

Northern Ireland £150 Million for Broadband: “Towards an All-Fibre Access Network”

**DRAFT Project Proposal – Ideas &
Solutions (For Discussion)**



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1. INTRODUCTION

1.1 This paper outlines a possible approach to securing a widespread deployment of a Direct Fibre Access service for all of Northern Ireland, where it is demanded, and using the £150m earmarked for Broadband in the DUP / Conservative Party election agreement.

2. CONTEXT

2.1 This unlikely proposal begins with the indifferent response, from a policy perspective to ICBAN's initial 'Fibre at Crossroads – Part I' report, where the call for more fibre access was largely rejected as over-ambitious and too expensive in the winter of 2016. The ongoing efforts of many contributed to an election agreement between the DUP and Conservatives which then included some £150m to support 'Ultrafast' broadband for those so far excluded from the subsidised and commercial upgrades. ICBAN and Councils were part of that effort. This change in circumstance now requires a change in policy by DfE and a change in how the network upgrades are delivered.

2.2 The £150m is a generous amount to address the some 80,000 to 100,000 NI premises which cannot access a superfast broadband service. It compares with the £64m of public funds made available to date to support upgrades to some 425k premises, with the remainder covered by BT's commercial investment.

3. BACKGROUND

3.1 The upgrading of the UK and Northern Ireland telephone network to support better broadband connectivity has been controversial. The dominant network provider, BT, had insufficient competitive pressure to invest in upgrades and so has relied on some £64m in subsidies in Northern Ireland to provide coverage to more than 55% of NI premises. It has not been possible to verify BT's commercial investment or the actual amount used in the subsidised programmes¹. In ICBAN's second report, 'Fibre at a Crossroads – Part II' (whose methodology was subsequently copied by Vodafone in a lengthy submission to Ofcom), it showed the available public subsidy was widely used in areas considered commercial at the expense of a more complete rollout in rural areas.

3.2 The growing frustration with BT Group has led to the UK Parliament calling for and Ofcom responding by separating Openreach from the rest of BT group. It is not yet clear the extent to which this is being applied in Northern Ireland or indeed the benefit of doing so, but it shows there is an appetite for increased accountability. Furthermore, ongoing scrutiny of the BDUK scheme since 2013 by Scottish, Welsh and National audit functions, along with the clawback measures put in place, has resulted in a Capital Deferral of some £463m in BT's accounts as of Q1 2017. It was the existence of this Capital Deferral and its possible re-allocation to rural areas which permitted NI public elected representatives, with

¹ AQW 9199/16-21 answered on 18-1-2017

encouragement from ICBAN, to push for change at Parliamentary select committees². One of the findings of ICBAN's second report is that if an audit was conducted of the BT's capital contribution to all of Northern Ireland's subsidised projects, it will show a deficit when compared to the assumptions Ofcom are taking when setting the 2017 price control. The report cites that BT may owe a capital contribution of between £20m-£43.5m to the Northern Ireland economy, if we are to accept the basis of Ofcom's 'fair bet analysis'³ in the current market review. This matter remains outstanding and will continue to be pursued with NI audit authorities.

3.3 BT network upgrades have relied on the widespread use of copper gain technology, which takes fibre to the cabinet and uses electronics in the cabinet to improve the performance of the existing copper lines. It works for many and is relatively cheap but the further from the cabinet you are the lesser the service delivered. This leaves gaps, particularly in rural areas or where BT has a preference to sell private circuits to businesses.

3.4 BT is now using subsidy to deploy some direct fibre connections in some locations, including very rural locations. Some new builds and refurbishments may also be benefitting from BT's decision to support more FTTP provision. Where this is occurring, then the full benefits of fibre access can be realised. ICBAN's policy objective in this area is to go from piecemeal delivery of full fibre access to a more widespread availability of full fibre access in the border counties, eventually leading to direct fibre access being made available where copper gain technology cannot deliver superfast services.

4. PURPOSE OF THIS PAPER

4.1 The possibilities arising from the £150m earmarked for Broadband in the election agreement permit the principle findings in the two ICBAN Fibre at a Crossroads reports to be implemented. This latest paper outlines two major changes needed to achieve those goals and the means by which these changes are forced through. The first is a change in a technical regulatory definition. The second involves amending the current Broadband USO proposals that have been the subject of consultation.

4.2 To that end this paper presents a technical-regulatory proposal to support the ambition of more full fibre in Northern Ireland. The industry discussion paper is attached as Annex A.

4.3 The second set of papers include Annex B, the response to Department for Digital, Culture, Media and Sport (DCMS) Consultation on USO Design as submitted on 4th October and Annex C, the Response to Ofcom's Consultation on BT's USO offer made on 27th September. Both responses make the case that Broadband-USO proposals of 10Mbps must be adjusted to cater for the revised ambition of Ultrafast connectivity enabled by the funds from the election agreement. The paper outlines how this can be done drawing on the

² EFRA Select Committee -29 March 2017 – q427 MRitchie.

³ See Ofcom Fair Bet analysis – Annex 8 -

https://www.ofcom.org.uk/__data/assets/pdf_file/0035/99638/Annexes1-19.pdf Page 30

findings from the earlier ICBAN reports. It includes a modified illustration of the proposed secondary legislation arising from the Digital Economy Act 2017.

4.4 Annex D includes a paper prepared for Northern Ireland Audit Office, to review with Ofcom NI and DfE the means by which BT's capital contribution is measured and reported, as a follow up to the second ICBN report on the subject of BT contributions.

5. SUMMARY PROPOSALS

5.1 ICBAN outline the requirements for all-fibre access across NI and how it can be delivered, referencing the amendments in Ofcom market definitions and the process to report BT's capital contribution.

5.2 The key objective for the use of the £150 million investment can be defined as, ***'100% availability of Ultrafast broadband services, future proofed, to anyone who wants it'***.

5.3 This would be in keeping with the Broadband-USO consultation responses, that a B-USO should be delayed for NI until all current and anticipated public subsidies and their match funding contributions, including the £150 million election agreement funds, have been utilised.

6. CHANGES IN THE MARKET DEFINITION OF 'WHOLESALE LOCAL ACCESS'

6.1 The UK market is regulated by Ofcom. Changes in regulation are typically brought forward every 4 years in consultations called 'market reviews'. These reviews are used to adopt pricing changes, cost allocations including overheads and cost recovery and technical changes to the WLA (Wholesale Local Access) market as defined.

6.2 The Wholesale Local Access market includes definitions for the provision of a telephone line. Technically this is defined as a 'metal path'.⁴ A Broadband service is reliant on the performance of a metal path. BT is obliged to respond to reasonable requests for a 'metal path' or telephone line. In the 2012 market review, the technical definition for Wholesale Local Access was modified to include FTTP within the product definition. This modification did not extend to include an obligation to respond to 'reasonable requests' for direct fibre access. Instead this is affording discretion as to how or where direct fibre access is deployed.

6.3 This paper is proposing the current Ofcom consultations on Broadband are used to modify the market definition for Wholesale Local Access to include the notion of 'reasonable demand' for direct fibre connections, thus obliging BT to supply a direct fibre connection where 'reasonable demand' is evident. The paper then outlines how 'reasonable demand' is established and defined using the Fibre on Demand concept developed in the first ICBAN Fibre at a Crossroads report. Just as BT needed to define a

⁴ <http://www.sinet.bt.com/sinet/SINs/pdf/349v2p5.pdf>

‘metal path facility’, the paper is suggesting a ‘fibre path facility’ may need to be defined to formalise the status of the service.

6.4 The paper details the promises already made to support Fibre on Demand, the current progress in selectively delivering FTTP, while outlining the budgets available to do the work.

6.5 The paper includes a means of testing, consulting and refining the proposal in Northern Ireland which could then be applied in the rest of the UK. The proposed tests incorporate and use the case studies and scenarios identified in the first ICBAN Fibre at a Crossroads report.

6.6 The paper suggests a traditional procurement is unlikely to work and thus a broader more transparent Industry Agreement is needed. This is crucial to securing the £150m as the work required is likely to last beyond the lifetime of the election agreement. It would be prudent of ICBAN to request MLA and MP’s to seek an allocation of £150m for Broadband in the autumn Budget Statement. This can happen independent of the election agreement, as the allocation is not unrelated to the peculiarities of getting the BT Capital Deferral allocated to where it is needed and then converted into coverage.

6.7 This latest report and proposals are to be discussed with Department for Economy NI (DfE) and other stakeholders.

7. POLICY CHANGES AND THE BROADBAND USO CONSULTATION

7.1 The UK Parliamentary ‘wash-up process’ in April 2017 included the Digital Economy Bill. The Digital Economy Bill included the wish for a Broadband USO of 10Mbps by 2020. The detail of this service is now being consulted upon and will result in secondary legislation where Ofcom are expected to enforce a measure to secure the desired outcome. The call for a Broadband USO is not too different from the call to separate Openreach from the rest of BT group. There is a danger that Parliamentary frustration with BT will result in a design whose weaknesses were not subject to full parliamentary scrutiny. The process was informed of the excess funds, the some £463m in capital deferrals. BT has responded with a public offer of more copper gain technology in exchange for a higher regulated price orchestrated through the Wholesale Local Access consultation referenced above. It has been important therefore that the latest consultations through DCMS and Ofcom are responded to and that those responses are used to galvanise activity in Northern Ireland.

7.2 Annex B includes the response to the DCMS consultation on the USO Design. In the response ICBAN argues that the Broadband USO legislation should be delayed until the current budgets for broadband investment are fully utilised. It argues that the Broadband USO as currently described is a function of the limitation of copper gain technology, while the description of a retail ISP service does not lend itself to being enforced. The response shows how the Parliamentary objective could be met without being bound by the limitations of copper gain technology

7.3 The response makes the case, using the technical descriptions above and industry data, to show that the 10Mbps service can be superseded and improved upon using existing funds.

7.4 The response to the Ofcom consultation in Annex C is similar in substance to the DCMS response but deals specifically with how their modelling of 2016 fails to take account of current progress, the budgets available and the ambitions of District Councils.

7.5 The responses to the two USO consultations use and reference the need for changes to the technical definition.

7.6 The attached document set provide the foundation for Broadband related discussions between ICBAN and its member Councils and NI and UK institutions.

8. CURRENT SITUATION IN NI AND THE CENTRAL BORDER REGION

8.1 NI border counties have enjoyed all the benefits and frustrations of a BT strategy reliant on copper gain technology. Those within 1,200 metres of a cabinet see a significant uplift in service. Those beyond that distance or served directly from the exchange have seen no improvement in service. Businesses Park tenants cannot order direct fibre services unless it is in the form of an expensive private circuit.

8.2 The most recent upgrades include a good deal of FTTP⁵ in some very rural locations. Some 70 rural clusters across Northern Ireland have been found where some fibre to the premise is available. This includes parts of Galbally outside Dungannon, Tulnacross, Drapersfield Road and Claggan Church near Cookstown and Derryhaw on Monaghan Road in Armagh. The ad-hoc appearance of direct fibre connections in some locations is peculiar, when requests for the same service are being refused in other locations.

8.3 The proposals aim to convert this ad-hoc approach and build upon it to speed the process by which a nationwide Ultrafast services become available to those who want such.

9. CASE FOR FIBRE ROLL-OUT

9.1 The case for improved connectivity is well understood from the perspective of everyone but the incumbent network operator. The latter has an existing network to run, an existing profitable business model to execute and shareholders to satisfy. The telephone was available to deploy late in the 19th century but the Telegraph network and the ready supply of messenger boys meant it was not until the 1960's that the telephone service became a universal service.

9.2 The BT business case for all optical fibre networks was ready in the late 1980's but the desire for competition and de-regulation and the belief in the power of markets meant

⁵ The latest Superfast Extension Project (SEP) includes some estimated 13,000+ FTTP connections.

this plan was not progressed. The case was made before the internet, before the proliferation of PC's and before the smartphone. The case was built on lower costs, fewer components and fewer active components to repair.

9.3 The main barrier to the upgrade is that the existing service is sufficiently functional that people are willing to pay for it and thus, why invest more if you already have a largely captive market unable to switch supplier.

9.4 The case for establishing access to all fibre connectivity is part conviction from which builds the understanding that the cost of running fibre access networks once installed is cheaper than the existing copper network. In addition, the new networks support an ever increasing number of services accessible on the internet. Participation in society and access to any service including public services is dependent on good connectivity. The provision of world-class connectivity in rural areas creates an equality of access to information, education, services and opportunity previously thought impossible.

10. ICBAN PROGRAMME OBJECTIVES

10.1 ICBAN as a small entity specialising in promoting economic development in the border area, has focused its efforts on reporting the gaps in service resulting from a good but partial Broadband rollout, and the opportunity to do more through adopting good practice and policy. Its reports have also highlighted the need for more scrutiny of the private sector capital contributions and where subsidies ought to be applied. The ICBAN reports have become a significant source of data for showing that lower costs, higher take-up and the adoption of a more ambitious approach should lead to a more complete fibre rollout.

10.2 ICBAN's objectives have become more ambitious as the research conducted has contributed to the ambition and voice for Ultrafast to find its way into the election agreement.

10.3 This next set of papers have been produced to provide the technical descriptions, the regulatory changes and public policy statements to allow the ambition for 'Ultrafast' to be taken forward and converted into services with the appropriate legal and policy support. In this stage these foundation papers are best used as discussion documents and inputs to public consultation documents.

11. POTENTIAL SOLUTIONS AND OPTIONS EXPLAINED (TECHNICAL AND REGULATORY TERMS, DRAWING ON WORKABLE PRECEDENTS)

11.1 The case study format used in the first Fibre at a Crossroads report itemised several different challenges. Each case study highlighted the contribution the existing upgrades to cabinets was making but also highlighted the shortcomings and frustrations arising from an over-reliance on a single technology. This is vexing given the budgets available to the work and assets already subsidised and deployed to facilitate such services.

11.2 The case studies begun to outline the need to support a direct fibre product which extends fibres deeper into BT's access network, and where BT's copper gain technology cannot work due to its inherent distance limitations. The term 'Fibre on Demand' was used to describe these fibre extensions. The technical standards supporting such an extension are as described as FTTP-GPON6. BT is selectively making this service available in Northern Ireland whilst continuing to promote and champion its existing business models.

11.3 Metro CCTV in Derryloran Industrial estate in Cookstown is a relevant example. Metro CCTV make widespread use of the Fibre to the Cabinet service but need a direct fibre connection to support greater upload speeds. BT, while providing FTTP to Drapersfield adjacent to Derryloran, have so far refused to countenance offering direct fibre connections to Metro CCTV using the spare fibres in the pit supporting the cabinet outside Derryloran Industrial Estate. BT are willing to provide a private circuit for this purpose, which is priced at a significant premium. The advice given to ICBAN in 2016 on the status of FTTP provision is contradicted by both the detail in current consultations on the Fibre on Demand product⁷ and the Openreach briefing⁸ to service providers regarding BT's offer on the Broadband USO.

11.4 Leaden Timberframes, served from Tulnacross outside Cookstown, have been offered an opportunity to use BT's Community Fibre Partnership as a means of delivering a direct fibre connection. Progress is dependent on Leaden Timberframes orchestrating demand to meet the extra construction charges.

11.5 Similarly, businesses in Lisnaskea Business Complex are too far from the copper reliant fibre to the cabinet service to see a meaningful benefit. To date the only offer of direct access has been in the form of expensive private circuit products.

11.6 Examples in the Armagh, Banbridge and Craigavon area include a cluster of some 15 businesses near Waringsford, Emmerson Electrical in Portadown and McElmeel outside Armagh. Each are being denied upgrades due to the shortcomings of the Fibre to the Cabinet solution which is reliant on copper gain technology. The latter need not be the case given the budgets available and the capabilities support a full fibre solution that is already in place in each of the serving BT exchanges.

11.7 The Annex A document 'Establishing a right to order a direct fibre connection', sets out a technical description for a Fibre Path Facility in support of amending Ofcom's Wholesale Local Access (WLA) market definition. The document goes on to describe how the regulatory definition should be amended so that a direct fibre connection can be ordered. In so doing, BT would be obliged to fulfil orders for direct fibre connections where 'reasonable demand' exists. Much of the document describes how industry (UK including Ofcom) can use the case studies in Northern Ireland to define 'reasonable demand'. These are essential steps in determining how Ultrafast is delivered and how the monies set aside for this can be utilised for what the NI economy needs.

⁶ FTTP-GPON – Fibre to the premise, gigabit passive optical network.

⁷ On file August 2017 Ethernet_PCG_Full Issue V! Fod_Slide

⁸ On file Openreach briefing to CPs DeliveringuniversalcoverageUSO (no date)

11.8 The paper also establishes the equivalence in pricing terms between a ‘metal path’ and a ‘fibre path’. This is essential in maintaining affordability.

11.9 The documents in Annex B and C are policy papers on how the B-USO can be amended to meet the Ultrafast objective set out in the DUP / Conservative Party election agreement. These are consistent with DfE, ICBAN and Council responses to the initial USO Call for Inputs Consultation in 2016 but are not aligned to a policy which thinks direct fibre access is a step too far. The latter was the position relayed to ICBAN during a meeting with DfE Minister Simon Hamilton in November 2016.

12. COST AND PRICING CONSIDERATIONS

12.1 The following provides a crude estimate as to how Northern Ireland can begin to use the £150m budget. We can discuss plans in two ways.

1. To date it has been common to use a premise budget subsidy cost of £1,200 and so 80,000 to 100,000 premises equates to a £96m-£120m cost.
2. We can also examine the 80,000-100,000 premises in the form of 5-10k premises clusters.

12.2 Using 7,500 clusters or engineering areas consisting of 10km fibre extension per area creates a total build, of mostly overhead, of some 75,000 km. We use a £2 per metre⁹ cost and can see if the demand is present

12.3 It is important that the proposal for FTTP network builds is supported by the requested changes in Ofcoms market definitions. It is important that the funds are not used to contribute to building 7,500 small fibre access networks but are used to trigger the nationwide availability of an all-fibre access network where it is needed.

13. BARRIERS TO AN ‘ALL FIBRE’ PROGRAMME.

13.1 The conversion of the £150m referenced in the election agreement into a programme of work now needs to be referenced in the autumn budget statement, so the procurement exercise can begin. There is no indication that NI Government are addressing this.

13.2 The existing ambition in the NI draft programme for Government of a ‘proportion of premises with access to broadband speeds of 30Mbps’ could create an institutional acceptance of the status quo i.e. accepting the limitations of BT’s copper gain technology. It can be argued that limitations of copper gain technology are being converted into the ‘technology neutral terms’ of speed or more correctly ‘throughput’ defined by the limits of copper gain technology. This is not a technology neutral position. Given the transformation

⁹ Openreach pricing list of FoD, cost per metre used in the notes field.

possible it may not be possible to be technically neutral and the pretence of being so may need to be challenged.

13.3 The welcome announcement of some £6.2m additional funding for NI arising from the BT Capital deferral by DCMS, has been unexpected by DfE and BT. We understand there are no plans in place to convert these funds into extra coverage. These funds can and should be pro-actively used now to begin fulfilling the ambition outlined in this document. Amendments to existing contracts can and should be pursued as preparation for work on a much larger £150 million programme, and the example of case studies referenced by ICBAN could be used to test new processes.

13.4 Ofcom's independence from Government is contributing to the lack of transparency and accountability where large subsidies are being used to upgrade BT infrastructure. Meanwhile BT's capital investment in Northern Ireland remains unaudited. A change in approach is needed to help customers get the outcomes they need from the public subsidies.

13.5 BT's current free hand in determining the composition of upgrades in Northern Ireland is manifesting in the delivery of the most future-proof solutions in some very rural areas. This is proving the work can be done and that the ambition can be met. However, the current practice is also leading BT taking decisions to limit direct fibre broadband deployment where there is an opportunity to sell their more expensive private circuit solutions instead. This practice, when combined with the ongoing lack of transparency on the status of BT Capital Contributions is occurring at the expense of companies like Leaden Timberframes, Metro CCTV and McElmeel etc.

14. PROJECT IMPLEMENTATION PLANS

14.1 Role for a Regional Delivery Agent

The switch in ambition to proactively support an all-fibre access network in rural areas will demand a new support resource. The following 'work' needs to be completed to secure and support the change to an all-fibre rollout:

- Requirements as expressed in these Annexes to be converted into products¹⁰.
- Prioritisation of network upgrades by area, including attendance at BT/DfE project meetings.
- Process creation for both recording and approving scheduled work, costs and administration thereof.
- Liaison with Mobile Operators for any backhaul upgrades.
- Demand aggregation and customer liaison in support of build. Maintenance of local fibre access website in support of activity.
- Auditing, reporting and approving subsidised build and reporting benefits including economic benefits.
- Management and reporting of local resource budget.

¹⁰ See BT offer at its Ethernet forum – Aug 2017 on file.

- Liaising where needed on local authority road closures and wayleave negotiations where needed.
- Public relations focused on case studies.

This work is likely to span an initial two-year period until direct fibre services are established. Resourcing to support a programme change for direct fibre access needs to be considered. ICBAN would be encouraged to discuss these requirements further with DfE and others.

15. OTHER CONSIDERATIONS

15.1 Manpower Resource

The £150m election agreement funding for broadband was earmarked for a period of two years. The nature of the work, particularly if it is to be demand led, suggests that a delivery period of 5-7 years of effort is needed, given the resource challenges currently present in the market. The nature of the work demands the monies need to be catered for in the autumn (2017) statement.

15.2 Interplay with the 4G Coverage Obligation

Ofcom have yet to outline how they intend to enforce the 95% 4G coverage obligation held by 02. There is room to suggest that the holder of the Broadband USO also has an obligation to support the B-USO with an offer of a 4G service using a fixed antenna. This would be a useful supplement to the 'reasonable demand' clauses to support a direct or full fibre access service.

16. CONCLUSIONS AND RECOMMENDATIONS

16.1 The principal Conclusion is that through maintained pressure, it is possible to bring meaningful change. However, the outcomes needed have to be described and pushed through statutory processes and institutions. This takes patience and perseverance, and progress can be erratic.

16.2 The principal Recommendation is that the desire for 'Ultrafast' connectivity solutions should remain a priority, and the foundation documents outlined in the Annexes attached provide the technical, regulatory and policy definitions to fulfil that ambition. These need pushing through industry processes so that the requirements become 'the' requirement.