



Advania Data Centers extends long term relationship with Eaton

To maintain its uninterrupted, 100% uptime power supply across data center campus 24/7 and 365 days each year

Location:

Keflavik, Iceland

Challenge:

Customer needed to upgrade UPS capability to maintain continuous data center uptime through a period of long term, ongoing, sustained growth

Solution:

Eaton Connected integrated back-up and power distribution system based on Power Xpert CX switchgear and Eaton 93PM UPS. Other Eaton solutions on site include:

- Eaton 9390, Power Xpert 9395 and Eaton 93PM UPS
- Rackable UPS (Eaton 9PX-5000)
- Power Distribution Units (PDU)
- Circuit protection

Results:

Increased data center capacity, eliminated downtime, cost-efficient and fast deployment.

"We've only ever used Eaton UPSs in our installations, and that is a nine-year history. The Eaton Connected solution is seeing Advania Data Centers through its current phase of operations with reliable uninterrupted power. The company is not at the end point – more of a staging post in what has been a period of continuous growth since launch in 2010. In 2012 the data center was running on 500 kW, today it is almost on 70 MW, and there are no signs of the growth slowing down any time soon."

Ivar Smari Magnusson, Advania Data Centers Head of Operations

Background

Advania Data Centers is a technology company headquartered in Hafnarfjordur, Iceland with operations in Sweden, Norway, Germany, Belgium and the United Kingdom. The company started in 2010 and has experienced consistent and rapid growth. The Keflavik data center – known as MJOLNIR DC – is Europe's largest data center campus. It is tailor-made for high density hosting such as High-Performance Computing, blockchain technology and high-density compute.

Advania Data Centers operate two sites in Iceland, THOR DC a 4MV tier 3 facility in the Reykjavik capitol area in Hafnarfjordur, Iceland and MJOLNIR DC located just 10 minutes from Keflavik International Airport and about 40 minutes away from Reykjavik. MJOLNIR DC is the larger of the two, with about 80MW maximum capacity. The data centers are 100% powered by renewable energy, both geothermal and hydro energy. Advania Data Centers' wide ranging customer base includes many international organisations from business, government and public sectors.

Challenges

Advania Data Centers has been working with Eaton since it started in 2010. The first installation was based around the Eaton 9390 and associated Uninterrupted Power Supplies (UPSs). The first expansion phase was early 2011, was completed with help from Eaton. Since then, through each development and expansion, Advania Data Centers has used only Eaton UPSs in its installations.

Iceland's geology provides generous reserves of geothermal energy, meaning Advania Data Centers can take advantage of renewable energy for power supply and cooling. This is highly efficient and means the campus can be high density with proportionately more computers than in a facility of a similar size that is powered and cooled by conventional means.

The higher power density of the MJOLNIR DC Data Center meant that Advania needed more, higher capacity UPSs to ensure it could provide a consistent, reliable power supply.



Powering Business Worldwide

Solution

Eaton is helping with design and infrastructure development across Advania Data Centers facilities through the implementation of Eaton Connected.

Eaton Connected is a ready-to-go, integrated back-up power and power distribution system. It includes the incoming feeders from the grid and the reserve power generator, including a built-in Automatic Transfer Switch, as well as maintenance bypass section and a complete section with feeders supplying the UPS system and distributing the power from the UPS output. The key UPS solutions in place are Eaton 93PM 400 kW UPSs, in addition to rackable Eaton 9PX-5000 UPSs and Power Distribution Units (PDUs).

The primary role of this equipment is to ensure a steady power supply to the data centers, ensure protection against power surges, and provide access to backup power in the case of outages.

The project is an example of how Eaton will go above and beyond industry norms to service a customer's needs. In this instance, Eaton coordinated between its different geographic sites to bring about one comprehensive solution for Advania Data Centers.

Eaton assembled a team of experts from Denmark, Finland and the Netherlands, while also coordinating with the customer in Iceland. Eaton's UPS team in Finland worked hand-in-hand with its electrical panel team, based in the Netherlands, to build the Eaton Connected solution. The entire system was then shipped to the Netherlands for testing and quality checks before it was transported to the customer in Iceland and installed.

Eaton took on most of the responsibility for the project, including the entire dimensioning of the system and working to identify real and potential problems in order to solve or prevent them in advance of delivering the system to the customer.

It is usual in projects of this type to deliver the UPS and switchgear separately,

and for the purchaser to be responsible for assembling and engineering the complete solution. However, in this case, Advania Data Centers ordered the Eaton Connected solution and this meant some of the crucial elements, such as the dimensioning of breaker ratings and protection devices became Eaton's responsibility.

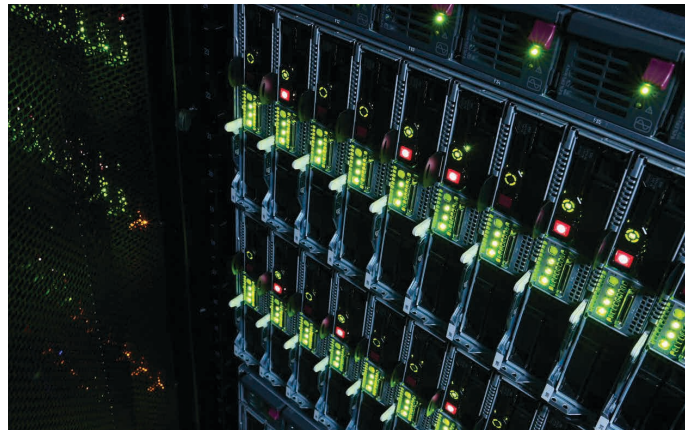
This proved to be an important factor. For example, if the UPSs had been run in inverter mode, such as when they were running only on batteries, then selectivity – essentially protection from short circuits – would not have been guaranteed. In practical terms this means that a problem in a single load branch could potentially cause a total voltage drop, in turn leading to a total load drop. If this happened in a data center it could result in a complete data outage – a disaster for a data center which relies completely on its promise to customers of 100% uptime 24 hours a day, 365 days a year.

One of the advantages of Eaton Connected is that all the dimensioning and design is done by Eaton, meaning that the potential problem was discovered early in the design and assembly phase and fixed by Eaton before the testing phase in the Netherlands before transportation of equipment to Reykjavik. This meant that it was easier, faster and more efficient to implement a resolution before installation and very practical for the customer.

Results

The project was completed quickly and Eaton took care of multiple stages of the process. For example, the data center campus passed on its ideas and requirements to Eaton, which they incorporated into the design work, all within a week.

Eaton Connected cuts design and installation times by providing a pre-designed, pre-connected, combined solution that unites the two proven elements of the electrical panel and UPS system. This removed the need to source, install and connect separate UPS and switchgear components. Not only did this reduce risk for the project, it also made installation fast and



easy, an important factor for a fast growing data center.

From the start of the project in early 2019, it took just one month for the equipment to arrive in Iceland ready for usage immediately after installation. With no on-site assembly required the installation was very cost-efficient. There was no need for third party consultants and just one contractor – a local electrician – completed the installation work.

Ivar Smari Magnusson, Advania Data Centers Head of Operations, has years of experience operating high density production workloads for enterprise customers. His team handles the day-to-day data operations at the data centers as well as being responsible for resilience and planning for capacity growth.

Mr. Magnusson emphasised the commitment to Eaton, "We've only ever used Eaton UPSs in our installations, and that is a nine-year history. We have always had a good experience with Eaton and we have built up a good relationship."

He continued, "The Eaton Connected solution is seeing Advania Data Centers through its current phase of operations with reliable uninterrupted power. The company is not at the end point – more of a staging post in what has been a period of continuous growth since launch in 2010. In 2012 the data center was running on 500 kW, today it is almost on 70 MW, and there are no signs of the growth slowing down any time soon."

Eaton has a good working knowledge of Advania Data Centers since its inception which for Mr Magnusson means a well-informed ability to help with the current and the future growth phase. "We build as we grow," he says, "and Eaton has been a key partner in growth."

In fact, this ongoing relationship has helped foster a great working relationship. "My personal experience has been really good. I've been able to call on Eaton and they are willing to answer and help with anything. They go the extra mile and provide a very professional and personally tailored level of service," said Mr. Magnusson.

Eaton
EMEA Headquarters
Route de la Longeraie 7
1110 Morges, Switzerland
Eaton.eu

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