



SPAN PUMPS

Innovate ♦ Design ♦ Implement

Solar Power Water Pump

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A Solar Pump is designed to utilize the direct current from the array efficiently, even as the energy production varies throughout the day. Solar Pumps suggest a clean and uncomplicated substitute to fuel-burning engines and generators for domestic

water, livestock and irrigation. They are most efficient during dry and sunny seasons; require no fuel deliveries and needs very less safeguarding. They are powered by photo-voltaic panels (not a single battery is used) and the flow rate is determined by the intensity or radiation of sunlight. Thus the Solar Power Pumps are more cost-effective and have not as much of impact on the environment than the pumps operated by the combustion engine.

	Grid Operated Pumps	Diesel Pumps	Solar Powered Pumps
Cost of Fuel or Recurring cost	Cost rises by 15% each year and is cumulative	Higher variation and non predictable cost of fuel	No recurring cost
Life Span	Medium	Shorter	Longer
Maintenance	Medium, Approximately 20% of the system cost each year	Higher, due to large number of moving parts	Negligible maintenance
Consumables and Spare Parts cost	Medium	Very high	Negligible
Servicing Charges	Medium	Very high	Negligible
Transmission Losses	Higher	No losses	No losses
Dependability on Source	Depends on the grid power available	Depends on ample diesel availability	Everlasting Sun energy
Servicing Personnel Cost	Higher	Higher	Negligible

Solar Power Water Pump

Grid Operated Pumps

Diesel Pumps

Solar Powered Pumps

Initial Capital cost

Medium

Medium

High

Concerns and Limitations

Grid Power availability, which is uncertain and unpredictable and difficult availability in remote areas.

Emissions out of diesel pumps harmful for health and Environment. Difficult in remote areas and in cases of emergency

Lesser flow during cloudy weather. Potentially higher capital cost.

Types of System :

1. AC/DC Submersible Pump
2. AC/DC Surface Pump

DC Pumps can be operated by the Grid Power as well during the night time.

System Features :

1. Capacity: 2 HP -30 HP
2. Discharge: 15,000 LPD to 800,000 LPD
3. PV Power input diversification. (Input Power Wattage range: 300Wp to 30kWp)
4. Dynamic Head range: 5 Meter-110 Meter and more
5. Convenient operation, low operating cost and less expenditure on system maintenance
6. Use of MPPT to maximize the efficiency
7. Intelligent protection control and management on the system, in terms of low voltage, over voltage, over load, short circuit and dry running
8. Easy installation, upgradable and sustainable water supply
9. Remote monitoring system can be provided

Requirements to design a Solar Pumping System :

1. Total depth of bore well / tube well / open well
2. Static water level

3. Maximum drawdown
4. Delivery point above the water level
5. Water requirement per day
6. Geographical location of installation

System Components :

1. Solar PV Modules Module
2. Mounting Structure Solar Pump / Motor
3. Solar Inverter with Change over switch
4. Installation accessories

Benefits :

1. Abundant free natural energy source
2. Pollution free & environment friendly
3. Wide performance range and extensive application
4. Operation without any fuel
5. Conscious understanding of Green Energy

Applications :

Solar powered Pumps are extensively used in various sectors:

1. Irrigation
 2. Horticultural Farms
 3. Animal husbandry
 4. Poultry farming
 5. Stock watering
 6. Gardens and kitchen gardens
 7. Drinking water
 8. Schools & educational institutions
 9. Health centers & hospitals
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