***Wavering***

The Wavering fields provides the triangle at St. Kilda a unique experience of a living, breathing landscape. The ocean of wavering fabric creates a surreal experience, welcoming the guests to navigate the path and interact with the work. Everyone wants to get away from the bustling everyday life for a while, so why not enjoy comfort, peace and quiet and a little relaxation any time you can get it? The space welcomes people of all walks to enjoy the site, partake in their own unique and calming activities while enjoying the views and company of others pursuing the same ideals.

The form mimics the surrounding region and bay, with the design tying back to the Aboriginal artwork that was is unique to the area. Based on the wind strength at any given time of day, the installation can change rapidly, providing a new experience, pattern, and path through the field. Various scales were deployed to take advantage of higher altitude wind that may be blocked below. Many of the flags can be attached to their own base, or to the ground, to provide shade, cover and a refuge and quiet space for any individual. They can also be used as a personal hammock, and relaxing place to enjoy napping, reading and just taking a break from the day to unwind. The wooden walls within the circular forms are meant to be for structural support of the shifting earthen landscape.

The technology behind these objects stems from piezoelectric energy and current, when the wind catches the ‘sail’ of the fabric, the flexible structure of the pole oscillates back and forth to create the kinetic energy. The energy generation from a single object is relatively small, but when the over one-hundred poles act as one, the production skyrockets.

**Pole Placement**

Based on the aboriginal artwork of the area, the landforms and poles were placed in circular forms to create private spaces, and opportunities for interaction. Poles placed on the ‘hills’ are primarily for energy collection, and poles based in the open spaces, for human interaction/personal needs and uses. People around the area create their own experience within the site, providing a more enriching environment.

**Wind Energy**

Wind from off the bay powers the installation, allowing for the poles and fabric to sway, collect energy, and store for future use. Based on the various speed of the wind at any given time of day, the energy output can vary drastically, in which case the flags can be interacted with and used in different ways.

**Piezoelectric Pole**

In each pole there are several piezoelectric magnetic discs. Each one is connected to another by a cord, reaching from top to bottom of each individual pole. When the wind activates the poles, the piezoelectric disks within the poles are forced into motion and compress when the pole bends, generating a current through the cables, collecting the energy.

**Triboelectric Fabric**

Stretchable conductive fabric-based triboelectric generators (TENG), are used to harvest energy at low frequency. Stretchable conductive nylon-fabric and carbon-based elastomer composites produce a small amount of electrical power from mechanical and hybrid motion.

The power generated in based on wind speed and deployment of the poles at a given time across the field. Based on average annual wind speeds in St. Kilda (14.7 km/hr) and the pole heights (~3-7m), and the pole width (0.10-0.20m) the nearly 100 poles have an opportunity to generate nearly 10,000W annually each.

**Environment**

The main pooling of materials for this project would come from recycled plastic (poles), discarded fabrics (flags), reclaimed wood (paneling) and the natural environment itself (landforms). The poles would be semi-transparent in appearance, allowing for the landscape to be unblocked by the numerous amount of them. Similarly, the transparent quality of the fabric will have a drastic effect on maintaining the views and stay in keeping with the very purpose of this design challenge. The idea to keep the landscaping and direct impact on the site as limited as possible drove the creation of my project.