European Utilities Telecoms Council

Response to the Consultation by the Netherlands Administration on spectrum awards in the 450 MHz band

April 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. These organisations rely on telecommunication networks and services to provide the most secure, reliable and cost-effective energy supply in Europe. Utilities need for direct access to spectrum in order to operate these essential telecommunications networks.

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.

Main points

- An increasing number of countries (including key European Administrations such as Ireland, Denmark, Germany and Austria) are making spectrum available in the 400 MHz band for critical national infrastructure, most importantly the electricity sector in order to self-provide reliable operational communications.
- Countries which have offered spectrum in the 400 MHz bands to the market have been unsuccessful in stimulating purely commercial mobile communications network. This is because the capacity of the 400 MHz bands cannot match that available in higher frequency bands: the business cases have been unsustainable and all have ultimately failed, the spectrum licences either lapsing or being returned to the regulators.
- Access to sufficient and suitable spectrum in the 400 MHz by utilities, especially the energy sector, is a vital facilitator for these industries to meet carbon reduction, security and sustainability targets. Seeking to launch commercial competitors to self-provided utility telecoms networks in this vital spectrum band is delaying and hindering progress towards meeting global environmental targets.
- Global successful cases of use of the 400 MHz band focus on Public Safety and utilities: there are no successful purely commercial use cases of spectrum in the 400 MHz band since the decommissioning of the NMT450 service. EUTC believes it is wiser to allocate the full 2 x 3 MHz of spectrum available to users who have proven able to exploit the spectrum for the benefit of society rather than persist with a business model which has failed in every other case where it has been pursued.
- As described in the EUTC spectrum proposal in the section below, a minimum of 2 x 3 MHz of spectrum in the 400 MHz band is needed to meet smart grid requirements.
- Aligning the Netherlands allocation of spectrum with that of utilities in neighbouring countries facilitates co-ordination of spectrum between adjacent countries, ensuring that utility provision to consumers in border regions can be safeguarded and secured through close collaboration between utilities.
- 5G recognises the importance of 'vertical sectors' (of which the energy sector is one) and access to spectrum. With the recent extension of Frequency Band 1 (FR1) down to 410 MHz, the spectrum band under consideration offers the Netherlands Administration the opportunity to embrace this development and place its utilities in a position to match world-leading initiatives.
- Although splitting the band into two 1.5 MHz blocks may generate a small economic return in the short term, studies undertaken by utility associations demonstrate that the socio-economic value of allocating a small amount of spectrum to utilities generates socio-economic benefits to citizens and consumers orders of magnitude greater than that generated by a commercial mobile network operator though the addition of a small amount of extra spectrum. The first report[1] concluded that the socio-economic value of a reliable electricity supply is at least 50-150 times the retail price of the electricity supplied. The second report[2] as well as demonstrating the financial benefits of a reliable electricity supply, illustrated the reduction in time citizens suffer loss of electricity when power resilient grid automation is applied to energy networks.

[1] https://eutc.org/comp/uploads/2018/08/Socio-economic-value-of-Spectrum-used-by-utilities-v1.1.pdf
[2] https://eutc.org/comp/uploads/2021/04/JRC-EUTC-Report-on-socio-economic-value-of-spectrum-Jan2014x.pdf

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

Within Europe, multiple small allocations within harmonised bands:

LESS INTENSE APPLICATIONS

- **VHF spectrum (50-200 MHz)** for resilient voice comms & distribution automation for rural and remote areas. [2 x 1 MHz]

ANCHOR BAND

- **UHF spectrum (400 MHz bands)** for SCADA, automation, smart grids and smart meters. [2 x 3 MHz]

MORE DENSE APPLICATIONS

- **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

- **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.

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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