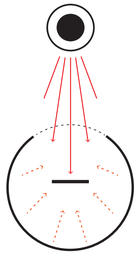
Unexpected Scenarios

Storing the energy of the Sun

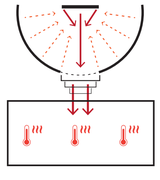
The black spheres are sun collectors that transmit the heat to a thermal storage system, which powers a Stirling engine machine. Externally, they are made of steel panels painted in Vantablack, while internally they are covered in mirror panels that address the sun power to the thermal storage. Under every sphere is present a technical room, in which the system, patented by ADI Thermal Power Corp, is operating.

By using a thermal storage system, calcium and hydrogen provide a thermally reversible, high temperature, energy storage solution. This heat energy can be recovered by allowing the hydrogen to recombine with the calcium in an exothermic reaction. In this way, the heat is not really used, but stored for later use instead. The amount of heat that can be stored using the heat of formation is significantly more than the amount that can be stored if using specific heat or even the latent heat.

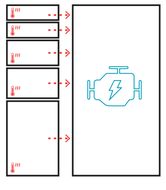
The heat produced and then stored by this system is connected to a Stirling motor, one of the most known heat engine. It starts with two masses in intimate contact, one hot and one cold. The natural thermodynamic effect is for the excess heat from one to flow into the other until both masses arrive at an equilibrium temperature. The connection of a heat pipe to both the solar reactor and the heat engine creates a situation where they will equalize in temperature very quickly. If the sun is not supplying enough heat to maintain the reactor temperature, then the reactor pressure drops in response to the heat loss, and more hydrogen is drawn from storage into the reactor. The system is 100% self-regulating. It can provide on-demand delivery of electricity, it is environmentally friendly, not releasing any greenhouse gases and able to operate at extremely high temperatures in order to enable the highest levels of efficiency.



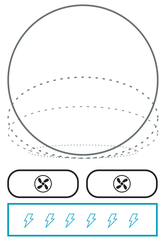
Black Sphere collect the sun heat by mirror panels



The heat is passed to a heat storage system.



The heat storages transmit energy to Stirling Engine to produce eletricity.



The eletricity give energy to air compressor that inflate the sculpture.