

SOLAROPIA

INNOVATIONS IN SOLAR PUMPING TECHNOLOGY

SOLAR RO COMPACT PLANTS



WORLD'S FIRST COMPLETE OFF-GRID SOLAR RO PLANTS

IDEAL WATER SOLUTION FOR RURAL VILLAGES AND POPULATED COMPUNDS

SOLAR RO PLANTS UP TO 25,000 GALLONS (100 M³) PER DAY FROM ANY SOURCE

COMPACT SOLAR RO PLANTS

SOLAROPIA S-RO-C SYSTEMS offer compact heavy duty industrial grade RO plants that operate totally with solar power. Models are available to supply potable water from 2,500 to 25,000 GPD (10,000 to 100,000 liters per day) from ground brackish wells and polluted saline surface water. The plants are offered as complete package ready-to-install and operate within few days. S-RO-C solar plants are ideal for Rural villages, schools, oil fields, and populated compounds. It is designed to operate in harsh environment with very low maintenance.



Mobile Plant



Skid mounted plant



Containerized Plant

MAIN FEATURES

- Operate OFF-Grid in Rural Areas and in Hybrid Solar-AC in Urban areas.
- Models for various source water TDS ranging from 2500 to 10000 PPM
- Supplied with solar feed pumps from deep-wells' up to 1000' (300m) , and solar surface pumps.
- Uses Micro –Ultrafiltration pretreatment for surface salty water prior to RO processing
- Almost maintenance free – designed to operate in desert and rural villages operating conditions
- Economic – reduces RO system operating cost by 75% compared with grid or diesel co-plant power
- Easy to operate- all automated with touch screen user friendly operator council.
- Advanced protection technologies (over pressure, surge power, Dry Run, soft start, and many others functions).
- Embeds advanced pretreatment technologies to protect RO membranes
- UV post treatment stage to supply absolutely bacteria free fresh water
- CAG sweetening for high-quality taste fresh water

ADVANCED SOLAR RO PUMPING TECHNOLOGY



S-RO-C PLANTS benefits from SOLAROPIA new SPI (Solar Inverter-VFD) technology capable of operating high-pressure RO and feed pumps directly from solar PV arrays- without grid and without battery bank. SPI-RO is the world's first solar-VFD that operate high pressure RO pumps with solar power at pressure from 150 to 1000psi (to treat source water at TDS from 2500 to 45000).

GROUND WATER PLANTS S-RO-CG CLASS

S-RO-CG class is designated for ground brackish water and is supplied with solar deep-well pump up to 1500'(500m) head. The plant reference with the required pump head is provided below



SURFACE WATER PLANTS

S-RO-CS CLASS

S-RO-CS class combine two plants in one: preliminary Micro and Ultrafiltration stage and the secondary RO plant . It is designated polluted salted surface water in rural villages, to supply potable water for populated compound and for small industrial recycle plants



SOLAR HANDLES 100% DAILY PLANT PRODUCTION

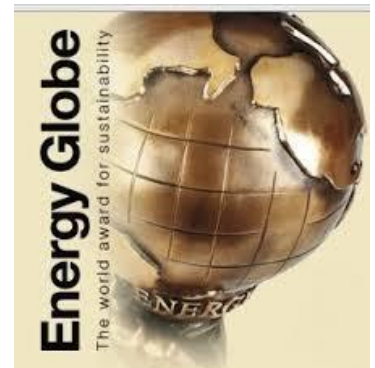
S-RO-C systems have a great economic advantage – it uses solar power to produce 130% of plant daily production capacity during most of the year. In short day seasons, the plant will supply 100% of the designed capacity.



THE S-RO-C PLANT ECONOMY

RO plants are energy intensive -the production of 15000 GPD (about 60 m3, or 60,000 liters) consumes in average 100 KWh per day. This power represents about 80% of the plant total operating cost. S-RO-C will reduce this cost dramatically by about 50% or more making RO water plants affordable and economic water solution for villages, and populated compounds.

The cost and saving data for 15000 (60m3/day) production is provided below for comparison between the operating cost of S-RO power (average ¢8 per KWh), diesel co-plant power (average ¢25 per KWh), and Utility grid power cost (average ¢18 per KWh). The operating cost is provided for 15 years (S- RO solar plants operate for 15 years minimum and 25 years average). S-RO-C is by 70% lower cost than diesel operated plants, and by 55% lower than grid power operated RO plants.



AWARD WINNING PLANTS FOR 2014
800 S-RO C plants deployed worldwide

Plant Power Source	Operating Cost (\$USD) (for 15 years)*	Saving in Operating Cost (\$USD) (15 years)
Diesel Co-Plant Power	\$135,000	\$0
Utility Grid Power	\$100,000	\$375,000
S-RO Solar Plant	\$45,000	\$90,000

* The cost is calculated based on 100KW/day , 8 hours/day for 15 years .

SOLAR RO PLANT MODELS

S-ROC PLANTS are classified based on capacity per day, and the TDS of the source water classified in four grades: L- 2500 TDS , M:5000 TDS, H: 7500 TDS and V: 10,000 TDS. The table below lists all available RO plant models.

Capacity Per day (CPD)		TDS (PPM)			
Gallons	M ³ /day	2500 PPM	5000 PPM	7500 PPM	10000 PPM
		"L-Series"	"M Series"	"H Series"	"V Series"
2,500	10	S-RO-CX-1L	S-RO-CX -1M	S-RO-CX-1H	S-RO-CX-1V
7,500	30	S-RO-CX-3L	S-RO -CX-3M	S-RO-CX-3H	S-RO-CX-3V
12,500	50	S-RO-CX-5L	S-RO-CX--5M	S-RO-CX-5H	S-RO-CX-5V
25,000	100	S-RO-CX-10L	S-RO-CX--10M	S-RO-CX-10H	S-RO-CX-10V

PLANT MOUNTING REFERENCE

S-RO-C systems are offered in three options of plant mounting



M: Mobile Plant



S : Skid based plant



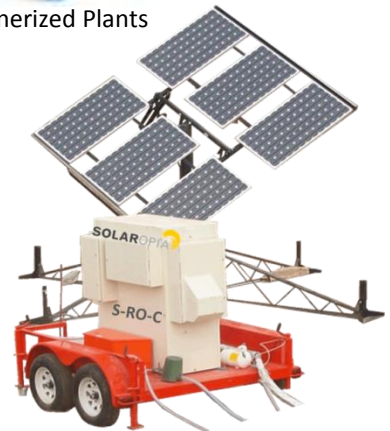
C : Containerized Plants

IMPLEMENTATION SUPPORT

SOLAROPIA Offers services to support S-RO plants:

PAC1: Package for solar installers

PAC2: Full service package (install, commission and train local operators) for organizations and water agencies.



PLANTS ORDERING REFERENCE

S-RO-CG CLASS (GROUND WATER)

S-RO-CG	C	T	H	M
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Plant Capacity: 1,3,5,10

TDS : L,M,H,V

Well-Head(Feet , m)

Mounting: M, S, C

S-RO-CS CLASS (SURFACE WATER)

S-RO-CS	C	T	M
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Plant Capacity: 1,3,5,10

TDS : L,M,H,V

Mounting: M, S, C

