Condensate polishing is used in power plants, designed to meet the challenge of purifying very large quantities of condensate. During steam generation, the condensate that recycles as boiler feed water consist low levels of dissolved minerals and suspended matter. Prior to re-use, the condensate must be polished to remove the impurities that reduce the efficiency of thermal cycle and degrade metal components.

Using a condensate polisher prolongs the service lives of equipment by reducing the rate of corrosion. Condensate polishing translates to operation savings through the conservation of water and energy.

The most common ion exchange system used in condensate polishing is the mixed bed system, where the cation and anion resins are mixed together in a single compartment. This process produces high quality demineralised water whereby ion leakage from the resins is quickly removed. In separate bed systems, the resins are separated into different compartments in their respective vessels. Separate bed systems are the favourable choice for high pressure and nuclear power plant boilers.
Boustead Salcon was awarded with a multi-million dollar contract to design, engineer and construct demineralisation water treatment system for the 800MW power plant. This plant is located in Banyan, Jurong Island and has a condensate polisher of capacity 7,920 m3/day.

**Multi-Utilities Facility**

**Thermal Power Plant**

The 2 x 660 MW thermal power plant located in Kazakhstan, consist of supercritical boilers with designed pressure at 47 bar(g). Boustead Salcon scope of supply includes 2 x 20,640 m3/day condensate polishing units each capable to treat 50% of the total design flow of the entire plant.

**Fertilizer Plant**

This fertilizer plant is located in Nigeria, Africa. The condensate polisher unit with mixed bed technology has a capacity of producing 11,000 m3/day.

Boustead Salcon designed and supplied two condensate polishing units for a 2 x 800 MW ultra critical coal-fired power plant located in Kaohsiung, Taiwan. Each unit treats a condensate flow of 35,568 m3/day.

**Biomass Combined Cycle Power Plant**

As a team effort, Boustead Salcon and Boustead Projects delivered a 2 x 6,000 m3/day condensate polishing system for the 60 MW biomass-clean coal plant located at Tembusu, Jurong Island.