Scottish Rural Action
Broadband Working Group Report 2016

Contents

Many thanks to the more than 30 individuals and organisations who contributed, factchecked and endorsed this report, including:

- AppleNet
- B4GAL Community Broadband
- Berwickshire Community Broadband Project
- Bob Murieson
- Borthwick Water Community Broadband Project
- Highland Perthshire Communities Partnership (HPCP)
- Marykirk.com
- Newcastleton Community Council
- Newcastleton and District Development Trust
- North Skye Broadband
- Richard Briggs, Crofter, Shetland
- Southern Uplands Partnership

as well as those who preferred to remain unnamed.

Special thanks go to B4RN Community Broadband for the photographs used in this report.
Heroes all!

The Authors

Scottish Rural Action (SRA) is a non-profit organisation that aims to be a powerful voice for the people of rural Scotland by stimulating the development of a rural movement. Run by a volunteer Board of Directors, it has a small staff and a growing band of volunteers. As part of its work, SRA organises a Scottish Rural Parliament every two years. The inaugural Rural Parliament was held in Oban in November 2014 and the next Rural Parliament will take place in Brechin in October 2016.

There were many recommendations and potential actions arising from the first event, which were distilled into practical, workable solutions through consultation with potential delivery partners, forming an Action Plan that SRA would undertake between Rural Parliaments.

The view of the Scottish Rural Parliament 2014 was that:

> *Broadband and mobile phone signal are essential services that should be available to all.*

Within the broadband and mobile phone signal work stream, communities and individuals from across rural Scotland were invited to join a Working Group to examine and evaluate their experiences, issues and aspirations for connectivity in rural Scotland. A private online collaboration space was established that allowed group members to contribute freely, either using a web interface or email.

Other organisations were also invited to share their experiences with the Working Group and an online survey was also conducted to gather feedback from more people. This focused on awareness of the BT rollout and existing connection speeds.

This report seeks to summarise the Working Group's experiences, views and suggestions.

Background

Connectivity has become necessary to the social and economic sustainability of all communities. It is an essential of modern life and has the potential to address constraints and limitations arising from rural geography. For Scotland's rural economy to thrive, sufficient connectivity (a minimum of superfast broadband speeds) has to be available to all, regardless of geography. Inequity of connectivity leaves our fragile communities behind and excludes many of the one million people living in rural Scotland from participating socially and educationally and excludes them from economic opportunity.

One of Scottish Rural Action's ambitions is for all rural businesses and communities to share in the opportunities available with at least a superfast broadband connection. Scottish Government and public sector programmes should deliver more ambitious targets and focus investment on places that are being left behind.

The First Minister Nicola Sturgeon and Scottish Government have:

> *"pledged to deliver superfast broadband to 100% of premises by 2021. This will improve productivity across Scotland and transform connectivity for businesses based in remote and rural areas. Over the next few months we will set out our detailed timetable for achieving this goal."*

The commitment of the Scottish Government to deliver superfast broadband to 100% of rural Scotland is welcomed. It should however be noted that speed is not the only requirement. Latency, the delay in exchanging information across the network, is vital for applications that depend on real-time communication and high-resolution images, such as remote medical diagnostics (an area with much potential for rural communities), accessing corporate networks from home, online gaming and other interactive learning and entertainment services.

The reality is that applications with significant benefit to communities, government, health services and local authorities are constrained by networks' ability to support them. Symmetry of connection is also important. While legacy broadband systems offer higher download than upload speeds, as we move towards a digital interactive, upload speeds become equally important. Many rural areas are struggling to keep their communities alive while knowing that superfast broadband would:

- Increase the economic attractiveness of their local region, retain citizens and businesses and attract new businesses;
- Reduce the urban-rural divide by enabling health, education and government services to be delivered online, widening access to services located in cities;
- Reduce rural isolation by allowing direct communication with family, friends and colleagues;
- Increase promotion and consumption of local crafts, foods, trade and performing arts.

Currently a range of projects has been developed to address the problem of enabling rural and remote communities with superfast broadband, including the £412 million Digital Scotland Superfast Broadband Programme, which includes approximately £276 million from the public sector and £126 million from BT.

The Ambition

The Scottish Government set out its policy ambition in January 2012 , to deliver world-class digital access to all of Scotland by 2020.

The interim milestone was a significant uplift in speeds for everyone by 2015, with speeds of 40-80 Mbps for between 85 and 90 % of premises.

SRA is concerned that there is still clear inequity between the digital connectivity in more densely populated areas and that available in rural areas.

Digital Scotland Superfast Broadband (DSSB) Programme

The current programme expected to deliver access to "fibre broadband" to around 85% of premises by March 2016 and 95% of premises by December 2017, when combined with commercial deployment. The programme is delivered through two contracts with BT, one for the Highlands and Islands (HIE) and one for the Rest of Scotland (RoS).

BT's contractual requirement is to build infrastructure that delivers more than 24 Megabits per second (Mbps) to at least 77% of premises involved in these, but does not guarantee the actual speeds premises will receive, citing length of copper cabling and other technical reasons as obstacles. In terms of the BT contract, superfast broadband is considered to be 24 Megabits per second (Mbps) while the telcoms regulator (Ofcom) defines superfast as 30 Mbps +. BT has said that it expects to deliver more than 24 Mbps to 87% of premises.

The Digital Scotland Superfast Broadband (DSSB) programme uses a fibre optic solution to increase the broadband speeds that are available. Most premises are connected to this upgraded fibre network through their existing copper telephone lines.

Where the premises are reasonably close to the newly installed fibre-enabled cabinet, users should see good broadband speeds when they sign up for a new fibre broadband service. However, once homes and businesses are more than 1.5 km from the Superfast cabinet, they will experience a much-reduced service, with those premises furthest away seeing no benefit at all. This 'long lines' issue may also have an impact close to, and within, towns and villages, as the 1.5 km threshold is measured by the existing cable routing, rather than a straight line to the cabinet.

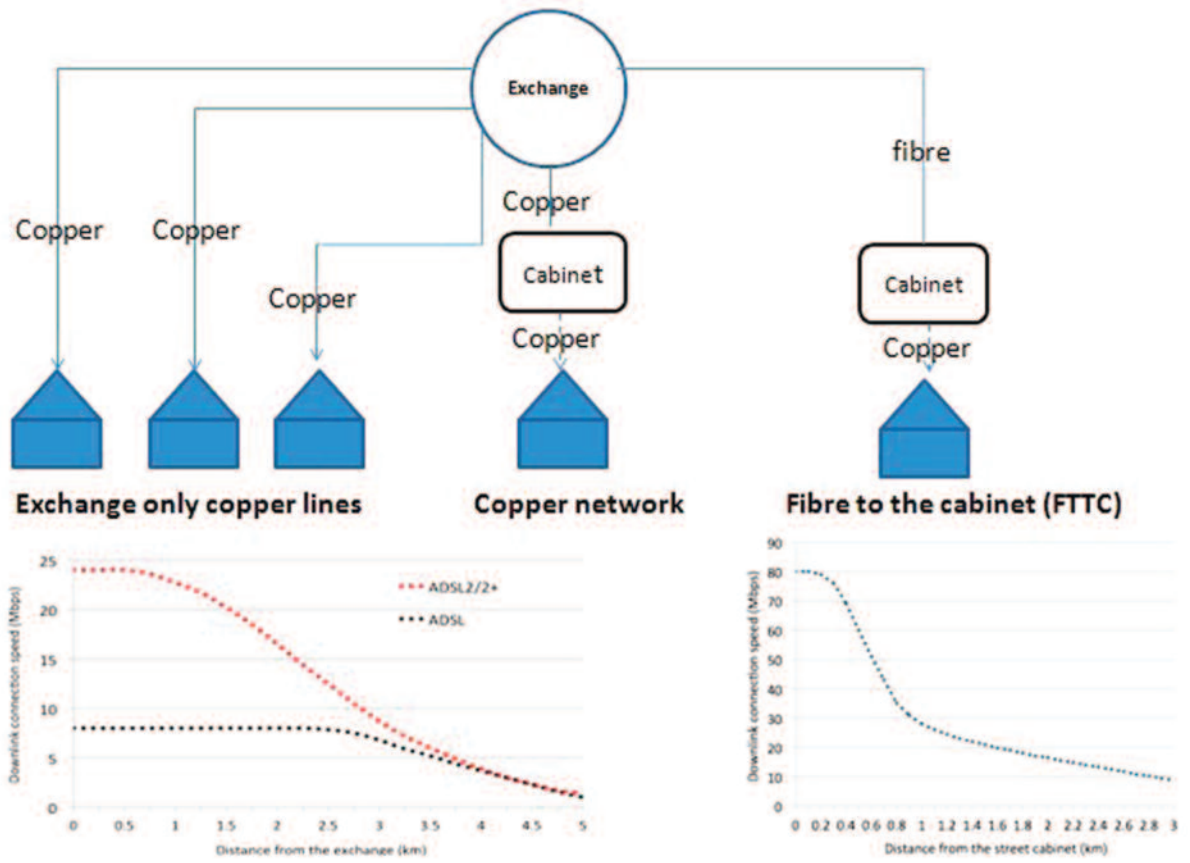

Figure 1. Diagram showing degradation of speed from the exchange and from the fibre cabinet

The Phase 1 DSSB HIE and RoS projects will achieve in the region of 95% access to next generation broadband infrastructure. In Phase 2, uplifting the remaining 5%, plus those not receiving superfast through the two BT contracts, will be demanding because of:

- Fragmented remote rural locations. Phase 1 will have delivered to the great majority of properties through Fibre To The Cabinet (FTTC), leaving many isolated pockets and individual premises that are too small to support a commercially viable superfast broadband infrastructure.

- Large un-served contiguous areas where the boundaries are uncertain, demanding a flexible approach to ensure no gaps remain.

- Isolated slow properties. Although 95% premises may be "passed", BT estimates only 87% will achieve 24 Mbps. This increases the potential gap to be the 5% not included in the BT contracts, plus between 13% (based on BT's estimates) to 23% (based on BT's contractual obligations). To achieve 100% will require further commercial rollout and targeted alternative services to ensure access to superfast speeds and the problem could be bigger than expected and not just confined to rural areas.

Budget constraints and technical challenges meant around 5% of Scotland was not part of the contracted rollout of superfast broadband. To address this, the Scottish Government created Community Broadband Scotland (CBS) with a budget of £16.5 million, to help establish community broadband networks in the hardest to reach areas of Scotland.

Coverage and Post Codes

The nature of the BT contracts in both areas has meant that the access to fibre broadband is supplier led. Proposed coverage is updated quarterly by BT according to their own internal mapping, making it difficult to forecast which areas will have the most need for an alternative approach or community broadband initiative. Given that BT decides where it is going to build and when it is going to announce its planned coverage, plans for community networks depend on BT's response to those plans.

Communities have found it extremely difficult to find out what to expect for their area and projects have been delayed for long periods, years in many cases, trying to find out whether they will be covered or not. Public information does not always tie in with information shared by BT with both Scottish Government and local authorities.

In September 2015, after rural members brought this issue to the fore, Scottish Rural Action met with Scottish Government's Digital Team and BT to discuss members' concerns regarding the conflicting information provided. Subsequently this has been resolved by a new website that pulls information from BT, but there is still dubiety regarding how up-to-date this public information is. The information is not detailed enough to give premises-by-premises guidance and does not show the location of cabinets. This makes it very difficult for communities to know whether they should form a local action group, relax knowing superfast broadband is on its way or campaign for additional cabinets knowing they are too far away from those planned.

At least one community project had postcodes indicative of the DSSB planned coverage as early as March 2014 but was told in 2016 that they had to wait for BT to undertake further modeling to explore how additional Gainshare funding and underspend could be most effectively utilised. This modeling led to further delays and changes in deployment plans across the whole of Scotland.

Unintended consequences of the additional modeling mean that reductions in the size of intervention areas not only makes community broadband projects less attractive during procurement, but also fragments projects, with BT cherry-picking the more populous areas, leaving isolated high-cost properties unconnected. This has the result that potentially sustainable projects, operated either by social enterprises or by commercial organisations on behalf of communities no longer have enough properties to be sustainable.

The SRA Working Group welcomes the news that Scottish Government plans to run an Open Market Review to identify coverage on a premises level, as this will offer a much better understanding of coverage and sustainability of new projects than has existed over the past four years.

State Aid Rules

Public funding is available to communities for investment in broadband networks in areas with no prospect of private sector provision within three years unless State Aid is given. There are conditions attached to this funding, such as speed requirements and open access to network infrastructure for other operators.

This public funding is delivered through three schemes.

1. ***De Minimus.***
   The European Commission considers that public funding to a single recipient of up to €200,000 over a 3 year fiscal period has a negligible impact on trade and competition, and does not require notification. This aid can be given for most purposes, including operating aid, and is not project-related. This ceiling takes into account all public assistance given as de minimis funding for the current and previous two fiscal years which can take various forms (grants, loans, subsidised contracts, etc) and is not appropriate for organisations and communities that already have or plan to run other projects using public money that would bring the total over this amount. One community development worker had to delay her own salary after her community group was faced with cashflow problems, as the Community Broadband Scotland grant had not been explained in advance as de minimis and the organisation had to wait for another de minimis project to expire before being able to draw down funds.

2. ***General Block Exemption Regulations (GBER II Article 52),***
   a scheme for broadband infrastructure funding that has some restrictions including the NGA White, Grey and Black Classification. This was considered to be an appropriate scheme for community projects until 2015, when Community Broadband Scotland made the decision to operate under the new BDUK umbrella scheme, which was not in place yet and despite causing delays of a year to at least one large project, citing more State Aid guidance from BDUK's competency centre and less risk to communities as their reason.

3. ***Broadband Delivery UK (BDUK) Framework.***
   The original umbrella agreement with Europe expired at the end of June 2015, leaving projects in development unable to continue. The expiry was followed by a consultation period meaning that the new framework was not available until June 2016. Projects engaged with Communty Broadband Scotland then had to wait for a new draft template to be agreed by BDUK.

Access to Backhaul

A critical constraint for community broadband networks is access to backhaul and at a reasonable cost. Backhaul is the high capacity link that connects a sub network (community) to the Internet core network.

Communities point to the lack of identifiable, affordable and available backhaul that can be accessed for community or private operations and identify that requests for information about backhaul under the Freedom of Information process are treated differently in the HIE area to the Rest of Scotland, with HIE providing some information and RoS none. Although commercial operators feel that the location of their fibre is sensitive, this information is available to established network providers. Help should be given to community projects to identify all possible backhaul and not be restricted to BT exchanges.

Access to backhaul was discussed at length during the Scottish Government Community Broadband Conference in Aviemore in Spring 2013, but still has not been addressed.

To quote the Scottish Government's Digital Participation A National Framework for Local Action (2014), services available include alternative sources of affordable backhaul for community broadband projects.

It is understood that the Scottish Government requested Community Broadband Scotland (CBS) to develop this initiative, including developing pilot projects, but as yet this project has not progressed, although CBS is re-engaging now with the University of Edinburgh Infomatics team who promoted this approach in 2012, undertaking a research and development project to understand how communities can work collaboratively to create backhaul networks. Once completed this may give an improved understanding of alternative sources of backhaul for community broadband projects, although many communities have been looking at this over the last 4 years.

This is indicative of communities' frustration with Community Broadband Scotland, in that issues have not been addressed, or even where they have been addressed in the past, Community Broadband Scotland has chosen to readdress these issues, not in collaboration with communities, but to promote their own agendae.
Recent recommendations by Ofcom as part of the Business Connectivity Market Review go some way to deliver what is needed, particularly around reducing BT Openreach wholesale prices for leased lines and opening up its dark fibre to competitors. SRA would support efforts to persuade Ofcom that pricing needs to reflect population density rather than be standard throughout the UK.

There are other examples that expand national broadband infrastructure programme to more isolated rural communities, e.g. in Lithuania by installing a broadband 'fibre backbone' across the country. The network infrastructure is owned by the State and managed by a public company. This project established 426 additional access points in prominent rural buildings within these communities, such as farms and rural centres. Communities can then develop the most appropriate local solutions and Internet service providers are able to use this national infrastructure to provide their own services on the private market.

The Scottish Government, Local Authorities and CBS should consider facilitating such an approach for roll out across Scotland including utilising Phase 2 and ERDF funding. A needs assessment also could examine information on the existing and planned infrastructure in rural areas that is or could be used to provide broadband service. For example the masts built as part of the Emergency Services Mobile Communications Programme (ESMCP) may present an opportunity to ensure wider benefits accrue to remote and rural areas not only for improved mobile coverage but also broadband.

Policymakers could consider gathering data on the Internet backbone, Internet access points, including fibre routes and fibre-lit locations; locations of base stations, towers, switches, and data center collocation facilities; and locations of non-communications infrastructure owned by public sector organisations that could support broadband network facilities.

BT Performance and Unintended Consequences

BT's focus for the DSSB programme has been on homes passed (partly as a consequence of FTTC and legacy copper telephone lines) by installing new fibre cabinets in small rural towns/villages and progressively building out towards the hardest to reach areas.

It could be argued that this approach has merit as this has ensured that targets for take up have been exceeded and resulted in a clawback from BT. After public consultation, HIE has signed a change request with BT agreeing additional coverage via gainshare funds, while the Rest of Scotland consultation has just closed.

However the rollout so far included substantial areas already with a functional digital service of 5-10Mbps. Phase 2 funding must be user-needs based and primary attention given to the very hardest places with very poor connectivity and mobile coverage.

In reviewing whether the DSSB programme has been value for money, it is important to analyse the spend from public funds and the funds invested by the contractor, BT. There is some confusion regarding the split between BT Retail, who deliver connectivity to consumers, and BT Openreach, who deliver the fibre infrastructure necessary to provide connectivity. BT is a private company that has benefitted from the DSSB contracts.

Openreach is the BT division that operates the local access infrastructure - such as ducts and poles, the fibre and copper cables that run over/through them, along with the street cabinets and local exchanges - used to provide wholesale access services. Openreach offers wholesale access to other communications providers and to other BT lines of business, with the prices for the majority of its output being capped by Ofcom.

The wholesale access services provided by Openreach include access to the traditional copper cable network, to the fibre network used to provide services to corporate customers and access to the NGA network. It is important to note that BT's capital expenditure has fallen during the life of the DSSB programme (although this expenditure is UK wide, not specific to Scotland and it would be interesting to ask BT Scotland to provide relevant information).

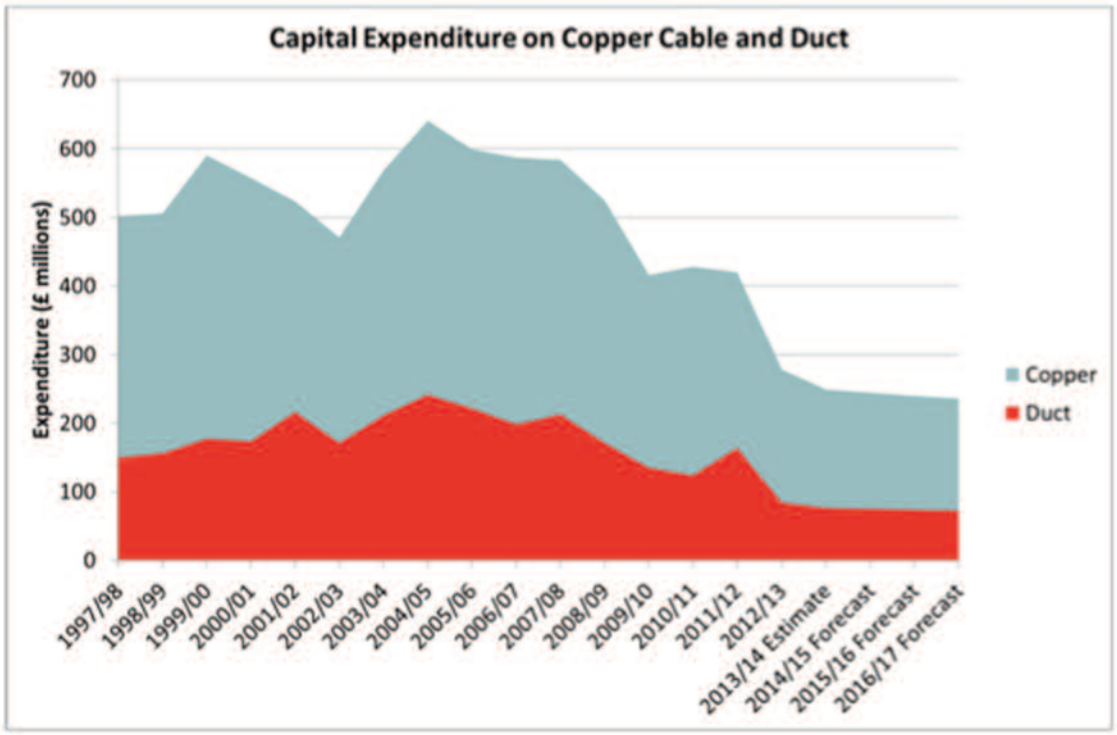

Figure 2. Source: Ofcom Regulatory Asset Value model as in Frontier Economics Ltd's Report

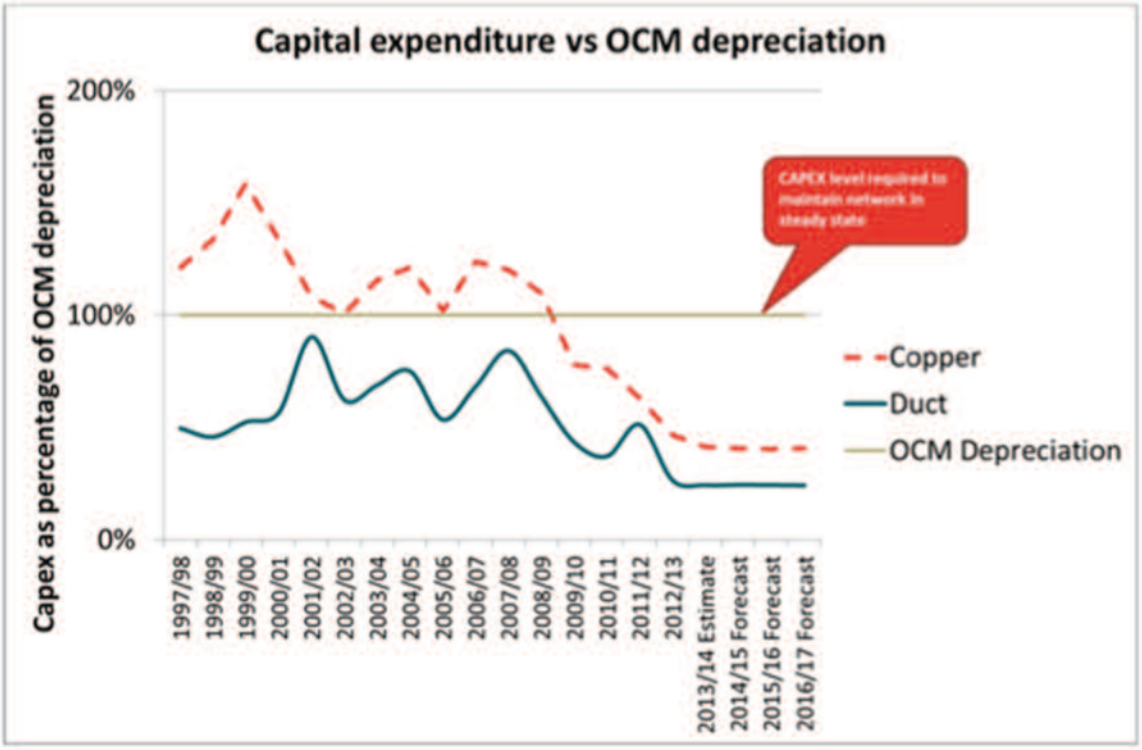

Figure 3. Source: Frontier analysis of Ofcom RAV model

While BT continues to prop up its decaying copper network, it is reducing its expenditure on duct with the result that the net value of its asset base is beginning to decrease. In addition, BT customers report increasing issues with faults to existing services due to the redirection of resources to the NGA rollout.

BT's reduction in expenditure on the copper access network has been followed by significant increases in fault rates on copper lines1. This in turn appears to have resulted in BT's engineering workforce being unable to meet targets for repair and provisioning; with at some points less than half of jobs being completed within target times. Rural communities are particularly hard hit, as an engineer visit to a rural location takes extra time and thus is delayed as much as possible.

The reduced performance of BT's network, such as the increase in the reported fault rate, is also inconsistent with an assumption that the reduction in capital expenditure was due to increased efficiency, as any efficiency gains would have left the quality of the network at least unchanged.

The reduction in investment in the copper access network appears to be neither efficient nor necessarily profit maximising, but instead driven by a desire to maximise cash flow in the short term following difficulties in BT's Global Services division at a time of increased spending on NGA roll out.

This reduction in capital expenditure appears to have led to a reduced quality of service and may, in the long run, lead to an increase in the costs of operating the access network. As such, the reduction in capital expenditure may lead to worse outcomes for end users. Certainly BT customers have reported delayed responses to support requests for phone line issues and a lack of available engineers to respond to callouts.

This decrease in effective support has also been reported to the SRA Working Group, which has noted the comments of the previous BT Openreach CTO,

saying that the fibre cabinet solution is not fit for rural areas, given the degradation of speeds over relatively short distances. In other areas, citizens can order Fibre on Demand, although this is only available from a small number of cabinets in Scotland, all of which are urban. Likewise, future BT strategy based on G-Max, which relies on an even closer connection to fibre , is more suited to urban areas.

Community projects that have tried to get backhaul from BT have experienced 6-month customer on-boarding experiences, only to be told there is no suitable product during a 30-minute conference call.

Those engaging with BT's Community Fibre Partnership's Team have suffered similar disillusion, with responses being tardy or non-existent. It's possible that BT sees this initiative as only suitable in England, as no Scottish groups have received a positive reply.

The misery is not all one-sided. BT Openreach's staff morale is at an all-time low. Employees in Aberdeenshire suffered no holidays and enforced overtime in January to March 2016 in an attempt to deal with backlog.

Community Broadband Scotland

Scottish Government Ministers announced the Community Broadband Scotland (CBS) initiative in August 2012 to provide a one-stop-shop for rural community groups to develop broadband coverage in their areas. A Start-Up Fund amounting to £5 million over a three-year period was created to provide targeted financial support to those communities least likely to benefit from a next generation broadband solution under the Step Change programme.

Highlands and Islands Enterprise was contracted to deliver the CBS programme and six pioneer projects were selected in November 2012 to provide exemplars of varied geography, demographics, technologies and operational models.

The then Deputy First Minister and Cabinet Secretary for Infrastructure, Investment and Cities, (now First Minister) Nicola Sturgeon said:

"Access to broadband is absolutely essential for rural communities like Applecross - both to enhance the quality of life and to stimulate the growth of the local economy.

"The six communities across Scotland to benefit from this first round of funding will act as case studies for future funding rounds."

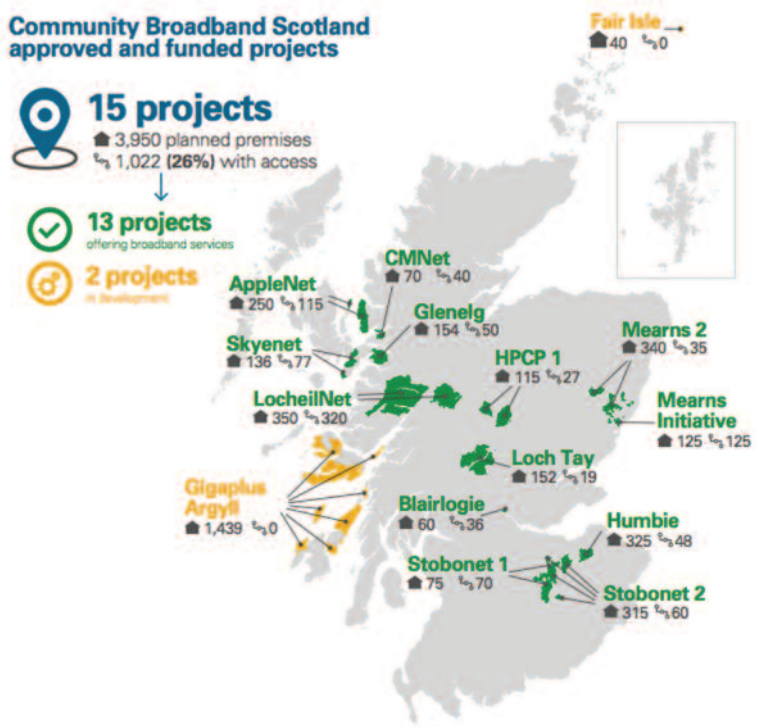

Figure 4. Community Broadband Scotland projects from the Audit Scotland Report August 2016

Community Broadband Scotland was established in 2012/3 with 5 regional advisors reporting to an Operations Manager, overseen by a Director. It has subsequently grown to 18 FTE staff with a tiered structure.

Overall, Community Broadband Scotland has approved funding of £2.1 million towards capital costs, with an additional £400,000 spent for project planning in another 60 projects in the four years since the initiative was launched.

To date, CBS has only assisted 3,950 premises with access to broadband. This is less than half the budget allocated as a Seed Fund for the first three years. Thirteen projects are "live" and actually offering "broadband services". However, most of the connections provided by the CBS programme do not provide superfast broadband and their sustainability and future-proofing is questionable.

At least one of these projects feels that it may need to abandon part of its infrastructure due to high maintenance costs, leaving 10 of its most isolated households with no access at all. Similarly the additional backhaul provision contracted through BT has still not been activated, meaning that additional subscribers cannot be connected and adversely affecting an infrastructure that needed all households to be included for sustainability. Others are concerned that CBS has told them they will need to raise £100,000 for procurement/legal fees, in addition to CBS funding.

With the exception of the Gigaplus Argyle project (1,439 connections), CBS has focused on smaller projects that can create quick wins, with some being delivered through "de minimis" State Aid. Only superfast broadband community projects will be descoped from commercial rollout so these projects risk being fully or partially absorbed, creating insustainability and possible loss of rural jobs.

Some of the pioneer projects have been in the pipeline for more than 3 years without significant progress and other communities working with CBS report similar frustrations with the timescales.

The CBS model requires extensive commitment by communities and their volunteers, especially in larger projects. The dedication required and long timescales have resulted in volunteer cynicism, disillusionment and attrition, despite many of these seasoned volunteers having delivered large projects before and being aware of the pitfalls.

Some of the community projects regret that they were enticed into the CBS programme by the thought of "free funding" and that their projects would have been delivered more quickly had they looked at other models. They point to the time

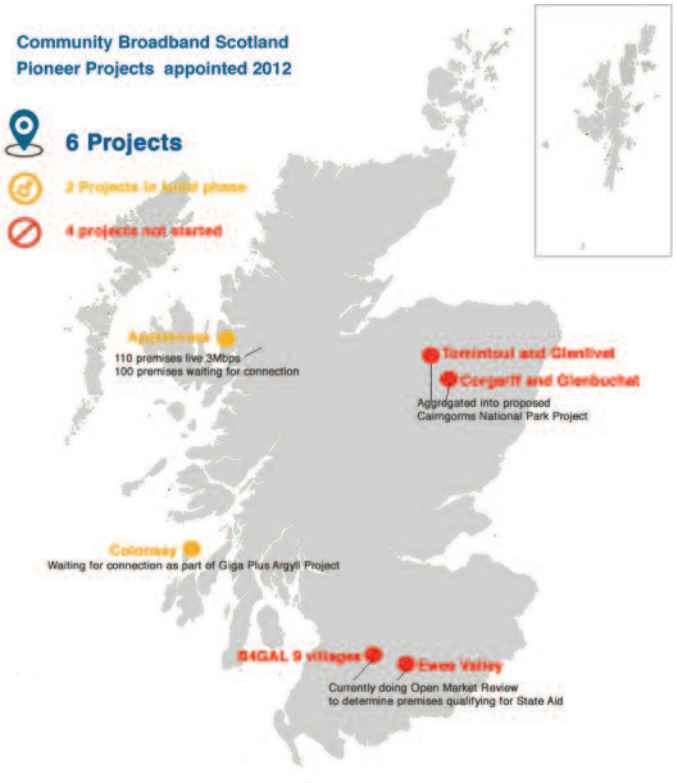

Figure 5. CBS Pioneer Projects status as at August 2016, nearly four years on

already invested in the CBS process as to the reason they remain within the programme. Likewise some feel that CBS gave them poor advice that led to unnecessary difficulties.

It is laudable that Community Broadband Scotland was created "to inspire, support and empower remote and rural communities across Scotland to establish community broadband networks".

However since its creation in 2012, it has had limited success and there is a high degree of frustration with timescales and bureaucracy within groups it has engaged with. For example B4GAL, an original CBS pioneer project in rural South Lanarkshire, has been trying for 4 years to progress its project, despite having access to commercial backhaul and a sustainable business model.

Those projects actively engaged with CBS report various difficulties in working within the CBS process, both where the community volunteers have significant expertise and experience in the delivery of telecommunications networks and those with little technical knowledge but great community engagement and support. Both types of projects are treated in the same way, despite having very different needs, creating duplication of effort and unnecessary expense. For some projects, actual engagement with their CBS advisors is limited, with communications spread out over months.

Group members suggest that poor communications and lack of respect for the work of volunteers create unnecessary obstacles for community projects. CBS has briefed communities about projects without the knowledge or presence of the Project Owners, creating confusion and tensions between potential network operators and their subscribers. Those projects currently in Open Market Review found out that "their" OMRs had been extended (by CBS at the request of a commercial provider) by reading this on the Community Broadband Scotland website, rather than having been consulted or informed by CBS in advance. CBS has also engaged with suppliers using inaccurate plans of project areas and setting a price

for projects with no consultation with communities prior to procurement.

There does not seem to be any rationale behind the pricing policy, as some smaller projects are quoted at a higher price than those with more properties. By quoting prices prior to procurement, CBS seems to be suggesting technical solutions in contravention of the technology-neutral rules of EU State Aid.

Community Broadband Scotland responds that it has only engaged with suppliers at a conference in January 2016 where very broad outlines of project areas were presented to stimulate the interests of those suppliers in bidding for community projects, but a letter and survey regarding potential engagement was sent out on 5th April 2016 specifying terms of engagement and asking suppliers to state their preferred funding model.

Communities respond that they were already engaged with suppliers prior and during this process

Project	Size (properties)	Value £	Cost per property £
Ardnamurchan	105	80,000	762
Ardross	100	150,000	1,500
B4GAL	500	1,400,000	2,800
Brig o' Turk Ttrossachs)	120	110,000	917
Cairngorms National Park	1,653	1,500,000	907
East Lothian	1,400	1,246,000	890
Ettrick Valley	1,200	1,068,000	890
Fair Isle	33	220,000	6,667
Fife Aggregated	705	715,000	1,014
Helmsdale	81	200,000	2,469
North Skye	1,700	1,500,000	882
Rural Stirling	300	140,000	467

and that the CBS involvement has not been helpful in negotiation, especially as it set prices without any real understanding of the issues involved. Some projects now look less attractive to suppliers based on low costs set per property.

This is absolutely at odds with normal procurement practices and CBS must explain the list of suppliers with whom they engaged in this manner and why.

CBS had been thought to use a base rule of £1000 per property to assess projects. This does not seem to be the case with the projects they showcased at their conference in January 2016, which was held without the authorisation of the projects concerned. SRA would seek to gain understanding of the model being used, given its importance towards the viability of rural broadband projects. CBS has responded that each community is required to develop an outline business case to give an indication to suppliers about the scale of each project, but the figures used do not agree with those in communities' business plans either.

Many projects arrived at the start of the Community Broadband Scotland programme with a full understanding of the needs of their community and potential solutions. The type of help that a community project needs varies widely, with some looking only for funding, while others need technical solutions or business planning assistance. Individuals who volunteer for community broadband projects are taking on big responsibilities and need to feel that appropriate support is available and that they can have confidence reporting timescales and processes back to their communities.

According to Audit Scotland's report (August 2106), there are more projects in the "development pipeline" than CBS has budget for, although many of these are at a very early stage and it is not clear if they will be delivered. Community volunteers have not been advised whether or not funding will be available to them, even though they are being asked to carry out considerable work.

Early projects expected to become social enterprise network operators, delivering not only broadband, but local jobs and community benefit, while the current model leans towards aggregating smaller projects into commercially viable regional networks tendered to large companies from outside the locality and with little input from or benefit to the community.

If the aim is to facilitate the aggregation and delivery of commercial services, a different approach than the Community Broadband Scotland programme is likely to be more productive and cost effective, as well as less stressful for fragile communities.

Three years on, there seems to have been little accountability from Community Broadband Scotland and its managing authority, certainly not to the communities it exists to serve. The drastic underspend of its allocated seed fund money, and the large increase in staff numbers, points to an organisation without a clear understanding of the work it is supposed to carry out. There has been no oversight by competent authorities or individuals on behalf of their own organisations.

Looking at the 1,022 premises connected over more than 3 years by Community Broadband Scotland to date, or even adding in those premises planned giving a grand total of 3,950, it is evident that the CBS model is not delivering for rural communities that need superfast broadband now, to boost the rural economy, prevent further depopulation and keep more young people from leaving.

Further, it is clear that the First Minister's ambition of superfast broadband for 100% of Scotland by 2021 cannot be achieved through leaving the 5% in Community Broadband Scotland's hands.

Next Steps

Scotland has been allocated a further £21 million from the UK Government's Broadband Delivery UK initiative to extend superfast broadband beyond the current predicted coverage levels. This Phase 2 (now known as "Reaching 100%") money will be matched by the Scottish Government, freeing up a further £42 million to increase the number of premises with access to Superfast Broadband. Work is on-going to determine the best way to invest this money to deliver improved connectivity and maximum benefits for Scotland.

There are major obstacles, primarily the constraints of identifying white postcodes, the State Aid process (including the delay in new BDUK framework), technical challenges, onerous procurement processes and communities' ability to secure development funding. Currently, it can take several years to go through the full process including a 9-month procurement for "aggregated" projects. During this time people are leaving our rural communities, resulting in empty homes and damaged businesses. There is an opportunity to evaluate alternative approaches and to be creative in delivering community projects, but the current landscape does not support innovation.

There are other examples of national broadband infrastructure programmes to more isolated rural communities, including Lithuania, which installed a broadband 'fibre backbone' across the country. The network infrastructure is owned by the State and managed by a public company. This project established 426 additional access points in prominent rural buildings within these communities, such as farms and rural centres. Communities can then develop the most appropriate local solutions and Internet service providers are able to use this national infrastructure to provide their own services on the private market. The Scottish Government should consider facilitating such an approach for roll out across Scotland including utilising Phase 2 and ERDF funding.

Communities should also look at other models for funding their broadband projects that do not depend upon State Aid. Other successful projects in the UK include community share offerings, privately funded networks and a combination of grant and loan funding.

The pause for Scottish Government's planned national Open Market Review, by property rather than postcode, provides an excellent opportunity to review strategy and acknowledge where current practice is not working. This is the time to accept that BT has misjudged its strategy and that copper-reliant technology will no longer meet the needs of Scottish rural communities.

Fibre to the Cabinet is an inefficient methodology in rural communities and the red herring of VDSL is fit only to provide BT with a way to continue to leverage its monopoly of copper exchange lines.

Rural Scotland's economy will face many challenges in the next few years and there is uncertainty over future business support, especially in the agricultural sector and in rural development post-Brexit.

The Scottish Government needs to ensure that rural connectivity is not an additional challenge, by establishing an ultrafast model (defined by Ofcom as more than 300 Mbps) for the most remote and rural areas, supporting real futureproof networks so that the rural area will not be marginalised again in 10 years, by which time all applications will be designed for hyper networks.

There is a greater socio-economic need for ultrafast in rural and fragile areas than in cities and urban areas, which will be covered commercially anyway.

Any future plans must include guidance that maximises the re-usability of any public investment and should set clear definitions for upgradability, future-proofing and extensibility.

Recommendations from Rural Communities

The SRA Broadband Working Group makes the following recommendations.

1. The Scottish Government should redirect resources to quickly facilitate the provision of community/national backhaul, local backbone networks and community hubs to support access networks. This will prime the pump for Internet Service Providers to provide connectivity either commercially or through community projects, possibly including State Aid funded projects.

2. The Scottish Government, having made the commitment to reach 100% super-fast coverage, should accept that this is a stepping stone to ultra-fast speeds and ensure that there are clear upgrade paths available to all rural networks.

3. Rural communities should be supported through access to specialist advice according to their needs. This might include business planning, technical advice, help with funding, legal guidance regarding way leaves and other support. There needs to be a mechanism for accessing this support and sharing knowledge amongst community projects in a collaborative way, and not through the current Community Broadband Scotland approach, which has blocked many projects rather than facilitate them.

4. Existing rural broadband and rural initiatives and resources should be coordinated to best respond to rural broadband requirements and overcome obstacles that currently impede rural broadband deployment. These should be addressed and managed by the team responsible for reaching 100%, as a singly managed project, with clear accountability for delivery.

5. There should be a Scottish Broadband Conference, using an Open Space type of facilitation, that brings together all stakeholders, including Scottish Government, community projects, network providers and suppliers, to evaluate the status quo and share views and solutions.