National Audit Office

REPORT BY THE
COMPTROLLER AND
AUDITOR GENERAL

HC 595
SESSION 2012-13

16 JANUARY 2013

HM Treasury

Planning for economic infrastructure

Key facts

£310bn	£257bn	64%
is the total value of planned infrastructure investment identified by Infrastructure UK in 2012	is the amount of the £310 billion planned infrastructure investment that is expected in the period from April 2012 to March 2020	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.