

"LUCRATIVE" SOLAR POWERED WATER PUMPING SYSTEM

Why Solar Water Pump?

In India where irrigation is the base of the economy, till date many of the areas where land is Very fertile but due to the unavailability of basic means like Electrical supply and fueling system, Unavailability of these makes irrigation a cumbersome job for farmers. Being a solution provider We offer to our valuable farmers with these basic facilities by introducing solar water pumping System at

- Entire system at affordable price
- Extremely low maintenance cost
- Low Installation Cost
- High throughput

APPLICATIONS:

Solar pumps are used principally for three applications:

1) Village water supply 2) Livestock watering 3) Irrigation

A solar pump for village water supply is shown schematically in Figure. The Village will have a Constant water demand although there is need to store water for periods of low insolation (low Solar radiation). In environments where rainy seasons occur some of this demand can be met by rainwater harvesting during the rainy season.



SAFETY FEATURES

- Dry running
- Tank overflow
- High/Low Input voltage
- Over current protection
- Overload protection
- Reverse polarity safe
- Auto start and stop function
- Very low harmonic current
- Dual mode unit for operating pump either on solar power or grid power.
- Inverse exponential speed variation during lack of solar radiation
- Modular design hence can be integrated with existing system.
- Pumps operate automatically depending on rise and fall of sun.
- High efficiency (96%-98%), better quality low cost compact design and better reliability.



SOLAR WATER PUMPING SYSTEM COMPONENTS:

- **Solar Pump Inverter** : A high frequency transformer less inverter system, Output Three Phase 415V AC and V/F control to manage starting condition of pump.
- **In-built MPPT controller** : With the function (Maximum Power Point Tracking), it regulates the Output frequency according to irradiation in real time to achieve the maximum power.
- **Solar PV Array** : It consists of an array of solar panel connected in series and parallel Combination to achieve the desired voltage and current necessary to drive the AC/DC pump.
- **Mounting structure** : Galvanized iron IMS powdered coating mounting structure with Manual Tracking and Fixed - Tilt Tracking (Optionally available).
- Pipes and cable
- Conventional Three phase AC motor and pump.



Solar DC Submersible Pump Selection Sheet

Model	HP	Stage	Head (m)	Discharge (lpm)	Total System Watt
R40208/05	1	8	30	31.25	750
R40214/05	1	14	50	30.83	750
R40214/05	1	14	70	10.41	750
R40214/05	1	14	70	18.75	900
R40220/05	1	20	100	15.625	900
R40807/08	1	7	20	200	1200
R40507/08	1	7	30	126	1200
R40512/08	1	12	50	75	1200
R40214/08	1	14	70	40	1200
R40220/08	1	20	100	23.33	1200
R40807/16	2	7	30	191.66	1800
R40512/16	2	12	50	113.33	1800
R40214/16	2	14	70	60	1800
R40220/16	2	2	100	35	1800
R61704/22	3	4	20	500	3000
R61704/22	3	4	30	316.66	3000
R40815/22	3	15	50	191.66	3000
R40522/22	3	22	70	126.66	3000
R40326/22	3	26	100	56.66	3000
R63003/36	5	3	20	800	5000
R63003/36	5	3	30	533.33	5000
R40815/36	5	15	50	316.66	5000
R40815/36	5	15	70	216.66	5000
R40822/36	5	22	100	133.33	5000

Solar water pumps are designed to lift water for Irrigation, Horticulture, Farming, Gardening, Drinking and various domestic uses. These systems are best alternatives for areas where there is no electricity or have scarcity of other power sources like hydrocarbons based fueling system. In spite of having conventional system SPV water pumping system appears to be cheap in longer run.

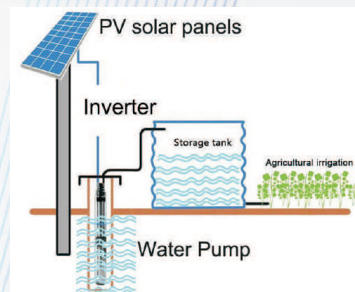
People have used a variety of power sources, namely human energy, animal power, hydro Power, wind, solar and fuels such as diesel for small generators. The most common pumps used in remote communities are:

- Hand pumps
- Electric submersible pumps with diesel generator
- Solar submersible pumps
- Direct drive diesel driven borehole pumps

SPV modules used in SOLAR WATER PUMPING SYSTEM were specifically designed considering operation under Indian weather conditions. System can withstand extreme weather conditions from Hot, Humid, rainy, stormy to dusty keeping module operationally intact in all forms

Solar AC Submersible Pump Selection Sheet

Model	HP	Stage	Head (m)	Discharge (lpm)	Total System Watt
SEPL2MFE14	1	3	30	63	900
SEPL2MFE10	1	6	60	30	900
SEPL4MFE14	2	6	20	244	1800
SEPL4MFE10	2	8	30	157	1800
SEPL4RFE03	2	13	50	93	1800
SEPL4RFE05	2	13	70	63	1800
SEPL6RF100	3	3	20	350	3000
SEPL6M4MFE14	3	9	30	224	3000
SEPL6M4RFE07	3	12	50	133	3000
SEPL6M4RFE05	3	14	70	91	3000
SEPL6MFE100	5	4	20	560	4800
SEPL6RF100	5	4	30	358	4800
SEPL6M4MFE14	5	15	50	212	4800
SEPL6M4MFE10	5	18	70	145	4800



"LUCRATIVE" SOLAR POWERED PETROL STATION

Most petrol pumps require to be run on a 24x7 basis thereby requiring an intelligent Solar Power Management System. Alternate power sources like diesel generators have a higher switchover time and the dispenser pump shuts down almost instantly. Power fluctuations also end-up damaging dispensing units at petrol pumps. Sudden power failure leads to loss of fuel, time and money of both the customer and the petrol pump owner.

A petrol pump can easily derive power from solar and enjoy the following benefits:

- Huge reduction in hefty electricity bills
- Quick and higher ROI
- Eco friendly



"LUCRATIVE" SOLAR POWERED MOBILE TOWER

The solar power tower, also known as 'central tower' power plants or heliostar power plants or power towers, is a type of solar furnace using to receive the focused sunlight. It uses an array of flat, movable mirrors (called heliostats) to focus the sun's rays up on a collector tower (the target). Concentrated solar thermal is seen as one viable solution for renewable, pollution free energy.

Every day we see new ways that Solar is changing the world, particularly in powering homes and electric vehicles while overhauling how people get their energy and what they expect from their utilities.

The Green Tower offers telecom companies large and small a solar-powered system that comes with energy storage, giving the service a new level of flexibility and reliability.



PIPES AND CABLES:

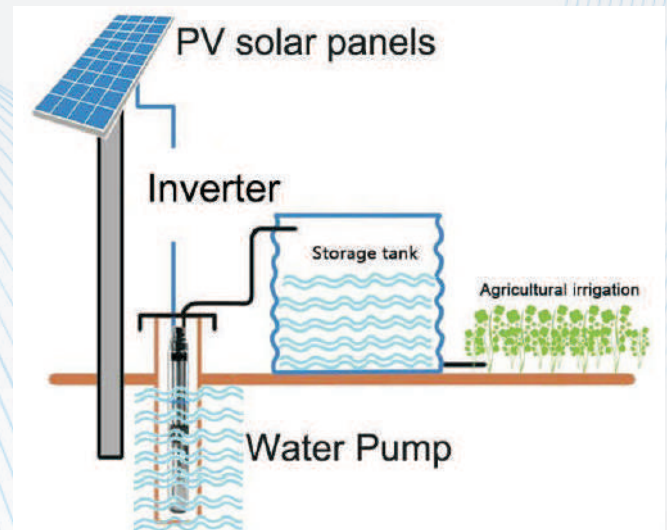
HOPE high strength pipes are provided for easy installation and long life. ISI Standard cables for fire proof operation.

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Ideally in some regions the storage would be 3-5 days of water demand. In practice some Installed tanks do not have sufficient capacity and are smaller than a days demand leaving the tank empty at the end of the day. This is due to a mismatch between the sizing, pump capacity and the demand profile during the day.

A solar irrigation system needs to take account of the fact that demand for irrigation water will vary throughout the year. Peak demand during the irrigation seasons is often more than twice the average demand. This means that solar pumps for irrigation can be under- utilized for most of the year although there can be a reduction in strength of the sun during these times reducing supply side of the equation.



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- Very low harmonic current
- Dual mode unit for operating pump either on solar power or grid power.
- Inverse exponential speed variation during lack of solar radiation
- Modular design hence can be integrated with existing system.
- Possibilities for monitoring from remote area.
- Can monitor large number of solar water pumping system centrally.
- Pumps operate automatically depending on rise and fall of sun.
- Auto start and stop function

"LUCRATIVE" SOLAR POWERED PETROL STATION

CURRENT SCENARIO

Most petrol pumps require to be run on a 24x7 basis thereby requiring an intelligent power management system. Alternate power sources like diesel generators have a higher switchover time and the dispenser pump shuts down almost instantly. Power fluctuations also end-up damaging dispensing units at petrol pumps. Sudden power failure leads to loss of fuel, time and money of both the customer and the petrol pump owner.

Petrol pumps in Tier 2 & 3 cities face major energy crises because of irregular power supply. In far worse situations are the petrol pumps in remote locations which have no electricity, face erratic power supply or have grid supply for a minimal time period. Diesel Generator sets are used as an alternative to electricity from the grid in these areas. However, this proves to be very expensive as the fuel and maintenance cost of diesel generator sets is very high.

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CURRENT SCENARIO

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Every day we see new ways that Solar is changing the world, particularly in powering homes and electric vehicles while overhauling how people get their energy and what they expect from their utilities.

The Green Tower offers telecom companies large and small a solar-powered system that comes with energy storage, giving the service a new level of flexibility and reliability. Depending where you are in the world, that the energy needed to run your cell towers makes up 15 to 50 percent of total operating costs — the costs are higher when you're in remote areas and the developing world, since you need to rely on gas-powered generators to keep the towers running.

