# MULTI SOLAR (PVT) AIR CONDITIONING SYSTEM

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A new innovation technology includes Multi Solar Air Conditioning system using the Multi Solar (PV/T) Collectors System and an Air conditioning unit that using the excessive solar thermal energy produced by the Multi Solar System (MSS).

The basic principle of the Solar Air Conditioning operation:

The hot liquid from the thermal source the MSS collectors enters the air conditioning reactor heat exchanger. Normally the liquid from the MSS Collectors are at least $50^{o}C$ for charging. This temperature will depend on the power delivered by the solar collectors, which in turn depend on the solar radiation, flow rate and the size and efficiency of the collectors. When the entering heat reaches the reactor heat exchanger, it causes the Li Cl solution in the reactor to boil. When boiling the Li Cl returns to crystalline form. At the same time the water evaporates and steam is released to the condenser/evaporator where it condenses on the heat exchanger with the relatively lower temperature. In some cases, when running the system on solar thermal energy, it is recommended that a back-up thermal source such as a small gas- boiler or a simple electric element be installed in parallel to complement the thermal source in the event of prolonged cold/cloudy periods.

The example below shows the energy balance during charging. Some 44 kWh are required to charge one barrel, giving the heat sink 33 kWh of energy. In winter, this energy can be sent directly to the building distribution system