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SOLAR PUMPING PROJECT

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SOLAR PUMPING SYSTEMS

> WHAT IS SOLAR PUMPING?

A solar pumping system is a pumping system that uses solar photovoltaic power as energy source. It can use only solar power or combine it with another power source, typically a diesel generator or the grid.

In solar pumping applications, the water pumping demand curve usually follows the photovoltaic power availability, which maximizes the utilization of the solar photovoltaic energy.

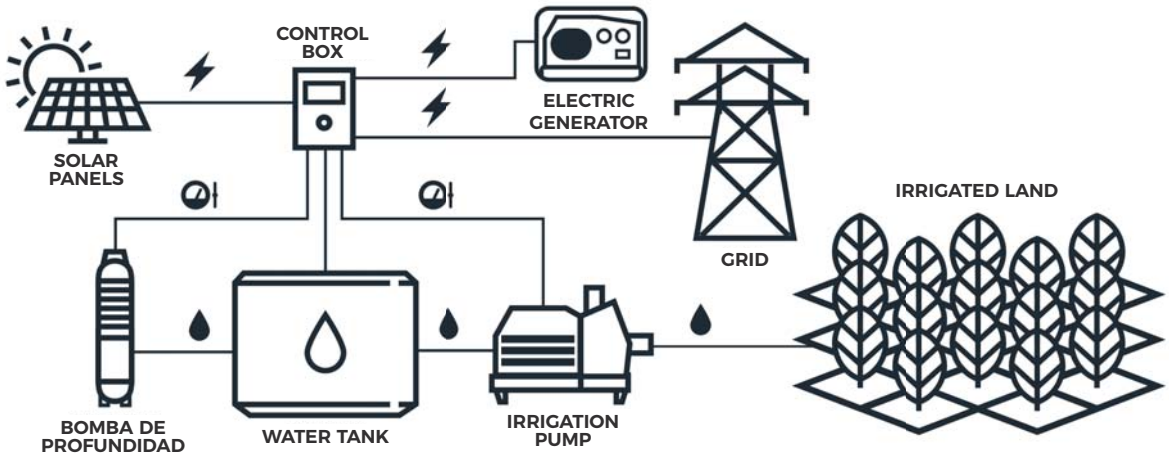
> WHAT DOES IT CONSIST OF?

A solar pumping system may include a summersible pump that pumps water from a well, pond or river, a tank (optional), a pressure pump, a control system, a solar photovoltaic field, and an alternative energy source, like the grid or diesel generator.

The control system ensures the pump or pumps operate well under variable solar irradiation. It requires the use of Variable Frequency Drives (VFD) to power the pumps at variable speed.

Solar pumping and irrigation can be done at variable flow and pressure, or at constant flow and pressure, and is compatible with any type of pump and irrigation system.

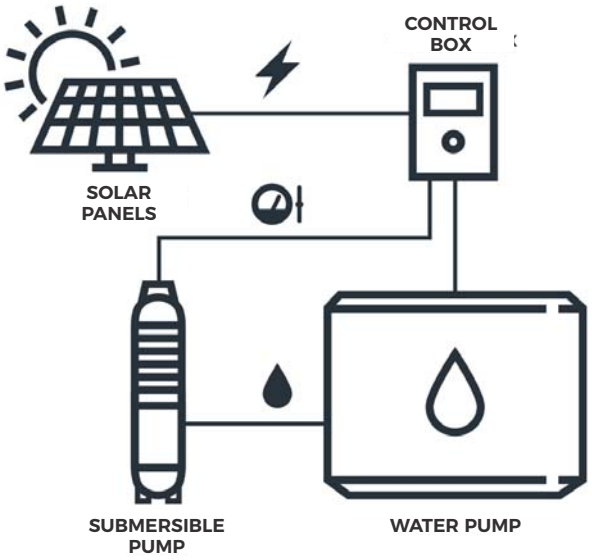
> SOLAR PUMPING SYSTEM DIAGRAM



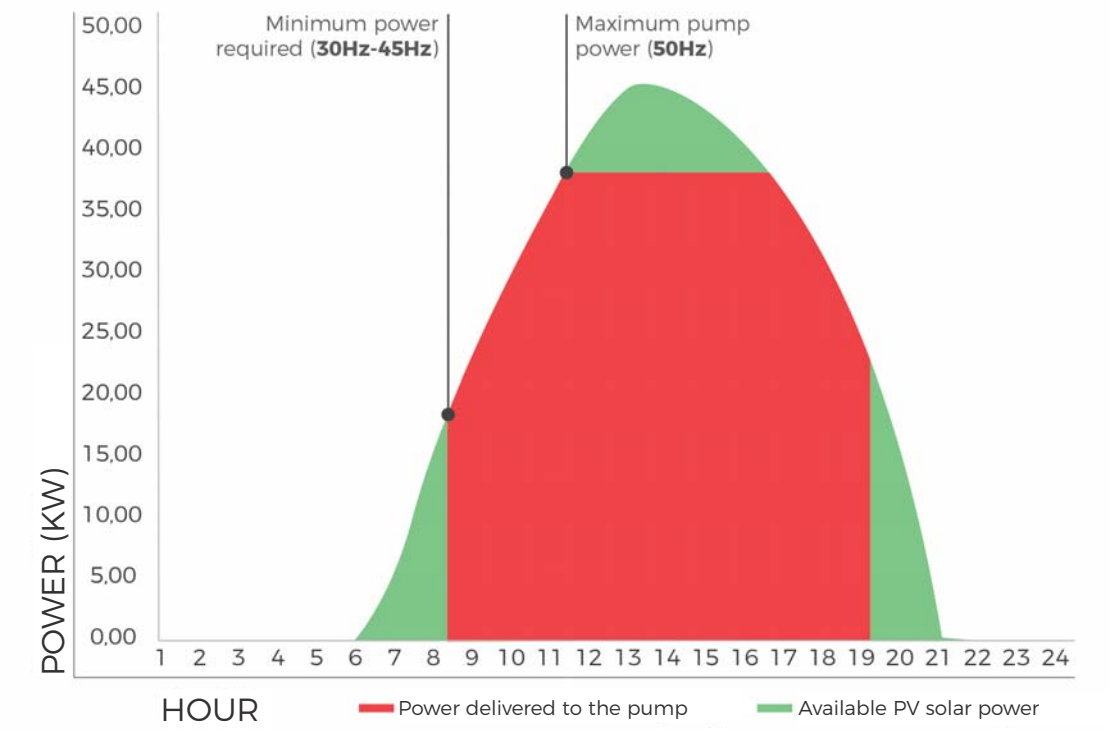
ISOLATED SOLAR ONLY VS HYBRID SYSTEMS

ISOLATED SOLAR ONLY

Used in isolated locations for pumping water to a tank, or irrigation with variable flow, like drop or sprinklers.



> SOLAR RESOURCE UTILIZATION

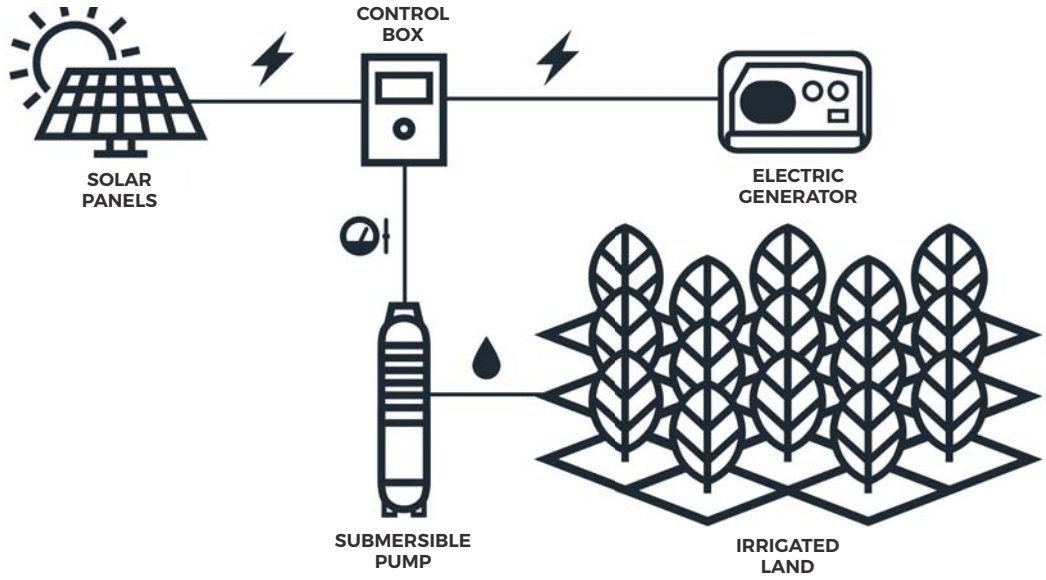


ISOLATED SOLAR ONLY VS HYBRID SYSTEMS

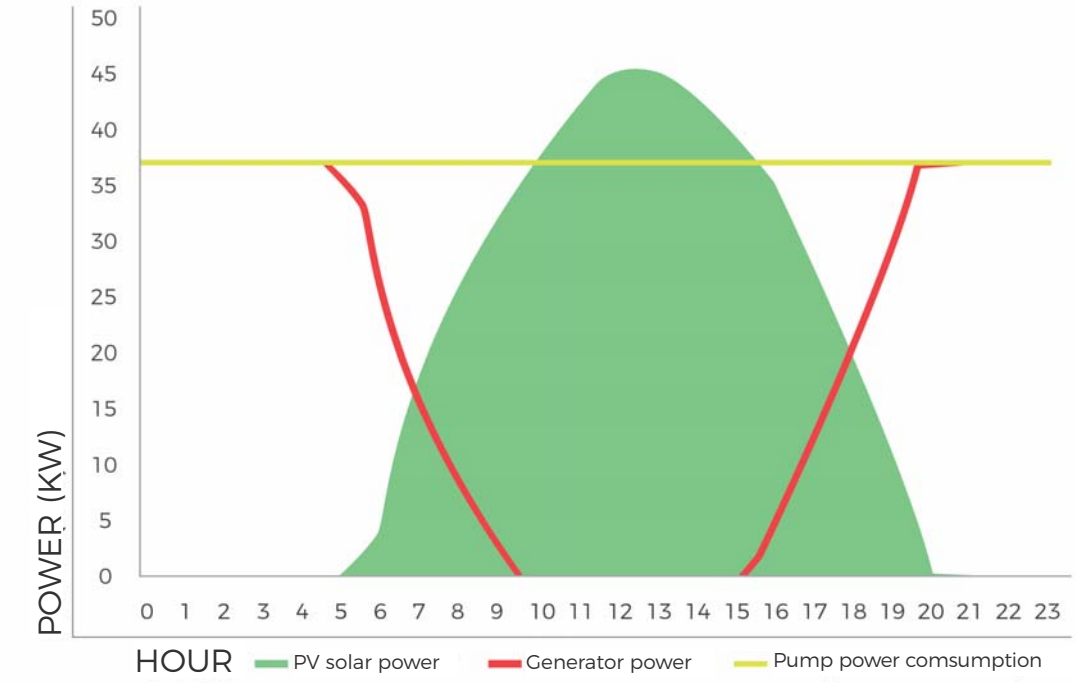
HYBRID SYSTEM

SOLAR WITH AN AUXILIARY POWER, LIKE A DIESEL GENERATOR OR THE GRID

Used for pumping and irrigation at constant flow and pressure, like drop, sprinklers, pivots or any other. Hybrid solar pumping with diesel generator.



> APORTE ENERGÉTICO EN SISTEMA DE HIBRIDACIÓN ELÉCTRICA



ISOLATED SOLAR ONLY VS HYBRID SYSTEMS

	ISOLATED SOLAR ONLY	ISOLATED HYBRID / GRID CONNECTED HYBRID
INSTALLED POWER	50kWp	50kWp
NECESSARY SURFACE	411 m^2	411 m^2
ANNUAL ESTIMATED PROD.*	104968-157452 kWh	104968-157452 kWh
ESTIMATED POWER COMSUMPTION REDUCTION (IN LITERS OF DIESEL AND kWh)		30514-45771 liters*** 104968-157452 kWh
ESTIMATED CO_2 SAVINGS**	61.61-92.42 Tn	61.61-92.42 Tn
USE	Pump to tank, irrigation drop or sprinkler	Same as solar only plus pivot irrigation and any other with constant flow and pressure

*Production will depend on the latitude of the area/ ** The saving of CO2 depends on the energy mix of the country / *** The equivalent diesel consumption depends on the generator

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