

REFERENCE CASE STORY

# ABB UPS underground in Finland

## Technology in deep rock caves



Finland has an affordable, stable and secure electricity supply, as well as a safe, predictable political climate. Along with favorable legislation, this makes Finland a perfect location for a global data center, making it one of the world's most competitive countries in this sector.

Ficolo is a major Finnish colocation company that recognizes the advantages of Finland. Costs in Finland are four to six times lower than the rest of Europe. The data center they have constructed in the Ulvila location is ideal – it is just outside one of the most built-up parts of Finland and it brings with it inherent cost savings, energy efficiency and security.

Ficolo's data center in Ulvila is in an 8,500 square meter underground tunnel network originally excavated by the Finnish Defense Force. Inside the geological formations there are nine halls, each between 500 and 800 square meters in size. The halls can be dedicated to specific customers or shared by several customers.

In May 2014, three of the halls were brought up to operational condition. Investment costs can be optimized with this facility. New halls can be brought online as required, and the caves that lie empty do not incur any costs while they wait to be kitted out. They also have the ability to expand the ABB modular uninterruptible power supply as needed – this scalability is vital to them, so they can grow the installed UPS as the power requirements grow. They don't have to make a major, upfront speculative investment. The individual data center halls operate entirely independently of one another and our colocation model allows customers to choose between a centralized or distributed data center solution that best fits their needs.

### Electrical security a top priority

A reliable electricity supply is critical to the data center business and having their supply backed up by ABB UPS systems is ideal. They also use wind-turbine-generated power together with Diesel generators as a backup source. This means that customer service continues as normal in the event of a grid power outage.

ABB was able to provide the UPS technology quickly, they submitted the order on Christmas Eve and by February they were up and running. The ABB installation engineers showed exceptional diligence and commitment, enabling a large contract to be fulfilled on schedule. The system is ideal for Ficolo's business model, both technically and financially.

### Energy efficient solution for data centers

ABB offers technologies, technical solutions and professional services for data centers. Energy-efficient, cost-effective solutions are provided for data centers by intelligent design, construction, commissioning, testing and operation as well as allowing for flexibility and scaling.

Various security systems are built in to the Ulvila installation to ensure network, fire and physical safety. Energy efficiency, green and renewable energy, and waste heat recovery are also important aspects of the data center operations.

There are huge growth prospects, as Ficolo's is the first data center to bring the colocation business model to Finland. Ficolo pursues an agile approach, in which the customer can choose

the depth and breadth of cooperation, outsourcing either all or part of its IT Services. Traditional global hosting duplication is eliminated.

Large international companies can depend on Ficolo as their data volumes continue to grow and their need to have guaranteed reliability regardless of what crisis comes up.

#### **Modularity increases usability**

ABB provided Ficolo with a truly modular high-efficiency DPA™ concept which scales to changing needs. System reliability is ensured by the modularity of double conversion technology and the inbuilt redundancy. Hot swappable modules keep the system operational and repair times short. DPA module replacement does not require an expert engineer to be on-site and the part can be sent to ABB for service or repair. Each module has all the hardware and software needed for autonomous operation – rectifier, inverter, battery converter, static bypass switch, back-feed protection, control logic, display, and mimic diagram for monitoring and control.

The other modules take up the load if one module is defective or if it is removed for service or repair. The only common component of the system is at the five-module rack level. Up to six racks can be connected to form one very powerful UPS.

ABB's DPA UPSs operate with an efficiency of up to 96 percent and their scalability minimizes power losses, thereby maximizing energy efficiency.

A reliable and flexible UPS is a basic requirement in today's business-critical environment as problems with power generation or supply can cause outages or quality issues such as voltage dips, spikes or frequency variations and harmonics.

The availability, flexibility and reliability of the power supply, and its cost, are critical to data centers, as well as hospitals, media houses, telecom sectors and the process automation industry. UPS systems are essential to protect these critical services and maximizing efficiency keeps energy costs to a minimum.