# NETWORK OPERATIONS: MANAGING HIGH HEAT LOADS AT MINIMUM COOLING COSTS

**Multi-tenant Telecom sites represent a financially sustainable solution to insufficient network coverage and capacity. This Italy-based shelter site with 3-4G LTE equipment is ensuring further financial sustainability by ensuring site uptime, prolonging the service life of the enclosed electronics and keeping strict control of a minimised cooling OPEX.**

**The challenge of increasing data streams**

LTE users will increase by 80% in 2015, thus exceeding to 800 million globally. At least according to recent predictions from Ericsson President and CEO, Hans Vestberg, at Customer Keynote MWC 2015. Fact is that the present number of mobile broadband subscribers amounts to 2.9 billion globally, one billion of which were added in just the last two years.

From the network operators' point of view, this is a serious challenge in terms of keeping up with increasing demands for network coverage and capacity. Especially when you don't have the budgets to keep your network updated in terms of acquiring the latest GSM-network technologies. The reality is that network operators have to provide faster, more reliable mobile connectivity with the equipment available and at competitive operational costs.

**Managing high heat loads at Italy-based LTE site**

The business case in question concerns the roll-out of appr. 400 multi-tenant Telecom sites in Italy. Housing 3-4G LTE equipment, it is estimated that heat loads inside the shelters will be high - adding to the challenge of successfully deploying overall reliable connectivity without seriously affecting the running costs in terms of cooling.

Energy-efficient electronics cooling in a region with a variety of climate systems and considerable differences in temperatures according to both location and season would have to be both flexible and of high capacity. Furthermore, the customer would need a complete climate control solution which would not only apply maximum protection of the temperature-sensitive transmission equipment, but also reduce OPEX to a minimum.

**Complete climate control and minimised cooling costs in one solution**

Reducing the operational costs on cooling is in many cases a question of minimising the use of air conditioning, at least where free cooling is an option. The applied solution for this type of shelter application is therefore Dantherm Combo Cooling built with both free cooling and air conditioning.

"*We are making two Combo units work together on each shelter, which is an interesting detail of this solution. Our controller is set to initiate free cooling as a standard and only switch to air conditioning, when the ambient temperatures require active cooling. This means that the already enhanced free cooling capacity compared with other solutions on the market is doubled for each shelter. This way, we simply postpone the circumstances requiring air conditioning, thus maintaining low running costs on cooling for as long as possible and reducing wear of the air conditioners*", says Climate Consultant Randi Sandfeld.

When active cooling is required, just one air conditioner is activated to see if this will initially cover the cooling need. When both air conditioners are active, an adaptable lead/lag function controls equal vs. individual wear of the air conditioners – enabling detailed planning and budgeting of costs relating to replacing equipment. Finally, making two free cooling units cooperate allows for reduced fan speed and thus reduced power consumption and noise level.

Want a visit from our climate consultants? **Find us at [www.dantherm.com](http://www.dantherm.com)**