Northern Powergrid's Response to Ofcom's Call for Input - Review of the use of fixed wireless links and spectrum implications

KEY POINTS

- Continued use of private fixed links and associated spectrum is a key aspect of our Telecoms network operations and strategy. Our operational systems, including Protection and SCADA, are heavily dependent on these fixed links.
- We believe the requirements for data gathering from remote operational assets will increase to meet the demands of our journey towards net zero. As such, we believe we will need additional fixed links in the future.
- The ownership of private fixed links gives us the ability to back them up with resilient power systems of our own. Currently, all commercially available Telecoms providers are unable to provide a guaranteed resilient service in this regard.

Responses to Consultation Questions

Your response

Question	Your response
Question 1: Please provide a description of your current use of fixed links (or indicate which of the use types in Table 3.1 best describe your use type)	Utilities
Question 2: What are the factors driving your choice of fixed links over alternative connectivity solutions, and which factors have the biggest impact on your decisions? Is this likely to change in the next 5 years? If so, what do you expect will change?	We need to have wholly reliable communications particularly in the event of major power interruptions. It is incumbent upon us to have power resilient Telecoms systems to support the power distribution network. The ownership of private fixed links gives us the ability to back them up with resilient power systems of our own. That requirement will not change and, therefore, the need to own private fixed links with power resilience will remain unchanged. Currently, all commercially available Telecoms providers are unable to provide a guaranteed, resilient service If opportunities are presented to utilise private fibre optic either through our own network expansion or P.I.A. (Public Infrastructure Access), we will give serious consideration to those opportunities.
Essential requirement under tQuestion 3: Is the current spectrum available for fixed links in the UK suitable and sufficient for your needs? If not, what would you change and why? If you believe changes are required, please give specific examples and reasons along with supporting evidence if available.	Yes, the current spectrum available is sufficient for our needs at this time. However, it is noteworthy that some bands, for example 7.5Ghz, have become very congested. It is also noteworthy that we believe the requirements for data gathering from remote assets will increase to meet the demands of our journey towards net zero. As such we believe we will need additional fixed links in the future.
Question 4: Is there anything about Ofcom's current framework for authorising fixed links which you consider could be improved?	We believe Ofcom's current framework for authorising fixed links could be improved by the introduction of an online application and technical approval system. In addition, the ability

	to pre-approve an application would avoid unnecessary licence costs and would also streamline and speed up the whole licence process.
Question 5: How has your use of fixed links changed between 2016 and now? Please provide information on: - Reasons for increase or decrease in the number of your links since 2016; - Changes in the capacity of your links since 2016, including how you have; delivered this capacity change, e.g., different channel bandwidths, different link technology (please specify), etc.	Since 2016 we have seen a significant increase in the number of fixed links we utilise. This has been due to increases in the SCADA/remote control application used to control and manage the power network. A proportion of our links have had capacity increased, with the majority of the increases being associated with our core network links. In most cases we have increased the capacity of our links by using modulation techniques and larger channels sizes.
Question 6: How do you expect your usage to change over the next 5-10 years? Please provide information on: - any increase/decrease in the number of links (by band) and bandwidth expected; - likely changes in geographic distribution of links; - likely changes in distribution of links by frequency band; - likely changes in capacity of links and how you expect to deliver this capacity; - other changes not covered above	Yes, we do foresee an increase in the number of links. The use cases for these will include but not be limited to: • Embedded generation sites connected directly to our power network (e.g. wind farms, solar farms, biomass and battery storage); • Increase in SCADA requirements; • New operational sites; and • Backhaul for new technologies e.g. Emergency voice systems
Question 7: Which of the developments listed above are expected to have the biggest impact on your use of fixed links? Are there other developments to be aware of that have not been listed?	It is difficult to identify any single development that will have the biggest impact on our use of fixed links. It is possible that all the above could have a significant impact on our use of fixed links in future.

Please explain the reasons for your answer.	
Question 7a: Are you considering using NGSO satellites to provide backhaul for your network? If so, please provides details of the capacity requirements/expectations and the locations where delivery of this type of backhaul would be likely.	We have considered this service for backhaul. We have concluded, however, that it is not the most suitable solution for our needs at this time.
Question 8: If you already use alternative transport options for delivering your services, please: - Provide an indication of the proportion of your services delivered over fixed links vs each alternative that you currently use. Is this proportion likely to change over the next 5-10 years? Is so please provide details; - Explain how your business rationale for use of fixed links vs alternative connectivity solutions is changing over time; - If possible, provide examples of your decision-making process for recently deployed connections	The great majority of our services are delivered over fixed links. In the main, this is due to the need for them to be power resilient and to the geographical locations of the end points. When we expand our power or Telecoms networks, we prioritise the introduction of fibre optic cables over the use of fixed links wherever possible. Given this approach, we believe we will see an increase in the proportion of fibre optic cables in our network in the next 5-10 years.
Question 9: Which of the listed technologies are you already using or do you plan to use in the future? For each that you are using/plan to use, please explain: - the current extent of your use, whether you expect to expand or shrink your use over the next 5-10 years, and how availability of these capabilities might impact your choice to deploy fixed links vs an alternative. Estimates of numbers or percentage of links deployed with each capability now and in the future would be valuable. We are particularly interested in feedback on future use of BCA.	Many of our fixed links carry power system protection schemes, which require very low latency circuits to support the correct operation of the protection system. Consequently, the listed technologies do not appear to be compatible with the exacting low latency and high availability requirements of the protection system.

Question 9a: If you plan to use BCA would you plan to use this primarily for new links, upgrades to existing links or a mix? What factors affect your decision to deploy (or not deploy) BCA today? Please provide whatever detail you can	N/A
Question 10: Do you have a need for W and D bands for fixed links use (or alternative uses)? If so, in what timescale? Please provide further details, including any evidence you have to support your response**.**	Not at this time.
Question 11: Do you expect to apply for new fixed links in the upper 6 GHz band in the future, and if so, in which geographical areas? What are the reasons for choosing this band over other available bands or alternative technologies? Is there a technical reason why you would choose the upper 6 GHz band?	We currently utilise 'Lower 6 GHz' links. If Upper 6 band links were available, we would like to utilise them. We see those links being employed in our most remote locations where propagation resilience is desirable to mitigate against precipitation etc.
Question 12: Are there other international developments that you are aware of that could affect availability and utility of fixed links in the next 5-10 years?	Not at this time.

Please complete this form in full and return to fixedlinks.review@ofcom.org.uk.

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