

The learning circuit of the site begins at the first intervention, the seawater collection tank. Water is brought to the site from St. Kilda bay through pipes underground where it is collected in a holding tank above the parking. This can be experienced from parking level, where visitors can experience the phenomenal celebration of water and light as the holding tank is seen from below; as well as an experience at ground level, where a skylight is placed above the tank and visitors can walk above the tank, feeling as if they are walking on water.

The learning circuit continues as visitors make their way inside, where art galleries, workshops and tours of the desalination plant take place. The tour takes you through the desalination equipment and visitors can understand the process of creating drinking water for all of St. Kilda that started in our very own bay. The tour ends at the final and greatest moment of the learning circuit, the St. Kilda Cascade. The Cascade is a series of tanks in the visitor center where the seawater is brought to the top of the slopes and cascaded down through an aquarium-like glass tank. This moment creates a reflection and refraction effect where light is dispersed all across the lobby of the learning center. Lastly, the learning circuit leads to classrooms and workshops where there are rainwater harvesting classes, composting classes, and even an electrodiyalis workshop.



The initial holding tank collects 738,155 liters (195,000 gallons) per day. The plant is capable of generating 46,000 kWh, producing 265 million liters (70 million gallons) of water per year. While Desalination can help water scarcity there are a few environmental impacts that are important to address. The energy consumption for extracting seawater is around 0.032 kWh/kL while the energy consumption of treated water delivery is 0.318 kWh/kL bringing us to a total of 0.35 kWh/kL. Because of this, electrodiyalis plants release a considerable amount of greenhouse gas emissions. Our mitigation strategy is to reduce GHG emissions that are mostly caused by the burning of natural gas or coal during this process by using renewable energy. By using transparent solar cells to operate the plant we will be able to cut back on the GHG emission greatly. By using 100% renewable energy we can cut back on as much as 85% of our carbon footprint.

The building materials consist mainly of recycled metal sourced locally from Melbourne. This accounts for about 80% of the materials used on this project. The 4 skylights will consist of transparent solar cells, with the three skylights above the lobby (10.37m x 10.37m each) and the larger one above the seawater collection tank (19.8m x 19.8m). The three aquarium tanks in the lobby are a thick glass cylinder material with a surface area of 2115.93m each. Furthermore, the electrodiyalis desalination equipment consists of intake screens, a filtration member and the electrodiyalis tanks themselves.

