SOLVERA
LYNX

Case Study: Energy Management System for Multi-purpose Facilities (Office Buildings, Shopping Centers, Logistics Center)

CASE STUDY: ENERGY MANAGEMENT IN MULTI PURPOSE FACILITIES
(OFFICE BUILDINGS, SHOPPING CENTRES, LOGISTICS CENTRE)

BTC KEY FIGURES:

Consumption of resources: electricity, natural gas, heat

Facilities: 56 (113,000 m²) Metering points: 160

CO_2 emissions: 26,800 t

ENERGY CONSUMPTION

Electricity: 40 mio kWh / year

Heat: 12 mio kWh / year

Primary energy consumers: lighting (43%), cooling (20%) ventilation (26%)

Natural gas: 300,000 m³

Water: 150,000 m³

Total energy consumption: 60 mio kWh / year

GENERAL COMPANY DESCRIPTION

The activity of BTC, d.d. is based on three main business pillars: real estate leasing, integrated real estate management, and logistics. Today, BTC City is not only the largest shopping mall in Slovenia but is becoming an increasingly important business and leisure center with a wide selection of sport, entertainment and cultural activities, as well as an area of creative and business oriented thinking.

The BTC decided to run an energy management project with the purpose of implementing advanced energy management solutions in order to monitor and analyze real-time energy consumption while at the same time, supporting the implementation of the ISO 50001 standard. As such, BTC has become one of the first companies in Slovenia to implement the ISO 50001 standard.

The main objectives of the project were: to gain remote control of energy consumption, the implementation of an alarm system, the definition and analyses of key energy efficiency indicators, and the introduction of an energy accounting system.

OUR SOLUTIONS

Energy consumption monitoring (electricity, heat, natural gas, water)

Energy efficiency analysis (key energy KPIs indication)

Energy performance and targeting
- Targeting energy consumption quantities and costs
- Target monitoring of the energy consumption of heating and cooling technologies
- Alarms in case of consumption or cost deviations

Energy accounting
- Building energy consumption benchmarking
- Analyses of energy costs
- Energy accounting system implementation

SOLUTION ARCHITECTURE

Energy Management Software GemaLogic®

Communication equipment:
- 14 x GsmBox.WG
- 3 x ComBox.M
- 8 x ComBox.L
- 5 x GsmBox.X4

In order to effectively connect the meters and the network, we set up LoRa wireless communication. In order to reach and carry out the measurements we selected innovative communication equipment ComBox.L. Expanding the existing LoRaWAN network enabled us to cover the entire facility area and set up the communication devices in less accessible places.

SOLUTION ARCHITECTURE SCHEME
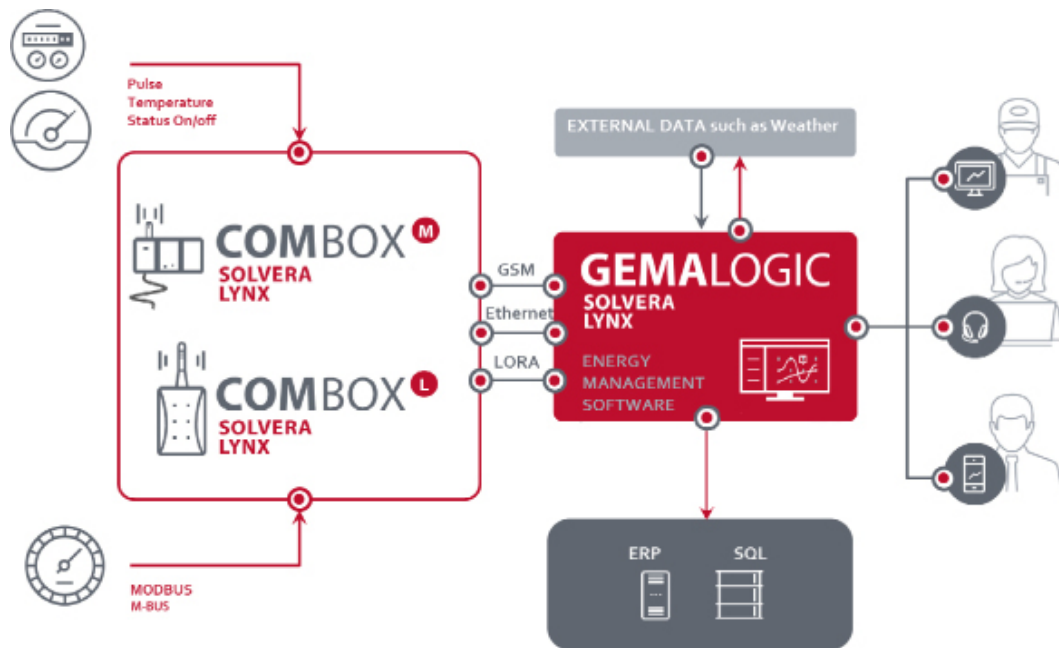
RESULTS

Digitalization of energy data
- Real-time energy monitoring, advanced analysis, benchmarking and forecasting

Alarming system implementation
- The detection of deviations and causes in the energy consumption and the possibility of quick action (e.g, water leakage)

Energy efficiency improvements
- Greater efficiency and better energy management, easier monitoring of the effectiveness of implemented measures

BENEFITS FROM THE PROJECT IMPLEMENTATION

- Energy consumption reduction in the 1st year of solution implementation. Electricity consumption reduction: up to 5 %

- Water leakages reduction up to 90%

- Reduction of energy losses caused by water leakages: up to 6 %

- Reduction of water losses: up to 4,5%

- Alarming in case of water and gas consumption increase

- Support in ISO 50001 implementation