



Creating smarter energy with Gemalto enabled LTE TAURON/ANDRA Case study

In the next two decades, the world's population is expected to reach 8.7 billion, that's approximately 1.6 billion more people living on our planet than today. It's no surprise that global energy demand is also expected to grow dramatically **increasing by 37% between 2013 and 2035**. In a resource-constrained world, energy efficiency and conservation become even more important to solve this energy challenge.

Improving energy efficiency with trusted IoT technology

Machine-to-Machine (M2M) technology and the Internet of Things (IoT) are enabling a brave new world of smart cities. Transportation systems, energy grids, and public services are being connected and monitored in real time to save time and energy while improving the way we live, work and travel.

Smart home hubs, smart grids and industrial routers are the central components of efficient, smart city networks and the European Union (EU) is driving a revolution in the way we think about and invest in infrastructure. Committed to developing a unified smart energy system by 2020, the EU rollout is progressing forward as stakeholders work toward fulfilling various mandates, regulatory frameworks and crossing hurdles that differ from country to country. Success depends on cooperation and innovation and nowhere is this more evident than in Poland.

Poland's ambitious smart city project leads the way

TAURON, one of the largest energy suppliers in Poland, embarked in 2014 on an ambitious AMIplus Wroclaw project to rollout 330,000 smart meters and 2,250 industrial grade smart city hubs (i.e. routers). They needed a robust smart metering system that could seamlessly hand off data between different communication protocols and networks ranging from cellular to power line communications (PLC), based on OSGP standard. All components and systems needed to operate reliably for 10-15 years allowing flexibility to expand and evolve as new technology innovations emerge.

To design and develop the communication part of the advanced metering infrastructure, **TAURON** pulled together a technology dream team comprised of **ANDRA**, a leading ICT system integrator; **Gemalto**, the global leader in digital security and M2M technology; and **Orange**, the leading mobile network operator in Poland.

Protecting smart energy investments with Gemalto enabled LTE connectivity

When the project began, smart meters were already being deployed in homes and businesses throughout the city leveraging PLC networks for data transmission, the standard protocol in Poland. Since longevity and reliability were critical for overall system success and ROI, ANDRA designed and developed something new to European marketplace - the first LTE industrial grade wireless router. Existing 2G and 3G technologies were not a viable option for this project due to expected network sunsets in the coming years as well as bandwidth constraints. ANDRA relied on its trusted partner Gemalto to deliver its proven reliable Cinterion® PLS8 M2M Module for connectivity. Integrated into the ruggedized router, the PLS8 module enables LTE connectivity and provides seamless handoff to 3G and 2G cellular networks where 4G is not available.

Real time IoT intelligence improves business decisions

With the system fully deployed, installed smart meters send data via PLC networks to ANDRA industrial routers (amiROUTER). The routers are deployed in electrical substations and plants throughout the city and they transfer data from meters and other elements in the power ecosystem. Data is received by the Cinterion M2M Module in the router and sent in real time over the Orange LTE network to TAURON backend system where it is processed, analyzed and transformed into actionable intelligence. TAURON uses this real time information to optimize power production, make critical decisions regarding load shifting and to efficiently manage the grid. Consumption data is shared via web portal with consumers who can make informed decisions to improve efficiency and conservation. Ultimately, the LTE solution provides reliable, always-on high speed IP connectivity that stakeholders can count on for the decade ahead. The SLA level is set on 96% of successful Andra devices readings per day.

This protects TAURON's technology investment eliminating the need for costly upgrades as networks evolve over time. The advanced system in Poland greatly improves efficiency across the energy supply chain, from producer to consumer, enabling cost savings, improved conservation and ultimately preventing brown and blackouts.

The future of energy is bright

Given the success of the AMIplus Wroclaw project, other energy suppliers in Poland and across Europe are looking for similar solutions to expand such a program to other cities. For Poland, this represents a growing potential as the whole country counts about 14 million electricity meters and started a massive smart metering rollouts to build the smart city hubs of the near future.

Smart energy and smart city projects will be a central part of delivering more efficient and reliable power in the decades ahead. As these types of projects expand globally, there is the potential for a truly smart power network that combines traditional and sustainable resources along with other connected elements in the smart city ecosystem enabling a low carbon economy with reliable, affordable energy for all consumers.



AMIplus Wroclaw project : first LTE smart energy data transmission scheme developed in Poland

