Case Study

Power Industry

4.8 MLD Ultra-Pure Water Plant for Power Generation



Eskom

Problem Statement

In thermal power generation, water quality is critical to plant reliability and asset protection. Even trace levels of dissolved salts, silica, hardness, or organic contaminants can lead to scaling, corrosion, fouling, and steam purity issues within high-pressure boiler systems. Eskom required a 4.8 MLD demineralised water treatment plant to consistently produce ultra-pure water for the power generation process.

Solution

Watericon designed, built, installed and commissioned a treatment solution capable of transforming raw feed water into ultra-pure demineralised water suitable for high-pressure boiler and turbine applications, while maintaining stable operational performance under demanding industrial conditions. The treatment train includes:

- **Media filtration for the removal of suspended solids and larger particulates**
- **Ultrafiltration (UF) membranes to remove fine particulates, bacteria, and colloidal matter**
- **Double-pass Reverse Osmosis (RO) to significantly reduce dissolved salts and conductivity**
- **Electrodeionisation (EDI) polishing to achieve ultra-low ion concentrations at ppb levels**

Performance target

- Ultrapurewater

Process

- Media filtration
- Ultra-filtration
- Double pass RO
- Electrodeionisation

Result

The plant produces consistently high-purity demineralised water, critical for boiler and turbine infrastructure