Department for
Digital, Culture
Media & Sport

A new broadband Universal Service Obligation: Government's response to consultation on design

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Department of Digital, Culture, Media and Sport

Contents

Ministerial foreword

People and businesses need to have access to world-class connectivity to thrive. As the UK makes great strides towards that aim, this Government has been clear that it is essential that no-one is left behind, regardless of where they live or work.

We have a clear Manifesto commitment to introduce a broadband Universal Service Obligation (USO) ensuring that by 2020 every home and business will have access to high speed broadband. Our Digital Economy Act 2017 enabled the creation of a new broadband USO, giving every household and business the right to request a broadband connection at a minimum speed, up to a reasonable cost threshold. Our detailed proposals for a broadband USO aim to ensure that no-one is left behind.

We believe that establishing a clear, enforceable right for people to request a connection is the best way to deliver a broadband universal service for consumers and business. It will guarantee people's right, and target intervention at those premises not otherwise connected in 2020. We carefully considered BT's proposal to deliver universal service and are grateful for its work on developing its offer. Ultimately, however, BT's proposal did not meet our expectations of providing certainty that consumers would receive a good quality connection of at least 10Mbps by the end of 2020. We will keep the minimum specification for the USO under review to ensure it keeps pace with consumers' evolving needs, and will use our powers to amend it as necessary.

Responses to our consultation showed broad support for the introduction of a new regulatory broadband USO, and we are today setting the scope of the USO in secondary legislation, which Ofcom will implement.

I want to be clear that setting the minimum speed at at least 10Mbps is not the limit of our ambition. To support our vision of full fibre connectivity, in the 2016 Autumn Statement, the Government announced a £1.1bn package of measures to support investment in digital infrastructure, aimed at ensuring the UK has the digital connectivity it needs for the future, including full fibre networks and 5G.

We continue to demonstrate our ambition of being the most connected nation in the world. In the Autumn 2017 Budget, we announced that we would make available £385m for full

fibre and 5G.[1] We have already set up the £400m Digital Infrastructure Investment Fund to help investment in new full fibre networks and legislated to exempt new full fibre infrastructure from business rates for a five-year period starting from 1 April 2017. The UK's Superfast broadband coverage is now at 95% and we are continuing to support further delivery. We do not intend to stop there: we are investigating how we can support investment in the widespread roll out of world-class connectivity of the future through our Future Telecoms Infrastructure Review which was launched late last year.[2]

RT HON. MATT HANCOCK
SECRETARY OF STATE FOR DIGITAL, CULTURE, MEDIA AND SPORT

[1] Autumn budget 2017
[2] Press release

Executive summary

On 30th July 2017, we published our consultation on the design of a new broadband USO, which ran until 9th October 2017[3]. The consultation sought views on the proposed specification for a new broadband USO that would be set in secondary legislation, drawing on the detailed technical analysis that the Government commissioned from Ofcom, which was published in December 2016[4]. This document summarises the responses received, and sets out the Government's response to that consultation.

Having considered the responses, we will now move ahead with the following design for the implementation of the regulatory USO, which we intend to have in place by 2020:

- A minimum download speed of at least 10Mbps, the speed needed given a typical household's use of digital services;
- Additional quality parameters of 1Mbps upload speed, minimum standards for latency, a maximum sharing between customers (a 'contention ratio' of 50:1), and data cap of at least 100GB per month. Download speed is only one factor which can impact on what a consumer can do online. The additional parameters ensure they can get a service which allows them to engage effectively on a social and business basis and minimises social and economic exclusion;
- Given the proposed specification of the USO, we agree with Ofcom's 2016 assessment that FTTP, FTTC (VDSL), fixed wireless and mobile technologies can meet the proposed specification to deliver universal affordable broadband, but based on its current capabilities, that satellite may not;
- A cost threshold of £3,400 per premise, with demand aggregation forming an essential feature of USO implementation to ensure as many people who want to get connected, do get connected;
- Uniform pricing will be required so that people connected under the USO do not pay more for their broadband than others pay for comparable services in non-USO areas;
- The costs will be met by industry through a cost-sharing mechanism which will be established by Ofcom, as part of its implementation of the USO;
- To help minimise the risk of overbuild and market distortion, and the imposition of costs on industry that might divert market investment and reduce competition, only

[3] https://www.gov.uk/government/consultations/broadband-universal-service-obligation-consultation-on-design
[4] https://www.ofcom.org.uk/consultations-and-statements/category-1/broadband-uso

premises who do not have a connection which meets the USO specification, or are unlikely to be connected under publicly funded procurements which meet the minimum specification, will be eligible to be connected, and connections will be subject to a reasonable cost threshold;

- There have been expressions of interest from some smaller market players in being designated as Universal Service Providers (USPs), and we have passed these to Ofcom as it will determine the most effective designation approach to take;
- Arrangements for monitoring and reporting progress of the USO will be through Ofcom's Connected Nations reports, with the first review of the specification to take place at least as soon as the Digital Economy Act 2017 trigger of 75% UK premises take-up of 30Mbps broadband has been reached. The Digital Economy Act gives Government the power to increase the USO specification via secondary legislation if necessary to ensure it remains relevant.

A Universal Service Order, setting out the technical specification for the USO, and relevant guidance, is being laid in Parliament today. It will then be for Ofcom to implement the USO, including by designating the USPs, setting appropriate universal service conditions to comply with the Order, establishing an industry fund to compensate the USPs for any unfair net cost burden[5]; and establishing who should contribute to the fund, and how it should be administered. Ofcom's implementation is expected to take up to two years.

[5] The net cost is the total cost of providing the broadband USO, less any direct or indirect benefits derived by the Universal Service Provider(s).

1. Introduction

Government has been clear that people and businesses need world-class connectivity to thrive. Even with high levels of superfast broadband coverage across the UK, there are areas that have not been reached by commercial investment alone. These generally, though not exclusively, tend to be rural or remote areas, where the costs of installing infrastructure can be significantly higher than in urban and suburban areas, and often outweigh the potential revenues, making the case for commercial investment weak. Urban areas too still have their own challenges, which make them more costly to reach, for example, because of access issues.

Government interventions have significantly helped to tackle this market gap. This support has largely been provided through the Superfast Broadband Programme, led by Broadband Delivery UK (BDUK) within DCMS. Working in partnership with local authorities and commercial providers, this programme met its target of delivering superfast broadband of at least 24Mbps to 95% of the UK by the end of last year. BDUK estimates that efficiency savings, coupled with clawback and further commercial rollout, could extend superfast broadband coverage to at least a further c.2% of UK homes and businesses by 2020.

In addition, in December 2015, the Government launched a scheme offering a subsidised broadband connection, which included the option of superfast speeds, to homes and businesses unable to obtain a broadband service of at least 2Mbps. This scheme - the Better Broadband Scheme - formed part of the Government's commitment to make sure every home and business in the UK could access speeds of at least 2Mbps by the end of 2015. This 'Universal Service Commitment' acts as a non-statutory safety net for digital connectivity. The scheme has recently been extended to the end of 2018[6].

We are also removing barriers to support industry investment. Through the Digital Economy Act, we have made permanent the 2013 planning requirements making the deployment of fixed broadband infrastructure by operators with rights under the Electronic Communications Code quicker and cheaper. We have also reformed the Electronic Communications Code to update rules on installation and maintenance of communications infrastructure on private land.

[6] https://www.gov.uk/government/news/better-broadband-scheme-extended-for-another-year

We have created the Barrier Busting Task Force, looking at planning, wayleaves, street works, new build developments and regulatory issues which may impact on the business case for digital infrastructure deployment. The Task Force is looking at short, medium and longer-term solutions to such issues.

We must complete the roll out of today's technologies, and get the market and policy conditions right for the next generation of technologies. Government has already invested significantly in roll out of full fibre networks and 5G.

On 3 July 2017, Government launched a £400m Digital Infrastructure Investment Fund to help accelerate the roll out of full fibre networks by increasing access to private finance for companies delivering them.

At Autumn Budget 2017 we launched a £190 million Local Full Fibre Networks (LFFN) Challenge Fund to stimulate commercial investment in full fibre networks across the whole of UK, in both rural and urban locations. Public bodies across the UK have bid for funding from the programme, designed to accelerate the rate at which full fibre networks are made available across the UK. £95m has been allocated in the first wave of funding to increase connectivity in 13 areas right across the country. We expect the next wave of funding to open in Summer 2018, which local bodies will again be invited to bid into.[7].

This has been supplemented by the government's £67m Gigabit Broadband Voucher Scheme, which will bring gigabit connectivity to homes and businesses up and down the country. Gigabit broadband vouchers can be used by small businesses and the local communities around them in both rural and urban areas to subside the installation cost of faster connections over gigabit-capable infrastructure[8].

At Autumn Statement 2017, the Government announced £160 million for the next phase of funding for the 5G Testbeds & Trials Programme, including projects to test 5G applications and deployment on roads and the security of 5G networks. On 19 December 2017, the Government published a progress update on its 5G strategy, published at Spring Budget 2017, which identified the actions that the government would take to realise its aim for the UK to be a world leader in 5G.

[7] https://www.gov.uk/government/publications/local-full-fibre-networks-challenge-fund
[8] https://gigabitvoucher.culture.gov.uk/

We want to continue to support industry investment in the next generation of technologies. Government has already introduced the Telecommunications Infrastructure (Relief from Non-Domestic Rates) Act 2018[9], which provides for an exemption for new full fibre deployment from business rates for five years after 1 April 2017. We are also undertaking a Future Telecoms Infrastructure Review to determine how to deliver the competitive conditions to encourage the long term investment needed in full fibre and 5G networks.

These interventions will support improved digital connectivity across the UK, both now and in the future. While we rightly work towards world-class connectivity for the whole of the UK, and prepare for even better connectivity in the future, we also need to make sure that no-one is left behind. Government believes that a specific intervention is required to ensure that households and businesses in hard to reach rural and urban areas do not miss out on the benefits that digital connectivity brings. This is why Government will introduce a new broadband Universal Service Obligation (USO), giving every household and business the right to request a broadband connection at a minimum speed, up to a reasonable cost threshold.

Universal broadband

In November 2015, recognising the increasingly important role that broadband plays in people's lives, and that a small but significant minority of premises were still unable to access decent broadband, the Government set out its intention to introduce a broadband USO, which would give everyone a legal right to a fast broadband connection on request. The Government's stated ambition was for the minimum speed of at least 10Mbps.

For individuals, this is about not missing out on chances of finding employment, saving money on household bills, and keeping in touch with friends and family. It is about helping our children to do their homework, and making sure that families can access a greater range of information and services, including on-demand services (e.g. BBC iPlayer) and public services, which are increasingly becoming 'digital by default'. It is also about getting people online in both rural and urban areas across the four nations of the UK - enabling them to access services, to work, shop and communicate. The benefits of greater connectivity are shared throughout communities, including by supporting small businesses to get online, compete and grow.

[9] http://www.legislation.gov.uk/ukpga/2018/1/pdfs/ukpga_20180001_en.pdf

The rationale for a USO is to act as a safety net where market forces alone do not deliver affordable access to basic services. USOs aim to ensure that a minimum set of communications services are available to everyone at a fixed location, upon reasonable request, and at an affordable price, irrespective of where they live or work, in order to prevent social and economic disadvantage. A USO connection would be demand-led, provided on request from a designated Universal Service Provider (USP), or providers, rather than delivered via a commercial or publicly-funded roll out. In March 2016, the Government published a consultation on its proposed approach to introducing a new broadband USO[10].

The consultation set out the Government's intention to introduce primary legislation to give the Secretary of State an explicit power to introduce - and review - a broadband USO. Enabling powers for a broadband USO were subsequently included in the Digital Economy Act 2017[11], which received Royal Assent on 27 April 2017.

During the passage of the Act, in October 2016, the Government published a Statement of Intent[12] on the principles that would guide the design of the USO :

- The design of the broadband USO must put people and businesses throughout the United Kingdom at its heart in order to secure the benefits of digital connectivity for as many people as possible, as quickly as possible.
- It must ensure that everyone can access a decent broadband service which meets the needs of the majority of people and businesses. It is clear this will need to be increased as consumer needs change, and the USO must be designed with this in mind. The new review power in the Digital Economy Act to direct Ofcom to review the USO will ensure that it is future-proof.
- The broadband USO must extend the reach of decent broadband connectivity as far as possible across the United Kingdom, in both rural and urban areas. Its design will need to take into account the specific challenges of connecting the most remote or difficult-to-reach locations.

[10] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/510148/Broadband_Universal_Service_Obligation.pdf
[11] http://www.legislation.gov.uk/ukpga/2017/30/contents/enacted
[12] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/562484/USOStatementofIntentfinal11October__2_.pdf

- Connections will be subject to a cost threshold. Above this cost threshold consumers will still have the right to fast, reliable broadband, but may have to contribute to the cost of connection, as is the case with telephone lines.
- The USO must act as an effective complement to commercial, community and publicly funded roll outs. It must not displace any planned roll out of higher speed broadband; must be affordable; and will need to be designed to minimise any market distortion.
- The USO must be proportionate and ensure that, wherever possible, costs associated with the USO are minimised while still meeting the needs of people and businesses. For example, by exploring whether connection requests can be combined to reduce costs.
- The USO must be legally binding, measurable and enforceable.

Ofcom advice to Government

In March 2016, to help inform decisions about the design of the USO, and the specifications that would be set in secondary legislation , the Government commissioned Ofcom to provide detailed technical advice[13]. To support this, in April 2016, Ofcom published a Call for Inputs[14] seeking views from consumers and industry to inform their analysis, and in August 9 2016, Ofcom published a summary of the responses received[15].

Ofcom published its USO analysis in December 2016, "Achieving decent broadband connectivity for everyone"[16]. The report set out Ofcom's advice to Government on how to achieve a decent broadband connection for all, analysis of the range of issues that would need to be considered for the design of the USO, and a set of scenarios for its design. The report recognised that any policy to deliver universal, decent broadband was complex, with many interrelated design features to be considered. Foremost amongst the design challenges is the definition of what level of service the USO should deliver. Ofcom's Call for Inputs found that stakeholders had differing views on what the technical specification for the USO should be. Some argued for a safety net to complement existing public and private sector-led broadband deployments, while others argued for a more highly specified universal service for all, with the cost of such interventions a more secondary consideration. Ofcom modelled three scenarios:

[13] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/53676/dcms_letter.pdf
[14] https://www.ofcom.org.uk/__data/assets/pdf_file/0025/58336/broadband-uso.pdf
[15] https://www.ofcom.org.uk/__data/assets/pdf_file/0025/68335/summary_of_responses.pdf
[16] https://www.ofcom.org.uk/__data/assets/pdf_file/0028/95581/final-report.pdf

- Scenario 1: a standard broadband service, characterised only by a 10Mbps download speed;
- Scenario 2: a more highly specified 10Mbps service, adding 1Mbps upload speed, and minimum standards for latency (medium response time), maximum sharing between customers (a 'contention ratio' of 50:1), and data cap of at least 100GB per month; and
- Scenario 3: a superfast broadband service, with download speeds of 30Mbps, upload of 6Mbps, fast response times, a 'committed information rate' of 10Mbps (i.e. guaranteed 10Mbps at all times) and an unlimited usage cap.

DCMS subsequently asked Ofcom to model a fourth scenario between Scenarios 2 and 3: 20Mbps download, 2Mbps upload; latency (medium response time), contention ratio of 50:1, and a data cap of 100GB per month. The modelling of this scenario - together with updated estimates for the original three scenarios - was published as a further addendum to Ofcom's December report[17]. Ofcom estimated the baseline number of premises under each of the scenarios using data from its 2016 Connected Nations Report[18]. It also provided forecasts for the size of the footprint for the end of 2017, and early 2020s, using BDUK estimates for future superfast coverage and known commercial investment plans.

Ofcom found that premises in scope of the USO are predominantly, though not exclusively, in rural areas. Ofcom also found that a higher percentage of premises in Wales, Scotland and Northern Ireland could not receive 10Mbps than in England, largely because they have proportionately more rural premises.

However, in some urban areas network deployment can be problematic and more costly making the commercial case for investment weak. This can be for a variety of reasons - the cost of streetworks, difficulties in gaining access to locations for new street cabinets, complexity of re-engineering old legacy copper telephone networks, and limited numbers of potential residential customers in locations where businesses have their own bespoke networks.

[17] https://www.ofcom.org.uk/__data/assets/pdf_file/0015/105342/Technical-advice-on-a-broadband-USO-Updated-cost-estimates.pdf
[18] https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2016

A further complicating factor is that a household or business may mistakenly believe it is unable to access speeds of 10Mbps or higher because of factors inside their home or building, such as where their wi-fi router is positioned, or the quality of in-home wiring. These factors will have nothing to do with the speeds that the network they subscribe to is providing, and are often outside the control of the service provider, but may lead people to think they cannot access services, when in fact they can.

Ofcom's report identified that as public and commercial investments extend superfast network coverage, the number of premises in scope of the USO, and the total deployment costs would reduce over time.

There are clear dependencies and trade-offs between the quality of service, the costs of providing the connections, and the level of coverage, and these require careful consideration. There are also a number of important constraints on the design of the USO that need to be taken into account, as a result of the legal framework it has to operate within.

The USO is an on-demand scheme under which households and businesses are connected on reasonable request. This differs to rollout programmes, like BDUK's Superfast Broadband Programme which involves proactive building of networks which are designed to deliver availability to all. Government's view is that we would need to allow a period of time, perhaps 6 months or longer, to give people sufficient time to register their interest, for the demand to be aggregated, or else the costs of connecting people may be too high. However, we recognise that there are a range of views on how this should work in practice and Ofcom will need to consider this carefully.

The high cost of universal broadband deployment, and the fact that funding of any net cost burden would be only be available retrospectively, may limit the number of providers who might be designated as Universal Service Providers by Ofcom.

Our 2017 consultation

The public consultation[19] sought views on the specification for a new broadband USO to be set in secondary legislation, covering the whole of the UK. We particularly sought views from the electronic communications industry (network operators, and internet service

[19] https://www.gov.uk/government/consultations/broadband-universal-service-obligation-consultation-on-design

providers), and both business and residential consumers as well as representative organisations. The consultation ran for 10 weeks from 30 July to 9 October 2017.

Informed by Ofcom's technical advice, the key areas we consulted on were:

- A proposed minimum download speed of at least 10Mbps;
- Proposed additional quality parameters of 1Mbps upload speed, minimum standards for latency, a maximum sharing between customers (a 'contention ratio' of 50:1), and data cap of at least 100GB per month;
- The technical capabilities of a range of technologies and the role they might play in delivering the USO, depending on the final specification chosen. Given the proposed specification of the USO, FTTP, FTTC (VDSL), fixed wireless and mobile technologies were expected to be able to meet the specification, but based on its capabilities at that time, it was expected that satellite could not;
- A proposed cost threshold of £3,400 per premise, and that demand aggregation should be an essential feature of USO implementation to ensure as many people who want to get connected, do get connected;
- That there should be uniform pricing for USO connections and services;
- That the costs should be met by industry through a cost-sharing mechanism to be established by Ofcom once the specification for the USO has been set in secondary legislation;
- Measures to be taken in designing the USO that will help minimise market distortion;
- The current level of market interest in becoming a Universal Service Provider; and
- Proposed arrangements for monitoring and review of the USO.

2. USO footprint

A core issue in developing the USO is determining which premises are in scope of the USO; that is, the number and distribution of premises that do not have access to broadband at the minimum specification, and the cost of reaching them. It essentially informs us of the scale of the problem to be addressed, and helps us understand the costs of doing so.

We knew that the BDUK Superfast Broadband Programme was on track to deliver superfast connectivity to 95% of UK premises by the end of 2017 and that, with further reinvestment of

clawback[20] and efficiency savings, superfast coverage would reach a further c.2% of premises by 2020. We asked Ofcom to undertake some analysis of the remaining 3% of premises to find out more about them, and the implications for the USO footprint[21].

In our consultation, we set out Ofcom's projections for the USO footprint by each of the specification scenarios we considered for the design of the USO, as reported in Ofcom's technical advice to the Government published in December 2016, which itself included detailed Annexes setting out the analysis undertaken for Ofcom by Analysys Mason.

Figure 4.4: Future projections of the number of eligible premises

Million premises *(as % total UK)*	Scenario 1: 10Mbit/s download speed	Scenario 2: 10Mbit/s download + 1Mbit/s upload	Scenario 3: 30Mbit/s download + 6Mbit/s upload
Today 2016	1.4m *(5%)*	2.6m *(9%)*	3.5m *(12%)*
End of 2017	~1.1m *(4%)*	~1.8m *(6%)*	~1.9m *(7%)*
Early 2020s	~0.3m *(1%)*	~0.6m *(2%)*	~1.1m *(4%)*

Source: Ofcom's December 2016 USO report[22]

Ofcom's report identified that as public and commercial investments extend superfast network coverage, the number of premises in scope of the USO would reduce over time. However, Ofcom's figures did not take into account the superfast investment plans of the Devolved Administrations as it was unclear precisely how this would impact the number of premises in scope.

The cost modelling in Ofcom's report assumed that there would be 80% take-up of the universal service offering, which was intended to represent the long-term level of take-up of broadband services. This is discussed further in Section 7 on Demand.

In our consultation we asked:

- **Do you agree with the future projections of the USO footprint?**

[20] Clawback results from clauses in the Government's contracts, which require suppliers to recycle funding when people take up superfast connections installed as part of the programme.
[21] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/53676/dcms_letter.pdf
[22] In Ofcom's technical advice and the consultation the number of eligible premises for scenario 2 in 2016 was estimated at 2.6m. This figure was revised to 1.6m in Connected Nations 2017 as a result of changes in the way the figure was calculated.

- **Do you have any further evidence of commercial or publicly funded rollout during this period which will influence the scale of the footprint?**

We did not receive any robust evidence to challenge Ofcom's assessment of the USO footprint, and most agreed that the assessment was correct. This was broadly supported by the Broadband Stakeholder Group's own analysis, conducted by Plum Consulting, of the total number of premises (and likely costs and connecting them).

However, concerns were raised by organisations in the Devolved Administrations, Scotland in particular, that their broadband initiatives were not being considered.

There were also concerns raised, for example by the Countryside Alliance, the National Farmers' Union (NFU), and Country Land and Business Association (CLA), about underreporting of the numbers of premises unable to meet the specification by communications providers leading to an underestimation of the numbers of premises in scope. This view was supported by EuroBroadband, who in their response to this consultation suggested that, based on their subscriber data, superfast coverage was not as high as 95%.

Lazonby Parish Council and Kirkoswald Parish Council's response to the consultation noted that the national average figures does not represent coverage in remote areas.

On the other hand, some respondents, such as the Local Government Association, felt that the figures were an overestimation, and that the problem was therefore not as large as Ofcom had calculated.

A communications provider acknowledged that accurate forecasting is challenging, that Ofcom's forecasts are likely to be accurate, but that the number could reduce quite dramatically over the coming years as further higher speed broadband investment takes place. Another communications provider said that the projections should be revised when further investment takes place and it was also noted that since the figures were calculated in 2016 they could be very out of date by the time the USO comes into force. Sky noted the importance of Ofcom continuing to interrogate the figures to ensure there is no over-recovery of costs.

Proposed way forward

We fully acknowledge that it is challenging to develop accurate forecasts for coverage at the USO specification in the years ahead. In our impact assessment which accompanies this document, we use Ofcom's Connected Nations 2017[23] data which shows a reduction in the number of premises in scope already since Ofcom's USO analysis was published in December 2016 - 1.1 million or 4% of UK premises do not have a connection which meets the USO specification in 2017 compared with 1.6m or 6% of premises in 2016. Connected Nations 2017 is based on data collected in May 2017, from the largest operators in each sector[24], as well as information already held by Ofcom, so the size of the footprint will have further reduced since then.

We also fully recognise that further public and commercial investment in broadband may reduce the numbers of premises in scope of the USO by the time it is implemented. BDUK's approach is to continue to extend superfast coverage as far as possible under its programme by reinvesting clawback and efficiency savings. The Government's announcement on 29 January 2018 that the 95% superfast broadband target had been met[25], reported that up to £687 million was available for local authorities to re-invest and take superfast speeds to homes and businesses not already covered by existing plans. This is very positive, particularly as it delivers a service higher than the USO specification. A reduced number of premises in scope will reduce the costs of delivering the USO for industry and consumers.

Further detail about the investment in broadband made by the Devolved Administrations will be reflected in Ofcom's implementation of the USO where sufficient levels of data about plans is available.

As we set out in Section 5 on Eligibility, premises that can already receive the same specification as the USO or higher, or are likely to be connected under publicly funded procurements which meet the minimum specification, will not be eligible for connection under the USO.

As we note in Section 9 on Funding, any unfair net cost burden that the designated providers incur is recovered retrospectively, once the investment has taken place, and these costs

[23] https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2017
[24] See Figure 51 of Connected Nations 2017
[25] https://www.gov.uk/government/news/superfast-broadband-now-available-to-more-than-19-out-of-20-uk-homes-and-businesses

would be subject to detailed scrutiny and audit by Ofcom. The results of the net cost calculation and the conclusions of the audit would also be made publicly available.

3. Specification of the USO

A key consideration in designing the USO is the minimum specification for the connection that people should receive. This in turn determines the technologies which can be used to deliver the service, and the costs of delivering it.

The EU Framework Directive, and Universal Service Directive adopted in 2002, and revised in 2009, provide the current regulatory framework within which the broadband USO operates. Under the Universal Service Directive, connections provided under the USO should be capable of supporting "data communications at data rates that are sufficient to permit functional internet access". Specific data rates are not set out in the Universal Service Directive, and Member States have flexibility to define functional internet access according to their national circumstances. However, the Directive makes clear that the services covered by the USO should be those that "become available to a substantial majority of the population."

The specification for the USO in the Universal Service Order will therefore set the UK's threshold for 'functional internet access', a minimum level of universal affordable broadband connectivity which will help reduce the digital divide and ensure that people can engage fully in digital society.

Having considered the scenarios in Ofcom's analysis, in our consultation, we proposed that the minimum download speed of a connection provided under the USO should be 10Mbps. We also proposed that the download speed should be complemented by additional quality criteria: upload speed of 1Mbps, 50:1 contention ratio, medium latency, and a minimum 100GB data cap, to ensure the connection gave users a good experience.

We believed that this specification balances the importance of providing a service that meets households' typical needs with a proportionate approach that takes into account the costs to industry and the potential impacts on the good functioning of a competitive market. The specification will allow access to services such as web browsing, and email and effective delivery of HD video streaming and multiple users on a broadband connection. It would also support simultaneous access to various services, such as online news, banking, buying and selling good and services, accessing public services and so on. It will also make a real difference to small businesses stuck on lower speeds. Therefore, this specification balances the needs of consumers benefiting from the USO with the impact on consumers generally.

In our consultation we asked: are upload speed, contention, latency and data caps the right quality parameters to specify alongside the minimum download speed?

The majority of respondents agreed that universal access to broadband of a reasonable minimum quality was important for social and economic inclusion. The quality parameters proposed in the consultation for upload speed, contention, latency and data caps, in addition to minimum upload speeds, were considered broadly appropriate. There was an acknowledgement that a more highly specified USO specification was needed to ensure that a good quality minimum service was delivered to all end-users, but that it should not be too highly specified in order to minimise the risk of market distortion and inflationary pressure on retail prices.

There were however differing views as to whether the proposed quality parameters had been set at the right level. One communications provider called for a lower specification on the grounds that the level at which it was being set was inconsistent with the safety net purpose of the USO, and would result in unnecessarily high costs being placed on industry. Another proposed that in addition to the minimum quality parameters, the government should also specify the safety net services that the broadband USO is intended to deliver.

i) Download speed - Many agreed that 10Mbps was the appropriate minimum speed for now, but would need to be reviewed over time. Others called for a higher initial minimum download speed on the grounds that the 10Mbps would quickly become out of date and would not meet the needs of rural businesses, and suggested that the 20Mbps download speed and 2Mbps upload scenario might be a better initial minimum specification, not least because the benefits of the 20Mbps specification were greater than the benefits for the 10Mbps specification.

ii) Upload speed - Many welcomed this additional quality parameter, particularly for small businesses, as while most consumer internet usage today relies mostly on downloading content such as web-browsing, email and standard video streaming, some other common applications, such as video conferencing and sharing large images and video files can require a specified upload speed. Some suggested that for small businesses the minimum upload speed should be increased.

iii) Contention - A large number of responses recognised the importance of including contention requirements as part of the specification given it can have a substantial effect on

performance. Some queried its inclusion, for example, suggesting the minimum broadband speed and associated data cap will suffice in ensuring the agreed quality of service. It was also suggested that contention is a technical term which would not be understood by the public.

iv) Data cap - Some respondents were concerned that the data cap of at least 100GB was too low given that Ofcom data suggests that users of existing residential connections delivering 10Mbps already use data at an average of around 120GB per month, noting that business users would already have higher data requirements than that. By contrast one respondent thought the monthly data cap was overly generous and inconsistent with the safety net purpose of the USO.

v) Latency - Satellite operators in particular questioned the need for the latency requirement as part of the specification on the grounds that most internet usage was the downloading of content which was not particularly sensitive to latency.

Our proposed way forward

We will implement the proposed specification which we consulted on - a 10Mbps download speed, 1Mbps upload speed, 50:1 contention ratio, medium latency, and a minimum 100GB data allowance - so that households and businesses have a good minimum level of connectivity, that their use of the internet is not unduly constrained, and they can engage fully in digital society.

i) Download speed - this has been set at 10Mbps to meet a typical household's use of digital services, and because consumers on connections of less than 10Mbps tend to use less data, suggesting that internet usage is constrained below this speed.

ii) Upload speed - as noted above, this will allow users to use common applications, such as video conferencing and sharing large images and video files.

iii) Contention - The contention ratio measures the sharing of the network between users. The higher the contention ratio, the more people could be accessing the same network capacity at the same time, which could result in lower actual speeds to individual users. The introduction of a specified contention ratio helps to mitigate against speed reduction at busy times.

iv) Data cap - Ofcom's Connected Nations 2017 reported that the median monthly data usage at speeds of between 10Mbps to 30Mbps was 84GB, which would indicate that the 100GB minimum data allowance is set at a reasonable level. Connected Nations 2017 also reported that most consumers use less data than the reported average, and that average data usage increases are driven by a small proportion of heavy users. Therefore, average monthly data use figures are not a useful guide for a monthly data allowance under the USO.

v) Latency - we have specified a medium response time for latency so that people can use time sensitive applications (video calling, accessing VoD services) effectively with a USO connection. Medium response time is end to end latency of no more than 200ms for speech applications[26] [27].

The specification has also been set at this level to achieve the right balance between ensuring universal access to decent broadband while at the same time ensuring that market distortion is minimised. Depending on who is designated by Ofcom as a Universal Service Provider(s), and the technologies used to deliver USO connections, consumers may well receive higher than the proposed minimum specification.

The specification for the USO will be kept under review to ensure it keeps pace with consumers' evolving needs, and Government will consider setting a new threshold for functional internet access in the light of evolving connectivity usage trends.

[26] https://www.itu.int/rec/T-REC-G.114/en
[27] NICC standards are also relevant here (for example NICC ND1701, ND1704 at: http://www.niccstandards.org.uk/publications/miscellaneous.cfm)

4. Technologies

The USO is aimed at areas where the market has not delivered connectivity, to ensure that no-one is left behind. These areas are in the hardest to reach parts of the UK. Given the location and distribution of premises, and the costs of deployment, it is likely that a mix of technologies will be needed to connect them rather than a single technology. The type of technology that is used will have an important bearing on costs, as well as which providers are able to fulfil the role of designated provider.

The specification for the USO has to be technology neutral, that is to say that we cannot specify the technologies that can be used to deliver it. However, since the technologies used need to be able to meet the proposed specification for universal service, some technologies are expected to be ruled out based on their current technical capabilities.

Technological neutrality is one of the fundamental principles underlying the EU electronic communications regulatory framework, intended to promote effective and fair competition by avoiding distortions of the market caused by the regulatory regime favouring some technologies over others.

Ofcom's December 2016 technical advice to Government was that a wide range of current technologies could meet the proposed specification: fixed (notably Fibre To The Premise (FTTP)[28], and Fibre To The Cabinet (FTTC)[29], fixed wireless, and mobile technologies. The technologies that Ofcom looked at were selected because they were available and in use at that time; offered the opportunity to provide coverage across the UK; and the costs associated with them were relatively well understood.

We understand from Ofcom's 2016 technical advice, that based on its current capabilities, particularly on latency, current satellite broadband services, which use satellites on a geostationary orbit could not meet our proposed specification. In our consultation, we said that while satellite solutions may not form part of the technology mix for delivering the USO, we said that we did believe that there will be a role for satellite in connecting any premises which are out of scope of the USO based on their costs - more on this point can be found in

[28] This extends the fibre network to the customer premises and is capable of delivering very high speeds, well in excess of 300Mbps.

[29] FTTC is the technology used to support most superfast lines, where the copper cable between the local exchange and the street cabinet is replaced with optical fibre, but the final connection to the consumer's home or business is still made of copper, using Very-high-bit-rate Digital Subscriber Line (VDSL)

Section 6 on the Reasonable Cost Threshold. There may be alternative technology solutions in the future which, if they can meet our proposed specification, could also be deployed to provide a USO connection.

In our consultation we asked: is this assessment of technologies accurate based on current capabilities?

Most respondents agreed with Ofcom's technology assessment, and the proposition that a mix of technologies would be needed to deliver universal service. Some highlighted that a number of technology solutions had been omitted, or their potential role misrepresented, or expressed a preference for a particular technology to be used.

BCS, the Chartered Institute for IT, for example, thought that the assessment ignored the role of hybrid solutions e.g. FTTC and fixed wireless technologies working together. Broadway Partners considered that the assessment was too heavily focussed on fixed line technology solutions, and that more could have been made of TV white space (TVWS) technology[30] as a cost effective means of delivering improved connectivity in low density rural environments. Nominet also flagged that the assessment of technologies should have included TVWS technology. Sharedband said that the technology section was not a complete assessment as it made no mention of the Hybrid Access technology[31] in boosting broadband speeds. One communications provider observed that the consultation appeared to ignore the potential use of ADSL2 and DOCSIS 3 technologies.

Broadband for Rural Crediton campaign group expressed a preference for the USO to be delivered using FTTP, as it would provide a future-proofed solution. This view was also endorsed by the Connecting Cheshire Partnership and Cheshire & Warrington LEP, Fermanagh and Omagh Council and ICBAN. B4RN suggested that the costs of FTTP deployment in rural areas were lower than generally supposed and that FTTP operators had reduced costs to between £500-£1500 per property. Their view was that fibre was a more cost effective and upgradeable solution.

Lazonby Parish Council and Kirkoswald Parish Council said in their experience that FTTP and fixed wireless were the only viable options for remote rural areas, and that the one

[30] https://www.nominet.uk/researchblog/what-is-tv-white-space/

[31] Hybrid Access products aggregate both fixed and mobile connections to provide higher speed and more reliable broadband access.

technology that had proved to be a very poor option on performance, reliability and cost grounds was satellite.

The Scottish Government agreed that that the USO could be delivered by many different technologies but suggested that this would need to be underpinned by investment in the fibre infrastructure deeper in the network to ensure there is adequate backhaul to deliver a high quality connection to the premises connected.

A number of respondents, including the NFU, argue that any USO investment should be in future-proof infrastructure that could be easily upgraded. In this regard, Moorsweb Link suggested that there was scope for fixed wireless to be upgraded with no incremental cost for subscriber equipment, and very little incremental network cost.

A number of satellite providers considered that the consultation misrepresented the role that satellite might play in delivering universal broadband. They said that broadband satellite packages available in the UK today offer data rates higher than 10Mbps download and 1Mbps upload together with monthly data usage caps of up to 200GB, and that additional satellites recently deployed were further improving the broadband satellite service offering. They also said that a number of non-geostationary broadband satellite constellations were due to be deployed between 2019 and 2021, promising to provide superfast broadband and much higher capacity.

By contrast, Cumbria County Council questioned the use of satellite technology to meet even the needs of Ofcom's scenario 1 specification (a 10Mbps broadband connection without any further quality requirements), as the costs were very high compared to the costs of terrestrial services, and were frequently unreliable in periods of bad weather. Staffordshire County Council agreed that all technologies should be considered, but in their experience that satellite provided a poor solution that should only be considered as a last resort. The National Association of Local Councils agreed that satellite technology was not highly dependable, and the Local Government Association expressed the view that, based on the experience of councils, satellite was likely to be unsuitable for the proposed specification.

Some individuals welcomed the exclusion of satellite as a viable technology to deliver the USO specification, but considered that mobile 4G was also inappropriate as it was very expensive and subject to weather interruption. FibreWifi noted that in relation to the use of mobile technologies, at the moment the bandwidth caps on end user connections make it

very expensive to deploy. They suggested that unless data caps were made much higher then this technology should not be considered for the USO.

Our proposed way forward

The specification for the USO in secondary legislation simply specifies the eligibility criteria for consumers who want a broadband connection under the USO. It does not specify the technologies to be used to connect them, as we cannot favour one technology over another. While the technology choice will ultimately be for the designated Universal Service Provider or Providers to determine, they will need to ensure that the connections they provide are affordable and meet the USO specification. They will also need to fulfil their universal service obligations in the most efficient fashion so that users generally pay prices that correspond to efficient cost provision[32].

The types of technology that can be used to deliver the USO has an important bearing on the work Ofcom will do once we have laid the secondary legislation setting the specification. We have shared non-confidential responses to the consultation that we received on this issue with Ofcom for its work on the USO given the likely technology uses will impact on provider designation, and the cost sharing mechanism, which Ofcom will lead on. As part of its work, Ofcom will continue to monitor developments in the capabilities of different technology options since the assessment in its 2016 analysis. Any operator who wants to be considered as a potential designated provider will need to be able to satisfy Ofcom that they are able to deliver all the quality parameters for the USO.

[32] Recital 14, Universal Service Directive.

5. Eligibility

As we describe in Sections 1 and 2, the requests for connections under the USO will be made to a Universal Service Provider or Providers (USPs) designated by Ofcom. The USP would only be required to meet requests for a USO connection that are considered 'reasonable', so the basis on which this is decided is an important issue. It dictates which premises are eligible to be connected, and the overall cost of delivering the USO.

In designing the USO, we have been keen to ensure a proportionate balance between ensuring as many consumers as possible benefit from the USO with ensuring the costs of delivery are not disproportionate.

A key consideration here is whether a household or business which already has available to them services which meet the USO specification from another network provider should be eligible. Should these premises be in scope, the footprint of the USO would be all UK premises. This would clearly have considerable implications for the design and costs of the USO, and on competition in the market, and is not how we intend that the USO should work.

We therefore considered whether a more proportionate approach might be to limit eligibility to premises that do not have a connection that does not meet the specification.

Our rationale for the USO is about extending coverage to those who do not have it, to minimise social and economic exclusion by ensuring they have affordable access to a decent level of broadband connectivity. In our consultation we therefore proposed that only households and businesses that do not have access to any connection above the USO level should be able to request a connection, that is to say that people will not be connected under the USO if they can already be connected by an existing provider with a service that meets the minimum specification. This will help target the USO on areas of market failure, manage costs and minimise the risk of market distortion.

We consulted on the basis that both primary and secondary residential premises should be in scope as our rationale for the intervention is for universal coverage, and to account for people moving house and businesses relocating. We invited views on whether there should be any restrictions on the types of premise which should be considered eligible for a USO connection, and any other restrictions on eligibility, so that we could consider whether the Order should provide guidance to Ofcom on this point.

In our consultation we asked:

- **What [other] factors should be considered when determining eligibility?**
- **Are there any categories of premises which should be ineligible for a USO connection?**

Most shared the view that the USO should only available to those who are unable to receive a connection at a fixed location equivalent to the USO specification.

Consumer group Which?, for example, in their response to the consultation suggested that the USO should only be deployed in those areas of the UK which currently do not have access to broadband services which meet the USO specification, as this should both help ensure that commercial investment in infrastructure is not undermined by the provision of the broadband USO and help ensure that the USO is delivered cost-effectively. The importance of not disincentivising or overbuilding roll out of broadband coverage being undertaken by the alternative network providers in some rural areas was also highlighted.

This view was shared by the Broadband Stakeholder Group (BSG) who in their response suggested that eligibility should primarily be determined by the identification of market failure; evidence of the lack of availability of an affordable good quality broadband service in the area at the time the service is requested by an individual user or by a group of users, if demand is aggregated. This has the double benefit of extending coverage to those who currently do not have access to it as well as avoiding an adverse impact on competition in the market. The BSG therefore strongly supported the Government's view that eligibility is restricted to those who cannot already receive a connection above the USO level.

A leading communications provider highlighted the importance of restricting eligibility not only to premises that do not have access to a connection that meets the USO specification, but also to premises that were unlikely to get connected in the next few years. Limiting overbuild of existing networks was also considered to be important, and was raised by several communications providers in their responses to the consultation, and this was particularly to ensure that investment in higher speed broadband connections is not disincentivised. However, others representing consumer concerns, suggested that this might not be in the best interests of consumers, who will be at risk of having to wait longer for a connection, and even the risk of getting no connection at all if commercial plans change.

A response from a housing group suggested that the existence of one other provider (providing the connectivity at the USO spec or higher) alone should not be sufficient to mean a premises is ineligible for a USO connection. In their example, they have described that while the existing, and only available, provider currently gives them a reasonably fast and reasonably reliable wireless service, they are not subject to any competition: their own investment in the wireless infrastructure effectively gives them a local monopoly position, and there is no wired infrastructure to carry fixed line competitors.

A communications provider suggested that multiple dwelling units (MDUs), such as blocks of flats, should be exempt from the USO because there is a competitive commercial market coverage for these units. Another communication provider said that safeguards should be put in place to ensure that the USO is not used to support multiple connections into a single premises.

The BSG argued that since the overall policy aim is ensure that households and businesses benefit from good quality broadband, in order to deliver this whilst also delivering value for money, consideration must be given to the cost of providing access to temporary dwellings such as holiday homes. They argued that since this is consistent with the current USO for telephony and it would be logical to extend this to a broadband USO.

OneWeb suggested that no premises should be excluded. This view was supported by Moors Web Link, who said that there should not be any restriction on premises type. The purpose of the USO should be to improve the connectedness of the whole of the UK's stock of housing and other premises. They argued that this should, for example, therefore extend to holiday let or second homes. They went on to suggest that it would be wrong, and administratively complex, to introduce restrictions particularly where there have been none to date, and that many second homes have been connected under subsidised arrangements without limit. Other responses suggested that unoccupied premises should not be eligible.

A number of responses suggested that eligibility should be determined by the personal needs of those living at the address, or on the value of the premises. Another suggested that all premises should be eligible but that business and residential should be prioritised, with less focus on, for example, community centres. Another said the nature of the premises and the use of the broadband service should be a factor in this - with businesses given a higher priority than domestic users as they have a direct impact on the local economy and job-creation. A small number of responses suggested that businesses, even small

businesses, should not be in scope, or that their profits should be taken into consideration when determining their eligibility.

However, a number of responses said that any premise without a 30Mbps connection ought to be eligible for a USO connection.

Proposed way forward

The proposed way forward is to ensure that as many premises who do not have access to the minimum specification get connected while ensuring there are not uncapped costs on industry which would lead to significant market distortion:

- USO eligible premises will not have a similar or more highly specified service available from another provider, that is to say that eligibility is limited to areas the market has not reached. This will help ensure that the USO does not lead to overbuilding of other networks - as the intention of the USO is to provide access where there is currently none which meets the USO specification. It is also justified as it will also help keep costs under control.
- The USO is not intended to provide for competition in the market, rather to provide connectivity where there is none.
- There will be no means testing to determine eligibility, nor will the value of the property to be connected be a consideration, since their inclusion would undermine the principle of universality.
- A cost threshold is in place which limits the obligation on the designated provider to connect a premises - however, such premises may still be connected if they are willing to pay excess construction charges, or do some of the deployment work themselves, or if they can aggregate demand with other premises to bring the cost per premise down below the cost threshold. This is to keep costs, ie the burden on industry and consumers, under control. Some premises will cost substantially more than £3,400 to connect and that will be hard to justify if we allowed these to be in scope.
- Premises which will be covered by a publicly funded intervention that will deliver an equivalent or more highly specified service than the USO within 12 months of the date of request will not be eligible.

For clarity:

- The USD requirement that, all reasonable requests for a connection at a fixed location should be met, applies to all end-users - our proposed USO is consistent with that and therefore eligibility includes both households and small businesses - on the basis that both groups need access to high speed broadband[33].
- Second homes are in scope - we do not believe that connectivity should be limited to primary residences, as our ambition is for universal coverage. There is also a longer term consideration about when a second home is sold or becomes a primary residence, we want them to be in scope from the outset - this is so that new owners or residents are not penalised in any way. We also believe that second homes should be eligible so that they can be factored into any demand aggregation, as appropriate, this will be particularly important for residents who live in areas that are popular for second home ownership, such as seaside towns and rural areas.

We will require demand aggregation so that eligible premises can combine their cost threshold to ensure as many as possible premises do get connected. Where more than one premises requests a connection, the average cost for all requesting premises may come down to a level below any reasonable cost threshold, given the shared fixed costs of deployment. The detail of how demand aggregation will work will be for Ofcom to determine.

[33] This includes service family accommodation.

6. Reasonable Cost Threshold

Ofcom's technical advice on the USO demonstrates that the final 1% of UK premises are materially more expensive to connect than premises in the rest of the country, and within this, that the most expensive premises to connect could cost £45,000 or more. While this figure is indicative only, and the real cost will depend on a number of factors, it is a helpful indication that it may be too onerous for any intervention to include the most expensive premises. Our goal, therefore is to maximise broadband coverage in a way that means the costs for industry and all consumers are proportionate.

Policies on universal availability often include caps:

- For the voice telephony universal service, a 'reasonable cost threshold' is set at £3,400 - where connection costs are above this threshold, consumers are given the option of paying the amount above it. This is known as an 'excess construction charge'.
- Similarly, Digital Terrestrial Television (DTT) coverage is set at 98.5% of UK homes.
- Water services also have a reasonable cost threshold applied, resulting in availability of less than 100%. Water companies are entitled to recover the 'reasonable costs' of making a water or sewerage connection - this varies by provider. For example, the 2015-16 maximum reasonable cost contributions that Scottish Water will provide for domestic dwellings is £1,555.31 for water and £1,805.35 for sewerage[34].

There are two main options for placing a cap on the costs of delivering the broadband USO:

(i) A per premise cost cap, or reasonable cost threshold (RCT) set at a specified level. Such a threshold would place a ceiling on the costs it is deemed 'reasonable' for the designated provider/s to incur to serve any individual premises. The designated provider/s would not be required to serve premises where the costs were above the RCT, unless the customer was prepared to pay the excess construction costs above the threshold. The level the RCT is set at will play an important role in determining the overall impact of the policy. In particular, the imposition of a RCT will mean that a number of the most expensive premises to connect would not be eligible. The relationship between cost threshold and scope is simple: the lower the cost threshold,

[34] http://www.scottishwater.co.uk/you-and-your-home/your-charges/2015-2016-charges/information-about-your-charges-201516/rcc-for-dwellings-201516.

the lower the number of premises eligible for connection (the smaller the scope), and, consequently, the lower the cost of delivering the USO. This would subsequently reduce the overall cost of delivering the USO and thus the net cost to be met through the industry cost-sharing mechanism (see Section 9 on Funding);

(ii) Setting a coverage target in order to cap the costs of delivering the USO. For example, it could be set so that 99.5% of premises are covered by the intervention, so that the most expensive 0.5% of premises would not be eligible.

In our consultation, we proposed that there should be a cost threshold: above that threshold, customers benefiting from the USO would have the option to pay for the remainder of the cost of connection. Our rationale for doing this was principally because it gives greater transparency to consumers on the basis on which they will be deemed eligible for a connection under the USO.

Our goal of achieving universal broadband, has been the starting point for our consideration of an appropriate cost threshold. And in our consultation, we examined the coverage and cost of the USO resulting from different cost thresholds: £3,400, £5,000 and £10,000.

We proposed that the cost threshold should be £3,400, on the basis that this would achieve coverage up to 99.8% of premises, while avoiding the exponential costs of the most expensive to reach premises. We also proposed demand aggregation would be required, so that the per premise cap could be combined across a number of premises, so that as many people as possible get connected - this is discussed further in Section 7 on demand aggregation.

We also proposed that where the costs of providing a connection exceeds £3,400, people would have the option of paying any excess costs, doing some of the deployment themselves to help reduce costs, aggregating demand to bring the cost per premise below the cost threshold, or purchasing a satellite connection from a commercial satellite provider.

In our consultation we asked: is £3,400 the right level to set the cost threshold in order to balance the need to extend coverage as far as possible at reasonable cost?

A wide range of views were expressed on this issue in the responses to our consultation.

Some respondents suggested there should be no cost threshold at all in order to achieve truly universal coverage. In particular, this view was seen in responses representing the views of rural consumers, who, in general, did not want to see fees of any type attached to USO connections.

A leading communications provider said that specifying a cost threshold will increase transparency for potential beneficiaries of the USO, and provide a clear benchmark for assessing the reasonableness of requests.

Another communications provider said that setting the cost threshold at a national level would not be appropriate.

Some said £3,400 was too low. For example, the National Association of Local Councils said the threshold was too low given the costs for the very hardest to reach premises could be as much at £45,000. Cumbria County Council said that in areas such as Cumbria, there will be a disproportionate number of properties and communities that may be disadvantaged by this level of cost threshold when compared with less geographically challenging areas. The Countryside Alliance suggested that the costings in our consultation do not reflect the cost in rural areas.

The Rural Services Network said that it does not consider it fair that some rural households and businesses would be asked to contribute potentially large sums towards the cost of a providing a broadband connection, and that, for some, this would represent a large and perhaps unaffordable cost burden. They also suggested the cost burden was likely to hit hardest those in the smallest settlements or in more remote locations, including many in the farming sector.

The Countryside Alliance said it would also like to see a voucher scheme or funding for those premises which cost over the threshold to connect.

The Local Government Association recognised the need to balance the costs of provision with wider demands on the public purse, but argued that the proposed threshold of £3,400 would leave approximately 60,000 premises unserved by the USO. They argued that since the majority of these premises would be in rural areas, entire communities may not get connected - they therefore support our demand aggregation proposals which are discussed in this document in Section 7, and suggested that local councils would have a key role in ensuring demand aggregation. They also suggested that planning regulations should be

revised to require a superfast connection to all new premises. They further suggested that we revisit the cost threshold if the number of premises in scope falls dramatically.

Ofcom's Advisory Committee for Scotland suggested that the proposed cost threshold was too low for upgradable technologies to be deployed, and that this may not be cost-efficient.

However, a number of responses suggested that the figure was too high. For example, Broadband for the Rural North Ltd (B4RN) said they thought that the proposed £3,400 threshold was very generous, and that the vast majority of properties could be serviced within that figure, with some limited demand aggregation between two or three properties. Broadway Partners suggest wireless technologies offer an effective, faster to deploy and cheaper way to deliver USO connections, even to the final 0.5%. It suggests that, assuming wider availability of fibre backhaul as a result of the separate public procurements in England, Scotland and Wales, it would expect costs for the final 0.5% not to exceed an average of £2,000 per premise.

One communications provider suggested the consultation did not provide sufficient justification for the cost threshold we proposed. Another communications provider suggested it was too high, and should be based upon a cost benefit analysis.

Rushden and Wallington Parish Council argued that there should be a separate threshold for USO broadband connections relating to household and business use, with business users bearing a higher cost and private households paying a lower amount.

The majority agreed that £3,400 was broadly the right level. For example, a leading mobile network operator said that our proposed £3,400 cost threshold was likely to be the most effective of the options modelled by Ofcom in fulfilling the objective of the USO at a proportionate cost. And Connecting Cheshire Partnership and Cheshire & Warrington LEP suggested the proposed cost threshold should enable a significant number of additional premises to be reached if demand aggregation is optimised. Moors Web Link agreed that £3,400 is likely to be a reasonable threshold, but suggested wireless operators, particularly community wireless operators, can achieve connections for a fraction of this amount.

Vergis Ltd (a communications provider) agreed that while £3,400 is the right level for now, it should be kept under regular review.

Our proposed way forward

Our view is that a cost threshold rather than a coverage target will make it clearer to consumers the criteria for them getting connected or not, so we have selected this over a coverage target. A coverage target would not provide the same level of clarity for consumers or those in industry contributing to the industry cost sharing mechanism. We think the transparency a specific cost threshold is set at is an important element of the design.

The decision about the level of the reasonable cost threshold involves a trade-off between the policy objective of reaching as many households and businesses as possible, and the burden on any costs to be recovered through a universal service fund, which it would be reasonable to assume would be passed on to some degree to consumers. As the range of responses to our consultation have made clear, there are divergent views on this. On the one hand, those concerned that consumers and wider communications should get connected argue for a high cost threshold, while on the other those concerned with the impact this will have on the costs of delivering the USO, argue for it to be set at a lower level.

In terms of responses suggesting that the USO could be delivered for a lower cost than £3,400 per premise, we particularly welcome the responses from communications providers who say that they can offer connectivity for this cost. However, we would like to underline that the cost threshold is not a per premise budget, but a maximum cost of connection that the designated provider would be under obligation to provide: we do not expect every premise to cost this much, but that setting it at that level allows us to reach 99.8% of premises.

For its December 2016 report, Ofcom modelled different cost thresholds for us to consider. It modelled 3 levels: £3,400, £5,000 and £10,000. Each gives a different level of coverage which varies according to what the specification is set at. As we have demonstrated in our impact assessment, the Benefits Cost Ratio (BCR) increases the lower the threshold. A high threshold of £5,000 which would mean a greater number of premises connected has a BCR of 2.8 while a low threshold of £1,500 that would mean fewer premises connected has a BCR of 4.2. The cost benefit analysis suggests that better value for money could be delivered by a lower threshold. This reflects the fact that per premise costs continually increase the more premises are in scope but the benefits are fairly uniform. However, such a lower threshold would leave more premises out of scope, meaning that the policy does not deliver its primary objective of acting as a safety net for those the market will not provide for.

A higher threshold could capture more premises whilst still delivering a positive BCR but the choice needs to take into account not just the value for money considerations but also the degree of market distortion and the requirements of the regulatory framework.

It is difficult to quantify with any precision the wider social benefits relating to improved connectivity - eg social and economic inclusion, the delivery of government services on so on. So our impact assessment is likely to under represent these wider benefits. The £3,400 cost threshold was considered specifically because it is the level at which the telephony USO was set - but this is not the only reason we think it might be an appropriate level for the broadband USO.

While a higher cost threshold will result in a higher level of coverage, it will also result in a higher cost to industry - and it would be reasonable to assume these costs would be passed on to consumers. While the BCR is positive for both of the £3,400 and the £5,000 cost thresholds, at this time £5,000 per premises would be too much of a burden on industry and consumers who would be asked to pay - around £240 million to £300 million.

In our consultation, we proposed a cost threshold of £3,400 as the most proportionate threshold, as it would achieve 99.8% premises coverage while avoiding the exponential costs of the most expensive to reach premises. Our rationale was that a threshold set at this level strikes a proportionate balance between providing widespread coverage and limiting the amount of funding required for the broadband USO. We think this balances achievement of the policy goal with deliverability, including impacts on industry. The designated provider will be obliged to connect premises over the cost threshold where the household or business is willing to pay the excess construction costs.

Given that the BCR is still strong at 3.4, and that this is only a partial analysis of the benefits which does not include consumer or wider social benefits, and imposes proportionate costs while minimising market distortion, a cost threshold of £3,400 is considered the preferred option. While a range of views were expressed in response to the consultation, the majority of respondents agreed with the cost threshold being set at £3,400.

In terms of the suggestion that planning regulations should be revised to require a superfast connection to all new premises, the Government is continuing to monitor connectivity to new build premises and will intervene if necessary.

The Government's Local Full Fibre Networks programme is driving the market's ability to aggregate demand for full fibre in an area, which will increase the effectiveness of a USO right-to-request and should deliver more premises below the £3,400 per-premise USO cost threshold.

7. Demand

The USO is an on-demand scheme. The Universal Service Provider(s) will be under an obligation to fulfil all reasonable requests for connection. This is one of the characteristics of the USO which makes it inherently different to a publicly or commercially funded roll out, in which a network is proactively built in anticipation of future demand for a connection.

However, given the shared nature of broadband networks, the 'on-demand' aspect of a USO does not necessarily align with how the physical network would be built under normal market conditions. Many technologies share some elements of the networks among the premises connected by that network, for example, a single cabinet will service multiple premises. In order to connect one premise, quite often it will involve building a network also capable of delivering connections to other nearby premises too. Therefore, the costs of deploying the USO connections are likely to be shared across multiple premises, and many premises have similar cost economics of high up-front costs and lower incremental costs for each additional premises connected.

So, if the USO was delivered on a purely on-demand basis, it could lead to:

- Network build inefficiencies. A purely on-demand approach could limit the USP/s's ability to exploit economies of scale that can be achieved when connecting more than one premises at one time.
- Fewer people getting connected. If costs are considered only on a premises-by-premises basis, any one premises requesting a connection under the broadband USO may be above the reasonable cost threshold, and therefore will not get connected (unless the consumer is willing to pay the excess construction charges).

Where more than one premises requests a connection, the average cost for all requesting premises may come down to a level below the reasonable cost threshold, given the shared fixed costs of deployment, thereby maximising the number of premises that get connected.

We therefore believe that it will be essential to aggregate demand in an area before deploying the network.

In our consultation, we suggested that the universal service provider(s) would be best placed to aggregate demand. The draft Order on which we consulted included guidance to Ofcom that the designated universal service provider(s) should ensure that requests from end-users

for a broadband connection were aggregated effectively and that the average cost of any aggregated requests should be used to determine eligibility for a USO connection. This is because the universal service provider(s) would have a better overview and use demand aggregation to plan deployment. Other options included demand aggregation by individuals and communities themselves, or a third party such as local authorities, but this may be less efficient.

In our consultation we noted that the combination of speed, quality and cost would determine the level of take-up of broadband under the USO, as will promotion and awareness of its benefits. A lower level of demand will result in a lower cost to industry or a higher cost per premise as the fixed deployment costs are spread across fewer consumers. The cost modelling in Ofcom's report, which was also reflected in our consultation Impact Assessment, assumed 80% take-up of the universal service offering, which was intended to represent the long-term level of take-up of broadband services[35].

In our consultation we asked:

- **Do you agree with the assumption on USO demand that has been included in the Impact Assessment?**
- **What would be the most effective way to aggregate demand, including how long a period should be allowed for demand aggregation?**
- **Should Government provide guidance to Ofcom on demand aggregation?**

A range of views were expressed on these issues.

Demand levels

The majority of those who responded to the question about the 80% take-up assumption in the Impact Assessment agreed this was a reasonable assumption.

The Local Government Association supported the 80% figure in principle but noted that they had received anecdotal evidence from councils to suggest that through the superfast broadband programme, take up in more rural areas had been closer to 100%. Failure to

[35] This was in line with the approximate current level of take-up of broadband services in the UK. It is rounded from 78% in Ofcom's Connected Nations 2015 report (paragraph 4.26) and is also consistent with the level of take-up reported in the 2016 Connected Nations. https://www.ofcom.org.uk/__data/assets/pdf_file/0028/69634/connected_nations2015.pdf

anticipate this level of demand had led to situations in which cabinets quickly reached capacity and had to be upgraded which creates additional waiting periods for customers. Cumbria County Council agreed that an assumption of long term take up of 80% for broadband was reasonable, but in their view this level of demand will increase further as more types of services become online by default. While they did not argue that demand would reach 100% within the next decade, due to economic and availability factors, they expected over 90% of properties in all postcodes to seek access to broadband by 2030. Fermanagh & Omagh District Council while in general agreement with the assumption on USO demand of 80% of premises in each postcode, also noted that demand would be higher in rural areas, as access to services was increasingly online, and access to broadband was viewed as essential to quality of life in remote areas.

Moors Web Link thought that take-up in rural areas where there was currently no effective broadband was likely to be far greater than 80%, based on their own experience where take-up in a couple of their areas take-up exceeded 90%

Methera Global Communications considered that a technology neutral USO, which included satellite provision, would result in significantly lower costs and potentially higher demand.

One communications provider noted the difficulty in predicting demand accurately - different estimates of demand had been used within various modelling exercises: the Analysys Mason report for Ofcom used 80% take-up, the Plum report for the BSG used 60%, and Plum had modelled 45% in its report for TalkTalk. Another provider highlighted the fact that take-up for superfast broadband under the BDUK Superfast Broadband Programme was well below 80% seven years after launch.

The Ofcom Advisory Committee for Scotland was of the view that an exercise of consultation requesting demand during any period of 2017/18 will not reflect the demand which consumers and businesses will actually have in near future years.

The Federation of Small Businesses (FSB) in their response to our consultation said that many business owners have low understanding of digital communications, and are not aware of Government policy interventions in this area. It suggested therefore that significant effort was needed to raise awareness otherwise the effectiveness of this intervention would be reduced.

Government guidance to Ofcom on demand aggregation and who should lead demand aggregation

Most respondents supported the proposal that Government should provide guidance to Ofcom on demand aggregation, that is to say that it should be a requirement of Ofcom's implementation of the USO, and be included in the secondary legislation setting the specification for the USO. There were, however, differing views on how this should be done, who should be involved, and who should lead the demand aggregation.

Demand aggregation led by the Universal Service Provider (USP) was strongly suggested by communications providers generally. For example, one communications provider said that it would fully support that the designated USP should lead the demand aggregation process. This was because the USP is closest to planned network rollout and the associated timeframe for delivery. They are then best placed to aggregate demand and accommodate this into current and planned rollout activity.

The Historic Houses Association agreed that the USP should be tasked with aggregating demand, and that one of the conditions placed on the USP should be that they work with stakeholders, including Local Government, rural membership organisations such as the HHA and the CLA, and others, to reach the largest possible number of people.

The FSB suggested that while the USP was likely to have the greatest role to play in stimulating demand, local authorities, LEPs, Growth Hubs, and business groups like FSB should all also be encouraged to raise awareness of this and further stimulate demand. Bringing these organisations into the decision making process as early as possible would help to tailor messages which are most likely to be relevant to small businesses, and would enable them to make use of the different communications channels they have with small business owners across the country. The FSB registered that it was keen to play a part in delivering this.

Cumbria County Council suggested that a clear set of guidance needed to be developed and agreed, which encouraged engagement with affected communities and provided those communities with an opportunity to work with providers to maximise the opportunities of demand aggregation to cover as many properties as possible.

Hampshire Rural Forum said that the engagement of Parish Councils would be essential as they were in a good position to understand and aggregate demand and advise on the most

suitable solutions. They also said that in rural areas, neighbouring parishes would be willing to work together on the planning and deployment of solutions.

Local authorities (in particular Parish councils) were also seen as potential aggregators. The Local Government Association said in its response to the consultation that councils can play a key role in aggregating demand for their residents. They argue that local government is best placed to identify packages of demand that return best benefit for money available.

The Connecting Cheshire Partnership and Cheshire & Warrington Local Enterprise Partnership (LEP) said that, in their experience, engagement from a local authority is beneficial for demand aggregation. They say that they have built up a high-profile brand and identity which is the first point of call for local residents and businesses seeking better broadband services.

Moors Web Link said that as a matter of principle extra layers of administration should be avoided. They would be concerned that if the Universal Service Provider was also responsible for demand aggregation, the ability to question the calculation of the excess construction charges would be severely limited. Therefore supervision and control by a local authority might be the best way to achieve a transparent and credible cost allocation.

However, the Scottish Borders Council warned that if local authorities were required to lead demand aggregation there would be significant capacity implications for Councils which would be particularly challenging in view of reducing public sector budgets.

Consumer Group Which? suggested that demand aggregation should also be able to occur through the other channels as well as through the provider - through individuals and communities and through a third party, as this will ensure that those consumers who are want a connection can get one as quickly as possible, as they will have already aggregated demand. Which? suggested that this may happen more quickly through alternative channels than through a provider, particularly in smaller communities. This has been shown to be a success by community broadband projects such as B4RN. They added that since consumer trust is fairly low in the broadband sector, at 38%, consumers may prefer to have their demand aggregated by parties other than the USP.

New Forest National Park Authority said local data is generally best gathered at the local level, and so consideration should be given to imposing an obligation on the provider to work

with relevant local authorities, for example, in the case of National Parks, the National Park Authority, to encourage aggregation of demand among local communities.

Others suggested that individuals and communities should take the lead. Broadway partners, for example, said that individuals and communities should be encouraged to coordinate their requests for connectivity. It also suggested that the Designated Provider should be encouraged proactively to invest to support aggregated demand, whether in direct community engagement or in physical infrastructure.

There was also a suggestion that demand aggregation should be Government owned, online, transparent and supported by USPs.

How much time to allow for demand aggregation

In terms of the time that should be allowed for demand aggregation to take place, generally, a six to twelve-month period was considered to be a sensible time frame for demand aggregation to take place. A communication provider said from their own experience in providing FTTP connectivity to remote rural areas, it is their view that a six-month period in which to aggregate demand offers an effective balance between enough time to effectively locate and aggregate demand, and not too long as to inconvenience or deter the potential customer from taking up the service. The Historic Houses Association agrees that a period of six months is given to ensure that the maximum number of people are reached and demand is properly represented. Others suggested a 12 month period would be more appropriate in order to give people more time to register their interest. While a longer period would potentially allow more people to be reached, this could cause further delay in connecting premises.

The Scottish Borders Council argued that allowing a six-month period for demand aggregation could cause significant frustration for consumers, particularly if there is further work to be taken forward after this process which would extend the wait even further.

BCS said that the time allowed for demand aggregation should be flexible but with the ability for local authorities to set deadlines.

Other points made

The Countryside Alliance suggested that for the USO, we could learn from the energy companies how best to aggregate demand.

A communications provider suggested that the very consideration of the need for demand aggregation is a recognition that the USO does not promote efficient network build, or promote an ideal customer experience. It suggested that demand aggregation is a poor substitute for a proactive and planned network coverage. It further suggested that the designated Universal Service Provider(s) should be allowed to satisfy end user demand by a programme of proactive building and be compensated by the USO fund in relation to their build costs at the time of the build completion– irrespective of whether the take up is actually higher or lower than forecast.

Proposed way forward

While a range of views were expressed on how demand aggregation might work, there was a broad consensus that demand aggregation should be an essential feature of the USO to ensure as many people who want to get connected, do get connected. The Universal Service Order therefore specifies this as part of the USO's design.

It does not, however, specify how this should be done: it is clear that further work is needed by Ofcom as part of its implementation of the USO to determine how demand aggregation should work, for example, who carries out demand aggregation, and how long should be allowed for demand aggregation to take place. As the responses to this consultation have made clear, a period of six months would balance allowing long enough for people to register their request for connection, with not leaving them to wait too long to get connected. However, there may well be a case for extending this to twelve months to ensure as many premises as possible get connected.

Regardless of who leads on demand aggregation, it will be important to ensure that consumers are aware of their right to request a connection, and register their demand. The consultation responses made clear that a range of groups could have a role to play in aggregating demand. Therefore our view is that regardless of who leads the process it will be essential for them to work in partnership with a range of local groups.

Since increasing and aggregating demand for the USO would help lower the average costs per household of providing it, there may be a role for initiatives to explain that the cost of connecting a premises, and therefore any excess construction charges, may be reduced if

more customers sign up in the registration period, which may in turn, mean that more premises qualify for a USO because average cost per premises falls, and is more likely to be below the reasonable cost threshold.

While it is not possible to accurately predict demand for the USO, we do believe that it will be high, and therefore for cost development purposes, 80% is a reasonable assumption. However, our view is that this is something Ofcom will want to consider further as part of its work to implement the USO.

8. Affordability

Affordability for consumers is a key principle of universal broadband, and at the heart of our proposed design for the USO. If USO prices are set at a level which means the consumer will not take up the offer, then the policy objective of extending coverage to minimise the risk of social and economic exclusion will have failed.

Affordability could be achieved either by differential pricing, or uniform pricing. On differential pricing, in the absence of any pricing restrictions a USP could set the up-front and/or ongoing charges at higher levels in the areas currently unable to receive a connection at the USO specification to reflect the higher cost of serving these area. To ensure affordability, under differential pricing an upper bound cap would be needed. Uniform pricing, on the other hand, for both the installation costs and ongoing charges, would ensure that people with USO connections pay no more than those in the rest of the UK.

In our consultation we supported uniform pricing in principle as it would be more equitable than allowing for regional pricing variations: it would ensure that eligible customers would not be disadvantaged by virtue of where they live or work.

We also put forward the view that it is not only the connection that should be affordable, as required under the Directive, but also the ongoing service charges, as both are important to consumers when considering whether to take up the service. We proposed that the Order would enable us to give guidance to Ofcom on the pricing of both connections and services.

As noted by Ofcom in its report, under the Universal Service Directive, Member States may introduce special tariff schemes for those on low incomes or with special social needs to ensure that they are not "prevented from accessing the network". Under the telephony USO, BT and KCOM are required to offer social tariffs for those on low incomes. BT and KCOM also voluntarily give consumers the option to add a lower-priced fixed broadband connection and service. However, take up is very small, possibly partly because of low awareness.[36]

[36] In March 2016, out of a total of around 4.4m people eligible, 321,734 had taken up the BT Basic telephony social tariff and 18,452 had taken up the bundled tariff which included broadband services from BT. Ofcom notes: "This may be due to low awareness – Ofcom research in 2014 found that 70% of those eligible for BT Basic were unaware of it." https://www.ofcom.org.uk/research-and-data/multi-sector-research/accessibility-research/access-and-inclusion

In our consultation, we suggested that there was no need for us to include a social tariff requirement in the broadband USO at this time, on the grounds that our priority is to ensure maximum coverage under the USO, while recognising the importance of the USO being proportionate. Any social tariff requirement may add to the overall costs of the USP. This would depend on the specific design of the social tariff and eventual take-up.

In our consultation we asked: do you agree that uniform pricing for the broadband connection and services should form part of the USO?

The consultation responses made clear there was strong support for uniform pricing for both the connection and services provided under the broadband USO. Many argued that this was consistent with the objectives of the USO, and that consumers should not be disadvantaged by where they live and have to pay higher prices than those in non-USO areas where services are provided on a commercial basis. A number noted that if the ongoing monthly costs were unaffordable, this would limit take up, and as a result the USO would not deliver its intended outcome.

Northumbrian Property Services Ltd noted that rural premises face higher costs for a number of essential services, and that it would be good to ensure that access to the internet is not a further cost for rural premises (compared to urban premises). Another rural business noted that rural communities with old telephone exchanges already have to pay a premium for substandard services.

Longlesdale Parish Council considered it essential that charges reflect the level of service. With the many other rural issues, it would be totally unacceptable if the basic USO service were to be provided at an increased cost.

Rushden and Wallington Parish Council, whilst agreeing that a uniform pricing strategy had merit by preventing providers from overcharging, were concerned that users receiving a broadband connection under the USO may be tied indefinitely to a standard service package and would be unable to access competitive offers in the marketplace. They thought that any 'tie-in' should have a limited lifespan, after which time users who were connected under the USO should be free to seek competitive rates from alternative providers.

The Rural Services Network supported uniform pricing and agreed with the proposal that premises located in high cost areas should pay no more than premises elsewhere in commercially viable areas for their broadband service. They thought that differential pricing

would penalise remoter rural households and businesses. B4RN expressed the view that differential pricing based on location should be avoided.

Cumbria County Council considered it important that those in rural communities should not be priced out of broadband access because of the higher investment required to reach them initially. This sentiment was echoed by the New Forest National Park Authority who said that those in remote areas or areas of nationally important landscape quality should not be penalised for the cost of delivering a key service.

Sky noted that the vast majority of the broadband market is already priced on a uniform national basis for commercial reasons, and that they would expect this to continue so long as an appropriate access regime was in place in USO areas to ensure that wholesale prices remained consistent.

The Broadband Stakeholder Group acknowledged that price was a major driver of take-up which itself had a substantial impact on cost and achieving the overall policy objective of the USO. The Communications Workers Union agreed that the USP should be required to offer uniform pricing for upfront and ongoing charges, ensuring that those in areas not currently served would pay no more than those in the rest of the UK. They believed this was an important principle of a universal service.

Which? agreed that uniform pricing would ensure that consumers are not disadvantaged as a result of where they live. They also thought it was important that a broadband USO was affordable to ensure take-up. They highlighted that in Ofcom's 2015 Connected Nations report, of the 44% of adults who did not have a home broadband connection, 21% believed that home broadband was too expensive. They considered it imperative that the USO should not distort the market so as to disincentivise people from having a broadband connection, as this will mean that some consumers will continue to experience digital exclusion.

The Association of Accounting Technicians (AAT) acknowledged the challenges of meeting uniform pricing obligations given the likely lower revenues to be raised from less densely populated areas, but considered it essential that there was no disparity simply based on geographical location, and that uniform pricing would help ensure this was the case.

Kent County Council supported the principle that the design of the USO should encompass both affordable connection and service charges, in the same way as current USO telephony services.

Ofcom Advisory Committee for Scotland considered uniform pricing to be a vital part of any USO, a view endorsed by the LGA.

A couple of respondents considered there should be no intervention on pricing and that this should be left to market forces.

A number of respondents called for a regulated social tariff as one exists under the telephony USO, arguing that broadband is no less essential than telephony and without one there is a risk that those on low incomes will be digitally excluded. The National Association of Local Councils and the LGA believed the government should look to introduce a social tariff, so that households with constrained incomes are able to secure a connection through the USO at a reduced cost. The LGA also noted that the lower-priced fixed broadband connection that BT and KCOM supply to telephony social tariff customers was provided on a voluntary basis and therefore at their discretion to change or withdraw. Fermanagh & Omagh District Council recommended that a social tariff should be included as part of USO similar to the current telephony USO as they felt this could be a social barrier to accessing services and equality of service.

The BSG supported the current existing social tariffs and believe they play a positive role in contributing to social inclusion.

Our proposed way forward

In order to ensure that people connected under the USO pay no more for equivalent services to people in other parts of the country, we have included guidance to Ofcom in the broadband Universal Service Order on the pricing of broadband connections and services provided by the Universal Service Provider under the USO. The guidance requires that these should be affordable. It also requires that prices are uniform, unless Ofcom has determined that there is a clear justification for not doing so. The benefit of this approach is that it avoids setting a specific price, and instead links the price to existing prices for a similar or equivalent broadband products. It will be for Ofcom to determine whether a connection or service is ‘affordable’ or not as part of their implementation. It cannot be

determined by the Government in advance as it will depend on who the designated USPs are and the technologies that are used to deliver the USO.

We remain of the view that it would not be appropriate to introduce a regulatory social tariff at this time. Our priority in introducing a regulatory USO is to extend coverage and ensure universal affordable access to decent broadband. Furthermore, the introduction of a social tariff would add to the costs of delivering the USO which would need to be covered by industry and consumers.

9. Funding

In areas where the market has not delivered affordable universal broadband, the Universal Service Directive, which provides the regulatory framework for the Universal Service Obligation (USO), gives Member States discretion both as to how it is delivered, and how it is funded. The Directive gives three options for funding any unfair net cost burden on the designated Universal Service Provider(s) associated with providing the broadband USO - public funding, an industry fund, or a combination of the two.

Some Member States have chosen to follow a public procurement route to deliver universal broadband, while others, like the UK, have chosen to introduce a broadband USO. In our consultation we explained that two options for delivering universal broadband were under consideration - a voluntary proposal from BT and a regulatory USO - and that in the event that a regulatory USO were taken forward, it should be funded by industry, rather than by public funding. Government has already committed considerable public spending on superfast broadband and improving connectivity, and an industry fund would ensure that the USO would be financed in the absence of additional public funding to support it.

An industry cost-sharing mechanism will enable the designated universal service provider(s) to recover any unfair net cost of the obligation via contributions to a fund by others in the sector. Ofcom would also be responsible, after consultation, for designing an industry fund, and who should contribute to that fund. Ofcom has a duty under section 71 of the Communications Act 2003 to ensure that the cost-sharing mechanism is objectively justifiable, non-discriminatory and causes the least distortion of competition or consumer demand. Once the fund is established, Ofcom would be responsible for determining whether the USP's costs of delivering the USO have been efficiently incurred, and whether they represent an unfair net cost burden and, if so, its amount.

Before deciding to take forward a regulatory USO, the Government considered but did not accept BT's proposal as it ultimately did not provide sufficient certainty that Government's commitment to provide universal access to high speed broadband by 2020 would be delivered and enforced. There was strong support for the introduction of a regulatory USO in the responses to the USO design consultation, as opposed to the non-regulatory alternative proposed by BT, particularly because of the improved transparency of the industry cost sharing process.

We did not ask any specific questions about the proposed funding of the USO in our consultation, since the cost-sharing mechanism will be established by Ofcom following public consultation. However, a number of points on funding were raised in response to the consultation which we highlight here.

While the majority of respondents agreed that universal access to broadband of a reasonable minimum speed was important for social and economic inclusion, there were differing views as to how it should be funded. Many agreed with the Government's proposal that it should be financed via an industry cost-sharing mechanism; some expressed the view that it should be publicly funded; while others called for a combination of industry and public funding.

Which? was concerned about the impact that an industry-funded USO would have on bills for some consumers, and was disappointed that the consultation only stated that it would be for Ofcom to calculate the net cost of the USO and did not include details on how an industry fund would work or how widely the costs would be spread, ie who will have to pay into the fund. Which? also expressed disappointment that in considering the source of funding the consultation did not include any consideration of the impact on consumer bills and the subsequent impact on take-up. They noted that it was likely that an industry fund would result in higher consumer bills, which may mean that some consumers who are price sensitive and currently have a broadband connection choose to disconnect or downgrade their connection. It could also mean that other consumers choose not to have a connection at all. In turn, this could lead to deeper digital exclusion in the UK and, therefore, undermine the original objective of the policy.

In view of the potential impact on consumer prices Which? considered it imperative that the Government and Ofcom put in place a robust and transparent framework to ensure value for money in the provision of the USO, and adequate safeguards to protect consumers against future changes to the USO that might result in increases in bills.

The National Association of Local Councils suggested that there should be a subsidy available for premises above the £3,400 cost threshold, as outlined in Section 6 on the Reasonable Cost Threshold. This view was endorsed by Action with Communities in Rural England (ACRE) who believed that premises in rural areas may need more than the £3,400 cost threshold and think the government and industry should do more to contribute. The Countryside Alliance also called for a voucher scheme or match funding for those households who are over the threshold. The Historic Houses Association would like to see

the Government provide guidance on what support could be offered to the final 1% of premises, such as grants or alternative funding, that could be rolled out at the same time as the USO.

Our proposed way forward

Over the next couple of years as a result of ongoing commercial and public funding we can expect to see a further reduction in the size of the USO footprint which has already reduced from 6% of premises in 2016 to 4% of premises in 2017. The USO footprint is expected to reduce further by the time the USO is implemented, as a result of publicly funded and commercial broadband deployments.

Reinvestment of efficiency savings, coupled with clawback from the BDUK Superfast Broadband Programme, along with new superfast procurements in Scotland, Wales and Northern Ireland and further procurements in England (including a minimum £30m of available funding from Defra from the Rural Development Programme for England) are expected to extend superfast broadband to at least 97% of UK premises by 2020. In addition, the Local Full Fibre Networks programme, aimed at supporting local bodies to roll out full fibre infrastructure and stimulate commercial investment, will deliver connectivity capable of extremely high speeds (100Mbps+). While the programme is not specifically specifically targeted at locations with low or no connectivity, as it is up to local bodies to determine what specific areas their projects will include, it may contribute to a reduction in the size of the USO footprint, particularly in urban areas. Further commercial deployments such as the EE 4GEE Home broadband service could help reduce the USO footprint still further.

However, there will remain areas of market failure, where competition alone has not delivered improved connectivity because the costs of doing so are high, and the returns they can expect to receive, are low. Given continued pressures on public funding, and the substantial investments to date and committed in future, the Government remains of the view that the USO should be funded by industry. The cost-sharing mechanism which is to be designed by Ofcom should provide sufficient funding without overly burdening industry or any single provider. The USO has been designed with a number of key requirements in mind to ensure that industry costs are minimised - that the costs of delivering the USO are proportionate, that it does not distort the broadband market, reduce competition, and reduce or divert market investment. It is targeted at premises which do not have a broadband

connection available to them which meets the USO specification to minimise the risk of overbuilding existing networks.

10.Benefits of the USO

The Government is introducing a broadband USO to ensure that households and businesses can enjoy a good minimum level of broadband at affordable prices so that they can enjoy the benefits of digital connectivity.

The purpose of the USO is to provide a digital safety net. It will help minimise social and economic exclusion and ensure that everyone should be able to use the key services enjoyed by the majority. Regardless of their location, households and businesses will be able to access key digital services as described in section 3, bringing greater equity. It will therefore help eliminate the digital divide - where those, largely, though not exclusively, in hard to reach, rural areas do not enjoy the benefits that others, mostly in urban and suburban areas, do because market forces alone have not delivered the necessary connectivity improvements.

Alongside our consultation we published a draft consultation Impact Assessment (IA) setting out the costs and benefits of a range of scenarios for the design of the USO based on the evidence available to us at that time.

In our consultation we asked:

- **Are the benefits of the USO, as set out and modelled in the Impact Assessment comprehensive and accurate?**
- **Do you have any further evidence on the benefits of the USO?**

Most consultees who responded to the consultation question on the benefits of the USO agreed that as modelled in the IA they were comprehensive and accurate. A few suggested additional benefits that they thought should be included, and called for a greater focus on the increased benefits for rural areas and residential consumers.

In its assessment of the consultation impact assessment, the Regulatory Policy Committee suggested that, given the very significant potential benefits of the USO to individuals, families and communities, the IA should include much more discussion of wider consumer and social benefits.

The two main criticisms made in response to the consultation were:

- The IA costs were overstated because of a perceived disproportionate focus on fixed technologies in delivering the USO, and that by implication the cost benefit analysis was flawed. This comment came from Broadway Partners one of the operators who wants to be considered as a designated Universal Service Provider, using TV white space technology;
- Methera Global Communications, a satellite operator, did not think the IA assessment was comprehensive as it did not consider the role of satellite.

Proposed way forward

In the final consultation IA, which has been published alongside the Universal Service Order, the section on wider social benefits of broadband connectivity has been significantly expanded, drawing on a recent literature review on the social benefits of improved broadband which was commissioned as part of the Superfast Broadband Programme evaluation planned to be published later in 2018. The discussion on market failures has also been reframed in response to this new evidence.

A discussion has also been added to the IA on the impact on consumer prices, but this does not provide a quantified estimate of the benefits because of a great number of uncertainties. This includes uncertainties on the design of an industry fund, who will be required to contribute to it, and the extent to which broadband providers will pass costs on to consumers. The design of an industry fund will be considered as part of Ofcom's implementation once the SI setting out the scope of the USO has been laid. Until that is decided it is not possible to accurately estimate the impact on consumer prices.

11. Minimising market distortion

The current regulatory framework for the USO requires that any market distortions are minimised, and this is binding both on Government in setting the specification for the USO, and on Ofcom in implementing it. The higher the specification for the USO, the higher the cost of delivering it, and by consequence the greater the risk of market distortion, which may result in reduced competition, reduced or diverted market investment, and increased consumer prices.

To achieve this, in our consultation we set out how we aimed to ensure that the costs of delivering the USO remained proportionate, for instance by setting a cost threshold, and proposing to specify the USO at a minimum level to meet households' typical needs. We also outlined the importance of limiting overbuild. We proposed in our discussion on eligibility to ensure that only premises which did not currently receive a USO level connection, should be eligible for the USO. All these proposals, therefore, will play an important part in minimising market distortion.

In our consultation we asked: do the measures proposed by government sufficiently minimise the risk of market distortion?

In response to our consultation, stakeholders raised a number of concerns about the USO's potential to cause a range of market distortions, but most agreed with the measures proposed and the targeted nature of the intervention aimed at addressing areas of market failure.

The BSG welcomed the Government's focus on seeking to minimise the risk of market distortion. They believed that the actions set out, namely; a USO of 10Mbps, limiting the potential for overbuild and raising the prospect of 'Significant Market Power'-based access obligations, provide a good base on which to proceed. However, they stressed that the challenge of balancing the risk of distortion with providing universal good quality broadband should not be underestimated. They suggested that work would need to be undertaken by Ofcom to determine the risk posed, for instance, of the USO crowding out new third party investment.

Cumbria County Council agreed that the measures proposed appeared reasonable to minimise overbuilding and market distortion, as did the Connecting Cheshire Partnership

and Cheshire & Warrington LEP. The National Association of Local Councils also agreed that limiting the premises covered by the USO would help minimise market distortion.

Barlavington Estate expressed concern about USO eligibility being restricted to premises without a connection meeting the USO specification, as where the existing service is provided wirelessly there is effectively no choice of service provider.

Longlesdale Parish Council thought some market distortion was inevitable but that it was a price worth paying to improve connectivity.

The Rural Services Network (RSN) thought that the concerns about market distortion were overstated by the consultation document as by definition there was no real market operating in the areas where the USO would apply. Their view was that distortion would only occur if the USO was used to deliver networks in areas that already had them or were in the process (actively) of getting them. RSN also noted that any concerns about market distortion should be balanced against the wider economic and social benefits of delivering universal access to broadband. Fermanagh & Omagh District Council endorsed this view, noting that in a rural area such as theirs there was less of a problem of market distortion than an obvious market failure and interventions such as USO were imperative to reach the most remote areas for businesses and residents to access broadband services.

A number of communications providers expressed concern that the measures proposed were not strong enough to ensure that Openreach, in the event that it was designated as a Universal Service Provider, did not derive significant commercial and competitive advantage. Broadway Partners thought the principal market distortion would be if the incumbent operator became the Designated Provider in any area, as this would stifle competitive investment.

UKCTA urged the Government to put in place safeguards so that the universal service is targeted and does not undermine the investment strategies of other competitors in the market.

Methera Global Communications was of the view that the proposed reasonable cost threshold of £3,400 for connecting new premises was excessive, and would result in substantial market distortion in favour of terrestrial broadband infrastructure provider(s). Paradoxically, a substantial reduction in this effective subsidy would result in more competition, as broadband service providers would turn to more cost-effective infrastructure

delivery solutions. This view was echoed by Eurobroadband who considered that the USO, as proposed, would subsidise the uneconomical build-out of terrestrial infrastructure and discourage commercial investments in competing technologies, making the point that ViaSat-3e had the potential to deliver superfast broadband speeds to thousands of UK citizens for a fraction of the cost of building out a 10Mbps terrestrial service.

One communications provider thought the Government's USO proposals were at an early stage and that it was premature to be definitive as to whether the proposed measures sufficiently minimise the risk of market distortion. They noted that there was a risk of negatively impacting commercial activities and plans, so it would be important for the USO safety net requirements and eligible premises to be tightly defined. They also called for any industry funding mechanism to be applied across a broad base of providers to avoid competitive advantage for any provider.

Another communications provider suggested that in addition to the measures proposed by Government, another fundamental consideration, to ensure the risks of market distortion are minimised, is the design of the universal service fund.

B4RN suggested that there needed to be a competitive element to the USO scheme. Possible suppliers of USO connections should register with Ofcom and if approved be put onto a potential supplier list. When USO requests come in these should be circulated to suppliers on the list who would be invited to bid to provide those connections, and with bidder selection based on who offered the best offer mix of speed, cost and future proofing (but inside the £3,400 cost threshold). B4RN considered that if there were one or two USO providers with a national footprint without allowing for competition from altnets then there would be severe market distortion.

Which? thought the USO should be technology neutral provided that the relevant specification was delivered. This should minimise market distortion and encourage delivery through the most appropriate technology to ensure the right level of service is delivered cost effectively.

Our proposed way forward

We will implement the proposed specification which we consulted on, to minimise market distortion, that is:

- Specifying the USO so that it delivers high-speed broadband without ‘gold-plating’, which would increase costs and potentially divert market investment, and increase consumer bills;
- Limiting eligibility to premises that are not served with a connection that meets the USO specification, so as to only address market failure and minimise overbuilding;
- Setting a cost threshold for premises covered under the USO to ensure costs are proportionate - thereby limiting any burden on industry funding;
- Not prescribing the technology used to deliver the USO, to meet EU technology neutrality requirements, but also to ensure that the designated Universal Service Provider has the flexibility to choose the technologies which allow them to deliver a connection which meets the USO specification cost effectively.

Ofcom also has a role to play in designing the industry fund to compensate the USP for any unfair net cost burden; establishing who should contribute to the fund, and how it should be administered; and deciding on the approach to adopt for any net cost recovery. The Universal Service Directive requires any industry fund to be transparent, non-discriminatory, proportionate, and cause the least market distortion. It defines ‘least market distortion’ as meaning the costs should be recovered in a way that minimises the impact on end-users of communications services, and suggests this could be achieved by spreading costs as widely as possible. This would be the guiding principle for any fund design.

12. Universal Service Provider Designation

Under the USO, only operators designated by Ofcom as Universal Service Providers (USPs) are required to meet reasonable requests for a USO connection. The designated USP will have to be capable of delivering a connection on request that meets the specification for the USO and is affordable.

Designation of USPs is a matter for Ofcom under section 66 of the Communications Act 2003, and can be undertaken either via a competitive process, or by direct designation, if no provider volunteers to be designated. It will be for Ofcom to determine the designation procedure once the specification for the USO is set in secondary legislation. Ofcom will also need to consider which companies can meet the specification and have the capacity to deliver USO services. In line with the requirements of Article 8 of the Universal Service Directive, the designation process should be efficient, objective and transparent, and not involve or give rise to undue discrimination.

In its Call for Inputs response document, Ofcom concluded that, in the absence of any market interest, a direct designation process, after consultation, would be more proportionate, and would result in a more efficient implementation, than a competitive process. Ofcom came to this conclusion due to the small number of providers expected to be able to meet reasonable requests across the UK. It also considered that regional designation was likely to result in increased costs, a longer implementation time, and cost inefficiencies. On this basis Ofcom, at that time, considered that the most efficient outcome may be for BT and KCOM, the current USPs under the telephony USO, to be designated. In our consultation, we recognised that designation would be particularly challenging for small providers, potentially unable to operate at scale, or provide connections cost-efficiently, but were keen to ensure that smaller providers had every opportunity to take part in universal service delivery. We wanted to understand whether more providers would be interested in being designated in the light of our consultation, given that it gave more details on the proposed specification that USPs would be required to meet than Ofcom's earlier Call for Inputs.

In our consultation we asked: has market interest in becoming a Universal Service Provider changed since Ofcom published its Call for Inputs in April 2016?

Several industry and local authority respondents agreed that market interest in provider designation, at least on a regional basis, had changed since Ofcom published its Call for Inputs, and that there should be a competitive process to allow bids from smaller operators, who might be able to offer more cost efficient delivery. The Independent Networks Co-operative Association (INCA), in common with others, said they believed the market has changed with more operators expressing a clear interest in becoming USPs, and that consequently, it should be possible to create a more competitive approach to USO delivery on a regional basis.

The Local Government Association said that in line with their experience of councils having successfully worked with smaller providers to provide households with a high speed digital connection, they would prefer in principle a model delivered through multiple providers rather than a single designated organisation. A number of respondents, such as Shareband and Broadway Partners noted that there had been subsequent technology developments which would allow smaller operators to have a greater role.

Four operators expressed an interest in being designated as USPs on a local or regional basis using fixed wireless and FTTP technologies.

Other consultees were of the view that only BT and KCOM had the capability and coverage to offer an effective universal service approach, and that some smaller providers would not be able to manage the obligations associated with being a USP.

Our proposed way forward

We remain of the view that it is worth identifying what scope there is for smaller providers to play a role in the delivery of universal broadband, if they can demonstrate that they have the capability and capacity to do so. We have informed Ofcom of the known interest in provider designation, given that it will ultimately be for Ofcom to determine which designation approach to take. We would be supportive of Ofcom running a competitive process for provider designation, if Ofcom determines that is the best approach. As noted in our consultation, the Government is keen to ensure that smaller providers have the opportunity to take part in the delivery of the USO.

13. Monitoring and review

Although we think that the proposed specification for the USO will meet the needs of consumers for a reasonable period of time, it is likely to need to evolve in future to reflect the changing connectivity needs of people and businesses.

The Digital Economy Act 2017 enables the Secretary of State to direct Ofcom to review the USO at any time, after consulting with Ofcom. The Act also stipulates that the specification must be reviewed when at least 75% of premises in the UK subscribe to broadband connections or services that provide a download speed of at least 30Mbps.

Ofcom's report considered how and when the USO should be reviewed: whether via ongoing monitoring or a formal review carried out periodically. Ofcom explained that, while the USO should keep pace with changing needs, reviews should consider the life cycle of the USP's network investments. One suggestion in Ofcom's report was to set a date for the first review to provide for certainty and a stable period of cost recovery.

In our consultation, we indicated that we preferred ongoing monitoring and reporting by Ofcom through its Connected Nations reports, which detail the coverage and take up of broadband connectivity, reporting this by residential and small and medium business premises, in rural and urban areas and across England, Scotland, Wales and Northern Ireland. Our proposal was that Ofcom should report through Connected Nations on an annual basis the USO take-up by residential and small business premises, in rural and urban areas, across England, Scotland, Wales and Northern Ireland. They would also be asked to report on changes in connectivity trends which would inform an assessment of when a formal review of the USO might be appropriate. We explained that setting a specific date now for reviewing the USO would be too early given the lead time for implementing the USO and likely market changes.

In our consultation we asked: do you agree with the proposed monitoring arrangements? If not, how do you think they could be improved on?

Most respondents agreed with the consultation proposal that there was a need for ongoing monitoring, and a formal review of the USO parameters to ensure that it remained relevant, and that homes and businesses were not left behind.

There was also broad support for the principle of annual monitoring and for Ofcom's Connected Nations reports being used as an appropriate mechanism for reporting on USO delivery progress. Most consultees agreed with Ofcom providing a breakdown of USO take-up by residential and small business premises, in rural and urban areas, across England, Scotland, Wales and Northern Ireland.

Some respondents, particularly from industry respondents, highlighted that the need to ensure the USO keeps pace with consumers changing needs, should be balanced against the investment cycle of the USP(s) specific USO network investments. A number of respondents called for the criteria for review to be made clear at the outset to provide consumers, the market and the USP with regulatory certainty. It was noted that this would also help USPs make a more informed decision on the choice of technology for delivering the USO.

A wide range of views were expressed on how soon a formal review should take place once the initial broadband USO has been implemented. There were suggestions that an initial review should take place with 1 year, 18 months, 2-3 years, 3 years, and 5 years.
Some called for regular reviews to assess whether the USO specification needed updating, but again there were a differing views on how often these should be - every 5-10 years, at least every 10 years, albeit allowing for earlier review depending on the pace of technological change.

There were also calls for any review to consider the evolving nature of the technology market and for Ofcom to commit to monitoring the impact of the USO on competition as part of its cycle of market reviews.

Our proposed way forward

Arrangements for monitoring and reporting progress of the USO will be through Ofcom's Connected Nations reports. The Digital Economy Act 2017 provides for a review of the broadband specification when at least 75% of UK premises have taken up superfast broadband of at least 30Mbps. In the light of consultation responses calling for greater clarity on when an initial review of the USO will take place, we intend to direct Ofcom to carry out a review at least as soon as the Digital Economy Act trigger has been met. The review will consider all aspects of the USO specification not just download speeds, taking account of Ofcom's data on changes in connectivity trends in its Connected Nations reports, since it is possible that future essential online services could require changes to the technical

specification, for example, upload speeds, contention, latency and monthly data cap. Consumers' bandwidth or technical needs may grow over time, for example, with more connected devices collectively requiring more bandwidth, particularly at peak times.

Decisions on the timing of any subsequent reviews will be taken in the light of market developments, technological changes and evolving consumer needs.

14. Next steps

A Universal Service Order, setting out the technical specification for the USO, and relevant guidance, is being laid in Parliament today. This sets the scope of the USO which Ofcom will be responsible for implementing.

Ofcom is required to implement the USO in accordance with the Order, and sections 66 to 68 of the Communications Act 2003.

Tasks reserved for Ofcom under the legislative framework include:

- Designating the Universal Service Provider(s);
- Setting appropriate Universal Service Conditions to comply with the Universal Service Order;
- Designing an industry cost-sharing mechanism to compensate the USP for any unfair net cost burden; establishing who should contribute to the fund, and how it should be administered; and
- Deciding on the approach to adopt for any net cost recovery.

Ofcom's regulatory implementation is expected to take up to two years to complete from when the Government lays its Universal Service Order. It will involve consultation on draft regulations for the designation of providers, the Universal Service Conditions which the designated providers will have to comply with, and on implementation options and draft regulations for the industry fund. Ofcom would work to implement the USO as soon as possible. Once in place, the designated Universal Service Providers will then begin to connect households and businesses on reasonable request, subject to a period of aggregation, as appropriate.

In line with our Manifesto Commitment, we expect the USO to be in place in 2020.

Our ambition is for everyone who wants to get connected under the USO gets connected, as quickly as possible. How long this will take in practice is likely to depend on their local circumstances and what infrastructure needs to be built to connect them. As part of its work to implement the USO, Ofcom will be looking at how people can get connected as quickly as possible However, we would expect to see a significant number getting connected in the first year.

Annex 1. List of respondents

50 responses were received from individuals and the following organisations responded to the consultation:-

AAT (Association of Accounting Technicians)
ACRE (Action with Communities Rural England)
Andrew Young chartered surveyor
Arqiva
Barlavington Estate
BCS, The Chartered Institute for IT
Boldre Parish Council
Broadband for Rural Crediton (B4RC.org)
Broadband for the Rural North Ltd (B4RN)
Broadband Stakeholder Group (BSG)
Broadway Partners
BT Group
Carlton on Trent Parish Council
Combe Fields Parish Council
Communications Consumer Panel & ACOD
Communication Workers Union (CWU)
Connecting Cheshire Partnership and Cheshire & Warrington LEP
Country Land & Business Association (CLA)
Countryside Alliance
Cumbria County Council
DK Accountancy Services
EuroBroadband
Farming and Rural Issues Group South East
Federation of Small Businesses (FSB)
Fermanagh and Omagh District Council
FibreWiFi
Gamma
Gigaclear
Hampshire Rural Forum
Harbour House Farms
Historic Houses Association
Hughes Network System Europe
Hyperoptic
Irish Central Border Area Network (ICBAN)
Independent Networks Co-operative Association Ltd
Intelsat
KCOM
Kent County Council
Law Society of Scotland
Lazonby Parish Council and Kirkoswald Parish Council
Linwood Crops Ltd
Local Government Association

Longsleddale Parish Council
Lothian Broadband Networks Limited
Methera Global Communications Limited
Moors Web Link
MR & GR Fursdon
National Association of Local Councils (NALC)
National Farmers' Union (NFU)
New Forest National Park Authority
Northern Ireland Local Government Association (NILGA)
Nominet
Northumbrian Property Services Group Limited
Ofcom - Advisory Committee Northern Ireland
Ofcom - Advisory Committee Scotland
OneWeb
Openreach
Ordnance Survey
Rural Services Network
Rushden and Wallington Parish Council
Scottish Borders Council
Scottish Futures Trust
Scottish Government
Sebastopol Inn
Sharedband Ltd
Sky
South of Scotland Alliance
Staffordshire County Council
TalkTalk
The Association of Convenience Stores
Three
UK Competitive Telecoms Association (UKCTA)
Vergis Ltd
Verizon Enterprise Services
Virgin Media
Vodafone
Welsh Government
West Sussex County Council
Which?