# The Northwest End-Use Load Research Project

By collecting end-use metering data from Northwest residential and commercial buildings, NEEA's Northwest End-Use Load Research Project (EULR) is designed to update end-use and building-characteristic data that was last acquired in the 1980s and 1990s.

## Project Overview

- Initiated in 2016 and funded by public and private utilities, research firms, and federal agencies.

- Composed of two ongoing metering studies:
  - Home Energy Metering Study (HEMS)
  - Commercial Energy Metering Study (CEMS)

- Combined with data collected from NEEA's:
  - Residential Building Stock Assessment (RBSA)
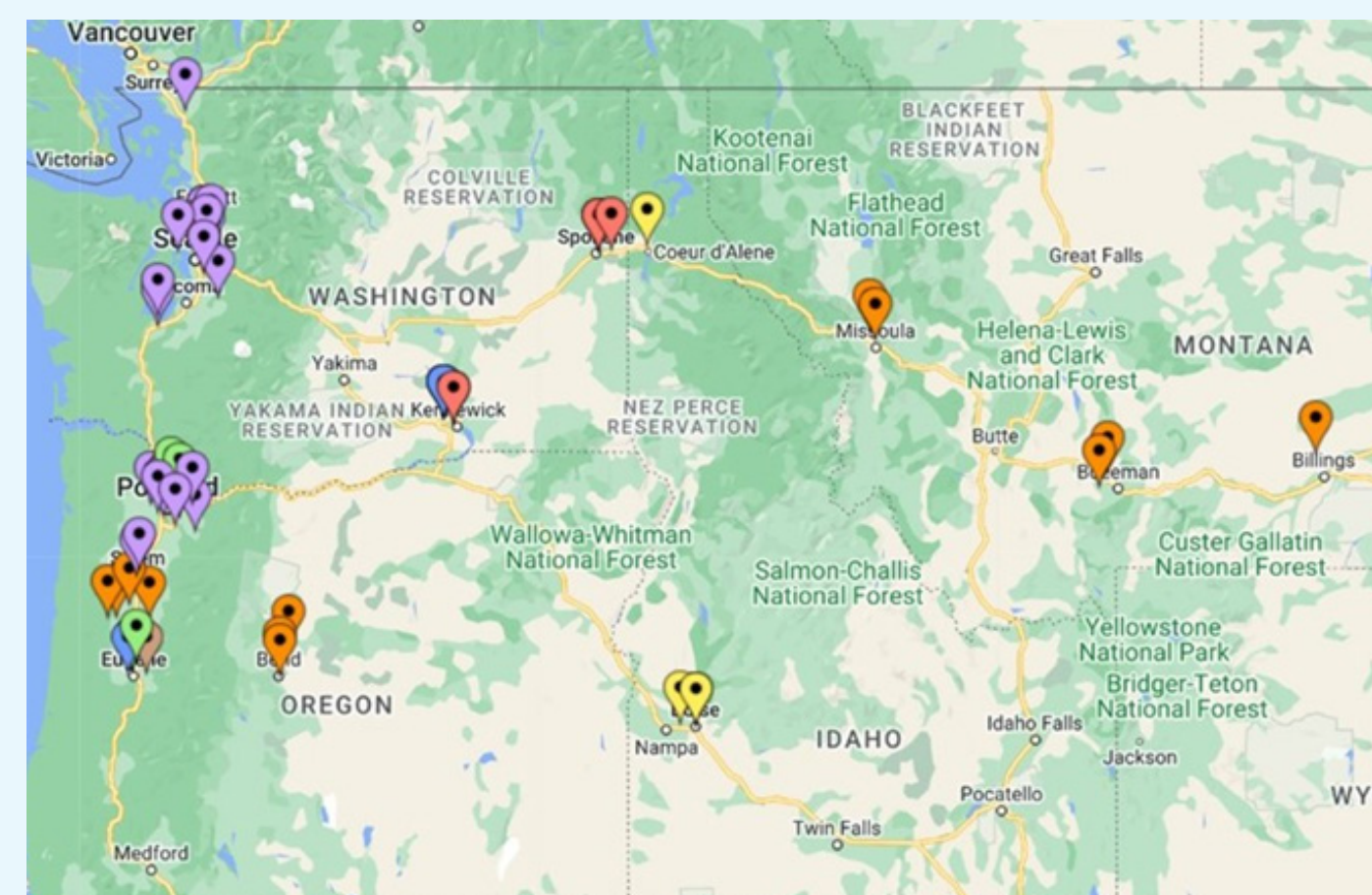  - Commercial Building Stock Assessment (CBSA)

**1,100 homes from the RBSA**
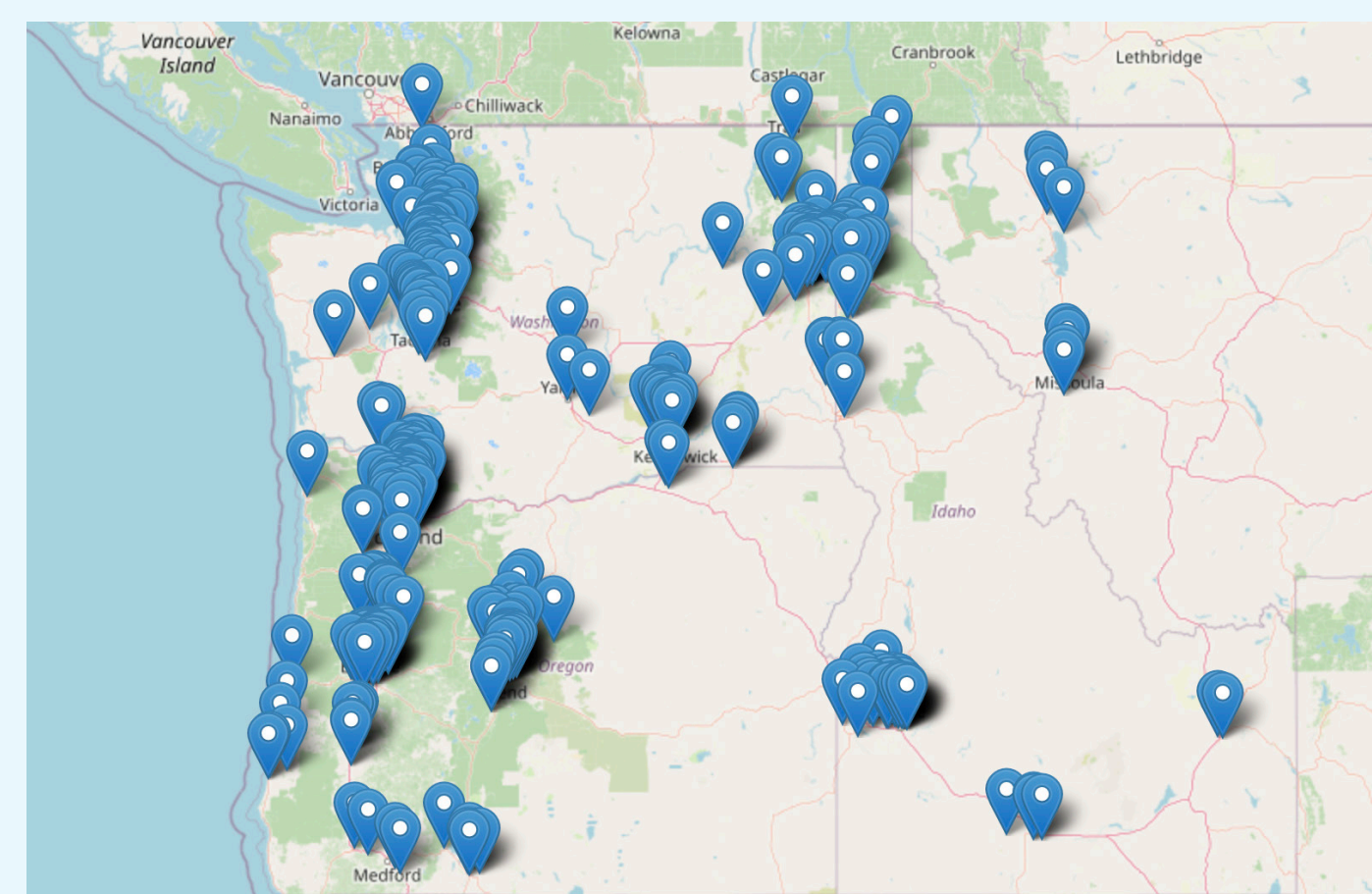
**860 buildings from the CBSA**

## Installation Overview

End-use metering of 400 residential panels and selected panel metering of 70 commercial buildings provides a representative, rather than random, sample.
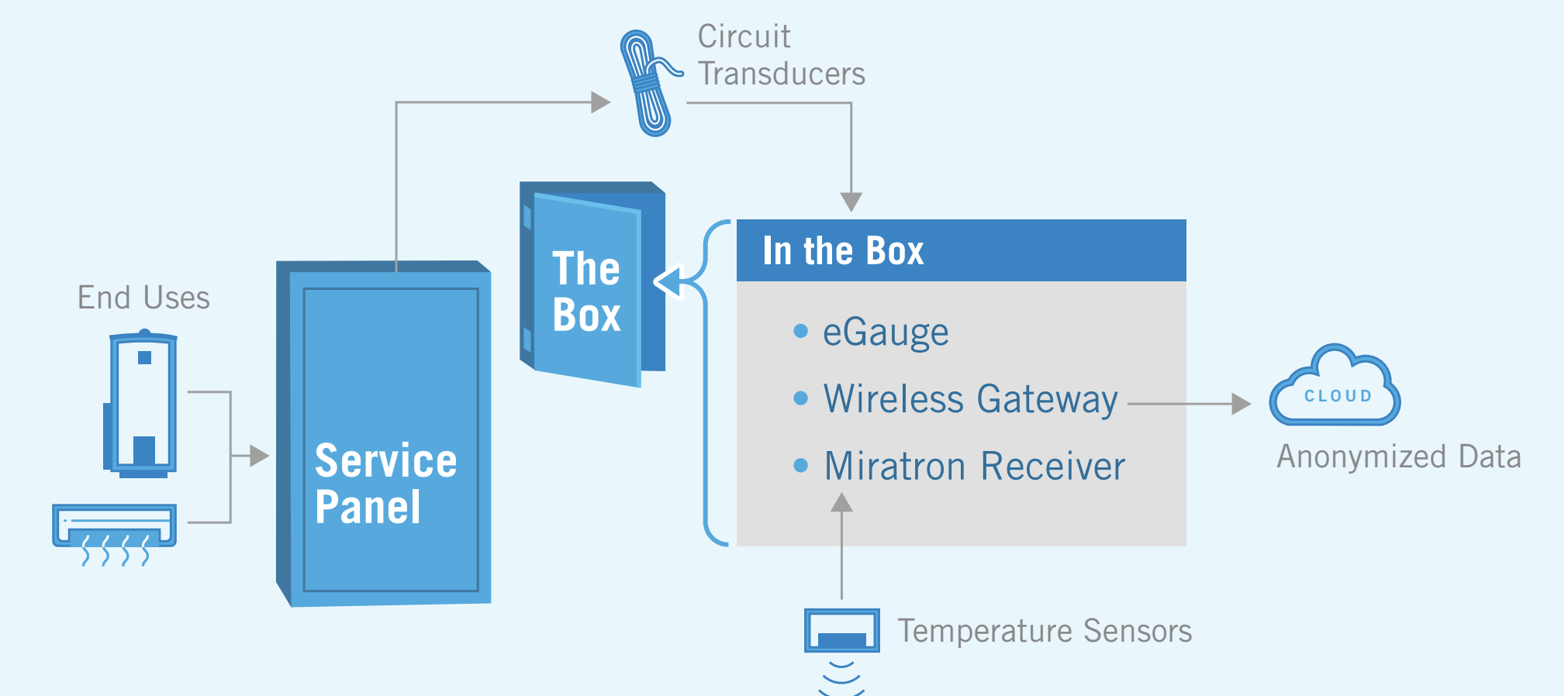
**Commercial Metered Sites**

**Residential Metered Sites**

## How End-Use Metering Works

Circuit Transducers

End Uses

Service Panel

The Box

In the Box
- eGauge
- Wireless Gateway
- Miratron Receiver

Anonymized Data

Temperature Sensors

### Project Sponsors

Avista, Bonneville Power Administration, Clark Public Utilities, Energy Trust of Oregon, EWEB, NREL, Northwest Power and Conservation Council, Pacific Power, Portland General Electric, PSE Puget Sound Energy, Seattle City Light, Snohomish County PUD, Tacoma Power

*Learn more at neea.org/eulr.*

# The Northwest End-Use Load Research Project

## Data Collection Overview

**Data are collected in 1- and 15-minute intervals:**

### Residential

- Panel end uses and total electricity.
- Indoor and outdoor temperatures, including heat pump refrigerant.
- Heat pump water heaters, ductless and ducted heat pumps, electric forced-air furnaces, and baseboard electric heat.
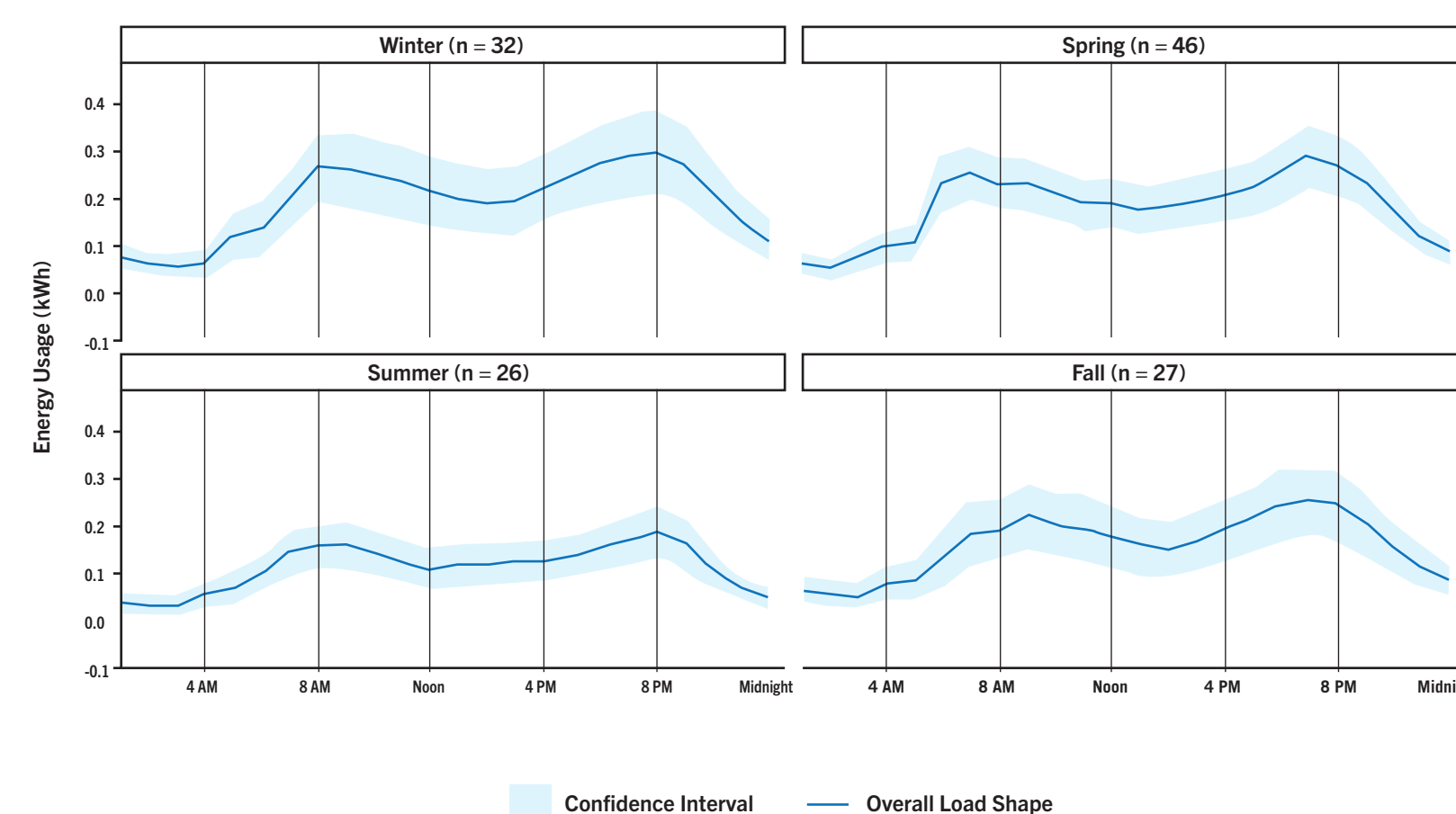
### Commercial

- HVAC, rooftop units, and other large loads.
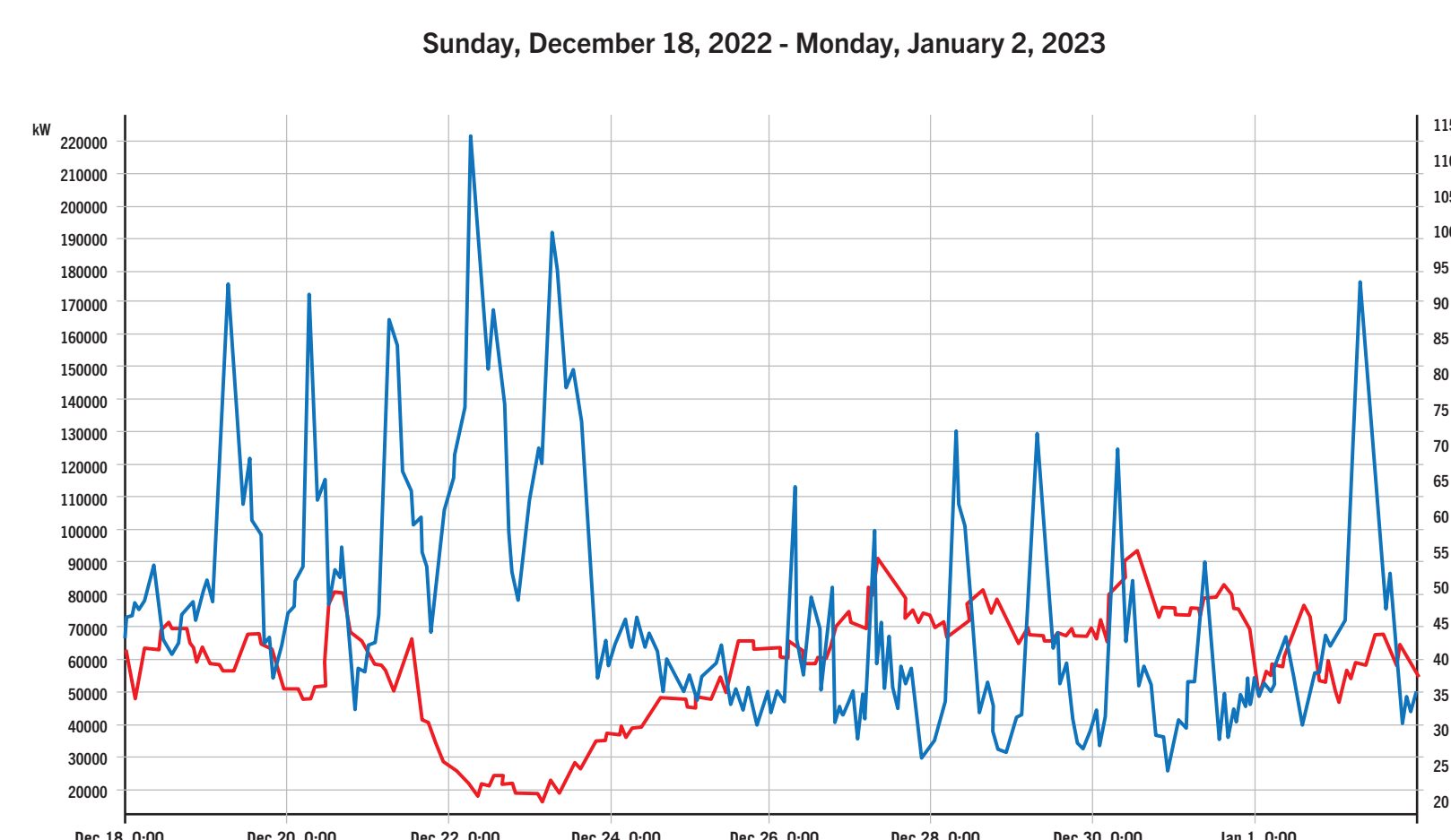- Whole-building Advanced Metering Infrastructure (AMI) data, where available.

## Data Findings

### Heat Pump Water Heater Energy Usage



### Commercial Electric Resistance Heat and Temperature



Sunday, December 18, 2022 - Monday, January 2, 2023

## Data Uses

This insight helps Northwest utilities and energy industry organizations design and deliver better efficiency programs to electricity customers.

- 15-minute end-use data available free to the public.
- Billions of 1-minute data accessible to project funders and others who pay for access.
- Downloaded more than 350 times by national and international users.

These valuable data offer valuable insight across a diversity of applications, including:

- Energy efficiency
- Decarbonization
- Battery energy storage
- Power quality
- Load forecasting
- Electrification
- Electric vehicle load growth
- Distribution planning
- Demand response
- Ratemaking

### Learn more at neea.org/eulr.

NEEA is an alliance of more than 140 Northwest utilities and energy efficiency organizations working to accelerate the innovation and adoption of energy-efficient products, services and practices.