

## DESALINATION FROM WIND IN MILOS ISLAND

Milos island, Cyclades, is one of the many places in the Aegean Sea with water deficiency, mainly during the summer and the touristic period. The desalination plant constructed by ITA SA in 2008 using wind energy and modern reverse osmosis technology, has been proven as an ideal solution both for the environment and the quality of life.

Desalination unit of present nominal capacity 2.000 m<sup>3</sup>/day and 3.000 m<sup>3</sup>/day from 2011 and on, located at the old betonies' mine at "Vouno Triovassalou" on the island of Milos.

The project consists of the following units:

- Reverse osmosis desalination unit.
- Potable water storage Tanks of 3.000 m<sup>3</sup> capacity.
- Transfer pipeline for potable water from R.O. Unit to the Storage Tanks.
- 600 kW Wind Turbine to supply the Project with Renewable Energy.
- SCADA to balance the Operation of the units according to the electrical load of the island of Milos and the operating status of the thermal plant (Public Power Corporation).

The Project is designed to cover the steeply increasing needs for potable water on the island, supplying high quality water to comply with the highest standards on a 24 hour basis, at a remarkably lower cost than the present.

High quality potable water produced on the island signifies not only a more autonomous future against supplies from mainland, but an even more considerable improvement to the quality of life for the inhabitants and the visitors. The RO unit production allows now Milos to swift from local brackish water and ship deliveries to what is in mainland considered as a standard: high quality fresh water.

Furthermore, the autonomy of the island is not only enhanced through the cease of ship water deliveries, but also through the cease of fuel shipments. By introducing an additional wind turbine to the already existent wind park, the Project relieves the thermal substation of the obligation to burn additional fuel so as to cover the electricity needs of the desalination unit. On a yearly basis, the new wind turbine introduced is designed to supersede the energy needs the RO unit shall have. It thus improves the performance of the electrical system of Milos, introducing more renewable energy to it, energy which derives from the most well known renewable source, the wind.

While the implementation of the Project great care was given to leave the local landscape unaffected, by merging smoothly the new structures and equipment to the surrounding area. At the same time, the RO unit was designed in such a way that the most common, soft, soluble and friendly to the environment chemicals were used, taking great care to leave the sea environment unaffected. The overall Project design, implementation and operation are concurred by the goal of the highest possible environmental performance.