

Alcazar Energy Partners I Case Studies

Preserving valuable water resources



We are committed to prioritising the responsible management of natural resources, in particular optimizing cleaning strategies for the minimization of water usage of our solar photovoltaic assets

Water is a scarce and valuable resource in Jordan and Egypt. Our AEP-I assets were located in areas characterised by arid and hot climates in desert landscapes with limited quality and quantity of water supply. Agriculture is however one of the main sources of income locally and as such water management is of significant importance to local communities. We developed and implemented project-specific water management plans and we monitored water consumption as well as water withdrawal by volume and source across all our wind and solar PV plants. Ultimately, our aim is to ensure that water usage from our activities does not negatively impact the environment or people's livelihoods.

As an example, our solar PV plants in Egypt were cleaned on a continuous cycle with no water usage (favored by the dry climatic conditions). This was particularly beneficial taking into consideration the potential cumulative effect that the operation of a solar park of such magnitude, with over 1,400 MW of installed capacity, could pose on water resources locally. Even so the traceability of water supply for general and sanitary use was ensured through a GPS tracking system for water tankers.



Dry-cleaning of modules at AEP-I's solar PV plants in Benban Solar Park with a BP Solar Cleaner F3500 C-AP



Manual wet cleaning of modules at AEP-I's solar PV plant in Ma'an First Solar Park with hand-held water brush

Our approach in Ma'an Solar PV Plant

Our solar PV plant in Ma'an First Solar Park required a higher use of water for the cleaning of solar PV modules when compared to our plants in Benban. This was due to module soiling (i.e. dust particles accumulated on the surface of the solar PV panels) and climatic conditions such as precipitation and humidity typical of the south of Jordan.

The source of water was the Mahabi water well, an 'artisan' water well licensed by the Ma'an Water Authority, under the Ministry of Water. The fact that the well was licensed and controlled was critical to ensure that the abstraction limits were respected but also to prevent the depletion of the aquifer.

Since Alcazar Energy took over the in-house O&M of the plant in October 2019, the cleaning strategy was improved, alongside with the performance of the plant, and the average annual water usage per MWh generated was reduced by over 12%. Plans were also in place to further optimize the cleaning strategy particularly during the drier months of the year when dry-cleaning methods proved more efficient.