Item 43

Although a formal committee of Brighton & Hove City Council, the Health & Wellbeing Board has a remit which includes matters relating to the Clinical Commissioning Group (CCG), the Local Safeguarding Board for Children and Adults and Healthwatch.

Title:	Response to petition to halt the rollout of 5G
Date of Meeting:	28 January 2020
Report of:	Director of Public Health, Health and Adult Social Care, BHCC
	Executive Director - Economy Environment & Culture
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Wards Affected:	All

FOR GENERAL RELEASE

Executive Summary

At October 2019 full Council, a petition with 2,240 signatures was presented, requesting halting the roll out of 5G technology. A Green Group amendment recommending that the petition was noted and a report on the issue provided for consideration at the next available meeting of Health & Wellbeing Board (HWB) was passed.

This report outlines the national guidance relating to the health effects of 5G. It also explains the council position and the ability the council has to influence the roll-out of mobile technology.

Glossary of Terms

5G – fifth generation of mobile networks
EMF – Electro Magnetic Fields
EU – European Union
GPDO – General Permitted Development Order
HWB – Health & Wellbeing Board

ICNIRP – International Commission for Non Ionizing Radiation Protection LPA – Local Planning Authority MRI – Magnetic Resonance Imaging NPPF – National Planning Policy Network PHE – Public Health England

1. Decisions, recommendations and any options

1.1 That the Health and Wellbeing Board note the report.

2. Relevant information

2.1 5G radio technology is expected to offer faster mobile broadband connections and enable good quality connections of more devices to mobile networks. In the long term it is argued that it will support innovations across the economy.

2.2 5G technology utilises high frequency electromagnetic fields (EMF), around ten times higher than those used for current network technologies. This form of energy is unable to break chemical bonds in the way that X-rays can, and is known as non-ionising radiation. The higher the frequency of electromagnetic waves, the lower the ability of the wave to penetrate body tissues. High frequency EMFs are already used widely in a variety of technologies, including communications (mobile phones, base stations, Wi-fi, radio, TV and security devices), in medicine (in MRI scanners) and for heating purposes (microwave ovens).

2.3 Telecommunications policy (which includes broadband, mobile communications and other technologies) is reserved to the UK Government. Regulation of telecoms is the responsibility of Ofcom, the UK telecoms regulator. The deployment of 5G mobile networks are being commercially led and funded.

2.4 The UK Government set out its strategy for future digital infrastructure in the Future Telecoms Infrastructure Review[1] published in 2018. This included a target that the majority of the population should be covered by a 5G signal by 2027.

2.5 5G has already been introduced in some parts of the UK. It is expected that the operators Three and O2 will introduce 5G in Brighton & Hove in 2020. A local 5G testbed was introduced at the Digital Catapult in 2018, and extended to the Brighton Dome in 2019.

2.6 At October 2019 full Council, a petition with 2,240 signatures was presented, requesting halting the roll out of 5G technology. This read:

[1] https://www.gov.uk/government/publications/future-telecoms-infrastructure-review

"We the undersigned petition Brighton & Hove Council to halt the rollout of 5G technology in Brighton & Hove and invoke the Precautionary Principal adopted by the EU in 2005 which states: "When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm." We, the residents of Brighton & Hove, insist that our City Council invoke the Precautionary Principal regarding 5G technology and all associated infrastructure before deploying it in our city. We (the residents) now call for independent research and for the City Council to prove to its constituents that 5G is SAFE and poses NO risk to human health, animals, wildlife, insects, birds and the ecosystem as a whole. Once 5G is deployed fully, it will expose people 24/7 to mandatory radiation without their informed consent, which constitutes a blatant breach of their Human Rights. WE DO NOT CONSENT UNTIL PROVEN SAFE"

2.7 Following a Green Group amendment, Council passed an amended recommendation that the petition be noted and a report on the issue provided for consideration at the next available meeting of Health & Wellbeing Board.

3. National guidance

3.1. The impact of EMF on health has been extensively researched across the world. Hundreds of scientific papers have been published using a wide variety of methods to investigate if there is any link to adverse health effects. Studies have taken place in a number of different settings, including laboratories (using frequencies far higher than those to be used in 5G technologies) and in the real world. The consensus from the World Health Organisation (WHO) and the International Commission on Non-Ionizing Radiation Protection (ICNIRP) are that there is no conclusive evidence of adverse health effects related to short term or long term exposure to high frequency EMF. It is possible that if someone is exposed to high levels of EMF, they may experience heating of body tissues, and that is why the ICNIRP set strict safety thresholds that limit the amount of EMF that people can be exposed to. The safety threshold they have set is well below the level at which body heating may occur.

3.2. Public Health England (PHE) takes the lead nationally and provides expert advice on public health matters associated with high frequency EMF. Their recently updated guidance can be found in Appendix 1.

3.3. PHE's advice on high frequency EMF is based on the comprehensive evidence reviews that have been prepared by expert scientists in the United Kingdom (UK) and around the world, including those by the WHO and the ICNIRP which are mentioned above. These experts have reviewed the evidence that has been published on the health effects of EMF, which has been studied extensively in a number of ways and looked at a number of health outcomes, including but not limited to: headaches; concentration difficulty; sleep quality; cardiovascular effects and others. These expert bodies agree that there is no conclusive evidence that exposure to EMF below certain safety thresholds is harmful to health.

3.4. PHE have told us that the current exposure of the general public to radio waves is well within the international health-related guideline levels that are used in the UK and that when 5G is added to an existing network or in a new area the overall exposure to radio waves will remain well below the safety thresholds in these guidelines. PHE have concluded that there should be no consequences for public health from new 5G technology. PHE is committed to monitoring the evidence applicable to this and other radio technologies, and to revising its advice, should that be necessary.

3.5. UK network operators implementing 5G are committed to complying with the current safety threshold guidelines for EMF and the planning system does require that any new installations are consistent with the international guidelines PHE adheres to.

3.6. As highlighted above, PHE are the lead agency for 5G and our local BHCC Public Health team have liaised with PHE regularly on this topic. Where additional evidence has been received we have liaised with PHE about this. They have concluded that all evidence shared does not contain new studies of which PHE is unaware and which would cause PHE to consider revising its current position.

4. Brighton & Hove City Council position

Planning Requirements

4.1 The ability of councils to influence the roll-out of mobile technology through planning is limited by central government regulations on permitted development rights (through the prior approval process) that allow specified development to go ahead without planning permission. As a consequence planning policy cannot be used to halt the roll out of 5G. The planning system does, however, require that any new installations are consistent with the international guidelines PHE adheres to.

4.2 Certain permitted development rights apply to development on behalf of electronic communication code operators in relation to the installation, alteration or replacement of any electronic communications apparatus (including upgrades to existing masts). There are various limitations on these rights, for example where the site is within a national park or conservation area, but generally masts are permitted (without needing planning permission) up to heights of between of 20 - 25 metres from ground level, and between 10 and 15 metres where situated on a building. In most instances 5G technology allows for shorter/smaller masts than previously and can be incorporated into existing street furniture (such as lampposts). As a consequence it is more likely to fall within permitted development rights/the prior approval regime.

4.3 Prior approval by the Local Planning Authority (LPA) is required for masts and certain other types of apparatus falling within the permitted development rights,

however, considerations are strictly limited to siting and appearance. Such applications have to be publicised and any representations taken into account by the LPA in determining whether prior approval should be refused and planning permission required.

4.4 In the unusual circumstances that permitted development rights do not apply (see paragraph 4.2) - applications for an express grant of planning permission would need to be made. In determining such applications the Local Planning Authority is not limited to considering siting and appearance but can take any material planning considerations into account. These may include national planning policy relating to matters wider than siting and appearance, cumulative impact, landscape concerns and mitigation, residential amenity and perceived health concerns. However, the position under the National Planning Policy Framework (NPPF) is that the Council should not 'set health safeguards different from the International Commission guidelines for public exposure' (paragraph 116, NPPF). Any future applications for planning permission will be carefully considered against all material considerations.

Economic Development Implications

4.5 All levels of economic strategy making recognise the value of modern high-speed communications: from the national government's Industrial Strategy, through the Local Enterprise Partnership's Strategic Economic Plan[2] and emerging Local Industrial Strategy[3], the Greater Brighton Economic Board's Five Year Strategic Priorities[4] to Brighton & Hove's own Economic Strategy[5]. All of these plans include reference to the need to improve digital connectivity, including seeing 5G as being a key part of this. The Greater Brighton Economic Board is currently in the process of developing a Digital Strategy and Action Plan that will further develop the strategy for how the city region could position itself to benefit from the inevitable roll-out of 5G technology.

4.6 The economic benefit to 5G technology is that it offers a step-change in data speeds, offering 10 to 20 gigabits per second connectivity[6]. It will also address the latency issues of existing mobile technology. Latency is how quickly a connection can be made and the data can start being shared, fundamental in applications like driverless cars where a latency of a few fractions of a second between vehicles talking to each other could cause problems. 5G masts also rely on a dense network of full fibre connections to operate. The roll out of 5G will therefore also bring with it the roll out of much more fibre optic cabling in the city, benefiting businesses and homes that the fibre passes.

4.7 As well as the infrastructure benefits of faster data connections, 5G also offers an opportunity for a city like Brighton & Hove, which has a strong and growing digital sector, to take the lead in the new technologies that arise. The city hosts

[2] https://www.coast2capital.org.uk/storage/downloads/gatwick_360_priority_7_-_improve_digital_network_capability_information_pdf-1549545953.pdf
[3] https://www.coast2capital.org.uk/lis-evidence-base
[4] Greater Brighton Economic Board's Five Year Strategic Priorities
[5] https://www.brighton-hove.gov.uk/sites/brighton-hove.gov.uk/files/economic-strategy.pdf
[6] OFCOM 'Enabling 5G in the UK,' March 2018

the first 5G test bed outside of an academic or large business setting, which allows SMEs the opportunity to test applications on 5G equipment, giving them a competitive advantage to be ahead of the game in developing commercial applications on what will be a ubiquitous technology in a few years.

Potential Use Cases for 5G technology

5G and Smart Cities are inextricably linked. 5G brings about an improved platform to deliver scalable and reliable connectivity to the world.

The new uses for 5G are based around the fact the technology allows the transfer of more data, can connect more devices, and gives and instant response. The possible uses of this include:

- 'Tactile Internet,' using haptic technology could allow medical students to practise surgery in a connected, virtual reality environment. Students wearing haptic gloves would be able to 'feel' the procedure as they develop their skills in a safe setting. The technology works by transmitting different types of motions to the user. The combination of these capabilities with low latency communications and very high reliability may play a role across a wide range of sectors, including education, healthcare, online shopping and games.
- 5G will enable the 'Internet of Things.' This will have health and social care benefits by enabling remote health monitoring, creating timely alerts for patients, nurses or carers.
- The Internet of Things will also enable smart cities, which operate more efficiently based on the exchange of real time data. Possible applications for this include optimisation of street lighting, monitoring of parking, rubbish collection timing, and environmental monitoring.

BHCC Estate Implications

4.8 Although the majority of mast sites in the city would be allowed under permitted development rights, there are currently eight mast sites on Council land which are leased to operators who might look to use those sites for 5G technology, outside of those rights.

4.9 There are two masts on top of Council buildings which are used for telecommunications equipment. There are six Council owned sites around the city on top of hills in more remote locations, which are used for transmitting and receiving television and telecommunication signals. Due to their locations these sites might not be suitable for 5G technology given the short wavelength of the signals. Even if these sites are used as part of the 5G roll out, they would form a very small part of the equipment that needs to be installed across the city, most of which is permitted under existing development rights.

5. Important considerations and implications

Legal:

Permitted development rights are given by Schedule 2 Part 16 Class A of the Town and Country Planning (General Permitted Development) (England) Order 2015 ("GPDO"). As referred to in the body of the report, this means that the Local Planning Authority (LPA) cannot lawfully refuse an application for prior approval on health grounds because the potential health issues relating to 5G are not relevant to 'siting and appearance'.

Permitted development rights can be withdrawn by LPAs by means of a direction under Article 4 of the GPDO if the LPA considers that it is expedient that the development proposed should not be carried out other than pursuant to a planning application. However, the Secretary of State must be notified of any such direction and has the power to cancel or modify it, whether before or after confirmation. The National Planning Policy Framework advises (paragraph 53): "The use of Article 4 directions to remove national permitted development rights should be limited to situations where this is necessary to protect local amenity or the well-being of the area…", and at paragraph 114 specifically states that LPAs "should not impose blanket Article 4 directions over a wide area or a wide range of electronic communications development", The Planning Practice Guidance advises in relation to Article 4 directions that "The potential harm that the direction is intended to address will need to be clearly identified" and goes on to say "there will need to be a particularly strong justification for the withdrawal of permitted development rights relating to [inter alia] cases where prior approval powers are available to control permitted development" (paragraph: 038 Reference ID: 13-038-20190722). It is considered that perceived health risks which are at variance with Public Health England's advice will not be regarded as strong justification.

For development which does not benefit from permitted development rights, the only option for an operator is to make an application to the local planning authority for planning permission (s. 70(1) TCPA 1990). Such applications must be determined in accordance with the development plan, unless material considerations indicate otherwise (s. 38(6) Planning and Compulsory Purchase Act 2004). The LPA should give the views of those bodies setting guidelines such as the International Commission on Non-Ionizing Radiation Protection 'significant weight' and should depart from these views only if 'cogent reasons can be given for departing from them' (Wealden v Secretary of State for Communities and Local Government [2017] EWHC 351 (Admin), [44]).

The Petition raised at full Council refers to the 'precautionary principle'. There is no legal obligation or statutory duty for the LPA to apply the precautionary principle. The Council as a Local Planning Authority is in a different position to Town Councils that have expressed opposition to the roll out of 5G technology. All applications for planning permission to a LPA need to be determined on their own merits and the Council would be open to allegations of predetermination if it was to adopt a policy position that the precautionary

principle should apply. This would amount to a fetter on the discretionary power of the LPA to grant planning permission. It is highly likely that any such approach would be challenged in the courts.

Lawyer consulted: Elizabeth Culbert Date: 5/1/20

Finance:
While there are no direct financial implications within this report, the council would need to be mindful of the potential costs of any legal challenge in planning permission is not granted.

Finance Officer consulted: Sophie Warburton/ Rob Allen Date: 15/01/20

Equalities:
There are no direct equalities implications of this paper.

Equalities Officer consulted: Anna Spragg Date: 14/01/20

Supporting documents and information

Appendix 1: PHE guidance: 5G technologies, radio waves and health PHE 5G Guidance[7]

Public Health England

Guidance

5G technologies: radio waves and health

Published 3 October 2019

Contents

Mobile telecommunications technology has developed through several generations and there are now many 2G, 3G and 4G base stations installed throughout the environment providing services to users of mobile phones and other devices.

Public exposure

Over the decades, since the networks were first introduced, there has been a general trend towards increasing numbers of smaller transmitters that individually provide services to smaller geographical areas and have reducing radiated powers.

Against this background, many measurements have been made and these continue to show that exposures of the general public to radio waves are well within the international health-related guideline levels that are used in the UK. These guidelines are from the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and underpin health protection policies at UK and European levels.

In relation to the implementation of 5G devices and networks, this technology is at an early stage and reflects the latest evolution in mobile communications technology. Current technical standards that draw on the ICNIRP guidelines will apply to the products that are developed. UK network operators are already committed to complying with the ICNIRP guidelines.

[7] https://www.gov.uk/government/publications/5g-technologies-radio-waves-and-health/5g-technologies-radio-waves-and-health

5G frequencies

With the increase in the volume of information being transferred, more spectrum is being made available and the highest frequencies being discussed for future use by 5G are around 10 times higher than those used by current network technologies, up to a few tens of gigahertz (GHz).

Their use is not new, and they have been used for point-to-point microwave links and some other types of transmitters that have been present in the environment for many years. ICNIRP guidelines apply up to 300 GHz, well beyond the maximum (few tens of GHz) frequencies proposed for 5G.

Research studies

Exposure to radio waves is not new and health-related research has been conducted on this topic over several decades. In particular, a large amount of new scientific evidence has emerged since the year 2000 through dedicated national and international research programmes that have addressed concerns about rapidly proliferating wireless technologies.

The main focus of recent research studies has been on exposure to the types of radio signals used by current communications technologies and at the frequencies they use, up to a few GHz.

Fewer studies have been carried out at higher frequencies but the biophysical mechanisms that govern the interaction between radio waves and body tissues are well understood at higher frequencies and are the basis of the present ICNIRP restrictions. The main change in using higher frequencies is that there is less penetration of radio waves into body tissues and absorption of the radio energy, and any consequent heating, becomes more confined to the body surface.

Summary

It is possible that there may be a small increase in overall exposure to radio waves when 5G is added to an existing network or in a new area. However, the overall exposure is expected to remain low relative to guidelines and, as such, there should be no consequences for public health.

PHE is committed to monitoring the evidence applicable to this and other radio technologies, and to revising its advice, should that be necessary.