Hydropower from VERBUND

Modernisation and revitalisation of hydropower plants on the example of HPP Pernegg

Fit for the Energy Future

with us as your Partner

Your hydropower plant has gotten long in the tooth? The water rights are soon to be expired? A number of legal, economic and technical details need to be taken into account during the modernisation and revitalisation of small hydropower plants. You can rely on the decades of expertise of VERBUND. We are taking over the entire project organisation from the analysis of the current state to the conception and planning up to the operation of the modernised plant.

Our services

- Condition assessment of plants including metrological acquisition and analysis of the current state (reference measurement)
- Preliminary/variation study for the conceptualisation of the technically/economically ideal implementation variant with following goals:
  - Least possible interference into the existing system
  - Reduction of the conversion time and thereby the machine downtime
  - Extension of the revision intervals
  - Improvement of the machine reliability, output enhancement
- Creation of submission documents
- Handling of the tendering and awarding procedure
- Construction and assembly of the plant components also during the further operation of the existing plant
- Commissioning of single crafts through to the entire system
- Operation and maintenance

We make sure that processes are smooth, from the analysis of the current state to the conception and planning process up to the operation

Picture: HPP Pernegg

Low-head diversion hydropower plant Pernegg
The HPP Pernegg was erected in the years 1925 to 1928 as a low-head diversion hydropower plant and was the largest hydropower plant along the river Mur at the time. In order to achieve the re-issuing of the water rights the plant was updated to the latest technological standards in the years 2014 and 2015. Since the power plant is under monumental protection, construction matters were not to change the cubature as far as possible, thus creating an extraordinary challenge. Through switching from Francis turbines to Kaplan turbines, the power output of the plant was increased significantly. Massive ecological enhancements in structure in the reservoir as well as in the sidearm and the headrace could be achieved thanks to the revitalisation measures.

Commissioning: 1928
Expansions: 1995 – 1996 (weir turbine and fish ladder)
Modernisation and revitalisation: 2014 – 2015

Top left:
Powerhouse during construction, intake structure

Centre:
Powerhouse during construction, view from the underwater

Top right:
Machine hall after refurbishment

	1928	2015
Turbines	Voith	Voith
Turbine type	3 Francis turbines	3 Kaplan turbines
Rated power output	6 MW	8 MW
Generation	105 GWh	115 GWh
Commissioning	1927	2011 to 2013
Nominal speed	150 min^{-1}	200 min^{-1}
Hydraulic head $H_{nominal}$	16,9 m	14 – 19 m
Nominal flow	45 m^3/s	53 m^3/s
Backwater	Increase to the six fold of the initial backwater	
Maintenance intervals	4 years	9 years

VERBUND is Austria's leading electricity company and one of the largest producers of electricity from hydropower in Europe. For 70 years we have been co-shaping the future of energy for upcoming generations, at the moment we are operating more than 120 hydropower plants in Austria and Bavaria (Germany).

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