



AUSTRIA

AT THE HEART OF EUROPE

Austria is ranked as one of the richest countries in the world with a strong economy showing GDP growth of 2.9% in 2017. The country is very well developed and characterized by a high level of industrialization. It features a large service sector, a solid industrial sector, and a small but highly developed agricultural sector. International tourism is also among the most important businesses for the country.

With more than 3,000 plants in operation, Austria has one of the most developed hydropower industries in Europe. A total installed hydropower capacity about 14.1 GW represents about 56% of the national total. Of this, some 5.7 GW are run-of-river and 8.4 GW are pumped storage plants. Only about 160 plants, some 5%, have a capacity larger than 10 MW but they nonetheless provide around 86% of total hydropower generation.

The estimated technical and economic hydropower potential is about 56.1 TWh, 75% of which has already been exploited. According to the Austrian Electricity Strategy – Empowering Austria – another 6 to 8 TWh could be developed by 2030 to meet steadily increasing power demand.

Furthermore, a new energy strategy, known as #mission-2030, stipulates that 100% of Austria's electricity is to be derived from renewable sources by 2030. Implementing this policy will require an additional 30,000 GWh annually. As a result, an additional 10,500 MW of solar PV, 4,500 MW of wind and 1,500 MW of hydropower capacity are anticipated. However, the growth of renewable energy resources is causing grid fluctuations, leading to high grid loads and bottlenecks. This is posing a major challenge for Austria. Expansion and strengthening of the transmission grid is required alongside more responsive reserve power capacity.

About 100 MW of hydropower capacity are under construction and there are also some interesting future projects planned. These include the 900 MW extension of the Sellrain-Silz hydropower plant and the 180 MW Kühtai 2 plant in Tyrol. But not only large hydropower plants are in the planning stage. There are a number of interesting opportunities for small hydropower as well, especially in the western part of the country. Through to 2025 there are about 48 hydropower projects under development to meet Austria's ambitious targets.

ANDRITZ HYDRO IN AUSTRIA

The 1892 founding of the manufacturing facility in Weiz, Styria, marks the start of our company's on-going story. Since then we have supplied or rehabilitated about 14,000 MW of hydropower capacity in Austria alone. Throughout our history we have been involved in all the country's major hydropower projects. The Risseck-Kreuzeck-Malta-Group, Kaprun, Silz, Kops, and Kaunertal are all impressive references. Every one of the run-of-river plants on the Danube – Freudenau, Aschach, Greifenstein, Ybbs-Persenbeug, and Melk for instance – use ANDRITZ equipment as do numerous other projects on all the major rivers in Austria. Large engineered pumps complete our portfolio. Our competence is shown through our supply

of a storage pump for the Innerfragant pumped storage plant in Carinthia, one of the most prestigious pump projects to date.

GRAZ-PUNTIGAM, STYRIA

The contract for this new hydropower plant comprises the supply of two Bulb turbines of 8.85 MW each. In addition, turbine governors, generators, excitation and control system also form part of the supply contract. Commissioning is planned for the first half of 2019.

YBBS-PERSENBEUG, LOWER AUSTRIA

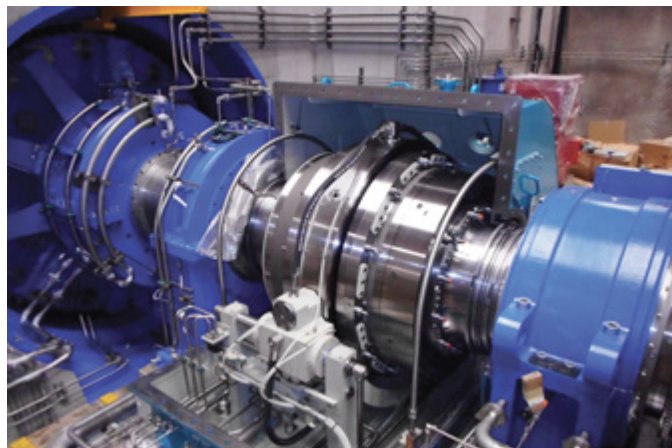
“Project Ybbs 2020” is a program of extensive refurbishment for Austria’s oldest run-of-river power plant on the Danube, Ybbs-Persenbeug. The objective is to achieve an increased output with an additional 77 GWh of clean, sustainable electricity anticipated annually post-rehabilitation. As part of this program ANDRITZ has received a contract for the refurbishment of six vertical Kaplan units, to be commissioned sequentially through to 2020.

OBERVERMUNTWERK II, VORARLBERG

This underground power plant is providing Austria with peak power to improve grid stability and additional bulk energy storage capacity. ANDRITZ received a contract for the supply of two Francis turbines with accessories, including design, manufacturing, transport, installation, and commissioning. Commissioning of the units took place in June and September 2018, respectively.

TRAUNLEITEN, UPPER AUSTRIA

At Traunleiten an existing hydropower station will be replaced with a completely new plant. The project is targeting



Oschenik 1, Innerfragant, Carinthia

an 80% increase in power output with a hydroelectric power production of 91 GWh annually. ANDRITZ was awarded a contract for the delivery of the two Compact Bulb turbines and auxiliaries. Completion is scheduled for November 2019.

GENERAL FACTS

Population: **8,82 Mio.**
 Access to electricity: **100%**
 Installed hydro capacity: **14,130 MW**
 Hydro capacity under construction: **106 MW**
 Share of generation from hydropower: **57%**
 Hydro generation per year: **38,540 GWh**
 Technically feasible hydro generation potential: **56,000 GWh**

ANDRITZ HYDRO IN THE COUNTRY

Installed and/or rehabilitated capacity: **13,947 MW**
 Installed and/or rehabilitated units: **712**
 Locations: **Vienna (Headquarters), Weiz, Graz, Linz**

TO KNOW

Ybbs-Persenbeug, Danube, Lower Austria

