

<b>ANNEX A</b>  <b>Title: Proposed changes to siting requirements for broadband cabinets and overhead lines to facilitate the deployment of superfast broadband networks</b>  <b>Lead department or agency: Department for Culture, Media and Sport</b>	<b>Impact Assessment (IA)</b>
	<b>Date:</b> 01/01/2011
	<b>Stage:</b> Consultation
	<b>Source of intervention:</b> Domestic
	<b>Type of measure:</b> Secondary
	<b>Contact for enquiries:</b>

<b>Summary: Intervention and Options</b>	<b>RPC Opinion:</b> RPC Opinion Status
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Cost of Preferred (or more likely) Option			
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2009 prices)	In scope of One-In, Measure qualifies as One-Out?
£33.65m	£12.99m	-£1.41m	YES   OUT

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

The installation of fixed-line broadband is being constrained by planning restrictions which currently apply to the installation of cabinets and overhead lines in protected areas. This measure relaxes current controls for a period of 5 years.

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

The policy is to relax planning restrictions on telecommunications deployment in protected areas for a period of 5 years. It is intended that by this means the speed of broadband deployment will be accelerated.

**What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)**

Two options were considered.  
 Do Nothing: Keep current planning restrictions in protected areas.  
 Preferred Option; Relax current planning restrictions in protected areas to facilitate acceleration of fixed-line broadband deployment especially in rural communities.

**Will the policy be reviewed?** It will/will not be reviewed. **If applicable, set review date:** Month/Year

Does implementation go beyond minimum EU requirements?	Yes / No / N/A
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Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	<b>Micro</b> Yes/No	<b>&lt; 20</b> Yes/No	<b>Small</b> Yes/No	<b>Medium</b> Yes/No	<b>Large</b> Yes/No
What is the CO <sub>2</sub> equivalent change in greenhouse gas emissions? (Million tonnes CO <sub>2</sub> equivalent)			<b>Traded:</b>	<b>Non-traded:</b>	

***I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.***

Signed by the responsible SELECT SIGNATORY: \_\_\_\_\_ Date: \_\_\_\_\_

# Summary: Analysis & Evidence

Policy Option 1

Description: Preferred Option

## FULL ECONOMIC ASSESSMENT

Price Base Year 2012	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	High: Optional	Best Estimate: 33.65

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate		4.51	33.69

### Description and scale of key monetised costs by 'main affected groups'

Increased deployment of overhead lines may impair the visual amenity of some citizens. It will also increase the vulnerability of telecommunications systems to external adverse events and therefore increased operating costs. The extent of this will depend upon the extent of the extra use is made of the proposed deregulation.

### Other key non-monetised costs by 'main affected groups'

In terms of environmental costs, all Sites of Special Scientific Interest are exempt from the deregulation. The extent of any environmental costs will depend on the use that is made of the de-regulation. It has not been possible to obtain reliable estimates of this.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate		6.14	67.34

### Description and scale of key monetised benefits by 'main affected groups'

Reduced administration costs, reduced planning costs, reduced capital costs and reduced operating costs will reduce business costs. Increased availability of super-fast broadband will benefit customers some of whom may be businesses.

### Other key non-monetised benefits by 'main affected groups'

Possible increased competition in infrastructure provision.

Key assumptions/sensitivities/risks Maximum of 5 lines	Discount rate (%)	3.5
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## BUSINESS ASSESSMENT (Option 1)

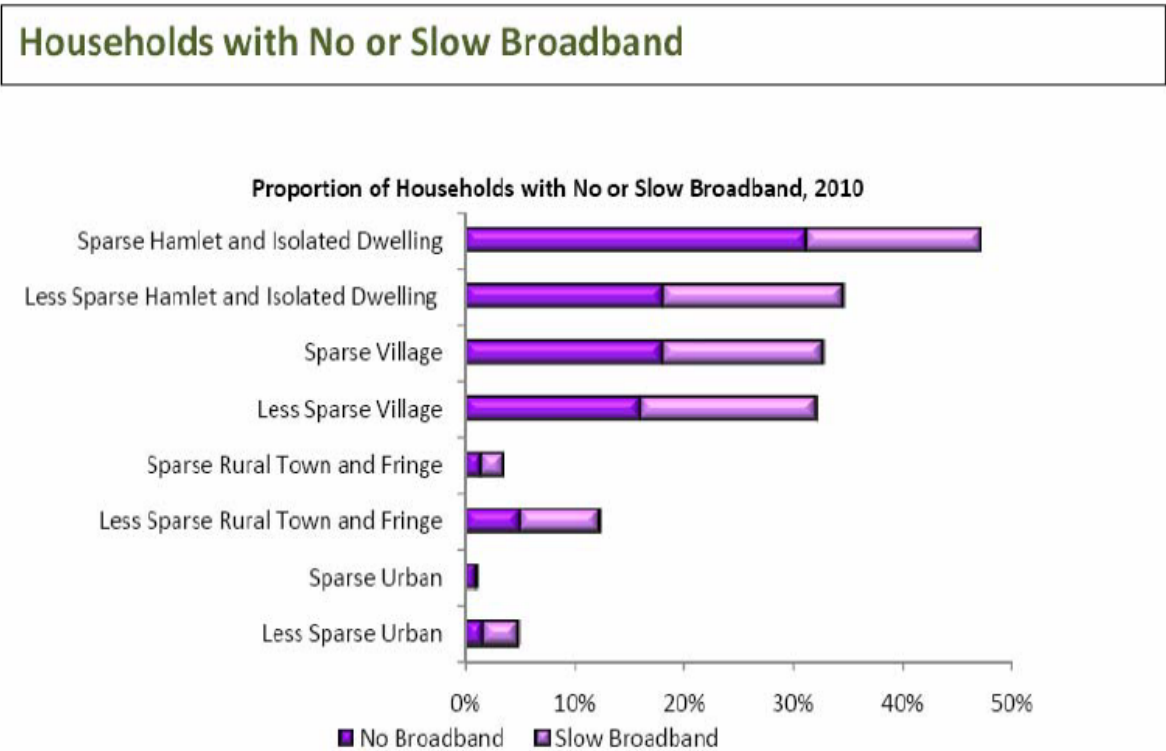
Direct impact on business (Equivalent Annual) £m: Costs: 3.13	Benefits: 4.34	Net: 1.21	In scope of OIOO? YES	Measure qualifies as OUT
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## POLICY PROBLEM

Effective, reliable and fast communications are a vital prerequisite for the economic prosperity and social sustainability of England – and should be available to everyone, wherever they live and work. To support growth in all areas of the country, broadband connectivity needs to be available as quickly and as widely as possible and be deployed as cost effectively as possible, with a degree of certainty for communications providers in order to facilitate investment decisions.

Research from Defra in 2010 showed that average broadband speeds were slower in rural areas than in urban areas and a higher proportion of rural households have slow or no broadband.

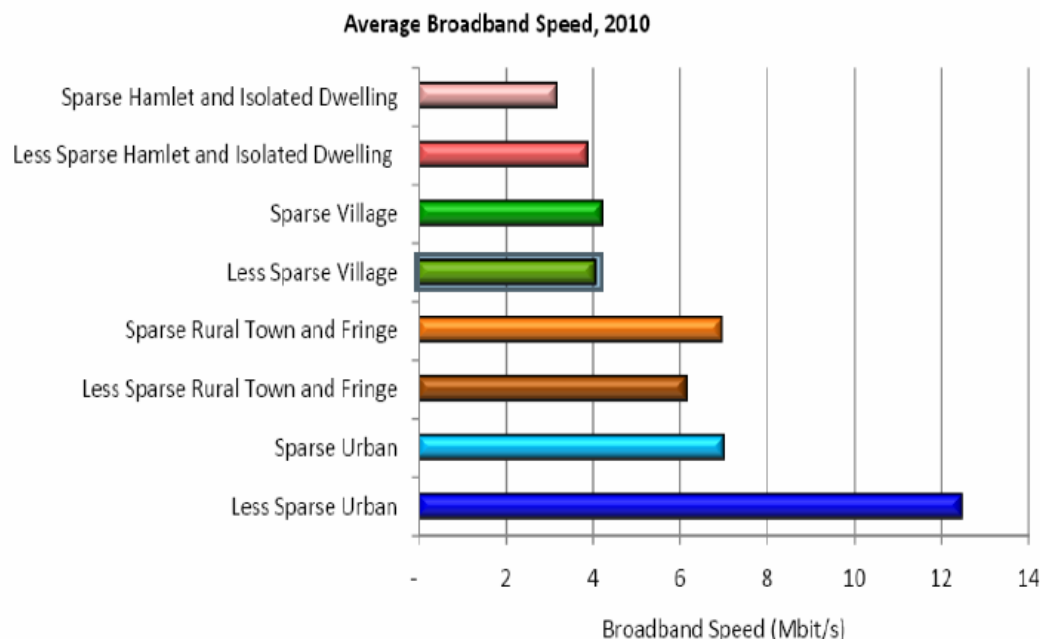
**Figure 1: Households with No or Slow Broadband**



Ofcom’s Infrastructure Report, published in November 2012, showed that at present, rural areas are disadvantaged with the roll-out of superfast broadband. This reflects that rural areas are more commercially challenging when operators look to deploy new networks.

**Figure 2: Broadband Speed**

**Broadband Speed**



**RATIONALE FOR INTERVENTION**

It is important for growth and international competitiveness that we deliver on our ambition for the UK to have the best superfast broadband network in Europe by 2015. In December 2010, when the Government published its broadband strategy ‘Britain’s Superfast Broadband Future’, it was envisaged that superfast broadband would reach 50% of the UK population by the end of 2012. Coverage already exceeds that, with superfast broadband available to 65% of the UK population.

The broadband strategy also outlined the Government’s policies for lowering the costs of deployment and its intentions for supporting rollout. Allowing new telecoms lines to be deployed overhead has the potential to reduce deployment costs by as much as 50% in some areas. This is especially important in rural areas to ensure that there is a fair and equitable availability of superfast broadband. 80% of the cost of deployment of superfast broadband is in the civil works – the digging of the roads. This solution has long been advocated as a relatively easy way to lower the cost of deployment to allow the market to deliver superfast broadband networks as far as possible, and into areas that would otherwise be considered economically unviable, particularly rural areas.

We believe that broadband investment and deployment would also be boosted by temporarily removing prior approval requirements for poles and street cabinets in protected areas. Increasing certainty will save communications providers time and money, and facilitate roll out of superfast broadband to the areas that need it most.

The impact of broadband infrastructure upon GDP appears to be positively related to:

- The level of broadband penetration<sup>1 2 3</sup>;

<sup>1</sup> The Allen Consulting Group (2010): “Quantifying the possible economic gains of getting more Australian households online”, Report to the Department of Broadband, Communications and the Digital Economy, Melbourne, November.

- The rate of change of broadband penetration<sup>4 5</sup> and
- Speed of broadband data transmission<sup>6 7 8 9</sup>.

In addition, the impacts of broadband on GDP appear to be larger the higher the level of broadband penetration.<sup>10</sup> This is thought to be the result of pronounced network effects.

As at Q1 2012 broadband, either fixed or mobile or both, was available to 76% of UK households and 60% of households had access to super-fast broadband. At the same time there were currently 18.8 million fixed broadband subscriptions and a further 5.1 million mobile broadband subscriptions.<sup>11</sup> This suggests that in the UK the major impact of broadband provision on GDP is likely to come less from enhancing the level of penetration than by increasing the speed of existing networks.

Broadband investment has three broad impacts on GDP.<sup>12</sup> First, there are direct impacts largely resulting from the installation of the broadband network. For the most part, these are confined to network installation and maintenance. Second there are induced effects which come in two types. On the one hand are the savings earned by saving time doing what was already going to be done and, on the other, are benefits of doing more of the same things with the same resources. Third, there are benefits of producing new things and performing new transformations.<sup>13</sup> This implies that the longer the broadband investment is in place and the more thoroughgoing the changes it engenders the greater the impact on GDP. It has been shown that that the level of labour productivity has been shown to be positively related to the level of employee connectivity.<sup>14</sup> In the long term high speed broadband is likely to facilitate making and maintaining<sup>15</sup> of, and wide participation in, new forms of market and market system.<sup>16</sup>

Research in the USA has found that rural communities benefit more from connection to broadband than urban ones.<sup>17</sup> There, willingness to pay for a fast broadband connection is significantly higher among rural users than among the urban population.<sup>18</sup> In addition, higher broadband speeds are more effective

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<sup>2</sup> The World Bank (2009): "Information and Communications for Development: Extending Reach and Increasing Impact", Washington DC.

<sup>3</sup> Raul L Katz, Stephen Verlaus, Patrick Zenhausen, Stephan Suter and Philippe Maher (2010): "The Impact of Broadband on Jobs and the German Economy", *Intereconomics*, Vol 45, Issue 1, pp 26-34.

<sup>4</sup> Nina Czernich, Oliver Flack, Tobias Kreschmer and LudgerWoessmann (2011): "Broadband Infrastructure and Economic Growth", *The Economic Journal*, Vol 121, May, pp 505-532.

<sup>5</sup> Pantelis Koutroumpis (2009): "The economic impact of broadband on growth: A simultaneous approach", *Telecommunications Policy*, Vol 33, No 9, pp471-85.

<sup>6</sup> Jussi Hatonen (2011): "The economic impact of fixed and mobile high-speed networks", *EIB Papers*, Vol 16, No 2, pp 30-59.

<sup>7</sup> Ericsson (2011): "Need for Speed: A new study confirms the positive effects of an increased broadband speed on GDP", Stockholm, 27 September 2011.

<sup>8</sup> By contrast Arthur Grimes, Cleo Ren and Philip Stevens (2009): "The Need for Speed: Impacts of Internet Connectivity on Firm Productivity", Wellington, Motu Working Paper 09-15, Motu Economic and Public Policy Research, October finds an insignificant effect of speed on firm productivity.

<sup>9</sup> Yuji Akematsu (2008): "Broadband Diffusion and Public Policy: A Panel Data Analysis", 3<sup>rd</sup> Communication Policy Research South Conference (CPRsouth3), Beijing, December 7. SSRN:<http://ssrn.com/abstract=1572299>.

<sup>10</sup> Harald Gruber and Pantelis Koutroumpis (2011): "Mobile telecommunications and the impact on economic development", *Economic Policy*, Vol 26, Issue 67, July, pp 387-426.

<sup>11</sup> Ofcom (2012): "The Communications Market 2012", London, July.

<sup>12</sup> Martin Fornefeld, Gilles Delaunay and Dieter Elixman (2008): "The Impact of Broadband on Growth and Productivity: A study on behalf of the European Commission (DG Information Society and Media)", Dusseldorf, Micus.

<sup>13</sup> Plum Consulting (2008): "a Framework for Evaluating the Value of Next Generation Broadband: A report for the Broadband Stakeholder Group", London, June.

<sup>14</sup> Mark Franklin, Peter Stam and Tony Clayton (2009): "ICT impact assessment by linking data", *Economic and Labour Market Review*, Vol 3, No 10, October, pp 18-27.

<sup>15</sup> John Lepper (2012): "An Enquiry into the Ideology and Reality of Market and Market System", Basingstoke, Palgrave Macmillan.

<sup>16</sup> McKinsey Global Institute (2011): "Big data: The next frontier for innovation, competition and productivity", Washington DC, May.

<sup>17</sup> Sharon E Gillett, William H Lehr, Carlos A Osirio and Marvin A Sirbu (2006): "Measuring the Economic Impact of Broadband Deployment: Final Report", Washington DC, prepared for the US Department of Commerce, Economic Development Administration, National Technical Assistance, Training Research and Evaluation Project #99-07-13829, February.

<sup>18</sup> Gregory Rosston, Scott J Savage and Donald Waldman (2010): "Household Demand for Broadband Internet Service: Final Report to the Broadband.gov Task Force", Washington DC, Federal Communications Commission, February 3.

in attracting and retaining firms in rural districts than in urban settings.<sup>19</sup> The estimates of the effects vary but suggest that a 10% point increase in broadband penetration results in a one-off addition to GDP of between 0.5% and 1%. Mobile penetration appears to have a somewhat lower effect on GDP than fixed broadband. In addition, doubling of broadband speed adds a further 0.3% p.a. to the GDP growth rate.

The existing estimates of the effect of broadband on GDP are largely based on growth accounting methodology. As such they suffer from an inability to control for a sufficient number of influences which could impact on GDP, the obscurity of many policy impacts and the presence of time diffusion effects which are hard to model.<sup>20</sup> As a consequence, the above estimates may, in time, prove to have been grossly inaccurate.

Many of these shortcomings can be circumvented by modelling broadband installation in a computable general equilibrium (CGE) setting while holding all other factors constant. Allen Consulting conducted such an exercise and found that, in Australia, at 10% point rise in connectivity is predicted to lead to a one-off 0.44% rise in GDP (The Allen Consulting Group, 2010: 33).

No estimates are available for the UK. However, it seems plausible to expect that:

- Increased broadband speed will have a significant and positive effect on GDP at current levels of penetration;
- There is unlikely to be much impetus to GDP from increasing broadband penetration;
- At the present state of technology, increases in penetration are now subject to rapidly increasing costs; and
- Rural communities can be expected to benefit disproportionately greatly from the extension of broadband coverage.

These considerations underpin the UK Government's policy approach is to ensure that the UK has the fastest broadband network in Europe by 2015. The steps being taken to achieve this can be summarised as follows:

- a) Provide an encouraging climate for private investment in telecommunications. Private investment in UK telecommunications is thought to be currently in excess of £5 billion p.a.
- b) Removal of barriers to investment and create certainty for investment
- c) Ensure that broadband coverage is extended to places that private companies find it unprofitable to serve. This will be achieved by the following programmes:
  - i. Rural Broadband, £530 million until 2015;
  - ii. Super-connected cities projects, together £150 million until 2015;
  - iii. Mobile Infrastructure Programme, £150 million until 2015; and
  - iv. Rural Community Broadband Fund, £20 million.

This measure contributes towards a) above by reducing or eliminating current planning restrictions.

## **POLICY OBJECTIVE**

By introducing this measure the Government is proposing to remove some of the barriers for firms to invest in broadband infrastructure by removing unnecessary regulations. Existing regulations can act as barriers in the way of such investment. The siting of new cabinets required for high speed broadband has been delayed in conservation areas and the use of overhead lines is not permitted. By removing these obstacles the Government aims to achieve the following objectives:

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<sup>19</sup> Elizabeth Mack (2011): "Business and the Need for Speed: The Impact of Broadband on Business Presence", paper presented to Telecommunications Policy Research Conference, Information and Internet Policy, 23-25 September 2011, George Mason University School of Law, Arlington VA.

<sup>20</sup> For a discussion of the limitations of cross-country econometric studies see Yochai Benkler (2010): "Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world: Final Report", Cambridge MA, The Berkman Center for Internet and Society at Harvard University, pp 94-6.

- Increase the pace of deployment of super-fast fixed line broadband in urban and suburban settings; and
- Allow more rural and semi-rural communities to enjoy the benefits of super-fast fixed line broadband than would otherwise be the case.

It is the consultation process that we are seeking to change on a temporary basis (i.e. for 5 years) rather than the need for consultation, or the range of consultees, in order to speed up the deployment of broadband cabinets and reduce the scope for delay. Current arrangements have led in some cases to delays in deployment of up to two years. In some cases, communications providers have had to abandon projects, leaving many households without the connectivity that they need. We want to ensure that this does not happen now, just as upgraded broadband infrastructure is being rolled out to the more rural or remote areas where connectivity is needed the most. According to Ofcom's updated UK Infrastructure Report which was published in November 2012 there is currently a significant disparity in the availability of superfast broadband services between rural and urban areas. Whereas across the UK, 84% of urban premises have superfast broadband, the figure drops to 65% in semi-urban areas and just 19% in rural areas. For England the figures are 85% coverage in urban areas and 17% coverage in rural areas.

While the proposed relaxations are intended to support both commercial and publicly funded broadband deployments we consider that they will be of particular benefit to the latter. The Government's approach to funding rural broadband means that local authorities have a choice in how networks will be built so that community needs drive the process. We hope that local authorities will appreciate the additional tool that these relaxations afford to help drive superfast broadband deployment more quickly and extensively.

We hope that local authorities will encourage their planning authorities to work closely with communications providers to agree cabinet and pole sitings quickly. To assist in this process, the Government has asked communication providers, local planning authorities and other partners to work together to broker a code of practice to be agreed between communications providers and local authorities and other stakeholders on best siting practice as a means of ensuring that broadband infrastructure is sited as sensitively and safely as possible.

## **OPTIONS CONSIDERED**

Two options have been considered.

### **Option 1: Do Nothing**

The existing planning processes currently contained in the Town and Country Planning Act and the ban on new overhead deployment set out in the Communications Code Regulations will remain in place. As a consequence, the following procedures will continue to apply:

#### **1a) General conditions**

There are a number of statutory requirements in the Electronic Communications Code (Conditions and Restrictions) Regulations 2003 aimed at ensuring the amount of electronic communications apparatus, and its impact on the visual amenity, is kept to a minimum, and these provisions will remain unchanged. The relevant provisions are the General Conditions under Regulations 3(1)(b), 3(3)(a), and 3(4):-

Regulation 3(1)(b) requires communications providers to consult -  
 "planning authorities in relation to the installation of electronic communications



apparatus, including installation in a local nature reserve;”

Regulation 3(3)(a) under which a communications provider when installing electronic communications apparatus shall, so far as reasonably practicable, minimise—

“the impact on the visual amenity of properties, in particular buildings on the statutory list of buildings”;

Under Regulation 3(4) a communications provider:-

“ where practicable, shall share the use of electronic communications apparatus.”

### **1b) Overhead lines**

Currently, the Electronic Communications Code (Conditions and Restrictions) Regulations 2003, state that (in addition to a number of other minor exceptions) all new telecoms lines have to be buried underground, except where lines already exist, or if there is no viable alternative. This is the only restriction that stops communications providers from deploying this type of overhead infrastructure, which is already allowed under planning Permitted Development Rights, as telegraph poles are generally less than 15 metres high.

### **1c) Cabinets**

Currently for broadband cabinets in non-protected areas, communication providers are required to give one month’s statutory notice of siting to planning authorities and make changes if they are reasonable and proportionate. Under Part 24 of the General Permitted Development Order 1995 (as amended) local planning authorities are required to consider siting and design for cabinets in protected areas. Communications providers are required to give 56 days’ notice to planning authorities, who can place conditions on both siting and appearance. Deployment cannot proceed if the planning authority objects.

## **Option 2: Remove Restrictions (Preferred Option)**

We are proposing to amend the Electronic Communications Code (Conditions and Restrictions) Regulations 2003 in order to allow the widespread deployment of broadband street cabinets and new overhead lines for a period of 5 years.

### **2a) New overhead lines**

Changing existing requirements for the deployment of overhead lines will give communications providers a great deal more flexibility and certainty when deploying superfast broadband networks. It will also allow superfast broadband to be deployed more extensively than would otherwise have been possible because of the cost savings involved.

Government carried out an initial consultation in September 2009 to test the appetite for new pole deployment from communications providers, but also to explore the option with communities, given the impact on the visual amenity that new poles would have, particularly in more rural areas.

The conclusion to that initial consultation was that in some cases, new pole deployment could make a difference to the investment case, and communities themselves recognised that in order to have better connectivity, some new overhead deployment may be necessary. However, communities and other rural stakeholders were keen to stress that this should not be the default option, and that full consultation with communities should be undertaken.

In November 2011, the Government published a further consultation that set out proposals to relax the restrictions, but to allow communities and local authorities the opportunity to influence where this new infrastructure should be deployed.

The proposal was to encourage communications providers to share infrastructure where technically commercially possible, and for to consult with communities and local authorities, whilst retaining the ability to deploy new infrastructure if they believed there was still merit in doing so.

The consultation attracted 27 responses, which included parish and district councils, local authorities, rural stakeholders and communications providers. Responses were largely split between those who considered that the proposed policy would either not deliver its intended goal and those who opposed the policy goal in its entirety. A number of stakeholders, mainly local authorities and rural and heritage stakeholders, were opposed in principle to the proposals, citing the possible negative impact on visual amenity, whilst voicing concerns over the impact on heritage sites and listed buildings.

Most communications providers believed that the proposals lacked sufficient clarity and certainty, particularly around who should be consulted and how this consultation might take place. Some providers believed the existing regime allowed for sufficient consultation and that the proposed conditions placed on communications providers to consult with local communities were likely to be too burdensome and costly. This would result in limited or no new deployments and would not reach the policy goal of increasing the speed and reach of deployment to remote rural areas where broadband was most needed.

The Government has reflected on the responses to the earlier consultation and, after careful consideration of the conflicting views concluded that in order to achieve its broadband targets, that the requirement to underground new telecommunications lines in Regulation 4 of the Electronic Communications Code (Conditions & Restrictions) Regulations should be removed for a period of 5 years. This will allow communications providers to deploy new overhead infrastructure as Permitted Development, as outlined above. This is complementary to the proposal by the Department for Communities and Local Government to remove the prior approval requirement as it applies to protected land. This will enable communications providers to deploy overhead infrastructure in all areas other than SSSIs.

We expect communications providers to look to share infrastructure where technically and commercially viable. In commercial terms, sharing of infrastructure is usually cheaper than deploying new infrastructure and therefore a possibility that we would expect communications providers to exhaust before deploying new overhead lines. This could be the existing BT Openreach network of ducts and poles but could also mean use of the electricity distribution and local access networks. The Regulation 3(4) general requirement for operators to share apparatus, where practicable will continue to apply, but we do not however propose to make this a specific requirement in the revised Regulations in relation to new overhead line deployment.

## **2b) Cabinets**

We are proposing to remove the prior approval requirement for fixed broadband cabinets except in SSSIs on a temporary basis for 5 years under the Electronic Communications Code (Conditions & Restrictions) Regulations 2003. This is to help speed up the deployment of superfast broadband and reduce uncertainty and delay for communications providers. Removal of the prior approval requirement for broadband cabinets in protected areas does not however

remove the requirement for consultation with planning authorities about their siting. As noted previously the general obligation under Regulation 3(1)(b) of the Electronic Communications Code (Conditions & Restrictions) Regulations to consult local planning authorities about the siting of apparatus will continue to apply. In addition to this, under the proposed new arrangements, prior approval will be replaced by the notice requirements under Regulation 5, and will ensure that communications providers notify planning authorities about the deployment of any new apparatus and take notice of their objections if reasonable and proportionate.

Also for the purposes of the proposed relaxation in protected areas we are proposing to extend the range of consultees under regulation 5 to include those that currently exist for protected areas, as set out in Regulation 8 of the Electronic Communications Code (Conditions & Restrictions) Regulations 2003.

“ 8.—(1) When a code operator intends to install electronic communications apparatus in—

(a) a national park, the Broads, the New Forest or a limestone pavement area he must give written notice to the planning authority;

(b) a national nature reserve, site of special scientific interest, area of special scientific interest or marine nature reserve he must give written notice to—

(i) English Nature, in England;

(ii) Scottish Natural Heritage, in Scotland;

(iii) the Countryside Council for Wales, in Wales; or

(iv) the planning authority, in Northern Ireland (in the case of a national nature reserve, area of special scientific interest or marine nature reserve);

(c) a natural heritage area or national scenic area he must give written notice to Scottish Natural Heritage; or

(d) any land which the National Trust or the National Trust for Scotland has notified the code operator that it owns, or holds any interest in, he must give written notice to its relevant regional office.

## **COSTS AND BENEFITS**

### **Do Nothing**

The main benefits of the Do Nothing Option are associated with maintaining the current level of visual amenity and environmental protection which is afforded by the current regulations. However, these substantial benefits incur significant opportunity costs in the form of the benefits of super-fast broadband foregone by members of affected communities.

### **Remove Restrictions (Preferred Option)**

Since this is an enabling measure the costs it will incur and the benefits it will attract depend upon the advantage that CPs take of the opportunities it presents. Hence, it has been necessary to assume, for the purposes of this IA, levels of use that are likely to take place under de-regulation. It must be emphasised that these assumptions are made by DCMS and are not based upon the business plans of participants in the super-fast broadband market. Nor can they be regarded as forecasts of the likely reaction of business to the proposed changes.

### ***Monetised Costs***

## Visual Amenity

Code operators will remain under statutory obligation to minimise any impact on the visual amenity, but some impact is possible particularly in relation to new overhead line deployment. The extent of this effect will depend upon the extent of the extra use that is made of the proposed deregulation. The likely use in the case of overhead lines will vary between communications provider.

The extent of this effect will also depend upon the extent of the extra use that is made of the de-regulation. The likely use in the case of overhead lines is also likely to vary between CPs. For the purposes of this IA we assume that over 5 years there will be a 10% increase in overhead lines; an increase of 325 km p.a.

## Environmental Costs

All Sites of Special Scientific Interest are exempt from the proposed de-regulation. The extent of any environmental costs will depend on the use that is made of this enabling clause. It has not been possible to obtain reliable estimates of this.

## Increased Climatic and Other Risks

Overhead lines are subject to significant wind loadings and greater variations in temperature than underground installations. As a consequence, they are assumed to require more maintenance than underground lines. Thus, instead of annual maintenance at 5% of capital cost, as in the case of underground lines, overhead lines are assumed to require maintenance of 15% of capital cost.

They are also subject to failure during natural disasters or accidents to an extent not shared by underground ducts. This aspect is taken into account by supposing a risk factor of 10% is applied to the initial capital cost.

## ***Monetised Benefits***

### Reduced Planning Costs

The new procedures will remove costs to local authorities which are incurred under the permitted development regulations and which are passed on as planning costs to CPs. The extent of these costs depends on the use that is made of the measure. Alongside the 200 km p.a. of overhead lines we assume that 50 extra poles p.a. and 1,500 cabinets over 5 years will be affected.

### Reduced Administration Costs

For each pole, cabinet and km of overhead line CPs must incur administration costs associated with obtaining planning permissions. These are internal to the companies and are in addition to the payments to local authorities. We assume that each pole, cabinet and km of overhead line involves on average £2,350 in administration costs associated with the planning process.<sup>21</sup>

### Reduced Installation Costs

The removal of the absolute restriction on overhead lines will significantly reduce the cost of installing a similar length underground. The difference in installation costs is given in table 1 and amounts to £6,900 per km. Hence, it is expected that for the five years over which the measure will be in place savings of £15 million p.a. will be made. This is likely to extend the margin beyond which it is not profitable to install super-fast broadband. However, this financial advantage is partly reduced by the extra risk of service failure that will be incurred by overhead installation.

It is not expected that the costs of installing poles or cabinets will be materially affected by the measure.

## **TABLE 1**

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<sup>21</sup> Arup (2009): "Benchmarking the costs to applicants of submitting a planning application", London, Department for Communities and Local Government, July.

## COSTS OF OVERHEAD DEPLOYMENT

(£ per km. in 2011 prices)

	Costs of Option 1 (£/km)	Costs of Do Nothing (£/km)
Installation	29,607(1)	36,483(2)
Maintenance	4,441(3)	3,648(4)
Way leaves	1,110(5)	9,266(6)(7)
Cost of accidents	N/A(8)	0
Total transition costs	29,607(9)	45,749(10)

N/A Not Available.

Notes:

1. No data on the costs of installing optic fibre overhead are publicly available for the UK largely because such installations have hardly taken place. This forced the use of publicly available overseas data on overhead installation of optic fibre. The mean one off-cost of new installation of aerial fibre based on DCMS analysis of grants made by the National Telecommunications and Information Administration (NTIA) in the USA for the aerial installation of optic fibre converted to Sterling (1: 0.62).
2. Overhead installation is likely to be used for FTTP-PTP in rural districts. Calculated as average additional cost of FTTP-PTP taken from Table 1 compared to new aerial installation of fibre. Average overhead installation costs calculated as in Table 3. Note that, in practice, the majority of optic fibre installation will involve replacing copper wires in existing ducts.
3. Annual maintenance costs of optic fibre installed overhead are higher than fibre installed in duct. However, no data are publicly available. Hence, it is assumed that annual maintenance costs are 15% for aerially installed fibre. Maintenance begins in the year after installation.
4. No data on the costs of maintaining optic fibre in ducts are publicly available. We, therefore, assume annual maintenance at 10% of capital cost for fibre in duct. Maintenance begins in the year after installation.
5. Overhead telecommunications lines attract an annual rental payment (a wayleave) for each pole paid to landowners and tenants as appropriate. As with duct wayleaves these involve elements of rent and compensation but no data are publicly available. Wayleave annual rentals vary considerably according to the size of pole, the use of the land traversed and the nature of its tenancy and it is not possible to reliably estimate their average annual level in the absence of firm plans to install aerial optic fibre. The above estimate for wayleave rentals assumes that the National Grid standard wayleave tariff applies see <http://www.nationalgrid.com/NR/rdonlyres>. It is assumed that poles of 5.3 m are installed at a density of 20 per km, one third of which are installed on grassland and two thirds on arable all owner-occupied. It is possible that this represents an underestimate of actual negotiated costs of telecommunications wayleaves see The Central Association of Agricultural Values (2010): "Telecommunications Masts", Coleford, CAAV, September, p. 52.
6. Wayleaves for telecommunications duct are paid to landowners in return for permission to install ducts and fibre underground. They represent both a rental and a compensation and are normally paid as one-off up-front payment at time of installation. They vary widely in practice depending on negotiations between providers and landowners but are normally based on a fair value calculation see Norman E Hutchison and Jeremy Rowan-Robinson (2000): "Utility Wayleaves: A legislative lottery", London, RICS Research Foundation, December, p. 18.

Landowners can grow crops over the ducts but may not erect structures within a 6 metre wide strip running the length of the duct trench.

7. Fair value is calculated by assuming that the average price of farmland is £5,000 per acre and this dictates the wayleaves payable on average for a strip 6 metres wide across farmland. This is somewhat less than the average price for farmland Great Britain reported for 2010 see Savills (2011): "Agricultural Land Market Survey 2011", London, Savills Research, February. Underground wayleaves are calculated as 1.25 times the fair value of land.
8. It is possible that the number of accidents per year involving roadside poles will increase as a result of new installations. It has not proved possible to estimate this possible effect.

9. Transition costs = Installation only.
10. Transition costs = Installation + one-off wayleave payment.

### Access to Broadband

The reduction in installation costs that the use of overhead lines implies will mean that more communities will be connected to fixed-line broadband than if underground installation had still been mandatory. This will mean that more communities will have access to broadband than if the measure had not been introduced.

The extent of this effect is difficult to estimate. This is because the advantages of faster broadband over other types of internet connection in the UK have not been estimated. However, US research suggests that consumers are prepared to pay more for faster broadband speeds although the relationship is far from linear. We assume that customers will be willing to pay an extra £5 per month for a doubling of broadband speed.

**TABLE 2**  
**UK POPULATION DENSITIES**  
**(As at 2011 Census)**

	Total Population 000s	Population in areas under 150 per sq km	% of total
Northern Ireland	1,802	862	47.8
Scotland	5,223	1,652	31.6
Wales	3,008	990	21.3
England	51,885	5,741	11.1
UK	61,918	9,245	14.9

In addition, we assume that it will possible for commercial broadband suppliers to profitably extend their services to all areas of the UK with a population density of 150 per square kilometre or approximately 85% of the UK population. Given that somewhat more than 76% of UK households can currently access broadband<sup>22</sup> this means that roughly 4.5 million more people will be able to access super-fast broadband than at present. If we assume take-up among those is 20% then the measure will generate consumer benefits of at least £54 million p.a.

### Reduced Operating Costs

The siting of poles and cabinets will be determined by the CPs subject only to objection by local authorities. Although CPs will be subject to an industry code of best practice it is likely that it will be possible for CPs to optimise their installations of equipment to ensure they are operated at minimum cost.

The extent of this effect is difficult to estimate because it is likely to emerge over time and initially, at least, is unlikely to be large. For this reason, we judge it would require disproportionate effort to monetise it.

<sup>22</sup> Ofcom (2012): "Communications Market Report: UK", London, Ofcom, July. This is the sum of fixed and mobile broadband subscriptions.

We have, however, estimated the reduced operating costs associated with the deployment of overhead lines compared with underground installations. The estimated costs are set out in Table 1.

**TABLE 3**  
**TELECOMMUNICATIONS OPERATING COSTS**  
(£ per km, in 2011 prices)

	Overhead Lines	Underground Lines	Saving
Wayleaves	1,100	9,266	8,166
Maintenance	4,441	3,649	-792
Total Operating Cost	5,541	12,915	7,374

Source: Table 1.

Overhead installations incur lower wayleave payments than underground ones. We estimate that this difference is £8,166 per km. By contrast, overhead lines are more expensive to maintain than underground ones.

### ***Non-Monetised Costs and Benefits***

#### Accident Costs

Increased deployment of overhead lines may lead to more road traffic accidents involving telegraph poles. In 2009, 14 one vehicle fatal accidents involved hitting a telegraph or electricity pole; seven on built-up roads and seven on non-built-up roads. In total there were 603 accidents involving telegraph or electricity poles on all roads, 485 of which were slight. It is to be expected that if this measure leads to the installation of more poles for overhead lines along roads the number of accidents involving them will rise. The extent and hence the costs of this rise cannot be estimated.

#### Environmental Costs

All Sites of Special Scientific Interest are exempt from the de-regulation. Hence, it is likely that the largest element of environmental damage that may otherwise result from this measure will be avoided. Nevertheless, it is possible that some environmental damage, as a result of the need to maintain communications infrastructure, may occur particularly in National Parks and Areas of Outstanding Natural Beauty. This extent of this effect is likely to depend on the use that is made of the de-regulation. It has not proved possible to obtain reliable monetised estimates of this effect.

#### Reduction in Heritage Values

The measure will remove the current restrictions on installing communications infrastructure on heritage sites. As a result, it is possible that some heritage values will be reduced with the result that revenues from tourists will decline and the heritage experience on offer will be diminished. If the current plans off CPs are any guide this effect is likely to be small. However, it is unlikely to be zero.

#### Increased Competition

The removal of the requirement to underground telecommunications lines is likely to reduce the costs faced by a potential entrant into the UK telecommunications market. As a consequence, it is possible that alternative telecommunications infrastructures will be installed in competition with those of BT, C&W and Virgin Media. However, it is difficult to estimate the extent of this effect. Nevertheless, it is conceivable that even the possibility of such competition will be sufficient to make the wholesale market for telecommunications more contestable than it is at present. If this occurs, then it is to be expected that the price of wholesale products will come under downward pressure. In order to



estimate this possible effect it would be necessary to model future competition in the UK telecommunications market. Not only is such an exercise speculative but also building such a model would be a disproportionate use of resources.

### **Summary Costs and Benefits**

The costs and benefits of the Preferred Option compared to the Do Nothing Option are set out in Table 1. It will be noted that not all costs and benefits have been monetised. In the absence of access to a full-scale financial model of the broadband industry they are impossible to estimate. To build such a model for this purpose would represent a disproportionate expense of resources.

**TABLE 4**  
**SUMMARY COSTS AND BENEFITS: 2013-14 to 2022-23**  
**(NPV, £ million, in 2012 prices, compared to Do Nothing)**

<b>COSTS</b>	
Visual Amenity Lost(1)	0.20
Increased Climatic and Other Risks(2)	33.49
Accident Costs	+
Environmental Costs	+
Loss of Heritage Values	+
<b>TOTAL COSTS</b>	<b>33.69</b>
<b>BENEFITS</b>	
Reduced Administration Costs(3)	28.81
Reduced Installation Costs(4)	12.66
Improved Access to Broadband(5)	20.86
Reduced Operating Costs(6)	5.02
Increased Competition	+
<b>TOTAL BENEFITS</b>	<b>67.34</b>
<b>NET BENEFIT</b>	
	<b>33.65</b>
To Business	12.99
To Customers	20.66

+ = Unmonetised increase.

**Notes:**

1. £16.27 household per year assuming 135 households affected for each km of overhead line installed.
2. Assumed to be 10% of the cost of installing extra overhead lines.
3. Each application assumed to be at reported average of £2,350 per application. Sites for 300 cabinets and 65,000 poles approved each year for 5 years. 10% assumed to be in protected areas.
4. Reduction in installation assumed to be £6,900 per km. 325 km installed each year for 5 years.

5. Measures assumed to permit profitable deployment to all but 15% of the population. Take up 20%. Subscribers willing to pay and extra £5 for fast broadband. 10% assumed to be in protected areas.
6. Reduction in maintenance plus wayleaves of overhead installation.

The measure is estimated to yield net benefits to business of £12.99 million and £20.66 million to customers over the period 2013-14 to 2022-23.

## **RISKS AND ASSUMPTIONS**

The level of costs and benefits depend upon the alacrity with which CPs embrace the opportunities that this measure provides. It is likely that the more use made of the new opportunities the greater the net benefit that will result. However, it is also possible that if very significant use is made of overhead deployment the loss of visual amenity will become much larger than suggested above.

Although every care has been taken in computing the above estimates and although a number of enquiries have been made of relevant companies and other stakeholders the data on which they are based is of inferior quality. It was hoped that an earlier consultation on overhead deployment would remedy this deficiency but, in the event, that hope proved false. Hence, it is possible that the costs and benefits monetised above bear only an indirect relation to commercial realities.

Most of the benefits identified result from the cost savings associated with overhead deployment. The estimates of these savings are particularly open to question because very few such deployments have ever been undertaken in the UK. As a consequence, it is not possible to be precise about the costs involved in deploying overhead lines in a UK context. It is possible, therefore, that, in practice, costs in the UK will be considerably higher than in the USA. If so, the above net benefits may not materialise.

No estimates of willingness to pay for super-fast broadband among UK customers have yet been published. As a consequence, the assumptions underlying the calculation of consumer benefit may ultimately prove to be of limited value. This is particularly true of the assumptions about the premium which will be willingly paid to access the new service and the proportion of customers who choose to adopt it. If it transpires that either are too high then the estimate for consumer benefit will have to be revised downwards.

## **ONE IN TWO OUT**

The proposed measure is de-regulatory. In 2009 prices and over the period 2014-2023, the present value of the net cost to business is -£12.13 million implying a significant saving. EANCBS is consequently -£1.41 million.