

Response to the Ofcom Proposal 'Setting licence fees for 412 MHz'**July 2021****Summary**

The European Utilities Telecom Council (EUTC) represents the telecommunications and information technology interests of Europe's electric, gas and water utilities and other critical infrastructure organisations.

EUTC believes Ofcom should be more progressive and imaginative in this proposal to address the challenge of facilitating the creation of advanced wideband voice and data networks in the 400 MHz region for the energy sector to aid their response to creating a carbon neutral future and mitigating the effects of climate change.

Arqiva has owned this significant block of spectrum for 15 years, but it is still largely unused in most of the UK. Ofcom recognises in this consultation that there is excess demand for spectrum in this band, and since it is grossly underused, Ofcom should take action to discharge its obligations under Section 3 of the Communications Act to ensure this spectrum used for the purposes outlined in Section 3(4) of the Act and paragraph 2.13 of this proposal. Such action would also fulfil Ofcom's duties under Section 3 of the Wireless Telegraphy Act as outlined in paragraphs 2.16 and 2.17 of this proposal.



Question 1: Do you agree with our provisional conclusion that there is likely to be excess demand for the 412MHz band in future and that therefore an AIP fee is appropriate? Please provide any evidence to support your position.

EUTC agrees that there is excess demand for spectrum in the 400 MHz region. This is evidenced by Ofcom's own utility spectrum project which is seeking to respond to sustained pressure from utilities for access to spectrum for the next generation of wide-area private business radio systems.

Critical Radio Network users across the world are seeking access to spectrum to construct their own private networks, shortage of spectrum being the largest impediment. In Europe, we have seen movement by a number of countries, particularly Ireland, Germany and Poland to allocate spectrum in the 400 MHz region for private utility networks in order to respond to the need of the energy sector to address carbon reduction targets, the challenges of mitigating the effects of climate change and security concerns.

Question 2: Do you agree with our provisional conclusion that UK-wide exclusive Business Radio is the highest value alternative use for the 412MHz band? Please provide any evidence to support your position.

EUTC agrees that Private Business Radio is the highest alternative value use of this spectrum. It should be noted however that because of the regulatory structure of the utilities in the UK, regional networks may be a preferred alternative to national networks. This is especially true for Northern Ireland where a complex land border with the Irish Republic makes mirroring the spectrum allotment in the Republic a viable spectrum management strategy.

Question 3: Do you agree with our provisional conclusion to set the annual licence fee for 412 MHz equal to the Business Radio UK-wide fee for high usage bands? Please provide any evidence to support your position.

EUTC agrees with the conclusion to set the annual licence fee for 412 MHz equal to the Business Radio UK-wide-area fee for high usage bands. However, taking into account the earlier assessment that there is excess demand for spectrum in this region which Ofcom cannot currently meet, the spectrum should be split at least into regional country blocks – or the original auction's 4 x 500 kHz blocks – and be subject to a 'use it or lose it' obligation.

Question 4: Do you agree with our provisional conclusion that fees set based on our estimate of market value will best meet our statutory duties?

EUTC agrees with the level of fees set based on market value, but believes that Ofcom ought to also at the same time take action to discharge its obligations under Section 3 of the Communications Act to ensure this spectrum used for the purposes outlined in Section 3(4) of the Act and paragraph 2.13 of this proposal. Such action would also fulfil Ofcom's duties under Section 3 of the Wireless Telegraphy Act as outlined in paragraphs 2.16 and 2.17 of this proposal.

Although utilities are technology agnostic, at present, private LTE offers the optimum solution for meeting the challenges of deploying Smart Grids in order to manage the diverse obligations imposed on utilities by carbon reduction goals and mitigation of the effects of climate change. Citizen – consumers require clean, affordable, sustainable, resilient and secure electricity supplies as society migrates to a lifestyle ever more dependent on electricity.

At present, because utilities cannot access sufficient and suitable spectrum in order to construct private LTE networks, Ofcom is not fulfilling section 3 of the Communications Act where it obliges Ofcom by way of ... *'encouraging investment and innovation in relevant markets, encouraging the availability and use of high speed data transfer services throughout the UK, the different interests of persons living in rural and in urban areas and the different needs and interests of everyone who may wish to use the spectrum for wireless telegraphy'*.

In addition, section 3 of the Wireless Telegraphy Act imposes a number of further duties relating to spectrum management. In carrying out its spectrum functions Ofcom is required to have regard to:

- a) the extent to which spectrum is available for use, or further use, for wireless telegraphy;
- b) the demand for use of the spectrum for wireless telegraphy; and
- c) the demand that is likely to arise in future for the use of the spectrum for wireless telegraphy.

Section 3 of the Wireless Telegraphy Act also requires Ofcom to have regard to the desirability of promoting:

- a) the efficient management and use of the part of the electromagnetic spectrum available for wireless telegraphy;
- b) the economic and other benefits that may arise from the use of wireless telegraphy;
- c) the development of innovative services; and
- d) competition in the provision of electronic communications services.

A large proportion of the spectrum which is the subject of this consultation has been unused since the demise of the previous occupier, Dolphin Telecommunications in 2004. It is thus questionable whether Ofcom is fulfilling its duties imposed under these provisions.

Question 5: Are there any other comments that you wish to make in respect of the proposals that we make in this consultation?

EUTC believes that the statement in paragraph 3.12 regarding the potential for deployment of LTE in this spectrum lacks imagination. Although utilities wish to deploy 2 x 3 MHz channels, the smaller 2 x 1.4 MHz option still presents opportunities. There is also the spectrum immediately below this band which is lightly used. If the UK government is successful in its ambition to migrate emergency services to the 'Emergency Services Network' (ESN), this spectrum will no longer be required by its current user (in the same way as Airwave use of spectrum in 412-414 MHz / 422-424 MHz will also no longer be relevant).

This creates opportunities for deployment of 2 x 3 MHz LTE in 3GPP Band 87 in fallow spectrum. It should also be observed that since the most likely user, the utility sector, is structured on a regional basis by Government regulatory action, LTE networks might also be deployed in areas matching the regulatory framework rather than nationally.

In addition, EUTC observes that in spite of the obligations to protect the military radar at Fylingdales, Ofcom devised a solution which has enabled Arqiva to use their allocation as part of a national smart meter telecommunications systems in the 410-430 MHz band.

EUTC believes that with more innovation and creativity, spectrum in the 410-430 MHz band, specifically 3GPP Band 87, could be made available in the UK. As we have seen elsewhere in Europe, the bandwidth and constraints on this spectrum make it non-viable for commercial systems, but the propagation characteristics of 400 MHz make it ideal for critical operational private LTE systems.

Looking further forward, EUTC is engaged in 3GPP to enhance Release 18 to incorporate requirements for utility operations. Release 18 will be a 5G standard, and we observe that Frequency Range 1 for 5G (FR1) has recently been lowered to include the 410-430 MHz band highlighting the focus of 5G for vertical sectors who are increasingly interested in deploying 5G for private critical operational networks in these spectrum bands.

Finally, EUTC points to the recent award by ComReg in the Irish Republic of 2 x 4 MHz of spectrum in the band 410-414 MHz paired with 420-424 MHz to ESB in order to construct an LTE network dedicated to ensuring the utility networks in Ireland can meet the challenges of carbon reduction and climate change. EUTC encourages Ofcom to look imaginatively at the opportunities for spectrum and network sharing – key Ofcom objectives – which might be realised if spectrum currently unused could be deployed for a compatible utility network in Northern Ireland.



Background

EUTC is the leading European utilities trade association dedicated to informing its members and influencing policies on how telecommunication solutions and associated challenges can support the future smart infrastructures and the related policy objectives through the use of innovative technologies, processes, business insights and professional people.

This is combined with sharing best practices and learning from across the EUTC and the UTC global organization of telecommunication professionals within the field of utilities and other critical infrastructure environments and associated stakeholders.

In many countries, utilities have operated their own private radio networks since the 1950s when the electricity sector embraced mobile radio shortly after the Police demonstrated the benefits of mobile radio to speed up responses to incidents. Across the world, utilities are constructing their own private radio networks or shared networks in response to societal needs for universally available reliable, secure, affordable and environmentally sustainable utility services – electricity, water and gas.

Society is increasingly dependent upon its vital infrastructures in general and its electricity infrastructure in particular. The continuous operation of these infrastructures increasingly requires comprehensive and reliable operational telecoms services. Some of these needs are met by fixed networks – fibre, copper and the electrical power cables themselves – but since it is impossible to reach and communicate with all assets via these fixed services they must be complemented by (wireless) radio networks. These dedicated specialist radio networks require guaranteed access to a small amount of dedicated radio spectrum for their operations. The EUTC Spectrum Proposal is summarised in this table. The ‘anchor band’, a minimum of 2 x 3 MHz of spectrum in the 400 MHz region is now the focus of many utility initiatives world-wide by utilities.

EUTC Spectrum Proposal	
<i>Within Europe, multiple small allocations within harmonised bands:</i>	
LESS INTENSE APPLICATIONS	
<ul style="list-style-type: none"> • VHF spectrum (50-200 MHz) for resilient voice comms & distribution automation for rural and remote areas. [2 x 1 MHz] 	
ANCHOR BAND	
<ul style="list-style-type: none"> • UHF spectrum (400 MHz bands) for SCADA, automation, smart grids and smart meters. [2 x 3 MHz] 	
MORE DENSE APPLICATIONS	
<ul style="list-style-type: none"> • Lightly regulated or licence-exempt shared spectrum for smart meters and mesh networks. (870-876 MHz) • L-band region (1500 MHz) for more data intensive smart grid, security and point-to-multipoint applications. [10 MHz] 	
FOUNDATION BANDS	
<ul style="list-style-type: none"> • Public microwave bands (1500 MHz – 58 GHz) for access to utilities’ core fibre networks/strategic resilient back-haul. • Public satellite bands to complement terrestrial services for particular applications. 	

Allocating spectrum to the utility sector in particular for smart grids contributes to the reduction of emissions and is not uncommon, as spectrum allocations in Ireland, Germany, Poland and other countries have shown. The amount of spectrum required by utilities is limited and can be found in spectrum bands with no great commercial value and are too small to be exploited successfully by commercial operators, i.e. the 400 MHz-range.

Direct access to dedicated spectrum supports management and digitisation of the rapidly changing energy system and allows for quicker adaptation to renewable energy resources in order to achieve climate targets. Security of energy supply is crucial and of ever growing importance in our digitised society. The smart grids require a highly reliable and safe exchange of data for the purpose of efficient grid management. This includes both data providing information about the status of the grid, as well as data to balance supply and demand on a minute-by-minute, even second-by-second basis in some cases. The choices made regarding the underlying telecommunications infrastructure are long term choices given the investments necessary in the associated energy infrastructure. Using networks operating in spectrum allocated to commercial networks may offer suitable solutions for a number of utility needs, but there are also needs which cannot be fulfilled by commercial mobile networks. Experience shows that these commercial mobile networks do not provide sufficient power autonomy (all ‘5G-slices’ are still dependent on the same power supply) nor do they guarantee the availability and lifecycle of communication technologies, to name some examples.

The need for private wireless networks for the utility sector and as such access to spectrum is underlined in the recent report by the World Economic Forum (World Economic Forum, Future Series: Cybersecurity, emerging technology and systemic risk, Insight Report, November 2020). The report states that

“However, some infrastructure that does not necessarily fall within the remit of CNI obligation is becoming an increasingly critical component of the supply chain, as reliance on communications infrastructure grows and organizations (including those in CNI sectors such as healthcare, transport and energy) become dependent on shared underpinning digital infrastructure and third-party suppliers while not being granted access to spectrum resources to develop resilient and secure private network alternatives.”



Safe and reliable exchange of data is a fundamental prerequisite for the changing energy field. This necessitates a sufficient level of control over the underlying communication infrastructure; wired and wireless. It is for these purposes that the utilities require direct access to spectrum and the 400 MHz range is most suitable for this purpose and widely available.

Making available sufficient and suitable spectrum for utilities does not diminish that available for IMT (International Mobile Telecommunications) which already vastly greater than that allocated to utilities. The EUTC believes that a relatively modest amount of dedicated, preferably harmonised, spectrum must be made available for utility services to support the digitisation of the utility infrastructures.

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