

The whole truth

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Holistic energy data is about more than simply reading your meter. Martin Chitty looks at the benefits

If Jane Austen had written a book about energy management, it might have begun: 'It is a truth universally acknowledged that an organisation in possession of an energy savings target must be in want of good energy data.'

The benefits of good energy data are no secret, and the sector is brimming with products and services for collecting, managing and analysing consumption data. Across domestic and commercial markets, smart meters and the 'Internet of Things' (IoT) are often regarded as a catch-all means of energy reduction; and we anticipate the explosion of IoT in the near future, with its promises of integrated, interlocking data-crunching devices, monitoring and controlling our energy usage.

It's clear that the quality of energy data has improved massively in recent years, particularly relating to consumption. Smart metering, cloud analytics and integrated building energy management systems ensure that many organisations can tell what they are using and where at the click of a mouse. Even organisations without this level of energy management technology can usually, fairly painlessly, view their historical usage in half-hour periods from the comfort of their desk. It's a far cry from the bad old days of manual meter readings logged on paper and filed away in dusty binders.

An holistic view

In spite of this improvement in data quality and availability, most organisations today do not have access to what I would call good energy data. They might have granular, comprehensive, accurate and timely consumption figures, which are incredibly important in improving energy efficiency. But these are still just one piece of the energy management jigsaw. What is required for effective energy cost-reduction is what I like to call holistic energy data.

This comprises all the different data that relates directly and indirectly to energy costs. It answers questions such as: how do we use energy? Why do we use energy? What happens if we use less or more? What are the financial consequences of our energy usage? Holistic energy data, when used effectively, is the nearest thing to a silver bullet in energy cost management. It allows us to better identify energy efficiency measures, and to look beyond efficiency to the myriad other opportunities to drive down energy expenditure.

Good site and estate data is a critical component of holistic energy data

Good site and estate data is a critical component of holistic energy data. After all, what's the point of energy data if you can't match it up with the property using that energy? You can't reduce costs if you don't know where and how they are being incurred. The number of large businesses and public-sector bodies that are paying for energy at sites they do not occupy, for instance, is astonishing, as is the number of organisations that miss overbilling and incorrect meter readings because they do not have or use good-quality data on floor areas, building characteristics and site services.

Eye on the money

Financial data is another essential constituent of holistic energy data. You might find a way to save 10,000kWh, but what does that mean financially? Depending on your energy contract, the movements of the wholesale markets, the time of day or year, or where in the country you are based, 10,000kWh could save you anything from ?800 to ?2,800. Furthermore, complex charging mechanisms such as distribution use of system, transmission network use of system and gas ratchet charges can turn small variations in consumption into enormous costs for your organisation.

Good financial data is essential to understanding the relationship between energy usage and costs. I have seen businesses make harmful investment decisions, approve costly procurements and miss cost-saving opportunities when they lack reliable financial evidence on which to base a convincing business case.

Understanding operations

Good operational data is another important aspect of holistic energy data. Energy consumption, and therefore cost, is directly related to site operations, whether opening hours, site occupancy or ? in the case of manufacturing businesses? production levels ? the running of specific machinery. Without good operational data, it is impossible to know when and where energy should and should not be consumed, or understand where small operational changes can lead to big cost reductions.

There are many demand management schemes available in today's market that promise major benefits for energy users, but they all require a detailed understanding of the relationship between energy usage and site operations to exploit to their full.

Know your network

Network data is another aspect of holistic energy data that is often overlooked. In my experience, 90% of organisations hold inadequate data on their local energy network, or fail to incorporate the data that they do hold into their energy management decisions.

Network charges make up 20% or more of most energy users' bills, and are dictated by the site's connection to the local grid. Without good network data, it is easy to miss overcharging; my experience suggests that energy users recover in excess of ?30m, possibly even as high as ?120m in overcharges from suppliers every year, much of which results from the correction of network costs (see [Property Journal May/June 2017](#), p.30).

The numbers don't lie: failing to collect, maintain and make use of good network data is an oversight that can be surprisingly costly. Furthermore, if organisations don't keep an eye on use of their local network, they can miss opportunities to ensure security of supply or take advantage of on-site power generation.

Rules and regulations

Regulation is the final piece of holistic energy data. For most energy users, an incredible 50-60% of the average electricity bill is made up of regulated charges dictated by complex and esoteric industry policy that largely comprise network and environmental charges.

Understanding regulatory changes is vital for organisations that hope to analyse the make-up of their energy expenditure. More than 100 changes to energy regulatory policy are proposed every year in the UK, many of which are enacted and affect the prices paid by customers. Without an understanding of the vagaries of energy regulation, it's again easy to miss overcharged energy bills, and be caught by surprise when costs suddenly increase or tariffs are restructured.

It's easy to miss overcharged energy bills

In fact, organisations with a good understanding of energy regulation can actually make their voices heard, contributing to consultations and speaking out when harmful or unfair proposals are made. You would think that major energy users would be keen to do this; however, although this power is in the hands of the consumer, it is rarely exercised. It's a sad fact that most industry changes in areas such as distribution and transmission charging are discussed and passed with no input or engagement from end users.

The bigger picture

So while energy consumption data is highly important, the concept of good energy data goes beyond your meter to include site and estate data, financial data, operational data, network data and regulatory data. Unfortunately the collection, maintenance and management of these is often neglected by energy users.

This results in many organisations across the UK, of all sizes and in all sectors, paying over the odds for their energy. Taking an holistic view enables savings beyond energy efficiency measures that would otherwise be impossible to identify. The benefits regularly outweigh the costs and effort required ? in fact, these savings can often be achieved with no financial investment.

Furthermore, having a good holistic approach to energy data can often help to project cost savings accurately and flesh out business cases for investments such as energy-efficient lighting, heating and renewable generation.

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