

*State-of-the-Art control system for municipal energy supply with zenon*

# Stadtwerke Feldkirch: Secure Power Supply via IIoT

The municipal utility company Stadtwerke Feldkirch supplies Austria's westernmost city with power from renewable energy sources. The company is making its supply more secure by using a centralized process control system based on the zenon software platform and providing data for maintenance using zenon IIoT Services.



One of the basic needs of people in industrialized countries is to be able to draw electricity from the socket at any time. The ubiquity of this need and the dependability of supply means power is easily taken for granted – yet consumers might be surprised to learn of the unexpected sources behind their service.

## ENERGY FROM RENEWABLE SOURCES

The residents of Austria's westernmost city count on Stadtwerke Feldkirch to supply high-quality drinking water, inner-city mobility, reliable and fast Internet, and a state-of-the-art electrical installations. Since 1906, the utility company has played an important role in generating energy from renewable resources and supplying the city with clean energy.

The municipal energy utility operates three river and two drinking water power plants, as well as several biomass and photovoltaic facilities. Stadtwerke Feldkirch is connected to the supra-regional high-voltage grid via two substations. With its extensive medium-voltage and low-voltage grid, it supplies the city's households and businesses with electrical energy.

## SUPPLY SECURITY AND CONVENIENCE

The Stadtwerke Feldkirch utilities company reports less than one minute of power outages per year. With its power plants, it generates around 60 million kWh annually. Thus, it meets a considerable part of Feldkirch's energy consumption. Even in the event of a nationwide grid failure, the power plants can maintain an emergency supply in isolated operation.



*The zenon software platform supports Stadtwerke Feldkirch in ensuring that its power plants run more reliably, more smoothly, and more transparently.*



*Stadtwerke Feldkirch carried out the software migration from SICAM 230 to zenon in minimal time using only its own employees.*

Stadtwerke Feldkirch can therefore ensure a functioning drinking water supply even in case of a Europe-wide blackout.

### STANDARDIZATION WITH ZENON

The power plants are connected via a centralized process control system that has been installed on a virtual server since 2012. It can be accessed from the control center in Stadtwerke Feldkirch's operations center and, for authorized employees, from any computer workstation in the company or remotely via VPN connection.

Stadtwerke Feldkirch has been using the SICAM® 230 control system software in the Hochwuhr hydroelectric power plant since it went into operation in 2003. Until recently, it was also used to run the control center at the corporate headquarters. Since the core of the software is the zenon software platform from COPA-DATA, it made sense to switch to zenon when SICAM 230 was discontinued by its original vendor a few years ago.

### SOFTWARE MIGRATION IN RECORD TIME

The in-house engineers were familiar with the SICAM 230 engineering environment. This and the option to use unmodified legacy scripts enabled the company to carry out the software migration in minimal time using only its own employees.

„Including all simulation and tests, two employees spent around two weeks migrating to zenon,“ explains Bernhard Koch, head of process control engineering at Stadtwerke Feldkirch. „The fast, professional support provided by COPA-DATA, without language barriers, was very helpful.“

### LOCATION-INDEPENDENT MAINTENANCE

The process engineering department developed a smartphone app a few years ago to allow mobile access to equipment and plant data. This enables staff to work flexibly and independently of location when performing maintenance activities on equipment. For this purpose, the data is transferred to an external server using a program developed internally.

„The colleague who created the app had extensive programming knowledge. When he left the company, we saw the disadvantage this dependency created for us,“ recalls Bernhard Koch. „We therefore went in search of a commercially available alternative that was maintained professionally by the manufacturer.“

### STRENGTHENING RESILIENCE WITH ZENON IIOT

The utility company strengthened its resilience with zenon IIoT services. The cloud-based solution enables smart machines and devices to exchange data easily and securely via the Industrial Internet of Things (IIoT). Software-as-a-Service (SaaS) is a functional enhancement of zenon. Components were designed from the drawing board up for integrative and networked configuration and use.

All components of zenon IIoT services are connected via the central Service Hub. As a communication hub, this controls the end-to-end data exchange between all network and endpoints. It also serves as the connection between the local level and the cloud. All communication is encrypted using access data and a digital certificate. This means that information can be



“It’s good when you can rely on a system that is serviced and updated continually by the manufacturer. In case of modifications or enhancements, zenon makes us less dependent on the availability of highly qualified software developers.”

**BERNHARD KOCH, HEAD OF PROCESS CONTROL ENGINEERING,  
STADTWERKE FELDKIRCH**

transmitted securely over public networks. No ports have to be activated on the system side for data transmission. IT departments are often reluctant to do this, with good reason.

## SETTING PARAMETERS MAKES YOU INDEPENDENT

Stadtwerke Feldkirch used the open-source IoT platform ThingsBoard to create the cloud-based user interface. It was connected to zenon IIoT Services installed on an in-house virtual server via the Representational State Transfer (REST) application programming interface (API). Information is shared via the API with a browser application available to Stadtwerke customers so they can access information over the Internet about their electricity usage.

Stadtwerke employees use a proprietary mobile app. This allows them to access data securely while on the go and quickly decide whether work is required onsite. As a result, personnel can be deployed effectively for maintenance activities.

Like everything with zenon, configuring IIoT Services does not require any programming knowledge. The engineering is carried out exclusively by setting parameters. Stadtwerke employees developed this versatile solution in just one week to enable them to work from home during the COVID-19 pandemic. „It’s good when you can rely on a system that is serviced and updated continually by the manufacturer,” states Bernhard Koch. „In case of modifications or enhancements, zenon’s principle of ‚engineering through parameters’ makes us less dependent on the availability of highly qualified software developers.”

### HIGHLIGHTS:

zenon and zenon IIoT Services as process control system and cloud-based database for the power plants of Stadtwerke Feldkirch:

- ▶ System migration in minimal time
- ▶ Cost-effective migration leveraging existing know-how
- ▶ Seamless historical information thanks to data transfer from legacy system
- ▶ Automatic data provisioning for customers and mobile maintenance activities
- ▶ Continual software updates from manufacturer