



Memorandum

May 26, 2011

To: Jim Dinley, Municipal Administrator
From: Christopher Brewton, Utility Director, Electric Department
Subject: **Green Lake Turbine High Pressure Pre-Lube Pump Installations**

Request:

This is to request Assembly approval to authorize the transfer of \$150,000 in capital project funds from the Marine Street Voltage Regulator Project, CIP No. 90627 to the Green Lake Powerplant Improvements Project, CIP No. 90562 for the purpose of installing pre-lube pumps on the Green Lake Hydroelectric Turbines. The Marine Street Voltage Regulator Project will be deferred.

Background:

The Green Lake Hydroelectric turbines are designed for a grid-based system and lack an adequate pre-lubrication system for starting an off-grid turbine. This creates excessive wear and tear on the thrust bearings during daily starts and stops. Operationally this has resulted in both machines remaining on line in light load conditions in lieu of securing one machine. This problem has existed for the duration of the project's existence and in times past was not a major concern as there was excess water to meet system loads.

Purpose:

With the installation of a pressurized pre-lubrication system the turbines can be easily started and placed on line without risk of excessive wear on the machine thrust bearings. This will provide the operational capability to better match system load requirements with generation and save valuable water in the lakes. The system operator will be able to operate one unit for more hours of the day which is 1MW more efficient with one machine at full load than two machines at partial load. This is a significant opportunity to improve system generation efficiency.

Technical Analysis:

The Electric Department engineering team and plant mechanics in conjunction with manufacturer's representatives and governor consultants have been intently focused on plant efficiency improvements for the past few years. The governor upgrades, wicket pin replacements, and the ongoing modifications of the control system have saved several thousands of dollars in avoided diesel generation costs. This project is a perfect example of the expertise and dedication of the department staff as they continually seek to improve system operations and keep utility costs as low as possible.

Recommended Motion:

I MOVE to authorize the Municipal Administrator to transfer \$150,000 in capital project funds from the Marine Street Voltage Regulator Project, CIP No. 90627 to the Green Lake Powerplant Improvements Project, CIP No. 90562.

Cc: Jay Sweeney, Interim Finance Director
Janet Schwartz, Budget Officer