**Introduction:**

New energy is combined with humankind organically in this piece of work. The electricity can be generated through the architecture not only by the wind, but also by every push of the door or window. Therefore, the architecture can be named as a landmark, a wind power plant, or a human-environment interactor.

The main body of the architecture is a spiral promenade, on which several doors and windows are set. And piezoelectric sheets and springs are placed between the doors and windows. When the wind blows to the building, the spring fixed on the wall deforms as the door or window shakes. Then the piezoelectric sheet connected to the spring is squeezed or stretched. And this process is exactly the way piezoelectric effect works. The electricity is eventually collected and can be incorporated into the grid after processing.

But if the wind blowing to the building maintains stable wind speed and air volume for a long time, a relative stable flow field will be formed in the promenade, which means the piezoelectric sheets will retain a certain angle without external force and cannot generate power anymore. But once someone pushes or pulls the door or window, even just one, the flow field will be reformed (i.e., the flowrate and velocity of the wind blowing into the building will be changed again). Then, the pressure difference changes the sates of other doors and windows, which makes the piezoelectric devices generate much more power than a simple push. The effect of human interaction with the architecture shows up at this point.

The purpose of this work is to make it possible for us human beings to get in touch with the interaction between mankind and energy, and to make people participate in the process of energy production. It must be an impressive experience for everyone that thousands of joules of electricity are generated because of an inadvertent push from him or her. People who enter the architecture and interact with the wind will perceive that energy production can be accomplished in our daily life just like energy consumption.

**Calculation of energy:**

Under ideal conditions, PMNT-based piezoelectric cantilever beam has an electromechanical conversion efficiency of 43.76% when the electromechanical coupling coefficient is 0.24. Based on the annual average air volume and energy efficiency conversion ratio, the total power generation capacity is 282MW/h per year. If the amount of electricity generated by pushing doors and windows is added, the annual power generation will exceed the calculated value.

**Material used:**

Structure materials are mainly made of steel and methacrylate plates (organic glass), and anti-corrosion coatings are smeared on the surface of steel materials.

**Size:**

The structure is in the form of a 42m2 cross-section and a 200m-long pipe space. And it spans Jacka Blvd and adds functionality to the overpass to enhance efficiency.

**Impact on the environment:**

The wind-powered piezoelectric generator itself does not produce a variety of pollutants and does not need to consume other conventional energy sources. And the power generated by the architecture can completely cover the cost of itself, which means it is zero emission. Furthermore, it can power the surrounding buildings. There is no noise pollution because the device of piezoelectric effect works in silence. The light and shadow effects caused by the building itself may be a problem, but they will not bring a lot of troubles considering the height and length of the architecture. In addition, due to the low height of the design, the wind field in the entire area will not get a tremendous change.