

Case Study

ISRAEL ELECTRIC CORPORATION

CITY: N/A

COUNTRY: Israel

SOLUTION TYPE: Waste-to-Energy

TECHNOLOGY USED: WWT/EFC Reactor



Challenges

The Israel Electric Company (IEC) decided to convert a series of its inland power stations for the use of natural gas. As part of this conversion, IEC required high quality demineralized water (10 Mohm/cm), used to generate steam for high-pressure boilers.

Solution

After being selected through an international tender process by IEC, Nirosoft designed, manufactured and supplied containerized Ultrapure Water Systems (UWS) for IEC's combined cycle power stations. The compact design allows for ease of onsite installation and ongoing operation and maintenance, while still meeting all of IEC's demanding engineering standards.

System Description

The treatment process implemented in all of the systems to achieve the required UPW quality includes:

- Media pre-filtration for removal of residual turbidity and suspended solids present in the raw water including alum dosing and pre-chlorination
- Activated carbon filtration for removal of organic material and dechlorination
- Chemical pre-treatment including pH adjustment and antiscalant dosing
- 5 micron cartridge filtration

- First pass reverse osmosis (RO)
- Second pass RO — brine returned to RO 1 feed
- Gas transfer membranes (GTM) for removal of CO₂ from the RO permeate
- Electrodeionization (EDI) to achieve the required quality of 10 Mohm/cm in the demineralized water delivered to the power station

Containerized System Enables Fast Installation
 Each system is built into two high-cube 40 ft. containers to allow simple and quick installation at the site:

- Container 1: Media pre-filtration, activated carbon, chemical pre-treatment, and 5 micron cartridge filtration.
- Container 2: Skid-mounted double-pass RO (with integral CIP unit), GTM membranes, skid-mounted EDI with power supply, electrical and control panels, and HMI computer station.
- More than 15 demineralized water production modules will have been supplied during the period 2006-2011.



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