ENERGY DEMAND IS GROWING IN STEHEKIN

The electrical system in the Stehekin Valley is unique. A small hydroelectric plant generates power that is distributed via a micro-grid, independent of Chelan PUD’s larger electrical system. Electricity use in the Stehekin Valley is growing, straining the limited capacity of the PUD’s hydroelectric plant.

When customer demand for energy exceeds the capacity of the PUD’s hydroelectric generator, diesel generators must make up the difference. This increases fuel and maintenance costs, as well as environmental impacts. If this trend continues, it could eventually lead to higher electric rates.

Forecasted Stehekin Load Growth Based on kWh Usage

Projected annual growth rate = 4.3%
The hydroelectric plant in Stehekin is capable of generating up to 180 kW. When demand is higher than 180 kW, a secondary source diesel generator (also referred to as D2) turns on to add up to 75 kW of additional capacity. The generator runs for at least 30 minutes each time demand is over 180 kW.

If the demand exceeds the capacity of both the hydro and D2 (255 kW), both the hydro and D2 shut down, and two emergency diesel generators (known as D1 and D4) kick on to meet the demand.

**CONCERNS WITH USE OF DIESEL GENERATORS**

- Intended use is for emergency backup only (not peak demand)
- Manual operation required to switch to emergency generators (causes power interruptions)
- Reliability and power quality issues
- Impacts the lifespan of the equipment
- Environmental impacts
- Potential future rate increases due to increased maintenance and operations costs
- Inability to meet future electrical demand in the Stehekin Valley

**AVERAGE VS. PEAK DEMAND**

Below is a chart showing generator output on a single day in Stehekin (August 8, 2019). The average demand in Stehekin is typically below the hydro’s capacity of 180 kW (on this day, averaging 152 kW). In seven instances though, peak demand surpasses 180 kW, requiring the use of the back-up diesel generator (D2). As demand in Stehekin continues to grow, these peaks could increase and occur with more frequency.

**PEAK DEMAND IN STEHEKIN**

On a typical day in Stehekin, electric demand peaks during certain times of the day, likely due to energy-intensive activities occurring during those times. Similarly, demand will peak at different times of the year, based on recreation and commercial activities, temperatures, occupancy and other factors.
POTENTIAL SHORT-TERM SOLUTIONS

The PUD will be looking for potential energy-efficiency and load-shifting opportunities to reduce both the overall energy consumption and peak loads at the hydroelectric plant. All of these opportunities could help the PUD manage the load, reduce your monthly electric bill and continue to provide clean, affordable electricity to Stehekin.

Some short-term solutions we may look at include:
- Incentives to help customers upgrade lighting, space heating systems, water heating and appliances
- Opportunities to use wood or propane heat to reduce electricity use
- Water heater or pump controls to shift loads away from peak demand times of the day
- Low- or no-cost ways to reduce electricity use or shift loads away from peak hours
- Possible battery storage at the home or business to reduce peak loads and provide back-up power during short-term power outages
- Exploring alternative energy sources such as solar

THE LONG-TERM OUTLOOK

While conservation and load-shifting will help address this issue in the near-term, we are looking to the community to help the PUD identify the best long-term solution to meet growing energy demand in the Stehekin Valley.

Potential options may include:
- Battery storage solutions to avoid the use of the diesel generator during peak use times
- Investments in fuel-shifting investments like switching from electric to gas/propane
- Rate and policy changes to curb load, such as implementing time of use rates

WE WANT TO HEAR FROM YOU!

Over the coming months, PUD Staff will continue to engage customers in Stehekin about energy use, peak demand and potential long-term solutions.

What is the best way for us to communicate with you? Please update your email address at chelanpud.org/updateyourinfo. If you prefer mail, please make sure we have your correct mailing address.

Questions?
Send questions to teka.sellers@chelanpud.org or call Teka Sellers at (509) 661-4294.
Website: chelanpud.org/Stehekin