



Advantages of Solar Pumping



TECHNICAL



SOCIAL



ECONOMIC



ENVIRONMENTAL

Solar-powered water systems offer safe water and hope for communities across the world and, more often than not, are a favored approach for Water Mission.

In addition to being beneficial for the environment (especially when compared to water that's supplied via a generator), solar-powered pumps are sustainable for the communities that operate them. When compared with alternative power sources – including hand pumps, an electrical grid connection, or generator power – solar power is the best overall choice in many situations.

With over 1,100 solar-power systems installed, Water Mission has experienced less than a 1% failure rate. We have also seen a reduction of overall lifecycle costs of more than 40% when compared to drilled boreholes fitted with hand pumps that

are designed for equivalent service areas and lifespans. Our extensive experience in designing, constructing, and supporting solar-powered pumping solutions demonstrates the technology's viability and cost effectiveness for delivering safe water to people in most need.

Water Mission is a nonprofit Christian engineering organization that transforms lives of people in developing countries and disaster areas through sustainable safe water and sanitation solutions. Using state-of-the-art technology and engineering expertise, Water Mission implements customized solutions through a comprehensive community development approach across Africa, Asia, Latin America, and the Caribbean.

Water Mission is available to consult on the application of solar pumping in any specific context.

For more information about Water Mission or solar pumping solutions, visit watermission.org/research or contact Sean McSwain, Project Manager – Partnership Support, at 843.769.7395 or smcswain@watermission.org.





Advantages of Solar Pumping

Serve more people per water point.



With higher flow and head capacity than hand pumps, solar pumping can serve more people. This significantly reduces long queuing times experienced at water points. A single solar pump on a single borehole will produce the same flow as multiple handpumps on multiple boreholes.

SOLAR ✓	HAND PUMP ✗	ELECTRICAL GRID ✓	GENERATOR ✓
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Treat, store, and distribute water from ground and surface sources.



High flow and head grant the option of treating water and storing water in elevated tanks, which is not possible with traditional handpumps. This means that safe water can be reliably provided where end users most need and want it, regardless of whether the source is “improved” or “unimproved”.

SOLAR ✓	HAND PUMP ✗	ELECTRICAL GRID ✓	GENERATOR ✓
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Provide high levels of service in remote areas.



Hand pumps are commonly chosen over other mechanized pumps because of their ability to provide water in remote locations where electrical grid power is not available. Solar pumps grant equal or greater levels of quantity, accessibility, and reliability without relying on the presence of an electrical power grid.

SOLAR ✓	HAND PUMP ✓	ELECTRICAL GRID ✗	GENERATOR ✓
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Minimize operation & maintenance costs.



Solar pumping systems enable reliance on electrical grids and generators to be reduced or avoided all together, significantly reducing power costs. Solar systems that do not include batteries, charge controllers, or inverters require very little capital maintenance while continuing to function for 10+ years. Solar is a dependable, clean, renewable source of energy, which is a key advantage in disaster situations when other power options have been disrupted or destroyed.

SOLAR ✓	HAND PUMP ✓	ELECTRICAL GRID ✗	GENERATOR ✗
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