

# Switzerland

The Wetterhorn mountain rises above the lake called the Bachsee in the Bernese Alps near Grindelwald, Switzerland.

Hydropower is the leading source of renewable energy, supplying the world with about one-fifth of its electricity. It is clean, leaves behind no waste and neither emits pollutants nor significant amounts of harmful greenhouse gases. The Andritz Hydro Power Business Area has provided hydropower plants with modern equipment and extensive services for more than 160 years.

A man with grey hair and glasses, wearing a dark blue suit, a light blue shirt, and a red tie, stands in a snowy mountain landscape. He is holding a dark jacket over his left shoulder and looking off to the side. The background shows snow-covered mountains and a clear sky.

**“ANDRITZ VA TECH  
HYDRO MET ALL  
THE CHALLENGING  
TARGETS WE SET  
FOR THEM.”**

Karl Heiz, President of Rätia Energie, Switzerland



**In the spring of 2006, the Küblis hydropower station, Switzerland, resumed operation after a one-year rebuild period. Andritz VA TECH HYDRO's supply included two machine groups with Pelton turbines and generators as well as the control system and auxiliary equipment.**

**(Photo: The new 22.8 MW vertical double-jet Pelton machine groups are seen on both sides of the glass control cubicle.)**

# CLEAN POWER FROM WATER

## Interview with Karl Heiz

President of Rätia Energie, Switzerland

**Rätia Energie (RE) is a major Swiss electricity company founded in 1904. It has been building up a strong position in the renewable energy segment for several years. RE operates several hydroelectric power plants, holds shares or long-term drawing rights at other facilities, and is building new production capacity in Italy. Karl Heiz, President of the company, talks about renewable energy and Andritz's role as a key supplier.**

### Personal background

I graduated from the Swiss Federal Institute of Technology with a degree in physics and I also hold an MBA. I joined Rätia Energie in 1987 as its Chief Executive Officer after a successful international career with Nestlé. I am a member of the executive committee of the federation of Swiss electricity enterprises (VSE).

### Balanced and integrated approach

RE has a balanced and integrated approach to the energy value chain. We started as a power generation company and soon built transmission lines, which gave us access to the Swiss and the international transmission grids. Distribution came later through acquisitions in Switzerland and Italy. While distribution is a relatively low-risk and low-growth business (at least in Switzerland where market liberalization is less advanced than in the EU), international trading offers us good growth opportunities. Key success factors for both distribution and trade are a secure proportion of generation capacity and access to the transmission and distribution grids. Environmental compatibility is always an important aspect of our projects. Several of our plants are ecologically certified as a result of different measures we have taken.

### Current trends

Energy consumption will continuously increase. Energy generation will be predominantly dependent on fossil fuels; however, renewable energy will become more and more important. Efforts to reduce CO<sub>2</sub> emissions will be intensified.

With market liberalization making progress all over Europe, price became the main issue for all customers and security of supply was taken for granted. Today, consumers consider security of supply and sustainability as the main challenges. We also have observed an increased demand for ecologically certified power. Both of these factors speak in favor of hydropower.

### Hydroelectric power development

Hydro is, by far, the most important source of renewable power, both in terms of quantity and ecological value. Despite the fact that investment costs of a new hydropower plant are extremely high, we believe that the long-term economic prospects remain good. Pumped-storage plants, in particular, are uniquely suited for generating power when demand for electricity is high and for supplying reserve capacity to renewable, fossil-fueled and nuclear plants. The production of renewable energy should be encouraged and expanded. Existing plants should be maintained and refurbished.

### Renovating the Küblis station

The Küblis station is located in the Graubünden canton in eastern Switzerland. It started operation in 1922 with three 8-MW three-phase groups, one 2.9-MW single-phase group, and two 8.5-MW single-phase groups. The facility was granted an 80-year license when it went into operation.

After lengthy negotiations, we were able to secure a new 80-year license in 2005. We set about to replace the outdated machinery. Our technical goals were to produce 175 GWh of electricity each year with two machine groups. We wanted fully automatic and autonomous operation of each machine group with high availability.

We also were constrained by architectural goals. The power station, and particularly the machinery hall, at Küblis are considered to be of historical value. When the renovation began, it was a big challenge to ensure that technical and safety requirements were met while preserving the historical building.

### Andritz VA TECH HYDRO

Through its predecessor companies, Andritz VA TECH HYDRO has supplied machinery to Rätia Energie since

the 1930's. This business relationship has lasted for several generations.

When selecting potential suppliers, we look at the company (R&D, experience, locations, size, etc.) and we evaluate the quality assurance systems. We look to see how the supplier has improved its products over the years, as well as the competence of its people. In addition, a solid financial base is absolutely necessary for larger projects.

Andritz VA TECH HYDRO scores very well in all these areas. We chose them for the Küblis project. Their scope included the supply, erection, and start-up of the turbines, governors, and turbine shut-off devices, as well as the synchronous generators and their excitation equipment.

### Performance

When the contract was signed with Andritz VA TECH HYDRO in March 2004, we agreed to shut down the Küblis station on March 29, 2005, dismantle the old machines, lay new foundations, and install the equipment so that trial operations for Group 1 could begin on December 24, 2005 and for Group 2 on February 13, 2006. Andritz VA TECH HYDRO met the start and finish dates exactly on schedule.

The machines have been in operation for almost one year now and meet the challenging targets and requirements with regards to efficiency, reliability, availability, and maintenance to our full satisfaction.

New legislation stipulates that we maintain a minimum water flow for water catchments, which means that the total quantity of water that can be utilized for power generation has been reduced. Thanks to the higher efficiency of the new Andritz VA TECH HYDRO machines, we can partly compensate for this loss of available water volume.

I am very impressed with the willingness of Andritz VA TECH HYDRO to meet future challenges using research, development, and innovation. Their forward-thinking provides us with solutions which meet the needs of our markets. ■