

Little Goose DC System and LV Switchgear Upgrades

Background

The Station Service DC systems, Governor Oil Pump System, and Low Voltage Switchgear are original equipment and have been in service for over 45 years. All assets have exceeded their useful service life by at least 125%, and align with the recommended replacement dates or are being replaced 1-2 years earlier than recommended. Equipment being replaced early is integral with the subsystem being upgraded. Delay for a few more years will complicate the integration of new equipment with aged existing equipment, and lead to additional cost of construction and unnecessary outages.

The new design corrects an operational deficiency inherent with the daisy-chained original configuration. To perform an inspection or work on the 4,160V governor motor starter feeders or equipment, the current design requires live work, or requires the complete shutdown of power to Units 1-4, or 5-6, including SQ1 main unit auxiliaries. Shutting down main units and SQ1 removes power from the turbine pit sump pumps and introduces the risk of flooding the turbine pits. The new design provides parallel feeds and the ability to isolate individual units, which eliminates live work on the 4,160V system and enables the shutdown of individual main units, instead of two or four units at a time, which will have a significant impact on worker safety and plant operation and generation. The switchgear and breakers that are to be installed as part of this investment will provide adequate Arc Flash/blast (a type of electrical explosion) protection to operators and maintenance personnel in accordance with National Fire Protection Association 70E (Standard for Electrical Safety in the Workplace) to avoid electrocution hazard and allow equipment testing in accordance with Institute of Electrical and Electronics Engineers (IEEE) standards. This investment will also improve monitoring, testing, and reporting data about the functionality of the switchgear and breakers and ensure continued compliance with current North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) reliability and safety requirements.