



▲ View onto HPP San Pedro II from upstream

San Pedro II

Start of extension work in Spain

In June 2013 ANDRITZ HYDRO signed a contract with IBERDROLA, one of the biggest privately owned multinational electric utilities in Spain, for the supply of engineering, manufacturing, delivery and the supervision of the erection of one bulb turbine and its generator.

HPP San Pedro is located in the north-western part of Spain in the municipality of Nogueira de Ramuín (Ourense) on the river Sil.

The tender for this power plant extension was awarded to ANDRITZ HYDRO in 2008, although IBERDROLA did not have the approval of the Spanish authorities at that time. In 2011 IBERDROLA awarded the contract for the design of the turbine and generator to ANDRITZ HYDRO and enable them to complete the detailed civil engineering made by others and to shorten the implementation period after the contract start. In 2013, after IBERDROLA gained all necessary approvals from the Spanish authorities, the work for the extension of the plant was released.

The existing hydropower plant, constructed 60 years ago, is equipped with

two vertical Kaplan units with a capacity of 32 MW in total. Recently IBERDROLA completed the extension of HPP San Esteban, located upstream of HPP San Pedro. In order to balance the flow of the river Sil and to keep the water level within the required range between the two power plants, the capacity of HPP San Pedro had to be increased as well.

The extension of the power plant is a completely independent construction from the existing installation. It will increase the capacity by 25 MW, produced by one horizontal bulb unit.

The new plant is entirely subterranean and has been arranged between the existing underground power plant and the dam. The limited space has substantially influenced the design of the new power plant. A blind penstock takes the water to the turbine located 85 m off the intake. Due to the installation of a bulb unit the overall dimensions of the power house and its excavation could be kept small. Nonetheless, the conditions mean that the overall arrangement of this new power plant being not typical for a bulb turbine. This is why IBERDROLA conducted intensive

studies to optimize the inflow, the penstock profile and the concept of the downstream channel to ensure hydraulically favorable and acceptable flow conditions for the turbine.

The extension of HPP San Pedro II is expected to be completed in June 2016.

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TECHNICAL DATA

Output: 23.25 MW / 26 MVA

Voltage: 15 kV

Head: 17 m

Speed: 136.4 rpm

Runner diameter: 4,500 mm

