Allison Murray, corporate responsibility manager at T-Mobile UK, talks about

transforming the telecom giant's energy consumption by installing smart meters

at 6000 mobile base station sites

Energy has always been high on the agenda for T-Mobile; a dedicated Energy Management Steering group meets regularly and is made up of members across the company with a responsibility for energy procurement and use, environmental management and reporting. Adopting Automatic Meter Reading (AMR) technology, also known as electricity 'smart meters', to get an accurate picture of our energy use across our mobile network was part of a wider strategy of reducing energy use and our carbon footprint. Other decisions included changing our energy mix to 10% renewable energy and 90% CHP with EDF Energy. These initiatives resulted in a 17% drop in carbon emissions in 2006-2007 and we hope to exceed our CO_2 reduction targets again this year.

You can't manage what you can't measure

Changing to smart meters means that we have 100% visibility of our consumption on thousands of sites across the UK. This has been instrumental in achieving energy reduction, procurement and asset management successes.

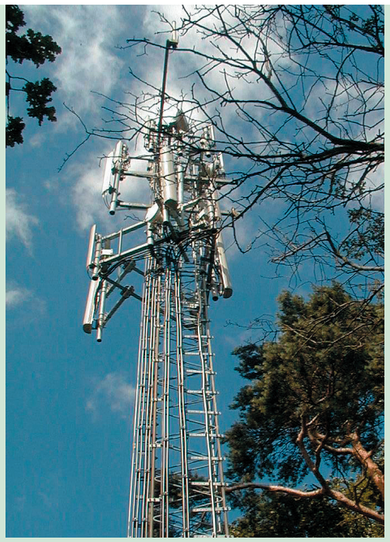
Accurately measuring energy use and carbon emissions can be challenging in an industry like ours. Our numerous and often difficult-to-reach sites offered a considerable test to energy and environmental managers when we relied on standard meters.

Using the data to 'think smart'

Now, the electricity 'smart-meters' are equipped with a SIM card that automatically sends meter readings to a secure database, enabling accurate energy readings to be taken on a half hourly basis at 6000 of T-Mobile's network sites. Access to this level of data has transformed our electricity use by providing insight that we could never have obtained from manual meter readings.

We can compare sites with similar profiles to pin-point any spikes and investigate potential problems, such as faulty cooling systems, before costs spiral out of control.

We also discovered that our energy use does not rise at certain times of the day and is not affected by higher call or data volumes. In other words, our network sites use the same amount of energy all day, every day. This flat usage profile makes it easier to procure the right volume of electricity as it is predictable. As a result we have been able to negotiate better energy tariffs with our energy supplier, reducing our costs even further. Less time is spent querying bills and more time is spent analysing our energy consumption and introducing further carbon reduction practices.



Getting started

The 6000 'smart meters' were installed over a two-year period. We were covering new ground but were lucky to have a forward-thinking director within our Infrastructure team who supported us all the way. And of course the business case was strong – accurate data means accurate bills. Although the meters do not reduce energy on their own, they give us the data we need to understand our energy use and determine how we can become more energy-efficient.

The size and complexity of the scheme meant that effective project management was essential. We worked closely with our utility management and energy consultants UPL and our energy provider, EDF Energy. Months of preparation and meetings were necessary to ensure that there was no disruption to our day to day business.

UPL engineers made the most of our own SMS technology and were equipped with T-Mobile web'n'walk enabled handsets allowing them to access real-time data including job sheets and emails, as well as take photos of the installation sites, while they were in the field.

EDF Energy set up a dedicated team for the management of these new sites and the team checked 500 meter swap outs each month to ensure that they were logged correctly in the billing system. They also arranged the meter installation schedules and were on hand to trouble-shoot any problems. At one stage, we were able to have 250 meters installed in just one week which were up and running in time for the next electricity bill.

There are many parties involved with installing smart meters so you need to have all the relevant information right from the start. For example, do you know who will be installing the meters? What tariffs do the meters need to be on? Will they all be on the same tariff or differ from site to site? Don't forget to provide contact details and opening hours for all your sites so the meters can be installed as scheduled.

Building energy-efficiency into our network

The vast majority (86%) of the electricity we procure is used to run our mobile network. Installing electricity 'smart meters' has been a powerful tool in illustrating the positive impact of our purchasing decisions as we build energy-efficiency into our operations. Manufacturers continue to make great strides to improve the energy-efficiency of their technology. For example, when we recently installed a new range of mobile network equipment we could clearly demonstrate an energy saving of a third (31%) through 'before and after' graphs of energy use.

How sustainability adds up

The installation of AMR on our new and existing network sites has involved a significant investment to date, and the new system does incur ongoing operational costs. However, it has allowed us to immediately save 7% per annum on energy bills by obtaining accurate energy use figures, resolving billing discrepancies and switching to a cost-effective dual-rate tariff. Energy bills have decreased and we predict that the initial investment will repay itself in two years.

T-Mobile is well prepared for the future and already in a good position when the Carbon Reduction Commitment comes into effect from 2010. This mandatory cap and trade scheme means that emissions have to be correctly measured, forecast and reduced, with carbon allowances bought accordingly. Smart metering ticks all those boxes and we are enjoying the environmental and cost benefits now.

Leading the way

In summary, through the installation of 6000 smart meters across our sites, we have accurate energy data which allows us to:

- Accurately calculate and verify our carbon footprint
- Demonstrate a company-wide CO_2 emission reduction of 17% between 2006 and 2007
- Be prepared for the Carbon Reduction Commitment
- Reduce energy bills by negotiating preferential tariffs
- Better understand where high levels of energy are used.

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