



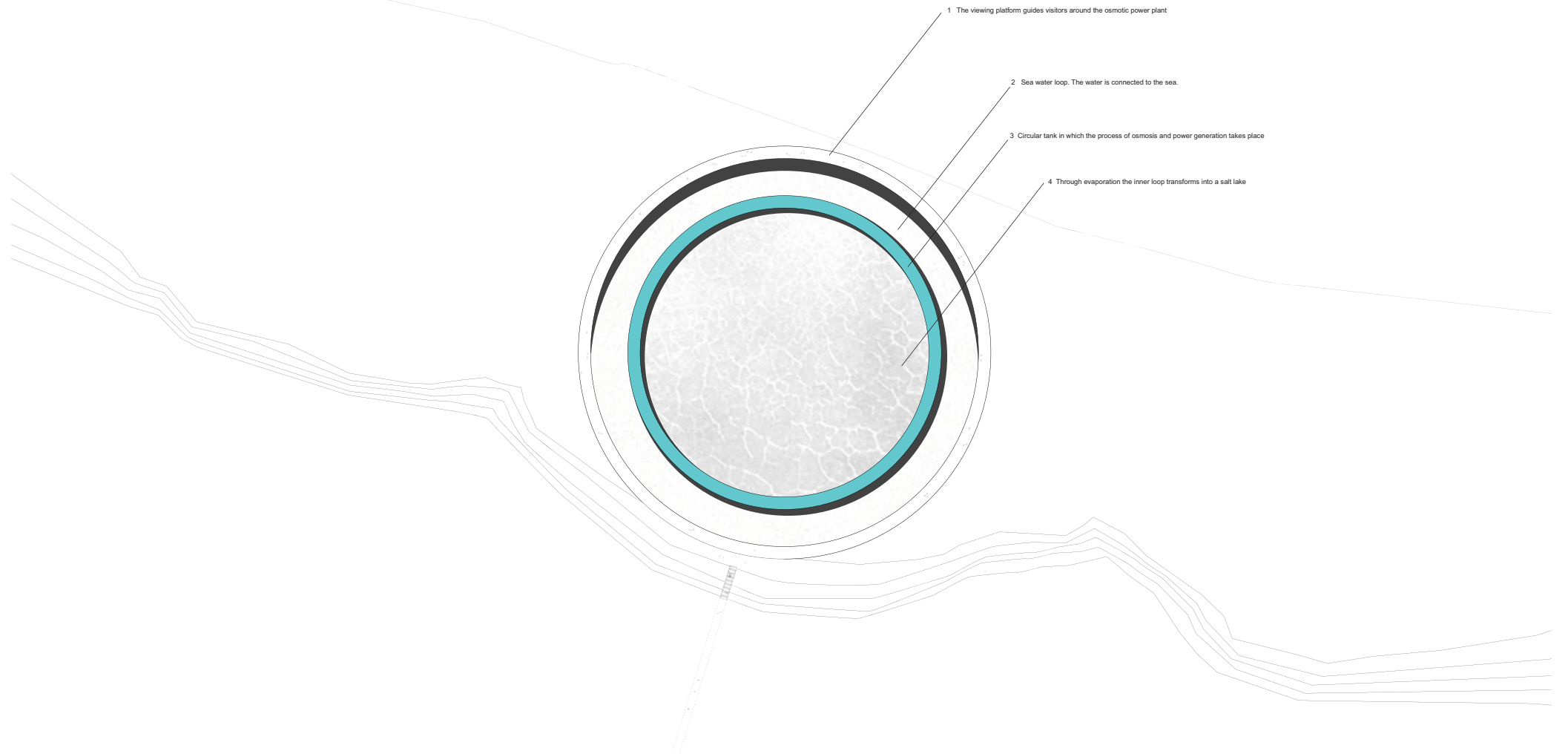
The design is a sequence of interwoven loops that form together the osmotic power plant. Each loop has its specific task and position within the system:

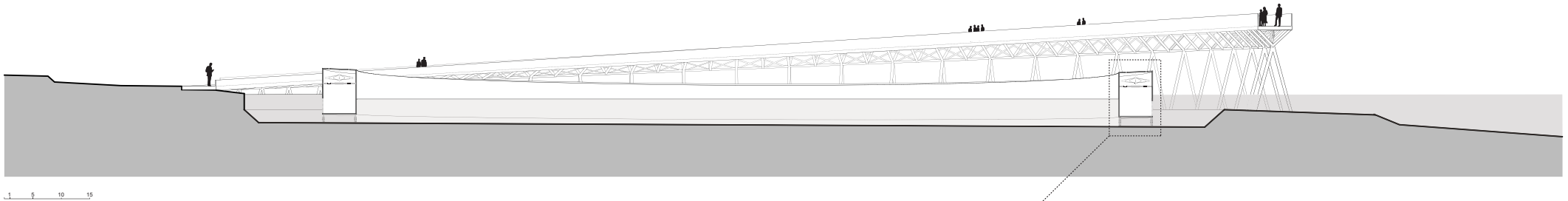
The outer ring is an elevated viewing platform for visitors. From the shore just off the road that connects Yas Island with Saadiyat Island the loop with a diameter of 100 meters rises up to 6 meters above sea level and guides the visitors around the osmotic power plant. The viewing platform is a light steel construction with a minimal footprint that reaches like a pier into the water.

The next loop is a seawater basin that is connected to the open sea. The water is in constant movement. Due to a relatively shallow shoreline it is necessary to excavate the seawater loop to reach the required depth.

The loop of seawater surrounds the circular tank with a width of 3 meters where the process of osmosis takes place. The tank consists of a semi-permeable membrane at the outer wall, a chamber for the water with a high degree of salinity and in the top turbines that generate power.

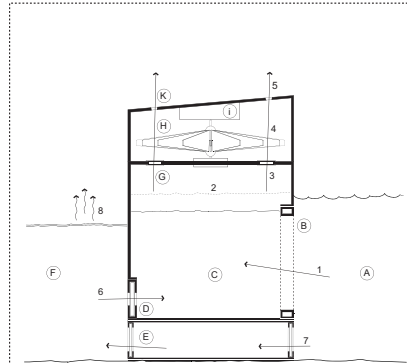
The inner loop of the structure is a salt lake. Via controllable feedings seawater is diverted from the seawater loop into the inner loop. The seawater here is stagnate. Through evaporation caused by the sun the inner loop transforms into a salt lake.





Principle

The seawater in the outer loop (A) has a lower salt concentration than the water in the inner loop, the salt lake (F). The seawater in the inner loop is stagnant and due to evaporation a salt lake occurs.
 The tank is filled with water from the salt lake. Via a semi-permeable membrane (B) water enters the tank because of its tendency to equal the difference in concentration. This process is called osmosis and the basic principle of the proposed power plant. As a consequence the water level and the pressure increases in the tank. When the maximum pressure is reached valves (G) are opened and the water escapes from the tank and activates the turbines (H) that generate power. Pressure and water level decrease in the tank. New salty water from the salt lake will be filled via valves (D) in the tank and the process can start again. Underneath the tank are two controlled locks (E) that connect salt lake and seawater loop. The salt lake has to be supplied with seawater to prevent the drying-up and to keep the water level constant.



- A Seawater (low degree of salinity)
- B Semi permeable membrane
- C Seawater (high degree of salinity)
- D Controlled valve to refill tank with salt water from salt lake (F)
- E Controlled valves to feed seawater (A) into salt lake (F)
- F Salt lake
- G Controlled valves
- H Rotor
- i Engine
- K Exhaust

