



UK Spectrum Policy Forum Plenary

The role of spectrum policy in tackling climate change

2nd May 2024

Tony Lavender

Background

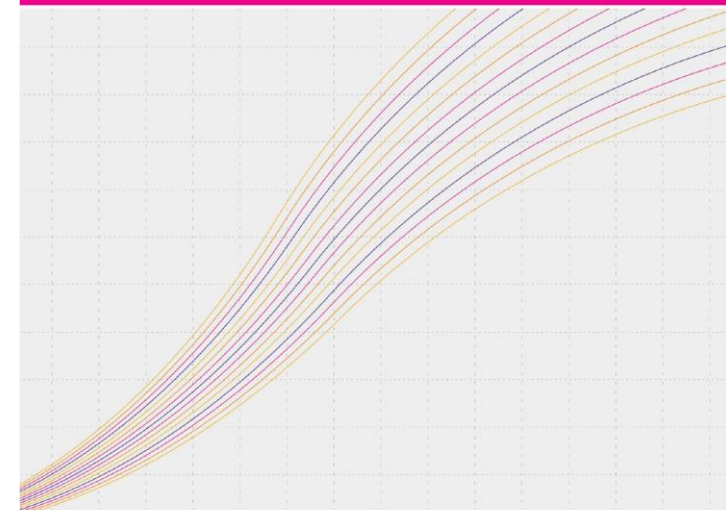
- Plum developed a report for the UK SPF in 2021 on the ways in which climate change is impacted by spectrum policy decisions, and the availability of spectrum for different users.
- The report considered spectrum users as both enablers (reducing environments impacts) and polluters.
- The report draws a series of recommendations on how regulators and governments can adapt their spectrum policies to be more environmentally responsible.
- SPF has asked Plum to review how it now sees the position set out in the report.



The role of spectrum policy in tackling the climate change issue

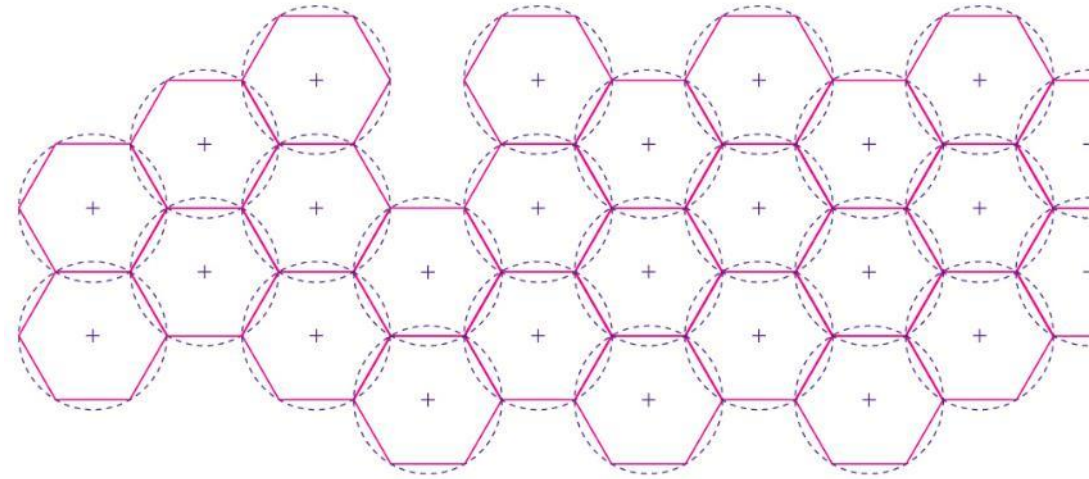
October 2021

Aude Schoentgen, Tim Miller, Akhil Kaur, Richard Rudd, Val Jervis, Yi Shen Chan



plumconsulting.co.uk

2021 project for SPF



Structure of Plum's research

Lots of literature

Relationship between ICT and climate change

Enabler of carbon emissions reduction

Polluter

Measuring and monitoring

Other actions from industry players

Almost no literature

Relationship between spectrum policy and climate change

Spectrum management issues

Enabling flexibility and fostering self-regulation

Spectrum provision issues

Network sharing

Legacy network switch-off

Specific system that are key to climate

The relationship between the communications sector and climate change

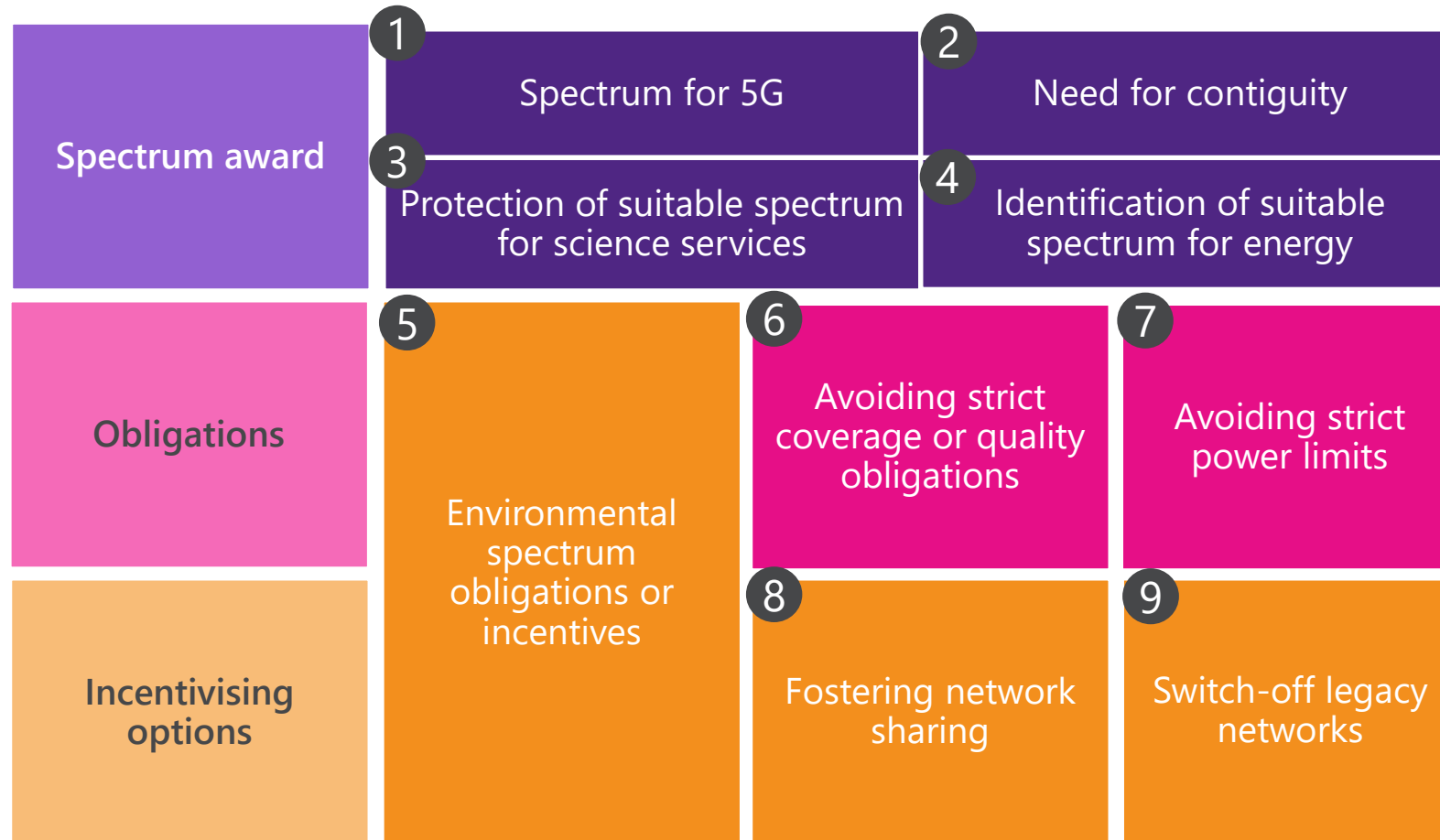
Enabler (reducing carbon emissions)

- Change in behaviours (for example, through reduced travel, or through more efficient working practices).
- Use of digital technologies in different sectors: e.g. telecommunications, broadcasting, energy, industry.
- Importance of science services.

Polluter (emitting carbon emissions)

- User devices : biggest part of chain in terms of carbon emissions (electricity consumption).
- Mobile networks (greener energy, energy-efficient equipment).
- Fixed networks.
- Others.

Proposed spectrum policy options from October 2021 report



Classified in two ways:

- Potential impact on climate change
- Assessed timeline

Priorities identified as short-term, high impact policies

2021 report recommendations

The regulator must have environmental impact responsibilities

A measurement and monitoring regime is required to help with regulation

Science services spectrum must be protected

Spectrum users should be compelled to use green sources of energy

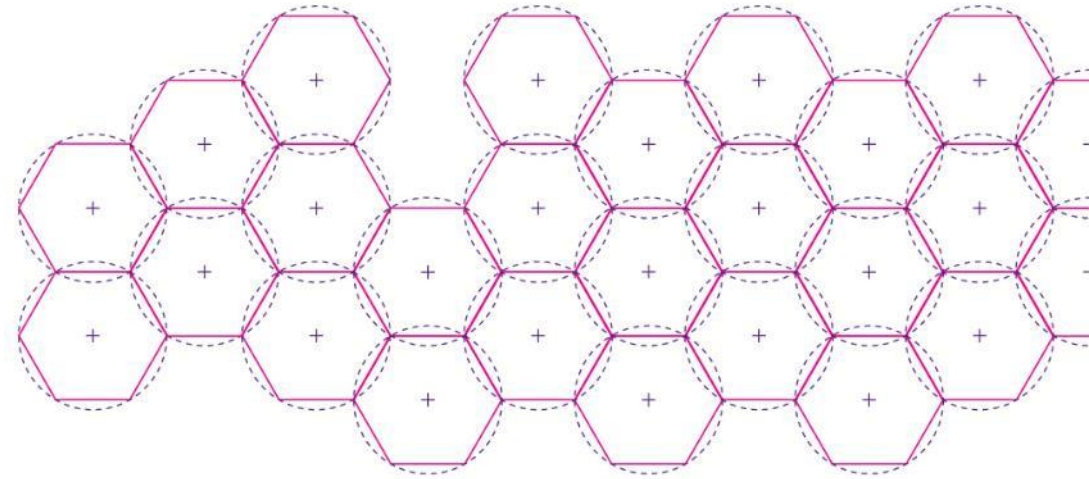
Legacy networks should be switched off when feasible

Suitable spectrum for energy should be identified

Sufficient spectrum should be provided to keep the number of mobile sites low

Spectrum should be awarded in contiguous blocks

Government and regulator activity



DSIT – Spectrum Statement and Wireless Infrastructure Strategy

Spectrum Statement April 2023

Spectrum has an important role to play in helping the UK reach our target of Net Zero emissions by 2050. We will work with UKSA, Ofcom and the wider earth and space science community, to ensure the continued availability and appropriate protection of spectrum for climate science, weather and related high impact services. We are also working closely with the Department for Energy Security and Net Zero, Ofcom and Ofgem to assess the energy and wider utility sector's communications requirements and ensure that timely decisions are taken on any resulting spectrum needs.

Wireless Infrastructure Strategy April 2023

In 2019, the UK was the first country to set a legally binding net zero emissions target for the UK economy to reach net zero carbon emissions by 2050. In 2021, the government set in law the world's most ambitious climate change target, cutting emissions by 78% by 2035 compared to 1990 levels. Wireless connectivity could play an important role in ensuring the UK meets the net zero target.

The government welcomes the MNOs' initiatives that contribute towards the legally binding net zero target. It is encouraging to see that 3 of the UK's 4 national MNOs have already announced their commitments to a net zero target, and that Three UK, as part of CK Hutchison Group Telecom Holdings Limited, are in the process of setting a net zero target.

DSIT areas of research interest 2024 – digital technology and telecoms

The DSIT Areas of Research Interest are topics where DSIT is keen to develop and enrich available evidence. Examples of ARIs in the digital and telecoms arena include:

Infrastructure

- What is the full carbon life cycle of fibre and are there possible emissions savings
- How long does it take for the CO₂eq emissions from the production, shipping, installation and use of fibre to result in a net emission saving over use of copper?
- How do low or no emission power methods for 4G mobile masts, such as wind, solar, hydrogen, and other methods, compare to diesel generation?
- What will be the environmental impact of the copper switch-off and recovery of copper wiring?

Usage

- How does access to a gigabit connection affect CO₂eq emissions for; (i) a household, (ii) a business, (iii) a public sector organisation?
- To what extent does increased connectivity increase teleworking? How does this change in teleworking impact emissions from commuting and business travel?
- How does increased data usage affect power consumption at server and data centres?

What is the overall impact of gigabit connectivity and 4G mobile connectivity on the government's target to achieve net zero by 2050?

Connected Nations 2023

Ofcom's statutory duties include that our regulatory functions are carried out in a way that secures the availability throughout of the UK of a wide range of electronic communications (telecoms) services, and the optimal use for wireless telegraphy of the radio spectrum. So, while our duties do not currently include specific climate change objectives, we have an interest in the long-term sustainability of the telecoms sector. This includes its preparation for net zero and climate change impacts, as well as improving its sustainability practice to meet the expectations of investors.

Climate change and the transition to net zero present both challenges and opportunities for the telecoms sector. Through the 'enablement effect' providers can help support decarbonisation across the economy, alongside further reducing the sector's own emissions. At the same time, the widespread adoption of digital technologies increases the importance of network resilience, including from weather-related outages, which can be exacerbated by climate change. We expect this area will remain important context for the telecoms sector in the coming years

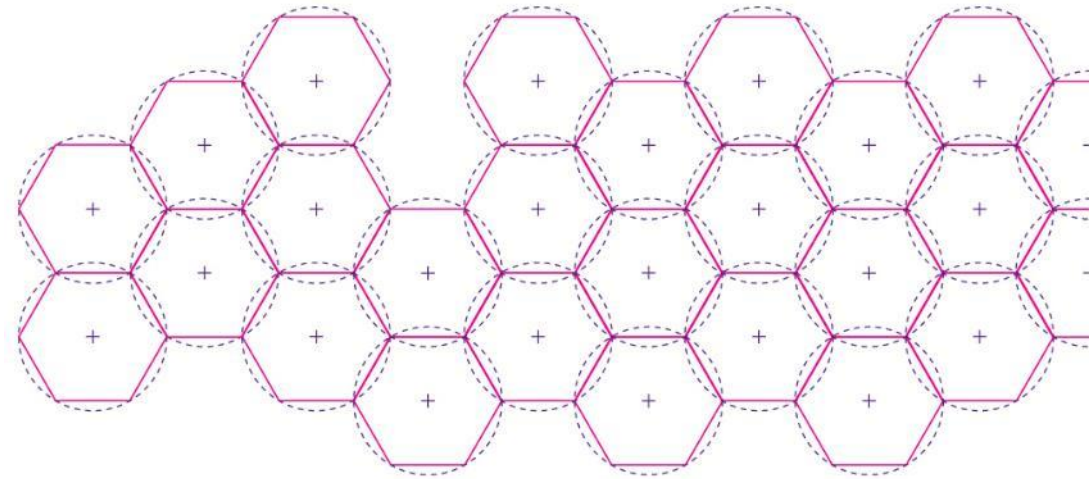
Source: Ofcom Connected Nations 2023 Section 5

Industry – examples from UK network operators

Provider	Net zero target year across value chain (Scopes 1, 2 and 3)	Science-based targets	Examples of public commitments / actions
BT	2041	87% reduction of scope 1 and 2 GHG emissions intensity (CO2-e per gross value added) by March 2031 (from a 2016/17 baseline year) 42% reduction of upstream scope 3 (supply chain) emissions by end of March 2031	- Enable customers to avoid 935k tonnes of emissions - Electrification of majority of vehicle fleet by 2030
Cellnex	2050	70% reduction of scope 1 and 2 GHG emissions and fuel and energy related scope 3 emissions by 2030 (from a 2020 baseline year) 21% reduction of purchased goods and services and capital goods GHG emissions (scope 3) by 2025	100% of electricity sourced from renewable sources by 2025 - Stop usage of fossil fuel backup generators by 2035
Openreach	2041	87% reduction of scope 1 and 2 GHG emissions intensity (CO2-e per gross value added) by March 2031 (from a 2016/17 baseline year) 42% reduction of upstream scope 3 (supply chain) emissions by March 2031	Electrification of majority of vehicle fleet by financial year 2031
Sky	2050	50% reduction of scope 1, 2 and 3 GHG emissions by 2030 (from a 2018 baseline year)	- Committed to electrification of entire vehicle fleet by 2030 - Commitment to 100% renewable energy pledge
TalkTalk	2050	93.5% reduction of scope 1 and 3 GHG emissions by 2030 (from a 2020 baseline year) 42% reduction of scope 3 emissions by 2030	- Began the electrification of vehicle fleet in 2020 - Switched to a renewable energy provider in 2020
Three	No date set for Scope 3	50% reduction of Scope 1 and 2 emissions by 2030 (from a 2020 baseline year) 42% reduction of scope 3 emissions by 2030	97% of procured electricity will be from renewable means - Have implemented a sustainable travel programme, aiming to reduce business travel by 25%
Virgin Media O2	2040	90% reduction of scope 1 and 2 GHG emissions by 90% by 2030 (from a 2020 baseline year) 50% reduction of scope 3 emissions by 2030 - Net zero across their value chain by 2040	- By the end of 2025, all new products will be made from recycled plastic - Electrification of entire vehicle fleet by 2030
Vodafone	2040	90% reduction of scope 1 and 2 emissions by 2030 (from a 2020 baseline year) 50% reduction of scope 3 emissions by 2030 - Net zero across their value chain by 2040	- Electrification of entire vehicle fleet by 2027 - Enable global customers to avoid 350m tonnes of emissions between 2020 and 2030

Source: Ofcom Connected Nations 2023: Section 5 – Climate change and telecoms networks

Closing remarks



Closing remarks

- Progress is being made and there is more reporting taking place.
- Industry is also making commitments on emissions – network operators and equipment vendors.
- There is still a wide area of study being pursued (e.g. the DSIT ARI 2024 paper).
- However, several of the recommendations from the Plum 2021 report are yet to be fully actioned.
- Risk of fragmentation of approach (while recognising what might be proportionate for one entity might not be for another given size and other differences).
- As of end 2023, Ofcom's duties did not contain a duty on specific climate change objectives – a key question is whether Ofcom should have these duties or whether they are handled through wider industrial measures with appropriate monitoring and measurement framework.

Plum is a leading independent consulting firm, focused on the telecoms, media, technology, and adjacent sectors.

We apply consulting experience, industry knowledge, rigorous analysis, and our clients' understanding and perspective to address challenges and opportunities across regulatory, policy, commercial, and technology domains.

Tony Lavender, Senior Advisor, tony.lavender@plumconsulting.co.uk

Tim Miller, Managing Partner, tim.miller@plumconsulting.co.uk

Aude Schoentgen, Director, head of Paris office,
aude.schoentgen@plumconsulting.eu



Back up slide – Scope 1, 2 and 3 emissions

- Scope 1 emissions are the direct emissions from owned or controlled sources
- Scope 2 emissions are the indirect emissions from the generation of purchased energy
- Scope 3 emissions are all indirect emissions not included in scope 2, that occur in the value chain of the reporting company
- Larger organisations in the UK are required to report Scope 1 and 2 emissions in their annual reports but Scope 3 emissions reporting is largely voluntary – the government recently ran a call for evidence on the costs, benefits and practicalities of Scope 3 reporting (closed on 14th December 2023)