National Audit Office

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL

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HM Treasury

Planning for economic infrastructure

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National Audit Office

HM Treasury

Planning for economic infrastructure

Report by the Comptroller and Auditor General

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Comptroller and Auditor General
National Audit Office

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This report examines government efforts to secure investment in the nation's economic infrastructure, including energy, transport, water, waste, flood defence, and communications assets.

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Contents

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

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Key facts

£310bn

is the total value of planned infrastructure investment identified by Infrastructure UK in 2012

£257bn

is the amount of the £310 billion planned infrastructure investment that is expected in the period from April 2012 to March 2020

64%

is the proportion of the value of planned infrastructure assets likely to be wholly owned and financed by the private sector

£176 billion	of the £310 billion of planned infrastructure investment identified by Infrastructure UK relates to energy
£123 billion	of the £176 billion of energy investment is to generate electricity
£2 billion to £3 billion	is identified by the Infrastructure Cost Review as the potential annual sustainable saving in infrastructure delivery costs
15 per cent	is the proposed reduction to the cost of delivering the civil engineering element of major infrastructure projects

Summary

Why economic infrastructure matters

1 Economic infrastructure keeps the country running. The nation needs power plants to fuel its homes, offices, industries, and support services, such as street lighting, and security systems. It needs roads, railways, airports and ports to move people and commodities and it must have good communications. The availability of infrastructure is a key factor for companies when making decisions on where to invest.

2 Economic infrastructure is also at the heart of the government's policies on economic growth and making the UK more competitive. The government considers good quality infrastructure to be essential to promote economic growth and to help ease the effects of recession by creating employment.

Why extra government effort is needed to secure investment

3 The credit crisis in 2007-08 and subsequent economic recession highlighted the challenge of securing the significant investment needed to renew and decarbonise UK economic infrastructure. In June 2009, the government announced that it was creating a new advisory unit, Infrastructure UK, within HM Treasury (the Treasury). There had been a period of investment in social infrastructure – particularly in health and education. The unit's purpose was to bring further focus to the government's strategic work to ensure appropriate economic infrastructure is developed in areas like energy, waste, water, communications and transport.

4 The creation of Infrastructure UK was confirmed in the 2010 budget. It was formed with staff from Partnerships UK and the Treasury Infrastructure Finance Unit. Infrastructure UK was tasked with producing, developing and pursuing a National Infrastructure Plan to:

> "specify what infrastructure we need, identify the key barriers to achieving that investment and to mobilise the resources, both public and private, to make it happen".

This work was not only to enhance the nation's infrastructure, but also to secure the economic growth benefits which infrastructure investment could yield.

Government's role in planning for economic infrastructure

5 The degree of government control – and the need for coordination – in planning for economic infrastructure varies across sectors. Some infrastructure assets are driven by local demand, and are largely independent of other infrastructure decisions. Other infrastructure assets, notably national rail and motorway networks, are driven by local and wider demand, subject to public funding decisions but are heavily interdependent and require coordination. Investment in these nationally strategic assets is usually taken forwards by central government but may involve interactions with local communities.

6 In electricity generation, while there is regulatory involvement and government intervention, investment decisions are taken by companies operating in a global finance and fuel market. Where infrastructure investment decisions are strongly influenced by global markets, UK government cannot control those decisions. It can, nevertheless, influence the relative attractiveness of the UK through the regulatory environment, market support mechanisms, and promoting credible and significant contracting and investment opportunities.

7 The role of government in planning economic infrastructure therefore varies from direct investment decisions and coordination, to creating a framework to attract private investment. The National Infrastructure Plan cannot be a comprehensive blueprint specifying all individual projects, delivery schedules and funding packages. For some publicly funded components of the national infrastructure, such an approach is practicable. For others, it is more important to put in place the conditions to encourage private firms to make the necessary investment, and encourage the national and international investment community to provide finance on viable terms.

8 Against this background, the government published the first *National Infrastructure Plan* in October 2010. It published an updated Plan in November 2011 and a progress update in December 2012, together with associated 'pipelines' of expected infrastructure projects. Infrastructure UK has worked with others to pursue a number of cross-government initiatives within those plans, aimed at overcoming barriers to investment.

9 **The original National Infrastructure Plan and its updates are the first iterations of a framework to secure infrastructure investment, not a rigid spending programme.** The plan and its associated work strands represent a significant escalation in government's efforts to secure investment in economic infrastructure. It is too early to judge their overall effectiveness in securing investment that is value for money for taxpayers and consumers. Difficult finance market conditions, constraints on the public finances and limits on consumers' spending capacity make it hard for government to provide the level of confidence needed to increase private investment. At the same time uncertainty over new government initiatives and interventions may mean investors hold back until these plans are clarified. The government must therefore take forward the plan to build the confidence necessary to attract investment, while addressing factors which make investors inclined to defer decisions.

Risks to value for money

10 We have identified five key risks to value for money, with the exposure of consumers and taxpayers to those risks depending on the funding approach adopted by government:

- **Inaccurate identification of the need for infrastructure.** For example forecasters may overestimate demand, in which case benefits are lower than expected and poor value for money results.
- **Policy uncertainty.** This could result in project sponsors, lenders and contractors deferring or abandoning UK projects in favour of opportunities elsewhere. Financing charges for projects may rise as investors and lenders perceive policy uncertainty as a risk.
- **Failure to assess the cumulative impact on consumers of funding infrastructure through user charges.** This increases the risk of financial hardship for consumers, or the need for unplanned taxpayer support. This is an issue which the National Audit Office will return to in examining how departments and regulators deploy their resources to secure consumer interests.
- **Taxpayer exposure to losses.** This will happen if the government guarantees to bear or share project risks – for example cost overruns – and that risk subsequently materialises.
- **Delivery costs are higher than they should be.** UK infrastructure costs have historically been higher than overseas. This could result in high costs for taxpayers and consumers and fewer projects going ahead than planned.

The scale and burden of investment

11 In its December 2012 *National Infrastructure Plan* progress update the government identified economic infrastructure projects with a value of £310 billion which it expected to be taken forwards to 2015 and beyond. It calls these projects the 'pipeline' of infrastructure investment. Large scale infrastructure investment poses significant challenges:

- Of the £310 billion, £176 billion relates to energy. Of this, £123 billion is for electricity generation with £72 billion for projects expected to complete before 2020, including investment in renewable generation to meet 2020 targets. The Electricity Market Reform White Paper published by the Department of Energy and Climate Change in July 2011 stated that up to £110 billion investment in electricity generation, transmission and distribution was likely to be required by 2020, more than double the current rate of investment.
- With only limited public funds available, the government is looking to private companies to wholly own and finance around 64 per cent of the £310 billion of new infrastructure.

12 The burden of investment will fall differently, according to financing and funding arrangements for specific projects. Most new roads are funded through taxation including vehicle and fuel taxes paid by vehicle users. For the national rail system the government decides the outputs it wants, how much it is prepared to make available from taxpayers and how much should come from fares. The independent Office for Rail Regulation (ORR) advises whether this allows sufficient funds for Network Rail to efficiently deliver the infrastructure outputs required of it. Consumers pay for water and energy infrastructure, although water bills are limited by regulation. Contractual and regulatory arrangements for specific projects will determine how far risks of cost overruns, demand exceeding supply, or obsolescence are borne by taxpayers, consumers or investors.

Key issues and progress

13 We set out below the areas which we consider need particular attention to manage the risks in planning for economic infrastructure. We recognise that neither Infrastructure UK nor government is directly in control of investment in some sectors. Nevertheless, each iteration of the National Infrastructure Plan will need to enhance confidence in the attractiveness of investing in UK infrastructure, and show progress in building more assets for each pound invested.

Forecasting demand

14 The long gestation period for infrastructure projects, and the long periods over which costs are recovered, create challenges in identifying long-term needs. We judge that current areas of particular risk include:

- Novel infrastructure projects have no track record of comparable data on likely demand. The High Speed 1 project highlighted this risk.
- Forecast demand for infrastructure is sensitive to government and project sponsors' assumptions on how fast the economy will recover from recession. Government's and sponsors' short-term UK growth assumptions have reduced since Infrastructure UK developed the National Infrastructure Plan.
- Demand can be influenced by active management, for example through off-peak energy tariffs or encouraging consumers to minimise waste.
- Technological change – such as the introduction of energy efficient appliances – is unpredictable and global market conditions including fossil fuel prices are volatile.
- Infrastructure investment may shape new patterns of demand. For example new transport links can encourage new housing or employment and change demand on existing links.

Financing

15 The government is intervening to address the major challenges in raising finance for infrastructure and is prepared to bear more project risk. The deficit reduction programme means that public borrowing is constrained. The credit crisis means that project sponsors' balance sheets are stretched while project finance is costly and hard to secure. The government has taken steps to try to attract new sources of finance from pension funds, insurers and overseas institutions. These parties have been generally unwilling to provide construction finance unless another party takes the construction risk.

16 The government has recently said it will give guarantees against a range of project risks to attract finance and has published a Bill to facilitate this. While this should help to attract some finance, the financing markets remain difficult. Also, our previous reports show such guarantees can prove costly for taxpayers if the underlying cost risks are not managed well.

Affordability

17 The full impact of economic infrastructure investment on consumers in future years is unclear. Limited public resources mean that the burden of funding is likely to shift towards the public as consumers, rather than taxpayers. There has been no overall assessment by government of the future impact of infrastructure spending on consumers. Affordability has been judged and addressed in individual sectors although some areas of uncertainty remain. Infrastructure UK initially planned to develop an overall framework for judging affordability. It now believes that it is not feasible to establish such an overall framework at the current time. The Treasury will continue to use a range of measures to maintain affordability with emphasis on the energy sector where affordability pressures are greatest.

18 In our opinion, while the existing information is useful, it does not provide clarity for consumers on the overall burden they may bear in funding new infrastructure. This clarity can only be achieved when aspects of future infrastructure investment, notably the forms of electricity generation that companies will invest in, become more certain. Government can then make an aggregate assessment of the likely cost to consumers of funding all planned economic infrastructure. The Private Finance Initiative (PFI) social infrastructure programme, while funded by taxpayers rather than consumers, has nevertheless illustrated the importance of considering long-term affordability implications at the outset. We expect to return to the issue of how government measures the impact on consumers of economic infrastructure investment in our future audit work.

Prioritisation

19 Constraints on public sector and consumer budgets and private finance availability may mean government has to make further choices on which projects and programmes to promote or facilitate. The priorities stated in the National Infrastructure Plan and the associated Treasury project pipeline provide the market with visibility of planned infrastructure investment. If financing and affordability considerations limit the amount of investment which can be supported, government will need to either act to address these constraints or refine its priorities for infrastructure investment.

Costs

20 The Treasury has initiated a programme to improve delivery and reduce costs of UK infrastructure by up to 15 per cent. Infrastructure UK is pursuing a wide-ranging programme to lower the historic UK cost premium for infrastructure work. Initiatives include better understanding of what construction should cost, more effective client behaviours, and better contractual incentives to ensure efficient delivery. Much of the programme focuses on public sector client actions, although it also includes action by private sector commissioners and suppliers. Most reported savings to date arise from initiatives started before Infrastructure UK's cost review work. Lessons from these initiatives were incorporated in the review's principles. Infrastructure UK acts as a catalyst to help infrastructure commissioners and suppliers adopt cost reduction measures. It is the organisations themselves that adopt the principles, realise and report the benefits.

Recommendations

21 The government needs to develop the National Infrastructure Plan and its market support mechanisms to give greater confidence in the flow of viable investment. Without greater certainty on the flow of significant investment opportunities and the likely returns, investors may defer decisions to invest in potential UK projects, or invest elsewhere.

22 Departments should subject their demand forecasts underpinning infrastructure plans to rigorous testing of sensitivity to alternative realistic assumptions. Future project appraisal needs to consider changes in departments' assumptions about economic growth and its impact on demand.

23 The Treasury should work with departments and regulators to provide greater clarity for consumers of the financial impact of planned infrastructure investment. Consumers need information on future costs when managing their finances. Greater certainty and data on the total costs they will bear from infrastructure investment will help consumers. It will also help the Treasury to highlight any risk that the cumulative burden on consumers may become unsustainable.

24 Government guarantees to attract private finance must give financiers strong disincentives to call upon those guarantees. Guarantees should be:

- based on realistic assessments of risk at the outset;
- structured to align investor and taxpayer interests as far as possible; and
- accompanied by effective monitoring of the underlying risks as the project progresses.

25 The Treasury and departments may need to refine their prioritisation of infrastructure programmes and projects. Limits on affordability and availability of finance may mean government must either act to address those constraints or target its efforts more narrowly on projects of the highest priority. The Treasury's monitoring of the National Infrastructure Plan should identify any particular constraints on overall affordability and financeability that may require action.

26 The Treasury, departments and regulators should work with private sector project sponsors to develop and use 'should cost' models, to test or challenge planned infrastructure costs. These bodies should better understand the components of infrastructure costs and how they vary between the UK and other countries. This will help drive down the costs of UK infrastructure.

27 The Treasury and departments should monitor the effectiveness of their various cost reduction efforts to establish what works best. Our previous work has found that departments have no consistent way of identifying whether specific savings measures have improved efficiency, and do not consistently adopt good practice in taking a structured approach to cost reduction.[1] It will be important to focus on work strands which most effectively reduce costs.

The scope of this report

28 This report examines the impact of government policy on economic infrastructure. It draws upon our recent memorandum to the Committee of Public Accounts on the government's plans to deliver secure, low carbon and affordable electricity, other recent reports including those on smart meters, increasing passenger rail capacity, and regulating the efficiency of Network Rail, and our 2011 guide to *Initiating successful projects*.

29 In this report:

- Part One outlines the economic infrastructure landscape, the nature of the challenge, and roles and responsibilities to address it;
- Part Two explains how government, regulators and the private sector identify and prioritise the need for economic infrastructure;
- Part Three considers affordability and the impact on the public, as taxpayers and consumers; and
- Part Four covers financing and how departments and the private sector deliver infrastructure projects.

1 Comptroller and Auditor General, *Cost reduction in central government: summary of progress,* Session 2010–2012, HC 1788, National Audit Office, February 2012.

Part One

The economic infrastructure landscape

1.1 Economic infrastructure is an essential part of our everyday lives. Power plants supply energy for our homes, schools, hospitals and transport systems. Roads, railways, ports and airports are vital for the nation's economic development. We need good quality water, waste disposal and flood defence facilities, as well as reliable telecommunication services.

1.2 Demand for infrastructure is set to increase, fuelled by population growth, technological progress, climate change and congestion. Parts of our national economic infrastructure are ageing or under pressure:

- We reported in June 2012 that 21 per cent of existing electricity generating capacity was scheduled to close over the next decade.[2] New generation infrastructure is needed to replace this and reduce the emissions intensity of electricity generation.
- The UK's roads are among the most heavily used in Europe. Some, for example the M25 motorway, have high levels of congestion, bringing traffic to a standstill and resulting in poor journey times.[3]

1.3 The government expects to see substantial investment in UK economic infrastructure to 2015 and beyond. In late 2012, it identified planned investment of £310 billion in energy, water and waste, transport and communications infrastructure, with £257 billion of this expected before March 2020. The government's aim is that infrastructure spending will promote sustainable growth, increase productivity, generate employment, and meet the needs of future generations.[4] Financing a period of high investment, particularly when bank finance is expensive, may increase bills for consumers and increase pressure on household finances. But the alternative of failing to invest may have even higher costs for consumers if growth is foregone, capacity shortages drive up prices and congestion increases costs.

2 Comptroller and Auditor General, *The government's long-term plans to deliver secure, low carbon and affordable electricity*, Session 2012-13, HC 189, National Audit Office, June 2012.
3 Comptroller and Auditor General, *Highways Agency: Procurement of the M25 private finance contract*, Session 2010-11, HC 566, National Audit Office, November 2010.
4 And for energy generation, to avoid future costs by reducing reliance on fossil fuels.

1.4 In this part, we introduce the economic infrastructure landscape covering:

- the broad role of government;
- the scale of the challenge;
- responsibilities for different types of economic infrastructure; and
- the role of Infrastructure UK.

The government role

1.5 The degree of government control – and the need for coordination – in planning for economic infrastructure varies across sectors. Some infrastructure – such as a stand-alone flood defence scheme or an estate feeder road – is driven by local demand, subject to national and local public funding decisions, and largely independent of other infrastructure decisions. Other infrastructure investments – while being relatively independent of global factors – need coordination within the sector. For example, rail investment requires coordinating track, stations, signalling and rolling stock, involving government, Network Rail, train operating companies and rolling stock companies. Transport investment also requires coordination across road, rail and air sectors at both national and local levels.

1.6 The government role lessens when the principal investors are private bodies, operating in a global market. In energy, there is regulatory involvement in transmission and distribution, and government intervention in the electricity market to promote renewables. However, investment decisions are taken by companies operating in a global finance and fuel market. Their decisions will be influenced by the environment created by regulators and government in the UK. But they will also consider alternative investment opportunities elsewhere. Similarly, the viability of UK port and airport investment is determined mainly by patterns of international travel and trade and competition from overseas ports and airports. The role of government in planning therefore varies from direct investment decisions and coordination, to creating a framework to attract private investment.

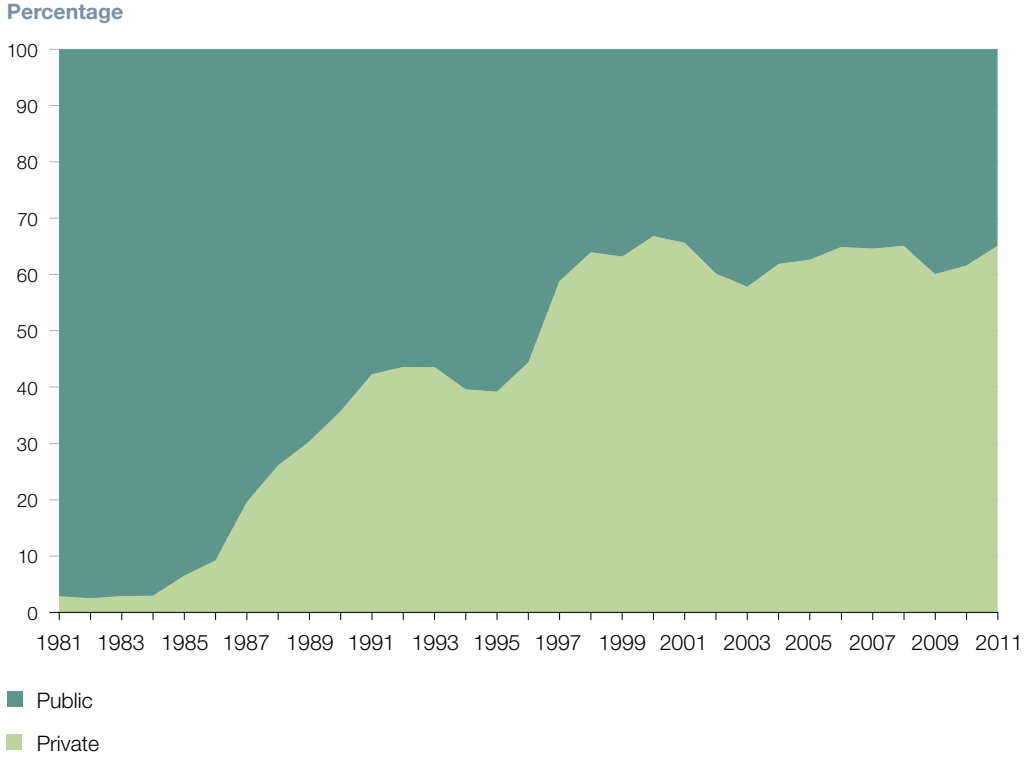
1.7 National and local government roles in land use planning are significant components of planning for economic infrastructure. The National Planning Framework requires all local authorities to have a plan to guide development and to consider and plan for the infrastructure needed to support it. Major new housing developments have significant implications for road, rail and utility networks. The Highways Agency and local highways authorities are statutory consultees for applications likely to generate significant extra traffic on their roads. Network Rail is not a statutory consultee for applications likely to generate significant new rail demand. There is a risk that the need to enhance rail infrastructure will not be highlighted when local authorities consider applications for major developments. Government's efforts to streamline planning applications for major infrastructure projects are discussed in Part Four.

The scale of the challenge

1.8 In the 1980s, most spending on infrastructure was financed by the public sector (**Figure 1**). Since then, driven by privatisation, private sector financing has increased and since 1997 has exceeded public sector financing. Attracting continued private investment is a key aspect of the infrastructure challenge.

Figure 1
Investment in economic infrastructure by financing

Private investment represents a greater share of total infrastructure investment

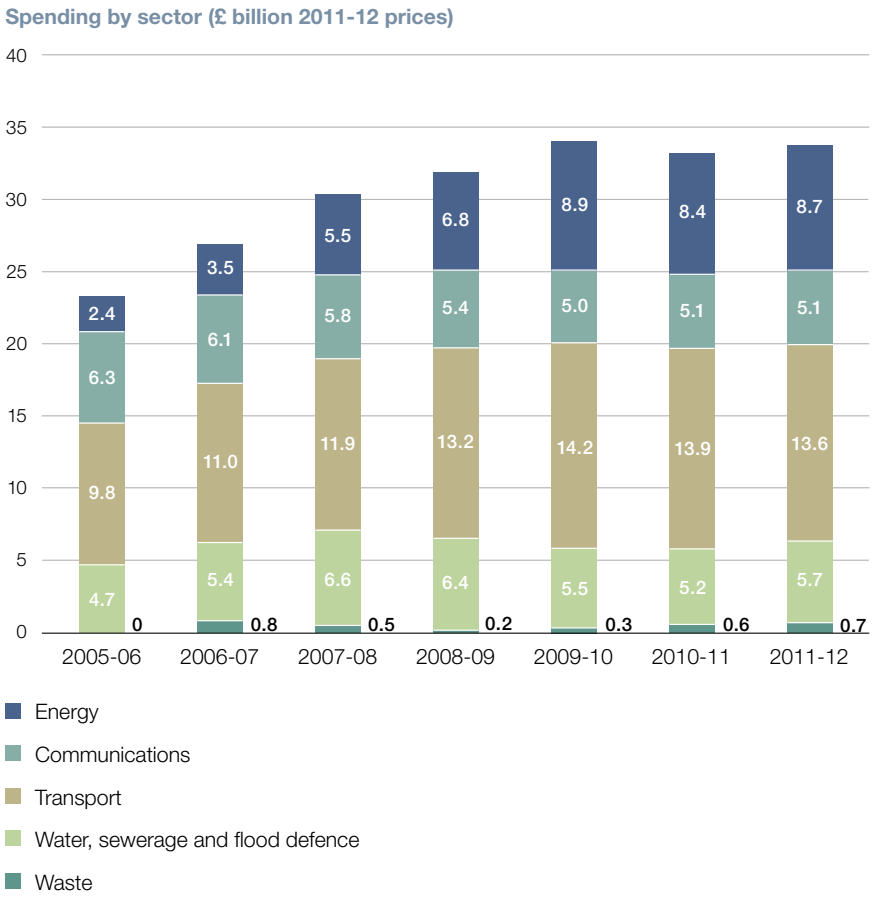


Source: National Audit Office using data from Office of National Statistics

1.9 HM Treasury (the Treasury) estimates that over the seven-year period from 2005-06 to 2011-12, around £210 billion was spent by departments and private companies on UK infrastructure.[5] During that period, the Treasury's estimates indicate investment in energy infrastructure has increased while investment in other forms of infrastructure has remained at around £20 billion to £25 billion per year (**Figure 2**).

Figure 2
Investment by sector 2005-06 to 2011-12

Estimated investment in energy infrastructure increased in the seven years to 2011-12



NOTE

1 Numbers have been rounded.

Source: National Audit Office using HM Treasury data

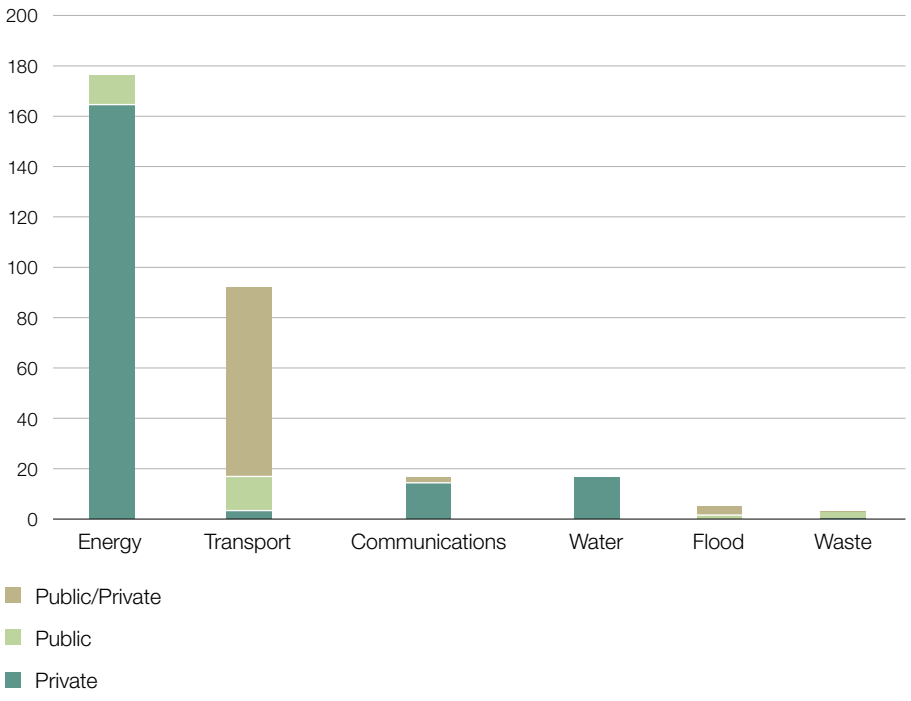
5 HM Treasury and Infrastructure UK, *Strategy for national infrastructure*, March 2010.

1.10 Future investment is expected to exceed recent levels. The 2010 *National Infrastructure Plan*[6] stated that over the next five years government expected some £200 billion to be invested in UK infrastructure – equivalent to an average of £40 billion per year – and described this as a step change from the past. The 2011 *National Infrastructure Plan*[7] was accompanied by the first infrastructure pipeline setting out over £250 billion investment in economic infrastructure which was expected to 2015 and beyond. The Plan described this as a significant increase over investment in the period 2005 to 2010. **Figure 3** shows that £176 billion of the total £310 billion of investment in the latest infrastructure pipeline is expected in energy and illustrates the proportions of investment expected from the private sector. Investment of £123 billion is for electricity generation

Figure 3
Future investment in economic infrastructure project pipeline

Energy infrastructure is expected to form a major component of the investment pipeline. Much investment is expected to be privately financed

Pipeline investment 2012-13 and beyond (£ billion 2011-12 prices)



NOTES

1 Network Rail investment is classified as public/private reflecting sources of funding rather than control of investment decisions.

2 Data in some sectors only covers regulatory and spending control periods that end around 2015. Energy includes electricity generation costs beyond 2015 for a large number of projects. Transport includes investment beyond 2015 in Crossrail and High Speed 2.

Source: National Audit Office analysis of HM Treasury infrastructure pipeline

6 HM Treasury and Infrastructure UK, *National Infrastructure Plan*, November 2010, available at: www.hm-treasury.gov.uk/ppp_national_infrastructure_plan.htm

7 HM Treasury and Infrastructure UK, *National Infrastructure Plan*, November 2011, available at: www.hm-treasury.gov.uk/d/national_infrastructure_plan291111.pdf

with £72 billion for projects expected to complete before 2020, including investment in renewable generation to meet 2020 targets. The Electricity Market Reform White Paper[8] published by the Department of Energy and Climate Change in July 2011 stated that up to £110 billion investment in electricity generation, transmission and distribution was likely to be required by 2020, more than double the current rate of investment.

1.11 Facilitating and managing increased infrastructure spending will be challenging for the government; the companies commissioning the work; the financiers and lenders backing it; and the suppliers and contractors involved in its construction. Particular aspects of this challenge are:

- limited sources of finance to fund construction work. The public finances had a budget deficit of £12.4 billion in April 2012. Private finance from banks has been scarce since the credit crisis and where it can be obtained has been more expensive than previously. Other potential sources of finance, including pension funds, have not generally financed construction work unless another party has taken the construction risk;
- difficulty in assessing how quickly the country will recover from the current recession to stimulate demand for services delivered through infrastructure;
- limits to how much taxpayers and consumers can afford. However, the costs of failure to invest – for example through inadequate flood defences or relying on expensive fossil fuels – may place even higher burdens on households; and
- worldwide competition for the skills, materials and financing needed to implement its infrastructure plans. The specialist tunnelling skills needed for Crossrail and Thames Tideway Tunnel, for example, are in short supply across the world.

Sectoral responsibilities for economic infrastructure

1.12 The government is responsible for policy in all five sectors (energy, transport, water and waste, flood defence, and communications) but there is a mix of delivery responsibilities (**Figure 4** overleaf).

1.13 Much of the nation's economic infrastructure is privately owned and 64 per cent of planned infrastructure investment is likely to be in assets wholly owned and financed by the private sector – such as power stations, airports, or water treatment plants. Fifteen per cent is likely to be invested in projects owned and financed by the public sector, such as roads and flood defences. The remainder will be privately owned assets with public funding – such as Network Rail infrastructure – or publicly owned assets with some private financing – such as toll roads or waste treatment facilities (Figure 4). Whatever the ownership or financing, the cost of this infrastructure will be passed on to businesses or the public, either as consumers or taxpayers.

8 Department of Energy and Climate Change, *Planning our electric future: a White Paper for secure, affordable and low-carbon electricity*, Cm 8099, July 2011.

Figure 4
Responsibilities for economic infrastructure

There is a mix of ownership, regulation, financing and funding

	Energy	Transport	Water, and sewerage	Communications	Flood defence
Ownership	Private	Roads and tube, public National Rail, airports and ports private	Private	Private	Mix of public and private ownership
Department responsible for policy	DECC	DfT	DEFRA	DCMS	DEFRA
Who pays	Consumers	Mix of consumers (as fare or toll payers) and taxpayers	Consumers	Mostly consumers Some grant support from taxpayers	Mostly taxpayers Some consumer funding via developers
Need identified by	Need for network investment identified by network companies with regulators. Decisions on generation investment rest with private companies	Highways Agency or local authority for roads Network Rail, regulator and DfT for national rail Private companies for ports/airports	Water and sewerage companies in association with regulators	Private sector identifies commercially viable investment Department identifies need for supported investment	Environment Agency and Regional Flood and Coastal Committees which include local authority members
Prices regulated by	Ofgem	ORR DfT Civil Aviation Authority	Ofwat	Ofcom – limited role. Most prices set by competitive market	–
Price regulation covers	Transmission and distribution charges (not final charges to consumers)	Rail – track access charges and some fares Air – landing charges at Heathrow, Gatwick and Stansted	Final charges to consumers	Prices for third party use of BT's network	–
Investment financing method	Private by generation, transmission or distribution companies	Airports and ports, private Railways mixed public/private Most roads publicly financed	Privately financed by water companies	Privately financed	Mostly publicly financed but with some contributions from developers

Source: National Audit Office analysis of roles and responsibilities

The role of Infrastructure UK

1.14 In June 2009, the government announced it would establish a new advisory body, Infrastructure UK, within the Treasury. Its role is to provide greater clarity and to coordinate the planning, prioritisation and enabling of UK infrastructure investment. Infrastructure UK's wider role includes enabling the right market conditions to achieve infrastructure investment. It is also responsible for improving how UK infrastructure is delivered and improving value for money. Departments of State remain responsible for policy for their sectors of infrastructure and for delivering publicly owned or funded infrastructure assets.

1.15 The last government set out its vision for economic growth through infrastructure investment in its March 2010 *Strategy for National Infrastructure*.[9] In October 2010, Infrastructure UK published the UK's first *National Infrastructure Plan*. Announcing the Plan, the Commercial Secretary to the Treasury defined the government's role as to "specify what infrastructure we need, identify the key barriers to achieving that investment and to mobilise the resources, both public and private, to make it happen".[10]

1.16 Infrastructure UK published an updated version of the Plan in November 2011, which included commitments to improve the UK's transport and broadband networks and attract major new private sector investment. The updated plan identified 40 priority infrastructure projects and programmes and committed to resolving barriers to these priority investments. The priority projects and programmes include specific projects such as Crossrail and the Thames Tideway Tunnel but also broad programmes such as rail infrastructure and rolling stock enhancements. Together they cover some 73 per cent of the pipeline of projects published alongside the 2011 *National Infrastructure Plan*. The government has established a Cabinet Committee, chaired by the Chief Secretary to the Treasury, to drive forward these priority projects and programmes.

1.17 The 2011 *National Infrastructure Plan* was accompanied by a list of over 500 individual infrastructure projects (the 'infrastructure pipeline') which the government expected to be taken forward to 2015 and beyond. An update on Plan progress and an updated infrastructure pipeline were published in December 2012. In the energy sector, the pipeline includes biomass plants, new nuclear power stations, and onshore and offshore wind sites. On transport, it includes very large projects such as Thameslink and High Speed 2 and smaller projects to ease congestion on local and national roads. Also included in the pipeline are water and sewerage projects, flood defence schemes, PFI waste projects, and roll-out of super-fast broadband.

9 HM Treasury and Infrastructure UK, *Strategy for national infrastructure*, March 2010.
10 HM Treasury press release, 25 October 2010, available at: www.hm-treasury.gov.uk/press_56_10.htm

1.18 The Treasury is developing a procurement route map bringing together components of good procurement for major projects and programmes. The route map, which is supported by best practice guidance, will be for use by public and private sector clients, and their supply chains. A major focus of the route map is reducing the cost of delivering infrastructure projects.

1.19 In December 2010, Infrastructure UK published its *Infrastructure Cost Review* report,[11] setting out its proposals to reduce the costs of delivering civil engineering works for major infrastructure projects by 15 per cent and deliver sustainable benefits of £2 billion to £3 billion a year. In March 2011, it published its Implementation Plan[12] with objectives to:

- improve visibility and continuity of the infrastructure investment pipeline;
- implement effective governance of projects and programmes;
- instil greater discipline into commissioning projects and programmes;
- develop smarter ways to use competition; and
- encourage investment in efficiency and reduce direct construction costs.

In Part Four, we consider the government's progress against its Implementation Plan.

11 HM Treasury and Infrastructure UK, *Infrastructure Cost Review main report*, available at: www.hm-treasury.gov.uk/d/cost_review_main211210.pdf

12 HM Treasury and Infrastructure, UK *Infrastructure Cost Review: Implementation Plan* available at: www.hm-treasury.gov.uk/d/iuk_cost_review_implementation_plan.pdf

Part Two

Identifying and prioritising need

2.1 Identifying and prioritising the need for economic infrastructure is complex. This part examines three aspects:

- the link between investment in infrastructure and growth;
- forecasting demand; and
- prioritisation of proposals.

Promoting growth

2.2 HM Treasury (the Treasury) and departments consider the priority projects in the National Infrastructure Plan can have a positive impact on economic growth in the UK by increasing productivity and attracting investment. This view is supported by empirical research by the Organisation for Economic Cooperation and Development (OECD) published in 2009.[13] Infrastructure spending can also provide a short-term impetus to growth through employment in construction and project supply and support industries.

Forecasting demand

2.3 Forecasting demand is an important part of assessing the need for additional infrastructure. The processes used to prepare forecasts are complex and involve making assumptions many years ahead as it takes a long time to plan, finance and build new economic infrastructure. Major new infrastructure investments require not only technical design of the facility itself, but also consideration of transport or transmission connections, financial engineering, environmental assessments, public consultation and often public inquiries on planning applications. Procuring new electricity transmission connections, for example, can take seven or eight years. Waste treatment projects typically took five to nine years to develop the project and bring the asset into use.[14]

13 OECD, *Economic Policy Reforms – Going for Growth 2009*, available at: www.oecd.org/eco/productivityandlongtermgrowth/economicpolicyreformsgoingforgrowth2009.htm

14 Comptroller and Auditor General, *Department for Environment, Food and Rural Affairs: Managing the waste PFI programme*, Session 2008-09, HC 66, National Audit Office, January 2009.

2.4 We have identified five particular challenges to forecasting the need for economic infrastructure in the current environment:

- Novel projects[15] have no track record of comparable data on likely demand.
- Demand management strategies impact on investment needed.
- Plans require assumptions about future growth in demand, including growth out of the current recession.
- Technological change is unpredictable and global market conditions are volatile.
- Infrastructure investment may shape new patterns of demand.

Forecasting demand for novel projects

2.5 High Speed 1 highlights the difficulties of estimating demand for a novel project, where there is no comparable data on likely demand:

- Forecasts prepared in 1995 for the PFI bid proved over-optimistic, which meant that the PFI proposal was not sustainable.
- Actual passenger numbers for the period 2007 to 2011 were, on average, a third of the level originally forecast in the bid.[16]
- International passenger numbers have grown since the high speed line opened but continue to be below original expectations.

Demand management strategies

2.6 Historically, the government and others have used policy initiatives to try to reduce or cap demand for finite resources, such as energy and water. Forecasting the likely impact of demand management initiatives on need is challenging. The long-term nature of utility management plans, coupled with long lead times, leaves little scope to react quickly to subsequent changes in demand. Departments and regulators are looking at new ways to manage demand, for example through development of smart grids, which will allow better matching of supply and demand.

15 For risks associated with consumer response to innovation, see: Comptroller and Auditor General, *The government's long-term plans to deliver secure, low carbon and affordable electricity*, Session 2012-13, HC 189, National Audit Office, June 2012.

16 Comptroller and Auditor General, *Department for Transport: The completion and sale of High Speed 1*, Session 2010–2012, HC 1834, National Audit Office, March 2012.

Assumptions about economic growth out of the current recession

2.7 Inevitably, economic downturn has an impact on demand, but forecasts of the impact can change, affecting plans:

- The International Monetary Fund had revised its projections for UK economic growth in 2012 from 2.3 per cent to 0.2 per cent; and its forecast for 2013 from 2 per cent to 1.4 per cent.
- The recession significantly affected projections of rail passenger demand,[17] although the actual impact was limited to a 0.7 per cent fall in passenger journeys in 2009-10, followed by an 8 per cent increase in 2010-11.
- The Department for Environment, Food and Rural Affairs revisited its 2005–2008 plans for major investment in new waste treatment facilities as the recession, coupled with local initiatives to reduce waste, has reduced the volume of waste.

Technological change and global market conditions

2.8 It is difficult to predict the nature of technological change and the speed with which technological innovations will become commercially viable and be adopted by users. For example, the pace of design and adoption of energy efficient building techniques, heating plant or equipment will influence long-term overall demand for energy. Global market conditions and commodity prices may vary significantly from assumptions made in forecasts. Fossil fuel prices will influence both overall energy and travel demand and the viability of alternative energy production technologies and transport modes.

Interactions between infrastructure investment and demand

2.9 The first *National Infrastructure Plan* indicated the United Kingdom faced a period of renewal and replacement of significant components of its national economic infrastructure.[18] That process of renewal and replacement may not only serve existing patterns of economic activity but may also shape new ones through, for example, new or improved transport links. Changes in patterns of economic activity can in turn change the location and, in some cases, the overall level of demand for energy, travel, communications, water and travel.

Prioritising proposals

2.10 Having identified and collated the UK's plans for economic infrastructure, the next challenge for the government has been to prioritise them. This section sets out how the government prioritised these needs and the implications for taxpayers and consumers.

17 Comptroller and Auditor General, *Department for Transport and the Office of Rail Regulation: Increasing passenger rail capacity*, Session 2010-11, HC 33, National Audit Office, June 2010.
18 HM Treasury and Infrastructure UK, *National Infrastructure Plan*, November 2010, available at: www.hm-treasury.gov.uk/ppp_national_infrastructure_plan.htm

2.11 The government prioritised taxpayer-funded economic infrastructure investment during its 2010 spending review. It announced that it had analysed the economic value of some 250 projects and programmes, considering its existing spending commitments.[19] The 2010 spending review stated that the government was focusing its capital investment on projects it expected would deliver the highest economic returns. The spending review also confirmed that it would prioritise economic infrastructure that supports growth, the transition to a low-carbon economy and encourage private sector investment in infrastructure.

2.12 Two prioritised lists of government-financed capital projects were produced for the 2010 spending review process. One listing ranked one-off projects, including the 2012 Olympics, Network Rail and Crossrail, and the other covered programmes, including major network road schemes and local roads maintenance. Economic returns were not necessarily calculated for all projects and programmes, particularly if there was already an existing policy or spending commitment. Some projects were selected as policy priorities rather than solely on the strength of their economic benefits. The 2011 *National Infrastructure Plan*[20] covers a combination of these priority government-funded projects and privately funded proposals being considered by firms operating in the energy, water, transport, waste and communications sectors. The plan does not show the relative rankings or economic returns of its 40 priority programmes or the projects within them. Instead it focuses on removing barriers to their delivery.

2.13 The Energy Bill was submitted to Parliament in November 2012 to give effect to electricity market reform, clarifying some aspects of that reform while leaving much detail to subsidiary orders, regulations or individual contracts. The Bill was accompanied by a government statement setting the overall level of support for low-carbon generation through market mechanisms at £7.6 billion per year until 2020. In December 2012, the government published a gas generation strategy setting out its expected view of the role of gas in the coming years, and announced it would create an Office for Unconventional Gas.

2.14 Of the more than 500 potential projects included in the pipeline, 231 relate to electricity generation and included proposals for new nuclear and gas turbine power stations, wind turbines and biomass heat and energy proposals. Electricity generating companies and investors we spoke to were concerned by what they perceived as a lack of clarity over the types of electricity generation projects government wishes to promote, and the price support mechanisms and levels for different generation methods. As a result, the electricity generating companies were holding back on some potential investments. We highlighted these issues in our recently published report on the electricity market.[21]

19 HM Treasury, *Spending Review 2010*, Cm 7942, October 2010.
20 HM Treasury and Infrastructure UK, *National Infrastructure Plan*, November 2011, available at: www.hm-treasury.gov.uk/d/national_infrastructure_plan291111.pdf
21 Comptroller and Auditor General, *The government's long-term plans to deliver secure, low carbon and affordable electricity*, Session 2012-13, HC 189, National Audit Office, June 2012.

Part Three

Affordability for taxpayers and consumers

3.1 Any large-scale investment has long-term affordability implications, although these must be assessed against the costs of failing to invest. In this part, we consider the issues affecting citizens as taxpayers and consumers, with particular focus on:

- emerging trends in household spending;
- responsibility for considering the affordability of infrastructure investment; and
- long-term costs of infrastructure investment.

Emerging trends in household spending post credit crisis

3.2 The Office of National Statistics December 2012 figures indicate that the proportion of average weekly household spending on fares and utility bills has increased from 8 per cent in 2004-05 to around 10 per cent in 2011. The proportions of spending on fares, water and telecommunications remain broadly similar, and the largest increase is in energy (**Figure 5** overleaf).

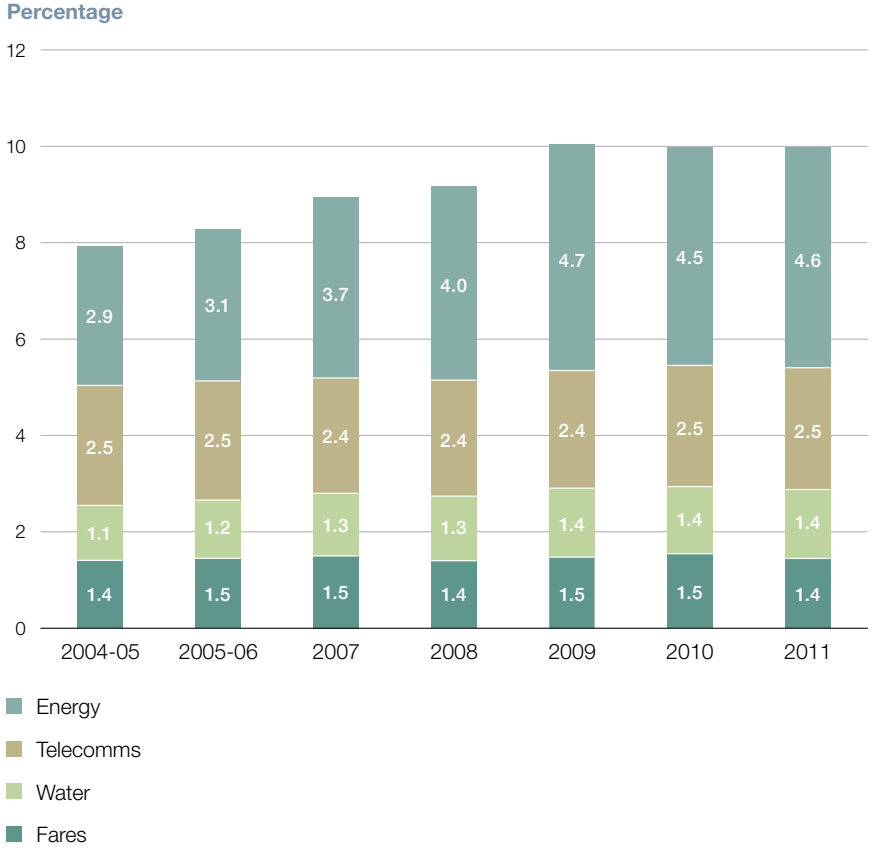
3.3 A major component of the rising energy prices shown in Figure 5 is the cost of gas. Between 35 and 50 per cent of electricity currently generated in Britain comes from burning gas. Energy prices have risen since 2004-05, when Britain first imported more gas than it produced itself. This is because Britain imports its gas from mainland Europe, where gas prices are largely linked to oil prices.[22] Since the end of 2010, average domestic gas and electricity prices have risen well above general price inflation.

22 Ofgem, 'Why are energy prices rising?', Fact Sheet 108, October 2010, available at: www.ofgem.gov.uk/Media/FactSheets/Documents1/Why%20are%20energy%20prices%20rising_factsheet_108.pdf

Figure 5

Fares and utility bills as a proportion of average weekly household spending from 2004-05 to 2011

Spending on energy as a proportion of average weekly household spending has increased since 2004-05



NOTES

1 The impact on individual households varies due to geographic factors, personal choice and financial circumstances.

2 Spending on energy increased fairly uniformly across all consumer groups except those 'Constrained by circumstances', who spent the least.

3 Numbers have been rounded.

Source: Office for National Statistics

Responsibility for considering the overall affordability of infrastructure investment

3.4 There are different responsibilities and means of assessing affordability in each sector where costs will fall on consumers (**Figure 6**). For example, the Department of Energy and Climate Change (the Department) has analysed the effects of alternative scenarios on costs and on energy bills. It has published a modelling tool allowing users to input different assumptions and illustrate the costs of different energy scenarios. In separate analysis in December 2011, the Committee on Climate Change (the Committee) estimated that low-carbon measures (including new infrastructure investment in renewable energy) would add £100 to electricity bills for a typical dual fuel household by 2020, relative to 2010 levels. Overall, the Committee agreed with the Department that successfully implementing energy efficiency measures would nevertheless be likely to keep bills in 2020 broadly at current levels. This is, however, a complex area and uncertainties remain over the long-term impact on consumers of energy investment plans.

Figure 6
Responsibilities for assessing affordability

Responsibility for judging affordability for consumers and taxpayers varies across sectors

Sector	Responsibility for assessing affordability	Examples of actions to tackle affordability
Energy	DECC and Ofgem	Introducing competition Facilitating consumer switching Price regulation for transmission and distribution Cap on levy on energy bills to fund low-carbon power generation
Water and sewerage	DEFRA and Ofwat	Price regulation of water bills Introducing competition Support for South West Water bills
Communications	DCMS and Ofcom	Introducing competition Facilitating consumer switching Caps on mobile call termination rates
Flood defence	DEFRA and Environment Agency	Public spending controls
Transport – roads	Highways Agency and local authorities	Public spending controls Toll setting
Transport – rail	DfT and ORR	Limits on regulated fares Price regulation of Network Rail's track access charges Statutory concession schemes

Treasury plays a role in assessing affordability across all sectors in relation to public spending and wider economic impacts of policy

Source: HM Treasury and National Audit Office analysis

3.5 The 2010 *National Infrastructure Plan*[23] committed Infrastructure UK to establish a framework that could be used to assess overall affordability. The 2011 *National Infrastructure Plan*[24] outlined existing or planned government measures to protect the most vulnerable from increases in energy and water bills. Infrastructure UK now believes it would not be feasible to establish an overall affordability framework at the current time. HM Treasury will continue to use a range of measures to maintain affordability with emphasis on the energy sector where affordability pressures are greatest.

3.6 In our opinion, while sector specific analyses are useful, they do not provide clarity on the overall burden consumers may be asked to bear in funding new infrastructure, or the distribution of that overall burden. Achieving this clarity depends on greater certainty on the forms of energy generation that will be invested in and an aggregate assessment of the likely cost to consumers of funding all planned infrastructure. The Private Finance Initiative (PFI) social infrastructure programme, while being mainly funded by taxpayers rather than consumers, has, nevertheless, illustrated the importance of considering at the outset the long-term affordability implications of infrastructure investment, particularly if economic conditions change.

Long-term costs of infrastructure investment

3.7 Increased capital investment in infrastructure will have a long-term impact on costs for taxpayers and consumers. New financing costs for new investment will be offset to some extent by cost reductions as borrowing for earlier investment is repaid. **Figure 7** provides an illustrative example for a price-regulated utility increasing its capital investment in assets with an average 20-year life from £30 million per year to £40 million per year in real terms. The time taken for full costs to feed through to consumers aligns with average asset life.

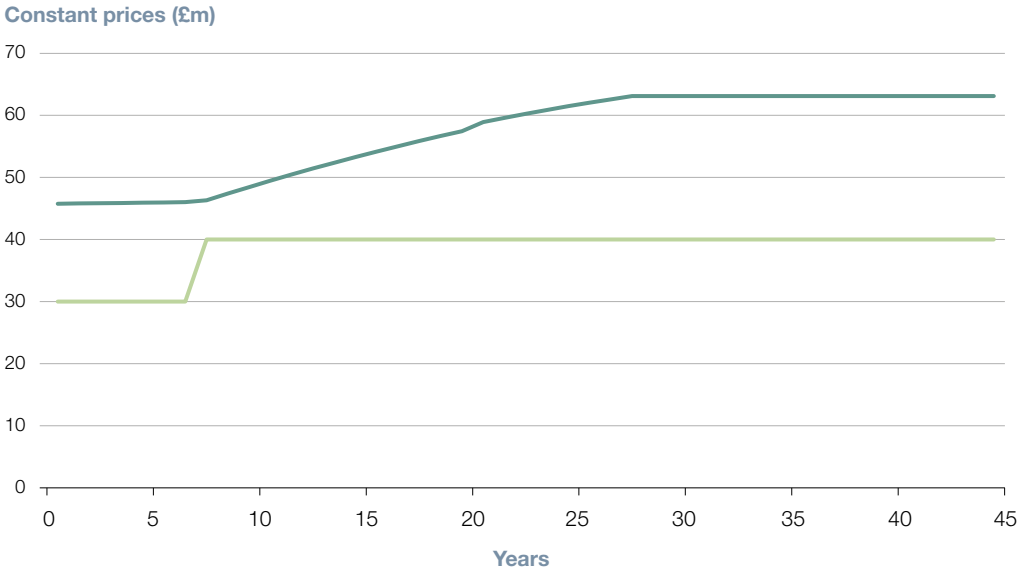
3.8 The impact of investments in infrastructure will vary across households due partly to geographic factors, personal choice and financial circumstances. The effects on vulnerable consumers are to some extent mitigated by specific programmes such as support for water bills in the South West of England, concessionary fares, winter fuel payments for eligible pensioners, and the Warm Homes Discount Scheme for energy consumers on pension credit.

23 HM Treasury and Infrastructure UK, *National Infrastructure Plan*, November 2010, available at: www.hm-treasury.gov.uk/ppp_national_infrastructure_plan.htm

24 HM Treasury and Infrastructure UK, *National Infrastructure Plan*, November 2011, available at: www.hm-treasury.gov.uk/d/national_infrastructure_plan291111.pdf

Figure 7
Long-term costs of investment

The full effects of extra investment take time to feed through to consumer bills



NOTE

1 As well as assuming 20-year asset life, this analysis assumes the regulator allows the company a weighted cost of capital of 5.5 per cent per year. It also assumes that the company starts with assets with an original value of £600 million, spread evenly across an age range of 0 to 20 years.

Source: National Audit Office exemplification of an illustrative regulatory settlement

Part Four

Financing and delivery

4.1 Like other countries, the UK is seeking substantial investment in infrastructure. Finance and delivery pose a number of challenges, particularly:

- improving market confidence;
- attracting finance from new sources;
- understanding and controlling costs; and
- mitigating risk and managing uncertainty.

Improving market confidence

4.2 Suppliers and investors we spoke with generally welcomed Infrastructure UK, the National Infrastructure Plan and the infrastructure project pipeline. Infrastructure UK enables investment in economic infrastructure and supports its delivery, and the Plan articulates a commitment to removing barriers to that investment. The pipeline collates existing project proposals, some of which have been long-standing aspirations. It has improved the visibility of infrastructure proposals for overseas investors in particular, but has had a more limited effect on confidence in whether and when proposals will come to fruition.

4.3 Market conditions and commercial judgements will ultimately determine which projects go forward in some sectors. Nevertheless, public spending and consenting decisions, regulators' decisions on allowed returns and revenues, and government decisions on levels of market interventions will strongly influence the project pipeline. There will need to be greater certainty in these areas to improve market confidence in the pipeline of investment and contracting opportunities. Electricity market reforms will provide a key component of certainty but there is a risk of a hiatus in investment while those reforms come into effect.

Attracting finance from new sources

4.4 The government's current fiscal plans mean that public finance for infrastructure is tightly constrained. For private sector projects, utilities' balance sheets may face growing pressure when seeking to support the borrowing necessary to meet UK infrastructure needs through corporate finance alone. This means new finance is needed to take projects forward. Long-term bank project finance, however, became more expensive after the credit crisis. In 2010, we found that interest costs of bank finance had increased by 20 to 33 per cent in PFI projects.[25] Another characteristic of post credit crisis financing is that banking regulations requiring banks to maintain additional capital reserves have resulted in banks lending relatively small amounts and for shorter terms. Sponsors of infrastructure projects may therefore have difficultly securing viable bank finance.

4.5 Market surveys indicate there is nevertheless a strong potential appetite for increased private investment in infrastructure from a range of institutions. The government has taken steps to explore solutions to address the financing challenge and capture investment appetite for the UK including:

- signing a Memorandum of Understanding with two groups of UK pension funds and working with the Association of British Insurers to increase infrastructure investment. Government targeted up to £20 billion of investments from these initiatives. The groups of UK pension funds are currently targeting an initial £2 billion of investment. Pension funds and insurers have generally preferred to invest in operational projects with revenue streams rising for inflation aligned with their liabilities;
- being prepared to provide guarantees to lenders and to co-lend to stimulate the financing of infrastructure. To this end it promoted the Infrastructure (Financial Assistance) Act which received royal assent in October 2012 and has announced that the Northern Line extension to Battersea will be one of first projects to benefit from this scheme;
- promoting UK infrastructure investment opportunities to overseas investors including sovereign wealth funds;
- accessing the bond market which does have large sums ready to invest. The challenge, however, is whether a suitably low-risk rating can be obtained for the projects from a rating agency to attract bond investors; and
- considering new ownership and financing models for the national roads network, including tolls.

These developments have been broadly welcomed by the investment community, although the opportunities offered will need reliable revenue streams, on terms acceptable to the investors, if investment is to materialise. Pension funds and insurers have had limited appetite for construction risk. Without mitigating actions these new investors may not provide finance or may charge a relatively high price for financing the construction period.

25 Comptroller and Auditor General, *Financing PFI projects in the credit crisis and the Treasury's response*, Session 2010-11, HC 287, National Audit Office, July 2010.

4.6 Where a need for infrastructure arises from developing a particular site, local planning authorities may require developer contributions to that infrastructure. That contribution may come from:

- requiring payments from developers under agreements negotiated site by site; or
- charging developers a community infrastructure levy,[26] in accordance with published criteria and to meet specified transport or flood defence requirements. By April 2012, the London Mayor, and two local authorities had introduced these levies. The government is considering allowing authorities to borrow against anticipated future community infrastructure levy receipts.

In addition, some local authorities are seeking approval from businesses to increase their rates payments by up to 2p per pound of rateable value, where businesses benefit from the development of their local area. A business rate supplement is being used to partly fund the Crossrail project.

Understanding and controlling costs

4.7 Historically, economic infrastructure has cost more in the UK than in other countries. In 2010, Infrastructure UK published its cost review, which highlighted a UK cost premium of between 10 and 100 per cent for different types of project. The review identified no single overriding factor for this premium, but cited stop-start contracting, fragmentation of the construction industry, and complex procurement approaches as major contributors. The review judged savings of 15 per cent, or £2 billion to £3 billion annually, were possible on the costs of building and maintaining UK infrastructure.

4.8 The government is pursuing these savings through a range of actions including:

- publishing the planned pipeline of projects;
- better understanding infrastructure costs;
- improving procurement approaches, including greater consistency of specifications and standards; and
- engaging with industry to encourage suppliers to work together to identify savings, address skills shortages, and encourage innovation.

These work streams are being coordinated by Infrastructure UK in line with an implementation plan published in March 2011.

26 The Community Infrastructure Levy is a levy that local authorities can choose to charge on new developments in their areas. The money can be used to fund infrastructure that the council, local community and neighbourhoods want.

4.9 Our work on highways maintenance, rail infrastructure and offshore transmission has highlighted the importance of clients and regulators having good information on what construction work should cost.[27] This allows them to set challenging but achievable cost and efficiency targets within contracts or regulatory settlements. It is important that efforts to gather and share cost information extend to private sector infrastructure clients if the full potential for cost reductions is to be realised.

4.10 Infrastructure UK's first cost review annual report, published in April 2012, stated that the programme was on track with progress on the first year's enabling measures across all work strands.[28] It indicated the programme is prompting action across clients and suppliers. The report identified projected savings of up to £1.5 billion from actions consistent with cost review principles. These actions, most of which were in progress before the cost review's enabling measures, are positive examples of continuous improvement efforts from the organisations concerned, such as the Highways Agency and Network Rail. One of the difficulties in judging the success of the cost review programme will be identifying which actions contribute most to savings. This understanding would help target effort most effectively.

4.11 Much infrastructure spend, including £123 billion of electricity generation investment is neither under government contract nor subject to regulation. Energy projects are often large and complex and the costs are difficult to evaluate. For example it has been reported that EDF has increased its estimate of the costs of nuclear plants from £10 billion to £14 billion each. Government must ensure markets are working efficiently and that barriers to entry including, for example, access to development sites for nuclear power stations, are not so restricted as to limit effective competition and efficient project costing.

4.12 Government proposals to reduce the number of civil servants over the next few years have implications for the effectiveness of the cost review programme. We have previously reported that commercial skills were already in scarce supply in departments before recent steps to reduce headcount.[29] The government has announced it will strengthen Infrastructure UK's mandate, increase its commercial expertise and task it and the Major Projects Authority with assessing Whitehall's ability to deliver infrastructure.

27 Comptroller and Auditor General, *Contracting for highways maintenance,* Session 2008-09, HC 959, National Audit Office, October 2009. Comptroller and Auditor General, *Regulating Network Rail's efficiency,* Session 2010-11, HC 828, National Audit Office, April 2011. Comptroller and Auditor General, *Offshore electricity transmission: a new model for delivering infrastructure*, Session 2012-13, HC 22, National Audit Office, June 2011.

28 HM Treasury and Infrastructure UK, *Infrastructure Cost Review annual report 2011-12*, April 2012, available at: www.hm-treasury.gov.uk/d/iuk_cost_review_report2012_230412.pdf

29 Comptroller and Auditor General, *Commercial skills for complex government projects*, Session 2008-09, HC 962, National Audit Office, November 2009.

Mitigating risk and managing uncertainty

Financing infrastructure projects

4.13 The government has stated that it will consider applications for guarantees to support infrastructure projects which:

- are of national significance;
- can be started within a year;
- will not proceed within a reasonable timescale without a guarantee;
- are financially credible with equity finance committed and sponsors prepared to restructure the project to limit taxpayer risk; and
- represent value for money for the taxpayer.

The scheme will be open to applications for two years.

4.14 Guarantees should help to attract finance but, as we have highlighted in our past work, government has not always taken a realistic view of the likelihood of associated risks materialising:

- **High Speed 1** The Department for Transport (the Department) guaranteed the debt needed to fund the project but did not expect its guarantees to be called on. International passenger revenues, intended to service the costs of debt and provide a return on investment, were lower than expected, which left the taxpayer exposed to an ongoing liability to support the project.
- **Metronet** When signing contracts for major upgrade work on the London Underground system, the Department assumed that the likelihood of its financing guarantee maturing was low as lenders would oversee Metronet's governance and financial health to protect their investment. We reported in 2009 that the Department made £1.7 billion of grant available to London Underground when Metronet went into administration to settle the debt obligations.[30] The Committee of Public Accounts concluded that the Department was extremely naive to expect lenders to do so when the Department had shouldered all but 5 per cent of lenders' risks.[31]

30 Comptroller and Auditor General, *Department for Transport: The failure of Metronet*, Session 2008-09, HC 512, National Audit Office, June 2009.

31 HC Committee of Public Accounts, *Department for Transport: The failure of Metronet,* Fourteenth Report of Session 2009-10, February 2010, available at: www.publications.parliament.uk/pa/cm200910/cmselect/cmpubacc/390/39002.htm.

4.15 It is important that new guarantees have a clear framework to guard against issues faced by previous guarantees. If HM Treasury gives a guarantee it will need to assess whether this will improve value for money after taking into account financing costs, any charge the Treasury may make for the guarantee, the risk that the Treasury will bear, and the transaction costs of administering the guarantee.

Project scrutiny

4.16 The Major Projects Authority (the Authority) is overseeing around a quarter of pipeline economic infrastructure projects. Selecting the projects that the Authority would oversee was a three-way process, involving the Treasury, departments and Infrastructure UK. The largest and most complex projects need approval by the Major Projects Group, of which Infrastructure UK is a member, thereby adding another level of joined-up scrutiny.

4.17 All projects under the Authority's scrutiny must have an integrated assurance and approvals plan. As we recently reported, however, some types of initiatives with little or no direct economic impact on government, but with large impacts on industry and consumers are not covered by government's central assurance arrangements.[32] They include some major private sector infrastructure projects prioritised in the National Infrastructure Plan. Such projects will be subject to normal commercial, contractual and corporate governance, and may form part of regulatory discussions. They are not subject to public sector assurance processes, but it is important that government has visibility of progress and key issues on these projects.

Expediting consenting decisions

4.18 The National Infrastructure Plan identifies the planning and consenting system as a significant source of cost and delay in infrastructure delivery. Successive governments and investors have felt planning took too long and was too complicated with associated costs. The Infrastructure Planning Commission (the Commission) was set up in 2009 to determine planning applications for major infrastructure, in accordance with national policy statements for each infrastructure type and working to prescribed timescales. In April 2012, the Commission was abolished and its responsibilities transferred to the Planning Inspectorate, with the relevant Secretary of State taking decisions but with other processes unchanged. In September 2012, the government announced it would review the thresholds for major infrastructure and extend the new regime to business and commercial projects while removing some smaller projects.

32 Comptroller and Auditor General, *HM Treasury and Cabinet Office, Assurance for major projects*, Session 2010–2012, HC 1698, National Audit Office, May 2012.

4.19 In December 2012, developers had notified 99 projects as due for consideration under these arrangements. Only three had been determined, which is partly a function of time allowances for pre-application consultations, setting up and conducting inquiries, preparing recommendations, and allowing the Secretary of State to consider those recommendations. Together these amount to around 18 months, in line with expected timescales. There were 63 projects at pre-application stage, 11 had been accepted and were awaiting or undergoing examination and a further six had been examined with a recommendation due within three months. Sixteen projects had been withdrawn. Our interviews indicated that potential project sponsors and contractors welcomed the creation of a distinct process for major infrastructure applications, and the greater certainty over timescales once applications were accepted. Some of these stakeholders had concerns about the extent of pre-acceptance requirements, and their tendency to lock developers into specific solutions at an early stage. The government has undertaken a 'light-touch' review of the pre-application stage and consulted on new pre-application guidance in April 2012.

4.20 The government is looking to rationalise and streamline consents other than planning permission (for example environmental and safety consents). It also wants to ensure that consenting and advisory agencies have a duty to promote sustainable development under the national planning policy framework. In September 2012, the government announced it would work to extend the principle of a one-stop-shop for non-planning consents for major infrastructure, and amend the special parliamentary procedures for major infrastructure to ensure their fitness for purpose.

Appendix One

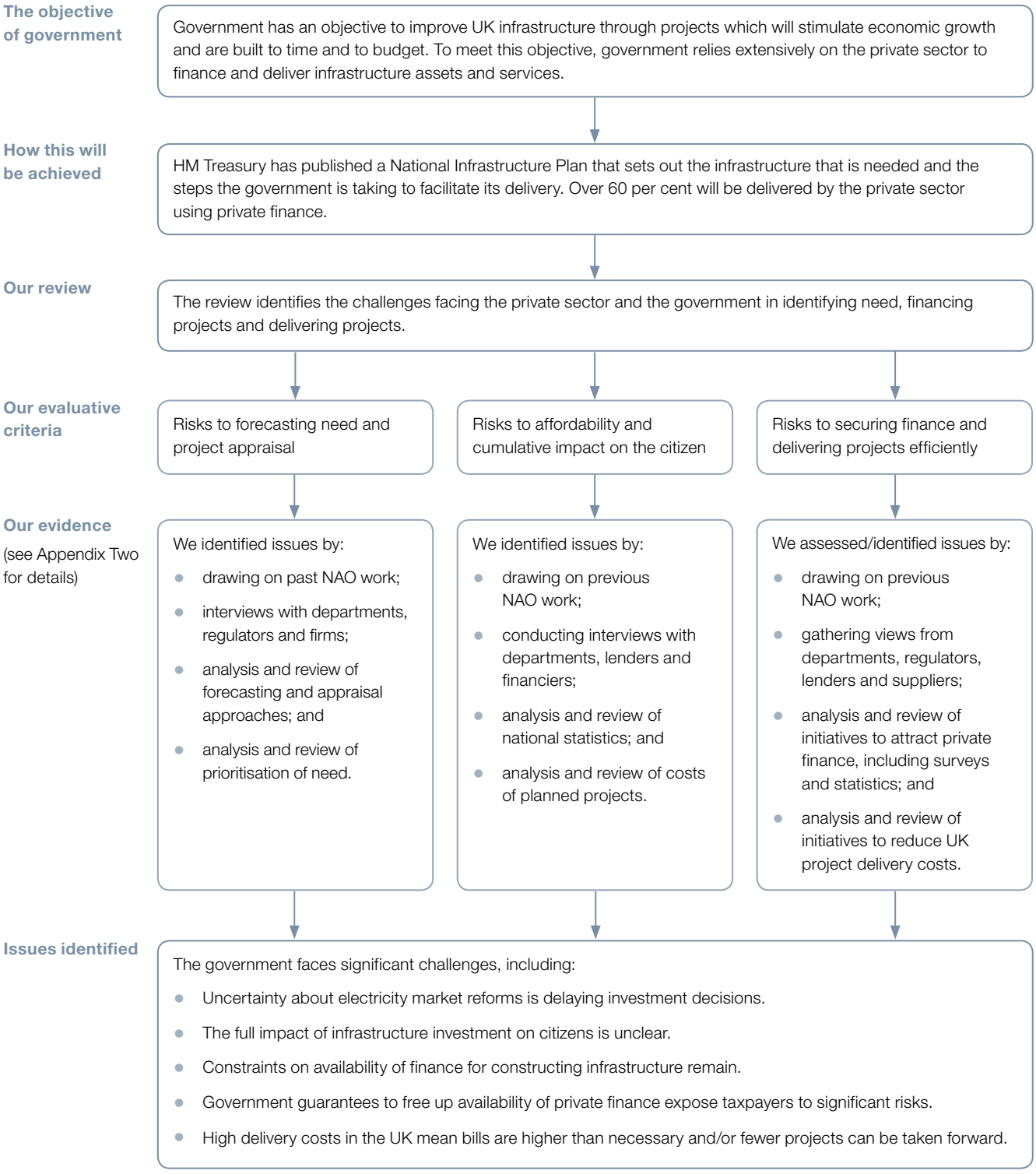
Our audit approach

1 This landscape review examined the impact of government policy on economic infrastructure. We reviewed the economic infrastructure landscape, and in particular:

- how departments identify and prioritise the need for investment in economic infrastructure;
- how departments judge the affordability of investment in economic infrastructure for the public as taxpayers and consumers; and
- how departments act to ensure projects can be financed and delivered efficiently.

2 We applied an analytical framework to help identify the key issues arising in the economic infrastructure landscape. Our audit approach is summarised in **Figure 8** overleaf. Our evidence base is described in Appendix Two.

Figure 8
Our audit approach



Appendix Two

Our evidence base

1 Our methodology was designed to obtain an overview of the economic infrastructure landscape, and in particular:

- the risks to value for money and the roles and responsibilities of government and others for addressing them;
- prioritisation and identification of infrastructure need;
- affordability and the cumulative impact on the citizen as taxpayer and consumer; and
- financing and delivering infrastructure projects.

Our methodology involved structured interviews with government officials, regulators, lenders and financiers, suppliers and trade associations; and analysis of publicly available information. The main elements of our fieldwork took place between March and June 2012.

2 We applied an analytical framework to help identify the key issues arising in the economic infrastructure landscape. Our audit approach is summarised in Figure 8.

3 We assessed the risks to identifying and prioritising the need for investment in economic infrastructure:

- We **reviewed previous NAO work** on individual infrastructure projects and reviewed literature from both academic and industry led sources.
- We **carried out semi-structured interviews** with key stakeholders from Infrastructure UK, HM Treasury, Department for Transport, Department for Environment, Food and Rural Affairs, the Department of Energy and Climate Change, the Department for Communities and Local Government, and with key stakeholders at Ofgem, Ofwat and the Office of Rail Regulation.
- We **analysed and reviewed data** published by HM Treasury, the Department of Transport, the Department for Environment, Food and Rural Affairs and the Department of Energy and Climate Change on forecasting need and project appraisal.
- We **analysed data** published by Infrastructure UK and Office for National Statistics on planned and historic levels of infrastructure investment.

4 We reviewed the cumulative impact of economic infrastructure investment on consumers:

- We **drew on evidence from our previous work**, such as our study on financing PFI projects in the credit crisis.[33]
- We **carried out semi-structured interviews** with representatives from banks and from alternative sources of finance, including the National Association of Pension Funds, Association of British Insurers and Aviva.
- We **analysed Infrastructure UK's pipeline data** to show the annualised cost of planned infrastructure investment under specified assumptions.

5 We assessed the risks to securing private finance for economic infrastructure and the risks to efficient delivery of UK projects:

- through **semi-structured interviews** with departments and regulators; with representatives from major construction firms and professional bodies – Arup, Balfour Beatty, and Fluor; representatives from the Association for Consultancy and Engineering, and the Institution of Civil Engineers; the Major Projects Authority and the Planning Inspectorate;
- we **reviewed Infrastructure UK's report** on progress on the 2011 *National Infrastructure Plan* (the March 2012 Infrastructure Delivery Update); and the Infrastructure Cost Review Implementation Plan and 2012 annual report;
- we **reviewed documentation from, and surveys of,** prospective investors in economic infrastructure; and
- we **reviewed previous reports** on improving efficiency in construction.

33 Comptroller and Auditor General, *Financing PFI projects in the credit crisis and the Treasury's response,* Session 2010-11, HC 287, National Audit Office, July 2010.

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