Powering responses to RIIO with geospatial

A new data-driven approach to network management may well turn regulatory necessity into business opportunity says Mike Ballard

The UK's energy infrastructure is in urgent need of modernisation and the country's rapidly growing population, fluctuating fuel prices and need to integrate alternative sources of power have placed pressure on utilities to change. In the words of Ofgem: Britain needs rewiring[1], and utilities will be given scant leeway as they set about this rewiring. Indeed, the regulator has been clear that any disruption to supply during the modernisation process will result in financial penalties being incurred. As we shall see however, a new data-driven approach to network management may well hold the key not only to solving these challenges, but to turn necessity into opportunity.

Carrot and Stick

With the Government demanding a modernised energy infrastructure fit to meet the challenges of sustainability, climate change, and energy security head on, Ofgem has put in place a new regulatory framework to enable change: Revenue Incentives through Innovation Output (RIIO). Through price controls enabled by RIIO, Ofgem hopes to ensure that utilities have what they need to modernise the network, improve supply and deliver a better service, while giving a fair price to the consumer.

RIIO combines the carrot with the stick. The stick is, in addition to price controls, the threat of significant penalties for energy network companies that fail to address the needs of consumers. The carrot, meanwhile, takes the form of incentives to drive the innovation required to deliver a sustainable and affordable energy network for the future.

There is a clear message to utilities: if they can innovate and help the UK towards its low-carbon future, ensure a constant supply and improve the overall customer experience, then there is some serious upside on offer.

Energy data and understanding the customer

To meet the demands of RIIO, data is going to be essential. Not only will consumer data help utilities balance supply and demand by showing how they are using energy, but it will also enable utilities to deliver enhanced customer service and experience.

Unfortunately, if you are not a retail energy supplier then getting access to this information can be difficult. Distributors do not have the visibility of consumption patterns that retail suppliers do, nor do

Messaging subgroups on Facebook and Twitter will help utilities achieve more targeted and effective customer communications

they have the direct relationships with end customers. This puts them at a disadvantage when it comes to acquiring the intelligence needed to meet the customer experience elements of the RIIO agenda.

Regardless of whether you are a distributor or retail supplier, if the demands of RIIO are to be met, then every last bit of data available needs to be collected, analysed and put to use in network management and customer communications strategies.

Geospatial: the key to customer service

When it comes to utilising their data assets utilities need to make sense of all the network data they have at their disposal. This is where geospatial technology comes into its own. Geospatial tools are able to organise data and present it to utilities for analysis in a spatial context. By combining customer data, asset data and data from the latest GIS services, spatial analytics tools literally map out events and patterns in energy use and asset performance over time on both a local and regional scale, and give utilities a clear view of how their customers consume energy and how the network performs under different conditions.

Geospatial can also help utilities deliver a consistent supply to consumers, even during unplanned events. Using these tools allows utilities to process real-time events to understand and visualise the impact on their network. For example, in the event of a major storm, energy companies can keep an eye on weather and energy patterns across their estate to predict and pinpoint major disruptions and immediately respond.

The big data mix

To deliver on the potential of geospatial data, utilities need to ensure they have the analytical capabilities to turn information into actionable insights. Here big data analytics appliances promise to dramatically improve the performance management of utility network assets.

On its own, big data analysis is a compelling proposition. However, when combined with geospatial technology, big data analysis becomes more insightful. As big data appliances can simultaneously process information from numerous locations, they make geospatial tools more accurate in real-time. This enables faster processing times and better visual representations of how the network is performing. Combined, geospatial and big data analysis add up to sophisticated customer-focused systems that streamline utilities' infrastructure performance.

Moreover, as these solutions have the capacity to store and index a much larger volume of information than was possible in the past, they provide utilities with the tools to approach data analysis in a holistic manner. GIS data can be stored on a database in real-time and thereby made available on-demand; superimposed on a spatial map to give utilities a meaningful and interactive representation of current conditions throughout their networks.

Communicating through geospatial

Geospatial information processed through big data allows utilities to profit from geocoding and time stamp signatures when responding to customer needs, and brings an element of social media to the troubleshooting processes of utilities. Consumers can champion the safety of their communities by engaging in their providers' networks; once they send in photos of a potential hazard, a fallen tree for example, the information can instantly be processed and projected onto a spatial grid, and any response can then be appropriately scaled and deployed straight to a problem area. This results in faster response times and higher utilisation and performance of field workforce.

When linked to a big data appliance, the latest advances in geospatial data analytics provide utilities more flexibility to develop and maintain their networks, as well as to respond to the immediate needs of their customers. For example, by mashing up geospatial information with customer data, such as postal codes or social media profiles, utilities are able to narrow down and identify groups of customers and channels through which they need to be communicated. So, for instance, utilities can target subgroups of Facebook and Twitter with messages around network planning, helping them deliver much more targeted and effective customer communications.

In short, geospatial technology enables utilities to visualise grid data, customer data and assets on one dashboard, and thereby deliver a real-time customer communications strategy that will help them stay on the right side of RIIO.

Beyond RIIO

Geospatial will therefore play an important role in helping modernise energy networks and deliver the high levels of customer service RIIO has set out to create. Moreover, it will help operators reduce costs and run more efficient networks, as well as help them bring on grid the diverse and intermittent energy supplies that will prove increasingly important as we decarbonise.

1. https://www.ofgem.gov.uk/ofgem-publications/64031/rewiringbritainfs.pdf

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