Summary of Key Points and Recommendations:

- Arqiva welcomes the opportunity to respond to the Infrastructure and Capital Investment Committee’s Inquiry into Broadband Infrastructure in Scotland.

- There is an ever-greater social and economic cost to each person who falls, or is left behind on the wrong side of this ‘digital divide’. Research suggests that consumers and SMEs left without broadband would be disproportionately rural. The overriding public policy objective must be to deliver universal access to broadband.

- It is therefore crucial that the political commitment to achieving universal access to broadband by 2015 is not lost in the heated arguments about who should receive ‘superfast’ broadband first. The real gain for UK plc is to achieve universal access to broadband - not to push fibre to 90% penetration and then stop.

- We believe there would be a considerable opportunity cost (both economically and socially) if, come 2015, consumers who already have access to broadband were “super-served” with fibre while millions who currently have little, or no broadband provision remain under-served, forgotten or left behind.

- We note that the current debate, in both Scotland and across the UK, is focussed on how much penetration of superfast could be achieved, and how quickly, if all of the public subsidy were made available for that purpose. Arqiva warns that this would leave no public subsidy remaining for potentially millions of consumers, and nearby farms and other SMEs.

- Fixed solutions alone won’t deliver universality: Where fibre is not cost effective (i.e.: more than 1 million households), we believe wireless broadband is the only practical solution. Arqiva believes all the evidence indicates that the optimal means of securing universal access to broadband requires a procurement of a mix of technology solutions.

- It is imperative that wireless broadband be an essential part of the solution that is procured in Scotland.

- To help achieve this, we believe that Ofcom should be obliged:
  - to increase the scope of the coverage obligation to, say, 99% population;
  - to measure that obligation by Nation, so Scotland benefits equally;
  - to double the size of the spectrum the obligation attaches to, to a third of the 800 MHz spectrum.

About Arqiva

Arqiva is a media infrastructure and technology company operating at the heart of the broadcast and mobile communications industry and at the forefront of network solutions and services in an increasingly digital world. Arqiva provides much of the infrastructure behind television, radio and wireless communications in the UK and has a growing presence in Ireland, mainland Europe and the USA.

Arqiva is implementing UK Digital ‘Switch-Over’ from analogue television to Freeview – a huge logistical exercise which touches every constituency, requiring an investment by Arqiva of some £700m and which is successfully being delivered to time and budget.

Arqiva is also founder member and Shareholder of Freeview (Arqiva broadcasts all six Freeview multiplexes and is the licensed operator of two of them) and was a key launch technology partner for Freesat. Arqiva is also the licensed operator of the Digital One national commercial DAB digital radio multiplex.

Arqiva operates nine international satellite teleports, over 70 other staffed locations, and around 9000 shared radio sites throughout the UK and Ireland including masts, towers and rooftops from under 30 to over 300 metres tall.
In addition for broadcasters, media companies and corporate enterprises Arqiva provides end-to-end capability ranging from –

- outside broadcasts (10 trucks including HD, used for such popular programmes as Question Time and Antiques Roadshow);
- satellite newsgathering (30 international broadcast SNG trucks);
- 10 TV studios;
- spectrum for Programme-Making & Special Events (PMSE);¹
- playout (capacity to play out over 70 channels including HD); to
- satellite distribution (over 1200 services delivered).

Elsewhere in the communications sector, the company supports cellular, wireless broadband, video, voice and data solutions for the mobile phone, public safety, public sector, public space and transport markets.

Arqiva’s major customers include the BBC, ITV, Channel 4, Five, BSkyB, Classic FM, the four UK mobile operators, Metropolitan Police and the RNLI.

Arqiva welcomes the opportunity to respond to the Infrastructure and Capital Investment Committee’s Inquiry into Broadband Infrastructure in Scotland.

**Why access to broadband matters**

1. We note that the Coalition Government in Westminster has endorsed the previous Government’s ambitious plans to move to digitised public services, which should:
   - Deliver better public services for lower cost; and
   - Create a new dialogue between citizens and public service providers.

2. We recognise there is also a broad consensus that a programme to address digital inclusion is essential, not just to ensure that the expected efficiency savings from digitising public services are achieved, but as an instrument of real social change to:
   - Improve the life chances for the unemployed;
   - Widen access to online educational materials and resources and ultimately raising children’s grades and life chances; and
   - Enable the financially-disadvantaged and less knowledgeable, or media literate, to pay the same discounted prices for commercial products and services as the technologysavvy (who, ironically, are usually better able to pay more).

3. Digital inclusion has a passionate and experienced advocate in Martha Lane Fox, who has not shirked from addressing the key issues of literacy and affordability. However, unless access to broadband is universal, her Race Online 2012 initiative will never reach its full potential. There is an ever-greater social and economic cost to each person who falls, or is left behind on the wrong side of this ‘digital divide’. In addition, there is a risk that the much-heralded huge cost savings from slimming down “offline” Whitehall will not be realised - until access to digitised public services becomes universal.

4. It is therefore crucial that the political commitment to achieving universal access to broadband by 2015 is not lost in the heated arguments about who should receive superfast broadband first.

5. Westminster and Edinburgh are right to highlight the superfast option since there will undoubtedly be new services which will emerge to take advantage of this. Nevertheless, it is also prudent to ‘future-proof’, as far as practical, infrastructure subsidised with public funds. We believe there would be a considerable opportunity cost (both economically and socially) if, come 2015, consumers who already have access to broadband were “super-served” with fibre… while millions who currently have little, or no broadband provision remain under-served, forgotten or left behind.

6. Research suggests that consumers and SMEs left without broadband would be disproportionately rural. Given its population distribution, Scotland would then be disadvantaged by comparison with

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¹ Such as the wireless cameras operated by the BBC and Sky News, and the radio mics used in virtually all television production and many West End shows.
England. Indeed, in a world economy demanding that citizens, consumers and businesses are all connected – such a ‘digital divide’ could even exacerbate the problems of ‘rural drift’ (of both consumers and small businesses to towns).

How many Scottish consumers won’t get superfast?

7. Broadband Delivery UK (BDUK) data suggests that Scotland will have around 1.3m homes which won’t receive superfast broadband left to the market alone, of which Arqiva estimates around 141,000 do not currently even receive basic 2Mbps broadband today.

8. When BT has upgraded 75% of its cabinets (as planned), those 141,000 homes reduce to around 130,000. Fixed wireless could cover 105,000 out of that 130,000 for around £40m CAPEX, the remaining 25,000 homes (around 12,000 in the Highlands & Islands Region) could only be economically provided with broadband by satellite. Satellite is costlier, has higher latency than wireless and restricted download limits, but for the most remote areas even wireless wouldn’t be a practical solution.

9. Assuming that the Scottish Government raises the matched funding for the £69m public subsidy earmarked by BDUK, if wireless and satellite were procured as complementary solutions for those areas where subsidising fibre would be a poor use of public funds, then most of the funds would be available for extending the reach of superfast and universality would still be achieved.

The key public policy objective

10. The overriding public policy objective must be to deliver universal access to broadband and, within the funds available, to maximise the number of consumers and businesses with access to superfast.

11. We note that the current debate, in both Scotland and across the UK, is focussed on how much penetration of superfast could be achieved, and how quickly, if all of the public subsidy were made available for that purpose. Arqiva warns that this would leave no public subsidy remaining for potentially millions of consumers, and nearby farms and other SMEs.

12. The real gain for UK plc is to achieve universal access to broadband - not to push fibre to 90% penetration and then stop. This is supported by studies undertaken by McKinsey, Allen, OECD and the World Bank which show that a 10% increase in broadband penetration increases GDP by 1%. Yet there are no studies which can be referenced as to the impact of superfast broadband.

Fixed solutions alone won’t deliver universality

13. Many broadband “not spots” are in urban and suburban areas, and best addressed by fibre. However, a large number of “not spots” are in rural areas and the outer suburbs, where the need to upgrade individual connections to each home or business to provide broadband by fibre or other fixed line solution can be ruinously expensive – and this will all take considerable time.

14. If insufficient homes are clustered together, fixed line solutions are unviable. Fibre requires 50 households per cabinet to make it economic to deploy. So the risk is that many rural homes could not be offered fibre with the funds currently available for subsidy.

15. Where fibre is not cost effective (i.e. more than 1 million households), we believe wireless broadband is the only practical solution. No roads need to be dug up, no ducts shared (not that there are many in rural areas anyway), wireless broadband could be deployed quickly and offered to all consumers within range of each transmitter as soon as it was switched on – just like television, in fact.

16. We point out that television provides the optimal spectrum to use because as Arqiva switches off analogue television across the UK as part of Digital Switch-Over (Scotland has, of course, already been switched), a swathe of spectrum (usually referred to as “800 MHz”) which is harmonised across Europe for “4G” wireless broadband is left behind unused. So unlike the few rural wireless broadband solutions offered to date, the spectrum is ideal for this use (having previously provided

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2 ‘Not spot’ is generally accepted to mean the lack of access to fixed broadband (almost everyone could get satellite broadband).
universal public service television); the infrastructure is already in place; and consumers could choose from a range of cheap, standardised equipment.

17. The effectiveness of using 800 MHz spectrum to deploy 4G wireless broadband in rural areas was modelled for Ofcom and Arqiva in 2009 and, at the end of 2010, Arqiva borrowed some of this spectrum from Ofcom and carried out an extensive 4G trial.

18. This trial was carried out in Pembrokeshire in West Wales, which was selected precisely because, as with many areas in Scotland, it would be difficult and highly costly for fibre to address its rural ‘not spots’. It yielded impressive results. We were able to demonstrate delivery of high speed broadband (in excess of 50 Mbps) in a challenging rural environment where citizens currently experience typical speeds which are less than 500Kbps.

19. It is imperative that wireless broadband be an essential part of the solution that will be procured in Scotland. Indeed, Wireless could play a considerably larger role than just addressing the hardest to reach. Many consumers are denied fixed broadband due to poor internal wiring, and providing them with 4G wireless broadband would be more cost-effective than requiring a home visit from an engineer.

20. UK mobile-only households increased from 8% to 15% in the five years to 2010, and many consumers clearly place a higher value on mobility than on absolute speed. So, there may be many consumers currently without broadband who would choose a wireless solution in preference to fixed - not least as wireless could be offered to them years before any fixed solution could be.

21. We note that there are also some consumers for whom even wireless broadband would not be the most cost-effective solution. Where population density falls below 15 houses per km², satellite is likely to be the cheapest broadband solution. As such consumers are easily identified, their needs could be addressed quickly and there are a range of satellite broadband providers who could offer their services almost immediately.

22. Arqiva believes all the evidence indicates that the optimal means of securing universal access to broadband requires a procurement of a mix of technology solutions.

Ensuring that a digital Scotland is a realisable goal

23. Wireless cannot play its essential complementary role without access to suitable spectrum. For cost-effective coverage of rural areas, the optimal spectrum to deploy would be 800 MHz. This has been recognised across the EU where a Commission Proposal to the European Parliament and the Council included:

“Member States...shall ensure that the provision of access to broadband content and services using the...800MHz band is encouraged in sparsely populated areas, in particular through coverage obligations.”

24. Ofcom has responded by proposing a coverage obligation for 800 MHz, but for such a small slice of that spectrum that any operator deploying just this spectrum would be unable to support even the minimum 2 Mbps. In addition, Ofcom only proposes that 95% of the UK population be covered. The relevant operator would also have until 2017 to achieve this target, which almost certainly means that the most disadvantaged would not obtain access until the 2017 deadline.

25. It must be noted that Ofcom is proposing to retain back-stop powers to revoke licences in rural areas if the spectrum remains unused even where public subsidy is available. So Ofcom is aware of the strong likelihood of the relevant operator refusing to deploy its spectrum in rural areas even where public subsidy is available. However, given Ofcom’s aversion to intervening in the market, and the time it would take for Ofcom to fully investigate the rural coverage achieved and planned, it seems unlikely that these powers would ultimately achieve very much.

26. We believe that Ofcom should be obliged:
   i. to increase the scope of the coverage obligation to, say, 98% or 99% of the population;
   ii. to measure that obligation by Nation, so Scotland benefits equally;

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3 COM(2010) 471 final
4 Only 2 x 5 MHz, a mere sixth of the available spectrum.
iii. to double the size of the spectrum the obligation attaches to, to a third of the 800 MHz spectrum.

27. There will be those (in particular, the mobile operators and HM Treasury) who may argue that making these coverage obligations to the greater social benefit, and thus harnessing greater use of this precious spectrum, would depress the auction proceeds. Arqiva believes the auction proceeds will be principally influenced by the competitive tension which results from 4 mobile operators chasing a maximum of 3 licences. The number of masts which might be required by Ofcom to be deployed will be a secondary factor for the bidders.

28. We recall that, in passing the Communications Act 2003 (which established Ofcom), Parliament charged Ofcom with securing optimal use of spectrum (a Crown asset) - rather than simply selling it all to the highest bidders. Arguably any auction outcome which left the 800 MHz spectrum unused over vast swathes of the UK could not be considered its 'optimal' use.

29. But for all Scottish consumers to benefit, it will also be essential that the Scottish procurement of broadband recognises that a mix of technology solutions will be required, with the funding then made available to each of the selected technology solutions so that it can contribute as necessary to achieving what has to be the overriding public policy objective: Ensuring that no one is excluded from the connected, digital society of the future.

\[5\] \(2 \times 10\) MHz.