John Day Turbine Runners and Generator Rewinds DESIGN

This project seeks to sign a new subagreement with the BOR and begin Phase 1 for design of the John Day Turbine and Generator Rewind project.

There are three phases in this project: Phase 1A – Study, Phase 1 – Design, and Phase 2 – Construction. Phase 1A has been completed was to assess and baseline power train conditions; develop modeling tools to analyze economics benefits from the various alternatives considered, and; develop hydraulic modeling tools to help generate design criteria, and identify potential alternatives. Phase 1 will be performed in house by the USACE and is expected to complete in 2023. Phase 2 will be contracted out and is schedule to start in 2023 and complete in 2041.

The original Phase 1A recommendation to replace all 16 units has been revised for Phase 1 to recommended partial replacement of only 14 turbine runners and generator stator windings with a combination of fixed-blade and adjustable runners. To ensure adequate contract flexibility and allow for adjustments based on updated and more accurate information at the time of construction, it is recommended the contract scope specify the replacement of 12 turbine runners and stator windings in the base scope with 4 additional units as optional.

The existing generating units have low and declining reliability leading to unplanned outages, decreasing electricity generation, and make it more difficult to meet power and environmental requirements. Turbine efficiency and turbine runners are deteriorating. Additionally, equipment troubles and failures include, but are not limited to, generator stator winding failures, leaking head covers, wicket gate cracking, wicket gate bushing wear, failing head cover pumps, thrust bearing failures, cavitation, and corrosion. These troubles and failures have led to a decrease in reliability and extended outages to address the issues.