



Agenda Report

December 14, 2020

TO: Honorable Mayor and City Council
FROM: Water & Power Department
SUBJECT: AUTHORIZATION TO ENTER INTO A CONTRACT WITH ENERGY SERVICES LLC, A WHOLLY OWNED SUBSIDIARY OF MITSUBISHI POWER AMERICAS INC., FOR LABOR AND MATERIALS TO INSTALL A NEW WATER INJECTION SKID AND EMERGENCY DIRECT CURRENT POWER SYSTEM FOR GAS TURBINES 1 & 2

RECOMMENDATION:

It is recommended that the City Council:

1. Find that contracting with Mitsubishi Power Americas, Inc. ("Energy Services") for the installation of a new water injection skid on Gas Turbine 1 ("GT-1") and an emergency Direct Current ("DC") power system for GT-1 and Gas Turbine 2 ("GT-2") are exempt from the California Environmental Quality Act ("CEQA") pursuant to State CEQA Guidelines Section 15301, Class 1, Existing Facilities and that there are no features that distinguish this project from others in the exempt class and, therefore, there are no unusual circumstances;
2. Authorize the City Manager to enter into a contract, without competitive bidding pursuant to City Charter Section 1002(F), contracts for professional or unique services, with Energy Services for labor and materials to install a new water injection skid for Gas Turbine ("GT") 1 and emergency DC power system for GT-1 and GT- 2 in an amount not to exceed \$310,863; and
3. 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.

BACKGROUND:

The City of Pasadena ("City") owns and operates its electric generation facility ("Power Plant") located east of Fair Oaks Avenue, west of the State Route 110 Freeway and south of Glenarm Street in Pasadena. The Power Plant consists of five natural gas fueled quick start electric generating units with a total capacity of approximately 200 Megawatts ("MW"). Each of these units are capable of generating power within ten

minutes after start-up. These units provide the vital support necessary to maintain the reliability of the electric system in Pasadena. More than 90% of the time, the City imports power from outside resources using the transmission system provided by the California Independent System Operator ("CAISO"). Historically, the City's peak electric demand is over 300 MW. The maximum import capability into the City is 280 MW which is often further reduced due to maintenance, repairs or forced outages of the transmission system or the City's internal electric distribution system. During periods when the peak power exceeds import capability, the local Power Plant provides the supplementary power to prevent rolling blackouts. Additionally, the quick start capability provides valuable backup capacity to support the City and the state with integrating intermittent renewable energy resources such as solar and wind. Given the significant amount of solar and wind energy in the state's electric grid, CAISO is demanding a pre-determined amount of quick start backup capacity from each utility. As a result, the capacity of the local Power Plant commands the highest market premium as an energy resource in the greater Los Angeles area.

GT-1, a 22 MW electric generating unit constructed in 1975 with identical unit, GT-2, is an integral part of the City's electric system. Historically, it has operated less than 100 hours per year. In May 2010, GT-1 suffered a mechanical failure and subsequent fire while it was in operation. A similar failure occurred to GT-2 in October 2012. A definitive root cause was not determined despite multiple third party investigations. GT-1 was repaired in 2014 and is now operational.

On December 5, 2019, a Notice Inviting Bids for the repair of the remaining unit, GT-2, as well as the electronic control systems of both GT-1 and GT-2 was advertised in the Pasadena Journal and posted online through Planet Bids. The system generated notifications to 2,627 contractors, which included 140 located in Pasadena. There was broad interest in the project, but due to the specialized nature of the work, only two bids were received on March 11, 2020. The City Council approved Contract #31706 to Energy Services, the lowest bidder, in May 2020 for the repair of GT-2 and the electronic control system retrofit of GT-1 & 2.

GT-1 and 2 were originally designed with a water injection system to control and reduce the emissions of nitrogen oxides ("NOx"). The facility's operating permit issued by the South Coast Air Quality Management District contains both mass and concentration limits for NOx. The new water injection system is critical for compliance with the facility permit and for efficient operation of the gas turbine. During the development of the specifications for the GT-1 and 2 controls upgrade, staff considered including the replacement of the GT-1 water injection system. At that time, the system was in a fully operable condition and the inclusion was ruled out. During this summer's heat wave, GT-1 operation increased significantly. The increased runtime on the unit led to a significant amount of wear and tear on the equipment. It also highlighted the drawbacks of the antiquated system currently installed on GT-1. An upgrade to a modern water injection system would resolve the mechanical issues with the existing components and also allow the unit to operate over a broader output range. The upgrade would also

result in increasing the unit efficiency throughout that range by optimizing the amount of water injected at each load point.

GT-1 & 2 share an emergency DC backup battery power system that provides power to maintain critical systems in the event that the unit trips offline and there is an interruption to the auxiliary power supply. On August 3, 2020, the battery system was tested in accordance with the Institute of Electrical and Electronics Engineers Standard 1188-2005, Section 6.3. The battery system tested at 86% capacity. The capacity test indicates that the battery strings are near the end of their useful life and should be replaced as soon as practical. In addition, the charger is the original charger installed in 1975 and is also at its end of life. The replacement of these systems is critical to ensure the protection of the fire protection system and DC lube oil system to prevent equipment damage. After reviewing the results of the battery testing, the City's insurance carrier has identified this as an existing maintenance issue that should be resolved prior to the next scheduled battery test in August of 2021. To avoid conflicts caused by having two different contractors working on the same unit at the same time, staff believes that the prudent course of action is to have Energy Services replace the batteries and the battery charger. This would also allow the integration of the new emergency DC battery system to be fully integrated into the new control system for the units. Staff conducted a market survey and determined the cost of the batteries and charger included in the energy service proposal is within the high and low end of the market range. Furthermore, the cost for the labor included in the Energy Services proposal is commensurate with the level of effort necessary to complete the installation.

Energy Services, a wholly owned subsidiary of Mitsubishi Power Americas, Inc., was the lowest responsive bidder to the specifications for the repair of GT-2 and the control system retrofit of GT-1 & 2. The scope of work for the GT-2 repair included the replacement of the water injection system on GT-2. Energy Services provided the City with a proposal to perform the same scope of work at the same cost as GT-2 for the replacement of the GT-1 water injection system.

In the past five years, Energy Services has been awarded only one contract (#31706) for \$18,351,649 for the GT-2 repair project.

Best Interest Exemption

To ensure the safe, reliable, efficient and environmentally-compliant operation of GT-1, minimize potential disruptions to the repair of GT-2, and ensure consistent equipment and design for both units' water injection system, it is in the best interest of the City and lowest cost option to award a contract to Energy Services to replace the GT-1 water injection system for \$150,000 and the Emergency DC power system for \$160,863 for a grand total of \$310,863. This course of action will eliminate the potential of having two different contractors upgrade the same system on each generating unit, reduce potential construction interference, and eliminate the need to take an extended outage in the future to implement the changes. This is highly specialized work and the cost for the GT-1 water injection system is based on a competitive price from the GT-2 bid

proposal. Installing identical water injection systems on GT-1 and GT-2 results in the benefits gained from the commonality of parts. Only one set of recommended spare parts will need to be kept on site. Additionally, operators and technicians only need to develop the understanding and knowledge for one system instead of two.

The Emergency DC Power System is served by the same batteries and charger to support GT-1 and 2. The batteries were tested and determined to require replacement as soon as practical. The City's insurance carrier has identified this as a maintenance issue. From a project perspective, having the new charger and battery system work performed in conjunction with the electrical upgrades and the control system work being performed by Energy Services yields benefits and avoids risks associated with two vendors working on the same unit. A market survey conducted by Staff confirms the Energy Services proposal is competitive. Based on the need and urgency to replace the batteries, staff believes that having Energy Services onsite to perform the DC power system work is in the best interest of the City.

COUNCIL POLICY CONSIDERATION:

The proposed contract supports the City Council 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 recommended action is exempt from CEQA pursuant to State CEQA Guidelines, Section 15301 (Existing Facilities). Section 15301 exempts from environmental review "the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of existing or former use." The proposed project consists of the repair of existing publically-owned facilities used to provide electric power. The project will not result in an increase in capacity or an expansion of existing use. There are no features that distinguish this project from others in the exempt class and, therefore, there are no unusual circumstances.

FISCAL IMPACT:

The cost of this action will be \$310,863. Funding for this action will be addressed by the utilization of existing appropriations in the Power Fund, CIP 3182 – GT-1 and GT-2 Upgrade and Replacement. It is anticipated that total amount will be spent in fiscal year 2021. There is no anticipated impact to other operational programs as a result of this action.

Respectfully submitted,



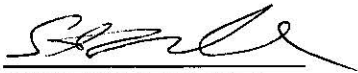
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