

ITEM #:	22
DATE:	08-25-26
DEPT:	ELEC

COUNCIL ACTION FORM

SUBJECT: COMBUSTION TURBINE CONTROLS UPGRADE - CHANGE ORDER NO. 4

BACKGROUND:

The Electric Services Department operates two combustion turbines to provide electricity to meet the utility's capacity obligations, produce energy during times when market rates are high, and to provide black start capability in the event the utility is entirely cut off from the regional transmission grid.

The existing controls systems on Combustion Turbines 1 (CT1) and Combustion Turbine 2 (CT2) are outdated and are in need of replacement. The hardware, software, system architecture, and several pieces of instrumentation are antiquated. Replacements are difficult to find and generally the systems no longer reflect best industry practices. Electric Department staff worked with AP4 Energy Services, LLC to develop a specification for acquiring a combined updated controls system for both combustion turbines.

During the development of the specification and review of the existing infrastructure, it was also determined the existing motor control center (MCC) for CT1 needed to be updated. The existing MCC utilizes a proprietary communications protocol that is no longer supported by the manufacturer and replacement parts are difficult to acquire, with only used parts available.

On August 12, 2025, City Council awarded a contract to Petrotech Inc., of New Orleans, LA, for the Combustion Turbine Controls Upgrade project in the amount of \$1,213,252.67.

CHANGE ORDERS:

Change Order No. 1 was approved by City Council on October 28, 2025, in the amount of \$174,300.86, to add additional controls equipment to CT2 for better unit control and to change the control system network architecture to a centralized network for simplified maintenance and increased reliability as identified by Petrotech.

Change Order No. 2 was approved by City Council on January 13, 2026, in the amount of \$176,054.59, for replacing the servo controllers and valve positioners for engine control and replacing instrumentation on critical process systems on CT2, and replacing the level transmitter in CT1's lubricating oil system.

Change Order No. 3 was approved by staff in the amount of \$40,575.47 for the engineering, drafting, programming, testing, project management, and shop services required to integrate an engine oil recirculation system for Combustion Turbine 1. Plant personnel are acquiring additional equipment and performing installation services for this equipment to reduce costs.

THIS ACTION:

Change Order No. 4, in the amount of \$10,039.81 (inclusive of sales tax), is being requested by staff for the engineering, programming, and shop services required to provide additional control logic for CT2. This type of generator control is available with CT1 but has not been available for CT2.

There are periods of operation, specifically during startup, where the VAR value experienced by the generator is negative, which can be damaging to the generator and cause grid instability. Incorporating more sophisticated control logic to CT2 will allow the electric utility to respond to dynamic grid conditions more readily with CT2 and reduce wear, increasing the reliability of the generating asset.

The amount of this change order, when combined with the previous change order, exceeds the threshold that can be approved administratively by staff. Therefore, City Council action is required to approve the change. **With this action the total contract amount will be \$1,614,223.40. There is currently \$203,263 in the CIP budget for this project that is available to fund this change order.**

ALTERNATIVES:

1. Approve Change Order No. 4 with Petrotech Inc., of New Orleans, LA, for Combustion Turbine Controls Upgrade in an amount of \$10,039.81 (inclusive of Iowa sales tax).
2. Do not approve the change order.

CITY MANAGER'S RECOMMENDED ACTION:

The control logic for Combustion Turbine 2 does not include the same sophistication as the control logic for CT 1 to prevent reliability issues with the unit during startups and periods of dynamic grid conditions. The recommended changes from Petrotech will provide additional control logic, which will enable Power Plant staff to operate CT2 in periods of grid instability and reduce generator wear, thus increasing asset reliability. The items listed in this Change Order were not anticipated during specification development. Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1 as stated above.