

Staff Report

for the Regular Meeting of the Board of Directors, April 25, 2018

TO: Board of Directors

FROM: Gary D. King, PE PhD, Engineering Manager
Adrian Schneider, PE, Senior Engineer

DATE: April 18, 2018

SUBJECT: Chicago Park Powerhouse Forebay Level Control, Vibration Protection and Balance of Plant PLC – FATR #2165

ENGINEERING

RECOMMENDATION:

Award a sole-sourced contract to d'Heurle Systems in the amount of \$299,075.13 to design, fabricate and install a forebay level control, vibration protection and balance of plant process logic control (the Project) at the Chicago Park Powerhouse, and authorize the General Manager to execute the necessary documents.

BACKGROUND:

The Chicago Park Powerhouse (Powerhouse) is one of the seven powerhouses that the District operates and is the largest power producer (39 MW). Built in the 1960's, portions of the powerhouse control are outdated and do not support the necessary modern operation and monitoring.

Water is delivered to the Powerhouse through the Chicago Park Flume (canal) to a forebay where it then transitions to the penstock feeding the Powerhouse. Power production at the Powerhouse is modulated by a flume intake gate located at the Dutch Flat Afterbay diversion dam, approximately four miles upstream from the forebay and penstock. The flume intake flow is manually set by staff or by PG&E Drum Dispatch Operator for the power production targets set for the Powerhouse.

Existing automatic controls for the prevention of forebay high/low level are dysfunctional. The danger is the potential to oversupply the forebay with water, resulting in by-pass spills into a tributary of the Bear River. In the event the low level control fails to function the water level in the forebay could be lowered to low.

A low level results in significant debris being brought into the turbine. If the forebay/penstock were allowed to drain entirely all cooling water would be lost resulting in significant damage to the powerhouse. New controls are required to prevent forebay excess high level due to FERC relicensing requirements and would eliminate the potential for by-pass spills.

The project also includes modernizing the powerhouse's vibration monitoring system. The existing system was installed with the original powerhouse construction and does not supply reliable information on plant vibration nor collect data for future analysis on plant operation and calibration.

d'Heurle Systems has conducted the exciter project for the Powerhouse in 2016 and has detailed knowledge of the Powerhouse and the District's operation and needs. The 2016 project was completed to the Hydroelectric Department's expectations. d'Heurle System has completed other District hydro projects and proved competent and thorough in their approach. The District therefore sole-sourced d'Heurle Systems for the Project and received a proposal on April 10, 2018. The project is under a concise timeline in order to replace the equipment during the September 2018 annual outage of the Powerhouse.

The proposal/contract amount is for \$299,075.13 and includes design, procurement, and construction support for the project. Staff recommends that the Board approve the contract with d'Heurle Systems.

BUDGETARY IMPACT:

This project is funded through the yearly Powerhouse Improvements Budget (50112-52920) of \$1,350,000. The project was budgeted for \$250,000. There is currently \$645,846 left remaining in the Powerhouse Improvements Budget. Following the award of this project, the remaining balance will be \$346,770.87.

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