DCMS Call for Views

Future Telecoms Infrastructure Review: Call for Evidence

Executive Summary

The Joint Radio Company (JRC) welcomes the opportunity to respond to this call for views and in particular we support the approach from Government to consider alternative market frameworks when seeking to establish the market for 'future new digital infrastructure.' Moreover, future Industrial Developments will be predicated on the establishment of next generation digital communications infrastructure that will enable initiatives such as 'Smart Grid.' Noting that 'Smart Grid' is central to establishing the UK's 'Low Carbon Economy' then we encourage DCMS to ensure alignment between the Policy framework designed to facilitate the new digital communications infrastructure and broader Policy interventions across Government.

In addition, we see merit in considering the role that Industry Verticals, e.g. Energy, Automotive, Health and Care might have when establishing the market framework for 'new digital infrastructure.' Moreover, Industry Verticals may facilitate reach and capacity on a truly national basis that has to date not been economically rationale for existing licensed operators.

Finally, we encourage DCMS and Government more broadly to note that the availability of UK Communication Networks is dependent on access to resilient and robust electricity supplies which are subsequently predicated on secure access to interference free wireless-based control systems. To this end, where spectrum access is a key component of enabling Critical Infrastructure such as Energy Networks then this aspect should be captured in DCMS's ongoing oversight of Critical Communications Infrastructure.

Background

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. These networks provide comprehensive geographical coverage to support installation, maintenance 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 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 also manages microwave fixed link and satellite licences on behalf of the utility sector.

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

JRC's General Observations on the Future Telecoms Infrastructure Review: Call for Evidence

Introduction

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 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 networks, in order to ensure co-ordination, efficiency, responsiveness, safety and security. Wireless based communication systems have always been a critical component of the Management 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 networks. To this end, DCMS's initiative to establish the appropriate market framework to facilitate these developments will have a profound impact on the Energy Sector's ability to deliver upon Government objectives such as establishing a 'low carbon' economy. Therefore, the UK Energy Sector is keen to work with DCMS and Government to establish the market framework to facilitate the new digital infrastructure future.

The Role of Industry Verticals

One of the key attributes of 5G technology and new digital infrastructure is its potential to enable new industry verticals and the Energy Utilities are keen to consider 5G technology in its portfolio of solutions to facilitate future 'Smart Grid' developments. To this end we encourage DCMS and Government to ensure that the framework is suitably flexible to support the necessary investment by industry in such verticals which will inevitably require coverage and capacity to be deployed across the operational area of the Energy Networks and in so doing facilitate communications provision to areas of the UK that might otherwise not be served. From a broader 'Enterprise Verticals' perspective there may be the potential for more multiple industry verticals to utilise common network infrastructure to facilitate their discrete needs and in so doing establish a cost-effective approach to 5G and new digital infrastructure deployment.

In addition, stable and resilient energy provision is key to facilitating a future connected world in which Industry Verticals that have mission critical attributes, e.g. Automotive, Health and Care, are able to depend on the communications capability and resilience of new digital technologies such as 5G. To this end, there is a mutually beneficial opportunity to be realised from establishing the needs of future Industry Verticals when establishing the framework for future new digital infrastructure deployment. Moreover, the direct relationship between communications network resilience and access to secure and resilient power has been clearly identified by Ofcom.[1] We are therefore very keen to work with DCMS, Ofcom and Ofgem to ensure that future communications networks are designed and deployed with the appropriate levels of resilience.

[1] Connected Nations Report 2017, Section 8 Security and Resilience pg 64.
https://www.ofcom.org.uk/__data/assets/pdf_file/0021/108516/connected-nations-security-resilience-2017.pdf

JRC's Detailed Response to Questions

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

- When will it deliver, and how certain can we be that it will fulfil the Government's ambitions for full fibre networks and 5G deployment?
- What will this mean for roll-out of these technologies and for competitive models in different geographic locations?

Response

Q1. The UK Telecoms Market structure and policy framework is dominated by licensed vertical operators that have control over access to the infrastructure (including spectrum), active network equipment and the end customer (very much consumer oriented rather than Enterprise). As such service provision has largely been dictated by government / regulatory interventions, e.g. coverage obligations in spectrum licences, to drive coverage and more recently capacity to parts of the UK that would otherwise not be served on a purely economic basis. Unfortunately, such coverage and capacity obligations can lead to unintended consequences, e.g. the recent emphasis on 4G (LTE) roll-out has had a direct impact on the availability and reach of services such as 2G & 3G through rationalisation of the number of active cell locations to facilitate 4G roll-out. Furthermore, recent efforts to facilitate mobile services to 'not spot' locations has largely been unsuccessful due to a lack of commercial incentive / benefit to the licensed operators.

In the context of future 5G and new digital infrastructure deployments the approach to market access will have a profound effect on the availability of services. If the established model is followed then incumbent providers will by default become 5G service providers and the inadequacies of the current arrangement will persist. One of the key attributes of 5G technology is its potential to enable industry verticals and the Energy Utilities are keen to consider 5G technology in its portfolio of solutions to facilitate future 'Smart Grid' developments. To this end we encourage DCMS and Government to ensure that the framework is suitably flexible to support the necessary industry investment by industry in such verticals which will inevitably require coverage and capacity to be deployed across the operational area of the Energy Networks and in so doing facilitate communications provision to areas of the UK that might not otherwise be served. From a broader 'Enterprise Verticals' perspective there may be the potential for more multiple industry verticals to utilise common network infrastructure to facilitate their discrete needs and in so doing establish a cost-effective approach to 5G and new digital infrastructure deployment.

Q.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)?

- What effect do existing revenue streams have on investment plans?
- What effect do visibility and predictability of returns have on investment plans?
- What is the effect of current infrastructure deployment models?
- What impact do current infrastructure sharing arrangements have on investment?
- What is the impact of the existing relationship between wholesale and retail markets?
- What changes to spectrum licensing and sharing could foster greater innovation and investment in 5G?

Response

Q2. Long-term investment barriers are inherent in the current structure of the licensed operators in particular the extent to which the current vertical nature of the licensed operators results in previous investments in spectrum, infrastructure and network roll-out having a profound bearing / constraint on the operators' ability to change their operational / commercial approach. Recent initiatives such as consolidating wireless infrastructure assets to reduce the number of active sites whilst at the same time extend network coverage and capacity with an emphasis on 4G services has enabled investment. However, a focus on a particular technology roll-out has implications for the other services carried and with the consolidation of these assets there is the potential for other services to be affected such as 2G & 3G. Nevertheless, there is a limit to the extent to which such consolidation can enable investment, particular challenges exist in the case of service roll-out to rural areas where perhaps investment through infrastructure consolidation is not an option as there is no infrastructure to consolidate. As a potential alternative approach for investment in communications infrastructure to facilitate the Industry Verticals there may be merit in considering the establishment of a 'Wholesale Neutral Host' approach whereby the Industry Verticals specify their requirements on a National basis and then a single Wholesale Network is deployed to which the Industry Verticals pay for access. To facilitate this approach spectrum rights could be entrusted in the 'Neutral Host' framework.

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

- What factors have led to higher full fibre investment in other countries and how applicable are these to the UK?
- What have been the impacts of fibre roll-out models in other countries on competition dynamics, consumer bills, and risk allocation?
- To what extent can the fibre that has been rolled out internationally be used for mobile backhaul, and what lessons can the UK learn?

Response

Q3. No Comment

Q.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?

- What consequences could different market structures, including ones which support longer pay-back periods, have on the investment environment, competition and outcomes for consumers?
- How might these vary in different geographic areas of the UK, including urban and rural areas?
- Over what timescale could market models be changed, and what policy conditions would be necessary to enable this?
- Are the current arrangements for BT legal separation working effectively?

* Market models which you may wish to consider in responding could include:

- Infrastructure competition between different network providers wherever possible
- Collaborative models at an infrastructure level

- Regulatory asset bases, franchise models, cap and floor regimes, a diversified model to account for geographic variation, and/or gainshare models for infrastructure provision
- Risk sharing models between infrastructure providers and retail providers

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

- Over what time period could migration occur?
- What phases might migration be required to go through?
- What would be the pros and cons for markets and competition?
- What would the implications be for different groups of consumers?

Response

Q4a. As noted in response to Question 3 there may be merit in seeking to establish a 'Wholesale Neutral Host' to serve Industry Verticals which might align with the category 'Collaborative models at an Infrastructure level.'

When considering the economic drivers of the Industry Verticals it is imperative that the investment environment and timing of the investment cycle are taken account of, in particular the economics of supply of the Energy Utilities are predicated on defined Regulatory Cycles which will need to be accommodated. Furthermore, we encourage Government to establish cross Department Policy alignment to ensure that the benefits / gains by a specific Industry Sector can be realised through such alignment of Policy positions, i.e. ensure the Regulatory Funding provisions established by Ofgem are aligned to and enable the activities encouraged by DCMS.

Q4b.

Response

No Comment

Q5. The Government wants to achieve its digital infrastructure goals at the least additional cost. How should new digital infrastructure be paid for?

- Are consumers (residential and business) willing and able to pay for new digital infrastructure, given its expected benefits?
- What could incentivise investors and shareholders to make long-term investment decisions in telecoms infrastructure?
- What is the potential role of government in stimulating demand or otherwise de-risking new infrastructure investment?

Response

Q5. As has been noted in response to prior questions Industry Verticals such as the Energy Sector have a keen interest in utilising new digital infrastructure to facilitate enhanced service capability through initiatives such as 'Smart Grid.' Investment in such initiatives will be dictated and enabled by other Government Policy interventions, e.g. establishing the Low Carbon economy. Hence, alignment across Government Departments and the Policy landscape will have a significant bearing on the extent which Industry Investment will be an enabler of the 'New Digital Infrastructure' future. The Energy Utilities are keen to work with DCMS and other

Government Departments to facilitate an effective framework to enable such investment. Moreover, stable and resilient energy provision is key to facilitating a future connected world in which Industry Verticals that have mission critical attributes, e.g. Automotive, Health and Care, are able to depend on the communications capability and resilience of new digital technologies such as 5G. To this end, there is a mutually beneficial opportunity to be realised from establishing the needs of future Industry Verticals when establishing the framework for future new digital infrastructure deployment.

Conclusions

The Joint Radio Company (JRC) welcomes the opportunity to respond to this call for views and in particular we support the approach from Government to consider alternative market frameworks when seeking to establish the market for 'new digital infrastructure.' When establishing alternative market frameworks, we see merit in considering the role of Industry Verticals and in particular it is important to emphasise the direct relationship between new digital communications infrastructure and the ability of the Energy Utilities to deliver against Government initiatives, such as the low carbon economy. Finally, we encourage DCMS and Government to include the communications component of Critical Infrastructure, such as Energy Networks, within their ongoing programme of oversight.