

CASE STUDY

AYBIGE HEPP, Kastamonu, Turkey



KEY STATISTICS

Customer: Yek Enerji Elektrik Uretim A.S.

Turbine Type: Vertical 6 Jet Pelton

Number of Turbines: 1

Power: 6.54 MW

Net Head: 199.6 m

Flow: 3.706 m³/s

Runner Dia: 1100 mm

Speed: 500 rpm

SCOPE OF SUPPLY

Gilkes vertical 6 jet Pelton turbine model 1100PZ115 6J

Penstock connection pipe

Turbine main inlet valve (MIV)

MIV automatic pressure equalising bypass

Generator bearing cooling water system

Hydraulic Pressure Unit (HPU) for turbine, MIV, MIV bypass and generator brake

Delivery to the project site

Supervision of installation, commissioning and testing

The Aybige HEPP was developed by a Turkish private joint venture to generate power under the Turkish government FIT system. All power is exported to the Turkish national grid.

The project is located in the northern black sea region of Turkey, near the town of Kastamonu. The site is situated in a steep sided valley at an altitude of 730 m.a.s.l., which provided a number of challenges during the construction and installation period due to heavy snowfall. The project went online in April 2017.

The customer chose to supply the generator and the balance of electrical plant themselves working in close cooperation with Gilkes' Engineering team in the UK who ensured that all turbine-generator interfaces were correct.

Gilkes provided a detailed control philosophy identifying all equipment devices and instrumentation along with a commissioning procedure that allowed the customers electrical contractor to design their PLC control system correctly. Gilkes' commissioning engineers worked closely with the control system supplier to develop the control philosophy and PLC programme during final start-up and testing at the project site and took the lead in getting the plant online.

The contract for the supply of the M&E equipment was awarded to Gilkes Elektromekanik San. Ve Tic. A.S., a joint venture company between Gilkes in the UK and Marbeyaz Makina Sanayi A.S. in Turkey.

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The joint venture company was set up in January 2015 to focus on supplying hydroelectric equipment packages in Turkey and neighbouring countries with the aim of manufacturing and procuring all equipment in Turkey to take advantage of the Turkish government FIT incentives for products manufactured in Turkey. All tendering, design, supervision of assembly, installation, commissioning, start up and testing is provided by the UK team with Gilkes Elektromekanik overseeing the manufacture of the turbine by its partner Marbeyaz and the sourcing of ancillary plant defined by Gilkes from the Turkish market

Gilkes Elektromekanik is one of the first companies in Turkey to have been accredited by the TSE with certification for local manufacture to allow the project owner to be eligible the FIT incentive



Intake pool with Coander screen intake cleaner



Power canal to high pressure penstock



Completed installation



Completed installation