The Highland Council

Agenda Item	**4**
Report No	**HC/17/25**

Committee: **Highland Council**

Date: **29 May 2025**

Report Title: **Digital Connectivity**

Report By: **Assistant Chief Executive (Place) and Assistant Chief Executive (Corporate)**

1. Purpose/Executive Summary

1.1 There are a number of national digital infrastructure and related initiatives which are being rolled out which have significant consequences for the Highland area. Most recent figures suggest that 16% of people in the Highlands do not have access to digital broadband. This is estimated to be over 40,000 Highland residents, mainly in rural areas furthest from urban connectivity. The issue for Highland communities is that they are harder for the national programmes to reach.

For the avoidance of doubt, this report focusses on projects relating to the rollout of digital infrastructure and the parallel switch-off of legacy analogue infrastructure.

1.2 Members are advised that there has not been an integrated approach to programming the roll out of these streams of work up until this point, with no real engagement with Highland Council on the issue.

1.3 It is shown in this report that there is an interdependency between these projects and changes and the cumulative effect upon Highland communities, particularly more vulnerable people, could be significant. Taken in combination, there are also concerns about community and organisational resilience.

1.4 The initiatives are:

1. The Public Switched Telephone Network (PSTN) which is being retired within the UK in January 2027.
2. Radio Teleswitch Service (RTS) switch-off, affecting certain older electricity supply meters, on June 30 2025.
3. Scottish Government-led programmes under the title Digital Scotland Superfast Broadband (DSSB) such as Reaching 100% (R100).
4. UK Government-led connectivity programmes such as the Shared Rural Network (SRN) aimed at improving mobile connectivity, particularly in rural areas, and Project Gigabit, aimed at enabling gigabit-speed broadband for harder to reach areas.

1.5 Energy infrastructure and retail markets, including the RTS switch-off and smart metering, are fully reserved to the UK Government and regulated by Ofgem. Broadband and telecoms is also a fully reserved matter, although The Scottish Government is able to make their own investment to improve provision. Mobile and broadband connectivity is regulated by Ofcom.

1.6 Although the initiatives span a number of areas - telephone network, electricity metering and broadband – they are all related in that they rely on digital connectivity and will have a combined impact on Highland communities.

1.7 Clearly, these programmes will be easier to complete and finish in more urban areas. the programmes have been managed separately up until this point, but there were updates to the recent Convention of the Highlands and Islands (COHI) from officials of UK Government and Scottish Government on them.

1.8 This paper provides Members with information on the areas of activity described above and asks them to approve a number of recommendations designed to highlight the challenges that these programmes create, including potential resilience issues if the programmes do not complete timeously.

2. Recommendations

2.1 Members are asked to:

i. **Note** the current position with regard to digital activity across the Highland Area;
ii. **Agree** that the Council Leader writes to UK Government to highlight the very real concerns expressed through COHI about the potential impacts on households in the Highlands;
iii. **Agree** that the Council approach HIE and seek their support for the establishment and management of a short life officer task group to manage and mitigate issues in the run up and following the RTS switch off in June 2025.

3. Implications

3.1 Resource: There are no direct resource implications for the Council relating to the RTS switch-off. There are potential implications for Highland communities as detailed in this report.

3.2 Legal: There are no direct legal implications resulting from this report.

3.3 Risk: Action is being taken to ensure Council PSTN services are migrated to alternative provision in advance of the PSTN switch-off. As detailed in this report, the move from PSTN has potential resilience implications for the Council and Highland communities.

3.4 Health and Safety (risks arising from changes to plant, equipment, process, or people): There are no direct Health and Safety implications resulting from this report for the Council. However, Members should note the risks to Highland communities in the event of a power cut following PSTN switch-off.

3.5 Gaelic: There are no direct Gaelic implications resulting from this report.

4. Impacts

4.1 In Highland, all policies, strategies or service changes are subject to an integrated screening for impact for Equalities, Poverty and Human Rights, Children's Rights and Wellbeing, Climate Change, Islands and Mainland Rural Communities, and Data Protection. Where identified as required, a full impact assessment will be undertaken.

4.2 Considering impacts is a core part of the decision-making process and needs to inform the decision-making process. When taking any decision, Members must give due regard to the findings of any assessment.

5. Implications for Highland Residents and Businesses

5.1 This report aims to highlight to Members that there are relationships between all the programmes covered. Digital and mobile connectivity is the critical thread running through the projects.

- PSTN will be replaced by phone services relying on the Internet.
- Smart meters to replace RTS require a mobile signal to operate.
- Scottish and UK Government initiatives are helping to address connectivity challenges but are running slower in the Highlands than other parts of Scotland. There are also likely to be a higher proportion of properties that will be reliant of satellite broadband as the only possible option.

5.2 Both individually and in combination, these projects are likely to be having a proportionally greater negative impact on those people who are more vulnerable, less well off, living in more rural areas and less digitally aware. These people could be in a situation where they will struggle to maintain telephone access, face difficulties with heating, incur additional costs for heating and be disproportionately affected by a reliance on more expensive and less resilient broadband options.

5.3 PSTN switch-off will result in concerns about resilient communications for residents and businesses in areas more prone to power cuts. All broadband technologies will be affected to some extent by power cuts, with 4G options potentially running for longer assuming mobile phones are charged up and backup generators at mobile mast sites operate correctly. An Ofcom report in February 2025 estimated that it would cost £1bn to improve power resilience at UK mobile masts to maintain access to emergency services for up to 4 hours for "almost everybody".

5.4 It is estimated that around two thirds of the population would be able to make mobile emergency calls for up to 1 hour after a power failure under current provisions.

5.5 In contrast, the BT telephone exchanges running PSTN generally have at least 24 hours of standby power with some areas having even greater resiliency and lasting longer than that.

6. PSTN Switch-off

6.1 The planned switch off (sometimes called analogue switch off) of the Public Switched Telephone Network (PSTN) is due to take place in **January 2027**.

6.2 The PSTN is a privately-owned telecoms network, and the decision to upgrade it has been taken by the telecoms industry. This industry decision to upgrade the PSTN is due to necessity, as the network is becoming increasingly unreliable and prone to failure. BT Group has taken the decision to retire its PSTN by January 2027, and this means other providers which use BT's network must follow the same timescale. Other companies with their own fixed networks plan to follow a similar timescale.

6.3 PSTN analogue landline telephones date back to the 19th Century in the UK and until recently were the commonest type of telephone in use. Although digital cordless (DECT) telephones have been widely used for some years, these also connect to the analogue PSTN network via a base station. Analogue telephones generally are provided with power over the copper line into the premises, although functionality such as answering machines or cordless base stations do require additional power from a socket. Power to the telephone exchanges tends to be maintained with backup facilities, so in the event of a power cut analogue telephones can potentially continue to operate for some time.

6.4 In the run-up to PSTN switch-off, traditional landline voice telephone services will be replaced with digital Voice Over Internet Protocol (VoIP) services, which operate using broadband. These digital services operate over the internet and do, therefore, rely on digital connectivity to operate. They also require power in the premises and so will not operate during a power cut unless provided with a battery backup or a mobile phone alternative. For many people this will introduce a level of complexity and uncertainty, compared to a conventional analogue landline phone, that will be new to them.

6.5 In a recent update, Openreach (who are a subsidiary of BT Group and manage copper and fibre connections to homes and businesses) has acknowledged that some, particularly those living in rural and island communities, are concerned about the new landline services. For customers who don't or can't yet access broadband at home, Openreach are introducing a new dedicated landline service as an interim solution. This won't require any in-home changes and will continue to provide access to a powered line. There will be a temporary product available from BT, and it is expected to remain in place until 2030. However, for properties which cannot access a fixed broadband connection this would have to be enabled using 4G/5G mobile or satellite technology, noting that 4G does not cover all Highland communities and 5G still has very limited coverage.

6.6 The PSTN migration does not affect the Universal Service Obligations which requires designated providers to offer telephony services throughout the UK, and all providers will remain bound by their existing statutory responsibilities. Ofcom, the independent telecoms regulator, has issued guidance on how telecoms companies, including BT for Digital Voice, can fulfil their regulatory obligation to ensure that their VoIP customers have access to the emergency services in such circumstances.

6.7 This guidance states that providers should have at least one solution available that enables access to emergency organisations for a minimum of one hour in the event of a power outage in the premises. The solution should be suitable for the needs of the customer and should be offered free of charge to those who are vulnerable and are dependent on their landline telephone.

No telecare users will be migrated to digital landline services without us, the customer, or the telecare company confirming that they have a compatible and functioning telecare solution in place. Where battery back-up solutions are provided, we will work to provide solutions that go beyond the Ofcom minimum of 1 hour of continued, uninterrupted access to emergency services in the event of a power outage. We will collectively work with Ofcom and Government to create a shared definition of 'vulnerable' customer groups that require greater support, specific to the digital landline migration. We will conduct additional checks on customers who have already been non-voluntarily migrated to ensure they do not have telecare devices we were unaware of, and if they do, ensure suitable support is provided

6.8 Members should note that the Ofcom minimum resilient backup period is just 1 hour, and power cuts can continue for days. Even 24 hours of battery backup will not be sufficient for some communities that are more likely to experience regular power cuts.

7. RTS Switch-off

7.1 The Radio Teleswitch Service (RTS) will be switched off on **30 June 2025**. The switch-off has been repeatedly postponed for several years but the confirmed public announcement of this switch-off was in October 2024, leaving just 9 months for energy suppliers to complete their programme. In October 2024 there were approximately 800,000 RTS meters in Great Britain.

7.2 RTS is a technology, introduced in the 1980s, which uses a radio signal to control some older electricity meters to switch on and off between peak and off-peak rates. This enables customers to make use of differential rates to provide cheaper electricity, primarily for heating. Examples of such tariffs are Economy 7 and Total Heat Total Control. The RTS equipment is now at the end of its operational life and can no longer be maintained.

7.3 Consumers have been encouraged to contact their energy supplier if they think they have an RTS meter, although there are concerns that energy suppliers have not been suitably pro-active in approaching consumers. A replacement smart meter should be supplied free of charge, and this will enable differential peak/off-peak charging to continue in some form.

7.4 Even if an area has poor signal, suppliers must still replace RTS meters to ensure service provision is not disrupted. There are two main solutions in areas with poor signal.

- Installation of a 4G Communications Hub when replacing an RTS meter and the smart meter cannot connect without one. This will facilitate a functioning and connected smart meter.
- Install a meter with tariff pre-programmed, requiring manual readings to be submitted. This will not provide the full benefits of a smart meter, but service provision will continue to work.

7.5 The consequence of an RTS meter not being replaced by 30 June 2025 is variable from little impact to a significant impact. It may mean that room and hot water heating is left permanently on or off meaning that the charging up of storage heaters takes place at the wrong time of day. For the consumer this could mean no heating or hot water, or higher costs after RTS switch-off. Additionally, after moving to a smart meter, there may be limitations on the economy tariffs available to the consumer, leading to higher costs.

7.6 A number of public and private support agencies have expressed concern that the large amount of required meter replacements across Scotland and the UK may impact heating or hot water provision for many households after the deadline passes. The most recent UK Government figures show around 139,000 RTS meters were still in use across Scotland as of March 7, including more than 47,000 in the Highlands and Islands. By the end of April, 135,000 meters remained, suggesting the rate of replacement is not keeping up with demand.

7.7 Energy suppliers have been encouraged to increase the pace of the replacement of RTS meters across Scotland, particularly in the most-affected rural areas.

7.8 The Council issued a news article in April 2025 providing information and guidance on the matter (https://www.highland.gov.uk/news/article/16576/the_closure_of_radio_teleswitching_explained).

7.9 As a general awareness programme, the Housing Service has also notified all tenants over the last 2 years, as utility companies hold responsibility for initiating the meter replacement and issuing associated information.

7.10 At a recent meeting of the Convention of the Highlands and Islands significant concerns were raised regarding the forthcoming Radio Teleswitch Service (RTS) switch-off. This transition is expected to disproportionately affect households across the Highlands and Islands, where reliance on electric heating is more prevalent due to limited access to the gas grid. Compounding the Issue, poor 4G and mobile data connectivity in many rural areas undermines the viability of smart meter installations.

7.11 It is estimated that up to 30,000 households across the region could be adversely affected.

- **Impact on electricity tariffs and Services**:
  - RTS has historically been used to control the timing of off-peak electricity tariffs such as Economy 7 and Economy 10. Its removal could disrupt:
    - The charging schedules for storage heaters.
    - Water heating systems dependant on controlled load periods.
  - Overall tariff structures that help reduce energy costs for off-peak users.
  - **Impact on Vulnerable Groups**: Elderly and low-income residents are particularly at risk if heating becomes less affordable or reliable.

- **Increased Costs and Infrastructure Challenges**

  Without RTS, households may need to switch to smart meters and alternative time-of-use tariffs. This could lead to higher energy bills and costly equipment upgrades. In areas with poor mobile coverage, smart meters may not work reliably or be installable at all, making the transition especially difficult.

- **Disproportionate Impact on Vulnerable Groups**

  Elderly residents, low-income households, and those living in remote areas are especially vulnerable. Any reduction in affordability or reliability of electric heating and hot water services could lead to increased fuel poverty and a heightened risk of cold-related health issues.

8. Scottish Government Led Connectivity Programmes

8.1 The Scottish Government is running several projects aimed at improving digital connectivity, specifically faster broadband access for homes and businesses, and improved mobile services. Projects include:

- Reaching 100% Programme – R100 – aiming to provide every home and business in Scotland with access to broadband speeds of at least 30Mbps.
- Scottish Broadband Voucher Scheme – SBVS – providing subsidies up to £5,000 to help eligible properties install faster broadband, covering installation costs from registered suppliers.
- Scottish 4G Infill Programme – S4GI – improving access to mobile services, particularly in areas with poor coverage.
- Connecting Scotland – providing internet-enabled devices, connectivity and digital skills support to those who are digitally excluded.

8.2 **R100** is a £600m project that was launched in May 2016 with the aim of providing "superfast" broadband to every home and business in Scotland by the end of 2021. "Superfast" was defined in 2016 as speeds higher than 30Mbps, noting that this is probably no longer seen as a particularly fast speed, particularly for larger households and businesses. It was estimated that 113,000 properties would be connected through R100, split across 3 geographical areas – North, Central and South, defined by postcode areas, with Highland falling entirely within North.

8.3 R100 is being delivered via 3 routes:

- Scottish Government contracts with Openreach.
- Planned commercial investment by a variety of broadband providers.
- SBVS providing funding for properties not covered by the above.

8.4 By March 2025, 78,000 premises had been connected (69% of the total). Approximately 23,000 of these are in the North area. The table below shows a more detailed progress update dating from January 2025, when the North total a bit less at 21,509. The table clearly shows that progress in the North has been significantly less than the other areas.

R100 Rollout Progress (Jan 2025)

Contract area	Total premises for delivery in the R100 contracts	R100 contract premises delivered	R100 SBVS premises delivered
Central	30,287	25,292	1,243
North	60,764	21,509	3,065
South	21,889	22,750	601
Total	**112,940**	**69,551**	**4,909**

8.5 **SBVS** provides subsidies of up to £5,000 per property for direct install costs with registered broadband suppliers. Eligible properties will have a current broadband speed less than 30Mbps and will not be included in R100 plans. Householders and business owners have to apply for a voucher. When the voucher is approved, they then have to identify a suitable supplier, of which there are 19 covering Highland out of a total of 40 in Scotland and arrange for an install.

8.6 The voucher can be used towards installs for full fibre, fixed wireless, fixed mobile or satellite broadband. Any cost over £5,000 has to be covered by the applicant. There is no support towards the ongoing monthly costs – a significant point as the services available to these harder to reach properties are limited and often cost more than services in areas with more competition. The average monthly broadband cost in the UK is around £29.60. Starlink satellite broadband, for instance, costs £75 per month. Another issue with SBVS is that some properties which are eligible would cost too much over the £5,000 limit for either the applicant or for a commercial provider to fund. There will also be circumstances where the location, costs and lack of suitable suppliers will significantly limit the type of broadband that is available. For Highland this will usually mean broadband limited to fixed 4G mobile or Low Earth Orbit (LEO) Satellite, such as Starlink. Although these technologies can provide a good broadband service, there are limitations. 4G coverage is limited in some areas. Both 4G and LEO require either a good sightline to a 4G cell mast or an unrestricted view of the sky. Tree cover can severely reduce performance.

8.7 **S4GI** is a £28m project delivering 4G mobile coverage to 55 mobile “notspots” in rural and island parts of Scotland. Activity in the Highlands and Islands was part-funded by the European Regional Development Fund. All the 55 planned mobile masts have now been delivered and are live. 17 of these are in Highland.

8.8 The map in **Appendix 1** shows the “notspot” areas covered by S4GI.

8.9 4G coverage is important, not just for mobile telephony, but also, as covered in this report, for smart meter connectivity and as a broadband option for properties not able to access wired or fibre broadband. As a broadband technology, 4G is more critical in rural areas and for isolated properties. Coverage is also not the only critical factor for 4G broadband. When a lot of phones or broadband connections are accessing the same mast concurrently, there can be a very significant decrease in performance known as contention. Although this might be less critical for mobile phones, it can make the use of Teams (or similar tools) for home working or streaming of content very difficult. It has been seen that large numbers of visitors in an area can add to this contention.

8.10 **Connecting Scotland** is a Scottish Government programme, delivered in partnership with the Scottish Council for Voluntary Organisations (SCVO). It aims to provide devices, connectivity and support for people who are digitally excluded. Over 61,000 devices have been issued since May 2020. Although not directly providing any new connectivity infrastructure, the programme is supporting those people who have access to broadband but need assistance to make use of it.

9. UK Government Led Connectivity Programmes

9.1 There are 2 UK Government initiatives that are relevant for this report.

- Project Gigabit – a programme aimed at providing gigabit-capable broadband to hard-to-reach areas that private investment will not reach.

- Shared Rural Network – SRN – a £1bn project in conjunction with mobile operators – EE, O2, Three and Vodafone – aimed at increasing mobile coverage.

9.2 **Project Gigabit** – is a £5bn investment across UK managed by Broadband UK (BDUK). In Scotland this runs in conjunction with R100, providing additional funding on top of Scottish Government funding. Whereas R100 aims to provide broadband coverage of at least 30Mbps to properties where it is not yet available, Project Gigabit aims to provide increased speeds (1,000Mbps+) in areas where such developments are not commercially viable. There are areas of overlap where the combined funding will bring additional benefit to the Highlands.

9.3 **SRN** – was announced in 2020 with the aim to provide 4G mobile coverage to 95% of the UK landmass by the end of 2025, with a £1b investment. The biggest improvements were expected to be in rural parts of Scotland, Wales and Northern Ireland. In September 2024, it was announced that 94.9% pf the UK landmass the had mobile coverage from at least 1 operator. Areas with coverage from all 4 operators had increased from 66% to 84%.

10. Conclusions and Next Steps

10.1 Members are asked to note the potential serious implications for Highland residents from the changes that are outlined in this report, noting the interdependency and cumulative effect of these projects. It is fundamental that greater clarity and support is offered to mitigate any of the impacts that may arise. Due to the immediate timing of the RTS switch-off and the imminent PSTN switch-off, we cannot wait for action to be taken.

10.2 Taken in combination, there are implications for resilience for communities and organisations. To mitigate there needs to be more effective inter-governmental resilience planning, particularly considering the effect of the greater likelihood of power cuts in rural areas.

10.3 It is important that agencies collaborate effectively, and it is recommended that a short life task group is set up between HIE (who take the lead on digital matters for the Highlands and Islands) and the Council, along with other relevant stakeholders to ensure that a full understanding of predicted and actual impacts can be managed as a resilience issue.

10.4 Reassurance from UK Government in respect of the RTS switch off is paramount in terms of timing. Reassurance is also required from both UK and Scottish Governments in relation to the telecommunications changes and projects. To date, Highland Council have not had a direct input at a senior officer or political level and this is now required. It is therefore recommended that Members agree that the Council Leader write immediately to the Minister responsible to seek these reassurances.

Designation: Assistant Chief Executive (Place) and Assistant Chief Executive (Corporate)

Date: 23/05/2025

Authors: Malcolm Macleod – Assistant Chief Executive (Place)
Jon Shepherd – Chief Officer (Business Solutions)
Neil Osborne – Climate Change Manager

Appendices: Appendix 1 - Scottish 4G Infill Coverage

Appendix 1 – Scottish 4G Infill Coverage Map