Next Generation Access

Response to Ofcom's Consultation from OpenHub Ltd

1. Introduction

OpenHub provides turnkey solutions for smart homes and smart communities within new and existing developments. OpenHub specialises in providing developers and builders with digital solutions both within the home and estate-wide, to increase property values whilst addressing community, energy management, security, telecare, assisted living services, and digital entertainment.

First-mile connectivity is a key element in the overall solutions that OpenHub offers. The company therefore maintains an active involvement in both current broadband solutions and in the wide range of issues surrounding the emerging market for next generation access infrastructure. OpenHub welcomes the opportunity to contribute to this important Ofcom consultation.

In our response below, we have provided some general and specific comments on different aspects of the overall consultation document. We have then responded to Ofcom's five questions in a separate section at the end of this response. Both parts of our response should be read as a whole, since the first part provides the reasoning that underpins our answers in the second part.

IUn summary, our assessment of the consultation document is that it:

- Omits important lessons that can be taken from the history of access network developments (see Section 2, below).
- Is insufficiently clear at the top level about what is being addressed, although examination of the detail of the consultation document allows extraction of a top level view (see Section 3).
- Covers a wide range of topics, but in a number of instances reaches a conclusion or view which is under-developed or is significantly at variance with our own (see Section 4).
- Addresses "externalities", but underestimates their importance (see Section 4).
- Does not give enough consideration to NGA being a natural monopoly (see Section 4).
- Fails to give sufficient prominence to new build housing (see Section 4).
- Does not project sufficiently clearly the desired, longer term UK outcome, acknowledge the current market realities, and identify the route through to achieving that outcome (see Section 5).

Each of the above points is covered in more detail in the following sections below. It may be argued that the overall resolution of NGA issues cannot lie with Ofcom because of its statutory mandate. However, it is our view that

Ofcom should be taking the lead role in a much more forthright way than is evident from the consultation document.

In taking an overview of possible longer-term requirements, imagine a popular service which requires 1Gb/s bi-directional bandwidth to every subscriber simultaneously. Whilst this may seem fanciful in today's terms, that level of connectivity is already the norm for office Intranets; it certainly seems fundamentally wrong to roll-out an infrastructure which could not be upgraded easily to support such services in the future.

2. The Historical Perspective for Access Networks

We consider that there are two areas of particular relevance:

- The recent UK history of broadband
- The development of UK CATV

Each is considered in turn, and the relevant lessons highlighted. Additionally, it could be noted that the early history of UK telephony involved all the disparate municipal networks (with the exception of Kingston-upon-Hull) being brought together under the Post Office. There was a recognition that a single national network, conforming to unified build standards, was needed for telephony to progress.

2.1 UK Broadband

This refers to the current generation of broadband consumer services. The Consultation does acknowledge the "slow start" in the UK (e.g. at paras 1.3 and 1.4), but fails to acknowledge the major upheavals that accompanied the initial introduction of these services.

Back in 2001 and 2002, the UK was recognised as lagging other major countries in the introduction of broadband. The lack of progress led to public meetings demanding action, a range of "do-it-yourself" initiatives, parliamentary enquiries and the formation of the Broadband Stakeholder Group. In short, there was significant public unrest; this seems to have been forgotten. A number of regional initiatives were put in place to promote broadband. There was eventually greater pressure on BT with a focus on workable local-loop unbundling arrangements and the formation of Openreach.

The Ofcom document addresses overseas NGA deployments (at para 3.4 et seq.) and suggests reasons why these are happening. In respect of the UK, the view is expressed that "it is possible that the efficient timing of commercial next generation access deployments may be naturally later in the UK than elsewhere" (para 3.3). An alternative view is that this overseas data ought to be taken as a "wake-up call": it could be argued that the natural tendency for the UK market to lag behind mandates stronger intervention to offset such delays.

Whilst the consultation acknowledges the dangers of complacency (e.g. at para 7.47) we feel that this is a real and significant danger. In Ofcom's own words: "At the same time, international deployments over the next two or three years may result in a faster development of new mass market bandwidth intensive services that could result in a heightened concern from non-availability in the UK". (para 7.47)

- **We consider that because of the long timescale required to agree a UK NGA implementation, and for that implementation to occur in volume, there is a real danger of a re-run of the earlier problems experienced with current broadband.**

2.2 The development of UK CATV

Cable Franchises were awarded by the Independent Television Commission (now subsumed in Ofcom) from the mid to late 1980's onwards:

- Awards were on a franchise basis (ca. 135 franchises) with each operator having a CATV monopoly in his area for a significant initial period.
- There was a requirement to make multi-channel CATV available, and to pass homes with the system. There was no requirement to connect all homes.
- A fully ducted system was required.

It quickly became evident that the franchise areas were too small and there was a move to trade franchises and form regional groupings.

Initially, there was a lack of TV content which was only resolved with the advent of Sky and the availability of additional content. However, Sky was also a competitor with its satellite platform.

The 1991 Duopoly Review enabled the Cable Operators to become telecoms operators in their own right. Earlier trials had demonstrated the success of a telephony service through the use of an additional network overlaid on the CATV network. The regulatory change gave a major acceleration in investment and network build. The advent of the large scale need for dial-up Internet service meant that the Cable Operator's could enhance their service offering.

However, further developments and restructuring in the UK Cable Industry have shown that the original business cases were not viable. Only in the last two years, Virgin Media has emerged through industry consolidation as effectively the UK's only Cable Operator.

UK Cable is mentioned at various points in the Consultation (including at para 3.15) but its strengths and weaknesses with respect to NGA are not considered fully.

On the minus side:

- The current market position of UK Cable is weak because of the dominance of Sky in Pay TV and the internally focussed effort that has been expended over several years associated with industry consolidation.
- Whilst a similar approach was taken in the various original CATV/telephony network builds, Virgin Media's network contains a wide variety of different system designs and equipment which will take some time and effort to organise and optimise into a coherent network. Currently, the preferred approach seems to be the pursuit of DOCSIS 3-based advanced services over the CATV network. UK CATV has the capability to implement enhanced FTTC and FTTH systems with much higher, non-contended end-user bandwidths than DOCSIS 3.
- UK Cable does not provide 100% coverage. (However, the 50% UK coverage which has been achieved could represent a significant competitive force if UK Cable were a stronger player.)
- In areas where it has been installed, the network has not been built for 100% service penetration, i.e. there may be physical limitations to all homes in a street receiving service. Also, in cabled areas there are locations which are not cabled, typically because of low housing density. Furthermore, in-fill new housing that has been constructed since the original network build may not have been served because network extensions in recent years have been limited.

On the plus side:

- The network is regionally implemented with regional switching/hub sites and fibre penetration deep into the access layer via a fully ducted network. This represents a major physical asset, the value of which tends to be under-recognised.
- Fibre already exists to cabinets, and an enhanced FTTC-based implementation could be implemented far more readily (and at lower cost) than is the case with the BT copper loop. The FTTC implementation could be designed to provide un-contended service (whereas the DOCSIS 3 approach, though representing a step-up in capability will always be contended in the cable network.)
- In UK terms, the 50% coverage that has been achieved represents a significant proportion of the major City centre, urban and suburban areas.

❖ **We consider that Ofcom should: a) recognise the importance of the Cable Network assets, and take an approach that divides the UK into cabled and non-cabled areas for developing UK NGA policy; b) recognise that the development of the Cable Networks was skewed by the way in which they were franchised and that the original business case justification for their build was flawed – the lesson for NGA is that multiple, competitive major NGA builds just won't happen; c) recognise that the fragmented nature of the**

build, and particularly that only minimum build standards were imposed, has weakened the Industry overall; d) address the issues surrounding Sky's dominance in Pay TV.

3. NGA Focus and Definition

The Consultation is insufficiently bold as to what is being addressed by NGA. We suggest that clear focus can be extracted. (We acknowledge that some of this is already identified at various points in the consultation detail but in our view the points get lost.):

- The Consultation is all about fixed, wireline networks. Not wireless or anything else.
- NGAs will deliver higher broadband speeds than are achievable with current broadband. However, NGAs are not solely about providing higher speed networks, and it is important not to refer to them simply as higher-speed networks. This is because other parameters are also particularly important, e.g. Quality of Service (by which we mean the ability to ensure delivery of certain services amongst a service mix, notably including video), security, support for a wide range of applications etc. It is too simplistic just to ask if there is a need for higher speed and what speed is needed. In particular, the future need for more symmetric bandwidth provision is a serious issue which is unaddressed. The implications of locally sourced content are also unaddressed. For example, unicast video content is provided much more efficiently from local servers than from a small number of national servers; in the latter case, core network bandwidth requirements rapidly become excessively large.
- Ofcom has identified FTTC and FTTH as the main options. Whilst this is true, it is a view based on the expected further development of the Openreach network.
- Cable networks already form a version of FTTC, supplied to a sub-set of possible users in a serving area. The network could be extended to FTTH. As indicated above, they have not been designed originally to serve all users.
- FTTC could, and probably would, be used to provide NGA incrementally. If this were done using VDSL2 technology then the capability would be constrained by the UK VDSL2 choices inherent in the Access Network Frequency Plan as well as the existing local sub-loop reach and quality issues.
- FTTH could also be used to provide NGA incrementally, i.e. in a serving area some users would be upgraded while others would not. In our view, this would be an inefficient and undesirable approach. It would make much more sense if all users, and prospective users, within a serving area were upgraded to NGA at the same time. This is an important distinction between FTTC and FTTH which needs consideration but which does not get highlighted in the consultation. (Note that this aspect is not necessarily the same as a requirement for a Universal Service Obligation, although there are some similarities.)

A universal provision would enable some services and applications (e.g. those in the area of energy management) to be rolled-out to all homes – these services need not necessarily be paid for by the end-user directly.

- **We consider that NGAs concern wireline networks and that there are other factors apart from increased speed which are important. The capability to provide local services efficiently is important. The issue of universal network implementation within a serving area must also be considered.**

- **OpenHub also considers that taking a medium- to long-term view, fibre-to-the-home is the only technology which can offer the bandwidth growth which will be required to match emerging demand. FTTC options (using either copper-pair or coax premises connections) offer an important transitional step, but will not provide a solution for more than a decade at most.**

4. Specific aspects of the Consultation

As identified in the Introduction above, this section provides some specific comments on Ofcom's analysis in the Consultation document.

4.1 NGA and the "Digital Divide"

For example, paragraphs 1.16 and 2.26, and 4.27 *et seq.,* refer to possible "digital divide" issues arising with NGA, and a "wait and see" approach is advocated. It should be abundantly clear from the recent history of current broadband access – and also from other history (e.g. the last electro-mechanical "Strowger" exchange was only taken out of service as recently as 1990) – that "digital divide" issues will arise because a "wait and see" approach will mean that NGA developments will take place on an extended timescale. It is our view that these "digital divide" questions should be addressed as part of the overall NGA issue, and should not be left until public pressure builds for something to be done. It would seem most likely that the history of current broadband implementation, and also CATV network implementation, could give pointers to the places most likely to be affected by "digital divide" issues.

- **A wait-and-see approach is not good enough for addressing "digital divide" issues.**

4.2 Aerial drop

Para 3.17 says that "UK planning laws mean that a relatively small portion of UK premises are served by overhead drop points, with the majority of lines being provided by underground access". We do not believe that the term "relatively small" is a correct statement of fact – there are significant areas served by poles, depending on when the housing was originally built. Our "guesstimate" is 30 to 40% of all dwellings have aerial drops – Openreach will

have the correct figure. (We note that BT itself says that it has 4 million telegraph poles - http://www.btplc.com/thegroup/Networkstory/HTML/slide.aspx_slide=13.html)

Para 3.8 identifies that “In other countries, such as Japan, telecoms networks have a high proportion of their infrastructure installed overhead, making it much less expensive to install than buried networks”. We believe that a significant level of aerial distribution, using existing poles, could be used for NGA in the UK with a beneficial impact on cost. Of course, there are aesthetic reasons for not using aerial distribution, but the issue deserves debate: to what extent is it right to place aesthetics above economic growth for the UK?

- **The opportunity for using aerial drop should not be overlooked and should be considered further.**

4.3 User knowledge

Paras 3.23 and 3.26 refer to consumers’ knowledge of broadband speeds provided, and their understanding of contention issues, with a conclusion that “consumer education is a challenge for industry as well as Ofcom”. We do not agree with the emphasis and suggest that some alternative thinking is needed. Why should consumers necessarily know or understand the detail of their service and how it is being provided? Rather, consumers should be assisted by Ofcom providing service benchmarks (e.g. gold, silver, bronze) which service providers would meet and highlight in their advertising and consumer agreements. By analogy, how many consumers would know the maximum possible electrical supply to their home? What they know is that they have enough for their needs and that, under most circumstances, supply is not affected by grid issues.

- **Ofcom should take the lead in assisting consumers by setting industry benchmarks that can be readily understood by consumers.**

4. 4 Externalities

Ofcom summarises the position very appropriately in para 7.5. There will presumably be widespread agreement that externalities apply in communications networks, just as they do in transport infrastructure. The Universal Service Obligation arrangements are one acknowledgement of their importance in existing networks. These are in place because the overall social and economic benefits are much more extensive than the private value provided to investors.

It seems most likely, but not proven, that these benefits will increase with the network capability and capacity; that is, the external benefits will be greater with an NGA. Figure 10 in the Consultation is Ofcom’s approach to addressing this issue. We believe that the majority of the applications and services shown can deliver social and economic benefits. One particular area of interest to us is the development of services for the care of older people.

This is an area where, with changing demographics and family lifestyles, NGAs could deliver real benefit. (Interestingly, Japan has the largest demographic problem and is also most advanced in FTTH.)

The argument is proposed that it may be better to be a late adopter (para 7.33) and that the time taken to implement an NGA is variable, depending on circumstances, and is not clear. We consider that the time required to agree what is needed and complete an implementation is considerable.

- **The importance of externalities should be given greater weight.**

4.5 NGA as a Natural monopoly

Ofcom states in para 6.2 that "the scope for multiple investments in duplicate competing next generation access networks in a given region may be limited due to the economics involved". We think that Ofcom should be bolder and acknowledge the reality that this scope **will** be limited and that it is very highly probable that only one network will, or even should, be built.

The implementation, operation and maintenance of more than one physical access network is an inefficient investment. The access network is a natural monopoly and the way forward on NGA should be addressed in that context. It is acknowledged that there are plenty of examples of multiple access networks – notably in the City of London and in serving large business requirements – but even this is an inefficient approach. The stalled roll-out of Cable TV infrastructure could be taken as evidence that multiple networks are only viable in areas with high revenue potential, which by extension suggests that having two last-generation access network infrastructures has damaged profitability for all parties in all areas. True equality of access to a well designed, future-proof NGA is needed. Effective competition can be realised in the provision of applications and services and this is a highly desirable goal.

Whilst there are clearly differences between telecommunications and other utilities, there are also major similarities and this should be given far greater recognition.

- **Ofcom should recognise the natural monopoly aspects of NGAs and develop a regulatory approach that acknowledges that reality. In particular, it is vital for Ofcom to take a much more robust approach than in the past to regulating and policing a fair and equal access to the infrastructure.**

4.6 New-build housing

We are pleased that Ofcom is going to address the issue of NGAs for new-build housing specifically. However, we are disappointed that this is going to be delayed further until a special consultation takes place towards the end of this year.

Ofcom acknowledges the UK new home build rate of ca. 200,000 homes per year (although we find discrepancies in the official housing statistics making the exact figure uncertain). It is worth pointing out that if NGA investment in new build had only started a few years ago – which would have been feasible given the experience of other markets – then, by now, there could have been half a million UK homes served by NGAs; instead these homes are still served by outdated copper pair technology. This emphasises the importance of addressing this issue, and addressing it urgently.

Ofcom refers to BT analysis favouring the use of PON technology because of increased cost efficiency for new build (paragraph 9.13). In this context, we wish to point out a factor concerning new build that has changed dramatically over the last two to three years and which may not have been factored into that new build analysis.

The Housing Statistics (December 2006 version, Table 2.3a) reports the number of new building completed by property type split between houses and flats. This data shows that the percentage of new build that was provided as flats was:

Year	% Flats
2000/01	20
2001/02	23
2002/03	27
2003/04	34
2004/05	41
2005/06	46

Whereas historically, in earlier years (not shown above), flat build accounted for about 16-18% of all new build, this percentage has increased steadily over the period shown. There has been a substantial increase over the last three years. This change probably arises from changes in build density requirements, affordability requirements and also market changes arising from demographic changes in the size of households (average size has decreased). The point of interest for NGAs is that there is a significant difference between build to a development containing 20% flats compared with those containing 46% flats. A non-PON, point-to-point deployment is likely to be much more appropriate in the latter case.

As a further point, we note that elsewhere in the consultation Ofcom cites the much older ONS **2001** data (at ref. 13 in para. 3.17 on a different but related point), and so may not be aware of this change.

We also note that other incumbent operators have tended to favour use of PON technology, whereas alternative operator NGA build has largely been based on use of point-to-point fibre systems. We consider that use of PONs with optical splitters deeper in the network than the first node potentially inhibits and restricts the development of a competitive market in applications and services to the eventual detriment of the end user. Use of such PON architectures severely restricts alternative competitive options, for example

access to dark fibre. Note that it's not the use of PONs that is the problem; it is the location of optical splitters in the street that is the issue, because that prevents the alternative use of the dark fibre for a point-to-point architecture.

- **We consider that a review of use of NGAs in new build is needed urgently, and that recent changes in new build property types need to be taken into consideration.**

- **We do not consider that use of PON architectures with splitters in the first mile represent the best approach for the development of a competitive market in applications and services. If PONs are implemented, they should have splitters no deeper in the network than the first "exchange".**

4.7 Ofcom and Technical Issues

We note Ofcom's reluctance to get involved with the making of technology choices (e.g. expressed at para 5.9). Whilst we acknowledge the difficulties in this area for Ofcom, we consider that this is one of the major stumbling blocks to the development of a satisfactory UK policy for NGAs. We do not believe that it is Ofcom's role to dictate technology choices, however we consider that there is a role for Ofcom to push for a UK industry consensus on such issues. This is because we believe that only a single NGA will, or ought, to be built and that it is critically important that the NGA has appropriate characteristics for service development and delivery over an extended time frame – the next 25 years and beyond. It is also appropriate for Ofcom to ensure that technological choices made by individual operators do not close off options which should remain open for the wider benefit of the UK's end-users.

We recognise that in addressing technical issues Ofcom may need to move outside its "comfort zone", and that this would require reversing Ofcom's move to withdraw from activities such as sponsoring the work of NICC.

- **We consider that Ofcom's determination to avoid properly addressing technical issues represents a major stumbling block to the development of an appropriate NGA policy.**

5 NGA way forward

We consider that the way forward on implementing a successful NGA policy for the UK should bear in mind an optimised end point and should therefore have the following top level features:

- Recognition that under most circumstances access implementations have the characteristics of a natural monopoly. That only a single NGA will, and from an investment efficiency perspective ought to, be built in any given location, and that some base level of capability should be mandated for all such build-outs.

- NGA operators should be wholly separated from service providers and that a regulated rate of return should be used. This approach would take a long term view on the NGA assets.
- A technical standard for NGAs should be developed as a high priority. This standard should take account of factors such as the future-proof nature of the NGA, maximising flexibility for the provision of existing and future services, and facilitating the inter-connection to a wide range of service providers to enhance consumer choice. An approach based on use of selected and evolving open, international standards is highly desirable.

  It is our opinion that FTTC solutions should be regarded as a stepping stone to the final NGA infrastructure, and that the ultimate goal should undoubtedly be a fibre to the home architecture.
- In cabled areas, either the Openreach or the Virgin Media existing access assets should be used for the implementation of a single NGA for all users in the area served. Whilst this will be very difficult to achieve, the different players involved need to be encouraged to secure this outcome.
- In non-cabled areas, a single NGA should be built to all users in the area served. This includes addressing “digital divide” issues.
- New build housing represents a sub-set of the above, except that it presents the most important early opportunity for NGA implementation.

Annex

Response to Ofcom's specific Consultation Questions

Please note: the responses below should not be read in isolation, but should be taken in the context of the points made in the preceding part of our response.

Question 1: When do you consider it would be timely and efficient for next generation access investments to take place in the UK?

We consider that Ofcom is putting too much stress on the "timely and efficient" aspect of NGA investment at the expense of other issues. It is of paramount importance that the UK gets the most appropriate NGA investment that will deliver true long term benefits for all UK users.

We have indicated above:

- We consider that because of the long timescales required to agree a UK NGA implementation, and for that implementation to occur in volume, there is a real danger of a re-run of the earlier problems experienced with current broadband.
- Access is fundamentally different from other parts of communications infrastructure and service. The investments are large, require time to implement, have different operation and maintenance requirements, and will remain in service for a long time. The risk of an enduring economic bottleneck is recognised. The need to build-in evolution potential is a critical element.
- There is a fundamental weakness in leaving the market to deliver competitive NGA investments. We do not consider that this approach will deliver a satisfactory outcome from either a "timely" or "efficient" perspective.

We therefore consider that there is a very strong argument for urgent action to develop a credible NGA plan for the UK. The approach taken needs to acknowledge the special attributes of access networks and should therefore be radically different from that used for other parts of the communication infrastructure.

Question 2: Do you agree with the principles outlined for regulating next generation access?

Partly.

We agree wholeheartedly with the view expressed in Paragraph 4.3: "These networks will be in place for a long time, and so their deployment offer us the chance to consider the forms of competition that may deliver most consumer benefit far into the future. Stakeholders across the value chain have a chance

now to influence the competitive structure for wireline communications access services for potentially decades to come".

We have argued above that the successful implementation of NGA is only likely to occur if the strong natural monopoly element of NGA is recognised. This means that the existing regulatory principles and frameworks need to be assessed critically in that context.

We note that in para 4.12 Ofcom states: "In meeting its principal duty, Ofcom is required to secure the availability throughout the UK of a wide range of electronic communications services". We have no issue with that statement. However, para 4.12 goes on to say: "For next generation access, this means ensuring the conditions are right for timely and efficient investment in these new networks." We do not necessarily accept the connection between the two statements. In the second statement, it is appropriate that it should be "timely" if this means that the whole of the UK does not again fall behind developments in other countries. Similarly, it should be "efficient" if this means that multiple implementations, with their associated capital and operational expenditure, are being positively avoided. However, what is missing is the important concept that the investment in the new networks, from the perspective of what is actually provided, needs to be optimised for all users, both in the short and much longer term. It is no good for Ofcom to just allow the "market" to decide what is needed and expect a satisfactory outcome. We are therefore totally opposed to the concept expressed at the end of para 4.16: "The complexity involved is one of the reasons why believe these investment decisions are best left to the market rather than regulatory policy or public intervention". We consider that approach will ensure an unsatisfactory outcome for the UK and will lead Ofcom to fail in its principal duty as expressed in para 4.12.

Para 4.14 introduces the concepts of "contestability", "reflecting risks in returns", and "regulatory certainty".

In the context of NGAs, we consider that contestability should have two elements. NGAs should be implemented and operated by different companies in different areas allowing comparison between their operations in a similar way, for example, to regulation of water companies. Fundamentally, these NGA Operators should not be service providers, or be a part of a company which is a service provider. The NGA Operator should provide, and be incentivised to provide, true equality of access – "Open Access"- to a wide range of service providers. This would be done by the establishment of appropriate "peering points" which would be an important aspect of the approach. The competitive service provider element would therefore be the second aspect of contestability.

The "reflecting risks in returns" would then be addressed by a long term, regulated return approach which would both provide "regulatory certainty" and positively encourage investment.

We are therefore proposing that a significantly different regulatory framework and market arrangement is needed for the successful delivery of NGAs in the UK. We therefore view with considerable dismay the “hands-off” sentiment expressed in para 4.25 of the consultation document.

As indicated above, we also strongly believe that “digital divide” issues will be real, and need to be addressed now as part of overall NGA policy.

Question 3: How should Ofcom reflect risk in regulated access terms?

As we have indicated above, the regulatory approach should be based on the conclusion that the NGA represents a natural monopoly. There will be substantial experience from other regulatory bodies in handling the risk associated with these developments.

We consider that the risks associated with other approaches will lead to stalled investment and a greater possibility of NGA implementations that are not in the long term interests of all UK users.

We note the reference to co-operative deployment options identified in para 5.19. Whilst it would be interesting to have further information on the developments mentioned, it is clear that a cartel of service providers coming together to operate the NGA is not a desirable outcome. Our strong preference is for a separation between the NGA operator and the service providers.

Question 4: Do you agree with the need for both passive and active access remedies to promote competition?

It should be evident from our response above, that we mainly favour promotion of competition through carefully constructed active access. Factors such as the location of peering points, the capacity for local service provision, and support for a wide range of service providers are important. We consider that this approach will minimise the replication of investment, has the greatest potential for efficiency of operation, and can importantly encourage innovation in service development by minimising the entry barriers for new operators. This will deliver the greatest long-term benefit for end users.

However, we also see advantages for building-in passive access options into the NGA policy. Specifically, these options relate to access to dark fibre at an appropriate local node location in FTTH deployments. If we envisage a “standard NGA”, for example based on a symmetric 100 Mb/s service, supplied by the regulated NGA provider in an area, then the dark fibre option gives the opportunity for an “enhanced NGA” service, for example based on a symmetric 1 Gb/s service (or more), to be supplied over dark fibre by an alternative “enhanced NGA” provider. Importantly, the “enhanced NGA” provider would still be required to supply a regulated “standard NGA” service via peering so that other service providers are not excluded from the market.

This approach provides some safeguards for service development, and allows for innovation in how the FTTH link is used. The availability of a dark fibre option would be precluded by a PON FTTH implementation using field deployed splitters. However, if the splitters were installed at the local node then access to “PON” dark fibre would be possible, and it would also be possible to add a PON deployment by installing splitters at the local node and using the dark fibre option.

Question 5: Do you consider there to be a role of direct regulatory or public sector intervention to create artificial incentives for earlier investment in next generation access?

We have indicated above that we consider that it will take some time for a UK NGA policy to be developed and for appropriate NGA networks to be built in volume. Also, that left purely to the market, the outcome in terms of what is implemented, and when it is provided, will be unfavourable to the UK as a whole. There is a real danger of a re-run of the first generation broadband fiasco where the UK’s performance by international comparison was woefully lacking.

We have also indicated that we see real economic and social value in roll-out of NGA services and that importantly this needs to be on a universal basis. We consider that this universal aspect is under-represented in the consultation.

With reference to para 7.33, we see no danger in the UK being a “first mover” and therefore do not see that the pitfalls associated with that will apply. With respect to the time required to implement NGA in the UK, as raised in paras 7.34 and 7.35, evidence from the UK Cable TV build suggests that at least a ten year programme would be required.

We think that there is a strong case for building the consensus raised in para 7.42: “between all stakeholders, including government and citizens, that there is a need for intervention to accelerate the deployment of next generation access to deliver social welfare or economic benefits. For example, with such consensus and a willingness to transfer risk to end users, utility style regulation may be an appropriate mechanism to deliver next generation access investment”. With respect to end user risk, it should be borne in mind that end users are already carrying the risks associated with inaction and delayed investment. Because of the time required to agree and implement NGN policy, we consider that intervention is needed urgently.