



HM TREASURY



Infrastructure UK

# National Infrastructure Plan 2010

October 2010





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# Foreword

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For the economy to flourish, people, goods and information must move freely. Businesses across all regions and industries need the right conditions to grow. Reliable infrastructure: energy, water, transport, digital communications and waste disposal networks and facilities, are essential to achieve this. Ensuring these networks are integrated and resilient is vital. Failure to make the right choices at the right time, or pausing investment, risks not only growth but also the UK's international competitiveness.

Over the centuries, the UK has had a great record of investing in world class infrastructure to underpin economic growth. From the earliest days, infrastructure has been built by a combination of private and public money, in ventures involving business and both national and local government. Private capital was given the incentive to invest in often cutting-edge technology by the prospect of earning proper returns.

By contrast, for several decades the UK's approach to infrastructure investment has in general been timid, uncoordinated, incremental, wasteful in its procurement and insufficiently targeted to supporting balanced and sustainable growth in the economy, both economically and environmentally. The result is that our infrastructure is ageing, plans are unclear and costs are too high.

In 2010 we face an unprecedented series of challenges. Stretching carbon reduction targets and the need to ensure long term energy security require a revolution in our energy generation mix. We need digital communications networks that transmit information at high speed to all parts of the UK. We need to maintain our transport, water and waste systems in the face of growing demand and the impact of climate change and of other threats and hazards. We need a clear analysis of the increasing interdependencies between networks and of the resulting opportunities for innovation. We need to maintain and grow the national intellectual capital for the UK to be a winner in the global knowledge economy.

All this must be delivered against an inherited legacy of overstretched UK public finances and with many countries embarking on programmes of a similar scale, competing for a finite pool of investment funds.

The immediate challenge is to rebuild the economy, creating the conditions for enterprise to flourish based on an expansion of the private sector. The infrastructure investment programme will help rebalance the economy across all regions and give industries the right conditions in which to grow, as well as itself providing a stimulus to short term growth.

So the Government is setting out, for the first time, a broad vision of the infrastructure investment required to underpin the UK's growth. And, just as the UK made bold choices in the past, we need to embrace the options opened up by new technology – for example, in the roll out of superfast broadband, in offshore wind arrays and in high speed rail.

The role of the Government in this work is clear. It is to specify what infrastructure we need, identify the key barriers to achieving investment and mobilise the resources, both public and private, to make it happen.

We plan for UK infrastructure investment to be some £200 billion over the next five years. We will help make that happen through smarter use of public funding, improving private sector

investment models, encouraging new sources of private capital and addressing the regulatory failures that stand in the way of greater private sector investment in our country's infrastructure.

The Government has identified a new hierarchy for infrastructure investment, prioritising the maintenance and smarter use of assets, followed by targeted action to tackle network stress points and network development and, finally, delivering transformational, large scale projects that are part of a clear, long term strategy.

Today, the UK is one of the most expensive countries in which to build infrastructure. For example, civil engineering works cost some sixty per cent more than in Germany. To address this issue, we will improve the UK planning system, bring down construction costs, improve the quality of data to inform decision taking, and initiate programmes to look at cross-sectoral independencies, resilience and engineering innovation. We will work to ensure that we develop the skill and knowledge base of British people to match the challenges of this infrastructure programme. If we were only to reduce public sector construction costs by 15 per cent that would result in annual savings, or additional investment, of £1 billion; and independent studies have suggested a one per cent reduction in the average cost of capital would result in an annual saving of £5 billion.

The Government is targeting its own investment in a series of bold and critical projects that go to the heart of this vision. In the Spending Review we committed to invest over £40 billion in supporting project investments including new high value road schemes, one of the world's first carbon capture and storage projects, a high-speed rail network, Crossrail, two of the world's leading medical and engineering research facilities and the Green Investment Bank.

This is an ambitious plan. To make it happen, the Economic Affairs Committee of the Cabinet, chaired by the Chancellor of the Exchequer and supported by Infrastructure UK, will take a new role coordinating infrastructure planning, prioritisation and policy development across Government. This work will only be driven through with sustained commitment right across Government – which it has and will continue to have.

**Lord Sassoon**

**Commercial Secretary to the Treasury**

**October 2010**

# 1

## The UK's infrastructure need

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**1.1** Prosperity comes from the effective accumulation and efficient use of capital – financial, human, intellectual, natural and physical capital. This document focuses on economic infrastructure: the networks and systems in energy, transport, digital communication, flood protection, water and waste management. These are all critical to support economic growth through the expansion of private sector businesses across all regions and industries, to enable competitiveness and to improve the quality of life of everyone in the UK. Government's key role is to specify what infrastructure is needed, to identify the key barriers to achieving that investment and to mobilise the resources, both public and private, to make it happen.

**1.2** This chapter sets out the Government's vision for major infrastructure investment in the UK:

- maximising the potential of existing road and rail networks;
- transforming energy and transport systems to deliver a low carbon economy;
- transforming the UK's strategic rail infrastructure;
- meeting future challenges in providing sustainable access to water for everyone;
- protecting the economy from the current and growing risk of floods and coastal erosion;
- reducing waste and improving the way it is treated;
- providing the best superfast broadband in Europe; and
- ensuring that the UK remains a world leader in science, research and innovation.

### Energy infrastructure

**1.3** The Government aims to provide an endowment for future generations by building the foundations of a growing, low carbon economy. The UK must meet ambitious targets to reduce greenhouse gas emissions by 34 per cent relative to 1990 levels, with 15 per cent of energy from renewable sources by 2020. With the right energy infrastructure, the UK can achieve:

- a step-change in energy efficiency;
- a supply of secure, affordable, low carbon energy, with a long-term reduction in the UK's dependence on imported hydrocarbons; and
- increased security of supply.

### Transport infrastructure

**1.4** Transport provides the crucial links that allow people and businesses to prosper. The Government is committed to delivering an effective, sustainable, transport network for the UK. With the right transport infrastructure the Government can:

- contribute to the fiscal consolidation whilst supporting a competitive economy – by effectively prioritising public spending and vigorously pursuing efficiency in the

transport sector. This will ensure that the links that move goods and people around the economy can be improved;

- support sustainable economic growth and tackle climate change – by transforming the capacity and connectivity of key urban and inter-urban rail networks, and by implementing policies which deliver greener technology. In this way the urgent and unavoidable challenges of climate change can be addressed while maintaining long-term economic growth; and
- promote greater localism – by devolving power back to local people so that solutions to many challenges can be devised, developed, owned, promoted and implemented locally. This will ensure schemes are carefully thought-out and properly implemented and demonstrate high value-for-money.

## Digital communications

**1.5** The Government aims to have the best superfast broadband network in Europe by 2015 and a functional level of broadband access for everybody. Studies, estimating the impact of broadband on output and employment in the UK, suggest that rolling out superfast broadband in the UK could have a significant positive impact both on gross value added in the economy and on employment in the information and communications technology sector and the wider economy.<sup>1</sup> With the right broadband infrastructure, government can:

- enable improvements in business productivity and growth through more efficient ways of working, and more efficient communication and exchange of information with customers and suppliers;
- enable better and more efficient ways of delivering public services; e.g. through improvement in the quality and delivery of education services to people in more rural and remote areas or improvement in the quality and delivery of healthcare services; and
- enable growth and job creation through new business formation and growth in the technology sector.

## Flood management, water and waste

**1.6** In the face of pressures from population growth and climate change, the UK should manage natural capital sustainably, treating water and waste in ways that sustain the environment and enable the economy to prosper. The right flood management, water and waste infrastructure can:

- ensure a supply of water that meets the needs of households, businesses and the environment now and in the future;
- manage waste water, and the growing challenge of surface water run-off, to protect public health, improve the quality of water in the environment, and reduce flood risks;
- increase the resilience of the economy, environment and society to flooding and coastal erosion; and
- deal with waste in accordance with the waste hierarchy, reducing the amount of waste produced, maximising reuse and recycling, and recovering energy from residual waste – with landfill used as a last resort.

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<sup>1</sup> *UK's digital road to recovery*, Liebenau, J, Atkinson, R, Kärrberg, P, Castro, D and Ezell, S, 2009.

## Intellectual capital

**1.7** It is vital in a highly competitive global knowledge economy that the UK remains an attractive place to conduct research. Investment in science and research contributes to economic growth and prosperity and is critical for the delivery of key objectives in many areas of national infrastructure including energy, the environment, and digital communications.

**1.8** With the right investment in science, research and innovation, the Government can:

- create new knowledge – research funding directly leads to the creation of new knowledge, with the UK research base producing eight per cent of global publications and 12 per cent of global citations;<sup>2</sup>
- provide a supply of highly skilled people to the labour market with both specialist knowledge and transferable skills;
- create new businesses, improving business performance and attracting inward investment; and
- stimulate innovation in public policy and in UK businesses.

## National Infrastructure Plan 2010

**1.9** This document sets out the Government's plan for achieving this vision, unlocking private sector investment in the UK's infrastructure on an unprecedented scale. It provides an analysis of infrastructure challenges which underpins the Government's bold ambitions; describes the specific policy and regulatory changes the Government will make in order to remove barriers to infrastructure investment, and explains, in each key area of infrastructure, the specific steps the Government is taking to achieve its ambition to give the UK world-leading infrastructure.

**1.10** Infrastructure UK would be pleased to receive views on issues raised and proposals made in this document via e-mail: [infrastructurecomments@hm-treasury.gov.uk](mailto:infrastructurecomments@hm-treasury.gov.uk)

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<sup>2</sup> *Higher Ambitions*, Department for Business, Innovation and Skills, October 2009.



# 2

## The infrastructure challenge

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### Infrastructure and growth

**2.1** Economic infrastructure drives competitiveness and supports economic growth by increasing private and public sector productivity, reducing business costs, diversifying means of production and creating jobs.<sup>1</sup> There is a clear correlation between investment in infrastructure and long-term growth. The OECD found that, between 1970 and 2005, investment in UK roads, rail and electricity generating capacity had a stronger positive effect on the level of GDP per capita, and on short term growth, than other types of capital investment.<sup>2</sup> Failing to make the right choices risks slower economic growth and ultimately puts the UK's international competitiveness in jeopardy.

**2.2** Over the last 200 years, the UK has developed mature and extensive infrastructure networks. These are some of the largest and most intensely used in Europe (see Box 2.A). There has been a strong history of investment but the levels of investment have fluctuated markedly over time. The move of the water, energy and communications sectors to regulated private ownership during the 1980s provided the basis for renewal of major parts of those networks. For example, £85bn has been invested in water infrastructure alone since privatisation.<sup>3</sup> However, according to *The World Economic Forum*, in 2010 the UK is ranked just 33<sup>rd</sup> for the quality of its infrastructure and 12<sup>th</sup> for overall competitiveness, compared to ninth in 2005.<sup>4</sup> The UK must get smarter with its infrastructure investment in both the private and public sectors to maintain its competitiveness internationally.

**2.3** The Government plans that over the next five years, some £200 billion will be invested in UK economic infrastructure – a step change from the past.<sup>5</sup> The majority of investment will be in transport and energy, with investment in the energy sector almost doubling between 2010 and 2015.

### The future challenge

**2.4** Looking forwards, trends all point towards a need for a step change in both the level and type of investment. There are a number of drivers that will have a long term impact on the infrastructure need across all sectors, including:

- **Obsolescence.** All infrastructure has a limited life span and parts of the UK's infrastructure are ageing and are becoming outdated. Much of the UK's existing infrastructure was built during the 19<sup>th</sup> century. For example, 40 per cent of London's water mains are over 100 years, and 12 per cent are more than 150 years old.<sup>6</sup> The average age of sewers in England and Wales is 63 years.<sup>7</sup>

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<sup>1</sup> *Going for Growth*, OECD, 2009, highlights that investment in physical infrastructure increases long-term economic output more than other kinds of physical investment.

<sup>2</sup> *Infrastructure and Growth: Empirical Evidence*, Égert, B, Kozluk, T and Sutherland, D, OECD Economics Department Working Papers 685, 2009.

<sup>3</sup> *Meeting Future Challenges – a blueprint for policy action*, Water UK, June 2010.

<sup>4</sup> *The Global Competitiveness Report 2010-2011*, World Economic Forum, September 2010.

<sup>5</sup> Infrastructure UK estimate based on aggregating individual planned investments that have been publicly declared in both the public and private sectors.

<sup>6</sup> *Victorian mains replacement: Why we are replacing pipes*, Thames Water, [www.thameswater.co.uk](http://www.thameswater.co.uk).

### Box 2.A: The UK's Infrastructure networks

There are over 245,000 miles of roads. The road infrastructure accommodates on average over 600 trips per person per year by car as well as over 5.2 billion passenger trips per year on buses.<sup>8</sup> Two-thirds of freight is moved by road.<sup>9</sup>

The railways are some of the busiest in Europe with approximately 24,000 trains per weekday, more than Spain, Switzerland, The Netherlands, Portugal and Norway combined.<sup>10</sup> Passenger miles are greater than at any time in the last 60 years on a passenger network of roughly three-fifths the size it was in 1950.<sup>11</sup>

There are over 15,500 miles of high voltage overhead lines (the national grid) and almost 500,000 miles of overhead lines and underground cables (the regional distribution networks) in the UK.<sup>12</sup>

Waste facilities managed around 134 million tonnes of waste in 2009.<sup>13</sup> There are approximately 186,000 miles of public sewers in England and Wales.<sup>14</sup>

There are 18.6 million residential broadband connections in the UK with an average speed of 5.2 megabits per second.<sup>15</sup> In 2010 an estimated 30.1 million adults in the UK (60 per cent) will have accessed the internet every day or almost every day, compared to 16.5 million (35 per cent) in 2006.<sup>16</sup>

- **Globalisation.** The UK is facing strong competition from other countries who are investing heavily in improving their infrastructure. In 2009 alone, China invested \$103 billion into its railways.<sup>17</sup> The Brazilian government recently announced a \$560 billion programme of investments in infrastructure for 2011 to 2014.<sup>18</sup> The United States Federal Government has announced plans for a \$50 billion, 6 year infrastructure investment plan which includes rebuilding 150,000 miles of roads, construction and maintenance of 4,000 miles of railways and rehabilitation or reconstruction of 150 miles of runway.<sup>19</sup> The UK needs to keep pace.
- **Growing demand.** Levels and intensity of usage of existing networks are increasing as the population grows, people use more resources, travel more and want to move goods and ideas faster and in a more reliable way. For example, road traffic in Great Britain has grown by 85 per cent since 1980, from 169 to 313 billion vehicle miles. The majority of the growth has been in car traffic which has risen by 86 per cent in that time, from 134 to 249 billion vehicle miles.<sup>20</sup> Congestion is predicted to

<sup>7</sup> *Service and delivery - performance of the water companies in England and Wales 2008-09: Supporting information*, Ofwat, October 2009.

<sup>8</sup> *Road Statistics 2009: Traffic, Speeds and Congestion*, Department for Transport, June 2010; *National Travel Survey: 2009*, Department for Transport, July 2010; and *Annual Bus Statistics 2009/10*, Department for Transport, October 2010. Figures are for Great Britain.

<sup>9</sup> *Transport Statistics Great Britain: 2009 edition*, Department for Transport, November 2009; and *Roads - Delivering Choice and Reliability*, Department for Transport, July 2008. Figures are for Great Britain.

<sup>10</sup> *Nine out of ten trains arrive on time during January*, Network Rail, February 2010.

<sup>11</sup> *Transport Statistics Great Britain: 2009 edition*, Department for Transport, November 2009. Figures are for Great Britain.

<sup>12</sup> *Developing out future electricity network*, Department of Energy and Climate Change, www.decc.gov.uk, October 2010. Figures are for Great Britain.

<sup>13</sup> *Waste information 2009*, Environment Agency, 2010. Figures are for England and Wales.

<sup>14</sup> *Service and delivery - performance of the water companies in England and Wales 2008-09*, Ofwat, October 2009.

<sup>15</sup> *Telecommunications Market Data Update Q1 2010*, Ofcom, October 2010; and *UK broadband speeds*, Ofcom, May 2010

<sup>16</sup> *Internet Access 2010: Households and Individuals*, Office for National Statistics, August 2010.

<sup>17</sup> *High-speed railway accounts for over half of China's railway investment*, People's Daily Online, 27 April 2010.

<sup>18</sup> *Growth programme: Investment now lies at the centre of the political landscape*, Financial Times, 6 May 2010. R\$958.9 billion converted to US\$ at October 2010 exchange rate.

<sup>19</sup> *Renewing and Expanding America's Roads, Railways, and Runways*, White House Fact Sheet, September 2010.

<sup>20</sup> *Road Statistics 2009: Traffic, Speeds and Congestion*, Department for Transport, June 2010. Figures are for Great Britain.

rise by around 30 percent in the period to 2025. If left unchecked, the rising cost of this congestion could waste an extra £22 billion worth of time every year in England by 2025 and increase costs to business by over £10 billion a year.<sup>21</sup> Increased efficiency in networks and from their users can help to reduce the overall growth in demand. Expectations of quality are also increasing. Consumers expect faster broadband connections as well as quicker, more reliable and more comfortable public transport.

- **Climate change.** It is essential to mitigate climate change and to adapt to its effects. Most infrastructure is carbon intensive and a revolution is needed, particularly in transport and energy, to meet legally binding targets. In 2008, these two sectors accounted for 21 per cent and 35 per cent, respectively, of the UK's greenhouse gas emissions.<sup>22</sup> To ensure that these targets are met will require fundamental changes not only to the energy technologies on which most core UK infrastructure relies, but also to the way infrastructure in the UK is planned, coordinated and delivered. In addition, due to the projected long-term impacts of climate change, infrastructure will need to adapt to climate change to provide security and resilience to the increased risk from natural hazards (e.g. floods and heatwaves). European legislation to protect the environment and mitigate climate change continues to act as a key driver for infrastructure investment in sectors such as energy, water, waste and transport.
- **Interdependence.** Interdependencies between systems are growing, with increasing reliance on technology and digital networks. Many risks are also growing, for example as a result of climate change and cyber attack. Recent events, such as the floods in 2007 and 2009 that led to disruption of water distribution and transport infrastructure, demonstrate the potential ripple effect of a failure in one area causing problems with inter-connected systems.

## The need for a new approach

**2.5** To meet the growing requirements for spending on infrastructure, the Government has to use limited public funds wisely and unlock every possible source of private sector investment. The Government has adopted a new approach in the Spending Review.<sup>23</sup> For the first time, the Public Expenditure Committee of the Cabinet has agreed capital allocations across the whole of the public sector over a four year period, against the background of a coherent, long-term plan for overall (private and public) investment in the UK's infrastructure.

**2.6** As part of the Spending Review process, the Government looked at a range of capital projects to identify those with the highest economic value and has assessed spending pressures from the previous government's contractual commitments. In light of this, the Spending Review has increased the capital envelope by £2.3 billion a year by 2014-15 relative to the Budget plan in order to ensure that capital projects of high long term economic value are funded.

**2.7** There is also a need to attract private sector investment and reduce the cost of capital for projects and programmes. This means creating the optimum environment for investment and ensuring that efficient and effective funding models are in place. The UK is competing in an intensely competitive global market for infrastructure funding. The UK must remain one of the most competitive countries in which to invest. The UK cannot offer the growth of the emerging

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<sup>21</sup> *Roads – Delivering Choice and Reliability*, Department for Transport, July 2008. Figures are for Great Britain.

<sup>22</sup> *UK climate change sustainable development indicator: 2008 greenhouse gas emissions, final figures*, Department of Energy and Climate Change, February 2010.

<sup>23</sup> *Spending Review 2010*, HM Treasury, October 2010 set out Government expenditure for the period 2014-15.

economies but can offer relatively certain economic returns in a legally and politically stable environment.

**2.8** But in the past, Government has not produced a coherent view of the long term needs for UK infrastructure. Too often, there has been an emphasis on individual projects rather than taking into account the wider picture and the dependencies between sectors. The importance of maintenance, resilience and renewal of existing assets has often been neglected. There has also been no easy way for communities to access resources and finance in order to build local infrastructure.

**2.9** Collectively, these issues can act as a barrier to attracting private sector investors. A lack of clarity on the future investment pipeline can undermine confidence for private investors and businesses, as noted in a 2009 KPMG report.<sup>24</sup>

**2.10** This plan sets out the key decisions and actions the Government is now taking to develop world class 21st century infrastructure both in the Spending Review period and beyond.

**2.11** This plan is UK wide. However, in devolved areas of policy it will be for the Devolved Administrations to determine their own policies. In delivering this plan, the Government will work closely with the Devolved Administrations in Northern Ireland, Scotland and Wales, recognising their particular and varying responsibilities. They will be key partners in developing appropriate arrangements in the areas for which they have devolved responsibility, doing so in ways that meet their own circumstances and needs.

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<sup>24</sup> *The changing face of infrastructure: frontline views from private sector infrastructure providers*, KPMG, September 2009.

# 3

## Enabling infrastructure development

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### Smarter use of public funding

**3.1** In the Spending Review, the Government has, for the first time:

- started with an assessment of the infrastructure the nation needs;
- identified the investments that can be made by the private sector through purely private investment (where necessary, helped by suitable regulatory change);
- made coordinated decisions about public sector intervention, levies and pricing mechanisms for externalities that will support investment in emerging and ecologically important technologies;
- taken steps to provide equity support for private sector investment in infrastructure where this is necessary; and
- identified user charges for public sector assets where these are appropriate.

**3.2** Where none of these methods of bringing forward private sector investment are feasible and where pure taxpayer-funded public sector investment is the only solution, the Government is prioritising economic infrastructure that supports growth, such as investment in transport and in the transition to a low carbon economy. The Government will ensure a smarter approach to the procurement of major infrastructure which will deliver the maximum value for money for the taxpayer. Future procurements will be underpinned by market intelligence, transparency and mature supply chain relationships.

**3.3** The commitments of public sector capital that have emerged from this rigorous process are summarised in Chapter 4.

### Targeted Interventions

**3.4** While, infrastructure investment should be made by the private sector wherever possible, the Government recognises that it will need to intervene in certain markets to incentivise necessary investment where one or more of the following characteristics exist:

- there are high social or environmental costs preventing the investment;
- there are high risks associated with the investment, such as immature technologies; and
- the infrastructure is in the wider national interest and of strategic importance to the national economy.

**3.5** The Government has therefore decided to make targeted interventions in specific markets, such as the introduction of Feed-In Tariffs and the Renewable Heat Incentive, and support for four broadband pilots. It has also introduced some more cross-cutting initiatives, which are set out in the following paragraphs.

## The establishment of a Green Investment Bank

**3.6** The Government is carrying forward its commitment to establish a Green Investment Bank which will support economic growth through stimulating investment in the green economy. The new institution will have an explicit mandate to take on risks that the market currently cannot adequately finance, catalysing further private sector investment and facilitating the entry of new investors into green infrastructure.

**3.7** The Government will initially capitalise the new institution with £1 billion of funding together with additional significant proceeds from the sale of Government-owned assets, subject to a final design which meets the tests of effectiveness, affordability and transparency. £250 million of the allocated funding will be made available on the basis that the Scottish Government agrees to the drawdown of funds from the Scottish Fossil Fuel Levy surplus. The Green Investment Bank will make its investment decisions independently from political control and will employ private sector skills and expertise. **The Government aims to complete design and testing work by spring 2011.**

## Support for local infrastructure

**3.8** The Government is committed to enabling innovative local infrastructure solutions. This is being supported through a range of initiatives, including:

### Regional Growth Fund

**3.9** In the June 2010 Budget the Government announced that it would **set up a Regional Growth Fund (RGF)** that aims to increase business employment and growth in those places currently most reliant on the public sector. In light of responses to the RGF consultation, the fund is to be extended to three years and increased in size from £1 billion to £1.4 billion.

### Local growth white paper

**3.10** A **White Paper on local growth will set out the Government's strategy for ensuring that all places benefit from sustainable economic growth.** A central part of this will be ensuring that growth is driven by local businesses and communities, as well as providing the means and incentives to allow local communities to benefit directly from economic development in their area. Local Enterprise Partnerships will provide strategic leadership in their areas to set out local economic priorities and will play a pivotal role in helping rebalance the economy towards the private sector.

### Tax Increment Financing

**3.11** The Government has announced that it will introduce new borrowing powers to enable authorities to carry out Tax Increment Financing. These new powers will allow local authorities to borrow against predicted growth in their locally raised business rates to fund key infrastructure projects, which will further support locally driven economic development and growth.

## Promoting private sector investment

**3.12** Targeted interventions are just one part of the contribution that the Government can make to promoting private sector investment. Investors seek stability and certainty in the political and regulatory regime. Attracting increased investment can therefore be achieved through the provision of greater long term policy certainty.

**3.13** The Government can attract and encourage new sources of capital by maintaining a strong, active and coordinated dialogue with private sector investors in the UK and internationally to ensure that UK infrastructure is an attractive asset class.

**3.14** The international context is significant. There are major overseas sources of both public and private long term investment, such as sovereign wealth funds, looking for opportunities in stable and well regulated sectors. Given that the capacity of UK domestic markets, though deep, is finite, the Government has been active in establishing dialogue with these important sources of institutional finance.

**3.15** Another critical factor is the cost of capital.<sup>1</sup> Typically, the cost of capital increases as the level of risk transfer increases. For example, the cost of capital for financing toll roads is relatively high as demand and operational risk are transferred away from government. The cost of capital for financing the design, build, finance and operate roads model (used by the Highways Agency) is lower as the government retains volume risk and transfers only operational risk to the private sector.

**3.16** Reducing the cost of capital by reducing the level of risk transfer to the private sector has the potential to achieve considerable cost savings. A one per cent reduction in the cost of capital on a total infrastructure investment programme of £500 billion is worth £5 billion per annum.<sup>2</sup> One option for reducing the cost of capital may be by extending the regulatory asset base concept to those assets or sectors which are not currently the subject of economic regulation.

## Regulatory asset base model

**3.17** The regulatory asset base (RAB) model is used by regulators as a mechanism for providing a credible commitment to the recovery of the sunk costs associated with capital investment by regulated monopolies. This commitment, in effect, arises from the payment for the risk of investment being passed on to the consumer. The credibility of this commitment is strengthened by the regulator's statutory duty to ensure that the regulated company can finance its activities.

**3.18** The guarantee that the regulated company's investment will be remunerated over time by consumers, at such a level that the regulated company is able to meet its financing commitments, contributes towards making investment in the regulated utilities an attractive, low risk proposition and is typically associated with a lower cost of capital. Extending the RAB model to assets and/or sectors which are not currently the subject of economic regulation may create a similarly lower risk environment to which investors are attracted to commit funds and may result in a lower cost of capital relative to alternative financing models.<sup>3</sup>

**3.19** However, the advantages of a possible lower cost of capital need to be weighed up against possible disadvantages to the extension of a RAB model. For example, as the RAB model passes the risk of paying for sunk costs in respect of infrastructure investment onto the consumer, consideration must be given to the affordability implications of this approach. A particular issue is whether passing this risk onto consumers places undue burden either on the group as a whole or on certain parts of this group. Applying a RAB model to assets which are delivered within a competitive market is likely to result in the removal of the advantages of competition pressures for greater efficiency, optimal operation and innovation.

**3.20 The Government will investigate options for encouraging infrastructure investment from new sources of efficiently priced private capital. In particular, the Government will conduct an internal review, supported by external experts, to consider extending the use of the regulatory asset base model. The review will report in spring 2011.**

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<sup>1</sup> Examples of different ownership and funding models and the associated cost of capital are set out in Annex A.

<sup>2</sup> *Delivering a 21<sup>st</sup> century Infrastructure for Britain*, Helm, D, Wardlaw, J, and Caldecott, B, Policy Exchange, September 2009.

<sup>3</sup> The Government recognises that the lower cost of capital observed in the regulated sectors is likely to be the result of a range of factors in addition to the existence of a RAB mechanism. For example, the companies to which the RAB model is currently applied typically hold a diversified portfolio of low risk operational assets and the lower cost of capital is likely to stem, in part, from the characteristics of the investment.

**3.21** As the Government is already considering how to encourage more investment in low-carbon infrastructure as part of the electricity market reform project, the internal review referred to above will explicitly not consider extending the RAB to the electricity sector. **The Government will consult on options for changes to the electricity market later this year.**

## **Economic regulation**

**3.22** Economic regulation is an important enabler of infrastructure investment. A large part of required investment is in sectors with independent economic regulation, such as energy and water. While, generally, only networks ('pipes and wires') are price regulated, all investment in these regulated sectors is affected by the regulators' strategy and approach.

**3.23** The existing regime of independent economic regulation has supported the delivery of significantly higher levels of investment compared to that delivered in the period prior to privatisation. For example, in water, £85 billion has been invested over the last 20 years.<sup>4</sup> It is vital that the independence of the economic regulators and the consistency, certainty and credibility of the existing regime is retained. However, it is important to consider whether the existing regime remains fit to respond to the future investment challenge.

**3.24** Infrastructure UK's work looking at the existing regime of economic regulation has identified a number of issues. These issues are not common to all sectors but include:

- duties of regulators:
  - regulators having a multitude of duties, some of which reflect wider environmental and social objectives. It is not always clear how regulators should balance these.
- clarity of long-term strategy:
  - regulators being given insufficient clarity of long term strategic direction and the balance of different objectives by Government;
  - regulated companies being provided with limited clarity by regulators around the regulatory outputs against which they are required to deliver; and
  - regulated companies carrying out inconsistent amounts of long term business planning without it always being clear how regulators have taken these long term plans into account as part of the price setting process.
- dialogue between regulators:
  - regulators engaging between themselves only on a limited, informal basis on how they achieve common objectives such as how they approach similar aspects of the price control, promoting competition and addressing consumer impacts including affordability.

**3.25** To address these issues, the Government is taking the following actions:

- **The Department of Energy and Climate Change and the Department for Environment, Food and Rural Affairs are conducting reviews of the roles and functions of, respectively, Ofgem and Ofwat, while some of the regulators are reviewing their approach to price setting;**

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<sup>4</sup> Meeting Future Challenges – a blueprint for policy action, Water UK, June 2010.

- The Department for Business, Innovation and Skills, working with Infrastructure UK, will publish a common set of principles for economic regulation;
- The Department for Business, Innovation and Skills will coordinate work across Departments to ensure that competition and consumer outcomes are delivered effectively (including across regulated sectors) in the context of the Government's wider reforms of competition and consumer bodies; and
- In light of the reviews referred to above, and the review to consider extending the use of the regulatory asset base model, the Government will report, by summer 2011, on whether further cross-sectoral action is required, drawing on the conclusions of these reviews and on the views of key stakeholders and recognising the need to maintain investor certainty.

## Delivery

**3.26** There are also areas where the Government can take broader action to facilitate the development of infrastructure in both the public and private sectors. The barriers to efficient delivery need to be tackled, particularly in terms of planning and cost.

## Planning regime

**3.27** The delivery of effective, timely and high value for money infrastructure projects requires a transparent planning and consents regime which is able to respond quickly to the need for new infrastructure at both the national and local level. An efficient planning regime is vital to encourage private sector investment.

**3.28** To help achieve these objectives the Government will take the following steps:

- the Government is building on the fast-track planning approach for nationally significant infrastructure projects established through the Planning Act 2008. The Infrastructure Planning Commission will be replaced by the new Major Infrastructure Planning Unit which will be established within the Planning Inspectorate. The final planning decision will be made by Ministers. **Details of the process will be announced by the Department for Communities and Local Government by the end of 2010;**
- as an integral element of the major infrastructure planning regime, the Government published National Policy Statements for energy for consultation in October 2010 and will publish an **updated timetable for the publication of National Policy Statements in respect of planning policy for the remaining major infrastructure sectors by the end of 2010;**
- **the Government intends to bring the Localism Bill forward in November 2010.** It will be part of a radical reboot of the planning system, helping to facilitate sustainable development and the provision of infrastructure. Other reforms will include the consolidation of existing planning policies into a single document which will set the framework for local and neighbourhood plans; and
- **a full Government response to the Penfold Review on non-planning consents will be issued in November 2010** and an update to this response, due by spring 2011, will report progress on implementing the recommendations.

## Reducing the cost of delivering infrastructure

**3.29** Budget 2010 announced that Infrastructure UK would carry out an investigation into how to reduce the cost of delivery of civil engineering works for major infrastructure projects, chaired

by Terry Hill (Chairman of Transport Markets, Arup). This investigation is being led by Infrastructure UK in collaboration with wider government, the Institution of Civil Engineers and industry.

**3.30** Initial results confirm that the outturn costs of civil engineering infrastructure works in the UK are high in comparison with the rest of Europe and that there are opportunities to deliver projects and investment programmes more efficiently.

**3.31** In some instances, higher relative capital costs in the UK can be attributed to greater intensity of use and the enhanced design life of assets. Geographical factors such as the UK's greater density of population are also a contributor. However, these factors do not fully account for the differences in cost.

**3.32** The general costs of labour, plant and raw material inputs during construction are broadly comparable with European benchmarks. However, data suggests that the cost of aggregates in the UK may be more than 25 per cent higher than other Western European countries.<sup>5</sup>

**3.33** Evidence indicates a range of reasons for higher costs of UK infrastructure. In particular there are issues in the commissioning, early project formulation and pre-construction phases. In these early phases policy related factors, for example the UK planning and consents regime, and regulatory standards, impact on the whole infrastructure sector, including public and private sector investments.

**3.34** Infrastructure UK is publishing a more detailed update on this work on the Treasury website. The final report will be published by the end of 2010.

**3.35** In addition, the Government's Chief Construction Adviser, Paul Morrell, will **publish by the end of the year the results of an industry-led Innovation and Growth Team looking at low carbon construction**. Also, building on the review into the costs of delivery, **the Department for Business, Innovation and Skills will identify cross-cutting barriers to innovation and the efficient operation of infrastructure supply chains and will publish findings and recommendations in spring 2011**.

## **Infrastructure data requirements**

**3.36** The quality of information available on UK infrastructure needs to be improved. There are pockets of excellence but data is generally poor and uncoordinated. Having the right data on a cross-sectoral basis is crucial to making informed decisions.

**3.37** The Government is taking steps to improve this. Infrastructure UK will work with Departments, other public sector bodies, regulators, academia and industry to bring together and improve the quality of data held in relation to economic infrastructure. This will assist in developing a better common understanding of key drivers of infrastructure demand, usage and cost. **A programme of work will be published on the Treasury website by early 2011**.

## **Managing interdependency, resilience, and engineering innovation**

**3.38** Future infrastructure objectives, including the reduction of greenhouse gas emissions and adapting to climate change impacts, will require the development and implementation of innovative engineering solutions and technologies, e.g. renewable energy sources, a smarter electricity grid infrastructure, low emission waste management processes, and higher capacity fibre optic networks.

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<sup>5</sup> *International Construction Cost Survey, Gardiner & Theobald, February 2010.*

**3.39** Infrastructure is becoming more efficient through better technology and integration. However, this increased integration is creating more complex interdependencies between different types of infrastructure. For example, active traffic management on motorways is dependent on electricity and communications networks to connect traffic sensors and displays. This is leading to reduced resilience and increased vulnerability to hazards and to systemic failure.

**3.40** The challenge of managing interdependency and resilience in national infrastructure will become more important due to three trends:

- increased levels of interdependence, driven by factors including widespread use of information and communication technology systems and the move to greater electrification to reduce greenhouse gas emissions;
- increased complexity and variety in the risks to infrastructure, both from threats (malicious attacks, such as cyber attack) and natural hazards (such as from climate change impacts); and
- greater reliance from business and public services on continuous availability of infrastructure services (for example, for 'just-in-time' delivery of goods and services).

**3.41** To meet these challenges, the Government:

- has set up an Engineering and Interdependency Expert Group, with the endorsement of the Government's Chief Scientific Adviser and the Royal Academy of Engineering. This group will be chaired by the Chief Scientific Adviser for the Department for Business, Innovation and Skills, and will bring together senior expertise from industry, academia and government and across all parts of the UK. The Expert Group will be asked to provide a cross-sector and engineering perspective to Infrastructure UK activities, and specifically:
  - **to assess and report on systemic risks and opportunities in infrastructure by spring 2011;** and
  - **to develop a roadmap of the major cross-sector engineering challenges and decisions in future infrastructure and identify where UK innovation can deliver new skills and value creating platforms;**
- will respond to the real and growing threat identified in the Strategic Defence and Security Review, by supporting a cross-government programme to enhance the UK's cyber security. **The Expert Group will work closely with the Office of Cyber Security and Information Assurance and other parts of government to identify critical interdependencies that impact on infrastructure investment needs;**
- **will produce a framework for the coordination of security and resilience of the national infrastructure;** and
- **will publish findings from the Adapting to Climate Change Programme's Infrastructure and Adaptation project in spring 2011.**



# 4

## Plan for infrastructure investment

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**4.1** The Government has identified four goals to inform and drive the development of UK infrastructure policy and investment.

### Box 4.A: Goals for national infrastructure

- Integrated, reliable, secure and resilient
- Supports sustainable and balanced economic growth and competitiveness
- Ensures that the overall programme supports the delivery of reduced UK greenhouse gas emissions and wider environmental objectives
- Achieves an affordable mix of public and private sector investment

**4.2** In addition, the Government has identified a new hierarchy for infrastructure investment that builds on the approach to capital investment in the Spending Review to inform investment decisions:<sup>1</sup>

- **Maintenance and smarter use of assets.** The priority is to make the best use of the extensive assets that are already in place through maintenance and demand management. There needs to be a much stronger emphasis on use of innovative demand management without stifling growth. For example, the managed motorways programme is using technology to maximise the available capacity, varying speed limits and enabling use of the hard shoulder at busy times.
- **Targeted action to tackle network stress points and develop networks.** Where maintenance and demand management investment needs to be supplemented, the focus of new capital investment should be on pinch points to enhance resilience and capacity of the network overall and where new networks need to be developed. Small investments can often be much more cost effective in tackling issues like congestion.
- **Transformational large scale capital projects.** Significant investment in new or replacement infrastructure should only be considered where it is a part of a clear long term strategy, is affordable and where maintenance or small scale investment will not meet future need.

**4.3** The Government has also put in place an asset sales programme to support debt reduction (more details are provided in Box 4.A).

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<sup>1</sup> This approach is consistent with economic evidence, for example *Infrastructure and Growth: Empirical Evidence*, Égert, B, Kozluk, T and Sutherland, D, OECD Economics Department Working Papers 685, 2009; and is in line with the conclusions reached in the *Eddington Transport Study*, Department for Transport, 2006, and in *The case for Agglomeration Economies*, Manchester Independent Economic Review, 2009.

#### **Box 4.B: Asset sales**

Government investments in new infrastructure should be seen alongside the ongoing need for Government to review how it manages the infrastructure and assets which it already owns. Large amounts of value are tied up in the Government's existing asset base; where public ownership is not necessary to achieve the Government's policy objectives, some of this value could be released by a transfer to the private sector. In particular, the Government should look to disposal of infrastructure where the private sector could derive additional value. As an example, the Spending Review announced that Government will hold an auction of 800MHz and 2.6GHz spectrum in 2011-12, and over the next ten years will look to release at least 500MHz of spectrum below 5GHz that is currently used by the public sector.

The Government has made substantial progress on key asset sales and commercialisations since the June Budget. The bidding phase for High Speed 1 is nearing a conclusion, and the Government introduced enabling legislation for a sale of Royal Mail on 13 October 2010. Decisions will be taken by Budget 2011 on whether and how the Government could realise value from NATS, and the Student Loan book.

While the fiscal purpose of asset sales is primarily to support debt reduction, the Government has already indicated that it will look to reinvest some asset sale proceeds into the Green Investment Bank, which would support private sector investment in green infrastructure.

**4.4** The National Infrastructure Plan will be reviewed on a regular basis to reflect infrastructure delivery, improved data, changing economic circumstances and the emergence of new technologies. The intention is that, at all times, it should be seen as an integrated expression of desired outcomes across the economic infrastructure space which provides both private and public sector investors with an effective planning basis. Infrastructure UK will facilitate and coordinate this activity, supporting the Economic Affairs Committee of the Cabinet chaired by the Chancellor of the Exchequer.

**4.5** By the end of 2011, the Government will publish an updated version on this plan setting out the long-term investment needs and priorities for economic infrastructure for the UK, along with the priority actions to deliver them. To support this Government will:

- **Establish a common set of planning assumptions**, i.e. economic growth forecasts, population growth forecasts, impacts of climate change;
- **identify relevant constraints, including establishing a framework for assessing overall affordability**; and
- **publish high level Green Book Supplementary Guidance on assessing economic infrastructure in early 2011.**

**4.6** A separate note will be published on the Treasury website setting out this process in more detail.

## **Investment Plans**

**4.7** For each infrastructure sector, investment programmes, methods for delivery and Government commitments have been identified. The Government has identified a number of key themes for infrastructure investment:

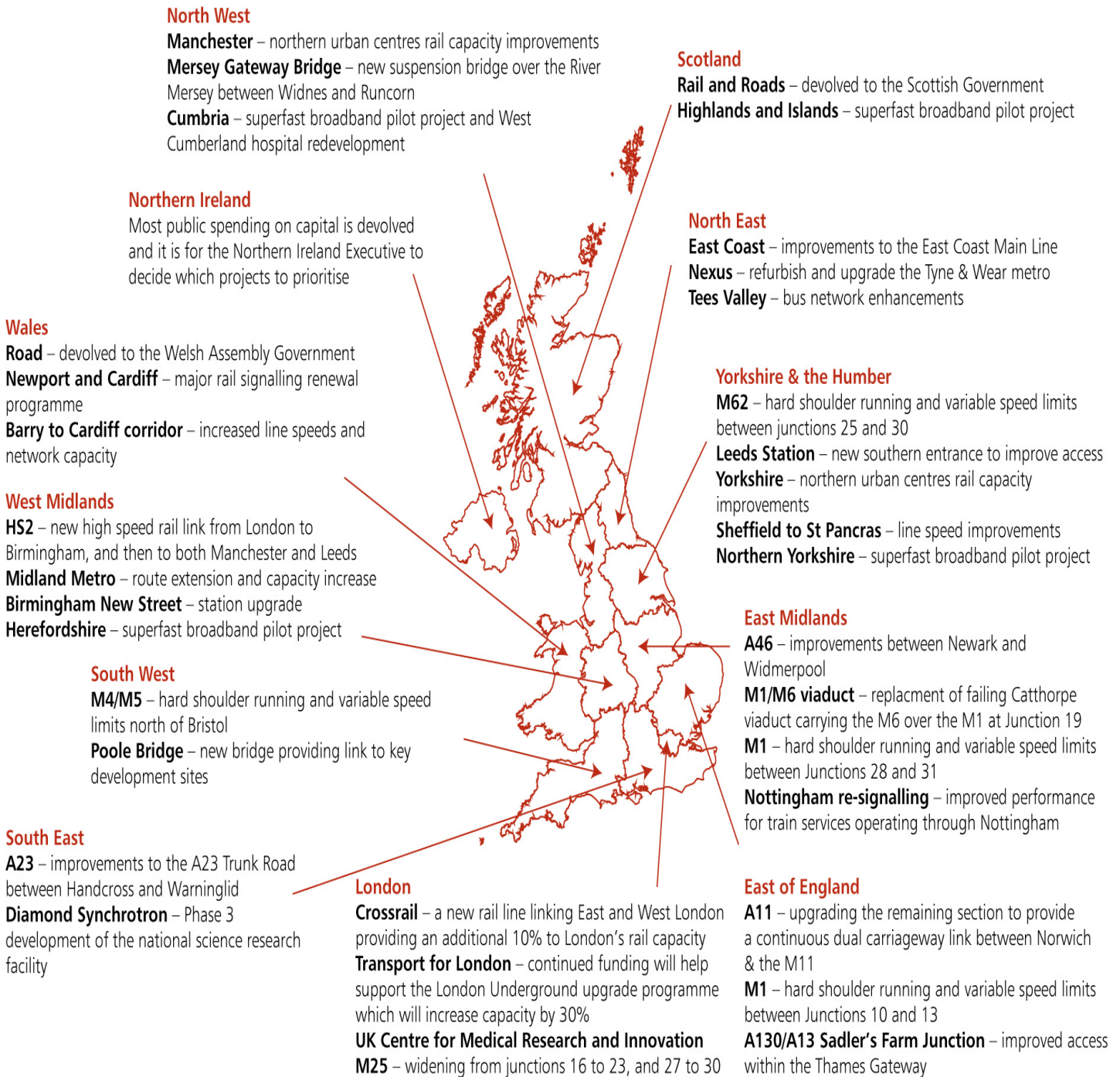
- **investing in the low carbon economy** including a commitment to provide a UK wide Green Investment Bank, up to £1bn for one of the world's first commercial scale carbon capture and storage demonstration projects (in line with the Coalition

Agreement commitment to support four such projects), support for investment in sustainable waste management and the provision of grants to support the decarbonisation of cars;

- **making better use of existing assets** including targeted efficiency programmes, enabling households to improve the energy efficiency of their homes at no upfront cost through a Green Deal, maintenance and replacement of assets in the sewage and water sector, and improving the operation of the Highways Agency;
- **investing in network pinch points and areas of stress** including £10 billion to be invested over the Spending Review period on maintenance and investment in new high value road, regional and local transport schemes and investment in flood and coastal erosion risk management leading to better protection for 145,000 households;
- **transformational investment in strategic infrastructure** including funding for Crossrail and proceeding with plans for a new high speed rail network;
- **providing the best superfast broadband in Europe by 2015** with the Government providing £530m of investment over the Spending Review period to support private sector investment, including in some of the most remote areas of the UK; and
- **ensuring that the UK remains a world leader in science and research** through continuing support for the highest value scientific research by maintaining a science budget of £4.6bn over the Spending Review period.

**4.8** Figure 4.A shows examples of key infrastructure projects, by region, that have been confirmed in the Spending Review.

**Figure 4.A: Regional examples of capital projects**



## 4(a) Energy infrastructure

### Programme

#### 4.9 A step-change in energy efficiency

- home energy efficiency (ranging from loft insulation to new, more efficient boilers and radiators);
- commercial and industrial energy efficiency (through re-engineered processes right through to combined heat and power schemes); and
- more energy-efficient cars (described in the section on transport), synchronised with reductions in the carbon intensity of electricity generation.

#### 4.10 A low carbon supply base of energy and long-term reduction in the dependence on imported hydrocarbons

- a new generation of nuclear power stations, built without public subsidy;
- a world-leading array of offshore wind turbines, to exploit the UK's abundant offshore wind-resources, supported by major investment in DC cables and manufacturing facilities at port sites and private sector investment in onshore wind turbines;
- the development of critical low carbon technologies such as biomass and carbon capture and storage;
- less carbon intensive fuels, such as solid recovered fuels;
- the expansion of technologies such as anaerobic digestion to produce heating gas from sewage, industrial, commercial, residential and farm waste; and
- a full spectrum of domestic and community-based decentralised electricity generation and renewable heat installations in hundreds of thousands of homes.

#### 4.11 Increased security of supply

- smart grid and smart meter technology, to make every home and every business an intelligent part of an electricity network, to help moderate demand at peak times and to preserve supply and demand balance despite increased amounts of intermittent, renewable electricity generation;
- greater energy interconnection with continental Europe and Ireland;
- further private sector investment in liquefied natural gas terminals and gas storage to provide the UK with highly resilient gas supplies; and
- a successful carbon capture and storage demonstration programme to ensure that the UK can generate electricity not only from nuclear and renewable sources but also from fossil fuels without compromising carbon emission targets.

### Methods

4.12 The Government's ambitious energy programme will be realised through a mixture of public and private sector investment, using public money, regulatory change and new incentives as follows:

#### **4.13 To enable investment in hugely improved energy efficiency, the Government will:**

- legislate for the Green Deal so that households and businesses can invest in energy efficiency at no upfront cost, repaying through the savings they will make on their energy bills;
- maintain the incentives for large-scale industrial investment in energy efficiency through the EU Emissions Trading Scheme and reform of the Climate Change Levy to support the carbon price; and
- reform electricity markets to support enhanced energy efficiency.

#### **4.14 To enable investment in low-carbon supply of energy, the Government will:**

- establish a progressive, long-term carbon-price through the reform of the Climate Change Levy, to ensure that investors in low carbon technologies benefit from more predictable revenue streams;
- reform the electricity market, so that it attracts the private sector investment necessary to meet the UK's energy security and climate change objectives, including the investment in nuclear, carbon capture and storage and renewable technology described above. In addition to supporting the carbon price, this will also assess the role that revenue support mechanisms (such as Feed-In Tariffs), capacity mechanisms and emission performance standards could play. The Government will assess proposals against the criteria of cost-effectiveness, affordability and security of supply;
- ensure that regulation of national electricity networks enables the investment needed in transmission infrastructure to connect new low-carbon generation, such as nuclear power stations and offshore and onshore wind turbines;
- alter the regulatory regime for the gas grid to make it possible for biomethane producers to earn a return on gas fed into the grid and to introduce a Renewable Heat Incentive to provide support while the technology is still immature;
- maintain the Feed-In-Tariffs to support investment in emerging small-scale generation technologies in electricity, saving £40 million over the Spending Review period by improving their efficiency, and complement this with the Renewable Heat Incentive to reward ground-source heat pumps and other renewable heat sources, while making efficiency savings of 20 per cent by 2014-15 compared with the previous government's plans; and
- provide for community renewable electricity to benefit from retention of business rates.

#### **4.15 To enable investment in more security of supply, the Government will:**

- ensure that the regulatory regime allows investment in smart grid technologies to increase the efficiency and reliability of the network and support integration of electric vehicles, demand management, and more local and wind-powered generation;
- ensure that the regulatory and planning regimes facilitate private sector investment in liquefied natural gas terminals and gas storage;
- reform the planning system through National Policy Statements that set out energy needs and that will help guide the planning process, so that if sound proposals come forward in sensible places, they will not face unnecessary hold-ups;

- provide £1bn of public sector investment for the first of four carbon capture and storage demonstration plants which the Government is committed to supporting to ensure that this technology is demonstrated in the UK at scale – providing the UK with major opportunities to export technologies and know-how, as well as providing the basis for a future domestic carbon dioxide grid; and
- as part of electricity market reform measures, examine whether additional incentives such as capacity payments or security obligations may be required to ensure long-term security and resilience of energy supply for the UK.

## Government Commitments

**4.16** Despite the need to reduce the deficit, public sector investment has been prioritised in the infrastructure required for the low-carbon economy. The Spending Review commits the funds required to fulfil the Government's part of the public/private investment partnership in energy infrastructure investment:

### 4.17 Support investment in energy efficiency by:

- enabling households to improve the energy efficiency of their homes at no upfront cost, repaying through the savings they make on their energy bills, through the Green Deal; and
- providing support for electric and other ultra-low emission vehicles through an incentive scheme that, from January 2011, will offer up to £5,000 towards the cost of a qualifying car, as well as providing support for electric vehicle re-charging infrastructure.

### 4.18 Support investment in low carbon energy supply by:

- providing more than £200 million for the development of low carbon technologies including offshore wind technology and manufacturing at port sites;
- committing to £1 billion of funding from Departmental Expenditure Limits and additional significant proceeds from asset sales to capitalise a UK wide Green Investment Bank, subject to a final design which meets the tests of effectiveness, affordability, and transparency. This will aim to provide financial interventions to unlock significant new private investment in green infrastructure projects, such as offshore wind farms;
- delivering £860 million of new support over the period to 2014-15 to support households and businesses investing in renewable heat measures through the introduction of a Renewable Heat Incentive from 2011-12, while making efficiency savings of 20 per cent by 2014-15 compared with the previous government's plans;
- maintaining Feed-In Tariffs for small-scale generation, funded through an obligation on electricity suppliers equating to a levy of almost £900 million over the period to 2014-15. At the same time, the efficiency of Feed-In Tariffs will be improved at the next formal review, rebalancing them in favour of more cost effective carbon abatement technologies; and
- increasing expenditure through existing support mechanisms that are funded through obligations on energy companies, that will lead to a total of £5.6 billion of support for renewable electricity installations over the period to 2014-15.

#### 4.19 Support investment in security of supply by:

- providing £1bn of funding for the first of four carbon capture and storage demonstration plants to which the Government is committed to supporting.

**4.20** In November 2010, the Government will publish proposals for the reform of the Climate Change Levy to support a progressive, long-term carbon price.

**4.21** To meet the investment challenge in energy, the Government will set a stable, clear, long-term policy framework for energy sector investment and take action to remove unnecessary obstacles to project development and to address risks associated with low carbon technologies. **The Department of Energy and Climate Change (DECC) will publish a consultation on electricity market reform by the end of 2010**, with a view to introducing a White Paper in spring 2011.

**4.22** DECC will also set the level of the fourth carbon budget (2022-27) in summer 2011 and will publish the next Annual Energy Statement in autumn 2011.

## 4(b) Transport infrastructure

### Programme

#### 4.23 To develop a competitive economy through:

- investment in transport enhancements across the country to remove bottlenecks (including work on the A11, M1, M4/M5, Midland Metro, Tyne and Wear Metro, and the construction of the Mersey Gateway);
- making better use of existing assets such as Managed Motorway schemes which can increase capacity at a saving of over 40 per cent on the capital cost of conventional road widening, and better management of contracts across the Highways Agency;
- making best use of existing airport capacity to help improve the passenger experience;
- driving efficiency across the transport sector, including in the Highways Agency and rail industry; and
- the development of ports to handle increasing traffic.

#### 4.24 To contribute towards sustainable economic growth and tackling climate change through:

- support for the decarbonisation of the car fleet, to break the link between cars and carbon;
- the construction of Crossrail and significant rail enhancements including station upgrades, improvements to the East Coast Mainline and to rail freight links between Southampton and the West Coast and between Felixstowe and Nuneaton; and
- investment in a high-speed rail network that would make rail increasingly the mode of choice for inter-city journeys within the UK, and for many beyond. A new high speed rail network could transform journey times on key inter-urban routes and radically reshape the UK's economic geography: connecting this country's great cities and international gateways and helping to bridge the North-South divide that has, for too long, limited growth outside London and the South East.

#### 4.25 To promote greater localism through:

- providing over £1.5 billion for local authority major transport schemes from now until 2014-15: from this over £900 million will go on new schemes while committed schemes will receive over £600 million;
- the Local Sustainable Transport Fund which provides £560 million for local authorities outside London to bid for funding for transport interventions that support local priorities including economic growth and reduce carbon emissions in their communities; and
- a radical reform and simplification of local transport funding, by moving from 26 grant streams to four.

### Methods

**4.26** The Government will realise these transport priorities through public sector investment, regulatory change and leveraging in private sector capital:

**4.27 To help create sustainable growth, tackle climate change and promote greater localism, the Government will:**

- prioritise public capital spending on maintaining and investing in national transport networks;
- invest public funds, alongside business contributions, to construct Crossrail; and
- reform the economic regulatory regimes for airports.

**4.28 To produce sustained improvement in the efficiency of Network Rail and Highways Agency investment, the start of a true high-speed rail network and the enhancement of ports, the Government will:**

- deliver 21 per cent efficiency savings by Network Rail over the current regulatory period;
- appoint a non-executive chair for the Highways Agency, and a performance monitoring group to back up the Agency's efficiency drive. Looking to the future, the Government wants to make sure that the Highways Agency is structured in the best way to deliver effective services. The Government will review the operation of the Agency to see whether broader reform can generate better value for money;
- carry forward design work, and subsequently legislation, for high-speed rail connections from London to Birmingham, Manchester and Leeds; and
- encourage trust ports to bring forward proposals for modernisation and privatisation.

**4.29 To produce the infrastructure for a green growth, low carbon and competitive transport economy, the Government will:**

- establish a system of lorry road-user charging;
- provide incentives for the purchase of electric and plug-in hybrid cars, which will help create a mass market leading to manufacturers reducing costs making these vehicles a realistic alternative to conventionally powered cars;
- continue development of the high-speed rail network and rail connections between the North and South of the country to further reduce journey times to Glasgow and Edinburgh, so that a large proportion of domestic airline travel on these routes transfers to the train, reducing carbon emissions and releasing airport capacity; and
- introduce a new Local Sustainable Transport Fund, to encourage local schemes which will change behaviour and encourage more sustainable travel, especially for short journeys.

**Government commitments**

**4.30** The Spending Review prioritises capital spending on transport projects which can offer high economic returns when compared to investment projects in other sectors. By focusing on projects that deliver greater benefits in return for their costs, the positive impact of capital spending on the wider economy can be maximised.

**4.31** The transport capital allocation has been relatively protected. In 2014-15, Department for Transport capital investment will be higher in real terms than in 2005-06.

#### 4.32 The Department for Transport settlement includes:

- over £10 billion for maintenance and investment in key road and local transport schemes across the country, including work on the A11, M1, M4/M5, Midland Metro, Tyne and Wear Metro and construction of the Mersey Gateway;
- £14 billion of funding to Network Rail to support maintenance and investment, including major improvements to the East Coast Mainline, station upgrades at Birmingham New Street and network improvements in Yorkshire, around Manchester and the Barry to Cardiff corridor;
- funding to enable Crossrail to go ahead, and to support £6 billion of capital expenditure by Transport for London (TfL) to maintain and upgrade the London Underground network; and
- key projects to support the Government's climate change commitment, including an incentive scheme that, from 2011, will offer up to £5000 towards the cost of a new ultra-low emission car; as well as support for electric vehicle recharging infrastructure.

#### 4.33 The Government is also committed to reform, improving efficiency and value for money by:

- tasking Network Rail to deliver 21 per cent efficiency savings over the current regulatory period to 2013-14. **Sir Roy McNulty's review of the value for money of the railways will examine the overall cost structure of all elements of the railway sector and identify options for improving value for money for passengers and the taxpayer, while continuing to expand capacity as necessary and drive up passenger satisfaction. The report will be presented to the Secretary of State for Transport in spring 2011;** and
- better management of contracts across the Highways Agency (HA) will save over £240 million by 2014-15. In addition, an expert monitoring group, benchmarking HA performance, will support efficiency improvements with a full review to ensure that HA structure and governance give assurance of value for money.

## 4(c) Digital communications

### Programme

#### 4.34 Encourage the private sector to invest in the deployment of superfast broadband networks:

- the private sector is best placed to develop the broadband network in the UK, and has promised substantial investment over the coming years. For example BT and Virgin Media already have plans that will see coverage of approximately two-thirds of the population by 2015;
- mobile operators have also been improving their networks to service the growing demand for high speed mobile broadband. High speed mobile broadband is increasingly important to consumers and businesses, who require access to more and more data while on the move. The mobile broadband infrastructure is also an important tool in helping reach consumers for whom installation of fixed infrastructure will be expensive or difficult; and
- the primary role of the public sector is to ensure that the market works as efficiently as possible and potentially to provide some investment in the network where it is not economic for the private sector to do so.

#### 4.35 Remove the barriers to private sector investment by:

- making policy and regulatory interventions to help the private sector push coverage as far as possible without Government support; and
- making targeted interventions, working with local enterprise partnerships, the private sector and communities, to provide the support necessary to cover the whole UK population sustainably.

#### 4.36 Maximise the use of existing public sector assets:

- release electromagnetic spectrum from public sector and other uses, which can be acquired by mobile operators for expansion and improved provision of mobile broadband services; and
- reuse public sector communication assets as part of projects to ensure that the most effective use is made of public funds.

### Methods

4.37 To bring these investments forward, Government will use a mixture of regulatory change and limited public investment coupled with industry engagement.

#### 4.38 To encourage private sector investment, the Government:

- has been examining measures that will reduce the cost of infrastructure deployment, including infrastructure sharing. A number of operators have expressed interest in the ability to have access to BT's existing network of ducts and poles. In its Wholesale Local Access market review, Ofcom has concluded that this should be required and is now working with BT on developing reference offers for duct and pole sharing;
- recently consulted stakeholders on the potential for sharing infrastructure with other utilities and concludes that legislation is unlikely to be required in this area in the short term, and will continue on a programme of industry engagement to

encourage solutions to the practical barriers that are preventing more widespread infrastructure sharing between communications providers and other utilities;

- is consulting on whether there are changes to be made to the Electronic Communications Code, specifically in the area of new overhead infrastructure, which could help encourage greater deployment of broadband networks;
- is issuing guidance to industry and other stakeholders on how to make new buildings “broadband ready”, in the form of a Publicly Available Specification, by December 2010;
- intends to hold an auction in 2011 for 800MHz and 2.6GHz spectrum, suitable for delivering the next generation of mobile broadband, which has been freed up through the digital TV switchover; and
- intends to release at least a further 500MHz of public sector spectrum below 5GHz over the next ten years for new mobile communication uses, including mobile broadband.

#### **4.39 To provide solutions in areas where the private sector needs support the Government will:**

- test and develop the appropriate mechanisms for support with four pilot projects in rural and hard to serve communities in North Yorkshire, Cumbria, Herefordshire and the Highlands and Islands; and
- work with Local Enterprise Partnerships and the local authorities and communities in the identified locations to define the projects more precisely prior to running a procurement exercise through the winter of 2010 to provide specific levels of connectivity to the locations identified.

### **Government commitments**

**4.40** The Government has announced that it is committed to the UK having the best superfast broadband network in Europe by the end of this parliament, and to ensuring that everyone has access to a basic level of broadband on the same timescale. **The Government will publish a National Broadband Strategy in December 2010.** This will provide more detail on the full range of policy, legislative and funding initiatives that the Government is undertaking in support of its broadband vision.

**4.41** A total of £530 million will be invested over the Spending Review period to support the UK’s broadband network, benefiting around two million households, including in some of the most remote areas of the UK. As part of this investment, the Government will also pursue superfast broadband pilot projects in North Yorkshire, Cumbria, Herefordshire, and the Highlands and Islands.

**4.42** These public sector funds are in addition to the planned private sector investment in UK broadband infrastructure; as evidenced by the £2.5 billion that BT is investing in the fibre upgrade of its network.

## 4(d) Flood management, water and waste

### Programme

**4.43 Meet the water needs of a growing population in a UK where rainfall is likely to be both more intense and less frequent by:**

- encouraging the efficient use of water in homes and businesses including through delivering joint energy and water savings within the Green Deal;
- investment by the water and sewerage companies of £22bn by 2015:
- in the maintenance and replacement of existing assets by the water and sewerage companies; and
- in the development of new assets and in innovative technologies, including those that manage demand.

**4.44 Reduce the threat of flooding and coastal erosion by:**

- putting long term plans in place to manage the risks from flooding and coastal erosion around the country;
- pooling public and private funding sources to deliver flood management, while increasing the scope for local choice;
- building public awareness of the risks that remain; and
- preventing unnecessary new development in areas at high risk of flooding and coastal change.

**4.45 Encourage a more sustainable approach to the management and treatment of waste by:**

- addressing the best ways of encouraging a more sustainable approach to products and materials through the Government's waste policy review, which will report in summer 2011;
- diverting biodegradable wastes from landfill where they generate damaging greenhouse gases; and
- recognising, for waste which cannot be prevented or recycled, the valuable role of energy recovery from waste (where possible with combined heat and power), including the expansion of anaerobic digestion, as part of renewable energy supply.

### Methods

**4.46** To bring these investments forward, and through working with Devolved Administration partners, the Government will use a mixture of regulatory change, public investment and new incentives. Specifically:

**4.47** To ensure continued investment in modern water and sewerage assets the Government will, through the forthcoming Water White Paper and the review of the water regulator, Ofwat:

- ensure a stable regulatory regime that continues to attract private investment and provides value for money for the customer;
- consider whether the current approach to water policy and regulation will meet future needs; and

- bring forward proposals for promoting more sustainable surface water drainage systems to deliver both an increase in the quality of water in the environment and reduce flood risks.

#### **4.48 To encourage greater investment in flood resilience, the Government will:**

- make information on levels of flood risk more available and accessible to all;
- **consult on a National Flood and Coastal Erosion Risk Management Strategy for England later in 2010;**
- support local authorities in taking forward local flood risk management strategies; and
- encourage innovative, sustainable and cost-effective options to come forward in which the Big Society may play a greater role.

#### **4.49 To promote the right incentives and behaviours on waste and produce the required investment in waste management, the Government will:**

- refine the policy direction next summer through the review of waste policies;
- continue to support local authority projects for the treatment of residual household waste;
- encourage local authorities to work with their communities to provide the right household waste service for their circumstances, including providing incentives to households to recycle more;
- work with the business community on voluntary responsibility deals to promote better product design, recycling and waste management;
- establish the best way to promote and incentivise renewable energy from waste, including anaerobic digestion for suitable waste streams;
- prepare National Policy Statements on hazardous waste and waste water; and
- explore how the planning for waste treatment infrastructure, particularly residual waste treatment infrastructure, may be facilitated with greater community support.

### **Government commitments**

**4.50** The Spending Review is complemented by the programme of private sector investment that the Government's policies will bring forward, these include:

- providing £2 billion to be spent on flood and coastal erosion risk management over the Spending Review period. This will reduce the risks from flooding and coastal erosion for 145,000 households by March 2015;
- maintaining key front-line services in terms of forecasting, warning and the capability to respond to significant flood incidents;
- fully-funding local authorities to undertake their new roles under the Flood and Water Management Act;
- increasing the resilience of critical national infrastructure to flooding and other natural hazards through sector-led resilience plans; and
- supporting schemes to reduce diffuse water pollution and decrease the investment required to treat water.

# 5

## Next Steps

**5.1** The National Infrastructure Plan represents a commitment to delivering the reliable, resilient and integrated infrastructure needed for UK economic growth. This plan will be updated on a regular basis, with the first update by the end of 2011, and needs input from a wide range of stakeholders. This work will only be driven through with sustained commitment right across Government. To deliver this ambitious plan, the Economic Affairs Committee of the Cabinet, chaired by the Chancellor of the Exchequer, with support from Infrastructure UK, will take a new role coordinating infrastructure planning, prioritisation and policy development across Government.

**5.2** Infrastructure UK will also engage with future departmental infrastructure investment plans to ensure they are consistent with the Government's overall approach. Annex B sets out more details on the role of Infrastructure UK. Table 5.A sets out ways in which the Government will support the new approach to planning, funding, financing and delivery of infrastructure.

**Table 5.A: Government action on infrastructure**

Action	Lead	Date
Complete the design and testing of the Green Investment Bank. (Para 3.7)	HM Government	Spring 2011
<ul style="list-style-type: none"> <li>Supporting local infrastructure: (Para 3.8)</li> <li>Establish a Regional Growth Fund.</li> </ul>	HM Government	Ongoing
Publish a Local Growth White Paper.	BIS and CLG	End 2010
Investigate options for encouraging infrastructure investment from new sources, including an internal review to consider extending the use of the regulatory asset base model. (Para 3.20)	IUK	Spring 2011
Develop reforms to the framework of economic regulation: (Para 3.25)		
<ul style="list-style-type: none"> <li>Complete reviews of the roles and functions of Ofgem and Ofwat.</li> <li>Publish a common set of principles for economic regulation.</li> <li>Ensure that competition and consumer outcomes are delivered effectively across regulated sectors.</li> <li>Report on whether further cross-sectoral action is required.</li> </ul>	DECC, Defra and regulators	Summer 2011
	BIS and IUK	End 2010
	BIS and other departments	Ongoing
	BIS, IUK and other departments	Summer 2011
Planning regime: (Para 3.28)		
<ul style="list-style-type: none"> <li>Publish details of the revised process for major infrastructure planning</li> <li>Publish an updated timetable for the publication of National Policy Statements for the remaining major infrastructure sectors.</li> <li>Bring forward the Localism Bill</li> </ul>	CLG	End 2010
	CLG	End 2010
	CLG	November 2010

## 4(e) Intellectual capital

### Programme

#### 4.52 To provide the right investment in science, research and innovation it is important to:

- invest in research facilities and equipment in universities;
- support Research Council institutes and national facilities (such as the Diamond synchrotron);
- fund research, including specific research projects and block grants to universities;
- invest in the next generation of researchers by funding people to undertake doctorates and postdoctoral fellowships;
- support programmes that incentivise Higher Education Institutions and researchers to work with business to maximise the economic impact of research investments; and
- invest in the innovation infrastructure including the National Measurement System.

**4.53** These investments are complementary. Funding new research via project grants and studentships is only effective if the necessary research infrastructure – facilities and equipment – exists to support this activity.

### Methods

#### 4.54 To bring these investments forward, the Government will:

- invest in facilities and equipment in universities;
- support national Research Facilities through the Research Councils;
- help fund key international science facilities through international subscriptions (such as CERN);
- fund research by providing Quality-related (QR) funding to Higher Education Institutions in England through the Higher Education Funding Council for England, with funds allocated for research quality and impact on the economy through the Research Excellence Framework;
- fund research in universities via competitive peer reviewed grants through the Research Councils, identifying future pathways to impact of research on the economy;
- fund research in the Research Councils' own research institutes;
- fund excellent people directly through the Research Councils and the National Academies studentships and fellowships programmes;
- bring Higher Education Institutions in England even closer to business through reforms to the Higher Education Innovation Fund;
- support the development of Science and Innovation Campuses at Harwell and Daresbury;
- support the Technology Strategy Board to incentivise business led technology innovation; and
- establish a network of Technology and Innovation Centres.

## Government commitments

**4.55** As part of the Spending Review, despite enormous pressure on public spending, the overall level of resource funding for science and research programmes has been protected in cash terms in a ring-fenced budget. The Government has also been able to confirm funding for a number of key capital investments to enhance the UK's science infrastructure.

**4.56** The main aims for the Government's capital expenditure in Science in the Spending Review period are to maximise the benefits of key research assets such as Diamond synchrotron, and to maintain the existing infrastructure of the UK research base.

**4.57 Investment in new facilities of national importance will complement the private and charity sector investment that the Government's programme will bring forward, including:**

- £220 million of capital investment in the UK Centre for Medical Research and Innovation:
  - The UK Centre for Medical Research and Innovation will be a world-class institute for basic biomedical research to help develop treatments for disease, train clinicians of the future and foster engagement between scientists and clinicians;
- £69 million of capital investment in the Diamond Light Source:
  - Investment in the Diamond synchrotron will provide cutting-edge facilities for the science community and industry users, extending its reach into new research areas such as medical science and engineering materials, and generating significant benefits for the economy and society. Diamond is a joint venture funded by the Government through Science and Technology Facilities Council and the Wellcome Trust; and
- £200 million a year by 2014-15 to support manufacturing and business development:
  - With a focus on supporting potential high growth companies and the commercialisation of technologies, including funding for an elite network of research and development intensive Technology and Innovation Centres.

# 5

## Next Steps

**5.1** The National Infrastructure Plan represents a commitment to delivering the reliable, resilient and integrated infrastructure needed for UK economic growth. This plan will be updated on a regular basis, with the first update by the end of 2011, and needs input from a wide range of stakeholders. This work will only be driven through with sustained commitment right across Government. To deliver this ambitious plan, the Economic Affairs Committee of the Cabinet, chaired by the Chancellor of the Exchequer, with support from Infrastructure UK, will take a new role coordinating infrastructure planning, prioritisation and policy development across Government.

**5.2** Infrastructure UK will also engage with future departmental infrastructure investment plans to ensure they are consistent with the Government's overall approach. Annex B sets out more details on the role of Infrastructure UK. Table 5.A sets out ways in which the Government will support the new approach to planning, funding, financing and delivery of infrastructure.

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Planning regime: (Para 3.28)		
<ul style="list-style-type: none"> <li>Publish details of the revised process for major infrastructure planning</li> <li>Publish an updated timetable for the publication of National Policy Statements for the remaining major infrastructure sectors.</li> <li>Bring forward the Localism Bill</li> </ul>	CLG	End 2010
	CLG	End 2010
	CLG	November 2010

<ul style="list-style-type: none"> <li>Publish full Government response to the Penfold Review on non-planning consents.</li> </ul>	CLG	November 2010
Reducing the costs of delivering infrastructure: (Para 3.34)		
<ul style="list-style-type: none"> <li>Update on work of the investigation.</li> </ul>	IUK	October / November 2010
<ul style="list-style-type: none"> <li>Publish the final report of the investigation to reduce the costs of delivering civil engineering works for major infrastructure projects.</li> </ul>	IUK	End 2010
<ul style="list-style-type: none"> <li>Publish the results of an industry-led Innovation and Growth Team looking at low carbon construction.</li> </ul>	BIS	End 2010
<ul style="list-style-type: none"> <li>Publish findings and recommendations on cross-cutting barriers to innovation and the efficient operation of the infrastructure supply chain.</li> </ul>	BIS	Spring 2011
Bring together and improve the quality of data held in relation to economic infrastructure. A programme of work be published on the Treasury website. (Para 3.37)	IUK	Early 2011
Managing interdependency, resilience and engineering innovation: (Para 3.41)		
<ul style="list-style-type: none"> <li>The Engineering and Interdependence Expert group will assess and report on systemic risks and opportunities in infrastructure and develop a roadmap of the major engineering challenges and decisions in future infrastructure.</li> </ul>	IUK	Spring 2011
<ul style="list-style-type: none"> <li>The Engineering and Interdependence Expert group will work closely with the Office of Cyber Security and Information Assurance and other parts of government (e.g. CCS and CPNI) to identify critical interdependencies that impact on infrastructure investment needs.</li> </ul>	IUK and Cabinet Office	Ongoing
<ul style="list-style-type: none"> <li>Produce a framework for the coordination of security and resilience of the national infrastructure.</li> </ul>	Cabinet Office	End 2010
<ul style="list-style-type: none"> <li>Publish findings from the Adapting to Climate Change Programme's Infrastructure and Adaptation project.</li> </ul>	Defra	Spring 2011
Publish an updated version on this plan setting out the long-term investment needs and priorities for economic infrastructure for the UK, along with the priority actions to deliver them: (Para 4.5)	IUK	End 2011
<ul style="list-style-type: none"> <li>Publish a note setting out the process for updating long-term investment needs and priorities for economic infrastructure.</li> </ul>	IUK	October / November 2010
<ul style="list-style-type: none"> <li>Establish a common set of planning assumptions; i.e. economic growth forecasts, population growth forecasts, impacts of climate change.</li> </ul>	IUK	End 2011
<ul style="list-style-type: none"> <li>Identify relevant constraints, including establishing a framework for assessing overall affordability.</li> </ul>	IUK	End 2011
<ul style="list-style-type: none"> <li>Publish high level Green Book Supplementary Guidance on assessing economic infrastructure.</li> </ul>	HM Treasury	Publish early 2011
<p><i>Key to departmental acronyms: IUK – Infrastructure UK; BIS – Department for Business, Innovation and Skills; CLG – Department for Communities and Local Government; DECC – Department of Energy and Climate Change; Defra – Department for Environment, Food and Rural Affairs.</i></p>		

## Wider work

5.3 Infrastructure UK was established to advise government on the long-term infrastructure needs of the UK and provide commercial expertise to support major projects and programmes. Next year's updated version of this plan will reflect the wider programme of work Infrastructure UK is undertaking and will take into account ongoing work by Departments, including the strategy policy documents which many Departments are already preparing. Table 5.B below outlines the relevant Government documents which will feed into the infrastructure plan over the next year.

**Table 5.B: Planned infrastructure policy documents**

Title of policy document	Lead department	Date
National Broadband Strategy	BIS	December 2010
Consultation on the National Flood and Coastal Erosion Risk Management Strategy for England	Defra	End 2010
Electricity Market Reform	DECC and HM Treasury	End 2010
Rail Value for Money Study	DfT	Spring 2011
Review of Ofwat	Defra	Spring 2011
Review of the Role of Ofgem	DECC	Summer 2011
Fourth Carbon Budget (2022-2027)	DECC	Summer 2011
Review of Waste Policy	Defra	Summer 2011
Water White Paper	Defra	Summer 2011
Waste water National Policy Statement	Defra	Autumn 2011
Annual Energy Statement	DECC	Autumn 2011
Communications Market Report	Ofcom	2011
National Climate Change Adaptation Programme	Defra	2012
Climate Change Risk Assessment	Defra	2012

*Key to departmental acronyms: IUK – Infrastructure UK; BIS – Department for Business, Innovation and Skills; CLG – Department for Communities and Local Government; DECC – Department of Energy and Climate Change; Defra – Department for Environment, Food and Rural Affairs; DfT – Department for Transport.*



# A Ownership models and cost of capital

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## Public and private sector ownership

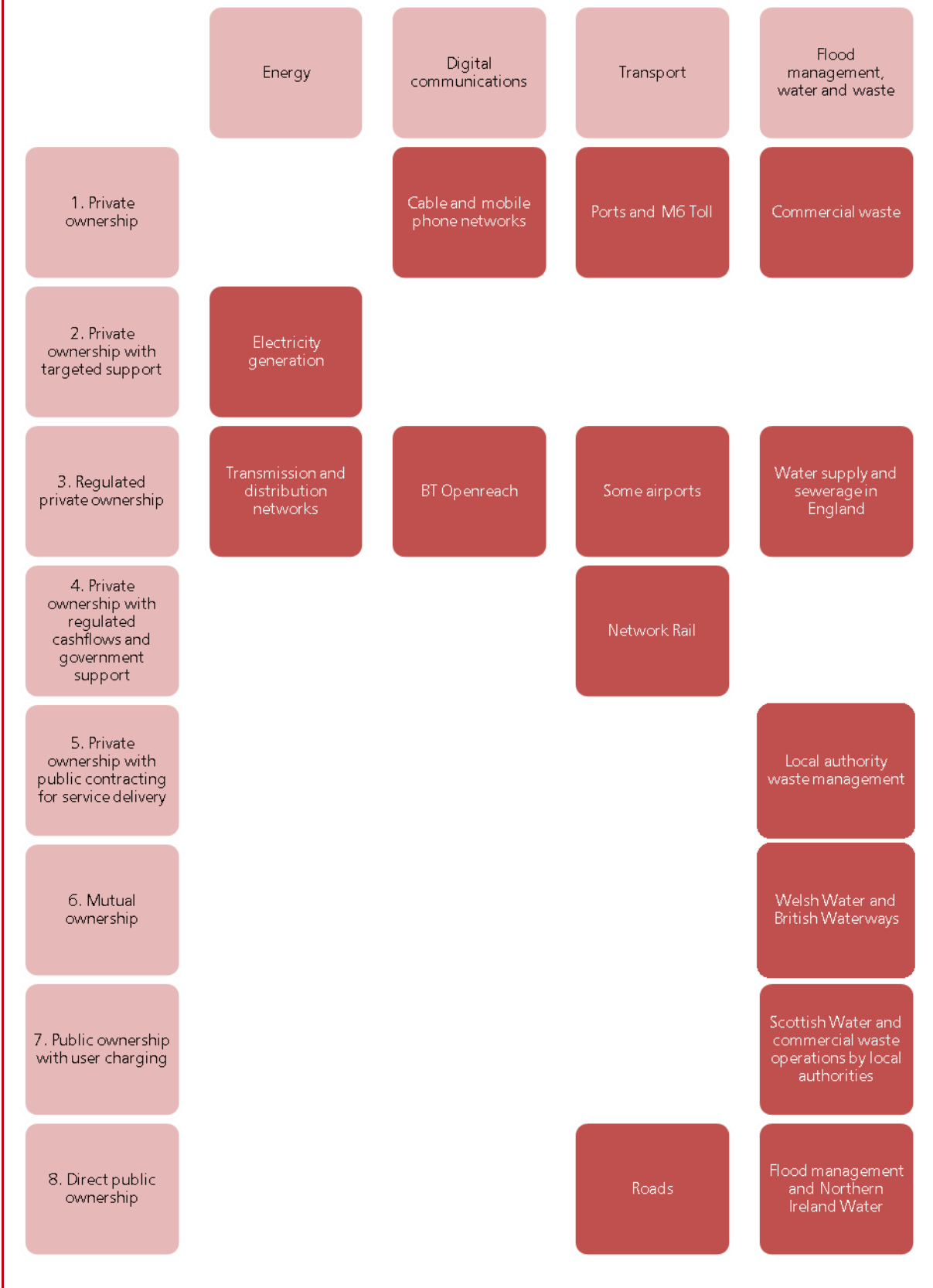
**A.1** Over time, many different models for ownership of infrastructure have developed in the UK. These are:

- 1 **private ownership** where the competitive market is most effective in providing services e.g. communications;
- 2 **private ownership** with **targeted support** or pricing mechanisms to meet government objectives, usually in areas of developing technology (e.g. Feed-In Tariffs for renewable energy generation) or where externalities such as environmental damage are not effectively priced e.g. a carbon price through the EU Emissions Trading Scheme;
- 3 **regulated private ownership** often with a **regulatory asset base** and **price controls** to protect consumers and ensure downstream competition, e.g. water;
- 4 **private ownership** with a combination of **regulated cashflows and direct government support**, e.g. Network Rail;
- 5 **private ownership** with public contracting for service delivery, e.g. local authority waste management;
- 6 **mutual ownership**, e.g. Welsh Water, British Waterways (post announced changes);
- 7 **public ownership** with **user charging**, e.g. Scottish Water; and
- 8 **direct public ownership** where there is a strong **economic or social need**, e.g. flood management.

**A.2** The regimes that apply in different sectors have matured and, in some cases, adapted over time, e.g. telecoms has become vastly more competitive in recent years with consequently less need for regulation of the market. However, the new challenges facing UK infrastructure mean that these regimes need to be tested to ensure that they are capable of bringing forward the necessary future investment in each of the key sectors.

**A.3** The purpose of this plan, and of the centrally coordinated allocation of public sector capital in the Spending Review, is to ensure that the Government plays its full part in promoting the infrastructure investment the country needs, using all the available levers right across the range of private and public ownership models.

### Box A.1: Infrastructure delivery: public sector markets and private markets



**A.4** Table A.1 shows the impact on cost of capital of different types of funding models and provides some examples of the types of economic infrastructure to which these are currently applied. The increase in the cost of capital shown reflects the level of risk which sits with the private sector. While it is evident the cost of capital can be reduced through the adoption of different funding models, this also results in greater risk being borne by the consumer or taxpayer.

**Table A.1: Mix of funding models**

Type	Funding models	Indicative WACC (per cent) <sup>a</sup>
Publicly funded	Direct government funded investment; e.g. flood defence, some rail and roads.	3.913 <sup>b</sup>
Government supported	Network Rail	+0.0 - 1.25 <sup>c</sup>
Regulated markets	Regulated Asset Base model; e.g. Water, Electricity, Regulated Airports	+0.25 - 3.0 <sup>c</sup>
Availability based payment	PFI/PPP schemes	+2.0 - 3.75 <sup>c</sup>
Unregulated markets – demand based	User pays such as corporate energy utilities, unregulated airports, waste operators, and communications.	+3.5 - 7.0 <sup>c</sup>

<sup>a</sup> WACC is Weighted Average Cost of Capital. Source: DMO Annual Reviews, regulatory price control reviews, company accounts, Bloomberg, HM Treasury. Cost of capital numbers are presented as purely indicative of what may be achieved. Actual cost of capital is driven by a number of different factors and may ultimately depart from the range of numbers presented for each funding model.

<sup>b</sup> Based on the cash weighted average yield of actual issuance at the gilt auctions, syndicated offerings and mini-tenders between 2005/6 – 2009/10.

<sup>c</sup> Increase relative to Publicly funded option (3.913%). Figures expressed in nominal terms. Regulated sectors figures reflect a real WACC which takes the pre-tax cost of debt but the post tax cost of equity.



# B

## Infrastructure UK

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**B.1** The Chancellor confirmed, as part of the June 2010 Budget, the establishment of Infrastructure UK (IUK) as a division of HM Treasury. James Stewart (previously Chief Executive of Partnerships UK) is Chief Executive. An advisory council, chaired by Paul Skinner (former Chair of Rio Tinto), has been established to provide guidance on the strategic direction and work priorities of IUK.

**B.2** Infrastructure UK is focused on enabling of greater private sector investment in infrastructure, and the improvement of the Government's long-term planning, prioritisation and delivery of infrastructure.

**B.3** Infrastructure UK will lead work within government to deliver the actions set out in this plan. This will include extensive engagement with central and local government, local enterprise partnerships, regulators, investors and the infrastructure industry. Infrastructure UK's responsibilities also include:

- 1 supporting Treasury ministers on the PFI/PPP programme. The PPP Policy team publishes key policy, guidance and statistics on PPP/PFI and provides support and assurance to those undertaking projects; and
- 2 actively supporting the delivery of major infrastructure projects and programmes and helping to build stronger infrastructure delivery capability across government.

**B.4** An advisory council has been established to provide guidance on the strategic direction and work priorities of Infrastructure UK. The Advisory Council meet every quarter. In addition to Paul Skinner, the Advisory Council is currently composed of the following members:

### Private sector representatives

- Sir Mark Walport, Director, Wellcome Trust.
- Terry Hill, Chair of the Transport Market, Arup Group;
- Cressida Hogg, Managing Partner, 3i Investments plc;
- Steve Holliday, Chief Executive, National Grid;
- Chris Bolt, PPP Arbiter;
- John McDonough, Chief Executive, Carillion plc; and
- Nick Mabey, Founding Director and Chief Executive, E3G;

### Government Departments

**B.5** Permanent Secretaries from Her Majesty's Treasury, the Department for Environment, Food and Rural Affairs, the Department for Transport, the Department for Business, Innovation and Skills, the Department for Communities and Local Government and the Department of Energy and Climate Change.

## HM Treasury contacts

This document can be found in full on our website at:  
[hm-treasury.gov.uk](http://hm-treasury.gov.uk)

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