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## Smart City Infrastructure Transformed using Solvera Lynx's Solutions based on LoRaWAN Technology

Smart cities move towards efficiency, advanced technologies, and new IoT challenges. Solvera Lynx's energy management solutions are the game changer and a cornerstone of a Smart city transformation. Our communication devices based on LoRaWAN technology and an innovative software platform form the basis for successful smart city and energy management solutions.

We have provided unique EM solutions for major industrial and building facilities in the region. One of the strongest references – energy management project with BTC.

BTC City Ljubljana is one of the largest business, shopping, entertainment, recreation and cultural centres in Europe. It was founded more than 60 years ago and has been an example of the innovative business approach in sustainable development and efficient energy management ever since.

It extends to 475,000 square metres, including 56 facilities and combines not only commercial, logistic and recreational facilities, but also extensive road and energy infrastructure.

The introduction of efficient energy management solution became not just an economic necessity, but a strategical business decision, which contributed to an innovative business model based on social and environmental responsibility.

### Business challenge:

The operation of such large facilities required massive energy consumption, which accounts for approximately 10% of the total company expenses. To optimize this enormous use of energy, BTC required a tailor-made energy management solution.

The company decided to run the energy data digitalization project with the purpose of implementing an efficient energy management solution, which aimed at providing a transparent view of energy use, while providing a tool for employees to carry out more relevant and efficient energy management activities.

### Solvera Lynx's solutions:

Solvera Lynx offered an innovative solution for smart energy management (EM) based on wireless LoRaWAN technology. This technology was a better alternative than the classical wired networks due to

its long range, unique penetration capabilities, flexibility, easy operation & maintenance, and safe & reliable data transfer.

The solutions included the following steps:

- Energy consumption monitoring (electricity, heat, natural gas, water)
- Energy efficiency analysis: key energy KPIs indication and control over electrical energy production
- Targeted energy performance analyses: targeting energy consumption quantities and costs, especially focusing on the energy consumption of heating and cooling technologies
- Reduction of energy losses and water leakages
- Implementation of an alarm system in case of consumption or cost deviations
- Energy accounting: energy accounting system implementation, building energy consumption benchmarking and analyses of energy costs

Due to the large number of BTC facilities, it was important to control the consumption of individual energy products and monitor consumption by individual end-users. With the introduction of the energy management system and energy accounting, BTC gained systematic control over energy consumption through the tools that allow the easy collection of data, performance analysis and production of automated reports. This contributed to greater efficiency and better energy management coordination.

### **How did it work?**

In order to effectively connect the meters and the network, we set up the LoRa wireless communication. In order to reach and carry out the measurements, we selected innovative wireless long-range equipment - ComBox.L®.

ComBox.L® sends data to the advanced software platform GemaLogic®, where all the data is gathered, processed and analysed.

### **Benefits of implementing Solvera Lynx's solution:**

The concrete results (optimization of energy consumption, reduction of energy losses and the implementation of a holistic operational overview) were demonstrated within a few months after the energy management system's implementation.

Due to the usage of our innovative software (GemaLogic®) and hardware (ComBox.L®) solutions, the following benefits were achieved:

- Digitalization of energy data- real time energy monitoring, advanced analysis, benchmarking and targeting
- Energy consumption reduction in the 1st year of solution implementation.
- Reduction in energy losses caused by water leakages.
- Reduction of the over-night consumption of water.
- Analytics to identify consumption patterns, compare historical data, and predict future energy needs
- Real-time energy consumption data and a detailed usage overview
- Protection from unexpected energy consumption based on pre-defined key performance indicators and the alarm system implementation that send notifications when consumption increases.

- The detection of deviations and causes in the energy consumption and the possibility of quick action (water leakage, errors in the operation of the photovoltaic system)
- Shorter response time in case of deviations
- Increase in the ECO- Index
- Support in ISO 50.001 implementation

"The system has paid-off, and we will continue using the GemaLogic energy management platform, due to the savings that were made after the system's implementation" Tomaž Damjan, BTC, d.d.

### **Solvera Lynx's competitive advantages:**

Our project's portfolio is truly outstanding. We have provided unique solutions for smart metering (electricity, gas, water, air renewable energy), volume monitoring (fuel tanks/containers), different types of analyses (air quality, temperature, humidity), tracking/localization and machine status monitoring.

Our main advantages are innovative technologies and the ability to customize our energy management solutions so that they are tailored to the unique needs of your business.

A wide range of business applications can benefit from our technologies: Energy & Utilities, Telecom, Oil and Gas, Factories, Building and Facilities, Industry, Agriculture, Smart City, Transport, and Logistics.

Visuals:



