

# Memorandum

**To:** Mike Kaputa, Chelan County Natural Resources Director  
**From:** John Stoll, Managing Director of Customer Utilities  
**Copies:** Teka Sellers, Engage NCW; Edrie Risdon, Chelan PUD  
**Date:** January 30, 2026  
**Re:** Stehekin Questions from Chelan County

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## Overview

Thank you for your email dated January 13 concerning the drafting of the Stehekin Community Plan and your request for additional information, specifically as it relates to:

1. current system conditions, concerns, and issues;
2. short-term planning considerations and potential solutions; and
3. longer-term planning challenges and options.

Below are narratives for each of the project phases underway for the Stehekin Powerhouse Modernization and D2 Replacement projects. These narratives support Chelan County PUD's work with Chelan County as development of the Stehekin Community Plan progresses. Please note that timelines noted are subject to change.

### **Stehekin Powerhouse Modernization – Phase 1 – Controls and Switchgear Modernization**

#### ***Timeline – Design & Install: 2025 – 2027***

Phase 1 focuses on replacing and modernizing the aging powerhouse electrical infrastructure and control systems to improve safety, reliability, and wildfire resilience. The work includes replacing obsolete 2400V switchgear with a new 480V Main-Tie-Main (MTM) single-bus configuration, upgrading protection systems with SEL digital relays, and installing a new control system that provides remote visibility and operational automation for the hydro unit and diesel generators.

#### Objectives:

- Improve system resilience and reliability through adaptive protection and automated controls.
- Improve resilience with modern protective relays and equipment hardening.
- Enable future integration of distributed energy resources (DERs), including the Battery Energy Storage System (BESS).
- Transition the system to a modern supervisory control platform with automatic operation and remote monitoring capability.

Benefits:

- Enhanced personnel safety and reduced manual switching requirements.
- Improved outage response and fault-clearing times.
- New conduit routes and cabling will be underground where feasible, improving or maintaining system hardening against weather and debris.
- Establishes electrical and control infrastructure needed for BESS interconnection in Phase 2.

**Stehekin Powerhouse Modernization – Phase 2 – Battery Energy Storage System**

***Timeline – Design: 2025 – 2026***

***Timeline – Install: 2027 – 2028***

Phase 2 delivers full construction and commissioning of a Battery Energy Storage System (BESS) sized to approximately 1000 kWh to provide load-balancing, frequency regulation, and diesel runtime reduction in the isolated Stehekin microgrid. This phase includes design, permitting, site preparation, equipment procurement, installation, testing, and system integration with powerhouse controls and hydro generation assets.

Objectives:

- Enable hydro generation to serve as the primary power source by storing excess energy and discharging during low-flow or peak-load periods.
- Reduce diesel generation runtime.
- Improve adaptive capacity and reliability during disruptive events by allowing seamless transitions between power sources.
- Provide clean energy infrastructure that supports future Clean Energy Transformation Act requirements.

Benefits:

- Major reduction in diesel fuel consumption and air emissions.
- Improved reliability and stability of islanded grid operation.

**Stehekin Powerhouse Modernization – Phase 3 – Headworks Modifications – 30% Design**

***Timeline – Design: 2026***

Phase 3 will help address hydraulic capacity constraints at the hydro plant headworks to reduce clogging of water flow and maintain more reliable hydroelectric generation during lower river conditions. Preliminary concepts include replacing aging intake structures, modifying flow control features, and improving sediment management.

Objectives:

- Increase hydro plant reliability and availability, reducing diesel reliance.
- Improve long-term reliability of water conveyance infrastructure.
- Enhance operational flexibility under varying hydrologic conditions.

Benefits:

- Additional reductions in diesel runtime and associated emissions beyond the BESS phase.
- Improved resiliency of the hydro generation capacity and reduced maintenance requirements.

## **D2 Replacement**

### ***Timeline – Design & Install: 2026***

The D2 diesel generator, currently the primary backup and grid-forming source for the Stehekin system, will be replaced with a new, 200 kW 480 VAC synchronous genset equipped for modern protective relaying, droop control, and remote monitoring capabilities. This replacement supports ongoing system stability and reliability while integrating with the new switchgear and controls installed under Phase 1.

Objectives:

- Replace aging diesel equipment with a cleaner, more efficient generator.
- Improve fuel efficiency, reliability, and maintainability.
- Provide black-start and load-following capability compatible with BESS operations.

Benefits:

- Enhanced system redundancy and reduced operational risk.
- Lower maintenance costs and improved environmental performance.
- Complements overall modernization strategy and supports future renewable integration.

### **What will these improvements do to add capacity?**

While these phased improvements will marginally increase capacity, the Stehekin Valley will need other future tools for longer term success should growth continue at its current pace. This may include, but is not limited to:

- Revised rate schedules encouraging efficient use of the resource.
- Regulations and policies addressing potential high energy uses.
- Efficiency improvements and programs for customers through our Energy Solutions group.
- Leveraging a full year of AMI data to inform conservation strategies.
- Developing options for customers to install distributed generation.

Chelan PUD is making significant investments in the Stehekin power system, with planned projects totaling more than \$11 million in plant improvements, as noted above. In addition to these upgrades, ongoing annual maintenance and replacement of distribution system components such as poles and wire will continue. Together, these efforts will modernize the system, improve reliability, and add limited additional capacity. Looking ahead, it will be critical for Chelan PUD, Chelan County, and Stehekin residents to work in partnership to balance community needs while ensuring a safe and reliable power system for future generations.

Please don't hesitate to reach out for additional clarification or discussion. Chelan PUD appreciates the opportunity to collaborate on the Stehekin Community Plan and other related efforts.