

CONTROL SYSTEMS UPGRADE AT CLEARWATER POWER PLANT

Riverside Public Utilities

City Council November 18, 2025

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BACKGROUND

Clearwater Power Plant

- Commissioned in 2005
- Acquired by Riverside Public Utilities (RPU) in 2010
- Combined cycle power plant that uses both a gas and steam turbine
- Capability of producing 30 megawatts of efficient power



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BACKGROUND

- 1. Balance of Plant (BOP) Control System
 - a. Comprised of over 250 hardware and software components
 - b. Monitors and controls support systems
 - c. Essential to maintain reliability, environmental compliance, and safe operations
 - d. Existing system installed during the commissioning of the plant
 - e. Proprietary product developed by ABB, Inc. (ABB)
- 2. ABB Conducted a Lifecycle Assessment
 - a. First performed in 2013 and a minimal upgrade was completed
 - b. Another assessment in November 2024 to evaluate status and viability through forecasted retirement of Clearwater in 2040



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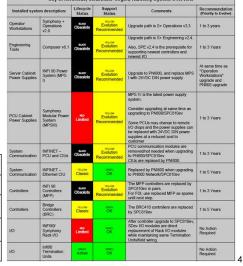
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BACKGROUND

Lifecycle Assessment Results

- a. Substantial increase in obsolete components
- b. Software is outdated
- c. Difficult to source replacement parts
- d. Existing control system is not sustainable until forecasted retirement
- e. Upgrade is strongly recommended

Lifecycle Status	Description
Active GREEN	Product Actively Marketed, Sold and Supported
Classic YELLOW	Product Sold and Supported; Newer Technology Product Available
Limited RED	Product Supported; not Actively Marketed and Sold
Obsolete BLACK	Best Effort Support Only





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DISCUSSION

- 1. ABB designed and commissioned the original BOP Control System
 - a. Technical expertise of the existing complex and customized control system
 - b. Immediate access to compatible replacement parts
 - c. Proprietary knowledge to complete upgrade efficiently with minimal integration risks
- 2. ABB Proposal for BOP Control System Upgrade 3 Primary Tasks
 - <u>Task 1: S+ Human-Machine Interface (HMI) Software Upgrade</u>
 Upgrading outdated software, computer equipment, and operator workstations.
 - Task 2 Distributed Control Systems (DCS) Evolution
 More than 115 obsolete components will be replaced while utilizing existing infrastructure. Some parts will be repurposed as spares.
 - Task 3 Three-Year Software License Agreement

Regular software updates, security patches, unlimited technical support, and access to future vendor discounts.

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DISCUSSION

1. Project Cost Summary

Task	Cost
S+ HMI Software Upgrade	\$ 525,499.17
DCS Evolution Upgrade	\$ 774,987.00
Upgrades Subtotal	\$1,300,486.17
10% Contingency	\$ 130,000.00
3-Year Software License Agreement	\$ 210,485.00
Total	\$ 1,640,971.17

- 2. 10% Contingency
 - a. Amendments required for any unforeseen changes in work scope
 - b. Up to 30 days to process a fully executed amendment
 - c. Delays will increase costs and prolong the non-operational period
 - d. Does not guarantee payment nor increase cost for the project
 - e. Covers unforeseen and reasonable changes to the project
 - f. Requires Riverside's authorization prior to any project changes

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RECOMMENDATIONS

That the City Council:

- 1. Approve the Professional Consultant Services Agreement with ABB, Inc. of Cary, North Carolina to perform control system upgrades at the Clearwater Power Plant for \$1,640,971.17; and
- 2. Authorize the City Manager, or designee, to execute the Professional Consultant Services Agreement with ABB, Inc., including the ability to make non-substantive changes.



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