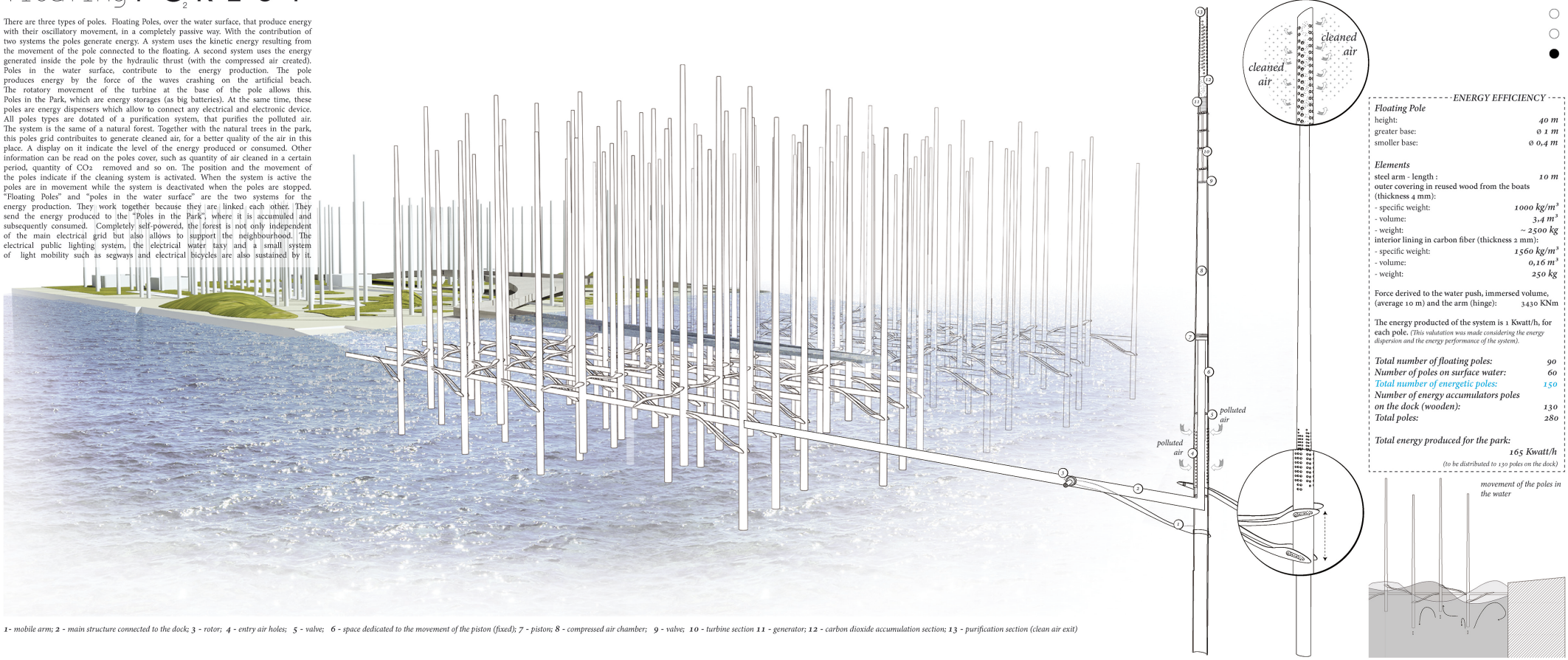
floating FOREST

MM26AP08

There are three types of poles. Floating Poles, over the water surface, that produce energy with their oscillatory movement, in a completely passive way. With the contribution of two systems the poles generate energy. A system uses the kinetic energy resulting from the movement of the pole connected to the floating. A second system uses the energy generated inside the pole by the hydraulic thrust (with the compressed air created). Poles in the water surface, contribute to the energy production. The pole produces energy by the force of the waves crashing on the artificial beach. The rotatory movement of the turbine at the base of the pole allows this. Poles in the Park, which are energy storages (as big batteries). At the same time, these poles are energy dispensers which allow to connect any electrical and electronic device. All poles types are dotated of a purification system, that purifies the polluted air. The system is the same of a natural forest. Together with the natural trees in the park, this poles grid contribuites to generate cleaned air, for a better quality of the air in this place. A display on it indicate the level of the energy produced or consumed. Other information can be read on the poles cover, such as quantity of air cleaned in a certain period, quantity of CO_2 removed and so on. The position and the movement of the poles indicate if the cleaning system is activated. When the system is active the poles are in movement while the system is deactivated when the poles are stopped. "Floating Poles" and "poles in the water surface" are the two systems for the energy production. They work together because they are linked each other. They send the energy produced to the "Poles in the Park", where it is accumuled and subsequently consumed. Completely self-powered, the forest is not only independent of the main electrical grid but also allows to support the neighbourhood. The electrical public lighting system, the electrical water taxy and a small system of light mobility such as segways and electrical bicycles are also sustained by it.



1- mobile arm; 2 - main structure connected to the dock; 3 - rotor; 4 - entry air holes; 5 - valve; 6 - space dedicated to the movement of the piston (fixed); 7 - piston; 8 - compressed air chamber; 9 - valve; 10 - turbine section 11 - generator; 12 - carbon dioxide accumulation section; 13 - purification section (clean air exit)

ENERGY EFFICIENCY

Floating Pole

height:	*40 m*
greater base:	*ø 1 m*
smoller base:	*ø 0,4 m*

Elements

steel arm - length :	*10 m*
outer covering in reused wood from the boats (thickness 4 mm):	
- specific weight:	*1000 kg/m³*
- volume:	*3,4 m³*
- weight:	*~ 2500 kg*
interior lining in carbon fiber (thickness 2 mm):	
- specific weight:	*1560 kg/m³*
- volume:	*0,16 m³*
- weight:	*250 kg*

Force derived to the water push, immersed volume, (average 10 m) and the arm (hinge): 3430 KNm

The energy producted of the system is 1 Kwatt/h, for each pole. *(This valutation was made considering the energy dispersion and the energy performance of the system).*

Total number of floating poles:	*90*
Number of poles on surface water:	*60*
Total number of energetic poles:	*150*
Number of energy accumulators poles on the dock (wooden):	*130*
Total poles:	*280*

Total energy produced for the park: *165 Kwatt/h*

(to be distributed to 130 poles on the dock)