Written evidence from BT Group: update evidence session on digital connectivity

1) Executive summary

We are pleased to provide the committee with an update on digital connectivity in Wales. This submission provides an update to the evidence we provided to your predecessor committee in 2021. Our submission provides members with:

- an update on full fibre coverage and deliver in Wales and what we are doing to reach the hardest to reach
- the latest on our investment to deliver enhanced 4G and 5G mobile coverage and services in Wales
- an update on our decision to pause the roll-out of Digital Voice services

2) Delivering Full Fibre across Wales as soon as possible and reaching the hardest to reach

BT shares the Welsh and UK Government objectives of ensuring gigabit-capable connectivity is available across Wales as quickly as possible – and that everyone should have access to decent broadband. We are doing this by:

- **Continuing to support, through Openreach, the Superfast Cymru scheme to deliver at least superfast coverage as far as possible** – Between 2014-2018 we co-funded the Superfast Cymru Programme increasing coverage to 95% connecting 733,000 premises (77,505 via Fibre To The Premises and 655,495 via Fibre To The Cabinet). In 2019 we commenced the latest co-funded contract to connect 26,000 premises to full fibre by March 20/21 which was further increased to 37,000 due for completion in summer 2022.
- **As the Broadband Universal Service Provider**, we are doing all we can to maximise the impact of the USO programme through demand aggregation and cost sharing, building new full fibre solutions wherever possible and thus further reducing the number of very hard to reach premises.

The UK Government's plans under Project Gigabit will also be key in extending the full fibre footprint into non-commercial areas in Wales. Effective and efficient utilisation of the £5bn has the potential to extend full fibre deep into the non-commercial 'final 20%' of the UK. We understand that the DCMS expectation is that that there will be a value-for-money case to reach up to potentially 99% of UK premises, leaving just the last final 1% of premises – with a possibility that funded full fibre extends beyond this via existing regional and local programmes.

While it is currently unclear quite how many of these 'very hard to reach' premises will remain (or indeed precisely where across the UK they will be located), the suggestion of fewer than 100,000 (based on the likely number of residual USO-premises where the per premise costs are likely to be well in excess of the £3,400 cost threshold) provides a good guide. It represents a realistic limit of where commercial, USO or

publicly funded full fibre projects (at least based on current UK Government cost-benefit analyses) may be able to deliver over the long term.

There are a variety of technology options available for those Welsh premises that cannot access a decent broadband service today. Ofcom has stated that 4G Fixed Wireless Access (FWA) can and does offer the capability to deliver a 'decent' broadband service. Ofcom estimates that there are 55,000 premises in Wales that cannot get decent broadband. Of these 55,000 premises, 40,000 could gain access to decent broadband over a FWA service, providing an additional 2.6 percentage points of decent broadband service coverage in Wales.[1]

The remaining 15,000 (1%) of Welsh premises that cannot access 'decent' broadband may be eligible for support under the Broadband USO. Notably, this figure dropped from 18,000 in the previous year because of improvements made in mobile phone coverage across Wales. Since March 2020, these households and businesses have had a legal right to request a decent, affordable broadband connection from BT as the designated Universal Service Provider for the UK (apart from in Kingston-Upon-Hull).

However, whilst there may be longer term solutions for these premises via Project Gigabit and other programmes, there is likely to be very strong demand for improvements over a shorter time period – so consideration of the use of alternative approaches may need to be given to a wider pool of premises than this 'final 100,000'.

We therefore fully support exploration of alternative approaches to delivering improved digital connectivity to these premises. The incremental social and economic benefits that improved connectivity can have for those with poor internet access today are significant – and likely to be well above the benefits accrued from similar improvements in connectivity for those already well-served.[2] For example, boosting broadband speeds in these areas to 30-100Mbps and enabling take-up of these services at rates seen elsewhere in the UK, whilst not to gigabit-capable levels, offers the potential for these last remaining parts of the UK to benefit to a much greater degree relative to other parts of the country.

Before consideration is given to the role that alternative approaches may be able to play, we believe it is critical that every effort is made – through further local and UK Government progress on 'barrier busting' measures – to reduce full fibre deployment costs and timescales as far as possible, enabling the commercial footprint to extend to more of the country and, where public funding is needed, for this to be spent as efficiently as possible. Independent research commissioned by BT demonstrates the significant impact removing barriers will have on the cost and speed of deployment.[3]

Whilst the objective must be to extend gigabit-capable connectivity, with full fibre as the gold standard, to as much of the UK as possible, reaching 100% may not be viable given the significant costs involved. The nature of these very hard to reach premises is such that they present a number of challenges to deliver cost effectively using conventional fixed network techniques. These include:

- relatively long distances from the main commercial fibre networks requiring long dig/duct lengths

[1] **Ofcom, Connected Nations (2021)**
[2] **See response to B12 for more detail**
[3] **Analysys Mason document (bt.com)**

- deployment in sparsely populated areas where there is limited ability to share the high fixed costs associated with fixed connectivity
- other unusual features that further add to fixed network costs e.g. difficult/expensive route crossings, subsea, river or infrastructure crossings, planning issues/restrictions for masts sites, expensive duct routes through rocky surfaces etc.

For areas where full fibre delivery costs are prohibitive, we believe the following alternative approaches could provide significant uplifts in connectivity for the very hard to reach and justify further detailed consideration:

- Fixed Wireless access via current/extended 4G/5G Mobile infrastructure and spectrum
- FWA via standalone FWA networks using unlicensed or lightly licensed spectrum
- Satellite options, though primarily emerging LEO Sat technology due to the inherent latency issues associated with Geo Sat.

These technologies, through the use of radio links in the final access leg, are most likely to avoid many of the issues that cause fixed network deployment to these premises to be so costly. Avoiding, or at least minimising, the need to build new individual or very lightly shared civil infrastructure in remote areas will be key to reducing the effective per premise costs. Radio systems can both reduce the fixed costs and aggregate costs over larger, more geographically disperse groups, lowering the average cost.

However, it is important to recognise that these alternative approaches come with their own individual trade-offs relative to full fibre - in terms of performance levels, capital investment required, ongoing operational costs and retail pricing, and time to deliver. It will be important that the UK Government considers these fully as it develops its policy approach for the very hard to reach.

Members of the committee should note that these factors in combination mean that:

- UK Government intervention will be required if the ambition of delivering improved digital connectivity to the very hard to reach is to be realised;
- the intervention will likely need to be in a different form to the BDUK gigabit programme e.g. potentially a separate 'final fraction' programme with appropriate service delivery criteria that is capable of drawing on a range of providers/solutions;
- consideration will need to be given to what acceptable service levels and delivery timescales look like, as this will drive what solutions are viable within these parameters;
- a simple extension of the USO model will not be a viable solution, due to the range of solutions needed, the expected mix of different technology suppliers and delivery models and the very significant differential between the costs to deliver and the benefits that flow to the network builders.

3) Delivering and investing in better mobile coverage across Wales

Shared Rural Network brings benefit to rural connectivity in Wales

EE plans to improve 4G coverage in more than 200 rural locations across Wales by June 2024, as part of the Shared Rural Network (SRN) programme. This new investment has been welcomed by stakeholders including NFU Cymru. The SRN programme is aiming to extend 4G coverage to 95% of the UK's geography by 2025.

As part of the process of delivering the SRN programme, we agreed with Ofcom that our licence to use spectrum should be amended to introduce new, legally binding coverage obligations. Under these, EE aimed to increase its geographic 4G coverage of the Welsh landmass to 83% by 2024, and to 88% by 2026. We have surpassed the first requirement, as EE now already covers 85% of the Welsh landmass with 4G as of April 2022.

The fact that we invested ahead of other networks means that we already have infrastructure in place that we can upgrade (through transmitting more and longer-range radio spectrum from each site) to extend and improve the 4G service we provide across Wales. We will therefore be able to meet our SRN commitments and deliver substantial coverage improvements without the need to build many new masts.

EE has already upgraded its 4G network in over 100 locations across Wales since the SRN deal was signed in March 2020. We recently announced plans to extend 4G in over 100 further locations in Wales, bringing the total to 220 in this phase of the programme. All sites have been made available for other operators to share under the SRN scheme.

The rural locations that will get 4G upgrades between now and June 2024 are spread across Wales and include:

- 27 locations in Powys
- 15 locations in Gwynedd
- 13 locations in Carmarthenshire
- 12 locations in Pembrokeshire
- 9 locations in Denbighshire
- 7 locations in Ynys Mon

5G convergence and ambition in Wales

Last summer, BT unveiled new plans to offer high performance 5G solutions across the entire UK by 2028 and to fuse its leading mobile, Wi-Fi and fibre infrastructures to realise the potential of the UK's first fully converged network. This long-term vision means BT is building and bonding next-generation fibre and 5G networks simultaneously. The unique, smart infrastructure provides a platform for revolutionary new services for customers and converged technology opportunities for businesses, supporting the UK's economic recovery and future growth.

To extend mobile coverage BT's mobile network, EE, is driving 4G connectivity deeper into rural areas, adding over 4,500 square miles of new signal by 2025. In parallel EE's 5G network, which was first to launch two years ago, will grow to cover half of the UK population very soon, significantly ahead of the UK Government's 2027 ambition. Utilising the expanded 4G infrastructure, 5G will pass the geographic reach of 4G to become the UK's largest digital network by 2028, providing signal to over 90% of UK landmass. To reach this benchmark new 700MHz 5G spectrum, recently secured in Ofcom's auction, will be deployed across the majority of EE sites, offering stronger indoor and wider rural coverage.

To better understand the potential of 5G to improve the delivery of public sector services in rural Wales, BT has been undertaking a trial with the Welsh Government's 5G Wales Unlocked, an innovation

programme that includes the new immersive 360-degree classroom in Ebbw Vale. This is one of several trials across the UK sponsored by DCMS, demonstrating how ultrafast technology like 5G could transform rural communities, from powering tech innovations in agriculture, to improving rural transport and education and bolstering the tourism industry.

Using a localised 5G network provided by BT as one of the project partners, the classroom uses the high-speed connectivity to project inspiring and educational video content onto all four walls in a 360-degree format, providing an immersive experience.

Lessons can be delivered across a variety of curriculum-related themes, taking children and young people on a journey of the senses as they 'dive' into the detail of a plant cell or explore the surface of a planet.

Thanks to the ultrafast 5G connection, live link-ups have also been established, allowing learners to discover the fascinating history of heritage sites such as Raglan Castle, with a live virtual tour from a Cadw custodian located at the site.

The live link-ups can also be used to connect classrooms across the country, meaning pupils can work collaboratively with other learners, and educators can enhance their own lessons in partnership with other schools.

Reforming the Electronics Communications Code

Several other policy and legislative barriers impact the ability of operators to deploy new mobile infrastructure. These include the scope of the Electronic Communication Code (ECC) in enabling operators to establish rights for access to land and to resolve disagreements between landlords and operators over the terms of that access for the deployment of mobile sites.

In November 2021 the UK Government published its response to the ECC consultation outlining its proposals in light of the responses received. The Product Security and Telecommunications Infrastructure (PSTI) Bill in which these changes are to be enacted was laid simultaneously and is currently passing through Parliament.

Overall, BT is supportive of the policy direction and the overall aims that UK Government seeks to achieve through the legislation. In particular, the ability for operators to seek interim rights and backdated rent pending resolution of renewal negotiations and encouraging greater use of Alternative Dispute Resolution procedures (e.g. mediation). This is subject to some drafting amendments to secure those outcomes.

Specific reforms include:

- Remove – through the introduction of interim arrangements for renewal negotiations – some of the incentives for landowners and their agents to delay negotiating new agreements.

- Address problems in agreeing new Code terms for leases where land has previously been occupied under different legislation, the Landlord and Tenant Act 1954 and the Business Tenancies Order (Northern Ireland) 1996.
- Enable terms to be reached more quickly where land is occupied under an expired "old" Code agreement (i.e. pre-2017).
- Ensure that upgrades to equipment e.g. to deploy 5G on an existing 4G site can be made more easily.

4) An update on Digital Voice

We've taken the decision to pause all further Digital Voice switch-overs for customers who don't want to move to the new technology straight away. We'll restart the programme once we have key products in place to provide our customers with more resilient connectivity when they need it.

Digital Voice is BT's new home phone service that will mean calls are made over our new broadband network, rather than the old analogue network which is over 40 years old.

Put simply, instead of plugging a home phone into a wall-mounted phone socket that people have done for decades, customers will connect their handset to their broadband router. Doing this will replace old analogue technology that is fast becoming obsolete with a new digital service that will provide crystal-clear calls, prevent the vast majority of scam calls and ultimately will be more efficient on electricity usage making it better for the environment.

It is, in short, a necessary upgrade to customers' phones in their homes that will bring long term benefits and a service fit for the future.

This pause in the programme will also enable us to drive a greater level of public awareness and understanding of the coming change.

This will include the roll-out of longer-lasting battery back-up units for use in the event of a power cut, home mobile landlines for people without broadband and hybrid home phones (for customers not comfortable using a mobile, but which can connect via the mobile network if the fixed connection becomes unavailable and with an in-built back-up battery). Customers who want the Digital Voice service can still request this upgrade during the pause period.

BT understand customer feedback and realises we underestimated the impact that this technology upgrade could have on areas prone to power cuts or those with poor mobile reception. Where in the event of a power cut, customers would not be able to call anyone to get help.

BT recognises these concerns, as the fibre cables used by Digital Voice can't conduct electricity. Whilst alternatives are in place, we appreciate that these are not yet as good as they could be for all circumstances. The issues were thrown into sharp relief during the recent storms when some households had to endure long periods without electricity.

Work will have to continue, due to PTSN becoming increasingly difficult to maintain and is becoming less and less reliable. The long-term resilience of landline phones needs the retirement of the PSTN and a shift to digital services.

It also means we can provide crystal clear call quality, better identify, and prevent scam calls and significantly reduce electricity consumption, making it better for the environment. This change is happening in countries across the world.