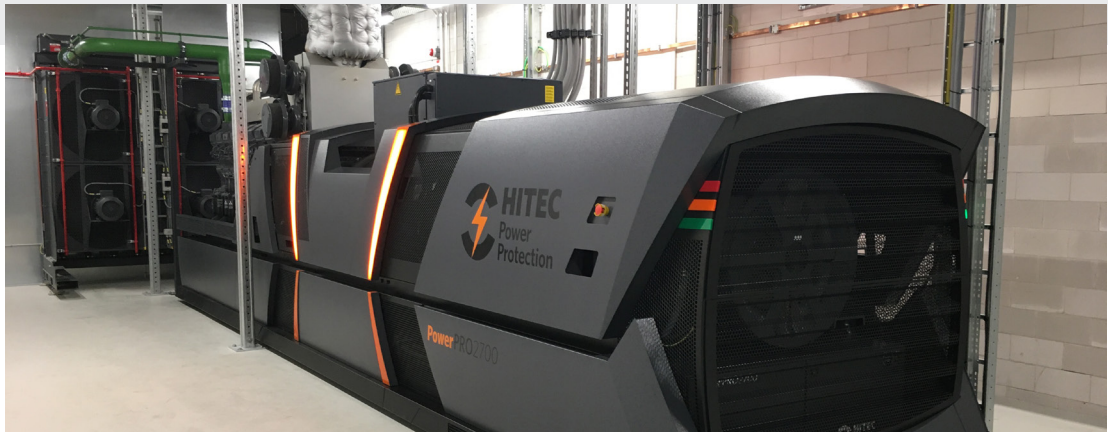


DatacenterWorks

In 2020, the editors of DatacenterWorks asked a number of leading providers for their views on the world of UPS, including Henk Mulder - Business Leader EMEA at HITEC Power Protection.

Modularization is of course a trend that we have seen for a number of years when it comes to Uninterruptable Power Supplies. But that is certainly not the only development that Dutch suppliers of UPS systems and power infrastructure solutions are seeing.



An emergency power supply in a datacenter

Henk Mulder actually barely mentions technology when he looks at trends. “To provide data centers and other critical applications with continuous mains power, UPS systems are of course used. These systems ensure that when the grid is no longer available, there is still a continuous power supply. The UPS has an energy source in which energy is stored temporarily, which can be used immediately when the mains fails. Batteries are often used as the energy source for this. The increasingly popular lithium batteries have a higher energy density (kWh/m³) and last longer than the usual lead-acid batteries.”

Particularly in the raw material lithium, Mulder sees a problem. “For lithium, half of the world’s reserves are in the so-called ‘lithium triangle’, mostly in pristine salt flats in areas of Argentina, Chile and Bolivia. Mining companies have been accused of exploiting the local population, extracting excessive amounts of drinking water and damaging pristine natural areas. For cobalt, more than half of the world’s reserves are in the Democratic Republic of Congo, where mining companies have been accused of child labor and serious health and safety violations. In 2019, a human rights organization filed a lawsuit against Apple, Google, Dell, Microsoft and Tesla on behalf of 14 families in Congo.”

OFFER AN ALTERNATIVE

The use of lithium batteries raises ethical questions, to say the least, Mulder believes. Let alone the fact that the recycling of these batteries is not yet regulated. In addition, use results in an increased fire risk.

Fortunately, there is an alternative, Mulder believes. "A DRUPS (Dynamic Rotating UPS) provides for the seamless integration of a standby diesel generator and a UPS system. What is striking about this is that the DRUPS system does NOT use batteries. The entire system takes up about 40-50% less floor space and has an efficiency equivalent to so-called static UPS systems with batteries."

HITEC Power Protection has installed more than 2,000 DRUPS systems worldwide in more than 60 countries providing a combined capacity of over 3,100 megawatts of continuous energy. Whether it is the continuous energy supply of the world's longest train tunnel through the Swiss Alps, reliable energy supply of the world's most modern data center in Singapore or high-quality energy supply of the world's largest semiconductor factory in China, HITEC is helping to build unique projects worldwide together with our customers.



Batteries are an important source of malfunctions in many data centers due to lack of maintenance.

CONCERN FOR BATTERIES

The role that batteries play in an emergency power supply is still sometimes underestimated, says Wim Nieuwenhuizen, responsible for EMEA sales Grid Solutions at Franklin Electric. "Your UPS (Uninterruptible Power Supply) system is the heart of your backup power. But just a single bad battery in a UPS battery string already creates a risk of downtime," he says. "Battery failures are responsible for more than half of all UPS failures. What's more, it doesn't matter whether the battery system is ValveRegulated Lead Acid (VRLA), Vented Lead Acid (VLA) or nickel-cadmium (NiCad). The batteries are by far the most vulnerable and failure-prone part of a UPS. Therefore, regular maintenance of these batteries is critical to ensure backup power is available when needed."

The main concern for a battery system is the environmental conditions of the UPS system. Unfavorable environments can significantly shorten available life. "Batteries that are too hot or too cold adversely affect the batteries' ability to conduct and store energy. It has

been estimated that every temperature increase of 8-10°C halves the battery life. Therefore, always consult the battery manufacturer's specifications for the recommended operating temperature range of the battery."



More and more data centers are demanding 99.9999 percent uptime



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