

COUNCIL ACTION FORM

**SUBJECT: POWER PLANT FUEL CONVERSION –
BID NO. 1 – TURBINE CONTROL SYSTEM – CHANGE ORDER NO. 1**

BACKGROUND:

In November of 2013 the City Council decided to convert the City's Power Plant from coal to natural gas. In May of 2014 the City Council selected Sargent & Lundy of Chicago, Illinois, to provide engineering and construction oversight services for the conversion project.

On April 14, 2015, City Council awarded a contract to GE Energy Control Solutions, Inc., Longmont, CO for the Bid No. 1 Turbine Control System in the amount of \$814,920. **This specific phase of the conversion project is to purchase new Turbine Control Systems (TCS) for both Unit 7 and Unit 8.**

CHANGE ORDER NO. 1:

This Change Order is for the procurement of digital generator voltage regulator/ excitation control for Units 7 and 8. During the design to eliminate the analog turbine control board it was noted that replicating the voltage control in the Emerson digital control system (DCS) was not feasible for Unit 7. Replication is feasible for Unit 8 but would result in an awkward control of switches and rheostats via DCS keyboards and screens. GE has a solution eliminating the analog/manual control by installing a digital front end control system that keeps most of the hardware (transformers and rectifiers) but automatically controls voltage for synchronizing with the grid and optimizing generator voltage and vars during operation without operator intervention.

The existing systems were supplied by GE and they are the only vendor able to meet schedule due to their inherent ability to integrate the digital control to their hardware. Emerson offered a \$495,000 solution because they could not integrate and had to supply entire excitation systems, not a digital front end only.

The total cost of Change Order No. 1 is \$244,731.

PROJECT COST HISTORY:

The engineer's cost estimate for procurement of the equipment covered by this contract was \$1,064,728. **With this change order, the total costs for the Turbine Control Systems within the project will be increased to \$1,059,651.**

Overall, the total project dollar amount committed to date (inclusive of this Change order No. 1) is \$19,675,049. The approved FY 2015/16 Capital Improvements Plan includes \$26,000,000 for the Unit 7 and Unit 8 fuel conversion. The project budget to date is shown on page 3.

ALTERNATIVES:

1. Approve contract Change Order No. 1 with GE Energy Control Solutions., Longmont, CO for the Bid No. 1 Turbine Control System in the amount of \$244,731.
2. Reject contract Change Order No. 1 which will result in poor integration of the control for Unit 8 and will require keeping the manual control for Unit 7.

MANAGER'S RECOMMENDED ACTION:

The Power Plant's existing generator analog voltage controls should be upgraded to integrate and operate properly with the turbine and plant digital controls. Since this a control upgrade future hardware replacements can be phased in at a later date or upon failure for use with these controls.

This change order is needed in order to proceed with the elimination of the existing turbine generator control board.

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

PROJECT BUDGET

The overall project budget and commitments to date are summarized below. To date, the project budget has the following items encumbered:

\$26,000,000	FY 2015/16 CIP amount budgeted for project
\$1,995,000	Encumbered not-to-exceed amount for Engineering Services
\$2,395,000	Engineering Services Contract Change Order No. 1
\$174,000	Engineering Services Contract Change Order No. 2
\$3,355,300	Contract cost for Natural Gas Conversion Equipment
\$29,869	Equipment Contract Change Order No. 1
(-\$321,600)	Equipment Contract Change Order No. 2
(-\$51,000)	Equipment Contract Change Order No. 3
\$1,595,000	Contract cost for DCS equipment
\$814,920	Contract cost for TCS equipment
\$244,731	Equipment Contract Change Order No. 1 (pending City Council approval of award for this agenda item)
\$186,320	Contract Cost for Turbine Steam Seal System
\$898,800	Contract cost for Control Room Installation General Work Contract (separate item on this agenda)
\$1,572,019	Contract cost for Mechanical Installation General Work Contract (separate item on this agenda)
\$3,145,149	Contract cost for Electrical Installation General Work Contract (separate item on this agenda)
<u>\$98,560</u>	Contract cost for UPS System
\$16,132,068	Costs committed to date for conversion
\$9,867,932	Remaining Project Balance to cover miscellaneous equipment and modifications to the power plant needed for the fuel conversion