



How Distributed Sun-Charged Batteries Helped the Grid During the September 2022 Heat Wave

According to an [updated](#) review of the [Interconnection Dataset](#) provided by California's investor-owned utilities as well as the dataset for the [Self-Generation Incentive Program](#) that provided rebates for grid-tied batteries, California had more than 81,464 customer-sited batteries connected to the electric grid during the September 2022 heat wave.

Combined, these batteries have the potential discharge 897,913 kilowatts (kW) of electrical power at any given moment, or nearly 900 megawatts (MW). To put this size into perspective, the Diablo Canyon Unit 1 is 1,138 MW and a mid-sized natural gas power plant is typically 250 MW. The interconnection data is through July 31, 2022, so the actual numbers for September 2022 are likely 20-30 MW higher given the monthly battery installation rates in California today.

Not all of the 900 MW of sun-charged battery power located on customer properties around the state were discharged during California's emergency power events this past week. Some batteries are there for the customer's security should there be grid failure. This is important for consumers with medical equipment that require uninterrupted power supplies, for example. However, the majority of energy stored in these batteries was put to use during the 4pm-9pm time period this past week, according to our analysis.

CALSSA estimates that 76% of the battery power located behind-the-meter was set up to discharge during peak events. This is derived by looking at the Self-Generation Incentive Program (SGIP) data which incentivized approximately 682 MW of the 900 MW of battery storage installed today. This program requires batteries be set up to cycle, or discharge, daily. 76% of 900 MW is 682 MW.

Of this subset of batteries installed through the SGIP program, CALSSA estimates that 50% of the potential battery power was cycled during the evening hours, the other 50% being withheld by the consumer to provide backup power for the home or business. This leads to the estimate that 341 MW of battery power was cycled during the evening hours this past week – an amount greater than a mid-sized natural gas power plant.

To summarize, thousands of consumer batteries were charged by on-site solar panels on Tuesday, September 6 and the other days leading up to and following that day. These batteries were pre-programmed to discharge during the late afternoon or evening depending on local Time-of-Use rates and consumer settings. While discharging, the batteries would have covered on-site load, helping relieve strain on the grid, or in the case of a net metered battery, would have exported surplus power to the grid to provide energy to a neighbor.