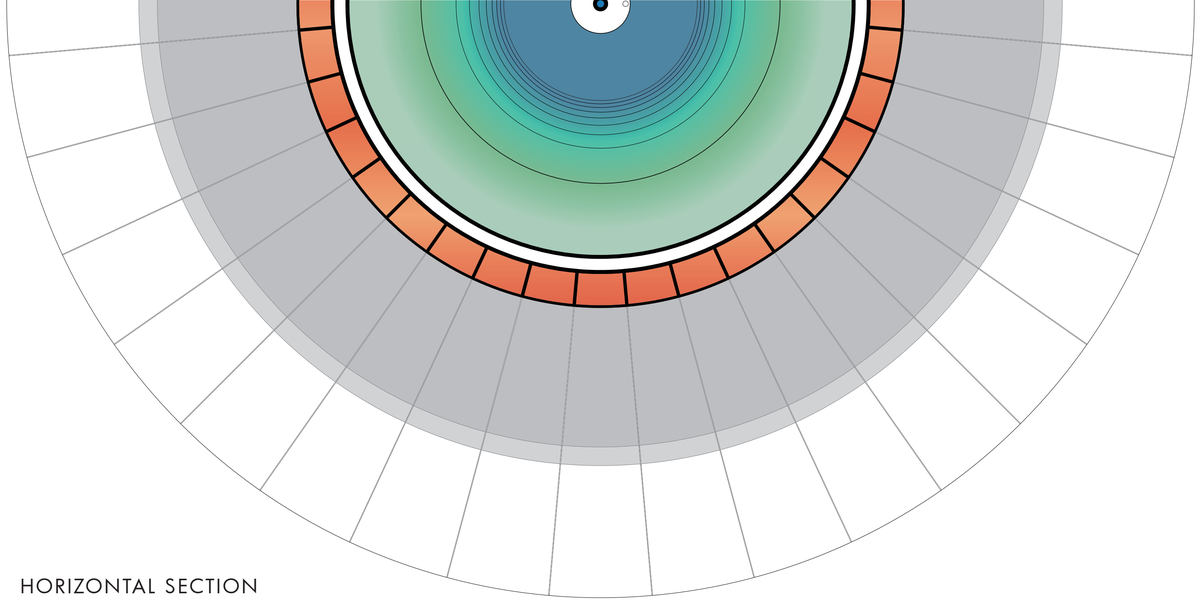
ENERGY FUNNEL

SANTA MONICA

The energy funnel is composed of two different energy generators and a freshwater collector. One of the energy generators is the updraft tower, which uses solar power and sea breeze. The other energy generator is the wave power converter, which uses ocean waves. The energy funnel also works as a freshwater collector by promoting the condensation of moisture from air. The energy funnel is based on a couple of energy sources and a couple of technologies to be sustainable by itself at the first setout. Learning from the cultural diversity of Santa Monica, the energy funnel is to embrace diverse renewable energy sources.



HORIZONTAL SECTION

UPDRAFT TOWER

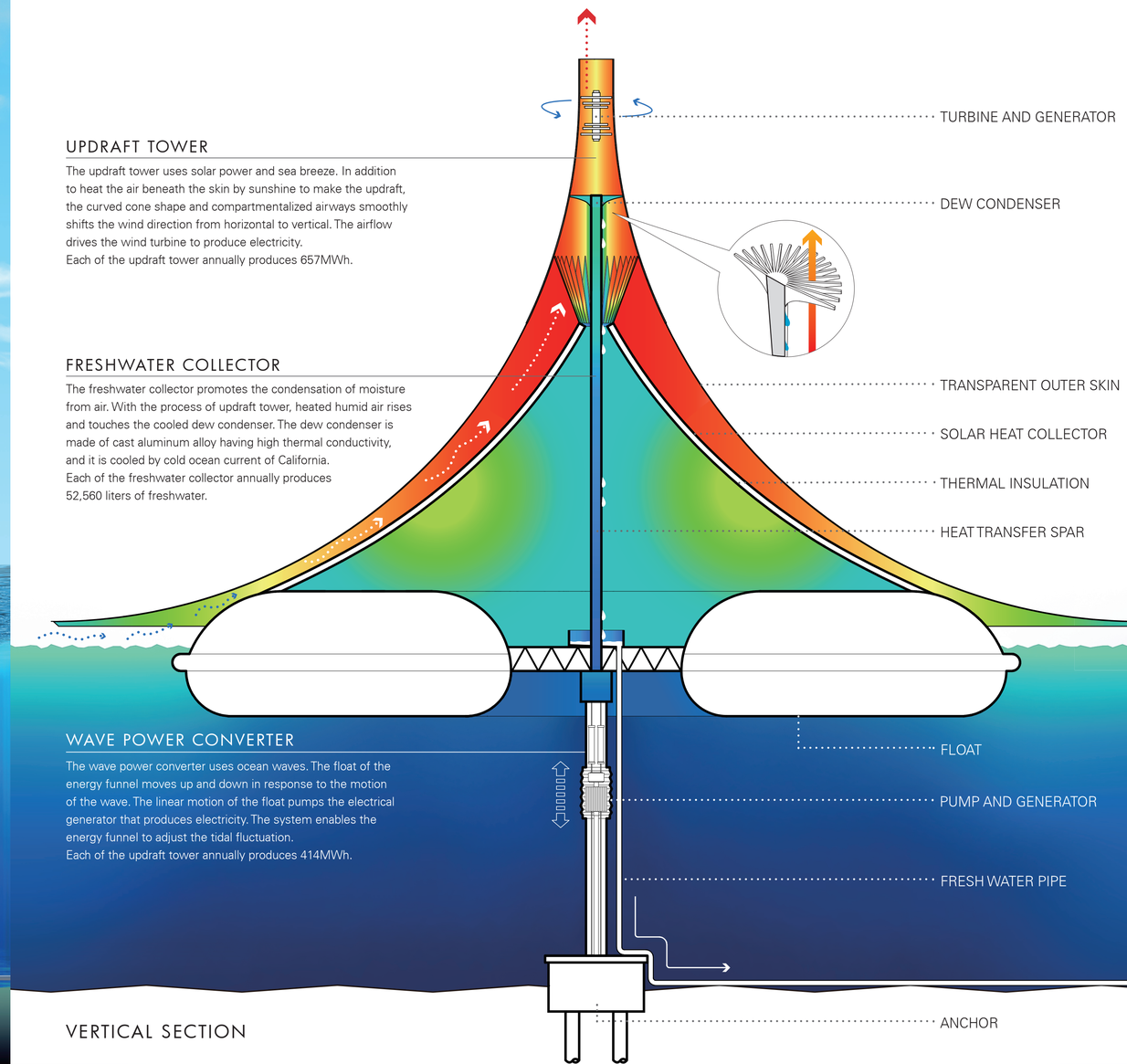
The updraft tower uses solar power and sea breeze. In addition to heat the air beneath the skin by sunshine to make the updraft, the curved cone shape and compartmentalized airways smoothly shifts the wind direction from horizontal to vertical. The airflow drives the wind turbine to produce electricity.
Each of the updraft tower annually produces 657MWh.

FRESHWATER COLLECTOR

The freshwater collector promotes the condensation of moisture from air. With the process of updraft tower, heated humid air rises and touches the cooled dew condenser. The dew condenser is made of cast aluminum alloy having high thermal conductivity, and it is cooled by cold ocean current of California.
Each of the freshwater collector annually produces 52,560 liters of freshwater.

WAVE POWER CONVERTER

The wave power converter uses ocean waves. The float of the energy funnel moves up and down in response to the motion of the wave. The linear motion of the float pumps the electrical generator that produces electricity. The system enables the energy funnel to adjust the tidal fluctuation.
Each of the updraft tower annually produces 414MWh.



VERTICAL SECTION