

TOTAL COST OF OWNERSHIP

IT & DATA CENTER FINLAND

- UPS type: Dynamic UPS
- Power module: 2,000 kVA
- No-break rating: 1600 kW @ 0.8 pf of net usable power
- Engine rating: Data center continuous (DCC) rated at 2000 kVA
- Phase 1 install: 2 modules
- Total install: 4 modules in total
- Operating voltage: 400 V/50 Hz
- Configuration: Distributed redundant
- Housing: Indoor

The client in this case is a large ICT solutions provider, more specifically in the colocation data center space. Originating from Scandinavia and publicly listed they have global capabilities

and a local presence in close to 20 countries. A key focus for the client is total cost of ownership. This helps them to remain competitive.

Project Challenge

Although the cost for electricity in Finland is one of the lowest in Europe, it is a very significant factor in the operational cost of a datacenter. On average 6% of the total electricity consumption in a datacenter is due to heat losses in the UPS systems. To give an example; If a datacenter has a UPS system installed of 4MW with an efficiency of 94%, 255kW will be dissipated by the UPS systems. Mind you, another 255kW will be required in cooling to remove this heat from the building. This means 510kW of losses. Assuming 10 cents per kWh, the math is easy: $510 \times 0.10 \text{ EURO} \times 365 \text{ days} \times 24 \text{ h} = \text{EURO } 446,760.-$ in annual losses!

If the heat losses of the UPS systems could be reduced cost savings can be made. If the UPS efficiency can be improved to 97%, the heat losses will become 123kW. Also for the removal of this heat we need another 123kW in cooling capacity. Total losses: $246\text{kW} \times 0.10 \text{ EURO} \times 365 \text{ days} \times 24 \text{ hours} = \text{EURO } 215,496$

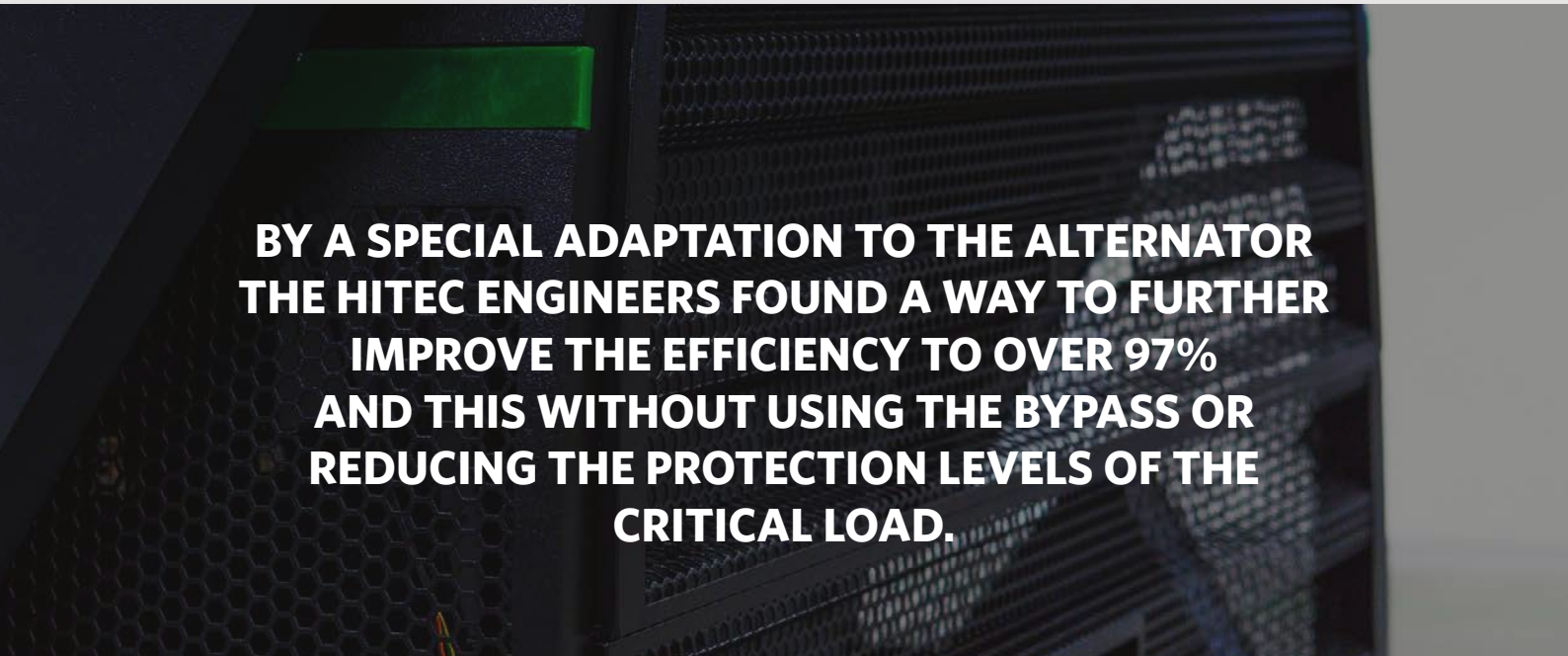
We see a total saving of EURO 231,264,- annually! This shows the importance of having the highest possible efficiency in a UPS system without compromising the power protection for the critical load.



Project Solution

The efficiency of Static UPS systems has improved over the recent years as a result of new technologies in the power electronics. Nowadays a Static UPS system can reach 96.5% efficiency. Some manufacturers claim 98% or 99%, however in such cases the load will be supplied directly from the utility through the static bypass of the UPS. Despite the fact that the efficiency of a Static UPS is similar to that of a Dynamic Rotary UPS (DRUPS), the Static UPS uses batteries that need cooling. The batteries need to be kept at 20 °C ambient temperature.

This required significant cooling capacity. A DRUPS system only needs ventilation and does not require any cooling. In addition HITEC has introduced the new PowerPRO2700, a state of the art Dynamic Rotary UPS system. Besides many other technical benefits, the PowerPRO2700 offers a very high efficiency. By a special adaptation to the alternator the HITEC engineers found a way to further improve the efficiency to over 97%. And this without using the bypass or reducing the protection levels of the critical load.



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Customer Experience

By selecting HITEC PowerPRO2700, the client selected the most efficient power protection solution for their datacenter. This will keep the electricity bill at the lowest for many years to come, allowing them to compete effectively in the

datacenter market. In addition the exceptional award winning industrial design of the PowerPRO2700, radiates a strong image of their datacenter to their clients.



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