

DCMS Consultation

Statement of Strategic Priorities for telecommunications, the management of radio spectrum and postal services

Executive Summary

The Energy Networks Association (ENA) and the Joint Radio Company (JRC) welcome the opportunity to provide this joint response to this consultation and support the intent of DCMS to establish Strategic Priorities that deliver Policy outcomes. In our response to the 'Future Telecoms Infrastructure Review' we emphasised the key importance of spectrum access in enabling interference free wireless based control systems on which the UK's resilient and robust Electricity Supplies are dependent. In this statement we welcome the acknowledgement of a need for 'Private' networks for Industrial verticals to enable wireless automation, to this end the Energy sector is seeking access to additional radio spectrum¹ to facilitate the 'Smart Grid' developments on which the UK's Future Low Carbon Economy depends. More specifically we see an alignment between the current information gathering exercise being undertaken by Ofcom to understand the long-term spectrum needs of the Energy sector and the recent investigations undertaken by MoD stimulated by the Public Sector Spectrum Release Programme. To this end we are encouraged by the intent from Government to find ways to facilitate the release / sharing of additional public sector spectrum to allow it to support other uses.

We note a significant emphasis in the statement on the extension / expansion of both fixed and mobile broadband for Consumer and Business users. Whilst we welcome the efforts here to enhance the availability and performance of Public Communications Networks as these platforms are used by Industrial Verticals such as the Energy Sector for non-critical communications requirements, we also wish to note that Industrial Verticals such as the Energy Sector depend on 'mission-critical' communications systems where resilience and redundancy are designed in to ensure that they can continue to function in the event of major disruption to National Infrastructure. To this end we note the 'Switchover Process' to migrate consumers away from the fixed Copper network, it is worth emphasising that this network has been used extensively by the Energy Utilities for voice and data services because of the inherent resilience that has been designed into this communications network. Unfortunately, in switching to fibre-based solutions these new fixed solutions have not been designed to have an equivalent level of resilience and as such will not address the operational requirements of the Energy Sector.

When co-ordinating the activities that naturally flow from the Statement of Strategic Priorities, particularly in the context of Industrial Developments, we encourage DCMS to liaise closely with other Government Departments to ensure alignment of Policy interventions across Government.

¹ Need for Increased Spectrum Allocation and Investment in Operational Telecommunications to Support Electricity Networks, Position Statement of the Energy Networks Association Strategic Telecommunications Group, Jan 2019.
http://www.energynetworks.org/assets/files/ENA%20STG%20Comms%20Brochure_TCL_Final%20v4%20issued.pdf

Background

The Energy Networks Association (ENA, www.energynetworks.org)

Energy Networks Association (ENA) represents the ‘wires and pipes’ transmission and distribution network operators for gas and electricity in the UK and Ireland. Our members control and maintain the critical national infrastructure that delivers these vital services into our homes and businesses.

ENA's overriding goals are to promote the UK and Ireland energy networks ensuring our networks are the safest, most reliable, most efficient and sustainable in the world. We influence decision-makers on issues that are important to our members. These include:

- Regulation and the wider representation in UK, Ireland and the rest of Europe.
- Cost-efficient engineering services and related businesses for the benefit of members.
- Safety, health and environment across the gas and electricity industries.
- The development and deployment of smart technology.

As the voice of the energy networks sector ENA acts as a strategic focus and channel of communication for the industry. We promote the interests and good standing of the industry, and provide a forum of discussion among company members.

ENA also provides business support functions to a number of industry related companies. These include secretariat services, financial services, database management, tailored consultancy services, public relations and event management.

The Joint Radio Company (JRC, www.jrc.co.uk)

Joint Radio Company Ltd is a wholly owned joint venture between the UK electricity and gas industries specifically created to manage the radio spectrum allocations for these industries used to support operational, safety and emergency communications.

JRC manages blocks of VHF and UHF spectrum for Private Business Radio applications, telemetry & telecontrol services and network operations. JRC created and manages a national cellular plan for co-ordinating frequency assignments for several large radio networks in the UK.

The VHF and UHF frequency allocations managed by JRC support telecommunications networks to keep the electricity and gas industries in touch with their field engineers and remote assets. These networks provide comprehensive geographical coverage to support installation, maintenance, operation and repair of plant in all weather conditions on 24 hour/365 days per year basis.

JRC's Scanning Telemetry Service is used by radio based Supervisory Control And Data Acquisition (SCADA) networks which control and monitor safety critical gas and electricity industry plant and equipment throughout the country. These networks provide resilient and reliable communications at all times to unmanned sites and plant in remote locations to maintain the integrity of the UK's energy generation, transmission and distribution.

JRC also manages microwave fixed link and satellite licences on behalf of the utility sector.

JRC supports the European Utility Telecommunications Council's Radio Spectrum Group, and participates in other global utility telecom organisations. JRC participates in European Telecommunications Standards Institute (ETSI) working groups developing new radio standards, and European telecommunications regulatory groups and workshops.

JRC works with the Energy Networks Association's Future Energy Networks Groups assessing ICT implications of Smart Networks, Smart Grids & Smart Meters, is an active member of the Energy Networks Association Strategic Telecoms Group and is an acknowledged knowledge source for cyber-security in respect of radio networks.

General Observations on the Statement of Strategic Priorities for telecommunications, the management of radio spectrum and postal services

Context: The changing Energy Supply Market and the increasing importance of Operational Telecommunications

UK Energy Networks are undertaking a transition from centralised Energy Generation to a model where energy generation is distributed via a larger and diverse set of generation points resulting in a shift from a passive to an active or “Smart” grid where energy flows in two directions. This shift to an active and distributed grid demands a greater level of intelligence and interconnectivity (sensors, communications and control) and automation across the entire distribution network, in order to ensure co-ordination, efficiency, responsiveness, safety and security. Wireless based communication systems have always been a critical component of the Command and Control systems of the UK Energy Networks and with this increasing diversity of energy supply the number of devices that will need to be connected in the network will potentially increase by up to three orders of magnitude with data volumes increasing accordingly. This will be facilitated by a digitisation of the active assets that form the energy networks with a resulting significant expansion in the active communications component needed to facilitate the Management and Control of the energy networks. To this end, we are encouraged by DCMS’s intention to provide clear direction to Ofcom through its Statement of Strategic Priorities and more specifically we welcome the observations relating to Public Sector spectrum release aligned to the recognition of the importance of Private Networks to address the needs of Industry Verticals. To this end, the UK Energy Sector is keen to work with DCMS and Government to establish the appropriate regulatory framework to facilitate the spectrum access arrangements necessary to enable the ‘Smart Grid’ developments on which the UK’s Future Low Carbon Economy depends.

JRC’s Detailed Response to Questions

Consultation questions

Do you agree with the Government’s strategic priorities and desired policy outcomes for telecommunications, the management of radio spectrum and postal services?

Does this document set out clearly the role of Ofcom in contributing to the Government’s strategic priorities and desired outcomes?

Section 1: World Class Digital Infrastructure which focuses on;

We note the underlying priority here is to enable the roll-out and availability for UK Consumers / Business of high-speed fixed broadband in conjunction with increased service coverage of existing mobile services (up to 95%). As such we limit our responses to the following aspects;

- Effective Access to Passive Infrastructure in telecoms and other utilities;
- Stable and Long-Term Regulation that encourages network investment;
- Switchover Process;
- Mobile and 5G Connectivity; and
- Spectrum Management.

Effective Access to Passive Infrastructure in telecoms and other utilities

The Energy Utilities have a long history of working with and assisting the Telecoms sector in the provision of access to passive infrastructure and recognise that the roll-out of networks is dependent on access to

appropriate infrastructure in a cost-effective manner. We strongly encourage the Telecoms industry to continue to partner with the Energy Sector on communications network roll-out to the benefit of both industries. Such collaboration needs to be undertaken in a mutually beneficial way, should not compromise core operational capabilities and access arrangements be administered on a Fair, Reasonable and Non-Discriminatory basis. In this regard, the Energy Utilities have experience of Telecoms Operators seeking access arrangements under the revisions to the Electronic Communications Code which are not consistent with the effective functioning of the market. In terms of addressing these issues we welcome the commitment to work with other UK regulators (including HSE, Ofcom, Ofgem and OfWat) to ensure that opportunities for passive infrastructure sharing are explored.

Stable and Long-Term Regulation that encourages network investment

We note the emphasis on encouraging network roll-out through market competition and the potential need of market interventions where the market cannot deliver on economic grounds. It also important to acknowledge that whilst competition is a means of establishing a basic level of service capability within public networks, there are inherent limitations in terms of what consumer-based market competition will deliver. Principally both the fixed and mobile networks have been deployed to serve consumer requirements and as a result are not designed to provide a guaranteed quality of service, including traffic prioritisation and hence are not capable of providing the 'mission-critical' operational telecommunications capability on which Energy Networks depend for their robust operation. To this end, long-term security of access to appropriate spectrum for the Energy Utilities is central to the sector being able to develop and invest in the operational communications capability necessary to enable the 'Smart Grid' functionality needed to facilitate Government Policy objectives and deliver the UK's Future Low Carbon Economy.

Switchover Process

In light of the intention to switchover from the legacy copper network to new fibre networks whilst we welcome the commitment by DCMS to require Ofcom to protect consumers we also encourage DCMS to take account of Industrial Users and how their communication needs are supported in such a process. It is worth noting that the Energy Utilities have historically utilised the Copper-based fixed network to support operational voice and data requirements. The key benefits of the fixed copper network are almost zero latency and the designed-in resilience of the network to power outage. Digital networks have inherently more latency than analogue circuits and power resilience has not been designed in to the new fibre-based networks. These vital attributes of the copper network were not specific design features of the legacy networks, but essential characteristics from the perspective of the energy industry and therefore the Energy sector will need appropriate assistance from DCMS and Ofcom to establish a cost effective and credible alternative.

Mobile and 5G Connectivity

DCMS's proposals are focused on developments associated with enhanced Mobile Network coverage and the release of spectrum to enable 5G developments with the expectation that the new 5G technology will result in enhanced network competition which will address challenges such as rural coverage and industrial applications. It is not immediately obvious why a technology development such as 5G will address market / economic challenges such as rural coverage or deliver robust and resilient solutions for Industrial applications. Such challenges require a significant investment in network infrastructure which Mobile Network Operators have been unable to justify on commercial grounds, hence an expectation that technology developments will fix this appears misplaced. The Energy Utilities have designed and deployed their own operational telecommunications system capability as Commercial Operators have been unable to service their requirements for guaranteed service quality at a reasonable and

proportionate cost. Moving forward and in anticipation of the increasing dependence of the Energy networks on wireless based operational telecommunications systems to service their Smart Grid investments it is reassuring to note that under the Spectrum Management proposals that DCMS has emphasised the need of Private networks to support Industrial applications.

Spectrum Management

We have already noted the importance of additional spectrum access to support ‘Smart Grid’ developments and welcome the strategic priorities of public sector spectrum release in the context of Private networks as a potential means of enabling the Energy sector’s spectrum needs. As has already been observed the proposals are targeted at consumer outcomes – we encourage DCMS to consider a broader perspective and target the specific needs of industry verticals such as the Energy sector. In Ireland, the Irish regulator ComReg² is planning an award process where 2 x 3 MHz of spectrum in the 400 MHz band will be reserved for ‘Smart Grid’ developments by the Irish utilities and encourage similar developments in the UK. To this end, we welcome the current initiative by Ofcom to establish the long-term operational communication needs of the Energy Utilities in order to inform future strategic spectrum release activities.

Noting the other proposals, we welcome the intention to establish greater liquidity in spectrum markets, a greater emphasis on International co-ordination activities and encourage an acknowledgement of the need for spectrum access as a key input for ‘Smart Grid’ developments in the ITU process.

Section 2: Furthering the interests of telecoms consumers

No Response

Section 3: Secure and resilient telecoms infrastructure

The proposals are specific to establishing the appropriate levels of security for Public networks both fixed and mobile. The Energy Utilities welcome the focus on ensuring that appropriate security measures, including in the supply chain, are implemented to protect Corporate systems that interface to and / or communicate across public networks.

In addition to this the Energy Utilities typically own and operate discrete operational telecommunications networks to monitor and control the assets in their network. As these networks evolve in their functionality and reach to facilitate ‘Smart Grid’ capability the technology will move from analogue based systems to all digital Internet Protocol (IP) based systems. This transition to IP will result in an increase in the amount of data that needs be transferred, this aligned to the need for encryption and a significant expansion in the number of active assets deployed results in the request for additional spectrum access.

Finally, the Black Start Task Group, chaired by BEIS, is working to refresh the Black Start Standard to ensure that the UK Energy Sector can rapidly restore energy supplies in the event of a significant power outage. As part of this process resilient and robust operational telecommunications capability, both voice and data, have been identified as a critical enabler and we encourage DCMS to take due consideration of this requirement in future Policy activity.

Section 4: Postal services

No Response

² ComReg Consultation Ref 18/92 issued 24/10/2018, ‘Further Consultation on the Release of the 410 – 415.5 / 420 – 425.5 MHz Sub-band.’

Conclusions

The Energy Networks Association and the Joint Radio Company (JRC) welcome the opportunity to respond to this consultation and we support the approach to establish Strategic Priorities for Ofcom based on the defined process. More specifically we encourage DCMS to explore in more detail the specific needs of Industry Verticals, e.g. the Energy Utilities, to better inform the Policy priorities. To this end it is worth noting that the UK Energy sector is seeking access to additional economically viable radio spectrum to facilitate the 'Smart Grid' developments on which the UK's Future Low Carbon Economy depends and which is at the centre of the Government's Industrial Strategy.