

**OVERHEAD DEPLOYMENT OF  
TELECOMMUNICATIONS CABLES**

A consultation examining whether it is  
appropriate to amend the Electronics  
Communications Code

SEPTEMBER 2009

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## **Overhead deployment of telecommunications cables. A consultation on whether it is appropriate to amend the Electronics Communications Code.**

The independent Caio Review into the barriers to investment in NGA identified that deployment of fibre overhead would make the business case stronger, due to the disproportionate costs of the civil works required to lay all cables underground, and recommended that Government consider whether deployment overhead would enhance the business case for telecommunications companies. In January 2009, Government accepted this recommendation, and made a commitment to consult on this issue to identify demand – from both telecommunications companies and those who may be best served by overhead cables. This commitment was reinforced in the Digital Britain Final Report.

Issued: 4 September 2009

Respond by: 27 November 2009

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This consultation is relevant to: Telecommunications companies, rural organisations including lobby groups and community broadband groups, and other stakeholders with an keen interest in the deployment of broadband and Next Generation Access.

## 1 Executive Summary

1. This paper sets out questions about whether it would be appropriate to relax restrictions on overhead deployment of communications cables in order to encourage faster and wider rollout of next generation super fast broadband in areas that might not otherwise be covered by these services.
2. Overhead deployment could offer a cheaper method, of rolling out Next Generation Access (NGA) infrastructure and could possibly expedite rollout to areas where the business case for NGA deployment is weak. This will typically be in the more rural areas of the country, but may also include other suburban areas.
3. Government wishes to explore whether amending the Electronic Communications Code in a way that allows for overhead deployment of telecoms lines where local communities support such a move would make a difference to the business case for companies that deploy Next Generation broadband.
4. Responses are sought specifically on the following questions:

### For Communications Providers

- Do you believe that the ability to install lines overhead would reduce the costs of providing Next Generation Access and if so how much? Would any reduction in costs apply more in some areas, i.e. rural areas, than others?
- As a communications provider, would amending the Code to allow for overhead deployment make it more likely that you would consider deploying Next Generation Access to more areas? Can you estimate the extent of this impact on any NGA rollout plans that you have?
- If we consider amending the Code to allow for this, are there particular restrictions that we might apply that would change the answers to Q1 and Q2?

### For consumers/communities

- What impact would the presence of more telegraph poles have on the visual amenity of your area and the surrounding landscape?
- To what extent do you believe that the benefits Next Generation Access would bring (as described in the Impact Assessment) outweigh this impact and is this a trade-off worth having?
- If a decision is made to allow overhead deployment in some circumstances are there particular restrictions would you suggest we set?
- Given the potential impact on communities of any overhead deployment, should any relaxation of the Code be subject to local support, and how should such support be judged?

## 2 How to respond/Additional copies

5. When responding please state whether you are responding as an individual or representing the views of an organisation. If you are responding on behalf of an organisation, please make it clear who the organisation represents by selecting the appropriate interest group on the consultation response form and, where applicable, how the views of members were assembled.

6. The responses can be submitted by letter, fax or email to:

Joanne Carter  
Department for Business, Innovation and Skills  
1 Victoria Street  
Tel: 020 7215 3380  
Fax: 020 7215 5442  
Email: [joanne.carter@bis.gsi.gov.uk](mailto:joanne.carter@bis.gsi.gov.uk)

7. A list of those organisations and individuals consulted is in Annex B. We would welcome suggestions of others who may wish to be involved in this consultation process.

8. You may make copies of this document without seeking permission. Further printed copies of the consultation document can be obtained from:

BIS Publications Orderline  
ADMAIL 528  
London SW1W 8YT  
Tel: 0845-015 0010  
Fax: 0845-015 0020  
Minicom: 0845-015 0030  
[www.bis.gov.uk/publications](http://www.bis.gov.uk/publications)

## 3 Confidentiality & Data Protection

9. Information provided in response to this consultation, including personal information, may be subject to publication or release to other parties or to disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004). If you want information, including personal data that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence.

10. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

## 4 Help with queries

11. Questions about the policy issues raised in the document can be addressed to:

Joanne Carter  
Department for Business, Innovation and Skills  
1 Victoria Street  
Tel: 020 7215 3380  
Fax: 020 7215 5442  
Email: [joanne.carter@bis.gsi.gov.uk](mailto:joanne.carter@bis.gsi.gov.uk)

A copy of the Code of Practice on Consultation is available on the BIS website:  
<http://www.berr.gov.uk/whatwedo/bre/consultation-guidance/page44458.html>

## 5 The Electronic Communications Code

12. The Electronic Communications Code ('the Code') is set out in Schedule 2 to the Telecommunications Act 1984, as amended by the Communications Act 2003 ('the 2003 Act').
13. The Code is a set of legislative and regulatory rules designed to facilitate the installation and maintenance of electronic communications networks or electronic communications services by operators of such networks.
14. Persons who desire to benefit from having the Code must apply to Ofcom. The Code is applied to someone (other than the Secretary of State or any Northern Ireland department) by a direction given by Ofcom under section 106 of the 2003 Act after a consideration of the application. Once applied the beneficiary is commonly referred to as a 'Code Operator'.
15. The only purpose for which the Code may be applied to a person's case is the provision by him of an electronic communications network or a system of conduits which he is making available, or proposing to make available, for use by providers of electronic communications networks for the purposes of the provision by them of their networks (section 106(5) of the 2003 Act). The application of the Code may relate to specific places or localities or the provision of particular networks or conduit systems or parts of networks or conduit systems (section 106(5) of the 2003 Act).
16. The Code has effect in all cases and circumstances subject to the conditions and restrictions in the Electronic Communications Code (Conditions and Restrictions) Regulations 2003, SI. No 2003/2553 ("the 2003 Regulations"). The 2003 Regulations came into force in October 2003 following a consultation by the Department for Trade and Industry (DTI) with Ofcom and interested organisations and bodies.
17. The conditions and restrictions pertain, in the main, to requirements for consultation with and notification to highway and planning authorities in circumstances as specified in the 2003 Regulations.
18. Under Section 109 of the 2003 Act the Secretary of State has the power to make regulations setting out these conditions and restrictions following consultation with Ofcom and others. The Secretary of State when making conditions and restrictions regulations must have regard, amongst other considerations, to the need to protect the environment, and Ofcom's general duties to fulfil Community obligations. These duties include furthering the interests of consumers in relevant markets by promoting competition.

## 6 Proposal

19. The independent Caio Review into the barriers to investment in NGA identified that deployment of fibre overhead would make the business case stronger, due to the disproportionate costs of

the civil works required to lay all cables underground, and recommended that Government consider whether deployment overhead would enhance the business case for telecommunications companies. In January 2009, Government accepted this recommendation, and made a commitment to consult on this issue to identify demand – from both telecommunications companies and those who may be best served by overhead cables.

20. Overhead deployment could offer a cheaper method<sup>1</sup>, of rolling out Next Generation Access (NGA) infrastructure and could possibly expedite rollout to areas where the business case for NGA deployment is weak. This will typically be in the more rural areas of the country, but may also include other suburban areas.
21. Government wishes to explore whether amending the Electronic Communications Code in a way that allows for overhead deployment of telecoms lines where local communities support such a move would make a difference to the business case for companies that deploy Next Generation broadband.
22. The Government also wishes to explore the views of those communities that might be impacted by a change of this sort. We have identified two potential impacts: first communities that want NGA but are unlikely to receive it under current conditions due to their more rural location (outside of National Parks, the Broads, Areas of Outstanding Natural Beauty and other protected areas as defined by the Code), might be able to benefit from availability fo NGA services; second, there would be an obvious visual amenity aspect.

## **7 Costs and Benefits:**

23. Amending the 2003 Regulations in such a manner is not expected to impose any disproportionate costs or regulatory burdens on businesses or voluntary organisations.
24. The benefits of any amendment that allows for overhead deployment are clear – telecommunications companies would be in a better position to determine whether there is a case for the deployment of fibre to areas outside of those that are currently commercially attractive, and consumers may be offered a service that otherwise would not be provided as a result.
25. Any reduction in costs of NGA deployment will also offer a two-fold benefit in relation to the Next Generation Fund, outlined in the Digital Britain Report. The Government has proposed to use the Next Generation Fund to facilitate commercial investment in NGA projects in areas that would otherwise be uneconomic. If permitting overhead deployment encourages rollout in areas that would not otherwise have been reached on a purely commercial basis, this will both reduce the proportion of the market that requires public intervention and reduce the amount of public subsidy required to delivery the desired benefit.
26. It is extremely difficult to assess the size of the potential benefits which may be generated by NGA. Next Generation Access and super-fast broadband are still in the very early stages of being rolled-out across the country, and its full effects are not going to be known for some considerable time. However, benefits are expected to include significantly improved tele-working, improved access to public services, as well as a positive impact on rural businesses and the self-employed, with significant productivity gains.

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<sup>1</sup> Estimates vary, but overhead deployment could decrease costs by as much as 40%, according to work carried out by Cisco Systems for the Independent Caio Review

## 8 Key Issues

27. The Government recognises that amending the Code will raise a number of key concerns.
28. Should the amendment go ahead, the visual amenity of an area, and the street scene may change. The changes would not apply in Areas of Outstanding Natural Beauty, National Parks, The Broads and other protected areas as defined by the Code. However, in areas where overhead deployment was used the landscape would be changed by the presence of telegraph poles and cables running overhead. Such telegraph poles are already a feature of many suburban and rural areas.
29. However, the Government also believes in choice for consumers. The Caio Review, and the Digital Britain Report acknowledge that local projects have an important role to play in the deployment of NGA, and by allowing the deployment of overhead cables, you allow those areas that want NGA at a rate quicker than the market will deliver (if at all), to choose whether the presence of telegraph poles and cables is acceptable.
30. Inevitably this proposal will raise concerns within some communities. The Government would like to understand all the issues that cause concern, to establish the level of demand from both the telecoms industry and consumers, and to understand any other (e.g. environmental) impact of this policy, including the impact from potentially reducing the extent of street digs to enable underground deployment.
31. Under existing planning legislation, outside sensitive areas, telegraph poles have full permitted development rights, which means that they can be erected without any requirement for planning permission. The control of overhead development is solely achieved through the underground deployment requirement in the code.
32. In taking forward any proposals the Government would be keen to define the circumstances in which operators could use overhead deployment and any constraints that ought to be applied. In defining these parameters the Government would be keen to achieve a balance between protecting the visual amenity of an area and facilitating the roll out of broadband, informed by local wishes.
33. We are also seeking views from communications providers on whether this is something that would benefit them, and aid deployment of NGA. We recognise that there are costs associated with overhead deployment, in particular armoured cable and reinforced poles are needed, but it is estimated that deployment overhead could lead to as much as a 60%<sup>2</sup> reduction in roll out costs compared to underground. Other estimates are a little more conservative at a 10 - 15% reduction<sup>3</sup>

## 9 Impact Assessment

34. The key considerations relating to the limited proposal in this consultation is included in the summary impact assessment at Annex A to signpost the relevant analysis. Initial assessment has shown that this proposal will have little or no impact on code operators who install equipment in Protected Areas.

## 10 What happens next?

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<sup>2</sup> Cisco cost-modelling for Caio Review based on US data

<sup>3</sup> BSG/Analyses Mason cost modelling for Caio Review

35. The responses to the consultation will be considered by Government before a response is published no later than 19 February 2010. The responses (where appropriate) will be published alongside the Government response.
36. Should there be a positive response to the consultation; a further period of consultation will take place, examining areas such as the impact on planning.

## **Annex A: The Consultation Code of Practice Criteria**

1. Formal consultation should take place at a stage when there is scope to influence policy outcome.
2. Consultation should normally last for at least 12 weeks with consideration given to longer timescales where feasible and sensible.
3. Consultation documents should be clear about the consultation process, what is being proposed, the scope to influence and the expected costs and benefits of the proposals.
4. Consultation exercise should be designed to be accessible to, and clearly targeted at, those people the exercise is intended to reach.
5. Keeping the burden of consultation to a minimum is essential if consultations are to be effective and if consultees' buy-in to the process is to be obtained.
6. Consultation responses should be analysed carefully and clear feedback should be provided to participants following the consultation.
7. Officials running consultations should seek guidance in how to run an effective consultation exercise and share what they have learned from the experience.

### **Comments or complaints**

If you wish to comment on the conduct of this consultation or make a complaint about the way this consultation has been conducted, please write to:

Tunde Idowu,  
BIS Consultation Co-ordinator,  
1 Victoria Street,  
London  
SW1H 0ET

Telephone Tunde on 020 7215 0412  
or e-mail to: [Babatunde.Idowu@bis.gsi.gov.uk](mailto:Babatunde.Idowu@bis.gsi.gov.uk)

## **Annex B: Impact Assessment of relaxing the restrictions**

# Deployment of telecommunication cables overhead

Department /Agency:  
Department for Business,  
Innovation and Skills (BIS)

Title:  
Impact Assessment of proposals to allow the  
deployment of telecommunications cables overhead

Stage: Initial

Version: Draft

Date: 01 July 2009

Related Publications: Digital Britain Impact Assessment (2009)  
Caio Review (2008)

## Available to view or download at:

<http://www.berr.gov.uk>

Contact for enquiries: Joanne Carter

Telephone: 020 7215 3380

## What is the problem under consideration? Why is government intervention necessary?

Unaided, the market is unlikely to deliver next generation access (NGA) broadband to the final third of the population. The full extent of the benefits achievable with NGA broadband may not be taken into account by network providers resulting in slower and reduced levels of investment. As a result, a large proportion of the population will be unable to take advantage of the potential benefits which NGA broadband networks could provide. This is particularly relevant for rural and remote areas and could have a strong impact on horizontal equity and social inclusion.

## What are the policy objectives and the intended effects?

The government aims to deliver a more rapid and extensive roll-out of NGA across the UK without distorting competition in the broadband market. Relaxing restrictions on the overhead deployment of communications cables may help reduce the costs of rolling-out NGA and enhance the business case for network operators. This could have the effect of 1) NGA networks being deployed faster 2) coverage of NGA network being more extensive geographically.

As a result, more consumers and businesses may be able to take advantage of the benefits of NGA broadband and sooner than may otherwise have been the case.

What policy options have been considered? Please justify any preferred option.

Two options have been considered:

Option 1. Do nothing (counterfactual)

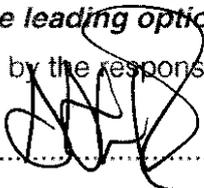
Option 2. Relax restrictions to overhead wire deployment (preferred option). This option is preferred since it would enable a faster deployment of NGA by improving the commercial case for roll out.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects? A more detailed analysis of the costs and benefits will be carried out if formal proposals are brought forward following this consultation

**Ministerial Sign-off** For consultation stage Impact Assessments:

***I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.***

Signed by the responsible Minister:



..... Date:

## Summary: Analysis & Evidence

**Policy Option: 2. Relax regulations**

**Description: Amendments to the 2003 Regulations of the Electronic Communications Code which would allow deployment of overhead cables**

<b>COSTS</b>	<b>ANNUAL COSTS</b>		Description and scale of <b>key monetised costs</b> by 'main affected groups' A more detailed analysis of the costs and benefits will be carried out if formal proposals are brought forward following this consultation
	<b>One-off</b> (Transition)	<b>Yrs</b>	
	£		
	<b>Average Annual Cost</b> (excluding one-off)		
	£		<b>Total Cost (PV)</b> £
Other <b>key non-monetised costs</b> by 'main affected groups' In areas where overhead wires are deployed there may be an environmental cost – the construction of telegraph poles may affect the visual amenity of an area, reducing the aesthetic value of the landscape			

<b>BENEFITS</b>	<b>ANNUAL BENEFITS</b>		Description and scale of <b>key monetised benefits</b> by 'main affected groups' A more detailed analysis of the costs and benefits will be carried out if formal proposals are brought forward following this consultation
	<b>One-off</b>	<b>Yrs</b>	
	£		
	<b>Average Annual Benefit</b> (excluding one-off)		
	£		<b>Total Benefit (PV)</b> £
Other <b>key non-monetised benefits</b> by 'main affected groups' Benefits to network operators from having lower future costs of rolling out NGA. Earlier delivery of benefits to consumers and businesses in rural areas where coverage by NGA would have been deployed later - or not at all - without government intervention.			

### Key Assumptions/Sensitivities/Risks

Price Base Year	Time Period Years	<b>Net Benefit Range (NPV)</b> £	<b>NET BENEFIT (NPV Best estimate)</b> £
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What is the geographic coverage of the policy/option?			
On what date will the policy be implemented?			
Which organisation(s) will enforce the policy?			
What is the total annual cost of enforcement for these organisations?		£	
Does enforcement comply with Hampton principles?		Yes/No	
Will implementation go beyond minimum EU requirements?		Yes/No	
What is the value of the proposed offsetting measure per year?		£	
What is the value of changes in greenhouse gas emissions?		£	
Will the proposal have a significant impact on competition?		Yes/No	
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium Large
Are any of these organisations exempt?	Yes/No	Yes/No	N/A N/A

<b>Impact on Admin Burdens Baseline</b> (2005 Prices)		(Increase - Decrease)	
Increase of £	Decrease of £	<b>Net Impact</b>	£

Key:

Annual costs and benefits: Constant Prices

(Net) Present Value

### **Background**

In September 2008, Francesco Caio published the findings of an independent review on the barriers to investment in next generation access (NGA) broadband<sup>4</sup>. One of the review's recommendations was the relaxation of regulations on the overhead deployment of communications cables which could help to lower deployment costs. The UK government accepted this recommendation in its response published earlier this year alongside the Digital Britain Interim Report (January 2009)<sup>5</sup>. This recommendation was reinforced in the Digital Britain White Paper which the Government published on 16 June 2009.

### **Rationale for government intervention**

Unaided, the market is unlikely to deliver NGA to the final third of the population. NGA investment involves high costs, long pay-back periods and continuing demand uncertainty, all of which may serve to reduce the incentive and willingness of network providers to carry out further investment.

In more rural and remote areas of the country (but also in some suburban areas), where long distances must be covered in order to connect households, the costs of deploying NGA are disproportionately higher. This serves to make the business case for NGA deployment in these areas relatively weaker.

Current restrictions relating to the deployment of overhead communication cables may serve to hamper the ability of the markets to deliver NGA broadband in some areas. This is because network operators may have to resort to alternative methods of deploying NGA such as through underground cables which can be relatively more costly and make the business case much less attractive.

As a result, the roll-out of NGA broadband by the market may not only be slower but also a large proportion of the population will be unlikely to take advantage of the potential benefits which NGA broadband connections could entail, having a negative impact on horizontal equity and social inclusion.

The Digital Britain White Paper also proposed a 50p per month levy on each fixed telephone line, in order to raise £150-175m to provide a Next Generation Fund, with the aim of helping to

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<sup>4</sup> Caio (2008) *The Next Phase for Broadband UK: Action Now for Long-Term Competitiveness*. A review of barriers to investment in next generation access. The final report can be found at: <http://www.berr.gov.uk/files/file47788.pdf>

<sup>5</sup> [http://www.culture.gov.uk/images/publications/digital\\_britain\\_interimreportjan09.pdf](http://www.culture.gov.uk/images/publications/digital_britain_interimreportjan09.pdf)

provide Next Generation broadband to the Final Third of the country that the UK that the market would not otherwise reach. It is important that public investment is efficient as possible and the Final Third Fund is likely to be required in areas where overhead deployment may be necessary.

### **High-level benefits of NGA**

It is extremely difficult to assess the size of the potential benefits which may be generated by NGA. Next Generation Access and super-fast broadband are still in the very early stages of being rolled-out across the country, and its full effects are not going to be known for some considerable time. It is also still very much unknown as to what new and innovative applications and services super-fast broadband is likely to support; consumer demand for such services is likely to be; and the precise amount businesses and households would be willing to pay for them.

Furthermore, the benefits may depend on the technology solution used to deliver NGA. As a result, there is considerable uncertainty as to the size of the potential benefits achievable from next generation broadband. However, there are a number of areas where next-generation access may be expected to bring benefits over and above those of standard broadband access:

#### Tele-working

NGA-supported services such as two-way video conferencing may encourage more employees and employers to make greater use of tele-working whereby some employees work from home where they can be more productive. This can deliver benefits both to the firm, the employee as well as wider economic, social and environmental benefits. For example tele-working can:

- Help reduce the barriers to entering the labour force for those groups which may be less mobile (e.g. disabled and parents with child-care responsibilities who wish to work part-time);
- Potentially contribute to the reduction in traffic congestion and carbon emissions; and
- Improve work-life balance.

#### Improved delivery of public services (education and health care)

NGA can help improve the quality and delivery of education services to people in more rural and remote areas, helping them become more skilled, productive and earn a higher wage. Australia

is an excellent illustrative example of where this is happening. According to DCITA<sup>6</sup>, higher-speed broadband access has led to the creation of virtual classrooms which help to deliver a better quality of service and enables teachers to engage with students as a group through video conferencing.

NGA can also play an important role in improving the quality and delivery of healthcare services. As Table 1 below shows, NGA has the potential to deliver higher-quality versions of existing health care technologies and services as well as enabling delivery of new services which cannot be supported using current generation broadband networks.

*Table 1: Delivery of healthcare technologies and services at different broadband speeds*

Domain/service	Technology	Individual	Small institution	Large institution
		10 Mbps	100 Mbps	1 Gbps
<b>A. Care</b>				
High quality non-real-time video-imaging for diagnosis Cardiology neurology and emergency room consultations	File transfer	High quality	High quality	High quality
Cineo-angiography and echocardiograms	H.323 video	High quality	High quality	High quality
3D Interactive brain imaging	H.323 video	High quality	High quality	High quality
Clinical decision-support systems	SGI Vizserver	Unsupportable	Medium quality	High quality
Advanced decision support systems	Web browsing	High quality	High quality	High quality
Home monitoring	Image transfer		High quality	High quality
Home tele-visits	Telemetry	Medium quality always on		
Public health information	H.323 video	Medium quality		
	Web browsing	High quality		
<b>C. Teaching/learning</b>				
Professional tele-education	MPEG I video	High quality	High quality	High quality
Effective learning	Multimedia			
Browsing	High quality	High quality	High quality	
Comprehensive learning environment	H.323 video conferencing			
	T.120 applications			
	Sharing	Medium quality	High quality	High quality

Source: OECD Information Technology Outlook, 2004

According to DCITA (2007) while some health care services can be delivered using small amounts of bandwidth (e-psychiatry, e-ultra-sound and e-radiology) the number of services using increased bandwidths is rising because it offers the prospect of clearer pictures, smoother motion and better synchronicity of sound with images through broadband. This suggests that the quality of healthcare service can be significantly improved for people who cannot easily access health care services such as the elderly or people living in remote areas.

<sup>6</sup> DCITA (2007) *The economic effects of broadband: an Australian perspective*. This paper can be accessed at: <http://www.oecd.org/dataoecd/29/9/38698062.pdf>

## Social and Environmental benefits

According to Plum (2008)<sup>7</sup>, NGA supported services may help deliver further progress towards the achievement of social objectives such as increased democratic participation, cultural understanding and social inclusion. Furthermore, NGA-supported services may make a more powerful contribution to environmental objectives such as carbon abatement and reduced energy consumption<sup>8</sup>.

## Options

### ***Option 1: Do nothing***

Under this option there would be no change to the 2003 Electronic Communications Code.

### *Benefits*

The timing of the potential benefits to households and businesses of NGA broadband will continue to depend on the speed at which the market delivers NGA broadband. For those in the final third of the population – particularly those in more rural areas of the UK – it is highly likely that they may not be able to experience NGA and enjoy the benefits and opportunities that it offers purely through commercial deployment.

### *Costs*

Analysys Mason (2008)<sup>9</sup> estimates that if NGA cannot be delivered aurally via telegraph poles then delivering NGA on a national basis would cost some £5.1bn for FTTC and around £24-28bn for FTTH. However, there are strong uncertainties around these costs and further analysis is required in order to provide a robust estimate.

### ***Option 2: Relax regulations***

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<sup>7</sup> Plum Consulting (2008) *A framework for evaluating the value of next generation broadband*. This report can be accessed at: [http://www.broadbanduk.org/component/option,com\\_docman/task,doc\\_view/gid,1009/Itemid,63/](http://www.broadbanduk.org/component/option,com_docman/task,doc_view/gid,1009/Itemid,63/)

<sup>8</sup> Climate Risk Pty Ltd (2007) *Towards a high bandwidth, low-carbon future*. This report can be accessed at: [http://www.climaterisk.com.au/Climate%20Risk%20Telstra\\_report.pdf](http://www.climaterisk.com.au/Climate%20Risk%20Telstra_report.pdf)

<sup>9</sup> Analysys Mason (2008) *The costs of deploying fibre-based next generation broadband infrastructure*. Final report for the Broadband Stakeholder Group. This report can be accessed at: [http://www.broadbanduk.org/component/option,com\\_docman/task,doc\\_view/gid,1036/Itemid,63/](http://www.broadbanduk.org/component/option,com_docman/task,doc_view/gid,1036/Itemid,63/)

Under this option, the 2003 Electronic Communications Code would be amended to allow the deployment of NGA broadband through overhead lines.

### *Benefits*

Households and businesses in more rural and remote areas (as well as some suburban areas) may be able to enjoy the benefits and opportunities of NGA much earlier than would be possible if restrictions were not relaxed. Additionally, it is possible that areas which wouldn't have been connected to NGA broadband because the commercial case was weak would now be covered under this policy option. This would enable consumers and businesses in such areas to enjoy the benefits of super-fast broadband.

Cost savings to network operators could be realised since the costs of deploying NGA through overhead wires would be less costly than alternative options such as underground deployment. Some studies have already attempted to present cost estimates of the different technological options to roll out NGA broadband in the UK and the potential cost savings achievable from overhead deployment. These studies differ considerably in the methodological approach they use and the technological and behavioural assumptions which underpin their modelling. As a result, they reach different estimates of the total costs of rolling out NGA and the relatively cost savings achievable from deploying NGA overhead.

- Research by Analysis Mason (2008) shows that if aerial deployment is possible in some parts of the country, then the total cost of delivering NGA on a national basis could fall by around 10%. For Fibre to the Cabinet (FTTC) it is estimated that the total cost would fall from some £5.1bn to £4.7bn while for Fibre to the Home (FTTH) the total cost would fall from some £24-28bn to £20-23bn depending on the technology solution adopted. This is based on the assumption that aerial deployment is used to deliver NGA in rural areas and that new telegraph poles are used to achieve this, the impact of which would be the average cost per metre of aerial fibre installation to £25 per metre. Again, it is not completely clear that such savings are achievable everywhere which means that real cost savings could potentially be lower.
- Cisco Systems model the cost of deploying super-fast broadband of 8 UK cities (excluding London)<sup>10</sup>. Their study suggests that the cost of overhead deployment of NGA may be

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<sup>10</sup> Cisco (2008): *Cost analysis for deployment of NGA access in the United Kingdom*

between 50-60% lower than underground<sup>11</sup>. These savings are estimated through modelling of the deployment of super-fast broadband with FTTH technologies<sup>12</sup>. Using Analysys Mason's results and assuming a 60% reduction is achievable this would suggest a fall in the total cost of rolling out FTTH from some £24-28bn down to around £10-11bn. Results from the modelling exercise show that cost savings are larger in suburban areas than in densely populated areas. This indicates that aerial deployment of NGA broadband in rural areas has the potential to realise larger cost savings than in urban areas. However it is not entirely clear that such assumptions are realisable everywhere which would imply that cost savings could in fact be lower.

- Anecdotal evidence in the UK also suggests that where telecoms operators have been allowed to deploy overhead, cost savings have been in the region of approximately 50%<sup>13</sup>

## Costs

The construction of more telegraph poles may be unsightly and reduce the aesthetic value of areas of visual amenity which may have an economic cost. This is because landscape generates an economic value as several studies in the UK have shown. For example, Sims and Dent (2005)<sup>14</sup> find that proximity to electricity pylons has a strong impact on the value of houses, with prices between 15-20% lower for those houses within a range of 250 metres from the pylons. As a consequence, relaxing the regulation on the deployment of overhead wires may have an impact on the wealth of property owners, however it should be noted that any overhead telecommunications cables are likely to be carried by smaller telegraph poles, rather than the larger electricity pylons and is likely to have a lesser impact.

In a different study, Day *et al* (2001)<sup>15</sup> conducted nearly 800 interviews in England and Wales and concluded that willingness to pay to replace overhead poles with underground lines was in the range of £55 to £76 per person.

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<sup>11</sup> Caio (2008) *The Next Phase for Broadband UK: Action Now for Long-Term Competitiveness*. A review of barriers to investment in next generation access. The final report can be found at: <http://www.berr.gov.uk/files/file47788.pdf>

<sup>12</sup> Costs were modelled under various assumptions on the nature and size of capital and operational expenditures, including cost of civil works. Cost estimates in different UK cities are based on high level demographic information of each city and on different assumptions of the mix of overhead and underground deployment of broadband.

<sup>13</sup> Caio (2008) *The Next Phase for Broadband UK: Action Now for Long-Term Competitiveness*. A review of barriers to investment in next generation access. The final report can be found at: <http://www.berr.gov.uk/files/file47788.pdf>

<sup>14</sup> Sims, S. and Dent, P. (2005) "High-voltage Overhead Power Lines and Property Values: A Residential Study in the UK", *Urban Studies*, 42(4): 665-694

<sup>15</sup> Day, B., Atkinson, G., Mourato, S. and Palmer, C. (2001) "The Environmental Benefits of Electricity Tower Designs, Report to the National Grid Company plc., London.

It is nevertheless not possible in this initial impact assessment to present monetised estimates of the potential cost of relaxing the 2003 Regulations of the Electronic Communications Code on overhead wires deployment. This is because at this stage of the consultation process it is not clear what would be the impact of the proposals in the deployment of next generation broadband networks through overhead poles.

It is nevertheless proposed that Areas of Outstanding Natural Beauty, National Parks, and the Broads will remain fully protected and therefore no visual impact on these areas is expected.

A more detailed analysis of the costs and benefits will be carried if formal proposals are brought forward following the consultation which this impact assessment accompanies.

## Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

**Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.**

Type of testing undertaken	<i>Results in Evidence Base?</i>	<i>Results annexed?</i>
Competition Assessment	No	No
Small Firms Impact Test	No	No
Legal Aid	No	No
Sustainable Development	No	No
Carbon Assessment	No	No
Other Environment	No	No
Health Impact Assessment	No	No
Race Equality	No	No
Disability Equality	No	No
Gender Equality	No	No
Human Rights	No	No
Rural Proofing	Yes	Yes

### **Rural proofing**

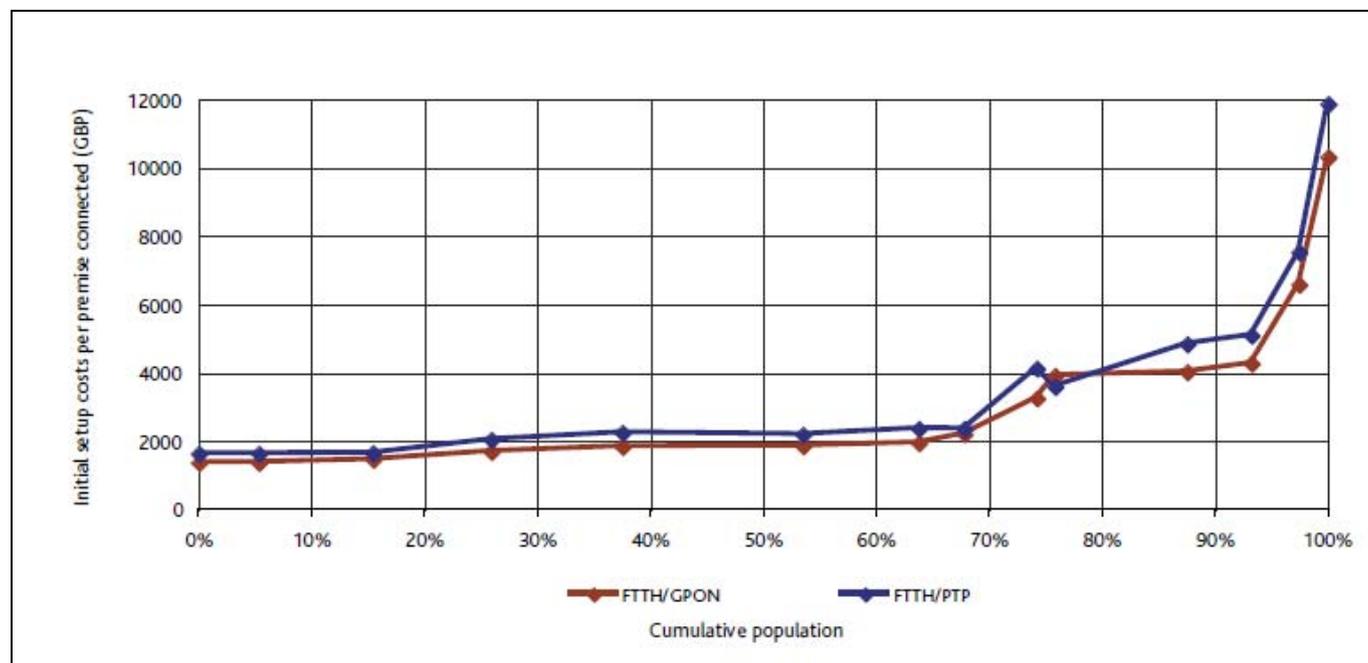
#### *Impact on service provision and availability*

These proposals could have a positive impact on the availability of public and private services. Households and businesses in rural areas will be able to benefit from a full range of private and public services supported by NGA. These benefits include improved access to better quality public services (e.g. education and healthcare services) which can be offered by NGA. It may also improve the availability of private services such as entertainment services which people in rural areas may not have easy access to (e.g. theatre and cinema). As such, people in rural areas will have the same range and choice of services as people in more urban areas.

#### *Delivery costs*

The cost of delivering NGA in rural areas is higher than in urban areas. As work by Analysys Mason<sup>16</sup> has shown, after 60% of the population has been reached the cost of rolling out NGA begins to rise significantly and it is particularly costly to cover the last few percentage of households in the UK (see Table 2).

Table 2. Cumulative costs of rolling out NGA broadband, UK



Source: Analysis Mason

In the same way as first generation broadband, the roll-out of NGA is being driven by economic factors. The commercial case for roll-out in rural areas is relatively weaker than in urban areas as the return on investment is lower. This is because as the population density falls, the cost of rolling-out NGA rises (since longer distances must be covered in order to connect households) and revenues fall (since the number of households – and therefore potential new subscriptions – in a given area). This serves to reduce the return on investment in these areas.

Therefore proposals which may enable cables to deploy NGA overground – which could deliver cost savings of up to 50% - may serve to greatly reduce the cost of deploying NGA to rural areas more quickly and more extensively than the market may presently be able to deliver.

<sup>16</sup> Analysys Mason (2008) *The costs of deploying fibre-based next generation broadband infrastructure*. Final report for the Broadband Stakeholder Group. This report can be accessed at: [http://www.broadbanduk.org/component/option,com\\_docman/task,doc\\_view/gid,1036/Itemid,63/](http://www.broadbanduk.org/component/option,com_docman/task,doc_view/gid,1036/Itemid,63/)

### *Accessibility and infrastructure*

The deployment of NGA could have a positive impact on travel in rural areas by reducing the need for travel. For example, NGA may support two-way video conferencing which may lead to a greater degree of tele-working. This in turn may reduce the amount of travel in two ways: first, people may be able to work from home rather than travel to the office and second people may make greater use of conferencing without the need for physical meetings.

It is also possible that faster and more reliable broadband made possible by NGA will reduce the need for travel to access private services (e.g. entertainment and banking services) and public services which can now be accessed more quickly and to a higher quality than may have previously been possible.

It is nevertheless important to ensure that the potential reduction in travel arising from the deployment of NGA technologies doesn't have a negative impact through the withdrawal of already limited public transport services in rural areas as demand decreases (e.g. it is possible that local services such as local bus routes are cut as a result of a decrease in the number of users).

### *Communications*

These proposals – if they help to roll-out NGA to rural areas –should help people access information much more easily and quickly than before. This will be a particular benefit for those who have not been previously able to experience broadband - possibly because they were in a so-called not-spot<sup>17</sup>. Benefits could include a better access to information from local and central government (e.g. having access to e-government services such as filing tax returns on-line).

### *Economies*

If these proposals help to deploy NGA in rural areas it will have a positive impact on rural businesses and the self-employed. Business productivity could increase by expanding the customer base of local businesses, enabling them to access new markets and exploiting the new business opportunities created by the growth in e-commerce which can extend beyond the UK's borders.

According to the Commission for Rural Communities (2009)<sup>18</sup> in 2006 more than 25% of employees in rural areas worked in SMEs, compared to only 11% in urban areas. If SMEs are likely to take advantage of the roll out of NGA, it is likely that this will have a relatively larger positive impact in rural areas.

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<sup>17</sup> Government is addressing this problem through the implementation of a Universal Service Commitment.

By taking advantage of on-line learning opportunities, people in rural businesses may be able to enhance existing skills and learn new ones – such as IT – enabling them to earn higher wages than before. UK evidence shows that people with IT skills can expect to earn on average a wage premium of 5-6%<sup>19</sup>.

It may also lead to greater flexibility in the local labour market as people in the surrounding area become better informed about job vacancies opportunities. Tele-working may also help people who are less mobile enter the labour market (e.g. disabled or working parents with child care responsibilities).

### *Disadvantage*

The Commission for Rural Communities estimates that 15% of the countries more deprived people live in rural communities. Proposals under option 2 will particularly benefit rural areas which would be among the last to see the deployment of NGA in a commercial basis. As a result, improvements in the delivery of social services and job opportunities which rely on super-fast broadband infrastructures could potentially be realised to disadvantaged individuals.

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<sup>19</sup> Green, Felstead, Gallie, Zhou (2007): Computers and pay; <http://ner.sagepub.com/cgi/content/abstract/201/1/63>

## **Annex C: List of consultation questions**

Responses are sought specifically on the following questions:

### **For Communications Providers**

- Do you believe that the ability to install lines overhead would reduce the costs of providing Next Generation Access and if so how much? Would any reduction in costs apply more in some areas, i.e. rural areas, than others?
- As a communications provider, would amending the Code to allow for overhead deployment make it more likely that you would consider deploying Next Generation Access to more areas? Can you estimate the extent of this impact on any NGA rollout plans that you have?
- If we consider amending the Code to allow for this, are there particular restrictions that we might apply that would change the answers to Q1 and Q2?

### **For consumers/communities**

- What impact would the presence of more telegraph poles have on the visual amenity of your area and the surrounding landscape?
- To what extent do you believe that the benefits Next Generation Access would bring (as described in the Impact Assessment) outweigh this impact and is this a trade-off worth having?
- If a decision is made to allow overhead deployment in some circumstances are there particular restrictions would you suggest we set?
- Given the potential impact on communities of any overhead deployment, should any relaxation of the Code be subject to local support, and how should such support be judged?

## **Annex D: List of Individuals/Organisations consulted**

Attach a list of all those who are being consulted and ask individuals/organisations for names of others who should also receive the consultation.

<b>Name</b>	<b>Organisation</b>
Adamson, Alastair	Energy Networks Assc
Ahmed, Faisal	
Aldersey, Ben	Office of Fair Trading (OFT)
Ascroft, Emma	Yahoo
	Association of National Park Authorities
Aston, Jannine	Verizon
	Association of preservation trusts
Atherton, Martin	BT
Atvod	
Bailin, Adam	Central Office of Information (CO)I
Barber, Graham	IET
Barry, Damien	Hearing Concern
Bartholomew, Steven	O2
	Confederation of British Industries (CBI)
Beale, Jeremy	NCC
Belgrove, C	PCCW
Berriman, Paul	Ofcom
Blowers, Alex	Rural Services Network
Biggs, Graham	DCMS
Bone, Chris	DCA
Boyle, Paul	CBI
Brockelhurst, William	ITV
Brooke, Magnus	FCS
Brookes, Jacqui	Cabinet Office
Brostromer, Anna	
Brown, Sylvia	
Brunnen, David	ABFL Groupe Intellex
	CPRE
Campbell, Jacqueline	Nominet
	CCRI
Cassells, Sheila	
Chairman@NCF	NCF
Chris	IBM
Chambers, Ruth	Campaign for National Parks
Clarke-Hackston, Fiona	BSAC
CMA	
Collins, M	PhonePayplus
	Commission for Architecture and the Built Environment (CABE)

Collis, Kevin	BASLIP
Combs, Mary	Message Labs
Corkerry, Mike	
Cowie, Campbell	TimeWarner
	Countryside and Community research institute
	Country Land
CPNI	
Croft, Richard	Easynet
	Country Land and Business Association
	CPRE
Cullen, Felicity	
Cullum, Philip	National Consumer Council
Daley, Susan	CBI
Dedullen, Xavier	Verizon Business
Destempel, C	AOL
Dirstovski, Robert	DMA
Dodds, Domhnall	Thus
Donna@lacors	LACORS
Drescher, Lucy	Sense
Durie, Robyn	T-Mobile
Eagle, Michael	Fed of Comms Services
Eaton, Michael	
Emambocus, Harry	
Essex	
Evans, David	English Heritage
Fell, Lucinda	ICO
Fielder, A	Childnet International
Ford, David	NCC
Franklin, Bob	PCCW
Fyfe, Clova	Telcoconsulting
	BT
	Friends of the Earth
Gibbs, Neil	BT
Gill, John	RNIB
Glücklich	
Gourevich, Jean-Stephan	
Griggs, Justin	
Gringas, Clive	Olswang
Grossman, Simon	Orange
Gybels, Guido	RNID
Hadadi, Khalid	BBC
Hall, George	
Hamblin, Paul	ENPAA
Hanson, Katie	Ofcom

Harrington, David	CMA
Harrison, Peter	Nokia
Hart, Tony	Packet Vision Ltd
Hayes, Sarah	Orange
Hearnden, Steve	Intellect
Hockey, Alyn	Clearswift
Horrocks, John	(for info only)
Howard, Jonathon	
Hubbard, Rosaleen	
Hurley, Jackie	
Hutty, Malcolm	London Internet Exchange
ISPA Admin	ISPA
James, Paul	C&W
Jenner, Philip	Discovery
Johnson, Tim	Point Topic
Johnston, David	Digital Tech. Advisory Ltd
Jones, Gretel	
Jones, Phil	ICO
Kaharevic, Sanjin	
Kiedrowski, Tom	Ofcom
Kanter, E	
Kenny, Leanne	
Kramer, Juliet	T-Mobile
Lace, Susanne	Ofcom
Lambert, M	Microsoft
Last, Brian	
Lee, Sarah	Countryside Alliance
Lewis, Lesley	RNID
Linford@spamhaus	Spamhaus
Liput, Steve	Analysys Mason
Lloyd, Heidi	Citizens Online
	Local Government Association
	SSE Telecom
Lole, Antony	
Long, Colin	Olswang
Longman, Dawn	Cable & Wireless
Lord, Tim	3
MacFadyen, Lois	
MacIver, Tom	Eurim
MacLeod, Hamish	Mobile Broadband Group
MacNamara, Clare	BT
Manchester, Antony	FCO
Microsoft	Microsoft
Miller, Nick	Reuters
Minns, Julie	3
Mitra, Mita	BT
Moll, Patricia	Google

Montgomery, Damien	Cabinet Office
Mowbray, David	Intellect
Munro, Jim	ICSTIS
Musumeci, Chris	UK Broadband
Muys, Simon	NFU
Newbold, John	Ericsson
	National Association of Local Councils
Niblett, Jim	Ofcom
	FCS Business Radio Group & air-radio
Nicholson, Brian	Political Intelligence
Nick@Political	Nortel
Nortel	
Oliver, Keith	BT
O'Sullivan, Tim	Nokia
Page, James	Geoscan (UK) Ltd
Patel, Hemant	NOC
Patterson, Zoe	DCMS
Pavey, Natasha	Orange
Persoff, Simon	RNIB
Pescod, Dan	Interforum
phil@interforum	Ofcom
Phillips, Frank	BSkyB
Pilcher, Philip	Telesphere Ltd
Pinto, Dominic	
Pozo, Vivienne	Planning Inspectorate
	Planning Officer Society
Raval, Vikram	Verizon
Reinke, Guido	Ernst & Young LLP
Richard@spamhaus	Spamhaus
Richmond, Paul	Virgin Media
RIM	RIM
Ritchie, Neil	
Roberts, Christine	COLT Telecoms
Roberts, Steve	T-Mobile
Robinson, Dougald	Global Crossing
Rodman, David	Vodafone
	The Royal Planning Institute
Rumbelow, Richard	
Roy, Audrey	Commission for Rural Communities
Sahel, Jean-Jacques	Skype
Sall, Deborah	T-Mobile
Samuels, Riki	INWG
Saunders, Huw	Kingston
Sayce, Liz	RADAR

Sharples, Adam	Mcom
Shearman, Peter	Intellect (BSG)
Shepherd, Sarah	Orange
Shiple, ADC	PhoneAbility
Sinclair, David	Help The Aged
Smadja, Catherine	BBC
Smith, Jill	NAAONB
Spinali, Anne	RNIB
Srbljanin, Dr Alan	East Midlands Development Agency
Steer, J	Ironport
Stringer, Nick	Orange
Stone, Ian	PCCW
Stott, Martin	Channel 5
Styliadou, Meni	Coming Inc.
Sullivan, Richard	Vodafone
Taylor, Emily	
Taylor, Malcolm	BSG
Taylor, Malcolm	Telewest
Taylor, Michael	Vonage
Taylor, Mike	NAAONB
Trotter, Ross	
Trow, Steve	English Heritage
Twiddy, Edward	HM Treasury
Twist, Helena	National Consumer Federation
UKCTA	
Virgo, Philip	Eurim
Wallis, Ben	Ofcom Consumer Panel
Walters, Edie	
Ward, Sarah	Mayer Brown
Webb, Brian	BT
Whitchurch, Adrian	BT
White, Nick	INTUG
Whiteing, Paul	ICSTIS
Whitney, Gill	Middlesex University
Williams, Diane	Credit and Data Policy
Wilson, Don	Vodafone
Wood, P	Message Labs
Woolford, Chris	Ofcom
Xang, Dr Qing	
Yardley, Matt	Analysys Mason
Yates, John	East of England Rural Affairs Forum
Zeff, Jon	DCMS