# OPALCO Insight Series: We are all connected. What does our collective load look like on the grid?

OPALCO has about 11,200 members, distributed across 20 islands, all connected by the grid. How do the patterns of daily life show up on the grid? OPALCO manages our collective energy load carefully to make best use of member resources and keep rates as low as possible. Understanding our energy usage patterns is important as we embrace more intermittent resources, such as wind and solar, and as we make decisions today about our power supply tomorrow.

#### **The Daily Pattern**

The figure at right shows the typical load on the grid, during 15 days in winter. Note how the load drops at night as we turn the lights off and set back thermostats. The load rises quickly in the morning, settling back a bit as we leave home and go to work,



then rises up in the evening, as we return, turn the lights on, start cooking, and enjoying the evening. Then back to bed, and repeat the next day. Also note how colder days increase the load and warmer days decrease the load. This is because most homes heat with electricity – the lowest cost cleanest energy in the islands.

Heating is the biggest use of energy in a typical San Juan County home, followed by driving, water heating, and lighting.

### **The Annual Pattern**

Individual patterns of daily life vary with each of us, but collectively, this primary peak in the morning and secondary peak in the evening is what we see on the grid, day after day, throughout the winter and summer months.



The figure at right shows

the load on the grid from an annual perspective. Note how the load in winter doubles from summer. This is due primarily to increased heating and lighting in the cold long nights of winter. In warmer years the peak is lower. Being surrounded by the beautiful temperate Salish Sea helps keep it from getting too cold in winter and too hot in summer.

#### We are all Connected

Our local grid connects to the mainland through two submarine cables. These cables draw power from a transmission network that covers the northwest and, through regional centers, the nation. This national grid ties OPALCO together with over 900 other electric cooperatives serving more than 75% of America's landmass. The figure below shows the Northwest portion of the national grid.



### **October is National Co-op Month**

Though each electric co-op has its own unique pattern of daily and annual energy use, we are all tied together and share a common approach to building community, together.

Electric co-ops were formed in the 1930s to supply electricity to the nation's rural areas—a challenge that the big utilities weren't interested in taking on. It was the men and women of rural America who banded together to make rural electrification happen. We celebrate the power of working together, in cooperation, for the common good and bettering the quality of life in the rural areas we call home.

# **Click to Learn More**

The Electric Cooperative Story: https://www.youtube.com/watch?v=vETdVpo8bGE

October is National Co-op Month: http://www.coopmonth.coop/about/

Bonneville Power Administration (BPA): https://www.bpa.gov/news/AboutUs/History