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TELECOMS GOES GREEN WITH LOW-POWER BASE STATIONS

Rising oil and electricity prices are pushing operators to look for ways to make their base stations environmentally friendly and cheaper to run. Through a combination of improved energy efficiency and the use of low-carbon energy, they could cut CO2 emissions by a quarter.

One of the techniques being investigated is letting the equipment inside base stations run as high as 40 degrees Celsius before cooling kicks in, rather than the typical 25 degrees. Another suggestion from Nokia Siemens includes a partial shutdown of equipment during the night. These combined efforts could save about 50 gigawatt hours gWH of electricity a year, worth roughly 6 million Euro. This is the equivalent annual consumption of 5,000 households or 26,000 tonnes of CO2.

Ericsson's contribution is the Tower Tube, which combines an antennae and tower in a single facility. Because of the structure's design, the equipment inside requires no active cooling and so uses 40 per cent of the energy of traditional base station and antennae. Ericsson also reckons that traditional base stations could use 10-20 per cent less electricity by having an automatic standby installed.

In the developing world, many base stations are located off-grid and so rely on diesel as the primary and secondary fuel source. As well as the rising cost of oil, the challenge is delivering thousands of barrels of the fuel to locations with poor or non-existent roads. Consequently, many developing market operators are looking to renewable energy. Indian operator Idea Cellular is trialling base stations powered partly by waste cooking oil, while Uganda's Celtel is using an Ericsson hybrid solution that will cut its diesel bill in half by replacing the backup diesel generator with a battery bank.

And in Namibia, operator MTC, Motorola and the GSM Association have trialled a wind and solar power solution to support the operator's remote base stations. Not only did it provide sufficient power for ongoing operations and to charge back up batteries, it could deliver an ROI within three years.

According to mobile network optimization vendor Actix, the average mobile network creates as much CO2 as running a fleet of 120,000 cars, and accounts for 85 per cent of a mobile operators' power bill. Collectively, the world's mobile operators use 61 billion kWH and this could double by 2011.