



City of Boulder

North Boulder Recreation Center
Electric Vehicle Charging Station Pilot

Annual Report

March 2022

Prepared by the Climate Initiatives Department

Project Overview

In 2020, the City of Boulder partnered with Fermata Energy to test whether new electric vehicle charging technology could provide the city new ways to manage its energy load and reduce energy costs.

How it Works

Typically, electric vehicle chargers provide energy in one direction: from the energy grid or building to the car. In the pilot project, the charging station enables two-way electricity flow: from the building to the car and from the car back to the building.

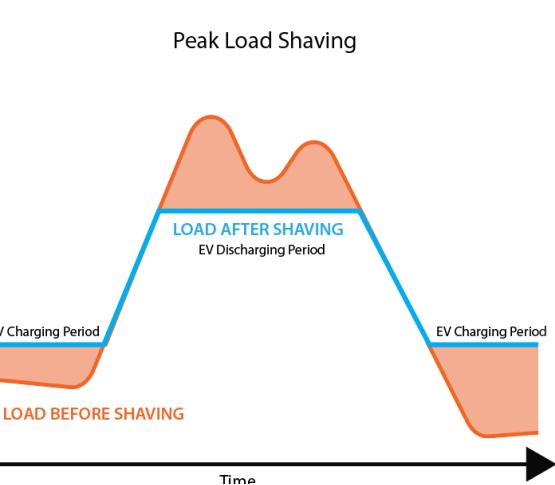
The bidirectional charging system allows vehicle batteries to transfer energy from the battery back to the North Boulder Recreation Center (NBRC) when the building uses more electricity.

In this pilot, the city is using one of its fleet vehicles, a Nissan LEAF. The fleet vehicle's primary function is to support the Parks and Recreation Department. When not in use by Parks and Recreation staff, the all-electric fleet vehicle is connected to the two-way charging system, which also connects to NBRC's electricity system. The charger software continuously monitors NBRC's electrical loads to determine whether to charge or discharge the battery. Typically, the fleet car charges at night, when building energy demand is low, and discharges the battery to NBRC during the day, when the building's electricity demand peaks.

2021 Results

COST SAVINGS

- Total Demand Charge Savings:**
 - \$2,963.50
 - 85% of maximum potential savings
- Average savings per month:**
 - \$246.96
 - 3.38% savings per month



Learn More

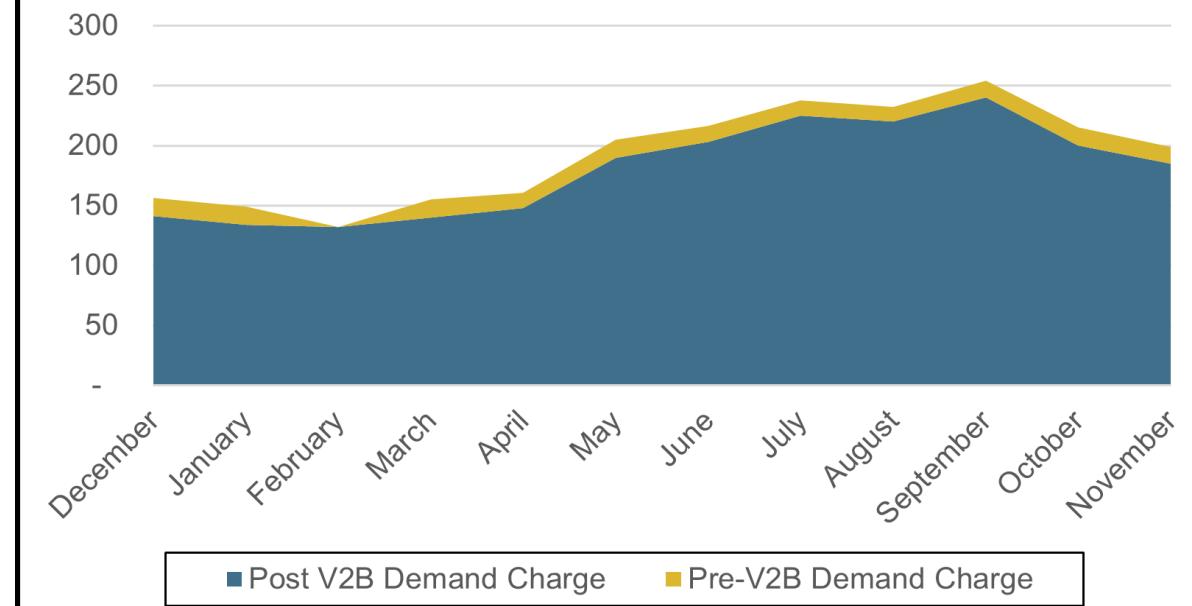
Visit the city's website to learn more about this project.



www.bouldercolorado.gov/projects/vehicle-grid-ev-pilot

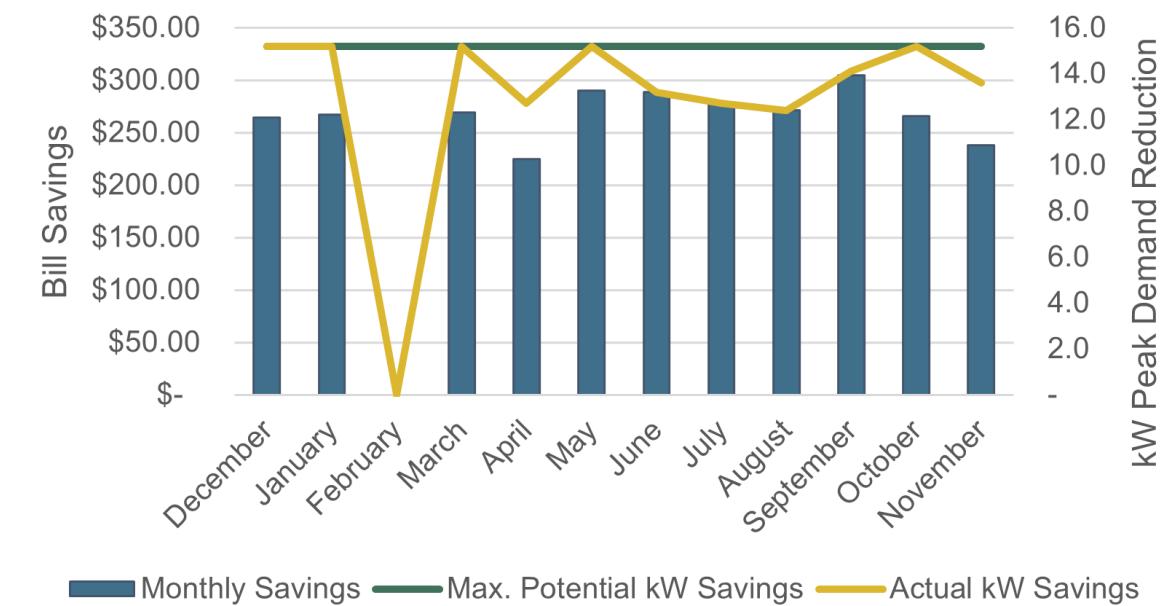


Demand Charge Before and After V2B



Graph 1: Project reduction in demand charges over time (December 2020 through November 2021)

Peak Demand Reduction and Bill Savings



Graph 2: Project kW and bill savings per month (December 2020 through November 2021)