# 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>*We believe Ofcom have correctly identified the key requirements of the energy sector. The requisition of enhanced communications technologies will enable NGED to unlock a truly flexible energy network which is reliable and secure, thereby enabling a clean, fair & affordable energy future. NGED are also pleased to recognise that Ofcom have recognised that the resiliency of the communication network serving the energy industry is critical, particularly during major incidents that may occur in an extended period on loss of power.* |
| **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>*NGED already accommodate a mix of telecommunication solutions and will continue to do so dependent upon the locality and criticality of the asset to be connected. Cost is also key, therefore considering the most cost effective options available to each site.*<br>*Current technologies deployed include dark fibre, SHF, Satcom, PSTN, cellular, licenced and unlicensed radio. However, in addition to all these alternative connectivity options, NGED firmly believe that a scalable, private wireless LTE network is the most suitable technology which is cyber secure and cost effective to install in high volumes.* |
| **Question 3:** Are there any other spectrum bands we should consider for use by utilities? | Confidential? – N<br><br>*Ofcom have captured the relevant bands, in particular, three bands stand out with potential, 400, 450 and 700 MHz. NGED believe the optimum band being 400-470 MHz, and with an emphasis on 3GPP designated bands which would enable growth with the minimal amount* |

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| | *of capital spend on existing infrastructure. It is essential that any spectrum being considered for a utility network is within the 3GPP standardisation, but also has a suitable eco-system i.e. Support from a reputable supply chain as this will enhance cyber security, and remain more cost-effective whilst hopefully avoiding a high rip & replace cycle.*<br>*However, NGED also recognise the complexities of making the 400-470 MHz available, in recognition of this, the potential for a private LTE system within the readily available 700 MHz frequency with 3GPP standardisation would also be of significant interest subject to further analysis on its suitability and the ecosystem around it. NGED's view is that 700 MHz may not be future proof in terms of bandwidth capacity but as the technology may be closely aligned to 400-470 MHz, OFCOM should also consider a phased approach e.g. Phase 1, making 700 MHz available swiftly, whilst re-planning the 400-470 MHz band, until Phase 2, making 400-470 MHz available to migrate to with minimal disruption.* |
| **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>*NGED have conducted a detailed radio design and testing works with the support of Joint Radio Company (JRC) which has demonstrated that a minimum of 2 x 3 MHz or 1 x 5 MHz (TDD) spectrum would be currently suitable as the minimum required bandwidth, our concern, as with any new digital system, is identifying currently unknown future use cases. This is another reason where we feel long term the 400-450 MHz would be more suitable than the 700 MHz* |
| **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>*The assessment of the bands adopted by Ofcom aligns with our knowledge. Information in annexes 7 & 8 would benefit from further discussion with ENA's STG as the assumptions appear out of date.*<br>*As a regulated company managing assets with long life cycles, we would ideally seek a long term strategic approach endorsed by both Ofcom and Ofgem to ensure long term access to the spectrum and therefore well justified asset investment into the future circa 20yrs plus.* |

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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>*NGED recognises that co-ordination may be required with Arqiva / Airwave, therefore this model does offer unknown risk at this point in time.* |
| **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>*In terms of the assessment of the 450 MHz bands adopted by Ofcom, this aligns with our knowledge however we would welcome revisiting the opportunities for co-existence using current technologies. We would also fully endorse the idea of Ofcom re-planning this band that would not only allow future use of this band by the energy industry within increased capacity but also address the reversed characteristics that currently exist with 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>*As per NGED response to question 7, the increasing use of the 450 MHz band in Europe for both narrow band and broadband communication systems, has significantly increased the risk of interference to the existing narrowband systems in the UK. This seriously impacts the ability of NGED in meeting its obligations in supporting the existing connections to the electricity network due to outages affecting the communications. It is perceived that the 99.9% availability criteria as defined in OFW49 may no longer be achievable.* |
| **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>*In terms of the assessment of the 700 MHz bands by Ofcom, this aligns with our knowledge and it is pleasing that it is also a designated 3GPP band. Whilst this band has been designated for Public Protection and Disaster Relief (PPDR) we are keen to evaluate its potential for the energy industry. We are also keen to have the eco-system of this band fully evaluated noting this is a band that is potentially immediately available for use. We are already aware of desktop surveys that identifies the spectrum having good reach, it is also realistic to be aware that this band may also require an increase in base stations, and thus cost. NGED do have a concern with the* |

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| | *uplink path which may prove to be a limiting factor, this would need further evaluation.* |
| **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>*As this is not a 3GPP Band we do not believe this should be considered any further.* |
| **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>*We do not believe any frequency > 1000 MHz will be suitable as an efficient system to the energy industry.* |
| **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>NGED recognises the merits of 400 MHz, 450 MHz and 700 MHz to the energy industry and would welcome a consultation proposal on these bands. From a main land UK perspective;<br>• 400 MHz, is congested and therefore whilst suitable, we feel the clearing or re-planning of the band unrealistic in the short timescale required to meet our low carbon technology timelines to make new connections at the speed required.<br>• 450 MHz, as per 400 MHz, is already congested, requiring re-planning to make it feasible for the energy industry to use, along with a re-alignment to co-exist with mainland Europe. However, long term, if the band was successfully re-planned, this would undoubtedly be the most dynamic band that would benefit long term use by the UK's whole energy system.<br>Recognising the 700 MHz band being currently available, subject to evaluating the available eco-system and addressing co-existence issues, we believe this band would be significant progress if made available benefitting the UK's energy system and allowing Ofcom to re-plan, re-farm the |

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| | 450 MHz band, ideally allowing the energy users to migrate to 450 MHz at a later date. |