

MONITORING OF ENERGY CONSUMPTION LEADS TO ENERGY SAVINGS

ContiTech optimizes energy efficiency by implementation of energy data management

As a division of the Continental Corporation, ContiTech is one of the world's leading industrial specialists. Its customers can be found in key sectors such as mechanical and plant engineering, mining, the agricultural industry and the automotive industry. With around 46,000 employees in 44 countries, the company generated sales of around EUR 5.5 billion in 2016 and is active in Europe, Asia, North and South America.



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Initial situation

The reduction of energy costs is the clear objective of all ContiTech divisions. The prerequisite for an effective introduction of energy-saving measures and their subsequent assessment is extensive and in-depth knowledge of the energy flows in the production site and on the production machines.

Energy monitoring enables seamless capturing, storage and evaluation of the data coming from all relevant energy meters at the production site.

Principles of system selection

In cooperation with representatives of the ContiTech corporate divisions, the engineering department created a bill of requirements for a suitable software tool and carried out a subsequent market analysis. After a pre-selection, several providers were invited to present their software solutions. After diligent evaluation of the offers presented, the energy data management solution developed by WiriTec GmbH from Bensheim, Southern Hesse, Germany, was the winner in the selection process.

The following criteria were crucial for the system selection:

- clear structure of software GUI
- handling of parameterization levels (creation of measuring points, data series, cost centers etc.)
- administration of selection level (graphics selection)
- use of calculation category level (virtual channels)
- usability of graphic functions (representation types etc.)
- connectivity of measuring devices (data loggers, corporate or third party devices, data buffering)
- reporting functionality (SAP interface, consumption billing by cost centers)
- costs
- creation of flow diagrams, Sankey-diagrams, overlay graphics, dashboards)
- company structure (software development), size, organization, resources, references)
- risk assessment (integration into the group structure)

The independence of the software company from the hardware to be integrated was of particular importance, since individual ContiTech locations already had approaches in the field of energy monitoring. In a second step, the already existing systems were subsequently replaced by WiriTec software to ensure uniform processes. During the replacement process, the existing hardware was integrated and did not have to be replaced.

System selected

The WiriTec energy monitoring system enables central capturing of meter data via decentralized data loggers. The software is not limited to consumption data, but e. g. status and sensor data as well as malfunction reports are also processed. The structures within the software can be individually configured. This is important for the various evaluations such as the allocation of costs.

The recorded data can be analyzed using a variety of reporting functions. This way, e. g. load profiles can be displayed in different forms as curves or bars. The calculation and management of virtual meters can be carried out as well as the determination of energy costs per unit or CO₂ emissions.

Different groups of people use the software in various manners. The controllers are primarily interested in costs and often work with virtual data series in which suitable pre-calculations have already been carried out. The production managers, in return, keep an eye particularly on the consumption situation of the individual

unit is determined based on the production area or the raw materials used.

Bastian Borchardt, responsible for the system application in the electrical engineering and automation division at ContiTech Hanover, refers to the installation of a new lighting system as an example, where the energy monitoring system was used to check whether the saving targets had been achieved. A second example for plant optimization is the installation of pump regulations. In this case, the efficiency of measures is continuously monitored.

The WiriTec system provides equally beneficial services for the modernization of water and steam pipes. "We can analyze what the specific flows look like and where the peaks are," Borchardt continues. Based on concrete flow measurement, the new pipes can be optimally dimensioned. Often, new pipes can be designed 30-40 % smaller than the existing ones, some of which date decades ago. As a matter of consequence, large investment savings can be realized that would not have been possible without appropriate energy monitoring in place. Thus, precious saving potentials would get lost otherwise.



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Furthermore, the system facilitates evaluation of monthly billing, which can be transferred later to SAP online.

By means of comprehensive evaluations, energy loss could be detected and insight into the actual energy requirements of production machines was increased.

machines. Energy saving measures are controlled by the energy managers and, thus, appropriate measure tracking is carried out. They check whether or not the respective measures taken have led to the requested success.

Furthermore, the formation and evaluation of reliable key figures and KPIs is important. In this context, e. g. the energy consumption per

Additional benefits in using the system can be found in utilization analyses related to energy supply. By analyzing discrepancies in energy

Processes supported

The system implementation procedure differs from location to location. Some locations start with the automatic reading of meter values, others installed the software in order to manually enter the consumption values. The system also offers the option to enter meter readings manually. Thus the existing meters can gradually be converted to automated reading.

The core processes that are supported by the WiriTec system are internal cost settlement, energy billing procedure and measure tracking.



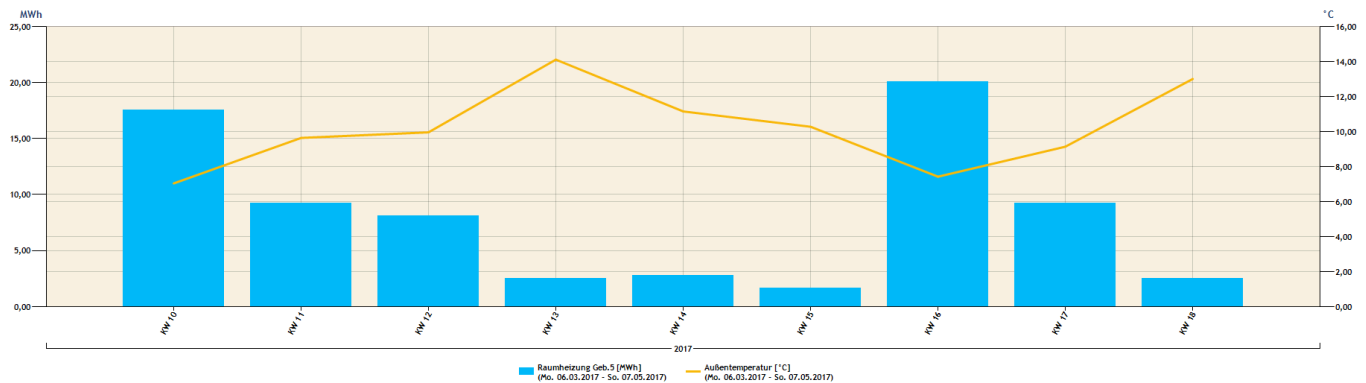
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consumption, overall efficiency has been increased and various optimization actions could be taken.

The field level is adapted to the specific application scenarios at the individual ContiTech locations. Various bus systems and data loggers are used, with M-Bus

evaluations," states Borchardt. The use of the system heavily depends on the type of users. For example, a regular user prefers the chart where he is able to comfortably display data series and graphically compare them to one another. Individual evaluations and graphics can naturally be saved and can be called up again at any time including automatically

Due to the large number of locations, it is important for ContiTech that there is only one software version. For this reason, additional software requirements from the locations are coordinated centrally via the ContiTech Engineering department.



Application example without real data from ContiTech AG

predominating alongside Modbus. Consumption, status or production data are also read out directly from machine controlling systems or extracted from OPC servers and other SQL databases. The wide range of variants is crucial here. WiriTec is able to handle the heterogenous field level with expertise.

Software ergonomics and individual adaptability

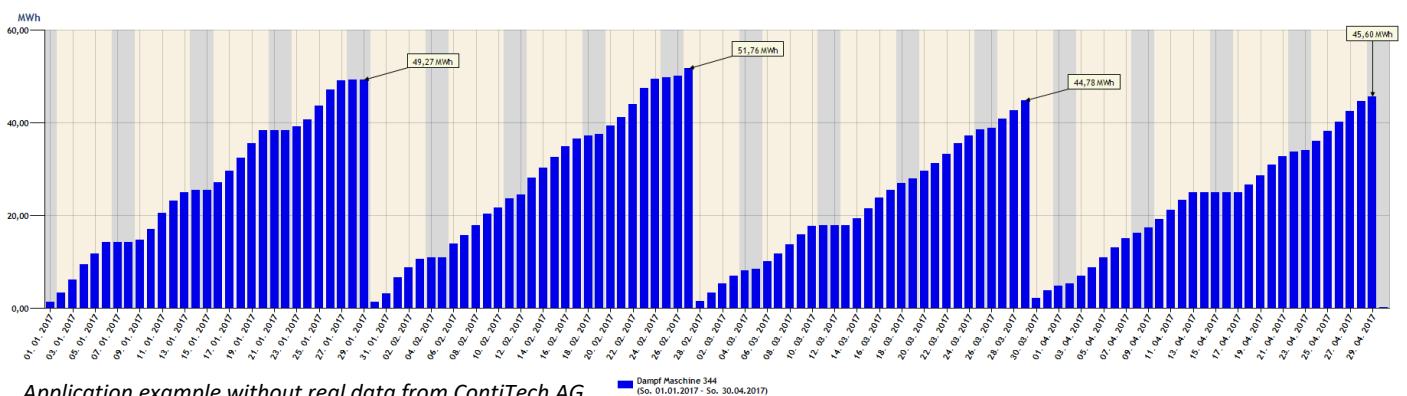
"The WiriTec system, now successfully in use at 11 ContiTech locations, can be individually adapted and remains clear even with complex

updated values. Finally, the system administrator has got extensive configuration options. He can create not only additional cost centers, measuring points and data series, but also carry out other interesting evaluations with a 3D reporting function, the so-called CUBE.

Software users increasingly take advantage of the integrated Watchdog functionality for ongoing monitoring of the continuity of data series. In case of irregularities, the system immediately sends alarm messages. Monitoring can be configured by the user himself. Both exceeding level as well as time slot of the alarm message can be determined beforehand.

Cooperation with the software manufacturer

"The WiriTec consulting team provided excellent and very competent support during system implementation. The support team reacted quickly and always showed competence, such that we felt being in good hands in any phase of the project. What additionally convinced us was how WiriTec deals with the field level with obvious expertise," Borchardt summarizes his impressions of the project work with the software manufacturer.



Application example without real data from ContiTech AG

Future perspectives

One of the most important steps in the near future is certainly internationalization. It is the intention to roll-out the energy monitoring software in ContiTech's international locations as well. "The first international systems are

now being set up," says Borchardt. "This mainly affects Eastern Europe and the Asian region. The exact sequence has not yet been determined finally. One focus is certainly in China. Including the international locations is an important objective. In this process, Central engineering has got the task to support the individual locations."



WiriTec GmbH

WiriTec GmbH is an innovative, family-owned software company that specializes in the development of efficient solutions for energy and resource management. Thanks to special know-how and high-performance communication software, WiriTec combines proven and advanced measurement technologies at the field level with the IT world. Our holistic energy data management solutions are certified according to ISO 50.001 and support the entire process from capturing measurement data, consumption visualization and consumption forecasts, billing, energy cost settlement and reliable energy performance indicators (EPIs). Our numerous customers in Germany and Europe are located in almost all market segments, have successfully implemented many projects with our fully web-based solutions for many years and thus realized significant saving potentials. In conjunction with our sister company, speedikon FM AG, we offer comprehensive IT solutions from the field level to commercial and technical data processing.