National Audit Office

REPORT BY THE
COMPTROLLER AND
AUDITOR GENERAL

HC 535
SESSION 2013-14

5 JULY 2013

Department for Culture, Media & Sport

The rural broadband programme

Our vision is to help the nation spend wisely.

Our public audit perspective helps Parliament hold government to account and improve public services.

The National Audit Office scrutinises public spending for Parliament and is independent of government. The Comptroller and Auditor General (C&AG), Amyas Morse, is an Officer of the House of Commons and leads the NAO, which employs some 860 staff. The C&AG certifies the accounts of all government departments and many other public sector bodies. He has statutory authority to examine and report to Parliament on whether departments and the bodies they fund have used their resources efficiently, effectively, and with economy. Our studies evaluate the value for money of public spending, nationally and locally. Our recommendations and reports on good practice help government improve public services, and our work led to audited savings of almost £1.2 billion in 2012.

National Audit Office

Department for Culture, Media & Sport

The rural broadband programme

Report by the Comptroller and Auditor General

Ordered by the House of Commons
to be printed on 4 July 2013

This report has been prepared under Section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act

Amyas Morse
Comptroller and Auditor General
National Audit Office

3 July 2013

HC 535 London: The Stationery Office £16.00

This report examines how well the Department designed the rural broadband programme and the extent to which the operation of the combined set of safeguards provides assurance over value for money for the subsidy.

Printed in the UK for The Stationery Office Limited on behalf of the Controller of Her Majesty's Stationery Office

2572245 07/13 PRCS

Contents

The National Audit Office study team consisted of:
Paul Bilton, Paul Dodimead, Iain Forrester, Matthew Fowler, Jenny George and Steven McClenaghan, under the direction of David Corner.

This report can be found on the National Audit Office website at www.nao.org.uk/rural-broadband-2013

For further information about the National Audit Office please contact:

National Audit Office
Press Office
157–197 Buckingham Palace Road
Victoria
London
SW1W 9SP

Tel: 020 7798 7400

Enquiries: www.nao.org.uk/contact-us

Website: www.nao.org.uk

Twitter: @NAOorguk

Key facts

£1.2bn
total public funding to private sector supplier for rural infrastructure expansion

£0.5bn
central government contribution to the rural broadband programme

9
of 44 broadband projects projected to reach their 90 per cent superfast coverage target by May 2015

4.6 million	premises which the Department currently estimates will benefit from access to superfast broadband as a result of the Programme
44	individual broadband projects managed by local bodies
26	rural broadband contracts signed by June 2013, all awarded to one supplier
March 2017	Department's current projection for completing the Programme (original target May 2015, new target to "secure delivery by December 2016")
23 per cent	average proportion of private sector funding in contracts signed to date, compared with 36 per cent modelled in the Department's 2011 business case

Summary

The rural broadband programme

1 The government has made broadband internet provision a key public policy priority. In many predominantly rural areas, covering almost one third of UK premises, commercial providers have no plans to invest in the enhanced infrastructure required to deliver improved broadband speeds because these areas will yield lower returns. The government has therefore decided to intervene in the market and make subsidy available to stimulate investment.

2 The Department for Culture, Media & Sport (the Department) is responsible for government's broadband policies. Its objective for the UK is to have the best superfast broadband network in Europe by 2015. Before June 2013, the government aimed that by 2015, 90 per cent of premises in each area of the UK would have access to superfast internet speeds of above 24 Megabits per second (Mbps) and for all premises to have broadband speeds of at least 2 Mbps. In June 2013, it announced its intention for 95 per cent superfast coverage by 2017.

3 A unit within the Department – Broadband Delivery UK (BDUK) – is responsible for the £530 million rural broadband programme (the Programme). The Department gives grant funding to local bodies (a local authority or group of authorities, devolved government, or Local Economic Partnership), which procure the superfast broadband services for their areas. The Department has developed a framework contract for local bodies to use and also offers them support in negotiating with suppliers to provide the local infrastructure required to fill in the gaps in commercial coverage. Local bodies have generally been required to provide matched funding to the central government grant and can also put in additional money if, for example, they wish suppliers to reach a higher level of superfast broadband coverage.

4 The Department designed the Programme with three sets of safeguards intended to work together to achieve value for money, recognising that each would not be sufficient alone:

- Establishing a procurement framework for potential suppliers, promoting competition.
- Providing assurance that bids made by suppliers are appropriate through a call-off process and contract provisions.
- Providing in-life contract mechanisms to ensure that payments reflect actual costs and to clawback or reinvest revenue if actual costs or uptake differs from that anticipated.

We consider each of these sets of safeguards in turn and conclude on the overall assurance offered.

5 This report examines how well the Department designed the rural broadband programme and the extent to which the operation of the combined set of safeguards provides assurance over value for money for the subsidy. It also considers whether the Department is making sufficient progress in rolling out superfast broadband to rural areas. It does not consider wider aspects of UK broadband policy. Our audit approach is summarised at Appendix One. Our evidence base is summarised in Appendix Two.

Key findings

Promoting competition through a procurement framework

6 **The Department's market analysis concluded that BT had a strong market position in the provision of superfast broadband, but with competitors also intending to invest it opted for a competitive framework approach.** It stated that BT's advantages included its size, and its established market position as the only end-to-end provider with full geographic reach of wholesale local access infrastructure (between homes and a local exchange) as well as being a retail internet service and telephone line provider. The Department's market analysis indicated competition in the market to be weak. However, several of BT's competitors expressed an intention to invest in the market. The Department ran a competitive process in accordance with UK procurement regulations and European Commission guidelines on state aid (which aim to ensure that government funding does not distort competition within the European Union). The Department believed a centrally-supported but locally led delivery was the best approach to delivering value for money and designed a national procurement framework with call-off contracts between suppliers and local bodies (paragraphs 2.2 to 2.7).

7 **The design of the framework had advantages of ensuring affordability and transferring risk, but together with state aid conditions, this led to limited competition.** Compared to alternative funding models, the gap funding model favoured by local bodies reduced public cost and risk to government. However, stakeholders told us that the design of the Programme, including the gap funding model, the local nature of procurement contracts, the qualification requirements for prime contractors and the unattractive commercial conditions created by current regulatory and state aid conditions, were all factors leading potential suppliers to withdraw from the bidding process (paragraphs 2.6 to 2.9).

8 **There has been limited competition to BT within the Programme and, currently, no prospect of competition for the remaining framework procurements.** Nine companies pre-qualified to submit tenders for the national framework, but only three submitted final tenders and only two suppliers – BT and Fujitsu – were appointed to the framework. In March 2013, Fujitsu announced it did not intend to submit any further bids for contracts, leaving BT the only active participant in the framework. All local projects operating outside of the national procurement framework which have chosen a supplier have chosen BT. By June 2013, 26 of the 44 local bodies had signed contracts and all 26 had selected BT as their supplier (paragraphs 2.10 to 2.13).

Providing assurance that supplier bids are appropriate

9 In order to have assurance that supplier bids were appropriate, the Department needed:

- transparency over BT forecast costs (both at framework contract and local procurement stages); and
- benchmarking of the unit costs of deploying superfast broadband (paragraphs 3.2 and 3.3).

10 The Department has secured limited transparency over forecast costs. The Department required each supplier's framework bid to include a reference cost book intended to show costs at the call-off stage. BT chose to provide output unit costs from its own internal model due to the commercial sensitivity of its detailed data. On the Department's initial evaluation of BT's draft bid, its score for cost transparency indicated it had not yet reached the minimum threshold that would be required at final bid stage. In response, BT's final bid provided limited further information on cost drivers but the data still did not clearly identify input variables and corresponding unit costs. BT also contractually committed to ensure the costs in its bids would be internally consistent and consistent with its commercial investment case although the Department is reliant on self-certification from BT as it was not able to negotiate inspection rights. The Department concluded that BT's improved approach was sufficient to reach the minimum score acceptable for inclusion on the framework (paragraphs 3.4 to 3.6).

11 The Department has compared tender prices between local bids, which has helped local bodies. A key control during local procurement is the comparison of supplier bids to other costs. Most local bodies did not have competitor bids to compare. The Department instead provides local bodies with comparisons to other local bids and the financial model from the framework bid. Such comparisons have identified a few errors in BT bids, resulting in financial savings for local bodies, but the analysis is limited, as it does not link bids to unit costs or to wider benchmarks (paragraphs 3.7 to 3.10).

12 The Department commissioned analysis to benchmark unit costs through building a 'should cost' model but was hampered by lack of detailed data. The framework required suppliers to submit to a cost benchmarking study, as part of which the Department commissioned a consultancy firm to develop a 'should cost' benchmark model. A first draft of the report was completed in late May 2013, by which stage half of local body contracts were already finalised. The benchmarking report indicated that one supplier bid is in line with market expectations but has so far been unable to conclude on a second bid due to limited transparency over its complex technical solution (paragraphs 3.11 and 3.12).

13 The Department does not have strong assurance that the level of contingency included in BT's bids is reasonable. BT is required in the contracts to bear the risk of overspends. This arrangement limits public risk but may incentivise BT to include contingency in its bids. During the project, BT may only claim payment for evidenced expenditure. For 36 per cent of the costs BT has included in its bids, there is a range of benchmarks available against which the reasonableness of BT's bids can be assessed. But these benchmarks would lead to different conclusions about the amount of contingency included. For a further 41 per cent of costs, there is only limited benchmarking available and there are indications that there may be contingency in some of these amounts. For 23 per cent of costs, there is no benchmarking available (paragraphs 3.13 to 3.16).

14 The project funding contributed by suppliers has so far been lower than that modelled in the Department's 2011 business case. The Department's business case estimated that to reach 90 per cent superfast coverage, supplier contributions might be 36 per cent of the Programme's total projected funding of £1,547 million. Following the negotiation of contract conditions, the Department now expects suppliers to provide only 23 per cent of overall funding, £207 million less than it modelled in its 2011 business case. Contributions have varied between 38 per cent and 15 per cent of funding for each local area. Local bodies have provided greater contributions than expected, with total coverage slightly increasing to an estimated 92 per cent (paragraph 3.17).

In-life contract controls over costs and profit levels

15 The Department has secured in-life controls such as analysing actual costs in invoices. But no open book procedure is perfect and some risks remain. The process that the Department and local bodies will operate appears robust and should allow local bodies to validate that all equipment has been correctly costed and is separate from BT's commercial programme. However, BT's labour and project management costs, likely to comprise around 40 per cent of total costs, will be more difficult to fully assure. The Department is working with BT to introduce detailed assurance procedures, and is helping local bodies to focus invoice checking on the key risk areas (paragraphs 4.4 to 4.9).

16 The Department has transferred much of the downside risks to BT although BT would benefit from some upside risks. BT bears the risks of costs being higher, or revenues being lower than modelled, including the risk of future price regulation. The public sector will benefit from capital costs being lower than modelled. However, BT would benefit in full from any efficiencies it can make in operational costs. If take-up, and therefore wholesale revenue, is higher than expected, the public sector would share the benefits from volumes being higher than expected for the ten years of the contract. After that point, all wholesale revenue will go to BT. Experience to date suggests a possibility that BT's take-up assumption of 20 per cent may be conservative. The Department has not modelled the upside and downside risks that BT faces to determine whether the price paid for the balance of risk is reasonable (paragraphs 4.13 to 4.15).

17 Securing value for money from the Programme will depend on scrutiny of hundreds of thousands of invoices and follow-up analysis on take-up rates. The success of such a safeguard will partly depend on the level of skill and resource available in the Department and local bodies during implementation and beyond. The Department has begun developing processes and information to support local teams' scrutiny. Some local bodies told us they may not be well-resourced at the end of implementation to enforce clawback arrangements. The Department has stated it intends to monitor local bodies' capacity to manage contracts effectively (paragraphs 4.5 to 4.9).

Prospects for meeting targets and the future broadband market

18 The Department currently estimates that the Programme will reach its target 22 months later than initially planned. Only nine local projects are estimated to meet the Programme's target of supplying 90 per cent of premises with superfast broadband access by May 2015. The delay in roll-out is partly because of an extended negotiation to gain EU approval under state aid rules, which took six months longer than expected. In June 2013, the Department announced a revised target to "secure delivery by December 2016" in its business plan. The Department projects the Programme will reach 4.6 million premises in total, completing its roll-out in March 2017. At this point estimates show 92 per cent of premises in areas covered by the Programme would then have access to superfast broadband, although four local areas are not predicted to reach the 90 per cent target (paragraphs 5.2 to 5.5).

19 All of the assets and infrastructure created using the £1.2 billion public sector investment in the Programme are likely to be owned by BT although there will be some additional wholesale access conditions. The Programme's primary objective was to deliver value for money to the taxpayer within the existing regulatory framework, not to increase the competitiveness of the wholesale broadband market. BT's asset base will benefit from the significant public sector investment. Whether the additional access conditions secured by the Programme will have any significant impact in encouraging competition is as yet unknown. The EU's target of universal access to 30 Mbps by 2020 is much faster than the Programme's current aim of universal access to 2 Mbps, and plans for reaching this target are not yet clear. If reaching the EU target requires additional infrastructure or public sector funding, BT is likely to be in a strong position (paragraphs 5.6 and 5.7).

20 The sector regulator, Ofcom, identified BT's dominant position in wholesale line access provision, and has taken some regulatory action to encourage greater competition. Ofcom last reviewed the wholesale broadband market (separate from the competitive retail market) in 2010. Ofcom introduced regulatory remedies to encourage further competition in infrastructure deployment. Superfast broadband was in its infancy at the time and Ofcom did not, therefore, seek to impose any price controls on it. It is undertaking a further review later in 2013 (paragraphs 1.15 to 1.18).

Conclusion on value for money

21 The Department is seeking to deliver the government's rural superfast broadband objectives in a market dominated by one supplier. The Department is relying on a combined package of value-for-money safeguards to provide assurance. However, competition was limited and assurances over costs and take-up assumptions have been hampered by the complexity of the solution and lack of cost transparency. The Department does not have strong assurance that costs, take-up assumptions and the level of contingency in supplier bids are reasonable. Ensuring value for money for the £1.2 billion public investment now relies heavily on whether the Department can effectively implement the in-life contract controls it secured for the Programme.

22 The Department is currently forecasting that it will complete the programme 22 months later than originally planned, reaching 90 per cent of premises 12 months later than originally planned. Experience from similar projects suggests that government is not strong at taking remedial action to guard against further slippage. At the end of the Programme, BT's wholesale infrastructure is likely to have benefited from £1.2 billion of public money. Active involvement from Ofcom and the Department will be required to monitor the impact of the Programme on BT's position in the sector in the longer term.

Recommendations

23 The following recommendations are designed to help the Department use its available levers to achieve value for money from the rural broadband programme and lessons for future government projects. The recommendations are all the more important given the June 2013 announcement that the Department's programme will be extended, with a new target to reach 95 per cent of premises by 2017.

For the rural broadband programme

a **The Department should review all the reasons for the delay in roll-out to date, and guard against further slippage.** The Department's current projections suggest that the Programme will complete 22 months later than it originally planned. The Department should identify all the reasons for the slippage and then work with BT to establish where constraints exist and how to guard against further slippage.

b **The Department should seek greater assurance that BT's bid prices are reasonable and do not contain excessive contingency.** Analysis to date has not been able to give a clear picture of the extent to which the prices at bid stage include contingency. The Department should seek:

- an explanation from BT on the differences between the actual costs of a previous programme and costs included in tender bids;
- further information in bid responses on cost drivers, unit costs and reasons for cost variations to enable 'should cost' models to be applied;

- assurance from BT about how economies of scale are being passed to the public sector; and
- more detailed analysis on key risk items such as project management.

c **The Department should implement the procedures it is developing to thoroughly monitor in-life contract costs, placing additional emphasis on ensuring staff expertise.** In particular, the Department and local bodies should:

- evaluate the implementation of payment processes to inform later projects;
- carefully monitor operational costs and, if BT makes significant efficiencies over the bid costs, examine the scope for sharing in these;
- consider the long-term need for sufficient financially skilled staff to support invoice checking and clawback arrangements; and
- take steps to assure itself that local authorities are appropriately staffed to carry out robust checks.

d **The Department should consider evidence on take-up rates outside of the Programme and discuss with BT whether its modelling assumptions are still valid.** Take-up rates are a key assumption in determining investment levels and profits and can generate clawback for local bodies. If BT's assumptions appear conservative, the Department should support local bodies to use the clawback mechanisms as early as possible, and to consider whether there are ways of extending them.

For future projects

e **The Programme contains lessons which could be applied to the Department's other programmes and to wider government.** The Department sought to deliver a complex programme in a challenging time frame and designed a range of value-for-money safeguards aimed to work together to provide assurance. But there are some lessons which could be learned:

- Programme design and safeguards should be directly linked by the number and quality of market players as indicated by robust market analysis.
- If competition is weak, the Department should require a sufficiently high standard of financial transparency to be able to assure the reasonableness of unit costs.
- External benchmarking of prices to industry standards or a 'should-cost' model should be done early in the process to inform the assessment of all supplier costs.

Part One

Introduction

What is broadband?

1.1 Broadband is always-on internet access and is characterised by its bandwidth – the amount of data that can be transferred per second. Currently broadband provision is measured in millions of bits per second, abbreviated to Mbps. Once a broadband service achieves a certain bandwidth – currently 24 Mbps as defined by the Department for Culture, Media & Sport (the Department) – it is referred to as superfast.

1.2 In the UK, BT and Virgin Media's networks are expected to enable superfast broadband services to be available to an estimated 70 per cent of UK homes by 2015. In general, provision of broadband access is through:

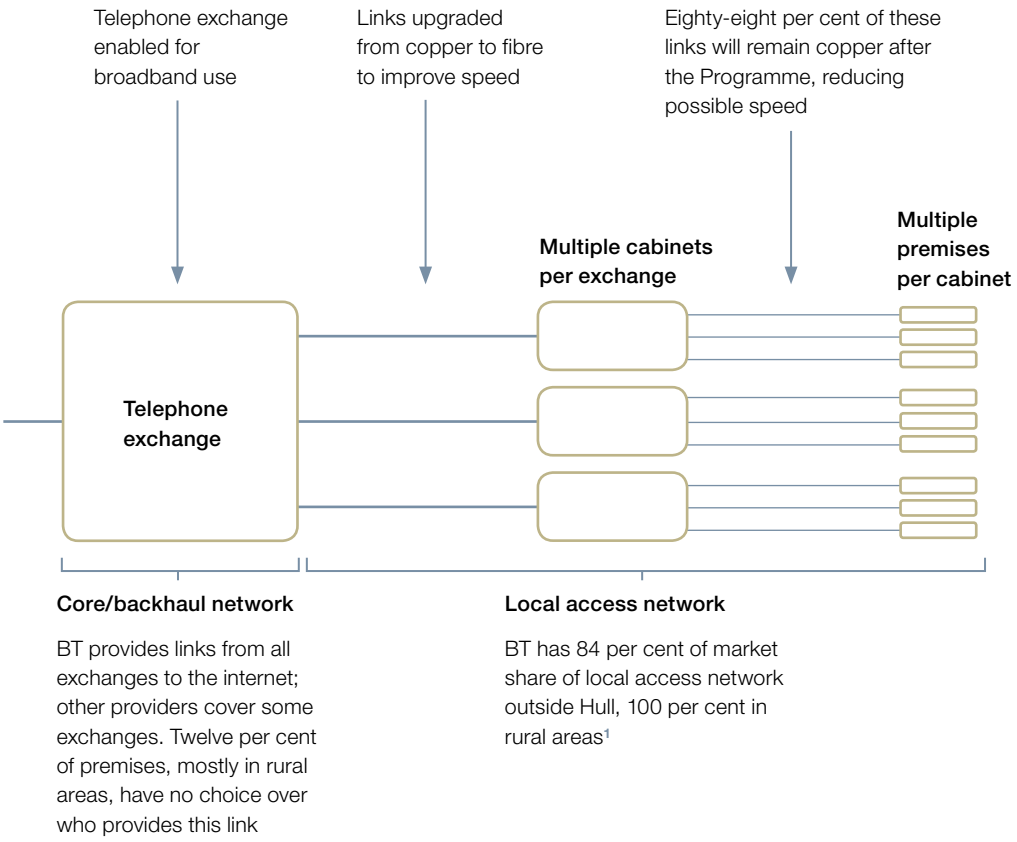
- **wholesale broadband providers**, usually network operators, that provide the infrastructure to connect customers' premises to the internet; and
- **retail internet service providers** that use the wholesale broadband providers' infrastructure to provide an internet service to customers.

1.3 Basic broadband services can be delivered using different technologies including wireless and satellite or over copper telephone wires. The latter offers speeds of up to 20 Mbps, though the speed available depends on factors such as the distance of premises from an exchange and the effects of electrical interference in the cable. BT is rolling out an upgraded network that uses fibre-optic cable, which has significantly greater capacity than copper wire. It is able to supply increased speeds to customers by replacing some or all of the lower capacity copper cable between its core network and the customer (**Figure 1**). This will enable BT to offer speeds well in excess of the superfast definition.

1.4 Commercial operators such as BT and Virgin are planning to make superfast broadband available to more than two-thirds of the UK. For example, BT has committed £2.5 billion to a commercial scheme to roll out superfast broadband speeds of up to 80 Mbps by 2014. The commercial case for providing similar services to the remaining more rural communities – referred to as 'the final third' – is more challenging as higher infrastructure costs and lower population density will not yield the same profits for a supplier. The government decided to intervene in the market and provide public subsidy to suppliers to enable provision of broadband to these areas.

Figure 1
How BT delivers superfast broadband

BT's superfast broadband is enabled by upgrading the copper wires within the telephone infrastructure with more fibre-optic cables. BT has significant market power in the UK for wholesale local access.



NOTE
1 Review of the wholesale local access market – Statement, Ofcom (October 2010).

Source: National Audit Office analysis

The Department's rural broadband programme

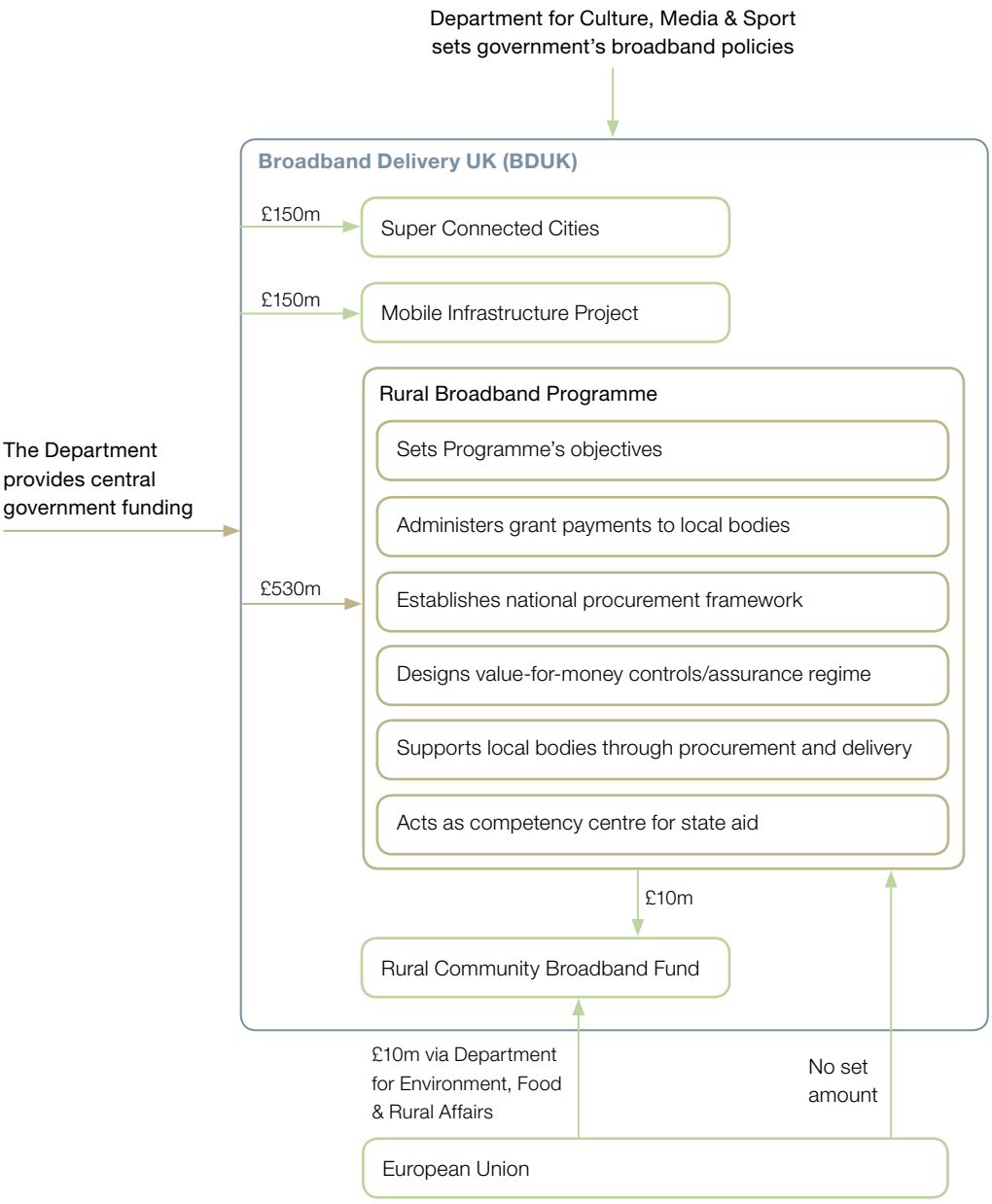
1.5 Broadband Delivery UK (BDUK) is a unit within the Department, created to implement the government's broadband policies. Ministers decided to create a rural broadband programme, referred to here as the 'Programme' (**Figure 2** overleaf). In December 2010, the government announced a £530 million investment over the current spending review period in the UK's rural broadband network.[1] With additional contributions from local bodies, total public sector funding is expected to be £1.2 billion.

1 Department for Business, Innovation & Skills and Department for Culture, Media & Sport, *Britain's Superfast Broadband Future*, December 2010.

Figure 2

The roles of the Department for Culture, Media & Sport and Broadband Delivery UK

The Department has responsibility for the rural broadband Programme



Source: National Audit Office analysis

Objectives and rationale

1.6 The Department developed five formal objectives for the Programme (**Figure 3**). These objectives were further articulated with a target that 90 per cent of premises in each of the areas covered by the Programme had access to superfast broadband. The Department estimates commercial superfast broadband implementation across all available networks will reach 72 per cent of premises in areas covered by the Programme by 2015, leaving the publicly subsidised Programme to reach 18 per cent to meet the 90 per cent target.

Funding the Programme

1.7 The Department allocated funds to local bodies[2] using a model which maps access to broadband in different areas and estimates the costs of providing superfast broadband to 90 per cent of premises. **Figure 4** overleaf shows the Department's funding allocations.

1.8 Each of the 44 local bodies works in partnership with the Department and have generally been required to at least match the Department's grant funding. Local bodies are accountable for their projects and their funding through their responsible financial officer. Local bodies can seek funding for their contributions from their internal budgets, through loans or through other sources such as grants from the EU's European Regional Development Fund.

Figure 3
The objectives of the Programme in the Department's business case

The Programme has a range of objectives

Objective 1	To support economic growth in the UK, including in rural areas.
Objective 2	To ensure this country has the best superfast broadband in Europe by the end of this Parliament (May 2015).
Objective 3	To ensure delivery of standard broadband to virtually all communities in the UK within the lifetime of this Parliament.
Objective 4	To ensure the efficient use of funding to deliver superfast broadband and standard broadband.
Objective 5	To assist other government initiatives which are dependent upon customers' ability to access broadband based services.

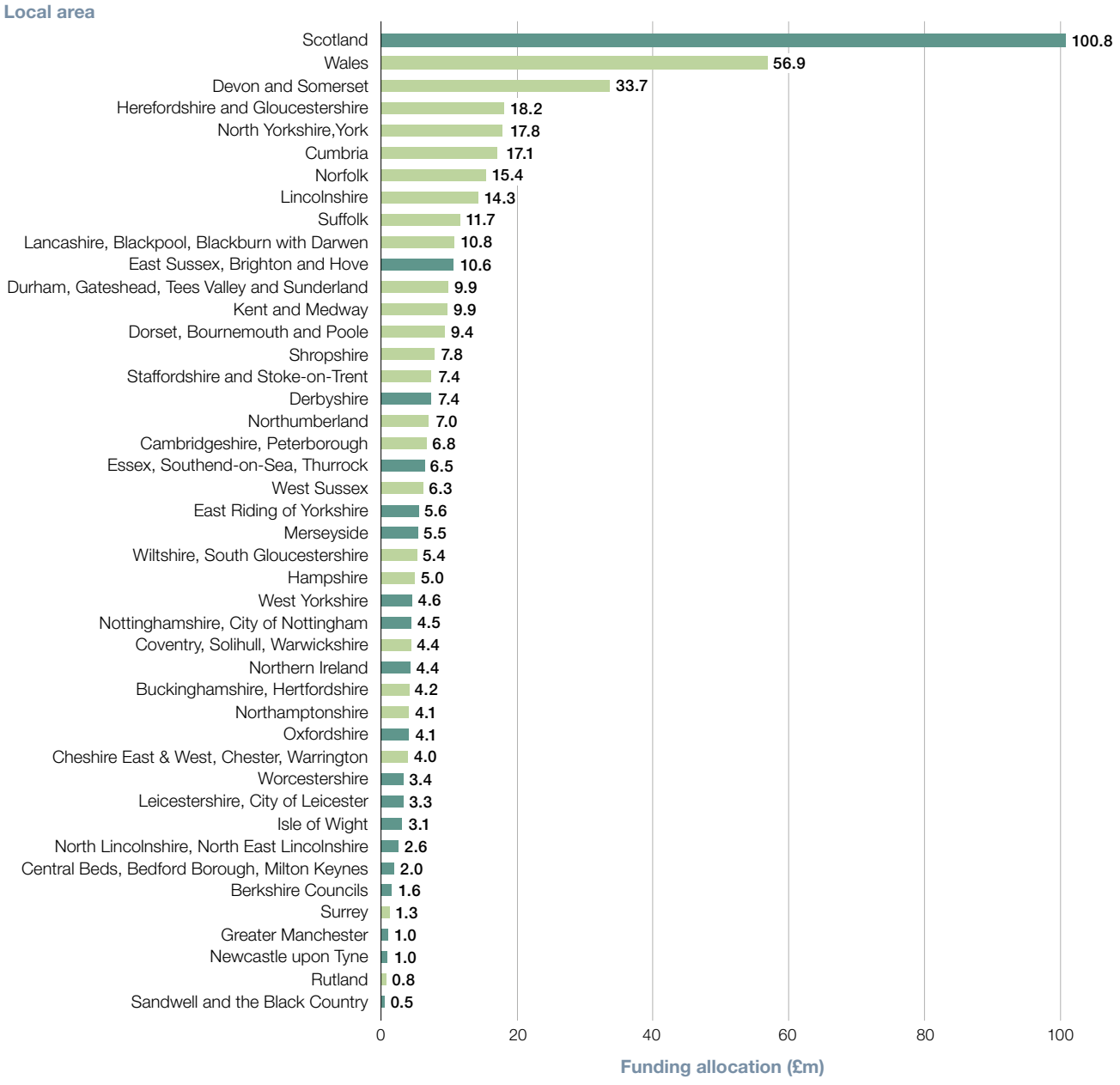
Source: The Programme's outline business case

2 A local body refers to a local authority or group of authorities working in partnership, devolved government, or Local Economic Partnership. Devolved government are accountable for their own projects.

Figure 4

The Department's funding allocations to local bodies total £462 million

The Department's funding allocations varied widely by area, based on its model for broadband need



NOTES

1 Project status based on whether a contract had been signed as at June 2013.

2 From the Department's £530 million funding, £462 million has been allocated to local bodies initially and £10m contributed to the Rural Community Broadband Fund. The remaining £58 million has been assigned as contingency and central Broadband Delivery UK costs.

3 Sandwell and the Black Country was allocated £0.5 million of funding but opted not to develop a broadband project. Scotland was given a single allocation but it is split between two projects: Highlands and Islands and Rest of Scotland. The Highlands and Islands project has entered implementation.

Source: Departmental data

1.9 Local bodies procure a private sector supplier to build and operate the broadband network. Local bodies can also put in additional money if, for example, they wish suppliers to provide a higher level of superfast broadband access. The public sector provides the balance of investment required following the supplier being able to make an investment case for the funding. The assets created then become the supplier's asset for perpetuity, although they will have to be maintained at the supplier's cost. Also, under state aid[3] obligations the owner must offer wholesale access to other suppliers. Once state aid obligations expire, the assets will be subject to normal regulatory controls.

The roles of the Department and local bodies

1.10 The Department designed the Programme's overall approach to providing publicly-subsidised broadband to rural areas. Following work in Cornwall and South Yorkshire prior to the Programme, the Department piloted its approach in five regions: Rutland, Cumbria, North Yorkshire, Herefordshire and Gloucestershire, and the Scottish Highlands and Islands. It then conducted a lessons learned exercise focusing on set-up activities, preparation for procurement and the choice of funding model, as well as parallel activities such as work undertaken to stimulate local demand for superfast broadband.

1.11 The Department chose four more regions to collaborate in a national procurement framework process: Norfolk, Wiltshire, Devon and Somerset, and Suffolk. The Department then ran a competitive process to assess suppliers which wished to be on the framework. The framework was developed for local bodies to use if they wish, and was designed to streamline the procurement process (**Figure 5** overleaf). Local bodies can use call-off contracts to procure a supplier. Seventeen of the eighteen local bodies yet to sign contracts have chosen to use the framework.

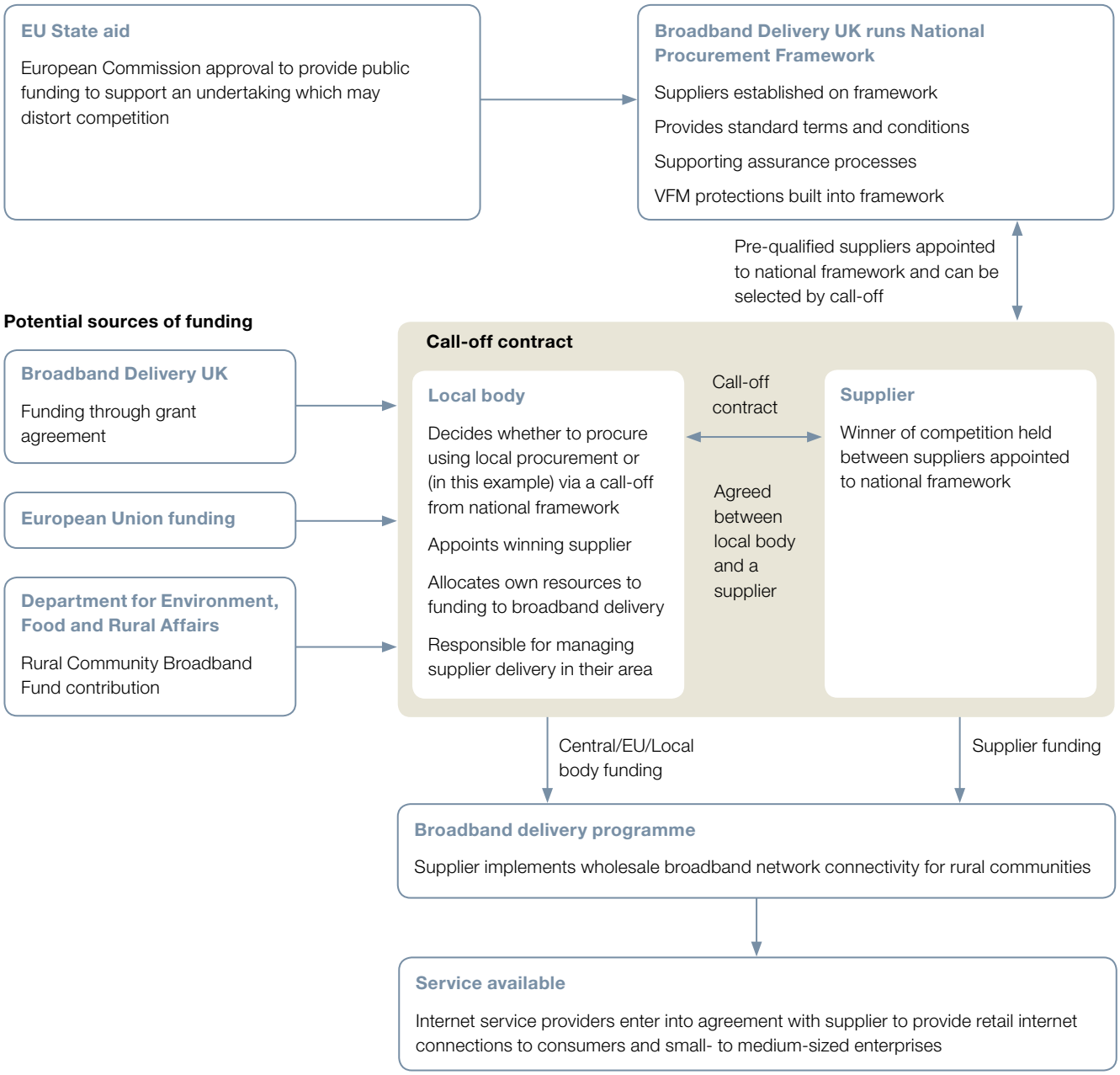
1.12 Following state aid approval from the European Commission in November 2012, the Department established a 'competency centre' authorised to certify that individual projects have adhered to the approved principles and constraints associated with state aid. The Department also has a support and assurance process for local bodies throughout their procurement process. A Rural Projects Assurance Board reviews the local body's readiness to proceed to the next stage at pre-assigned checkpoints throughout the process. The Department also assigns a senior key contact and supplies advisory material, document templates and training courses to support each local body.

1.13 The local body is responsible for planning and running the rural broadband project. It develops a Local Broadband Plan, provides funding to match central government's contribution, and negotiates the supplier's financial contribution as part of its procurement. The local body is also responsible for managing the supplier to deliver the project and for instigating demand for superfast broadband by engaging with the community to publicise its introduction to an area.

3 State aid is defined as an advantage conferred to suppliers on a selective basis by national public authorities. The European Commission generally prohibits state aid, but allows government interventions in specific policy cases within defined boundaries.

Figure 5
The design and operation of the framework

The national broadband framework appoints suppliers to qualify for call-off contracts for local projects choosing to use the framework and brings together funding from different sources



NOTE

1 A number of local bodies have opted not to use the framework, and operate similarly to the above but with a competition open to suppliers outside of the framework.

Source: National Audit Office analysis

The Programme's value-for-money safeguards

1.14 During the Programme's design, the Department devised three categories of controls for the Department and local bodies to operate together to provide appropriate value-for-money assurance throughout the project (**Figure 6** overleaf).

The regulatory environment

1.15 Ofcom is the independent regulator and competition authority for the UK communications industries. It reviews the regulatory environment every three years. It last reviewed the wholesale broadband market in 2010.[4] At that time, Ofcom concluded superfast broadband was not a separate economic market to existing broadband services. Ofcom expected prices for superfast broadband to be constrained by existing prices for lower speed services. Ofcom therefore elected not to introduce charge controls on superfast services, instead giving suppliers that invested in these services flexibility over prices. Ofcom highlighted the relatively small price premium between superfast and lower speed broadband as confirmation that superfast prices were being constrained as expected.

1.16 Ofcom also has powers to act as a competition regulator. It is currently considering a complaint from an internet service provider about whether the margin between the wholesale and retail prices of BT's superfast broadband products is too small. Ofcom's definition of broadband markets, and whether it classifies superfast broadband as a separate market, will be relevant to resolving this complaint.

1.17 As part of Ofcom's 2010 review, it recognised BT's significant market power in wholesale line access provision. Ofcom therefore imposed regulatory obligations on BT to encourage competition from other providers. It has introduced Physical Infrastructure Access, which requires BT to allow competitors to pay to deploy their own broadband wholesale infrastructure using BT's ducts and poles. However, no provider has gone beyond trials to deploy any new network assets using this access. It has also introduced Virtual Unbundled Local Access, which enables competitors to compete with BT's retail business using BT's network. Ofcom is due to review this market later this year.

1.18 Ofcom provided technical assistance to the Department during the Programme's design but it is not regulating the costs charged by BT as part of any government procurement. Ofcom holds BT cost data obtained under formal powers relating to its regulatory functions but has not conducted a detailed review of superfast broadband and anyway, is subject to statutory restrictions over disclosure of data to third parties.

4 *Review of the wholesale local access market*, October 2010, Ofcom.

Figure 6
The Programme's value-for-money controls

The Programme's design provided the Department and local bodies with three types of value-for-money controls

	Control	Description
1 Framework controls, including competition	Framework bidding process	A competition was held for companies to be appointed to the national framework within which most local bodies are procuring.
	Minimum standard of bid	In order to be appointed to the framework, bidders had to meet defined standards on affordability and leverage, transfer of risk, solution design, outcomes and delivery.
	Technology approaches determined	Bidders were required to define the technology approach that they would take and to meet defined standards.
2 Call-off contracts	Financial model	Framework bids were required to offer a financial model showing the make-up of the costs of their approach.
	Reference solution	Bidders were required to submit a detailed solution for a scenario representing a procurement call-off for a local area.
	Consistency commitment	Written supplier commitment to consistency across its bids, and between its bids and commercial broadband roll-out.
	Cost comparisons	The Department offers local bodies reports comparing the costs of supplier bids for that area to other available cost information, largely from bids in other areas.
	Wholesale product price controls	Contracts define allowable prices for the wholesale broadband product after completion, meaning that rural prices must be in line with urban.
	Independent Assurance Review	The Department commissioned an external body to report on the reasonableness of costs and to make comparisons to external benchmarks such as other countries and other types of infrastructure procurement.
3 In-life contract controls	Invoice checking	The contract terms stipulate that local bodies and the Department have full access to audit supplier invoices to determine the actual costs.
	Milestone payments	Local bodies and the Department only make payments to BT once it has demonstrated that it has met certain implementation milestones.
	Supplier cost claim controls	Suppliers may only claim for direct, incremental capital costs. Claims are not accepted for overheads or costs already incurred from deployment of a supplier's commercial deployment.
	Clawback mechanism	If supplier profits are higher than expected, local contracts stipulate that the supplier must return a portion of the money to the Department or reinvest it for further broadband deployment. Two mechanisms cover lower than expected costs on initial capital expenditure and higher than expected consumer take-up.
	Investment ratio monitoring	The split of funding between central government, local bodies and the supplier is set out at the contract stage and at each milestone the supplier must show that its investment at least meets the ratio in the contract.

Source: The Department's documentation of process

Scope of study

1.19 As at summer 2013, just over half of local bodies had signed contracts with suppliers to deliver broadband services. Therefore, we will not be able to comment on whether the Programme has delivered value for money. However, we can conclude on the prospects of value for money and any risks remaining. The next sections provide our assessment of:

- the approach to establishing a framework procurement for the Programme, including promoting competition (Part Two);
- assurance over the transparency and reasonableness of costs in bids through local call-offs and contract provisions (Part Three);
- the adequacy of in-life value-for-money controls (Part Four); and
- progress in delivering rural broadband (Part Five).

We describe our audit approach and evidence base in Appendices One and Two.

Part Two

Promoting competition through a procurement framework

2.1 In this part, we review the Department for Culture, Media & Sport's (the Department's) approach to promoting competition through a procurement framework.

The Department's market analysis

2.2 The Department undertook a high-level market analysis in 2011 when designing the Programme. This analysis identified BT as "the only end-to-end provider of UK wholesale and retail broadband with full geographic reach between homes and local exchanges". The Department understood that BT had significant competitive advantages, through:

- economies of scale and scope;[5]
- a highly optimised supply chain; and
- an existing service footprint and a large field force.

2.3 The Department's analysis concluded that consortia would be the most likely form of any competitors to BT. Ofcom also stated that it was not surprised that BT won all of the contracts to date, given its advantages in economies of scale which allow it to operate more cost-effectively than other suppliers.

2.4 The Department engaged with the market to test its capacity, competitiveness and appetite for the Programme. In late 2010, the Department undertook a theoretical procurement exercise where 26 potential suppliers suggested basic broadband solutions for three sample areas with challenging economics and connectivity issues. This exercise indicated:

- the availability and affordability of access to BT's ducts and poles was likely to be important to competitors;
- the importance of scale: an area offering more than 20,000 potential end users would significantly lower the size of the subsidy needed; and
- mobile operators were not interested in engaging.

5 An economy of scale is an advantage an organisation achieves through its size. An economy of scope is an advantage obtained from a product or service diversification due to an ability to reuse common assets and know-how.

2.5 The Department engaged again with 16 suppliers in early 2011. Few suppliers showed enthusiasm for the rural residential market and the Department felt the mid-market network operators did not have the scale or scope to address one local project on their own. This led the Department to conclude that the market had not yet properly formed to address 'the final third'. Despite these reservations, some companies indicated their willingness to bid for appointment on to a competitive framework. In particular, Fujitsu announced its intention to bring fibre-optic broadband to 5 million homes and businesses in rural Britain.[6] Given this interest and EU state guidelines requiring an open tender process, the Department decided to follow a competitive approach to procuring broadband provision.

Addressing the needs of local bodies

2.6 As well as a market assessment, the Department also had to consider the needs of local bodies and their role in delivering the Programme. The Department sponsored five pilot procurements in the first half of 2011 to test how local bodies could work together to develop comprehensive broadband plans and procure effectively. The Department used these pilots to conduct an early lessons learned exercise which found:

- Local bodies can develop plans tailored to meet local requirements.
- Suppliers only had capacity to address a relatively small number of procurements at the same time. The Department would have to manage the flow of projects through a procurement pipeline to ensure it remained manageable for interested suppliers.
- All five pilots chose a gap funding investment model, although some explored other commercial arrangements. The investment gap is the public contribution required to a supplier's investment in broadband infrastructure to make a project commercially viable. Both the Department and local bodies preferred a gap funding model as this approach transfers many risks to the supplier and allows local bodies to make use of up front private sector investment. It avoids the local authority from having the ongoing responsibility for managing the network which might require considerable specialised skill and knowledge rarely found in local bodies' information technology departments.

6 *Fujitsu unveils plans to bring fibre to 5 million homes and businesses in rural Britain*, Fujitsu 13 April 2011.

The Programme's procurement approach

2.7 In designing the Programme, the Department had to consider many trade-offs, such as cost, timing and risk factors versus encouraging competition for the framework, or a locally led approach to fit local circumstances versus the economies of a one-size-fits-all template approach of a national framework. The Department proceeded with the development of a national procurement framework that local bodies would use to competitively call-off suppliers. The Department did not mandate the framework's use, nor did it insist on use of the gap funding model. Other commercial delivery models were available but not viewed favourably by many local bodies particularly following the South Yorkshire Digital Region project completed in 2012 which used a public-private joint venture investment model but which has failed to attract sufficient retail interest in the service. The Department did not pause to evaluate the success of the pilot projects in attracting competition.

2.8 Since competition was envisaged to be a key value-for-money safeguard, it was important to design a framework that would attract sufficient competition to drive down costs and offer high quality solutions. The Department's chosen approach has advantages such as lowering public sector cost and risk compared with other approaches, but involves trade-offs that reduce potential competition (**Figure 7**).

Figure 7
Advantages and disadvantages of the Department's preferred procurement approach

The Department's preferred design involved risk and competition trade-offs

Preferred/chosen option	Risk and competition trade-offs	
	Advantages	**Disadvantages**
Gap funding	Commitment of public funding known in advance and fixed. Outturn risk transferred to supplier.	Favours suppliers with existing secure revenue streams. New entrants have to attract users to new network.
Contracting through a prime contractor	Transfers deployment and technological integration risk away from local body to supplier.	A challenge for small- and medium-sized enterprises to raise relatively large sums of funding.
National procurement framework	Single negotiation of core requirements, baseline solutions, commercial terms and cost information. Mini call-off competitions more efficient than repeated full Official Journal of European Union (OJEU) procurements in each local area.	Local bodies in framework have reduced options to achieve faster procurement. Minimum financial thresholds required for pre-qualification rule out smaller competitors and narrow the field of potential bidders.
Locally run delivery	Responsive to local needs and priorities. Attracts additional funding from local bodies.	Does not deliver the economies of scale achievable from a national procurement.

NOTE

1 This analysis was based on the Department's documentation, evidence submissions received from Independent Networks Cooperative Association (INCA), UK Broadband and discussions with unsuccessful bidders.

Source: National Audit Office analysis

2.9 The Department conducted only a high-level analysis of time and cost savings around the different procurement options in terms of local versus national delivery. We found no evidence of a separate cost-benefit analysis. Instead the Department focused on each option's risk profile. Its strategy acknowledged previous public sector schemes which had taken different approaches and shown benefits such as increased openness, but also low take-up and higher cost. It did not analyse these in detail.

The lack of competition for broadband contracts

2.10 There has effectively been little competition to supply rural broadband infrastructure through the Programme. Nine companies pre-qualified to bid to be on the national framework, including companies across the outsourcing, telecommunications and construction sectors. However, three withdrew immediately and a further three withdrew during the first phase of competitive dialogue. The Department mostly assessed the three remaining bidders against thresholds based on technical and financial criteria rather than direct competition, only comparing leverage to other bidders. A consortium including small- and medium-sized enterprises failed to pass this stage, leaving only BT and Fujitsu to be appointed to the framework. Suppliers reported finding the bidding process very difficult and complicated.

2.11 Additional state aid-related requirements were a factor in some bidders withdrawing or having to change their technological approach, including the supplier unsuccessful at the final tender stage. The framework required bidders to comply with the EU's state aid regulations, which have additional requirements for non-fibre approaches such as wireless or satellite technology. Requirements include suppliers with non-fibre solutions offering a fibre-based upgrade when economically feasible. Stakeholders told us that the design of the Programme had particularly hampered suppliers' ability to compete against BT because:

- a model which does not underwrite market risks favours companies with existing secure revenue streams;
- consortia are required to be led by a member acting as a prime contractor which has the financial strength and capability to bear key project risks alone; and
- the existing state aid and regulatory conditions are not sufficiently attractive to allow competitors to BT.

2.12 The Programme has produced limited competitive pressure. Of 26 contracts agreed by June 2013, all were awarded to BT. Two local projects prior to the programme had been won by other companies and there was some competition early in the Programme. However, only three projects so far have attracted more than a single bidder at final tender stage (**Figure 8**). These three were non-framework procurements. There is little prospect of competition for the remaining contracts as all but one of the remaining procurements are using the framework. This means only BT or Fujitsu can be awarded the contract. However, in March 2013, Fujitsu announced its intention not to bid for any further contracts, stating that "many of the economic, regulatory and technical factors required to make the business attractive to Fujitsu could not be delivered". This left only BT actively participating.

2.13 The Department set out in its business case the actions it might take if the market was not able to provide sufficient competition. In such circumstances, the Department might enter into bilateral contracts with key suppliers instead, if multiple procurements with the same supplier would offer limited value. The Department did not implement this option, despite the limited competition. The Department told us that key value-for-money protections had already been secured through the competitive procurement. It stated that reopening the procurement would add delay and offer little prospect of improving value for money further. It told us the economies of scale achieved from a national negotiation were likely to be outweighed by the benefits and additional funding gained through a locally-led approach. The Department added that by the time it became apparent that competition was weak, it did not want to reopen BT contract negotiations nor restart the state aid process given the commercial and legal risk and tight delivery timetable.

Figure 8
Procurement pipeline

Some pilots and other areas were in the course of procurement while the framework process took place, and most resulted in single tenders.

	Pilot areas	Other non-framework areas	Framework process
2011			
January			
February		Wales: 5 bidders pre-qualify	
March	Cumbria: 5 bidders pre-qualify	Lancashire: 2 bidders	
April			
May	North Yorkshire: 6 bidders Rutland: 4 bidders		Prior information notice issued
June	Herefordshire & Gloucestershire: 7 bidders Highlands and Islands: 4 bidders	Surrey: 3 bidders	OJEU procurement notice issued
July			
August			9 bidders pre-qualify
September	● Rutland becomes single tender		Dialogue phase one: 6 bidders
October		● Lancashire becomes single tender	
November	Pilot lessons learned published		
December	● Herefordshire and Gloucestershire becomes single tender		
2012			
January	● Highlands and Islands becomes single tender	● Wales becomes single tender	Dialogue phase two: 3 bidders
February			
March			● Evaluation: 2 of 3 bidders pass
April		Cambridgeshire: 3 bidders	
May			
June			BT and Fujitsu appointed
July	● Cumbria becomes single tender ● North Yorkshire ends: 2 tenders		
August		Oxfordshire: 2 bidders	
September		● Surrey ends: 3 tenders	
October			
November		● Oxfordshire becomes single tender	
December			
2013			
January			
February		● Cambridgeshire ends: 2 tenders	

● Becomes single tender ● Ends with multiple tenders

Source: Departmental records

Part Three

The transparency and reasonableness of costs

3.1 The Department for Culture, Media & Sport (the Department) operates a series of controls to assess and control the reasonableness of costs included in bids submitted by suppliers for delivering rural broadband (see Figure 6). This part examines the effectiveness of these controls and the evidence available to date on actual costs in bids.

Cost control mechanisms

3.2 The overall reasonableness of the amount of public sector subsidy a supplier requires to undertake a rural broadband programme depends primarily on two sets of assumptions:

- the build cost of the broadband infrastructure; and
- forecasts on the supplier's investment and profits, which in turn depend on assumptions about future prices, take-up and operating costs.

3.3 We can look at the transparency of costs in bids at two stages:

- when suppliers are bidding to be on the framework; and
- when suppliers submit bids to local bodies under call-off arrangements.

Cost transparency when bidding to be on the framework

3.4 The Department intended that the competitive appointment of suppliers to the procurement framework would include an evaluation of the costs and cost models associated with those bids. These involved:

- A reference cost book, intended to be an input to the financial model for each local body bid providing a list of costs. The Department intended the reference cost book to provide transparency on costs, although it recognised that actual costs would differ between bids.
- A notional bid. The Department required suppliers to submit a bid for a notional local scenario as part of the framework bidding process, to illustrate their technical and financial approach.

3.5 BT used its commercial roll-out model to price its bids under the framework and provided the Department with a summary reference cost book based on output costs per user connected that did not meet the Department's intended level of detail. BT did not provide the Department with the detailed model, citing commercial confidentiality and a high degree of complexity. This makes it difficult for the Department and local bodies to gain transparency over the level of costs included in BT's local bids. Several local bodies we consulted told us that they do not understand the costs included in bids or whether variations from the reference cost book were justified, although others valued the reassurance the Department offered through its bid comparisons (see paragraph 3.7).

3.6 The Department's initial evaluation of BT's financial model gave a score of seven out of twenty, where a score of eight or more was required to get on to the framework. One of the requirements for the model was that "the cost book is provided to the necessary level of detail to enable understanding of key cost drivers". At the initial evaluation, BT, like other bidders, failed at least one of the evaluation criteria and was given the opportunity to provide clarifications. In response, BT:

- provided a limited description of cost drivers including how rural an area is and its line lengths;
- agreed to give contractual assurance for each local project that it would charge its costs on a consistent basis across its commercial and non-commercial programmes. BT was not prepared to agree to inspection rights so the Department has to rely on self-certification from BT and cannot check that this clause has been applied; and
- agreed to submit to a cost benchmarking exercise (see paragraph 3.11).

Following these measures it was still not possible to see a complete relationship between cost drivers, unit costs and output costs. The Department assessed that there was sufficient transparency and BT's revised approach was scored at the minimum pass rate of eight out of twenty.

Call-off contracts

3.7 For each local body call-off contract, bidders are required to submit a project financial model which includes details of volumes, costs, revenues and profits during the contract period.[7] The Department produces a bid comparison report to help local bodies assess the reasonableness of costs in the bids. These reports analyse cost indicators such as capital expenditure and supplier funding, and compare the bid to:

- earlier BT bids under the framework;
- BT's reference cost book; and
- where possible, BT bids for non-framework contracts funded by the Department's grant.[8]

7 Contract period is 10 years but BT evaluates its bids over 15 years and provides a 10- and 15-year financial model.
8 Since non-framework contracts do not necessarily use the financial model for the framework, the data available to the Department to undertake the comparison may differ.

3.8 However, this analysis was significantly weakened by the absence of a 'should cost' model, or comparison with other non-BT bids, which would provide a strong benchmark for reasonableness. The Department has not compared the bids back to several other models to estimate costs and profits as they were not completed on a comparable basis (**Figure 9**). A first draft 'should cost' model for one bid was completed in May 2013 as part of an external benchmarking review.

3.9 We identified further limitations of the bid comparison process:

- Less data in some cases to compare bids against each other – bids outside the framework presented their cost models in differing formats making some comparisons harder. For two cases outside the framework, comparison reports were only prepared after a contract with BT had been signed and in a further case a comparison report was not undertaken.
- The process is focused on the forecast build costs and does not fully consider the forecast profits and return of the supplier.

3.10 Despite its limitations, the bid comparison process has so far offered some reassurance to local bodies and has led to a few changes to bids. For example, the Department identified BT as overcharging for project management costs by £3 million in one area, and made BT remove the identified costs from that bid. Some local bodies reported that they valued the Department's support in checking bids.

External benchmarking review

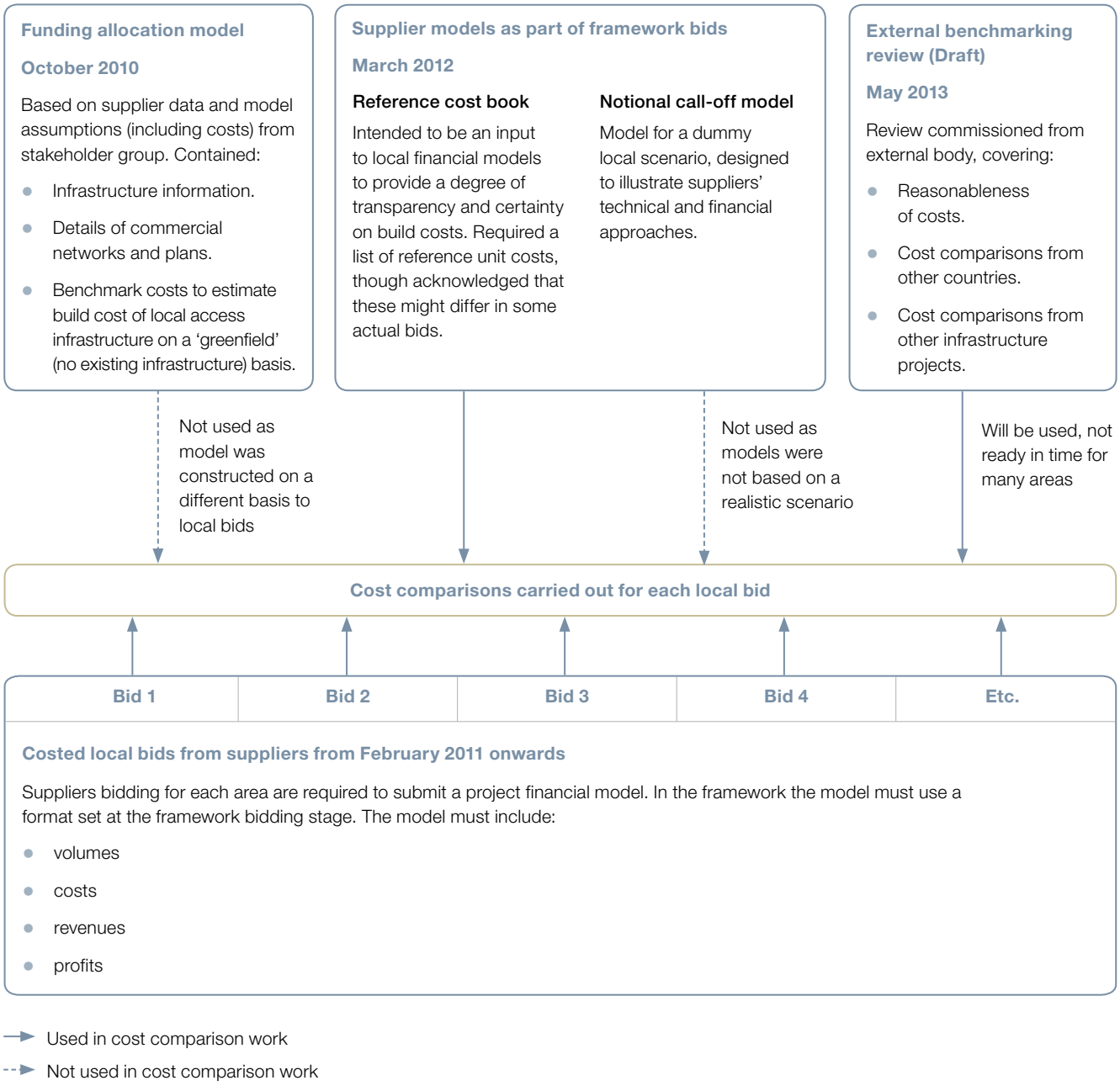
3.11 The framework contract provides for an external consultant to review the reasonableness of costs in bids. The Department commissioned this review in February 2013 to provide assurance to itself and to local bodies about the reasonableness of the costs contained in the contracts BT is signing with local bodies. This review attempts to compare the Programme's costs against other available cost data, including international data, UK comparators and other broadband projects although it did not succeed in finding robust international comparisons.

3.12 A first draft of the review was completed by Grant Thornton and Atkins Global in late May 2013, five months after BT's first bid under the framework concluded. By that point, half of local contracts had already been signed with BT, so any desired changes would require contractual mechanisms to remedy. The Department envisages that the review will allow it to focus its attention on risk areas identified. It may also use contract dispute clauses and increased focus on in-life controls such as invoice scrutiny to exert pressure on BT to justify or reduce its costs as required. **Figure 10** on page 32 summarises the draft findings.

Figure 9

Models used in estimating the costs and profits of the Programme

In comparing local bid costs, the Department has only used some of the many models it and bidders have developed to estimate the costs and profits of the Programme



Source: National Audit Office analysis

Figure 10

Draft findings and recommendations on reasonableness of costs from the consultant's review

The review found that bids under the framework are generally consistent but highlighted some issues

Comparison	Finding
Reviewing and comparing call-off bids	The structure of the financial models used for bids under the framework is consistent but the models lack detail and transparency, which prevents the consistency of solution costs from being fully reviewed and validated. There appears to be reasonable consistency of pricing across bids under the framework. There is less cost driver data available for non-framework projects funded by the Programme but there also appears to be a reasonable level of consistency between the pricing of framework and non-framework projects except in areas such as project management costs, operating costs and profits. Take-up assumptions and project management costs in framework bids were not in line with recent actual outturn data from a similar project completed prior to this Programme.
Comparing call-off costs to 'should cost' model	The consultant attempted to compare two projects under the framework to a 'should cost' model. The build costs of one project is in line with market expectations, subject to assumptions made about BT's approach. It was not possible to complete the same analysis for the other project due to lack of data.
Gaining efficiencies across the entire programme	The review anticipates that BT is likely to secure further economies of scale as it completes more local projects. It is not currently clear how any savings would be passed to local bodies, though the milestone payment process is designed to pick up differences between the forecast costs and the actual costs invoiced.

NOTE

1 Based on provisional findings.

Source: Grant Thornton, External benchmarking review

Emerging evidence on the reasonableness of costs in bids

3.13 There are a number of contractual and other mechanisms that mean that it would be sensible for BT to include contingency when bidding for contracts under the rural programme. These include the asymmetric nature of the clawback mechanism (which means that BT has to fund any overspend but doesn't benefit from any underspend), and the complexity it faces in estimating actual costs. Whether a high bid from BT would result in the public sector being overcharged would depend on whether BT claims ineligible costs and on the effectiveness of in-life control mechanisms. The in-life control mechanisms are assessed in the next part of this report.

3.14 The Department does not know how much contingency BT has included in bids due to the limited transparency it secured in its framework contract (paragraphs 3.4 to 3.10). We sought to examine the emerging evidence on the reasonableness of costs in BT's bids. In doing so, we have focused largely on the cost of enabling cabinets for superfast broadband due to data availability. Street cabinets act as a key link between individual premises and the wider network. These cabinet costs amount to an estimated 36 per cent of all costs (**Figure 11**). Our analysis uses the average cost per cabinet included in bid costs for 18 contracts awarded under the framework in England.[9] We excluded nine other bids from our analysis as they were either unrepresentative, or were submitted in a different format without comparable data. BT's average bid cost/ per cabinet across these 18 bodies varied from £19,600 to £51,000 with an average of £28,900 (**Figure 12** overleaf).

Figure 11
Contribution of different categories of cost to total spend

Street cabinet enablement costs account for an estimated 36 per cent of total costs

	Estimated percentage of total cost
Capital costs	
Street cabinet enablement costs	36
Costs associated with connecting a premise to a cabinet	4
Other technical solutions (predominantly enabling fibre direct to premises)	20
Other capital costs (mainly project management and improvements to BT's backhaul/core network)	17
Capital costs total	**77**
Operational costs	**23**
Total	**100**

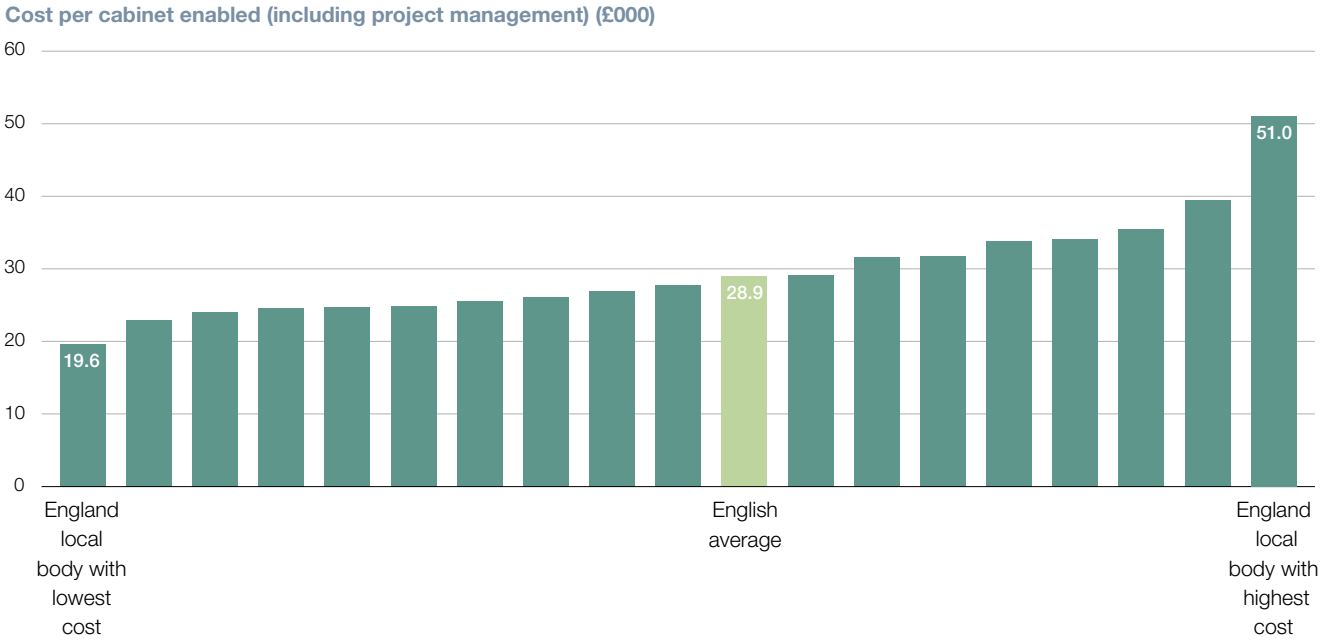
Source: National Audit Office analysis of departmental data on 18 BT bids

9 The 18 contracts reconciles to the 26 mentioned elsewhere in this report as follows: the 18 includes East Sussex for which a contract has not yet been signed but for which cost data is available. The 18 does not include 7 contracts from outside the framework, submitted in a different format, for which less data was available: Cambridgeshire, Cumbria, Herefordshire and Gloucester, Lancashire, North Yorkshire, Rutland and Surrey. It also excludes the Highlands and Islands in Scotland, due to the greater technical complexity involved in reaching rural areas of Scotland and excludes Wales due to the different European funding regulations applying in that country.

Figure 12

BT's average cost per cabinet enabled for 18 English local body bids

BT's bid costs varies from £19,600 to £51,000 with an average of £28,900



Source: National Audit Office analysis of departmental data on 18 BT bids

3.15 Figure 13 describes three of the sources available to us to assess the reasonableness of BT's street cabinet enablement costs. One of these sources is the Department's own analysis of actual invoices from a completed project in Northern Ireland. BT has further helped us to examine the Department's analysis by sharing some additional data with us that it had not previously shared with the Department. The method and assumptions made by each of these three sources was quite different; they have different strengths and weaknesses and they have reached differing estimates of cost. The three cases capture the range of cost estimates and would lead to different conclusions on the amount of contingency included by BT.

Figure 13

Comparison of estimates of the cost of enabling a street cabinet with BT bid costs

The three estimates presented below capture the range of cost estimates we have seen for enabling a street cabinet and would lead to different conclusions on the amount of contingency included by BT

	Departmental analysis of invoices in Northern Ireland	Analysis by Atkins Global for Grant Thornton as part of the Independent Assurance Review	Analysis by The Bit Commons Ltd
Brief descripton of methodology	The Department has analysed invoice data held by the Northern Ireland Executive that justifies the amount the Executive has funded for a superfast broadband scheme. BT has then split this for us into street enablement and other costs.	Atkins Global has used its expertise and experience from being a managing agent for around a dozen UK telecom networks to undertake a detailed estimate of BT's network layout and costs.	The Bit Commons Ltd is a small independent company that has calculated the cost for a telecoms operator other than BT in providing a technical solution equivalent to BT's. It has then used this to estimate the incremental cost to BT, typically by applying a margin or volume discount.
Finding	The Northern Ireland average cost per cabinet enabled is 12 per cent below the average BT bid in England but is within the range of values seen in England.	The Atkins 'should cost' model for Northamptonshire is 3 per cent higher than BT's actual bid for the area. Atkins was not able to complete analysis of a second local body area, Suffolk, due to the difficulties it encountered in modelling a more complex technical solution.	The Bit Commons Ltd estimated average cost per cabinet enabled is 57 per cent below the average BT bid in England and 37 per cent below the lowest average value seen in an English bid.
Strengths of finding	Northern Ireland is the only model available to us that uses real, rather than modelled, expenditure.	Atkins' model is the only model available to us that has tried to match a corresponding BT bid identically.	The Bit Commons work evidences costs for other telecom providers.
Limitations on finding	Applicability of the Northern Ireland average to the whole of England is uncertain. Specifically cost inflation, number of cabinets enabled as part of commercial roll-out and terrain factors will give rise to differences.	Applicability of results in one local body to the whole of England are uncertain: Northern Ireland had more than 5 times as many cabinets as Northamptonshire; the Department's scheme will have at least 70 times as many cabinets as Northamptonshire.	The estimated cost is heavily reliant on the margin or volume discount factor BT can obtain compared with the costs of another telecoms operator. The Bit Commons currently assumes 70 per cent for this factor which seems optimistic. The Bit Commons estimate is less than half the cost that the Department found when analysing Northern Ireland invoice data. The Department therefore considers that this model greatly underestimates the actual costs of deployment.

Source: National Audit Office analysis of Departmental, The Bit Commons and Atkins Global data

3.16 The benchmarks available for the remaining 64 per cent of costs are more limited and for each element we either have one source or no benchmark sources:

- **Costs of connecting a premises to a cabinet (4 per cent of the total).** The Atkins Global work on Northamptonshire found that the BT bid cost was 6 per cent below the modelled market expected cost. The Department's work on Northern Ireland and the Bit Commons work did not consider these costs.
- **Other technical solutions (20 per cent of the total).** The Atkins Global work on Northamptonshire found that the BT bid cost for fibre to the premises were 2 per cent below the modelled market expected cost. These costs amounted to just 4 per cent of the total cost in Northamptonshire, significantly less than the national average. The Bit Commons work did not consider these costs. These costs were not incurred in Northern Ireland.
- **Other capital (project management and backhaul) costs (17 per cent of the total).** Our analysis of the Department's work on Northern Ireland found that other capital costs in England were more than twice those in Northern Ireland. BT have told us that this could be due to different market conditions in England and that the projects are generally longer, and more complex, than in Northern Ireland. The Atkins Global work on Northamptonshire and the Bit Commons work did not consider these costs.
- **Operational costs (23 per cent of the total).** No benchmarking was available to us on these costs.

Overall, we consider that the Department does not have strong assurance over the appropriateness of the levels of contingency.

Projected cost of the Programme to the public sector

3.17 The capital cost of the Programme has not varied significantly between the 2011 business case and June 2013, but the percentage contributed by suppliers has been lower than originally anticipated (**Figure 14**). The Department's 2011 business case included a range of modelled scenarios for broadband coverage and cost. The Department allocated its funding on the basis of its conservative model, recognising that this was built on assumptions that would need to be validated over time. This conservative model projected a capital cost of £1,547 million and that suppliers would contribute around 36 per cent of total Programme costs, some £563 million. The latest projections extrapolated from 19 finalised contracts suggest that total cost will be almost the same at £1,576 million. However, the local authority contribution has risen by over £200 million to 46 per cent of the total. This is mostly because the Department's estimate of the supplier funding they would be able to attract has proved too optimistic. BT is now expected to provide only 23 per cent of funding, with contributions ranging from 15 to 38 per cent. Overall BT is expected to commit £207 million less to the Programme than the Department had modelled in 2011. The Programme is, though, projected to achieve greater coverage than originally planned: 92 per cent, rather than 90 per cent, coverage of superfast broadband is now expected. The range of coverage in local body areas is estimated to vary between 81 per cent and 99 per cent.

Figure 14

Comparison of capital costs and coverage, outline business case to latest projection

The total cost of the Programme has not varied significantly between the 2011 business case and June 2013, but suppliers are now expected to contribute £207 million less than originally anticipated with the shortfall to be met by local bodies

	Projection in Outline Business Case (November 2011)		Latest Projection (June 2013)		Variance	
	£ million	Percentage of total	£ million	Percentage of total	£ million	As a percentage of amount projected in November 2011
Departmental funding	490	32	490	31	0	0
Local bodies (including European) funding	494	32	730	46	236	48
Total public sector funding	**984**	**64**	**1,220**	**77**	**236**	**24**
Supplier funding	563	36	356	23	-207	-37
Total cost	**1,547**	**100**	**1,576**	**100**	**29**	**2**
Anticipated superfast broadband coverage (percentage)		90		92		

NOTE

1 From the Department's £530 million funding, £462 million has been allocated to local bodies initially and £10 million contributed to the Rural Community Broadband Fund. The remaining £58 million has been assigned as contingency and central BDUK costs. The above table assumes that £28 million of this £58 million is assigned as contingency in line with the Department's business case projection.

Source: National Audit Office analysis of departmental data

Part Four

The adequacy of in-life value-for-money controls

4.1 This part examines the final set of value-for-money safeguards, those that cover the in-life operation of the Programme. We have not been able to fully test these controls because implementation is just beginning.

4.2 Figure 6 described the Department for Culture, Media & Sport's (the Department's) main in-life controls. Local bodies will be responsible for implementing these in-life controls, with the Department offering them support.

4.3 The main in-life controls are:

- that payment is only made to the supplier once it can demonstrate that it has achieved a milestone;
- that payments are based only on actual incremental capital expenditure and in accordance with the investment ratio agreed with the supplier; and
- clawback – if more premises take up superfast broadband than expected at the bidding stage, additional profits are shared with the public sector.

Milestone payment mechanism

4.4 Contracts between local bodies and BT specify that payments will be made only once key milestones have been achieved. Milestones will typically include the completion of a full survey, building of particular infrastructure and availability of services. The underlying contract requirements on this point are strong but to work well they have to be implemented effectively, which is the responsibility of local bodies. The Department has worked with Suffolk council and other local bodies to develop a robust in-life contract management process, known as 'milestone to cash'. This process enables local bodies to agree with BT a detailed baseline for the implementation plan, which defines what BT will build, by when and for how much. The process should give local bodies the detail required to make a strong assessment at each milestone.

Payment on actual expenditure

4.5 In addition to specifying milestones, the Department intends that local bodies will also check invoices to ensure that payment is made only on actual expenditure. When BT submits a milestone claim to a local body, it must also submit invoices with a detailed breakdown of the expenditure incurred in achieving that milestone.

4.6 Given the high number of invoices expected once most local projects are in implementation, the Department is planning a system of collating BT's invoice costs centrally and reviewing them on a risk basis, focusing on higher-risk cost categories such as project management and staff costs. The Department is also developing its processes to support local bodies in their invoice monitoring.

4.7 The process seems robust and, in particular, should allow local bodies to validate that equipment costs are correct and are incremental to BT's commercial roll-out. However, no open book procedure is perfect and some risks remain:

- BT estimates that around 40 per cent of costs are likely to be for BT's own staff. Compared to equipment, it is significantly harder to verify the accuracy of such costs, even using timesheet data.
- Local bodies are likely to require resources to monitor costs and respond as necessary. For example, the £79 million broadband project in Cornwall, which is due to complete in 2013, will lead to an estimated 18,000 invoices.
- The Department will also require resources to make comparisons across local bodies.

4.8 Once the capital expenditure incurred has been validated, the actual amount to be paid to BT is agreed:

- If actual expenditure is equal to or higher than expected, then the amount agreed in the financial model is paid to BT, with BT meeting any shortfall.
- If actual expenditure to date is lower than expected, then a clawback mechanism operates. The amount refunded is calculated using the difference between actual and expected expenditure and the ratio between public sector and BT investment in the local project.

4.9 The local body has discretion to use any clawback amount to reduce the amount paid to BT, credit the amount to an investment fund for additional broadband investment in the local area, or a combination of the two. The use of an investment fund gives BT an incentive to identify underspends early as these can be used for additional investment in BT's roll-out.

Clawing back additional profits

4.10 BT's bid to each local body makes assumptions about the revenues they will receive as retail customers switch to superfast broadband. If the number of premises that take up superfast broadband is higher than expected, then profits are shared with the public sector for the ten years of the contract. BT is bearing the risk that take-up is lower than expected. Local bodies told us that administering these clauses may be difficult as they expect the number of staff at a local level to diminish once roll-out is complete.

4.11 The robustness of BT's bid assumptions on take-up and profit margins are critically important to the robustness of this control. This is because the amount to be clawed back is dependent on bid, rather than actual profit margins. It was sensible for the Department to negotiate this with BT as it significantly simplifies the clawback calculation. However, profit margins were not fully considered at the call-off contract bidding phase (see paragraph 3.10) and 'should cost' modelling in an external benchmarking review did not consider operating costs, a key determinant of profit margins.

4.12 It is currently too early to assess whether modelled assumptions on the number of premises taking up superfast broadband are high or low. BT has currently assumed that, seven years after superfast broadband has been enabled, 20 per cent of premises will be using it. This is lower than the 25 per cent assumed by the Department, on the advice of industry experts, when producing its 2011 business case, and lower than some international comparisons. It is also lower than the current take-up rate in the areas covered by the public-funded Northern Ireland project and lower than BT's bid take-up rate for the same project. However, it is higher than the 10 per cent BT is currently achieving nationwide.

Overall distribution of risk

4.13 The overall distribution of risk is dependent on:

- who bears the risk contractually;
- the effectiveness of competition and transparency arrangements, in particular benchmarking, in producing an efficient bid; and
- the effectiveness of open book and clawback measures in enforcing the sharing of risk in line with the contract.

4.14 Generally, the contractual arrangements the Department has secured mean that the supplier bears the risk that things turn out worse than expected (downside risk) while the public sector will enjoy many of the benefits (upside risk), provided benchmarking and open book factors combine effectively. However, operational costs were not benchmarked through the external benchmarking review and are an area where the supplier takes any benefit from efficiency (**Figure 15**).

4.15 Given that the supplier is bearing the risk that things turn out worse than expected, it is reasonable to expect that it should be rewarded for bearing that risk. The contractual arrangements, including clawback, were the result of negotiations with BT. However, we have seen no quantified assessment by the Department of the amount of risk it believes has been transferred to the supplier or whether the price paid for that is reasonable. BT's willingness to use a 15-year investment model in this Programme suggests that it does not expect downside risks about cost and take-up to come about.

Figure 15
Overall distribution of risk

Generally, the supplier bears the majority of the downside risk while the public sector will enjoy many of the benefits. Operational costs are an exception to this.

Risk factor	Who benefits if factor turns out better than expected?	Who may lose if factor turns out worse than expected?	Was item subject to benchmarking?
Volume (take-up)	Shared for seven years after implementation, thereafter supplier	Supplier	Yes – take-up in bids is lower than benchmark as a result of negotiations.
Wholesale price to customers	Supplier (but typically prices reduce in telecoms market as products become mature)	Supplier	Yes – identical to supplier's pricing outside the Programme.
Operational costs	Supplier	Supplier	No – external benchmarking review found consistency between bids under the framework but not between framework and non-framework bids. Not covered by 'should cost' modelling in external benchmarking review.
Capital costs (street cabinet enablement)	Public sector	Supplier	Yes – 'should cost' modelling in the external benchmarking review and range of other benchmarks including details of actual costs in Northern Ireland.
Other capital costs	Public sector	Supplier	Limited – some coverage in 'should cost' modelling and Northern Ireland actual data but neither source covers in full.

NOTES

1 Where the public sector shares, or gets the whole benefit, from a factor turning out better than expected, the contract includes mechanisms for some of that to be invested in additional supplier infrastructure where the local body and supplier can agree the scope.

2 The contract includes provisions for a detailed survey after contract signature which may alter some of the capital costs and require either a scope change or some additional expenditure from the public sector. After this point the supplier bears the full risk on capital costs.

Source: National Audit Office analysis

Part Five

Progress in rolling out rural broadband

5.1 This part looks at the Programme's prospects for delivering superfast broadband in line with its original May 2015 target and the likely impact of the Programme on the UK broadband market.

Progress of broadband implementation

5.2 The Programme faced a tight timetable and has encountered some delays. One significant cause was the EU state aid approval process, which took eleven months rather than the expected five months. The application was submitted in January 2012 and approved in November that year, following lengthy discussion of factors including:

- the range of technologies eligible for subsidy, particularly the treatment of wireless solutions; and
- third parties' wholesale access to subsidised infrastructure.

5.3 The majority of local projects have suffered delays, with an average delay of six months compared to expected dates set out in Local Broadband Plans in February 2012. A number of local projects were directly delayed waiting for state aid approval before contracts could be signed. Some local bodies we spoke to expressed frustration at this delay and the way in which it was communicated by the Department for Culture, Media & Sport (the Department). The Department and BT will now have to work with local bodies within a tighter timescale, putting more pressure on the Department's pipeline of local projects. It has set up workshops for local bodies to help speed up implementation and enacted legislation to accelerate deployment of broadband networks.

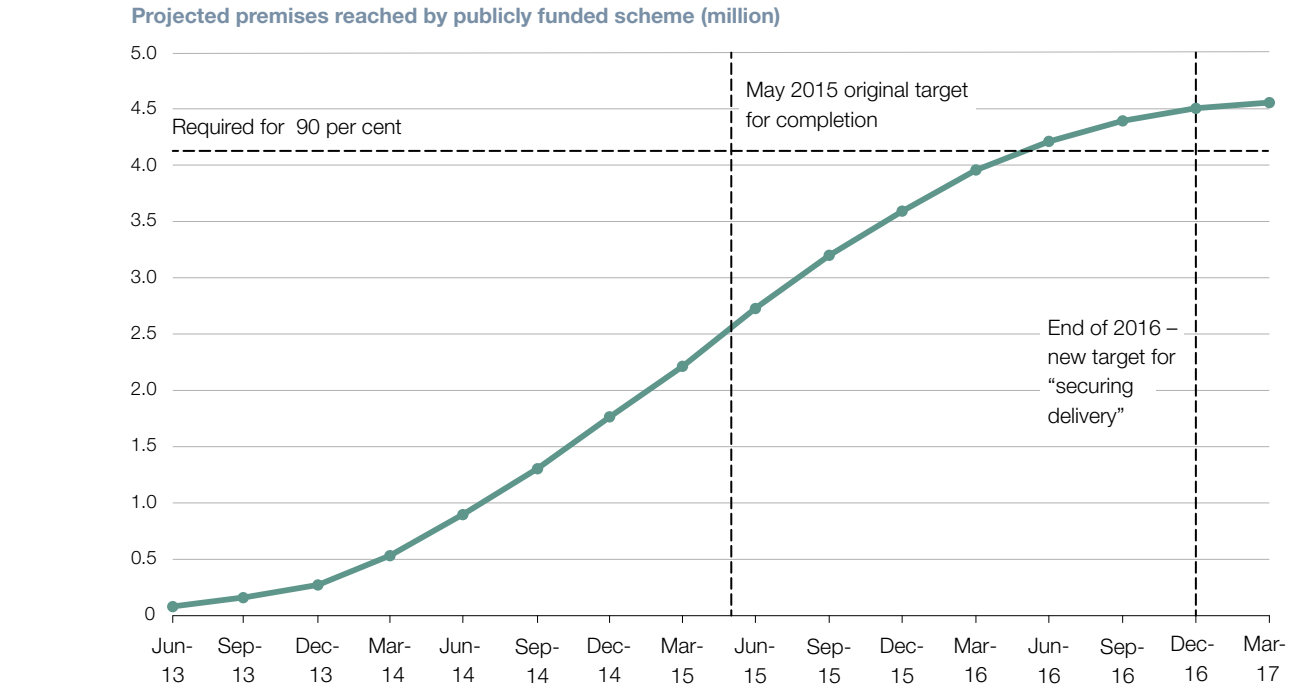
5.4 It is unlikely that the government will meet its original target of completing the Programme by May 2015. The Department's projections show that only 4 out of 44 local projects are projected to be completed by May 2015, with the Programme not completed until March 2017 (**Figure 16**), when around 4.6 million premises will be reached overall.[10] The 44 projects cover areas including 23.6 million premises in total, with 16.2 million of those expected to be covered by the commercial roll-out of superfast broadband. In June 2013, the Department issued a revised target. It now aims to 'secure delivery of the rural programme by December 2016'.

10 Analysis based on best available data. However, the Department's data are incomplete so there remains a high degree of uncertainty over achievements and timing of superfast broadband roll-out.

5.5 Ministers also set the Programme a target of ensuring that superfast broadband coverage reached 90 per cent in all local areas. The Department estimates that overall superfast coverage in Programme areas will reach 90 per cent in May 2016, 12 months later than the Programme's initial planned completion date (Figure 16). It expects only nine areas to have reached 90 per cent coverage by May 2015. On completion in March 2017, overall superfast coverage in Programme areas is estimated to be around 92 per cent. The coverage varies by local body, between 81 and 99 per cent, and four bodies are not currently projected to reach the 90 per cent target: Highlands and Islands, Cumbria, Norfolk and Suffolk. The Department's funding allocations (Figure 4) were designed to allow each local area to reach superfast broadband coverage of 90 per cent, indicating the Department's funding allocations may require some revision if the ministerial target is to be met. Any inaccuracies in the funding allocations may reflect the difficulty faced by the Department in identifying the scale of intervention required in 2011 before commercial plans were known, and in forecasting the cost of delivery.

Figure 16
Estimated progress in delivering superfast broadband

The Department's target of 90 per cent of premises having access to superfast broadband is estimated to be met in May 2016



NOTES

1 The figure for the 90 per cent requirement is derived from the Department's most recent estimate of the likely commercial roll-out, which was last updated in November 2012.

2 The Department does not yet have complete and accurate data for all projects. Projections taken from this data are estimates only.

Source: National Audit Office analysis of the Department's projections as at June 2013

The likely impact of the Programme by 2015

5.6 The Programme will extend the superfast broadband infrastructure using fibre and copper, to reach a greater proportion of the country than would have been achieved through BT's commercial roll-out. All the assets and infrastructure created using the £1.2 billion public sector investment in the Programme will be owned by chosen suppliers. To date, this has been BT in every case. BT is likely to remain in a strong position in the wholesale broadband market, although there will be an obligation to provide wholesale access to other suppliers.

5.7 Internet usage continues to increase, including demand for faster connections to support downloading and uploading large amounts of data. The European Commission's Digital Agenda for Europe has set broadband targets for EU member states. Targets include download rates of 30 Mbps for all European households and internet connections above 100 Mbps for at least 50 per cent of households by 2020. Plans for reaching the 30 Mbps target, which is much faster than the current universal access expectations, are not yet clear, but some commentators are suggesting further upgrade will be needed. If any additional public sector funding is required, BT is likely to be in a strong position to compete.

Appendix One

Our audit approach

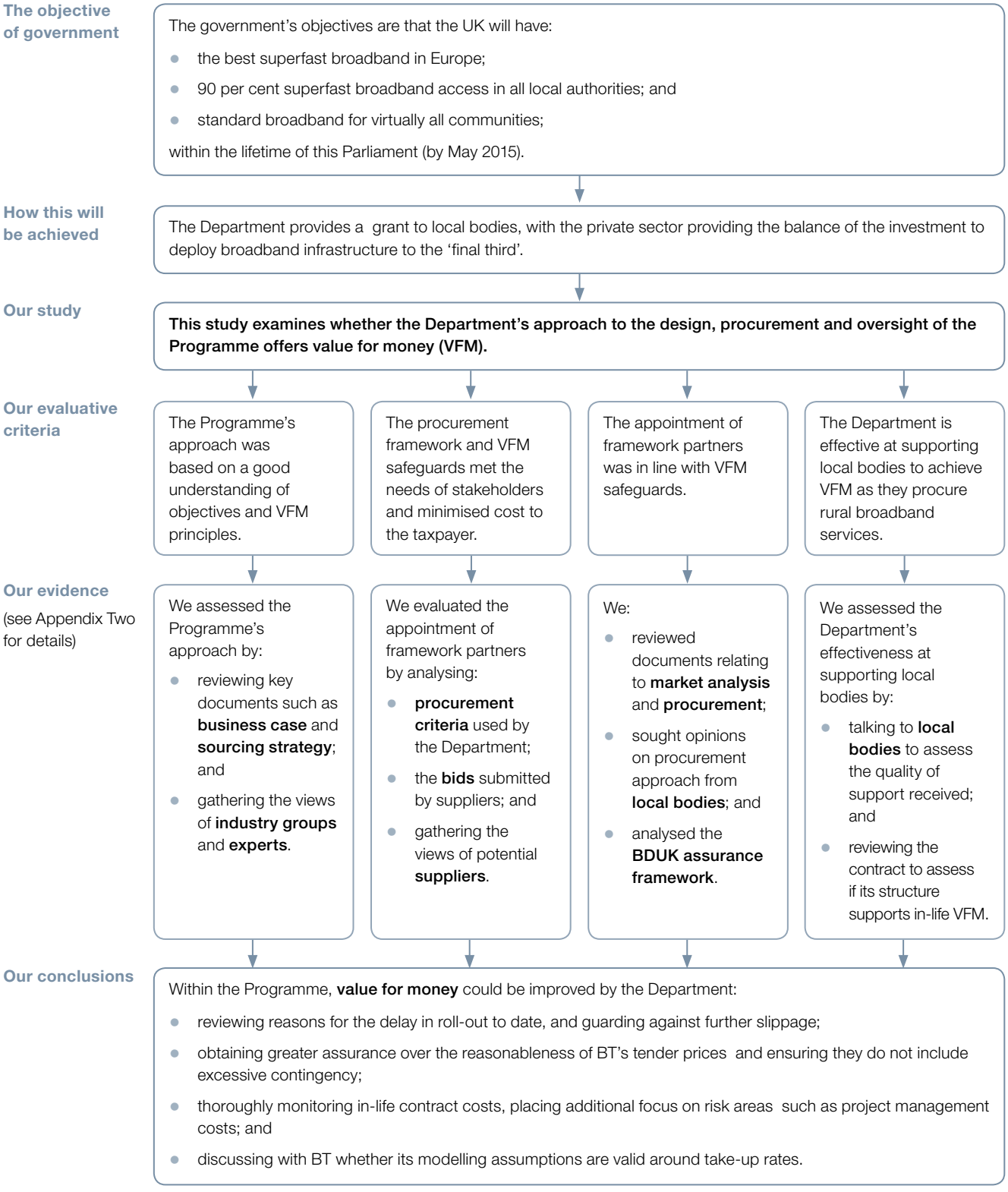
1 This study examined whether the Department for Culture, Media & Sport's (the Department's) rural broadband programme is likely to deliver value for money. We reviewed:

- the degree to which the approach to the rural broadband programme is based on a good understanding of objectives and value-for-money principles;
- whether the design of the procurement framework and value-for-money safeguards meet the needs of stakeholders and minimise cost to the taxpayer;
- whether the process of appointing framework partners was implemented well and was in line with value-for-money safeguards; and
- the effectiveness showed by the Department in supporting local bodies to achieve value for money as they procure rural broadband services.

2 We applied an analytical framework with evaluative criteria, which considers what arrangements would be optimal in procuring such a programme. By 'optimal', we mean the most desirable, while acknowledging explicit constraints. In this context, constraints include the structure of the market, ceiling limits to funding and adherence to European Commission's requirements for the granting of state aid.

3 Our audit approach is summarised in **Figure 17** overleaf. Our evidence base is described in Appendix Two.

Figure 17
Our audit approach



Source: National Audit Office analysis

Appendix Two

Our evidence base

1 Our independent conclusions on whether the Department's Programme is likely to deliver value for money were reached following our analysis of evidence collected between March and May 2013.

2 We applied an analytical framework with evaluative criteria, which consider what arrangements would be optimal. Our audit approach is outlined in Appendix One.

3 We assessed whether the approach to the rural broadband programme was based on a good understanding of objectives and value-for-money principles:

- We conducted a review of the business case and sourcing strategy to understand whether the Department had quantified and understood the likely economic benefits. We reviewed the Department's analysis of these to gauge whether it had adequately understood the apportionment of risk and wider costs and benefits.
- We met with representatives from industry including Ofcom, BT, several potential suppliers and the Independent Networks Cooperative Association (INCA), as well as independent experts.

4 We reviewed the design of the procurement framework and whether the value-for-money safeguards met the needs of stakeholders to minimise cost to the taxpayer:

- We assessed how well the Department had engaged the market and understood the likely level of competition its proposed approach would attract. We also reviewed a theoretical procurement exercise where the Department sought proposed technical solutions from suppliers.
- We reviewed the design decisions the Department made around the procurement framework, and the call-off process.
- We conducted a review of the Department's procurement documentation including its strategy, the lessons learned exercise from four pilot projects and the evaluative criteria it applied to bidders.

5 We assessed the effectiveness of the process that appointed partners to the procurement framework and whether it was in line with value-for-money safeguards:

- We conducted a review of the Department's procurement documentation including its strategy and the evaluative criteria it applied to bidders.
- We reviewed the reference financial model and reference cost book the Department developed and provided to bidders.
- We reviewed the financial and solutions design models submitted by the bidders.
- We interviewed senior officers of two of the three shortlisted bidders (from the final third and BT). Fujitsu declined to make anyone available to the NAO.
- We explored the availability of benchmarks, including consulting organisations such as The Bit Commons Limited and Gartner, and drawing on the Grant Thornton and Atkins Global assurance review for the Department.
- We also reviewed the programme's risk log and the minutes of the senior board meetings.

6 We assessed how effective the Department is at supporting local bodies to achieve value for money as they procure rural broadband services:

- We conducted semi-structured interviews with the Department's project directors responsible for supporting local bodies through the procurement process.
- We also conducted semi-structured interviews with senior officers including chief executives, programme directors and senior responsible owners at five local bodies (Cambridgeshire, Cheshire, East Sussex, Rutland and Suffolk) to capture their views on the Department's procurement and assurance processes.
- We analysed the data provided on the bid comparison reports and their use by local bodies.
- We reviewed the contract and its clauses.
- We explored the Programme's delivery prospects by analysing the scheduling of the delivery pipeline and the current timetable of milestones.

Design and Production by
NAO Communications
DP Ref: 10177-001

This report has been printed on Evolution Digital Satin and contains material sourced from responsibly managed and sustainable forests certified in accordance with the FSC (Forest Stewardship Council).

The wood pulp is totally recyclable and acid-free. Our printers also have full ISO 14001 environmental accreditation, which ensures that they have effective procedures in place to manage waste and practices that may affect the environment.

National Audit Office

Published by TSO (The Stationery Office) and available from:

Online
www.tsoshop.co.uk

Mail, telephone, fax and email
TSO
PO Box 29, Norwich NR3 1GN
Telephone orders/general enquiries: 0870 600 5522
Order through the Parliamentary Hotline
Lo-Call 0845 7 023474
Fax orders: 0870 600 5533
Email: customer.services@tso.co.uk
Textphone: 0870 240 3701

The Houses of Parliament Shop
12 Bridge Street, Parliament Square,
London SW1A 2JX
Telephone orders/general enquiries: 020 7219 3890
Fax orders: 020 7219 3866
Email: shop@parliament.uk
Internet: http://www.shop.parliament.uk

TSO@Blackwell and other accredited agents

£16.00

ISBN 978-0-10-298377-7

9 780102 983777