

COUNCIL ACTION FORM

**SUBJECT: ENGINEERING AND MATERIAL TO IMPROVE CONTROL OF UNIT 8
BOILER SUPERHEATER OUTLET STEAM TEMPERATURE**

BACKGROUND:

The Electric Utility has two high-pressure steam generation units within the City's Power Plant, referred to as Units No. 7 and 8. On June 12, 2018, the City Council approved a contract with the original equipment manufacturer (OEM) of the Unit 8 boiler, the Babcock & Wilcox (B&W) Company, to model and study the flow characteristics of the boiler. The purpose of the study was to identify improvements to control the steam outlet temperature leaving the superheater of the boiler, especially when the unit is operated at less than rated output.

B&W recommended two physical changes be made to the boiler to provide the desired outcome: 1) Replace the original lower sidewall headers of the boiler with new headers of a slightly different design, and 2) Install eight riser tubes connecting the boiler's upper headers to the steam drum.

These proposed changes to the boiler, along with cladding of boiler tubes in targeted areas of the boiler with Inconel alloy (already approved by City Council, and underway), will assist in mitigating the corrosion in the boiler associated with co-firing refuse derived fuel (RDF).

Staff is requesting a contract be awarded to The Babcock & Wilcox Company of Kansas City, Missouri in the amount of \$376,486 (includes sales tax) for the necessary engineering, materials needed, and fabrication of the replacement headers and riser tubes. Staff is also recommending that the City Council waive the City's purchasing policies requiring competitive proposals for this work, due to the fact that B&W is: 1) uniquely qualified as the designer and manufacturer of the boiler, 2) alone in having in their possession the original design history of the boiler in their archives, 3) available to perform this engineering and fabrication work.

Installation of these components will be completed by TEIC, a firm already under contract for the overall Unit #8 boiler tube replacement project. The cost to install B&W's boiler modifications described in this report is included in TEIC's existing tube installation contract.

The Unit 8 Boiler Repair project budget has \$339,860 available to fund this project. The remaining \$36,626 required will be taken from the balance remaining in the CIP budget for the Unit 7 Turbine-Generator overhaul. **This project will leave the Unit 8 Boiler Repair Project budget with a balance of zero dollars. As evidenced with the Unit 7**

boiler repair project undertaken in 2019, oftentimes unforeseen conditions can be encountered when overhauling a boiler which require changes to the materials and installation contracts. Although the materials and installation for the Unit 8 boiler overhaul have been bid, zeroing out the budget for that project will result in no funding remaining available in the project account to address any change orders if required.

However, a separate project for the Unit 8 turbine/generator overhaul will be undertaken this spring and summer. Staff has typically budgeted conservatively for such overhauls, and therefore it is expected that funds will be available in that project for any unforeseen expenses in the Unit 8 boiler repair project.

ALTERNATIVES:

1. A. Waive the City's purchasing policy requirement for formal bidding procedures and allow for single source purchasing for this work.

B. Award a contract to The Babcock & Wilcox Company of Kansas City, Missouri for the engineering and for the sourcing and fabrication of material for the purpose of improving the control of the steam temperature leaving the superheater of Unit 8 Boiler in the amount of \$376,486 (includes sales tax).
2. Direct staff to issue an invitation to bid for this work.

CITY MANAGER'S RECOMMENDED ACTION:

This work on Unit 8 boiler will result in improved reliability of the unit in that better control of the steam temperature in the superheater will be less damaging to the boiler tubes over time and will also help mitigate the corrosive attack upon the tubes due to the co-firing of RDF.

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