



**CAC Item C8  
Staff Report Item 14**

**TO:** Ava Community Energy Authority

**FROM:** Feliz Ventura, Sr Manager Programs

**SUBJECT:** Lunar Energy DERMS Contract approval

**DATE:** May 15, 2024

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**Recommendation**

Approve a Resolution authorizing the CEO to negotiate and execute a Master Services Agreement with Lunar Energy as the Distributed Energy Resources Management System (“DERMS”) provider resulting from Ava’s 2023 request for proposals (“RFP”) soliciting proposals for DERMS Provider.

Lunar’s proposal offers a scalable DERMS platform with professional services support to enhance Ava’s expertise in developing and managing Distributed Energy Resources (“DERs”) to support Ava’s expertise in developing virtual power plants (“VPPs”) and will provide administrative support for Ava’s solar and storage incentive program.

**Background and Discussion**

To meet Ava’s goals to manage a range of DERs to form and utilize VPPs, Ava sought out a partner to implement a DERMS platform and develop device management strategies across an array of DERs.

DERs are a collection of emerging energy technologies that are distributed across the grid that bring electrification, decarbonization, customer cost savings, and resiliency benefits, which could offer a pathway to a more renewable future for load serving entities (“LSEs”) like Ava. They are small-scale energy resources that are adjustable, connected to the grid, and have internet or other connectivity. Some examples of DERs that are prevalent today include rooftop solar systems, grid-tied batteries, electric

vehicles (“EVs”) and EV chargers, heat pump water heaters, and smart thermostats. Residential, commercial, and industrial customers using one or several of these technologies can reduce their individual carbon footprint and energy costs by generating their own energy, storing energy to be used during higher priced / higher carbon-intensive hours, and/or optimizing their household or facility load around time-of-use (“TOU”) pricing. Ava can leverage these emerging resources to reduce our carbon footprint and improve our customer experience by aggregating these technologies together and optimizing them to operate in concert, or as VPP. To communicate with and optimize DERs together, Ava needs a DERMS.

A DERMS is a software platform that communicates with DERs and manages them as a group, which provides Ava the ability to support customers in maximizing customer benefits from their DER(s) or allow customers to participate in the energy markets that can provide financial benefits. A DERMS brings DERs condition, monitoring, and optimization control together at both the household level and across the grid.

Some examples of key DERMS functions include:

- Tracking DER energy usage and discharge,
- Optimizing DERs behavior such as charging and consumption across a household or facility to support customers realization of benefit from investing in DERs--simplifying the customer experience and lowering the barrier to entry for further DERs penetration, and
- Managing charging and discharging of assets to optimize Ava’s cost and carbon reduction goals
- Giving customers a method to participate in energy markets, which can provide additional financial benefit from DERs.

By enrolling in Ava’s battery program and connecting devices to the DERMS, customers can take advantage of the financial incentives and energy cost saving opportunities. Once enrolled, customers will receive verification that their device is online and ready to participate. From there, the DERMS intelligently manages resources to capitalize on Time of Use (TOU) rates, where electricity rates vary throughout the day. While the device remains connected, it will receive signals for when to charge/discharge or raise/reduce load. These signals will be informed by a customer’s TOU rate and onsite solar production, ensuring the device charges, or raises its load, during low-price or solar peak hours and discharges, or reduces its load, during high-price hours. This will result in automatic energy cost savings for the customer, which are in addition to any program-specific incentives.

As Ava pursues a greener and more resilient energy future for its customers, improving the penetration of optimized DERs across our service territory will be key to support maximizing the use of local renewables, reducing Ava's need for grid energy during peak times. Having a DERMS unlocks multiple potential avenues for Ava to offer its customers savings and incentives for adopting DERs.

## **Vendor Selection**

On November 3, 2023 Ava released a solicitation for a DERMS provider. The goal of the solicitation was to contract with a single DERMS provider with the ability to control a suite of existing and future DERs types on a single platform, and provide Ava with centralized control to optimize the managed load for carbon emission mitigation, energy savings for customers, and procurement cost reductions.

In addition to platform capabilities, the evaluation criteria included an assessment of each DERMS provider's experience integrating systems with original equipment manufacturers (OEMs), aggregators or sub-aggregators of DERs, as well as their platform's ability to scale over time as the market for DER technology expands. DER technologies of specific interest included: residential solar and storage, residential EV and electric vehicle supply equipment ("EVSE"), and residential heat pump water heaters ("HPWHs"). Future devices of interest included thermostats and potential applicability of DERMS platforms and integrations for commercial end uses.

Additional desired qualifications included experience in DER management and long-term capacity forecasting, expertise in communication protocols and data integrations, knowledge and use of cybersecurity industry best practices, and willingness to accept performance-based pricing and/or performance liquidated damages.

Ava received a wide range of responses from well-known firms across the grid-edge DERMS industry. With Ava staff and an external consultant specializing in DERMS, Ava examined six unique bids for DERMS.

Two submissions did not meet the minimum RFP response requirements, and the other four submitting teams were invited to interview with Ava staff to present and discuss their offers. During the interview process, two firms were identified as providing offers that fit Ava's needs best with the two remaining firms' offers being less attractive based on delivery structure resulting in a high cost offer and primary strength outside of the residential market.

The two best fit vendors were invited to provide a system demonstration illustrating how the platform communicates with DERs, forms DERs into VPPs, verifies performance of each DER and VPP dispatch, and forecasts device and VPP performance into the future.

We also asked the two best-fit vendors questions related to their ability to provide administrative support for a “bring your own device” style battery program. Both respondents provided a representative scope based on this requested list of services, and provided pricing related to these services.

Across both DERMS and battery program support, Lunar’s proposed scope of work provided the best value to Ava, providing Ava an opportunity to benefit from Lunar’s proven, flexible DERMS platform, global and California-specific expertise, as well as reducing the need for internal staff time on administrative/process tasks.

Ava staff are recommending engaging Lunar Energy for DERMS platform, provision of pre-existing enrolled resources and program administration support related to the battery incentive program because:

- Lunar’s approach that reflects Ava’s needs as defined in the RFP,
- Lunar has specific expertise in behind-the-meter residential distributed energy resource management, and
- Lunar can provide support to Ava that allows for the implementation of these scopes without additional Ava staffing.

Lunar’s proposed scope of work for the DERMS platform includes providing the ability to manage a diverse range of DERs across Ava’s service area, including reporting on and forecasting their performance. Initially, Lunar would manage solar and storage systems enrolled through Ava’s forthcoming capacity-based battery incentive program as well as EVs and EV chargers enrolled through Ava’s forthcoming managed charging program.

Additionally, Lunar Energy will support further definition of the capacity-based battery program’s design, leveraging their expertise to ensure that Ava’s program is easy to use for our customers while providing the greatest customer benefits. Once the capacity-based battery program is clearly defined, Lunar will oversee the customer enrollment and verification processes, as well as the incentive settlement and payment disbursement. The marketing and customer acquisition initiatives necessary to drive battery enrollment and connection to the DERMS platform will not be managed under this contract and may be directly performed by Ava or another contracted party.

## **Fiscal Impact**

The proposed contract term is two years with a not-to-exceed limit of \$2 million, with three one-year options to extend. The Local Development Fund has already allocated \$2 million for DERMS in the FY 23/24 budget. No additional expenditure is requested to support this contract at this time.

**Attachments**

- A. Resolution
- B. Presentation

**RESOLUTION NO. R-2024-XX**  
**A RESOLUTION OF THE BOARD OF DIRECTORS**  
**OF AVA COMMUNITY ENERGY AUTHORITY AUTHORIZING THE CEO TO**  
**NEGOTIATE AND EXECUTE A MASTER SERVICES AGREEMENT WITH LUNAR**  
**ENERGY**

**WHEREAS** The Ava Community Energy Authority (“Ava”) was formed as a community choice aggregation agency (“CCA”) on December 1, 2016, Under the Joint Exercise of Power Act, California Government Code sections 6500 *et seq.*, among the County of Alameda, and the Cities of Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Piedmont, Oakland, San Leandro, and Union City to study, promote, develop, conduct, operate, and manage energy-related climate change programs in all of the member jurisdictions. The cities of Newark and Pleasanton, located in Alameda County, along with the City of Tracy, located in San Joaquin County, were added as members of Ava and parties to the JPA in March of 2020. The city of Stockton, located in San Joaquin County was added as a member of Ava and party to the JPA in September of 2022. The city of Lathrop, located in San Joaquin County, was added as a member to Ava and party to the JPA in October of 2023. On October 24, 2023, the Authority legally adopted the name Ava Community Energy Authority, where it had previously used the name East Bay Community Energy Authority since its inception.

**WHEREAS** in 2020, Ava committed to a zero-emission power supply by 2030, fifteen years ahead of state law requirements;

**WHEREAS** Ava issued a request for proposals (“RFP”) on November 3, 2023 for a Distributed Energy Resources Management System (DERMS) provider to oversee a suite of Distributed Energy Resources (“DERs”) within Ava’s service territory, with the goal of enhancing operational efficiency to meet evolving energy demand needs;

**WHEREAS** Ava received four conforming bids and selected Lunar Energy based on their proven expertise, technological capabilities, and alignment with Ava’s objectives;

**WHEREAS** Ava’s Board of Directors has directed excess revenues from FY23/24 equal to approximately \$19.4 million for a battery incentive program to encourage battery adoption under the new Solar Billing Plan guidelines;

**WHEREAS** The Fiscal Year 2024 budget included \$2M for the development and administration of Virtual Power Plants;

**WHEREAS** Lunar Energy is capable of supporting program design and administrative needs for the battery incentive program;

**WHEREAS** Ava wishes to contract with Lunar Energy to enhance its capabilities to manage DERs, in a manner that benefits customers and Ava’s pursuit of carbon-free electricity by 2030.

**NOW, THEREFORE, THE BOARD OF DIRECTORS OF AVA COMMUNITY ENERGY AUTHORITY DOES HEREBY RESOLVE AS FOLLOWS:**

Section 1. The CEO is hereby authorized to negotiate and execute a Master Services Agreement with Lunar Energy for their DERMS software platform, battery incentive program design, and administrative services for an amount not to exceed \$2 million over a 2-year contract period.

ADOPTED AND APPROVED this 15<sup>th</sup> day of May, 2024.

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Jack Balch, Chair

ATTEST:

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Adrian Bankhead, Clerk of the Board



# Ava DERMS Provider Recommendation





# What is a DERMS?

## Distributed Energy Resource Management System

A software platform designed to communicate with and optimize the operation of various distributed energy resources (DERs) located across Ava's service territory, such as:

- electric vehicles
- batteries
- thermostats, and
- heat pump water heaters



# Why does Ava need a DERMS?

Ava can leverage distributed energy resources (DERs) to reduce our carbon footprint and support customer savings from DERs by aggregating these technologies together and optimizing them to operate in concert. This is known as a “virtual power plant” (VPP).

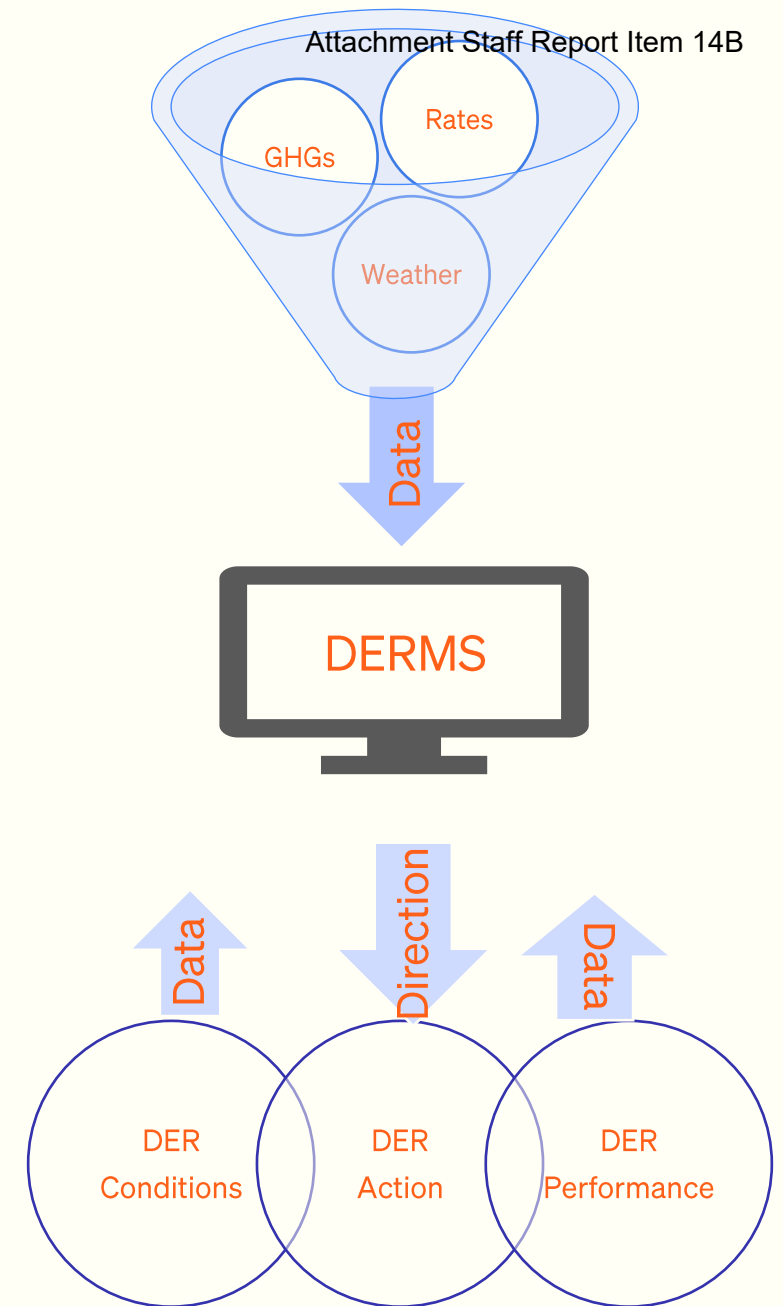
Ava needs a DERMS to communicate with and optimize DERs together.

## DERMS features

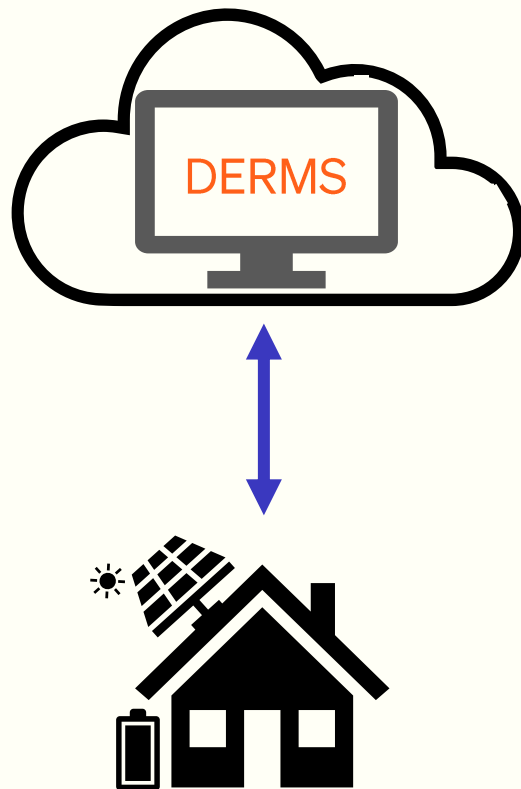
- Real-time monitoring and optimization of DERs
- Optimization of devices to maximize customer savings + support Ava's carbon free commitment

## DERMS benefits

- Savings for customer and Ava
- Lower grid strain and GHG emissions
- Cohesive operations of multiple DERs for customers



# How does a DERMS work? Pt. 1



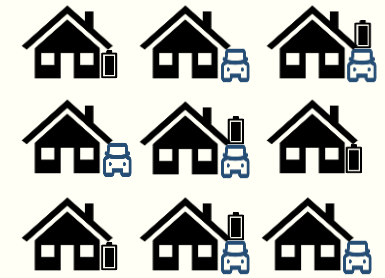
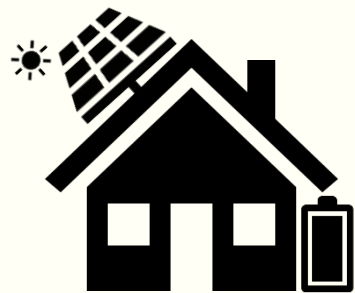
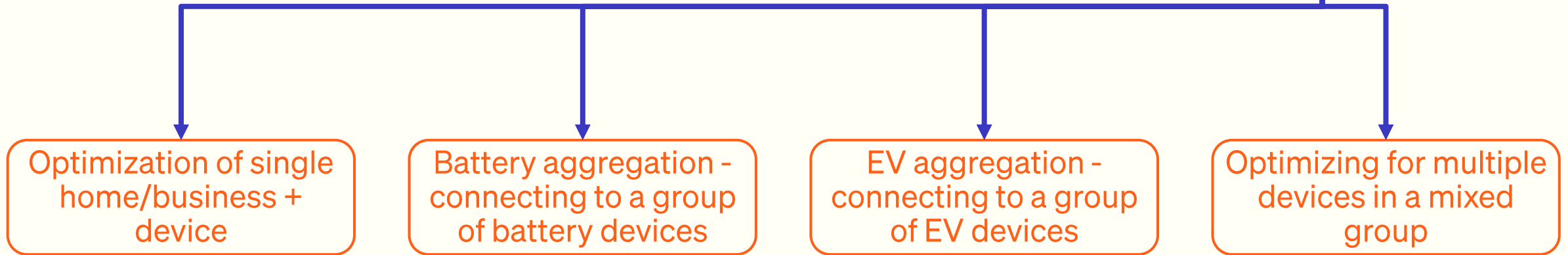
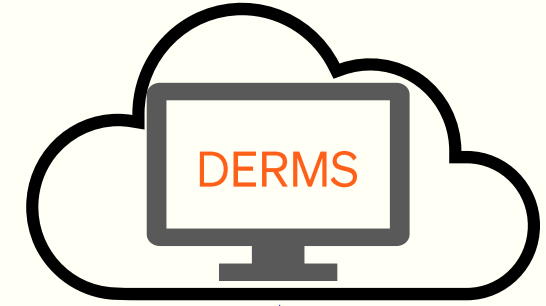
Single home optimization:

1. DERMS gets data from the battery/home via internet connection
2. Combining device data with other data such as rates, weather and greenhouse gas intensity, the DERMS works out what the battery should do:
  - a. charge from solar or charge from grid
  - b. discharge into the home or discharge into the grid
3. The DERMS then sends a command over the internet “telling” the battery controller what to do
4. The DERMS receives data back from the battery confirming that the action has been taken



# How does a DERMS work? Pt. 2

A DERMS can also optimize the behavior of groups of multiple devices (battery, EV charging, thermostats) together to form a VPP.



# DERMS Solicitation Background & Overview

## Background:

- RFP for a DERMS provider released on November 3, 2023
- Received six conforming bids
- Responses were evaluated based on:
  - Experience with DER integrations, DER management, and long-term forecasting,
  - Platform's current scale + ability to grow across DERs,
  - Expertise in DERS communications and cybersecurity

## Recommendation:

- Select **Lunar Energy** as Ava's DERMS provider
- Contract Term: 2 years, with 3 one-year options to extend
- Budget: \$2 million (previously allocated in FY'24 budget)



# Who is Lunar Energy and why are they a great fit for Ava?

- Lunar Energy is a global energy technology company headquartered in Mountain View, CA.
- Their DERMS platform, Gridshare, is being actively used to manage the largest 3rd party residential battery fleet in the world.
- Ava is recommending using Lunar's Gridshare platform because:
  - Lunar's approach aligns with Ava's needs as per the RFP
  - Lunar has expertise in behind-the-meter DER management
  - Lunar has over 8 years of experience delivering DER management program for a wide range of customers and understand the different demands and engagement solutions required for different customer segments
  - Lunar can support Ava's current battery programs implementation



# How will a DERMS support Ava's solar & battery program?

The DERMS will help facilitate Ava's solar & battery program by serving these four primary roles:

<b>Program Design Support</b>	Provide data for Ava to inform key program design decisions.
<b>Eligibility Check</b>	Verify initial battery installation and continued connectivity.
<b>Battery Optimization</b>	Optimize customer batteries for current rates; with ability to dispatch batteries in a coordinated way.
<b>Administration Support</b>	Enable online program enrollment, handle ongoing enrollment incentive payments, and manage customer technical support to keep customers connected.



# Thank you!



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