

Energy network companies are routinely required to invest to regenerate and improve their infrastructure. But the fifth Distribution Price Control Review (DPCR5), which will come to an end on 31 March 2015, has been unusual in that investment directed at telecommunications improvements as well as the more common line and energy infrastructure upgrades is under consideration.

Distribution network operators (DNOs) have been developing concrete proposals showing how they expect to improve their telecoms networks, particularly with regard to fibre optic services. Initially, this will be to meet the demand for next-generation communications (BT's Next Generation Networks implementation). But DNOs also realise that fibre optics will be core to the provision of communications for the future smart grid.

In their core energy networks, DNOs are understandably focused on reducing costs and improving efficiency to meet regulatory targets. Within DPCR5, these call for annual savings of £30-£100 million across the sector and efficiency savings of around 20 per cent. It is estimated that rolling out fibre optic networks across the UK will cost the energy sector £150 million, but it is an investment that is vital to meeting the industry's long-term strategic and efficiency goals.

Fibre optic networks offer far better performance than traditional communications networks. A fibre optic network allows data to be transmitted as a light pulse along a strand of fibre, which is faster and more efficient than along a copper cable. Rolling out fibre optical networks will enable distribution businesses to more cost effectively manage the communication challenges of the future, including predicting and responding to changes in demand that are anticipated to result from the widespread use of electric vehicles and distributed generation.

Implementing this kind of change nationally will be a massive, long-term commitment. However, the industry cannot afford to wait indefinitely – not least because the smart grid is high on the government's priority list. Smart energy infrastructure will convert traditional, one-way energy networks into a two-way energy exchange offering exciting possibilities for energy companies and their customers.

To deliver such services, the telecoms network needs to be capable of delivering high availability and resiliency, low latency and high data through-

Optical delusion



put – an enormous technology challenge. It is essential that the energy industry begins to plan now for what sort of communications network will be used.

DNOs have an opportunity to install optical fibre as they refurbish their electricity transmission lines to meet their DPCR5 and DPCR6 investment targets. The incremental cost of installing fibre is small when compared with the cost of replacing electricity conductors, and some companies have implemented a policy of including fibre in all electricity circuit refurbishment.

The effect of this is to slowly build a network of fibre which is not focused on the provision of communications but on the core network asset replacement programme. The key question here, though, is whether it is sufficient for distribution businesses to rely on an investment strategy for fibre that is tied to the core asset replacement programme. The latter looks at an asset life of 25-30 years, whereas high speed telecoms solutions will be needed within seven to ten years.

Eventually the fibre optic links will connect all the 132kV network, and progressively the 33kV network. The core backbone communications network will be supported by a range of local access telecoms solutions such as microwave radio, power line communications, public services (mobile phone networks, GPRS and 3G) and satellite services. ●

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DNOs need to roll out optical fibre networks as a standalone priority, not piecemeal as part of their core asset replacement programme, argues Peter Moray

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