COPA-DATA's zenon paves the way for a Smart City

Weiz : Energizing the city

A visualization system based on the zenon software platform from COPA-DATA is enabling the
W.E.I.Z. Innovation Center to better keep its energy footprint in check. The expandability of the
system executed by VariCon makes it possible to integrate all of Weiz's municipal organizations.
It also extends to external customers by offering energy management as a service.

In December 2020, in an effort to keep global warming at bay, the EU reached a deal to reduce greenhouse gas emissions by 55% of 1990 levels by 2030. Austria aims to be climate-neutral by 2040. Unless the carbon footprint is significantly reduced, these goals will be unachievable.

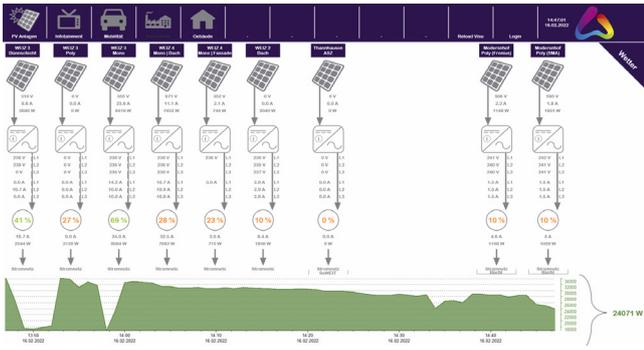## THE AMBITIOUS PURSUIT OF CLIMATE TARGETS

Transforming into a carbon-neutral society requires big steps to reduce the use of fossil fuels. For these steps to be successful, they must be taken at all levels, including industrial companies, commercial businesses, national governments, regional governments, municipal councils and individuals.

Weiz, a town in Oststeiermark, Austria, is going above and beyond in this respect. It is part of the energy region of Weiz-Gleisdorf, which aspires to generate more energy than it consumes by 2050. It's an apt ambition, given that the first-ever passive office building in Central Europe was built here in 1999.

Playing its part in the energy revolution, Weizer Energie-Innovations-Zentrum GmbH, a subsidiary of W.E.I.Z. Immobilien GmbH, advises people and organizations interested in energy and the climate. "We advise private individuals and companies of all sizes on how to use energy sensibly and efficiently without having to make huge investments," explains Franz Kern, founding director and energy expert at W.E.I.Z. "What's more, the W.E.I.Z. Innovation Center serves as a test bed for energy and climate protection projects."

TEST BED FOR THE ENERGY REVOLUTION

Weiz is located in a region that lacks wind and water. Therefore, alongside biomass, solar energy plays an especially crucial role in revolutionizing the town's energy infrastructure. This is why all four buildings of the W.E.I.Z. Innovation Center are equipped with photovoltaic systems. The smart building complex has around 7,000 m2 of space and is home to educational and research organizations and numerous startups. Many are involved in the energy and environment fields and cooperate closely with educational institutions. Kern adds, "We act as

The solution comprises numerous photovoltaic systems, including ones on other buildings in Weiz.

zenon is also used to visualize the information obtained via a people counting system installed in a highly frequented spot in the town.

a facilitator for collaboration among the various stakeholders in such projects as well as in funded projects, which we also frequently carry out directly in-house as case studies in the form of pilot and demo projects."

ENERGY DATA MANAGEMENT AS A SUCCESS FACTOR

Since day one, a building automation solution had been implemented in the oldest building of the W.E.I.Z. Innovation Center. It had become outdated and did not offer scope for visualization or analysis of real-time data. The time had come to replace it. According to Kern, "If you want to better measure and check the effectiveness of energy efficiency measures, you can't just wait until you get sent the bill to find out how much energy you've consumed overall. So, we decided to introduce an energy monitoring strategy as part of the planned modernization of our building technology."

VariCon e.U., a company specializing in electrical installations and automation, was commissioned for the task. Not only does VariCon have extensive expertise and experience in fiber optic cable splicing, IT network technology, video monitoring, and access control, it also offers a comprehensive digitalization portfolio for system visualization.

A UNIVERSAL VISUALIZATION CONCEPT

VariCon revamped the building automation system, taking this as an opportunity to switch communication from the LON bus to the KNX standard. COPA-DATA's zenon software platform was chosen as the visualization solution. VariCon had already used the platform in a number of industrial applications, so it wasn't the first time that the team had been won over by zenon's virtually boundless flexibility for displaying technical correlations or its ability to easily integrate devices and systems, including using KNX.
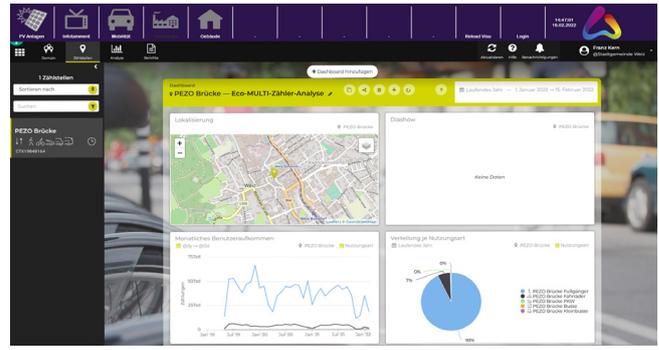
VariCon CEO, Ing. Gerald Hutter has nothing but praise for the platform. He states: "zenon's scalability means that our energy data management system (EDMS) will not only benefit the Innovation Center, but it can also be gradually developed into a comprehensive energy management system for the entire town of Weiz. Because zenon is already being successfully implemented in smart city applications, it already comes with a vast array of useful features."

MODULAR CONCEPTS AND MAXIMUM FLEXIBILITY

The open system structures and modular concepts in zenon's engineering enabled VariCon to create a modular visualization solution that combines ergonomic and flexible operating concepts. Although the solution is precisely tailored to the W.E.I.Z. Innovation Center's requirements, it can also be quickly and easily adapted to changing demands. Franz Kern, for one, is won over: "zenon's open framework gives us enormous freedom to adapt the display content to our viewing and working habits and not the other way around."

After receiving suitable training from VariCon, some employees at the Innovation Center can even make system changes themselves using the zenon Engineering Studio. For larger-scale adaptations or enhancements, they happily fall back on VariCon's service.

SMART CITY QUALITIES

The zenon-based solution significantly expanded the system scope, compared to that originally commissioned, without causing extensive additional investment costs. First, the photovoltaic systems installed on the roofs of the buildings were integrated into zenon. The tasks performed by the zenon application are constantly being expanded. For example, in the course of collaboration projects such as WEIZconnected.

> *The zenon installation is increasingly evolving into what the original project name conveyed – into a smart city platform for Weiz.*

DI FRANZ KERN,
WEIZER ENERGIE- INNOVATIONS- ZENTRUM GMBH

The photovoltaic systems on two of the W.E.I.Z. Innovation Center's buildings were fitted with an energy storage as part of a pilot project. In addition, a new connecting line facilitates energy exchange across the buildings. "We were thus able to increase the proportion of our energy requirements that is covered by electricity from the PV systems from 25% to 80%. At the same time, we ensure an emergency supply in the event of a blackout," explains Kern.

A network of charging stations for electromobility is also connected to the W.E.I.Z. Innovation Center. One of these stations is combined with a big LED wall that can be turned toward the main direction of traffic depending on the time of day. It displays energy-relevant information about the entire town.

A pedestrian and cyclist counting system has been installed in a highly frequented location, with the information derived from it also being visualized in zenon. A similar installation in one of the buildings at the W.E.I.Z. Innovation Center tracks people's movements and records the number of people present at any one time. Not only does that make it possible to predict energy consumption more accurately, but it was also helpful for complying with restrictions during the COVID-19 pandemic.

ENERGY DATA MANAGEMENT AS A SERVICE

Just as water supply and waste collection are essential public services, in our era of digitalization, the same can now be said of information, communication, and data technology. That is why these utilities belong on any local authority's agenda. As part of "Weiz.OnLine", the W.E.I.Z. Innovation Center delivers a fast fiber optic network to individual apartments, offices, and factories. This provides not only the passive infrastructure, but also energy data management as a service for private and commercial customers.

A local beverage wholesaler is among the first users. Without installing its own system, it can monitor its energy consumption and control it to achieve greater energy efficiency. This innovative application was also implemented by VariCon within the existing, zenon-based solution of Weiz Town Council. zenon's secure and structured rights management system gives the solution full multi-client capability.

"There are also plans to integrate a smart parking space management system for the center of Weiz into the central zenon installation," says Kern, looking ahead to the future. "This is increasingly evolving into what the original project name conveyed – into a smart city platform for Weiz."

HIGHLIGHTS:

zenon as an energy data management platform for the town of Weiz
- Full picture of real-time data on individual overview screens
- Enormous freedom provided by the user interface
- Easy integration of external systems and components
- High scalability
- Secure and structured rights management system