

RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES

DATE: JUNE 10, 2024

SUBJECT: RESOURCE ADEQUACY PURCHASE AND SALE AGREEMENT WITH VESI 15, LLC FOR 80 MEGAWATTS OF BATTERY ENERGY STORAGE CAPACITY FROM THE SHIRK ENERGY STORAGE FACILITY FOR A TERM OF FIFTEEN YEARS AND AN ESTIMATED AVERAGE ANNUAL COST OF \$7,600,000

ISSUE:

Consider recommending that the City Council approve the Resource Adequacy Purchase and Sale Agreement with Vesi 15 LLC for 80 megawatts of battery energy storage capacity from the Shirk Energy Storage Facility for a term of fifteen years and an estimated average annual cost of \$7,600,000.

RECOMMENDATIONS:

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

1. Approve the Resource Adequacy Purchase and Sale Agreement with Vesi 15 LLC for 80 megawatts of battery energy storage capacity from the Shirk Energy Storage Facility for a term of fifteen years and an estimated average annual cost of \$7,600,000; and
2. Authorize the City Manager, or designee, to execute the Resource Adequacy Purchase and Sale Agreement and all documents necessary to administer the Agreement including the ability to make non substantive changes, as well as to execute future amendments to the Resource Adequacy Purchase and Sale Agreement under terms and conditions substantially similar or superior to the Resource Adequacy Purchase and Sale Agreement or, if needed, to terminate the Resource Adequacy Purchase and Sale Agreement in accordance with Agreement terms and conditions.

BACKGROUND:

Resource Adequacy (RA) describes an electric utility's procurement of sufficient power supply capacity to serve its customers' projected electricity requirements plus an additional amount to be held in reserve for unanticipated circumstances (e.g., unplanned transmission or generation outages). This additional amount is referred to as a Planning Reserve Margin (PRM).

Section 40 of the California Independent System Operator (CAISO) tariff governs the RA program requirements for load-serving entities (such as Riverside) participating in CAISO markets. The

CAISO tariff provides an option for local regulatory authorities of publicly owned utilities to adopt their own PRM and RA Program guidelines that meet certain criteria.

On May 23, 2006, the City Council adopted Resolution 21170, establishing its own RA Program in response to the CAISO Tariff requirements. This action preserved Riverside's local control over its resource procurement.

On June 5, 2012, the City Council adopted Resolution No. 22389, approving a revised RA Program, which reflected current grid operational conditions, deleted obsolete provisions, and ensured efficient implementation while enhancing reliability.

On August 18, 2020, the City Council adopted Resolution No. 23617, approving specific revisions to the City's RA Program to eliminate provisions that were no longer applicable and to better facilitate the ability to acquire less expensive RA resources. Resolution No. 23617 specifies that Riverside Public Utilities (RPU) shall maintain at least a 15% PRM and be able to demonstrate that the utility has acquired enough System, Local, and Flexible RA to meet all CAISO annual and monthly RA filing deadlines.

DISCUSSION:

Historically, RPU has met most of its annual and monthly RA requirements by purchasing the capacity attributes from generation resources under long-term power purchase agreements (PPAs) with the City. This strategy has typically worked fine for meeting monthly RA requirements during the winter since Riverside rarely exhibits a peak load more than 300 MW from November through March. However, RPU typically needs to buy some additional merchant RA for non-winter months, with most of this need occurring during July, August, and September. Additionally, this need has grown over time as the utility has contracted for more variable renewable wind and solar resources because these variable resources don't provide the same amounts of qualifying RA as either firm baseload resources, dispatchable natural gas generation assets, or dispatchable battery energy storage (BES) assets like those shown in Figure 1 below.



Figure 1: Battery Energy Storage Facility

Unfortunately, as the state of California has begun more aggressively retiring its older natural gas generation assets, a supply shortage in available merchant RA has developed. Since 2019, merchant RA market prices have reflected increasingly volatile year-over-year price increases. Table 1 shows the average cost of RA in the summer months since 2019, as reported by Southern California Publicly Owned Utilities in a recent California Energy Commission (CEC) RA proceeding. Figure 2 shows the corresponding average annual cost of RA graphically for the same period.

Table 1. Average System RA Cost for Q3 (July, August, and September) since 2019.

| Year | Q3 Marks – System RA (\$/kW-month) |
|------|------------------------------------|
| 2019 | Under \$10.00 |
| 2020 | \$10.00-\$15.00 |
| 2021 | \$15.00-\$20.00 |
| 2022 | \$20.00-\$40.00 |
| 2023 | \$35.00-\$55.00 |
| 2024 | \$65.00-\$100.00 |

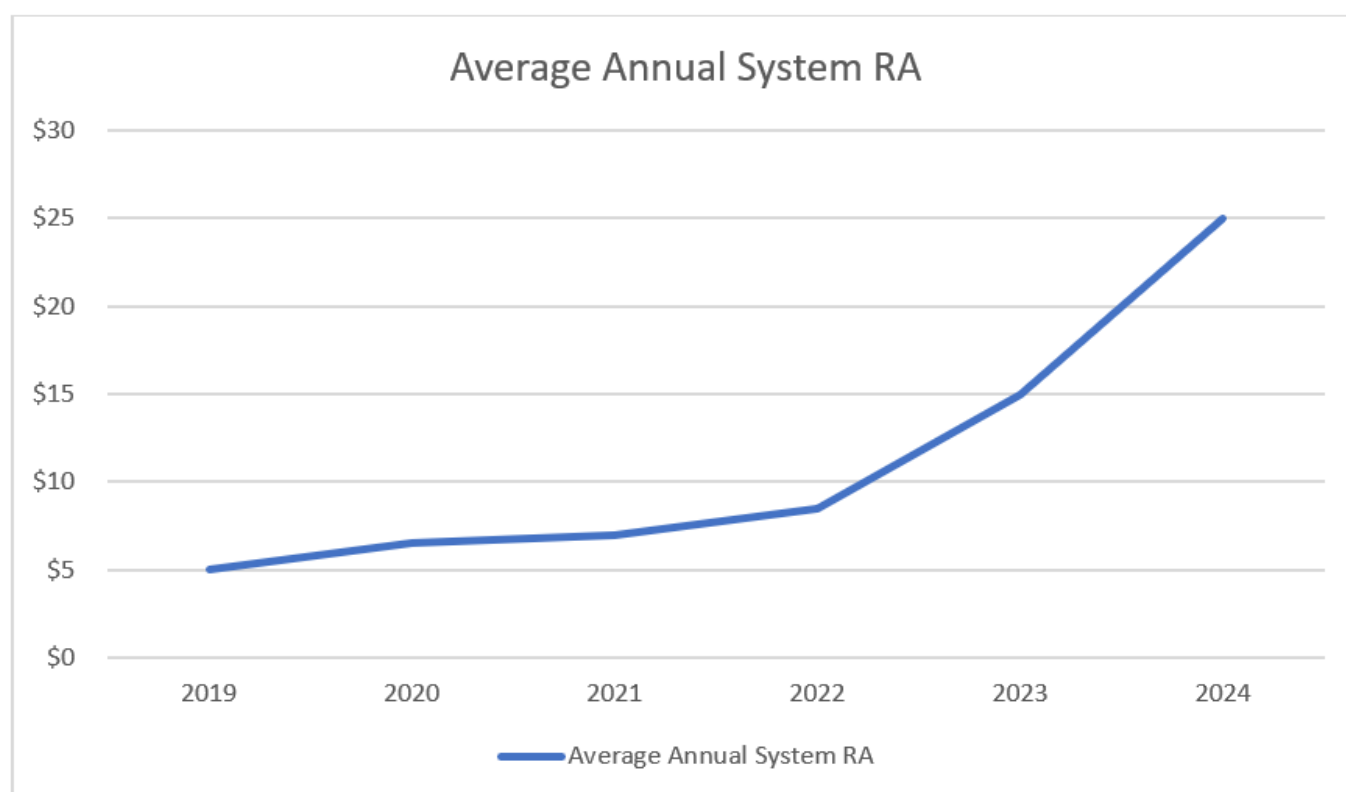


Figure 2. Average Annual RA Cost since 2019.

Additionally, RPU staff have witnessed these same increasing RA cost pressures firsthand in the merchant responses to Market Operations RA Requests for Offers (RFOs). In 2022, the average calendar year offer price for RA received in seven responsive RFOs was \$6.65/kW-month. In 2023, the average calendar year offer price for RA received in four responsive RFOs increased

to \$13.06/kW-month. So far in 2024, staff have received only two responsive offers for calendar year RA at an average price of \$35.53/kW-month. While such exorbitant price increases are unsustainable over the long term, staff expect that the CA merchant capacity market may remain excessively volatile for the next 2-5 years, due to the various BES development bottlenecks currently occurring in the CAISO balancing authority area.

Given RPU's need for increasing amounts of RA, coupled with the recent increasing RA cost pressures, it is critically important that the Utility negotiate and secure additional long-term, cost-effective RA contracts. Furthermore, in light of RPU's sustainability and carbon reduction goals, staff are pursuing these new contracts with BES facilities rather than natural gas generation assets. This proposed Resource Adequacy Purchase and Sale Agreement (Agreement) represents RPU's first long-term RA contract with a BES facility. It will entitle the Utility to approximately 80 MW of RA from the Shirk Energy Storage Project located in Visalia, California. This 80 MW / 320 MWh BES facility is being developed by Ormat Nevada, Inc., in an industrial area near the SCE Woodrat Substation. Note that the available capacity from this facility is expected to shrink by about 2% annually as the energy-holding capacity of the batteries decay over time.

The proposed Agreement has the following characteristics and favorable terms:

Term of the Resource Adequacy Purchase and Sale Agreement: A fifteen-year Agreement commencing upon the Commencement Date, anticipated to be March 1, 2026.

Price: The annual levelized price of the capacity is \$7.94/kw month. Additionally, due to the volatility of RA pricing in the summer months, RPU has negotiated a pricing structure that reflects the seasonality of RA pricing to mitigate the risk of any facility outage events occurring in the higher priced summer months.

Commencement Date Guarantee: The Shirk Energy Storage Facility has a guaranteed Commencement Date of March 1, 2026. Failure to achieve commencement by March 1, 2026, will result in payment of Delay Damages of \$200,000 per month. Failure to achieve commencement by December 31, 2026, allows either party to terminate the agreement.

Early Commencement Date Bonus: The Shirk Energy Storage Facility has an Early Commencement Date Bonus structure to incentivize the facility to begin deliveries prior to the summer months of 2025, if the facility can be completed ahead of schedule. If the facility achieves the commencement by or before August 1, 2025, then the RA price shall be increased for 12 months by the amounts shown in Table 2 below:

Table 2. Early commencement date bonus payments.

| Commencement Date | Early Commencement Date Bonus (\$/kW-month) |
|--|---|
| On or before June 1, 2025 | \$1.35 |
| After June 1, 2025 but on or before July 1, 2025 | \$1.10 |
| After July 1, 2025 but on or before August 1, 2025 | \$0.60 |

Delivered Product: RPU has contracted for all RA attributes from the Shirk Energy Storage Facility. These attributes include both Local RA benefits and Flexible RA (Flex Category 2) benefits.

Resource Adequacy Guarantees: The agreement includes the enforceable guarantee to receive all RA benefits from the Shirk Energy Storage Facility throughout the term of the agreement. Failure to deliver these RA benefits could result in the payment of liquidated damages.

Development Security: Within 10 days of executing this agreement, the Shirk Energy Storage Facility will provide a development security in the form of a letter of credit in the amount of \$3,600,000.

Delivery Term Security: Upon achievement of the Commencement Date, the Shirk Energy Storage Facility will provide a delivery term security in the form of a letter of credit in the amount of \$4,800,000.

Financial Assessment of Contract Value:

The merchant RA market has been notoriously volatile and illiquid in recent years, so the assessment of a long-term RA contract must instead rely on an appropriately specified forward RA price curve. An assessment based on the forward RA price curve used in RPU's 2023 Integrated Resource Plan (see Chapter 7, section 7.6, Table 7.6.1) is shown in Table 3. The expected total cost for this 15-year RA contract is projected to be 101.8 million \$ and the contract has a net positive value of 30.5 million \$ when compared to the annual RA prices forecasted in the 2023 IRP.

Table 3. Financial assessment of the proposed RA Agreement.

| Contract Year | Year | Expected RA (MW) | Contract Price (\$/kW-mo) | Expected Annual Cost (\$) | 2023 IRP RA Value (\$/kW-mo) | Net Value (\$) |
|-----------------|------|------------------|---------------------------|---------------------------|------------------------------|----------------|
| 1 | 2026 | 79.8 | \$7.94 | \$7,603,344 | \$14.00 | \$5,803,056 |
| 2 | 2027 | 78.0 | \$7.94 | \$7,431,840 | \$12.00 | \$3,800,160 |
| 3 | 2028 | 76.5 | \$7.94 | \$7,288,920 | \$11.50 | \$3,268,080 |
| 4 | 2029 | 75.1 | \$7.94 | \$7,155,528 | \$11.00 | \$2,757,672 |
| 5 | 2030 | 73.7 | \$7.94 | \$7,022,136 | \$10.00 | \$1,821,864 |
| 6 | 2031 | 72.4 | \$7.94 | \$6,898,272 | \$9.75 | \$1,572,528 |
| 7 | 2032 | 71.2 | \$7.94 | \$6,783,936 | \$9.50 | \$1,332,864 |
| 8 | 2033 | 70.0 | \$7.94 | \$6,669,600 | \$9.25 | \$1,100,400 |
| 9 | 2034 | 68.9 | \$7.94 | \$6,564,792 | \$9.00 | \$876,408 |
| 10 | 2035 | 67.8 | \$7.94 | \$6,459,984 | \$9.00 | \$862,416 |
| 11 | 2036 | 66.7 | \$7.94 | \$6,355,176 | \$9.25 | \$1,048,524 |
| 12 | 2037 | 65.7 | \$7.94 | \$6,259,896 | \$9.50 | \$1,229,904 |
| 13 | 2038 | 64.6 | \$7.94 | \$6,155,088 | \$9.75 | \$1,403,112 |
| 14 | 2039 | 69.5 | \$7.94 | \$6,621,960 | \$10.00 | \$1,718,040 |
| 15 | 2040 | 68.3 | \$7.94 | \$6,507,624 | \$10.25 | \$1,893,276 |
| Average: | | 71.2 | | \$6,785,206 | | \$2,032,554 |
| Total: | | 1068.2 | | \$101,778,096 | | \$30,488,304 |

More importantly, this Agreement will allow RPU to effectively hedge against the increased future costs of RA by locking in the pricing for the next 15 years at an annual levelized price of under \$8/kW-month. Furthermore, this price point is substantially below the current 2024-2025 average annual RA prices of \$25/kW-month to \$35/kW-month, and this Agreement will allow RPU to avoid such hyper-inflated RA costs, should these prices persist into (or beyond) 2026.

Per Purchasing Resolution No. 24101, Article Seven: Acquisition of Services, Section 702, Exceptions which provides that “Competitive Procurement through the informal or formal procurement process shall not be required.... (o) “When the Procurement is for wholesale energy, energy ancillary services, energy transmission, wholesale water commodity, and water transmission purchase by or on behalf of the City’s Public Utilities Department”.

The Purchasing Manager concurs that the recommended actions are in compliance with Purchasing Resolution No. 24101, Section 702 (o).

STRATEGIC PLAN ALIGNMENT:

This item aligns with **Strategic Priority 2 – Community Well-Being** and **Goal 2.6** – Strengthen community preparedness for emergencies and disruptive events to ensure effective response and recovery.

The item aligns with each of the five Cross Cutting Threads as follows:

1. **Community Trust** – The RA Agreement is being presented for approval to the Board of Public Utilities and the City Council in an open public process. Staff’s assessment of the risks, benefits, and value of this Agreement includes a transparent financial analysis.
2. **Equity** – This RA Agreement will help RPU ensure that it is meeting its obligation to provide sufficient RA capacity to the CAISO, and thus provide reliable electric service to all RPU customers.
3. **Fiscal Responsibility** – By meeting CAISO RA Obligation requirements, RPU avoids the possibility of incurring CAISO penalties, including “backstop” capacity procurement charges, RA deficiency fines, and/or additional RA uplift costs.
4. **Innovation** – By maximizing the use of existing generating resources and forward procuring additional long-term RA resources, staff are using a cost-effective and innovative approach to ensure that sufficient RA capacity is available to the CAISO grid.
5. **Sustainability & Resiliency** – This RA Agreement will help ensure that RPU is doing its part to assist the CAISO with operating and maintaining a safe and reliable grid.

FISCAL IMPACT:

The initial annual total cost of capacity under this Resource Adequacy Purchase and Sale Agreement is estimated to be approximately \$7,600,000, with an anticipated commencement date of March 1, 2026 and commencing as early as June 1, 2025. These costs are expected to decrease slightly over time as the expected RA capacity from this BES facility decreases. Funding for this project is included as part of the FY 2024-2026 biennial budget approval process and budgeted in the Public Utilities’ Power Resources Capacity Account No. 6120100-422915.

Prepared by: Scott M. Lesch, Assistant General Manager, Power Resources
Approved by: David A. Garcia, Interim Utilities General Manager
Certified as to
availability of funds: Kristie Thomas, Finance Director/Assistant Chief Financial Officer
Approved by: Rafael Guzman, Assistant City Manager
Approved as to form: Phaedra A. Norton, City Attorney

Attachments:

1. Resource Adequacy Purchase and Sale Agreement
2. Presentation