and audit by the Energy Commission and/or Bureau of State Audits for a period of three (3) years after payment of the Recipient’s final invoice under this Agreement. The Energy Commission may audit subcontracts that are relevant to the Recipient’s royalty payment obligations (see Section 21) for a period of ten (10) years after the Agreement’s end date.

d. Copies of Subcontracts

The Recipient must provide a copy of its subcontracts upon request by the Energy Commission.

e. Conflicting Subcontract Terms

Prior to the execution of this Agreement, the Recipient will notify the Commission Agreement Manager of any known or reasonably foreseeable conflicts between this Agreement and its agreements with any subcontractors (e.g., conflicting intellectual property or payment terms). If the Recipient discovers any such conflicts after the execution of this Agreement, it will notify the Commission Agreement Manager of the conflict within fifteen (15) days of discovery. The Energy Commission may, without prejudice to its other remedies, terminate this Agreement if any conflict impairs or diminishes its value.

f. Penalties for Noncompliance

Without limiting the Commission's other remedies, failure to comply with the above requirements may result in the termination of this Agreement.

8. Payment of Funds

a. Definitions

For purposes of this Section 8, the following terms have the following meaning:

- "Advance Payment" means the Energy Commission pays Recipient prior to the Recipient Incurring or Paying the expense.
- "Incurred Cost" means an expense for which the Recipient has become liable (legally obligated) to pay. Here are examples of incurred costs:

- The Recipient's staff has completed work during the month but has not been paid by the Recipient. These labor and associated costs (e.g., fringe benefits) are considered Incurred Costs.
- The Recipient has purchased a piece of equipment **and** received an invoice, bill, or receipt. The Recipient has not yet paid the invoice. The invoice shows the amount to be paid and confirmation of the sale. This is an Incurred Costs.

Incurred costs for equipment DO NOT include purchase orders unless accompanied by an invoice, bill, or receipt that shows the payment amount due to the seller for the equipment.

- "Paid Cost" means an expense for which the Recipient has already made payment.

b. Advance Payments

Recipients can receive Advance Payments only for subcontractors with the U.S. Department of Energy laboratories. Otherwise, Advance Payments are NOT allowed under this Agreement. The Energy Commission in its sole discretion, and not the Recipient, decides if the Commission will make an Advance Payment.

c. Reimbursable Cost Requirements

In addition to any other requirements in this Agreement, the Energy Commission is only obligated to reimburse the Recipient for Incurred and Paid Costs that are (1) incurred during the Agreement Term; (2) invoiced within the required timeframes of this Agreement; (3) made in accordance with the Agreement's Budget; and (4) actual and allowable expenses under this Agreement.

ALL of the items in the Budget, including without limitation labor rates, fringe benefits rates and indirect costs rates and individually listed items are capped amounts (i.e., maximums), and the Recipient can only bill its ACTUAL amount up to capped amounts listed in the Budget. For example, if the Budget includes an employee's hourly rate of \$50/hour but the employee is only paid \$40/hour, the Recipient can only bill for \$40/hour. Under the same example, if the employee earned \$70/hour but the Budget only lists \$50/hour, the Recipient can only bill for \$50. Another example is if the maximum fringe benefit rate listed in the Budget is 20% but the Recipient's actual fringe benefit rate is only 15%, the Recipient can only bill at 15%. If the actual rates (e.g., direct labor rates, fringe benefit rates, and indirect rates) exceed the approved rates in the Budget, the difference may be charged to the agreement as a match share expenditure.

d. Recipient's 14-Day Payment Requirement for Incurred Costs

The Recipient shall pay ALL Incurred Costs for which it has invoiced the Energy Commission within 14 calendar days of receiving payment under this Agreement for the Incurred Costs. For example, if the Recipient invoices and then receives payment from the Commission on September 15 for an Incurred Cost of \$10,000, the Recipient shall pay the entire \$10,000 by September 29. This requirement is needed to prevent Recipients from creating long lead times for Incurred Costs (e.g., invoicing and receiving payment from the Commission but not paying for the Incurred Costs for weeks or months).

The Recipient shall only invoice the Commission for Incurred Expenses the Recipient shall pay with 14 calendar days of receiving payment from the Commission. For example, assume the Recipient has an Incurred Cost for a piece of equipment that costs \$300,000 and will pay in three installments of \$100,000 each over three months. The Recipient shall only invoice the Commission for \$100,000 each month. The Recipient shall not invoice for the entire \$300,000 and retain the balance over the three months.

For any Incurred Costs for which the Recipient has received funds from the Energy Commission and does not pay within 14 calendar days, the Recipient shall on the very next business day after the 14 calendar days submit repayment of the unpaid amount back to the Energy Commission. Repaid funds will be placed back into the agreement and will be available to reimburse allowable costs in accordance with this agreement. When making a repayment under this provision, the Recipient shall specify "Repayment of Unspent Funds under Agreement EPC-20-004." Recipient shall remit the repayment to:

California Energy Commission
Accounting Office
1516 Ninth Street, MS-2
Sacramento, CA 95814

This repayment requirement of the Recipient is in addition to any other rights the Energy Commission can enforce relative to this Agreement. Recipient agrees and acknowledges that time is of the essence in paying Incurred Costs and submitting repayments and the Energy Commission can treat the Recipient's breach of either requirement as a material breach. Recipient can contact the Commission Agreement Manager for any questions about the logistics of making repayments.

e. Payment Requests

The Recipient may request payment from the Energy Commission at any time during the term of this Agreement but no more frequently than monthly. The final payment request, including retention, MUST be received by the Energy Commission no later than the agreement end date.

Recipient agrees and acknowledges that time is of the essence in submitting the final payment request. The Commission has a limited period of time, set by law, in which it can reimburse funds under this Agreement. Without prejudice to the Commission's other rights, the Recipient risks not receiving any funds, and relieves the Commission of any duty and liability whatsoever to pay, for any payment requests received after the end of the Agreement.

No reimbursement for food or beverages shall be made other than allowable per diem charges.

All Recipient expenditures, reimbursable and match, must occur within the approved term of this Agreement.

f. Invoice Approval and Disputes:

Each request for payment is subject to the Commission Agreement Manager's approval. Payments will be made to the Recipient for undisputed invoices. An undisputed invoice is an invoice submitted by the Recipient for work performed, for which project expenditures and products meet all Agreement conditions, and for which additional evidence is not required to determine its validity.

The invoice will be disputed if all products due for the billing period have not been received and approved, if the invoice is inaccurate, or if it does not comply with the terms of this Agreement. If the invoice is disputed, the Recipient will be notified via a Dispute Notification Form (Std. 209).

g. Recipient's headquarters:

For purposes of payment, the Recipient's headquarters is the location of the Recipient's office where the majority of its employees assigned responsibilities for this Agreement are permanently assigned.

h. Multiple Non-Energy Commission Funding Sources:

No payment will be made for costs identified in recipient invoices that have been or will be reimbursed by another source, including but not limited to an agreement with another government entity.

"Government Entity" means: (1) a state governmental agency; (2) a state college or university; (3) a local government entity or agency, including those created as a Joint Powers Authority; (4) an auxiliary organization of the California State University or a California community college; (5) the federal government; (6) a foundation organized to support the Board of Governors of the California Community Colleges; and (7) an auxiliary organization of the Student Aid Commission established under California Education Code Section 69522.

i. Reduced funding:

If the Energy Commission does not receive sufficient funds under the Budget Act or from the investor-owned utility administrators of the EPIC program to fully fund the work identified in Exhibit A (Scope of Work), the following will occur:

- a) If the Energy Commission has received a reduced amount of funds for the work, it may: (1) offer an Agreement amendment to the Recipient to reflect the reduced amount; or (2) cancel this Agreement (with no liability occurring to the State).
- b) If the Energy Commission has received no funds for the work identified in Exhibit A: (1) this Agreement will be of no force and effect; (2) the State will have no obligation to pay any funds to the Recipient; and (3) the Recipient will have no obligation to perform any work under this Agreement.

j. Allowability of Costs

a) Allowable Costs

The costs for which the Recipient will be reimbursed under this Agreement include all costs, direct and indirect, incurred in the performance of the work identified in the Scope of Work. Costs must be incurred within the Agreement term. Factors to be considered in determining whether an individual item of cost is allowable include: (i) reasonableness of the item, including necessity of the item for the work; (ii) applicable federal cost principles or acquisition regulations incorporated by reference in Section 2 of this Agreement; and (iii) the terms and conditions of this Agreement.

b) Unallowable Costs

Below are examples of unallowable costs. Details concerning the allowability of costs are available from the Energy Commission's Accounting Office.

- a) Profit of the Recipient or fees (this restriction does not apply to subcontractors);
 - b) Contingency costs;
 - c) Imputed costs (e.g., cost of money);
 - d) Fines and penalties;
 - e) Losses;
 - f) Excess profit taxes; and
 - g) Unapproved, increased rates and fees for this Agreement
- c) Except as provided for in this Agreement or applicable California law or regulations, the Recipient will use the federal cost principles and/or acquisition regulations incorporated by reference in Section 2 of this Agreement when determining allowable and unallowable costs. In the event of a conflict, this Agreement takes precedence over the federal cost principles and/or acquisition regulations.

k. Payment Request Format

Each request for payment will consist of, but not be limited to, the following:

- 1) An invoice that includes a list of Incurred and Paid Costs. Backup documentation is required at the time of invoice submittal, such as time cards, vendor invoices, and proof of payment (e.g., cancelled checks). Unless otherwise specified in Exhibit B or the invoice template, the invoice must include the following:
 - a) Agreement number;
 - b) Date prepared;
 - c) Recipient's Federal tax ID number;
 - d) Billing period;
 - e) Recipient's actual labor expenditures, including hourly unloaded labor rates by individual name and classification, hours worked, and benefits (fully loaded rates may only be used if they are included in the grant budget);
 - f) Non-labor expenses, including fringe benefits, indirect overhead, and general/administrative expenses;
 - g) Operating expenses, including travel, equipment, materials, and other;
 - h) By budget line item (cost component) category, the budgeted amount, amount billed to date, currently billed amount, and balance of funds;
 - i) Match fund expenditures (if applicable);
 - j) Receipts for travel (including departure and return times), equipment, materials, and miscellaneous; and
 - k) Subcontractor invoices that include all items above, for correspondence with the budget (e.g., if the budget lists hourly labor rates, the subcontractor's invoice should include hourly labor rates).
- 2) A progress report that documents evidence of progress, as described in the Scope of Work.
- 3) Products prepared by the Recipient during the invoicing period, as described in the Scope of Work.

The Commission will accept computer-generated or electronically transmitted invoices without backup documentation provided that the Recipient mails a hard copy the same day.

The Recipient must submit all invoices to the following address:

California Energy Commission
Accounting Office
1516 Ninth Street, MS-2
Sacramento, CA 95814

If the Recipient has not otherwise provided to the Commission documentation showing the Recipient's payment of Incurred Costs, the Recipient shall provide such documentation as soon as possible and not later than three working days from a request from Commission personnel.

I. Certification

The following certification will be included on each payment request form and signed

by the Recipient's authorized officer:

The documents included in this request for payment are true and correct to the best of my knowledge and I, as an agent of [Company Name] have authority to submit this request. I certify that reimbursement for these costs has not and will not be received from any other sources, including but not limited to a government entity contract, subcontract, or other procurement method. For projects considered to be a public work, prevailing wages were paid to eligible workers who provided labor for the work covered by this invoice; the Recipient and all subcontractors have complied with prevailing wage laws.

m. Fringe Benefit, Indirect Overhead, General and Administrative (G&A), and Facilities and Administration (F&A) Rates

Indirect cost rates must be developed in accordance with generally accepted accounting principles and the applicable federal cost principles or acquisition regulations (see the provisions incorporated by reference in Section 2). If the Recipient has an approved fringe benefits or indirect cost rate (indirect overhead, G&A, or F&A) from its cognizant federal agency, the Recipient may bill at the federal rate up to the budget rate caps if the following conditions are met:

- The Recipient may bill at the federal provisional rate but must adjust annually to reflect its actual final rates for the year in accordance with the Labor, Fringe, and Indirect Invoicing Instructions contained in the budget (Exhibit B).
- The cost pools used to develop the federal rates must be allocable to the Agreement, and the rates must be representative of the portion of costs benefiting the Agreement. For example, if the federal rate is for manufacturing overhead at the Recipient's manufacturing facility and the Agreement is for research and development at the Recipient's research facility, the federal indirect overhead rate would not be applicable to the Agreement.
- The federal rate must be adjusted to exclude any costs that are specifically prohibited in the Agreement.
- The Recipient may only bill up to the Agreement budget rate caps, unless and until an amendment to the budget is approved.

n. Retention

The Energy Commission shall retain 10 percent of any payment request or 10 percent of the total Energy Commission award at the end of the project. The Energy Commission has the sole discretion to decide which of these methods of retention will be used in this Agreement. The Recipient must submit a completed payment request requesting release of the retention within the required timeframe (see part e "Payment Requests" above in this term). The Commission Agreement Manager will review the project file and, when satisfied that the terms of the funding Agreement have been fulfilled, will authorize release of the retention.

Retention may be released upon completion of tasks that are considered separate and distinct (i.e., the task is a stand-alone piece of work and could be completed without the other tasks). Tasks for administration or management of the Agreement and/or subcontractors are not considered separate and distinct tasks. The tasks for which retention may be released prior to the end of the Agreement must be identified in Exhibit B (budget).

When the Commission withholds 10% retention from each invoice, the Recipient can choose to flow down the retention requirement to its subcontractors subject to the following restrictions and any other requirements in this Agreement:

- The Recipient shall not flow down retention requirements to U.S. Department of Energy national laboratory subcontractors.
- The retention flowed down to subcontractors can only be up to a total of 10% of the amount of Commission funds the subcontractor is to receive. The Recipient is responsible for carrying the retention for its funded portion of the entire Agreement and cannot pass its share of retention to subcontractors. Here are three examples:
 - i. A subcontractor submits an invoice for \$100,000 to the Recipient, and the Recipient in turn submits it to the Commission. The Commission will only pay \$90,000 of the invoice and the Recipient can elect to pay only \$90,000 to the subcontractor.
 - ii. The subcontractor is the U.S. Department of Energy national laboratory and it submits an advance request for \$100,000 to the Recipient, including any other documents required in the Energy Commission's U.S. Department of Energy Terms and Conditions. The Recipient in turn submits the advance requests to the Commission for payment. The Commission will pay the full amount of the advance requests to the Recipient and the Recipient must pay the full amount to the U.S. Department of Energy.
 - iii. The Recipient's submits an invoice for its own staff in the amount of \$20,000. The Commission will only pay \$18,000 to the Recipient, and the Recipient cannot withhold the \$2,000 difference from subcontractor reimbursements.

These requirements apply to all levels of subcontractors (e.g., a subcontractor to a subcontractor).

9. *Travel and Per Diem*

- a. Travel not listed in the budget requires prior written authorization from the Commission Agreement Manager.
- b. No reimbursement for food or beverages will be made other than for allowable per diem charges.
- c. The Recipient will be reimbursed for authorized travel and per diem up to, but not to exceed, the rates allowed nonrepresented state employees. Current allowable travel reimbursement rates can be obtained from the Commission's web site at http://www.energy.ca.gov/contracts/TRAVEL_PER_DIEM.PDF.
- d. Travel expense claims must detail expenses using the allowable rates, and the

Recipient must sign and date each travel expense claim before submitting it to the Commission for payment. Expenses must be listed by trip, including dates and times of departure and return. Travel expense claims supporting receipts and expense documentation must be attached to the Recipient's Payment Request. A vehicle license number is required when claiming mileage, parking, or toll charges. Questions regarding allowable travel expenses or per diem should be addressed to the Commission Agreement Manager.

10. Prevailing Wage

a. Requirement

Projects funded by the Energy Commission often involve construction, alteration, demolition, installation, repair, or maintenance work over \$1,000. Such projects might be considered "public works" under the California Labor Code (See California Labor Code Section 1720 et seq. and Title 8 California Code of Regulations, Section 16000 et seq.). Public works projects require the payment of prevailing wages. Prevailing wage rates can be significantly higher than non-prevailing wage rates.

b. Determination of Project's Status

Only the California Department of Industrial Relations (DIR) and courts of competent jurisdiction may issue legally binding determinations that a particular project is or is not a public work. If the Recipient is unsure whether the project funded by the Agreement is a "public work" as defined in the California Labor Code, it may wish to seek a timely determination from DIR or an appropriate court. As such processes can be time consuming, it may not be possible to obtain a timely determination before the date for performance of the Agreement.

By accepting this grant, the Recipient is fully responsible for complying with all California public works requirements, including but not limited to payment of prevailing wage. As a material term of this grant, the Recipient must either:

- 1) Timely obtain a legally binding determination from DIR or a court of competent jurisdiction before work begins on the project that the proposed project is not a public work; or
- 2) Assume that the project is a public work and ensure that:
 - Prevailing wages are paid unless and until DIR or a court of competent jurisdiction determines that the project is not a public work;
 - The project budget for labor reflects these prevailing wage requirements; and
 - The project complies with all other requirements of prevailing wage law, including but not limited to keeping accurate payroll records and complying with all working hour requirements and apprenticeship obligations.

California Prevailing Wage law provides for substantial damages and financial penalties for failure to pay prevailing wages when such payment is required.

c. Subcontractors and Flow-down Requirements

The Recipient will ensure that its subcontractors also comply with the public works/prevaling wage requirements above. The Recipient will ensure that all agreements with its subcontractors to perform work related to this Project contain the above terms regarding payment of prevailing wages on public works projects. The Recipient is responsible for any failure of its subcontractors to comply with California prevailing wage and public works laws.

d. Indemnification and Breach

Any failure of the Recipient or its subcontractors to comply with the above requirements will constitute breach of this Agreement which excuses the Commission's performance of this Agreement at the Commission's option, and will be at the Recipient's sole risk. In such a case, the Commission will refuse payment to the Recipient of any amount under this award and the Commission will be released, at its option, from any further performance of this Agreement or any portion thereof. The Recipient will indemnify the Energy Commission and hold it harmless for any and all financial consequences arising out of or resulting from the failure of the Recipient and/or any of its subcontractors to pay prevailing wages or to otherwise comply with the requirements of prevailing wage law.

e. Budget

The Recipient's budget on public works projects must indicate which job classifications are subject to prevailing wage. For detailed information about prevailing wage and the process to determine if the proposed project is a public work, the Recipient may wish to contact DIR or a qualified labor attorney for guidance.

f. Covered Trades

For public works projects, the Recipient may contact DIR for a list of covered trades and the applicable prevailing wage.

g. Questions

If the Recipient has any questions about this contractual requirement or the wage, record keeping, apprenticeship, or other significant requirements of California prevailing wage law, the Recipient should consult DIR and/or a qualified labor attorney before entering into this Agreement.

h. Certification

The Recipient will certify to the Energy Commission on each payment request form either that: (a) prevailing wages were paid to eligible workers who provided labor for work covered by the payment request and the Recipient and all contractors and subcontractors otherwise complied with all California prevailing wage laws; or (b) the project is not a public work requiring the payment of prevailing wages. In the latter case, the Recipient will provide competent proof of a DIR or court determination that the project is not a public work requiring the payment of prevailing wages.

Prior to the release of any retained funds under this Agreement, the Recipient will submit to the Energy Commission the above-described certificate signed by the Recipient and all contractors and subcontractors performing public works activities on the project. Absent this certificate, the Recipient will have no right to any funds under this Agreement, and Commission will be relieved of any obligation to pay any funds.

11. Recordkeeping, Cost Accounting, and Auditing

a. Cost Accounting

The Recipient will keep separate, complete, and correct accounting of the costs involved in completing the project and any match-funded portion of the project. The Commission or its agent will have the right to examine the Recipient's books of accounts at all reasonable times, to the extent necessary to verify the accuracy of the Recipient's reports.

b. Accounting Procedures

The Recipient's costs will be determined on the basis of its accounting system procedures and practices employed as of the effective date of this Agreement, provided that the Recipient uses generally accepted accounting principles and cost reimbursement practices. The Recipient's cost accounting practices used in accumulating and reporting costs during the performance of this Agreement will be consistent with the practices used in estimating costs for any proposal to which this Agreement relates; provided that such practices are consistent with the other terms of this Agreement and that such costs may be accumulated and reported in greater detail during performance of this Agreement.

The Recipient's accounting system will distinguish between direct and indirect costs. All costs incurred for the same purpose, in like circumstances, are either direct costs only or indirect costs only with respect to costs incurred under this Agreement.

c. Audit Rights

The Recipient will maintain books, records, documents, and other evidence, based on the procedures set forth above, sufficient to reflect properly all costs claimed to have been incurred in the performance of this Agreement. The Energy Commission, another state agency, and/or a public accounting firm designated by the Energy Commission may audit the Recipient's accounting records at all reasonable times, with prior notice by the Energy Commission.

It is the intent of the parties that the audits will ordinarily be performed not more frequently than once every twelve (12) months during the performance of the work and once at any time within three (3) years after payment by the Energy Commission of the Recipient's final invoice. However, performance of any such interim audits by the Energy Commission does not preclude further audit. The Energy Commission may audit books, records, documents, and other evidence relevant to the Recipient's royalty payment obligations (see Section 21) for a period of ten (10) years after payment of the Recipient's final invoice.

The Recipient will allow the auditor(s) to access such records during normal business hours, and will allow interviews of any employees who might reasonably have information related to such records. The Recipient will include a similar right of the state to audit records and interview staff in any subcontract related to the performance of this Agreement.

d. Refund to the Energy Commission

If the Energy Commission determines that any invoiced and paid amounts exceed the actual allowable incurred costs, the Recipient will repay the amounts to the Energy Commission within thirty (30) days of request or as otherwise agreed by the Energy Commission and the Recipient. If the Energy Commission does not receive such repayments, it will be entitled to take actions such as withholding further payments to the Recipient and seeking repayment from the Recipient.

e. **Audit Cost**

The Recipient will bear its cost of participating in any audit (e.g., mailing or travel expenses). The Energy Commission will bear the cost of conducting the audit unless the audit reveals an error detrimental to the Energy Commission that exceeds more than ten percent (10%) or \$5,000 (whichever is greater) of: (1) the amount audited; or (2) if a royalty audit, the total royalties due in the period audited. The Recipient will pay the refund as specified in subsection (d), and will reimburse the Energy Commission for reasonable costs and expenses incurred by the Commission in conducting the audit.

f. **Match or Cost Share**

If the budget includes a match share requirement, the Recipient's commitment of resources, as described in this Agreement, is a required expenditure for receipt of Energy Commission funds. The funds will be released only if the required match percentages are expended. The Recipient must maintain accounting records detailing the expenditure of the match (actual cash and in-kind, non-cash services), and report on match share expenditures on its request for payment.

12. *Workers' Compensation Insurance*

- a. The Recipient warrants that it carries Worker's Compensation Insurance for all of its employees who will be engaged in the performance of this Agreement, and agrees to furnish to the Commission Agreement Manager satisfactory evidence of this insurance upon the Commission Agreement Manager's request.
- b. If the Recipient is self-insured for worker's compensation, it warrants that the self-insurance is permissible under the laws of the State of California and agrees to furnish to the Commission Agreement Manager satisfactory evidence of the insurance upon the Commission Agreement Manager's request.

13. *Permits and Clearances*

The Recipient is responsible for ensuring that all necessary permits and environmental documents are prepared and that clearances are obtained from the appropriate agencies.

14. *Equipment*

Title to equipment acquired by the Recipient with grant funds will vest in the Recipient. The Recipient may use the equipment in the project or program for which it was acquired as long as needed, regardless of whether the project or program continues to be supported by grant funds. However, the Recipient may not sell, lease, or encumber the property (i.e., place a legal burden on the property such as a lien) during the Agreement term without the Commission Agreement Manager's prior written approval.

The Recipient may refer to the applicable federal regulations incorporated by reference in this Agreement for guidance regarding additional equipment requirements.

15. Stop Work

Energy Commission staff may, at any time by written notice to the Recipient, require the Recipient to stop all or any part of the work tasks in this Agreement. Stop work orders may be issued for reasons such as a project exceeding budget, noncompliance with the standard of performance, out of scope work, project delays, and misrepresentations.

- a. Compliance. Upon receipt of a stop work order, the Recipient must immediately take all necessary steps to comply with the order and to stop the incurrence of costs allocable to the Energy Commission.
- b. Canceling a Stop Work Order. The Recipient may resume the work only upon receipt of written instructions from Energy Commission staff.

16. Termination

a. Purpose

Because the Energy Commission is a state entity and provides funding on behalf of all California ratepayers, it must be able to terminate the Agreement upon the default of the Recipient and to proceed with the work required under the Agreement in any manner it deems proper. The Recipient agrees that upon any of the events triggering the termination of the Agreement by the Energy Commission, the Energy Commission has the right to terminate the Agreement, and it would constitute bad faith of the Recipient to interfere with the immediate termination of the Agreement by the Energy Commission.

b. With Cause

The Energy Commission may, for cause, terminate this Agreement upon giving five (5) calendar days advance written notice to the Recipient. In this event, the Recipient will use all reasonable efforts to mitigate its expenses and obligations. The Recipient will relinquish possession of equipment purchased for this Agreement with Energy Commission funds to the Commission, or the Recipient may purchase the equipment as provided by the terms of this Agreement, with approval of the Energy Commission.

The term "for cause" includes but is not limited to the following:

- Partial or complete loss of match funds;
- Reorganization to a business entity unsatisfactory to the Energy Commission;
- Retention or hiring of subcontractors, or replacement or addition of personnel, that fail to perform to the standards and requirements of this Agreement;
- The Recipient's inability to pay its debts as they become due and/or the Recipient's default of an obligation that impacts its ability to perform under this Agreement; or
- Significant change in state or Energy Commission policy such that the work or product being funded would not be supported by the Commission.

c. Without Cause

The Energy Commission may terminate this Agreement without cause upon giving thirty (30) days advance written notice to the Recipient. In this event, the Recipient will use all reasonable efforts to mitigate its expenses and obligations.

17. Indemnification

To the extent allowed under California law, the Recipient will indemnify, defend, and hold harmless the state (including the Energy Commission) and state officers, agents, and employees from any and all claims and losses in connection with the performance of this Agreement.

18. Confidentiality

a. Identification of Confidential Information

- 1) Prior to the effective date of this Agreement, the Recipient will identify all products (or information contained within products) that it considers to be confidential, in addition to the legal basis for confidentiality, in Attachment 1 to this Exhibit. If the Energy Commission agrees that the information is confidential, it will not disclose it except as provided in subsection (b).
- 2) During the Agreement, if the Recipient develops additional products (or information contained within products) not originally anticipated as confidential, it will follow the procedures for a request for designation of confidential information specified in Title 20 California Code of Regulations (CCR) Section 2505.

The Energy Commission's Executive Director will make the confidentiality determination. Such subsequent determinations may be added to the list of confidential deliverables in the Attachment 1 to this Exhibit. The Energy Commission will not disclose information subject to an application for confidential designation except as provided in subsection (b).

- 3) When submitting products containing confidential information, the Recipient will mark each page of any document containing confidential information as "confidential", and present it in a sealed package to the Contracts, Grants, and Loans Office.

The Commission Agreement Manager may require the Recipient to submit a non-confidential version of the product, if it is feasible to separate the confidential information from the non-confidential information. The Recipient is not required to submit such products in a sealed package.

b. Disclosure of Confidential Information

The Energy Commission will only disclose confidential information under the circumstances specified in Title 20 CCR Sections 2506, 2507, and 2508. All confidential information that is legally disclosed by the Recipient or any other entity will become a public record and will no longer be subject to the Energy Commission's confidentiality designation.

c. Waiver of Consequential Damages

In no event will the Energy Commission, the California Public Utilities Commission, or the state of California be liable for any special, incidental, or consequential damages based on breach of warranty, breach of contract, negligence, strict tort, or any other legal theory for the disclosure of the Recipient's confidential information, even if the Commission has been advised of the possibility of such damages.

Damages that the Energy Commission, the California Public Utilities Commission, and the state of California will not be responsible for include but are not limited to: lost profit; lost savings or revenue; lost goodwill; lost use of the product or any associated equipment; cost of capital; cost of any substitute equipment, facilities, or services; downtime; the claims of third parties including customers; and injury to property.

d. Limitations on the Disclosure of Products

- 1) During the Agreement, the Recipient and subcontractors must receive approval from the Commission Agreement Manager prior to disclosing the contents of any draft product to a third party. However, if the Energy Commission makes a public statement about the content of any product provided by the Recipient and the Recipient believes the statement is incorrect, the Recipient may state publicly what it believes is correct.
- 2) Except as provided in Title 20 CCR Sections 2506, 2507, and 2508, the Recipient may not disclose any information provided to it by the Energy Commission for the performance of this Agreement if the information has been designated as confidential or is the subject of a pending application for confidential designation. At the election of the Commission Agreement Manager, the Recipient, its employees, and its subcontractors must execute a confidentiality agreement provided by the Commission Agreement Manager.
- 3) The Recipient will ensure that each of its officers, employees, and subcontractors who are involved in the performance of this Agreement are informed about these disclosure limitations and will abide by them.

19. *Pre-Existing and Independently Funded Intellectual Property*

a. Ownership

The Energy Commission makes no ownership, license, or royalty claims to pre-existing intellectual property, independently funded intellectual property, or project-relevant pre-existing or independently funded intellectual property. **“Ownership”** means exclusive possession and control of all rights to property, including the right to use and transfer property. Intellectual property licenses and royalties are discussed in Sections 20 and 21.

- 1) **“Pre-existing intellectual property”** means: (a) inventions, technologies, designs, drawings, data, software, formulas, compositions, processes, techniques, works of authorship, trademarks, service marks, and logos that the Recipient or a third party owned or possessed prior to the effective date of this Agreement and that have not been developed, altered, or reduced to practice with Energy Commission or match funds; and (b) associated proprietary rights to these items that are obtained without Energy Commission or match funds, such as patent and copyright.

- 2) **“Independently funded intellectual property”** means: (a) inventions, technologies, designs, drawings, data, software, formulas, compositions, processes, techniques, works of authorship, trademarks, service marks, and logos that are created, conceived, discovered, made, developed, altered, or reduced to practice by the Recipient or a third party during or after the Agreement term without Energy Commission or match funds; and (b) associated proprietary rights to these items that are obtained without Energy Commission or match funds, such as patent and copyright.

“Works of authorship” does not include written products created for Agreement reporting and management purposes, such as reports, summaries, lists, letters, agendas, schedules, and invoices. The Commission owns such products regardless of their funding source.

- 3) **“Project-relevant pre-existing intellectual property”** and **“project-relevant independently funded intellectual property”** mean pre-existing and independently funded intellectual property used to support a premise, postulate, or conclusion referred to or expressed in any product under this Agreement.

b. Project-Relevant Pre-Existing and Independently Funded Intellectual Property

1) Identification of Property

- a) The Recipient will identify all project-relevant pre-existing intellectual property in Attachment 1 to this Exhibit prior to the effective date of the Agreement, or within sixty (60) days of becoming aware that the property has been or will be used to support a premise, postulate, or conclusion referred to or expressed in any product under this Agreement. Attachment 1 may be amended (see the “Amendments” section).
- b) The Recipient will identify all project-relevant independently funded intellectual property and the source of funding for the property in Attachment 1 to this Exhibit within sixty (60) days of becoming aware that the property has been or will be used to support a premise, postulate, or conclusion referred to or expressed in any product under this Agreement.
- c) Failure to identify project-relevant pre-existing or independently funded intellectual property in Attachment 1 to this Exhibit may result in the property’s designation as “intellectual property” that is subject to licenses and royalties, as described in Sections 20 and 21.

2) Access to Property

The extent of Energy Commission and California Public Utilities Commission access to project-relevant pre-existing and independently funded intellectual property is limited to that reasonably necessary to: (a) demonstrate the validity of any premise, postulate, or conclusion referred to or expressed in any product; or (b) establish a baseline for repayment purposes.

Upon the Commission Agreement Manager's request, the Recipient will provide the Commission Agreement Manager and any reviewers designated by the Energy Commission or the California Public Utilities Commission with access to review the Recipient's project-relevant pre-existing and independently funded intellectual property. If the property has been designated as confidential as specified in Section 18, the Energy Commission will only disclose it under the circumstances specified in Title 20 CCR Sections 2506, 2507, and 2508.

3) Preservation of Property

The Recipient will preserve any project-relevant pre-existing or independently funded intellectual property at its own expense for at least ten (10) years from the Agreement's end date, unless the Recipient agrees to a longer retention period.

The Energy Commission and the California Public Utilities Commission will have reasonable access to the project-relevant pre-existing or independently funded property throughout the retention period.

20. Intellectual Property

a. Ownership

1) The Recipient owns all intellectual property, subject to the licenses described in subsection b.

"Intellectual property" means: (a) inventions, technologies, designs, drawings, data, software, formulas, compositions, processes, techniques, works of authorship, trademarks, service marks, and logos that are created, conceived, discovered, made, developed, altered, or reduced to practice with Agreement or match funds during or after the Agreement term; (b) any associated proprietary rights to these items, such as patent and copyright; and (c) any upgrades or revisions to these items.

"Works of authorship" does not include written products created for Agreement reporting and management purposes, such as reports, summaries, lists, letters, agendas, schedules, and invoices.

2) The Energy Commission owns all products identified in the Scope of Work, with the exception of products that fall within the definition of "intellectual property."

"Product" means any tangible item specified for delivery to the Energy Commission in the Scope of Work.

b. Intellectual Property Licenses

- 1) Both the Energy Commission and the California Public Utilities Commission have a no-cost, non-exclusive, transferable, irrevocable, royalty-free, worldwide, perpetual license to use, publish, translate, modify, and reproduce intellectual property for governmental purposes. The licenses are transferable only to load-serving entities for the purpose described below.
- 2) Under limited circumstances, both the Energy Commission and the California Public Utilities Commission may grant load-serving entities a no-cost, non-exclusive, transferable, irrevocable, royalty-free, worldwide, perpetual license to use, publish, translate, modify, and reproduce intellectual property to enhance the entities' service to EPIC ratepayers. **The intellectual property that may be licensed to load-serving entities is limited to analytical tools and models that can be used to inform distribution planning and decision-making that benefits electric ratepayers.**
"Load-serving entity" means a company or other organization that provides electricity to EPIC ratepayers.
The licenses are transferable to third parties only for the purpose of facilitating the load-serving entity's enhancement of service to EPIC ratepayers. Load-serving entities must obtain prior written approval from the Energy Commission or California Public Utilities Commission (whichever agency granted the load-serving entity the license) in order to transfer the license to a third party.
- 3) The Recipient has a non-exclusive, non-transferable, irrevocable, worldwide, perpetual license to use, publish, translate, modify, and reproduce written products created for Agreement reporting and management purposes, such as reports and summaries.
- 4) If any intellectual property that is subject to the licenses above has been designated as confidential as specified in Section 18, all license holders will only disclose the intellectual property under the circumstances specified in Title 20 CCR Sections 2506, 2507, and 2508.
All license holders will ensure that their officers, employees, and subcontractors who have access to the intellectual property are informed of and abide by the disclosure limitations in Section 18.

c. Energy Commission's Rights to Inventions

"**Invention**" means intellectual property that is patentable.

1) March-In Rights

At the Energy Commission's request, the Recipient will forfeit and assign to the Energy Commission all rights to any invention (with the exception of U.S. Department of Energy reserved rights) if the Recipient or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the invention. The Energy Commission will have the unfettered right to use and/or dispose of the rights in whatever manner it deems most suitable to help transfer the invention into the marketplace, including but not limited to seeking patent protection or licensing the invention.

2) Notice of Patent

If any patent is issued for an invention, the Recipient will send the Commission Agreement Manager written notice of the issuance within three (3) months of the issuance date. The notice must include the patent title, issuance number, and a general description of the invention.

3) Legal Notice

The Recipient and all persons and/or entities obtaining an ownership interest in patentable intellectual property must include the following statement within the specification of any United States patent application, and any subsequently issued patent for the invention:

“This invention was made with State of California support under California Energy Commission grant number EPC-20-004. The Energy Commission has certain rights to this invention.”

d. Access to and Preservation of Intellectual Property

1) Access to Intellectual Property

Upon the Commission Agreement Manager’s request, the Recipient will provide the Commission Agreement Manager and any individuals designated by the Energy Commission or the California Public Utilities Commission with access to the Recipient’s intellectual property in order to exercise the license and march-in rights described above, and to determine any royalty payments due under the Agreement.

2) Preservation of Intellectual Property

The Recipient will preserve intellectual property at its own expense for at least ten (10) years from the Agreement’s end date, unless the Recipient agrees to a longer retention period.

e. Intellectual Property Indemnity

The Recipient may not, in supplying work under this Agreement, knowingly infringe or misappropriate any intellectual property right of a third party, and will take reasonable actions to avoid infringement.

The Recipient will defend and indemnify the Energy Commission and the California Public Utilities Commission from and against any claim, lawsuit, or other proceeding, loss, cost, liability, or expense (including court costs and reasonable fees of attorneys and other professionals) to the extent arising out of: (i) any third party claim that a product infringes any patent, copyright, trade secret, or other intellectual property right of any third party; or (ii) any third party claim arising out of the negligent or other tortious acts or omissions by the Recipient or its employees, subcontractors, or agents in connection with or related to the products or the Recipient’s performance under this Agreement.

21. Royalty Payments to the Commission

“Sale,” “sales,” and “sold” mean the sale, license, lease, or other transfer of intellectual property. **Sales Price** means the price at which intellectual property is sold, excluding sales tax.

- a. The Recipient will pay the Energy Commission a royalty of one and one-half percent (1.5%) of the sales price of all sales for which the Recipient receives a payment, beginning on the Agreement's effective date and extending for ten (10) years from the Agreement's end date.
- b. The Recipient will make payments in annual installments due on the first day of March in the calendar year immediately following the year during which the Recipient received any payment for sales.
- c. The Recipient is not required to make a royalty payment for any calendar year in which payments for sales are less than \$1000. Total royalty payments will be limited to three (3) times the amount of funds paid by the Energy Commission under the Agreement.
- d. If intellectual property was developed in part with match funds during the Agreement term, the royalty payment will be reduced in accordance with the percentage of intellectual property development activities that were funded with match funds. For example, if 10% of the development activities were funded with match funds during the Agreement and payments for sales totaled \$100,000 in one year, the Recipient would owe the Energy Commission \$1350 for the year (1.5% of \$100,000 = \$1500; 10% of \$1500 = \$150; \$1500 - \$150 = \$1350).

If the Energy Commission is providing funds to the Recipient under this Agreement as a project match partner and Energy Commission funds are used in part to develop intellectual property, the royalty payments will be reduced in accordance with the percentage of intellectual property development activities that were funded with non-Energy Commission funds during the Agreement term. For example, if 80% of the development activities were funded with Recipient and/or third party funds during the Agreement and payments for sales totaled \$100,000 in one year, the Recipient would owe the Energy Commission \$300 for the year (1.5% of \$100,000 = \$1500; 80% of \$1500 = \$1200; \$1500 - \$1200 = \$300).

- e. The Recipient may make an early buyout payment to the Energy Commission without a pre-payment penalty, as an alternative to making annual royalty payments for ten (10) years following the Agreement's end date. The payment must be in a lump sum amount equal to one and a half (1.5) times the amount of funds paid by the Energy Commission under the Agreement and made within five (5) years of the Agreement's end date. The payment amount due under the early buyout option will not be reduced by the percentage of match funds as described above.
- f. The Recipient may not make any sale of intellectual property for consideration other than fair market value. Such activity constitutes breach of this Agreement, and will obligate the Recipient to repay within sixty (60) days the early buyout amount due. In the event of breach, the Energy Commission may exercise all rights and remedies available to it under law and at equity.
- g. Royalty payments not made within fifteen (15) days of the due date will constitute breach of this Agreement. The payments will become debt obligations of the Recipient to the Energy Commission, due upon demand and bearing interest at the maximum interest rate allowed by law.
- h. The Recipient will maintain separate accounts within its financial and other records for the purpose of tracking components of sales and royalties due to the Energy Commission under this Agreement.

- i. Payments to the Energy Commission are subject to audit as provided for under the Recordkeeping, Cost Accounting, and Auditing section.
- j. The Recipient will include these royalty provisions in its agreements with all subcontractors who develop or assist with the development of intellectual property.

22. General Provisions

a. Governing Law

This Agreement is governed by the laws of the State of California as to interpretation and performance.

b. Independent Capacity

In the performance of this Agreement, the Recipient and its agents, subcontractors, and employees will act in an independent capacity and not as officers, employees, or agents of the State of California.

c. Assignment

This Agreement is not assignable or transferable by the Recipient either in whole or in part without the consent of the Energy Commission in the form of an amendment.

d. Timeliness

Time is of the essence in this Agreement.

e. Severability

If any provision of this Agreement is unenforceable or held to be unenforceable, all other provisions of this Agreement will remain in full force and effect.

f. Waiver

No waiver of any breach of this Agreement constitutes waiver of any other breach. All remedies in this Agreement will be taken and construed as cumulative, meaning in addition to every other remedy provided in the Agreement or by law.

g. Assurances

The Commission reserves the right to seek further written assurances from the Recipient and its team that the work under this Agreement will be performed in accordance with the terms of the Agreement.

h. Change in Business

- 1) The Recipient will promptly notify the Energy Commission of the occurrence of any of the following:
 - a) A change of address.
 - b) A change in business name or ownership.
 - c) The existence of any litigation or other legal proceeding affecting the project or Agreement.
 - d) The occurrence of any casualty or other loss to project personnel, equipment, or third parties.
 - e) Receipt of notice of any claim or potential claim against the Recipient for patent, copyright, trademark, service mark, and/or trade secret infringement that could affect the Energy Commission's rights.

2) The Recipient must provide the Commission Agreement Manager with written notice of a planned change or reorganization of the type of business entity under which it does business. A change of business entity or name change requires an amendment assigning or novating the Agreement to the changed entity. If the Energy Commission does not seek to amend this Agreement or enter into a new agreement with the changed or new entity for any reason (including that the Commission is not satisfied that the new entity can perform in the same manner as the Recipient), it may terminate this Agreement as provided in the “Termination” section.

i. Access to Sites and Records

Energy Commission and California Public Utilities Commission staff and representatives will have reasonable access to all project sites and to all records related to this Agreement.

j. Prior Dealings, Custom, or Trade Usage

These terms and conditions may not be modified or supplemented by prior dealings, custom, or trade usage.

k. Survival of Terms

Certain provisions will survive the completion or termination date of this Agreement for any reason. The provisions include but are not limited to:

- Legal Statements on Products (included in Section 5, “Products”)
- Payment of Funds (Section 8)
- Recordkeeping, Cost Accounting, and Auditing (Section 11)
- Equipment (Section 14)
- Termination (Section 16)
- Indemnification (Section 17)
- Pre-Existing and Independently Funded Intellectual Property (Section 19)
- Intellectual Property (Section 20)
- Royalty Payments to the Commission (Section 21)
- California Taxpayer Access to Publicly Funded Research Act (Section 24)
- Change in Business (see this section)
- Access to Sites and Records (see this section)

23. *Certifications and Compliance*

a. Federal, State, and Local Laws

The Recipient must obtain all required permits and shall comply with all applicable federal, state and local laws, codes, rules, and regulations for all work performed under the Agreement.

b. Nondiscrimination Statement of Compliance

During the performance of this Agreement, the Recipient and its subcontractors will not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, sexual orientation, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition, age, marital status, or denial of family care leave. The Recipient and its subcontractors will ensure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment.

The Recipient and its subcontractors will comply with the provisions of the Fair Employment and Housing Act (Government Code Sections 12990 et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 11000 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4.1 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part of it as if set forth in full. The Recipient and its subcontractors will give written notice of their obligations under this section to labor organizations with which they have a collective bargaining or other Agreement.

The Recipient will include the nondiscrimination and compliance provisions of this section in all subcontracts to perform work under this Agreement.

c. Drug-Free Workplace Certification

By signing this Agreement, the Recipient certifies under penalty of perjury under the laws of the State of California that it will comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code Section 8350 et seq.) and will provide a drug-free workplace by taking the following actions:

- 1) Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited, and specifying actions to be taken against employees for violations as required by Government Code Section 8355(a).
- 2) Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b) to inform employees about all of the following:
 - The dangers of drug abuse in the workplace;
 - The person's or organization's policy of maintaining a drug-free workplace;
 - Any available counseling, rehabilitation, and employee assistance programs; and
 - Penalties that may be imposed upon employees for drug abuse violations.
- 3) Provide, as required by Government Code Section 8355(c), that every employee who works on the proposed project:
 - Will receive a copy of the company's drug-free policy statement; and
 - Will agree to abide by the terms of the company's statement as a condition of employment on the project.

Failure to comply with these requirements may result in suspension of payments under the Agreement or termination of the Agreement or both, and the Recipient may be ineligible for any future state awards if the Commission determines that any of the following has occurred: (1) the Recipient has made false certification, or (2) violates the certification by failing to carry out the requirements as noted above.

d. National Labor Relations Board Certification (Not applicable to public entities)

The Recipient, by signing this Agreement, swears under penalty of perjury that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Recipient within the immediately preceding two year period because of the Recipient's failure to comply with an order of a federal court that orders the Recipient to comply with an order of the National Labor Relations Board.

e. Child Support Compliance Act (Applicable to California Employers)

For any agreement in excess of \$100,000, the Recipient acknowledges that:

- 1) It recognizes the importance of child and family support obligations and will fully comply with all applicable state and federal laws relating to child and family support enforcement, including but not limited to disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with section 5200) of Part 5 of Division 9 of the Family Code; and
- 2) To the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

f. Air or Water Pollution Violation

Under state laws, the Recipient will not be:

- 1) In violation of any order or resolution not subject to review promulgated by the State Air Resources Board or an air pollution control district;
- 2) Subject to a cease and desist order not subject to review issued pursuant to Section 13301 of the Water Code for violation of waste discharge requirements or discharge prohibitions; or
- 3) Finally determined to be in violation of provisions of federal law relating to air or water pollution.

g. Americans With Disabilities Act

By signing this Agreement, the Recipient assures the State that it complies with the Americans with Disabilities Act (ADA) of 1990 (42 U.S.C. Section 12101, et seq.), which prohibits discrimination on the basis of disability, as well as applicable regulations and guidelines issued pursuant to the ADA.

24. California Taxpayer Access to Publicly Funded Research Act

- a. As a condition to receiving funding under this Agreement, the Recipient agrees to fully comply with the California Taxpayer Access to Publicly Funded Research Act (California Government Code sections 13989 et seq., the "Act") and provisions of this section, which apply to publications describing knowledge, an invention, or technology funded within the scope of this Agreement.

- b. For purposes of complying with the Act and this section of the Agreement, the following definitions shall apply.
 - 1) “Peer-Reviewed Manuscript” means a manuscript after it has been peer reviewed and in the form in which it has been accepted for publication in a scientific journal.
 - 2) “Research Grant” in the Act and “this Agreement” in this section mean this Agreement.
 - 3) “State Agency” in the Act means the Energy Commission.
- c. The Recipient shall provide for free public access to any Peer-Reviewed Manuscript developed within the scope of this Agreement.
- d. The Recipient shall ensure that any publishing or copyright agreements concerning Peer-Reviewed Manuscripts:
 - 1) Fully comply with California Government Code section 13989.6;
 - 2) Do not conflict with the Energy Commission’s rights under this Agreement;
 - 3) Secure for the Energy Commission the rights provided under this Agreement, including the rights to Intellectual Property as specified in Section 20; and
 - 4) Recognize the free public access to the Peer-Reviewed Manuscript.
- e. The Recipient shall report to the Energy Commission the final disposition of any Peer-Reviewed Manuscript, including but not limited to if it was published; when it was published; where it was published; and, when the 12-month time period expires, where the Peer-Reviewed Manuscript will be available for open access.
- f. Not later than 12 months after the official date of publication, or sooner if specified in the Schedule of Products, the Recipient shall make available to the Energy Commission an electronic version of any Peer-Reviewed Manuscript that is developed within the scope of this Agreement.
- g. The Recipient shall make publicly accessible an electronic version of any Peer-Reviewed Manuscript that is developed within the scope of this Agreement, not later than 12 months after the official date of publication, on a repository approved in writing by the Energy Commission, including but not limited to the University of California’s eScholarship Repository at the California Digital Library; the California State University’s ScholarWorks at the Systemwide Digital Library; or PubMed Central. The Recipient shall notify the Energy Commission when the Peer-Reviewed Manuscript is available on an Energy Commission-approved repository.

- h. If the Recipient is unable to ensure that its Peer-Reviewed Manuscript is accessible on an Energy Commission-approved, publicly accessible repository, the Recipient may comply by providing the manuscript to the Energy Commission not later than 12 months after the official date of publication.
- i. For any publications other than a Peer-Reviewed Manuscript, (herein referred to as “Other Publications”) including scientific meeting abstracts, developed within the scope of this Agreement, the Recipient shall:
 - 1) Provide an electronic version of the Other Publications to the Energy Commission not later than 12 months after the official date of publication.
 - 2) Ensure that any publishing or copyright agreements concerning Other Publications:
 - i. Do not conflict with the Energy Commission’s rights under this Agreement.
 - ii. Secure for the Energy Commission the rights provided under this Agreement, including the rights to Intellectual Property as specified in Section 20.
- j. The Act states that “Grantees are authorized to use grant money for publication costs, including fees charged by a publisher for color and page charges, or fees for digital distribution.” Recipient agrees that for purposes of this Agreement, the Recipient is only authorized to use funds under this Agreement, including Matching funds, for these purposes **if the expenses are included in the Agreement’s Budget and meet the other Agreement requirements for payment, including that the Commission will only reimburse the Recipient for expenditures incurred during the Agreement term. If these expenses are not included in the Budget, both parties must agree and amend the Budget to include such expenditures before Recipient is authorized to use Agreement funds, either reimbursable expenses or match, for these purposes.**
- k. Should a conflict exist between the terms in this Section 24 and other terms of this Agreement, the terms in this section prevail.

25. Commission Remedies for Recipient’s Non-Compliance

Without limiting any of its other remedies, the Commission may, for Recipient’s noncompliance of any Agreement requirement, withhold future payments, demand and be entitled to repayment of past reimbursements, or suspend or terminate this Agreement. The tasks in the Scope of Work are non-severable, and completion of all of them is material to this Agreement. Thus, the Commission, without limiting its other remedies, is entitled to repayment of all funds paid to Recipient if the Recipient does not timely complete all tasks in the Scope of Work.

26. **Definitions**

- **Agreement Term** means the length of this Agreement, as specified on the Agreement signature page (form CEC-146).
- **Confidential Information** means information that the Recipient has satisfactorily identified as confidential in Attachment 1 to this Exhibit and that the Energy Commission has agreed to designate as confidential under Title 20 California Code of Regulations Section 2505.
- **Data** means any recorded information that relates to the project funded by the Agreement, whether created or collected before or after the Agreement's effective date.
- **Effective Date** means the date on which this Agreement is signed by the last party required to sign, provided that signature occurs after the Agreement has been approved by the Energy Commission at a business meeting or by the Executive Director or his/her designee.
- **EPIC** means the Electric Program Investment Charge, an electricity ratepayer-funded surcharge authorized by the California Public Utilities Commission in December 2011.
- **Equipment** means products, objects, machinery, apparatus, implements, or tools that are purchased or constructed with Energy Commission funds for the project, and that have a useful life of at least one year and an acquisition unit cost of at least \$5,000. "Equipment" includes products, objects, machinery, apparatus, implements, or tools that are composed by over thirty percent (30%) of materials purchased for the project. For purposes of determining depreciated value of equipment used in the Agreement, the project will terminate at the end of the normal useful life of the equipment purchased and/or developed with Energy Commission funds. The Energy Commission may determine the normal useful life of the equipment.
- **Independently Funded Intellectual Property** means: (a) inventions, technologies, designs, drawings, data, software, formulas, compositions, processes, techniques, works of authorship, trademarks, service marks, and logos that are created, conceived, discovered, made, developed, altered, or reduced to practice by the Recipient or a third party during or after the Agreement term without Energy Commission or match funds; and (b) associated proprietary rights to these items that are obtained without Energy Commission or match funds, such as patent and copyright.

"Works of authorship" does not include written products created for Agreement reporting and management purposes, such as reports, summaries, lists, letters, agendas, schedules, and invoices. The Commission owns such products regardless of their funding source.
- **Intellectual Property** means: (a) inventions, technologies, designs, drawings, data, software, formulas, compositions, processes, techniques, works of authorship, trademarks, service marks, and logos that are created, conceived, discovered, made, developed, altered, or reduced to practice with Agreement or match funds during or after the Agreement term; (b) any associated proprietary rights to these items, such as patent and copyright; and (c) any upgrades or revisions to these items.

“Works of authorship” does not include written products created for Agreement reporting and management purposes, such as reports, summaries, lists, letters, agendas, schedules, and invoices.

- ***Invention*** means intellectual property that is patentable.
- ***Load-serving entity*** means a company or other organization that provides electricity to EPIC ratepayers.
- ***Match Funds*** means cash or in-kind (i.e., non-cash) contributions provided by the Recipient or a third party for a project funded by the Energy Commission. If this Agreement resulted from a solicitation, refer to the solicitation’s discussion of match funding for guidelines specific to the project.
- ***Materials*** means the substances used to construct, or as part of, a finished object, commodity, device, article, or product and that does not meet the definition of Equipment.
- ***Ownership*** means exclusive possession of all rights to property, including the right to use and transfer property.
- ***Pre-existing intellectual property*** means: (a) inventions, technologies, designs, drawings, data, software, formulas, compositions, processes, techniques, works of authorship, trademarks, service marks, and logos that the Recipient or a third party owned or possessed prior to the effective date of this Agreement and that have not been developed, altered, or reduced to practice with Energy Commission or match funds; and (b) associated proprietary rights to these items that are obtained without Energy Commission or match funds, such as patent and copyright.
- ***Product*** means any tangible item specified for delivery to the Energy Commission in the Scope of Work.
- ***Project*** means the entire effort undertaken and planned by the Recipient and consisting of the work funded by the Energy Commission. The project may coincide with or extend beyond the Agreement term.
- ***Project-relevant pre-existing intellectual property and project-relevant independently funded intellectual property*** mean pre-existing and independently funded intellectual property used to support a premise, postulate, or conclusion referred to or expressed in any product under this Agreement.
- ***Sale, Sales, and Sold*** mean the sale, license, lease, or other transfer of intellectual property.
- ***Sales Price*** means the price at which intellectual property is sold, excluding normal returns and allowances such as sales tax.
- ***State*** means the state of California and all California state agencies within it, including but not limited to commissions, boards, offices, and departments.

ATTACHMENT 1

Confidential Products and Project-Relevant Pre-Existing and Independently Funded Intellectual Property

1. Instructions

Identification of Confidential Information

- **Prior to the effective date of the Agreement**, the Recipient must identify in Section 2 of this attachment any products (or information contained within products) that it considers to be confidential. If the Energy Commission agrees that the information is confidential, it will not disclose it except as provided in Section 19 (Confidentiality) of these terms and conditions.
- **During the Agreement**, if the Recipient develops additional information not originally anticipated as confidential, it must follow the procedures for a request for designation of confidential information specified in Title 20 California Code of Regulations (CCR) Section 2505.

The Energy Commission's Executive Director will make the confidentiality determination. Following this determination, the confidential information may be added to this attachment through a Letter of Agreement (see Section 6 (Amendments) and Attachment 2 (Sample Letter of Agreement)). The Energy Commission will not disclose information subject to an application for confidential designation except as provided in Section 19.

- **When submitting products containing confidential information**, the Recipient must mark each page of any document containing confidential information as "confidential" and present it in a sealed package to the Contracts, Grants, and Loans Office.

The Commission Agreement Manager may require the Recipient to submit a non-confidential version of the product, if it is feasible to separate the confidential information from the non-confidential information.

Identification of Project-Relevant Independently Funded and Pre-Existing Intellectual Property

- The Recipient must identify all project-relevant pre-existing intellectual property and project-relevant independently funded intellectual property in Section 3 of this attachment prior to the effective date of the Agreement, or within sixty (60) days of becoming aware that the property has been or will be used to support a premise, postulate, or conclusion referred to or expressed in any product under the Agreement. This attachment may be amended by a Letter of Agreement (see Section 6 (Amendments) and Attachment 2 (Sample Letter of Agreement)).
 - **"Project-relevant pre-existing intellectual property" and "project-relevant independently funded intellectual property"** mean pre-existing and independently funded intellectual property used to support a premise, postulate, or conclusion referred to or expressed in any product under the Agreement.
 - **"Pre-existing intellectual property"** means: (a) inventions, technologies, designs, drawings, data, software, formulas, compositions, processes, techniques, works of authorship, trademarks, service marks, and logos that the Recipient or a third party owned or possessed prior to the effective date of this Agreement and that have not been developed, altered, or reduced to practice with Energy Commission or match funds; and (b) associated proprietary rights to these items that are obtained without Energy Commission or match funds, such as patent and copyright.

- **“Independently funded intellectual property”** means: (a) inventions, technologies, designs, drawings, data, software, formulas, compositions, processes, techniques, works of authorship, trademarks, service marks, and logos that are created, conceived, discovered, made, developed, altered, or reduced to practice by the Recipient or a third party during or after the Agreement term without Energy Commission or match funds; and (b) associated proprietary rights to these items that are obtained without Energy Commission or match funds, such as patent and copyright.

“Works of authorship” does not include written products created for Agreement reporting and management purposes, such as reports, summaries, lists, letters, agendas, schedules, and invoices. The Commission owns such products regardless of their funding source.

- **Failure to identify project-relevant pre-existing or independently funded intellectual property** in this attachment may result in the property’s designation as “intellectual property” that is subject to licenses and royalties, as described in Sections 21 (Intellectual Property) and 22 (Royalty Payments to the Commission).

2. Confidential Products and/or Confidential Information Contained within Products

The Energy Commission designates the following products (or information contained within products) as confidential, in accordance with Title 20 California Code of Regulations Section 2505(c)(2)(B).

Product name	NONE
Task/subtask number	
Information to be kept confidential	<input type="checkbox"/> Entire product <input type="checkbox"/> Selected information within product (<i>describe below; be as specific as possible</i>):
Legal basis for confidentiality designation	<input type="checkbox"/> California Public Records Act, located in California Government Code Sections 6250 et seq. (<i>identify the relevant section(s) and subsections(s) below</i>): <input type="checkbox"/> Other law (<i>identify below, including the relevant section(s) and subsections(s)</i>):
Term of confidentiality	MM-DD-YY to MM-DD-YY
<p>Trade secrets only</p> <p>Answer the following questions if the product/information described above is considered a trade secret (i.e., confidential business information that provides the business with a competitive advantage):</p> <ol style="list-style-type: none"> 1. What is the nature of the competitive advantage provided by the product/information? 2. How would the competitive advantage be lost by disclosure? (generally describe the value of the product/information and the ease or difficulty with which it may be legitimately acquired or duplicated by others). 	

3. Project-Relevant Pre-Existing Intellectual Property and Project-Relevant Independently Funded Intellectual Property

The Recipient has identified the following items as “project-relevant pre-existing intellectual property” and/or “project-relevant independently funded intellectual property,” as defined in Sections 20 (Pre-Existing and Independently Funded Intellectual Property) and 25 (Definitions) of these terms and conditions. The Commission makes no ownership, license, or royalty claims to this property, and may only access it for the purposes described in Section 20.

Name/Title of Intellectual Property	Aquifer Recharge Valve and Method
Type of Intellectual Property	<input checked="" type="checkbox"/> Project-relevant pre-existing intellectual property <input type="checkbox"/> Project-relevant independently funded intellectual property <input checked="" type="checkbox"/> Invention <input checked="" type="checkbox"/> Process <input type="checkbox"/> Technology <input type="checkbox"/> Technique <input checked="" type="checkbox"/> Design <input type="checkbox"/> Work of Authorship <input checked="" type="checkbox"/> Drawing <input type="checkbox"/> Trademark/ Service mark <input type="checkbox"/> Data <input type="checkbox"/> Logo <input type="checkbox"/> Software <input type="checkbox"/> Formula
Registered or Pending Intellectual Property (i.e., copyrights, patents, or trademarks that are registered or pending with the U.S. Copyright Office or the U.S. Patent and Trademark Office)	<input type="checkbox"/> Copyright <input checked="" type="checkbox"/> Patent <input type="checkbox"/> Trademark/ Service mark Name of owner: Kent R. Madison Number and date: US8522887B1 June 14, 2010 <hr/> <i>For pending applications</i> Name of applicant: Application number and date:
Unregistered Intellectual Property	<input type="checkbox"/> Copyright <input type="checkbox"/> Trademark/ Service mark <input type="checkbox"/> Trade Secret Name of owner:
Description of how the property will be or has been used to support a premise, postulate, or conclusion referred to or expressed in any product under the Agreement	Under the project scope for agreement EPC-20-008, up to five existing wells at test site will be retrofitted with a 3R flow control valves. These valves will maintain positive well head pressure during the generation injection cycle. This positive pressure prevents the cascading of water down the well bore causing damage to the aquifer.

Name/Title of Intellectual Property	System and methods of generating electricity with aquifer storage and recovery systems
Type of Intellectual Property	<input type="checkbox"/> Project-relevant pre-existing intellectual property <input checked="" type="checkbox"/> Project-relevant independently funded intellectual property <input checked="" type="checkbox"/> Invention <input checked="" type="checkbox"/> Process <input checked="" type="checkbox"/> Technology <input checked="" type="checkbox"/> Technique <input checked="" type="checkbox"/> Design <input type="checkbox"/> Work of Authorship <input checked="" type="checkbox"/> Drawing <input type="checkbox"/> Trademark/ Service mark <input checked="" type="checkbox"/> Data <input type="checkbox"/> Logo <input checked="" type="checkbox"/> Software <input type="checkbox"/> Formula
Registered or Pending Intellectual Property (i.e., copyrights, patents, or trademarks that are registered or pending with the U.S. Copyright Office or the U.S. Patent and Trademark Office)	<input type="checkbox"/> Copyright <input type="checkbox"/> Patent <input type="checkbox"/> Trademark/ Service mark Name of owner: Number and date: <i>For pending applications</i> Name of applicant: Kent R. Madison and Matthew F. Johnson Application number and date: 62971874 February 7, 2020
Unregistered Intellectual Property	<input type="checkbox"/> Copyright <input type="checkbox"/> Trademark/ Service mark <input type="checkbox"/> Trade Secret Name of owner:
Description of how the property will be or has been used to support a premise, postulate, or conclusion referred to or expressed in any product under the Agreement	Under the project scope for agreement EPC-20-008, up to five existing wells at test site will be retrofitted with a 3R flow control valves. The installation of the 3R valve will enable the existing well to demonstrate Aquifer Pumped Hydro (APH) technology. As water is injected into the well holes, the well motor will run in reverse as a generator. Acting as an energy storage facility, the well can discharge for 10 hours or longer, and provide a minimum of 200 kilowatts of energy. The 3RValve system will maintain energy production based on the available flow and head of the storage water to meet the energy demands at the time of generation.

Exhibit D Contact List

Complete the information in the "Recipient" column.

California Energy Commission	Recipient
<p>Commission Agreement Manager:</p> <p>Joseph Sit California Energy Commission 1516 Ninth Street, MS-51 Sacramento, CA 95814 Phone: (916) 327-1315 Fax: (916) 327-1717 e-mail:</p>	<p>Project Manager:</p> <p>Mark Beuhler Antelope Valley Water Storage, LLC 1672 W Avenue J, Suite 207 Lancaster, CA 93534</p> <p>Phone: (323) 860-4829 Fax: (661) 945-4554 e-mail: MBeuhler@wswaterbank.com</p>
<p>Confidential Deliverables/Products</p> <p>California Energy Commission Contracts, Grants, and Loans Officer 1516 Ninth Street, MS-18 Sacramento, CA 95814 Phone: (916) 654-4381 Fax: (916) 654-4432 e-mail:</p>	<p>Administrator:</p> <p>Tommy Ta Antelope Valley Water Storage, LLC 1672 W Avenue J, Suite 207 Lancaster, CA 93534</p> <p>Phone: (323) 860-9523 Fax: (661) 945-4554 e-mail: tta@cimgroup.com</p>
<p>Invoices, Progress Reports and Non-Confidential Deliverables to:</p> <p>California Energy Commission Accounting Officer 1516 Ninth Street, MS-2 Sacramento, CA 95814</p>	<p>Accounting Officer:</p> <p>Kevin Yang Antelope Valley Water Storage, LLC 4700 Wilshire Boulevard Los Angeles, CA 90010</p> <p>Phone: (323) 860-1708 Fax: (323) 860-4901 e-mail: KYang@cimgroup.com</p>
<p>Legal Notices:</p> <p>Tatyana Yakshina Grants Manager 1516 9th Street, MS-1 Sacramento, CA 95814 Phone: (916) 654-4204 Fax: (916) 654-4076 e-mail: tatyana.yakshina@energy.ca.gov</p>	<p>Legal Notices:</p> <p>Sahil Amin Antelope Valley Water Storage, LLC 4700 Wilshire Boulevard Los Angeles, CA 90010</p> <p>Phone: (323) 860-7483 Fax: (323) 860-4901 e-mail: samin@cimgroup.com</p>



Purchase Order

Energy Resources Conservation

1516 Ninth Street
MS 2
Sacramento CA 95814
United States

Dispatched	Draft	Dispatch Via Print
Purchase Order 3360-EPC-20-008	Date 01-25-2021	Revision
Payment Terms Net 45	Freight Terms FOB Destination-Freight PP	Ship Via Common Carrier
Buyer Marissa Sutton	Phone 916/654-4381	Currency USD
LPA Contract ID:		

Supplier: 0000047572
ANTELOPE VLLY WATER
STRGE LLC
1672 W AVENUE J STE
207
LANCASTER CA 93534-
2861
United States

Ship To: 1516 Ninth Street
MS 2
Sacramento CA
95814
United States

Attention: Not Specified
Bill Code: 010573

Bill To: 1516 Ninth Street
MS 2
Sacramento CA 95814
United States

Certification#: _____ Begin Date: _____ Expiration: _____ DVBE Begin Date: _____ Expiration: _____
Tax Exempt? N Tax Exempt ID: _____

Line-Sch	Item/Description	Mfg ID	Quantity	UOM	PO Price	Extended Amt	Due Date
1 - 1	FY 18/19 Funds - Long Duration 200 kW Energy Storage with Aquifer Pumped Hydro		1.00	EA	2000000.00	2000000.00	04/30/2021

DIST: 1

Chartfields

Status	Percentage	PO Qty	Amount
Open	100.0000	1.0000	2000000.000

GLUnit	Account	Alt-Acc	Fund	Dept	Program	BudRef	Product
3360	5490000	549000000	3211	3360330	2390019	101	2018
		1		0			

Details/Tax

BaseAmt	BaseCurrency	Currency	Location	Consigned
2000000.000	USD	USD	336000000	N
			1	

Schedule Total 2000000.00

Item Total 2000000.00

2 - 1	FY 19/20 Funds - Long Duration 200 kW Energy Storage with Aquifer Pumped Hydro		1.00	EA	4406950.00	4406950.00	04/30/2021
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DIST: 1

Chartfields

Status	Percentage	PO Qty	Amount
Open	100.0000	1.0000	4406950.000

GLUnit	Account	Alt-Acc	Fund	Dept	Program	BudRef	Product
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I HEREBY CERTIFY, on personal knowledge, that this order for purchasing the items specified above is issued in accordance with the procedure prescribed by law governing the purchase of such items for the State of California; and that all such legal requirements have been fully complied with	Unauthorized	Authorizing Signature



Purchase Order

Energy Resources Conservation
1516 Ninth Street
MS 2
Sacramento CA 95814
United States

Table with 3 columns: Dispatched, Draft, Dispatch Via Print. Rows include Purchase Order, Payment Terms, Buyer, and LPA Contract ID.

Supplier: 0000047572
ANTELOPE VLLY WATER
STRGE LLC
1672 W AVENUE J STE
207
LANCASTER CA 93534-
2861
United States

Ship To: 1516 Ninth Street
MS 2
Sacramento CA
95814
United States

Attention: Not Specified
Bill Code: 010573

Bill To: 1516 Ninth Street
MS 2
Sacramento CA 95814
United States

Certification#: Begin Date: Expiration: DVBE Begin Date: Expiration:

Tax Exempt? N

Tax Exempt ID:

Table with columns: Line-Sch, Item/Description, Mfg ID, Quantity, UOM, PO Price, Extended Amt, Due Date. Row 1: 3360, 5490000, 549000000, 3211, 3360330, 2390019, 101, 2019.

Details/Tax

Table with columns: BaseAmt, BaseCurrency, Currency, Location, Consigned. Row 1: 4406950.000, USD, USD, 336000000, N.

Schedule Total 4406950.00

Item Total 4406950.00


Total PO Amount 6406950.00

I HEREBY CERTIFY, on personal knowledge, that this order for purchasing the items specified above is issued in accordance with the procedure prescribed by law governing the purchase of such items for the State of California; and that all such legal requirements have been fully complied with

Unauthorized

Authorizing Signature

Encumbrance Information

Amount Encumbered by this Document	Program/Category (Code & Title) See Details Below	Fund Title			
Prior Amount Encumbered for this contract	Budget List #	Encumber by		Expend by	
Total Amount Encumbered to Date	Item	Chapter	ENY/Statute	Fiscal Year	
	Account Alt Acct	Program	Reporting Structure		
I hereby certify upon my own personal knowledge that budgeted funds are available for the period and purpose of the expenditure stated above.		Fund	Approp Ref		
Signature of Accounting/Budgeting Officer 		Date 4/30/2021			

Amount	Program/Category (Code & Title)	Fund Title	Item	Chapter	Statute	Fiscal Year	Account	Alt Acct	Program	Rptg Structure	Budget List #	Fund Expires	Encumb Expires
20/21													
\$2,000,000.00	Electric Program Investment Charge Program - R & D Project funding	EPIC	3360-101-3211	29	2018	20/21	5490000	001	2390019	33603300	301.001F	06/30/2025	06/30/2021
		NOTES: Moved to March 17, 2021 Bus. Mtg. January 25, 2021 Business Meeting											
\$4,406,950.00	Electric Program Investment Charge Program - R & D Project funding	EPIC	3360-101-3211	23	2019	20/21	5490000	001	2390019	33603300	301.001G	06/30/2025	06/30/2021
		NOTES: Moved to March 17, 2021 Bus. Mtg. January 25, 2021 Business Meeting											
\$6,406,950.00	Total for 20/21												

Agreement Total: \$6,406,950.00