



European Utilities Telecoms Council

Response to the Draft RSPG Opinion on a Radio Spectrum Policy Programme (RSPP)

March 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 are relying on telecommunication networks and services to provide the most secure, reliable and cost effective energy supply in Europe.

The EUTC calls upon the RSPG to address the needs for direct access to spectrum for the energy sector in their 'Opinion on the RSPP'. Allocating spectrum to the utility sector in particular for smart grids and as such contributing to the reduction of emissions is not uncommon as the spectrum allocations in Ireland and Germany have shown. The amount of spectrum required is limited and can be found in spectrum bands not used 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 (minimum 15 to 20 years) 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, however there are also needs which cannot be fulfilled by commercial mobile networks. Experience learns that these commercial mobile networks do not provide sufficient power autonomy (all '5G-slices' are still dependent on the same power supply) nor guarantees concerning 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.

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 now, utilities are constructing their own private radio networks or shared networks in response to societal needs for universally available reliable, 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 as a result of the digitisation of society. 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.

<i>EUTC Spectrum Proposal</i>	
<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.	

Whilst EUTC does not challenge the importance of making available sufficient and suitable spectrum for IMT (International Mobile Telecommunications), the amount of spectrum being ear-marked for this service – which is awarded mainly to Mobile Network Operators (MNOs) and precludes sharing with other services is large. The EUTC believes that a relatively modest amount of dedicated, preferably harmonised, spectrum should also be made available for utility services supporting the digitisation of the utility infrastructures.

Developments since the 2012 EU Radio Spectrum Policy Programme

Utilities were very encouraged when in the 2012 EU Radio Spectrum Policy Programme¹, paragraph 2 of Article 8 declared:

“The Commission shall, in cooperation with the Member States, conduct studies on saving energy in the use of spectrum in order to contribute to a low-carbon policy, and shall consider making spectrum available for wireless technologies with a potential for improving energy saving and efficiency of other distribution networks such as water supply, including smart energy grids and smart metering systems.”

The Commission showed its future looking vision in identifying Smart Energy Grids as a critical requirement to support EU Energy Policy objectives, but the technology did not develop as quickly as was forecast. However, climate policy is now considered by many as the most important issue facing our generation. In the context of the 2012 RSPP, the minimum 2 x 3 MHz of spectrum in the vital 400 MHz anchor band required for smart grid operations was only 0.5% of the 1200 MHz of spectrum which was identified for broadband radio services. Thus, delivering dedicated spectrum for operational utility networks in no way compromises EU objectives for 5G and the provision of universal high speed data services for all EU citizens and businesses.

The privately provided broadband radio technologies are instrumental in facilitating the evolution of traditional grids towards the Smart Grid. As pointed out in ETSI Technical Report TR 103 401², Smart Grid services need to rely on a private, reliable (with significant power autonomy), redundant, scalable and high-performance telecommunications network. Private broadband radio technologies such as LTE are key to achieving this challenge which necessarily comes along with the need of broadband spectrum exclusively allocated to utilities. As identified in the ETSI report ETSI TR103 492³, a minimum 2x3 MHz bandwidth in frequency bands below 1 GHz is required for smart grid services and applications, although an allocation of 2 x 5 MHz would ensure that future challenges can be met within the 400 MHz band without supplementing it with blocks of spectrum in higher frequency bands.



In Europe, over recent years, we have seen spectrum allocations for control of critical infrastructures in the 400MHz frequency band, notably in Austria, Denmark, Ireland, Poland and Germany. Concentrating utility applications in a common spectrum range across Europe will encourage, among other things:

- Development of higher volumes of standardised devices to reduce costs to energy consumers;
- Encourage the use of European standards to encourage long production runs, long term availability of spare parts and avoid ‘vendor lock-in’;
- Co-ordination of spectrum allocations in multiple European countries to enable utility services to be delivered efficiently in border regions; and
- Assist European vendors to develop innovative products in their home market as a launch platform for world-wide sales.

¹ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32012D0243>

² https://www.etsi.org/deliver/etsi_tr/103400_103499/103401/01.01.01_60/tr_103401v010101p.pdf

³ https://www.etsi.org/deliver/etsi_tr/103400_103499/103492/01.01.01_60/tr_103492v010101p.pdf

Climate Change

EUTC is of the opinion that allocation of radio spectrum can make a positive contribution to combatting Climate Change as outlined in their submission to the EU “Radio Spectrum Policy Group’s work programme for 2020 and beyond”⁴.

The UN Climate Action Summit in New York on 23 September 2019 declared that “Climate change is the defining issue of our time and now is the defining moment to do something about it. There is still time to tackle climate change, but it will require an unprecedented effort from all sectors of society.” [Diagram below]. Energy production and use, including the energy used in transport, account for some 80% of the EU's greenhouse gas emissions. Thus, to tackle climate change effectively, Europe will have to largely 'decarbonise' its energy systems by moving away from fossil fuels.



Because of the unique propagation characteristics of spectrum in the 400 MHz region, allocating spectrum in this band for use by utility ‘smart grids’ will help utilities to manage the challenges of grid development in the 21st century in accordance with European Commission initiatives encouraging the use of Smart Grids in order to deliver more efficient energy generation and consumption as required under the EU Electricity Directive, and fulfil the ambitions set out by the Commission President Ursula von der Leyen in her ambitious European Green Deal Initiative.

Detailed commentary on the Draft RSPP opinion

2.2. Licensing and Spectrum Awards

EUTC welcomes the encouragement of a range of Licensing and Spectrum Award mechanisms to ensure that spectrum is used in a way which maximises the benefit to EU citizens. Pure market-based mechanisms have sometimes resulted in spectrum lying unused for many years, sometimes decades because of its economic value, rather than put to use for applications which whilst they may have lower direct monetary returns, have a large socio-economic benefit to society.

3.6. Sector spectrum needs in response to combat climate change

The RSPG response to the need to respond to climate change imperatives has to date focused on energy reduction in telecoms networks and enhancing sustainability throughout the sector. Whilst this is highly desirable and commendable, it omits the even greater benefits to society from the use of spectrum to enhance utility operations to reduce their climate impact and achieve net zero carbon emissions, primarily through the growth of smart grids.

EUTC believes that electricity is one of the most important industries, if not the most important industry in combatting climate change. Vast sectors of our economy including home heating, cooling and transport are transitioning from fossil fuels to electricity. Over the coming decade, if CO₂

⁴ https://rspg-spectrum.eu/wp-content/uploads/2019/10/RSPG19-029final-RSPG_work_programme_20_and_beyond.pdf



reduction targets are to be reached, the electricity sector will be required to deliver two to three times the amount of energy currently delivered. The electricity infrastructure cannot simply be increased in scale sufficiently to deliver this transition: it has to be made more intelligent in order that more energy can be delivered over the existing infrastructure. This is being facilitated by use of advanced operational telecommunications. To meet this aggressive timescale, where existing fixed networks cannot meet the need, radio is the optimum solution. However, these utility operational radio networks require access to modest amounts of radio spectrum in order to deliver the parameters required by these operational networks.

In the light of the importance of climate change and the move towards a net zero CO₂ world, EUTC believes that 'Energy' should be elevated to having its own section in Chapter 3 of the RSPP to reflect its critical importance to society.

Elevating 'Energy' to its own section in Chapter 3 would facilitate the need to stress the importance of Regulatory authorities for energy and telecommunications working together to develop coherent and consistent policies for the sector. This would open the way for standards bodies such as CEN (European Committee for Standardization) and CENELEC (European Committee for Electrotechnical Standardization) to collaborate more closely with ETSI and CEPT to ensure standards address both telecommunications and electrical parameters in a coherent manner. We believe other 'vertical' sectors as embraced by 5G would also benefit from closer collaboration between the various relevant standards and regulatory bodies.

4.4. Standardisation and spectrum governance

EUTC comments under Section 3.6 above also relate to this section.

6.2. Green New Deal / Climate change

EUTC supports the provisions in this section, but believe that it overlooks the major role energy networks play in delivering the goal of zero emissions of the EU economy, and the utilities' desperate need for access to small amounts of dedicated radio spectrum in order to monitor and control their networks.

Electricity networks cannot easily be scaled up two or three fold in order to support electrification of heat, transport and other sectors of the economy. Other means, specifically the deployment of advanced monitoring, control and automation will be required to enable the existing infrastructure to deliver more power.

6.4. National security, Network security and Cyber security

The zero emission EU economy envisaged above will be completely and utterly dependent on secure and reliable electricity networks for every aspect of life, leisure, business and commerce. As also explained earlier, access to small amounts of dedicated radio spectrum is vital to enable the electricity industry to develop operational telecoms solutions to deliver these services to the community. The security implications of operating these networks and their vulnerability to attack from actors ranging from lone mavericks and organised crime to nation states must not be underestimated. Utilities will require collaboration with and assistance from all the various European and national agencies concerned to counter these threats.



National Grid control room illustrating the dependence of electricity grids on telecommunications to enable them to operate their networks.

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