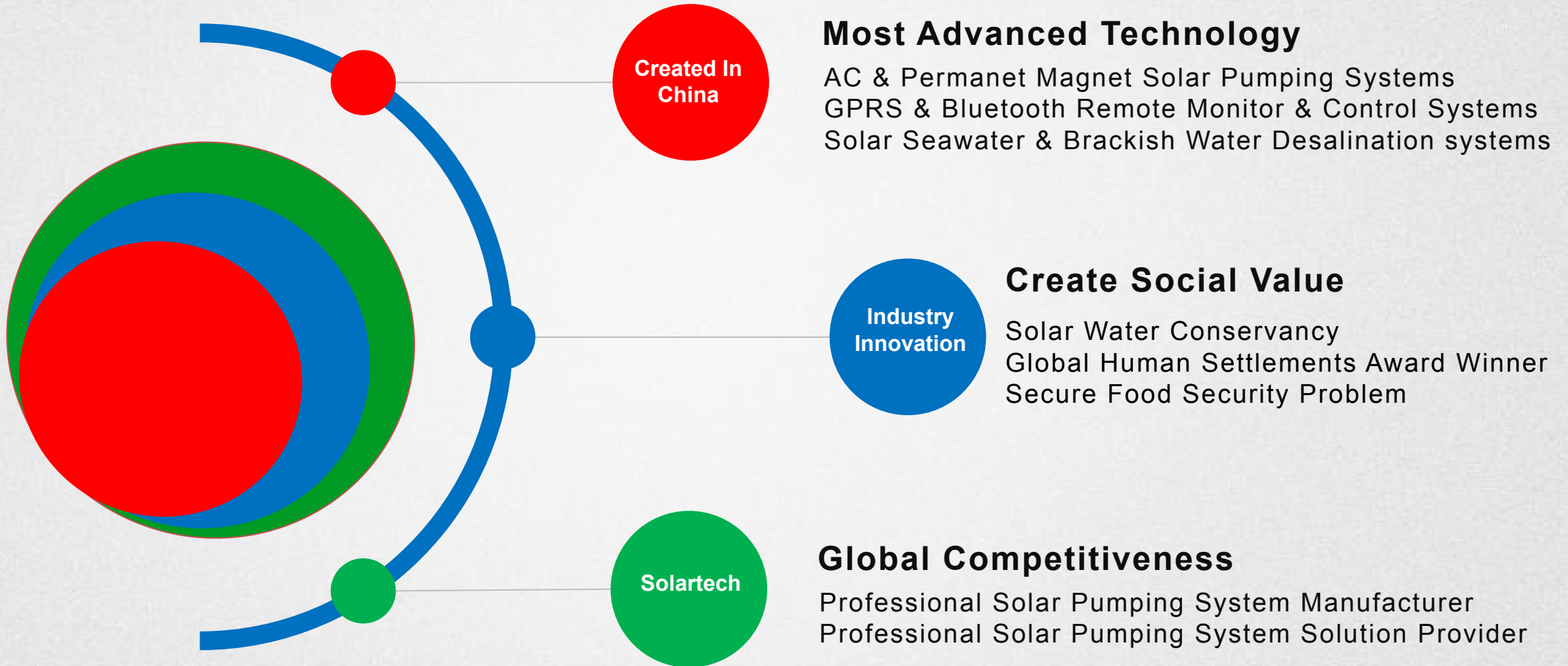


Solartech

Solartech Solar Pumping System Advantage Introduction

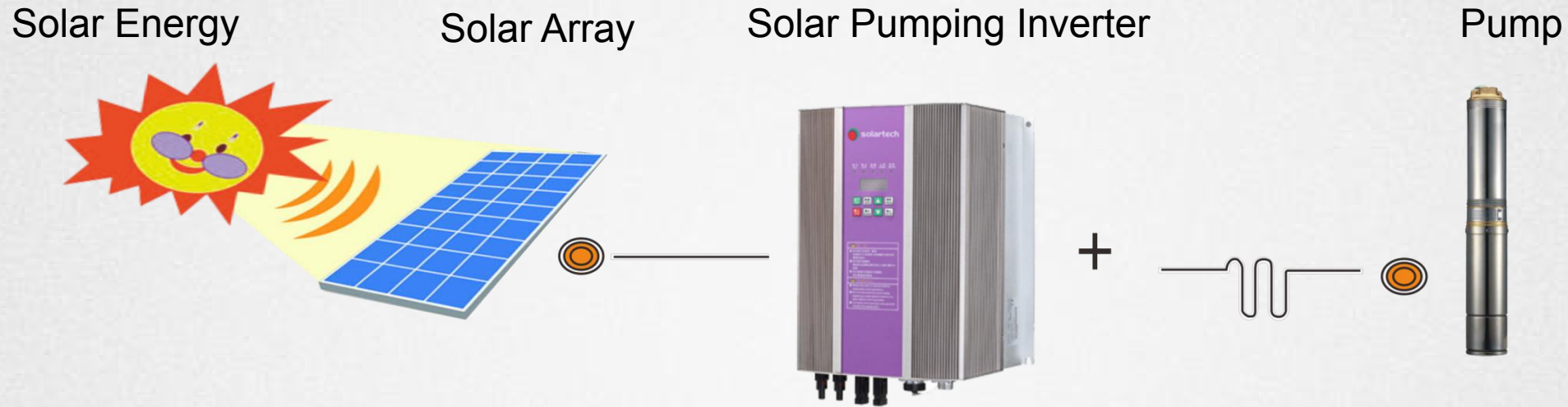
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Core Value



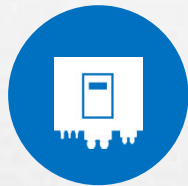
The Solution

Solar Pumping Technology



Solar Array

Solar array absorbs solar radiation to produce DC power (DC).



Solar Pumping Inverter

Control and regulate pump operation and convert DC power into AC power.

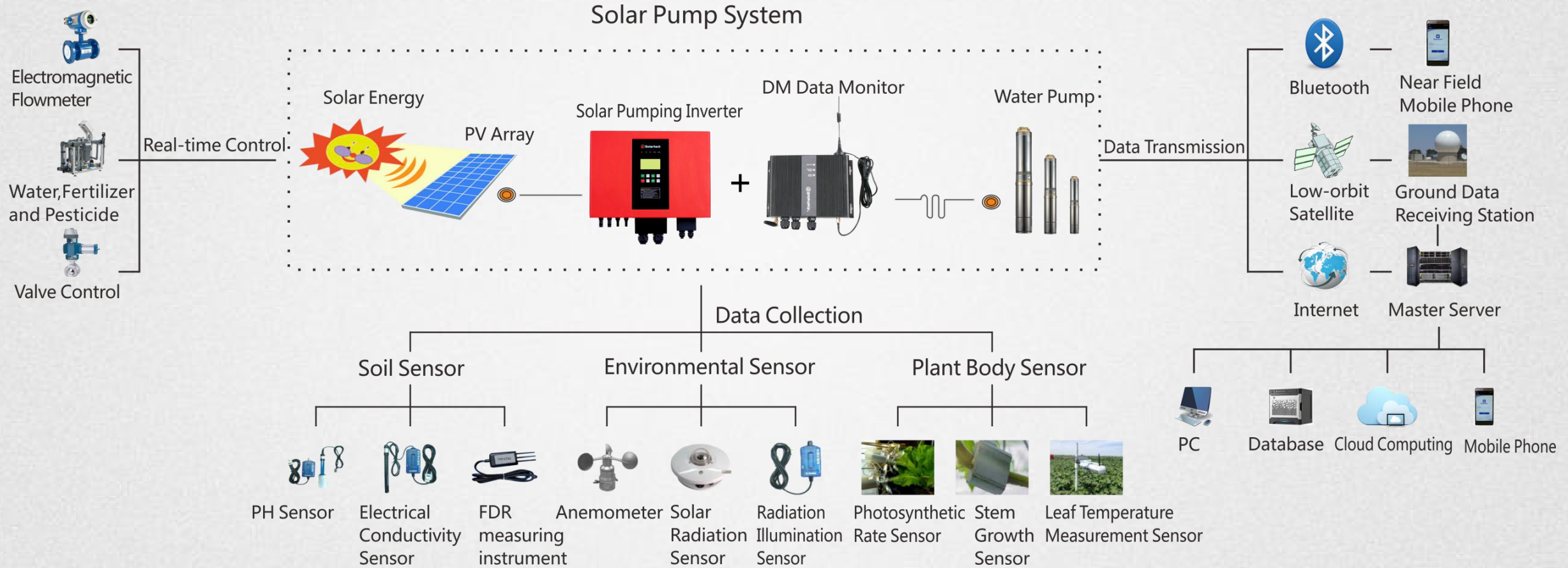


Water Pump

Draw water from well or rivers and lakes to tank/ponds to serve for people.

Solution

Smart Remote Monitoring & Control of Solar Pumping System Operation



Company Profile



Solartech is the leading solution provider for global solar and water conservancy systems, as well as the professional manufacturer of solar pumping inverters, solar water pumps, solar pumping systems, solar water-saving irrigation systems and solar sea water desalination systems.

R&D Center



Demonstration Base



Product Center



Mission

Continue to maintain innovation, provide better solutions and services to the market and create a new era for the promotion and application of the global solar pump system market, solar water conservancy, and intelligent agriculture.

Vision

Upholding "Solar and Water, a Better Future" business philosophy, Solartech is willing to join hands with our majority of partners and keep fighting for our common happy life and a harmonious society.

The Milestones



2001

First desert highway solar drip irrigation system was built in Xinxiang



2004

Solar pumping R&D base was built in Shenzhen



2006

Became the world's first manufacturer of solar pumping inverters



2008

Award for Transformation of Scientific & Technological Achievements



2009

Donated a solar pumping system to desert-control hero Niu Yuqin, at Shaanxi



2011

Entered China Key Promotion Guidance Catalog of Advanced Water Conservancy Technologies.



2013

Honored Top 10 Highlights Awards at SNEC PV POWER EXPO in 3 consecutive years.



2014

Awarded the United Nations Global Human Settlements Model of Green Technology



2015

First solar water-saving project for meadowland construction & improvement in Xinjiang



2016

Listed on NEEQ in China.
Stock Code: 836223

R&D Center

15 Years Professional Solar Pumping System Research & Study World's Leading National Key Laboratory of Power System



Solartech solar pumping technology research began in 2001. Solartech R&D center is located in Tsinghua University Shenzhen Graduate School which led by Dr. Lu Qiang, Academician of CAS and Dr. Xu Zheng, Professor of Tsinghua University and comprised of Shenzhen Solartech Renewable Energy Co., Ltd, Tsinghua University Shenzhen Graduate School, HKU and Tsinghua Shenzhen Power System Research Laboratory and National Key Laboratory of Power System in Shenzhen.



Dr. Lu Qiang

Chief Scientist

Academician of CAS

Professor of Tsinghua University

Solartech Founder



Dr. Xu Zheng

Chief Engineer

Doctor of Engineering from

Japan Kyushu University

Professor of Tsinghua University

Solartech Founder

Demonstration Base



Solartech Solar Pumping System Research Demonstration Base



Solar Pumping System
Operational Testing & Data Collection



Solar Pump
Operation Test
& Data Collection



Solar Fountain
Operation Test & Data
Collection



Solar Seawater/Brackish
Water Desalination System
Operation Test & Data
Collection

Solar & Wind Hybrid Pumping System



Solar & Wind Hybrid Pumping
System Operation Test & Data
Collection

Demonstration Base

Solar Grid-Connected & Energy Storage System Research Demonstration Base



Solar Carparking System Operation Test & Data Collection



Solar Tree Operation Test & Data Collection

Microgrid Demonstration Base



Mono, Poly, and Thin-film Solar Array
Operation Test & Data Collection



Master Control Room

Solar Pumping System



Solartech have the whole complete range of solar pumping systems products.

◆ Technical Feature

Water Head	10-400m
Water Demand	1-3000m ³ /Day*
Rated Power	0.2-75kW

* A single system can provide 3000m³ water per day

◆ Product Type

AC Solar Pumping System	PM Solar Pumping System
Full Stainless AC Solar Pump	Full Stainless PM Solar Pump
AC Solar Pump	PM Solar Pump
Submersible Pump	Helical Rotor Pump
Surface Pump	Centrifugal Pump

◆ Popular Accessories

Water Level Switch	Used for dry run protection in a well or overflow protection in a tank
Control Box	Solar Pumping Control Box/Solar Combiner box/Backed-up AC Power Supply Control Box
Solar Panel	Polycrystalline/Monocrystalline PV panel optional

◆ System Accessories

DM Data Monitor	Remote monitoring & control for solar pumping system
Electric Reactor	Suitable for far away from water resource installation
Lightning Arrester	Suitable for frequent thunderstorm environment installation
Cables	Pump cables, steel ropes and PV cables
Solar Bracket	Can be customized based on project real demand

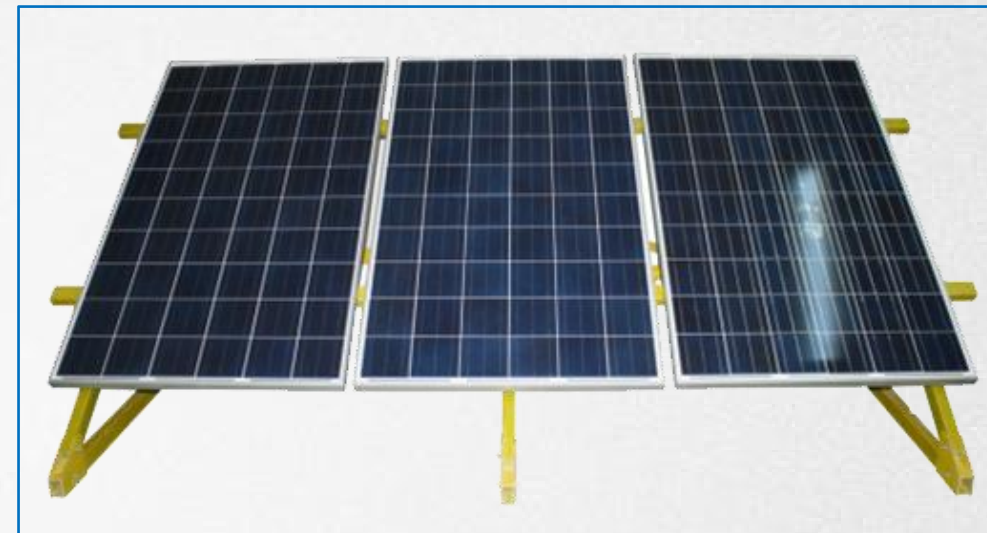
AC Solar Pumping Systems



Max. Water Head: 400m, Max. Daily Water Supply: 3000m³

- Designed scientifically, ensures true performance
- Support grid/diesel generator back up
- Optional GPRS remote monitoring & Control
- Easy installation, convenient to relocate
- Widely used in the fields of large-scale agricultural irrigation, desert control, grassland animal husbandry and living water supply in 106 countries

Permanent Magnet Solar Pumping Systems



Max. Water Head: 178m, Max. Daily Water Supply: 36m³

- 20% more efficient DC brushless motor than AC
- Saving solar panel, saving system cost, high effectiveness
- Easy installation, long operation lifetime
- Full automatic operation, aluminum case for good cooling

SolartechSolar Pumping Inverter Advantage



Solartech PB-LG2 solar pumping inverters supports solar & grid/diesel generator hybrid operation, and use solar power first to run the pump, when solar is working together with AC back up, the solar power is always working at the Mpp point, 100% solar power used for water pumping, and AC back up only comes out when solar power is not enough, it saves the cost of using grid/diesel, maximizes the solar pumping system benefit.

At the other hand, all Solartech competitors use the passive way for solar & AC hybrid operation, when AC power is working, solar power cannot be fully utilized, in the long run, the system operation cost will be very low effective comparing to Solartech solar pumping system solution.

- Full automatic operation, 8 years data storage
- Supports GPRS & Bluetooth Monitoring & Control using DM-AR
- Supports operation time setting of solar pumping system
- Supports encryption function to implement installment payment

Solartech Solar Pump System Sizing Software



Solartech Designing Da

Input

☒ Submersible pump ☐ Surface pump

Location

Country: Afghanistan
City: Alam
Latitude: 31 N
Longitude: 65 E
Water temp.: 25 °C

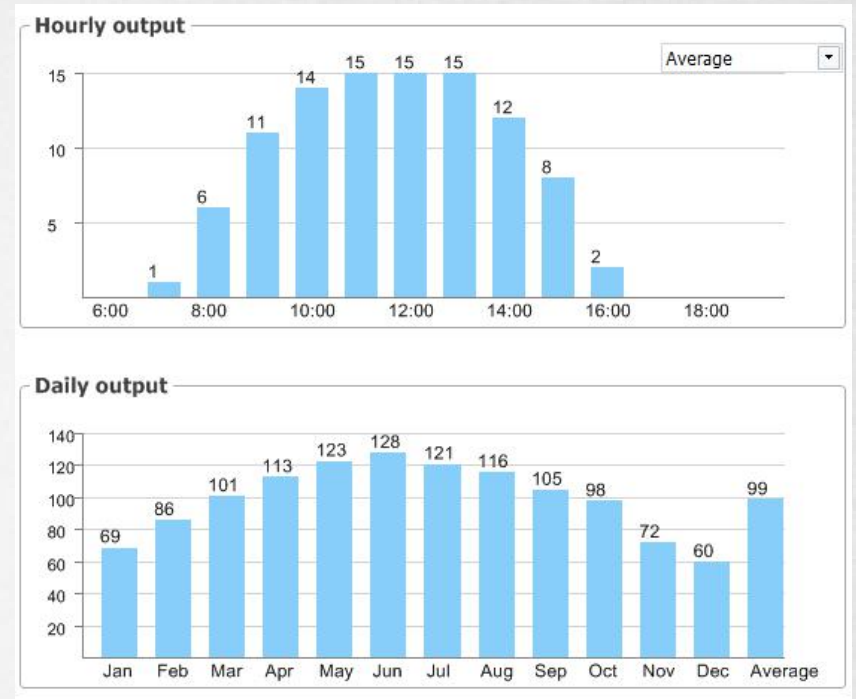
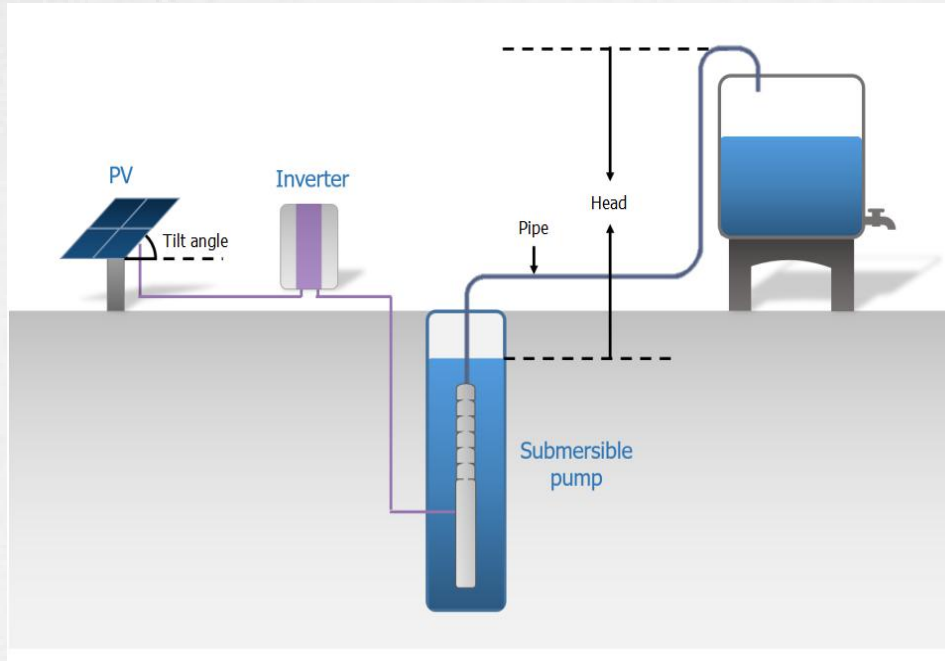
System

Tilt angle: Optimum for summer
8 °
Azimuth angle: 0 °
Pipe type: PVC
Pipe length: 300 m

Output

Head: 100 m
Suction: 0.0 m
Daily output: 100 m3

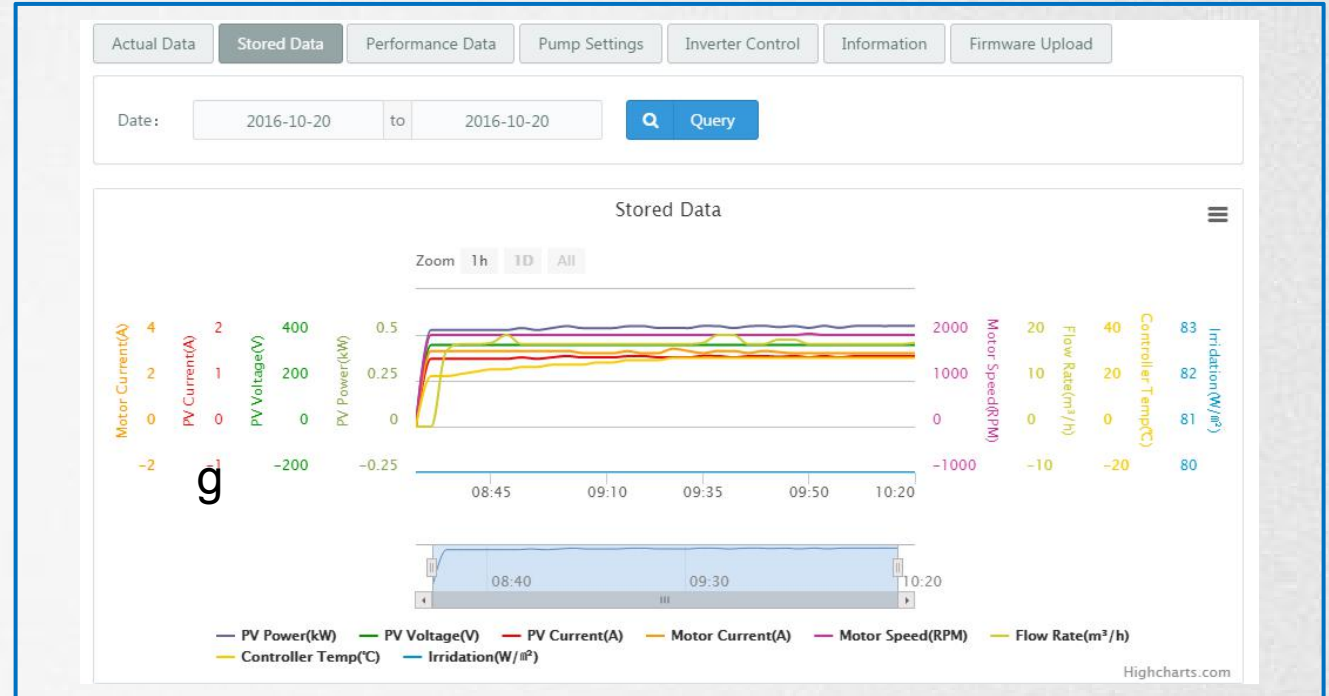
☐ Use Custom PV Cell



Optimal solar pump system design can be made by the sizing software.

- Shows complete global radiation data
- Suggests the accurate tilt angle of solar array
- Optional customized solar panel for integration
- Provide average monthly/hourly water flow data
- Generates the detailed solar pump system sizing report

Solar Pumping Remote Monitoring & Control System



With Solartech Mobile App or Software on Computers, following features can be achieved:

- Set the parameters of the solar pump system remotely
- Monitor the real-time operation data of the solar pumping system
- Manage thousands solar pumping systems in one office
- Remote control the inverter & pump operation status
- Solar pumping system history operation data can be stored, reviewed, statistical report can be generated
- No need the field inspection moving from 1 place to another to proceed the after service and maintenance

Solartech Solar Pumping System vs. Diesel Pumping System

	Solar Pumping System	Diesel Pumping System
Power (kW)	5.5	2.2
Implement Cost	\$14,215	\$3,160
Operation & Maintenance in 25 Years	0 + \$4,735	\$178,250 + \$3,000
Total	\$18,950	\$184,410
Water Supply in 25 years	1,460,800m ³	1,460,800m ³
Unit Cost	\$0.013USD/m ³	\$0.126USD/m ³
Comparison	Unit cost for solar pumping system is 89% less than diesel system.	
Conclusion	In 25 years operation life, in about 2 years, the invest costs will be even. As solar price goes down and diesel price goes up, solar will be the future.	

Solartech Solar Pumping System vs. Grid Pumping System

	Solar Pumping System	Commercial Power System
Power(kW)	5.5kW	10KV
Implement Cost	\$14,215	\$79,840
25 Years Operation Cost	\$4,735	\$42,120
Total Cost	\$18,950	\$121,960
Water Supply in 25 years (m ³)	1,460,800m ³	1,460,800m ³
Unit Cost	\$0.013/m ³	\$0.083/m ³
Comparison	Unit cost for solar pumping system is 84% less than grid pumping system (considering building 1kW of grid line)	
Conclusion	For building the grid network for remote areas without electricity, no matter the building cost or the opeartion cost, solar pumping system saves more money in the long run.	

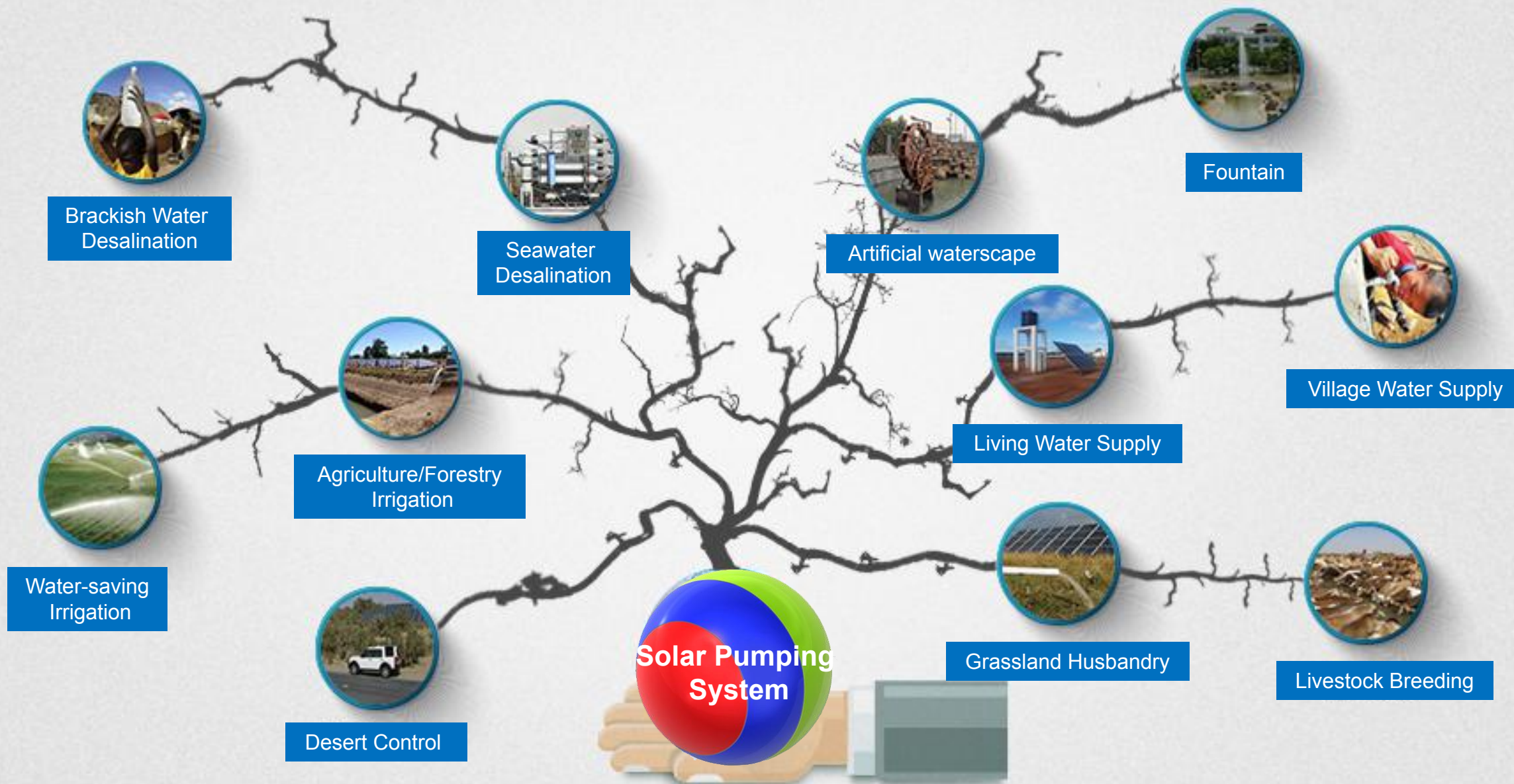
Note:

The cost of the standard project for 1km 10KV overhead power grid construction (excluding pumper) is about \$79,840.

The required input power for 2.2KW pump operation is 2.5Kwh.

Producing 1,460,800m³ water requires grid power 2.5kW * 12 hours * 365 days * 25 years = 273,750kWh (electricity price \$0.154/kWh), the grid electricity charge in 25 years operation life will be \$121,960.

The Application



Agriculture & Forestry Irrigation



Water-saving Agriculture Irrigation in Eritrea (2013)



Solar array



Great pumping effect



The ambassador came to visit and guide the work

Grassland Irrigation in Xinjiang, China (2015)



Solar array



Flooding irrigation system



Sprinkling irrigation system

Living Water Supply



Living Water Supply in Guatemala (2015)



Solar array



Solar pumping inverter



Project completion

Drinking Water Supply in Philippines (2014)



Solar array installed
on top of water tower



Solar pumping inverter



Getting the water



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