

Agenda Report

March 11, 2024

TO: Honorable Mayor and City Council

FROM: Water and Power Department

SUBJECT: REPORT ON EMERGENCY REPAIR TO GAS TURBINE 5

RECOMMENDATION:

This report is for information only as required by Pasadena Municipal Code (PMC) Section 4.08.150 for any emergency purchase where the expenditure exceeds \$75,000.

BACKGROUND:

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

The first indications of a mechanical issue affecting GT-5 occurred in late October and early November 2023. Over that span of time, the unit started four times and showed high lube oil consumption and transient high lube oil temperatures during unit start-ups.

On November 16, 2023, an alarm on an unrelated system resulted in a shutdown of GT-5. This led to a forced outage for troubleshooting and inspections which identified carbon and metallic traces in the combustion turbine lube oil system. General Electric ("GE") was contacted for assistance, and with the help of GE Verona technician, staff continued troubleshooting. A sample from the lube oil system revealed visible metallic particles.

Based on the findings, GE recommended that GT-5 not be placed back in service due to the indications of a gas turbine bearing failure. GE further requested the oil filter and lube oil samples be sent out to Failure Analysis Service Technology, Inc, in Prescott, Arizona for further analysis of the particles to help determine the source and help develop a course of action for the repair.

The initial warranty period for GT-5 combustion turbine was for two years from initial operation. As of the date of the first indications of failure, the unit had been in service for over seven years.

Staff requested proposals for the repair of the unit from GE and several other LM6000-certified repair facilities. However, only GE submitted a proposal.

Due to the emergency nature of the repair, staff requested approval of a purchase order in the amount of \$2,285,420 under the Emergency Purchase Provisions of Pasadena Municipal Code (§4.08.150) based on GE Quote# 1668098 dated January 18, 2024. The requested amount includes the base price of \$1,904,516 and approximately 20% contingency amount of \$380,904 to cover any unforeseen change orders.

The bearing repair requires that the gas turbine be shipped to GE's repair facility in Houston, Texas. Repairs of this nature typically take at least three months but may be extended well beyond that timeframe due to current supply chain issues. A firm repair timeline will not be established until the unit has been fully disassembled and inspected.

With the summer months quickly approaching, it is important that local electric generating units are in an operable condition and ready to generate needed electricity safely and efficiently at a moment's notice. Moreover, due to Pasadena's limited ability to import electricity, the reliability of the electrical service depends on local generation during summer months when demand exceeds the maximum import capacity. Under certain conditions, that import capability is further restricted by planned or unexpected outages which require local generation to come online to meet the demand. The summer forecast for the supply of electricity is constrained due to the potential of load shedding during wildfire events, and prolonged unavailability of GT-5 could lead to rolling blackouts.

Historically, the significance of having local generation available is evident through past events. For example, in October 2012 when several issues with local generation units resulted in a public call for conservation during severe heat events. In 2017 and in 2022 prolonged heat waves also challenged the resiliency of Pasadena's electrical supply, and GT-5 played a crucial role in PWP's ability to supply electricity to its customers.

The GT-5 outage results in lost capacity valued at approximately \$6.5 million through July, 2024. Costs of approximately \$280,000 have already been incurred to replace the Resource Adequacy ("RA") which the unit would have provided in April 2024. If the outage continues into August and September, PWP will have additional costs of approximately \$7 million to fulfill the associated RA requirements, based on current market costs. Conversely, the RA value of having GT-5 operational during those two months exceeds \$10 million.

GE personnel removed the engine on February 19, 2024. It is currently at the GE repair facility in Houston, Texas. While the preliminary schedule shows the engine returning to the site in early September, Staff is working with GE to shorten the repair timeline so that the engine can be returned to service sooner.

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 maximum cost of this action will be \$2,285,420, which includes the base amount of \$1,904,516 and a 20% contingency amount of \$380,904 to provide for any unforeseen change orders. Funding for this action will be addressed by the utilization of existing appropriations in the Power Capital Fund 411. It is expected that the \$1,904,516 will be spent in Fiscal Year 2024 and Fiscal Year 2025.

Respectfully submitted,



DAVID M. REYES
Acting General Manager
Water and Power Department

Prepared by:



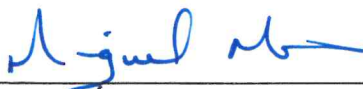
Arturo Silva
Power Plant Manager

Concurred by:



MATTHEW E. HAWKESWORTH
Director of Finance

Approved by:



MIGUEL MARQUEZ
City Manager

**Disclosure Pursuant to the
City of Pasadena Taxpayer Protection Amendment
Pasadena City Charter, Article XVII**

Contractor/Organization hereby discloses its trustees, directors, partners, officers, and those with more than 10% equity, participation, or revenue interest in Contractor/Organization, as follows:

(If printing, please print legibly. Use additional sheets as necessary.)

1. Contractor/Organization Name: GE Vernova Operations, LL

2. Type of Entity:

non-government nonprofit 501(c)(3), (4), or (6)

3. Name(s) of trustees, directors, partners, officers of Contractor/Organization:

Name	Type	Sub-Type
Verkamp, John	Officer	Treasurer
Ross, David	Officer	Vice President
Nickolay, Clive	Officer	Vice President
Lyskawa, Alan	Officer	Vice President
Longtin, Keith	Officer	Vice President
Long, Richard	Officer	Vice President
Kessinger, Steven	Officer	Vice President
Keisler, James	Officer	Vice President
Intile, John	Officer	Vice President - Engineering Services
Biocca, Denise	Officer	Vice President
Gray, Eric	Officer	President
PAYMAL ARMAN	Officer	Vice President
Kay, Bryan	Officer	Assistant Secretary

4. Names of those with more than a 10% equity, participation or revenue interest in Contractor/Organization:

The percentage of interest for GEVO trustees, directors, partners and officers of GEVO are proprietary and are not made public. However, GEVO can certify, to the best of its knowledge and believe, it does not believe a conflict of interest, as specified in this Amendment exists, since none of the GEVO employees directly performing work on this contract are trustees, directors, partners and officers of GEVO.

Prepared by: Hector Guzman

Title: Sr. Sales Manag

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Date: January 30, 202