

Tashkent, Uzbekistan

**370 MW**



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First HRSG with a brand new technology: bent serrated fins

## Project Description

The owner of the Tashkent power plant, Uzbekenergo, the state power industry of Uzbekistan, awarded a contract for the construction of a 370 MW Combined Cycle Power Plant to a consortium of two companies, Synecta (Czech Republic) and SNC Lavallin (Poland). The gas and steam turbines as well as the HRSG were then awarded to GE Energy (Belfort, France).

## The Contract

In 2013, GE Energy entrusted John Cockerill Energy with the order for one horizontal HRSG triple pressure plus reheat (with hot reheat and HP intermediate attemperators), natural circulation, to be installed behind a GE 9FA gas turbine in a 1-1-1 Combined Cycle Power Plant on the site of Tashkent.

This is the first HRSG with bent serrated fins on the heat exchanger tubes. This brand new technology provides better efficiency to the heat exchange by increasing the gas flow turbulences through the heat exchanger finned tubes.

The Tashkent project was challenging. John Cockerill Energy had to supply an outdoor boiler for extreme cold ambient temperature down to -30°C without HRSG enclosure. The boiler is "winterized" through a classical heat tracing of the critical lines and conservation procedures particularly adapted and designed for this project among which a HP sparging steam which will keep the boiler duct warm during stand still.

In order to supply its boiler in Uzbekistan, John Cockerill Energy had to be U-Gost certified, an Uzbek certification that allows to deliver equipment in Uzbekistan. John Cockerill has obtained the Uzbek certification through an audit and a detailed document review led by UZ Standart (the certification organism of Uzbekistan). John Cockerill Energy is therefore a favored HRSG supplier in Uzbekistan. Moreover John Cockerill worked closely with GE in order to allow the end customer to get the Permit to Use as electricity producer and operator of the power plant.

A remarkable and particular feature of the Tashkent HRSG resides in its triple certification, which is a first time experience for John Cockerill. Indeed all pressure parts are simultaneously CE marked as per PED (97/23/EC), ASME stamped and U-Gost certified.

## Plant Operation

The Tashkent combined cycle is foreseen for base load operation. The HRSG is also equipped with a district heating network located in the LP economizer recirculation pumps circuit.

## Gas Turbine

- GE 9FA
- Fuel : natural gas

## Heat Recovery Steam Generator

- 1 horizontal John Cockerill HRSG
- 3 pressure levels + reheat
- Natural circulation
- Bent serrated fins
- 2x100% LP economizer recirculation pumps
- Hot reheat and HP intermediate attemperators
- HP sparging steam
- District heating
- Triple certification : ASME stamped, CE marked as per PED, GOST-U

## Performances

GAS	°C	kg/s	
Inlet	600.6	624.8	
Outlet	80.1	624.8	
STEAM	°C	barA	t/h
HP	568	107	262.7
IP	308	24	45
LP	290	3.9	45.6
Reheater	566.4	20.9	290

## Schedule

- Notice To Proceed March 2013

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