1. Project description

Formally the site was not solid ground. It was built on ocean floor to be used as a harbor. So we focused on using the whole site as energy generator by re-forming the site. The site itself will generate power and also its form and usability will be improved. The whole site will be regenerated with the tidal power generator units. Each units fluctuates by time and sea level. Its slanted angle resembles solar altitude angle to maximize the efficiency of PV panel. Since the tidal fluctuation is very slight more energy will be generated through PV panels.

The landfill of the current site occurred very slowly. First it was made to build a buildings for the port. Later its foundations were partly removed and land was filled at the site. Some part was filled with materials from the former building on the site. We quickly regenerate the site which improves the site’s scenery and generates energy.

At day energy is generated by the photovoltaic panels and at night electroluminescent glow sheet will glow with the energy formed at day. The fluctuation will form at night too.

‘Sunwave’ is a land and also ocean wave which fluctuates through day and night.

1. Technology used in design

Tidal power generation

Solar energy generation

1. Annual energy generation

Tidal power generation : 80kWh

Solar energy generation : 600kWh

Total : 680kWh

1. Primary materials

Solar panel : 20000m²

electroluminescent glow sheet : 20000m²

tempered glass : 20000 m²

concrete

1. Environmental impact

These days environmental issue is one of the biggest issues. The use of fossil fuel is accelerating global warming. There are many movements and associations to improve global warming issue and other environmental issues. There are many alternative energy power plant and facilities. There are many passive house and its market is getting bigger. People are getting more interested in environmental issue and I saw a research that CO2 amount is reducing so I think it doesn’t have to be so serious about the issues. But, I think alternative energy plant or factories are little far from ordinary people. So by making designed facilities people can be more interested in these issues.