RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES **DATE: JANUARY 13, 2025**

SUBJECT: UPCOMING GENERATION SECTION PROJECTS FOR 2025

ISSUE:

Consider receiving and filing an overview of upcoming Board agenda items for the Generation section.

RECOMMENDATION:

That the Board of Public Utilities receive and file an overview of upcoming Board agenda items for the Generation section.

BACKGROUND:

The City of Riverside owns and operates the Riverside Energy Resource Center (RERC), the Springs generation facility and the Clearwater power plant. These three power generation facilities collectively produce 260 megawatts of electricity, which represents 30 percent of the City's summer peak demands for electricity.

The four Springs power plants at the Springs generation facility were first commissioned in 2002 and have been in operation for 22 years. Clearwater, which was built in 2005 and was acquired by Riverside Public Utilities (RPU) in September 2010, has been in operation for 19 years. RERC has a total of four gas turbine engines, Units 1 and 2 were built in 2006 and have been in operation for 18 years and Units 3 and 4 were built in 2011 and have been in operation for 13 years. All three facilities have targeted retirement dates outlined in RPU's 2023 Integrated Resource Plan: Springs is forecasted to retire in 2030, while both RERC and Clearwater are expected to remain in operation until 2040.

As the equipment ages, maintenance efforts have shifted to ensure that each power plant operates reliably until its projected retirement date. Staff will continue to perform routine maintenance and inspections that are critical for day-to-day operations as well as peak summer performance at each facility. As necessary, more extensive maintenance projects are being prioritized only to meet each plant's retirement timeline. Staff carefully manage the various maintenance needs to align with the approved budgets for each facility. Following a recent review of each facility, an initial list of 10 priority projects have been identified for 2025.

DISCUSSION:

A brief overview of the projects that staff plans to seek Board approval for in the first six months of 2025 are presented below. These projects are in various stages of development and some project costs represent estimates only. All contract extensions and/or requests for proposals (RFP's) will be processed through Purchasing to ensure compliance with the City's Purchasing Resolution. In the following discussion, only preliminary summaries of each project are presented; more detailed information will be provided by staff during each project's formal Board approval process.

Routine Maintenance Projects

- **Gas Turbine Instrumentation Calibration at RERC and Clearwater**
  This routine maintenance is performed annually as part of the preparation for summer peak operations. This essential maintenance ensures that all the critical components and instrumentation on each gas turbine accurately measures vital parameters such as pressures, temperatures, and turbine speeds. Given some of this instrumentation operates in harsh environments, periodic checks are necessary for safe and reliable turbine performance. Staff typically obtains competitive pricing on an annual basis, but due to recent price increases, a Request for Proposal for a multi-year contract is recommended. This service is usually provided by the Original Equipment Manufacturer (OEM) or its Approved Service Providers (ASP). The estimated cost for this service is expected to be $50,000 per year, or $250,000 for five years (covering five gas turbines).

- **Gas Turbine Borescope Inspections at RERC and Clearwater**
  Every year, the OEM or an ASP performs routine borescope inspections on each turbine. These inspections are crucial for assessing the current condition and serviceability of the gas turbines in preparation for the summer peak period. Only OEM or ASP technicians with specialized training are qualified to perform these borescope inspections. Through a competitive bidding process, staff select the lowest-priced proposal each year. Following prudent utility practice, if an ASP's inspection indicates that a turbine is unserviceable, staff will seek a second assessment from the OEM to confirm the findings before committing to potentially costly repairs. A multi-year agreement is under consideration due to recent price increases. The estimated cost for this service is expected to be $50,000 per year (covering five gas turbines).

- **Gas Compressor Maintenance at RERC**
  Routine annual maintenance is performed on the gas compressors at RERC to ensure reliable operation. These gas compressors are essential for boosting the natural gas pressure supplied by Southern California Gas Company, which provides a supply pressure of 350 psi, while 675 psi is needed for normal gas turbine operation. Considering the age of the equipment, staff recommends issuing a Request for Proposal for multi-year routine maintenance services. The estimated cost for this service is expected to be $85,000 per year for the six gas compressors.

- **Air Compressor Maintenance at RERC and Springs**
  Each plant was constructed to include air compressors that operate daily to provide pressurized air to various plant systems. A reliable and continuous supply of pressurized air is essential for the overall operations. There are many pneumatically operated components and controllers that rely on clean, dried, and compressed air to function properly. The current service agreement for air compressor maintenance expires in July 2025, and staff has issued Request for Proposal No. 2427 to ensure continued maintenance. The estimated cost for this service is expected to be $100,000 per year, or $500,000 for a five-year term (covering six air compressors).

Routine Operational Support Projects

- **CEMS Data Acquisition Software Support at All Plants**
  The United States Environmental Protection Agency (EPA) and the South Coast Air Quality Management District (SCAQMD) require continuous emissions monitoring systems (CEMS) at RERC, Springs, and Clearwater Power Plants. There is a total of nine CEMS at these locations required for environmental compliance, all of which utilize SCAQMD certified Data Acquisition Systems (DAS) to monitor, record, and validate real time emission data. The current DAS was first installed in 2013 through a competitive procurement process. Under section 702(u) of Purchasing Resolution No. 24101, software support can be renewed from a sole source provider. Staff have managed to keep software support prices fixed since 2013. The current agreement expires July 2025. Staff were able to negotiate a reasonable increase of 20% from the original cost, securing this rate for the next five years, through 2030. The new cost for this emissions monitoring will be $44,716 per year, or $223,580 over five years.

- **Supply of Aqueous Ammonia at All Plants**
  Aqueous ammonia is an essential component of the emissions control systems at the power plants. During normal plant operations, it helps reduce nitrogen oxide (NOx) emission to levels below the allowable limits specified in each facility's air permit, ensuring compliance with environmental regulations and minimizing air pollution. Having a reliable supply of ammonia for the next three years is necessary to ensure RPU can continue to operate the power plants in compliance with the applicable regulations. The current pricing term expires in July 2025, and staff plans to issue a Request for Bid for either a new three- or five-year term. The estimated cost for this aqueous ammonia supply is expected to be $66,000 per year.

- **Supply of Water Treatment Chemicals at RERC and Clearwater**
  Water Chemistry is critical for preventing corrosion and biological growth in the power plant processes at RERC and Clearwater. Chemicals from Nalco have been in use since the plants were first commissioned, and due to compatibility concerns, it is essential to continue using the same specialty chemicals. Under Section 404 of Purchasing Resolution 24101, Riverside has negotiated and secured favorable pricing from Nalco. Although this pricing agreement expires in July 2025, staff are currently working with Purchasing and Nalco to negotiate a new pricing agreement for an additional five years. The anticipated maximum cost for these water treatment chemicals is $165,000 per year, although actual usage will depend on unit operations. This maximum cost represents the prior Board approval limit, not the actual expenditure.

- **Balance of Plant Control System Software at RERC and Springs**
  Wunderlich-Malec Engineering, Inc. (Wunderlich-Malec) designed and commissioned the Distributed Control Systems (DCS) utilized at both RERC and Springs. The DCS serves as the central computerized control system, integrating various plant equipment and supervisory controls to support power generation technicians. During normal power plant operations, technicians interact with several critical systems, including turbine controls, emissions management, and the Supervisory Control and Data Acquisition (SCADA) system. The current agreement expires in July 2025, and staff plan to process an amendment to extend the agreement for an additional three years. The anticipated maximum cost for this extension is $60,000 per year. This amount represents the Board approval limit for as-needed support work, not the actual expenditure.

Extensive Maintenance Projects

In addition to previously discussed eight routine maintenance and operational support projects, staff anticipate bringing forward the following two projects within the first six months of 2025:

- **Clearwater Cooling Tower Maintenance**
  The Clearwater cooling tower is essential for condensing steam in the combined cycle process and cooling auxiliary equipment throughout the plant. Having been in operation since 2005, this major maintenance interval is needed to ensure the plant operates reliably until its scheduled retirement in 2040. Staff has issued Request for Proposal No. 2412 and will recommend the best option for this project. The estimated cost for this required maintenance is expected to be around $600,000.

- **Clearwater Controls System Upgrade – Capital Improvement Project (CIP)**
  The existing Clearwater Balance of Plant (BOP) control system is outdated, with many components that are obsolete and no longer supported. Continued operation in this situation is unsustainable for the plant to reach its retirement goal of 2040. Staff are currently evaluating the option to either upgrade the existing system or to replace this system entirely. As such, the final cost is still to be determined, however, the preliminary estimate for this control system upgrade is currently around $2,000,000 which is included in the CIP budget.

Table 1 on the next page presents a composite summary of the ten upcoming projects discussed in this report.

Table 1. Project Summary

Project	Cost	Facility	Tentative Board Approval
Routine Maintenance			
Gas Turbine Instrument Calibrations	$50,000/yr	RERC CW	2nd Qtr. 2025
Gas Turbine Borescope Inspections	$50,000/yr	RERC CW	2nd Qtr. 2025
Gas Compressor Maintenance	$85,000/yr	RERC	2nd Qtr. 2025
Air Compressor Maintenance	$100,000/yr	RERC Springs	1st Qtr. 2025
Routine Operational Support			
DAS Software Support	$44,716/yr	All Plants	1st Qtr. 2025
Supply of Ammonia	$66,000/yr	All Plants	1st Qtr. 2025
Water Treatment Chemicals	$165,000/yr	RERC CW	2nd Qtr. 2025
Balance of Plant Controls Software Support	$60,000/yr	RERC Springs	1st Qtr. 2025
Extensive Maintenance			
Clearwater Cooling Tower Maintenance	$600,000	CW	1st Qtr. 2025
Clearwater Controls Upgrade (CIP Funded)	$2,000,000	CW	2nd Qtr. 2025

STRATEGIC PLAN ALIGNMENT:

This item contributes to the following strategic priorities and goals from the Envision Riverside 2025 Strategic Plan:

Strategic Priority 4, Environmental Stewardship
Goal 4.3. Implement local and support regional proactive policies and inclusive decision-making processes to deliver environmental justice and ensure that all residents breathe healthy and clean air with the goal of having zero days of unhealthy air quality per the South Coast Air Quality District's Air Quality Index (AQI).

Strategic Priority 5, High Performing Government
Goal 5.4. Achieve and maintain financial health by addressing gaps between revenues and expenditures and aligning resources with strategic priorities to yield the greatest impact.

Strategic Priority 6, Infrastructure, Mobility & Connectivity
Goal 6.2. Maintain, protect, and improve assets and infrastructure within the City's built environment to ensure and enhance reliability, resiliency, sustainability, and facilitate connectivity.

This item also aligns with EACH of the five cross-cutting threads as follows:

1. **Community Trust** – Ensuring that Riverside's power plants comply with all environmental regulations and provide electricity to the entire City demonstrates a commitment to environmental stewardship and serves the greater public good.

2. **Equity** – This item ensures that RPU's power plants can safely and effectively operate and provide reliable electricity benefitting the entire City and all customers.

3. **Fiscal Responsibility** – Staff plans to use the competitive process and obtain the lowest price possible for the projects identified in this report.

4. **Innovation** – Staff manage the various maintenance needs to ensure plant reliability at the lowest possible cost.

5. **Sustainability & Resiliency** – Riverside's three power plants routinely operate under critical high-load conditions and provide the City with nearly $60M of summer Resource Adequacy (RA) benefits. The projects in this report support the goal of environmental stewardship while sustaining highly reliable power plant operations.

FISCAL IMPACT:

There is no fiscal impact associated with this report. Sufficient funds will be made available during each project's formal Board approval process.

Prepared by:	Scott M. Lesch, Utilities Assistant General Manager/Power Resources
Approved by:	David A. Garcia, 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:	Jack Liu, Interim City Attorney

Attachment: Presentation