



EUTC Response to the DRAFT RADIO SPECTRUM POLICY GROUP WORK PROGRAMME FOR 2018 AND BEYOND

Deadline for submission of comments – Sunday 7th January 2018

EUTC

The European Utilities Telecom Council (EUTC) is a non-profit organization delivering education, collaboration, best practices and thought leadership in telecommunication technology to utilities, other critical infrastructure providers and regulators, ensuring efficient, secure, sustainable and affordable smart infrastructure solutions. EUTC is one of a number of regional Utility Telecom and Technology Councils coordinated via a Global Advisory Committee to highlight the growing importance of telecommunications in all utilities around the world.

EUTC membership is comprised of major gas and electricity generation, transmission and distribution companies from across Europe plus vendor partners representing telecommunications suppliers focused on utility telecoms provision.

Summary

EUTC welcomes the opportunity to respond to this consultation, and is especially encouraged by the proposal to establish a European Spectrum Strategy. Formulating a strategic vision for radio spectrum policy beyond current frameworks and thinking is a very positive development.

In particular we encourage the RSPG when establishing this Strategic Vision to seek input from the European Utility Sector. This will ensure that the spectrum requirements of utilities in delivering the European Vision for 2020 are incorporated. European economic development is crucially dependent on affordable, sustainable and secure energy supplies. The increasingly dynamic energy network communication systems have a crucial role in balancing supply and demand and ensuring both the stability and security of the energy networks.

This increase in functionality will require the widespread deployment of resilient, active control systems with communications capability to manage two-way energy flows through the networks. Although utilities make extensive use of wired and fibre networks and commercial wireless systems, access to suitable and sufficient radio spectrum to facilitate resilient wide-area communications suitable for control of energy networks is essential. Secure and expanded access to radio spectrum for energy utility networks is a critical component of their future operating model, thus enabling the 'Smart Grid Future.'



Detailed comments on the RSPG Draft Work Programme

Introduction

EUTC comments focus on the proposals for the RSPG to establish a European Spectrum Strategy that goes beyond current thinking and frameworks as the most important element of the draft Programme. EUTC considers this approach particularly important as spectrum resources in the critical bands below 3 GHz have over recent times become more constrained due to the ongoing activities to clear bands for 'mobile' use. [We note in passing that these networks are now in reality MFCN – Mobile and Fixed Communications Networks - as the percentage of fixed connections rises, possibly surpassing mobile connections as the 'Internet of Things' becomes a reality.]

In order to ensure developments in utility networks can be supported, access to suitable radio spectrum will need to be provided. Although utilities recognize the pressure to find additional spectrum for MFCN and 5G, even if the full amount of dedicated licensed spectrum requested by utilities were met, this would still only amount to less than 1% of the spectrum sought for broadband data networks.

EUTC Spectrum Proposal

Within Europe, multiple small allocations within harmonised bands:

- **VHF spectrum (50-200 MHz)** for SCADA, automation, smart grids and smart meters. [2 x 1 MHz]
- **UHF spectrum (400 MHz)** for SCADA, automation, smart grids and smart meters. [2 x 3 MHz]
- **Lightly regulated or licence-exempt shared spectrum** for smart meters and mesh networks. (870-876 MHz)
- **L-band region (1-2 GHz)** for more data intensive smart grid, security and point-to-multipoint applications [10 MHz]
- **Public microwave bands (1400 MHz – 58 GHz)** for access to utilities' core fibre networks/strategic resilient backhaul.

What is certain is that utilities will need a range of technologies to address their diverse and specialized needs, hence EUTC argues for access to a range of frequencies to fulfil their requirements as outlined in this table.

Social perspective

A reliable supply of electricity is essential to a modern Western Society. Economic growth and welfare require sustainable and secure energy supplies. However, when electricity supplies fail, the consequences fall across the whole of society with potentially devastating social consequences.

One minor illustration is that with high rise living, lifts become an essential element of life. When a lift fails or gets stuck, assistance can hopefully be swiftly dispatched. However, if power is lost to a major urban area, thousands of people become stranded in lifts, beyond the capability of any support organization to rescue stranded people. In addition, if the telecommunications systems of the personnel designated to come to the aid of people stranded in lifts are compromised, aid cannot be dispatched quickly or effectively. Whilst inconvenient for most people, for the frail and elderly, it can be life threatening.

In meeting these challenges costs must be constrained, reflecting that poor households are the most severely disadvantaged by rising energy costs across Europe.



Spectrum's Role in Supporting the Energy Networks of the Future

Although all utilities face similar challenges, it is recognized that the electricity networks are the major focus at present and most investments in telecommunications are being deployed in that sector.

Historically energy networks have been passive networks with active control components very limited in terms of number, focused mainly on the Very High Voltage layer (above 100kV). These systems have typically been narrowband and as such utilised relatively limited amounts of spectrum. However, as energy networks become more dynamic both from a supply and demand perspective, i.e. embedded, intermittent, distributed generation and new forms of load in the form of electric heating, heat pumps and more electric transportation, there is an enhanced need to more actively control the energy networks. Entirely new concepts, such as battery energy storage, fast charging of electric cars and microgrids will create further yet unknown demands. This will couple with new market mechanisms – peer-to-peer trading and 'prosumers' to potentially create a 'perfect storm'.

Smart meters will help utilities by understanding better what is happening at the edge of the network, but cannot contribute to the need for enhanced awareness and control of the distribution and transmission networks themselves.

This will result in a major increase in active control components being deployed within the Medium and Low Voltage layers (100kV – 230V) with the number of active units increasing by potentially two orders of magnitude. This increase in the number of control units and resulting dramatic increase in data flows will lead to a significant expansion in the need for spectrum access to underpin these critical communications.

Smart Grid Telecommunications Requirements

- High availability
- High reliability
- Resilient architecture
- Mains power independence
- Low latency and guaranteed symmetry
- Cyber security
- Wide area coverage
- Cost effective
- 9.6kb/s – 10Mb/s bandwidth
- Capable of supporting distributed control
- Longevity of support for technology
- Graceful degradation
- Air-ground-air operation
- Flexible payloads, but primarily uplink centric

Moreover, the role of spectrum in supporting 'Smart Energy' has been acknowledged in a recent article from the ECC¹. As such we encourage the RSPG to adopt a work item within the 'European Spectrum Strategy Programme' to establish a robust spectrum approach for the development of Smart Grid capability in Europe which will underpin Europe's long term Economic sustainability.

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Brussels

¹ Providing Spectrum to support machine-to-machine communications, ECC Newsletter, December 2017