# Your response

| Question | Your response |
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| **Question 1:** Have we correctly identified the key changes in the utilities sector that could lead to additional spectrum requirements? | Confidential – N<br><br>Yes. Believe the document does identify the key changes in the utilities sector that requires additional spectrum. From a water perspective, communication requirements were pre-dominantly monitoring assets but have seen an increase in requirement for remote control (remote manual intervention), re-transmission of signals to/from interdepend assets and more granular and (near) real-time data from our assets for energy and performance monitoring through business analytics. Potentially also voice and certainly CCTV requirements. |
| **Question 2:** What alternative communication solutions might play a role in meeting the future operational communication needs of the utilities sector, alongside or instead of additional spectrum for a private network? | Confidential – N<br><br>Currently UHF Telemetry scanning (licenced and licence exempt) for the majority of our assets but are seeing an increase in the use of MNO 4G for non-critical assets. The issue we are seeing with UHF Telemetry scanning is the limitation on bandwidth and spectrum availability.<br><br>We have an Integrated Telecommunications Network (ITN) built on microwave radio links to backhaul Telemetry data from Telemetry scanners. For larger assets we are increasingly using microwave radio links directly to these assets.<br><br>We are also trialling the use of satellite for those assets which do not have radio or 4G coverage but this would be expensive.<br><br>We are collaborating with NIE Network and others looking at establishing a private LTE network in NI that would be shared among a number of utilities. This could be the next iteration of Telemetry scanning but not exclusively. Would present a communications |

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| | platform for a number of use cases including monitoring and controlling assets, voice and CCTV.<br><br>Are also seeing an increase in the use of IoT type technologies and these are being explored as to how to 'streamline' and manage.<br><br>In summary, alongside additional spectrum for a private network which would be the primary and pre-dominant method of communication, UHF Telemetry scanning, microwave radio, 4G (5G), IoT and satellite. |
| **Question 3:** Are there any other spectrum bands we should consider for use by utilities? | Confidential – N<br><br>No. At this time don't believe there are other spectrum bands for consideration. |
| **Question 4:** Do you have any comments on the three bandwidths we have considered that might be necessary to support a private network for utilities? Please reference our capacity analysis in annex 7 where relevant. | Confidential – N<br><br>Consultation document describes the key factors in considering the three bandwidths and would agree with industry that 2x3MHz would be most appropriate. |
| **Question 5:** Do you have any comments on our approach to examining each potential candidate spectrum band, including the factors relevant to assessing suitability, and the capacity and coverage analysis provided in annexes 7 and 8? | Confidential – N<br><br>The correct approach has been taken and factors relevant to assessing suitability, capacity and coverage to examine each potential spectrum band. From the analysis, the preference would be for the 400 MHz band in NI, followed by 700MHz and 450MHz. Whilst 800/900MHz and 1900MHz remain a possibility, they do present a number of constraints particularly with lack of ecosystem. For the 400MHz band (NI), ecosystem is widely available and would be in harmony with EU and in particular ROI. 450MHz band an option but could be challenging if having to migrate some or all current users.<br><br>Consideration should be given to bringing the 450MHz band into harmony with Europe. |

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| **Question 6:** Do you have any comments on our overview of the 400 MHz band in NI? Please consider the specific factors we have discussed in your response. | Confidential – N<br><br>From an NI only perspective, the 400MHz band would seem most appropriate. It would align with the band already allocated in ROI, has a widely available ecosystem, could support up to 2 x 3MHz, potentially low build and equipment costs, could be realised within 5 years. Would require negotiation with incumbents to ensure no interference and potentially those incumbents no longer requiring the band in the future. |
| **Question 7:** Do you have any comments on our overview of the 450 MHz band in GB and NI? Please consider the specific factors we have discussed (including the coexistence analysis in annex 9) in your response. | Confidential – N<br><br>From a GB and NI perspective, this would be the most appropriate band (excepting 400MHz most appropriate for NI only). Has a widely available ecosystem, could support up to 2 x 5MHz, potentially low build and equipment costs. However, as a band currently widely used, there would be a significant programme and costs to migrate incumbents from the band and/or manage the band with incumbents remaining in situ. Does not harmonise with Europe but believe this is something that probably should happen anyway considering the interference issues from mainland Europe. |
| **Question 8:** Do you consider that changes in the spectrum environment for the 450 MHz band mean that there is a case for re-examining whether this band should be reconfigured in the UK to align with the harmonised band plan? | Confidential – N<br><br>Yes. Regardless of what band selected, considering the ongoing interference issues experienced by multiple users, this band should be aligned with the harmonised band plan. |
| **Question 9:** Do you have any comments on our overview of the 700 MHz band in GB and NI? Please consider the specific factors we have discussed in your response. | Confidential – N<br><br>The 700 MHz band certainly is an option and with a moderate increase in Tx power, could have similar coverage and characteristics as the 450MHz band, and currently no incumbents using this band so could have a reduced deployment timescale in that respect. Noted there is a developing ecosystem for 700MHz band. |

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| **Question 10:** Do you have any comments on our overview of the 800/900 MHz band in NI? Please consider the specific factors we have discussed in your response. | Confidential – N<br><br>The 800/900 MHz while (again) a potential option, would present significant challenges; no ecosystem and therefore higher costs and timescales. Also, not part of the harmonised band plan which could present interference issues. This option would be the 2nd least preferred. |
| **Question 11:** Do you have any comments on our overview of the 1900 MHz band in GB and NI? Please consider the specific factors we have discussed in your response. | Confidential- N<br><br>Don't believe the 1900MHz band is an option as there are too many significant factors to address in order to deploy and manage; limited ecosystem meaning high costs and longer timescales, and coverage issues at this higher frequency. |
| **Question 12:** Which band(s) do you consider we should examine further with a view to developing consultation proposals to enable their use in a private network, if this were needed? Please reference the factors we have considered where appropriate and provide separate answers for GB and NI if relevant. | Confidential – N<br><br>As discussed above, from an NI perspective only, the 3 bands that should be examined further to enable a private network are 400MHz followed by 700MHz and 450MHz.<br><br>And from a GB and NI perspective, 700MHz and 450MHz.<br><br>Factors to consider have been identified in this consultation:<br>• Ecosystem existence<br>• Any incumbents using band<br>• Site and equipment costs<br>• Timescales |