

Ice Harbor Units 1, 2, 3 Turbine Redesign and Runner Replacement

This project will replace turbines and runners on units 1 - 3. The turbines and runners will be designed to improve passage conditions for juvenile fish as they pass through the turbine environment. The turbines and runners to be replaced are original vintage 1950's, while their hydroAMP condition ratings range from marginal to poor. These units have been plagued with problems since they were initially installed. In the 1960's on unit 2 a large portion of a single runner blade detached. An extensive outage was required to replace the broken blade and install a new blade. U3 experienced a similar problem in 1995 and an extensive outage was needed to repair that broken blade. Leaking oil from the runner hub has also been an ongoing problem with these two units causing environmental impacts.

The turbines at Ice Harbor are at the end of their design life and this project will replace them to sustain generation, result in a redesigned "fish friendly" turbine and runners, and provide a design process that can be replicated when future turbine/runner replacements are needed at other projects located on the lower Columbia and Snake Rivers, the primary fish passage corridor. To sustain and maintain long term operation of the turbines at these sites they must be able to safely pass juvenile Salmonids. A primary driver for redesigned turbines is the 2008 NOAA Biological Opinion which requires that fish passage improvements be considered for implementation during the replacement or rehabilitation of any turbines within the Lower Snake and Columbia River Projects.