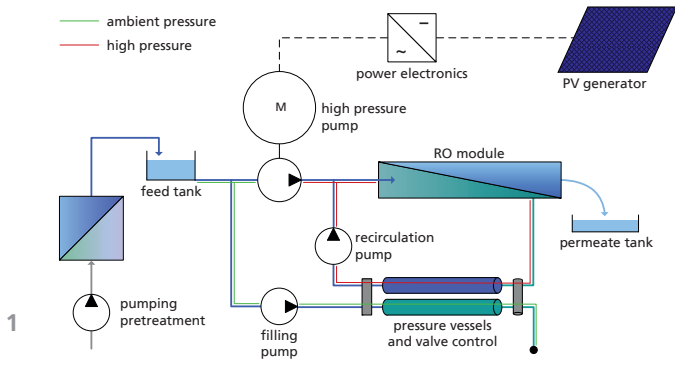




FRAUNHOFER WATER SYSTEMS ALLIANCE (SYSWASSER)



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1 RO-concept with a new type of high pressure pump and an energy recovery system with pressure exchanger.

2 Water supply and disinfection in Morocco.

REVERSE OSMOSIS POWERED BY PHOTOVOLTAIC

Fraunhofer Water Systems Alliance (SysWasser)

Speaker: Prof. Dr. Walter Trösch
Phone +49 711 970-4220
Fax +49 711 970-4200
walter.troesch@igb.fraunhofer.de
www.syswasser.de

Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB

Nobelstraße 12, 70569 Stuttgart
Branch office: Dr. Dieter Bryniok
Phone +49 711 970-4211
Fax +49 711 970-4200
dieter.bryniok@igb.fraunhofer.de

Contact person:

Fraunhofer Institute for Solar Energy Systems ISE

Dipl.-Ing. Joachim Went
Phone +49 761 4588-5240
Fax +49 761 4588-9217
joachim.went@ise.fraunhofer.de

Because of the growing drinking water scarcity in many countries the demand of sea and brackish water desalination systems is increasing. This is also indicating a huge market potential for small autonomous desalination plants.

Fraunhofer Institute for Solar Energy Systems ISE we develop the next generation of photovoltaic driven seawater desalination systems based on reverse osmosis. The new generation runs without batteries. PV-generator and desalination process are coupled directly.

In a current development project we realize innovative concepts to increase the energetic efficiency. With our plants of the planned sizes it will be possible to:

- Supply 2 to 200 people with desalinated water living in remote areas every day.

- Realize efficient and economic systems with a daily output of 100 to 10 000 liter.

These are the system properties we set for our research objectives for the new solar powered reverse osmosis process:

- Advantage in terms of lifetime and maintenance over standard plants,
- Competitiveness of the levelized water costs with local water prices,
- Dynamic operation aligned to the momentary solar irradiation,
- Innovative hydraulic components to increase the efficiency for small scale installations.

The dynamic operation and the use of innovative concepts for energy recovery mean particularly big challenges but also represent a great chance for future PV driven desalination systems.