St. Kilda’s citizens have spoken. They have asked for an iconic legacy, a cultural destination, a celebration of their beloved slopes and views, an ode to the influential Carlo Catani and his gardens, and most importantly, a place where people can engage and have fun.

St. Kilda values their aboriginal community. One of the core philosophies of aboriginal culture is the interconnectedness of everything and everyone. This is most evident in art and music which is exactly what the city wants to celebrate. This realization let me to ask, “What is most uniquely interconnected in St. Kilda?” St. Kilda is largely a place for leisure and recreation. The shoreline has been Melbourne’s most popular beach for over 100 years. The answer to that question is: This is a place where people come to interconnect with land and water.

The city has appointed a council who has developed and adopted a master plan, which this proposal uses as a canvas. In the master plan, the elements that will remain include: the unobstructed street view of the historic Palais theater, a new hotel and terrace, extension of slopes, new garden slopes, the widening of Jaka BLVD, a 200-car park under the triangle and a cultural center located discretely under the lawn.

More than 1.3 million people visit St. Kilda a year. Daily, the population increases times seven during peak daytime hours. That means a lot of foot traffic. Wouldn’t it be amazing to turn all that foot traffic into energy to power the planned cultural center? While simultaneously attracting even more people than ever before? Interconnected St. Kilda will feature a 15-meter tower with piezo tiled ramps connected through the cultural center, with a grand Catani garden space in the center. The outer structure is thin to allow for views through the structure as well as out to the city from within. The garden goes vertical and follows a person on their journey from bottom to top. This structure is open air. While the cultural center can close at a certain time, the tower and garden itself will be accessible to the public 24 hours per day and 365 days per year. This Piezo tower will essentially be a permanent three-dimensional sculptural installation that will serve as a contemporary, relevant, and a lasting cultural attractor that can stimulate and challenge the minds of visitors to the site.

Of course, people need to connect with the water as well. The second feature of Interconnected St. Kilda is an offshore wave power island. This structure will generate the rest of the power for the cultural center, leaving it net zero. Additionally, the excess energy created will continuously distribute clean energy into the electrical grid providing power to hundreds or even thousands of homes. Part of the island will be the wave power station itself. The rest of the island will be an occupiable swimming and sunning platform. People on the island will be able to see the turbines spinning, which means energy is being pumped back to the city while they relax and play in the sun.

**Environmental Impact Summary:**

With this proposal, piezo and wave energy will be integrated into this public space in ways that educate, inspire, and are responsive to the history, culture, and nature of St. Kilda. The goal is to create a world that is culturally rich and beautiful as we transition to more sustainable and resilient forms of energy. Interconnected St. Kilda is a proposal that will contribute to the efforts to achieve Victoria’s goal of net neutrality by 2050.

Piezo Tower: Piezo floor tiles are specialty tiles that are designed to convert the applied force of a person’s weight into usable energy. According to Tourism Research Australia statistics, each year more than 1.3 million people visit St Kilda and is the second most visited area, in the State of Victoria, by domestic and international overnight visitors to Melbourne. The piezo electric floor tile company Pavegen claims that one footstep is capable of powering an LED-streetlamp for 30 seconds. Imagine what foot steps from 1.3 million visitors could produce annually! Estimates show that when regularly visited, the floor of the tower could power most, if not all the power needed for the cultural center on site.

Wave Power Island: An Oscillating Water Column (OWC) is a device that consists of an inclined concrete cylinder that uses the natural motion of ocean waves to compress air within the column and drive a turbine, similar to a piston compression cycle. The OWC design usually employs a Wells Turbine which has the unique ability to rotate in the same direction despite the direction of air flow (in the case of both compression and decompression cycles). It is estimated that a wave power station about the size of the one in the wave power island can provide sufficient energy for 400 households, assuming four persons per household. This energy will provide power to the culturalma center, supplementing the Piezo tower. Additionally, the overflow can be sent directly back to the city.