



The RTU500 series delivers
a customized power reliability
solution in Hungary

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Case study

Budapesti Elektromos Művek (ELMŰ)

The more electricity people consume, the more pressure on electrical utilities to provide a reliable, uninterrupted supply of electricity. Utilities now commonly measure the number and duration of interruptions in their systems in order to compare the performance reliability of electrical networks and justify the investments to regulatory authorities.

The performance reliability of distribution networks depends on network infrastructure, which is why the Hungarian power and gas utility ELMŰ-ÉMÁSZ Group, a subsidiary of the European energy conglomerate RWE, asked Hitachi Energy, the world's leading supplier of products, systems and services for the efficient transmissions and distribution of electricity, to upgrade and automate its medium voltage power distribution network.

Customer need

Budapesti Elektromos Művek (ELMŰ) has operated for more than a century with the goal of providing customers with reliable, high-quality power in the capital, Budapest, and surrounding region. The company wanted a strategy to reduce the number and duration of interruptions in its power distribution network and to comply with strict authority regulations.

Outage data is captured in a power network's System Average Interruption Frequency Index (SAIFI), which measures the average frequency of interruptions in power supply, and the System Average Interruption Duration Index (SAIDI), which shows the average length of time power is interrupted in minutes per customer.

ELMŰ decided it could reduce the number and duration of power interruptions in its distribution network with an automated system that reliability detects faults, and enables operators to remotely control primary apparatus, pole-mounted switches and secondary substations in order to speed up reaction times when interruptions occur.

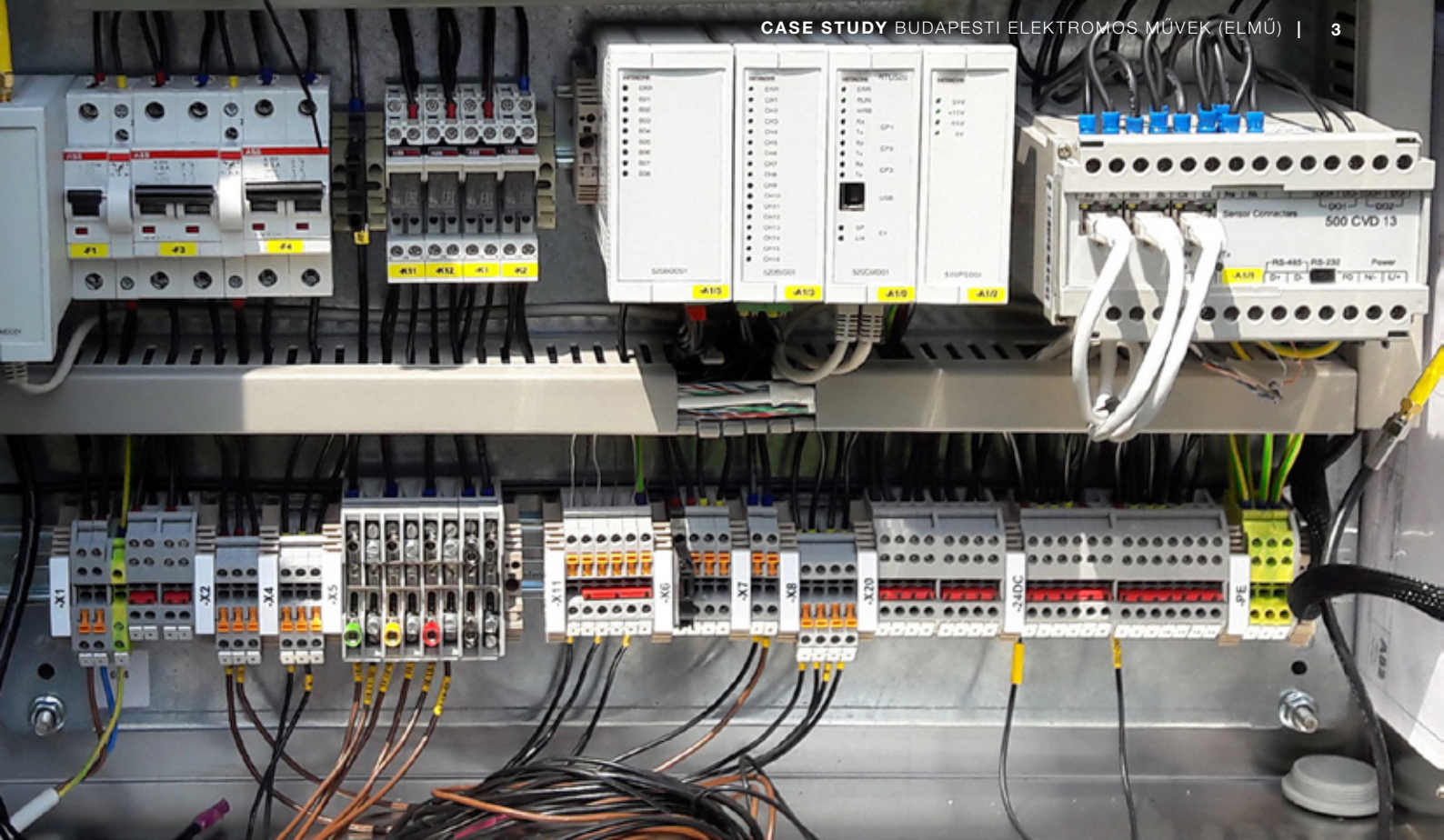
The customer wanted to distribute remote control cubicles across its network fitted with directional fault detection features, as well conventional current transformer and voltage sensor inputs.

The Hitachi Energy solution

Hitachi Energy delivered a cost-effective, tailor-made solution that fits all of the customer's specific needs due to outdated existing infrastructure and modern technologies utilized. It includes monitoring and control of pole-top overhead line switches and Secondary Substations via Hitachi Energy RTU520 series remote terminal units (RTUs); units (RTUs); providing fault detection and directional information to help locate faults by means of current/voltage measurement information via sensor and conventional transformer inputs, all in one device; communications based on IEC870-5-104 via the public GPRS network to the DMS system; and UPS battery backup.

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More than 300 of pole top mounted switches were equipped with remote control and monitoring capabilities.



Hitachi Energy's modular RTU500s met the communication and remote control specifications, but had to be adapted to create a product not yet available on the market. The RTUs were altered at the Hitachi Energy factory according to customer specifications to create a type of multimeter that combines directional fault detection with conventional current transformer and voltage sensor inputs, and fits into a standardized cubicle. Hitachi Energy has been contracted to design, engineer and manufacture about 500 of these tailor-made remote control cubicles for ELMŰ distribution network, all based on its RTU520 remote terminal unit.

Customer benefits

The projected involved collaboration between Hitachi Energy units in Germany, which supplied products and project specific adaptations, and Hungary, which engineered the system solution and provided installation and commissioning, as well as strong local customer support.

The Hitachi Energy RTU520 provides a highly customizable design, and enables input and output module adaptations specific to unique application requirements. The unit's efficient footprint helps it fit into small control cabinets, and provides a customizable product solution that can adapt quickly and easily to changing requirements.

The Hitachi Energy solution is designed to operate maintenance-free for more than 20 years, provides a flexible, open platform to accommodate a future smart grid, and has reduced both the frequency and duration of power interruptions in ELMŰ's distribution network.

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Hitachi Energy's tailor made compact RTU520 solution combines directional fault detection functionality with remote monitoring and control and fits into a standardized cubicle.

Hitachi Energy

de-rtu-sales-support@hitachienergy.com
www.hitachienergy.com/rtu