

COUNCIL ACTION FORM

SUBJECT: CHANGE ORDER #3 FOR FIELD ENGINEERING SERVICES FOR UNIT #7 TURBINE GENERATOR OVERHAUL AT POWER PLANT

BACKGROUND:

This CAF is for additional start-up technical assistance for General Electric (GE) field engineering for the Unit 7 turbine-generator overhaul.

GE is the OEM (Original Equipment Manufacturer) for the Unit 7 turbine and generator. Overhaul of the turbine and generator require precision and detailed craftsmanship to ensure that detailed designs clearances are maintained for proper operation of the turbine and generator units. To ensure that OEM practices and standards are met during the overhaul, the City has contracted with GE to provide engineering services to assist with technical direction and oversight of turbine/generator overhaul activities. These services are to ensure that the contractors are following vendor recommended practices and procedures to ensure the safe and reliable operation of the turbine and generator while in operation.

Technical support from GE was not originally planned to be required for the start-up of the Unit 7 turbine/generator after the overhaul. This was identical in nature to what was done the last time the unit was overhauled. However, extensive repair work was required on turbine components once the overhaul project commenced. Only after the turbine was disassembled was the extent of the needed repairs understood. Due to the extent of these repairs, it is prudent to have a GE representative on site during start up to ensure that contractors are meeting the technical guidelines for system start-up, and verify that the units are operating within OEM recommendations. Additionally, in the event that there are any issues associated with the turbine/generator during, the GE onsite engineer will be able to provide any immediate OEM support which would minimize additional downtimes.

CHANGE ORDER HISTORY:

Two change orders were previously issued for this contract. Change Order #1, in the amount of \$49,986.22, was approved by the City Council on September 24, 2019. This change order was for additional testing and re-babbiting of turbine bearings 1, 2 and 4.

Change Order #2, in the amount of \$40,000 was for the additional work performed for approximately one week of field engineering oversight needed when the turbine was sent off site and returned. This change order was approved by staff.

THIS ACTION:

Change Order #3, in the amount of \$40,000, is needed to complete the testing of the Unit 7 generator exciter at the time of startup of the unit. This work is expected to take approximately one week.

The approved FY 2018/19 Capital Improvements Plan includes the following funding for the Unit 7 Turbine Generator Overhaul.

2017/18 Engineering/Parts	\$ 750,000
2018/19 Labor	1,500,000
2018/19 GE Tech Support	<u>300,000</u>
TOTAL	\$2,550,000

Contracts awarded to date on this project are:

HPI LLC (<i>Perform Overhaul</i>)	\$716,997.25
Change Order #6	18,600.75
General Electric (<i>Field Engineering Services</i>)	\$287,986.22
Change Order #3	40,000.00
MD&A (<i>Turbine Parts</i>)	\$139,936.42
Argo (<i>Turbine Parts</i>)	\$336,159.04
Burns & McDonnell (<i>Engineering</i>)	<u>\$43,000.00</u>
Total	\$1,582,679.68

ALTERNATIVES:

1. Approve Change Order #3 with General Electric International, Omaha, NE, for additional testing of the Unit 7 generator exciter in the amount of \$40,000.
2. Forego additional engineering assistance and start the unit without technical assistance from GE. In the event that there are issues during start-up, associated with the overhaul activities, GE would have to send engineering assistance to the site causing start-up delays while contractors are already on-site. Engineers may also have limited availability if not scheduled to be on-site during start-up.

CITY MANAGER'S RECOMMENDED ACTION:

This project will complete an overhaul of Unit 7 Turbine generator and turbine. It is crucial to perform this work in a timely fashion in order to maintain compliance with the turbine generator and maintain reliability. General Electric is the manufacturer of the turbine generator and is the only company that has access to OEM design standards and designs.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1 as stated above.