Class Load Shapes

Class load shapes are calculated using the historic weather-adjusted shape for each of the classes (Residential, Commercial, Industrial, Irrigation) and 'rotated' each year to allow for changing weekends/weekdays, holidays, time changes, and leap years.

The annual percentage of energy for each hour of 2026 is included in the associated Excel spreadsheet.

Solar Load Shape

The solar load shape was provided by Itron, a global services company specializing in energy management. It was calibrated to align with solar cycles in Idaho Power's service area. Maximum solar output occurs in the hour where the value = 1. Each hourly value within the month is a calculated factor of maximum output (e.g. 0.25 means that solar output for that hour is 25% of the maximum output).

Electric Vehicle Load Shape

The Alternative Fuels Data Center (AFDC) EV load tool was used to calculate the EV load shape. This tool exports hourly demand, but only the calculated shape of the demand is used. The energy from all EV sources (e.g. home charging, work charging, etc.) was summed by hour, and a shape calculated by dividing the demand at each hour by the total demand for the 24-hour period.
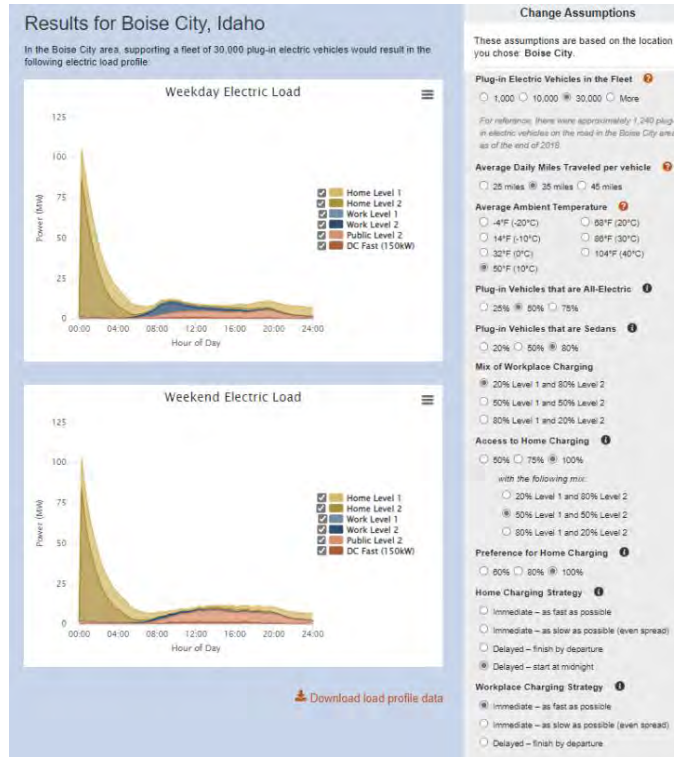
Two scenarios were run, with one variable in the tool altered. First, 'home charging strategy = Delayed – Start at midnight', to account for customers on time-of-use rates, charging off peak. The second, 'home charging strategy = immediate – as fast as possible', for customers not charging off peak.

Weekend and Weekday shapes for each of these two scenarios were calculated and then blended 50/50 to create a single shape for both weekends and weekdays. Once blended, the midnight peak was moved up one hour to 11 p.m. to match Idaho Power's time-of-use rate off-peak start time.

Here is a link to the tool:

https://afdc.energy.gov/evi-x-toolbox#/evi-pro-loads

Screen shot from AFDC tool for 'home charging strategy = Delayed – Start at midnight'

Screen shot from AFDC tool for 'home charging strategy = immediate – as fast as possible'