

DCMS Call for Evidence

Future Telecoms Infrastructure

Summary

Western Power Distribution (WPD) is a Distribution Network Operator delivering electricity to 7.8 million electricity connected customers serving the Midlands, South West of England and South Wales and we welcome the opportunity to respond to this call for evidence and the move towards 5G. However we believe that there is a need to recognise that the electricity distribution sector of the energy industry is in part classed as critical national infrastructure (CNI), and where it is not CNI, it is widely recognised that a resilient electricity distribution network is of significant social and economic benefit to UK plc.; of which is highly reliant upon resilient voice and data communication systems, as such electricity distributors (Distribution Network Operators or DNOs) in the context of “Future Telecoms Infrastructure” should be regarded as a potential supplier and customer of any telecoms network infrastructure including 5G.

There currently appears to be a lack of detail in terms of network coverage and reliability that would be suitable to the energy industry as we move toward the 5G networks, and its speed of progress could undermine existing DNO telecom resilience if not worked through in a collaborative way. We also believe that a reliable electricity network and a reliable digital data network are essential to each other therefore reinforcing our view that enhanced collaboration is required between our organisations e.g. JRC & ENA with the support of a BEIS and DCMS collaboration also.

WPD would be most interested in participating in any working groups or trials to evaluate “Future Telecoms Infrastructure” proposals.

Background

WPD is a Distribution Network Operator (DNO), operating in the four regulated licence areas serving 7.8 million electricity connected customers in the Midlands, the South West of England and South Wales. However our network along with distributed generation is becoming smarter and more active and as a result we are stepping towards being a DSO, a Distribution System Operator evolving to a Low Carbon and Digital future.

In order for DNOs to maintain the reliability of supply and for the DSOs of the future, reliable, resilient and complete coverage comms need to be maintained and expanded upon for critical functions.

WPD’s primary focus as a DNO or a DSO will remain unchanged, distributing and proactively managing reliable electricity to its 7.8 million customers not just through day to day normal operation but also during events such as severe weather, flu-pandemics, Blackstart and acts of terrorism etc. To do this and

adapt to a low carbon future will require DSOs to have more sensors and hence more data and mix of resilient data infrastructure.

WPD is in a unique position among the DNOs of owning and operating our own telecoms. WPD's data infrastructure is already a mix of fibre and fixed wireless links to provide a backhaul / trunk network to its offices and communication sites, plus an extensive licenced and unlicensed radio (PMR & DMR) network to communicate to remote operational assets (Substations) and field staff.

We already know moving towards being a DSO our operational sites will require thousands of additional data sensors and resilient comms to support a future reliable distribution network. Note these "flexible / smart" systems are being rolled out presently and will grow exponentially, possibly dovetailing with smart grid and possibly smart cities in the future but only if structured in a collaborative manner at a National and possibly international level.

WPD's prime concern at present, is whilst we recognise the benefit of a digital communication infrastructure for the UK, the commercial players will not be able to offer a cost effective resilient system that could be relied upon for critical assets used to keep the lights on. Our experience to date is that commercially supported networks are currently significantly more costly than our own private networks, not as reliable and not able to support the coverage or connectivity to support remote locations; we have also had technical concerns in the past e.g. Provision of technically unsuitable solutions such as the need for the recent migration from BT private wire circuits on the BT21CN projects.

The preparation to move to 5G is already restricting WPD access to additional radio spectrum, we need more and there is presently no resilient alternative.

Key spectrum currently employed being:

- 26GHz and other fixed wireless link frequencies used for microwave communications for substation comms including electricity circuit protection.
- 450-470 MHz scanning telemetry frequencies, which will see massively increased volumes of traffic on our Scada systems going forward
- 400-430 MHz obtained from MOD because it is surplus but only granted on a temporary licence.

WPD are confident such hurdles can be overcome, but we would like to see more BEIS, DCMS and the energy industry collaboration to scope the delivery of a cost effective, resilient and reliable data infrastructure model that will support the energy requirements that we are accustomed to within the UK.

WPD would like to also propose;

1. Exploring the possibility of a secondary non-commercial 5G network. Such a service, could serve all UK essential utilities e.g. electricity, gas and water as a minimum.
2. Exploring the possibility of using DNO networks to potentially support commercial and non-commercial 5G rollout (fibre and property)

WPD call upon this “Calls for evidence” to highlight our concern, recognising the energy industry is an essential user of communications and it is used as an enabler to keep the lights on or get them back on following a high impact low probability event.

DCMS Call for Evidence

Future Telecoms Infrastructure

Questions & Answers

Questions:

1. What is the existing UK Telecoms market structure and policy framework able to deliver?

Answer

- WPDs concern presently is more in regard to what the system cannot deliver;
 - **Remote coverage** – this is critical to DNO and DSO use. In summary, complying with 99.5% population coverage would result in many DNO/DSO operational sites (Substation, distributed generation and energy storage) not being catered for.
 - **Reliability & Resilience** – comms networks supporting the electricity distribution network needs to be resilient to power failure. Note, existing 3/4G systems assume that the electricity networks are available all the time with very little down time. On the whole this is correct but additional resilience is required to cater for severe weather events, or high impact low probability events.
 - **Bandwidth, recognition of differing requirements between essential utility use and social use** - We would like to see 5G networks being able to provide the energy industry a resilient system used as a low data transfer / bandwidth user i.e. focus cannot prioritise solely on high data transfer and bandwidth users if to be used by utilities for critical operations.

- 2. What barriers exist to long term investment in the UK telecoms market (beyond work underway by the Local Full Fibre Networks programme to stimulate demand, and by the Barrier Busting Taskforce to reduce build costs)?**

Answer

- WPD recognises that improvements could be made to;
 - **Improve the deployment of fibre** - Overhead electricity lines could be used to gain access into difficult and hard to reach areas, and so could extensive cable installations. Noting commercial data infrastructure owners are usually reluctant to install assets where there is a low user base.
 - **Improve wayleave structure to promote enhanced deployment of fibre** – review with the intention of reducing commercial fibre wayleave rates to promote greater investment in expanding data infrastructure.
 - **Amend Lit fibre business rates** – we believe there is scope for a different business rate to be applied to circuits built to serve difficult geographical areas with limited users.

3. What can the UK learn from the widespread deployment of fibre network in other countries?

Answer

No comment

4. The Government wants to consider all market models that will facilitate the next generation of technologies.

- a. What different market models* might work in the UK in the longer term, and what risks and opportunities do they present?**

Answer

WPD would like the opportunity for the energy industry along with BEIS & DCMS to work together to evaluate the feasibility of utilities co-existing on a non-commercial 5G/LTE networks alongside a fully commercial platform.

Utilities have distinct and differing requirements to commercial comms customers e.g. gas, water and electricity distribution require a comms networks that is very reliable, able to serve remote locations, resilient to power failure and operate generally using lower data rates to that of commercial / social users.

Note: We anticipate this approach would require spectrum to be allocation specifically for e.g. Energy / Utility users and would therefore not allow such spectrum be sold or auctioned to the highest bidder; as utilities would not be able to compete in that market space.

- b. What should Government consider when assessing the potential for migration from copper to full fibre networks?**

Answer

WPD believes increased deployment of fibre could assisted by improving costs associated with wayleaves and lit fibre business rates, particularly where new circuits or systems are required in hard to access / difficult geographical areas, or where the volumes of customers make the commercial models inviable.

5. The Government wants to achieve its digital infrastructure goals at the least additional cost. How should new digital infrastructure be paid for?

Answer

No comment at this point, as DNOs are not currently engaged, however WPD would be willing to assist evaluating a viable solution.