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Abstract

Renewable energy sources (RES) coupled to desalination offers a promising prospect for covering the fundamental needs of power and water in remote regions, where connection to the public electrical grid is either not cost effective or not feasible, and where the water scarcity is severe. Stand-alone systems for electricity supply in isolated locations are now proven technologies. Correct matching of stand-alone power supply desalination systems has been recognized as being crucial if the system is to provide a satisfactory supply of power and water at a reasonable cost. The paper covers plants installed since 1990 on the coupling of the two technologies. The main driver promoting the take up of this technology is that water is a limiting factor for many countries in the Mediterranean region. This paper presents the two technologies, RES desalination, and describes the most promising couplings such as PV-reverse osmosis, wind-mechanical-vapor compression, geothermal-multieffect distillation, etc as well as technologies selection guidelines. Also, included applications and lessons learned from specific applications as well as data on the economics. RES for desalination is an important challenge and useful work has been done. However in order to provide practical viable plants, much remains to be done.

Keywords

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