



RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES

DATE: MARCH 23, 2026

SUBJECT: ENERGY STORAGE REBATE PROGRAM IMPLEMENTATION FOR RESIDENTIAL DEMAND SIDE MANAGEMENT INCENTIVES USING PUBLIC BENEFITS ENERGY SURCHARGE FUND FOR A TOTAL OF \$5,000,000 – SUPPLEMENTAL APPROPRIATION

ISSUE:

Consider approving implementation of a new energy storage rebate program for residential demand side management incentives using Public Benefits Energy Surcharge Fund for a total amount of \$5,000,000.

RECOMMENDATIONS:

That the Board of Public Utilities recommends that the City Council:

1. Approve implementation of a new energy storage rebate program for residential demand side management incentives;
2. With at least five affirmative votes, authorize the Chief Financial Officer, or designee, to record a supplemental appropriation in the total amount of \$5,000,000 from the Public Benefits Energy Surcharge Fund Available Reserves and appropriate expenditures to the Energy Storage Rebate Program Account; and
3. Authorize the City Manager, or designee, to execute the Energy Storage Rebate Program and take all necessary actions required or advisable to implement, administer, fund, and carry out the City of Riverside's responsibilities under the Energy Storage Rebate Program, including making minor and non-substantive changes to the program, and to execute future amendments to the Energy Storage Rebate Program incentive amounts under substantially similar terms and conditions.

LEGISLATIVE HISTORY:

Energy efficiency has been seen by the State as a cost-effective means of supporting the energy grid. In state-wide energy planning, avoided energy use translates into lower costs for everyone by avoiding the need for new generation facilities and expanded transmission and distribution systems. Every customer benefits from those that participate in energy efficiency rebate programs through reduced costs to build, operate and maintain grid and generation infrastructure. The following bills have supported energy efficiency as part of the statewide loading order for

generation resources and for the development of programs that help customers as they make decisions to be more energy efficient.

1. Assembly Bill (AB) 1890 (Brulte, 1996) required that 2.85% of electric revenue be utilized to fund public benefits programming in at least one of four areas: demand side management (energy efficiency), renewable energy, low-income assistance, or research, development, and demonstration.
2. Senate Bill (SB) 1037 (Kehoe, 2005) sets ambitious energy conservation policies and goals requiring publicly owned utilities (POU's) to report kilowatt hour (kWh) savings annually to the California Energy Commission (CEC) and to its customers.
3. SB 350 (De Leon, 2015) establishes annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas by January 1, 2030. The bill requires local POU's to establish annual targets for energy efficiency savings and demand reduction consistent with this goal.

BACKGROUND:

Riverside Public Utilities (RPU) is required by state law to establish energy efficiency goals and administer energy efficiency programs funded through the state-mandated Public Benefits Charge.

In January 1998, per AB 1890, RPU began collecting the State mandated Public Benefits Energy Surcharge on customer utility bills. The Public Benefits Energy Surcharge requires a minimum 2.85% charge on all electric sales to implement programs within four specific categories. These include:

1. Residential and Commercial Energy Efficiency and Energy Conservation Programs
2. New Investment in Renewable Energy
3. Low-Income Assistance Programs and Education
4. Research, Demonstration and Development

As the landscape of the regulation and resources for energy efficiency and grid reliability changes, RPU continuously reviews and assesses existing programs and needs of the utility and its customers for enhancements and opportunities to introduce new programs meeting the guidelines. This is done in parallel with maintaining reliability, ensuring safety, and establishing cost-effective incentives and programs for RPU customers to benefit from.

DISCUSSION:

With the growing demand on the grid, RPU staff aimed to develop a program that would support customer resiliency and grid reliability in addition to meeting state mandates on energy efficiency. Due to the ability to store and discharge energy at specified times, energy storage systems can provide reductions during peak demand, therefore improving grid reliability and reducing costs associated with purchasing power during peak prices. In addition, offering an incentive for this technology to the customers would add to their electricity resource options throughout the day on

a continual basis instead of only at critical times (such as high heat waves or other extreme weather events or emergencies) throughout the year.

To support this effort, RPU is proposing a new customer rebate program named the Energy Storage Rebate Program. Before determining the type of new program to utilize that would meet the regulatory requirements and be beneficial to both the utility and the customers, an extensive amount of research and analysis was done to develop a proposed program for consideration.

A review of RPU's existing rebate programs was completed to determine if changes needed to be made to existing programs to determine if there were complementary measures. Upon review, it was determined that adding an energy storage rebate program as another incentive that customers could utilize; and ideally combine with the existing air conditioning rebate, heat pump rebate, Electrify Riverside Program, and solar self-generation program; would maximize the benefit of energy efficiency and demand side management for the customer. Customers with existing solar photovoltaic systems may also benefit from this program while also benefiting the overall distribution system by absorbing solar energy produced.

Ideally, if a customer takes advantage of all these rebate programs and combines them, it would lead to increased cost effectiveness and customer resilience. Many energy storage systems provide the ability to generate backup power from the stored energy for whole house or appliance specific power during outages. This provides customers with continued safety and comfort in the event of a temporary power outage.

Further research was performed to identify the types of energy storage technologies currently available for residential and commercial customers. Also, a comparison of other utilities in California and across the country having similar rebate programs was compiled. In reviewing the limited number of utilities with similar energy storage programs, most were only designed for residential customers, still in the pilot stages, and only focused on battery storage technology. In addition, many of the programs required a customer to either have an existing solar photovoltaic (PV) system or to install a solar PV system simultaneously with the battery storage system. RPU staff determined that a residential technology agnostic pilot program for energy storage systems should be pursued initially to allow for other energy storage systems, such as thermal energy storage space cooling that are in development. These technologies will be evaluated throughout the program to determine if program modifications should be made.

To determine the efficacy of an energy storage program, staff analyzed the avoided cost of load shifting that energy storage systems could provide at the utility and customer level, respectively. The analysis and assumptions were based on a typical lithium-ion battery technology with a 13.5 kWh capacity with an average system cost of \$8,200 (note that battery pricing varies depending on brand and size). This did not include installation costs and other associated costs or potential increases or decreases in equipment pricing over time.

Staff identified where RPU would see cost savings at the utility and distribution level in avoided costs due to load shifting based on an evaluation and analysis specific to its system profile and customer needs. Utility level avoided costs analyzed the avoided local energy costs associated with shifting daily loads from the evening into midday hours, avoided system capacity costs (i.e., system resource adequacy capacity costs), avoided greenhouse gas (GHG) carbon credit, and avoided distribution system losses. The methodology utilized to account for these avoided cost components was adapted from the current avoided cost of energy methodology for determining the value of renewable energy from customer owned distributed energy resources, specifically solar PV resources.

The methodology used to account for the local distribution level benefits was based on the California Public Utilities Commission’s 2024 Distributed Energy Resources Avoided Cost Calculator Documentation (see attachment) but inputs and assumptions are specific to RPU’s local distribution system. Distribution level avoided costs analyzed the circuits and transformers close to (or above) their capacity limits. Each one was identified and the cost for the standard utility upgrade necessary to address the constraint was calculated including the full project cost and major cost components. By converting the upfront project costs for extra capacity upgrades into an annual cost (including the annual operations and maintenance costs) the analysis of the deferred need for the infrastructure update based on timing and cost growth was applied to develop the avoided distribution system losses (capacity constraints).

Combining the above analyses, staff also considered the energy storage system’s output and dispatchable time periods and assumed degradation over ten years to determine a 10-year value per installed kWh. Staff’s detailed analysis identified an avoided cost of approximately \$465/kWh total including both the avoided costs associated with procured energy and the potential avoided or delayed distribution upgrade costs as referenced above. The full methodology and analyses are attached, and are summarized as follows:

$$\text{Avoided Distribution Infrastructure Costs} + \text{Avoided System Capacity Costs} + \text{Avoided GHG Carbon Credit} + \text{Avoided Distribution System Losses} = \text{Avoided Cost of Load Shifting Value (converted to Loss Adjusted Annual \$ Value)}$$

Including the above with the expected dispatchable time periods and an energy storage system’s degradation over a 10-year period can be summarized as:

$$\text{Loss Adjusted Annual \$ Value} \times 10 \text{ years} - \text{Battery Degradation} = \text{approximately \$465 per kWh (10-year value per installed kWh)}$$

While performing the quantitative analysis, staff made inquiries into other utilities that could be contacted and found that none had completed avoided cost of load shifting analyses for their programs. They based their rebate on the methodology justification developed by the California Public Utilities Commission and their utilities’ funding availability. As a comparison, the following table outlines what other utility providers currently offer for their similar energy storage rebate programs.

Utility	Program Name	Incentive	Technology	Size	Requirements
Anaheim Public Utilities	Residential Energy Storage Pilot Program	Up to \$3,000 per household	Eligible energy storage unit must meet the size minimum requirement	Minimum size of 5 kWh	Must be on a TOU rate, part of existing solar system, and sign up for DR program
Silicon Valley Power	Battery Storage Rebate	Up to \$2,700 per household and extra \$2,000 for low-income	Approved list of equipment brands	Minimum size of 3 kWh	Must have existing solar system or install solar with battery storage

Utility	Program Name	Incentive	Technology	Size	Requirements
Sacramento Municipal Utility District	My Energy Optimizer Partner+ Incentive (aka Battery Storage Incentive Program)	Enrollment incentive varies by brand and size with maximum up to \$10,000 per household	Approved list of equipment brands	No minimum, based on the approved list of eligible brands	Must be on a TOU rate and sign up for DR program
Fort Collins Utilities	Residential Battery Storage	\$300/kWh capacity up to \$6,000 maximum incentive	Approved list of equipment brands	Minimum size of 6 kWh	Must be sold and installed by approved contractor and be on a TOU rate
Duke Energy	PowerPair Solar and Battery Installation Pilot Program	\$400/kWh up to 13.5 kWh size; maximum incentive of \$9,000 based on PV system size and battery capacity	Approved list of equipment brands limited to maximum capacity of 13.5 kWh	No minimum, but limited to maximum size of 13.5 kWh	Must be new solar installation with battery storage, be on a TOU rate, and use approved contractor

PROPOSED ENERGY STORAGE REBATE PROGRAM

This program would provide a rebate to residential customers who purchase an energy storage system. The rebate would be technology agnostic and apply to any energy storage technology with the ability to store energy during non-peak periods and discharge during peak periods. All participants would be required to participate in the residential time-of-use (TOU) electric rate.

An existing customer would need to remain on or switch to the Self-Gen Domestic-TOU rate, if adding an energy storage system to qualify for the rebate in the following situations:

1. Existing residential customers participating in the solar self-generation program.
2. Existing residential customers on the net energy metering rate.
3. Existing residential customers who install a standalone energy storage system.
4. Existing residential customers who install both a solar system and energy storage system simultaneously.

Potential energy storage system technologies that may apply depending on their application, usage, and availability of residential options from manufacturers. The technologies currently available include battery energy storage systems and thermal energy storage systems (related to air cooling systems). There is the potential for other emerging technologies to qualify as an allowable energy storage system technology in the future.

The Energy Storage Rebate program would be structured as follows:

1. Proposed program budget of \$5 million utilizing Public Benefits Energy Surcharge Fund.

2. Upon approval, rebates will be available retroactively for customers from fiscal year July 1, 2025 to June 30, 2026 to accommodate ratepayers who have recently installed or are in the process of installing an energy storage system.
3. Residential customers installing an applicable energy storage system would receive a rebate based on \$500/kWh capacity up to \$10,000 per rebate not to exceed total project cost (i.e., equipment and associated installation costs) and limited to one rebate per year.
4. Low-income residential customers that meet RPU's Sharing Households Assist Riverside's Energy (SHARE) program requirements (currently set at household income at or below 250% of federal poverty level) would receive a rebate based on \$850/kWh capacity up to \$17,000 not to exceed total project costs (i.e., equipment and associated installation costs) and limited to one rebate per year.
5. Customers are required to be on or switch to the current residential TOU rate.
6. No restrictions on kWh capacity of equipment procured.
7. One rebate per customer household at a given address. Customers may reapply if they move to a new location and install a new energy storage system that meets the program requirements.
8. Technology agnostic with no restrictions on brand or type of energy storage system.
9. Eligibility can be for existing solar customers, new solar customers, or standalone energy storage system installations.
10. Documentation required (preliminary) is as follows:
 - a. Proof of purchase showing ownership and associated installation receipts with installation at address identified on the customer account
 - b. Building/Electrical inspection sign off
 - c. Photo of the installed energy storage system
 - d. Photo of serial number on energy storage system matching invoice
 - e. Customer Acknowledgement of requirement to be on residential TOU rate

The above requirements are currently under staff review and are based on the same requirements used for other rebate programs offered by RPU.

The Energy Storage Rebate program would provide funding for approximately 740 rebates for the modeled average residential storage system at the \$500/kWh rebate amount.

BENEFITS OF ADDING A NEW PROGRAM

Since the proposed program meets the criteria of the Public Benefits Energy Surcharge categories, specifically demand side management (energy efficiency), and fulfills the statewide energy efficiency savings and demand reduction goal, the program is able to utilize the existing Public Benefits Energy Surcharge Fund.

Another benefit of adding this new program as part of the existing electric rebates, if done in

combination with the air conditioning rebate, heat pump rebate, Electrify Riverside Program, and the solar self-generation program, would create the maximum benefit to the customer in terms of demand side management leading to demand reduction and peak shaving at the utility and customer levels.

The new program will be a pilot program for demand side management that is technology agnostic compared to other utilities that only offer rebates on a specific energy storage system technology. RPU would be one of the first to structure its program in this manner, which could be an example for other utilities or lend itself to lessons learned as future programs are designed. For RPU, this approach is acceptable as the goal is to demonstrate peak load reduction which can be achieved by various technologies. All technologies installed for this purpose would be required to comply with all building and safety requirements.

Flexibility for this pilot program has been built in with no restrictions on the brand or type of energy storage system or the size requirement to qualify for the rebate. Lastly, customers who have existing solar, plan to install solar, or wish to only install the energy storage system qualify for the rebate.

PROPOSED IMPLEMENTATION OF PROGRAM

Upon approval, RPU staff will update the existing Electric Rebates website under the Residential Rebates by doing the following:

1. Add new Energy Storage Rebate Program
2. Add Rebate Info
3. Add Qualifying Products
4. Add and update Program Guidelines
5. Add Application
6. Add Frequently Asked Questions
7. Create Customer Acknowledgement Form requirement to be on residential TOU rate

The above changes are currently in development and will be made available upon Board and City Council approval.

PLANNED FUTURE ITEMS

A commercial energy storage program is currently being evaluated and, if it is determined to be feasible and beneficial to RPU and the utility's customers, will be brought to the Board and City Council for future approval. A commercial TOU rate will need to be developed to support the development of such a program. Additional research and analysis are needed to assess the available technologies, size and capacity, and impact on grid reliability.

In addition, the potential for future demand response programs are under review and may be combined as an add-on to the new proposed program.

Reassessment and tracking of the new program will be done on a continual basis to determine its success and lessons learned for existing and future programs. The program will be updated and future funding added as the program is implemented.

FISCAL IMPACT:

Total fiscal impact is \$5,000,000. Upon Council approval, a supplemental appropriation in the amount of \$5,000,000 will be appropriated from the Public Benefits Energy Surcharge Fund Available Reserves to the Energy Storage Rebate Program Account No. 6020100-456111 to fully fund the program for FY 25/26 and through the duration of the program.

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Attachments:

1. RPU Avoided Cost of Load Shifting Methodology
2. CPUC 2024 Distributed Energy Resources Avoided Cost Calculator Documentation
3. Presentation