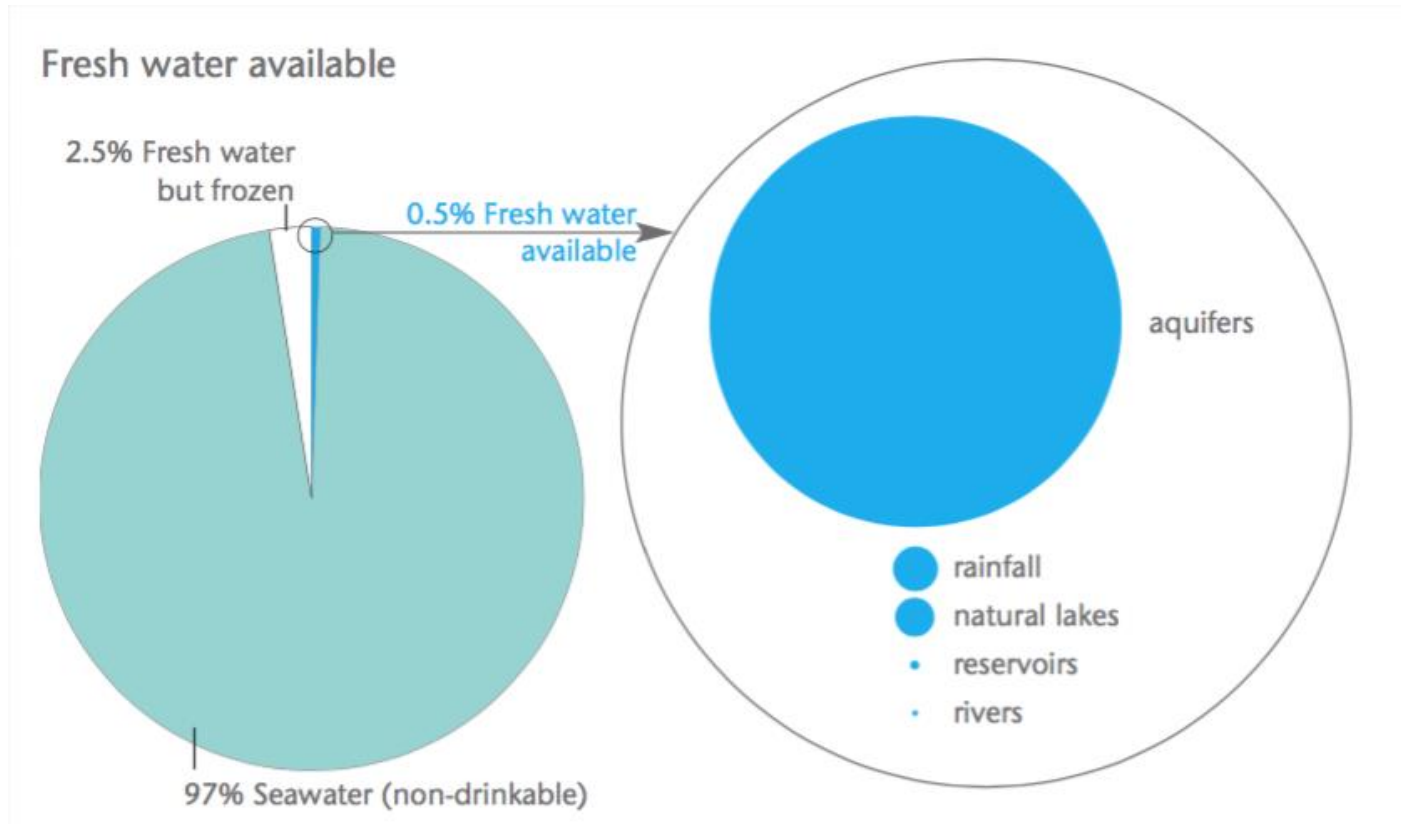


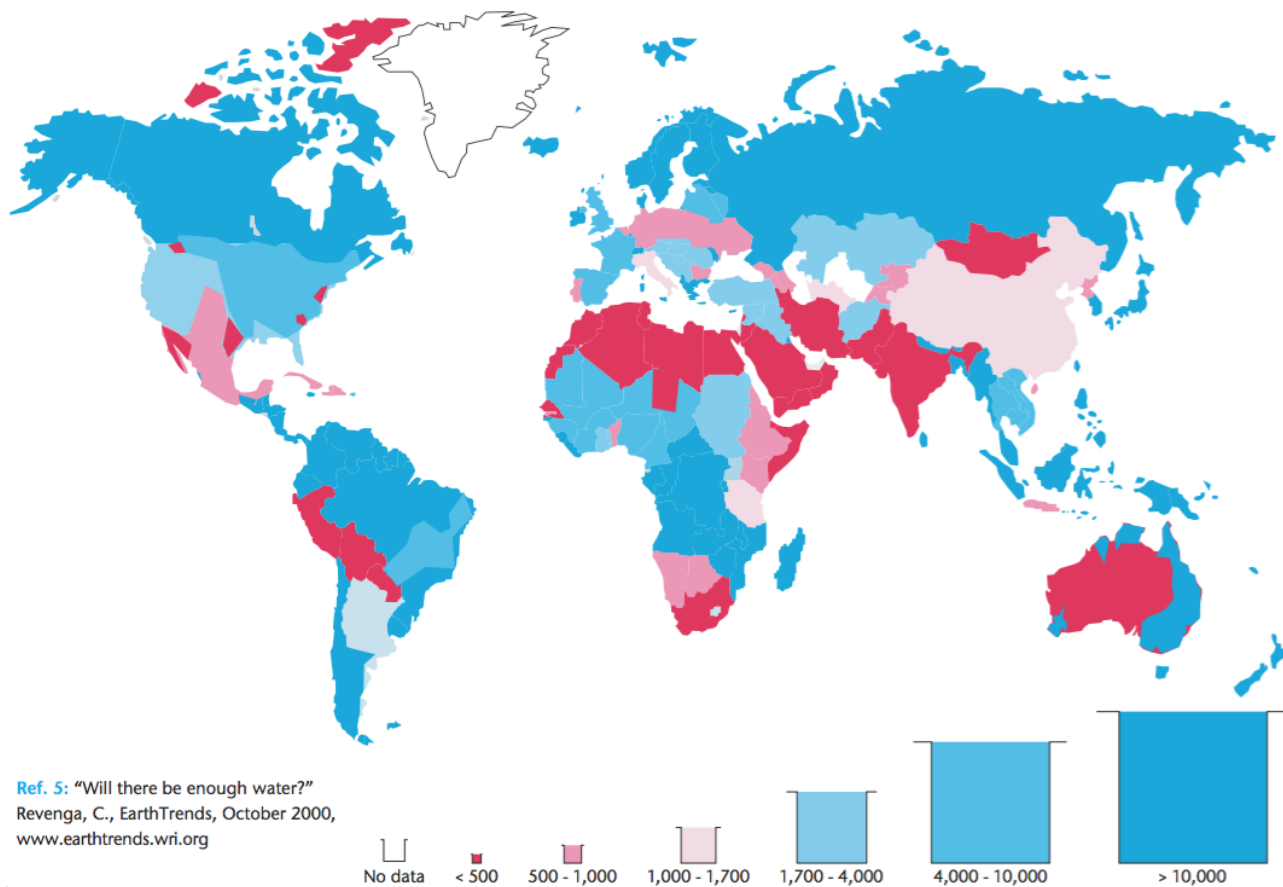
Renergy

FRESH WATER FOR INDUSTRY

Less than 3% of the world's water is fresh, the rest is seawater and undrinkable

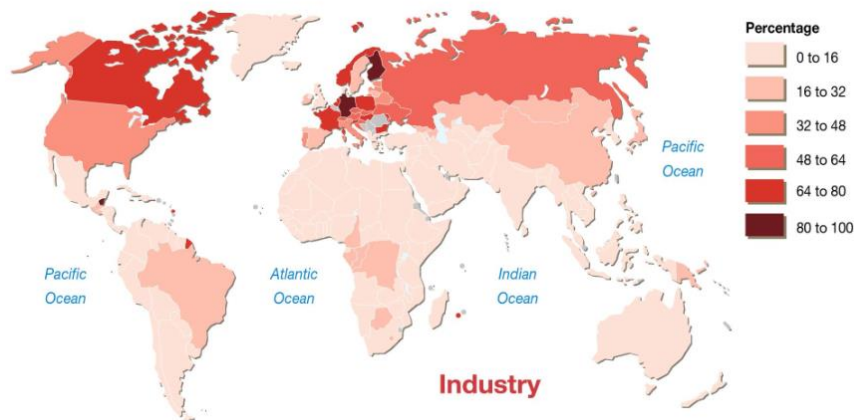


Fewer than 10 countries possess 60% of the world's available fresh water supply



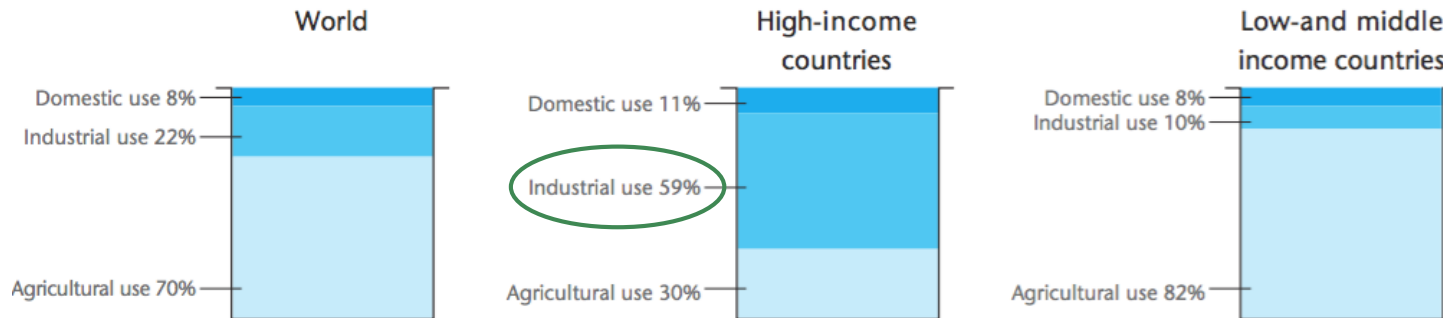
Ref. 5: "Will there be enough water?"
Revena, C., EarthTrends, October 2000,
www.earthtrends.wri.org

Industrial use of water increases with country income

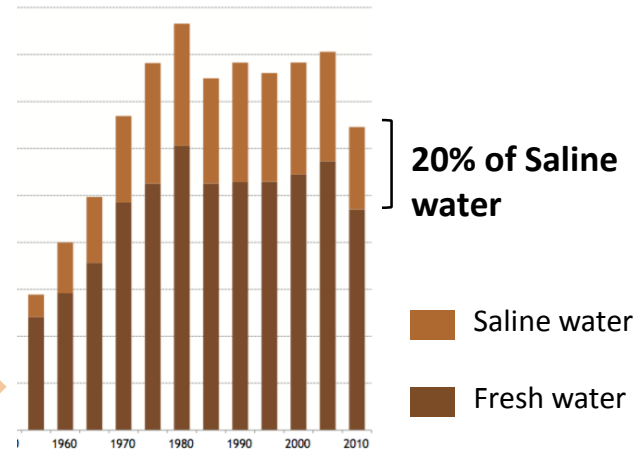
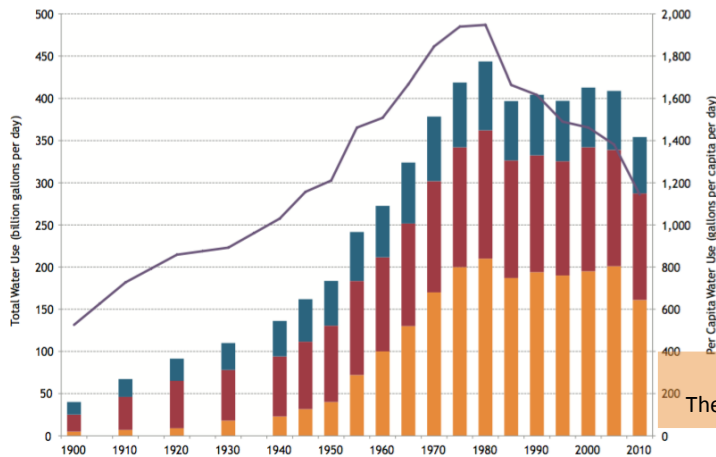


In the industrial sector, the biggest share of freshwater is stored **in reservoirs and dams** for electrical power generation and irrigation

The volume of water evaporated from reservoirs is estimated to exceed the combined freshwater needs of industry and domestic consumption



The largest industrial water use is for cooling in thermal power generation



Thermolectric

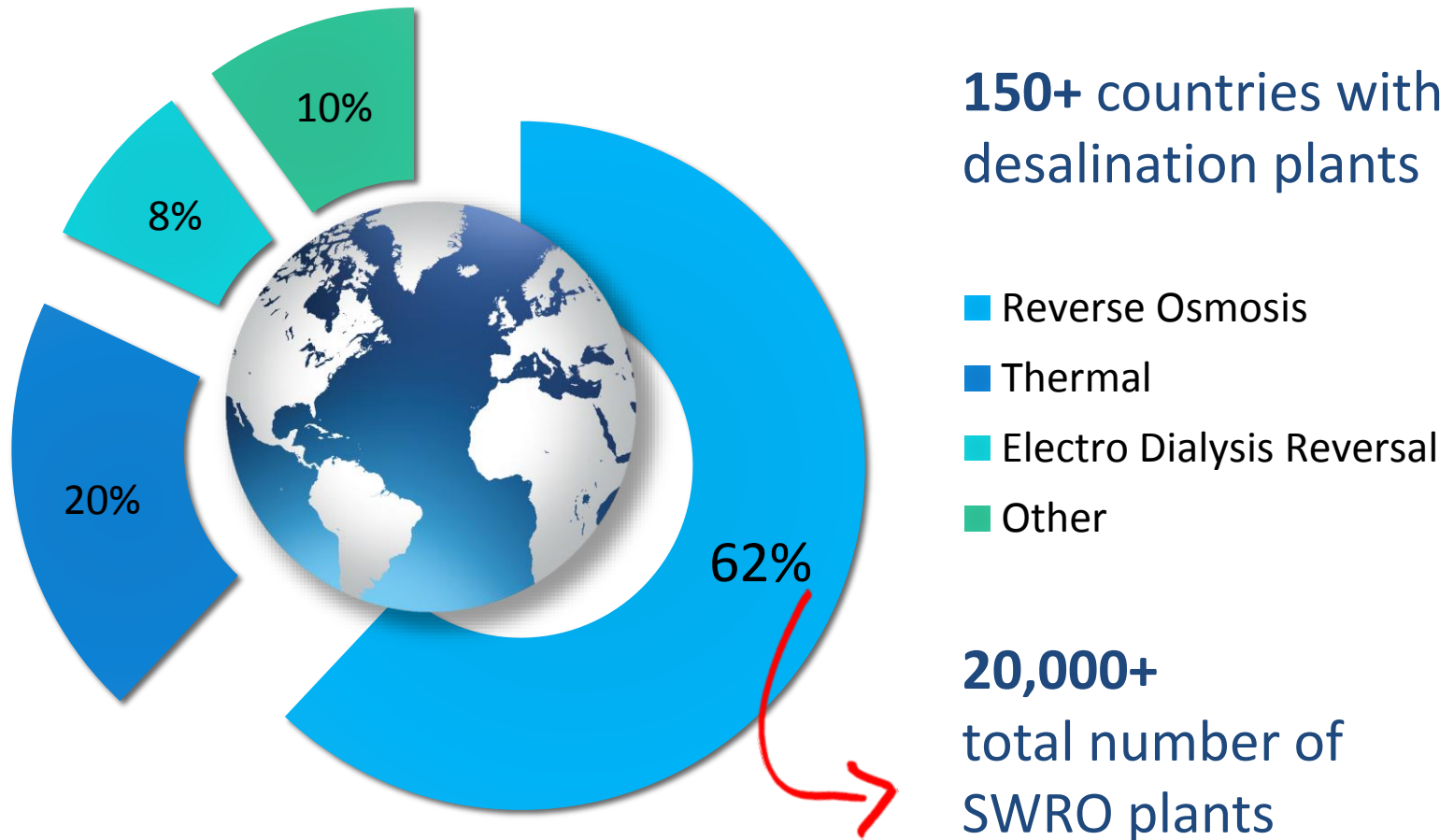
Thermolectric power plants (powered by fossil, geothermal, nuclear, and biomass fuels) use water for cooling purposes and for makeup water that replenishes boiler lost through evaporation

Agriculture

Municipal & Industry

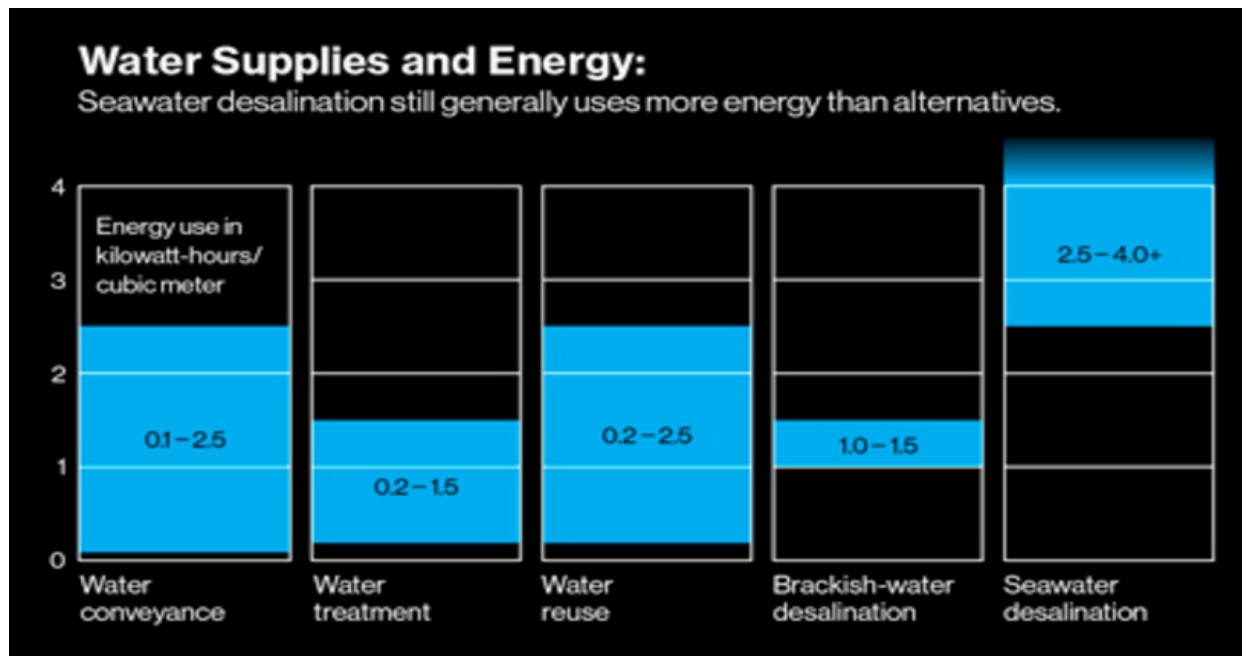
DUE TO SCARCITY OF FRESH WATER SOME COMPANIES NEED TO USE SALINE WATER

62% of desalination plants use RO technique

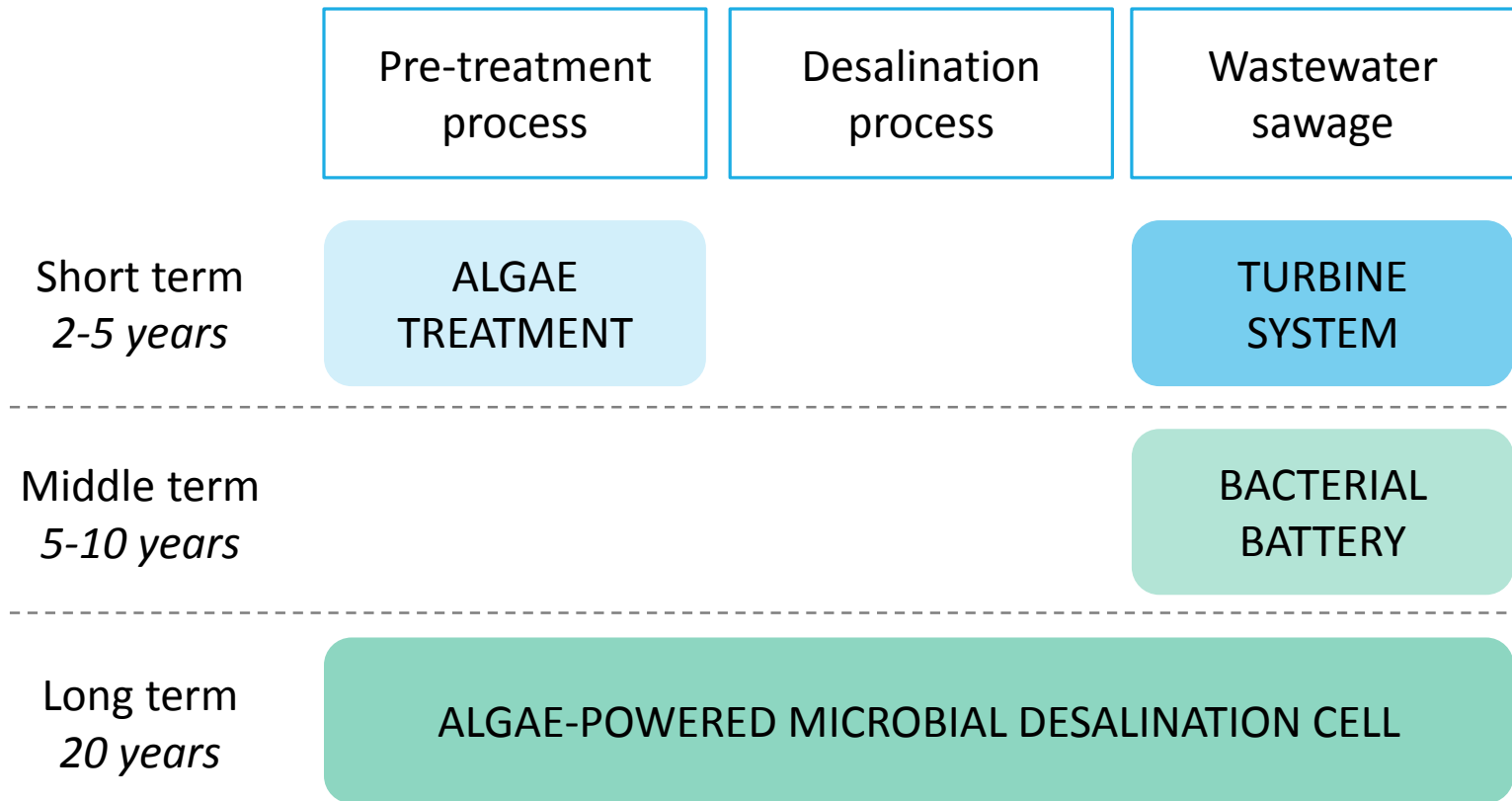


Desalination needs a lot of energy

Desalination is the **most energy-intensive and expensive** option for treating water and is used where alternatives are very limited, such as in the Middle East and Australia.



Energy recovery ideas: from optimized system to self-sustainable desalination



IDEAS in a nutshell

ALGAE
TREATMENT

Use algae to pre-treat seawater in order to reduce energy needed in reverse osmosis process and to improve life of the membranes

TURBINE
SYSTEM

Develop a turbine systems that use waste water flow (coming from RO) in order to produce energy

BACTERIAL
BATTERY

Use waste water bacterial to generate electricity

MDC

Use waste water bacterial and algae in a third chamber cells to desalinate water without energy

VIBRATION

Use vibration generated by water flow into the pipeline to recover energy

ALTERNATIVE

TECHNOLOGY NEED

LABORATORY NEED

ALGAE
TREATMENT

- Algae able to live in salty water and to filter heavy metals/ impurities/ ...

- Algae testing and analysis

TURBINE
SYSTEM

- Material salty water resistant
- High efficiency turbine

BACTERIAL
BATTERY

- Electroactive bacteria
- Microbial fuel cells

- Test on bacteria

MDC

- Microbial desalination cells

VIBRATION

- Ring vibration relevator
- Energy accumulator

ALTERNATIVE