

COUNCIL ACTION FORM

SUBJECT: PRELIMINARY PLANS AND SPECIFICATIONS FOR 69KV SF6 CIRCUIT BREAKERS AND 13.8KV CAPACITOR BANK FOR THE TOP-O-HOLLOW SUBSTATION EXPANSION AND ROUTINE BREAKER REPLACEMENTS

BACKGROUND:

This project will convert the existing single underground 69kV transmission tap connection at the Top-O-Hollow substation to a more reliable dual-source transmission connection, including the necessary relaying and breakers for high-speed line and transformer protection. The scope of this project includes the replacement and expansion of the existing 13.8kV metalclad switchgear to provide the addition of a main breaker and replacement of obsolete airblast breakers and electromechanical relays with vacuum-interrupter breakers, microprocessor-based relaying equipment, the addition of 69kV line breakers and the addition of a 13.8kV Capacitor Bank for power factor correction.

With the goal of achieving better pricing, staff is also including the procurement of 2 additional 69kV breakers, one at Stange substation and one at Ames Plant substation. This is for the replacement of obsolete 69kV breakers planned-for and included within the FY 2018/19 Operating budget.

Use of breakers for transmission line, transformer, 13.8kV main breaker protection and the use of Capacitors for power factor correction is consistent with recommended engineering practices in the electric utility industry.

In total, this bid request is for the purchase of four 69kV SF6 circuit breakers and a 13.8kV capacitor bank. The Engineer's estimated cost of this equipment is \$296,000, which includes \$196,000 for (2) 69kV Breakers and (1) Capacitor Bank for the CIP project and \$100,000 for (2) 69kV routine-breaker replacements within the Operating budget. It is necessary to specify and order this equipment ahead of the final design and construction bidding due to the long lead time for these materials. Additionally, the construction phase approval of plans and specifications will be presented to Council in the near future.

The approved FY 2017/18 CIP for Electric Services includes \$1,950,000 for construction under the Top-O-Hollow Substation Expansion and Breaker Addition project which will cover the (2) 69 kV breakers and the capacitor bank. Iowa State University's (ISU) will also provide funding for this project. ISU's share of the project is based on a load-ratio-share of the 69kV portion of this project at the time of implementation. For budgetary purposes, staff is assuming the ISU load ratio share to be 7% of the total project cost.

The approved FY 2018/19 Operating Budget includes \$150,000 to purchase the (2) 69kV routine-replacement breakers.

All Equipment included in this bid request will be delivered in FY 2018/19.

ALTERNATIVES:

1. Approve the plans and specifications for furnishing (2) 69kV Circuit Breakers and capacitor bank for Top-O-Hollow Substation, and (2) additional Circuit Breakers and set March 28, 2018, as the bid due date and April 10, 2018, as the date of hearing and award of contract.
2. Do not approve the plans and specifications at this time.

MANAGER'S RECOMMENDED ACTION:

This project will improve reliability of the 69kV transmission system, improve service to the customers served by this substation, improve worker safety, and provide improved protection to electrical assets from fault damage. Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1 as stated above.

To date the Top-O-Hollow CIP project budget has the following items encumbered:

\$1,950,000	FY 2017/18 CIP amount budgeted for construction
	<u>H K Scholz</u>
\$599,231	Actual cost for switchgear and control panels
	<u>To Be Determined</u>
\$159,600	Estimated cost for Electrical Materials - (currently out for bid)
<u>\$*196,000</u>	*Estimated cost for (2) 69kV Breakers and (1) 13.8kV Cap Bank – for the CIP Project (pending Council approval of plans and specifications for this agenda item)
\$954,831	Costs committed to date for project
\$995,169	Remaining Project Balance to cover remaining equipment and construction for the CIP Project.