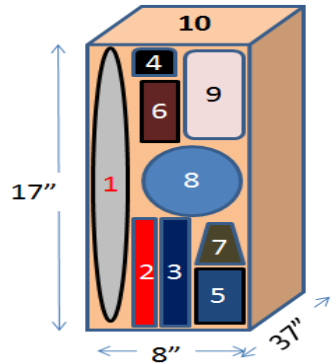


# Reverse Osmosis by Solar Thermal Energy Concentration (ROSTEC) System



## Desirable Features:

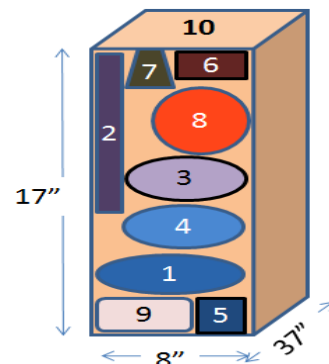
- 1) Total cost of system: **\$3000/KW**
- 2) Shippable packages by IATA Baggage Standard
- 3) Foldable Simpler Assembly Design and Scalable
- 4) Solar heat used as high pressure for Reverse Osmosis (RO) process.
- 5) Safety and energy is managed by smart electronics



**Table 1: Description of the block of components**

Block #	Block Name	Description
1	TMP	Trough Mirror Pair
2	CHC	Convection-Heat Controller
3	TSA	Trough Structure Assembly
4	TEC	Thermal Energy Collector
5	SSP	Small Solar Panel
6	MWD	Microcontroller and Wi-Fi Data
7	DES	Data and Energy Storage
8	SWA	System Wheels Assembly
9	TAC	Trough Assembly Connectors
10	TPB	Trough Portable Box

**Trough System**

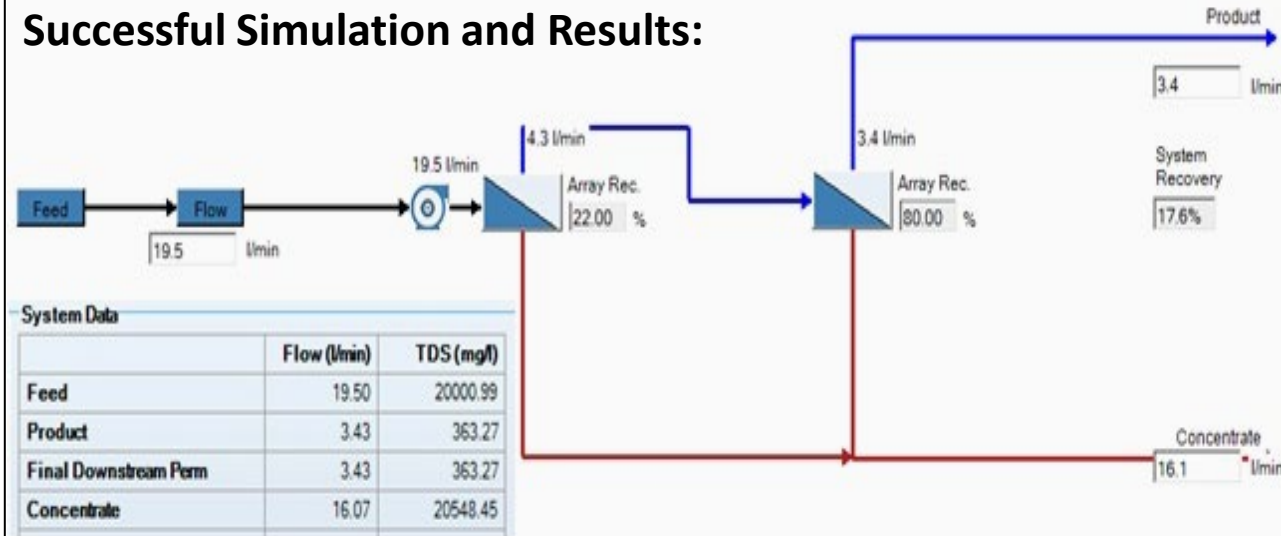


**Table 2: Description of the block of components**

Block #	Block Name	Description
1	SWT	Saline Water tank
2	SPT	System Pressure Tubes
3	CRP	Chamber #2: Retract Pressure
4	CWF	Chmber #3: Water Feed
5	SEC	Sensor Electronic Controls
6	PSR	Pressure Safety Release
7	EVS	e-Valve Sets: 1-6
8	CRO	Chamber #1: Reverse Osmosis
9	SAC	System Assembly Connectors
10	DPB	Desalination Portable Box

**Reverse Osmosis System**

## Successful Simulation and Results:



Input	Feed	Feed	Output 1	Permeate 1	Feed	Output 2	Permeate 2	Daily
Feed	pressure 1	flow 1	TDS	(=Feed flow	Pressure 2	TDS	(l/m)	Production
TDS	(psi)	(l/m)		2)	(psi)			@ 4h
				(l/m)				(l)
20000	150	19.2	2676	4.26	113	476	3.6	864
Recovery@1 (%): 22.2					Recovery@2 (%): 85			(222.24g)



**ROSTEC's LCOE: \$3000/KW**  
**Also The ROI: 11 Years Only!**