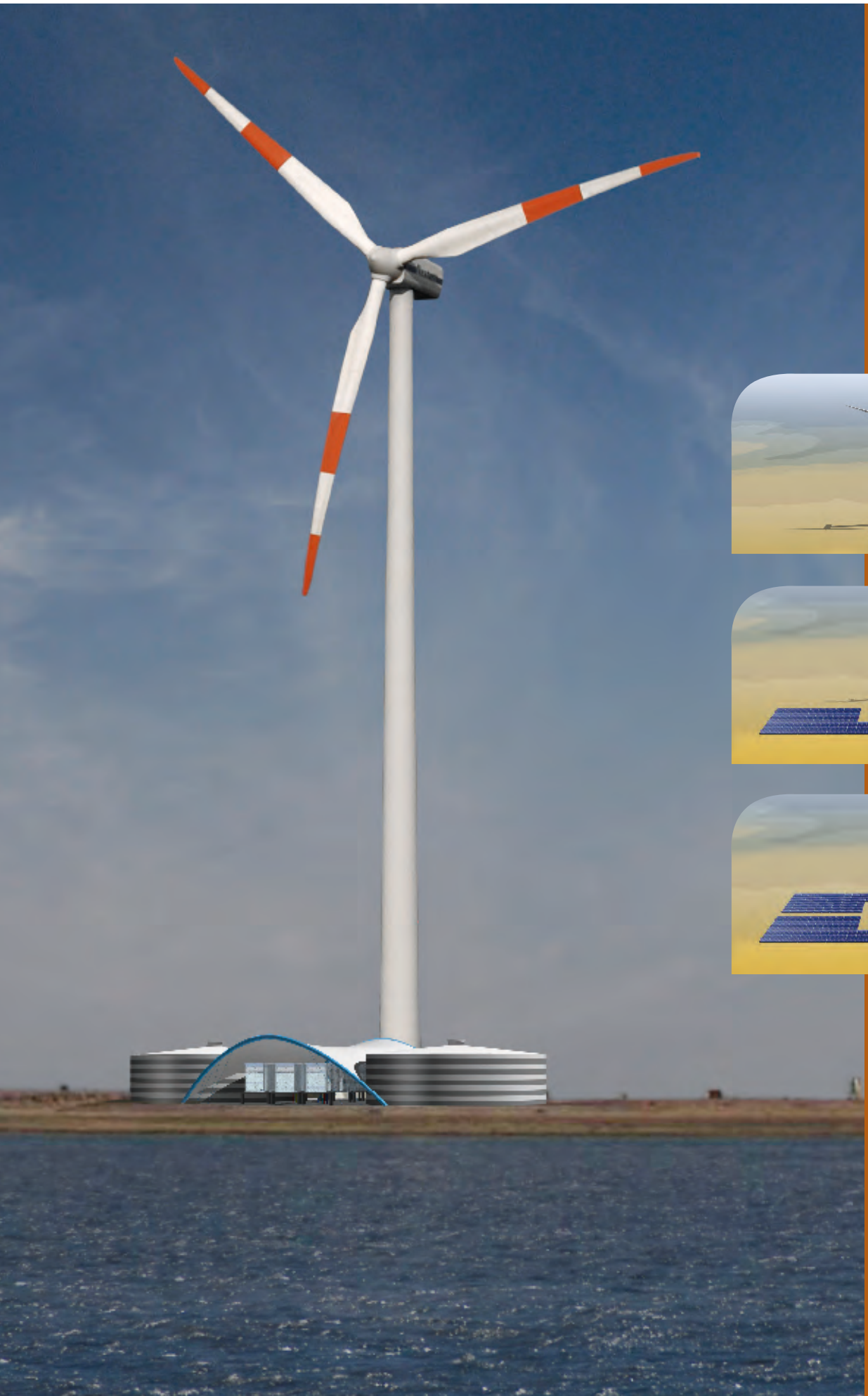
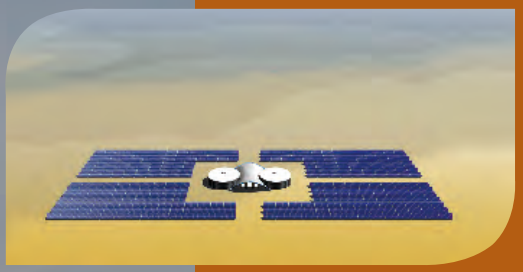
SYNWATER®

desalination by renewables

200





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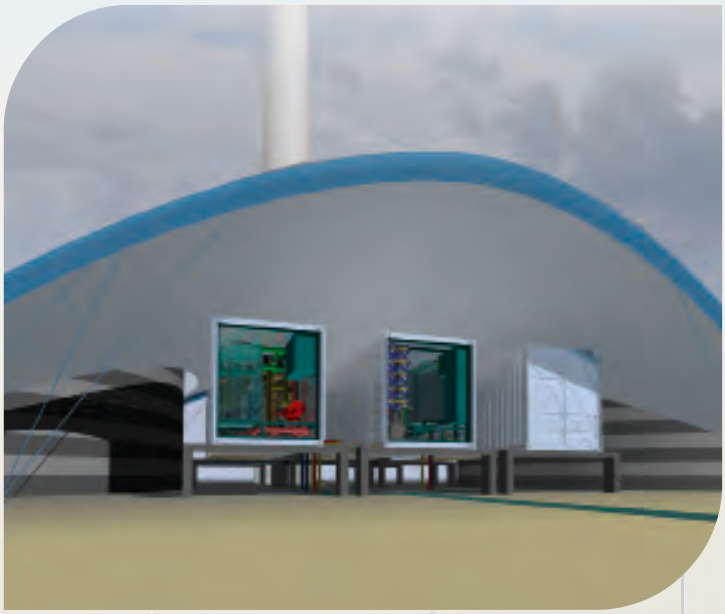
SYNWATER®

wind & solar powered desalination

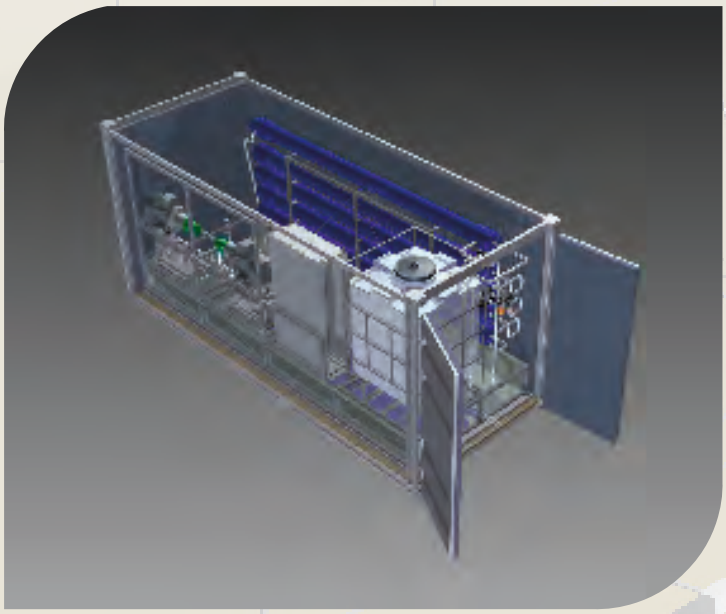


SYNWATER® *200* Kernel System

SYNWATER® systems are grid-connected seawater desalination (RO) plants significantly powered by project integrated wind and/or solar (PV) power. Embedded within the project-specific pre- and post-processing facilities the Kernel System is the heart of each SYNWATER® plant and provides the following features:

- *Flexible operation:* controllable between 50% and 200 % related to the module capacity designed for continuous long-term production (100%) with high variability,
- *Save operation:* the variability of flux is guarded and limited by two independent automatic monitoring routines,
- *Autonomous operation:* full automation of normal operation, flushing and cleaning procedures of RO and UF, semi-automation for safe manual service and maintenance purposes,
- *Controlled operation:* local as well as remote control, monitoring and fault diagnosis,

Kernel Systems include both the *Filtration and Reverse Osmosis* stage and are available as container or in-house option and also as brackishwater application.



SYNWATER® *200* Filtration stage

Automatic backwash filter: screens down to 100 µm mesh size, 99 % recovery,

Ultrafiltration:	
Element type:	hollow-fiber,
Membrane:	polyethersulfone, pore size 20 nm,
Configuration:	3 trains with 4 elements,
Capacity:	according to the RO demand, maximum net 40 m³/h,
Dosing system:	for backwash and cleaning agents,
Coagulant dosing:	in pre-treatment stage,
Supply pump:	centrifugal, with variable frequency drive,
Filtrate buffer tank:	4 m³,

Alternative filtration technologies available.

SYNWATER® *200* Reverse Osmosis stage

Capacity:	200 m³/d (continuous operation), 100 to 400 m³/d (variable/temporary operation),
Element type:	spiral-wound,
Membrane:	Thin-Film-Composite - high rejection,
First Pass:	4 vessels each with 4 x 8" seawater membranes,
Second Pass:	1 vessel with 2 x 8" brackish water membranes,
Permeate reservoir:	1,5 m³ for suck-back, permeate flushing and RO-cleaning
High-pressure pump:	option A: centrifugal pump, option B: positive-displacement pump,
Energy recovery:	option C: hydraulic turbo charger, option D: pressure exchanger,

All pumps equipped with variable frequency drives.

Status: 05/2017