How Meadowbank Homestead at Awaroa's hybrid power and water heating system works to acheive Zero generator use.

Sunny Day - Full lodge Scenarios:

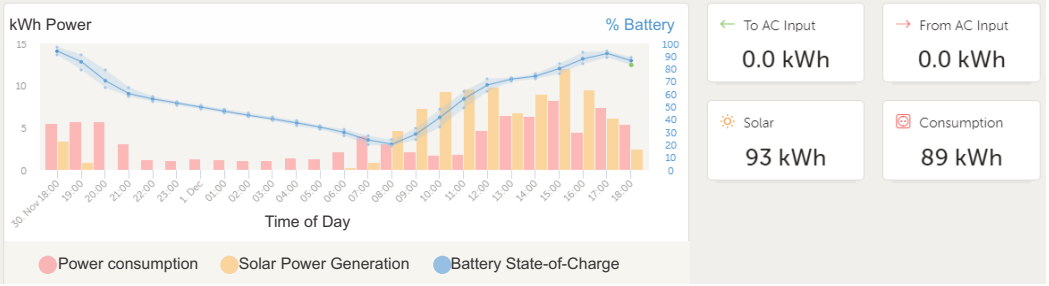
During the day, Solar water panels heat Pre-Heat-Cylinders 3 & 4. Plus Excess Photovoltic (PV) power supply, after batteries are charged, get directed to 2 x 3kw heating elements in Supply Cylinders 1 & 2 when water temperature reaches 70 degrees elements switch off and power gets diverted to Pre-Heat-Cylinder elements 3 & 4.

If Supply Cylinders 1 & 2 temperature is below 60 degrees Diesel Boiler will fire and wetback coil will maintain temperature at 70 degrees.

At night, Power is drawn from batteries. If their State-of-Charge demands drops to 10% generator will run until 50% SoC is reached.

Water conservation: during peak hot water demand periods, hot water is circulated around the lodge to reduce the wait time after hot tap is turned on, this in turn reduces water use and waste water treatment volumes.

Graph example of power usage vs charge over 24 hours



Cloudy Day - Full lodge Scenarios:

Battery State-of-Charge sensor activates additional generator run time as required.

Supply cylinders 1 & 2 water heating will be supplied by the Diesel boiler wet back coil.

Any Solar power output will be used to offset lodge demand and charge batteries.

Our Zero carbon goal will be achieved by switching to bio diesel as technology and supply develop.