



Staff Report Item 5

To:	Ava Community Energy Authority
From:	JP Ross, Vice President Local Development
Subject:	SmartHome Battery Program Authorization
Date:	November 5, 2025

Summary/Recommendation

Adopt a Resolution authorizing the use of the previous budget allocation to a new solar photovoltaic (PV) and battery system incentive program, called SmartHome Battery, with 50% of the incentives for single family homeowners and 50% to low-income customers and resilience hubs, planned to launch in Q1 2026. Authorize staff to adjust program design based on program uptake and customer feedback with the approval of the Chief Executive Officer.

Financial Impact

Fiscal impacts will result from three separate sources: upfront and ongoing incentive payments for program participants, administration and virtual power plant (VPP) costs, and Ava lost revenues from the solar PV and battery systems.

The upfront incentive payments, ongoing incentive payments, and program administration costs will be funded by \$14.96M previously allocated to the Local Development Fund and \$500k allocated for SmartHome Battery performance payments in the FY 2024-2025 Local Development budget, totaling \$15.46M.

Operational costs for the VPP)— which include fees for the distributed energy resource management system (DERMS), storage dispatch fees, and inverter and battery connection API fees – will be funded by the previously approved \$2M contract with Lunar which can be extended for up to five years. VPP expenses are highly dependent on enrollment and participation rates and are currently forecast to be less than the

approved amount over the current contract term, which is through March 2027. Staff will report on the value and costs of the program as well as the performance of the DERMS provider to evaluate additional resources required to administer this program at the end of the first year of operation of SmartHome Battery.

In addition to direct project costs, Ava is also financially impacted by this program because all new behind-the-meter solar PV and battery system installations reduce electricity revenue to Ava. Similar to Ava's traditional approach to Net Energy Metering (NEM) 2.0 reduced revenues, the lost revenue of SmartHome Battery is not funded through a Local Development budget expense. The estimated lost revenue from SmartHome Battery participants is \$2.5M over 10 years.

SmartHome Battery serves both residential customers and resilience hubs, and these two customer segments will be addressed sequentially in each section of the following report.

Budget Authorization

On November 20, 2024, Ava's Board of Directors received a report on the actual FY 2023-2024 surplus of \$14,963,130 to support solar PV and battery system installations. This funding will help both residential customers (market rate and CARE/FERA customers) and community-benefiting resilience hubs, which are facilities designed to provide backup power during outages.

This decision followed an earlier resolution, Resolution R-2024-2, in January 2024 that defined how Ava's budget surplus from FY 2023-2024 would be split with:

- 60% of any surplus going back to customers as on-bill credits, with some portion specifically applied to CARE and FERA customers. Bill credits were issued in January 2025.
- 40% going toward solar PV and battery system incentives, with an emphasis on projects that support community resilience.

Part 1: Context

In April 2023, the California Public Utilities Commission (CPUC) voted to phase out the NEM 2.0 program. Under NEM 2.0, customers with solar PV systems received full retail credit on their bill for every unit of electricity exported to the grid. Beginning in 2023, new solar PV systems are instead enrolled in the Solar Billing Plan (SBP), which provides lower credits for excess electricity sent back to the grid. The Ava Board of Directors adopted [the Solar Billing Plan \(SBP\) Tariff Policy](#) in April 2024.

Under SBP, new solar PV-only installations are less financially beneficial to participating customers than they were under NEM 2.0 because electricity from the solar systems exported to the grid is now credited at "avoided cost" value, which averages 4¢/kWh

during solar PV production hours versus the retail rate compensation approach used by NEM 2.0, valued at 26-65 ¢/kWh. Ava offers export bonus credits to help offset some of this loss for its SBP customers.

Ava is now proposing a new solar PV and battery system incentive for customers who install both solar PV and battery systems. The program will be called SmartHome Battery, and the incentives will cover a portion of the lost export value from NEM 2.0 to SBP and help offset the costs associated with installing a battery.

Initial Draft Program Design

In April 2024, Ava staff presented an initial draft program design for SmartHome Battery to the Ava's Board of Directors, which included the following information:

- Budget: \$14.96M: 50% of budget (~\$7.5M) for upfront incentives for CARE/FERA residential customers and resilience hubs to install solar PV and battery systems.
 - 50% of budget (~\$7.5M) for upfront incentives for market rate residential customers to install solar PV and battery systems.
- Upfront Incentives to be paid when the solar PV and battery system is approved to operate:
 - \$10,000 per battery for CARE/FERA customers.
 - \$400/kWh of battery capacity for resilience hubs.
 - \$1,250 per battery for market rate residential customers.
- Ongoing Performance Payments: All customers receive \$2 per kWh of battery capacity per month for VPP participation.
- Program Term: Customers would have five years to enroll, and performance payments for VPP participation would last for five years.
- Eligibility:
 - Must be an Ava customer and own the home where the solar PV and battery system is installed.
 - To receive the upfront incentive, customers must install a battery, either with a new solar PV system or retrofitting with an existing solar PV system. Customers who already have both solar PV and battery system installed are eligible for the ongoing incentive only.
 - Must connect the battery to Ava's DERMS and participate in grid optimization events.

Program Design Development and Feedback

Residential Customers

Since Ava presented the initial draft program design, Ava staff have continued to perform program impact modeling and conducted multiple market focus groups with

professionals in the solar PV and battery industry to refine the proposed program design.

Some of the discoveries from this process by key topic include:

- Incentive sizing:
 - Ava should base incentives on battery size to align with standard practices used by other similar programs across the country,
 - Ava should ensure that the ongoing payments are sufficient to keep customers enrolled in the program.
- Customer choice: Ava should allow customers to choose the battery capacity that participates in the VPP and pro-rate the incentive accordingly.
- Third-party ownership of batteries: Currently, about 70% of residential customers in Ava's territory that install solar PV and battery systems finance them through a third-party owner, or "aggregator."¹ Ava should ensure customers who finance their solar PV and battery systems through third-party owners can still participate, through their aggregator.

Resilience Hub Customers

Ava's support for resilience hubs is broader than SmartHome Battery, and components of the broader Resilience Hub Initiative were leveraged to support program design for SmartHome Battery. Emerald Cities Collaborative (ECC) is funded through a \$300,000 Ava community grant to partner with Local Clean Energy Alliance (LCEA) and Collective Resilience to engage communities to support Ava's efforts to define and create eligibility criteria for resilience hubs and foster awareness of Ava's Resilience Hub offerings.

Grantees provided case study research on resilience hubs, conducted two resilience hub definition workshops to gather feedback on Ava's proposed resilience hub definition, developed a standardized intake form for potential hub sites to engage with technical assistance, and plan to conduct at least two community outreach workshops to educate Community-Based Organizations (CBOs) on resilience hubs and promote Ava's technical assistance and the SmartHome Battery Program. Efforts by the community grantees were used by Ava to inform the development of SmartHome Battery's approach to resilience hubs.

Resilience Hub Research

Given that resilience hubs are relatively new concepts, and approaches to how they provide community resilience varies widely, Ava performed research to characterize the current state of resilience hubs.

To better understand the types of facilities that may serve as resilience hubs supported by solar PV and battery systems, staff evaluated five data sources to understand

¹ Not all third-party owners operate as aggregators. For the purposes of this program, any reference to third-party owners is assumed to be an aggregator.

resilience hub services, solar PV and battery system requirements and associated costs.

These five data sources included:

- Ava sample sites – Ava’s independent engineer, NV5, modeled a set of potential resilience hub sites under different resilience scenarios for costs and payback periods in our service area.
- Non-profit developer sites with installed solar PV and battery system projects at community-serving facilities in California.
- Ava’s technical assistance pilot sites – sites in our service area piloting the technical assistance process supported by ECC.
- Collective Resilience, as a part of the ECC grant team, completed a case study of resilience hubs including examples of operating sites and potential resilience hubs in Ava’s service territory.
- Critical Municipal Facilities (CMF) and other CCA sites - Ava’s CMF sites and similar CCA resilience projects in California.

Across all sources, there are few fully operational resilience hubs, but we see a growing list of community-serving facilities interested in becoming resilience hubs. These facilities include churches, nonprofit centers, schools, gyms, and community centers, which are the types of sites already involved in their communities and providing routine public services.

Across these potential sites they span the gamut between:

- Smaller sites:
 - Limited space for solar PV and battery infrastructure. These sites use standard available solar PV and battery systems to maintain existing services during outages and may be capable of adding additional resilience services during emergencies.
- Larger sites:
 - May consist of multiple facilities across a property or campus that require more customized solar PV and battery systems that could provide multiple public resilience services over a multi-day outage.

Cost: Given that sites serving different functions will need to plan for resilience differently, we observe that estimated costs to install solar PV and battery systems can range widely with small projects costing \$100,000 to large sites where costs can be \$700,000 or more.

Financial Capacity: Resilience hub host organizations' financial capacity is also diverse, and we have observed loans and incentives as two tools that current sites use to support carrying out their solar PV and battery system projects.

Timeline: Given the range of project cost and size as well as supporting financial resources, resilience hubs can take months to multiple years to build their solar PV and battery system projects.

Based on these findings, Ava staff have sought to support the widest range of resilience hubs possible by designing definitions, requirements, and an incentive level that would allow for wide participation. This is a challenge given the wide variety of site- and entity-specific characteristics of potential resilience hubs across our service area.

We have sought to balance the need for high levels of resilience - for example, in the case of a major earthquake that disrupts the provision of public services for multiple days - with the realities of cost and feasibility. Our minimum backup requirement standards are designed to be achievable for smaller sites, while allowing larger projects to pursue higher levels and longer durations of energy resilience.

Resilience Hub Definition

Ava developed a proposed definition for participating in Ava's Resilience Hub initiative as a basis for informing desired outcomes from technical assistance and SmartHome Battery incentives.

The proposed definition was reviewed in focus groups conducted by ECC through an Ava community investment grant. There was community input to significantly broaden the definition beyond Ava's proposal. Ava staff reviewed the proposed language and determined that retaining the proposed specificity related to the provision of clean backup power for resilience services is important to manage clear expectations on the purposes and services provided in the program.

Ava's proposed definition for participating in the Resilience Hub initiative is below:

Resilience hubs are physical, community-serving facilities that provide essential services, distribute critical resources during emergencies, and integrate clean energy solutions to maintain operation during power outages. They also serve as year-round community spaces where local residents regularly gather and access everyday services.

Although Ava's definition is focused on the provision of clean backup power for resilience services, Ava's definition does not constrain sites or organizations from operating resilience hubs in accordance with community input, which is a key

component to ensure resilience hubs are providing relevant services to communities in appropriate manners.

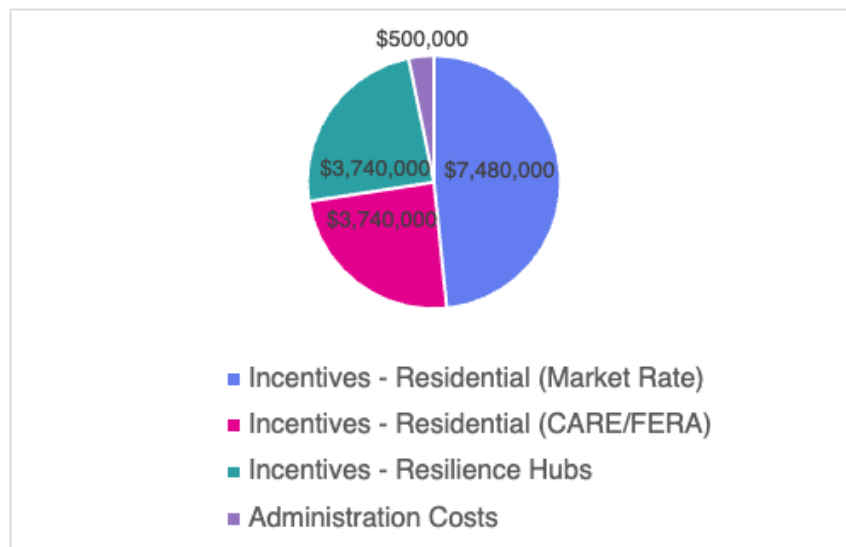
Part 2: Updated Program Proposal

Following the program design feedback and further research, staff is recommending several changes to the program design. These changes are described in each of the following sections. Some features, like the eligibility requirements for residential customers, remain unchanged.

Program Budget:

Ava staff proposes a total program budget of \$15.46M. This amount comes from two sources: \$14.96M from the previously approved 4 budget allocated to the Local Development Fund and \$500,000 that was previously approved for SmartHome Battery in the FY 2024-2025 Local Development budget. The program budget will be allocated to incentives and administration costs as shown in Figure 1 below, with 50% of the allocated budget being devoted to market rate residential incentives, 25% allocated for CARE/FERA residential incentives, and 25% allocated for resilience hubs incentives.

Figure 1: SmartHome Battery Budget Allocation



Program Incentive Structure:

Residential Customers

SmartHome Battery will offer customers two types of financial incentives:

1. upfront payments to reduce the initial cost of installing batteries, and

2. ongoing payments to encourage customers to keep their batteries enrolled and responding to grid reliability events.

Staff proposes to update the upfront incentive from the originally proposed \$1,250/battery for market rate residential customers and \$10,000/battery for CARE/FERA customers to \$90/kWh nominated capacity and \$500/kWh nominated capacity, respectively, and increase the proposed monthly ongoing incentives from \$2/kWh to \$3/kWh nominated capacity to encourage customer participation in Ava's VPP. Nominated capacity means that the customer will select, or nominate, a portion of their battery to participate in the program with a maximum nomination of 80%. The CARE/FERA upfront incentive has been set assuming the customer can stack it with California's Self-Generation Incentive Program (SGIP) Residential Solar and Storage Equity (RSSE) incentives, which provide up to \$1,100/kWh. If CARE/FERA customers are unable to stack incentives with SGIP, then the upfront incentive will increase to \$950/kWh nominated capacity for CARE/FERA customers.²

The total incentive value to the customer will now be higher for customers who install larger batteries compared to the proposed approach. For example, if a customer installs a 13.5 kWh battery with an 80% nomination, they will now receive \$2,916 in incentives over five years compared to \$2,870 under the previous proposal. These changes are meant to scale with both the size of the battery and level of participation, while also increasing the incentive for participants to remain in Ava's VPP for the term of the program.

For residential participants, both the upfront and ongoing incentives will be based on the size of the battery that a customer chooses to make available to Ava, or nominate, for participation in Ava's VPP. Customers will be able to nominate 40%, 60%, or 80% of their battery's total capacity for the VPP. Any portion not nominated can be reserved by the customer for personal backup power or other purposes. Customers can choose whether to receive the upfront incentive directly as a rebate or have it applied through their installer to lower the initial installation cost. Selecting the second option requires that the installer has participated in Ava's program training and been added to the program's approved installer list. Ongoing incentive payments will be made on a quarterly basis directly to the customer.

Customers who already have a solar PV and battery system installed can also participate; however, they will only qualify for the ongoing payments and not the upfront incentive. Participation for customers with existing systems will be limited to 50% of all enrollments to ensure customers who install new battery systems can access the

² Ava is awaiting a final vote on this item from the CPUC, which has been delayed twice.

incentive. Customers that complete an installation with a permit approval after January 1, 2026, will be eligible for the upfront incentive. Customers that install solar PV systems after January 1st will no longer be eligible for the Federal Investment Tax Credit (ITC), so Ava's incentive will help make up the lost ITC value.

Table 1: Proposed SmartHome Battery Incentive Levels for Residential Customers Assuming 80% of 10 kWh Battery is Nominated

<u>Participant Type</u>	<u>Upfront Incentive</u>	<u>Monthly Ongoing Incentive³</u>	<u>Total Incentive</u>
Residential – CARE/FERA (25% of allocated budget)	\$500/kWh nominated ⁴	\$3/kWh nominated	\$4,000 upfront + \$72/quarter
Residential – Market Rate (50% of allocated budget)	\$90/kWh nominated	\$3/kWh nominated	\$720 upfront + \$72/quarter

Resilience Hub Customers

For resilience hub participants, the proposed incentive includes an upfront incentive of \$1,220/kWh based on nameplate battery storage system size plus \$3/kWh based on nominated capacity for monthly ongoing participation in the VPP. This proposal is based on financial analysis of currently operating resilience hubs and potential sites, as well as current external funding sources.

As an example, under this proposal, a resilience hub with 100 kWh of battery storage (nameplate capacity) would receive the following incentives:

- The upfront incentive would be $100 \text{ kWh} * \$1,220/\text{kWh} = \$122,000$.
- If 80% of that battery was nominated to participate in the VPP, then the monthly ongoing incentive would be $100 \text{ kWh} * 80\% * \$3/\text{kWh} = \$240$.
- The total incentive value across five years of VPP participation would equal $\$122,000 + ((5 * 12) * \$240) = \$136,400$.

³ The incentives listed here are only for customers who participate in this program directly. The ongoing incentive for customers participating through an aggregator is \$6 / kW / month paid to the aggregator as the battery owner and based on battery performance during grid services events, as monitored by Ava's Distributed Energy Resources Management System (DERMS). This alternate incentive structure is set to ensure aggregators meet their VPP performance obligations in their contract. For example, if an aggregator battery delivers 5 kW across a two-hour event, the aggregator would be paid \$30 for that month (equal to what a non-aggregator participant would be paid for nominating 10 kWh).

⁴ Provided the customer can stack our incentive with California's Self-Generation Incentive Program (SGIP) incentive. If a CARE/FERA customer are unable to stack incentives with SGIP the upfront incentive will increase to \$950/kWh nominated.

Staff completed a thorough financial analysis of thirteen sample resilience hub sites, including actual installation and operations costs from Ava's Critical Municipal Facilities (CMF) program to inform this incentive level. We evaluated a variety of backup power requirements and incentive levels to estimate the financial impact of Ava's incentives for potential resilience hubs. At the proposed incentive levels, we estimate SmartHome Battery incentives would result in simple paybacks between 3 and 15 years for the examined sites. The cost coverage and payback time varies widely based on the size and complexity of the system as well as site characteristics. For resilience hubs, the value of resilience for the communities served is the primary driver of customer value—not bill savings. However, resilience hubs are not typically able to use the value of resilience as a contribution toward paying down the cost of a solar PV and battery system. As a result, although sites are not driven by financial payback, they may be constrained by it, and Ava's incentive would support sites to achieve a reasonable payback period.

No tiering of incentive levels has been proposed as resilience hubs are needed at all scales, as well as to support operational simplicity and customer clarity.

To ensure distribution of incentive dollars across multiple sites, staff recommend setting an upfront incentive maximum at 500 kWh or \$610,000. The maximum is based on the larger projects identified in our market research. With this cap, a minimum of six sites could be funded through SmartHome Battery if all sites reached the maximum incentive level. However, based on current market conditions, staff expect a larger number of resilience hub projects of smaller sizes to be funded. The incentive cap will not be applied to ongoing payments.

Resilience hub projects are complex and require a high level of planning and coordination, often resulting in extended development timelines. To support this, Ava will develop a waitlist process that allows prospective sites to reserve access to incentives for a defined period while their projects are developed.

As part of program implementation, Ava may also evaluate prioritization criteria – for example, considering factors such as geographic distribution or ownership model – to guide incentive allocation and waitlist management. These considerations will be assessed as the program evolves.

Incentive Payment and VPP Requirements: ***Residential Customers***

For upfront payments, customers can choose if they would prefer to receive the upfront incentive directly or have it transferred to their installer. Ava will pay the upfront incentive once the solar PV and battery system is permitted, operational, and connected to Ava's DERMS.

For ongoing payments, customers who own their battery will receive the ongoing incentive directly every quarter, as long as their battery remains connected to Ava's DERMS and responds to grid service events with the nominated capacity. Third-party aggregators who enroll batteries on behalf of customers will receive the ongoing incentive every month after Ava has assessed performance in grid service events.

Participating customers must be Ava customers. For residential customers to qualify for upfront or ongoing incentives, Ava's DERMS must be able to communicate with the battery for VPP participation. To ensure compatibility with our DERMS, enrollees will be required to select a battery system from Ava's approved vendor list.

Participation in the VPP would require residential customers to participate in one of the following protocols:

- Intermittent: a specified number of battery dispatch events per year over the course of the 5-year program participation term
 - SBP or NEM 2.0 customers who nominate at least 4kWh of their battery must allow Ava to dispatch their battery for up to 40 events⁵ each year and allow Ava to aggregate individual batteries to participate in other programs - such as Demand Side Generation Support (DSGS), a state-funded incentive program for load reduction and backup generation to support the state's electrical grid during extreme events - or market-based opportunities. Outside of event windows and during grid outages, customers may use the nominated capacity of their batteries for their own purposes.
- Daily: a daily battery dispatch schedule over the course of the 5-year program participation term
 - NEM 2.0 customers who nominate less than 4 kWh of their battery capacity will be placed on a daily dispatch schedule where their battery is dispatched by Ava daily during peak hours to help reduce peak energy demand on the electrical grid.

Residential customers will be excused from VPP participation when they are subject to a grid outage, PSPS event, or National Weather Service extreme weather alert.

⁵ This maximum may be higher depending on the equipment installed.

Resilience Hub Customers

Though payment approaches for resilience hubs are still being defined, staff expect to mirror the approach to payment for residential customers unless customer-specific requirements are identified that would better support incentive payment.

To qualify for upfront incentives, resilience hubs need to meet the proposed general requirements, provide at least one resilience service, and meet a minimum backup power requirement. Eligibility requirements are as follows:

- Ava nonresidential customer
- Property owner signoff (or landlord support for infrastructure changes)
- Community-serving or public-benefit facility
- Physical space to accommodate solar PV + battery system
- Open to the public during emergencies
- Participate in Ava's VPP
- Provide battery backup for at least 8 hours/day over 3 days
- Operational plan documenting resilience services and operations (plan must include resilience services provided, hours of operation, staffing and financial plan, power management strategy, communications plan, coordination with other hubs / agencies)

Resilience services, of which hubs would be required to provide at least one, are defined as the following:

- Lighted shelter
- Clean air or climate-controlled space
- Refrigeration
- Device charging
- Electric vehicle charging
- WIFI
- Fresh water access
- Food distribution
- Other essential service, to be approved by Ava

Minimum backup power requirements for resilience hubs are proposed as three days of operation at eight hours per day during business hours, as selected by the site. The rationale for this requirement is that it ensures that communities receive resilience services over a longer duration, as voiced during community feedback, while reducing the cost required to arrive at extended resilience service provision (i.e. bigger, more expensive batteries that provide longer duration power). Small sites can still meet this minimum backup requirement depending on the loads that they plan to support and the size of the solar PV system. In many cases, solar PV systems can generate more kWh

per day than the battery can hold, so the solar PV and battery system working together can regenerate energy during the daytime for multi-day operations.

Resilience hubs would be permitted to exceed this minimum if the community determines additional services or resilience are required.

To qualify for ongoing incentives, Resilience Hub customers will be required to participate in Ava's VPP. Customers will be required to nominate a share of their battery (40%, 60%, or 80%) to participate in Ava's VPP, as described in the Residential Customer section above. Resilience hubs will be excused from VPP participation when they are subject to a grid outage, PSPS event, or National Weather Service extreme weather alert, which is the same as for residential customers.

To ensure compatibility with our DERMS, sites will be required to select a battery system from Ava's approved vendor list. These systems are already integrated with Ava's platform and can reliably communicate with the DERMS for VPP participation. If a site chooses equipment not on the approved list, Ava may grant an exception for the upfront incentive, but the system would not be eligible for ongoing VPP payments since it cannot be integrated into the system.

Ava retains the right to prioritize resilience hubs funded via SmartHome Battery based on factors such as but not limited to: geographic distribution, proximity and service to disadvantaged communities, proximity to existing resilience hubs, ownership structure, and resilience services provided. The intent of prioritization would be to ensure that SmartHome Battery funding is expended to maximize public benefit. Ava will review this prioritization with the Board after the first \$1M in projects has been approved for the Resilience Hub waitlist. This will allow the community to review the types of projects that are being developed and institute additional prioritization criteria if warranted without applying unnecessary restrictions in the early stages of the program.

In alignment with ensuring public benefit from these funds, Ava would also reserve the right to claw back upfront incentives from resilience hub sites that fail to provide resilience services in per operational plan submitted to Ava (as noted in the list of eligibility requirements).

Ava will also align its resilience hub technical assistance with the requirements proposed for the incentive. Receipt of technical assistance from Ava is not required to receive SmartHome Battery incentives.

Part 3: Customer and Ava Impacts

Customer Value Overview

Residential Customers

The transition from NEM 2.0 to SBP represented a significant loss in bill savings potential for solar PV customers. As illustrated in Figure 2 below, part of this loss can be made up by pairing the solar PV with a battery system. This analysis illustrates a bill savings estimate over twenty years under three different scenarios using the same customer load profile and solar PV and battery system sizes using Energy Tool Base, a commonly used solar PV / solar PV and battery system bill savings calculator.

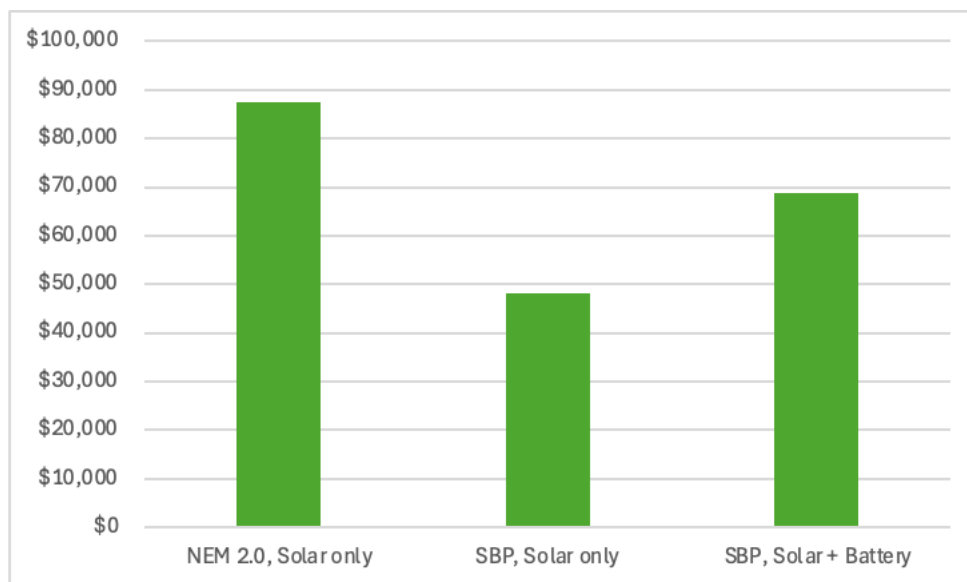


Figure 2: Decrease in customer value transitioning from NEM 2.0 to SBP, 20-year bill savings

The cost of a battery is a substantial investment - typically costing between \$10,000 to \$20,000. Batteries allow customers to recover some of the lost savings from NEM 2.0, but the higher upfront cost means it takes longer for the system to pay for itself. Ava's program provides both upfront and ongoing incentives to help customers defray the cost of a battery.

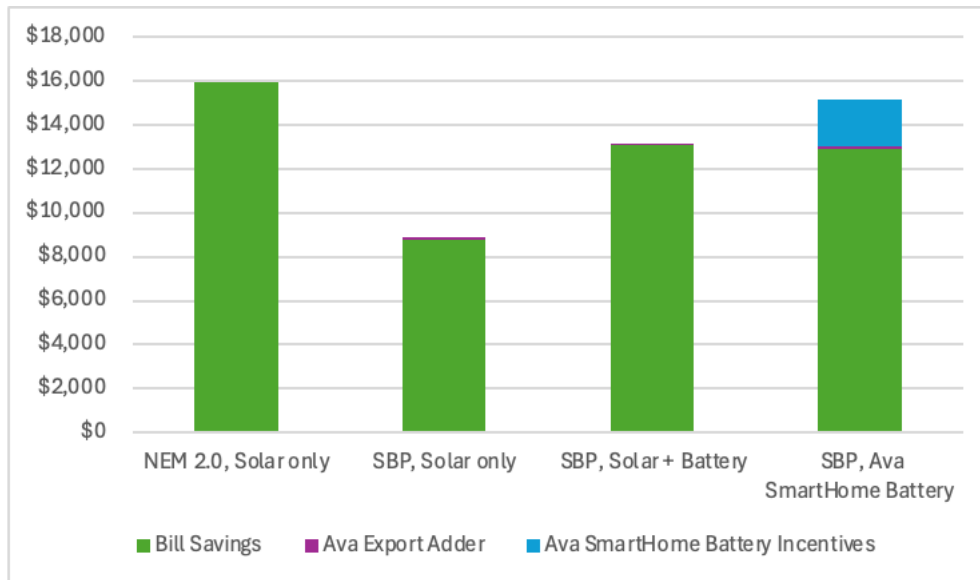


Figure 3: 5-year customer savings comparison between NEM2.0 and SBP scenarios including PG&E charges.

The SBP export credit and the SmartHome Battery incentive will help cover the additional costs of adding batteries to a home solar PV and battery system and recover the ~\$1,400 per year in lost customer value resulting from the transition from NEM 2.0 to SBP over the first five years. As demonstrated in Table 3 below, the SmartHome Battery incentive for a CARE/FERA customer paired with the SGIP incentive nearly covers the full cost of a \$10,000-\$20,000 battery system.

Table 3: SmartHome Battery Residential Customer Value Assuming 80% of 10 kWh Battery is Nominated for VPP Participation

	Residential – Market Rate	Residential – CARE/FERA
Ava SmartHome Battery Incentives (upfront and ongoing)	\$2,160	\$5,440
California SGIP Incentives	\$0	\$11,000 ⁶
Bill Savings during 5-year program term	\$12,917	\$12,917

Resilience Hub Customers

⁶ Assuming that CARE/FERA customers can stack SGIP incentives.

For resilience hubs, the value of resilience for the communities served is the primary driver of customer value. SmartHome Battery also provides value to resilience hubs as a stackable source of funding for solar PV and battery system project development.

With the expiration of non-residential SGIP funding, Ava's incentive can help fill this gap and support customers as one component of the funding stack for resilience hub projects.

Ava Revenue Impacts and VPP Value ***Residential Customers***

SmaHome Battery impact modeling indicates that customers with batteries buy less electricity during expensive peak hours, which reduces Ava's revenues compared to solar PV-only customers. Table 4 shows the expected per customer impacts to Ava from residential customers installing solar PV and battery systems and optimizing for bill savings compared to a customer installing a solar PV and battery system and participating in SmartHome Battery, and also demonstrates that participation in SmartHome Battery reduces these impacts.

Table 4: Annual Revenue Impacts from Residential Customers Participating in SmartHome Battery (\$/yr/customer)⁷

	Solar + Battery	SmartHome Battery
Ava Reduced Revenue	(\$313)	(\$294)
Ava Export Bonus Credit	(\$20)	(\$20)
Reduced Wholesale Energy Cost	\$69	\$75
Reduced REC Cost	\$33	\$33
2026 DSGS Incentive	\$0	\$263
Total	(\$231)	\$57

Ava can use VPP-participating batteries to reduce some of its procurement costs and potentially earn revenue from the battery dispatch through other programs, such as the DSGS. Note that DSGS revenues are not guaranteed and may not fully offset the revenue losses incurred by the program.

Resilience Hub Customers

Ava's revenue will also be impacted by resilience hubs who use their batteries to offset their electricity costs. These impacts have not yet been modeled, but given the low

⁷ Revenue impacts are compared to a solar-only customer on SBP

number of expected participants, these impacts could be significantly smaller. Similarly, VPP value from resilience hubs has not yet been evaluated.

Program Budget and Scale

The following table shows the budget allocations for each participant type along with the estimated number of participants.⁸

Table 4: SmartHome Battery Budget Segmentation and Scale

	<u>Upfront Incentives</u>	<u>Ongoing Incentives</u>	<u>Capacity</u>	<u>Estimated Number of Participants</u>
Residential – CARE/FERA	\$1.05M	\$2.7M	3 MW	830
Residential – Market Rate	\$1.5M	\$6M	17 MW	3,080
Resilience Hubs	\$3.5M	\$0.25M	1 MW	6-25
Total		\$15M	21 MW	3,916

As demonstrated in Table 5 below, SmartHome Battery may be able to recover some revenue losses resulting from customer adoption of distributed energy resources (DERs) through VPP activities over the program period. Staff intends to manage this program to maximize revenue recovery initially through participation in DSGS. Staff will evaluate VPP revenues and evaluate if program expansion is warranted.

Table 5: SmartHome Battery Budget, Reduced Revenue and VPP Value Estimates

Incentives	Reduced Revenue	Potential VPP Value⁹
\$15M	\$2.5M	\$2.9M

Table 5: SmartHome Battery Total Program Costs Over Program term

Part 4: Program Implementation

Ava contracted with a DERMS provider, Lunar Energy, to manage distributed energy resources on Ava’s behalf in 2024. A DERMS is required to support this program as it allows Ava to remotely confirm the presence of a battery, monitor battery performance, ensure batteries are operating optimally, and dispatch assets to optimize the battery for customer, grid and Ava benefits.

⁸ Final participant numbers will depend on battery storage system sizes and nominated amounts to be selected by participating customers.

⁹ VPP value is speculative and includes avoided energy costs, avoided REC cost, and revenue from participation in other programs.

Residential Customers

Lunar Energy also provides administrative support to enable online program enrollment, manage and verify approved equipment, calculate and pay upfront and ongoing payments to customers, and provide customer support for enrollment and device connectivity.

Ava will be hosting at least one installer training session for this program prior to program launch, and additional training sessions after launch. Training sessions will instruct installers on how to educate customers on Ava and Ava's SmartHome Battery program, as well as how to ensure that the battery is connected to Ava's DERMS.

Resilience Hub Customers

Lunar Energy will provide the same support to Resilience Hub customers as residential customers. Ava may engage in additional support if other processes, such as a waitlist, would support potential participation in the program.

Program Launch timeline:

Ava is planning to open the program to residential customers in early 2026 for new installation participants who own their own battery and residential customers who own existing battery systems. Customers whose batteries are owned by aggregators will be able to participate as soon as Q2 2026, depending on the aggregator's execution of a participation agreement with Ava.

Staff is still developing the Resilience Hub final administrative approach for the SmartHome Battery program, targeting launch later in 2026.

Related Board items:

[January 2024: Fiscal Year Budget Surplus Allocation](#)

[April 2024: Solar and Storage Program Informational Item](#)

[May 2024: Approval of Lunar Contract](#)

[September 2024: Approval of ICF Contract for Program Manual and Installer Training](#)

Attachments

A. Presentation



SmartHome Battery Program Proposal



Table of Contents

1. SmartHome Battery Program Context
 - a. Background on Solar & Storage Program Funding
 - b. Solar & Storage as a Part of Ava's VPP
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2. SmartHome Battery Program Proposal
 - a. Updated Proposal
 - b. Implementation

SmartHome Battery Program Context



Background on SmartHome Battery Program

FY23/24: Ava's Board of Directors dedicated 40% of the year's unallocated excess revenues to a solar and storage program (Resolution No R-2023-2).

- Final allocation to the program was \$14.96 M.

April 2024: high-level program design presented to the Board.

- 50/50 budget for upfront incentives split between market rate residential and CARE/FERA residential + Resilience Hubs customers.
- Ongoing incentive for all participants, contingent on VPP participation.

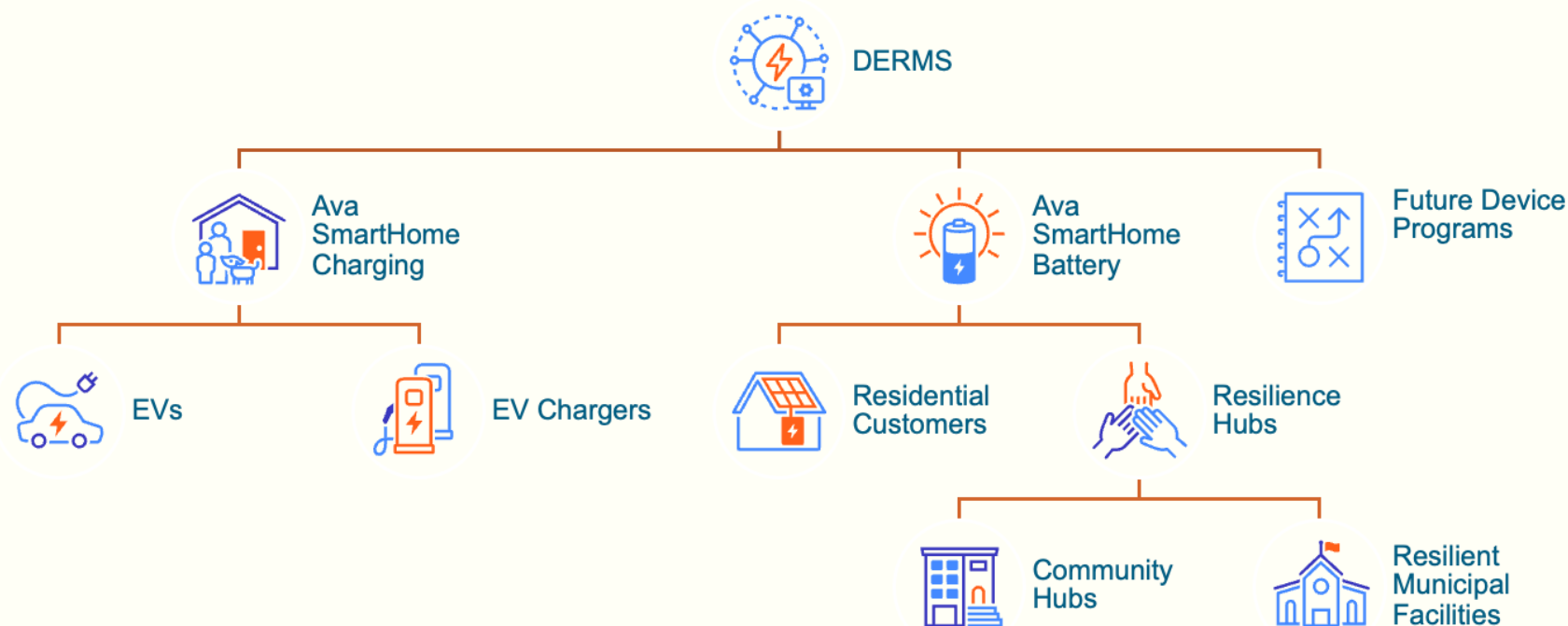
May 2024: Ava's Board of Directors approved Lunar Energy as the provider for Ava's Distributed Energy Resources Management System (DERMS) – allowing Ava include batteries in the VPP – and as the SmartHome Battery administrator (Resolution No R-2024-41).

Since then, Ava staff have been working to develop the SmartHome Battery Program.

Solar and Storage as a Part of Ava's VPP

Ava's DERMS allows us to leverage distributed energy resources (DERs) to reduce our carbon footprint and support customer savings from DERs by aggregating these technologies and optimizing them to operate in concert. This is known as a "virtual power plant" (VPP).

The solar and storage enrolled into SmartHome Battery will be a part of Ava's Virtual Power Plant (VPP).



Program Goals, Audience and Learning

Program Goal

- Support community resilience by growing a dependable battery component to our community Virtual Power Plant (VPP) at scale.

Program Audiences

- Residential Customers
 - CARE/FERA
 - General Market
- Resilience Hubs

Program Learning

- Enhance our understanding of how to reliably manage and grow battery aggregations



Program Design Development Findings

Ava has solicited feedback through multiple stakeholder engagement channels on program design

Residential

- Ongoing incentives should be high enough to keep customers enrolled in the program
- Customers should have options on how they'd like to participate in a long-term program
- Currently, about 70% of residential customers in Ava's territory that install solar and battery systems finance them through a third-party owner/aggregator

Resilience Hubs

- Resilience hubs are relatively new concepts, and approaches to provision of community resilience varies widely
- Existing resilience hubs are diverse across many characteristics
- Ava's program should support the widest range of resilience hubs possible by designing definitions, requirements and incentives that allow for wide participation

SmartHome Battery Program Proposal



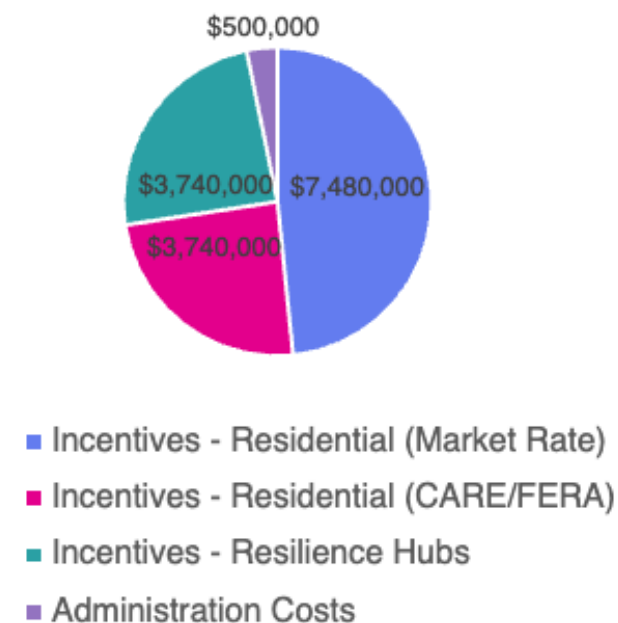
SmartHome Battery Budget and Program Enrollment Estimates

Program Enrollment Estimates

	Upfront Incentives	Ongoing Incentives	Capacity	Number of Participants*
Residential – CARE/FERA	\$1.05M	\$2.7M	3MW	830
Residential – Market Rate	\$1.5M	\$6M	17MW	3,080
Resilience Hubs	\$3.5M	\$0.25M	1MW	6
Total		\$15M	21MW	3,916

*The number of participants is dependent on the customers nominated battery capacity. Resilience Hubs will be highly dependent on the size of the projects. 6 projects is the minimum assuming all projects are at the proposed incentive cap of 500kWh.

Program Budget



SmartHome Battery by Customer Segment



Residential Customers

Eligibility

- Must be an Ava customer
- New installations of solar + battery storage, retrofits, existing solar + battery storage
- No dual enrollment in other battery programs

Program Term

- Enrollment: 5 years
- Participation: 5 years

VPP Participation

- Two-hour dispatches either daily or on an event basis determined by customer type + participating battery capacity
- Ava may earn revenue by dispatching into other programs

Incentive

Participant Type	Upfront Incentive	Ongoing Incentive
Residential - Market Rate	\$90/kWh nominated battery capacity	\$3/kWh nominated battery capacity/month
Residential - CARE/FERA	\$500/kWh nominated battery capacity*	\$3/kWh nominated battery capacity/month

*SGIP stacking for CARE/FERA customers: +up to \$1,100/kWh for full nameplate battery capacity

Incentive Example – Residential Customers

Incentives

Participant Type	Upfront Incentive	Ongoing Incentive
Residential - Market Rate	\$90/kWh nominated battery capacity	\$3/kWh nominated battery capacity/month
Residential - CARE/FERA	\$500/kWh nominated battery capacity*	\$3/kWh nominated battery capacity/month

**SGIP stacking for CARE/FERA customers: +up to \$1,100/kWh for full nameplate battery capacity*

Examples

Residential – Market Rate: If a customer nominates 80% of their 10kWh battery, they will receive:

$10\text{kWh} * 80\% * \$90/\text{kWh} = \720 upfront

$10\text{kWh} * 80\% * \$3/\text{kWh/month} * 3\text{months/quarter} = \$72/\text{quarter}$ for five years

Total = \$2,160

Residential – CARE/FERA: If a customer nominates 80% of their 10kWh battery, they will receive:

$10\text{kWh} * 80\% * \$500/\text{kWh} + 10\text{kWh} * \$1,100 \text{ SGIP Incentive} = \$15,000$ upfront (*SGIP will cap at total project value*)

$10\text{kWh} * 80\% * \$3/\text{kWh/month} * 3\text{months/quarter} = \$72/\text{quarter}$ for five years

Total = \$16,440

Resilience Hub Definition

The proposed definition was reviewed in focus groups conducted by Emerald Cities Collaborative through an Ava community investment grant. There was community input to significantly broaden the definition beyond Ava's proposal.

Ava staff reviewed the proposed language and determined that retaining the proposed specificity related to the provision of clean backup power for resilience services is important to manage clear expectations on the purposes and services provided in the Program.

Ava's proposed definition for Resilience Hub Program participation appears below:

Resilience Hubs are physical, community-serving facilities that provide essential services, distribute critical resources during emergencies, and integrate clean energy solutions to maintain operation during power outages. They also serve as year-round community spaces where local residents regularly gather and access everyday services.

Resilience Hub Eligibility Requirements

Resilience Hub Eligibility Requirements

Ava non-residential customer

Property owner signoff (or landlord support for infrastructure changes)

Community-serving or public-benefit facility

Physical space to accommodate solar and battery storage

Open to the public during emergencies

Participate in Ava's VPP

Provide battery backup for at least 8 hrs/day over 3 days

Operational plan required to include resilience services provided, operational hours, staffing + financial plan, power management strategy, communications plan, coordination with other hubs/agencies.

Participate in Ava's VPP for ongoing incentives. Excused from VPP events during grid outage, PSPS event, or NWS extreme weather alert

A site must **provide at least one critical service to the public during a resilience event**, such as:

- Shelter
- Clean air or climate-controlled space
- Refrigeration
- Device charging
- EV charging
- WIFI
- Fresh water access
- Food distribution
- Other resilience services with approval by Ava

Incentive Example – Resilience Hubs

To set the incentive Ava completed extensive modeling on potential resilience hub sites with our consultant NV5. Results indicate that sites would have a 5- to 15-year payback based on site and system complexity as well as resilience services and backup power requirements.

Incentives

Participant Type	Upfront Incentive	Ongoing Incentive
Resilience Hub	\$1,220/kWh nameplate battery capacity	\$3/kWh nominated battery capacity/month

Example

Resilience Hub: If a resilience hub nominates 80% of their 100kWh battery, they will receive:

$100\text{kWh} * \$1,220/\text{kWh} = \$122,000$ upfront

$100\text{kWh} * 80\% * \$3/\text{kWh}/\text{month} = \$240/\text{month}$ for five years

Total = \$136,400

Ava will develop a reservation process for resilience hub incentives. After the first \$1M (out of \$3.75M total) is reserved, Ava will review projects with the Board and evaluate if further prioritization is warranted. Additional prioritization criteria could include the following:

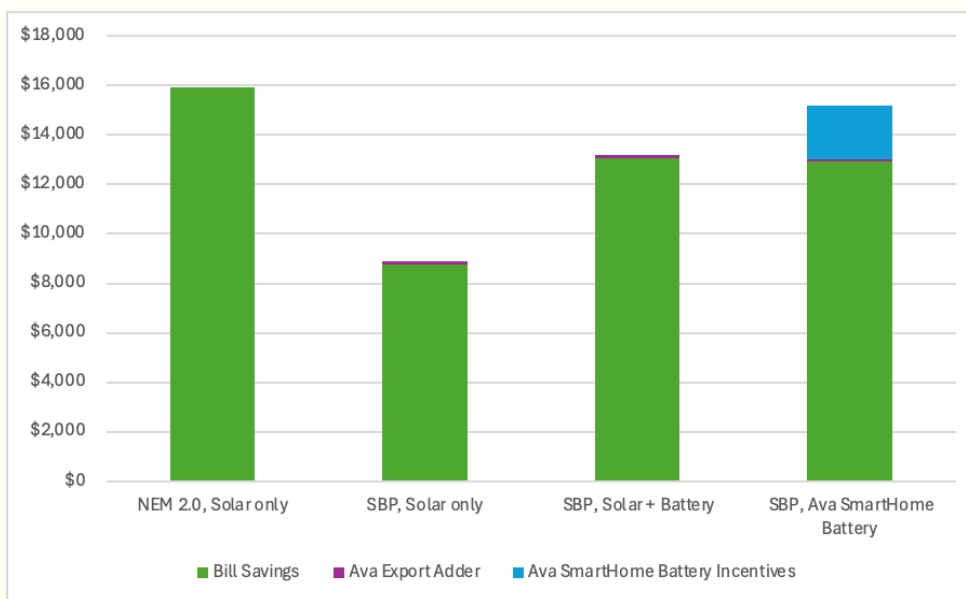
- 1) Resilience services provided
- 2) Location of resilience hubs and services to disadvantaged communities
- 3) Geographic distribution across Ava territory
- 4) Proximity to existing resilience hubs
- 4) Ownership/types of sites

SmartHome Battery Impacts on Customers



SmartHome Battery Impacts on Residential Customers

	Residential – Market Rate	Residential – CARE/FERA
Ava SmartHome Battery Incentives	\$2,160	\$5,440
California SGIP Incentives	\$0	\$11,000
Bill Savings over 5-year program term	\$12,917	\$12,917



5-year customers savings across various solar customer types including PG&E charges, assuming a 10kWh battery with 80% nomination using Energy ToolBase to estimate bill savings

NEM 2.0 transition to SBP led to a significant loss in customer savings potential unless the solar system was paired with a battery. Residential batteries cost \$10-20k upfront.

Adding a battery and \$20/year Ava export adder significantly increase customer savings from both Ava charges and PG&E T&D charges.

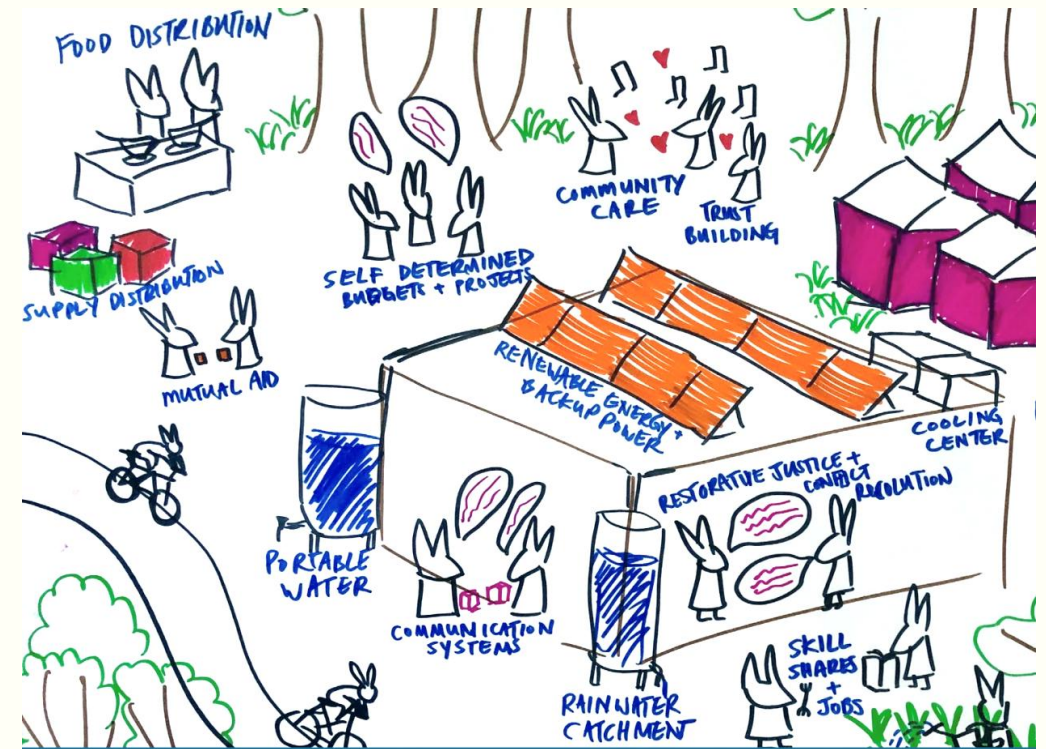
Ava's Solar & Storage program upfront incentive offsets part of the battery cost. To further reduce upfront cash burden, customers may also finance their system through a participating third-party aggregator.

CARE/FERA customers will be able to stack Ava's incentive with SGIP Residential Solar and Storage Equity Program, which provides up to \$1,100/ kWh.

SmartHome Battery Impacts on Resilience Hub Customers

Resilience Hubs

- The value of resilience for the communities served is the primary driver of customer value for resilience hubs.
- SmartHome Battery also provides value to Resilience Hubs as a stackable source of funding for solar and battery storage project development.
- With the expiration of SGIP's \$850-\$1,000 incentive for non-residential equity customers, Ava's incentive can help fill this gap and support customers as one component of the funding stack for resilience hub projects.



USDN San Leandro Resilience Hub Report

SmartHome Battery Impacts on Ava Revenue



DERs Impact Ava Revenue

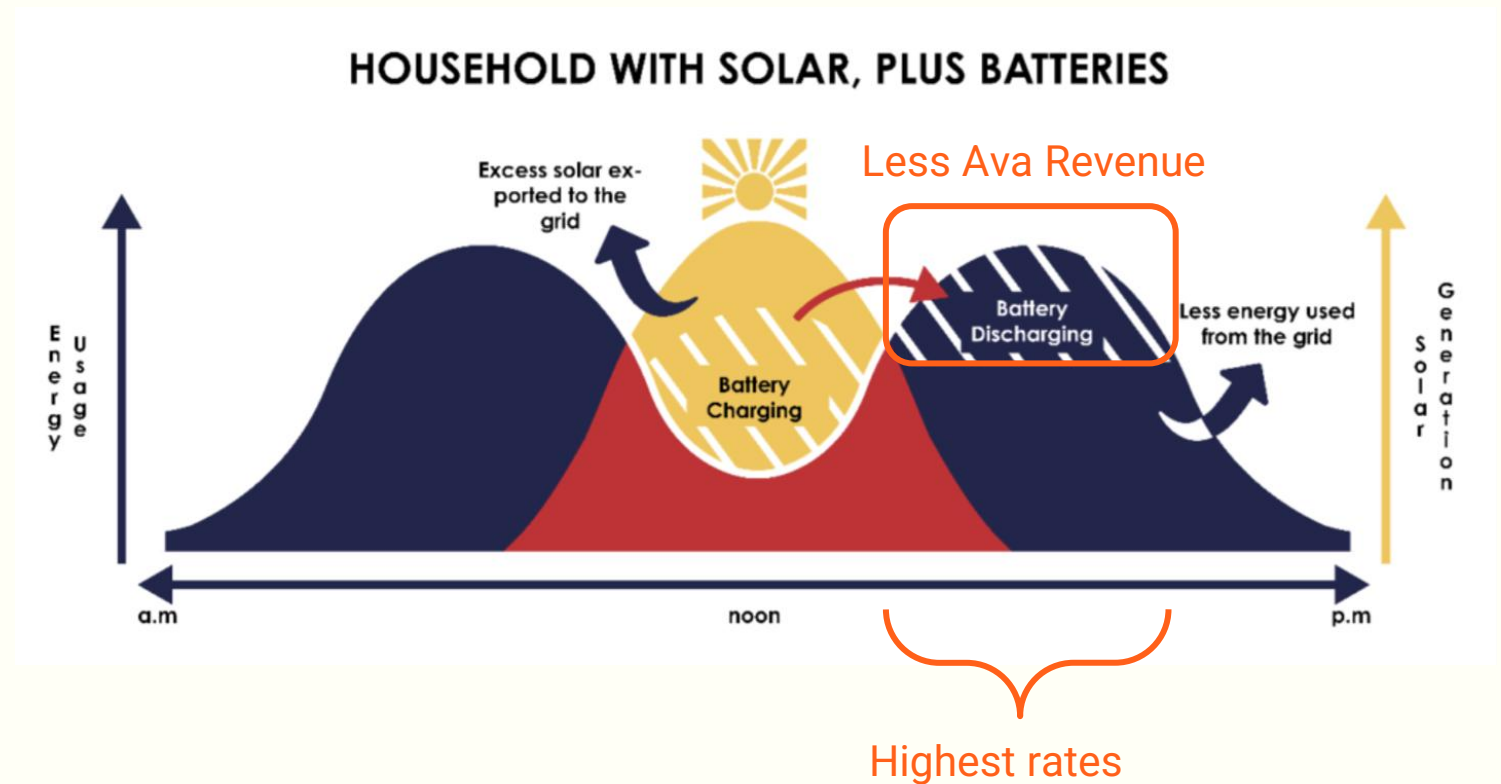
As more customers install batteries, Ava will experience a loss of revenue.

Through this program, Ava can get some grid service benefit to help offset these losses.

Although this program does impact Ava revenue, program budget does not include either lost revenue or grid services income.

Ava staff will evaluate overall revenue impact during the program term as a part of program evaluation.

Batteries store solar energy generated during the day for use later in the day, when rates are higher.



Source: <http://bit.ly/4mzrbjj>

SmartHome Battery Impacts on Ava revenue

	A: Solar and Battery not enrolled in SmartHome Battery	B: Solar and Battery enrolled in SmartHome Battery
Ava Reduced Revenue	(\$313)	(\$294)
Ava Export Bonus Credit	(\$20)	(\$20)
Reduced Day-Ahead Energy Cost	\$69	\$75
Reduced REC Cost	\$33	\$33
2026 DSGS Incentive	\$0	\$263
Total	(\$231)	\$57

There are impacts to Ava from any solar or solar and battery system operating in our service area. As a result of customers adding a battery, Ava loses about \$313/customer/year in revenue (see Column A) compared to a solar only customer.

These revenue losses are also present when solar and battery storage systems participate in the SmartHome Battery program (see Column B). Estimated revenue losses for participating customers are \$2.5M over a 5-year term.

Some revenue losses may be offset through solar and battery storage system participation in the VPP (see Column B).

SmartHome Battery Implementation



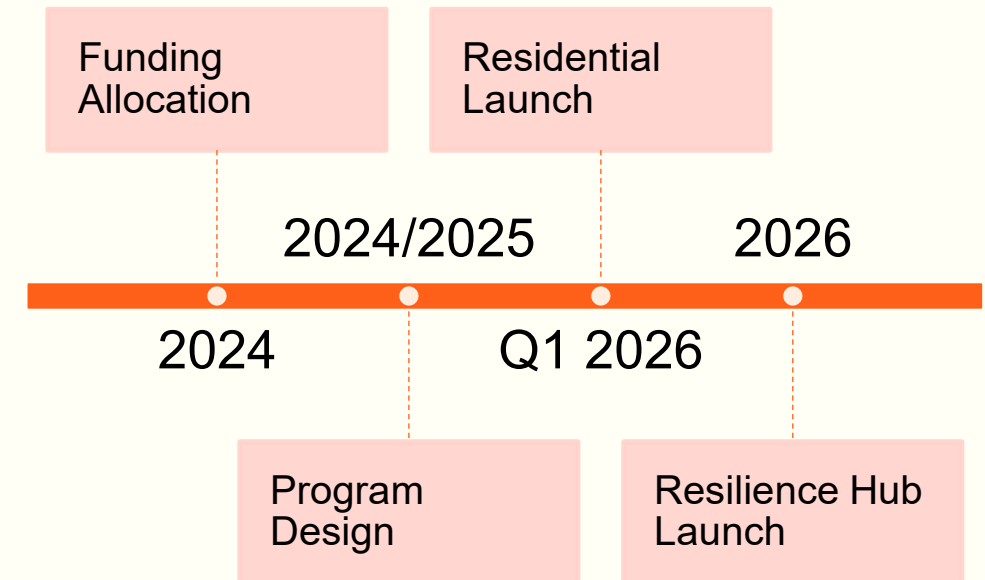
SmartHome Battery Implementation

Ongoing Efforts

- Development of enrollment web portal ongoing
- Implementation will include installer training and multi-tiered customer support
- To support resilience hubs, Ava will engage additional support if other processes, such as a waitlist, to support potential participation

Enrollment timing

- Early '26: Program opens for customers who own newly installed and existing solar and battery storage systems
- Q2 2026: Program opens for customers whose batteries are owned by aggregators pending aggregator execution of a participation agreement with Ava.
- Staff is still developing the Resilience Hub delivery approach for the SmartHome Battery Program, targeting launch later in 2026.



Reference



Initial Program Design Tenets

Program Term: Customers have 5 years to enroll for a 5-year program term. Enrollment term may end early upon budget expenditure.

Incentive Allocation: 50% of budget for upfront incentives for CARE/FERA residential customers and Resilience Hubs and 50% of budget for upfront incentives for market rate residential customers.

Upfront Incentives: Must be an Ava customer, install a battery with a new solar system or retrofitting an existing solar system.

- \$10,000 per battery for CARE/FERA customers.
- \$400/kWh of battery capacity for Resilience Hubs.
- \$1,250 per battery for market rate residential customers.

VPP Participation: Must be an Ava customer and connect to DERMS.

- All customers to receive \$2 per kWh of battery capacity per month for five years.
 - Customers who already have both solar and battery installed are eligible for the ongoing VPP incentive only.

