WRITTEN EVIDENCE FROM THREE

1. Three welcomes the opportunity to submit evidence to the Infrastructure and Capital Investment Committee’s inquiry into Broadband Infrastructure in Scotland.

2. Three is the UK’s leading provider of mobile broadband services. We offer mobile broadband and voice services to our customers on a range of devices including smartphones, tablets, mobile broadband dongles and MiFi.

3. Currently we have 95% 3G outdoor population coverage in Scotland¹. This is provided from 1357 base stations. Three and T mobile entered into a ground breaking network share agreement at the end of 2007 and by merging our 3G network infrastructure together we have been able to offer improved stability, faster speeds and greater population coverage for our customers in Scotland and across the rest of the UK.

4. We have 30 retail stores in Scotland, employing 229 staff as well as a Glasgow office with 478 employees.

Mobile Broadband

5. As Scotland’s Digital Future, recognises mobile broadband plays an increasingly important role in any national broadband strategy. One in ten Scottish households now use their laptop or PC with a mobile broadband dongle to access the internet and 20% of Scottish people have a smartphone².

6. Mobile broadband also plays a critical role in helping people get online who, either for practical, financial or geographical reasons, are unable to access fixed-line broadband. For example, 1 in 7 adults in rented accommodation, where entering into a 12 month fixed contract may not be possible, use mobile broadband as their only means of internet access while 2 in 3 DE households using mobile broadband don’t have access to a fixed-line service³.

Rural Connectivity

7. The Scottish Government has rightly highlighted that “improving connectivity in our most rural and remote communities will play a critical role in driving rural economic growth and competitiveness”⁴. In many instances mobile broadband is providing remote communities with a solution. It is interesting to note that rural customers in Scotland are more likely to own a smartphone (25%) compared to the Scottish average (20%)⁵. In some areas our network data indicates that there is increased data usage in rural areas compared with urban centres.

8. In order to explore the role mobile broadband could play in rural connectivity, Three established the Rural Broadband Working Group in September 2011 alongside Race Online and the Countryside Alliance. We have pledged to support ten pilot communities, whose fixed broadband access is inadequate, in trying mobile broadband. The first of these was trials was launched in Gringley-on-the-Hill in North Nottinghamshire, where Three provided 20 homes and businesses a dongle with free data usage for a year, alongside a free MiFi broadband hotspot in a communal area. We are currently identifying communities in Scotland that could benefit from this scheme and will keep the Committee updated as these pilots develop.

¹ Three only operates a 3G network
² Ofcom Communications Market Report 2011
³ Ofcom Communication Market Report 2010
⁴ Scottish Government, March 2011
⁵ Ofcom Communication Market Report 2011
Rural Coverage and the Impact of New Spectrum

9. Our improved rural coverage in recent years has been enabled by significant investment in our infrastructure, which has seen the number of base stations in Scotland double\(^6\). However, due to the extremely low population density in a number of rural areas, there is a point at which the cost of installing, servicing and maintaining a mast cannot be recouped by the additional customers who may be gained from its installation. The commercial unviability of expanding our site numbers in some rural areas has led to the continued presence of mobile notspots.

10. A significant number of these notspots would be addressed were Three to have access to lower frequency radio spectrum, such as 800MHz spectrum that will be freed up by the Digital Switchover. This spectrum is scheduled to be auctioned by Ofcom in Q4 2012 and to be made available for operators to use in 2013.

11. The 800MHz frequency spectrum will play a significant role in improving rural coverage. This low frequency spectrum has properties which enable it to serve a greater geographical area and provides better in building coverage than higher frequency spectrum.

12. Figure 1 below indicates the difference in the distance that can be covered from a site using lower frequency 900MHz spectrum held by O2 and Vodafone, compared with a higher frequency 2.1GHz spectrum held by Three\(^7\).

*Figure 1: Area covered by deployment of lower and higher frequency spectrum*

13. It is clear that lower frequency spectrum enables one base station to serve an area up to three times greater than it currently can. This means that many areas which currently are situated too far away from a site to be serviced would be covered post the deployment of low frequency spectrum across Three’s network. If Three deployed lower frequency 800MHz

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\(^6\) From 630 base stations in 2007 to 1357 in 2011

\(^7\) 900Mhz spectrum was given to O2 and Vodafone in the 1980s. For further discussion on the impact of 2G liberalisation please see paragraphs 30-37.
spectrum on our existing networks then we could achieve 93% outdoor population coverage in Scotland overnight without the need to erect new sites.

14. While the deployment of low frequency spectrum across Three’s network would reduce the number of mobile notspots, there would still be some areas where the market alone will not deliver coverage. These areas can be assisted by Government investment, such as that proposed in Scotland’s Digital Future or the £150million mobile mast subsidy recently announced by the UK Government.

15. However, it is important that when public funding is allocated for mobile coverage it is done so on the basis of what coverage is most likely to look like post spectrum auction. It would be inefficient for Government subsidy to be targeted at areas which the market could reach post spectrum auction, especially if it is at the expense of an area that will not be covered after the new spectrum is deployed.

**Indoor Coverage**

16. Low frequency spectrum will improve indoor coverage. With more people using mobile internet in the home, either as an alternative to fixed or as a complementary service using devices such as smart phones or tablets, operators need to offer good indoor coverage.

17. Lower frequency spectrum is able to penetrate buildings to a much greater degree than our 2.1GHz spectrum. Currently Three is able to indoor coverage for 79% of the population in Scotland. However if we used 800MHz spectrum on our existing network our indoor coverage in Scotland would increase to 93%.

18. To improve access to mobile broadband throughout Scotland, and particularly in rural communities, it is therefore crucial that new low frequency spectrum is made available as soon as possible and that the auction is structured so as to avoid the further concentration of low frequency spectrum in the hands of two mobile networks. Spectrum is a finite public asset, it should therefore be auctioned to maximise competition and so drive the greatest public benefit in terms of increased coverage and lower prices.

19. We urge the Committee to work with the Scottish Government and the Scottish Director for Ofcom to ensure that the spectrum auction is not delayed further and that it is structured so that it maximises competition. As Three and T mobile have demonstrated, networks can and will work together to share infrastructure, however competition is preserved by ensuring all mobile network operators have fair access to a spread of radio spectrum, in particular low frequency spectrum.

**Capacity**

20. It is also important that operators can deploy new spectrum to ensure they have capacity to meet customer’s data demands.

21. The penetration of mobile broadband is increasing at an exceptional rate. In Q4 2010 smartphones outsold PCs for the first time in history and it is widely predicted that by 2015 mobile internet will overtake fixed as the most common method for people to access the internet.

22. Naturally, this increase in mobile broadband usage also means a significant increase in mobile data traffic. This, coupled with a trend towards more data-heavy applications such as a video or live streaming, means that data now makes up the vast majority of network traffic.

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8 IDC
9 Morgan Stanley
Ofcom’s latest *Communications Market Report* revealed that UK mobile data usage has increased by a factor of 38 in the three years to the end of 2010. Currently data accounts for 97% of traffic on our network.

23. Therefore ensuring that networks have sufficient spectrum to cope with customer’s data demands is a significant policy challenge and one that needs to be considered in the course of this inquiry.

24. There should also be considered at how there can be more certainty for operators in the future. The developments in technology and the increase in data demand means that operators will continue to require additional spectrum. However spectrum, like all finite resources, needs to be carefully managed. It would more effective and efficient if networks could plan in advance, with certainty as to when more spectrum would become available and assured that this resource would be allocated sufficiently in advance and in a timely manner. We would urge the Committee to work with the Scottish Government to put pressure on the national Government and Ofcom to publish a strategy on future spectrum management once the next auction is completed.

**Economic Impact of the Spectrum Auction Delay**

25. The delay to the auction means that the UK is likely to be the last country in Western Europe to auction its 4G spectrum. This will mean that Scotland is significantly lagging behind other European countries when it comes to utilising the new technology the 4G spectrum enables. Scotland will be at least four years behind other Western European countries, such as Norway and Sweden, whose early spectrum auction meant they were able to launch 4G technologies as early as 2009.

26. This is a significant slippage from 2000, where the UK was one of the first countries to auction 3G spectrum and will damage Scotland’s ability to compete with other European countries.

27. It will also result in a delay in Scotland’s ability to experience the wider economic benefits provided by 4G technologies. A recent Deloitte report on the impact of 4G technology in the USA found that American investment in 4G over the period 2012-2016 could range from $25-$53bn. A conservative estimate predicted that this would produce $73-$151bn in GDP and 371,000-771,000 new jobs. This is growth that the Scottish economy, and the UK as a whole needs.

**Importance of a Competitive Market**

28. While it is important to enable operators to improve connectivity and coverage that new spectrum is made available as soon as possible, it is also important that the spectrum auction is structured in a way that will promote competition and ensure there continues to be four players in the market.

29. In 2000 Three was the new entrant into the market, made possible because Ofcom introduced a licence for a new operator during the 3G auction to improve competition and ensure that consumers benefitted from the entry of a new player into the mobile market. To ensure that the market would remain competitive, all operators were required to use the same 2600MHz spectrum to deliver 3G, creating a level playing field that stimulated competition and drove networks to compete on coverage and quality. Scottish consumers have been reaping the rewards of these decisions. Across the EU countries with had a new 3G operator have 19% lower voice call cost per minute and 28% lower monthly data costs

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10 Deloitte *The Impact of 4G Technology on Commercial Interactions, Economic Growth and U.S. Competitiveness*
than countries that did not. The competition present in the UK market has also lead to the rapid increase in site numbers, which has improved coverage.

30. However, despite the clear evidence to the value of competition, the recent decision regarding the liberalisation of 2G spectrum has damaged the market. An EU ruling meant the UK were able to liberalise 2G spectrum, so that operators existing pre-2000 (900MHz and 1800MHz) were able to utilise this for 3G services.

31. While this was an EU ruling, most other EU countries took action to ensure that this would not affect competition but either reallocating or reselling some of this liberalised spectrum. Only the UK and Portugal did not take any action. This has significantly distorted the market, weakened that competitive tension and threatens to stall roll-out and increase prices.

32. Of this legacy spectrum Vodafone and O2 were gifted some valuable low frequency spectrum\(^\text{11}\). At the time it was deemed by Government and regulators that this would not impact on competition as operators would not be able to use this spectrum for 3G services until after the 2012 auction, as they would still need this spectrum to service their 2G customers. Ofcom therefore decided that it was appropriate that spectrum auction would be structured in a way that would prevent the further concentration of low frequency spectrum, by proposing caps on the amount of low frequency spectrum any one operator can hold.

33. However Three has always highlighted our concern that the liberalisation would begin affecting the market much sooner than the Ofcom auction. There are already examples of operators displaying on their coverage checked the areas where customers can access the 900 bandwidth. This clearly demonstrates that the liberalised spectrum is having an effect on the 3G market.

34. It is also worth noting that despite being able to use this spectrum for 3G services, the operators continue to only pay nominal licence fees set in 1998. This means the other three operators are paying just £64 million per year in fees, when the estimated benefit from allowing just the operators who hold 900MHz spectrum to use it for 3G could be around £80–100m per annum over the next five years. This translates into a net present value (NPV) of around £500 million over the next ten years.

35. Ofcom has signalled that the structure of the forthcoming spectrum auction will seek to address some of these issues, with floors and caps to spectrum holdings that will ensure that there is a minimum of 4 national players competing in the UK. While we welcome this, it again highlights the need for the spectrum auction to occur as soon as possible, to prevent further damage to the market and to restore competition.

36. Central to the viability of a four player market is the allocation of low frequency (sub 1GHz) spectrum. Three supports the recent recommendation that a higher coverage obligation should be placed on a licence to ensure 98% coverage obligation.

37. The UK Parliament Culture, Media and Sport Select Committee’s recent inquiry and subsequent report into spectrum allocation highlighted the importance of 800MHz spectrum in improving rural coverage and called for Ofcom to increase its proposed coverage obligation to 98% for at least one licence. Three supports the increase in coverage obligation; however for this to be a realistic ambition it must be accompanied by a decision to raise the current spectrum floor of 2 x 5 MHz to 2 x 10 MHz. It is only with this amount of low frequency spectrum that an operator could deliver this level of coverage.

**Digital Exclusion**

\(^{11}\) See above. It is also worth noting that rolling out a mobile broadband network in a suburban area is 3 times cheaper on 900MHz spectrum than on 2100MHz spectrum
38. We recognise the importance of broadband connectivity in ensuring everyone experiences the benefits of being online. However the issue of digital exclusion must be addressed. All UK citizens who are able to access the internet should be encouraged to develop the skills to help them feel comfortable and confident in browsing the web.

39. Since our launch in 2003, we have led the mobile broadband market in delivering lower prices and innovative new products. We were the first mobile operator to pledge support to Race Online 2012. This is why we have worked with organisations such as UK Online Centres to deliver ‘mobile get online’ days, and partnered with Microsoft and Remploy to offer low cost computer and internet packages to help bridge the digital divide.

40. We were recently the only retail partner to Give an Hour, Race Online 2012’s initiative to get everyone to “Give an Hour” of the time they gained when the clocks rolled back by an hour in October. During the period 31 October-4 November 2011 each of our 313 stores opened for an extra hour so our staff could give their hour and use it to help people improve their online experience. We estimate over 10,000 hours were donated by our staff.

Conclusion

41. Data traffic on mobile networks is growing rapidly. More spectrum is needed in order to meet this demand.

42. For operators to be able to improve both the coverage and capacity of their network it is crucial that there is no further delay to auction of new spectrum.

43. The increased coverage which can be achieved with the deployment of the lower frequency spectrum across a network of Three’s size should be considered when deciding where to target subsidy, to ensure funds are spent efficiently.

44. The spectrum auction must also be structured to restore competition in the market, so Scottish consumers can continue to experience the benefits of a 4 player market.