



# Agenda Report

June 3, 2024

**TO:** Honorable Mayor and City Council

**FROM:** Water and Power Department

**SUBJECT: AUTHORIZATION TO INCREASE THE PURCHASE ORDER CONTRACT FOR AN AMOUNT NOT-TO-EXCEED \$4,240,405 WITH GENERAL ELECTRIC COMPANY TO REPAIR TO GLENARM TURBINE 5 AND AMEND THE FISCAL YEAR 2024 CAPITAL IMPROVEMENT PROGRAM BUDGET FOR THE WATER AND POWER DEPARTMENT**

## **RECOMMENDATION:**

1. Find that the project is exempt from the California Environmental Quality Act ("CEQA") pursuant to [this varies, but typically: State CEQA Guidelines Sections 15301 (Existing Facilities)];
2. Authorize the City Manager to increase the purchase order contract, without competitive bidding pursuant to City Charter Section 1002(F), contracts for professional or unique services, with General Electric Company (dba GE Vernova Operations LLC) by \$1,954,985 for emergency repair work to Glenarm Turbine 5 ("GT-5"), thereby increasing the purchase order not-to-exceed total amount from \$2,285,420 to \$4,240,405;
3. It is further recommended that the City Council grant the proposed contract an exemption from the Competitive Selection process pursuant to Pasadena Municipal Code Section 4.08.049(B) contracts for which the City's best interests are served; and
4. Amend the Fiscal Year 2024 Capital Improvement Program ("CIP") budget by increasing GT-5 Capital Equipment Replacements (3280) by \$3,115,000 and decreasing CIP's Emergency Generator (3223), GT-1 and GT-2 Capital Equipment Replacements (3182), and GT-3 and GT-4 Capital Equipment Replacements 3186 by like amount .

## **BACKGROUND:**

The Pasadena Water and Power Department ("PWP") owns and operates GT-5, a General Electric LM6000 PG combustion turbine located at the Glenarm Power Plant

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("Plant"). GT-5 is one of five generating units at the Plant and accounts for just over 65 megawatts ("MW") of the facility's overall 200 MW of local generation capacity.

On November 16, 2023, an alarm on an unrelated system resulted in a shutdown of GT-5. Staff contacted General Electric Company ("GE") who is the Original Equipment Manufacturer ("OEM") to assist with troubleshooting and inspections of the engine. Metallic particles were discovered in the lubrication oil samples pulled from the combustion turbine during the inspections. As a result, GE recommended to take the unit out of service and remove the engine and transport it to the repair facility in Houston, TX for bearing failure repairs.

On March 11, 2024, PWP filed a report with City Council, pursuant to Pasadena Municipal Code ("PMC"), Section 4.08.150 Emergency Repairs, that detailed the circumstances of the GT-5 emergency repairs and the subsequent approval of a purchase order with GE in the amount of \$2,285,420 based on GE Quote# 1668098 dated January 18, 2024. The requested amount included the base price of \$1,904,516 and approximately 20% contingency amount of \$380,904 to cover tax and any unforeseen change orders.

The GT-5 engine was inducted into the GE Houston Service Center on Tuesday, March 12<sup>th</sup>. The engine went through the first stage of the repair process for an aeroderivative engine which includes the disassembling of the engine and assessing the condition of the components removed against established aircraft specifications. GE further evaluated components that did not meet the required specifications ("fall out") to determine if less stringent limits can be applied to allow the components for use in a power generation capacity. GE identifies each component and determines whether repair is a viable option or if a new replacement component must be sourced to allow for engine reassembly.

Based on GE's assessment, GE provided a revised quote that now considers the additional parts and work necessary to complete and reassemble GT-5's engine. A portion of the necessary work does include additional inspection of some components and recommendations for repairs that may not be deemed successful. In those circumstances further additional costs may be incurred beyond the requested increase. The original GE quote plus contingency was for \$2,285,420. The new revised quote of \$4,240,405 includes a revised base bid amount of \$3,611,473 and a revised contingency of \$628,932. The main drivers for the increase are for fuel nozzle replacement and parts and materials associated with turbine nozzle, blades, and shrouds, as outlined in Table 1 listed below. The new set of fuel nozzles at \$481,500 and \$1,000,427 for nozzle, blades, and shrouds accounts for almost 90% of the increase.

<b>Table 1 - Additional Quoted Work - GT -5 Repairs</b>	<b>Total</b>
Variable Inset Guide	\$ 1,440.00
Low Pressure Compressor Rotor	\$ 11,670.50
Compressor Front Frame	\$ 68,207.50
Fan Forward Midshaft Assembly	\$ 83,382.49
High Pressure Compressor Rotor	\$ 70,526.00
High Pressure Compressor Stator	\$ 1,814.40
Compressor Rear Frame	\$ 2,419.20
Combustion Chamber	\$ 481,500.00
Stage One Nozzle Assembly	\$ 114,736.04
Stage Two Nozzle Assembly	\$ 432,726.21
High Pressure Turbine Rotor	\$ 382,438.80
Core Module Assembly	\$ 9,035.00
Final Engine Assembly	\$ 4,587.00
<b>Revised Totals</b>	<b>\$1,664,483.14</b>

Staff has thoroughly reviewed the preliminary shop reports and pictures provide by GE through the course of the initial stage. In addition, staff visited the GE facility in Houston inspect and validate GE’s finding at the completion of the initial stage of work. Staff has determined that the additional scope of work identified by GE is valid and necessary.

With the initial disassembly and inspection process completed, GE is currently awaiting approval to proceed with the out-of-scope repair work. The potential does exist that attempts to repair may not be successful and additional components may fall out, causing additional costs to be incurred. With this unknown potential, staff does recommends approving the purchase order increase with GE to allow the repair work to resume and continue unabated so GT-5 can return to service as quickly as possible.

**COUNCIL POLICY CONSIDERATION:**

The proposed contract supports the City Council's Strategic Planning Goal to improve, maintain, and enhance public facilities and infrastructure. It also supports the Public Facilities Element of the General Plan by maintaining public facilities to enhance the quality of life of the community.

**ENVIRONMENTAL ANALYSIS:**

The nature of the work performed by GE qualifies for a categorical exemption from CEQA in accordance with Title 14, Chapter 3, Article 19, Section 15301 (Existing Facilities). Section 15301 allows for the categorical exemption from CEQA for repair work on existing publicly owned facilities used to provide electric power that will not result in an increase in capacity or an expansion of existing use. The work on GT-5 will not result in an increase in capacity.

**FISCAL IMPACT:**

The total cost of this increase is \$1,954,984 and the total cost of this action is not-to-exceed \$4,240,404. Funding for this action will be addressed by amending the Fiscal Year 2024 CIP by appropriating \$1,915,000 from the Emergency Generator – Power (3223), \$400,000 from GT-1 and GT-2 Capital Equipment Replacements (3182), \$800,000 from GT-3 and GT-4 Capital Equipment Replacements (3186), thereby increasing the budget for GT-5 Capital Equipment Replacements (3280) project by \$3,115,000. This increase is necessary to complete emergency work to the GT-5 gas turbine. It is anticipated that all costs will be expended by the end of Fiscal Year 2025. The proposed purchase order increase will not have any fiscal impact to the City's General Fund.

Respectfully submitted,



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