

# Wei Tuo

The world first two-blade bulb units in successful operation in China

**A**NDRITZ HYDRO China has successfully commissioned two twin-bladed units for HPP Wei Tuo in southwest China.

The new design concept was well engineered and implemented and the units are now running with smooth operation and are fully meeting the customer's expectations. So far, this is the first and the only hydropower plant in the world with a two-blade units operation.

HPP Wei Tuo is located approximately 23 km upstream from the confluence of the Fu Jiang River, the Jia Ling Jiang River and the Qu Jiang River and is also a famous scenic spot – the Fishing City. The Fishing City is a historic site known for fighting against the invasion from the Mongolian Empire and thus a famously heroic city which achieved feats of war in ancient times.

In 2005, in order to improve the navigation condition and water transportation capacity, Cao Jie navigation and electricity junction project (Cao Jie project), which is located 26 km downstream of the confluence of the these three rivers, was launched.

With the completion of the Cao Jie project, HPP Wei Tuo faced the fate of abandonment in the year 2011, as the head was reduced from 10 m to 3.4 m. In early 2009, ANDRITZ HYDRO China offered a two-blade bulb solution. In December 2009, ANDRITZ HYDRO China was awarded a contract for a two-blade turbine model test and the supply of two new runner blades and hub covers for refurbishment of two four-blade units in order to adapt to the head change. By merely changing the four-blade runner to a two-blade runner, the unit is designed for an output of



▲ Commission of first two-blade runner

3.56 MW at a head of 3.4 m and an annual utilization of 5,771 hours. The main challenge in that project was the design, the delivery and the implementation costs of the two new blades and the covers for the remaining two holes.

In addition, the finishing of the manufacturing of all blades supplied was completed by ANDRITZ FOSHAN by a team with comprehensive qualities and high levels of expertise. Thanks to their and high levels of efforts the high quality products were delivered perfectly on time.

With the final completion and overall smooth operation of this project ANDRITZ HYDRO has again strengthened its leading position as a supplier of hydroelectric equipment for hydropower plants. The project management team wants to thank all those col-

leagues who have provided their utmost engagement in order to reach this complete success.

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#### TECHNICAL DATA

Output: 2 x 3.56 MW
Head (max.): 5.3 m
Speed: 93.75 rpm
Runner diameter: 5,300 mm

