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# Uninterrupted eight-year operation of the autonomous solar photovoltaic reverse osmosis system in Ksar Ghilène (Tunisia)

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**ABSTRACT**

Ksar Ghilène is a 300 inhabitant isolated village located in the Sahara desert at the South of Tunisia and belonging to the region of Kébili. Due to the particular location of this site, there was no local fresh water source before 2006 and this community had been depending on the external water supply, transported by trucks. The 10.5 kWp PV-powered RO desalination system (based on the international patent DESSOL®) with a nominal water capacity of 50 $m^3$/d was commissioned in June 2006 and currently in operation. The whole project was developed by Instituto Tecnológico de Canarias within the framework of the Spanish–Tunisian cooperation, thanks to the economic support of the Spanish cooperation and the Canary Islands cooperation. This paper presents and assesses the operation data and lessons learnt with the whole system for the period 2006–2013.

Keywords: Autonomous desalination; Solar photovoltaic energy; Isolated village; Operation data assessment

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