



CURRENT ENERGY DEMAND

Currently, there is a gap between solar energy harvest and 24-hour energy use. The energy consumption cycle of mixeduse neighborhoods requires a battery in order to be fueled by renewable solar energy in off-peak, evening hours.



PEAK SOLAR COLLECTION

A 5,400 m² photovoltaic solar sail of monocrystalline silicon glass harvests solar energy, optimally curved for winter and summer sun angles. The array produces averages of 2,700 kWh daily and 1,000 MWh annually. During the day, 82% of the energy supplies the grid, while 18% fuels the hydro-battery.



RENEWABLE ENERGY STORAGE

In the evening after solar collection has ended for the day, an elevated 10,400 m3 hydro battery vessel composed of reinforced recycled acrylic, an industrial waste product - discharges seawater at a rate of 17.3 m3/minute through a pair of Pelton turbines that transform the water's kinetic energy to electricity through a generator, providing 350 kWh of clean energy to the neighborhood each night.



FUTURE ENERGY SUPPLY

Combining the energy output from the PV solar sail and the evening discharge of the hydro battery, the resultant energy production curve matches the peak and off-peak energy demands of St Kilda, providing a new potential system for localized, renewable energy.