JÄMTKRAFT

When Jämtkraft had trouble with outdoor coverage RAKEL was the obvious solution. But to solve the coverage indoors, completely different tactics where necessary.

Jämtkraft is a utility company synonymous with environmentally friendly energy. The company, that dates back over 125 years and is owned by the municipalities of Östersund, Krokom and Åre offer electricity and district heating. They also manage an 8000 km electrical grid and produce over 1TWh of electricity and heat, a figure they aim to double in the next couple of years. They are especially strong within hydro and wind power but also produce bioenergy. Despite their northern location they have even managed to develop efficient solar power.

This kind of operation naturally requires well-functioning communications, a need that has proven to be demanding to fulfil.

CASE STUDY
Jämtkraft

THE CHALLENGE

Jämtland is Sweden's second largest province and with just 110 000 inhabitants it is also one of the most scarcely populated regions in the country. Providing radio coverage across this vast area I naturally difficult, which creates problems for Jämtkraft that have twenty something power stations (mostly hydroelectric) all over Jämtland.

The company accounts for an important part of Sweden's power supply and they manage forces of such magnitude that if something would go wrong it could cause serious damage. So it is crucial that their staff, whenever and wherever they are located, can reach and be reached by central command, authorities or other companies they work with.

Pre 2015 they communicated via ordinary mobile phones and an outdated analogue two-way radio system. And it had its flaws. The coverage was poor, it was expensive to maintain and wasn't even installed at all sites.

Besides this, there was a further inhibiting factor. A hydroelectric power plant is basically built as a fortress. The walls are meters thick and thoroughly reinforced with steel and the workers often move underground or even under water. That makes it difficult if not impossible for any radio waves to penetrate the facilities.

THE SOLUTION

That RAKEL was a part of the solution was clear to Jämtkraft even before Celab was a part of the project. RAKEL is Swedens nationwide two-way radio (TETRA) system designed for public safety organisations but that has been extended to include any organisation operating within Sweden's crisis management.

So the question was really only about which type of terminal to procure and who should deliver them. This was surely sorted out thoroughly. During a couple of weeks Jämtkraft carried out live tests with four different terminals from equally many suppliers. They evaluated reception, audio quality and ease of use.

We had offered Motorola MTP6550 which ended up winning the showdown. As winner of the contract we ended up delivering a large number of handsets for workers in the field and a small number of fixed terminals for management. The contract also included a number of services like programming and installation.

So the easy part was done, it was time to tackle the pressing issues with indoor coverage. We started by travelling to Jämtland to conduct a proper analysis. Our investigation revealed that the issues mainly concerned handful of the bigger power plants.

Establishing good indoor coverage can be quite difficult in practice but the principle of how it is done is fairly straight forward. The incoming signal is picked up by a donor antenna and is directed by cable to an amplifier. The signal is then amplified and re-distributed through one or more antennas indoors. How many are need vary from building to building. In some of Jämtkraft's plants a couple of antennas was sufficient while some needed close to a dozen.

With all necessary facts available the whole project could be planned I detail from Celab's offices in Kungälv, which simplified the work when we returned to Jämtland to put everything in place. The challenge was to make full use of the incoming signal and minimise loss when it is led into the building. So in addition to wiring, antenna installation and more we spent a lot of time fine-tuning the amplifiers and antennas.

THE RESULT

That an update from an old analogue communication system to RAKEL would make a real difference was without a doubt. With Jämtkraft now being connected to the same system as their key partners has made communications both more convenient as well as completely seamless. RAKEL also has a number of native advantages, including a highly developed geographical coverage that provide unrivalled opportunities for good call quality even in less populated areas. It is also incredibly reliable. For instance, it is equipped with redundant batteries and generators that keep the system running even during prolonged power failure.

The coverage inside the large power stations is no longer an issue.

- It actually works exactly as we intended, says Olle Johansson, Chief of Operations at Jämtkraft. - And that feels very good, he adds.

These enhancements do not only mean that the work for Jämtkraft's staff has become smoother and more convenient, but also safer. They no longer have to go outside to place an emergency call, a potentially crucial factor in case of emergency where every second counts.

What it means in practice remains to be seen since Jämtkraft fortunately has been free from major incidents since the new system was introduced. But the knowledge provides a sense of security. Users can, so to speak, sleep better at night knowing they are within reach no matter what happens or where they are.

"It actually works exactly as we intended, and that feels good"

- Olle Johansson, Chief of Operation at Jämtkraft.

Celab COMMUNICATIONS

Celab Communications AB
+46303 24 60 00
www.celab.se
info@celab.se

Huvudkontor
Rollsbovägen 20
442 40 Kungälv
SWEDEN

Stockholm
Elsa Brändströms gata 56
129 52 Hägersten
SWEDEN

Köpenhamn
Herstedøstervej 27-29
2620 Albertslund
DENMARK

MOTOROLA SOLUTIONS
Channel Partner