WATER | ENERGY | LIFE

RIVERSIDE PUBLIC UTILITIES

Board Memorandum

BOARD OF PUBLIC UTILITIES **DATE: DECEMBER 8, 2025**

SUBJECT: COMPONENT ROTABLE EXCHANGES AT THE RIVERSIDE ENERGY RESOURCE CENTER FOR A FIVE-YEAR TERM COMMENCING ON JANUARY 1, 2026, THROUGH DECEMBER 31, 2030, IN THE AMOUNT NOT TO EXCEED $14,650,629 AND APPROVE WORK ORDER NO. 2607457 IN THE AMOUNT OF $14,650,629.

ISSUE:

Consider approving the Services Agreement with GE Vernova Operations, LLC. of Houston, Texas to perform gas turbine component rotable exchanges at the Riverside Energy Resource Center for a five-year term commencing on January 1, 2026, through December 31, 2030, in the amount not to exceed $14,650,629 and approve Work Order No. 2607457 in the amount of $14,650,629.

RECOMMENDATIONS:

That the Board of Public Utilities:

1. Approve the Services Agreement with GE Vernova Operations, LLC. of Houston, Texas to perform gas turbine component rotable exchanges at the Riverside Energy Resource Center for a five-year term commencing on January 1, 2026, through December 31, 2030, in the amount not to exceed $14,650,629;

2. Approve Work Order No. 2607457 in the amount of $14,650,629; and

3. Authorize the City Manager, or his designee, to execute the Services Agreement with GE Vernova Operations, LLC., including making non-substantive changes.

BACKGROUND:

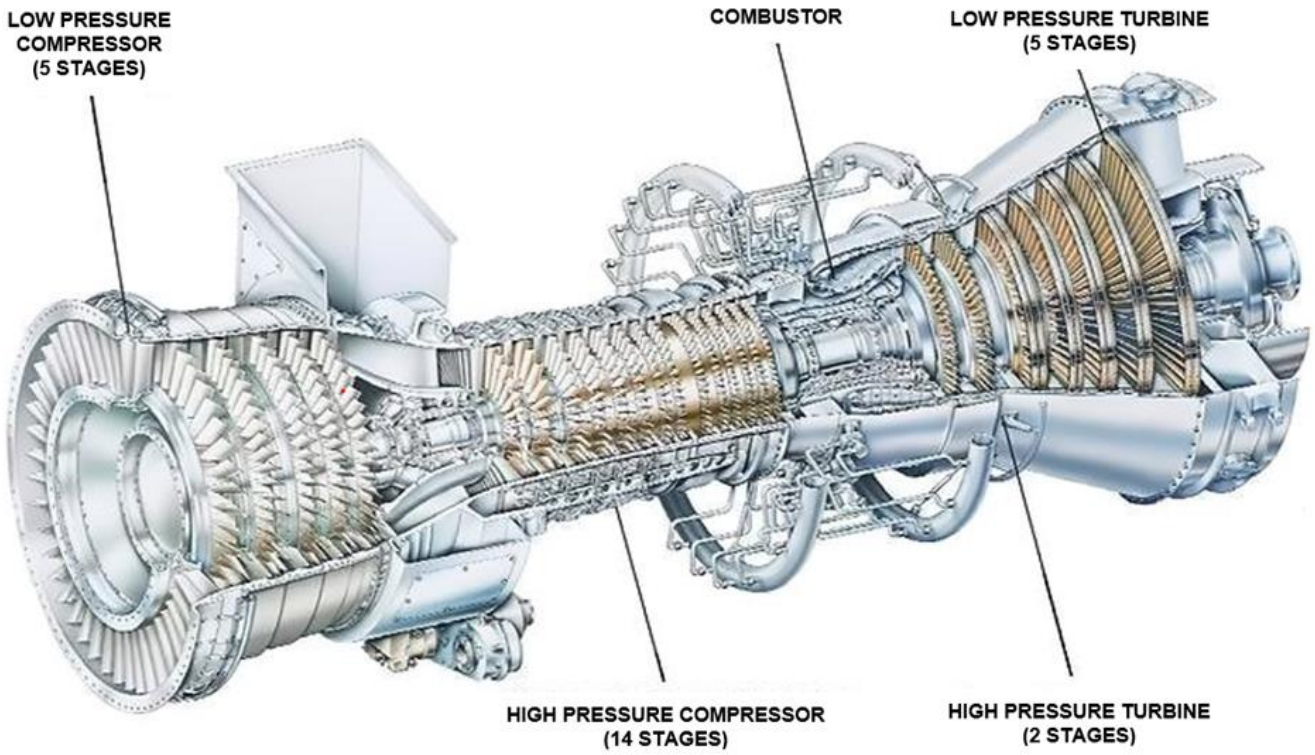
The Riverside Energy Resource Center (RERC) is equipped with four General Electric LM6000 gas turbine engines, which can collectively provide up to 30 percent of Riverside's daily electric power demands during the summer months. This facility was constructed in two phases: Units 1 and 2 were commissioned in 2006, followed by Units 3 and 4 in 2011. Each of these fast-start gas turbine units can generate 50 megawatts (MW) of electricity in less than ten minutes and are strategically located within the city limits providing local generation capacity. The availability of these units is critical to ensuring that Riverside Public Utilities (RPU) can meet summer electricity demand and reliability needs.

These gas turbine engines are approaching 15 and 20 years of age and have reached the stage where more complex and intrusive maintenance is necessary to sustain highly reliable operations. This higher level of maintenance is routine and normal for their age. Since the turbines operate at high speeds and extreme temperatures, internal component issues can arise with very little warning and can quickly escalate into catastrophic failures if not addressed promptly.

To mitigate this risk, annual borescope inspections are performed every November on the critical internal components of all four RERC turbines. The inspection results determine whether a unit can continue operating for another year or if it is unserviceable until repairs are completed. When repairs are required, staff work aggressively to pursue repair options that will return the unit to normal operations before the next summer peak period which starts at the beginning of July. However, this seven-month turnaround is becoming more difficult to achieve and frequently requires emergency procurement to overcome long lead times for parts and repairs while ensuring the safety and health of Riverside rate payers.

The following image highlights the various rotable components of the GE LM6000:

Image 1. GE LM6000



Since 2019, there have been four events where specific parts within rotable components in a turbine at RERC were deemed unserviceable. In each case, staff managed to successfully return the affected turbine to normal operations through emergency procurement efforts. Unfortunately, as the units continue to age, these events are expected to become more frequent, emphasizing the need for a more proactive and sustainable maintenance strategy for the next five years.

DISCUSSION:

If a borescope inspection results in a unit being deemed unserviceable, the ability to complete repairs within seven months depends critically on the availability of turbine components.

However, since the COVID-19 pandemic, the sourcing of many replacement turbine components is now taking 12 months or longer. Additionally, current global supply shortages have further increased the risk of components being unavailable, in turn resulting in extended unit outages that can potentially last for over a year. For example, the City of Anaheim currently has a LM6000 unit that has been on extended outage for over 15 months, due to their inability to source the necessary replacement components.

To reduce reliance on emergency procurement and ensure timely completion of maintenance before each summer peak period, staff evaluated multiple options to enhance turbine reliability. After extensive analysis, staff determined that a rotable component exchange program with GE Vernova Operations (GE) represented the most reliable cost-effective, and operationally efficient solution.

This program allows for modular exchange of defective turbine components with like-new components, significantly reducing the outage time for repairs and ensuring that such repairs can be completed in a timely manner. In contrast, alternative repair methods, such as shipping entire turbines off-site for teardown inspections, can often result in extended downtimes, higher costs, and greater risks of non-compliance with operational and environmental standards.

Since GE is the Original Equipment Manufacturer (OEM), they are the sole source for engineering and design of these rotable components for the gas turbine engines at RERC. In response to Riverside's request, the maintenance requirements of each turbine were evaluated by GE so that they could provide a proposal for a rotable component exchange program for the next five years. This evaluation included an assessment of known and existing (but currently serviceable) damage within each gas turbine, in addition to industry end-of-component-life calculations.

After several additional negotiation meetings with GE, staff secured a proposal that delivers the following results:

- *Proactive Approach:*
  A proactive maintenance plan that transitions away from the cost and risks of additional emergency procurement events.

- *Maintenance Components for the Next 5 Years:*
  The program includes a fixed scope of turbine components expected to require replacement within the next five years, while providing flexibility to apply components across any of the four units as needed. This ensures that unforeseen component failures on one unit do not compromise the overall reliability of the system.

- *Negotiated/Favorable Pricing:*
  Annual price increases are capped at 5%, substantially below the current market trend of approximately 10% or more for turbine parts. This cap provides significant long-term savings and helps shield future RERC repairs from market volatility and inflationary pressures.

- *Guaranteed Repair Time:*
  A guaranteed seven-month turnaround for component repairs and exchanges ensures turbines will be available for the next summer peak period. This timely availability supports system reliability, protects public health and safety, and avoids the need to purchase replacement RA and peak power that could otherwise cost more than $7 million in a single peak season.

- *Minimal Downpayment:*
  The upfront payment was reduced to 10% (from an initial 30%), with the balance being due on net-30 terms upon delivery of each component and completion of the exchange.

Purchasing Resolution No. 24101, Section 702(c) states "Competitive procurement through the Informal Procurement or Formal procurement process shall not be required: When the procurement can only be obtained from a sole source and the Manager is satisfied that the best price, terms and conditions for the Procurement thereof have been negotiated." In this case, GE Vernova is the OEM for the gas turbines at RERC and the procurement can only be obtained from a sole source and complies with all the requirements under this section.

The Purchasing Manager concurs that the recommended action is in compliance with Purchasing Resolution No. 24101.

The GE proposal includes both High- and Low-pressure turbine components that have been identified for replacement within the next five years. While the scope of components is fixed, the total contract cost will vary depending on the year in which each component replacement occurs. The table below outlines the components included in the proposal and their associated base pricing:

Table 1. Rotable Component Pricing

HPT Rotable Component	Unit Cost	Quantity	Cost
High Pressure Turbine Rotor	$1,759,151.00	2	$3,518,302.00
High Pressure Turbine Stage 1 Nozzles	$553,891.00	2	$1,107,782.00
High Pressure Turbine Stage 2 Nozzles	$612,306.00	2	$1,224,612.00
Combustor	$476,657.00	2	$953,314.00
Consumables	$141,677.00	2	$283,354.00
Labor	$181,629.00	2	$363,258.00
Tax	-	-	$620,144.35
		TOTAL	**$8,070,766.35**
LPT Rotable Component	**Unit Cost**	**Quantity**	**Cost**
Low Pressure Turbine	$3,014,191.00	1	$3,014,191.00
Consumables	$57,727.00	1	$57,727.00
Labor	$142,469.00	1	$142,469.00
Tax	-	-	$268,792.83
		TOTAL	**$3,483,179.83**
Rotable Component	**Unit Cost**	**Quantity**	**Cost**
Fuel Nozzles	$229,500.00	2	$459,000.00
Tax	-	-	$40,162.50
		TOTAL	**$499,162.50**

GRAND TOTAL OF ALL COMPONENTS (2026 PRICING)	**$12,053,108.68**

As shown above, the total cost for all rotable components would be **$12,053,109** if purchased in 2026. Since the total expenditure will vary depending on when each of the components are replaced, staff recommends approving an amount **not to exceed $14,650,629**, which represents the projected total cost if all the components were purchased in 2030. The 5% escalation is shown

in the following table:

Table 2. Total of All Components if Purchased in Outlined Year (5% Escalation)

Item	2026	2027	2028	2029	2030
Total	**$12,053,108.68**	**$12,655,764.11**	**$13,288,552.31**	**$13,952,979.93**	**$14,650,628.93**

To budget for these expenditures, the following table demonstrates the encumbrance schedule for the project outlined by fiscal year. Note that this is not a schedule of payments to the vendor, but rather an internal encumbrance schedule that is only being used for budgeting purposes.

Table 3. Project Plan and Cost Breakdown

Gas Turbine Component Rotable Exchange – Work Order No. 2607457		
Work Type/Fiscal Year (FY)	**Performed By:**	**Amount ($)**
Downpayment FY 2025/26	GE Vernova Operations, LLC.	$1,205,311
FY 2025/26	GE Vernova Operations, LLC.	$5,000,000
FY 2026/27	GE Vernova Operations, LLC.	$5,000,000
FY 2027/28	GE Vernova Operations, LLC.	$3,445,318
	Work Order Total	**$14,650,629**

FISCAL IMPACT:

The total fiscal impact for the five-year term is a not to exceed amount of $14,650,629. For Fiscal Year 2025/26, the total amount is $6,205,311. Sufficient funds are available in Public Utilities Electric CIP OH/UG Substations Generating Station Account No. 6130100-470627.

Future years' funding, as shown in Table 3, will be included as part of the biennial budget process for the term of this agreement.

Fiscal Year	Total
FY 2025/26	$6,205,311
FY 2026/27	$5,000,000
FY 2027/28	$3,445,318
	$14,650,629

Prepared by: Scott 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: Rebecca McKee-Reimbold, Interim City Attorney

Attachments:
1. Services Agreement with GE Vernova Operations, LLC.
2. Presentation