

RERC GAS TURBINE COMPONENT ROTABLE EXCHANGE PROGRAM

Riverside Public Utilities

Board of Public Utilities
December 8, 2025

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1

BACKGROUND

Riverside Energy Resource Center (RERC)



- Four GE LM6000 Gas Turbines
- Produce approximately 198MW of efficient power
- Critical to meeting electricity demands during peak periods
- 15 and 20 years of operation at very high speeds and extreme temperatures
- More complex and intrusive routine maintenance is necessary to maintain high reliability

2



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2

BACKGROUND

To mitigate the risk of catastrophic failures of these aging gas turbines, annual borescope inspections are performed every November during scheduled outages:

- a. Crucial for evaluating internal condition and overall serviceability
- b. Results of the inspection determine whether the turbine can continue operating for another year or if it is deemed unserviceable until repairs are completed



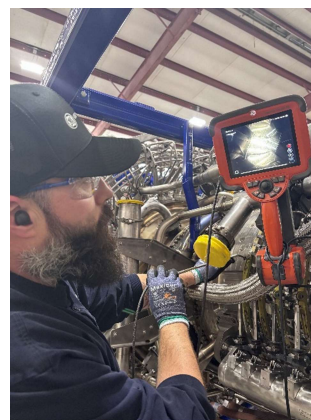
3

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3

BACKGROUND

Technicians Performing Borescope Inspections



4

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4

BACKGROUND

1. There have been four events at RERC since 2019 where a turbine was deemed unserviceable following an inspection
 - a. Emergency procurement actions needed to be taken during each event to minimize outage time
2. Given the age of the turbines, more frequent and extensive maintenance events will be necessary
 - a. Completing repairs before summer peak period (7 months) is increasingly dependent on availability of turbine components, some of which currently have a lead time of 12 months or longer
 - b. Post-COVID global supply shortages have further increased the risk of component unavailability and extended outages



5

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5

BACKGROUND

Most Recent Turbine Repair at RERC



6

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6

DISCUSSION

1. A more proactive and sustainable maintenance approach is needed to ensure continued reliability and reduce reliance on emergency procurement
2. Gas Turbine Rotable Component Exchange Option
 - a. The unserviceable gas turbine component is exchanged for a like-new overhauled component
 - b. Significantly reduces outage time for repairs
 - c. Superior option to sending the turbine to an off-site facility for teardown, which will result in longer repair times and highly uncertain repair costs



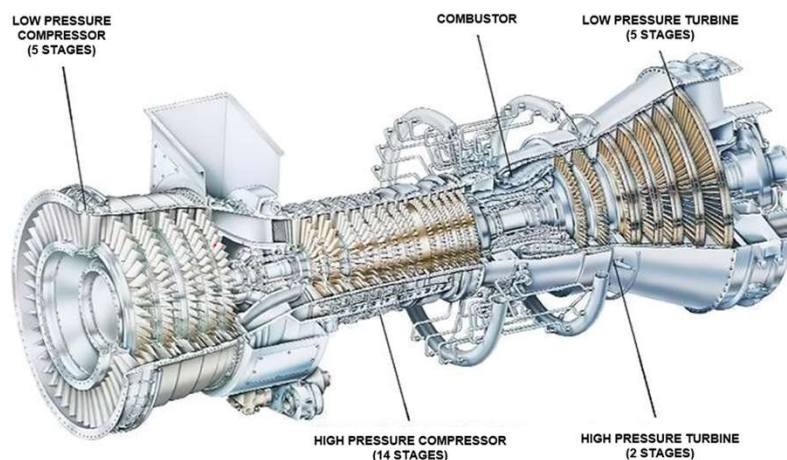
7

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7

DISCUSSION

Illustration of the Various Turbine Components



8

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8

DISCUSSION

GE Vernova Operations, LLC (GE)

- a. Original Equipment Manufacturer
- b. Sole Source for the engineering and design of these rotatable components
- c. In response to Riverside's request, GE evaluated the maintenance requirements of each RERC turbine, in order to provide a proposal for a rotatable component exchange program for the next five years
- d. 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



9

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9

DISCUSSION

After extensive negotiations, staff secured a proposal that delivers the following results:

- a. Proactive Approach – Transitions away from the cost and risks of emergency procurement
- b. Rotatable Components for the Next 5 years – Flexibility to apply to any of the 4 turbines
- c. Negotiated/Favorable Pricing – Annual price increase is capped at 5% (market trend is 10%)
- d. Guaranteed Repair Time of 7 months – Ensures turbine availability for summer peak demand period
- e. Minimal Downpayment - Negotiated a significantly lower down payment (from 30% to just 10%)



10

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10

DISCUSSION – 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



11

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11

DISCUSSION – PRICING ESCALATION

Cost Escalation over the 5-year Term

- Total cost for all rotatable components would be **\$12,053,109** if purchased in 2026
- Although the scope of components remains fixed, the total expenditure will vary depending on when each of the components are replaced
- To account for these undetermined factors and preserve flexibility across all units, staff recommends approving an amount **not to exceed \$14,650,629**, representing the projected total contract cost if all components were purchased in 2030



12

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12

DISCUSSION – ENCUMBRANCE SCHEDULE

Encumbrance schedule for the project outlined by fiscal year. This is not a schedule of payment to the vendor and will be used only for internal budgeting purposes.

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



13

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13

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 rotatable 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.



14

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14