

RENEWABLE ENERGY SOURCES FOR DESALINATION

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Desalination units driven by RES, such as those driven by solar and wind energy, guarantee friendly to the environment, cost effective and energy efficient production of desalinated water in regions with no electric grid, severe water problems, which nevertheless are fortunate to have renewable energy resources.

There are a number of possible combinations of desalination processes with different RE sources as it is shown in Table 1. Several desalination RES plants have been installed, most of them for demonstration projects and were consequently of small capacity. Most of the applications referred to the combination of photovoltaics with reverse osmosis technology.

Table 1. RES Desalination combinations

RFS	MSF	MFD	VC	RO	FD
WEC			√	√	
PV				√	√
Solar collectors	√	√			
Geothermal	√	√			

The matching of the desalination process to a RE source is not very simple mainly because desalination process is best suited to continuous operation. The majority of the renewable energy sources is distinctly non-continuous and is in fact intermittent often on a diurnal basis. Unpredictable and non-steady power input, force the desalination unit to operate in non-optimal conditions and this may cause operational problems.

In the present work several desalination plants driven by RES are presented. Technical descriptions, cost data and lesson learnt are also mentioned. Several ideas and recommendations are discussed.