ITEM REPORT
UTILITIES COMMISSION

Agenda Date: 8/7/2025
Agenda Section: Business Item

Department Origination: Public Works

Agenda Item: Approve the Eaton Corporation Quote in the Amount of $22,860.00 for Replacement of Automatic Transfer Switch (ATS) Controller ATC-900 related to the Water Treatment Plant Emergency Generator

Approval Required: Simple Majority Vote

BACKGROUND

The City of Baxter Water Treatment Plant is currently equipped with an emergency backup generator for standby power. The original water treatment facility was constructed and commissioned in 2006/2007. At that time, an Eaton ATC-600 Automatic Transfer Switch (ATS) and controller were installed to facilitate automatic transfer between utility power and generator power. However, no upgrades or reprogramming of the existing ATS controller were performed during the subsequent installation of a new generator in 2018.

Since the generator upgrade, plant operators have relied on the "test" function of the ATC-600 within the Motor Control Center (MCC) room for routine monthly generator exercises. During these test cycles, operations staff have consistently observed abnormal behavior during transitions between power sources—both at startup and shutdown. Specifically, intermittent low-voltage alarms have been triggered on one or more variable frequency drives (VFDs), resulting in faults that disrupt process operations and need to be reset. These faults are inconsistent in nature and appear randomly throughout the transfer sequence, indicating instability in power transfer timing and system coordination.

On May 8, 2025, a site meeting was held with City of Baxter personnel, SEH Civil and Electrical staff, Holden Electric, Ziegler CAT, and Eaton Electrical to assess these recurring issues. The consensus among stakeholders was that the operational faults are directly attributable to limitations in the programming and functional capacity of the Eaton ATC-600 controller. The controller executes power transfers in an open transition (break-before-make) mode without synchronization, and the transition timing is abrupt—failing to provide adequate time for controlled plant shutdown or startup. These rapid transfers can cause electrical process loads to experience under-voltage or inrush events, which result in faulted conditions, particularly during generator testing or actual outages.

The ATC-600 controller also lacks a Time-Delay Neutral (TDN) feature, which allows for a programmable intermission between power source disconnection and reconnection. This delay is critical for allowing full system de-energization and water treatment plant ramp-down prior to electrical load re-engagement. Additionally, the ATC-600 does not support closed transition (make-before-break) transfers, which require source phase synchronization and are common in mission-critical infrastructure to ensure uninterrupted power during transfers.

Post-meeting consultation with Eaton and Ziegler CAT confirmed that the ATC-600 controller is obsolete, no longer supported, and not capable of upgrades to enable TDN or closed transition functionality. However, it has been verified that the existing switchgear and breakers at the facility are compatible with newer control systems that support advanced transfer modes.

Based on multiple site assessments and ongoing technical correspondence with City staff, Eaton, Ziegler CAT, and SEH Electrical Staff, the recommended corrective action is to replace the legacy ATC-600 controller with a current-

generation model, such as the Eaton ATC-900. This modern controller provides programmable time-delay functions, supports both open and closed transition modes, and includes in-phase monitoring to facilitate smoother and safer power source transitions. Implementation of this upgrade is expected to mitigate the VFD faults and operational disruptions observed during power transfer events, including those occurring during monthly generator exercise cycles.

Quotes were solicited from two vendors for the supply and installation of the proposed ATC-900 controller. The ATC-900 has been identified as the preferred replacement for the existing ATC-600 controller due to its compatibility in size and the availability of a retrofit kit with a wiring harness, allowing for a simplified plug-and-play installation.

Requests for quotes were sent to Eaton and Ziegler CAT. Eaton submitted a complete quotation for the replacement project. Ziegler CAT, however, declined to provide a quote. As noted in the attached correspondence, Ziegler CAT indicated that Eaton would be required to perform the controller programming, and Eaton has declined to provide programming services to CAT since they are quoting the full scope of work directly.

The installation will require the presence of an electrician to de-energize the existing automatic transfer switch (ATS) and controller and to perform lock-out procedures to ensure safety during the replacement. Holden Electric has provided a verbal quote to have an electrician on standby for this purpose along with coordination with the utility power to de-energize the entire plant.

During coordination with Ziegler CAT, they advised that it may not be necessary for them to be on site during testing, however, in discussions with City Staff, having a representative on site during testing was advised. An estimate cost for the effort needed for Ziegler CAT to be on site is included in the Financial Implications portion of this RCA below.

An additional element of the project involves integrating the new ATC-900 controller into the City's SCADA system. Allan Dostal from AE2S has been notified of the upcoming work and will be responsible for programming updates once the new controller is installed. These updates will ensure proper sequential startup of the water treatment plant during transitions between utility and generator power. An estimate cost for the effort needed for SCADA upgrades is included in the Financial Implications portion of this RCA below.

Estimates for Holden Electric, Ziegler CAT, AE2S, and SEH are based on assumptions around the time needed to perform each respective service on site.

It should be noted that, to date, the emergency generator has not been activated in response to an actual utility outage.

FINANCIAL IMPLICATIONS

As stated above, quotes were received from Eaton to perform the installation, programming, and testing of the new ATC-900 Unit. That quotation can be seen attached. This includes a full shutdown of the water treatment plant for the installation of the unit and restarting the plant the same day. Testing will commence the next morning with representatives from Eaton, Holden Electric, Ziegler CAT, SEH, and City staff ready to troubleshoot if issues were to arise during testing.

A summary of the anticipated expenditures related to this replacement project can be seen below:

- Eaton ATC-600 replacement with new ATC 900 with subsequent testing: $22,860
- Holden Electric On-Site power shut-off/lock-out and standby time for plant commissioning: $1,500
- Ziegler CAT on-site generator start-up and testing: $1,000

- AE2S programming and SCADA controls upgrades: $2,000
- SEH staff time (replacement and testing): $2,000
- **Total Project Estimated Cost:** $29,360

STAFF RECOMMENDATIONS

Staff recommends approval of the Eaton Corporation quote in the amount of $22,860.00 for the replacement of the automatic transfer switch (ATS) controller ATC-900 related to the Water Treatment Plant Emergency Generator.

COUNCIL ACTION REQUESTED

MOTION to approve the Eaton Corporation quote in the amount of $22,860.00 for replacement of the automatic transfer switch (ATS) controller ATC-900 related to the Water Treatment Plant Emergency Generator.