

Yanbu 3 – Saudi Arabia

Dual fuel (heavy fuel oil and gas)
-fired steam power plant

A dual fuel-fired supercritical power plant will add 2.7 GW of clean, high-efficiency power to the Saudi grid and provide steam to a new desalination plant.

Alstom has been awarded a contract to supply equipment for the Yanbu 3 power and desalination power plant located 40 km south of Yanbu' Al-Bahr, on the Red Sea coast in the western part of the Kingdom of Saudi Arabia. The equipment will be supplied to the Al-Toukhi Company for Industry, & Contracting that is leading the consortium and is in charge of the engineering, procurement and construction (EPC) of the plant for the Saline Water Conversion Corporation (SWCC), one of the leading power and water utilities in the region.

Yanbu 3 will be one of the country's first supercritical power plants to run on heavy fuel oil. It was even upgraded to burn gas too. Alstom's part in the contract includes the basic engineering of the power block, advisory services during detailed engineering and procurement, supervision services during construction and commissioning, and delivery of 5 identical units, each including the boiler, steam turbine and generator and air quality control systems as an Integrated Power Package (i.PP), for 5 x 620 MW (gross) units.

Once completed, the plant will provide 2.7 GW of clean and high-efficiency power to the Saudi grid and 550,000 m³/d of fresh water, thanks to Alstom's market-leading supercritical technology combined with our ability to integrate equipment into complete and complex power projects. It will feed the grid in the western part of the country where the cities of Jeddah, Yanbu and the holy cities Mecca and Madinah are located. The balance power and extracted steam will be fed into the associated new Yanbu desalination plant that will be a key supplier of water to the city of Madinah.

Electric power demand in Saudi Arabia has increased tremendously in the last two decades in line with the country's growing population and booming economy. The Industry & Electricity Ministry estimates that the Kingdom will need an additional 30 GW of power generating capacity by 2020 as power demand grows by 4.5% or more each year.

Customer: Al-Toukhi Company for Industry, Trading & Contracting and ACWA Holding

Scope of supply: Basic engineering of the power block, advisory services during detailed engineering and procurement, supervision services during construction and commissioning, delivery of main equipment

Electrical output: 2,700 MW

Fuel: Heavy fuel oil and natural gas

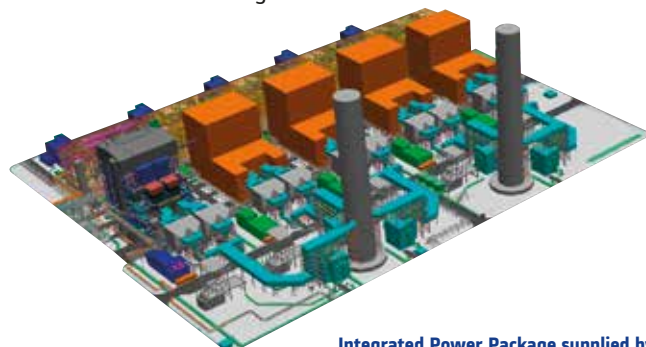
Cooling System: Open seawater cooling system

Application: Power generation and desalination

CUSTOMER BENEFITS

- High flexibility, efficiency and reliability
- Alstom's experience as an EPC contractor
- Environmentally friendly

With its environmental and economic advantages, this plant is another example of Alstom's capability to deliver clean integrated power solutions.



Integrated Power Package supplied by Alstom

PROJECT FEATURES

The Yanbu 3 project benefits from the superior integration resulting from Alstom's project management skills, and state-of-the-art key components:

- 5 STF60 steam turbines with axial exhaust for flexible, high-efficiency operation
- 5 supercritical dual fuel (heavy fuel oil and gas) -fired boilers, highly reliable and efficient in operation, delivering an outstanding environmental performance
- 5 TOPGAS turbogenerators with excellent reliability and availability
- Electrostatic precipitators and seawater flue gas desulphurization system for environmental friendliness
- Steam extraction for desalination

CLEAN POWER, CLEAR SOLUTIONS™

Alstom helps you meet the challenges of energy sustainability. Our power generation offering is based on a deep understanding of power markets and our customers' needs. It is organised around three levers to maximise the return on assets over their entire lifecycle.

- Reducing the cost of electricity
- Lowering the environmental footprint
- Increasing flexibility & reliability.

Alstom has equipped over 20% of Saudi Arabia's installed power generation base. Its steam turbine technology also features in Shoaiba, the region's biggest power plant and aptly called the "Giant of the Middle East", and more recently at Shuqaiq.

Its environmental control systems in operation at projects like Rabigh IPP, Shoaiba 3 and Yanbu 2 are enabling the country to reduce power plant emissions.

Alstom is the world leader in supercritical and ultra-supercritical steam power plant technology and has already supplied or has under construction over 36 GW capacity globally, including projects in South Africa, Germany, Poland, Malaysia and China.



CLEAN POWER CLEAR SOLUTIONS™

**INCREASING
FLEXIBILITY & RELIABILITY**



**Reliable steam extraction
for 100% desalinated water,
in all operation modes**

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