Peru

Renewable Energy for an Emerging Country

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The expanding Peruvian economy is one of the more active ones in the South American region. A combination of economic modernization, natural resource abundance and continued improvements in economic governance and political stability make Peru one of the most promising energy markets in Latin America.

ANDRITZ HYDRO in Peru

ANDRITZ HYDRO has a long history in Peru, with the first equipment deliveries for HPP Caxias I and II taking place back in 1913. Since then ANDRITZ HYDRO has installed and rehabilitated more than 110 units in the country, with a total output of about 3,400 MW. Some 15 years ago ANDRITZ HYDRO decided to establish a permanent office in the Peruvian capital Lima.

Machu Picchu

HPP Santa Teresa: In 2011, Luz del Sur, one of the leading power utilities in Peru, awarded ANDRITZ HYDRO a contract for the supply and installation of electro-mechanical equipment for the Santa Teresa run-of-river hydropower plant, 15 km downstream from the famous archeological site of Machu Picchu. ANDRITZ HYDRO supplied two 59 MW Francis turbines, main inlet valves, generators, electrical accessory, and automation equipment as well as the powerhouse crane. The hydropower plant was successfully put into operation by the end of 2015.

HPP Huanza: HPP Huanza uses the waters of the rivers Pallca and Conay and supplies electrical power to the Buenaventura mines. The project was developed by the Peruvian miners' subsidiary Empresa de Generación Huanza. Shortly after installation in 2013, the runners showed strong cavitation and had to be replaced. ANDRITZ HYDRO won a contract for the supply of three new MICROGUSS* Pelton runners. Commissioning of the first unit has taken place in September 2015. In March 2016, the other two runners were successfully delivered. ▶

Installation works at HPP El Carmen

HPP Cerro del Águila: For the major new hydropower plant Cerro del Águila, about 470 km east of Lima, ANDRITZ HYDRO received a contract from Consorcio Río Mantaro in 2011 for manufacturing, delivery, and installation of the electro-mechanical equipment, including three large 171 MW Francis units. In 2012, ANDRITZ HYDRO also won a contract for a "from water-to-wire" package for the additional small hydropower plant next to the main dam. All units will be completed in 2016.

HPP El Carmen and HPP 8 De Agosto: Generadora Andina, with Consorcio 8 de Agosto as the EPC contractor, developed these two small hydropower projects. For HPP El Carmen ANDRITZ HYDRO will supply two vertical, six-jet Pelton turbines with an output of 4.4 MW each, main inlet valves, and the hydraulic pressure units. The scope of supply for HPP 8 de Agosto comprises two 10.6 MW horizontal Francis turbines, main inlet valves, and the hydraulic pressure units. Commissioning of both projects will take place in the first half of 2016.

HPP Rucuy: Developed by Empresa Administradora Chungar SAC, HPP Rucuy uses the waters of the River Chancay about 160 km north of the capital Lima. The contractual scope for ANDRITZ HYDRO includes two horizontal, two-jets Pelton turbines with an output of 10 MW each, main inlet valves, and the hydraulic pressure units. Commissioning is expected in the first half of 2016.

HPP Gallito Ciego: The Gallito Ciego hydropower plant, owned by Statkraft Peru, is located in the Jequetepeque Valley north of Lima. ANDRITZ HYDRO won a contract for the complete mechanical rehabilitation of one turbine, including a new runner, covers, a new shaft, wicket gates, links, levers, coupling bolts, installation supervision, and commissioning, which is scheduled for October 2016.

HPP Huinco and HPP Matucana: The hydropower plants Huinco and Matucana are owned by EDEGEL, a company of the Enel Group, and are situated on the rivers Santa Eulalia and Rimac, respectively. After more than 40 years of continuous operation the rehabilitation of two generators at HPP Huinco and of one generator at HPP Matucana was necessary. The scope of the contract for ANDRITZ HYDRO comprises a new coil and rotor shaft for HPP Huinco and a new stator for HPP Matucana, as well as installation, supervision, electrical tests, and commissioning. The works on site will be carried out between 2017 and 2019.

All these projects confirm and consolidate the leading position of ANDRITZ HYDRO in the promising hydropower market of Peru. ■

TECHNICAL DATA

Santa Teresa	
Output	2 × 58.84 MW
Head	178.38 m
Speed	360 rpm
Runner diameter	1,985 mm
Huanza	
Output	3 × 46.3 MW
Head	654 m
Speed	600 rpm
Runner diameter	1,740 mm
Cerro del Águila	
Large Hydro unit:	
Output	3 × 171 MW
Head	277.7 m
Speed	300 rpm
Runner diameter	2,623 mm
Compact Hydro unit:	
Output	1 × 5.38 MW
Head	60 m
Speed	514.3 rpm
Runner diameter	1,121.8 mm
El Carmen	
Output	2 × 4.4 MW
Head	228 m
Speed	720 rpm
Runner diameter	820 mm
8 de Agosto	
Output	2 × 10.6 MW
Head	128 m
Speed	720 rpm
Runner diameter	1,006 mm
Rucuy	
Output	2 × 10 MW
Head	666 m
Speed	900 rpm
Runner diameter	1,130 mm
Gallito Ciego	
Output	2 × 17 MW
Head	83 m
Speed	400 rpm
Runner diameter	1,550 mm
Huinco	
Output	85 MVA
Voltage	12.5 kV
Speed	514 rpm
Runner diameter	3,000 mm
Matucana	
Output	80 MVA
Voltage	12.5 kV
Speed	450 rpm
Runner diameter	3,400 mm