

Opinions differ on the need for a dedicated spectrum allocation for the utilities sector

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The utilities industry faces some significant challenges associated with the delivery of resilient and cost-effective utilities networks (for example, electricity distribution) and there is a shared view within the industry that access to dedicated radio spectrum will be needed to meet these challenges. However, not all stakeholders are aligned, and some neighbouring countries are adopting differing approaches to spectrum allocation. For example, while the telecoms regulator in Ireland, ComReg, is currently consulting on its proposals to allocate spectrum for dedicated use by the utilities sector, Ofcom in the UK has previously indicated that the case for a similar allocation of spectrum is not compelling.

Although a compelling case for dedicated spectrum for utilities may emerge in the UK, the current positions adopted by both telecoms regulators may simply reflect the differences between the telecoms markets in Ireland and the UK. This set of circumstances may merit the use of services provided by commercial mobile network operators (MNOs). For example, the government in the UK is implementing an emergency services network (ESN) with commercial MNO EE, which is intended to replace the current UK TETRA solution that is used by emergency services. In the UK, the government and the regulator may believe that the ESN, or a similar solution hosted by an MNO, is sufficient for the requirements of the utilities sector. However, energy companies in the UK unanimously maintain that commercial MNOs, including the enhanced ESN, do not offer adequate levels of coverage and resilience to support the need for a secure energy supply, which is one of the system failure risks highlighted in the UK's national risk register for civil emergencies.¹

The electric power industry in the UK provides an example of the range of ongoing initiatives that aim to address concerns faced by stakeholders, including questions around catastrophic power failures (and the associated need for 'black start' capability), cybersecurity and smart grid requirements, and how telecoms solutions can be delivered to meet the requirements. Notably, however, many of these initiatives do not, in isolation, provide sufficient evidence to support an allocation of spectrum in the UK.

- **Distributed ReStart²** is a research project that is investigating how to restore power after a total or partial blackout, in which communications will be needed for hundreds of 'black start' generators in distributed and often remote locations. The project is ongoing and has already determined that existing telecommunications networks are unsuitable, and a need for new telecommunications and control systems has been identified. However, 'black start' requirements represent only a subset of the potential industry requirements for spectrum.

¹ Gov.UK (14 September 2017). *National Risk Register of Civil Emergencies – 2017 Edition*. Available at: <https://www.gov.uk/government/publications/national-risk-register-of-civil-emergencies-2017-edition>.

² National Grid, *Distributed ReStart*. Available at: <https://www.nationalgrideso.com/innovation/projects/distributed-restart>.

- **The Strategic Telecoms Group (STG)**,³ a sub-group of the Energy Networks Associations (ENA), has developed a position statement that advocates the allocation of radio spectrum for electricity network companies because it is “the most cost-efficient and technically appropriate option to facilitate dedicated and robust communications to support the volume of smart grid devices being deployed now and anticipated in the future”.⁴ However, Analysys Mason believes that additional evidence will be needed in order to persuade regulators to support this position when allocating spectrum.
- **The Joint Radio Council (JRC)** has undertaken a technical trial using licensed spectrum in the 450MHz band with a single base station. A project update was recently presented at a JRC seminar⁵ explaining that the next stage will involve trialling more base stations. Analysys Mason understands that these trials will establish the technical suitability of spectrum allocation to meet coverage requirements, but the trials will not address the costs on a national scale, nor assess the alternative of deploying commercial solutions.
- **Ofcom** announced a project at the same JRC seminar to consider its spectrum strategy for utilities networks and explained that the first task will include exploring solution options. The findings from Ofcom’s analysis will be an important influence on potential policy change towards allocation of spectrum for utilities in the UK.

Through Analysys Mason’s involvement with the European Utilities Telecom Council (EUTC), we are aware that the issue of spectrum allocated for utilities is an international challenge and the opportunity to use 5G technology is viewed as a potential solution to this problem.⁶

However, Analysys Mason’s research into opportunities for telecoms operators in the energy vertical (such as providing solutions for smart grids)⁷ shows that telecoms operators often see the utilities sector as one among many of their end-user industry verticals, and one that sometimes has complex requirements to address, particularly because it presents only a small market opportunity. There is a risk, therefore, that telecoms operators will not meet the full requirements of the utilities sector, or that the costs of meeting these requirements could be exorbitant.

Although the utilities and telecoms sectors – and their respective regulators and government policymakers – have engaged in dialogue, their positions on the allocation of dedicated spectrum for utilities need to converge. This must happen in order to optimise the inherent trade-offs between utilities network cost, system performance and resilience in an efficient manner.

³ The STG is responsible for helping the industry to decide its position on issues such as spectrum, and it is also responsible for providing input to the Energy Emergency Executive Committee (known as E3C), the government agency responsible for ensuring the country can handle energy emergencies.

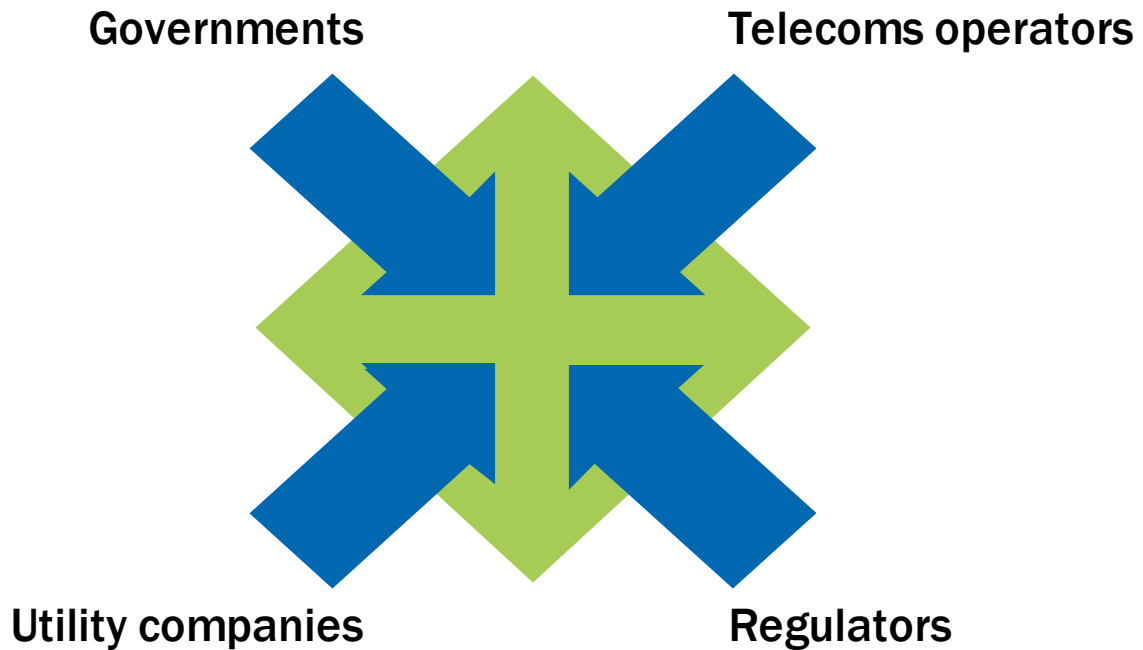
⁴ Energy Networks Association. *Energy Telecommunications*. Available at: <http://www.energynetworks.org/electricity/engineering/energy-telecommunications.html>.

⁵ Joint Radio Company (September 2019). *2019 Conference: The UK Smart Grid Vision*. Available at: <https://www.jrc.co.uk/conferences/2019>.

⁶ EUTC (June 2019). *Workshop on 5G*. Available at: <https://eutc.org/event/workshop-on-5g/>

⁷ See Analysys Mason’s Smart-grid opportunities for operators are emerging, but challenges remain. Available at: www.analysysmason.com/Research/Content/Comments/smart-grid-opportunities-rdme0.

Figure 1: Stakeholders' views on allocating dedicated spectrum to utilities companies must converge



Source: Analysys Mason, 2019

Analysys Mason believes that achieving a national allocation of dedicated spectrum for utilities in any country will need compelling technical and commercial justification. The business case needs to be proven by comparing the feasibility, costs and risks associated with other utilities network system delivery options, such as building private networks using shared spectrum and using MNO commercial networks with enhanced capabilities.

The issues outlined in this article are important for utilities companies, national and regional governments, telecoms regulators and utilities regulators, fixed and mobile telecoms operators, and investors. Analysys Mason has undertaken numerous telecoms options appraisals that utilise our deep market insights and modelling experience to offer independent and pragmatic recommendations to resolve complex issues such as these. For further details about how Analysys Mason can support you with any of the utilities industry issues outlined in this article, please contact Ian Adkins at ian.adkins@analysismason.com.