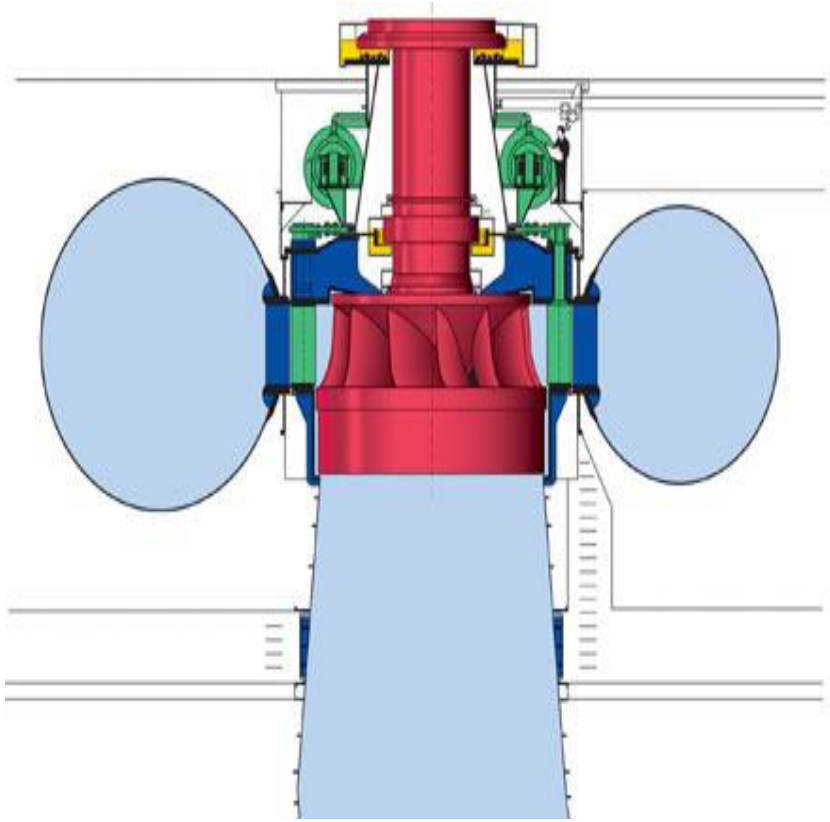
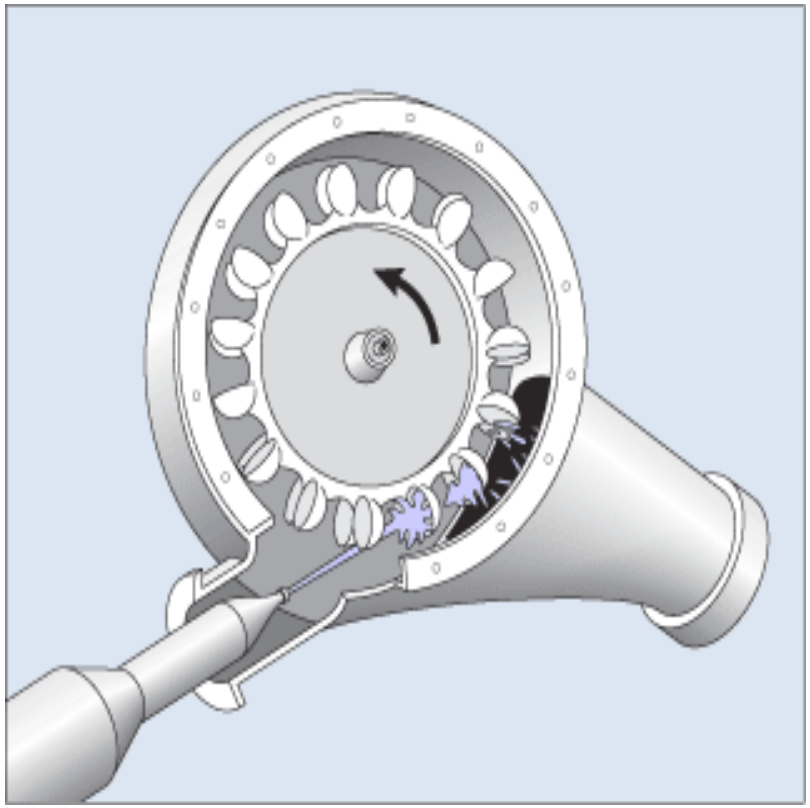
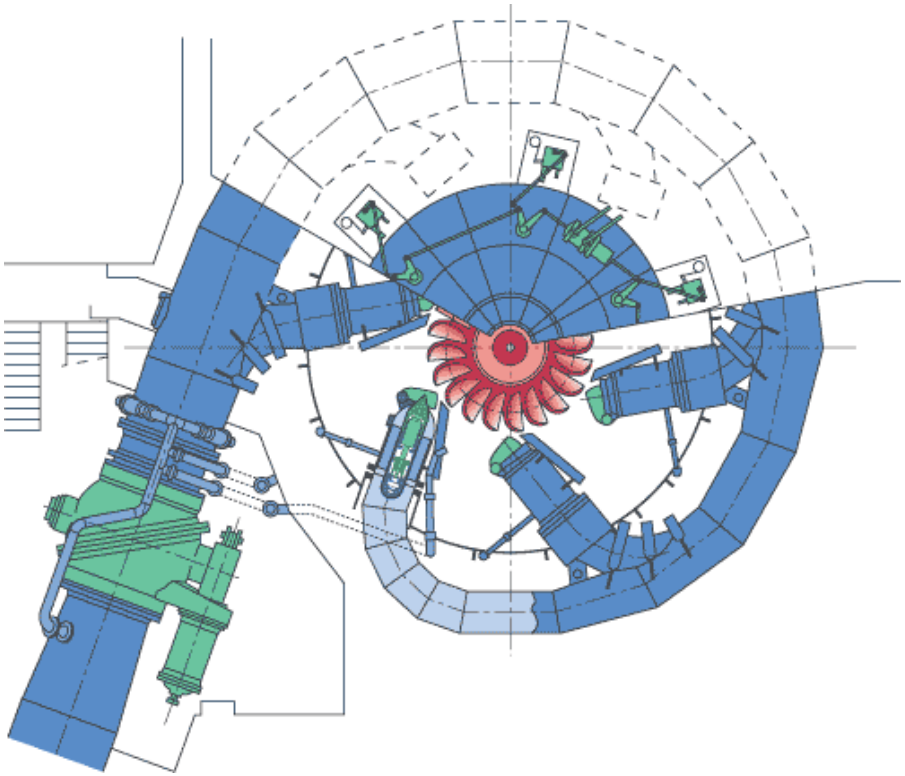
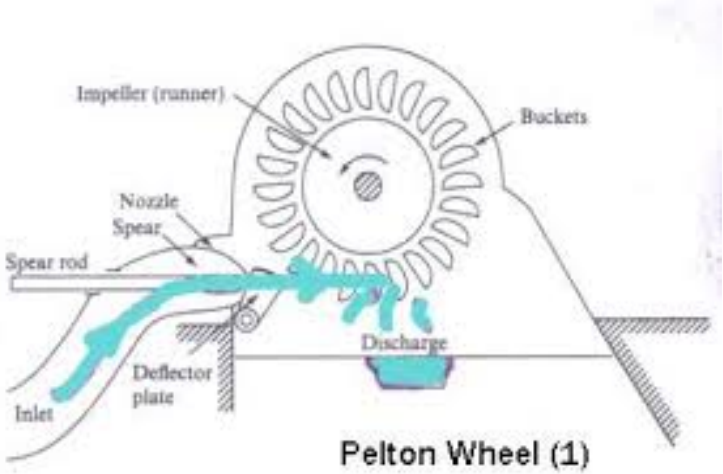
Generating Technologies

Power Systems

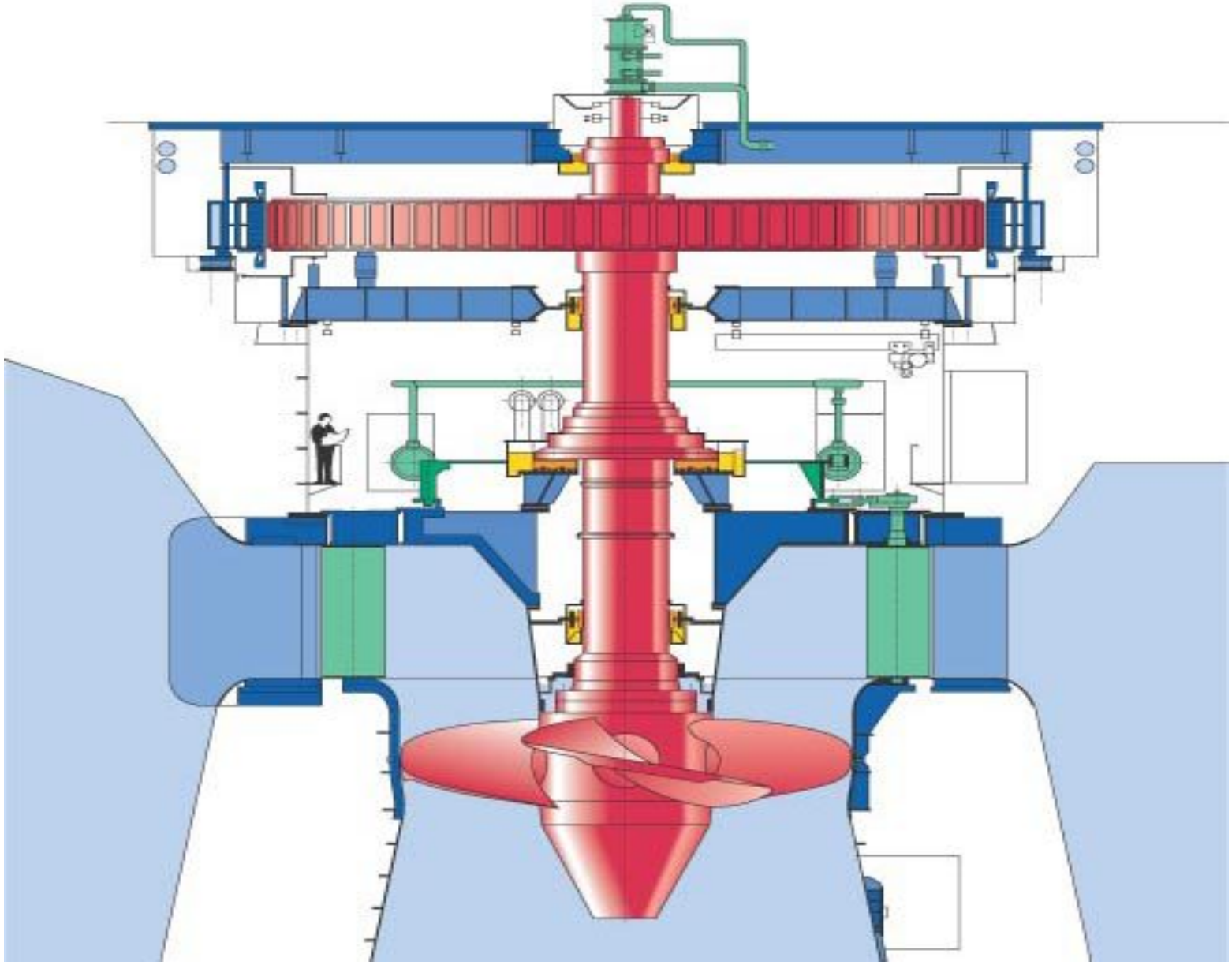


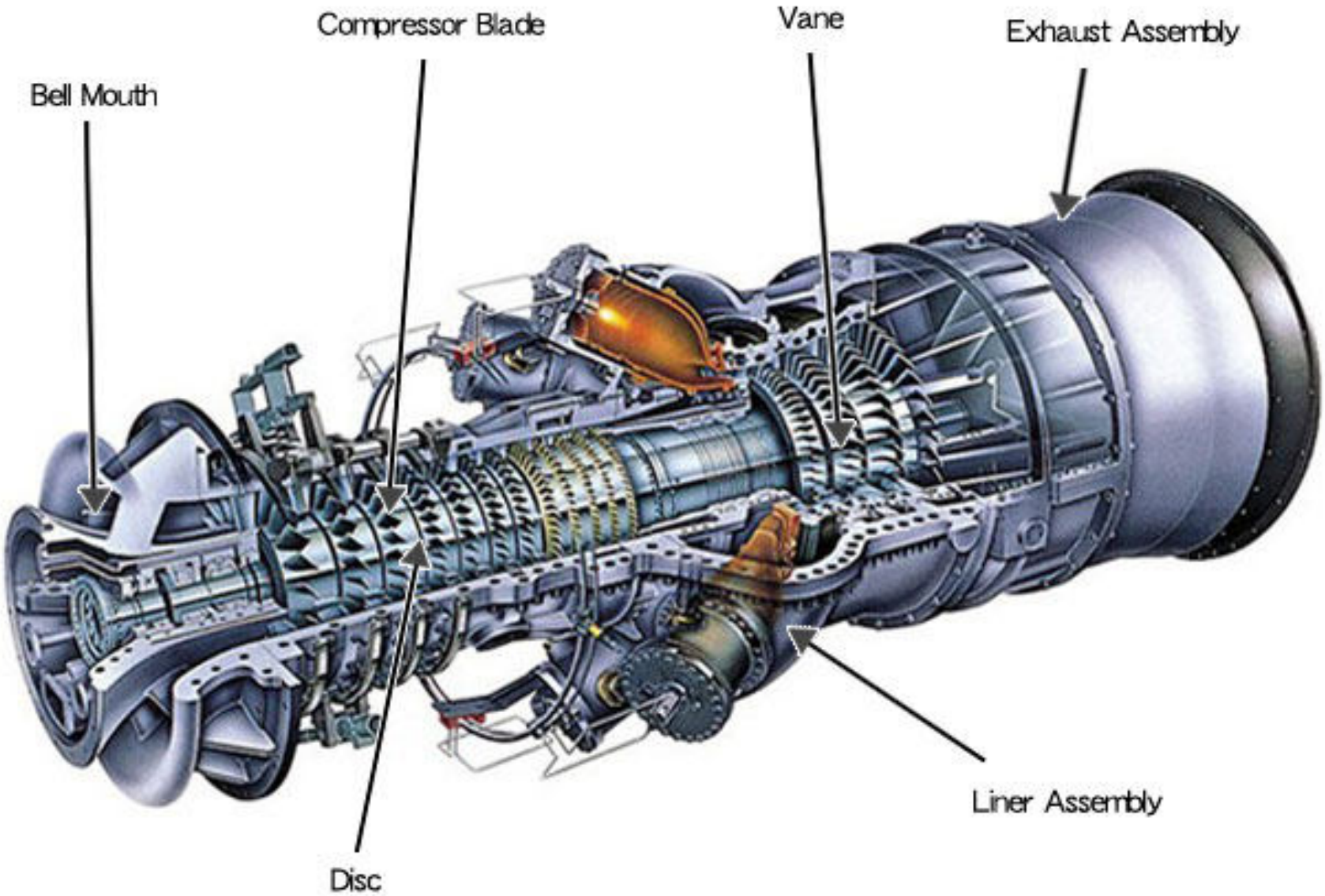


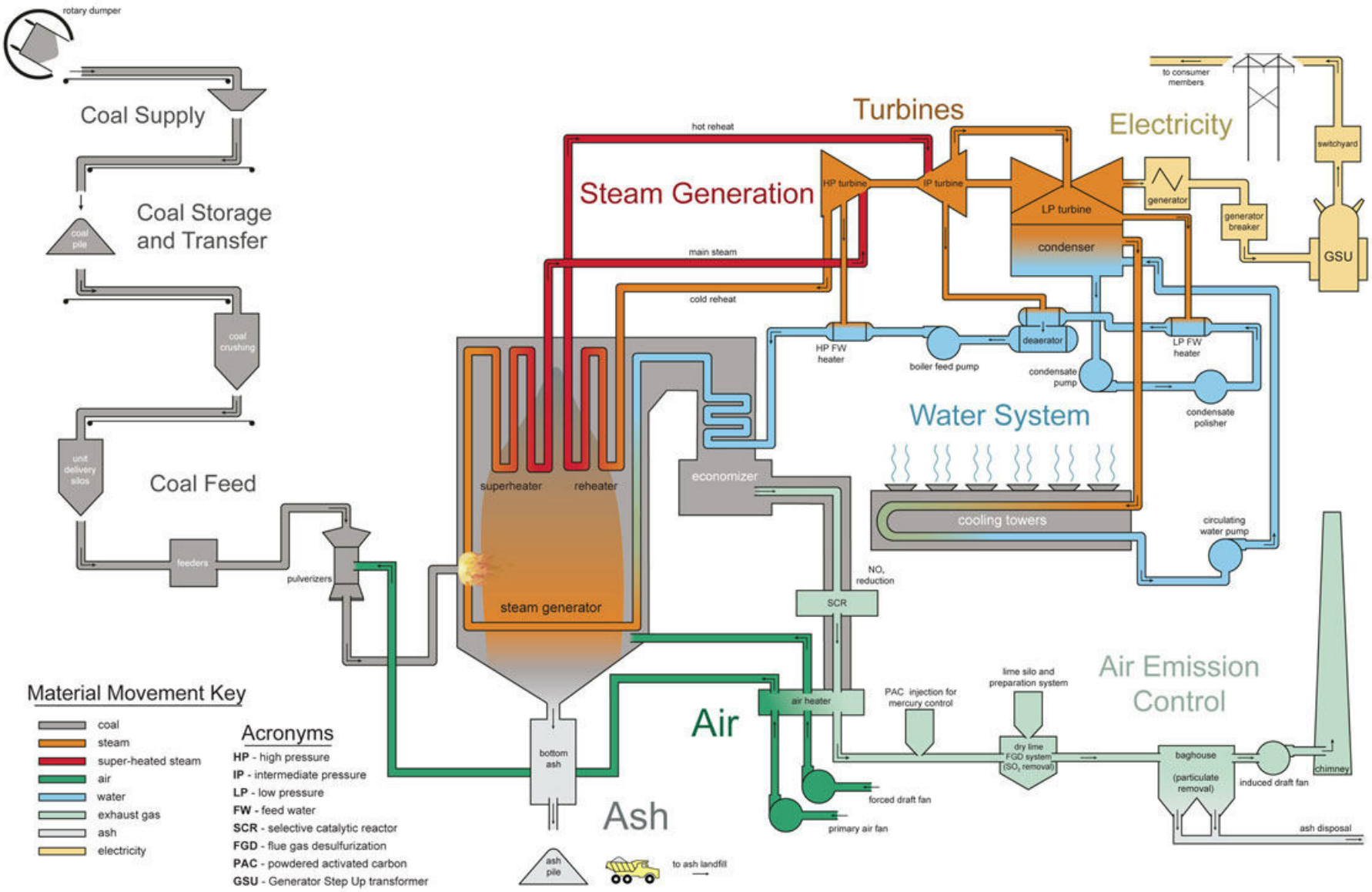


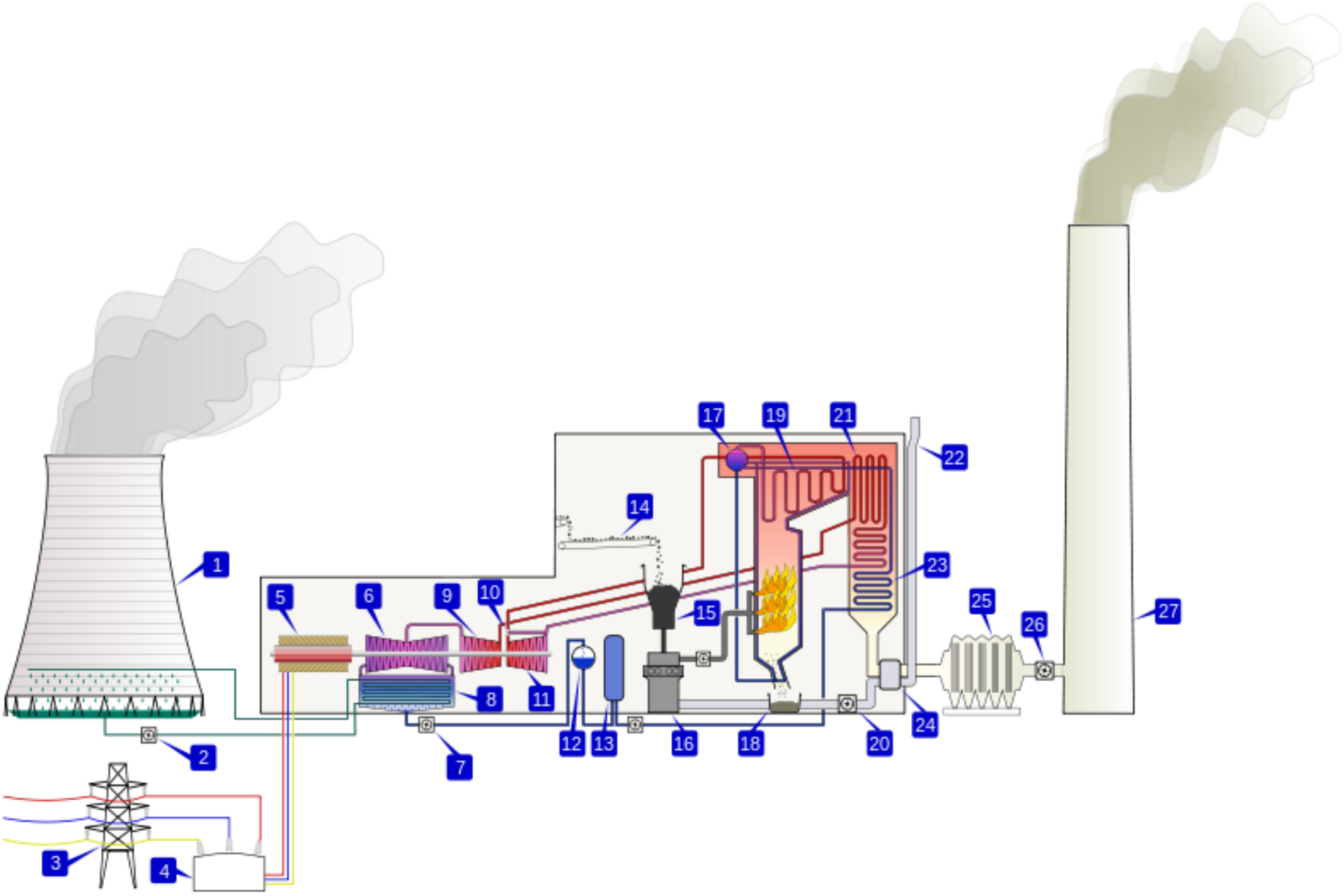


Pelton Wheel (1)




Compressor Blade
Vane
Exhaust Assembly
Bell Mouth
Liner Assembly
Disc


rotary dumper
Coal Supply
Coal Storage and Transfer
coal pile
coal crushing
unit delivery silos
Coal Feed
feeders
pulverizers
Steam Generation
hot reheat
main steam
cold reheat
superheater
reheater
steam generator
economizer
Turbines
HP turbine
IP turbine
LP turbine
condenser
Electricity
generator
generator breaker
GSU
switchyard
to consumer members
HP FW heater
boiler feed pump
deaerator
condensate pump
LP FW heater
condensate polisher
Water System
cooling towers
circulating water pump
NOx reduction
SCR
air heater
Air
bottom ash
Ash
ash pile
to ash landfill
forced draft fan
primary air fan
PAC injection for mercury control
lime silo and preparation system
dry lime FGD system (SO2 removal)
baghouse (particulate removal)
induced draft fan
chimney
ash disposal
Air Emission Control
Material Movement Key
coal
steam
super-heated steam
air
water
exhaust gas
ash
electricity
Acronyms
HP - high pressure
IP - intermediate pressure
LP - low pressure
FW - feed water
SCR - selective catalytic reactor
FGD - flue gas desulfurization
PAC - powdered activated carbon
GSU - Generator Step Up transformer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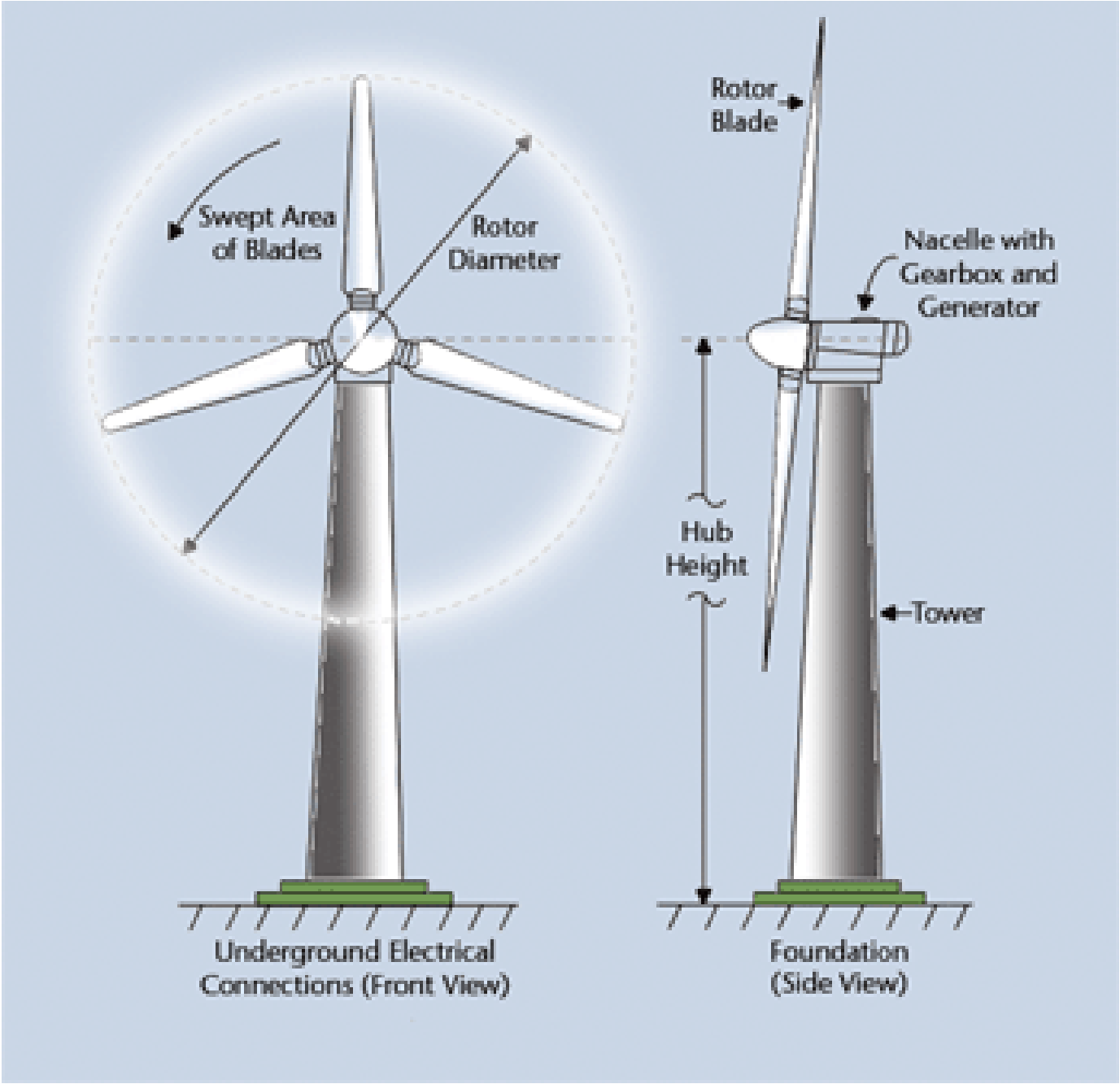
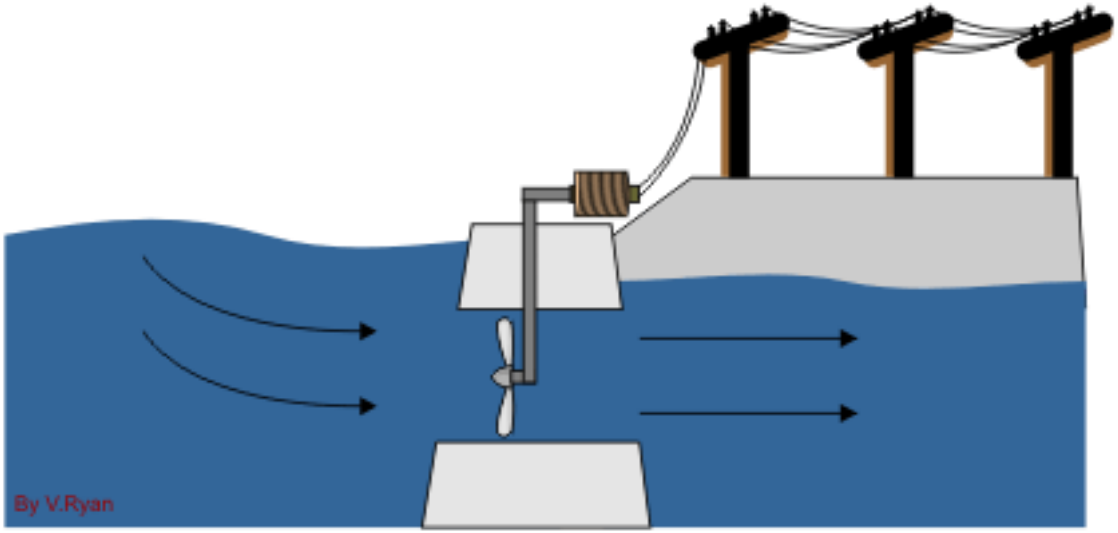
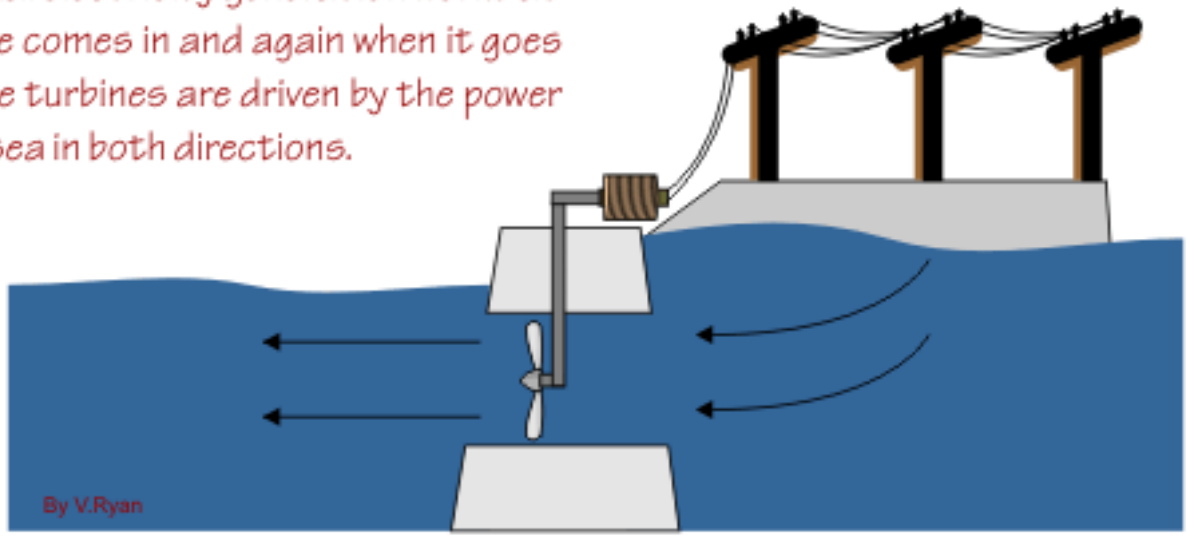


Drawing of the rotor and blades of a wind turbine, courtesy of ESN

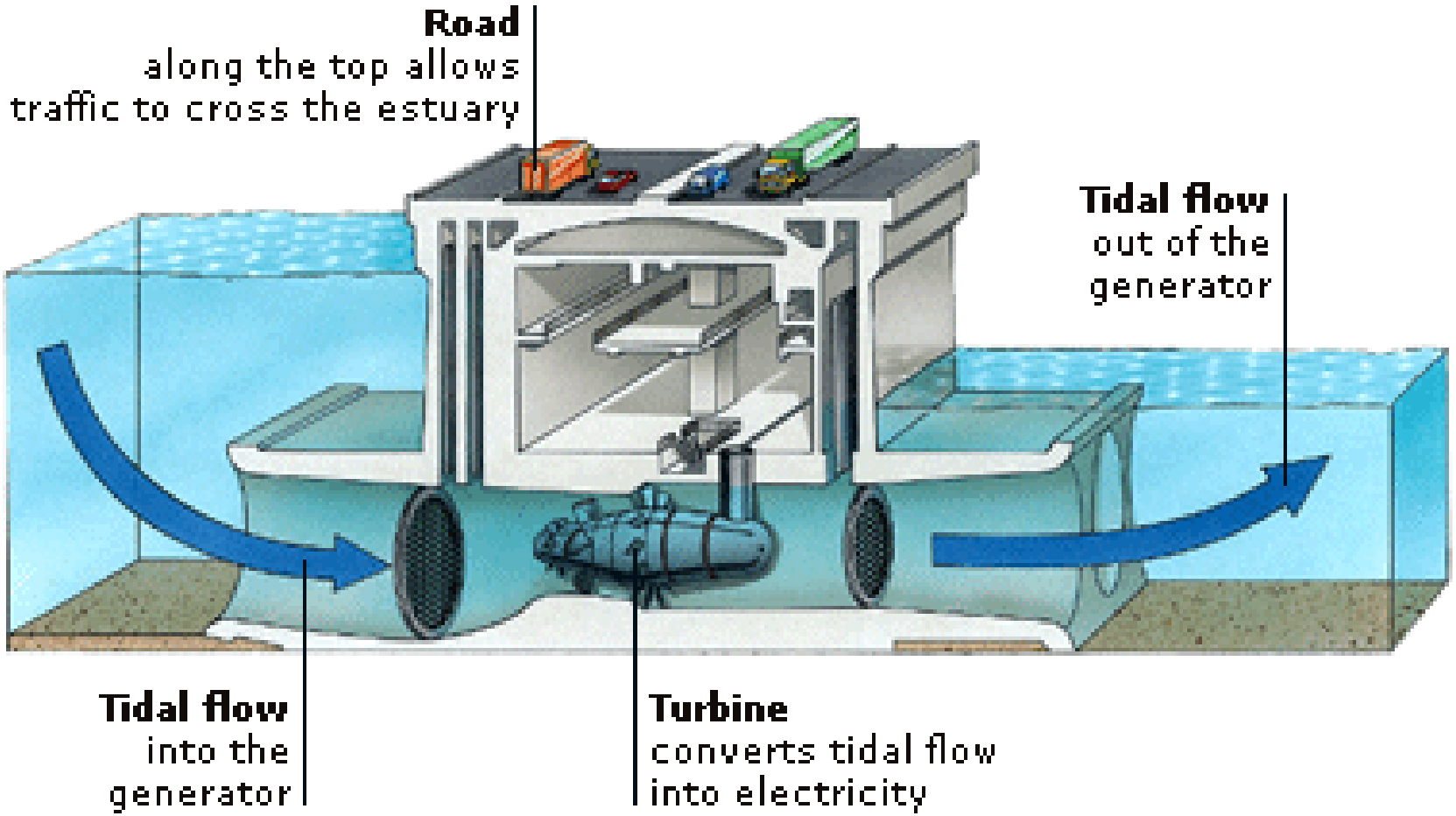


TIDE COMING IN

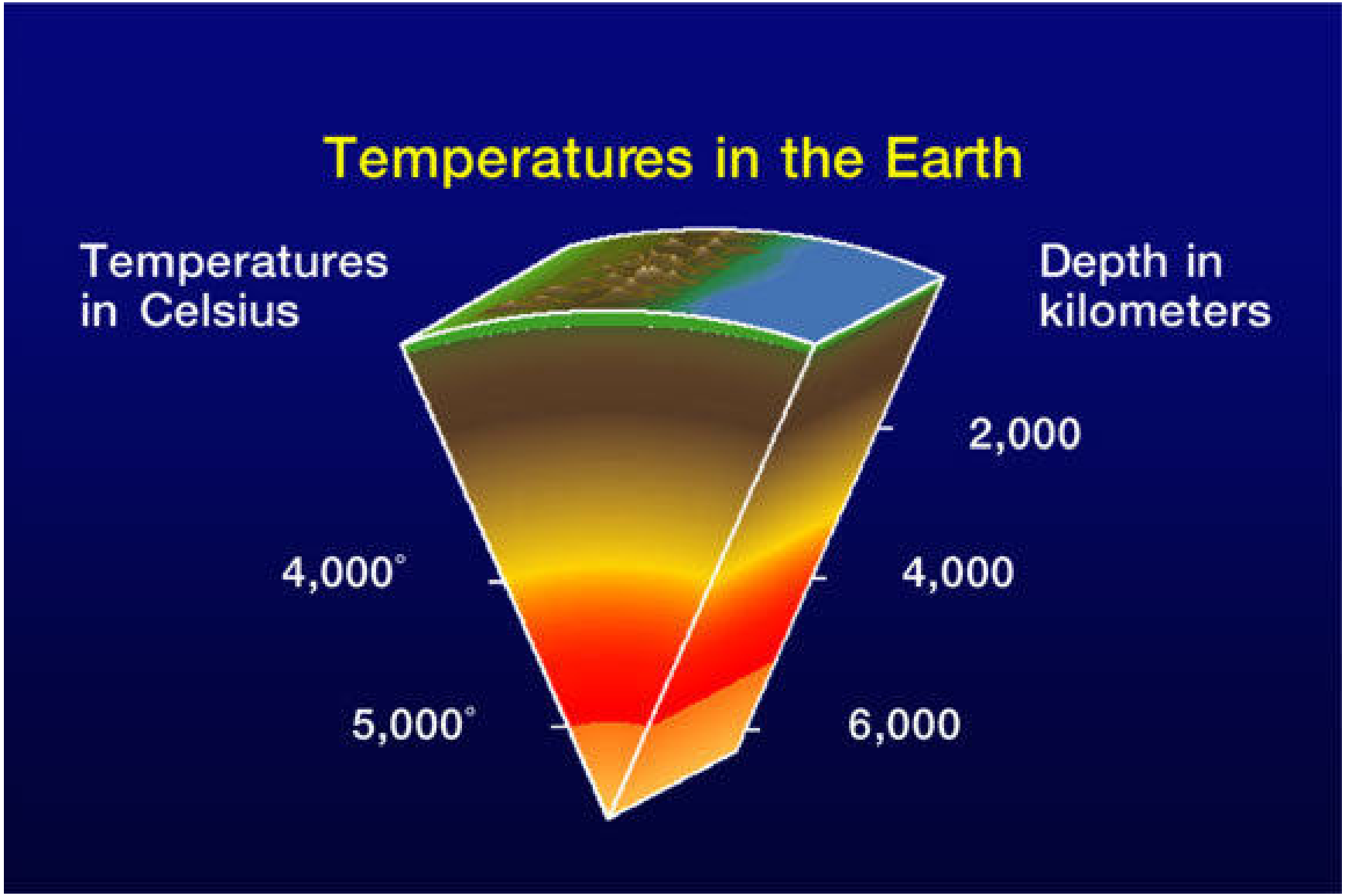
This tidal electricity generation works as the tide comes in and again when it goes out. The turbines are driven by the power of the sea in both directions.

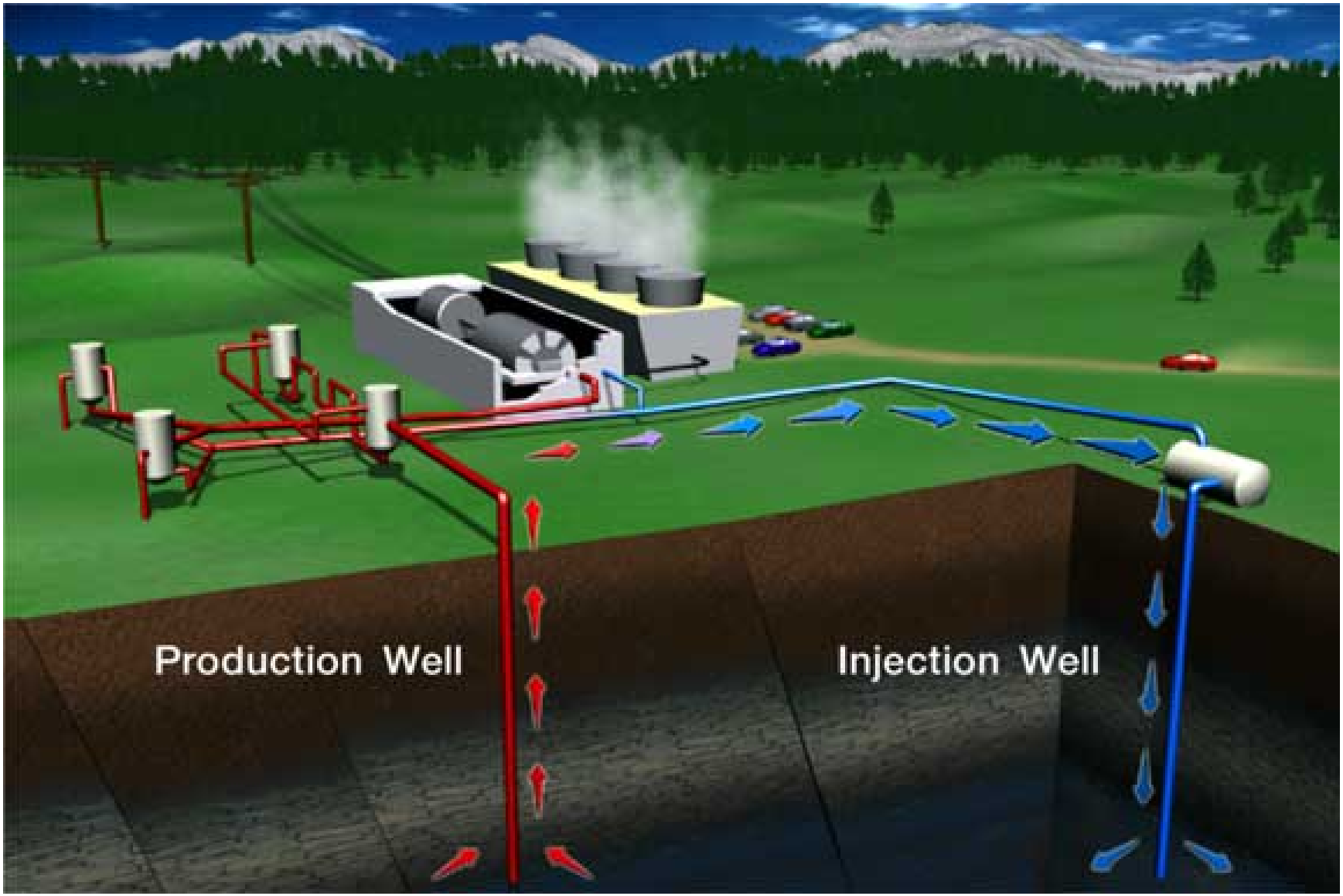


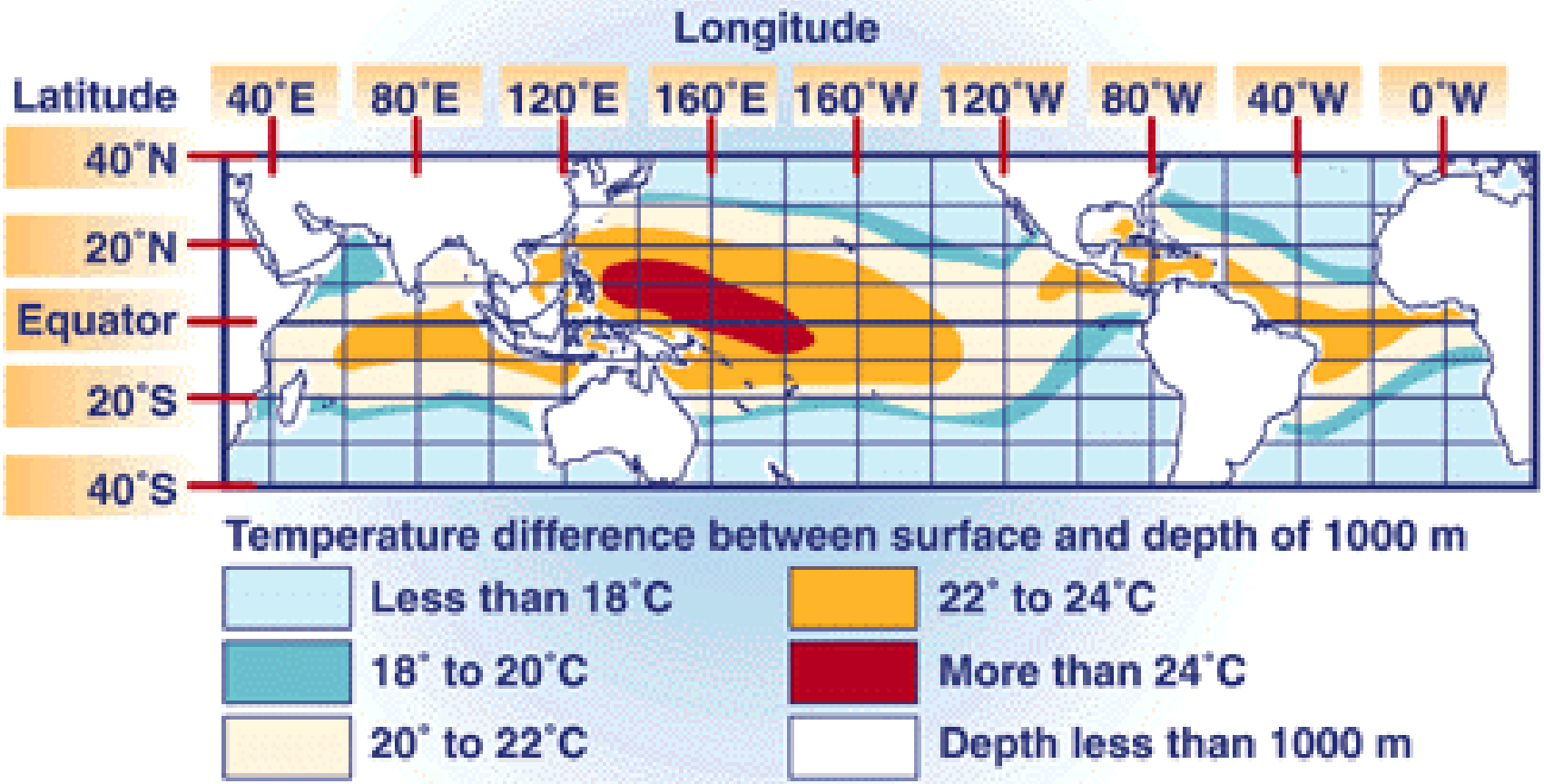
TIDE GOING OUT

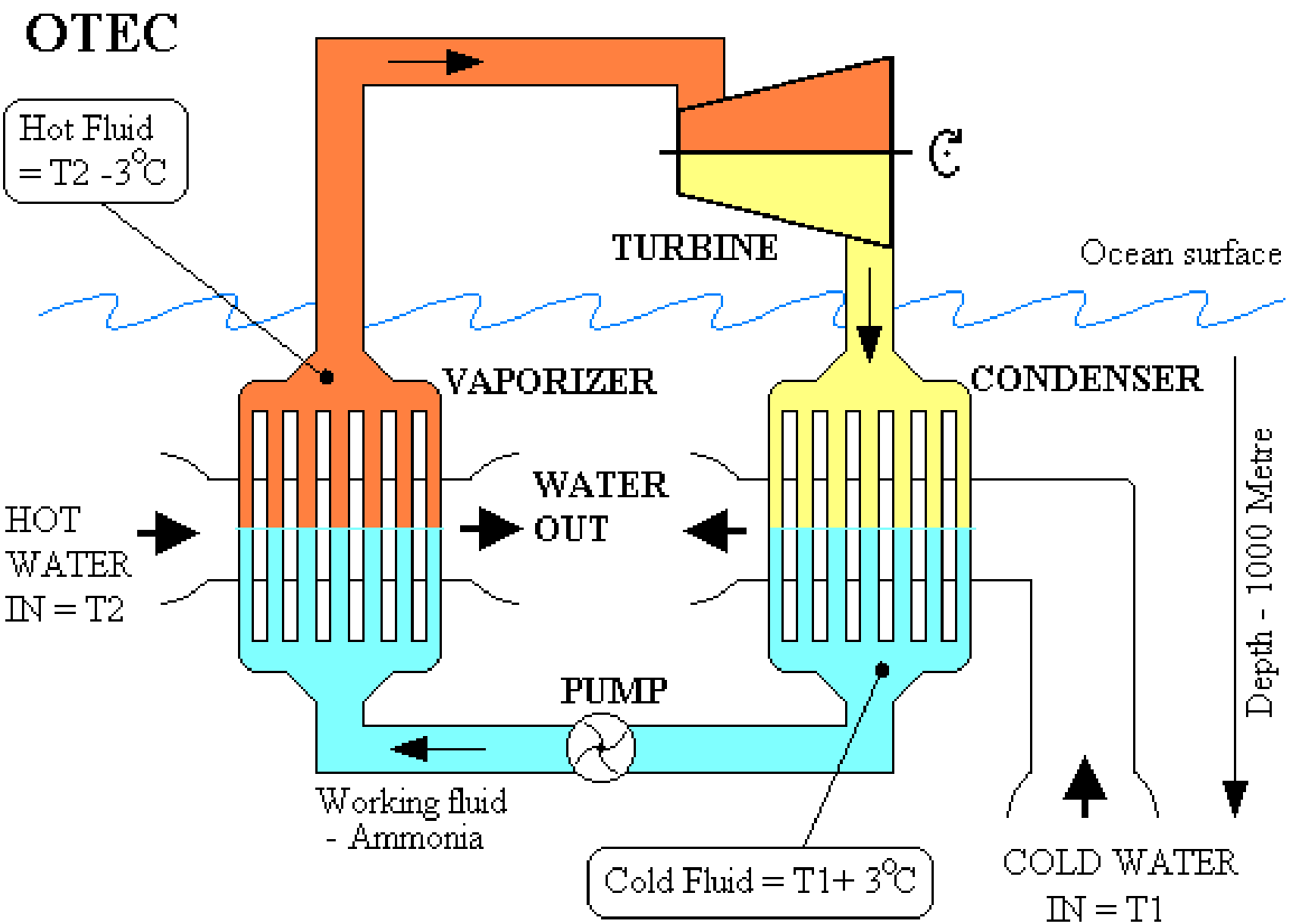

Road
along the top allows
traffic to cross the estuary
Tidal flow
out of the
generator
Tidal flow
into the
generator
Turbine
converts tidal flow
into electricity

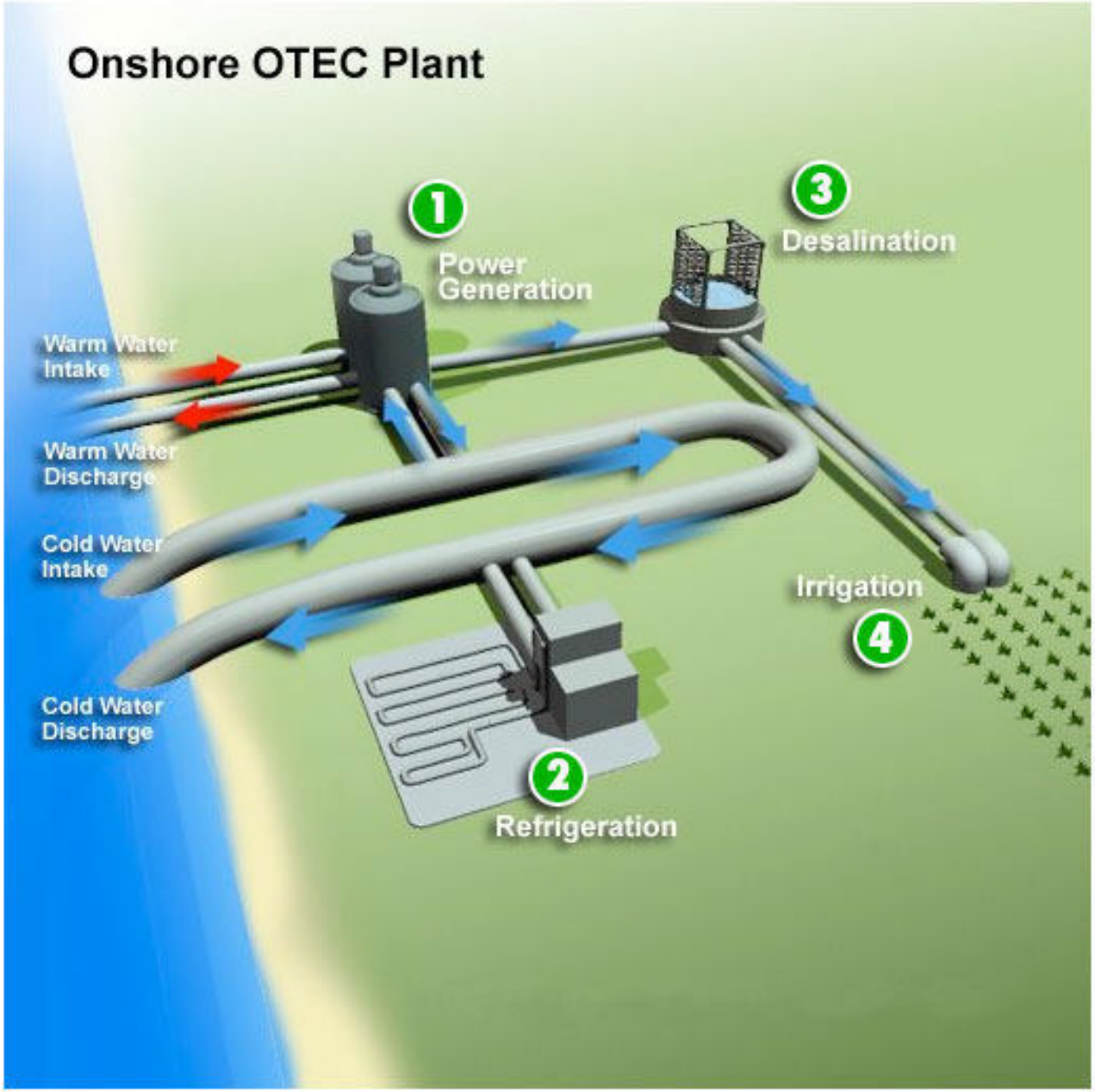
Geothermal energy is Thermal Energy generated and stored in the Earth. The Geothermal energy of the Earth's crust originates from the original formation of the planet (20%) and from Radioactive decay of minerals (80%).




Production Well
Injection Well

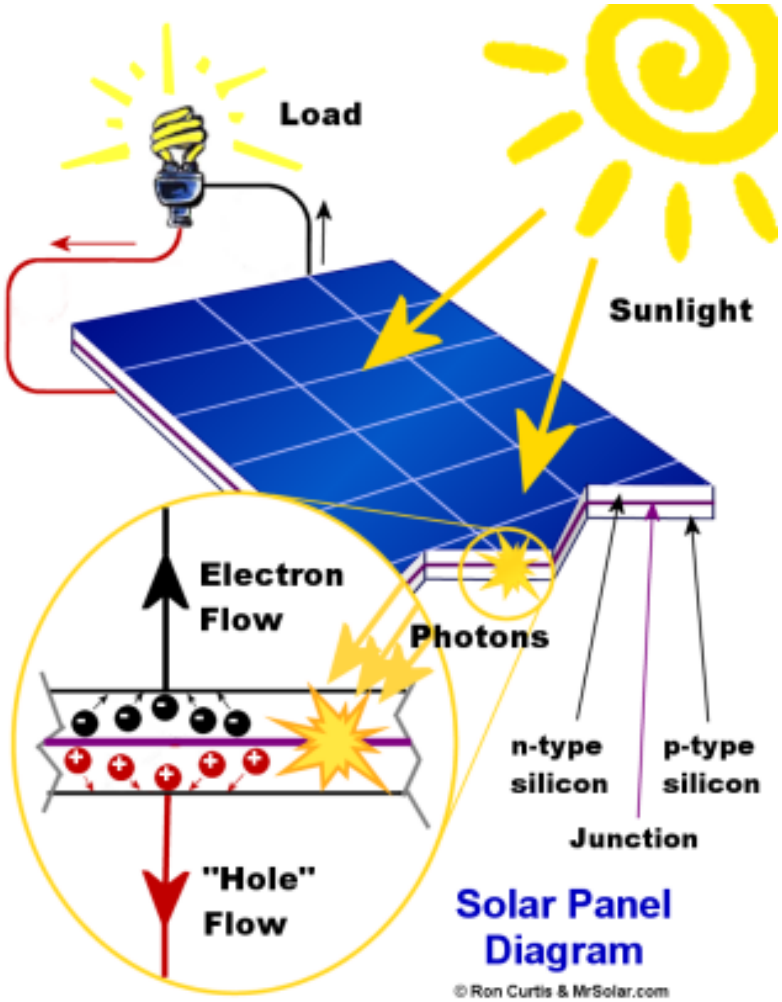

Longitude
Latitude
40°E
80°E
120°E
160°E
160°W
120°W
80°W
40°W
0°W
40°N
20°N
Equator
20°S
40°S
Temperature difference between surface and depth of 1000 m
Less than 18°C
18° to 20°C
20° to 22°C
22° to 24°C
More than 24°C
Depth less than 1000 m

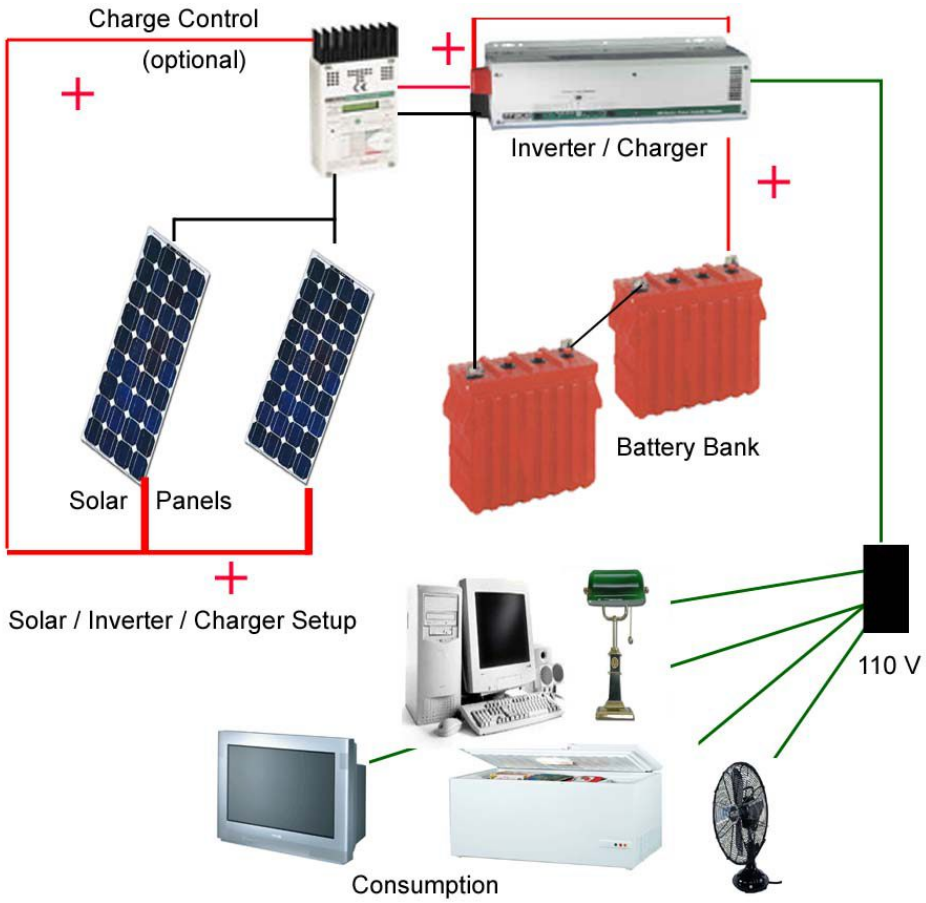

OTEC
Hot Fluid
= T2 -3°C
TURBINE
Ocean surface
VAPORIZER
CONDENSER
WATER
OUT
HOT
WATER
IN = T2
PUMP
Depth - 1000 Metre
Working fluid
- Ammonia
Cold Fluid = T1+ 3°C
COLD WATER
IN = T1

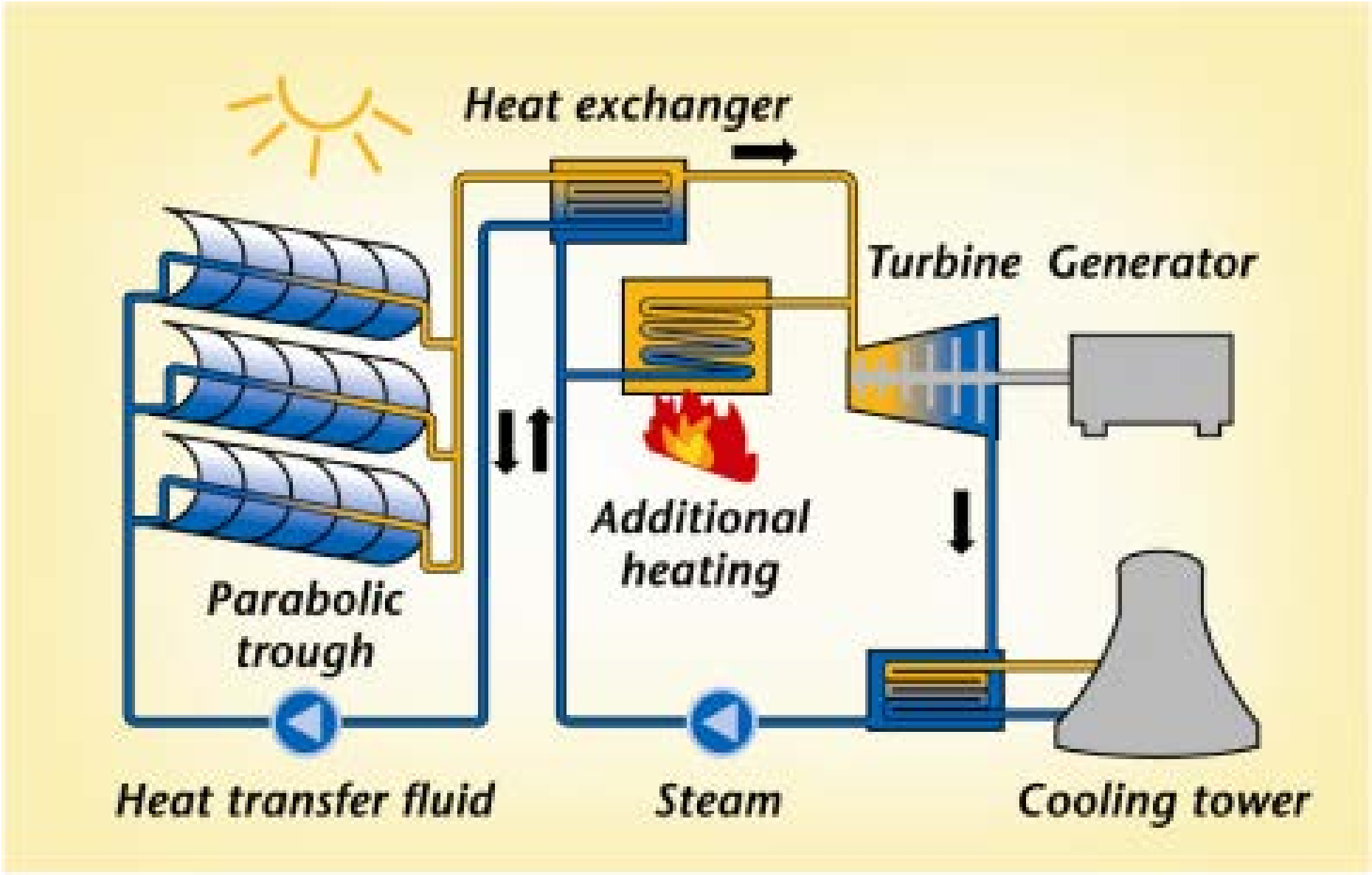

Onshore OTEC Plant
1
Power Generation
3
Desalination
Warm Water Intake
Warm Water Discharge
Cold Water Intake
Cold Water Discharge
Irrigation
4
2
Refrigeration

Materials presently used for photovoltaic include monocrystalline silicon, polycrystalline silicon, amorphous silicon, cadmium telluride, and copper indium gallium selenide/sulfide

Photovoltaic power capacity is measured as maximum power output under standardized test conditions (STC) in "Wp" (Watts peak).






Heat exchanger
Turbine
Generator
Additional heating
Parabolic trough
Heat transfer fluid
Steam
Cooling tower