

OFCOM STRATEGIC REVIEW OF DIGITAL COMMUNICATIONS – SCOTTISH GOVERNMENT RESPONSE

1. Ensuring that everyone in Scotland can access high quality digital connectivity is a central component of the Scottish Government's policy agenda. A digitally enabled Scotland underpins the Scottish Government's core commitment to create opportunities for all to flourish, through increasing sustainable and inclusive economic growth.
2. We believe there are two key challenges going forward requiring a coherent overall strategic approach for public policy, funding and regulation:
 - The need for fit for purpose telecoms infrastructure and services to support a world-class digital economy; and
 - Ensuring that the regulatory framework does not exacerbate the digital divide and that more remote areas see connectivity improvements in line with other parts of the UK.
3. In 2012, the Scottish Government published 'Scotland's Digital Future – Infrastructure Action Plan'¹, which outlined our commitment to a world-class, future proofed digital infrastructure that will deliver high quality connectivity across Scotland. Our joint investment, alongside UK Government, to extend access to superfast broadband is a vital first step. We are determined to go further and, as part of our World Class Infrastructure programme, are developing a comprehensive delivery strategy and road map for supporting and stimulating further investment in Scotland's digital infrastructure. This work is currently being undertaken by the Scottish Government in conjunction with Scottish Futures Trust (SFT)².
4. The world class vision is underpinned by a future-proofed digital infrastructure supporting any device, anywhere, anytime connectivity across Scotland. SFT's work incorporates a number of diverse work streams looking at how public policy, regulation and investment (both commercial and public sector) will ensure that Scotland's digital footprint is capable of delivering the technological and consumer change needed to make the world class vision a reality.
5. The increasingly seamless interaction between fixed and mobile networks will be less visible to people, because a majority connect to the internet wirelessly e.g. on mobile devices (tablets, smart phones, etc.) or through wireless platforms (e.g. PCs and laptops through home or public space WiFi). Based on extensive industry experience, SFT has developed some technical design principles that would support an enhanced network capable of providing a seamless, high quality user experience regardless of where they are located. We would urge Ofcom to discuss these ideas in more detail with SFT.

¹ <http://www.gov.scot/Resource/0038/00386525.pdf>

² SFT is an independent company, established by Scottish Government in 2008, with responsibility for delivering value for money across public sector infrastructure investment.

6. Underpinning the world class work is a digital infrastructure mapping project, initiated by the Scottish Government in 2013, which sought information from suppliers and public sector bodies on all relevant fixed and mobile infrastructure. This exercise, along with a subsequent refresh of data in 2015, has yielded a wealth of infrastructure data and enabled us to develop a growing GIS database which has proved a powerful analytical tool and deepened our understanding of the overall infrastructure picture across Scotland. We are keen to ensure that our infrastructure database holds the most up to date information possible, and welcome on-going dialogue with Ofcom on how we can improve data sharing.
7. The spatial database confirms that there is an infrastructure deficit in parts of Scotland. Many of these areas will be amongst the most challenging places in Europe to deploy telecoms infrastructure, both in terms of network build and sustainability, given the relatively low levels of population density. As a result, Scotland's digital infrastructure – both mobile and fixed – has, to some extent, lagged the rest of the UK in terms of quality of experience and availability of services.
8. Our World Class Infrastructure programme has, over the past 18 months, sought to understand how that deficit can be addressed. This may ultimately lead to further public investment, to support the development of infrastructure in particular places. However, it has also highlighted areas where changes to the regulatory framework could be equally, if not more, effective in driving infrastructure change.
9. The challenging nature of the environment means that it is likely that, in many parts of Scotland, passive networks will remain natural monopolies. It is absolutely critical, therefore, that the regulatory regime drives competition through full open access at national and local level and ensures that regulated suppliers continue to invest in infrastructure.
10. Rather than respond to each individual question, our response captures headline comments under each of the themes highlighted in the discussion document.

Widespread availability of services

11. The focus of the UK's regulatory approach in recent years has been to promote effective and sustainable competition. This has proved successful in large parts of the UK; but not in others.
12. In areas where there is effectively no competition – a definition that could apply to large parts of Scotland – consumer outcomes have often been lacking and the regulatory environment has not been able to incentivise or ensure the necessary investment to maintain or upgrade network infrastructure. As a result, an infrastructure deficit has been created over time, which has resulted in variable availability and quality of service across the country.

13. The Next Generation Access (NGA) market in Scotland provides a useful illustration of the lack of competition in Scotland. There are effectively two commercial suppliers – BT Openreach and Virgin Media. Ofcom’s 2015 Communication Market Report for Scotland suggests that 75% of premises in Scotland are able to receive Openreach fibre broadband services; and 36% are able to receive Virgin Media cable services. As illustrated by the map at Annex A, very few areas have a choice between the two. There is no competition outside of the major cities and nothing north of Dundee. Planned commercial coverage by BT and Virgin has remained virtually static in recent years, despite announcements by both of new investment. Much of the recent increase in overall superfast broadband coverage in Scotland, as outlined in Ofcom’s CMR, is due to the public sector-led investment being delivered through our Digital Scotland Superfast Broadband programme. There are new market entrants emerging in some of the bigger cities – for example, City Fibre in Aberdeen and Edinburgh; and Hyperoptic in Glasgow. These suppliers are looking to deploy new fibre-based business and consumer services but there is currently no commercial driver to deploy outside core urban areas.
14. This evidence serves to demonstrate that the market does not operate in the same way across the whole of the UK and a key ask of Ofcom going forward, is that markets are assessed at a more granular level so as to uncover these differences and consider regulatory remedies that take account of, and address, market failure in areas where there is little or no competition at both the infrastructure and services layer.
15. The wealth of data at Ofcom’s disposal could be used to produce more robust regional market analysis, both in terms of the infrastructure deficit and quality of experience and service issues in areas that would be tend to be considered competitive or commercial. This would help determine whether locational remedies might have a part to play in addressing more localised market failures.
16. The Scotland Bill devolves competition powers to Scottish Ministers enabling them, acting with the Secretary of State, to require the Competition and Markets Authority (CMA) to carry out a second stage market investigation. The Scottish Government is in the process of carrying out a strategic assessment of Scottish markets, in partnership with the CMA, which will aim to identify areas of competition concern in Scotland. The Scottish Government is committed to working with Ofcom, and with the CMA where appropriate, to address any market failures identified in the broadband and mobile markets.
17. Regulatory and legislative frameworks need to be flexible enough to ensure that regional market variations are understood. This is particularly important in ensuring equity where all consumers have access to good quality services at a speed that the majority of UK and EU citizens enjoy.
18. While broadcasting remains reserved, the Scottish Government, through the Smith Commission, has a formal role throughout the process of BBC Charter Renewal for the first time. We believe that the BBC needs to better represent the nations and regions and that there should be more Scottish produced

content delivered on additional platforms on TV and radio, in Scotland and across UK network output. With that in mind, and noting the growth of non-traditional viewing mediums, the availability of digital services for Video on Demand and other online media, including additional digital channels is vital, not least with regards to the larger public service broadcasting principle of representation.

Extending availability through targeted public policy

19. Both Government and regulators have a role to help industry overcome economic barriers to investment. A comprehensive understanding of infrastructure deployment, and in particular where there are coverage or service gaps, is needed, both at UK and Scottish level. This will allow us to quantify the scale of the problem that will remain and the resources required to address it.
20. Public investment in the UK's broadband infrastructure has been underpinned by a robust Open Market Review process. Mobile is more complex and will require greater collaboration between Government, Ofcom and industry. Access to current and planned coverage data is an area where we continue to experience difficulty. We encourage Ofcom to develop and agree a process by which UK and devolved governments can obtain regularly updated, reliable information from mobile operators. Without this, there will continue to be a lack of transparency around how operators comply with coverage obligations; and policies to address market failure cannot be appropriately targeted and resourced.
21. The true picture in parts of Scotland, and other rural areas, can often be masked by Ofcom's current approach, which has been to consider these areas solely as part of the overarching UK market. As outlined in earlier sections, the Scottish Government believes that Ofcom must look again at how it assesses local market conditions, encompassing coverage and quality of service considerations as well as price. This could provide the platform for Ofcom to consider a range of interventions. One potential option could be to ring-fence commercial investment in particular locations.
22. The Scottish Government previously lobbied the UK Government on the issue of a broadband Universal Service Obligation (USO) and we have been encouraged by the commitment that has been made to explore this further and the subsequent scoping work that has been done.
23. A USO is by no means a panacea but it could play an important role in ensuring that the hardest to reach areas are not excluded from digital roll-out. There are a number of points we would make in relation to a USO. We would be keen to avoid setting an arbitrary speed level, which could easily become obsolete as bandwidth demands increase. It may be more effective to set a more dynamic USO, with periodic review points built in. The USO should not just focus on download speeds, it will also be important to consider issues such as upload

speeds, quality of service and how it can act as a stimulus to innovation in reaching remote areas.

24. The Scottish Government also believes that the USO should be developed in a way that maximises the financial contribution of the range of companies that benefit from broadband infrastructure – from traditional telecoms suppliers to emerging OTT providers – and minimises the call on the public purse.

Convergence and changing market structures

25. Given that this Review will set the regulatory conditions for the next 5 to 10 years, Ofcom needs to ensure that the regulatory framework is sufficiently forward looking to reflect how people will be accessing the internet in the future. We believe this will be ‘anywhere, anytime, any device connectivity’ as set out in our world class digital vision.
26. As the market moves towards convergence of infrastructure and services and both fixed and mobile operators become increasingly focused on the so-called quad-play market, Ofcom will want to be reassured that the regulatory environment encourages and stimulates infrastructure investment and innovation rather than constraining it.
27. In order to ensure that the benefits of convergence are available across the country, more radical approaches may need to be considered in order to ensure sufficient investment in infrastructure – for example, mandating investment to extend the availability of backhaul and core networks.
28. Ofcom should also consider how the spectrum licencing and auctioning process could help incentivise the delivery of infrastructure in specific places, alongside spectrum sharing and sub-leasing. Although we understand that spectrum licencing is not the focus of the DCR, it can play an important role in extending availability of broadband access. We believe that mobile broadband will increasingly become a sustainable alternative for fixed broadband in the future, particularly as we move towards 5G deployment. We would encourage both Ofcom and the UK Government to consider how future coverage obligations could be used more effectively to benefit remote rural areas. We would also welcome more detailed discussions with Ofcom about the evolution of 5G, and the role it could play in delivering widespread broadband access. Similarly, looking at the shorter term, we would welcome further discussion on the scope for 4G to play a role in delivering the equivalent of fixed broadband services in remote areas.
29. Ofcom has a remit to secure the ‘optimal use for wireless telegraphy of the electromagnetic spectrum’. This means that securing efficient use of spectrum and promoting competition have consistently been key objectives driving the approach to spectrum awards in the UK. Future spectrum allocations could include supporting public policy goals such as coverage for mobile and broadband, if the awarding criteria take wider social and economic benefits into account. We urge Ofcom to consider lessons from other EU countries and how

they have approached 4G coverage obligations as it can provide useful learning for future UK spectrum releases for mobile services. Annex B provides information on different approaches taken by different countries in setting 4G mobile coverage obligations.

Strategies for sustainable competition

30. Action is required if end-to-end competition is to be delivered across the UK, rather than being confined to more commercial areas. Given the likelihood that infrastructure competition will not be delivered in rural areas, the key question for Ofcom to consider is how the regulatory environment can be made to encourage, or compel, monopoly providers (in most cases Openreach) to invest, as well as delivering arrangements that stimulate and promote competition at the access layer. However, Ofcom must also look to ensure that the infrastructure in these areas is fit for purpose. Virtual unbundled local access only works where there is fibre, or a usable copper network. If this doesn't exist, there is little value for industry in unbundling it.
31. Our suggested starting point would be more extensive regional market analysis, which will help determine levels of provision and particular challenges experienced in particular places. From that base position, Ofcom can determine which remedies (some generic; and some more targeted and bespoke) will be most effective.
32. The current wave of proposed consolidation and / or mergers in the mobile market has the potential for advantages and disadvantages. In our view, this should be the catalyst for Ofcom to look again at the levers it has at its disposal to stimulate the growth of mobile networks. We believe Ofcom is best placed to consider which levers would be appropriate and could include requiring MNOs to submit investment plans; introducing quality of experience metrics to any future coverage obligations; and promoting sharing of spectrum, masts and technology as a means of extending coverage to rural areas.
33. Ofcom has a role, working alongside Government and industry, to ensure that the UK's underlying digital infrastructure is capable of supporting future technology developments, particularly the growth of 5G which could have a transformational impact on rural connectivity. Promotion of sharing arrangements might be a means of ensuring that fit for purpose infrastructure is developed in remote rural areas.
34. Mobile and wireless access could provide an economically viable method to provide last mile broadband access, but will need to be supported by backhaul capacity which will require investment in fibre, ducts and masts. If there is insufficient investment in the passive layer, this will ultimately result in poor consumer outcomes. There is, therefore, a role for the regulator to drive investment in the passive network.
35. Availability of spectrum will also continue to be important. The Scottish Government is currently supporting TV white space pilots and will continue to

engage with Ofcom's spectrum consultation process. Licencing conditions could increasingly be used to drive investment in all areas. Ofcom should also consider the impact of measures such as spectrum sharing, leasing and sub-leasing which could encourage the full utilisation of spectrum for telecoms purposes.

Promoting efficient investment through regulation

36. There has been significant public investment in digital infrastructure in recent years; and more is likely to be required in future. However, Ofcom has a role to play in providing Government with the reassurance that regulated players – notably BT – are investing an acceptable amount of their own resources in upgrading and extending their infrastructure. We believe Ofcom is best placed to consider the options for how the regulatory framework could promote more efficient investment and we include some ideas and suggested approaches below for Ofcom to consider further.
37. In other sectors, such as energy, water and rail, there is greater transparency around planned infrastructure investment and the regulator is more prominent in overseeing delivery. Whilst we recognise the telecommunications sector is more dynamic and therefore not directly comparable, there are valuable lessons to be learned for how regulation in these markets has delivered more efficient investment.
38. Access to wholesale products (including dark fibre access) is key to enabling downstream competition, assuming that these products are fit for purpose and are competitively priced. In recent years, private sector-led infrastructure development has been confined to commercial areas or where targeted programmes have been developed to build on existing networks in core geographies.
39. A modern portfolio of wholesale products depends upon adequate infrastructure investment producing fit for purpose infrastructure. If this investment is not being made, Ofcom should consider possible remedies that provides for regulated returns on wholesale products, based on the asset investment return. Wholesale services are usually based upon infrastructure that has a book value of 25+ years. Pricing therefore needs to reflect this asset life rather than driving larger profits.
40. We believe that Ofcom should be more proactive, requiring suppliers to submit investment plans and tracking delivery against these. This will help ensure strategic investment planning, by enabling Ofcom to determine whether costs and returns have been reflective of those forecasts. There are perhaps lessons to be learned from the electricity sector, where investment plans are prepared over a 5-7 year cycle, depending upon the segment of the market. The regulator tracks performance against these plans, including how this factors into returns.

41. In non-commercial areas, wholesale pricing control and access types should be a priority for Ofcom, recognising that access will drive competition. Alongside measures to stimulate investment, this should help drive up the quality and availability of networks across the UK.

Regulating vertically integrated firms

42. The Ofcom discussion paper invites comments on four options in relation to BT:
- Status quo – concerns addressed through existing cycle of market reviews and/or dispute resolution mechanisms.
 - Strengthen the current model – changes to functional separation and new rules applied to BT.
 - Separate Openreach from BT – structural separation would address BT's underlying incentive to discriminate against competitors, and may increase Openreach's focus on, and control over, network investment decisions and performance issues.
 - Deregulate and promote network competition – refocus on end to end competition to address competition concerns
43. What is clear is that the status quo has not delivered transparency around BT's commercial infrastructure investment and does not provide sufficient reassurance that BT's position as monopoly infrastructure provider in large parts of rural Scotland can be policed effectively. Whilst deregulation might stimulate new infrastructure investment in urban areas, there is no evidence to suggest it would have a positive impact in semi-urban and rural areas and therefore it is highly likely that this option could end up further entrenching a digital divide between urban and rural areas.
44. Any new approach needs to focus on outcomes – high quality of service standards, transparency of investment and recycling of profits back into infrastructure investment. There are a range of solutions available that will ensure the regulatory framework delivers these outcomes and we believe that Ofcom is best placed to assess options.
45. Our view, informed by analysis undertaken by SFT, is that option 2 (strengthened and more rigorously enforced functional separation) may well produce the main outcomes we want to see, without the associated disruption to the market.
46. Success will be dependent on a range of supplementary regulatory remedies being introduced, these could include more detailed monitoring and enforcement of cost allocation rules; charge controls to improve quality of service; and more severe penalties for non-compliance.
47. Our preference, therefore, would be that, in the first instance, new rules are applied to BT, to ensure greater transparency and regulatory oversight over Openreach infrastructure, with a particular focus on extending coverage. A reformed Openreach, taking a longer term infrastructure view based on longer term asset investment returns, could provide a good basis for future passive

infrastructure provision. However, if these changes cannot be implemented effectively, then structural separation of Openreach should become a very real option in the longer term.

Empowered consumers

48. It should be recognised that opportunities to empower consumers are constrained in areas where there is a lack of competition. However, we fully support Ofcom's moves to make it easier for consumers to switch between suppliers.
49. The regulator has a role in providing consumers with information in order to inform their choices. We recognise that Ofcom has done a lot of work in the past year to improve transparency on mobile coverage, including the production of a new online coverage checker which is underpinned by MNO coverage prediction data.
50. Accurate data on network availability and performance will be key. Ofcom's performance information has traditionally been derived from averaged, modelled data. This raises questions about whether it accurately reflects user experience. In September 2013, the Scottish Government published a report on "Mobile Performance and Coverage in Scotland"³, which sought to measure actual user experience. A key finding was that, in many local authority areas, the actual user experience was much poorer than Ofcom's data would suggest, characterised by dropped calls and unsatisfactory indoor coverage.
51. We would encourage Ofcom to continue to consider whether the coverage prediction thresholds MNOs use in production of this data are fit for purpose and, more generally, how the measurement of user experience and accuracy of mobile coverage and performance data can be improved.
52. Improved consumer information should flow from Ofcom undertaking more extensive regional market analysis. This might include testing the following elements:
 - Quality of experience: drive testing;
 - Speeds: uploads and downloads;
 - Comparison of tariffs with other providers;
 - Calls dropped, calls connected and call quality;
 - Coverage on transport;
 - Contention;
 - Resilience / outage
53. Tracking and measuring commercial investment, and its impacts, is also important. We would be keen to see Ofcom take on a more proactive role, requiring suppliers to detail planned investment over a period and monitoring delivery. This would allow Ofcom to determine what impact this investment has on measures related to end user experience.

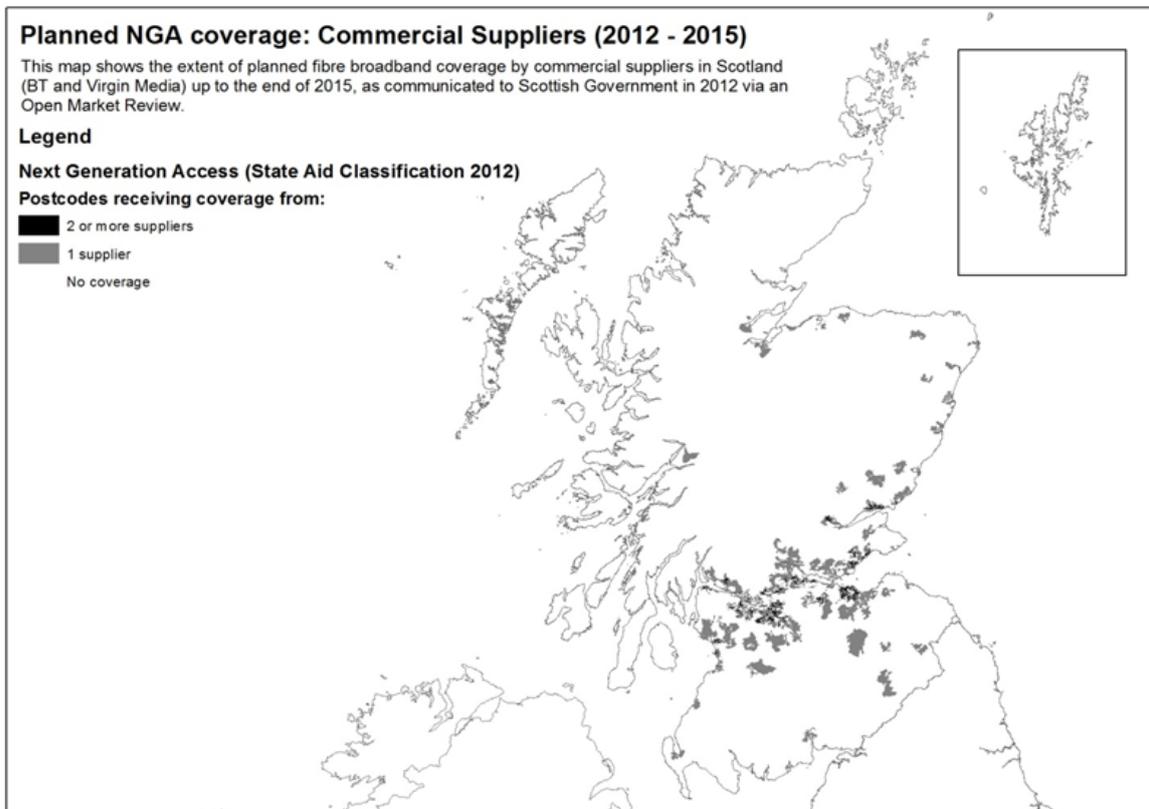
³ <http://www.gov.scot/Resource/0043/00433910.pdf>

Delivering quality of service

54. The discussion paper highlights quality of service as a key issue, particularly in relation to Openreach, and seeks examples where providers are not currently delivering adequate quality of services to consumers.
55. Openreach is a major supplier to the Scottish Government's Scottish Wide Area Network (SWAN) project, which will deliver a single public services communications network infrastructure for Scotland supporting a range of value added services. The network itself has the potential to generate savings for public bodies but will also support innovation in service delivery.
56. The project has experienced a number of performance issues in its initial phases, particularly in relation to Openreach and delays in delivering circuits and underlying infrastructure. This has adversely impacted overall delivery timescales.
57. The SWAN experience illustrates the pivotal role that Openreach has in ensuring the successful delivery of telecoms projects across the country, particularly in rural areas where there is generally little or no infrastructure competition. It reinforces the need for more stringent charge controls to improve quality of service; and more severe penalties for non-compliance.

Annex A

Open Market Review – 2012



Annex B

4G Mobile Coverage Obligations – Examples of different approaches from different countries

Higher population coverage – France, Finland and Iceland

France

- 99.6% population coverage for three licensees by 2027
- 95% population coverage in each French region (department) by 2027
- Operators must also provide 90% population coverage by 2022 in a sparsely populated priority area (composed of 18% of the French population and 63% of its geography)

Iceland

- One licence requires coverage of 99.5% of homes and businesses within 4 years
- Another licence requires 93.5% of homes and businesses within 4 years

Finland

- 99% population coverage for one licence (and 97% for other two licences) within 5 years

Belgium

- 98% population coverage obligations for three licences within 6 years
- Supplementary obligation for one licence for 60 specific towns within 3 years

Geographic coverage – Estonia, Cyprus and Denmark

Estonia

- Allocation was via a beauty contest
- Operator promised to cover at least 95% of the geography (now achieved)

Cyprus

- 65% geographical coverage for one licensee within five years

Denmark

- 98% geographical coverage (and 99.8% population coverage) in approximately
- one-third of the post districts within 3 years

Higher mobile data speeds - Spain, Slovenia, Denmark, Cyprus and Iceland

Cyprus and Spain – 30Mbit/s

Iceland – 2.5 to 30Mbit/s, the requirements vary as below:

- Within 4 years: 10 Mbit/s (sometimes), 3.85 Mbit/s (24 hr average) and 2.5Mbit/s (average three hours peak time)
- Within 8 years: 30 Mbit/s (sometimes), 11.3 Mbit/s (24 hr average) and 7.5Mbit/s (average three hours peak time)

Denmark and Slovenia – 10Mbit/s outdoors

Estonia and Czech Republic – 5Mbit/s downlink

Priority for rural areas or coverage for ‘small towns’ - Germany, Spain and Italy

Germany

- 90% of the population in non-urban areas must be covered before operators can target densely populated areas
- The rollout is phased with operators having to deploy firstly in areas which have 5k or less population, followed by those with between 5-20k inhabitants, then those with 20-50k, followed lastly by areas with a population of 50k or more

Italy

- Operators must cover at least 30% of a specified list of towns of <3k inhabitants by end 2015, 75% of these towns by 2017, and 100% by end 2019

Spain

- By 2019, operators must cover 90% of citizens in population centres of <5k inhabitants

Coverage obligations linked to broadband ‘not-spots’ – Sweden and Slovenia

Sweden

- By 2014, one licensee must cover households and work premises that do not have access to basic broadband (subject to rollout cost of no more than 300M Kroner adjusted for inflation)
- These premises are identified by PTS (the regulator)

Slovenia

- One of the licensees also has an obligation to provide 225 of 300 specific settlements with Fixed Wireless Access (using appropriate internal or external antenna) providing a transfer speed for a user experience of at least 10Mbit/s downlink with a minimum data transfer rate of at least 2Mbit/s