Response to the RSPG Draft Work Programme for 2022 and beyond

The European Utilities Telecoms Council (EUTC), representing European electricity and gas generation, transmission and distribution companies welcomes the opportunity to comment on the Radio Spectrum Policy Group (RSPG) Draft Work Programme for 2022 and beyond. In responding, we recognize that this is part of an on-going consultation process and we will not repeat in detail arguments put forward in response to previous RSPG consultations.

Summary

EUTC's response focuses on the following items in the Work Programme:

- Mobile technology evolution – experiences and strategies
- Digital decade 2030
- The development of 6G and possible implications for spectrum needs and guidance on the rollout of future wireless broadband networks
- Role of Radio Spectrum Policy to help combat Climate Change

In our role representing the vertical energy and water utility sectors, we highlight the following points:

- Radio technology will play an increasingly important role in delivering essential services to European citizens and industry as we move towards a net-zero carbon economy with increasing dependence on electricity as our prime – and in some cases sole - energy source.
- Utilities believe that direct access to radio spectrum will become increasingly vital in order to deliver these key services successfully.
- The increased monitoring and control capability that radio technology facilitates will be essential in delivering the utility response to achieving sustainability, cost and carbon reduction targets in association with mitigating the devastating impact that climate change is having on populations and utility infrastructure.
- The life cycle of utility infrastructure is significantly different to consumer markets, measured in decades as opposed to months. In addition, the cost and complexity of replacing communications equipment embedded in utility infrastructure is orders of magnitude different to the cost of the communications devices themselves.
- Network resilience becomes increasingly important as dependence on electricity and telecoms becomes greater, but the mutual interdependence of these two strategic critical national networks on each other is poorly recognized.
- The increased connectivity and flexibility of modern networks increases the exposed security attack surface immensely. Utility networks are a major target for malicious and nuisance attacks up to a level of serious organized international crime and nation-state.
- Regulation to ensure and monitor interworking and interoperability is vital, but must not be unduly onerous or in the process of regulation must not hinder innovation and freedom of choice.

Specific Work Programme items:

Mobile technology evolution – experiences and strategies

5G networks represent significant change in many areas, most noticeably the migration from an entirely mobile operator dominated market towards the re-emergence of private networks. This commenced in 4G/LTE and will grow further in terms of vertical markets in 5G.

It will be important for regulators to ensure that vertical sectors not only have access to spectrum, but that regulation guarantees their rights to interconnect and interwork with public networks, and associated facilities such as eSIMs and remote provisioning are enabled. In this context, we point to the recent consultation by ComReg in Ireland:

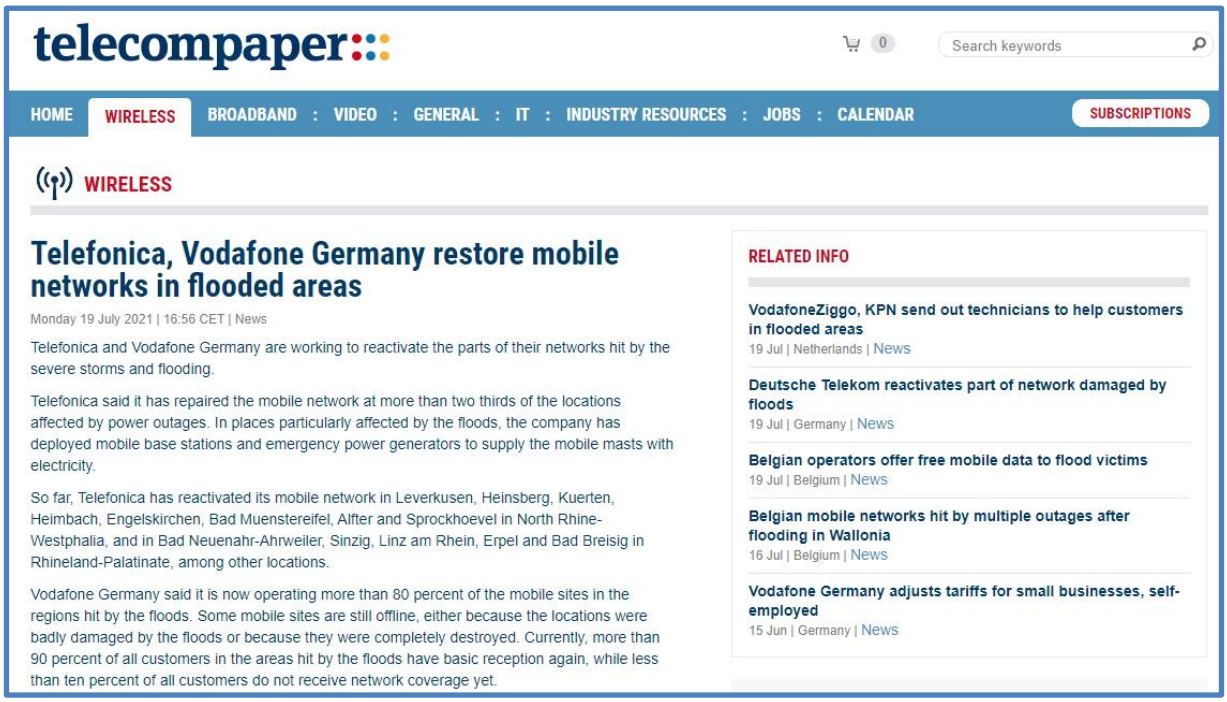
https://www.comreg.ie/media/2021/11/21.114-OTA-Consultation-1.pdf

Digital Decade 2030

The Digital Decade initiative is a commendable endeavour to increase the connectivity of all European citizens and businesses, but will inevitably lead to a greater dependence on telecommunications and greater vulnerability to failure. It is therefore imperative that this increase in dependence is matched by increased resilience in access to connectivity.

In parallel with the increase in connectivity, the net-zero carbon agenda is almost entirely driven by greater electrification, most specifically of transport and heat. The interdependence of these two vital services is linked. Great strides have been made in recent years in increasing the availability and resilience of the energy networks, but telecoms networks, once independent of mains electricity in the days of copper cables now require electricity to function, especially in the access networks and consumers' own homes.

This new vulnerability has been exposed by recent storms - their intensity increased by the effects of climate change - which have devastated parts of Europe in recent months.



Although we do not have access to quantitative data, anecdotal reports – as shown in the attached 'telecompaper' report - illustrate the widespread loss of connectivity experienced by consumers in storm-hit regions. Resilience and interdependence of critical networks must be addressed for the welfare of all consumers and businesses.

Another major issue for utilities is the advancement of the closure of 2G and 3G networks to save energy and to facilitate the refarming of spectrum for more advanced IMT2020 technologies. Many utilities have large investments in devices connected to legacy networks, especially GSM/GPRS technology which was well suited to non-critical utility operations. Some of the challenges in migrating equipment away from GSM/GPRS to 4G or 5G include:

- The physical format of new devices may not fit within the enclosures of the legacy equipment, and the physical interface may be different.
- The voltage required and power consumption of a multi-band 2G/3G/4G/5G device may be greater than the legacy GPRS modem, and the physical enclosure may not be able to accommodate a larger battery; or the device may not support new battery technology charging regimes.
- Legacy 900 MHz GPRS antennas offered good gain associated with an attractive polar pattern for rural coverage; the multiband antennas required for replacement devices are not often well suited to utility installations and operations.
- Replacing comms modules may often require access to controlled environments where only authorized persons may enter and in some cases, changes may require power outages in order to be able to work safely on telecoms equipment.
- Access to telecoms modules may well be at a height where specialist equipment and operating procedures are required.
- In the case of smart meters incorporating mobile network devices, access to consumers' premises is required which presents logistical challenges and inconvenience to consumers who see no benefit from co-operating with the utility company for this purpose.

[A study by the Strategic Energy Technology Information System (SETIS) in 2019 predicted close to 225 million smart meters for electricity and 51 million for gas will be rolled out in the EU by 2024.[1] This represents a potential investment of €47 billion. At present, it is difficult to predict what proportion of these devices have GSM/GPRS only communications capability.

[1] file:///C:/Users/Adria/Downloads/MJ0220176ENN.en.pdf

A report for the Agency of Cooperation for Energy Regulators (ACER) at the end of 2018 reported that a significant share of these smart meters rely on GSM. For example, one DSO in Country 'A' reported an installed base of 3 million GPRS only devices (2015) requiring GSM to continue up to 2030. Another DSO in Country 'B' reported an installed base of 11 million smart meters indirectly relying on GPRS (PLC with GPRS), as well as 20,000 consumer devices with 2/3G connectivity and 2/3G routers for remote services (approx. 60,000 installed in 2018).]

The development of 6G and possible implications for spectrum needs and guidance on the rollout of future wireless broadband networks

For utilities, reliability and resilience are of paramount importance, hence they do not usually wish to be at the forefront of deployment until a technology has a proven track record.

In terms of 6G, at present there is no vision for its deployment in the utility sector, although observing the initial visions for 6G, it is possible that highly localized private 6G networks could have a role in replacing large volumes of physical wiring currently used in substations and control rooms. As has been the contention over many decades, developments will pitch fibreoptics against wireless for connectivity, and we envisage this contention continuing in a 6G world.

However, we note that RSPG wishes to engage with vertical sectors in determining policies for 6G, and thus EUTC is keen to assist and engage with RSPG wherever possible.

Role of Radio Spectrum Policy to help combat Climate Change

EUTC has responded in detail to RSPG's previous consultation on this subject:

https://eutc.org/media/2021/08/EUTC-Response-to-RSPG-Draft-Opinion-on-use-of-spectrum-to-combat-climate-change-Aug2021.pdf

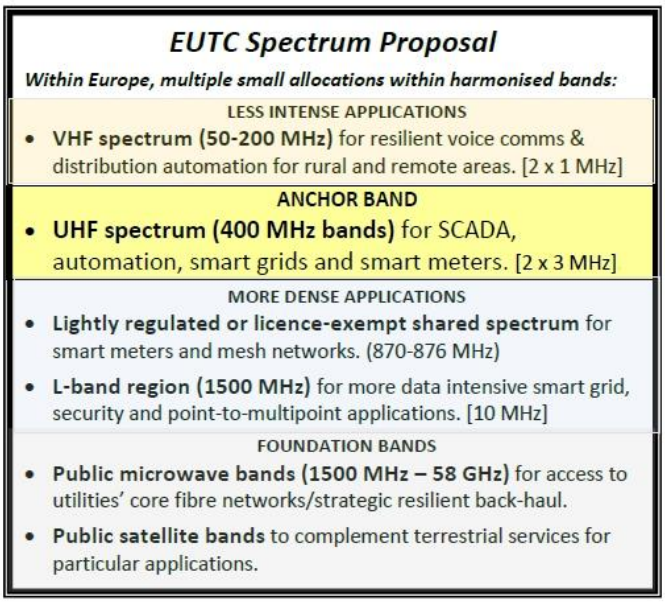
This can be summarized as:

1. Encourage closer coordination between DG Energy and DG Connect. Smart meter and smart grid telecommunications fall between the responsibilities of multiple Directorate Generals. Smart Grids are vital to ensure European Nations' Energy Grids meet their 2050 carbon reduction targets. Smart Grids represent the conjunction of telecoms and energy networks working in seamless harmony, but responsibility for initiatives in this area is not prioritized by either DG Energy or DG Connect.
2. Encourage the Commission to identify what initiatives are under way to ensure the energy sector has access to the specialised telecoms provisions it needs (including spectrum access) to ensure European citizens have energy networks capable of delivering secure, affordable and sustainable energy in a low-carbon future.

3. Initiate action to advocate spectrum access in all Member States for private wide-area IMT2020 networks. A significant difference between 4G and 5G is the growth of vertical markets, in areas such as health care, transport, factories and utilities. Steps are being taken to provide these vertical sectors with access to radio spectrum for small low power systems, and larger areas such as campuses, factories and stadia. However, so far there has been no provision for spectrum access for wide-area private 5G networks as required by utilities for smart metering and smart grids.

Access to radio spectrum

EUTC re-affirms that if utilities are to be able to construct their own private radio networks, it will be essential for them to be guaranteed access to a small amount of dedicated radio spectrum for their operations. Some of this spectrum must be below 1 GHz to facilitate the coverage and resilience essential for utility operations. The current focus for an 'anchor band' is 400 MHz spectrum.



The 2 x 3 MHz of spectrum in the 400 MHz region currently being sought by many utilities around Europe is only ½% of the 1200 MHz of spectrum which was identified for broadband radio services in the 2012 EU Radio Spectrum Policy Programme.[2]

The European Utilities Telecom Council (EUTC)

The European Utilities Telecom Council (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.

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[2] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32012D0243