

5G FAQ

Planning Officers

HOW TO USE THIS RESOURCE

- This document provides answers to some of the most common questions around 5G.
- These responses can be used to support external responses or statements.

GENERAL

What is 5G?

5G is the fifth generation of mobile network technology, and is the new global wireless standard following 4G, 3G, and others before. 5G allows connections for thousands of digital devices in a small area, with much greater reliability and security. This will bring a wide range of benefits to healthcare, transport, industry, and agriculture.

Why do we need 5G?

5G is more than just an upgrade of what we currently have. 5G is an essential building block of the UK's digital economy, and will be a central point of growth in future years. In remote areas, where fixed broadband connection isn't an option for many, 5G can provide a reliable and fast connection at home, meaning people can live and work where they want to. 5G connectivity has the potential to save councils millions in health and social care budgets, by allowing for real-time remote patient monitoring. Specific 5G trials in Liverpool and the West Midlands are already exploring this benefit. Elsewhere, 5G can positively impact transport, making bus routes more predictable and efficient, lowering costs while meeting the needs of remote or isolated citizens. 5G can also be used to improve parking, traffic management and street lighting.

Why can't we use the networks we already have?

The current networks we have, including 4G, do not have the capacity, latency, or bandwidth to support the new and emerging technologies that will be needed by businesses and industries. By sticking with what exists today, we are limiting future economic growth, regional prosperity and restricting opportunities for citizens. On top of this, 5G gives local authorities a way to continue telemedicine services, which are currently under threat due to the analogue switch off in 2022.

How will 5G impact communities in the UK?

- **Urban communities:** 5G is one of the building blocks of 'smart cities', bringing benefits such as reduced congestion, more efficient delivery of services and improved air quality
- **Rural communities:** 5G could help solve the UK's digital divide, helping to transform healthcare, transport and rural industries to the benefit of the people and the prosperity of the area, helping to avoid the challenge of aging rural populations

What impact will 5G have for the UK economy?

5G has the ability to improve all of our daily lives. With faster download speeds and lower latency, productivity in businesses will be boosted, no matter where they're located. This will help the economy thrive in a post-pandemic environment. 5G connectivity will also transform our health services, helping the NHS and local authorities to deliver care for all, no matter where people are or how complex their needs are. 5G can also have a significant impact on industries that are key drivers of regional prosperity, such as manufacturing and agriculture.

The Future Communications Challenge Group estimates the economic impact of 5G to be around £112bn in 2020, rising to £164bn in 2030. In other words, about £2,500 per head of population.

Who is responsible for deploying 5G?

The four largest mobile network operators (MNOs) in the UK - EE, Vodafone, Three UK, and Virgin Media O2 - are currently rolling out public 5G networks across the country. 5G also allows for the creation of private standalone networks, allowing local authorities to deploy local digital services outside of the MNO deployment plans, which not only delivers guaranteed bandwidth but can also offer a more cost effective manner to deliver services to communities.

Why does the government invest in 5G?

The UK government has recognised the economic and social importance of 5G to the country, and has strongly backed efforts to make the UK a global leader in the technology. It is actively coordinating efforts to make 5G a reality and is funding trials of the technology, across a wide range of ground-breaking urban and rural applications.

Are government investments reported and audited?

The National Audit Office has responsibility for auditing government spending. This independent body has the public duty of reporting investment levels and insights on spending.

When will 5G be available?

5G is already available in more than a hundred of the UK's major towns and cities today. All four major mobile operators offer a coverage checker service to see if 5G is available in an area.

- [EE](#)
- [Virgin Media O2](#)
- [Vodafone](#)
- [Three UK](#)

QUESTIONS FOR PLANNING OFFICERS

What are anti-5G protestors strategies for targeting Planning Officers/Committees?

Protestors know that if they can force Planning Officers to refer 5G infrastructure planning applications to Planning Committees for approval, it increases their chances of frustrating, delaying or denying those applications.

We've seen a sharp increase in objections filed by local citizens against 5G infrastructure deployments, specifically around the aesthetic impact of this new technology.

Will 5G infrastructure look different to 4G?

A crucial difference between 5G and preceding mobile comms infrastructure is the use of small cells for higher frequency transmission, which requires the densification of existing networks. As 5G masts have a much shorter range than 4G masts, more antennas will be needed in closer proximity to the users of 5G services. However, these antennas are less obtrusive than previous technology and can be easily placed in surreptitious locations. As 5G deployments progress, we're likely to see the installation of new monopole masts, to add capacity. DCMS is working on a new Code of Practice which will set out the siting and design considerations for 5G infrastructure in more detail

What ranges do 5G masts have and do they differ from 3G or 4G?

4G masts have a range of around 10 miles, whereas a high band 5G cell has a range of between 1,000 to 1,500 feet. With the introduction of high band 5G, more base stations and antennas will be required to

provide sufficient coverage and capacity for networks. 5G networks will also be expanded through a network of connecting 'small cells' fitted to buildings and street furniture. In rural areas, there may be low band (700Mhz) 5G builds on existing antennae.

These cells are less visually obtrusive than traditional masts, and emit less EMF radiation. The total radiation emitted by 5G across all cells in a region will still be far, far below safety guidelines. Furthermore, it will be easier for local authorities to upgrade existing 4G infrastructure to 5G, following government plans to refresh rules around permitted development.

(It's worth noting that low band 5G (700MHz) can travel farther than 4G as it is a lower frequency. The lowest 4G frequency, 800MHz, was previously used to distribute analogue TV.)

What is the impact of slowing down the rollout of 5G infrastructure?

The Future Communications Challenge Group has estimated that the economic impact of 5G on the UK could be around £112bn in 2020 per annum, rising to £164bn in 2030. In other words, about £2,500 per head of population.

5G industry leaders have confirmed that anti-5G sentiment is actively delaying the 5G rollout in the UK. This increases the cost of deployment, and the opportunity cost of delaying the positive impact of 5G and the revenue it brings to the country as a whole.

Who is responsible for public safety relating to 5G?

Planning law and policy requires that planning applications for electronic communications development should be accompanied by a statement or declaration that certifies that when operational, equipment will be compliant with the ICNIRP - an independent body that aims to protect people and the environment against adverse effects of non-ionizing radiation - guidelines for limiting exposure to electromagnetic fields.

UK Health Security Agency (formally Public Health England) takes the lead on public health matters associated with electromagnetic fields, or radio waves, and has a statutory duty to provide advice to the Government on any health effects that may be caused by exposure to electromagnetic field emissions. The UK Government has published advice on exposure to radio waves [here](#).

Ofcom is responsible for managing the use of radio spectrum in the UK. It regularly carries out radio frequency electromagnetic field (EMF) measurements near mobile phone base stations to test whether EMF levels are within ICNIRP guidelines. Ofcom's policy on EMF has been subject to two public consultations, and formally requires licensees to comply within the general public EMF limits, and keep records to demonstrate compliance. Further information on Ofcom's work in relation to EMF is available [here](#).

HEALTH

Is 5G safe for my health?

The resounding opinion of health agencies worldwide, including the World Health Organisation and the UK Health Security Agency (UKHSA), formally Public Health England, is that there is no cause for concern over the rollout of 5G infrastructure. Just like our TVs, remote controls, home Wi-Fi and so on, the strength of a 5G signal is extremely weak. Therefore, so long as the international guidelines on public exposure are followed, there are no risks to public health.

Does 5G cause cancer?

Ultimately, expert organisations including Cancer Research UK are confident that mobile phones and 5G pose no health risks to humans. Public Health England (PHE) also carried out comprehensive reviews of 5G, stating that there should be [no risk to public health](#) if exposure remains within guidelines. To ensure this, Ofcom regularly carries out radio frequency electromagnetic field (EMF) measurements near mobile phone base stations to test whether EMF levels are within International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines.

These guidelines are central to UKHSA's advice and are formally recognised by the World Health Organisation. The guidelines are based upon the consensus view of a large amount of research carried out over many years.

Doesn't the World Health Organisation class 5G as a possible carcinogenic?

The WHO has stated 5G could possibly be carcinogenic but, to put that into context, the WHO also classifies simple pickled vegetables in the same way, demonstrating the low level of risk. You can read more [here](#).

Can 5G have a negative impact on the health of vulnerable people, e.g. children and elderly?

A 5G signal is not strong enough to impact on the health of vulnerable people, or anyone for that matter. Expert organisations including Cancer Research UK are confident that mobile phones and 5G pose no health risks to humans.

Which network frequencies are safe for my health?

The most widely used 5G band in the UK will be 3.6GHz. This frequency band sits between the current Wi-Fi bands at 2.4GHz and 5GHz, which are already widely deployed in homes, offices and public places across the world. This is far below the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines, which monitors frequencies up to 300GHz. Anything below this threshold is considered not to cause adverse health effects, and is therefore safe for the public.

Is 5G responsible for the spread of Covid-19?

Many conspiracy theories have emerged since the outbreak of the global pandemic but there is no scientific basis or credible evidence for these claims. In fact, the destruction of mobile phone masts in some areas of the country, due to these incorrect claims, has put people's lives at risk. Mobile phones have been vital in organising support for citizens to collect medicines and get food to those who cannot go out during the Covid-19 crisis. If a mobile phone mast stops working, people in that area can't call the emergency services, dial the NHS on 111 or contact their friends or family.

Is ICNIRP a neutral organisation? Can we trust their guidelines?

Commission members of ICNIRP are independent experts in the scientific disciplines relevant to non-ionizing radiation protection (biology, epidemiology, physics, bio-physics, medicine). Members are volunteers, and do not represent either their countries of origin or their institutes. ICNIRP members are required to declare any personal interests in relation to their activities for ICNIRP. The ICNIRP guidelines are trusted by industry bodies and national governments around the world, including the World Health Organisation.

ENVIRONMENT

How does 5G impact the environment?

5G has the potential to bring a number of positive impacts to the environment. This includes reducing the impact of transport, by supporting real-time traffic management and reducing congestion. Elsewhere, 5G-enabled technology can make the food supply chain more sustainable and efficient, reducing losses between 'farm and fork'. It works by connecting sensors and data, helping farmers reduce the use of water, electricity and fertilisers in agricultural processes. [5G networks have also been found to use less power, reducing energy use by 43% on average.](#)

There is no evidence to suggest that 5G has a negative impact on the natural environment.

Will 5G have a negative impact on the animals living within the vicinity of the network?

There is currently no evidence that human-made EMF radiation has population level impacts on either animals or plants.

The impacts of radiation on wildlife is the subject of ongoing study. For example, in 2018 experts from across Europe published an overview of current knowledge on the impacts of artificial electromagnetic radiation on wildlife, funded by the [EU EKLIPSE](#) project (Knowledge & Learning Mechanism on Biodiversity & Ecosystem Services).

DEFRA has also supported national and global assessments of the status of pollinators and the factors driving changes in their populations. [These assessments](#) do not identify 5G or electromagnetic radiation as a significant threat.

Will the construction of the 5G network impact environmental aesthetics?

As part of the planning permission process, local authorities assess the impact of any new masts including environmental aesthetics. Strict rules still apply in protected areas including national parks. The UK government intends to expand the permitted development rules around the 5G rollout, including installing new equipment on existing masts. This will allow operators to upgrade existing infrastructure to 5G more easily. Full details of this are available [here](#).

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Have other countries banned 5G?

No country has banned the rollout of 5G. While it has been claimed that Switzerland, Japan and Belgium have banned 5G, Switzerland already has commercial 5G services covering much of the country; Japan has 5G; and Brussels has an agreement with operators to deploy it and has already made major deployments such as in the Port of Antwerp.

