CHICHI NANAN AND SHIZHUN, TAIWAN

Pushing renewable energy

Following orders for two hydropower plants in 2019, EPC-contractor Nan Dao Engineering has awarded a contract for a further 13 small turbines at seven different locations in Taiwan to ANDRITZ Hydro. As with the earlier projects, Chichi Nanan 2 and Hoshan, the hydropower stations will be added to an existing dam and irrigation canal and will thus help to boost renewable energy in Taiwan.

Six of the seven new power stations will be equipped with a total of 12 bevel gear Bulb turbines with runner diameters of 1,770 mm and 2,150 mm. One of the projects, the Shizhun power station, will be equipped with one vertical Compact Francis turbine with a runner diameter of 1,245 mm. The Bulb turbine sites are located mainly in central Taiwan while the Francis turbine is near the capital Taipei.

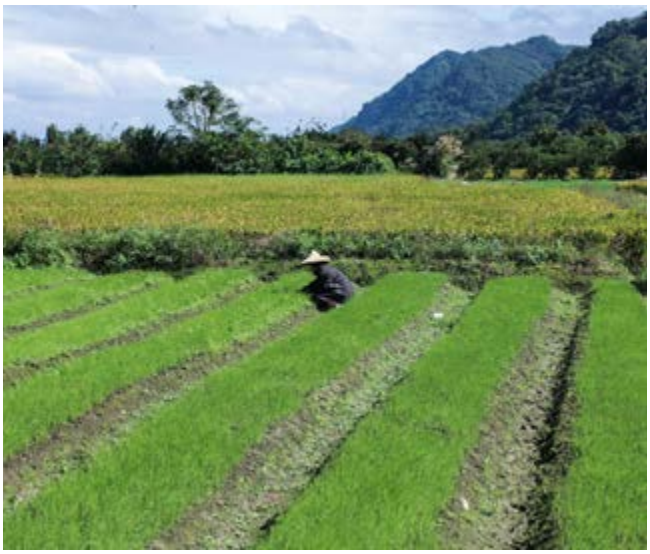
The delivery of the first main turbine components is scheduled for the third quarter of 2021.

Taiwan has become a very interesting market for hydro and especially small hydro over recent years as the government has set ambitious targets to increase the share of renewable energy.

The trust the customers place in ANDRITZ Hydro is proven with these follow-up contracts. ANDRITZ Hydro is proud to be a part of the positive development of renewable energy in Taiwan.

SUSTAINABLE ENERGY OUT OF URBAN INFRASTRUCTURE

Existing irrigation canals and drinking water reservoirs in urban areas can be effectively used for the generation of electricity. Using small hydropower plants developed by ANDRITZ Hydro, this water may be harnessed to generate electrical energy. The units can be applied in any number of diverse locations. The only requirement is an economically viable combination of head and flow. By using this electrical energy local communities can be supplied with power and thousands of tonnes of CO_2 emissions can be saved over time.



TECHNICAL DETAILS

Shizhun:
Total output: 4.64 MW
Scope output: 1 × 4.64 MW
Head: 42.3 m
Speed: 450 rpm
Runner diameter: 1,245 mm

Chichi Nanan 1:
Total output: 3.2 MW
Scope output: 2 × 1.61 MW
Head: 7.9 m
Speed: 250 rpm
Runner diameter: 1,770 mm

Chichi Nanan 3:
Total output: 1.6 MW
Scope output: 2 × 0.8 MW
Head: 4 m
Speed: 171 rpm
Runner diameter: 2,150 mm

Chichi Nanan 4:
Total output: 1.94 MW
Scope output: 2 × 0.97 MW
Head: 4.7 m
Speed: 182 rpm
Runner diameter: 2,150 mm

Chichi Nanan 9:
Total output: 1.68 MW
Scope output: 2 × 0.84 MW
Head: 4.1 m
Speed: 171 rpm
Runner diameter: 2,150 mm

Chichi Nanan 10:
Total output: 1.72 MW
Scope output: 2 × 0.86 MW
Head: 4.2 m
Speed: 171 rpm
Runner diameter: 2,150 mm

Chichi Nanan 11:
Total output: 1.76 MW
Scope output: 2 × 0.88 MW
Head: 4.3 m
Speed: 171 rpm
Runner diameter: 2,150 mm

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SCHILS, SWITZERLAND

Renewal and energy optimization

ANDRITZ Hydro was awarded a contract for the complete electro-mechanical equipment for the Schils hydropower plant in the Flums Valley in St. Gallen, Switzerland.

In 2014, SAK (St. Gallisch-Appenzellische Kraftwerke AG) acquired the historic hydroelectric power plants of the former spinning mill Spoerry & Co. AG. As part of the acquisition, EW Schils AG, part of SAK, committed to rehabilitate the existing facilities in accordance with existing laws and the implementation of several environmental measures. After thorough evaluation and discussions, a very interesting project was developed. The plant, which today consists of five control centers and eight machine groups, will be reduced to one control center with two machine groups (2 MW Aeuli and 12 MW Bruggwiti).

Besides the two Pelton turbines, the scope of supply for ANDRITZ Hydro comprises the delivery and installation of the complete control system, the heating and ventilation equipment, the electrical installation, and the powerhouse crane system.

The new center is SAK's first project fully based on BIM (Building Information Modeling). This means that the entire project will be engineered as a 3D-model down to the smallest details before project execution starts. The goal of BIM is to discover possible engineering conflicts at an early stage and to coordinate interfaces between the various companies involved as efficiently as possible. The progress of the construction works on site can also be followed via a live webcam from SAK.

Rehabilitation of the plant will increase the total annual energy production by about 20% from 39 GWh to 48 GWh. As a result, about 2,000 additional households will be supplied with renewable electricity.

Construction works were completed on time and installation of the powerhouse equipment is due to be finished by the end of 2020. Currently, wet commissioning tests are taking place and readiness for operation is scheduled for the end of the first quarter of 2021.

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TECHNICAL DETAILS

Total output: 14 MW
Voltage: 6.3 kV
Bruggwiti:
Scope: 1 × 11.87 MW
Head: 469 m
Speed: 750 rpm
Runner diameter: 1,195 mm
Aeuli:
Scope: 1 × 2.13 MW
Head: 342 m
Speed: 1000 rpm
Runner diameter: 755 mm