HM Treasury

# National Infrastructure Plan 2013

December 2013

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# Executive summary

The quality of a nation's infrastructure is one of the foundations of its rate of growth and the living standards of its people. That is why the government has put long-term investment in roads, railways, energy, telecommunications and flood defences at the heart of its growth plan.

Successive governments have failed to invest sufficiently in the UK's infrastructure. In making a long-term commitment to infrastructure investment, the government's ambition is to reverse the effects of this historic underinvestment and equip the UK with world-class infrastructure, which rivals that of all its Organisation for Economic Co-operation and Development (OECD) counterparts in every sector and ensures the country can compete in the global race.

The government recognises that meeting the UK's infrastructure ambitions requires a long-term sustainable plan, which means taking a cross-cutting and strategic approach to infrastructure planning, funding, financing and delivery. That is why it published the first ever National Infrastructure Plan (NIP) in 2010, with subsequent updates in 2011 and 2012, which enabled it to take a holistic view of the challenges facing UK infrastructure and its approach to meeting them. The National Infrastructure Plan 2013 takes this further and sets out the government's plan for the next decade and beyond.

The government believes in targeting public investment and intervention in infrastructure where it is most needed, while harnessing the efficiencies created by a competitive market and commercial incentives where it can. This ensures that it is well equipped to deliver the infrastructure the country needs in a way that provides value for money for taxpayers and is sustainable for consumers.

Throughout this parliament, the government has consistently made tough decisions on day-to-day spending that have enabled it to prioritise vital capital investment. In June 2013 it built on this approach by setting out a further commitment to invest in over £100 billion of capital in specific projects in the next parliament, including providing long-term funding settlements in key infrastructure sectors. As a share of GDP, public investment will be higher on average over this whole decade than under the whole period of the last government.

The government has also taken radical action to unlock and stimulate private sector investment, which is expected to make up the majority of UK infrastructure investment between now and the end of the decade. This has included setting out a plan to generate a wave of new investment in our energy infrastructure through the biggest change to the electricity market since privatisation, and the provision of up to £40 billion of support for critical infrastructure projects through the UK Guarantees Scheme.

The government will also continue to drive efficiency and value for money in infrastructure delivery. It will ensure that the conditions are right for private sector delivery, improve the capacity of government to deliver where it has a central role to play, and drive down costs across the board in comparison with comparable developed economies.

## Delivering to meet the UK's infrastructure needs

In addition to the programme of capital spending set out at the start of this parliament, at the 2011 and 2012 Autumn Statements the government prioritised and brought forward capital investment on a total of 27 road, rail and flood defence schemes. 99 per cent of these schemes are on track according to the timetables set at the time of announcement. 2 of these schemes, and a further 11 individual projects, have completed as planned and a further 38 individual projects are in construction.

More broadly since 2010, there has been major progress delivering infrastructure funded through a combination of public and private investment:

- the Highways Agency and Local Authorities have completed 36 transport projects worth over £1.7 billion including:
  - 9 Highways Agency major projects covering 360 lane kilometres and improvements to the UK's most congested routes such as the M62 (J25 to J30) in the North West, A1 Dishforth to Leeming in North Yorkshire and M1 (J10 to J13) in the South East
  - 27 Local Authority major projects around the country including the Greater Bristol bus network, Poole Bridge and the Blackpool tram upgrade
- the Environment Agency and Local Authorities have completed 353 flood and coastal erosion schemes, improving the standard of protection to over 112,700 homes, including major projects in Redcar, North Lincolnshire, Nottingham Trent (Left Bank), Essex Canvey Barriers, Deptford and Cockermouth
- government has funded the roll out of superfast broadband which has reached over 140,000 premises so far, with 10,000 additional premises being passed per week
- Network Rail has completed major station upgrades including King's Cross station which will unlock 2,000 new homes, 3.4 million square feet of workspace and 500,000 square feet of retail, as well as improvements to Derby, Kettering, Aylesbury and Chester, as part of the Control Period 4 programme of investment which has already delivered upgrades to 150 different stations across the UK
- working in partnership with universities and industry, the government has invested in large research facility projects worth nearly £500 million including Diamond Phase II, the Royal Research Ship Discovery replacement, Halley VI Research Station, a laboratory for Molecular Biology in Cambridge as well as major investments in existing research facilities such as a £10 million investment in the Daresbury Science and Innovation Campus
- Transport for London has completed major upgrades to the London Underground including completion of the Jubilee line signalling and Victoria line upgrades (now one of the highest frequency lines in the UK allowing the Victoria line to carry 10,000 more passengers an hour), Farringdon ticket hall, new investment in hydrogen hybrid buses and installation of 1,300 electrical vehicle charging points

The government has also supported significant private sector investment, providing the policy framework and creating the right delivery environment to enable:

- completion of the London Gateway port and logistics park upgrade providing 2,700 metres of quay, six deep-water berths, 24 giant quay cranes and an annual capacity of 3.5 million TEU[1]
- 80 different electricity generation schemes owned by major generators have completed since 2010, providing over 13,500MW of electricity, enough to power over 14 million homes annually; this includes 6 Combined Cycle Gas Turbine (CCGT) schemes, 11 offshore wind schemes including phase one of the London Array, the world's largest offshore wind farm, 60 onshore wind schemes, 1 hydroelectric scheme and 2 energy from waste schemes

[1] Twenty-foot Equivalent Unit – a measure of container handling capacity.

- two new electricity transmission projects are complete, increasing transfer capacity in rural areas of Northern Scotland and two gas storage projects in North Yorkshire and Cheshire have been completed
- there have been upgrades at Heathrow and Gatwick, which are both currently undertaking significant investment programmes, worth £5.5 billion and £900 million respectively, as well as Manchester International Airport and Birmingham Airport, which is extending the runway by 350 metres connecting the West Midlands to even more international routes

The government also confirms in the National Infrastructure Plan 2013 the following progress on the UK Guarantees Scheme:

- a new cooperation agreement with Hitachi and Horizon with the aim of being able to agree an in-principle guarantee by the end of 2016 to support the financing of a new nuclear power plant at Wylfa, subject to final due diligence and ministerial approval
- the approval of a guarantee to support up to £1billion of borrowing by the Greater London Authority for the Northern Line Extension
- the approval of a guarantee for £8.8 million to help provide finance for the installation of energy saving lighting equipment across a portfolio of car parks
- 40 projects worth £33 billion are now prequalified for the scheme

At Autumn Statement 2012, the Chancellor announced a support package for the Northern Line extension (NLE) to Battersea Power Station. This included the approval of up to £1 billion borrowing by the Greater London Authority (GLA) to finance the construction of the NLE, the creation of an Enterprise Zone at identified sites in Wandsworth and Lambeth, and an associated UK Guarantee facility to support the loan repayment. This package was conditional on the GLA and TfL reaching - by the end of 2013 - a binding commercial agreement with the Battersea developer for the redevelopment of the power station. A satisfactory commercial agreement has now been reached between the Greater London Authority, Transport for London and the Battersea developers. The government will therefore implement its support package to enable the construction of the Northern Line extension to Battersea Power Station (subject to a satisfactory Transport and Works Act Order).

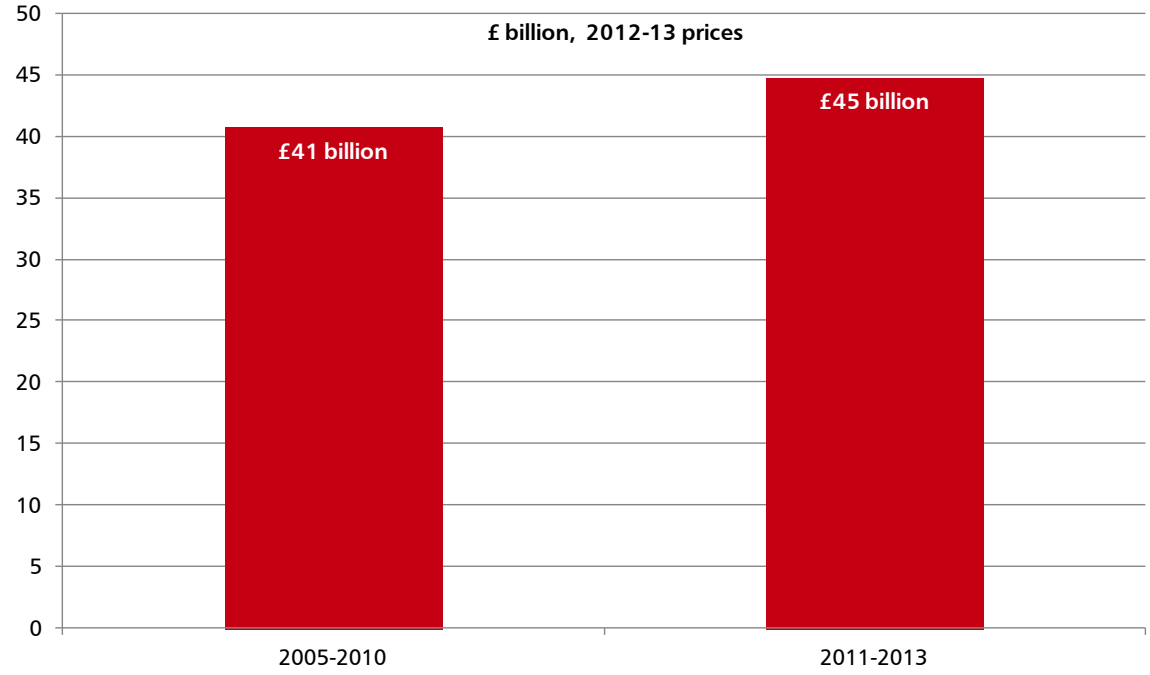
The government has also been making strides in encouraging institutional investment in infrastructure. For example, as part of the 'UK Insurance Growth Action Plan', also published today, UK insurers have agreed to work alongside partners with the aim of delivering at least £25 billion of investment in UK infrastructure over the next 5 years, including, but not restricted to, projects in the published infrastructure pipeline.

## Infrastructure investment since 2010

Public and private infrastructure investment has also increased in the past few years. A top down analysis of average annual infrastructure investment between 2011 and 2013 has been refreshed for the National Infrastructure Plan 2013. Treasury estimates now indicate that average annual infrastructure investment has increased to £45 billion per year compared to an average of £41 billion per year between 2005 and 2010 (see chart below). [2]

[2] One of the main challenges when collecting this data is that the definition of infrastructure investment is not always consistently defined in the source material. For example, some sources may include maintenance and repair costs whereas others cover just the initial development and construction. However, this year's analysis represents an improvement on the estimates included in the National Infrastructure Plan 2012, as more robust source material has been used to allow for greater consistency across years and sectors. Note that these estimates are not comparable to pipeline data presented in this document, which is a forward-looking, bottom up assessment of potential infrastructure investment. Source data is publicly available on the Infrastructure UK website https://www.gov.uk/government/organisations/infrastructure-uk

**Average annual infrastructure investment, 2005-10 and 2011-13**




*Source: HM Treasury (see footnote on previous page)*

## National Infrastructure Plan 2013 – the next phase of infrastructure delivery

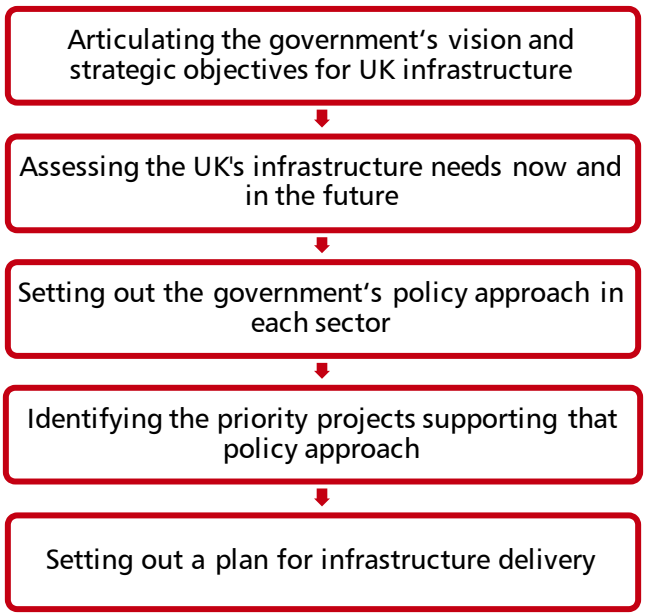
The government has made good progress but recognises that there is no room for complacency, and that a strong and credible plan is needed to build on the action it has already taken. It is committed to a long-term approach to infrastructure that will help address historic problems of short-term decision making, uncertainty in funding and financing, and failures in delivery.

The National Infrastructure Plan 2013 therefore sets out the government's long-term plan to ensure that the government can deliver the investment required to meet the UK's infrastructure needs to 2020 and beyond.

The government has taken a targeted approach to infrastructure investment and delivery across different sectors. The National Infrastructure Plan does not aim to set out a 'one size fits all' approach, but to bring context and clarity to what the government is seeking to achieve and transparency around its approach to doing so. It aims to ensure that, where the government does have the tools to facilitate and drive delivery, it uses them to their greatest effect and that, where it does not (because investment decisions are made by the private sector), it provides the policy framework that will enable the market to deliver in the way it is intended to. In doing so, it aims to provide a common point of reference for all those with an interest in UK infrastructure.

The government also seeks to use the National Infrastructure Plan as a vehicle for bringing together issues and considering them in the round, including addressing cross-cutting themes such as need, prioritisation, financing, efficiency and value for money – as well as identifying opportunities for greater alignment of policy objectives or delivery approaches.

**National Infrastructure Plan 2013**




In particular, the National Infrastructure Plan 2013:

- articulates our overall vision for UK infrastructure and, for the first time, brings together analysis of the UK's infrastructure needs across different sectors now and in the future, to ensure that the government targets its approach to infrastructure effectively (Chapter 1)
- analyses the state of UK infrastructure in 2013 (Chapter 2) including the latest data on the UK's infrastructure performance (Annex B)
- sets out the government's overall approach to infrastructure and, for each sector, defines its strategic objectives, policy approach, key outcomes, upcoming policy milestones and the priority investments that are central to the achievement of those objectives (Chapter 3)
- outlines the government's policy approach to local infrastructure (Chapter 4)
- outlines the government's approach to prioritising, driving and monitoring delivery of the key investments identified for each sector (Chapter 5), including providing more detail than ever before on the delivery status and key milestones of each investment (Annex A)
- defines where finance gaps remain and the action the government is taking to address them (Chapter 6)
- sets out the government's approach to improving the environment for infrastructure delivery in both the public and private sectors and harnessing the opportunities for more cross-sector delivery (Chapter 7)

Across all these areas, the National Infrastructure Plan is evolving. First published in 2010, it was an innovative attempt to bring together activity across the range of economic infrastructure sectors. The document has been developed and refined in annual updates since then, and the 2013 refresh is the product of close engagement with bodies across the infrastructure community. The National Infrastructure Plan will continue to develop, to ensure that it remains fit for purpose as the UK's infrastructure needs change over time.

**What is new in the National Infrastructure Plan 2013?**

The National Infrastructure Plan 2013:

- for the first time brings together analysis of the UK's infrastructure needs across different sectors now and in the future
- articulates the government's approach, sector by sector, to identifying and delivering the infrastructure that is needed
- articulates the specific rationale for selecting each of the government's Top 40 priority investments; identifies key projects within those individual investments and provides more detail on the timing, funding and status of each
- sets out new ways in which the government will drive delivery of the Top 40 investments, including a dedicated 'hot-desk' in Infrastructure UK where Top 40 project owners can raise issues of concern, special consideration in the planning regime and UK Guarantees Scheme, and a new Major Infrastructure Tracking unit within Infrastructure UK which will allow it to track the progress of each Top 40 investment
- is published alongside the most robust, forward-looking infrastructure pipeline to date, which includes more detail than ever before on the status of UK infrastructure projects

## The infrastructure pipeline – a strategic overview of UK infrastructure investment

The National Infrastructure Plan 2013 sets out the most robust, forward-looking infrastructure pipeline to date, including more detail than ever before on the status of planned and potential infrastructure investments in the UK.

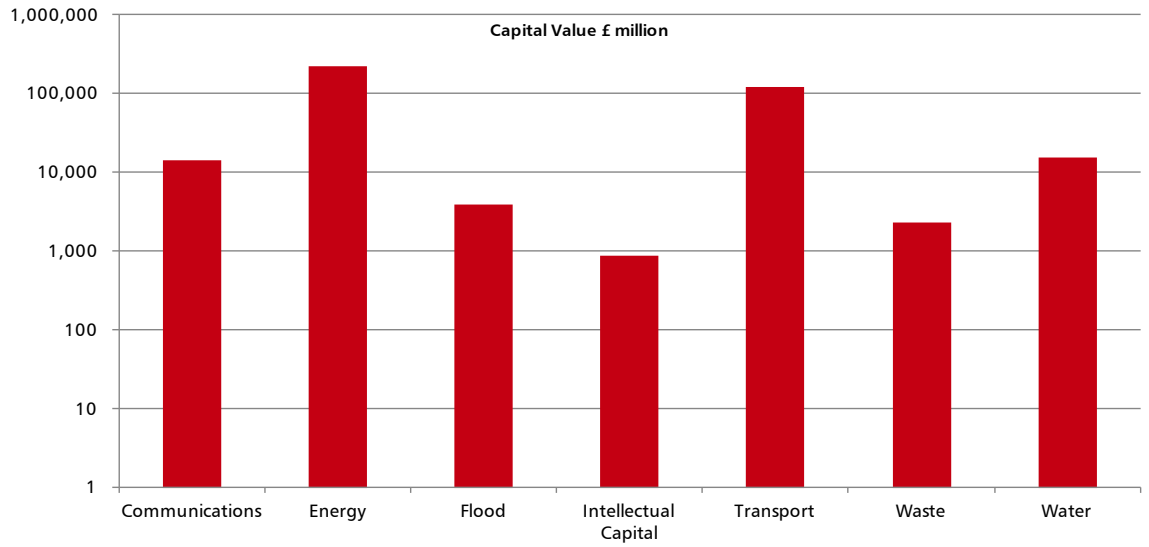
The infrastructure pipeline is a forward-looking, bottom up assessment of potential infrastructure investment to 2020 and beyond, which includes large infrastructure projects with a capital value of £50 million and over. The pipeline also includes large capital programmes of investment worth £50 million or over, which may consist of a number of smaller projects which are grouped together and are often rolling investments.

This provides a strategic and more credible overview of the level of public and private infrastructure investment planned over the rest of this decade and beyond (though in sectors such as energy, ports and waste, the decision to go ahead with individual projects will be determined by the market). It enhances visibility and certainty for investors and the supply chain, and allows government to work more effectively to ensure that its infrastructure needs are met.

In publishing the infrastructure pipeline the government, supported by industry, remains committed to bringing the largest of these projects and programmes together in a single place to give greater visibility and understanding of the potential opportunities and to help track potential obstacles and opportunities. This visibility is critical to government and industry efforts to improve and accelerate delivery.

The overall value of the pipeline has increased from over £309 billion to over £375 billion of investment. Most of the value of the pipeline is in the energy and transport sectors, worth over £340 billion of combined investment (as highlighted in the chart below, which shows investment on a logarithmic scale).

**Pipeline value by sector**




*Source: HM Treasury Major Infrastructure Tracking unit*

291 projects and programmes (45 per cent) of the total 646 in the pipeline are currently under construction or part of an active programme of investment. A programme is described as 'active' where one or more of its component projects are in construction.

However, the National Infrastructure Plan is not just about meeting the country's immediate infrastructure needs, but also investing in the UK's future. The value of pipeline investment increases year on year to 2015-16, reflecting decisions to commit long-term capital funding at the 2013 Spending Round, allocations or provisions for the next price control periods for regulated utilities and increases in energy investment.

The projects and programmes in the pipeline extend to the end of this decade and further – with over £260 billion (71 per cent) of the capital value of the pipeline profiled in the next parliament and beyond. The value of forward investment in the energy sector has been updated to reflect developers' current build profiles, increasing the size of overall capital investment in energy with over £98 billion of investment now planned in 2020 and beyond.

Projects and programmes in the pipeline are distributed regionally, with a range of different investments planned in each of the regions, as well as UK-wide programmes of investment.

The government is planning for the long-term through the public funding settlements set out at Spending Round 2013 and a range of policy measures to stimulate private investment. The National Infrastructure Plan 2013 brings together the government's long-term approach to planning, prioritising and delivering infrastructure across each sector.

## Further action to drive forward investment in key sectors

The government also announces in the National Infrastructure Plan 2013 that it will take further action to drive forward investment in key infrastructure sectors.

It will provide the certainty needed to stimulate the investment needed in the UK's ageing energy infrastructure by:

- announcing the prices and an update to key contract terms that will be available for renewable energy generation from April 2015; the 'strike prices' will be legally binding under new Contracts for Difference for large scale generation; they have

been subject to consultation and are awaiting state aid approval; for the first time they will be at a set rate rather than dependent on unpredictable wholesale prices, reducing the risk for low carbon generators whilst protecting the consumer

- announcing the updated levels of support that will be available for renewable heat; these new tariffs will bring on significant investment in renewable heat helping to deliver the UK's renewable target and decarbonise an important part of the economy

The government will also build on the funding announcements announced at Spending Round 2013, by:

- taking forward measures proposed by the Airports Commission by introducing a package of surface-access improvements, including making available a further £50 million for a full redevelopment of the railway station at Gatwick Airport, subject to satisfactory commercial negotiation with the airport
- providing funding to support improvements to the A50 around Uttoxeter starting no later than 2015-16 (subject to statutory procedures) to support local growth, jobs and housing; this project will be subject to the usual developer contributions
- confirming that there will be no tolling on the planned A14 scheme between Cambridge and Huntingdon, construction of which is planned to start in 2016, which is one of the government's Top 40 priority investments; it has listened to concerns from local residents and businesses who rely on this road and, following a consultation, has decided to take forward a scheme which does not include a tolling element
- providing a £30 million contribution to support the construction of a new Garden Bridge across the River Thames in London; this will supplement funding from Transport for London and private donations
- investing £5 million during 2014-15 in a large scale electric vehicle readiness programme for public sector fleets; the programme aims to promote the adoption of ultra-low emission vehicles, demonstrating clear leadership by the public sector to encourage future widespread acceptance
- supporting the London Legacy Development Corporation and Mayor of London in developing their plans for the Queen Elizabeth Olympic Park; this aims to consolidate the success of the Games in order to maximise the economic and social benefits from the Olympic legacy, including plans for a new higher education and cultural quarter on the Park, in partnership with University College London and the Victoria and Albert Museum
- opening a £10 million competitive fund in 2014 to market test innovative solutions, delivering superfast broadband services to the most difficult to reach areas of the UK; the government will continue to support local bodies to develop appropriate strategies to procure additional coverage in areas not covered by current plans, using the £250 million allocated at Spending Round 2013
- reviewing the legislative and regulatory framework for developing and testing driverless cars in the UK, reporting by the end of 2014, and creating a £10 million prize for the development of a town or city as a testing ground

The government will continue to provide support to local areas to finance crucial infrastructure projects by:

- allocating nearly £800 million of borrowing at the Public Works Loan Board project rate to Local Enterprise Partnerships in partnership with local authorities in 2014-15 and 2015-16 as part of growth deals
- allowing local authorities in Scotland and Wales access to cheaper borrowing at the Public Works Loan Board (PWLB) project rate to support the delivery of priority infrastructure projects

The government will continue to work to ensure that the planning system does not act as a barrier to vital infrastructure investment. It will:

- continue to refine the Nationally Significant Infrastructure Projects (NSIP) regime as lessons are learned from projects going through it, including:
  - launching an overarching review of the NSIP regime, while freezing planning application fees for the NSIP regime for the remainder of this parliament
  - having regard to the designation of a 'Top 40' priority investment when considering applications for the NSIP regime
  - providing policy certainty and confidence for the transport sector through the publication of a National Networks National Policy Statement (NPS)
- reform the judicial review (JR) system to tackle delays to infrastructure delivery and reduce the impact of meritless claims; it will establish a specialist planning court with set deadlines to accelerate the handling of cases, introduce legislation to ensure that minor procedural claims are dealt with proportionally and allow appeals to 'leapfrog' directly to the Supreme Court in a wider range of circumstances
- take further steps to address delays at every stage of the planning process and incentivise improved planning performance, by:
  - consulting on mechanisms to speed up Local Plan production, including a statutory requirement to put local plans in place
  - addressing delays associated with the discharge of planning conditions
  - consulting on proposals to reduce the number of applications where unnecessary statutory consultations occur
  - ensuring that households benefit from developments in their local area; building on the measures it has already put in place (including the neighbourhood funding element of the Community Infrastructure Levy), the government will work with industry, local authorities and other interested parties to develop a pilot passing a share of the benefits of development directly to individual households

The government will ensure that our regulatory system works as effectively as possible for consumers and the economy as a whole by initiating a joint HMT/BIS study to examine how regulators can better address cross-sector issues, how they support economic growth, and options to improve the impact of the regulatory environment on consumer outcomes.

Moving public assets to the private sector where they will be better managed drives efficiencies and growth. With the privatisation of Royal Mail and sale of shares in Lloyds Banking Group, central government has delivered sales of over £11 billion since May 2010. In 'Investing in Britain's Future', the government set out its initial plans to build on this progress from 2015 to 2020. The government has now identified further assets with the potential for sale and the

target for the sale of corporate and financial assets will be increased from £10 billion to £20 billion between 2014 and 2020.

# 1 The case for infrastructure investment

## The government's vision for UK infrastructure

1.1 The government is committed to strong and balanced economic growth, underpinned by sustainable public finances and an economy in which success is spread evenly across different regions and sectors. The government's infrastructure strategy supports that broader commitment.

1.2 Infrastructure must strengthen and drive the economy, create jobs and act as a key enabler for future economic development and rising living standards across the whole country. That is why the government is taking steps to address the legacy of historic under-investment and short-term thinking in our key infrastructure sectors. It is also why it is acting now to maintain and upgrade our existing networks, and ensure that the UK has the infrastructure it needs to support future economic growth.

1.3 The government's ambition is to equip the UK with world-class infrastructure, which rivals that of all its OECD counterparts in every sector and ensures the country can compete in the global race. Infrastructure is the backbone of any modern, successful and competitive economy, which will require:

- an integrated transport system that provides reliable, cost-effective domestic and international connections for organisations and individuals
- digital networks that enable us to access crucial information and resources, and communicate with each other and people across the world from our homes and workplaces and on the move
- sustainable, reliable and affordable energy, water and waste networks that mean we have sufficient energy, clean water and protection from the consequences of flooding and climate change

1.4 In addition, the government increasingly sees science, research and innovation as a core element of our overall infrastructure strategy, recognising that our ability to drive and embrace change will be crucial to our ability to compete successfully on a global stage. For that reason, this National Infrastructure Plan 2013 brings investments related to science and innovation into its list of its Top 40 priority investments for the first time.

## The need for infrastructure investment

1.5 The government's infrastructure strategy is based around providing the infrastructure that it believes the country needs now and in the future, in order to:

- meet current demand through the renewal of existing infrastructure: extensive use of the UK's infrastructure, some of which is many decades old, means that maintenance and upgrades are essential to ensuring that current and future generations can continue to benefit from it; upgrading infrastructure also keeps running costs low and ensures smooth and efficient operation with minimal disruptions

- meet future demand: the Office for National Statistics forecasts that the UK population will grow to over 73 million people by 2035;[1] this will create the need for better and more efficient infrastructure, serving more homes and increasing capacity on existing networks
- grow a global economy: the UK is both competing and collaborating with an ever increasing number of countries around the world, attracting business and skilled labour, and trading in goods and services - if the UK wants to remain and grow as a global player it needs to have modern infrastructure networks, particularly in ports, airports and communications
- address climate change and energy security: the UK needs a resilient and secure energy supply that allows it to meet people's energy needs in a sustainable way; the UK will need to get 15 per cent of its energy generation from renewable sources by 2020; the need to meet these environmental targets also has broader knock-on effects for other infrastructure sectors

## Infrastructure and economic growth

1.6 There is some evidence that a lack of investment in infrastructure has already been detrimental to the UK. In 2013, a report by the Civil Engineering Contractors Association found that: [2]

- UK GDP could have been five per cent higher, on average, each year between 2000 and 2010 if its infrastructure had matched that of other leading global economies
- the cost of infrastructure in the UK which fell short of typical developed economy standards was up to £78 billion each year between 2000 and 2010
- if UK infrastructure is not brought up to the standard of other developed economies, by 2026 this could create an annual loss to the economy of £90 billion

1.7 The impact of infrastructure on economic performance can be observed in both the long and short term, with different sectors likely to contribute in different ways. For example, investment in sectors such as energy, water and waste is often necessary simply to enable economic activity to take place, though it can also have short-term growth impacts. In other areas, such as transport and digital, there is more likely to be a long-term multiplier effect.

### Short-term impacts

1.8 Infrastructure has a short-term impact which occurs as it is built, improved or maintained. This activity creates the need for additional material to be produced and services to be employed, leading to job creation across the relevant parts of the supply chain until the work is completed.

### Long-term impacts

1.9 Infrastructure is also vital to long-term growth. Improving infrastructure can have a variety of effects: it can give workers access to more and better jobs while helping those out of work to find jobs; it may improve the choice, price and quality of goods and services for consumers; and it can enable businesses to interact with a greater number of other firms.

1.10 Improved infrastructure networks allow the economy to function more efficiently, for instance by allowing more entrants to the market and enhancing competition, supporting jobs and economic growth. It is also important to recognise that the development of infrastructure is

[1] http://www.ons.gov.uk/ons/rel/npp/national-population-projections/2012-based-projections/index.html
[2] Securing our economy: the case for infrastructure, Civil Engineering Contractors Association, May 2013

not just a matter of creating new facilities – it is also necessary to improve the capacity of the installed infrastructure base, through initiatives such as managed motorways and smart meters.

## Providing for uncertainties

1.11 Infrastructure equips a country for future economic growth, and is often a pre-requisite for economic expansion to occur. This means making provision now for future capacity needs: for example, the construction of what was at the time over-capacity on the London Underground, the Thames sewers and the UK's rail network have all contributed to the success of the UK's economy over the years.

1.12 Planning infrastructure presents a number of challenges:

- most infrastructure projects are characterised by a long lead time from planning to completion, which means the decision to take them forward has to be made well in advance of the point that they are expected to come into service
- as a result, plans have to be based on projected rather than current demand, which is by its nature uncertain
- some infrastructure can only be built in large increments
- infrastructure needs change over time: the proliferation of communications technology means that the UK now requires broadband networks with the speed and capacity to support its role as a centre of business and finance in a way that simply was not the case 15 years ago

1.13 Decisions about individual projects and programmes may require trade-offs between the future cost of under-supplying infrastructure (including opportunity cost given its contribution to economic growth), and the costs that it imposes on taxpayers and/or consumers. This trade-off determines what and how much infrastructure should be built.

1.14 Having as full an understanding of current and future infrastructure needs as possible will help decision-makers ensure the UK has enough capacity for its future economic needs, without compromising value for money in the process.

## What does the UK need?

1.15 Each infrastructure sector has developed differently and is subject to individual pressures and needs. The government and regulators routinely make assessments of needs data to inform their policy and regulatory decisions. The rest of this chapter examines the assessments that have been made in individual sectors; the subsequent chapters then detail the government's policy approach to ensuring that these needs are met.

### Roads

1.16 The road networks that cross the country are vitally important to the UK, allowing people to get to their jobs and facilitating the delivery of freight to where it is needed. The strategic road network, despite only accounting for 2 per cent of roads in the UK, deals with over 65 per cent of freight traffic.[3]

1.17 Changes in demand for road travel are largely caused by macro factors such as increases in population and shifts in the makeup of that population, wider economic growth and the cost of driving. Analysis by the Department for Transport indicates that likely rises in both the population,

[3] Road Transport Forecasts 2013 - Department for Transport, 2013

and in GDP per capita, will cause a significant rise in demand for use of the road network. These estimates demonstrate that by 2040 traffic growth across all roads could be 43 per cent.[4]

1.18 This increasing demand means that roads are becoming increasingly congested, and lack the capacity to deal with the demands placed on them. The problem is going to get worse without action, as tables 1.A and 1.B illustrate.

**Table 1.A: Change in congestion on Road Network in England from 2010**

| Year | Low Forecast | Central Forecast | High Forecast |
|---|---|---|---|
| 2020 | 6 per cent | 15 per cent | 26 per cent |
| 2030 | 22 per cent | 41 per cent | 67 per cent |
| 2040 | 33 per cent | 62 per cent | 109 per cent |

*Source: Draft National Networks Policy Statement 2013. Percentages have been rounded to nearest whole number*

**Table 1.B: Change in congestion on Strategic Road Network from 2010[5]**

| Year | Low Forecast | Central Forecast | High Forecast |
|---|---|---|---|
| 2020 | 2 per cent | 19 per cent | 42 per cent |
| 2030 | 32 per cent | 71 per cent | 137 per cent |
| 2040 | 52 per cent | 120 per cent | 256 per cent |

*Source: Draft National Networks Policy Statement 2013. Percentages have been rounded to nearest whole number*

1.19 If no steps are taken to address the need to increase the capacity of the road network, and ease congestion, the UK will suffer economically. A 2006 study of the UK transport system by Sir Rod Eddington warned that the cost of congestion could potentially rise to £36 billion per annum by 2025.[6] After years of underinvestment, the government is making the largest investment in roads since the 1970s in order to ensure that the UK's road networks can support economic growth, but there is still more to do.

1.20 Transport will play an important part in meeting the government's environmental targets. As part of this there is a need to shift to more environmentally sustainable technologies and fuels, and to promote lower carbon transport choices. Over the next decade, the biggest reduction in emissions from domestic transport is likely to come from efficiency improvements in conventional vehicles, specifically cars and vans, driven primarily by EU targets for new vehicle CO2 performance. Over this period an increasing numbers of ultra-low emission vehicles (ULEVs) are also expected to come to market. Government is committed to speeding the transition to ULEVs by addressing areas where the market alone might not deliver the best outcomes in the shortest possible timescale.

## Rail

1.21 The UK was a leading pioneer in the development of rail, and the rail network today is still essential for both commuters and goods. Over four million journeys are made by rail every day, and passenger numbers have increased by 54 per cent in the last ten years, doubling since privatisation, with forecasts showing that these increases are set to continue. Last year the

[4] Road Transport Forecasts 2013 - Department for Transport, 2013

[5] Investment assumptions do not take account of announcements made in *Investing in Britain's Future* in June 2013

[6] *The Eddington Transport Study,* Sir Rod Eddington, December 2006

number of passenger journeys rose by 3 per cent, and the volume of freight moved by rail grew by 2 per cent.[7]

1.22 Passenger demand is largely driven by commuter needs, both in terms of demographic shifts and congestion on other modes of transport. Commuting is increasing as more and more jobs are located in regional centres, and other forms of transport, such as roads, are seen as less attractive. Freight demand is growing due to a shift from the use of roads to rail for transportation.

1.23 The Office of Rail Regulation (ORR) estimates that there will be a 14 per cent increase in demand from passengers over the next five years, while there will be an overall increase in tonne kilometres of freight of 3 per cent annually to 2033 and 2.9 per cent to 2043, putting additional strain onto the system.[8]

1.24 Much of the infrastructure that supports the network is already nearing its capacity limits. Commuter services into London and other regional centres are already oversubscribed, meaning that capacity is set to become an increasingly prominent issue over the coming years.

### Aviation

1.25 Air travel plays a key role in the UK economy, allowing us to connect with the rest of the world and function as a key hub for international business. Heathrow is one of the busiest airports in the world, bringing visitors from overseas and allowing easy access to the financial centre of London. 220 million passengers have access to over 360 destinations worldwide, and goods worth £116 billion are shipped between the UK and non-EU destinations each year, making the UK one of Europe's most important aviation hubs.[9]

1.26 Demand for air travel is forecast by the Department for Transport to increase within the range of 1 per cent to 3 per cent a year up to 2050.[10]

1.27 Taking into account the effect of capacity constraints, passenger numbers at UK airports are set to increase from 219 million passengers in 2011 to around 315 million in 2030, and to 445 million by 2050. This is an increase of 225 million passengers over the next 40 years compared to an increase of 185 million since 1970.[11]

1.28 Growth in air freight has been slower, and despite a period of sustained growth in the late 1990s, use of air freighters has been in decline for the last decade. Current Department for Transport forecasts estimate that air freight use will increase at an average rate of 0.4 per cent a year.

1.29 Demand for air travel is influenced by macro-economic factors, such as the cost of fuel and GDP per capita, but also by restraints on capacity and connectivity. The major South East airports, including Heathrow and Gatwick, are forecast to be full between 2025 and 2050, meaning that levels of future demand are currently forecast to be in excess of capacity.[12]

### Ports

1.30 95 per cent of all goods in and out of the UK are moved by sea, making port infrastructure crucial to the UK's economic prosperity. The need for port infrastructure in the future is partly a function of the demand for increased capacity, but must also take into consideration the

[7] Passenger Journey by Sector, National Rail Trends Portal, ORR, http://dataportal.orr.gov.uk/displayreport/report/html/978eccd3-abbc-402e-9965-af2200234414.; Rail Freight Moved, National Rail Trends Portal, ORR, http://dataportal.orr.gov.uk/displayreport/report/html/79c33859-004c-486b-b752-cd485b1dba9

[8] *The Freight Market Study*, Network Rail, October 2013

[9] *UK Aviation Forecasts*, Department for Transport, January 2013

[10] ibid

[11] ibid

[12] ibid

requirement to respond flexibly to changing patterns of demand, so that capacity is located where it is most required.[13]

1.31 Forecasts of demand for port capacity in the period up to 2030 were published on behalf of the Department for Transport in 2006 and updated in 2007. The forecasts suggested increases by 2030 of 182 per cent in containers, from 7 million to 20 million, 101 per cent in roll-on/roll-off traffic, from 85 million tonnes to 170 million tonnes; and 4 per cent in non-unitised traffic, from 411 million to 429 million tonnes. These forecasts were prepared before the economic downturn, which is likely to have had a lasting effect on port freight demand. The department intends to commission fresh forecasts shortly.[14]

1.32 Ports also have an important role to play in the import and export of energy supplies and consequently in the security of the UK's energy supply. In addition, ports will also be important in the development of the UK's offshore wind capacity, through contributing to the building, maintenance and operation of offshore wind developments.

## Energy

1.33 Energy underpins the operation of a successful economy and allows other infrastructure networks, including transport and communications, to function. Driving reductions in demand through energy efficiency and making sure that there is enough supply to meet the country's energy needs in a sustainable way is central to the UK's continued success.

1.34 The UK's primary energy supply is currently met from the following main sources:

- natural gas (35 per cent)
- oil (32 per cent)
- coal (20 per cent)
- nuclear (7 per cent)
- biomass and waste (4 per cent)
- wind, hydro and solar photo-voltaic (1 per cent)[15]

1.35 Electricity accounts for around 19 per cent of final energy consumption. Since 2011, 8 per cent of generating capacity has closed under the Large Combustion Plant Directive and a further 10-12 per cent of current power generating capacity is due to close over the coming decade. This in turn means that in the near term we are likely to see a reduction in electricity margins to between 2 per cent and 5 per cent in 2015-2016 depending on demand, which would increase the probability of a supply disruption.[16]

1.36 Large scale investment in gas and low carbon generation technologies is therefore vital in order to replace our ageing energy infrastructure and maintain secure energy supplies. It is also essential to meeting the UK's legally binding targets to cut emissions by at least 80 per cent by 2050 and to source 15 per cent of its energy from renewable sources by 2020.

1.37 It is also crucial to secure this investment in a way that minimises costs for households and businesses and maximises benefits to jobs and growth. Investment in energy infrastructure will provide a boost to our economy and support supply chains, jobs and skills development.

[13] National Policy Statement for Ports, Department for Transport, February 2012

[14] National Policy Statement for Ports, Department for Transport, February 2012

[15] The remainder (less than one percent) is net imports. Digest of UK Energy Statistics, Department of Energy and Climate Change, July 2013

[16] Electricity Capacity Assessment Report 2013, Ofgem, June 2013

1.38 While progress has been made and there is also strong potential in the forward pipeline of projects, it is estimated that replacing and upgrading our electricity generation, transmission and distribution infrastructure will require further capital investment of up to £110 billion from now until 2020.[17]

1.39 Future infrastructure needs in the energy sector are influenced by future demand, though this can be hard to predict. Despite strong emphasis on energy efficiency measures and demand management, the increasing electrification of heat and transport means that electricity peak demand is projected to move from 63GW in 2013 to between 59 and 60GW in 2020 and between 68GW and 73GW in 2030.[18]

1.40 As legacy coal, gas and nuclear power stations come off line, they will increasingly be replaced with a combination of renewable energy, new nuclear power and fossil fuel power stations fitted with Carbon Capture and Storage (CCS) technology. New (unabated) gas plant is also needed and will be vital in supplying a backup for less flexible renewable generation and ensuring that the system can meet peak electricity demand. With gas also continuing to play a major role supplying heat to homes and businesses over the medium term this means demand for gas will remain significant for some time to come.

1.41 As set out in Chapter 3, the government is taking steps to stimulate the energy investment required to address the future capacity challenge, as well as to manage demand and optimise the usage of energy that is produced through greater energy efficiency. Measures such as smart metering will provide an important platform to helping improve the UK's demand management of its energy needs.

### Flood defences

1.42 Flooding will continue to be a significant risk for some UK households as sea levels continue to rise. Approximately 5 million properties are exposed to at least some level of flood risk. Severe flooding can cause immense amounts of damage to both the economy and people's lives – the floods of 2007 are estimated to have cost around £3 billion.[19]

1.43 Without further investment in flood defence infrastructure, the number of properties at risk and potential damages is expected rise due to asset deterioration, climate change and development in areas of risk. An independent assessment, whilst acknowledging the difficulties in trying to forecast data of this nature, noted that the number of properties facing significant risk of flooding could rise from 560,000 to between 770,000 and 1.3 million by 2050.[20]

### Waste

1.44 In the waste sector, the UK requires sufficient capacity to be in place to meet the requirements of the EU Landfill Directive targets for biodegradable municipal waste (BMW).

1.45 The target requires that the amount of BMW sent to landfill in 2020 is reduced to 35 per cent of 1995 levels (to 10.2 million tonnes). Renegotiation of the UK's targets will commence in 2014 and is expected to conclude sometime between 2016 and 2018.

### Water

1.46 Many people take safe and reliable access to clean water for granted, but some of the UK's water networks require regular repair – one third of the mains below London are estimated to be over 150 years old. In addition, the impact of the climate, population changes and EU

[17] Electricity market reform: policy overview, Department of Energy and Climate Change, May 2012
[18] *Updated Energy and Emissions Projections: 2013*, Department of Energy and Climate Change
[19] The costs of the summer 2007 floods in England, Environment Agency, December 2007
[20] *Climate Change Risk Assessment Summary: Floods and Coastal Erosion*, Defra, July 2012

regulations to protect and improve the quality of our water environment mean new demands on the sector.

1.47 The Environment Agency has published forecasts on water use out to the 2050s, under the title 'Water: Planning ahead for an uncertain future'. This study utilised a number of alternative scenarios to generate forecasts for consumption. Table 1.C demonstrates upper and lower estimates for the two extremes – 'sustainable behaviour' and 'uncontrolled demand'. These show that, as an upper estimate, total demand could increase by up to 35 per cent per household between 2011 and 2050 in an 'uncontrolled demand' scenario.

**Table 1.C: Forecast UK water usage up to 2050**

| Type of usage | Unit | Value | | Percentage change between 2011 and 2050 | |
|---|---|---|---|---|---|
| | | Upper | Lower | Upper | Lower |
| Per capita consumption | Litres per head per day | 165 | 110 | 5 | -30 |
| Household | Million litres per day | 13,000 | 7,250 | 55 | -15 |
| Industrial and commercial | Million litres per day | 8,250 | 6,250 | 10 | -15 |
| Leakage | Million litres per day | 3,500 | 3,000 | 10 | -15 |
| Agriculture | Million litres per day | 1,000 | 700 | 180 | 85 |
| Total demand | | 26,000 | 17,250 | 35 | -15 |

*Source: Environment Agency (totals may not add up due to rounding)*

## Science and innovation

1.48 Science and research underpin innovation, and as such have a vital role to play in achieving growth and a technologically advanced economy that is able to help the UK stay ahead of its international competitors. The government wants to safeguard the UK's reputation as world leaders in this sphere, and make sure that it is fostering a climate in which innovation can flourish and succeed and where the best and brightest are drawn to these shores.

1.49 However, due to the fast-moving and unpredictable nature of innovation it is difficult to anticipate 'need' in the conventional sense. As a result it is important to put in place the right framework to make sure that the UK is well positioned to adapt and take advantage of changes in technology, and has a thriving and well-funded science, research and innovation sector, including supporting specific projects that could lead to significant advancements or breakthroughs.

## Digital communications

1.50 Digital communications are transforming society and the way we do business, and the pace of change shows no sign of abating. Digital infrastructure influences people's ability to access information and to connect and communicate with the wider world. The internet economy is worth over £120 billion each year to the UK, which is equivalent to 7.7 per cent of GDP, and this is predicted to increase over the next few years. The fast pace of innovation in the digital sector and the resulting sharp fall in costs that makes the technology widely accessible,

together with the wide application of digital technology, makes predicting need in this sector difficult to forecast with any degree of accuracy.[21]

1.51 The information economy offers the UK huge opportunities, but only if it has the right infrastructure in place to take advantage of them. The demand for digital services is only going to increase, and as a result the UK will have to ensure that it has the right digital networks in place and that it is fully utilising the potential of its spectrum resource.

1.52 Research by Cisco indicates that:

- global mobile data traffic grew 70 percent in 2012 with global mobile data traffic reaching 885 petabytes per month at the end of 2012, up from 520 petabytes per month at the end of 2011;
- tablets will exceed 10 percent of global mobile data traffic in 2015; and
- by the end of 2013, the number of mobile-connected devices will exceed the number of people on earth, and by 2017 there will be nearly 1.4 mobile devices per capita. [22]

## Conclusion

1.53 Need is often difficult to predict, and there is a judgement call to be made on the necessary trade-off between the need to protect the economy and consumers by having sufficient infrastructure capacity of the right quality, and the costs to taxpayers and consumers of doing so.

1.54 This government is taking action to ensure that the UK has the infrastructure it will need to be successful in the global race, and does not face an infrastructure deficit in years to come as a result of historic under-investment. The subsequent chapters consider the state of infrastructure in 2013, and the steps the government is taking to deliver the long-term infrastructure investment the UK needs.

[21] *Connectivity, Content and Consumers: Britain's digital platform for growth*, Department for Culture, Media and Sport , July 2013; *Future demand for mobile broadband spectrum and consideration of potential candidate bands*, Ofcom, 2013

[22] Cisco Systems - Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013

# 2 UK infrastructure in 2013

2.1 The government recognises that meeting the UK's infrastructure ambitions and the long-term needs set out in the previous chapter requires a long-term sustainable plan. That is why the government published the first ever National infrastructure Plan in 2010 and has provided annual updates since then.

2.2 It is also why the government has consistently made tough decisions on day-to-day spending that have enabled it to prioritise vital capital investment, and has set the overall policy direction to deliver the right level of private sector investment in infrastructure to meet the UK's needs.

2.3 This chapter summarises progress made delivering the UK's infrastructure requirements and analyses the latest infrastructure pipeline data. The pipeline provides a strategic overview of the public and private infrastructure investment that is likely to be required to meet the UK's infrastructure needs to the end of this decade and beyond.

## What has been delivered so far?

2.4 Since 2010, there has been major progress delivering infrastructure funded through a combination of public and private investment:

- the Highways Agency and Local Authorities have completed 36 transport projects worth over £1.7 billion including:
    - 9 Highways Agency major projects covering 360 lane kilometres and improvements to the UK's most congested routes such as the M62 (J25 to J30) in the North West, A1 Dishforth to Leeming in North Yorkshire and M1 (J10 to J13) in the South East
    - 27 Local Authority major projects around the country including the Greater Bristol bus network, Poole Bridge and the Blackpool tram upgrade
- the Environment Agency and Local Authorities have completed 353 flood and coastal erosion schemes, improving the standard of protection to over 112,700 homes, including major projects in Redcar, North Lincolnshire, Nottingham Trent (Left Bank), Essex Canvey Barriers, Deptford and Cockermouth
- government has funded the roll out of superfast broadband which has reached over 140,000 premises so far, with 10,000 additional premises being passed per week
- Network Rail has completed major station upgrades including King's Cross station which will unlock 2,000 new homes, 3.4 million square feet of workspace and 500,000 square feet of retail, as well as improvements to Derby, Kettering, Aylesbury and Chester, as part of the Control Period 4 programme of investment which has already delivered upgrades to 150 different stations across the UK
- working in partnership with universities and industry, the government has invested in large research facility projects worth nearly £500 million including Diamond Phase II, the Royal Research Ship Discovery replacement, Halley VI Research Station, laboratory for Molecular Biology in Cambridge as well as major investments in

existing research facilities such as a £10 million investment in the Daresbury Science and Innovation Campus

- Transport for London has completed major upgrades to the London Underground including completion of the Jubilee line signalling and Victoria line upgrades (now one of the highest frequency lines in the UK allowing the Victoria line to carry 10,000 more passengers an hour), Farringdon ticket hall, new investment in hydrogen hybrid buses and installation of 1,300 electrical vehicle charging points

2.5 The government has also supported significant private sector investment, providing the policy framework and creating the right delivery environment to enable:

- completion of the London Gateway port and logistics park upgrade providing 2,700 metres of quay, six deep-water berths, 24 giant quay cranes and an annual capacity of 3.5 million TEU[1]
- 80 different electricity generation schemes owned by major generators have completed since 2010, providing over 13,500MW of electricity, enough to power over 14 million homes annually; this includes six Combined Cycle Gas Turbine (CCGT) schemes, 11 offshore wind schemes including phase one of the London Array, the world's largest offshore wind farm, 60 onshore wind schemes, one hydroelectric scheme and two energy from waste schemes
- two new electricity transmission projects are complete, increasing transfer capacity in rural areas of Northern Scotland and two gas storage projects in North Yorkshire and Cheshire have been completed
- there have been upgrades at Heathrow and Gatwick, which are both currently undertaking significant investment programmes, worth £5.5 billion and £900 million respectively, as well as Manchester International Airport and Birmingham Airport, which is extending the runway by 350 metres connecting the West Midlands to even more international routes

2.6 Despite the progress made, there is no room for complacency. In addition to the programme of capital spending set out at the start of this Parliament, at the 2011 and 2012 Autumn Statements the government prioritised and brought forward capital investment on a total of 27 road, rail and flood defence schemes. 99 per cent of these schemes are on track according to the timetables set at the time of announcement. 2 of these schemes, and a further 11 individual projects, have completed as planned and a further 38 individual projects are in construction.

## The infrastructure pipeline

2.7 All projects that are currently underway, whether at the early stages of design and scoping or those that have nearly finished construction, and whether they are being delivered through public or private investment, need to be delivered efficiently and effectively in order to meet the UK's needs. The government publishes the infrastructure pipeline to bring the largest of these projects and programmes together and give greater visibility and understanding of potential investment.

2.8 The National Infrastructure Plan 2013 sets out the most robust, forward-looking infrastructure pipeline to date. In response to industry input, it includes more detail than ever before of the status of planned and potential infrastructure investments in the UK.[2] This includes significant ongoing investment in national programmes of maintenance and renewals.

[1] Twenty-foot Equivalent Unit – a measure of container handling capacity.
[2] https://www.gov.uk/government/organisations/infrastructure-uk

2.9 The infrastructure pipeline is a forward-looking, bottom up assessment of potential infrastructure investment to 2020 and beyond, which includes large infrastructure projects with a capital value of £50 million and over. The pipeline also includes large capital programmes of investment worth £50 million or over, which may consist of a number of smaller projects which are grouped together and are often rolling investments. For instance, the pipeline includes flood defence programmes which incorporate a number of smaller individual schemes.

2.10 This provides a strategic and more credible overview of the level of public and private infrastructure investment planned over the rest of this decade and beyond. It enhances visibility and certainty for investors and the supply chain, and allows government to work more effectively to ensure that its infrastructure needs are met.

2.11 The pipeline has been updated to reflect the long-term capital spending decisions set out at the 2013 Spending Round and allocations or provisions for the next price control periods for rail, water and the regulated airports. [3] It has also been updated to reflect progress made over the last twelve months delivering Electricity Market Reform, including greater accuracy on potential investment in the energy sector.

2.12 To ensure that private sector investment in infrastructure provides value for money and is affordable for consumers, the government ensures there is a competitive market in place, including putting in place appropriate regulatory regime where necessary. As a consequence, the government does not anticipate that each individual private sector investment in the pipeline will necessarily proceed, but that the market, supported by appropriate policy interventions where necessary, will operate in a way that meets the UK's overall infrastructure needs.

2.13 The pipeline gives government and industry the tools it needs to improve and accelerate delivery and create more sustainable supply chains to support the UK's infrastructure needs now and well into the future. It allows government to work more strategically than ever before, looking across sectors to understand and, where necessary, take action to ensure that projects are delivered on time and at the minimum cost to taxpayers and consumers. It also gives the supply chain, infrastructure providers and other interested parties visibility over the potential levels and patterns of infrastructure activity.

2.14 The pipeline also provides a vehicle for improved capacity utilisation and skills development. For example, the pipeline is already being used to help identify and address pinch-points in supply chain capacity – HS2 Ltd is now building on the report published by the government in 2012 that used the pipeline to identify issues in the tunnelling sector. The government will continue to improve and utilise the pipeline data and improve delivery, building on continued industry support. More details on this are set out in Chapter 7.

2.15 In summary, the refreshed pipeline shows that:

- the overall value of the pipeline has increased from over £309 billion to over £375 billion of investment, made up of large individual projects and capital programmes of investment worth over £50 million[4]
- most of the value of the pipeline is in the energy and transport sectors, worth over £340 billion of combined investment
- the value of forward investment in the energy sector has been updated to reflect developers' current build profiles, increasing the size of overall capital investment in energy with over £98 billion of investment now planned in 2020 and beyond

[3] The final determinations for Price Review 14 for the AMP6 period will be published by December 2014 http://www.ofwat.gov.uk/pricereview/pr14/pr14publications/prs_web20130809pr14deliveryplan.pdf

[4] All the costs in the pipeline and charts and tables in this section are in 2012-13 prices unless stated otherwise

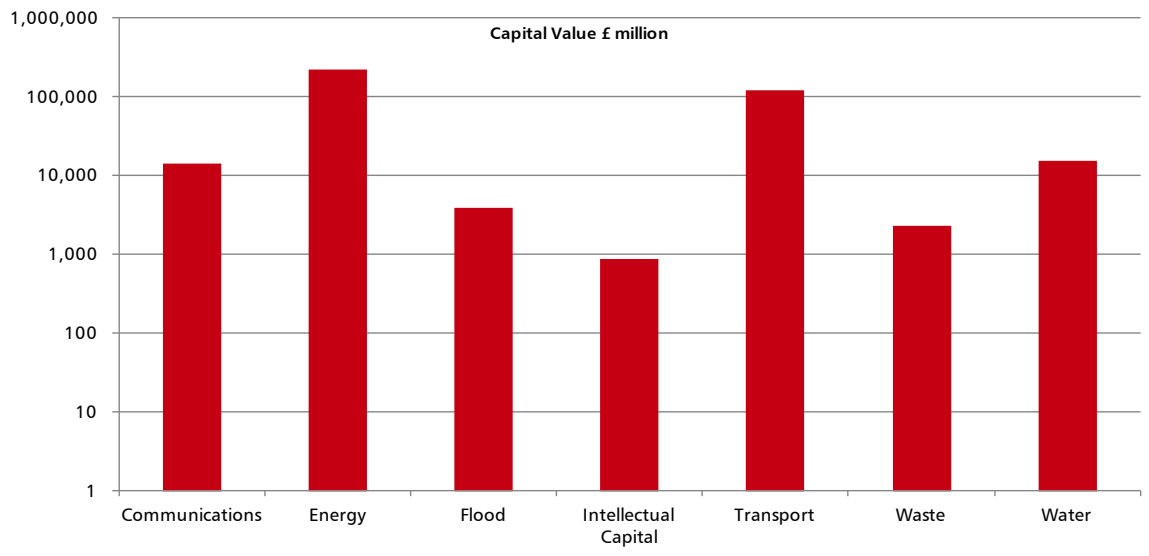
- over £260 billion (71 per cent) of the capital value of the pipeline is profiled in the next parliament and beyond
- 45 per cent of the total pipeline is currently under construction or part of an active programme of investment
- the value of pipeline investment increases year on year to 2015-16, reflecting decisions to commit long-term capital funding at the 2013 Spending Round, allocations or provisions for the next price control periods for regulated utilities and increases in energy investment
- projects and programmes in the pipeline are distributed regionally, with a range of different investments planned in each of the regions, as well as UK-wide programmes of investment

## Overall pipeline analysis

2.16 **The overall value of the pipeline has increased from over £309 billion to over £375 billion of investment,** made up of large individual projects and capital programmes of investment worth £50 million and over. The increase has been driven mainly by the inclusion of long-term capital commitments for roads, flood defences and science set out at the 2013 Spending Round; and allocation or provision of the next price control periods for regulated utilities.

2.17 Most of the investment is in energy (over £215 billion) and transport (over £120 billion). By contrast the total value of intellectual capital projects in the pipeline is less than £1 billion (see Chart 2.A below, which shows investment on a logarithmic scale).

**Chart 2.A: Pipeline value by sector**




*Source: HM Treasury Major Infrastructure Tracking Unit*

2.18 The overall value of forward investment in the energy sector has increased from £176 billion in the 2012 update of the pipeline to over £215 billion this year. The largest sub-sector within energy – electricity generation – has also increased from £123 billion in 2012 to £147 billion.

2.19 As in previous years, the number of potential projects being considered by developers – and therefore the gigawatts of new capacity that will be built – exceeds expected demand and not all of the schemes identified in the pipeline will be developed. It is a sign of a competitive

market when developers are considering more schemes than will be required, allowing only the most competitive schemes to come forward into development.

2.20 The 2013 pipeline reflects the progress made delivering Electricity Market Reform over the last 12 months. It includes the latest timescales for build profiles consistent with developers' plans. For example, Renewable UK's timelines for offshore wind show much of the development of Round 3 sites taking place beyond 2020.[5] The effect of the new projects and programmes and re-profiling the expenditure to reflect latest timescales is around £73 billion of electricity generation investment is planned to take place after 2020.

2.21 The pipeline now consists of 480 individual projects with a capital value of over £50 million. There are 166 programmes of investment, also worth £50 million or over, but which consist of 1,300 or more individual projects within these groupings, all in various stages. This includes 178 highways agency and local pinch-point road projects, over 600 flood and coastal erosion schemes and 44 rural broadband projects.

2.22 Table 2.A below shows how the major investments in different sectors vary, for instance the pipeline captures only individual projects in the publicly funded waste capital programme, whereas all but one of the investments in the water sector are programmes. This partly reflects the policy framework in place in each sector (see Chapter 3), but also the variation in condition and type of infrastructure in different sectors. For instance many of the projects included in the energy sector are new generating capacity, whereas the programmes of investment in the water sector include capital maintenance as well as renewals.

**Table 2.A: The number of projects and programmes in the Infrastructure Pipeline**

| Sector | Number of projects | Number of programmes | Overall value (£m) |
|---|---|---|---|
| Communications | 1 | 6 | 14,395 |
| Energy | 275 | 40 | 218,899 |
| Flood | 42 | 25 | 3,959 |
| Intellectual Capital | 6 | 2 | 855 |
| Transport | 121 | 62 | 121,463 |
| Waste | 34 | 0 | 2,304 |
| Water | 1 | 31 | 15,195 |
| **Total** | **480** | **166** | **377,072** |

*Source: HM Treasury Major Infrastructure Tracking unit*

2.23 291 projects and programmes (45 per cent) of the total 646 in the pipeline are currently under construction or part of an active programme of investment (see Table 2.B). Of the 146 individual projects currently in construction, 75 are due to finish by the end of 2015. A programme is described as 'active' where one or more of its component projects are in construction.

**Table 2.B: The status of schemes in the Infrastructure Pipeline**

| Sector | Scoping Phase | Planning and Consents | Consents Approved | Under Construction | Active Programmes |
|---|---|---|---|---|---|
| Communications | 0 | 0 | 0 | 1 | 5 |
| Energy | 90 | 55 | 81 | 54 | 35 |
| Flood | 22 | 2 | 7 | 12 | 24 |

[5] http://www.renewableuk.com/en/publications/index.cfm/offshore-wind-Project-timelines-2013

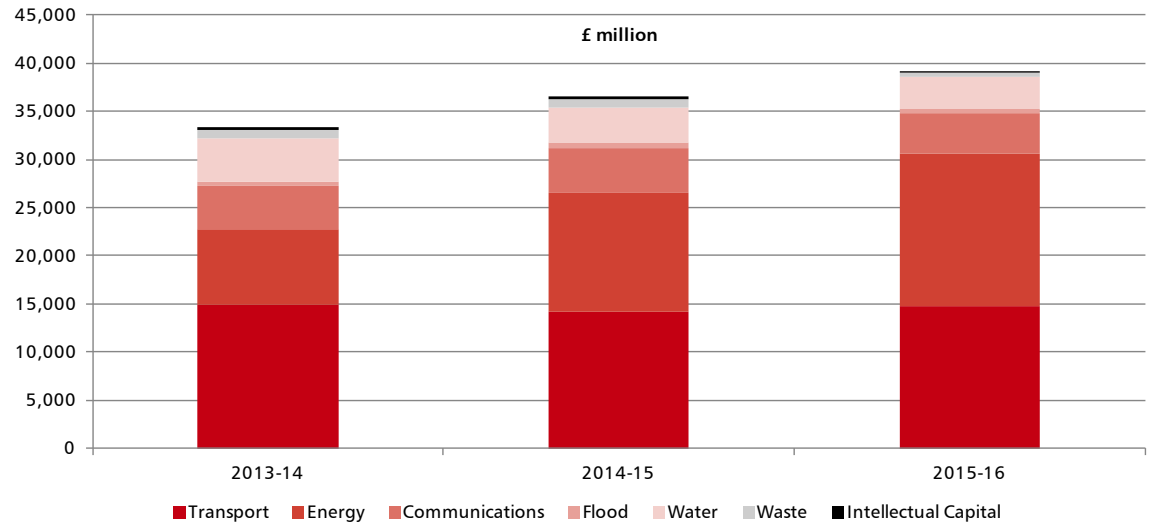
| Sector | Scoping Phase | Planning and Consents | Consents Approved | Under Construction | Active Programmes |
|---|---|---|---|---|---|
| Intellectual Capital | 2 | 0 | 0 | 4 | 2 |
| Transport | 65 | 12 | 2 | 55 | 49 |
| Waste | 0 | 2 | 12 | 20 | 0 |
| Water | 3 | 0 | 0 | 0 | 29 |
| **Total** | **182** | **71** | **102** | **146** | **145** |

*Source: HM Treasury Major Infrastructure Tracking unit*

2.24 The total aggregate value of pipeline investment increases year on year to 2015-16 reflecting long term capital commitments to infrastructure the government made at the Spending Round, allocations or provisions for the next price control periods for regulated utilities and increases in energy investment (see Chart 2.B).

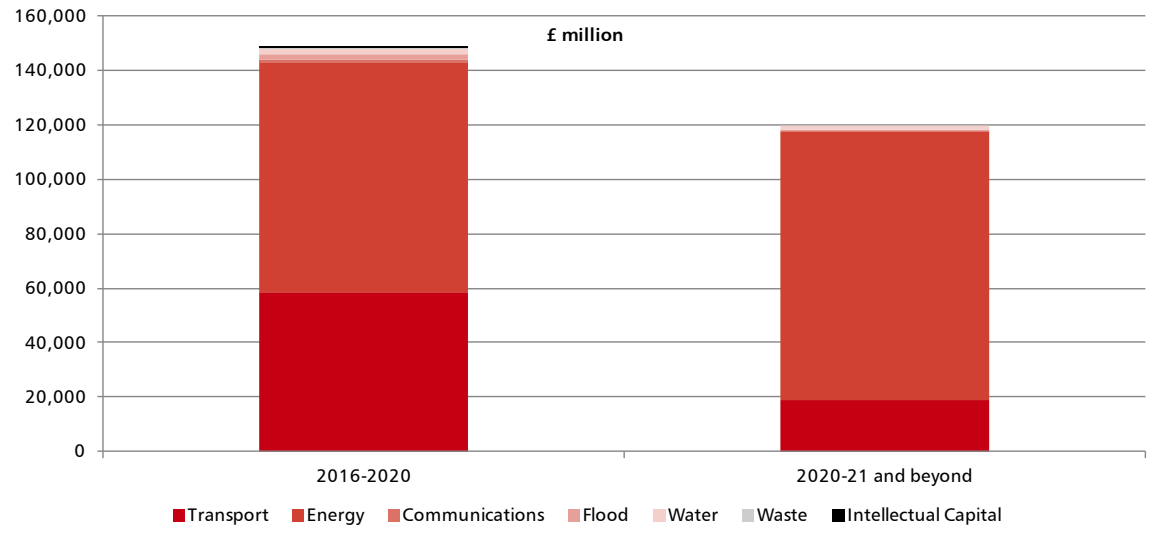
2.25 The government expects the value of the pipeline beyond 2020 (see Chart 2.C) to increase over time as decisions on future public spending and price control periods for regulated utilities are confirmed and new private sector investment for future years is added to the pipeline.

**Chart 2.B: Pipeline capital investment to 2015-16**




*Source: HM Treasury Major Infrastructure Tracking unit*

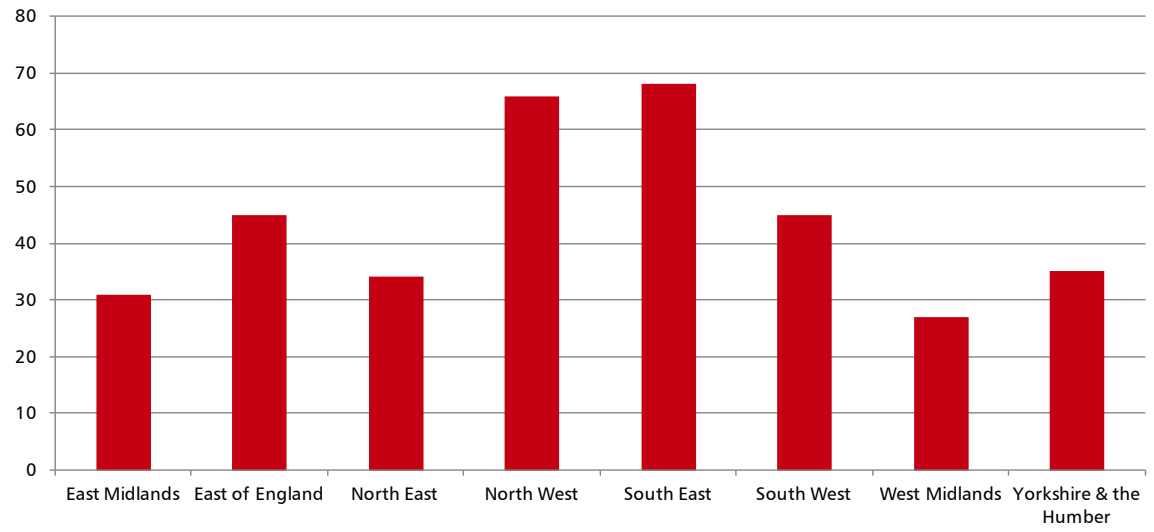
**Chart 2.C: Pipeline capital investment 2016-17 onwards**




*Source: HM Treasury Major Infrastructure Tracking unit*

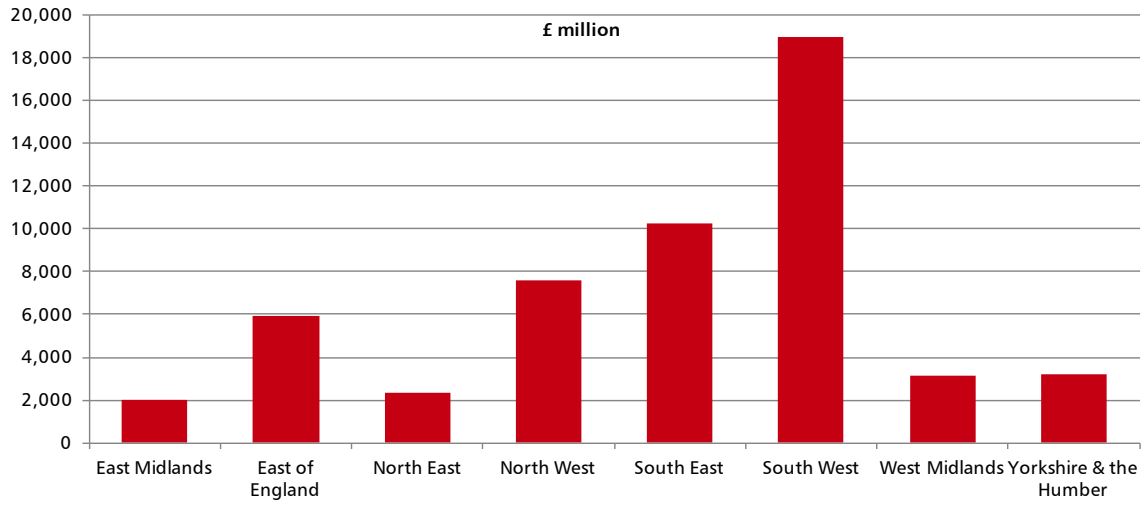
2.26 Projects and programmes in the pipeline are distributed across the UK, with a range of different investments planned in each region (see Chart 2.D). The capital value of this investment is worth over £53 billion (see Chart 2.E). This does not include London investment (see Chart 2.F) or UK-wide projects or programmes of investment or those where the investment will take place across a number of different regions, such as the roll out of smart meters (£6 billion), rural broadband (£1.4 billion) and the next price control period for the water industry (Asset Management Period 6) which has yet to be finalised. The data captures some particularly large investments, for instance Hinkley Point C (c.£16 billion in 2012-13) in the South West, which accounts for a degree of regional variation.

**Chart 2.D: Number of projects and programmes by region**



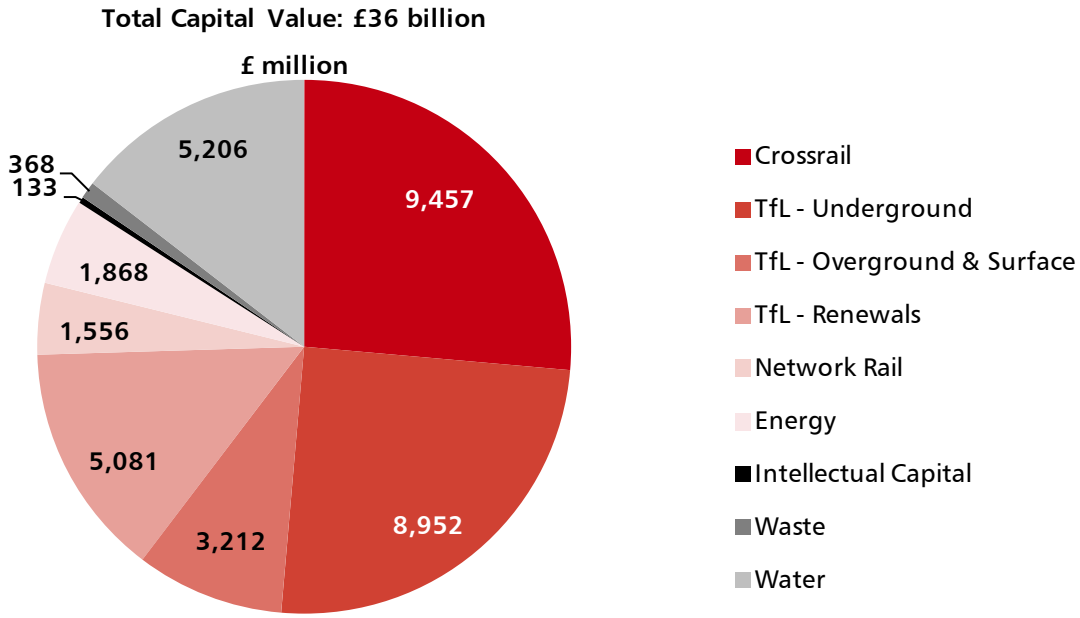

*Source: HM Treasury Major Infrastructure Tracking unit*

**Chart 2.E: Regional projects and programmes by capital value**




*Source: HM Treasury Major Infrastructure Tracking unit*

**Chart 2.F: London projects and programmes by capital value**




*Source: HM Treasury Major Infrastructure Tracking unit*

2.27 Projects and programmes in the pipeline in London amount to around £36 billion. Most of the investment is accounted for by Transport for London (TfL) projects and programmes, but include other major infrastructure projects such as Crossrail (£9.5 billion remaining of a total £14.5 billion investment) and Thames Tideway Tunnel (£4.2 billion). Owing to the existing stock of infrastructure in London, in particular the London Underground, a large proportion of investment in London is focused on TfL maintenance and renewal (over £5 billion). This is reflected in the level of overall capital investment captured in the pipeline, which alongside large capital investments to deliver new infrastructure such as Crossrail, shows greater investment in London than other regions in the UK.

## The performance of UK infrastructure

2.28 Successive governments have failed to invest sufficiently in the UK's infrastructure. The UK has paid the price, slipping from 6th to 8th in the World Economic Forum's 2013 global rankings for infrastructure. [6] That is why the government has consistently prioritised capital spending over wasteful day-to-day spending. However, it can take time for large infrastructure investments to be delivered on the ground and for the benefits to the economy to be fully felt.

2.29 As part of the 2011 National Infrastructure Plan, the government published a series of indices assessing trends in the UK's infrastructure performance. In time, this will enable the government to better understand the impact of investment on the overall performance of UK infrastructure systems and networks.

2.30 The National Infrastructure Plan 2013 sets out an updated set of indices including data for 2012 at Annex B. [7] Overall, the data points to steadily improving trends in performance, but also highlights areas where there is further work still to be done. In summary, the indicators suggest that:

- the performance of the major road network has been improving each year since 2008, with a step change in performance between 2011 and 2012 driven by a drop in the number of people killed on major roads and an improvement in traffic flow; investment in the road network resulted in traffic flow reducing by almost 1 billion vehicle-kilometres between 2011 and 2012
- the performance of the rail network has been steadily improving in recent years; there have been steady improvements in the capacity of the rail network, with the number of timetabled train km on the railways increasing by 13 per cent between 2006 and 2012 and the failure rate for rail infrastructure over the same period has decreased by 28 per cent
- the performance of the UK's airports, taken together, has remained relatively constant since 2005, with the only significant dip in performance occurring in 2010; this was due to the eruption of the Eyjafjallajökull volcano in Iceland which severely disrupted air travel throughout Northern Europe in April and May of that year
- 2012 has seen the performance of the UK's ports infrastructure fall in comparison with previous years; this is as a result of an unexplained and unexpected deterioration in the 'lead time to import' recorded by the World Bank which the Department for Transport is investigating; across all other measures, the performance of the UK's ports infrastructure remained relatively constant
- the UK's power distribution infrastructure continues to perform at a higher level than in 2005; the performance of electrical transmission and distribution infrastructure has been relatively constant over the current parliament, while gas transmission and distribution performance has been improving each year since 2010
- there has been further improvement in fixed and mobile broadband infrastructure and service delivery driven by technical innovations, including, most recently, the rollout of superfast broadband and 4G mobile communications
- England's flood risk management infrastructure has been improving on an annual basis since 2007, with more homes protected by new flood defences each year; the percentage of flood risk management assets assessed as being in an in good condition has also increased

[6] Global Competitiveness Report 2013-2014, World Economic Forum

[7] Sources for the performance indicators can be found on the Infrastructure UK website

- the UK's waste disposal infrastructure continues to perform at a greater standard then in 2005; the greatest transformation has been the increase in capacity to recycle and incinerate waste, which has dramatically reduced the amount of waste sent to landfill each year

**Table 2.C: Summary of performance trends analysis**

| Sector | Evolution of performance | |
|---|---|---|
| | Change 2005 to 2012 | Change 2010 to 2012 |
| Major Roads | ↑ Improved | ↑ Improved |
| Rail | ↑ Improved | ↑ Improved |
| Airports | ↔ Stable | ↑ Improved |
| Ports | ↓ Declined | ↓ Declined |
| Electricity | ↔ Stable | ↔ Stable |
| Gas | ↑ Improved | ↑ Improved |
| Communications | ↑ Improved | ↑ Improved |
| Waste | ↑ Improved | ↔ Stable |
| Flood Risk Management | ↑ Improved | ↔ Stable |

[a] The Performance Indicators on which this table is based can be found in Annex B
[b] +/- five points on the performance index is classified as stable

*Source: HM Treasury*

## Conclusion

2.31 The government has made good progress delivering infrastructure since the beginning of this parliament. It has set out its long-term capital plans and set the overall policy direction to delivery private sector investment in infrastructure. The pipeline reflects this and provides greater visibility of potential and planned investment than ever before. The government is also taking steps to ensure that it understands better the performance of existing infrastructure networks so that levels of infrastructure investment are appropriate and proportionate to the UK's needs. However, there is more still to be done, and the following chapters look at the UK's long-term approach to infrastructure investment and delivery.

# 3 Policy framework and key investments

## The UK's approach to infrastructure investment and delivery

3.1 In making its spending decisions, the government has consistently made tough choices on day-to-day spending that have allowed it to prioritise vital capital investment. At Autumn Statement 2011 and 2012, the government increased its capital spending plans by £10 billion over this parliament, funded through permanent reductions in wasteful spending. At Budget 2013, the government built on this approach by committing to make these increases permanent, raising capital spending by £3 billion per annum. Overall, this means that public investment will amount to over £300 billion over the next parliament. At Spending Round 2013, the government set out a programme of specific projects worth over £100 billion in the next parliament.

3.2 However, the UK has also been at the forefront of pioneering a mixed model of infrastructure investment, whereby responsibility for infrastructure investment is split between the public and private sectors. This approach allows the government to prioritise public investment and intervention in the areas of infrastructure where it is most needed, while harnessing the efficiencies created by a competitive market and commercial incentives where it can. This is consistent with the government's broader approach of ensuring that the UK is provided with the infrastructure it needs in a way that drives efficiency and value for money, and does not jeopardise the overall sustainability of the public finances.

3.3 This means that, while investment decisions in some sectors are made by government and funded through general taxation – with some funding channelled through local authorities and supplemented by local or private contributions – the government believes that in other areas competitive markets are the best way to deliver services to consumers, and provide incentives to invest and improve efficiency and service quality. This means that the responsibility for decisions on infrastructure investment lies primarily with individual companies, and that the costs of infrastructure are therefore ultimately borne by consumers rather than general taxpayers. In some sectors network effects or economies of scale limit effective competition and economic regulators act to ensure that consumers' interests are promoted, while also giving investors the confidence to deliver the infrastructure the UK economy needs.

3.4 The government is committed to providing the right policy and regulatory framework in these sectors to ensure that the right level of investment comes forward in an efficient and timely manner and in a way that is affordable for consumers. This includes recognising that it may need to intervene in areas where the market would not otherwise deliver the investment necessary to meet its wider policy objectives. However, the government often has fewer direct levers over individual investment decisions or delivery timetables in these sectors.

3.5 This chapter reflects this mixed model, setting out the government's strategic objectives and policy approach in each sector. It also identifies the key priority investments which it believes are crucial to achieving its overall objectives.

# Roads

## Strategic objectives

3.6 The government is committed to developing and maintaining a road network that will facilitate people's day-to-day activities, drive economic growth and meet the needs of road-users now and in the future. In particular, it is focused on:

- addressing road quality, increasing capacity and tackling congestion, and ensuring the network provides critical connections
- securing the network, by fixing the instability and institutional problems that have led to 20 years of underinvestment
- adapting to, and taking advantage of, technological change and meeting the government's environmental and climate change targets

## Policy approach

3.7 The government directly funds the maintenance and development of the strategic roads network through the Highways Agency. Local authorities remain responsible for managing and maintaining their local roads. They are responsible for providing improvements, with supporting funding from central government for many larger enhancement and maintenance schemes.

### Government investment decisions

3.8 At the Spending Round 2013, the government committed to the biggest programme of roads investments since the 1970s. By 2020-21, the government will treble spending on strategic road enhancements from today's levels and will invest over £28 billion in enhancements and maintenance of the road network.

3.9 In particular, the government will:

- invest £15.1 billion in our strategic roads by 2021 to counter the effects of past underinvestment
- invest more than £12 billion in maintaining the road network, including over £6 billion resurfacing as much as 80 per cent of the strategic road network
- exploit innovative technologies to explore new opportunities to make the best use of road capacity; for example:
    - building on pioneering smart motorway schemes and applying it to some of our busiest national routes
    - providing over £500 million of additional capital investment by the end of the decade to support the uptake of low emission vehicles, in addition to the £400 million we are currently investing
    - identifying and funding solutions to tackle some of the most notorious and longstanding road hot spots
    - setting clear expectations for what our 'expressways' should be able to deliver as part of our investment programme
    - providing funding to encourage the uptake of new low carbon buses

3.10 The National Infrastructure Plan 2013 also announces that:

- the government will provide funding to support improvements to the A50 around Uttoxeter starting no later than 2015-16 (subject to statutory procedures) to support local growth, jobs and housing; this project will be subject to the usual developer contributions
- the government is today confirming that there will be no tolling on the planned A14 scheme between Cambridge and Huntingdon (one of its Top 40 priority investments), construction of which is planned to start in 2016; it has listened to concerns from local residents and businesses who rely on this road and, following a consultation, has decided to take forward a scheme which does not include a tolling element
- The government will invest £5 million during 2014-15 in a large scale electric vehicle readiness programme for public sector fleets; the programme aims to promote the adoption of ultra-low emission vehicles, demonstrating clear leadership by the public sector to encourage future widespread acceptance

### Roads reform

3.11 The government also recognises that the way in which the country's roads have been run has affected the development of the network. Not only has investment been limited, but it has also been uncertain – a critical problem for upgrades that can take many years to deliver. For this reason, it has begun a fundamental reform of the way we manage England's strategic road network – the country's most important motorways and major roads.

3.12 The government intends to give long-term certainty and operational flexibility, so that the right investment can be made to ensure that the network keeps up with economic development and make sure that the roads are ready to support new growth.

3.13 It has therefore committed to transform the Highways Agency into a government-owned strategic highways company to give it greater day-to-day independence and commercial flexibility.

3.14 This includes using new legislation to provide funding certainty for committed upgrades through a new Roads Investment Strategy. This will be similar to the system which already guarantees rail investments and will allow the new company to plan investment over the long term by locking in funding for projects given the green-light. This means contractors have the confidence to start expanding their capacity by investing in new techniques, training staff and increasing employment.

3.15 The government wants to cut red tape and give the Highway Agency more of the freedoms and flexibilities of other utility providers. It will continue to explore how central government can best exercise strategic oversight of the road network without getting in the way of day-to-day delivery.

3.16 More details on the government's programme to transform the Highways Agency are set out in Chapter 7.

### What this will achieve

3.17 The investment decisions the government has taken will enable it to:

- build at least 52 major road projects by 2020-21
- add over 750 lane miles of capacity to our busiest motorways and trunk roads
- fund local authorities to tackle the significant maintenance backlog, equivalent to filling 19 million potholes a year on local roads
- resurface as much as 80 per cent of the strategic road network over the next seven years

## Key policy milestones

3.18 Table 3.A sets out the key upcoming policy milestones for roads infrastructure.

**Table 3.A: Key upcoming policy milestones for road infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of a draft National Networks National Policy Statement for consultation | Department for Transport | December 2013 |
| Publication of the government's response to the consultation into transforming the Highways Agency into a government-owned strategic highways company | Department for Transport | February 2014 |
| Publication of the National Networks Policy Statement following consultation and Parliamentary scrutiny | Department for Transport | December 2014 |
| Publication of the 'Roads Investment Strategy' | Department for Transport | December 2014 |
| Transformation of the Highways Agency into a government-owned strategic highways company | Department for Transport | Spring 2015 |

## Priority investments and key projects

3.19 The government has selected five priority investments in the strategic roads sector, which will support the development and maintenance of a roads network that will drive growth and facilitate our day to day activities. These investments consist of a number of individual schemes, which will be delivered over this parliament and the next.

### Accelerated road construction pilots

**Rationale:** These pilots were announced in November 2012 and are demonstration projects designed to halve the time it takes to deliver major road projects. Lessons learned from these pilots will be rolled out across the wider roads programme.

Key programmes/projects

The government will monitor all four projects within the initiative, in light of their role as demonstrator projects:

- M3 Junction 2 to 4a
- M6 Junction 10a to 13
- M1 Junction 28 to 31
- A160 / A180 Immingham

### Highways Agency new capacity

**Rationale:** This programme is a critical element of the government's approach to increasing road capacity.

Key programmes/projects

The government will particularly monitor five high capital value trunk road and junction improvement projects in the investment programme due for start of works in this parliament, where successful delivery is therefore particularly critical in ensuring the overall value for money of the programme:

- A1 (Leeming to Barton)
- M1 / M6 Junction 19
- A556 (Knutsford to Bowden)
- A453 widening
- A5-M1 Link Road

### Smart Motorways

**Rationale:** The Smart Motorways programme will take advantage of new technology to make better use of, and ensure that we maximise the capacity of, our existing motorway network. As such, it is a vital element of the government's overall approach to increasing capacity and tackling congestion.

Key programmes/projects

The government will particularly monitor the four high capital value projects in the investment programme for start of works in this Parliament, where successful delivery is therefore particularly critical in ensuring the overall value for money of the programme:

- M60 Junction 8 to M62 Junction 20
- M25 Junction 23 to 27
- M1 Junction 39 to 42
- M25 Junction 5 to 6-7

### A14

**Rationale:** This project is deemed to be a priority investment in its own right because of its scale (the capital value of the project is around £1.5 billion) and because of its significant strategic value through its links to other priority investments. The importance of the A14 trunk road as a link between Britain and continental Europe is set to grow as the east coast Haven ports at Ipswich, Harwich and Felixstowe expand, bringing further growth to the region. Major developments, such as the new 10,000- home village at Northstowe, the Alconbury Enterprise Zone, and expansion on the northern and eastern fringes of Cambridge, all depend on an improved A14.

### Lower Thames Crossing

**Rationale:** This project is deemed to be a priority investment in its own right because it is a long-term government priority which will play a significant role in reducing congestion and increasing capacity, as well as having strategic significance due to its links to the port development at London Gateway. It is not currently part of a Highways Agency investment programme because it is at an early stage of development.

# Rail

## Strategic objectives

3.20 The government is committed to developing the UK's passenger and freight railways in order to support economic growth, facilitate business, commuting and leisure journeys, provide a greener transport option than road and aviation, and relieve congestion on our road network.

3.21 The government's priorities for rail include:

- supporting economic growth by providing for additional capacity into major cities
- improving connectivity by increasing services and reducing journey times between cities
- improving connectivity by increasing capacity and reducing journey times between port, airports and cities
- improving reliability and reducing the environmental footprint of rail
- moving towards a railway which is financially sustainable to improve efficiency and value for money
- creating vital extra capacity on roads by supporting growth in rail freight

## Policy approach

3.22 The government's role is to provide strategic direction and funding to the railways and to procure rail franchises and projects (other than those that have been devolved).

3.23 Network Rail is the owner, operator and infrastructure manager of Britain's main railway network. It runs, maintains and develops the core physical infrastructure of the network and has to ensure efficient management of the assets over the short, medium and long-term. Network Rail provides the train operating companies with access to the network.

3.24 Network Rail is a company limited by guarantee. It is accountable to its customers and funded through a mixture of access revenue, paid to it by the train and freight operating companies, and money received from government grants.

3.25 Network Rail operates under a licence issued by the Secretary of State for Transport which the Office for Rail Regulation administers and enforces. The Secretary of State sets out what the government wants to be achieved by railway activities every five years and the public funds that are available to secure delivery, through a High Level Output Specification.

3.26 The ORR ensures that Network Rail operates and plans the future use and development of the network and maintains and enhances its assets in such a way that meets the reasonable requirements of its customers and funders.

3.27 Passenger train services are largely provided through franchises let by the government, except where these have been devolved. The Department for Transport is responsible for the design and procurement of new and replacement rail franchise services on the national rail network for which it is the franchising authority. In March 2013, the government published a detailed timetable for all rail franchises over the next 8 years.[1]

3.28 The government also directly sponsors some major rail projects, such as Crossrail (jointly sponsored with Transport for London) and High Speed 2 (HS2).

[1] The rail franchise schedule can be found on the Department for Transport website in the Rail franchising document collection

## Government investment decisions

3.29 In July 2012 the government announced more than £16 billion of funding for the current rail network from 2014–19, known as Control Period 5 (CP5). The Office of Rail Regulation confirmed this funding in its Final Determination for CP5 and set out an overall spending envelope of over £38 billion (2012-13 prices) including contributions from the train operating companies and borrowing.

3.30 This will allow Network Rail to make over £12 billion (2012-13 prices) of enhancements to improve rail services across Great Britain. This includes all the track and station enhancements set out at Annex A.

3.31 It also allows Network Rail to carry out the necessary maintenance and network operations activity, improving reliability and the environmental performance of the network. In the 6 months up to September 2013, £2.74 billion, some £15 million a day, was invested in improving the rail network.

3.32 The industry's strategy is built around a rolling programme of electrification, allowing for continued use of 'cascaded' modern electric rolling stock and exploiting synergies between schemes in order to efficiently meet forecast demand growth, support economic growth and better environmental outcomes, and secure cost efficiencies for both passenger and freight operators.

## High Speed 2

3.33 The government is also directly funding High Speed 2 (HS2): the key strategic investment for the national transport network over the medium to long term. HS2 will deliver the connectivity and capacity on Britain's major north–south lines that our economy will need for sustainable growth. It will also form the basis of a potential wider network to other parts of Britain. HS2 will link 8 of Britain's 10 largest cities, serving 1 in 5 of the UK population, and providing Britain's railways with new capacity, better connectivity and quicker journeys. It will allow more passengers to use trains and more freight operators to use rail rather than road.

3.34 The government has set a funding envelope of £42.6 billion (in 2011 prices) for HS2 construction costs and £7.5 billion for rolling stock, together with a strong cost control framework.

## What this will achieve

3.35 The government has specified the key outputs for the current Rail Network that it wishes to see as a result of the Network Rail programme of rail investment from 2014 to 2019. These include:

- improved rail industry efficiency and value for money for customers
- improved reliability: by 2019, the public performance measure which captures trains arriving on time[2] should achieve at least an overall level of 92.5 per cent and there should be a reduction to no more than 2.2 per cent in the overall percentage of trains which are cancelled or arrive at their final destination significantly late[3]
- improved passenger satisfaction
- maintained or enhanced current safety levels, including a reduction in accidents at level crossings

[2] This measures the percentage of trains arriving at destination within ten minutes of the time shown on the published timetable for long distance services, and within five minutes for regional services and London and South East services. It covers all timetabled services on all days of the week. Cancellations are included within PPM as services not arriving within time.

[3] A train is significantly late if it arrives at destination 30 or more minutes later than the time shown on the public timetable. Significant lateness covers all timetabled services on all days of the week. Cancellations and part cancellations are scored as 'significantly late'.

- the provision of additional passenger capacity at peak times in Birmingham, Leeds, Manchester and other 'urban areas' and at the main London termini
- evidence that the industry is meeting its carbon and energy efficiency objectives, and is taking the necessary steps to take account of the risks and opportunities from anticipated climate change and other environmental impacts

3.36 The government is also undertaking direct investment in HS2 to deliver vital additional capacity, cut journey times and support jobs and growth. In particular:

- it will generate total benefits of £71 billion including benefits to business of £54 billion when the entire network is completed
- the new high speed rail lines will take long distance services off existing north-to-south lines, transforming the UK's rail infrastructure and making room for faster, more frequent local passenger services
- HS2 will release vital capacity on the conventional network, meaning that more rail freight can be moved on the major north-south routes, particularly the West Coast Main Line
- it will cut journey times between many of our key cities, including Birmingham, Nottingham, Sheffield, Leeds, Manchester, Liverpool, Newcastle, Edinburgh, Glasgow and London

## Key policy milestones

3.37 Table 3.B sets out the key upcoming policy milestones for rail infrastructure.

**Table 3.B: Key upcoming policy milestones for rail infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Close of consultation on the Proposed route for HS2 Phase Two | Department for Transport | January 2014 |
| Publication of Network Rail response to Office of Rail Regulation's determination on Rail Control Period 5 | Network Rail | March 2014 |
| Start of Rail Control Period 5 | Office of Rail Regulation | April 2014 |
| Second Reading of High Speed 2 Hybrid Bill | Parliament | Spring 2014 |
| Publication of the final report of the High Speed 2 Growth Taskforce | High Speed 2 Growth Taskforce | Spring 2014 |
| Publication of government response to High Speed 2 Phase 2 route consultation | Department for Transport | December 2014 |
| High Speed 2 Hybrid Bill to receive Royal Assent | Parliament | Expected Spring 2015 |

## Priority investments and key projects

3.38 Through the High Level Output Specification, the government has specified the completion of key major projects and schemes that will support capability enhancement, and increase regional and national connectivity.

3.39 More broadly, the government has identified the following key projects and programmes that will be prioritised as part of its Top 40 priority investments:

### High Speed 2

**Rationale:** This project is deemed to be a priority investment in its own right because of its scale and strategic significance in terms of its role in increasing capacity and connectivity and supporting growth. HS2 will transform the UK's rail infrastructure and is the government's key strategic investment in the national transport network over the medium to long term.

### Northern connectivity

**Rationale:** This is a major programme of rail investment in the North of England, comprising electrification and complementary line speed improvements, construction of the new Ordsall Curve in Manchester and improvements to the Castlefield corridor in central Manchester, and line speed and capacity improvements. The programme is deemed to be a priority investment because of its strategic importance for the UK economy in terms of its role in increasing rail capacity and connectivity and high regional significance.

Key programmes/projects

The government will monitor the key elements which comprise this programme:

- Northern Hub: a programme of targeted upgrades to the railway in the North of England that could allow up to 700 more trains to run each day and provide space for 44 million more passengers a year
- North West electrification
- Trans-Pennine electrification

### Electrification

**Rationale:** This is deemed to be a priority investment because of its contribution to the government's key strategic objectives of improving capacity and connectivity while also reducing the environmental footprint of rail. Electrifying key routes on the railway will mean faster, greener, quieter and more reliable journeys for thousands of passengers and help support growth across many of our cities and towns.

Key programmes/projects

The government will particularly monitor the four largest elements of the electrification programme not included within other priority investments:

- Electric Spine
- Great Western
- Midland Main Line
- Welsh Valleys

### Line capacity improvements

**Rationale:** This is deemed to be a priority investment because of its contribution to the government's strategic objectives of providing additional capacity and improving connectivity by increasing services and reducing journey times. Line improvements include new sections of track and a range of improvements to signalling, including installation of the new European Rail Traffic Management System.

Key programmes/projects

The government will particularly monitor the six largest elements of the line improvements programme:

- Midland Main Line capacity
- East Coast Main Line
- West Coast Main Line
- Southern Train lengthening
- East-West Rail
- East Coast connectivity

### Major station improvements

**Rationale:** This is a significant investment programme rebuilding some key thoroughfares, as well as improvements to small to medium stations which allow them to continue to provide a quality service to increasing numbers of passengers. In doing so, it supports the government's strategic objectives of providing additional capacity whilst also enhancing passenger experience.

Key programmes/projects

The government will particularly monitor the investments in some of the busiest interchanges for people and freight at key strategic points on the rail network:

- Birmingham New Street
- Bristol Temple Meads
- Manchester Victoria
- Peterborough
- Reading

### Intercity Express Programme

**Rationale:** This is the largest programme of rolling stock enhancement currently underway, which will improve capacity and support the efficiency of rolling stock elsewhere on the rail network. The government will monitor this investment at programme level.

### Strategic Rail Freight Network

**Rationale:** This supports the government's objective of developing an integrated transport network, by enabling freight activity that would otherwise be undertaken by road, and supporting the connectivity of our international gateways.

Key programmes/projects

The government will particularly monitor the following investment because of its large capital value, which means that successful delivery is therefore particularly critical in ensuring the overall value for money of the programme:

- Felixstowe to Nuneaton route

### Crossrail

**Rationale:** Crossrail will increase London's rail capacity by 10 per cent - the largest increase since World War 2, as well as supporting the delivery of over 57,000 new homes and 3.25 million

square metres of commercial space. This is deemed to be a priority investment in its own right because of its size and complexity: it is the biggest construction project in Europe and is one of the largest single infrastructure investments undertaken in the UK.

### Thameslink

**Rationale:** This is deemed to be a priority investment in its own right because of its size and strategic significance. The Thameslink programme will increase train capacity on one of Europe's busiest stretches of railway (north to south through central London), providing scope for future growth. By 2018 tens of thousands of passengers daily will benefit from improved journeys (trains will run every 2-3 minutes in each direction through central London at the busiest times); better connections (many more stations outside London will be connected to the Thameslink route) and better stations. The station redevelopment will also help regenerate the wider area. The government will monitor this investment at programme level.

## Local authority transport

3.40 The government provides funding to local transport authorities in England to help them develop their local transport services and improve and maintain their infrastructure. Most Department for Transport funding is for the provision and maintenance of infrastructure such as road improvements, although some funding is provided for ongoing services, including buses.

3.41 The Local Pinch Point Fund is a challenge fund open to local authorities which will improve economic growth. 87 schemes have been funded to date. DfT funding of £215 million is enabling schemes totalling £340 million to go ahead, helping create more than 100,000 jobs.

### London

3.42 London's transport network is critical to maintaining London's status as a world class city, providing a variety of transport services for residents and visitors alike. London also makes a significant net contribution to the national economy, so the efficient operation of its transport network also helps drive growth across the UK as a whole.

3.43 Transport for London (TfL) is a public body separate to central government. It has responsibility for the majority of transport services in London. Transport for London's Business Plan and the Mayor's Transport Strategy set out the long-term plans for transport infrastructure in the capital.

3.44 However, the government is committed to supporting London transport schemes that promote growth and contribute to the national economy. As such, the government provides an annual grant to Transport for London to deliver transport services and investment in the capital, totalling £8 billion over the current Mayor of London's 4 year term. The remaining two thirds of Transport for London's activities are funded mainly by prudential borrowing and fare revenue.

3.45 The government announces in the National Infrastructure Plan 2013 that it will provide a £30 million contribution to support the construction of a new Garden Bridge across the River Thames in London. This will supplement funding from Transport for London and private donations.

### Priority investments and key projects

#### Local authority major transport schemes

**Rationale:** This is a significant investment programme improving roads that are not part of the strategic road network, supporting the government's overall objectives of addressing road quality, increasing capacity and tackling congestion, and ensuring the network provides critical connections.

Key programmes/projects

The government will particularly monitor the project that is of largest capital value within the programme in each of the English regions:

- Manchester Metrolink extensions
- Nottingham NET2
- Leeds New Generation
- Norwich Northern Distributor Road
- Sunderland Strategic Corridor
- A380 South Devon Link Road
- Croxley Rail Link
- Midland Metro extension

### Mersey Gateway Bridge

**Rationale:** This is deemed to be a priority investment in its own right, because of its scale, complexity, and the unusual way in which it is being delivered (with over 70 per cent of the funding expected to come from the private sector). The project also has considerable strategic significance for the region, as the new bridge is expected to generate 4,640 new jobs and to support sustained growth at Liverpool Ports and Liverpool John Lennon Airport.

### London Underground investment

**Rationale:** The London Underground investment programme increases capacity in a major transport link for the capital, which carries more than a billion people each year. In doing so, it supports commuter and leisure journeys and provides the connectivity required to unlock investment in underdeveloped areas of the UK's largest city.

Key programmes/projects

The government will monitor the two key elements of the London Underground investment programme:

- the Northern Line upgrade, which will deliver a 20 per cent increase in capacity by the end of 2014 through a new signalling system
- sub-surface line upgrades (Metropolitan, Circle/Hammersmith & City, and District Lines), including new air-conditioned, walk-through trains and improved signalling

### Northern Line extension to Battersea

At Autumn Statement 2012, the Chancellor announced a support package for the Northern Line extension (NLE) to Battersea Power Station. This included the approval of up to £1 billion borrowing by the Greater London Authority (GLA) to finance the construction of the NLE, the creation of an Enterprise Zone at identified sites in Wandsworth and Lambeth, and an associated UK Guarantee facility to support the loan repayment. This package was conditional on the GLA and TfL reaching - by the end of 2013 - a binding commercial agreement with the Battersea developer for the redevelopment of the power station. A satisfactory commercial agreement has now been reached between the Greater London Authority, Transport for London and the Battersea developers. The government will therefore implement its support package to enable the construction of the Northern Line extension to Battersea Power Station (subject to a satisfactory Transport and Works Act Order).

**Rationale:** This is deemed to be a priority investment in its own right, because of its high capital value and contribution to the transport connectivity and capacity of the capital. It also has considerable strategic significance for the region in terms of the wider investment that it is unlocking, including a £5 billion redevelopment of Battersea Power Station.

## Aviation

### Strategic objectives

3.46 The aviation sector is a major contributor to the economy and the government supports its growth within a framework which maintains a balance between the benefits of aviation and its costs, particularly its contribution to climate change and noise. It is equally important that the aviation industry has confidence that the framework is sufficiently stable to underpin long-term planning and investment in aircraft and infrastructure.

3.47 One of our main objectives is to ensure that the UK's air links continue to make it one of the best connected countries in the world. This includes increasing our links to emerging markets so that the UK can compete successfully for economic growth opportunities.

3.48 To achieve this objective, we believe that it is essential both to maintain the UK's aviation hub capability and develop links from airports which provide point-to-point services (i.e. carrying few or no transfer passengers).

### Policy approach

3.49 The government published its 'Aviation Policy Framework' in March 2013, which set out the government's policy to allow the aviation sector to continue to make a significant contribution to economic growth across the country.[4]

3.50 Aviation in the UK is largely privatively owned and managed and operates in a competitive international market. The government supports competition as an effective way to meet the interests of air passengers and other users. We also welcome the continued significant levels of private sector investment in airport infrastructure across the country and the establishment of new routes to developed and emerging markets.

3.51 We believe that the role of the government should be largely confined to facilitating a competitive aviation market within a proportionate international and domestic regulatory framework to ensure a level playing field and the maintenance of high standards of safety and security. The Civil Aviation Act 2012 modernised the economic regulatory regime for airports overseen by the industry expert regulator the Civil Aviation Authority (CAA), facilitating targeted and proportionate regulation which puts future passengers and owners and cargo at the heart of the regime.

#### Airports Commission

3.52 In the medium and long term beyond 2020 the government recognises that there will be a capacity challenge at all of the biggest airports in the South East of England. There is broad consensus on the importance of maintaining the UK's excellent connectivity over the long term, but currently no consensus on how best to do this. A robust and generally agreed evidence base is needed before a decision can be made on the scale and timing of any requirement for additional capacity to maintain the UK's position as Europe's most important aviation hub.

3.53 This is why government established the Airports Commission in 2012. The Airports Commission will examine the scale and timing of any requirements for additional capacity to

[4] Aviation Policy Framework (CM 8584) Department for Transport, 2013

maintain the UK's position as Europe's most important aviation hub and identify and evaluate how any need for additional capacity should be met in the short, medium and long term. The Airports Commission, as part of their terms of reference, have been asked to prepare materials to support a National Policy Statement. This is so that the government of the day is able to implement recommendations speedily should it decide to do so.

3.54 The Airports Commission will publish an interim report in December 2013, setting out its assessment of the evidence on the nature, scale and timing of the steps needed to maintain the UK's global hub status; and its recommendation(s) for immediate actions to improve the use of existing runway capacity in the next five years. The interim report will also set out its views as to which of the potential options for maintaining the UK's global hub status merit further detailed study, and explain how it proposes that this process should be taken forward.

### Government investment decisions

3.55 The Airports Commission has recommended a package of measures for improving surface access to key airports[5]. The government is committed to taking this package forward. Measures include:

- committing £50 million towards a full redevelopment of the railway station at Gatwick, subject to satisfactory commercial negotiation with the Airport
- setting up a new study into southern rail access to Heathrow
- accelerating a Network Rail study into the Brighton Mainline
- extending the scope of the East Anglian Mainline study to include access to Stansted
- including the Gatwick to London route on a planned trial of smart ticketing (subject to ongoing commercial negotiations)
- including access to Gatwick in the Highways Agency study on local motorways

3.56 This new package builds on existing projects which are being taken forward with Government assistance, such as the Northern Hub at Manchester Airport, Birmingham Gateway project and the development of western rail access to Heathrow.

## What this will achieve

3.57 A competitive aviation market that is equipped to meet capacity challenges will provide for:

- enhanced access to markets and new business opportunities through improved connectivity
- improved communications and business interactions
- greater efficiency through time savings and lower transport costs
- improved reliability and reductions in delays and disruption as a result of airport congestion, which affect airlines, passengers and the wider community

## Key policy milestones

3.58 Table 3.C sets out the key upcoming policy milestones for airport infrastructure.

[5] Letter from Sir Howard Davies to the Chancellor of the Exchequer, 26th November, available at https://www.gov.uk/government/organisations/airports-commission'

**Table 3.C: Key upcoming policy milestones for airport infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of the Airports Commission's interim report | Airports Commission | December 2013 |
| Publication of government response to interim report | Department for Transport | Spring 2014 |
| Publication of the Airports Commission's final report | Airports Commission | Summer 2015 |

### Priority investments and key projects

3.59 To support its wider strategy for aviation, the government is prioritising projects which optimise current capacity or provide new capacity and capability.

#### South East airports

**Rationale:** The government recognises the importance of private sector investment in airports in order to maintain the UK's international and domestic connectivity, which is why it has included the capital investment programmes for our busiest airports, Heathrow and Gatwick, in its list of priority investments.

Key programmes/projects

The government will particularly monitor the active investment programmes at the two largest South East airports:

- Heathrow capital investment programme
- Gatwick capital investment programme

#### Regional airports

**Rationale:** The government recognises that regional airports have a significant part to play in providing improved capacity and connectivity across the UK, as well as unlocking investment and growth in their individual regions.

Key programmes/projects

The government will particularly monitor the active investment programmes at the regional airports servicing the two largest conurbations outside the South East:

- Birmingham Airport runway extension
- A6 Manchester Airport relief road

## Ports

### Strategic objectives

3.60 The government seeks to encourage sustainable port development that will cater for long-term forecast growth in volumes of imports and exports by sea. It aims to facilitate a competitive and efficient port industry which is capable of meeting the needs of importers and exporters cost effectively and in a timely manner, and which will contribute to long-term economic growth and prosperity.

3.61 In that context, the government has concluded that there is a compelling need for substantial additional port capacity over the next 20-30 years, to be met by a combination of development already consented and developments for which applications have yet to be received.

3.62 In particular, the government wishes to see port development wherever possible:

- being an engine for economic growth
- supporting sustainable transport by offering more efficient transport links with lower external costs
- supporting sustainable development by providing additional capacity for the development of renewable energy

## Policy approach

3.63 The UK ports sector comprises a variety of company, trust and municipal ports, all operating on commercial principles, independently of government, and very largely without public subsidy. The private sector operates 15 of the largest 20 ports by tonnage and around two-thirds of the UK's port traffic.

3.64 The government has made clear that its approach to ports is to allow judgements about when and where new developments might be proposed to be made on the basis of commercial factors by the port industry or port developers operating within a free market environment.

3.65 The government will be responsible for ensuring that all proposed developments satisfy the relevant legal, environmental and social constraints and objectives, including those in the relevant European Directives and corresponding national regulations.

3.66 The government has worked with the ports industry to establish a strategic partnership that will provide a cohesive platform for future strategic development in the ports industry. In particular, this has identified three priority areas:

- effective co-ordination across government – ensuring that all relevant Departments take full account of the industry's unique features when formulating policies that could affect it
- a more co-ordinated approach to the EU – ensuring an agreed clear approach to European legislation affecting the ports industry
- improved marine and landside planning for ports – ensuring that marine and landside planning takes account of the economic importance of ports and shipping and working to simplify the application process for planning and related consents

3.67 The Port of Felixstowe's new North Rail Terminal, co-financed by the European Union Trans-European Transport Network, complements Network Rail's own investment in the Strategic Freight Network. We will invest in further schemes at Ely, Leicester and Peterborough to create extra rail capacity on the strategic route between Felixstowe and Nuneaton. These developments will promote the use of rail for container freight.

## What this will achieve

3.68 If completed as planned, the private-sector container terminal projects already granted development consent since 2005 would together provide sufficient aggregate container capacity to meet demand forecasts for at least the next 20 years.

3.69 The government has also left open the possibility for other developers to bring forward proposals for alternative or additional developments that satisfy demand that these consented developments are not meeting, as well as a continuing requirement for further new container capacity to meet anticipated longer term growth.

3.70 The government's approach also facilitates the competition necessary to drive efficiency and lower costs for industry and consumers, so contributing to the competitiveness of the UK economy. Effective competition requires sufficient spare capacity to ensure real choices for port users.

### Key policy milestones

3.71 There are no significant policy milestones planned in this area, though the government will continue to keep the sector under review.

### Priority investments and key projects

3.72 To support this strategy, the government is therefore including in its Top 40 priority investments, key container terminal projects which have already received development consent. These will meet forecast demand for container capacity and ports are also investing in development of renewable energy.

#### Container ports

Rationale: The government deems this to be a priority investment given the compelling case for sustainable port development to provide substantial additional capacity over the next 20-30 years, in order to facilitate a competitive and efficient port industry which is capable of providing the international connectivity the UK needs. The government will monitor this investment at programme level rather than prioritising individual projects or developments.

## Energy

### Strategic objectives

3.73 The government has set three clear priorities in delivering the UK's energy policies in the near term:

- helping households and businesses take control of their energy bills and keep their costs down
- unlocking investment in the UK's energy infrastructure that will support economic growth and jobs
- playing a leading role in efforts to secure international action to reduce greenhouse gas emissions and tackle climate change

3.74 The government is committed to achieving these while at all times ensuring that UK businesses and household consumers have secure supplies of energy for power, heat and transport in the long-term.

### Policy approach

3.75 The UK operates a liberalised energy market, in which decisions on investment in energy infrastructure have been made and delivered by the private sector. Since 2010 there have been record levels of energy investment: provisional DECC estimates suggest that at least £35 billion has been invested in increased electricity infrastructure since the start of 2010 to the middle of this year. A further £20 billion of major generation projects have achieved development consent between November 2012 and November 2013 with the capacity to generate electricity to over six million homes.

3.76 At present, however, the current market is unlikely to deliver the further investment in electricity infrastructure at the scale and pace required.

3.77 The government is therefore implementing Electricity Market Reform, a package of measures to ensure the necessary infrastructure investment to deliver a clean, diverse and

competitive electricity mix in a way that minimises cost to consumers. It will also ensure that we meet our renewable energy targets in 2020, and support delivery of our legally-binding carbon budgets. The government expects around 30 per cent of our electricity to be generated from renewable sources by 2020.

3.78 The key mechanisms being introduced as part of Electricity Market Reform are the Capacity Market and Contracts for Difference (CfDs).

## The Capacity Market

3.79 The Capacity Market will ensure sufficient reliable capacity by providing a steady retainer payment to capacity providers, in return for which they must deliver capacity when needed. Capacity auctions will be held four years ahead of delivery to enable new plant to compete.

3.80 Generation and non-generation approaches, such as demand side response, will be able to participate in the capacity auction; and all generation plant – including existing plant – will be eligible to participate with some exceptions (for example low carbon plant which is already supported).

## Contracts for Difference

3.81 Investments in low-carbon generation technologies such as renewables, nuclear and carbon capture and storage will in future be underpinned by the new long-term, legally binding Contracts for Difference (CfDs). These provide generators with protection from fluctuations in the wholesale electricity price and give greater certainty about future revenues. This reduces risk and helps lower the cost of capital. They will also protect consumers from high bills by clawing back money from generators if the market price of electricity rises above the strike price.

3.82 The arrangements for implementing CfDs are currently in front of Parliament in the Energy Bill. In order to facilitate investment decisions the Government has published strike prices for renewable technologies. The table below sets out the prices for key technologies.

**Table 3.D: Published strike prices**

| £/MWh | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---|---|---|---|---|
| Onshore Wind | 95 | 95 | 90 | 90 |
| Offshore Wind | 155 | 150 | 140 | 140 |
| Solar Large | 120 | 115 | 110 | 100 |
| Biomass (conversion) | 105 | 105 | 105 | 105 |

3.83 The government has also published an update on the key contract terms for the CfD, This will enable developers to bring forward investment at lower cost to consumers. In particular the updated terms provide flexibility to reduce capacity, protection against unexpected events and protection against changing circumstances.

3.84 The EMR Delivery Plan, which will be published later this month, will include further detail on economic modelling underpinning the strike prices. In addition, the documents will be accompanied by a detailed explanation of the Government's final policy positions on the contract terms. The Government will engage early in 2014 on allocation, including the approach and details of operation for the introduction of competition.

## Levy Control Framework

3.85 The Levy Control Framework (LCF) places limits on the aggregate amount levied from consumers by energy suppliers to implement government policy. In effect, it specifies the maximum allowable spending on levy-funded policies and thereby limits the costs government policies add to energy consumers' bills. The maximum level of levy spend for the Renewables

Obligation, CfDs and small scale Feed-in-Tariff scheme has been agreed for each year between 2015-16 and 2020-21, to provide investors in the sector with greater certainty on future levels of support.

## Renewable Heat Incentive

3.86 The Renewable Heat Incentive (RHI) is government's principal mechanism for building new renewable heat markets in the UK. The RHI is the first of its kind in the world and has already led to renewable heating systems being adopted by business and industry as well as schools, hospitals and communities.

3.87 Since the non-domestic RHI opened in November 2011 nearly 1,800 installations have been installed receiving payment for the approximately 500 gigawatt hours of heat they are generating.

3.88 The government is looking to stimulate significant additional growth in the non-domestic market with the introduction of new support for air-water heat pumps and commercial and industrial energy from waste as well as an increase in support for renewable Combined Heat and Power, large biomass boilers (over1MW), deep geothermal, ground source heat pumps, solar-thermal and biogas combustion. These changes and the domestic RHI are expected to come into force in spring 2014.

**Table 3.E: Non Domestic Renewable Heat Incentive**

| Technology | Current tariff (per kWh) | New tariff (per kWh) | Eligibility |
|---|---|---|---|
| AWHP | N/A | 2.5p | Date of publication |
| Biogas: small (<200kW)* | 7.3p | 7.3p | No change |
| Biogas: medium (200-600kW) | N/A | 5.9p | Date of publication |
| Biogas: large (>600kW) | N/A | 2.2p | Date of publication |
| Biomass: small (<200kW)* | 8.6p (Tier One)<br>2.2p (Tier Two) | 8.6p (Tier One)<br>2.2p (Tier Two) | No change |
| Biomass: medium (200kW-1MW)* | 5p (Tier One)<br>2.1p (Tier Two) | 5p (Tier One)<br>2.1p (Tier Two) | No change |
| Biomass: large (>1MW) | 1p | 2p | 21 January 2013 |
| Biomethane injection* | 7.3p | 7.3p | No change |
| CHP | As biomass tariff | 4.1p | Date of publication |
| Deep geothermal | >100kWh 4.8p<br><100kWh 3.5p | 5p | Date of publication |
| GSHP | >100kWh 4.8p<br><100kWh 3.5p | 8.7p (Tier One)<br>2.6p (Tier Two) | 21 January 2013 |
| Solar Thermal | 9.2p | 10p | 21 January 2013 |

*These tariffs are subject to an inflation based increase in April 2014 (RPI linked) but may also be subject to degression before April 2014 in accordance with the current budget management policy.

3.89 The tariff for solar thermal installations in the domestic scheme has also been confirmed as being 19.2p/kWh, paid over a seven year period.

## Unconventional oil and gas

3.90 The Gas Generation Strategy, published in December 2012, makes it clear we expect gas will continue to play a major role in the UK electricity mix over the coming decades, alongside low-carbon technologies as we decarbonise our electricity system; it is the cleanest fossil fuel

and is one of the most flexible and reliable sources of electricity. So continuing to ensure diversity of gas supplies remains important.[6]

3.91 Growth of unconventional oil and gas, for example, may help to ensure this. The government has now established the Office for Unconventional Gas and Oil, which aims to promote the safe, responsible, and environmentally sound recovery of the UK's unconventional reserves, such as shale gas. The government has consulted upon on a proposed tax regime for shale gas, including a new shale gas 'pad' allowance, has announced plans to streamline the permitting process to provide more certainty to industry and has published new planning guidance to clarify the process for developers. The government has also worked with industry on a scheme to ensure local communities benefit from hosting shale projects, with operators providing at least £100,000 in benefits per fracked well site during exploration and no less than one per cent of overall revenues – which could be up to £10 million per pad.

### Energy efficiency

3.92 As well as putting in place the measures necessary to incentivise investment in energy infrastructure, the government believes that there is also a huge opportunity to optimise the energy use of both domestic and business customers through greater energy efficiency. Managing the demands on its new and future energy infrastructure is a crucial element of the government's overall approach to meeting its strategic objectives for the sector.

3.93 Although there remains significant energy efficiency potential in the UK economy, as identified in the government's 2012 Energy Efficiency Strategy, the UK has already made substantial progress and is the least energy intensive economy in the G8.[7] The government will be exploring opportunities to build on the progress already made as the EU Energy Efficiency Directive, which seeks to deliver 20 per cent energy efficiency savings by 2020 (from the 2007 baseline), is implemented.[8]

## What this will achieve

3.94 As well as contributing to growth, the government's approach is designed to ensure consumers have access to the energy they need for light and power, heat and transport at affordable prices, while reducing carbon emissions in order to mitigate climate change.

3.95 It is estimated that delivering the investment needed in our electricity generation, transmission and distribution infrastructure from now until 2020 could support as many as 250,000 jobs in the energy sector.

## Key policy milestones

3.96 Table 3.F sets out the key upcoming policy milestones for energy infrastructure.

**Table 3.F: Key upcoming policy milestones for energy infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of the Electricity Market Reform Final Delivery Plan | Department of Energy and Climate Change | December 2013 |
| Energy Bill to receive Royal Assent | Parliament | Expected December 2013 |
| Announcement of the Carbon Capture and Storage Front-End Engineering Design contracts | Department of Energy and Climate Change | Late 2013 / Early 2014 |

[6] Gas Generation Strategy, Department of Energy and Climate Change, 2012

[7] The Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK, Department of Energy and Climate Change, 2012

[8] European Union Directive 2012/27/EU

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of the draft 'Contracts for Difference' Allocation Technical Framework, which set out the details for the allocation process | Department of Energy and Climate Change | Early 2014 |
| Ministry of Defence to confirm next steps for military air traffic control radar wind farm mitigation | Ministry of Defence | March 2014 |
| Publication of government response to consultation and final regulations on Electricity Market Reform | Department of Energy and Climate Change | Spring 2014 |
| Publication of the Strategy for Fuel Poverty | Department of Energy and Climate Change | Spring 2014 |
| Publication of the UK Solar PV Strategy Part 2 | Department of Energy and Climate Change | Spring 2014 |
| Launch of the Renewable heat Incentive Household Scheme | Department of Energy and Climate Change | Spring 2014 |
| 14th round of onshore oil and gas licensing | Department of Energy and Climate Change | First half of 2014 |
| First allocation of Contracts for Difference | Department of Energy and Climate Change | Latter half of 2014 (subject to State Aid approval) |
| First Capacity Market Auction to take place | Department of Energy and Climate Change | Late 2014 (subject to State Aid approval) |
| Publication of the Feed-in-tariff Comprehensive Review | Department of Energy and Climate Change | Late 2014 / Early 2015 |
| First Capacity Market delivery year | Department of Energy and Climate Change | October 2018 – September 2019 |

## Priority investments and key projects

3.97 To support the government's strategy for energy investment and ensure the UK meets its objectives, the government has prioritised a number of key investments across a range of technologies. Within those programmes, investment decisions are made on a commercial basis, and in the case of networks, they must be approved by the independent regulator Ofgem.

### Electricity generation: gas

**Rationale:** DECC analysis projects significant investment in new gas plant is needed, in part to replace older coal, gas and nuclear plant as it retires off the system, but also to act as backup for less flexible renewable generation and to ensure adequate capacity to meet peak electricity demand. The Gas Generation Strategy outlined the measures being taken by government to provide certainty to investors and support investment in new gas plant.[9]

The government's approach is to allow the private sector to select appropriate projects. It has therefore not selected specific key projects from within the energy pipeline, but will continue to monitor progress on gas investment at a programme level.

[9] *Gas Generation Strategy*, Department of Energy and Climate Change, 2012

## Energy generation: nuclear

**Rationale:** Nuclear is vital for our energy security now and the government wants it to be part of the energy mix in the future alongside renewables and clean coal and gas.

Key programmes/projects

The government will particularly monitor the following projects as they are the most advanced within the overall programme, and therefore have the ability to set the path for other projects in the government's civil nuclear strategy:

- Hinkley Point C
- Wylfa Newydd

The government is confirming today that it has entered a cooperation agreement with Hitachi and Horizon with the aim of being able to agree an in-principle guarantee by the end of 2016 to support the financing of a new nuclear power plant at Wylfa, subject to final due diligence and Ministerial approval.

## Energy generation: wind

**Rationale:** Onshore and offshore wind will together play a significant part in the UK's energy mix, with many projects already under construction, awaiting construction or in planning, in addition to those already operating. The recent publication of the Offshore Wind Industrial Strategy also provides the tools necessary to support large scale investment in the UK supply chain, raises awareness of the commercial opportunities in the UK and overseas and deliver innovation and competition in this industry.[10]

The government is currently monitoring investment in both the onshore and offshore wind sectors as a separate priority investment, because these are two of the renewable technologies with the potential to be deployed at scale as demonstrated in the infrastructure pipeline.

The government's approach is to allow the private sector to select appropriate projects, supported by a robust regulatory framework. It has therefore not selected specific key projects from within the energy pipeline, but will continue to monitor progress on onshore and offshore wind investment at a programme level.

## Energy generation: other renewables

### Biomass

**Rationale:** Biomass, when sourced sustainably, can provide a cost-effective, low carbon and controllable source of renewable energy across the electricity, heat and transport sectors. In addition, the conversion of existing coal power stations to biomass is seen as a transitional and low cost solution to rapidly reduce the carbon intensity of the electricity grid.

The government's approach is to allow the private sector to select appropriate projects. It has therefore not selected specific key projects from within the energy pipeline, but will continue to monitor progress on biomass investment at a programme level.

[10] *Offshore Wind Industrial Strategy: business and government action*, Department for Business Innovation and Skills, and Department of Energy and Climate Change, 2013

## Solar PV

**Rationale:** Solar PV has significant advantages: it is versatile and scalable, with deployment possible in a wide range of locations including domestic and commercial buildings and where appropriate on the ground; and solar projects can be developed and installed very quickly.

The government's approach is to allow the private sector to select appropriate projects. It has therefore not selected specific key projects from within the energy pipeline, but will continue to monitor progress on solar PV investment at a programme level.

## Marine

**Rationale:** The UK has a strong wave and tidal energy resource in the waters around its coastline. This, alongside its traditional expertise in engineering, research and development and maritime industries has allowed the UK to place itself at the forefront of nascent wave and tidal stream energy sectors. Government has supported the development of the first generation of large scale wave and tidal stream prototypes. However, with both technologies currently being at an early stage of development, we do not envisage mass commercialisation and deployment of the sectors until 2020 or beyond, after which they could show the potential to make a significant contribution to our renewable energy mix.

The government's approach is to allow the private sector to select appropriate projects. It has therefore not selected specific key projects from within the energy pipeline, but will continue to monitor progress on marine investment at a programme level.

## Carbon capture and storage

**Rationale:** Carbon capture and storage (CCS) has a critical role to play in reducing emissions in the UK and allowing gas and coal to continue to participate in our future low carbon energy mix. CCS is also the only technology available to substantially reduce emissions from certain industrial processes. The government wants to see CCS deployed at scale in the 2020s, competing on cost with other low carbon technologies.

Key programmes/projects:

The government has introduced a comprehensive programme, including £1billion capital funding for the first two projects to drive forward CCS in the UK. The government is therefore working to agree FEED contracts with the two preferred bidders within the Commercialisation Programme, which will showcase the full chain of carbon capture and storage on both coal and gas, in UK conditions:

- White Rose
- Peterhead

The government will also continue to work with industry, beyond the two preferred bidders, to ensure we have further CCS projects.

## Electricity transmission and distribution

**Rationale:** New investment in electricity transmission and distribution networks is required to accommodate new generation and replace ageing assets. This will help ensure that new generation can connect in a timely and cost effective manner and maintain the reliability of the networks to keep the lights on.

Key programmes/projects

The government will particularly monitor the following projects due to their significant capital value and role in meeting new generation and demand needs, which means that successful

delivery is particularly critical in ensuring the overall effectiveness and value for money of the programme:

- the Western High Voltage Direct Current (HVDC) subsea link valued at around £1billion which will bring renewable energy from Scotland to homes and businesses in England and Wales; at 420km it will be the longest 2.2GW capacity HVDC cable in the world with sufficient electricity to meet the needs of around 2 million people
- the Beauly-Denny 132kV to 400kV upgrade in Scotland; this 220km line will ensure the reliable and cost effective accommodation of 2.5GW of renewable generation
- London Power Tunnels – a £1billion National Grid project to rewire the capital via 32km of deep underground tunnels, in order to meet increasing electricity demand and help London access renewable energy

### Unconventional gas production

**Rationale:** The government believes that shale gas has the potential to provide the UK with greater energy security, growth and jobs. It is encouraging safe and environmentally sound exploration to determine this potential. Some 7,300 square miles of Great Britain is already under licence, including significant areas likely to contain shale. A number of companies have existing licences in place and are seeking permissions to drill exploratory wells.

The government's approach is to allow the private sector to bring forward appropriate projects working closely with local communities. It has therefore not selected specific key projects, but will continue to monitor progress on investment in unconventional gas production at a programme level.

### Smart Meter rollout

**Rationale:** The Smart Meters programme is a key element of the government's strategy to increase energy efficiency and manage demand. Smart Meters will be deployed to all GB households and several million small non-domestic sites by 2020. This will help put consumers in control of their energy use and drive energy saving behaviours and actions. It will also lever industry efficiencies, provide energy networks better information upon which to manage and plan activities and be a critical part of the platform for smart grids which support sustainable energy supply. The government will monitor rollout across UK premises at a programme level.

## Digital

### Strategic objectives

3.98 Digital communications capability is an essential part of the UK's core infrastructure and an increasingly significant enabler for economic growth. The current revolution in the capability of information and communications technology is transforming the way we live and work. The government's overarching ambition for digital communications is to harness the benefits of this revolution, equipping the UK to succeed in the global race by moving first to secure a stronger economy and a fairer society for all.

3.99 To enable this, the government is committed to achieving a transformation in broadband access through ensuring consumers and businesses benefit from improved service quality, increased coverage and affordable prices. These changes will reinforce the UK's position as a leading digital economy and will help to create local jobs and national growth.

## Policy approach

3.100 To achieve the government's objectives and ensure the benefits of improved broadband services are felt by as many homes and businesses in the UK as possible, it has prioritised key programmes as part of its Top 40 investments, in addition to private sector broadband investment included in the infrastructure pipeline.

3.101 All government intervention is based on an approach that aims to facilitate commercial investment in the UK's communications infrastructure through ensuring an effective regulatory framework is in place, and to support roll-out of fixed, mobile and wireless broadband through public investment where there is limited commercial viability.

### Government investment decisions

3.102 Where the case for commercial investment is not strong, the government is therefore:

- providing £790 million in central government funding to deliver superfast broadband; to enable the benefits of superfast broadband to be felt across the UK, the government will open a £10 million competitive fund in 2014 to market test innovative solutions, delivering superfast broadband services to the most difficult to reach areas of the UK; the government will continue to support local bodies to develop appropriate strategies to procure additional coverage in areas not covered by current plans, using the £250 million allocated at Spending Round 2013; this, in addition to the existing £530 million of central government investment, will enable superfast broadband coverage to reach 95 per cent of the UK
- investing £150 million in 22 'super-connected cities' across the UK
- investing up to £150 million to improve the quality and coverage of mobile voice services

3.103 The government has enabled delivery of fixed and mobile broadband services through:

- facilitating the commercial rollout of 4G mobile services through the clearance and release of 800 MHz and 2.6GHz spectrum, auctioned by Ofcom in January/ February 2013
- removing red tape to make it easier to put in fixed and mobile broadband infrastructure

3.104 Secondary legislation removing some restrictions on the siting of street cabinets and permitting the installation of new overhead lines came into force in June 2013. Streamlining of planning rules in relation to mobile infrastructure including innovative provisions in relation to small cells came into force in August 2013. These will facilitate the rollout of both private sector and public sector-funded projects.

3.105 As consumer appetite for accessing online content intensifies and the business benefits of online connectivity become increasingly apparent, a fast, reliable and affordable digital communications network will become indispensible. As set out in July in the government's communications and media sectors plan for action, *Connectivity, Content and Consumers*, government will develop a UK strategy for digital communications infrastructure to inform government priorities until 2030.[11] This will consider the measures needed, from government and others, to ensure that the UK can take the lead in establishing a world-class digital communications network.

[11] *Connectivity, content and consumers: Britain's digital platform for growth*, Department for Culture, Media and Sport, 2013

## What this will achieve

3.106 Government support has already ensured that over 4 million homes and businesses will have gained access to superfast broadband that would not have been covered by commercial rollout. Government support will now make superfast broadband available to 95 per cent of UK households by 2017, and it is exploring with industry how to expand coverage further, using more innovative fixed, wireless and mobile broadband solutions, to reach at least 99 per cent of premises in the UK by 2018.

3.107 Investment in super-connected cities will allow cities to develop a range of innovative projects to help businesses and the wider community to benefit from better connectivity.

3.108 The Mobile Infrastructure Project will improve mobile voice and basic data coverage in 10 key roads and up to 60,000 premises in some of the remotest parts of the UK.

## Key policy milestones

3.109 Table 3.G sets out the key upcoming policy milestones for digital infrastructure.

**Table 3.G: Key upcoming policy milestones for digital infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of the UK 10-15 year Spectrum Strategy | Department for Culture, Media and Sport | Early 2014 |
| Publication of the Digital Infrastructure Strategy Interim Report | Department for Culture, Media and Sport | Mid 2014 |
| Publication of the Digital Infrastructure Strategy Final Report | Department for Culture, Media and Sport | End 2014 |

## Priority investments and key projects

### Superfast broadband

**Rationale:** The superfast broadband programme is the key programme to deliver a transformation in broadband access, and £790 million of public spending has been committed to ensure that the benefits of improved broadband reach rural areas beyond the limits of where it is commercially viable to install. The government will drive and assess rollout across UK premises at a programme level.

### Super-Connected Cities

**Rationale:** Super-Connected Cities is the government's key programme for improving service quality and supporting digital connectivity and business innovation in its major urban areas. The government will monitor rollout across all 22 super-connected cities at a programme level.

### Mobile Infrastructure Project (MIP)

**Rationale:** The MIP will improve the coverage of mobile voice and basic data services in some of the most remote parts of the UK. As it moves further into its implementation phase, the government will monitor rollout across UK premises at a programme level.

### 4G commercial rollout

**Rationale:** The wider benefits of 4G services are expected to be worth £20 billion to the UK economy in the next ten years. The Ofcom auction of radio spectrum at the beginning of the year has paved the way for the deployment of 4G communications networks by the four main mobile network operators (3, EE, O2, Vodafone). O2 won the right to use the spectrum which has the formal coverage obligation of reaching 98 per cent of the population indoors by 2017.

All four of the mobile networks operators have committed to reaching 98 per cent of the population well in advance of the target date. EE has been offering 4G services since October 2012 (using 1800 MHz spectrum) and O2 and Vodafone, since August 2013. 3 will launch services before the end of the year. The government and Ofcom will monitor progress of the operators' rollout.

## Water

### Strategic objectives

3.110 The government's vision is for an innovative, sustainable, resilient and customer-focused water sector that is equipped to meet the challenges of the long-term. This means clean water, and the management of its waste products. The challenge will be to reduce the pressure the sector places on the environment while it deals with increased water scarcity, climate change and demographic trends.

3.111 In particular, the government is committed to:

- enabling appropriate investment in water and sewerage infrastructure and driving efficiencies in order to keep costs down for customers
- maintaining an appropriate balance between ensuring that bills remain affordable in the short-term and that companies are investing now to meet long-term pressures
- protecting and supporting vulnerable groups

### Policy approach

3.112 Water companies are independently run and managed businesses, which are directly accountable to their customers and shareholders. The sector is overseen by an independent economic regulator (Ofwat), which sets the regulatory framework within which individual companies make their commercial decisions, ensuring that consumers receive high standards of service at a fair price.

3.113 The water specific impacts of the companies' activities are also regulated by two other bodies: the Drinking Water Inspectorate monitors and enforces the duty of water companies to supply drinking water that is safe and of a quality acceptable to consumers whilst the Environment Agency regulates companies' impacts on the water environment.

3.114 It is the government's responsibility to establish the strategic legal framework and policy priorities within which Ofwat and the other regulators operate.

3.115 One of Ofwat's primary responsibilities as regulator is to set the investment and service package that customers receive. This includes setting a cap on the amount that water and sewerage companies can charge their customers. Price limits are set every five years and will shortly be set again for the 2015-2020 period. When setting price limits Ofwat must balance their duties to consumers with their duty to ensure that the water industry can finance the delivery of water and sewerage infrastructure improvements they consider necessary to meet their business outcomes. Ofwat must also ensure that water companies are able to meet their other legal obligations including their duties to the environment (e.g. improving environmental water quality) and society (e.g. ensuring clean drinking water).

3.116 A transparent, predictable and proportionate regulatory regime that continues to attract necessary investment at low cost is essential for ensuring that customers receive a value for

money service. Defra's strategic policy statement to Ofwat, published in March 2013, highlighted ten key policy priorities.[12] Those particularly relevant to infrastructure, are that Ofwat must keep under review:

- the impacts of changes to the regulatory framework on investment prospects
- whether its regulatory framework has an impact on the profile of investment
- the impact of its assessment methodologies, penalties and incentives on activity to prepare for longer-term challenges
- the impact of their regulatory approach on the widespread implementation of innovative approaches
- the impact of their regulatory approach on the overall resilience of water companies' networks
- its contribution to sustainable development objectives

3.117 The government's vision is further developed by a variety of measures in the Water Bill, published in June 2013. This includes measures that increase competition; ensure that functioning markets enable water to be traded from areas of surplus to areas of demand; ensure Ofwat and water companies integrate long term resilience into their approach to planning; align the planning timeframes for water resources plans and drought plans; and encourage the use of sustainable drainage systems.

## What this will achieve

3.118 The policy framework for the water sector will deliver significant benefits for consumers and the environment over the next decade. Improvements are already coming on stream. For example, Ofwat's final price determinations for the 2010-2015 period provided for a major capital investment programme of more than £25 billion (higher than any previous five-year period) to ensure that water infrastructure will continue to support safe, secure services to customers, while also continuing to address new environmental, security and drinking water standards. This included providing for almost £13 billion of expenditure for capital maintenance.

3.119 The 2010-2015 investment programme is delivering the following key benefits:

- ensuring that all water companies:
    - meet target headroom in all water resource zones, delivering greater security by 2014-15
    - maintain leakage at or below the identified sustainable, economic level, delivering reductions where appropriate
    - meet water efficiency targets
    - encourage further uptake of water meters
    - connect new properties to the water and sewerage network
    - expand the sewerage network and sewage treatment capacity as required to accommodate new demand, sustainably, with no deterioration in service levels

[12] Defra's strategic policy statement to Ofwat: incorporating social and environmental guidance, Department for Environment, Food and Rural Affairs, 2013

- connection of nearly 1 million additional properties to water and sewerage services over 2010-15
- an overall net reduction of 1,368 in the number of properties categorised as being at the highest risk of suffering sewer flooding
- improve or protect the quality of 3290 Km of river, 21.5 $Km^2$ of lakes, 4027 $Km^2$ of estuaries and coastal waters, 24 wetlands, 31 bathing water, 31 shellfish waters and 37 groundwater bodies

3.120 Ofwat will make its final determinations on price limits for the 2015-2020 period in 2014. Water companies have now prepared their business plans setting out how they intend to meet their service and infrastructure commitments during that period and how much it will cost. These plans were submitted to Ofwat on 2 December 2013. Ofwat will now scrutinise the plans using a new, improved approach to setting price controls that is more proportionate and targeted with a greater focus on delivery and the outcomes customers want. Having completed its analysis, Ofwat will produce draft price determinations from April 2014 with final determinations to follow later in the year.

## Key policy milestones

3.121 Table 3.H sets out the key upcoming policy milestones for water infrastructure.

**Table 3.H: Key upcoming policy milestones for water infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of Draft Business Plans for Asset Management Period 6 | Water & Sewerage Companies | December 2013 |
| Publication of Draft Determination for Asset Management Period 6 | The Water Services Regulation Authority (Ofwat) | April 2014 onwards |
| Water Bill to receive Royal Assent | Parliament | Expected April 2014 |
| Final Determination for Asset Management Period 6 | The Water Services Regulation Authority (Ofwat) | Late 2014 |
| Start of Asset Management Period 6 | The Water Services Regulation Authority (Ofwat) | April 2015 |

## Priority investments and key projects

### Water supply and sewerage network programmes

Rationale: The programme of infrastructure investments made by the water companies is crucial to the government's delivery of its overall strategy for the sector. The government works with Ofwat to ensure the impacts of the water programme are monitored. Government, the regulators and industry will work to agree an appropriate means of identifying key priorities as part of the on-going Asset Management Period 6 determination.

### Thames Tideway Tunnel

Rationale: This project is crucial to the government's objective of ensuring the River Thames meets the standards that is expected of an iconic river in Europe's largest capital city and attracts people, businesses, and investment to London in the future. It is deemed a priority investment in its own right due to the scale of the capital investment involved and its strategic significance in meeting London's sewerage needs for at least the next 100 years. It will protect the River Thames from increasing levels of untreated sewerage entering the river (an average 20 million tonnes of untreated sewage a year will be flushed into the River Thames if the Tunnel is not built).

## Flooding and Coastal Erosion Management

### Strategic objectives

3.122 The overall aim of the government's approach is to ensure the risk of flooding and coastal erosion is effectively managed by using the full range of options in a co-ordinated way. It aims to ensure that Defra, the Environment Agency, local authorities, water companies, and other partners work together to:

- reduce the potential damages of flooding and coastal erosion where it is economic and affordable to do so
- increase the overall level of investment in flood and coastal erosion risk management and the value of measures taken to supplement central government expenditure
- help householders, businesses and communities better understand and manage any flood and coastal erosion risks that they face
- achieve environmental gains alongside economic and social gains, consistent with the principles of sustainable development

### Policy approach

3.123 The government promotes nationally consistent approaches to assessing and managing flood and coastal erosion risk. It is also the largest funder of risk management from main rivers and the sea, with the majority of funds within the system provided by Defra to the Environment Agency as Flood Defence Grant-in-Aid. This block grant together with centralised delivery allows economies of scale to be exploited and means that uneven investment profiles in each part of the country can be managed.

3.124 Government funding and resources are prioritised to achieve the greatest reduction in risk possible, either as a result of direct investment or by facilitating wider sources of funding and action.

3.125 Defra's funding approach was changed in 2011 to give every potential worthwhile project the opportunity of at least some funding support from central government. This approach still allows projects that deliver sufficient benefits to receive up to 100 per cent funding by central government. Projects that deliver relatively less may be offered an amount of funding based on the benefits they achieve, subject to the availability of Defra funding, as long as other funding or cost savings can be found to bridge the gap. This makes it easier for communities and businesses to contribute towards schemes – allowing public money to go further and help more schemes to be built. Prior to 2011 government grant was only available to a limited number of projects with the highest benefit cost ratios, leaving nothing for many other worthwhile schemes and little incentive to leverage further funding or reduce the costs of the most beneficial projects.

#### Government investment decisions

3.126 At the 2013 Spending Round, the government, for the first time, set a specific long-term capital funding settlement for flood management at record levels, worth £2.3 billion in total. This will enable capital programme delivery to be planned for the long-term, driving increased efficiency through providing certainty to the construction sector and help encourage contributions from other sources.

3.127 To achieve this, Defra and the Environment Agency, will develop a new long-term plan setting out:

- new projects that will be delivered within the long-term settlement

- how efficiency savings will be made on these projects, exploiting knowledge gained through the innovative Thames Estuary Project 2100 Phase 1 (TEP 1) and lessons learned through best practice delivery of other projects
- how benefits of a long-term plan might best be rolled out to aid delivery for other Risk Management Authorities, including local authorities; and will
- review the appraisal and allocation of funding to projects to ensure that economic impact, including on business and economic growth, is taken fully into account

3.128 The Environment Agency, with the support of Defra and IUK, will work with its Regional Flood and Coastal Committees to bring together this plan alongside Autumn Statement 2014.

### What this will achieve

3.129 The government's investment decisions will result in significantly more homes receiving a higher level of protection:

- funding from the period 2010-2015 means that 165,000 households will have benefitted from improved or new defences over the Spending Review period
- the long-term spending settlement between 2015-16 and 2020-21 will deliver improved protection to at least 300,000 additional homes
- by allowing the Environment Agency, its partners and the supply chain to plan more effectively and adopt new delivery methods, such as innovative contractual arrangements and multi-year programmes of projects, it will also support an ambition to increase the efficiency of this investment by at least 10 per cent across the investment period
- the funding will also support the insurance industry in maintaining available and affordable flood cover for households

### Key policy milestones

3.130 Table 3.I sets out the key upcoming policy milestones for flood risk management infrastructure.

**Table 3.I: Key upcoming policy milestones for flood risk management infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of new long-term capital plan | Department for the Environment, Food and Rural Affairs and the Environment Agency | Autumn 2014 |

### Priority investments and key projects

#### Flooding and Coastal Erosion Management (FCERM) programme

Rationale: The FCERM programme is the key programme of investment which will enable the government to meet its challenging targets around reducing the potential damage from flooding and coastal erosion, where it is economic and affordable to do so.

Key programmes/projects

In addition to monitoring the FCERM programme, the government will particularly monitor the 9 projects which were selected for the additional funding made available in November 2012 because of their ability to unlock new opportunities for development and growth:

- Clacton and Holland on Sea Management Plan Implementation Phase 1

- Exeter Flood Defence Scheme
- Ipswich Flood Defence Management System: Tidal Barrier
- Leeds City Flood Alleviation Scheme
- Lower Derwent Flood Alleviation Scheme
- Lower Don Valley Flood Protection Project
- Northwich Town Centre
- Salford Flood Alleviation Scheme
- Skipton Flood Alleviation Scheme, Eller, Ings and Waller Hill Becks

The government will also monitor the following programme because of its scale and use of new approaches to procurement and aggregating construction requirements, which may provide lessons learned for future flood programmes:

- Thames Estuary

## Science and innovation

### Strategic objectives

3.131 Science and innovation are at the heart of the government strategy for promoting prosperity, growth and social wellbeing. The government is committed to ensuring that the UK is a world leader in research, technology development and innovation, and wants to make the UK the best place in the world to run an innovative business or service. By doing so, it seeks to ensure that UK businesses play a leading role in the global economy and that UK citizens benefit from new technologies, products and services.

### Policy approach

3.132 The government will invest public funds in science and research, and will support innovation across the economy. This includes:

- a commitment to invest in both 'blue skies' and applied research
- prioritising investment in emerging technologies that have wide application, where the UK has relevant scientific and commercial strengths and where global markets are growing
- supporting multidisciplinary programmes linked to global challenges
- nurturing innovation in all its forms, including investing in intangible assets, from skilled human resources to new business models, design and branding
- encouraging stronger links through network initiatives between entrepreneurs, researchers and experts in design, intellectual property, measurement and standards
- building on opportunities for business by means of scientific co-operation and the translation of research, including the cultivation of early stage companies such as at the Research Council's various Research and Innovation Campuses

3.133 Ministers allocate funding for science and research to funding agencies for investment in the above areas. However, Ministers do not decide which individual projects or researchers should be funded, on the basis that decisions on individual research proposals are best taken by researchers themselves through peer review. Public sector funding for science, research and innovation is therefore administered through three main channels:

- the Research Councils provide grants for specific projects and programmes. There are seven research councils and through the Research Councils UK strategic partnership they work alongside BIS to champion research, training and innovation in the UK
- the four higher education funding bodies provide block grant funding to universities to support the research infrastructure and enable institutions to undertake ground-breaking research of their choosing
- the Technology Strategy Board supports knowledge transfer and innovation through funding contributions to business-led research and development projects, and through support to a network of Catapult Centres that accelerate commercial exploitation of new technologies

3.134 The government will directly fund large research infrastructure projects of strategic significance that are beyond the means of any individual funding agency or that serve the research needs of a wide range of scientific disciplines.

3.135 The government seeks to use its investment to leverage significant private and charitable sector investment, to maximise return for the taxpayer. The Research Partnership Investment Fund is one mechanism designed to foster this collaborative approach.

### Government investment decisions

3.136 As part of this approach the government has previously increased funding for the development of new space science and technologies through the UK Space Agency including a boost to the UK's contribution to European Space Agency in 2012. The 2015-16 spending review also announced £185 million additional resource funding for the Technology Strategy Board to support innovation.

3.137 At Spending Round 2013, the government provided long-term stability for science infrastructure by increasing capital investment in science and research in real terms to £1.1 billion in 2015-16, growing in line with inflation each year to 2020-21. The government is consulting the research community to ensure that it makes the most of this commitment. The consultation will take a strategic look at long-term capital investment in science and research, with a view to keeping the UK at the forefront of the global science race.

3.138 Looking forward, driverless cars are innovative technology that will change the way the world's towns and cities look and the way people travel; they present opportunities for the British automotive industry in the manufacture of the cars and the wider science and engineering sectors in the design of towns. To ensure that UK industry and the wider public benefit from the development of driverless cars, the government announces in the National Infrastructure Plan that it will conduct a review, reporting at the end of 2014, to ensure that the legislative and regulatory framework demonstrates to the world's car companies that the UK is the right place to develop and test driverless cars. It will also create a £10 million prize for a town or city to develop as a testing ground for driverless cars.

### What this will achieve

3.139 This investment will support UK capabilities by funding research and its commercialisation in priority areas such as robotics, synthetic biology and biologic medicines, regenerative medicine, agricultural technologies, the exploitation of space, high performance computing and big data analytics. It will help to deliver world leading research facilities such as the Crick Institute in London. It will also provide for investment in key large-scale projects such as the Synergistic Air Breathing Rocket Engine (SABRE).

3.140 The government is providing consistency of investment, with initiatives to bring together existing capabilities in particular disciplines to increase both the research and commercialisation opportunities – enhancing the innovation 'ecosystem'.

## Key policy milestones

3.141 Table 3.J sets out the key upcoming policy milestones for science and innovation infrastructure.

**Table 3.J: Key upcoming policy milestones for science and innovation infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of government response to Witty Review on Universities and Growth | Department for Business, Innovation and Skills | December 2013 |
| Government response to the House of Lords Select Committee Report on Scientific Infrastructure | Department for Business, Innovation and Skills | January 2014 |
| Consultation on research infrastructure capital investment 2016-2021 | Department for Business, Innovation and Skills | Launched January 2014<br>Completed April 2014 |

## Priority investments and key projects

### Science majors

Rationale: This priority investment covers significant capital investments which deliver world-leading research facilities and key large-scale projects, supporting the government's objective of ensuring that the UK is a world leader in research, technology development and innovation.

Key programmes/projects:

The government will particularly monitor the following key projects because of their scale and on-going status:

- the Francis Crick Institute
- Diamond Phase 3
- Skylon SABRE
- ELIXIR
- Pirbright Institute Phase 2
- Agri-tech Innovation Centres

### Research Partnerships Investment Funds (RPIF)

Rationale: This fund supports the government's strategic objective of strengthening links between business and academia, by using government's investment in cutting-edge research facilities to leverage significant private and charitable investment, in order to maximise return for the taxpayer. RPIF has been provided to 22 projects, and the government will monitor progress at an overall programme level.

### Catapult Centres

Rationale: A network of technology and innovation centres established by the Technology Strategy Board. Catapults are physical centres where the very best of the UK's businesses,

scientists and engineers work side by side on late-stage research and development - transforming high potential ideas into new products and services to generate economic growth.

Key programmes/projects

The government will work with the Technology Strategy Board to monitor the progress of the current construction activity at two parts of the High Value Manufacturing Catapult:

- National Composite Centre expansion
- National Biologics Manufacturing Centre

## Waste

3.142 More than 177 million tonnes of waste is generated every year in England alone, with over 100,000 people employed in the resource management industry and sales over £12 billion a year.

3.143 The government aims to have the right infrastructure in place to deal with waste as efficiently as possible, Defra provides substantial financial support and technical and commercial expertise to over 40 PFI and PPP projects, including helping Local Authorities identify and secure substantial efficiency savings.

3.144 The government remains committed to meeting targets set by EU Directives:

- the EU Landfill Directive sets targets on reducing biodegradable municipal waste sent to landfill to 50 per cent of the 1995 level in 2013 and to 35 per cent in 2020; the current proportion of UK biodegradable municipal waste going to landfill is at 38 per cent of the 1995 level
- the EU Waste Framework Directive sets targets that, by 2020, 50 per cent of waste from households is recycled (the recycling rate in England in 2011-12 was 41 per cent), and that at least 70 per cent of construction and demolition waste is recovered (the rate in England in 2011 was 93 per cent

3.145 The European Commission has announced that it will bring forward a review of resource and waste management policy and legislation in 2014; this will include a review of the key targets in EU waste legislation (in line with the review clauses in the revised Waste Framework Directive, the Landfill Directive and the Packaging and Packaging Waste Directive).

3.146 This will initiate a period of negotiation between the European Commission, European Parliament and Member States and it is only once those negotiations have substantively concluded that the government expects to have sufficient clarity to decide what further action, including on infrastructure, will be necessary to meet any revision to the targets.

### Key policy milestones

3.147 Table 3.K sets out the key upcoming policy milestones for waste infrastructure.

**Table 3.K: Key upcoming policy milestones for waste infrastructure**

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Publication of European Commission proposals for review of waste policy legislation | European Commission | 2014 |

| Future policy milestone | Lead department or body | Date |
|---|---|---|
| Agreement on European Commission waste policy and legislation | European Commission | 2016-18 (expected) |

3.148 In each infrastructure sector, the government has set out the policy approach that it believes best enables it to achieve its strategic objectives and meet its infrastructure needs, and has identified a set of priority investments that are central to those objectives. The following chapters set out the action the government is taking to drive delivery of those investments.

# 4 Local infrastructure and the Devolved Administrations

4.1 The government has made clear its priority to rebalance the economy both geographically and across economic sectors as a means of achieving economic growth. To this end, it has embarked on a range of programmes that support local growth and local infrastructure.

4.2 The government believes that those best equipped with knowledge about the local economy should have an increasingly important role to play in decisions on economic interventions – including the delivery of infrastructure. Local authorities invest significant resources in infrastructure, with approximately £20 billion spent annually on economic development. Optimising the effectiveness of this spend is vital to ensure maximum impact on economic growth. As central government devolves spending and power to local areas, we are giving local authorities the tools to become more strategic in their approach to spending this money and work better together to deliver more for their local economies.

4.3 This chapter outlines the government's strategic approach to local economic growth and how this helps to deliver better infrastructure. It also illustrates the innovative solutions and help with finance that will enable local areas to develop the infrastructure they need and to solve local problems inhibiting growth.

## The government's strategic approach to local economic growth

4.4 The government has encouraged places to think about how to ensure sustainable economic growth is at the forefront of their priorities. It has established Local Enterprise Partnerships (LEPs) as partnerships between local government and business in functional economic areas.

### Growth Deals

4.5 In response to Lord Heseltine's review the government announced the establishment of the Local Growth Fund (LGF) which will be available for LEPs to support their local economies and local infrastructure. The LGF will be a minimum of £2 billion pa from 2015-16 to 2020-21 and includes over £6 billion over 6 years capital spending previously earmarked for transport infrastructure and £600 million over 2 years for skills capital spending.

4.6 LEPs will compete for the LGF on the basis of the strength of their strategic economic plans. This document should clearly present the direction the local economy should take, including the need for local infrastructure. They will also have the opportunity to bid for wider powers and flexibilities to support growth. Both the LGF allocations and the conclusion of these wider offer negotiations will be concluded in 'growth deals' with all 39 LEPs by July 2014. This will enable LEPs to demonstrate the effectiveness, transparency and accountability of local decision-making structures and practices.

4.7 These growth deals present a fantastic opportunity to support local infrastructure for places that wish to take advantage of them. Firstly LEPs can now plan a significant amount of capital / infrastructure spending over the medium term to 2020-21. They will have greater certainty, which is vital for effective infrastructure planning and delivery. They will also have the opportunity to bring together LEP, LA and private sector resources behind the key priorities of the local economy as set out in the strategic economic plan.

4.8 Strategic economic plans will be most effective where areas are able to prioritise investments and pool resources across political boundaries. A Combined Authority (CA) brings together local authorities and pools their sovereignty. It is a flexible mechanism which allows the constituent authorities in question to determine its scope. Through the Greater Manchester Combined Authority (GMCA), Greater Manchester has developed an investment framework which allows the 10 local authorities across the region to work together to pool funding from a wide range of sources and direct it to support priorities that will create jobs and stimulate economic growth. This framework draws together different sources of funding currently totalling around £100m. The investment framework builds on the principles of the more than £2 billion Greater Manchester Transport Fund which includes £1.2 billion of local funding and was specifically designed to prioritise projects with the highest economic returns.

### Supporting investment in local growth

4.9 The government is taking steps to ensure that investment in infrastructure across the country is targeted where it is most needed to generate growth, create jobs and rebalance the economy. UKTI has launched its Regeneration Investment Organisation (RIO) as a one stop shop to help investors indentify and fund regeneration opportunities across the country. Infrastructure UK is working with RIO to help enable delivery of the necessary local infrastructure elements.

4.10 A number of the government's key priority investments – particularly in transport – support this approach. For example, the Northern Hub is an intra-regional infrastructure project that will promote job creation and improve access to employment. Likewise, the A14 is expected to bring further growth to the region as the east coast Haven ports at Ipswich, Harwich and Felixstowe expand. Major developments such as the new 10,000- home village at Northstowe, the Alconbury Enterprise Zone, and expansion on the northern and eastern fringes of Cambridge, all also depend on an improved A14.

4.11 The High Speed 2 (HS2) Growth Taskforce was created in summer 2013 to help government and local areas deliver maximum value from every pound invested in HS2. It is chaired by Lord Deighton, the Commercial Secretary to the Treasury. The Taskforce is exploring how to maximise the potential of HS2 to help the UK's cities and businesses grow, to generate more jobs, to breathe new life into areas in need of regeneration and to create opportunities for businesses to compete for HS2 contracts. Members of the Taskforce are drawn from public and private sectors, and academia. They will work with key local partners to formulate practical, affordable and deliverable recommendations to ensure that the potential benefits of HS2 are realised.

4.12 The government will also support the London Legacy Development Corporation and Mayor of London in developing their plans for the Queen Elizabeth Olympic Park; this aims to consolidate the success of the Games in order to maximise the economic and social benefits from the Olympic legacy, including plans for a new higher education and cultural quarter on the Park, in partnership with University College London and the Victoria and Albert Museum.

## Funding and financing for local infrastructure

4.13 In addition to the policies highlighted above, the government has also put in place a number of other mechanisms to provide support for Local Authorities (LAs) in accessing the funding and financing they need to meet their infrastructure needs.

### Priority investments

4.14 Given their importance to its strategic objective of promoting local growth by supporting local infrastructure, the government has identified both the Growing Places Fund and the Regional Growth Fund as key priority investments.

### Growing Places Fund

4.15 The Growing Places Fund, announced as £500 million (£40 million of which was allocated to Devolved Administrations) in September 2011 and boosted by a further £270 million at Budget 2012, aims to provide up-front capital to help LAs and developers to take projects forward where relatively small amounts of funding for infrastructure can help to unlock further development. By supporting key infrastructure projects it unlocks wider economic growth, create jobs and build houses in England. The majority (82 per cent) of the GPF earmarked or allocated to projects was awarded on a loan only basis, ensuring the funding is recyclable for other projects when development is completed and the loan repaid.

4.16 New Anglia and Greater Cambridgeshire & Greater Peterborough LEPs were each awarded £2 million to provide the necessary infrastructure to access a previously unoccupied site. The total project cost was £8.75 million. The Fund is directly supporting the construction of a site road to provide access to a new residential area as well as other facilities. Without the construction of the road the residential land would remain undeveloped. The project to build the site road commenced in November 2012 and was completed in September 2013.

### Regional Growth Fund

4.17 The Regional Growth Fund (RGF) is a £3.2 billion fund, helping companies throughout England to create jobs between now and the mid-2020s. RGF supports projects and programmes that are using private sector investment to create economic growth and sustainable employment. RGF money awarded to-date has included over £130 million for local transport development, helping local areas realise their economic potential by making essential improvements to road, rail and port infrastructure and over £90 million to energy schemes, including low carbon technology.

## Helping local areas raise finance

4.18 The government is demonstrating its confidence in local infrastructure projects by offering Infrastructure Guarantees on a number of pre-qualified projects, subject to these passing the necessary degree of due diligence. The total value of projects which to date have qualified or pre-qualified for such guarantees totals some £33 billion. Local projects which have pre-qualified for the IUK guarantee include the £600 million Mersey Gateway Bridge that will provide much needed capacity across the River Mersey and Countesswells mixed-use development in Aberdeen, which is expected to deliver some 3,000 new homes.

4.19 So as to enable LEPs to access cheaper borrowing, the government launched a discounted Public Works Loan Board (PWLB) rate, known as the Project Rate, on up to £1.5 billion across all LEPs outside of London to support strategic local capital investment projects. The rate, set at 40 basis points below the standard rate across all loan types and maturities, has been available from 1 November 2013. A wide range of projects are being supported with around 70 per cent of projects related to redevelopments of land for mainly office and commercial space and/or improving transport links. Other types of projects include plans to improve infrastructure that will help deliver energy efficiency to up to 20,000 homes and develop sites for housing.

4.20 Following on from the projects already confirmed, the government will allocate nearly £800 million of borrowing at the Public Works Loan Board (PWLB) project rate as part of growth deals. This will be available to LEPs working in partnership with local authorities in 2014-15 and 2015-16 and will be allocated on a competitive basis alongside the Single Local Growth Fund.

## Innovative approaches to local funding and finance

4.21 Enterprise Zones (EZs) are areas of real economic potential which, through fiscal incentives and simplified planning, are designed to generate businesses and jobs. EZs target sustainable growth based on cutting-edge technology and enterprise. They are creating world class business

facilities and centres of excellence in sectors such as pharmaceuticals, advanced manufacturing and automotives, with the aim of attracting inward investment and encouraging start ups.

4.22 The 24 EZs around the country are a long term investment. Since their start in April 2012 they have attracted 4,600 jobs and 200 businesses, securing more than £450 million of private sector investment. The government is investing over £200 million (comprising Local Infrastructure Fund, EZ Grant Fund and Pinch Point Fund resources) in supporting Zones to get the infrastructure in place to accelerate delivery on sites, and LEPs are able to re-invest the business rates growth on their Enterprise Zones over at least 25 years to support local growth.

4.23 LAs in England and Wales can choose to charge a community infrastructure levy (CIL) on new developments in their area. CIL has been designed to provide a fairer and more transparent contribution to infrastructure funding from development than the existing system.

4.24 The levy is paid by land owners or developers to the local council who set the charges based on the location and type of the new development. The money raised from the community infrastructure levy can be used to support development by funding infrastructure that the council, local community and neighbourhoods want, like new or safer road schemes, park improvements or as a contribution to local infrastructure programmes at city / region level. Within England, if local councils continue the current rate of implementation of CIL, projections indicate that by 2022-23 the levy could be contributing as much as £745 million per year towards local infrastructure.

4.25 New Development Deals have been agreed with Newcastle, Sheffield and Nottingham, giving them the ability to deliver critical infrastructure through tax increment financing. The deals allow borrowing of around £150 million against future business rate income over a 25-year period in key development zones.

4.26 In aiming to rebalance the economy as a means of achieving economic growth, government is increasingly devolving funding and powers to local authorities across the country. Authorities are embracing this devolution by demonstrating, in a competitive environment, greater responsibility and accountability in delivering economic growth.

## Infrastructure investment in Northern Ireland, Scotland and Wales

4.27 The UK government is strongly committed to improving infrastructure across the whole of the UK and has made a series of significant investments in the devolved countries in order to achieve this.

4.28 Where infrastructure policy is devolved, devolved administrations are responsible for planning and prioritisation of investment and have developed their own infrastructure plans. Each of the devolved administrations has differing levels of responsibility for infrastructure provision and regulation. For example, most infrastructure responsibility is devolved in Northern Ireland, where there is a separate utility regulator for electricity, gas, and water. Devolved powers are more varied in Scotland and Wales, where the devolved administrations have responsibilities in transport (including roads) and energy while the UK government retains responsibility for the electricity grid, and, through Network Rail, the rail network.

4.29 The UK government is planning to allow local authorities in Scotland and Wales access to cheaper borrowing at the Public Works Loan Board (PWLB) project rate to support the delivery of priority infrastructure projects. Up to £400 million of borrowing will be made available from 2014-15 to 2015-16, subject to agreement with the Devolved Administrations on the precise mechanics and conditions.

## Investment relating to non-devolved responsibilities

### Scotland

4.30 The UK government is committed to improving the transport infrastructure in Scotland, enhancing connectivity, reliability and capacity. Significant investments to achieve this include £1.2 billion to replace the electric Intercity 225 fleet that currently runs on the London to Edinburgh East Coast Main Line with a fleet of new, high quality, modern and higher capacity class 800 series 9-car electric trains; and £50 million for the replacement of the cross-border Caledonian Sleeper, matched by the Scottish government.

4.31 The UK government is actively considering further enhancements to Scotland's transport infrastructure and recently announced a study looking at how to increase the economic benefits that Scotland gains from HS2, as well as a feasibility study assessing the dualling of the A1 to the Scottish Border.

4.32 Scotland is also benefiting from significant UK government investment in the energy sector. Investment is occurring to improve the quality, reliability and penetration of the transmission and distribution networks, as well as on specific technology sectors. Significant sums have been devoted to the development of wave and tidal technologies to help develop the supply chain, improve commercial viability and maintain Scotland and the UK's world leading position in the field.

4.33 The UK government has put in place a substantial package of oil and gas measures, expected to stimulate billions of pounds of additional investment and increase production in the UK Continental Shelf. These include new contracts to provide long term certainty on decommissioning tax relief and changes to the field allowance regime; and a new £3 billion field allowance for large and deep fields targeted at the West of Shetland region.

4.34 In addition to these investments the UK government has also announced a series of additional investments and measures in Scotland including:

- an additional £100 million for the Scottish government to draw down its fossil fuel levy surplus and increase investment on renewable energy in Scotland
- new £50 million Offshore Renewable Energy Catapult headquartered at University of Strathclyde in Glasgow
- prequalification for three UK Guarantees projects in Scotland:
    - Neart Na Gaoithe 450MW Windfarm in the outer Forth Estuary, Scotland
    - Ineos Grangemouth Ethane Plant near Falkirk, Scotland – a project to build ethane importation and storage facilities
    - Countesswells mixed use development in Aberdeen, which will see 3000 new homes built alongside business spaces and retail outlets

### Wales

4.35 Improving rail infrastructure and lowering journey times are vital components in delivering a successful economic recovery in Wales. Wales is set to benefit by almost £2 billion from the programme to modernise the rail network. Alongside the Welsh government, we are already committed to the electrification of the south Wales mainline, improving journey times along the line between Swansea and London, and the Valley lines network that will improved rail access across south east Wales.

4.36 While the Welsh government is responsible for the road network in Wales, the UK government have announced that that the Welsh government can use their existing borrowing powers to fund their proposals for the M4. The UK government is also committed to working

with the Welsh government to secure investment in Wales' trans-European networks, including the M4 but also the A55 and the A465. The UK government will also be exploring how best to support the infrastructure needs of Welsh ports that are served by these trans-European routes.

4.37 In addition to investment in Wales' transport infrastructure the UK government has also announced a series of additional measures including:

- providing almost £57 million to the Welsh government in order to ensure that broadband access is available to homes and businesses in the hardest to reach parts of Wales
- awarding funding to Cardiff and Newport as part of the £150 million investment to create super-connected cities
- a further £150 million is being made available to tackle mobile service not-spots, and this will see the A470 benefit from the deployment of new phone masts to allow access to mobile telephone and internet services
- committing £250 million to build a new prison in Wrexham that will create up to 1,000 new jobs
- securing a cooperation agreement with Hitachi and Horizon with the aim of being able to agree an in-principle Guarantee, under the UK Guarantee Scheme, by the end of 2016 to support the financing of a new nuclear power plant at Wylfa – subject to final due diligence and ministerial approval

### Northern Ireland

4.38 The devolution settlement in Northern Ireland means that the government has fewer direct policy responsibilities in relation to infrastructure investment when compared to England, Scotland and Wales. However, the government plays a vital role in funding infrastructure investment in Northern Ireland. The Barnett Formula – which determines the changes to the Northern Ireland Executive's 'block grant' based on changes to planned spending in the rest of the UK – reflects the differences in devolved and non-devolved responsibilities when it is applied to calculate the implications for Northern Ireland of infrastructure investment elsewhere.

4.39 Some policy responsibilities for infrastructure remain reserved to the UK government. For example in relation to digital communications, the UK government has committed £4.4 million to help ensure the continuing provision of access to a broadband regardless of where people live or do business.

4.40 The UK government is also supporting major infrastructure projects in Northern Ireland through the UK Guarantees Scheme, such as the Islandmagee Gas Storage Facility in County Antrim, which has prequalified for a Guarantee.

4.41 Additionally, through the 'Building a Prosperous and United Community' package agreed between the UK government and the Northern Ireland Executive in June 2013, the UK government has committed to making available up to an additional £50 million in 2014-15 and in 2015-16 to the Executive under their Reinvestment and Reform Initiative capital borrowing facility. The additional borrowing will be used to help support specific shared housing and education projects in line with our shared priority of tackling the long-term, entrenched divisions in Northern Ireland.

## Investment relating to devolved responsibilities

4.42 Since 2010, investment decisions taken by the government at fiscal events – primarily the annual Budget and Autumn Statement processes – have resulted in additional capital funding being allocated to the devolved administrations to invest in line with their priorities. The

Northern Ireland Executive has received £619 million additional CDEL (Capital Departmental Expenditure Limit) funding, the Scottish government £1,657 million, and the Welsh government £858 million.

4.43 The sections below set out how the devolved administrations have set their infrastructure investment priorities as they relate to devolved responsibilities.

## Scotland

4.44 The Scottish government published an Infrastructure Investment Plan in 2011 setting out a pipeline of public investment in both economic and social infrastructure through to 2030. The Plan set out the rationale for why, how and in what kinds of large-scale infrastructure projects the Scottish government will invest, and is focussed on the following priorities:

- delivering sustainable economic growth
- managing the transition to a low carbon economy
- supporting delivery of efficient and high quality public services
- supporting employment and opportunity across Scotland

4.45 An annual report on progress against the Plan was published in February 2013. This showed that over 2012, nine of the major infrastructure projects included in the Plan, with a value of over £600 million, were completed and are now operational.

4.46 The investment pipeline was updated further in September 2013, and now provides information on 30 major programmes and over 100 individual projects. The Plan recognises that, in order to deliver maximum benefits from economic infrastructure, it is important to ensure close coordination with partners in the rest of the United Kingdom, particularly in relation to cross border investments, such as High Speed Rail and Broadband, and areas in which there is currently shared interest, such as electricity and gas transmission networks.

4.47 The Scottish 'Infrastructure Investment Plan' is available at:
http://www.scotland.gov.uk/Topics/government/Finance/18232/IIP

## Wales

4.48 The Welsh government is responsible for infrastructure developments in areas relating to roads and housing. Economic development, health and education are also devolved areas, which all have implications for the built environment.

4.49 The UK government recently published its response to the Silk Commission's recommendations on financial devolution for Wales. This will result in the devolution of many new financial powers as well as giving borrowing powers to the Welsh government. This package of powers will enable the Welsh government to invest immediately in the areas of infrastructure it leads on, such as the key routes on the trans-European road network – the M4 and the North Wales Expressway.

4.50 The 'Wales Infrastructure Investment Plan' (WIIP), first published in 2012, sets out the Welsh government's investment priorities for the delivery of key strategic infrastructure for which it has devolved responsibility, as well as identifying where the Welsh government is able to work with the UK government to direct investment to Welsh projects in non-devolved areas.

4.51 The WIIP is the Welsh government's vehicle to drive collaboration, increase visibility and deliver strategic investment decisions across Wales. The Plan defines their strategic investment priorities and approach to delivery. In June 2013 the first WIIP Annual Report detailed achievements to date, including:

- increasing resources invested in prioritised infrastructure
- improving Welsh public sector investment planning and appraisal
- continued evolution of a Welsh infrastructure investment pipeline
- developing a Welsh whole government process to prioritise their evolving pipeline of schemes

4.52 The Wales Infrastructure Investment Plan is available at: http://wales.gov.uk/funding/wiipindex/?lang=en

## Northern Ireland

4.53 The Northern Ireland Executive published its latest 'Investment Strategy for Northern Ireland 2011-21' (ISNI) in October 2012. The ISNI sets out the Executive's renewed priorities for capital investment in social, economic and environmental infrastructure projects – with schemes valued at over £13 billion in total to be delivered in the period up to 2021.Since the first ISNI was published in 2008, almost £8 billion has already been invested in new and upgraded roads and public transport infrastructure, water and waste-water treatment facilities, the education and healthcare estate, public housing and other areas of public services critical to future success.

4.54 The Northern Ireland Executive is determined to make best use of its capital investment funds, particularly in modernising front line service delivery and efficiency. To this end, the ISNI includes a number of work-streams designed to identify better and more efficient ways to deliver essential services and to put the right infrastructure in the right place to meet needs.

4.55 The 'Investment Strategy for Northern Ireland' is available at: www.sibni.org/investment_strategy_for_northern_ireland_2011_-_2021.pdf

# 5 Planning and prioritisation

5.1 Setting out the key investments that will enable the government to meet its strategic objectives in each sector is an important component of the government's infrastructure strategy.

5.2 The National Infrastructure Plan 2013 sets out a refreshed, forward-looking list of the government's 'Top 40' priority investments, to ensure it continues to look towards new investment priorities. These priority investments were identified in Chapters 3 and 4, which set out how each investment supported the government's overall strategic objectives in each sector and in the area of local infrastructure funding. They also identified certain key projects that will be the focus for more detailed progress monitoring. This chapter sets out the government's approach to these investments in more detail.

## The government's approach to prioritising projects

5.3 In the National Infrastructure Plan 2011, the government first set out its 'Top 40' priority investments, which fulfilled three main criteria:

- potential contribution to economic growth – investment that enhances productivity and enables innovation
- nationally significant investment that delivers substantial new, replacement or enhanced quality, sustainability and capacity of infrastructure
- projects that attract or unlock significant private investment

5.4 The first of the Top 40 priority investments finished in 2013, with completion of a programme of investment in eight Highways Agency major road schemes and upgrade work to King's Cross Station. As these projects have shown, articulating the government's infrastructure strategy and identifying and supporting its priority investments is a vital tool in driving delivery.

5.5 The refreshed, forward-looking list of the government's Top 40 priority investments is set out in full below, with further detail on the status of each investment outlined at Annex A. The government is responding to industry feedback by re-categorising the Top 40 investments to ensure there is no ambiguity about their scope. These investments are a subset of the overall infrastructure pipeline, and are clearly identified in the pipeline itself. They represent around £180 billion of the total pipeline.

5.6 Analysis of the pipeline shows that across the Top 40 priority projects and programmes over 50 per cent are either in construction or are ongoing work programmes. Over 15 per cent either have the necessary consent to proceed or are in the process of securing consents, with the remainder in various stages of scoping. The latter includes the significant investments in new projects announced in the Spending Round 2013.

5.7 Given the scale of the government's infrastructure commitments, the list of priority investments is necessarily diverse: it covers a range of types of infrastructure, spans both the public and private sectors, and includes projects with delivery milestones stretching from this Parliament to beyond 2021. This is reflective of the government's broad infrastructure portfolio and the differing scale of individual projects within it, from small-scale flood defence schemes to

flagship programmes such as HS2 and the Thames Tideway Tunnel. However, each investment is central to the government's ability to achieve its strategic objectives in that sector.

5.8 The government also recognises that within large programmes of investment, there are certain key projects which contribute particularly towards the overall strategic objectives, carry particular risks in terms of the scale of overall capital investment or complexity, or pioneer new approaches to infrastructure delivery, with potential impacts on the wider investment programme or the sector as a whole.

5.9 For the first time, where investments include a number of projects and programmes, the government has provided greater clarity on the key projects that it will prioritise within these investments and which will be the focus for more detailed progress monitoring. The rationales for selecting each of these projects were explained in Chapters 3 and 4 and are set out again below.

5.10 The government recognises that, given the diverse nature of these investments, a one size fits all approach will not be appropriate. However, it does intend this to be an active tool for facilitating infrastructure delivery. The government has therefore identified a range of levers that it can use to support effective delivery of these priority investments.

5.11 Public funding: with the exception of those schemes that are still being scoped or subject to consultation, the government has now set out a clear capital commitment for all of its publicly-funded 'Top 40' priority investments.

5.12 Unlocking private finance: the government will operate a presumption in favour of prequalification for the UK Guarantees Scheme for any project that is part of a 'Top 40' priority investment, subject to the scheme's criteria. It welcomes an approach by any such projects that fall within the scope of the scheme.

5.13 Planning: while each application to use the Nationally Significant Infrastructure Regime must be considered on its merits, the government will ensure that it gives regard to the 'Top 40' designation when considering applications, to ensure that its priority investments are able to benefit from the fast track regime where appropriate.

5.14 Government support and intervention: the government will continue to prioritise delivery of its Top 40 investments through a dedicated Cabinet committee for infrastructure, chaired by the Chief Secretary to the Treasury. It will also create a Top 40 'hot-desk' within Infrastructure UK (IUK), which project owners can contact if they are experiencing specific issues in taking forward their projects. The Commercial Secretary to the Treasury, Lord Deighton will personally oversee the issues raised through this channel, including escalating them to the infrastructure Cabinet Committee where appropriate.

5.15 Tracking infrastructure progress and performance: the government has also established a Major Infrastructure Tracking (MIT) unit within Infrastructure UK which will allow it to track the progress of each Top 40 investment, including detailed information on the individually identified key projects, identifying any taking early action to address any obstacles to delivery.

5.16 Over time the scope and capability of the MIT unit will be expanded to cover a broader range of performance metrics and benchmarking. The government is already taking steps to establish an international network to improve the ability to compare performance with other countries, starting with an international symposium event early in 2014.

## The government's priority investments

5.17 Each of the priority investments has been selected because it makes a crucial contribution to the achievement of the government's strategic objectives for that sector. Top 40 projects are grouped by relevant sector and are not listed in order of priority. Where specific projects or areas

of output within a priority investment have been identified they have been chosen based on one or more of the following criteria:

- strategic importance (SI): project delivers a significant contribution towards a wider strategic objective or government target
- capital value (CV): project is of significant size / capital value within a wider investment programme
- regional priority (RP): project of either high strategic importance or capital value in a particular region
- demonstrator (D): project is being delivered in a novel or innovative way where the lessons learned can be applied across a wider programme of investment
- unlocking investment (UI): project that enables or unlock significant additional private sector investment and/or development

**Table 5.A: Top 40 priority infrastructure investments: roads**

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| 1 | Accelerated road construction pilots | M3 Junction 2 to 4a | D |
| | | M6 Junction 10a to 13 | D |
| | | M1 Junction 28 to 31 | D |
| | | A160 / A180 Immingham | D |
| 2 | Highways Agency new capacity | A1 (Leeming to Barton) | CV |
| | | M1 / M6 Junction 19 | CV |
| | | A556 (Knutsford to Bowden) | CV |
| | | A453 widening | CV |
| | | A5-M1 Link Road | CV |
| 3 | Smart Motorways | M60 Junction 8 to M62 Junction 20 | CV |
| | | M25 Junction 23 to 27 | CV |
| | | M1 Junction 39 to 42 | CV |
| | | M25 Junction 5 to 6-7 | CV |
| 4 | A14 | | SI / CV / RP / UI |
| 5 | Lower Thames Crossing | | RP / UI |

**Table 5.B: Top 40 priority infrastructure investments: rail**

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| 6 | High Speed 2 | | SI / CV / RP / UI |
| 7 | Northern connectivity | Northern Hub | SI / CV / RP |
| | | North West electrification | SI / CV / RP |
| | | Trans-Pennine electrification | SI / RP |
| 8 | Electrification | Electric Spine | CV / RP |
| | | Great Western | CV / RP |
| | | Midland Main Line | CV / RP |
| | | Welsh Valleys | CV / RP |
| 9 | Line capacity improvements | Midland Main Line capacity | CV / RP |

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| | | East Coast Main Line | CV / RP |
| | | West Coast Main Line | CV / RP |
| | | Southern Train lengthening | CV / RP |
| | | East-West Rail | CV / RP |
| | | East Coast connectivity | CV / RP |
| 10 | Major station improvements | Birmingham New Street | SI / CV / RP |
| | | Bristol Temple Meads | SI / RP |
| | | Manchester Victoria | SI / RP |
| | | Peterborough | SI / RP |
| | | Reading | SI / CV / RP |
| 11 | Intercity Express Programme | | SI / CV |
| 12 | Strategic Rail Freight Network | Felixstowe to Nuneaton route | SI |
| 13 | Crossrail | | SI / CV / RP |
| 14 | Thameslink | | SI / CV / RP |

**Table 5.C: Top 40 priority infrastructure investments: international gateways**

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| 15 | South East airports | Gatwick capital investment programme | SI / CV |
| | | Heathrow capital investment programme | SI / CV |
| 16 | Regional airports | Birmingham Airport runway extension | SI / RP |
| | | A6 Manchester Airport relief road | SI / CV / RP |
| 17 | Container ports | | SI |

**Table 5.D: Top 40 priority infrastructure investments: energy**

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| 18 | Electricity generation – gas | | SI |
| 19 | Electricity generation – nuclear | Hinkley Point C | SI / CV |
| | | Wylfa Newydd | SI / CV |
| 20 | Electricity generation – wind | Onshore | SI |
| | | Offshore | SI |
| 21 | Electricity generation – other renewables | Biomass | SI |
| | | Solar PV | SI |
| | | Marine | SI |
| 22 | Carbon capture and storage | Peterhead project | SI |
| | | White Rose project | SI |
| 23 | Energy transmission and distribution | Western Link | SI / CV |
| | | Beauly-Denny upgrade | SI / CV |
| | | London Power Tunnels | SI / CV |
| 24 | Unconventional gas production | Shale gas exploration | SI |
| 25 | Smart Meter rollout | | SI / CV |

### Table 5.E: Top 40 priority infrastructure investments: digital communications

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| 26 | Superfast broadband | | SI / CV / RP |
| 27 | Super-Connected Cities | | SI / CV / RP |
| 28 | Mobile Infrastructure Project | | SI / RP |
| 29 | 4G commercial rollout | | SI / RP |

### Table 5.F: Top 40 priority infrastructure investments: water and flood defences

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| 30 | Water supply and sewerage network programmes[1] | | SI / CV |
| 31 | Thames Tideway Tunnel | | SI / CV / RP |
| 32 | Flooding and Coastal Erosion Management Programme | Clacton and Holland on Sea (growth project) | SI / RP / UI |
| | | Exeter Flood Defence Scheme (GP) | SI / RP / UI |
| | | Ipswich Main Stage: Tidal Barrier (GP) | SI / RP / UI |
| | | Leeds City Flood Alleviation (GP) | SI / RP / UI |
| | | Lower Derwent Flood Alleviation (GP) | SI / RP / UI |
| | | Lower Don Valley Flood Protection (GP) | SI / RP / UI |
| | | Northwich Town Centre (GP) | SI / RP / UI |
| | | Salford Flood Alleviation (GP) | SI / RP / UI |
| | | Skipton Flood Alleviation (GP) | SI / RP / UI |
| | | Thames Estuary | D / CV |

### Table 5.G: Top 40 priority infrastructure investments: science and innovation

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| 33 | Science majors | The Francis Crick Institute | SI |
| | | Diamond Phase 3 | SI |
| | | Skylon SABRE | SI |
| | | ELIXIR | SI |
| | | Pirbright Institute Phase 2 | SI |
| | | Agri-tech Innovation Centres | SI |
| 34 | Research Partnerships Investment Fund | | SI |
| 35 | Science and innovation Catapult centres | National Composite Centre expansion | SI |
| | | National Biologics Manufacturing Centre | SI |

1 The government will work with regulators and industry to agree an appropriate means of identifying key priorities as part of the ongoing Asset Management Period 6 determination

**Table 5.H: Top 40 priority infrastructure investments: local infrastructure**

| | Priority Investment | Key Projects and Programmes | Criteria |
|---|---|---|---|
| 36 | Local authority major transport schemes | Manchester Metrolink extensions | CV / RP |
| | | Nottingham NET2 | CV / RP |
| | | Leeds New Generation | CV / RP |
| | | Norwich Northern Distributor Road | RP |
| | | Sunderland Strategic Corridor | RP |
| | | A380 South Devon Link Road | RP |
| | | Croxley Rail Link | RP |
| | | Midland Metro extension | RP |
| 37 | Mersey Gateway Bridge | | CV / RP / UI |
| 38 | London Underground investment | Northern Line upgrade | CV / RP |
| | | Sub-surface Line upgrades (Metropolitan, Circle, Hammersmith & City, and District Lines) | CV / RP |
| 39 | Northern Line extension to Battersea | | CV / RP / UI |
| 40 | Local infrastructure funding | Growing Places Fund | RP / UI |
| | | Regional Growth Fund | RP / UI |

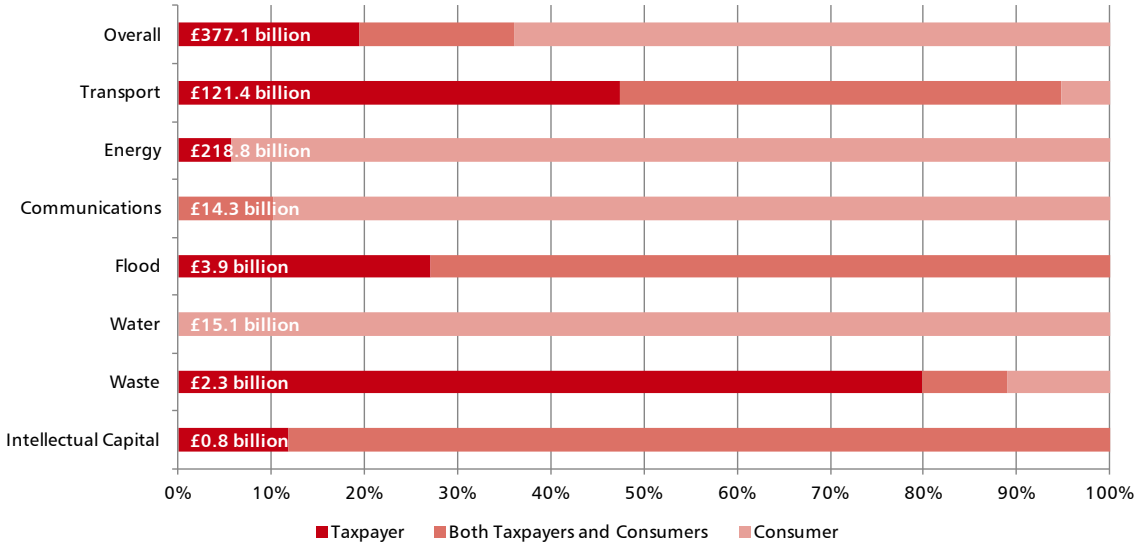
5.18 The following chapters set out the action the government is taking to ensure that the developers of these investments are able to access the necessary upfront capital where they are not publicly funded, and that the conditions are right to ensure effective and efficient delivery. More detailed information on each of the 'Top 40' investments is set out in Annex A.

# 6 Infrastructure financing

## Infrastructure funding

6.1 As outlined in Chapter 3, the approach to infrastructure investment and delivery varies from one sector to another. However, whichever model is chosen, funds are raised either from the public through taxation, from consumers through bills and user charges, or through some combination of these sources. As Chart 6.A shows, the exact mix varies considerably across different sectors.

**Chart 6.A: Funding mix for each infrastructure sector**

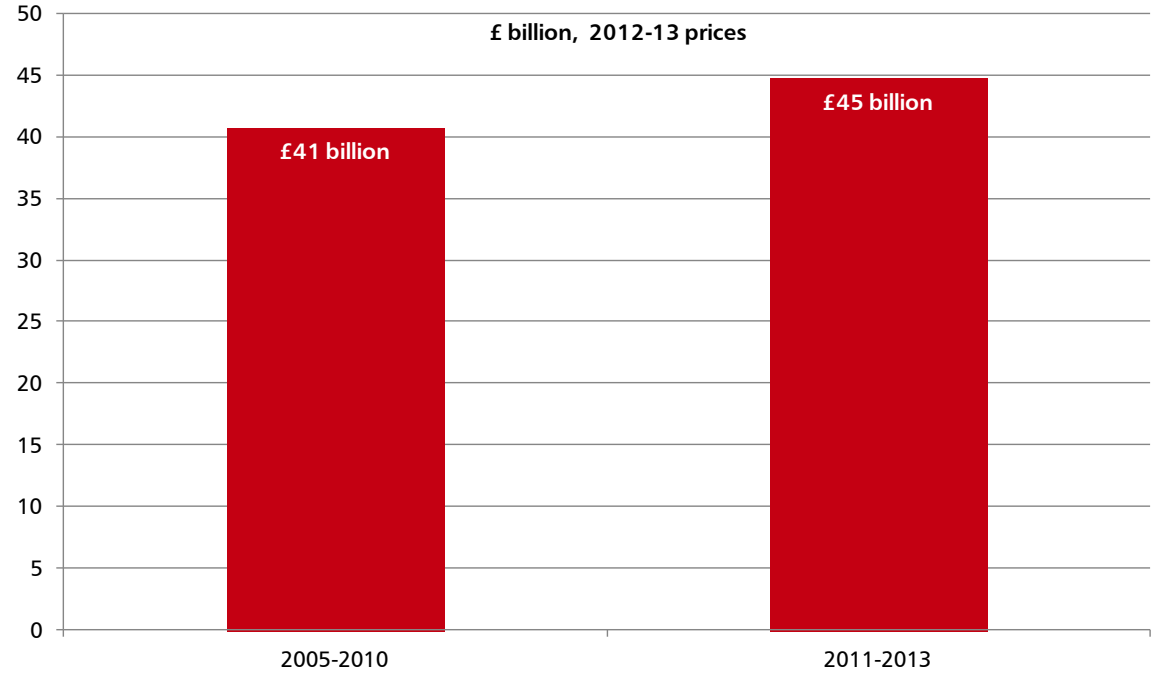



*Source: HM Treasury Major Infrastructure Tracking unit*

6.2 A top down analysis of average annual infrastructure investment, between 2011 and 2013, has been refreshed for the National Infrastructure Plan 2013.[1]

[1] One of the main challenges when collecting this data is that the definition of infrastructure investment is not always consistently defined in the source material. For example, some sources may include maintenance and repair costs whereas others cover just the initial development and construction. However, this year's analysis represents an improvement on the estimates included in the National Infrastructure Plan 2012, as more robust source material has been used to allow for greater consistency across years and sectors. Note that these estimates are not comparable to pipeline data presented in this document, which is a forward-looking, bottom up assessment of potential infrastructure investment. Source data is publicly available on the Infrastructure UK website: https://www.gov.uk/government/organisations/infrastructure-uk

**Chart 6.B: Average annual infrastructure investment, 2005-10 and 2011-13**




*Source: HM Treasury*

6.3 Treasury estimates now indicate that **average annual infrastructure investment has increased to £45 billion per year compared to an average of £41 billion per year between 2005 and 2010** (see Chart 6.B).

6.4 Whilst investment in infrastructure is rising, the government recognises the need to ensure that it strikes the right balance so that its infrastructure objectives are achieved in a way that is consistent with reducing the deficit and based on an affordable and sustainable level of consumer contribution.

## Infrastructure finance

6.5 If funding is about who ultimately bears the costs of infrastructure, finance is the flow of committed capital investment which will get a project started and support associated jobs and economic growth. The funding model in a number of infrastructure sectors ensures that this initial finance to start construction is available to the asset owner when needed, so finance does not become a significant stumbling block to the project getting underway.

6.6 Where projects are publicly funded, this means that they are financed (in their entirety or in part) directly out of the agreed capital budgets of the relevant government department, local authority or arms-length delivery body. For instance, in the roads sector, the Department for Transport will provide the capital to finance major strategic road projects, which are then delivered by the Highways Agency. High Speed 2 – the largest UK infrastructure project currently in the pipeline – will be financed through direct government capital spending, as outlined at Spending Round 2013.

6.7 Even where no public funding is provided, many projects are privately-financed by corporate entities, with regulated settlements permitting customer revenues to be used to deliver efficient investment. Private firms can then use their own balance sheets to raise capital or existing reserves. This is generally the model in the economically-regulated sectors including water, energy transmission, digital communications and some of the UK's largest airports. For instance, in the water sector, private water companies undertake infrastructure projects themselves with only projects of exceptional size or risk requiring outside support to enable them to go ahead.

6.8 In some sectors, where mixed funding models exist, finance may be drawn from both public and private sources. This includes rail, where Network Rail delivers infrastructure and finances it through a combination of public funding, government backed borrowing and train operator charges, with any profits going straight back into improving the railway. For many science and flood defence projects, government capital investment is used to leverage additional investment from the private sector to enable a project to go ahead.

## The size of the finance gap

6.9 Taken together, the finance methods discussed above account for nearly 60 per cent of all projects in the current infrastructure pipeline by number, and just under 58 per cent by value. The remainder of the pipeline consists of projects which could potentially require more complex project-finance or structured-finance solutions to deliver the necessary investment. In some cases, such projects may be unable to secure finance on their own so need support ie in guaranteeing debt or attracting investment from other sources.

6.10 Potential finance gaps are predominantly limited therefore to unregulated markets such as ports, unregulated airports and some waste and electricity generation projects, where the uncertainties are greater. However, even here private firms will still secure finance using their balance sheets for a number of projects.

6.11 The government recognises that, where such finance gaps do exist, they have the potential to stall strategically important investments. For example, in the energy sector where, as set out in Chapter 3, significant new investment will be required to ensure security of supply and meet our legally-binding emissions targets. The government is therefore continuing to take bold action to fill this gap, both by creating and identifying new sources of finance, together amounting to tens of billions of pounds.

## Finance context

6.12 When the government published the first National Infrastructure Plan in 2010, it was in the aftermath of the global financial crisis. Despite this, there was little evidence at the time that privately-delivered infrastructure projects had stalled due to a lack of finance, other than for a brief period in 2008-09, when disruption in global banking markets was at its peak.

6.13 However, new regulations (Basel III), and a general recapitalisation following the financial crisis, meant that banks, traditionally the main providers of long-term debt solutions for infrastructure projects, were less willing or able to lend. Where debt was still available, it was usually at a higher cost than previously, and for a much shorter term than is optimal for many infrastructure projects.

6.14 By the time the National Infrastructure Plan was updated in 2011, it was also clear that in the medium term, corporate balance sheets might have become too stretched to finance all of their infrastructure projects directly without the support of banks. This was due to both the scale of investment required and possible internal competition for finance within the multinational companies which own and operate much of our infrastructure.

6.15 As a result, some commercially-viable projects might have stalled, or been cancelled, because they could not obtain the capital required to get construction underway. Equipping the UK with the infrastructure it needs, both now and in the future, would require new and diverse sources of investment. This meant both new sources of debt, to replace commercial bank lending, and also stimulating demand for infrastructure projects from equity investors.

6.16 The government responded to this challenge by taking a series of actions, designed to encourage new and innovative sources of finance for infrastructure projects. This included direct measures such as launching the UK Guarantees Scheme and creating a new Green Investment Bank to tackle any shortfall in the debt markets. It has also involved taking steps to stimulate

significant private finance from new institutional investors, including pension funds and major foreign direct investment from nations including China and the Gulf States.

6.17 These actions have helped to bolster the infrastructure finance market, ensuring the UK remains an attractive place to do business for an increasingly diverse pool of investors.

## Finance gaps and government direct action

6.18 While the general picture for infrastructure finance in the UK is undoubtedly improving, the government is continuing to support otherwise commercially-viable schemes directly where finance gaps remain.

6.19 The UK Guarantees Scheme (UKGS) is already helping to deliver significant infrastructure projects, using the strength of the government balance sheet to facilitate investment. In June, the government demonstrated the long-term commitment it is providing to the market by announcing that the UKGS has been extended until December 2016.

6.20 A coal to biomass conversion at Drax power station has now become operational. This project was supported by the first UK Guarantee signed, worth £75 million. Now the government is going further by confirming that it has agreed terms with the Greater London Authority for a UK Guarantee facility to support £1 billion in borrowing for the Northern Line extension (NLE) to Battersea and Nine Elms. The government support for the NLE has facilitated a commercial agreement between the Greater London Authority, Transport for London and the Battersea developers to enable the redevelopment of Battersea Power Station.

6.21 In addition, a guarantee for £8.8 million has been approved under the scheme to help provide finance for the installation of energy saving lighting equipment across a portfolio of car parks managed and operated by National Car Parks Limited (NCP) resulting in a 60 per cent reduction in energy consumption.

6.22 In all, 40 projects with a total capital value of £33 billion are pre-qualified for a UK Guarantee.[2] Many of these projects are in the energy sector including the National Infrastructure Plan Top 40 priority investment project at Hinkley Point C. Added to this, the government is confirming today that it has entered into a cooperation agreement with Hitachi and Horizon with the aim of being able to agree an in-principle guarantee by the end of 2016 to support the financing of a new nuclear power plant at Wylfa Newydd, subject to final due diligence and ministerial approval.

6.23 The government expects that some of the pre-qualified projects may be successful in finding finance without the need of a Guarantee. However, the UKGS is helping to provide confidence to investors by demonstrating that should efforts to secure private finance fail, the government is here to help.

6.24 The UK Green Investment Bank (GIB) is the world's first investment bank dedicated to accelerating the transition to a green economy. With a committed Government funding of £3.8 billion by April 2015, the GIB is investing in innovative, environmentally-friendly areas for which there is currently a lack of sufficient support from private markets. This includes offshore wind power generation, waste recycling plants, energy from waste projects, biomass and energy efficiency measures including the Green Deal. Since starting operations in October 2012, the GIB has now made 22 transactions totalling £734 million which have leveraged £2.1 billion total funding from private infrastructure investors.

[2] A full list of all pre-qualified schemes which have agreed to be named to date can be found at https://www.gov.uk/government/publications/uk-guarantees-scheme-prequalified-projects/uk-guarantees-scheme-table-of-prequalified-projects

## Inward investment in infrastructure

6.25 The UK has always been an attractive location for inward investment with participation from international investors over a long period across several sectors. This is due to its combination of:

- a stable risk and return profile
- clear property rights for investors
- world-class regulation
- transparent policy development
- strong financial markets

6.26 Since May 2010, there has been around £15 billion of inward investment in UK infrastructure as shown in table 6.A below.

**Table 6.A: Foreign investment in UK infrastructure since May 2010**

| Investor | Date | Country | Investment |
|---|---|---|---|
| CKI Group | July 2010 | China (Hong Kong) | UK Power Networks (100 per cent) |
| Borealis/OTPP | November 2010 | Canada | High Speed 1 Concession (100 per cent) |
| Itochu Corporation | April 2011 | Japan | Tyne & Wear Waste PFI (20 per cent) |
| CKI Group | July 2011 | China (Hong Kong) | Northumbrian Water (100 per cent) |
| Marubeni Corporation | September 2011 | Japan | Gunfleet Sands (49.9 per cent) |
| Marubeni Corporation | October 2011 | Japan | Walney 1 OFTO2 (50 per cent) |
| Abu Dhabi Investment Authority (ADIA) | December 2011 | United Arab Emirates | Thames Water (9.9 per cent) |
| China Investment Corporation (CIC) | January 2012 | China | Thames Water (8.68 per cent) |
| State Administration of Foreign Exchange (SAFE) | June 2012 | China | Veolia Water UK (10 per cent) |
| CKI Group | July 2012 | China (Hong Kong) | Wales & West Utilities (100 per cent) |
| Hitachi Rail Europe | July 2012 | Japan | Agility Trains (40 per cent) |
| Qatar Holding | August 2012 | Qatar | Heathrow Airport (20 per cent) |
| Hitachi Ltd | October 2012 | Japan | Horizon Nuclear Power (100 per cent) |
| AMP Capital, Australia | October 2012 | Australia | Newcastle Airport (49 per cent) |
| China Investment Corporation (CIC) | October 2012 | China | Heathrow Airport (10 per cent) |
| Sumitomo Corporation | February 2013 | Japan | Sutton & East Surrey Water (100 per cent) |

| Investor | Date | Country | Investment |
|---|---|---|---|
| La Caisse | February 2013 | Canada | London Array (25 per cent) |
| Osaka Gas | October 2013 | Japan | Sutton & East Surrey Water (100 per cent) |

*Source: HM Treasury Major Infrastructure Tracking unit*

6.27 UK Infrastructure is increasingly being seen as an attractive investment for major overseas investors, including sovereign wealth funds, which are able to mobilise significant capital resources. This includes funds from the Middle East and Asia. The Kuwait Investment Office recently signalled its intent to invest in UK infrastructure with a bid to acquire the water utility Severn Trent. The government anticipates further investment from sovereign wealth funds in the coming months.

6.28 Historically sovereign wealth funds have tended to be conservative in their approach to infrastructure investment by focusing on purchases of existing assets. However, the government is working hard to encourage more investment in new 'greenfield' infrastructure developments. Recent successes include Dubai-based DP World investing £1.5 billion in the development of UK port facilities, whilst Abu Dhabi-based Masdar have also invested £500 million in the London Array, the world's largest offshore wind farm, which became operational this year.

6.29 In October 2013, the government signed a memorandum of understanding with the Chinese government on civil nuclear collaboration, paving the way for Chinese investment to help deliver the next generation of UK nuclear power stations. This is a significant development as it also demonstrates an appetite for taking on construction risk when financing new projects.

6.30 The government has reinforced the international perception of the UK as an investment destination of choice by dedicating additional resources in UK Trade & Investment (UKTI) to the relationship management of sovereign wealth funds and other major overseas financial institutions. The UKTI team has developed relationships with key investors holding combined global assets of more than $5 trillion. It is actively engaged in promoting projects with a combined value of £120 billion and the potential to create over 250,000 jobs.

## Institutional investment

6.31 With many banks reluctant to offer long-term debt at commercially viable rates, a gap in the market has also opened up for more institutional investment. To help maximise this opportunity, the government set up the Insurers' Infrastructure Investment Forum to give members of the Association of British Insurers (ABI) a direct communication link to government. There is potential for these organisations to significantly increase investment in infrastructure over the next decade.

6.32 In April this year, Friends Life agreed the £75 million loan facility with Drax Group Plc which was guaranteed through the UK Guarantee Scheme. Following that, Friends Life has now announced a £500 million mandate to invest in UK infrastructure assets, which demonstrates that UK Guarantees have supported institutional investors in financing UK infrastructure.

6.33 In 2011, HM Treasury also signed a memorandum of understanding with the National Association of Pension Funds (NAPF) and the Pension Protection Fund (PPF) to assume an advisory role in establishing the Pension Infrastructure Platform (PIP). Earlier this year, the PIP announced it had raised its first £1 billion of committed funds from 10 founding investors. Building the right skills and expertise to assure and complete deals in infrastructure takes time, and the PIP is currently in the process of appointing a new fund manager.

6.34 Institutional investors – particularly life insurers and pension funds – have unique advantages as investors in that they are large holders of long-term liabilities, which can be matched with long-duration assets. A stable regulatory framework that actively supports, rather than deters, this long-term investment by insurers is vital.

6.35 Solvency II is an EU legislative programme which will introduce a harmonised insurance regulatory regime across all member states. The government is a supporter of the market-consistent, risk-based approach offered by Solvency II. Prudential regulation must require insurers to fully identify the risks they face and be adequately capitalised to absorb them. But a market consistent regime must work with the particular conditions under which insurers invest, and should prevent artificial short-term market volatility undermining the ability of insurers to invest over the long-term.

6.36 The government made negotiations on Solvency II a priority and has now negotiated a good outcome, with a Matching Adjustment that actively promotes long-term investment in growth and infrastructure. On the back of this positive outcome on Solvency II, insurers are now in a better position to take long-term investment decisions. Consequently, as part of the 'UK Insurance Growth Action Plan', also published today, UK insurers have agreed to work alongside partners with the aim of delivering at least £25 billion of investment in UK infrastructure over the next 5 years, including, but not restricted to, projects in the published infrastructure pipeline.

6.37 Infrastructure investment funds are also a potential source of both debt and equity finance. Nearly a quarter of all deals in the last two years have been sponsored by such investors[3] and funds with combined assets of more than £40 billion under management globally already have at least some exposure to UK infrastructure assets.[4]

6.38 A number of infrastructure funds have recently made moves to either enter or increase their participation in the UK market.[5] This includes 3i and Innisfree, who invested in a joint venture with Siemens worth £1.8 billion to provide rolling stock for Thameslink, IFM Global Infrastructure, who purchased a 35 per cent stake in Manchester Airport Group (MAG) earlier this year, which supported the subsequent £1.5 billion MAG acquisition of Stansted Airport, and the Aviva Investors REaLM fund, which has completed three deals this year in the renewable energy sector.

6.39 Finally, despite their recent contraction in lending activity, commercial banks are still involved in infrastructure finance, and some limited deals have been completed in 2013. Some banks are showing signs that they are now looking to step-up their involvement in infrastructure finance once again.

6.40 However, banks are now only one of a wide variety of financing options in an increasingly buoyant infrastructure investment market which has already provided more than £10 billion of finance in 2013.[6] With the government also ready to help through UKGS and the GIB, and having already committed to publicly fund a pipeline of specific projects worth over £100 billion over the next parliament, the UK is now well placed to equip itself for the future.

[3] Source: Inframation Group
[4] Source: Inframation Group
[5] Source: Inframation Group
[6] Source: Inframation Group

# 7 Creating the right environment for delivery

7.1 Having a strong policy and funding framework in place; a clear set of objectives and priority investments; and an effective approach to securing the necessary financing is all crucial to the successful delivery of vital national infrastructure, which is why the government has taken the steps set out in the chapters above.

7.2 However, the government also recognises that it needs to take steps to ensure that these initiatives translate to tangible delivery outcomes – and in a way that is effective, efficient and provides value for money for taxpayers and consumers. In part, that means ensuring that it is equipped to deliver the projects and programmes for which it has direct responsibility on time, within budget, and with the right results. More broadly, it means ensuring that even the investments over which it does not have direct control – those that will be delivered by the private and regulated sectors – are operating in conditions that enable them to do the same.

## Strengthening the delivery of government infrastructure projects

7.3 Since Budget 2013, Lord Deighton, has been working with key infrastructure departments (Department for Transport, Department of Energy and Climate Change, Department for Environment, Food and Rural Affairs, Department for Culture, Media and Sport) alongside the Major Projects Authority and Shareholder Executive, to help them strengthen their approach to infrastructure delivery, building on his experience of delivering a world-class Olympic Games.

7.4 As part of this process, each department has been responsible for developing and implementing an Infrastructure Capacity Plan (ICP), which addresses resourcing and governance needs across their infrastructure portfolio. As set out in 'Investing in Britain's Future', the government has also introduced a new presumption that significant economic infrastructure projects and programmes should be undertaken by specialist delivery units with the commercial expertise to drive project management and implementation, reflecting private-sector best practice. These units should be supported by a streamlined and commercially-aware departmental 'intelligent sponsor' function. As part of the ongoing work on ICPs, Lord Deighton has been working with the departments in question to consider how this model should be applied in practice across their infrastructure portfolio.

### Department for Transport

7.5 Since July, the department has taken action to meet the specific resource needs identified by its Infrastructure Capacity Plan. This includes addressing specialist posts across commercial, project & programme management (PPM) and corporate finance disciplines within the Rail Group, HS2 and Corporate Finance areas.

7.6 The department is also taking action to ensure that it has the right organisational and leadership structures in place to deliver the £70 billion of transport projects over the next Parliament outlined at Spending Round 2013.

## Roads reform

7.7 In July 2013, DfT published 'Action for Roads' setting out its plan for a radical reform of the Highways Agency.[1] This includes transforming it into a government-owned company that will have the funding certainty and operational flexibility it needs to deliver the significant programme of roads investment planned between now and the end of the next Parliament, while delivering capital efficiencies estimated to be worth £2.6 billion by 2020-21.

7.8 DfT plans to bring forward legislation to secure these changes in law in 2014 and issued a consultation on this in October to:

- provide the new company with the necessary powers and duties to operate, manage, maintain and enhance the strategic road network efficiently and effectively, with operational independence from Whitehall
- establish a Roads Investment Strategy which will provide the new company with a stable, certain funding basis and a clear, robust framework for setting long term performance outcomes and investment needs
- ensure the new company has sufficient accountability for, and independent scrutiny of, its performance and that the needs and expectations of road users are clearly understood and reflected in the requirements set for the company to deliver

7.9 The department is also working closely with commercial specialists in the Shareholder Executive and Infrastructure UK to develop an implementation and resourcing plan that will deliver the organisational and cultural change needed to maximise the efficiency and delivery benefits of the new institutional arrangements.

## Rail franchising

7.10 As set out in the summer in 'Investing in Britain's Future', DfT has taken steps to bolster its commercial capability in rail and is undertaking an organisational review of its rail activities, to ensure that it is best placed to build on and maintain this commercial capability now and in the future. The conclusions of this review will be published shortly.

## High Speed 2 (HS2)

7.11 The government introduced a hybrid Bill in November 2013 to seek Parliament's agreement to Phase 1 of the programme. This major milestone demonstrates the government's commitment to the programme.

7.12 Department for Transport and HS2 Ltd are now working to ensure they have the right resourcing, governance and delivery structures in place as they move towards the construction phase of the programme, building on support from Infrastructure UK and the best practice of projects such as Crossrail and the Olympics.

7.13 This includes appointing Sir David Higgins as the new Chair for HS2 Ltd, from 1 January 2014, who will be able to draw on his extensive experience of delivering major infrastructure projects and leadership in the rail sector, including his past positions as Chief Executive of Network Rail and of the Olympics Delivery Authority. HS2 Ltd is also recruiting a new Chief Executive – Construction, with a proven track record of delivering large scale construction programmes, who will be responsible for managing Phases One and Two of the project, through design and construction, and into operation.

[1] *Action for roads: a network for the 21st century*, Department for Transport and Highways Agency, 2013

## Department for Culture, Media and Sport

7.14 DCMS is establishing a new Memorandum of Understanding which will reinforce the status of Broadband Delivery UK (BDUK) as a distinct delivery unit within the department, with a strengthened delivery focus and greater autonomy over key management and operational decisions, including having the flexibility it needs to recruit staff with the specialist skills required to deliver its portfolio of digital communications infrastructure programmes. The unit will continue to report to the DCMS Accounting Officer.

7.15 To reflect this new arrangement and the significant expansion in BDUK's remit since its inception, DCMS is recruiting a BDUK Chief Executive with exceptional leadership and delivery credentials to lead the organisation and be the Senior Responsible Officer for delivery of the fixed and mobile broadband infrastructure programmes. These new arrangements will be in place by early 2014.

## Department of Energy and Climate Change

7.16 The nature of the energy market means that the majority of DECC's work on infrastructure involves putting in place the right policy frameworks within which private companies will make their investment decisions. DECC has therefore used the Infrastructure Capacity Plan process to put in place a number of steps to ensure the department has the commercial capability needed to deliver the energy priorities in the government's National Infrastructure Plan.

7.17 The department is continuing to develop its Commercial Team as a pool of centralised expert resource, which has now been restructured so it reports to the DG Finance and Corporate Services, ensuring that infrastructure and commercial projects across the department have access to specialist financial and market skills when developing and implementing policy. Having conducted a bottom-up assessment of its commercial resourcing needs during summer 2013, up to 25 new commercial specialist roles are now being actively recruited to strengthen the Commercial Team further. The department has already in parallel secured a number of additional commercial specialists in various key posts across the department.

7.18 Specialists from the Commercial Team are now leading on the development of a nuclear Contract for Difference, the delivery of the first investment contracts as part of the electricity market reform and directly advising policy teams across the department. The department is also taking steps to increase the overall level of commercial awareness among its policy experts, including making greater use of secondment opportunities to private sector companies.

7.19 The department will continue to make use of specialist delivery units for the day-to-day implementation of its infrastructure programmes, to ensure that the right skills are in place for effective delivery and that there is clarity between the policy and delivery functions. For example, the current electricity market reform programme is creating a new Counterparty Body to manage the delivery of Contracts for Difference and the department is currently developing a resourcing strategy to ensure the Counterparty Body has the right skills mix to enable successful delivery of the contract for difference regime.

## Department for Environment, Food and Rural Affairs

7.20 Following an external review of its commercial capability, the Environment Agency Flood Defence Group has recruited a complex contract Services Manager and plans are in place to recruit two additional resources with contract management skills for when TEP1 becomes operational. The roll out of the Environment Agency Project Cost Tool and further commercial and project team development will continue throughout 2014. As part of the development of its flood investment plan by Autumn 2014, the Environment Agency will also develop a long-term resourcing plan to support the new operating model which it will use to deliver its long-term capital programme.

7.21 In recognition of the importance of a strong relationship between a specialist delivery unit and its sponsor department, a review of the interface between Defra and the EA on major projects has identified a number of areas for improvement which will be addressed as part of wider work on the commissioning delivery structures and relationships across the Defra Network. Defra has also embarked on a programme of work to strengthen the commercial skills and awareness within the core department, to ensure that policy development and programme sponsorship is consistently informed by a strong commercial understanding.

### Project scrutiny and assurance

7.22 The government continues to monitor the top 200 major projects, including infrastructure projects and programmes, through the government's Major Projects Portfolio (GMPP), to ensure deliverability, affordability, and value for money for the taxpayer. Integrated Assurance and Approval Plans are developed for each major project, driving better informed decision making. The Major Projects Authority (MPA) is leading the improvement of a project delivery profession across government. The highly acclaimed Major Projects Leadership Academy is an integral part of this. As part of its mandate to assure and scrutinise major projects and portfolios, the MPA is also rolling out a strengthened project initiation process to ensure projects are started with the best chances of success.

7.23 The mechanisms being implemented for data collection and co-ordination will ensure effective integration and streamlining between the GMPP process and the Major Infrastructure Tracker process set out in Chapter 5.

### Funding certainty and flexibility

7.24 The certainty provided by the long-term funding settlements set out for the roads and flood programmes in 'Investing in Britain's Future' enable infrastructure clients to structure their programmes effectively and engage collaboratively with their supply chains to improve delivery.

7.25 The government also announced that it would allow certain projects more flexibility to move money between years, as a further means of improving delivery efficiency. Plans are currently being developed to apply these new flexibilities to the Budget Exchange rules for the benefit of HS2 and the roads programme.

### Government asset sales

7.26 Moving public assets to the private sector where they will be better managed drives efficiencies and growth. With the privatisation of Royal Mail and sale of shares in Lloyds Banking Group, central government has delivered sales of over £11 billion since May 2010.

7.27 In 'Investing in Britain's Future', the government set out its initial plans to build on this progress from 2015 to 2020. The government has now identified further assets with the potential for sale and the target for the sale of corporate and financial assets will be increased from £10 billion to £20 billion between 2014 and 2020. This includes (subject to value for money assessments and key policy objectives):

- a central estimate of c.£12 billion expected from the sale of the Income Contingent Repayment student loan book over the target period
- additional assets identified for sale, which potentially could include LCR property assets and the government's shareholding in Eurostar
- looking at options to bring private capital into the Green Investment Bank to enable it to operate more freely in delivering its objectives

7.28 In addition the government intends to launch an open approach to identify areas where private sector participation in government services or corporate and financial assets could be

considered. This will take an informal approach and the most promising ideas will be considered in more detail.

## Streamlining the planning system

7.29 The planning system is a key component of infrastructure delivery and the Infrastructure UK Cost Review Report (2010) identified it as a major reason for excessive scheme costs compared to other European countries.[2]

7.30 The government has already taken a number of steps to improve the planning system, including establishing the Major Infrastructure Unit in the Planning Inspectorate to speed up the application process for major infrastructure projects, introducing a presumption in favour of sustainable development in the National Planning Policy Framework and radically reducing planning policy and guidance.

7.31 These reforms are working: planning approvals are at a 13-year high, and the volume of approvals increased by 35 per cent year on year. The separate Nationally Significant Infrastructure Planning (NSIP) regime has bedded in well and 93 per cent of all NSIP applications have been approved, with all but one of the decisions made within the prescribed deadlines since it was established.

### Nationally Significant Infrastructure Projects

7.32 The Hinkley C nuclear power station application showcased the NSIP regime's performance. The hugely complex application was decided within a year of the start of the examination; by comparison the decision to build Sizewell B took 6 years and included a 3 year public inquiry.

7.33 Hinkley C also helped to identify where further work needs to be done. The pre-examination was lengthy, examination documents ran to tens of thousands of pages and the project has been subject to three separate judicial reviews (two of which were unsuccessful, with a decision on the third currently pending).

7.34 The government wants to learn lessons from projects like these as they go through the regime, addressing issues whilst ensuring enough stability for future infrastructure investors (approximately 80 NSIPs are registered with the Planning Inspectorate) to proceed with confidence:

7.35 The government today launches an overarching review of the Nationally Significant Infrastructure Project regime that will seek views on:

- streamlining consultation and environmental information requirements to speed up the pre-application phase
- flexibility to make changes to Development Consent Orders after a decision is made
- expanding the scope of the 'one stop shop' for consents
- efficiency and flexibility during the examination phases
- strengthening guidance on engagement between the developer, Statutory Consultees, Local Authorities and communities

7.36 The Government believes judicial reviews (JRs) have created unacceptable delays to the development of crucial infrastructure and housing projects. The majority of the 194 planning judicial review cases in 2011 were either refused permission or awarded in favour of the

[2] *The Infrastructure Cost Review: Main Report and Infrastructure Cost Review: technical report* are available on the Infrastructure UK website

defendant, but not before they took on average 100 days to reach a permission decision and 375 days to reach a final hearing.[3]

7.37 To tackle delays to infrastructure delivery and reduce the impact of meritless claims, the government will take forward work in the new year to establish a specialist planning court with set deadlines to accelerate the handling of cases, and introduce legislation to ensure that minor procedural claims are dealt with proportionally and allow appeals to 'leapfrog' directly to the Supreme Court in a wider range of circumstances. The Ministry of Justice will report on further reforms in January.

7.38 To support the delivery of the Top 40 priority investments, the government will ensure, where possible, that these projects have the option to use the regime. As set out in Chapter 5 these projects and programmes have been identified by government as critical priorities for delivery and, while each application to use the NSIP regime must be considered on its merits, the government will have regard to this 'Top 40' designation in those considerations.

7.39 The government is today providing policy certainty and confidence for the transport sector through the publication of a National Networks National Policy Statement (NPS). The NPS strikes the balance between supporting the delivery of the investment in the transport pipeline, while protecting the environment and minimising social impacts. The NPS includes detail on how transport policy will meet future capacity and demand, safety and technology, and circumstances where it would be particularly important to address the adverse impacts of development on local communities.

7.40 The government is committed to introducing improvements to the regime without increasing costs for infrastructure developers in the UK and will freeze planning application fees for the NSIP regime for the remainder of this parliament.

### Town and Country Planning System

7.41 The Government is taking steps to address delays at every stage of the planning process and incentivise improved planning performance.

7.42 Local Plans provide certainty for developers, while supporting locally-led sustainable development. Three quarters of planning authorities now have a published Local Plan, but further progress can be made. The government will consult on measures to improve plan making, including introducing a statutory requirement to put a Local Plan in place.

7.43 Delays associated with the discharge of planning conditions can hinder the effective delivery of development. The government will legislate so that where a planning authority has failed to discharge a condition on time, it will be treated as approved, and will consult on using legislative measures to strengthen the requirement for planning authorities to justify conditions that must be discharged before any work can start.

7.44 To prevent delays for applicants, the government will consult on proposals to reduce the number of applications where unnecessary statutory consultations occur, and key statutory consultees will commit to a common service agreement. The government will also pilot a new scheme to provide a single point of contact for cases where a point of conflict in advice cannot be resolved locally.

7.45 The government wants to ensure that households benefit from developments in their local area. Building on the measures it has already put in place at the local authority and community

[3] As of May 2013 only 61 of the 194 were granted permission to a final hearing. 34 of which received a decision at final hearing and only 13 were awarded in favour of the claimant. Some cases may still be awaiting conclusion or may have been withdrawn before hearing, possibly in favour of a claimant. Figures for timeliness and success at permissions and final hearings may increase as not all cases may have been heard.

level (including the neighbourhood funding element of the Community Infrastructure Levy, 'Community Benefits' in the energy sector and the New Homes Bonus), the government will work with industry, local authorities and other interested parties to develop a pilot passing a share of the benefits of development directly to individual households.

## Optimising efficiency and value for money

7.46 Ensuring that infrastructure projects and programmes – whether public or private – deliver the outcomes they are designed to in the most efficient and cost-effective way has the potential to deliver better outcomes for a given amount of infrastructure investment, reducing costs for taxpayers and consumers.

### Promoting cross-sectoral working

7.47 The UK infrastructure system is a highly complex, interdependent set of networks and assets that rely on each other to work effectively.

7.48 Historically, power, water, transport and communications networks have grown organically and independently, regularly placing unplanned demands on other networks. However, a more strategic, coordinated and efficient approach to future infrastructure provision and investment can unlock significant efficiency and cost-saving opportunities. The 2012 study by Frontier Economics, commissioned by HM Treasury, identified at least £500 million per annum of additional value that could be captured through shared engineering, planning and operational activities, and this figure is likely to have grown as the overall value of the pipeline has increased.[4]

7.49 Analysis of the utilities sectors has also indicated that by sharing civil engineering costs associated with infrastructure networks between them, the potential exists to capture in excess of £3 billion in further economic value through greater cross-sector infrastructure delivery.

7.50 A lack of cross-sectoral planning in the utilities sector can also become a serious barrier to successful project delivery causing increased costs and delay. To help ensure that construction contractors have enough power to build and that the homes and commercial premises being developed can be efficiently served by utilities, the government will work to enable close collaboration between sponsoring authorities, developers, utility providers, regulators and investors so that they focus resources and prioritise their investments in a co-ordinated way.

7.51 In the National Infrastructure Plan 2011, the government committed to undertake a number of pilot projects to understand how best to capture additional value through the effective management of interdependencies, and to share any early lessons learnt. The government has since taken this vision forward in a number of ways:

- developing a framework for the planning and management of interdependencies: in June 2012, the government initiated a joint research programme between the University of Bristol and University College London; drawing on evidence from HS2 phase 2, the Lower Thames Crossing, and the Northern Line Extension, it has now developed and tested a methodology for the identification and appraisal of cross-sectoral delivery benefits and stakeholder management; this will be developed into a Green Book supplementary guidance document, which will be available in 2014, ensuring that interdependencies can be properly identified, valued and taken advantage of at the inception of major government-funded infrastructure investments
- taking advantage of opportunities for synchronised or co-located investment': future-proofing' assets by including provision for additional infrastructure elements is

[4] Systemic Risks and Opportunities in UK Infrastructure, Frontier Economics, 2012

considerably cheaper than retro-fitting them at a later date and has positive environmental aspects; the HS2 hybrid bill includes clauses for the laying of a communications network along the route of High Speed 2 (HS2) from London to Birmingham, based on evidence of a projected increase in data capacity requirements

- better business models: the Engineering and Physical Sciences Research Council (EPSRC) and the Economics and Social Research Council (ESRC) are funding two multi-disciplinary research centres to investigate innovative infrastructure business models that will allow the benefits of cross-sectoral delivery to be captured to the fullest extent; iBUILD, a consortium of Newcastle, Leeds and Birmingham Universities, is focussing on the city and city region locales and ICIF, a UCL, Southampton and Surrey consortium, is looking at the national and international scale

## The role of the economic regulators in cross-sectoral working

7.52 In November 2011 the government asked the economic regulators of key infrastructure sectors to investigate potential regulatory barriers to the development of multi-use infrastructure assets that would operate across more than one sector. The Joint Regulatory Group (JRG), which undertook this work on behalf of the regulators, identified no regulatory prohibitions, but made a number of recommendations to improve the way in which cross-sectoral issues are handled:

- a simple scale of 'sharing factors' be developed and applied to assets that are shared by operators in different regulated sectors, to avoid unnecessarily complicated negotiations between each party
- identification of a lead regulator to work in collaboration with other involved regulators reducing the possible duplication of work and unnecessary delay
- that regulators be alert to where any differences in regulatory treatment of different sectors appear to be having a deterrent effect on cross-sectoral investments
- special attention for 'super projects' that have the potential to have large impacts across sectors, such as HS2 or Crossrail
- in the case of new investors seeking to build dual- or multi-use assets, the JRG recognised that the differing licensing regimes across sectors could be perceived as a barrier to cross-sectoral delivery, and will create a sub-group to look at this in more detail. This sub-group will set out its recommendation by spring 2014

7.53 Regulators are currently implementing these recommendations.

7.54 The government has also asked the JRG to determine if, in cases where new infrastructure requires realignment of existing assets or needs to cross existing networks, economic regulators could ensure that negotiating terms and conditions of access did not place significant additional costs and delays on new investments. The JRG is expected to report more fully on this work by spring 2014.

7.55 The government recognises the value of fully independent regulation for economic infrastructure, and remains committed to this system. There is nevertheless scope for broader consideration of the way regulators work together and with the government on issues related to cross-sectoral infrastructure delivery. It has therefore initiated a joint HMT/BIS study to examine:

- how economic regulators can better address cross-sector issues and achieve efficiencies in their own decision making processes
- the role regulators should have in supporting economic growth, and how their duties affect this

- options to improve the impact of the regulatory environment on consumer outcomes

7.56 The study will look particularly at developing better joint working, more clearly explaining the role of economic regulation, and facilitating cross sector infrastructure investment. Recommendations from the study will be made in spring 2014.

### Infrastructure Cost Review Programme

7.57 The Infrastructure Cost Review Report (2010) initiated a 3 year collaborative programme between Infrastructure UK and industry to identify ways of reducing the costs of infrastructure construction by 15 per cent. It highlighted opportunities to save £2 billion to £3 billion per annum by improving delivery throughout the project lifecycle - particularly at the early phase of initiation, where decisions on project governance, requirements, risk and procurement will have the greatest impact on outcomes.

7.58 Progress in meeting the Cost Review Programme objective has been published annually. Key workstreams of the programme include:

- the Infrastructure Client Working Group (chaired by the Managing Director of Infrastructure Projects, Network Rail), which draws together clients from across infrastructure sectors to apply recommendations from the Cost Review to their own businesses and share best practice across sectors; working with this Group, the government is driving forward the recommendations of the Cost Review programme through a number of ongoing 'task and finish' sub-groups: to improve governance; collaborative working, procurement and measurement of performance
- the Infrastructure Routemap, published in January 2013, is a 'toolkit for improving delivery capability', which provides a coherent approach to assessing and improving capability and integration, in order improve the delivery environment; the toolkit has already been successfully piloted on a number of 'Top 40' priority infrastructure projects (Box 7.A)
- smoothing investment cycles in the water sector – the ramp up and tail-off at the start and end of each five year settlement period causes inefficiencies that cost up to 40,000 jobs and add between £5 and £6.50 to the average bill; following publication of an Infrastructure UK report on cyclicality in the water sector (July 2012) new measures have been introduced to address the issue, as part of the current price review process, and the government will consider extending the principles of this work to other regulated sectors
- managing cost and risk and promoting best practice – an industry-led Infrastructure Risk Group (IRG) investigated the management of cost risk and uncertainty; the IRG report published in October 2013 set out nine recommendations to change behaviours and improve outcomes to optimise the approach to managing and providing for risk and optimism bias; these recommendations will be supported by a revision to the Treasury Green Book Supplement providing additional early stage guidance on appraisal in the light of the research
- benchmarking – through effective benchmarking, clients can drive efficiencies in their own organisations, share best practice across sectors and enable innovation from their supply chains; in response, an infrastructure benchmarking group has now been formed between the Environment Agency, Highways Agency, Network Rail and Transport for London who have signed a Memorandum of Understanding to share cost data for the first time and support each other to raise performance levels
- HS2 Efficiency Challenge Programme – the key Cost Review principles are being applied to High Speed Two; in autumn 2012, an Efficiency Challenge Programme

was established to drive savings in the programme; as part of this work the Cost Review supported a detailed benchmarking comparison with the French Tour-Bordeaux high speed rail project currently under construction; through this work opportunities for cost reduction on Phase 1 of over £1 billion have been identified

- Infrastructure Carbon Review – in November 2013, the government published the results of an extensive study on the costs of embedded carbon in infrastructure construction; as a result of this study, 20 industry leaders have committed to the recommendations, which could save the UK economy £1.46 billion per year by 2050, as well as reducing carbon emissions by 24 million tonnes/$CO_2$ each year[5]

7.59 The Infrastructure Cost Review implementation plan is now in its final year. However, the government will continue to focus on the efficient delivery of the infrastructure pipeline and the government's critical projects, and will put in place effective arrangements to ensure the benefits of the programme can be sustained and developed in years to come. The final report and legacy plans will be published in spring 2014.

[5] *Infrastructure Carbon Review,* HM Treasury, Infrastructure UK and Department for Business, Innovation and Skills, 2013

**Box 7.A: Routemap application to TfL Station Stabilisation Programme (SSP)**

TfL's Station Stabilisation Programme (SSP) will undertake works to over 70 tube stations, deploying a new delivery model designed to ensure production at the workface leads with all other activities focused on supporting the production. This approach requires step a change in the current project delivery model and a different relationship to be developed between TfL and its supply chain. TfL expect the application of this delivery model will reduce the outturn costs in excess of 12 per cent below traditional contracting approaches by improving productivity, reducing defects, and avoiding multiple overheads.

As the planned delivery model was different to TfL's traditional approach, the programme's leadership team invited IUK to undertake a Routemap review of SSP. The review took place in parallel with the SSP programme team's own planning for the transition to the new delivery model. Recommendations and outcomes were developed jointly and have now been incorporating into TfL's existing planning activity. The key findings included:

- developing clear communication to all project stakeholders (including supply chain) of the desired outcomes expected through SSP, the delivery model and the key transition phases to achieving this end state
- ensuring there is clear alignment between the benefits articulated in the business case and the expectations for each of the transition phases to the final delivery model
- reviewing the authorities and processes to ensure they will support both the efficient realisation of benefits and the delivery of the SSP requirements
- developing and agreeing a high level organisational development strategy that sets out the key roles, responsibilities, skills and behaviours needed in the client team and the associated transitions
- ensuring the approach to incentivisation and reward drives effective collaborative working to maximise productivity at the workface and is fit for purpose for each stage of the transition to the new delivery model

A further Routemap review of benefits and outcomes is planned for Q1 2014.

## Addressing skills requirements

7.60 The government recognises the benefits of improving the visibility and certainty of the forward pipeline of projects and programmes, as this enables industry to anticipate investment patterns and adopt a strategic approach to developing the skills and capability necessary to deliver infrastructure.

7.61 The updated pipeline published alongside the NIP provides the basis for both government and industry to assess future skills needs across the key economic infrastructure sectors and ensure the UK develops the capability it needs to deliver its infrastructure objectives. The pipeline is particularly useful in identifying skills bottlenecks allowing the government to work with industry to develop decisive measures to address them.

7.62 The government's tunnelling capability analysis is a good example of this. The Cost Review report 2012 highlighted that within the list of Top 40 priority investments there are seven projects for six different infrastructure clients that involve a significant element of tunnelling. Looking at the resource and skills demands for these projects in isolation would not necessarily have flagged capacity constraints. However, by using the pipeline to look at tunnelling needs in

the round and by bringing together the infrastructure clients and key members of the tunnelling supply chain the government was able to highlight a potential skills gap.

7.63 To address this, the government has put in place a plan to create tunnelling training programmes to mitigate potential skills shortfalls. This includes setting up the Tunnelling and Underground Construction Academy (TUCA). TUCA is a new, purpose-built facility providing training in the key skills required to work in tunnel excavation and underground construction and is the only facility in Europe dedicated to the education of soft-ground tunnelling techniques. TUCA is helping to develop the skills base necessary to work underground on Crossrail, HS2 and other planned infrastructure projects.

7.64 For particular mega-infrastructure projects, the government is taking bespoke measures to ensure that the UK can fully realise the economic opportunities presented. High Speed Two, which could generate up to 50,000 concurrent jobs by the late 2020s, is a good example. Work has already begun on developing the supply chain, highlighted by the first HS2 Supply Chain Conference held in November 2013. The conference attracted 800 attendees from 600 different organisations and focused on the commercial opportunities that HS2 will bring to the UK, the workforce skills required to delivery HS2, and how companies can get involved.

7.65 As part of the next phase of the Infrastructure Cost Review programme, the government, in partnership with HS2 and other members of the industry Client Working Group, will set out in spring 2014 an action plan to identify and implement the measures necessary to address skills and capacity issues identified across the pipeline and Top 40 priority infrastructure investments.

7.66 The government is also taking other cross-sectoral measures to improve the UK's skills base. This includes investing up to £340 million in the Employer Ownership Pilot (EOP) which allows employers to design and develop vocational training to help deliver the government's industrial sector strategies. The government is collaborating with business on the programme and investment is being matched by industry.

**Box 7.B: Building a World Class Highways Supply Chain Initiative**

By providing clear policy and funding direction coupled with increased visibility of the infrastructure investment pipeline, government has set the framework for industry to develop its own initiatives to help cater for emerging skills needs.

A good example of this is the industry led Building a World Class Highways Supply Chain initiative. The initiative seeks to develop skills and capabilities within the highways sector and brings together a consortium of professional and trade bodies across the entire highways supply chain, including the Institution of Civil Engineers and the Chartered Institution of Highways and Transportation.

The consortium is working with government to help gear up for the step change in investment in maintenance, renewals and enhancements across the Strategic Roads Network identified in the Investing in Britain's Future (June 2013) and Action for Roads (July 2013) policy documents.

The consortium is developing a package of activity to:

- build a map across all regions and levels of the supply chain
- develop local employment and supply chain opportunities, including apprenticeships and training vehicles
- address the changing skills and capabilities for a 21st century road network

The activities the consortium is targeting will help enable industry to develop the right skills and capacity to remove the barriers to effective delivery of the Strategic Roads network and build a world class highways supply chain for the UK.

7.67 In addition to improving skills and capability, there is approximately £350 million of research currently being funded in the UK that has relevance to infrastructure. Infrastructure UK is directly involved in a number of these research projects, ensuring that the government is at the forefront of pioneering new approaches to infrastructure development.

# A Priority investments – delivery update

A.1 Further detail on the progress of each of the government's Top 40 priority investments is provided overleaf.

## Notes on the delivery update

A.2 Top 40 projects are grouped by relevant sector and are not listed in order of priority.

A.3 Construction start and finish dates are taken from the published infrastructure pipeline. For private sector investments these represent indicative dates only and are based on publicly available information. Construction start and finish dates for some Network Rail projects are still to be confirmed as they are being considered as part of the Control Period 5 determination process.

A.4 In some sectors, investment decisions are made by the private sector on a commercial basis and the government has therefore not identified specific key projects within priority investments. However, it continues to monitor these investments at programme level, to ensure that the policy framework and delivery environment are in place to support the delivery of projects that will meet the government's strategic objectives for the sector.

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| **1. Accelerated road construction pilots**<br><br>➢ M3 Junction 2 to 4a<br>➢ M6 Junction 10a to 13<br>➢ M1 Junction 28 to 31<br>➢ A160 / A180 Immingham<br><br>**Funding**: Public<br>**Status**: Planning & consents/In construction | <br><br>Q4 2013-14<br>Started<br>Q4 2013-14<br>2015-16 | <br><br>2015-16<br>2015-16<br>2015-16<br>2016-17 | • The Prime Minister announced in November 2012 that three motorway schemes and one trunk road scheme would be accelerated for early delivery<br>• All three motorway projects are due to have started before April 2014<br>• The M1 project is due to complete in 2015<br>• The M3 and M6 projects are due to complete by early 2016<br>• The A160 / A180 Immingham project is due to start construction in 2015 and be complete by autumn 2016 |
| **2. Highways Agency new capacity**<br><br>➢ A1 (Leeming to Barton)<br>➢ M1 / M6 Junction 19<br>➢ A556 (Knutsford to Bowden)<br>➢ A453 widening<br>➢ A5-M1 Link Road<br><br>**Funding**: Public<br>**Status**: Planning & consents/In construction | <br><br>Q4 2013-14<br>Q4 2013-14<br>2014-15<br>Started<br>2014-15 | <br><br>2016-17<br>2016-17<br>2016-17<br>2015-16<br>2015-16 | <u>Key Project Update</u><br>• Work is progressing on A453 widening<br>• The A556 (Knutsford to Bowden) scheme is currently being examined by the Planning Inspectorate<br>• Advanced works have started on the M1 / M6 Junction 19 project with construction due to start before April 2014<br>• A1 (Leeming to Barton) is also due to start construction before April 2014<br>• A5-M1 Link Road project is due to start by April 2015<br>• A453 widening project will be completed in 2015<br><u>Elsewhere in the Highways Agency programme</u><br>• The government announces in the National Infrastructure Plan 2013 that it will provide funding to support improvements to the A50 around Uttoxeter, starting no later than 2015-16 to support local growth, jobs and housing (this project will be subject to the usual developer contributions)<br>• All pre-2010 Spending Review projects have now been completed<br>• Three more projects are currently under construction:<br>o A11 (Fiveways to Thetford) |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | o A23 (Handcross to Warninglid)<br>o A14 Junction 7-9 (Kettering)<br>• Advanced works have started on A45 / 46 (Tollbar End)<br>• A23 (Handcross to Warninglid) and A11 (Fiveways to Thetford) are due to complete by April 2015<br>• A30 (Temple) and M25 Junction 30 projects will start before the end of this Parliament<br>• In June, the government announced six new projects will go ahead subject to value for money and deliverability, some of these projects now have provisional start dates:<br>o A19 / A1058 Coast Road is due to start in 2016-17<br>o A63 (Castle Street) is due to start in 2016-17<br>o A19 (Testos) is due to start in 2016-17<br>o A21 (Tonbridge to Pembury) is due to start in 2015-16<br>o A38 (Derby Junctions) – start date still to be confirmed<br>o A27 Chichester Bypass – start date still to be confirmed<br>• And a further three projects will go ahead subject to finalisation of options and developer agreement:<br>o M54 to M6 Toll Link Road<br>o New M20 Junction 10a and link road<br>o A2 (Bean and Ebbsfleet Junctions)<br>• The Highways Agency is continuing to develop the forward programme of major projects and will make an announcement on the timing of these schemes in due course<br>• The government announced in summer 2013 that it would identify and fund solutions to tackle some of the most notorious and long standing hotspots in the country: |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | o A303 / A30 / A358 Corridor<br>o A1 (North of Newcastle)<br>o A1 Newcastle – Gateshead Western Bypass<br>o A27 Corridor (including Arundel and Worthing)<br>o Trans-Pennine routes<br>o A47 Corridor (between Peterborough and Great Yarmouth)<br>• These feasibility studies are on track and the government is working with local stakeholders and the Highways agency to examine the problems on these stretches of road and are working to identify solutions<br>• The government expects to report back at Autumn Statement 2014 with solutions to alleviate congestion and tackle the enduring problems in these areas |
| 3. Smart Motorways<br>➢ M60 Junction 8 to M62 Junction 20<br>➢ M25 Junction 23 to 27<br>➢ M1 Junction 39 to 42<br>➢ M25 Junction 5 to 6-7<br>**Funding**: Public<br>**Status**: Planning & consents/In construction | 2014-15<br>Started<br>Started<br>Started | 2016-17<br>2015-16<br>2015-16<br>2014-15 | <u>Key Project Update</u><br>• M25 Junction 5 to 6-7 is now under construction<br>• Work is also progressing on the M25 Junction 23 to 27 with a number of new gantries installed between September and November<br>• Initial works to replace the central reservation barrier on the M1 Junction 39 to 42 began in November<br>• A public consultation on the M60 Junction 8 to M62 Junction 20 project is currently underway until February 2014<br>• M25 Junction 5 to 6-7 is due to be completed by early 2015<br><u>Elsewhere in the Smart Motorways Programme</u><br>• M62 Junction 25 to 30 project is now complete<br>• Two other projects are currently in construction<br>o M4 Junction 19 to 20 to M5 Junction 15 to 17<br>o M6 Junction 5 to 8<br>• M1 Junction 32 to 35a project is due to start construction by spring 2014 |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | • 15 new Smart Motorway projects were announced at Spending Review 2013, the first five of which are subject to value for money considerations:<br>o M6 Junction 16 to 19<br>o M5 Junction 4a to 6<br>o M1 Junction 24 to 25<br>o M1 Junction 13 to 19<br>o M23 Junction 8 to 10 (Gatwick Junctions)<br>o M60 Junction 24 to 27 & Junction 1 to 4<br>o M62 Junction 10 to 12<br>o M6 Junction 21a to 26<br>o M56 Junction 6 to 8<br>o M6 Junction 2 to 4<br>o M27 Junction 4 to 11<br>o M3 Junction 9 to 14<br>o M20 Junction 3 to 5<br>o M4 Junction 3 to 12<br>o M6 Junction 13 to 15<br>• The Highways Agency is proposing a programme approach to developing Smart Motorways in the next Parliament to accelerate delivery and bring about year-on-year improvements in efficiency<br>• Key to this is providing greater certainty for the supply chain, more details will be announced in due course |
| **4. A14**<br><br>**Funding**: Public with contributions from local enterprise partnership | 2016 | 2019-20 | • The government confirms in the National Infrastructure Plan 2013 that there will be no tolling on the planned A14 scheme between Cambridge and Huntingdon<br>• A consultation on options ran from September to October, with over |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| **Status**: Scoping | | | 1,000 response received<br>• The government will publish a report on the consultation before the end of the year<br>• The preferred route will be announced early next year<br>• A statutory consultation under the Planning Act 2008 will take place in the first half of 2014<br>• The start of works is anticipated to be in 2016 |
| **5. Lower Thames Crossing**<br>**Funding**: Public<br>**Status**: Scoping | TBC | TBC | • A consultation on three options for the Lower Thames Crossing took place between May and July<br>o Approximately 5,700 responses to the consultation were received<br>o Three options brought forward for consideration<br>o Detailed traffic modelling will be brought forward, resulting in further 6-12 month saving<br>• The government is carefully considering the serious issues raised during consultation and intends to announce next steps shortly |
| **6. High Speed 2**<br>**Funding**: Public<br>**Status**: Scoping | 2017 | 2032 | • In June, the government set a maximum funding envelope of £42.6 billion for HS2 construction costs and £7.5 billion for rolling stock (in 2011 prices)<br>• HS2 Growth Taskforce was also launched in June, to maximise the economic potential from HS2<br>• A consultation on the proposed route of Phase Two was launched in July<br>• In September, it was announced that Sir David Higgins will become the new HS2 Chairman, with a remit to drive down costs<br>• Also in September, the re-consultation on property compensation for London-West Midlands was launched<br>• The Strategic Business Case for HS2 was published in October<br>• The government also announced that the section of the Phase One |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | track at Northolt and Bromford will be through bored tunnels rather than a surface route<br>• In November, the High Speed Rail Preparation (Paving) Act received Royal Assent<br>• The High Speed Rail (London to West Midlands) Bill was subsequently introduced to Parliament<br>• At the same time as the hybrid Bill being introduced the following documents were published;<br>o the government response to the HS2 Design Refinement Consultation (DRC) covering the remaining 12 DRC decisions (excluding Bromford and Northolt);<br>o the HS2 Property and Compensation for London-West Midlands Decision document – Properties above Tunnels; and<br>o HS2 Property and Compensation for London-West Midlands Decision document – Impact on Social Rented Housing<br>• The consultation on the proposed route of Phase Two closes at the end of January 2014<br>• The final report of the HS2 Growth Taskforce will be published in spring 2014<br>• A decision on the Phase Two route will be made by the Secretary of State for Transport by December 2014 |
| 7. Northern connectivity<br>➢ Northern Hub<br>➢ North West Electrification<br>➢ Trans-Pennine Electrification<br>**Funding**: Public / Private<br>**Status**: In construction | 2014<br>Started<br>2014 | 2018<br>2014<br>2018 | • In 2013 work commenced on the Huyton-Roby four tracking project<br>• Network Rail submitted a Transport Works Act Order (TWAO) application for the construction of Ordsall Curve in Manchester in September 2013 and is progressing design options for the Castlefield corridor<br>• The first new electric trains for Manchester to Scotland services have now been delivered<br>• In December, electrification between Manchester and Newton-le-Willows will be completed and electric trains will commence between |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | Manchester and Scotland<br>• By May 2014, there will be a full fleet of electric trains operating between Manchester and Scotland<br>• Allerton depot works are progressing to enable start of electric services from Liverpool in December 2014<br>• By December 2014, electrification between Newton-le-Willows and Liverpool and between Liverpool and Wigan will be completed, including line speed improvements on this route, this will allow electric trains to operate between Manchester and Liverpool<br>• Design works are progressing for Trans-Pennine electrification and are being coordinated with East of Leeds capacity enhancements<br>• Preston to Blackpool electrification will also be complete by May 2016<br>• Trans-Pennine electrification is due to be completed by 2018 |
| **8. Electrification**<br>➢ Electric Spine<br>➢ Great Western<br>➢ Midland Main Line<br>➢ Welsh Valleys<br>**Funding**: Public / Private<br>**Status**: In construction | <br>TBC<br>Started<br>2014<br>TBC | <br>TBC<br>2017<br>2018<br>TBC | • Design and bridge works are progressing on all routes<br>• Electrification works have started on the Great Western Line, with sections to Oxford, Newbury, Basingstoke and Bristol to complete by 2016 and to Cardiff by 2017<br>• Midland Main Line works are due to complete by the end of 2018 |
| **9. Line capacity improvements**<br>➢ Midland Main Line capacity<br>➢ East Coast Main Line<br>➢ West Coast Main Line<br>➢ Southern Train lengthening | <br>TBC<br>Started<br>Started<br>Started | <br>TBC<br>2014<br>2017<br>2014 | • In June, works on the Hitchin Flyover (East Coast Main Line) were completed<br>• In July, track and junctions were replaced over an 18 mile stretch of the West Coast Main Line in Lancashire<br>• In August, the bottleneck between Finsbury Park and Alexandra Palace (East Coast Main Line) was removed |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| ➢ East-West Rail<br>➢ East Coast connectivity<br><br>**Funding**: Public / Private<br>**Status**: In construction | TBC<br>TBC | TBC<br>TBC | • Testing of the new European Rail Traffic Management System (ERTMS) has now begun at Hertford National Integration Facility test track<br>• The Office of Rail Regulation has now published its final determination on the projects required on the rail network between 2014-19 (Control Period 5)<br>• In November, formation of the "Norwich in Ninety" taskforce was announced to support East Coast Connectivity<br>• In December 2013, Hitchin Flyover will be brought into full service following a timetable change<br>• March 2014 will see completion of the North Doncaster Chord (East Coast Main Line)<br>• By 31 March 2014, Network Rail will publish its final delivery plan for Control Period 5<br>• In April 2014, Control Period 5 will commence<br>• By summer 2014, the Railway Communications System will be functional across the whole of Britain<br>• In December 2014, East Coast Main Line works will be complete |
| 10. Major station improvements<br><br>➢ Birmingham New Street<br>➢ Bristol Temple Meads<br>➢ Manchester Victoria<br>➢ Peterborough<br>➢ Reading<br><br>**Funding**: Public / Private<br>**Status**: In construction | <br><br>Started<br>TBC<br>Started<br>Started<br>Started | <br><br>2015<br>TBC<br>2015<br>2014<br>2015 | • In April, five new platforms, two new entrances and a spectacular new passenger interchange bridge opened at Reading following extensive works to accelerate the project over the Easter weekend. Construction of flyovers has now commenced<br>• The first half of the brand new concourse at Birmingham New Street also opened to the public in April<br>• Work has now begun on the new roof at Manchester Victoria and cleaning the façade<br>• A new train care depot also opened at Reading in the summer<br>• Work is continuing on £43 million station improvements at Peterborough<br>• Summer 2014 will see completion of the new roof at Manchester Victoria |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | • By early 2015, the Manchester Victoria redevelopment will be completed<br>• In spring 2015, a new viaduct at Reading will be opened to cut delays<br>• Birmingham New Street will be complete in summer 2015, with the second half of the concourse opened and the atrium revealed<br>• All works will also be complete at Reading by summer 2015 – a year ahead of schedule<br>• Improvement works at Bristol Temple Meads are now being designed for delivery alongside electrification |
| 11. Intercity Express Programme (IEP)<br>**Funding**: Public / Private<br>**Status**: In construction | Started | 2019 | • In May, Hitachi Rail Europe, a partner in Agility Trains, signed a contract for the construction and fit-out of an £82 million rolling stock manufacturing plant in Newton Aycliffe, County Durham<br>• The factory is expected to create long-term employment for 730 people<br>• In July, the government exercised a £1.2 billion option for Agility Trains to build 270 additional vehicles to replace the Intercity 225 fleet on the East Coast Main Line<br>• In October, the first phase of construction work started at North Pole depot in West London, which is set to service the new fleet of IEP trains for the Great Western Main Line<br>• Construction on the Newton Aycliffe plant commenced in November<br>• By March 2014, the detailed design will be completed for the IEP rolling stock<br>• The first quarter of 2014 will see financial close for the East Coast element<br>• In March 2015, the first 5-car bimodal train arrives in the UK from Japan<br>• The Newton Aycliffe plant is due to be fully operational by the first quarter of 2015<br>• The first class 800 series trains will enter revenue-earning service on the Great Western Main Line in 2017 and on the East Coast Main Line in 2018 |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | • The second batch of new class 800 series vehicles will be in service on the East Coast from 2019 |
| **12. Strategic Rail Freight Network**<br>➢ Felixstowe to Nuneaton route<br>**Funding**: Public / Private<br>**Status**: In construction | Started | 2019 | <u>Felixstowe to Nuneaton Phase 1 (2009 to 2014)</u><br>• Significant progress has been made in delivering the Control Period 4 (2009 to 2014) Strategic Freight Network schemes for Felixstowe to Nuneaton Phase 1, including:<br>• Nuneaton North Chord (a tax increment financing project that contributes towards the overall capacity output), delivered in October 2012<br>• Commencement of on-site works for the Ipswich chord, on target for completion by March 2014<br>• Works at Ipswich Yard are due for completion in August 2014<br><u>Felixstowe to Nuneaton Phase 2 (2014 to 2019)</u><br>• Projects to enhance the network used by freight trains and reduce conflict between freight and passenger traffic between Felixstowe and Nuneaton<br>• The scope of the Phase 2 route enhancements has yet to be confirmed but potentially include:<br>o Haughley junction improvement<br>o Linespeed and headway improvements<br>• To enhance access to the Port of Felixstowe, additional track capacity will be provided to support future expected growth in demand to the port |
| **13. Crossrail**<br>**Funding**: Public / Private<br>**Status**: In construction | Started | 2018 | • The seventh tunnelling machine, Jessica, has now started her journey from the Pudding Mill Lane portal near Stratford to Stepney Green<br>• Construction work is underway on flagship new Crossrail stations in central London and Docklands<br>• In October, the first train tunnel under London was finished as tunnelling machine Phyllis completed her journey from Royal Oak to Farringdon |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | • Phyllis and six other Crossrail tunnelling machines have collectively passed the halfway mark of their 26 mile marathon to build major new train tunnels under London<br>• By the end of 2014, the vast majority of Crossrail's 26 miles of tunnelling will be completed and major civil engineering works will be finished<br>• In late 2014, Transport for London will confirm who has been awarded the Crossrail operating concession from 2015 |
| **14. Thameslink**<br>**Funding**: Public / Private<br>**Status**: In construction | Started | 2018 | • Major work began on the redevelopment of London Bridge station in May<br>• In June, it was confirmed that Siemens Plc with Cross London Trains have been awarded a contract to build 1,140 state-of-the-art carriages for use on the Thameslink route<br>• In September, the Thameslink, Southern and Great Northern (TSGN) franchise was put out to tender<br>• In spring 2014 the first two new platforms are expected to open at London Bridge (14 & 15) with new longer and wider canopies to protect passengers from the rain<br>• In May 2014, the successful bid for the TSGN franchise is expected to be announced<br>• The first new state-of-the-art trains are expected to enter service on the Thameslink route in 2016<br>• In 2018, completion of track, signalling and major bridge work around London Bridge will allow a new bigger and brighter station to open |
| **15. South East airports**<br>➢ Gatwick capital investment programme<br>➢ Heathrow capital investment programme<br>**Funding**: Private | <br>Started<br>Started | <br>2014<br>2014 | • The government announces in the National Infrastructure Plan 2013 that it is taking forward measures proposed by the Airports Commission by investing in a package of surface-access improvements, including setting aside a further £50 million for a new rail station at Gatwick, subject to satisfactory commercial negotiations with the airport |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| **Status**: In construction | | | • Aircraft stands at Heathrow have been upgraded to accommodate the Airbus A380 and further stands will be upgraded during 2014<br>• In November, Heathrow completed the resurfacing of its Southern Runway<br>• The new Heathrow Terminal 2 is due to be completed and ready for operation in June 2014<br>• In 2014, Heathrow will commence a programme of capacity optimisation, including (subject to planning approval) completing infrastructure to allow easterly departures from the Northern Runway<br>• The Northern Runway at Heathrow will also be resurfaced in 2014<br>• Platforms and track at Gatwick Airport Rail Station are currently being upgraded and are due for completion in early 2014<br>• Gatwick Airport is shortly due to begin construction of a new Airfield Operations Building<br>• Gatwick Airport has implemented a new system (called ACDM) to improve its runway efficiency and the number of aircraft that can be handled per day (this has resulted in an additional 21 slots of capacity released for summer 2014)<br>• In September 2014, the last phase of the upgrade of Pier 5 is due to go into operational testing, further pier capacity development is planned for the North Terminal<br>• Gatwick has plans for further significant upgrades of passenger facilities out to 2022 |
| **16. Regional airports**<br>➢ Birmingham Airport runway extension<br>➢ A6 Manchester Airport relief road<br>**Funding**: Public (roads element) / Private<br>**Status**: In construction | Started<br>2015 | 2014<br>2017 | • Work is continuing on Birmingham Airport runway extension<br>• New air traffic control centres have been completed at both Birmingham and Manchester<br>• In October, programme entry approval was granted for the new A6 relief road linking to the M56 Manchester Airport spur<br>• This means the project can commence design work and start to |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | obtain the necessary statutory permissions – paving the way for £165 million of government funding to be confirmed<br>• Birmingham Airport's runway extension is due to be completed during spring 2014<br>• The Manchester Metrolink tram will be extended to Manchester Airport in 2016<br><u>Other Regional Airports</u><br>• In June, the government also announced a new roads feasibility study looking at Leeds Airport connectivity |
| **17. Container ports**<br>**Funding**: Private<br>**Status**: In construction | Started | 2019 | • In February, Southampton received consent from the Marine Management Organisation to improve access with an extensive programme of dredging<br>• In June, a new rail terminal opened at Felixstowe, doubling rail capacity<br>• Also in June dredging began at Port of Liverpool on the new Liverpool2 project<br>• London Gateway welcomed its first container ship in November<br>• In early 2014, a new deep-water berth at Southampton will become operational<br>• Future projects at Bristol, Bathside Bay (Harwich) and Teesport have already received consent |
| **18. Electricity generation – gas**<br>**Funding**: Private<br>**Status**: In construction | Started | Ongoing | • In July, the Electricity Market Reform Draft Delivery Plan was published suggesting a greater amount of new gas generated capacity (35GW) may be needed out to 2030<br>• One CCGT project is currently under construction, the new 860MW power plant in Carrington will cost an estimated £600 million and will employ approximately 600 people during the construction phase<br>• In October, the government revealed that two projects have pre-qualified for a UK Guarantee: Spalding (900MW) and Gateway Energy (900MW)<br>• Currently there is almost 16GW of gas-fired capacity with planning |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | consent<br>• A further 3.5GW of gas-fired capacity is awaiting determination[1]<br>• Both the Spalding and Gateway Energy projects are planned to go into construction in 2014<br>• In early 2016, the Carrington project is due to enter commercial operation |
| **19. Electricity generation – nuclear**<br>➢ Hinkley Point C<br>➢ Wylfa Newydd<br>**Funding**: Private<br>**Status**: Hinkley Point C consent approved<br>Wylfa Newydd at scoping stage | 2015<br>2018 | 2023<br>TBC | • Development consent was granted for Hinkley Point C in March<br>• In July, a package of benefits for the communities that host any new nuclear power stations was announced<br>• In October, the government signed a memorandum of understanding on civil nuclear cooperation with China to unlock investment in nuclear electricity generation<br>• Also in October, an agreement was reached with the EDF Group on key commercial terms for a proposed investment contract for Hinkley Point C, paving the way for £16 billion of investment coming into the country and the creation of 25,000 jobs<br>• Hinkley Point C will provide 3.2GW of capacity and is expected to come on line in 2023, with the development and completion of the project setting the path for other projects to follow<br>• Horizon Nuclear Power, a wholly owned subsidiary of Hitachi Ltd, plans to develop up to 7.8GW of new nuclear capacity in the UK at sites in Wylfa Newydd and Oldbury<br>• The government is confirming today that it has entered into a cooperation agreement with Hitachi and Horizon with the aim of being able to agree an in-principle guarantee by the end of 2016 to support the financing of a new nuclear power plant at Wylfa Newydd, subject to final due diligence and ministerial approval |

[1] Figures are correct as of November 2013

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | Other Nuclear Energy Investment:<br>• EDF intends to build two reactors (amounting to 3.2GW) at Sizewell in Suffolk<br>• NuGen, a consortium of GDF SUEZ and Iberdrola plans to build up to 3.6GW of new nuclear capacity at Moorside near Sellafield |
| **20. Electricity generation – wind**<br>➢ Onshore<br>➢ Offshore<br>**Funding**: Private<br>**Status**: In construction | Started<br>Started | Ongoing<br>Ongoing | • In June, the government published draft strike prices for Contracts for Difference for energy from onshore and offshore wind<br>• In July, London Array opened, the world's largest offshore wind farm generating 630MW<br>• In August, Lincs Offshore wind farm opened, generating 270MW<br>• The Ministry of Defence completed six Air Traffic Control Technology Demonstrations in August and, following analysis, the results will be briefed to the wind farm industry by January 2014<br>• In September, the next generation of offshore turbines were demonstrated at Gunfleet Sands<br>• Around 4GW capacity of offshore wind projects have already received consents including Triton Knoll (up to 1.2GW)<br>• 1.3GW of onshore projects, which are generally smaller in scale, are currently under construction, with more than 5GW of capacity having received consents but not yet in construction<br>• In 2014, construction of the 76 turbine Pen Y Cymoedd scheme is due to start (this will be the largest onshore wind farm in England and Wales)<br>• More than 6GW of proposed onshore sites are currently awaiting consent<br>• Numerous large offshore sites are also in the pipeline such as the proposed East Anglia 1 windfarm (1.2GW), which is part of the expansion into Round 3 sites |
| **21. Electricity generation – other renewables** | | | Biomass<br>• In April 2013, HMT provided a £75 million UK Guarantee to Drax Group plc in support of funding raised to facilitate the conversion of |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| ➢ Biomass<br>➢ Solar PV<br>➢ Marine<br><br>**Funding**: Private<br>**Status**: Biomass – In construction<br>Solar PV – In construction (small-scale)<br>Marine – Scoping / planning & consents | Started<br>Started<br>Started | Ongoing<br>Ongoing<br>Ongoing | up to 3 of their 6 coal-fired units to biomass<br>• Once completed, Drax will become the UK's single largest generator of renewable power<br>• In March, Associated British Ports announced they will invest £100 million in the Humber Ports to create a dedicated biomass import facility to support Drax<br>• In April, the first Drax unit conversion became operational<br>• Significant investment is also being made in onsite storage facilities and transport infrastructure<br>• In June, the government published draft strike prices for Contracts for Difference for energy from biomass conversion<br>• In August, the government published its Biomass Sustainability Criteria, providing long-term certainty to investors<br>• There is currently 8GW of biomass power in operation and in planning<br>• In early 2014, 50 bespoke rail wagons are due to come into service to deliver biomass to the Drax site<br>• By late 2014, remaining 3 storage domes will be commissioned allowing conversion of the other 2 coal-fired units<br>• From April 2015, all generators of 1MW capacity or more using solid biomass or biogas feedstock will be required to demonstrate that they are meeting the Biomass Sustainability criteria in order to claim support under the Renewables Obligation<br><u>Solar PV</u><br>• As of June 2013, the UK now has 2.4GW installed capacity<br>• In June, the government published draft strike prices for Contracts for Difference for solar PV energy<br>• In October 2013 the government published a UK Solar PV Roadmap which set out the four principles which form the foundation of government policy on solar PV in the UK; these were cost effectiveness, |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | greenhouse gas reduction, appropriate siting and grid impacts<br>• In spring 2014 a full UK Solar PV Strategy will be published<br><u>Marine</u><br>• In February, the government announced the two tidal stream projects awarded up to £20 million capital grant funding for the deployment of the first pre-commercial arrays<br>• Also in February a Memorandum of Understanding between the South West Marine Energy Park and the Pentland Firth and Orkney Waters Marine Energy Park was signed<br>• In June, the government published draft strike prices for Contracts for Difference for wave and tidal energy<br>• In October, the government announced its Infrastructure for Offshore Renewables funding competition<br>• Both wave and tidal stream technologies are currently at an early stage of development, and mass commercialisation and deployment of the sectors is not envisaged until 2020 or beyond<br>• The first pre-commercial tidal stream arrays are expected to deploy in 2016 |
| 22. Carbon capture & storage (CCS)<br>➢ Peterhead project<br>➢ White Rose project<br>**Funding**: Public / Private<br>**Status**: Planning & consents | Scoping<br>Scoping | TBC<br>TBC | • The government has announced two preferred bidders for its £1 billion CCS Commercialisation Competition<br>• The Peterhead project in Aberdeenshire, involves capturing around 90 per cent of carbon dioxide from an existing gas fired power station and transporting and storing it in a depleted North Sea gas field<br>• The White Rose project in Yorkshire, involves capturing 90 per cent of carbon dioxide from a coal-fired station at the Drax site, before transporting and storing it in a saline aquifer beneath the southern North Sea<br>• In May, the CCS Cost Reduction Taskforce published their final report on the potential for reducing the costs of CCS in the UK<br>• In October, the government responded to this report by setting out |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | a vision for CCS deployment which it would like to develop further with industry<br>• By early 2014, CCS Front-End Engineering Design contracts will have been announced<br>• The UK also has a 4-year £125 million CCS research, development and innovation programme which will run until 2015 |
| **23. Energy transmission & distribution**<br>➢ Western Link<br>➢ Beauly-Denny upgrade<br>➢ London Power Tunnels<br>**Funding**: Private<br>**Status**: In construction | Started<br>Started<br>Started | 2016<br>2015<br>2018 | • National Grid is currently working on a 7-year programme to complete the London Power Tunnels<br>• In May, a new tunnel boring machine "Paula" was launched in Camden<br>• Construction of the tunnels from Willesden Substation to St. John's Wood Substation and from Eade Road to St. John's Wood Substation has recently been completed<br>• A new substation is being constructed at Kensal Green<br>• Work has started on the £1 billion Western Link HVDC project which will help bring renewable energy from Scotland to homes and businesses in Wales and England<br>• Planning permission has been granted for converter stations at Hunterston and Deeside Industrial Park and work is underway<br>• Work has also started to install underground cable across the Wirral peninsula<br>• In July, Scottish Hydro Electric confirmed the first stage of the Beauly-Denny upgrade in Scotland was energised<br>• Beauly-Denny is due to be delivered by the end of 2015<br>• The Western Link is due to be completed in 2016<br>• London Power Tunnels are due to be completed in 2018 |
| **24. Unconventional gas production**<br>• Shale gas exploration | Started | Ongoing | • The government established the Office of Unconventional Gas and Oil in December 2012 to develop the shale gas industry in the UK<br>• Shale gas activity in the UK is still in the exploration stage, where |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| **Funding**: Private<br>**Status**: Scoping | | | companies are drilling test wells<br>• The government published the document "About shale gas and hydraulic fracturing (Fracking)" to answer questions about potential impacts of production operations<br>• In July, a British Geological Survey report estimated the total volume of gas in the Bowland Hodder Shale is some 1,300 trillion cubic feet (central estimate)<br>• Since then the government has:<br>o consulted on a proposed tax regime for shale gas, including a new shale gas 'pad' allowance<br>o worked with industry on a scheme to ensure local communities benefit from hosting shale projects, with operators providing at least £100,000 in benefits per fracked well site during exploration and no less than one per cent of overall revenues – which could be up to £10 million per pad;<br>o announced plans to streamline the permitting process to ensure permits are issued quicker and to defined timetables providing certainty to industry; and<br>o published new planning guidance to clarify the process for developers<br>• A number of companies have existing licences in place and are seeking permissions to drill exploratory wells<br>• Some 7,300 square miles of Great Britain is already under licence, including significant areas likely to contain shale<br>• The government expects considerable interest from developers in the 14th licence round, which we plan to launch next year subject to a strategic environmental assessment |
| **25. Smart Meter rollout**<br>**Funding**: Private | Started | 2020 | • In June, the Smart Meters installation code of practice came into force<br>• A Data & Communications Company (DCC) licence was granted to Smart DCC Ltd in September |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| **Status**: In construction | | | • In the same month, British Gas signed a £600 million contract with Landis+Gyr to supply the majority of the 16 million meters it will install in its customers' homes<br>• By October, 4 companies had signed contracts to establish and operate the DCC<br>• Over 100,000 Smart Meters have already been installed<br>• In December a Smart Meter Consumer Engagement Plan is to be published by the Smart Meter Central Delivery Body<br>• Mass rollout of smart meters is due to begin in late 2015<br>• By 2020, Smart Meters will be deployed to all UK households and several million small non-domestic sites |
| **26. Superfast broadband**<br>**Funding**: Public / Private<br>**Status**: In construction | Started | 2016 | • 42 out of 44 local projects have now completed their procurements<br>• Final two projects due to complete procurement before the end of the year<br>• First superfast upgrades have now gone live in a quarter of the projects<br>• As at the end of October, nearly 140,000 premises have been passed with superfast broadband as a result of public funding<br>• Premises were being passed at a rate of 10,000 per week in October 2013 as a result of the programme<br>• By spring 2014, premises passed will rise to 25,000 per week and to 40,000 per week by the summer<br>• Rutland, Surrey and North Yorkshire are anticipated to complete current rollout programmes within 2014 |
| **27. Super-Connected Cities**<br>**Funding**: Public<br>**Status**: In construction | Started | 2015 | • The government has announced 22 Super-Connected Cities which will benefit from faster and better broadband as well as wireless connectivity in city centres and wifi in public buildings<br>• The first wave of cities selected were Edinburgh, Cardiff, Belfast, Manchester, Birmingham, Leeds / Bradford (joint), Bristol and London |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | • A second wave of cities was named in late 2012 (Aberdeen, Brighton & Hove, Cambridge, Coventry, Derby, Derry / Londonderry, Newport, Oxford, Perth, Portsmouth, Salford and York)<br>• A Connection Voucher scheme, which will pay up to £3,000 towards the fixed cost of getting a small business connected, was trialled in 5 cities in the summer (these were Belfast, Cardiff, Edinburgh, Manchester and Salford)<br>• The results are currently being evaluated to assess whether to roll out the Connection Voucher Scheme to all 22 cities |
| **28. Mobile Infrastructure Project (MIP)**<br>**Funding**: Public<br>**Status**: In construction | Started | 2015 | • In May, Arqiva were appointed to deliver the MIP<br>• In September, the first MIP site went live and the programme is now in implementation phase |
| **29. 4G commercial rollout**<br>**Funding**: Private<br>**Status**: In construction | Started | 2015 | • To enable the roll-out of next generation mobile services, Ofcom conducted the 4G spectrum auction and announced winning bids in February 2013, bringing auction revenues of £2.3 billion to the Exchequer and wider economic benefits of 4G services of £20 billion over the next ten years<br>• Commercial rollout of 4G mobile service by the four mobile network providers (3, EE, O2, Vodafone) has now begun<br>• EE 4G service is now available to customers across 131 towns and cities with 60 per cent population coverage<br>• O2 and Vodafone launched their 4G networks in August and expect to reach 13 cities by the end of 2013<br>• 3 have announced their intention to begin rolling out their 4G network from December this year in three major UK cities – London, Birmingham and Manchester<br>• EE is planning to cover 98 per cent of the population by the end of 2014<br>• 3, O2, and Vodafone have committed to providing coverage to at least 98 per cent of the population by the end of 2015 |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| **30. Water supply and sewerage network programmes**<br><br>**Funding**: Private<br><br>**Status**: Scoping | Started | 2020 | • The water industry is currently undergoing a price review by Ofwat for 2015-20 – commonly known as Asset Management Period 6 (AMP6)<br>• Whilst this review is ongoing, the key projects in the water sector have not yet been finalised<br>• As the process continues the government will work with Ofwat and the water industry to identify the priorities best supporting the strategic objectives of water availability and quality<br><br><u>Key dates for the price review process</u><br>• Water Company business plans will be submitted in December 2013<br>• Ofwat will publish draft determinations of these business plans in 2014<br>• Following any revisions, final determinations will be published by Ofwat before the end of 2014<br>• Water companies will then have the opportunity to either accept the final determinations or appeal to the Competition Commission<br>• AMP6 will commence and new price limits will apply from April 2015 |
| **31. Thames Tideway Tunnel**<br><br>**Funding**: Private<br><br>**Status**: Scoping | 2016 | 2023 | • An application for development consent was submitted in February and accepted for examination by the Planning Inspectorate in March, with the subsequent public examination starting in September<br>• In July, notification was published in the Official Journal of the EU of the intention to invite tenders for the main works contracts<br>• Main works contracts will be awarded in 2015<br>• 2016 will see the start of the main construction period<br>• Construction is expected to complete in 2023 |
| **32. Flooding and Coastal Erosion Management (FCERM) programme**<br><br>➢ Growth projects<br>o Clacton & Holland on Sea | 2014 | 2017 | <u>Key Projects</u><br><br>• In February, a package of flood defence projects was announced which is designed to support economic growth by unlocking investment<br>• Procurement for TEP 2100 Phase 1 has now commenced |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| o Exeter Flood Defence Scheme | 2014 | 2017 | • Leeds City Flood Alleviation Scheme is due to commence in the first quarter of 2014<br>• Competitive dialogue discussions for Thames Estuary Phase 1 (TEP 1) are also set to take place in quarter one of 2014<br>• The TEP 1 procurement contract is due to be awarded in autumn 2014<br>• All nine growth projects are on track to commence construction by spring 2015<br><u>Elsewhere in the FCERM programme:</u><br>• In June, the government announced, for the first time, a specific long-term funding settlement for flood defences, worth £2.3 billion in total over six years from 2015-16 to 2020-21<br>• Since April, more than 8,700 households have received improved protection from flood risk and coastal erosion<br>• The government is on target to deliver improved protection from flood and coastal erosion to 165,000 households by the end of the Parliament<br>• Between 2015 and 2021, an additional 300,000 households will be provided with better protection from flooding and coastal erosion |
| o Ipswich Main Stage: Tidal Barrier | 2014 | 2017 | |
| o Leeds City Flood Alleviation | 2014 | 2016 | |
| o Lower Derwent Flood Alleviation | 2014 | 2021 | |
| o Lower Don Valley Flood Protection | 2014 | 2015 | |
| o Northwich Town Centre | 2014 | 2016 | |
| o Salford Flood Alleviation | 2014 | 2017 | |
| o Skipton Flood Alleviation | 2014 | 2015 | |
| ➢ Thames Estuary | 2014 | 2024 | |
| **Funding**: Public / Private contributions<br>**Status**: In construction | | | |
| **33. Science majors** | | | • In June, a topping out ceremony took place at the Crick Institute<br>• In July, the Minister for Universities and Science announced £60 million investment to support research and technology development for the SABRE engine<br>• The new building housing the ELIXIR hub officially opened in October<br>• In November, France became the 16th country to sign a memorandum of understanding to participate in ELIXIR<br>• The Crick Institute building is due to open in summer 2015<br>• Completion of Pirbright Institute Phase 2 will also take place in 2015<br>• Diamond Phase 3 is set to enter service in 2017 |
| ➢ The Francis Crick Institute | Started | 2015 | |
| ➢ Diamond Phase 3 | Started | 2017 | |
| ➢ Skylon Sabre | 2014 | 2019 | |
| ➢ ELIXIR | Started | 2019 | |
| ➢ Pirbright Institute Phase 2 | Started | 2015 | |
| ➢ Agri-tech Innovation Centres | 2015 | 2015 | |
| **Funding**: Public / private contributions<br>**Status**: In construction | | | |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | • ELIXIR development is set to complete in 2019 |
| **34. Research Partnerships Investment Funds (RPIF)**<br><br>**Funding**: Public funded projects in centres which also attract private funding<br>**Status**: In construction | Started | 2017 | • £301 million has now been allocated to 22 projects which has levered £826 million in private co-investment<br>• Projects announced in 2013 include:<br>o The Institute of Immunity and Transplantation (London)<br>o Multidisciplinary Characterisation Facility (Manchester)<br>o The Maxwell Centre (Cambridge)<br>o Continuous Manufacturing and Crystallisation Research for Pharmaceutical Products (Strathclyde)<br>o The AMRC Factory 2050 (Sheffield)<br>o The Big Data Institute (Oxford)<br>• The government has announced further funding for RPIF for 2015-17, of at least £100 million per year to lever at least double that amount in private co-funding for university research infrastructure<br>• Progress with earlier projects includes:<br>o The groundbreaking for the Centre of Excellence in Sustainable Chemistry (Nottingham) took place in October |
| **35. Science and innovation Catapult centres**<br><br>➢ National Composite Centre expansion<br>➢ National Biologics Manufacturing Centre<br><br>**Funding**: Public funded projects in centres which also attract private funding<br>**Status**: In construction | Started<br>Started | 2015<br>2015 | <u>Key Project Update</u><br>• Work is progressing well on the expansion of the National Composites Centre and construction of the National Biologics Industrial Innovation Centre<br><br><u>Elsewhere in the Catapult Programme:</u><br>• In May, HRH the Duke of York officially opened the Satellite Applications Catapult on the Oxford Harwell Innovation Campus<br>• In June, funding was announced for two new Catapults; Diagnostics for Stratified Medicine and Energy Systems, to be created in 2015-16<br>• Autumn 2013, saw the opening of a new 5,000sqm Training Centre for the High Value Manufacturing Catapult<br>• The Cell Therapy Catapult will open new state-of-the-art facilities at Guy's Hospital in early 2014 |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | • A new 2,000sqft UK Innovator Centre is to be created in London for the Connected Digital Economy Catapult |
| **36. Local authority major transport schemes**<br><br>➢ Manchester Metrolink extensions<br>➢ Nottingham NET2<br>➢ Leeds New Generation<br>➢ Norwich Northern Distributor Road<br>➢ Sunderland Strategic Corridor<br>➢ A380 South Devon Link Road<br>➢ Croxley Rail Link<br>➢ Midland Metro extension<br><br>**Funding**: Public<br>**Status**: In construction | <br><br>Started<br>Started<br>2017<br>Apr 2015<br>TBC<br>Started<br>Aug 2014<br>Started | <br><br>Late 2013<br>Dec 2014<br>2020<br>2017<br>TBC<br>Dec 2015<br>Aug 2016<br>Mar 2015 | <u>Key Project Update</u><br>• Four key projects are under construction<br>o Nottingham NET2<br>o Manchester Metrolink extensions<br>o A380 South Devon Link Road<br>o Midland Metro extension<br>• Manchester Metrolink extensions project is due to complete before the end of 2013<br>• Croxley Rail Link has yet to be given Full (final) Approval, but has a provisional start date for construction in 2014<br>• The Nottingham NET2 project is due to complete by December 2014<br>• The Midland Metro extension work is due to be completed by March 2015<br>• Norwich Northern Distributor Road is due to start construction in April 2015, subject to successful completion of remaining statutory and procurement issues<br>• The A380 South Devon Link Road (Kingkerswell Bypass) is expected to be finished by the end of 2015<br><u>Elsewhere in the Local Authority Major Transport Scheme programme:</u><br>• 27 schemes have been completed under this government, including:<br>o East Kent Access Phase 2<br>o Weymouth Relief Road<br>o Blackpool tram upgrade<br>• 30 other projects are currently in construction including: |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | o Bexhill to Hastings Link Road<br>o A43 Corby Link Road<br>o Ipswich: Fit for the 21st Century scheme<br>• The opening of the new Luton to Dunstable Busway in September means only four pre-2010 schemes have yet to be completed<br>• Three more road schemes have also completed since May:<br>o A164 (Humber Bridge to Beverley)<br>o A6182 White Rose Way improvement scheme<br>o Walton Bridge<br>• 13 other schemes are due to complete in 2014 |
| **37. Mersey Gateway Bridge**<br>**Funding**: Public<br>**Status**: Planning & consents | 2014 | 2017 | • Mersey Link Consortium was announced as the preferred bidder in June<br>• Pending final approval for scheme by DfT, financial close and contract award procedures are due in early 2014<br>• Construction is then also due to start in early 2014<br>• The bridge is due to open to public in spring 2017 |
| **38. London Underground Investment**<br>➢ Northern Line upgrade<br>➢ Sub-surface Line upgrades (Metropolitan, Circle, Hammersmith & City and District Lines)<br>**Funding**: Mixed<br>**Status**: In construction | Started<br>Started | 2014<br>2018 | <u>Key Project Update</u><br>• Significant progress has been made on improving the Northern Line, with new signalling introduced on the most challenging part of the line during this autumn<br>• Northern Line improvements are expected to complete before the end of 2014, delivering 20 per cent more capacity<br>• New air-conditioned trains are already being rolled out on Circle, District and Hammersmith & City Lines and the conversion will be complete before the end of 2014<br><u>Elsewhere in the London Underground Investment Programme:</u><br>• The Victoria Line upgrade was completed in January, with a full fleet of new trains, track and signalling, delivering a 21 per cent increase |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| | | | in capacity<br>• A new fleet of fully air-conditioned trains has been introduced on the Metropolitan Line<br>• A new ticket hall and entrance for Paddington underground station will also be complete by the end of next year |
| **39. Northern Line extension to Battersea**<br>**Funding**: Mixed<br>**Status**: Planning & consents | 2015 | 2020 | • An application for a Transport and Works Act Order (TWAO) was made in April<br>• A Public Inquiry on the TWAO application commenced in November<br>• The government has now confirmed that approval has been given for a UK Guarantee to support £1 billion in financing for the Northern Line extension to Battersea and Nine Elms (subject to TWAO)<br>• This follows a commercial agreement between the Greater London Authority, Transport for London and the Battersea developers for the redevelopment of Battersea Power Station<br>• A decision on the TWAO application is due in autumn 2014<br>• Start of construction on the Northern Line extension is proposed for spring 2015<br><u>Elsewhere in the Vauxhall, Nine Elms and Battersea regeneration project:</u><br>• The Battersea Power Station redevelopment broke ground in July, ending 30 years of uncertainty after the station was decommissioned<br>• A planning consultation for redevelopment of the New Covent Garden Market also took place in July<br>• The new US Embassy at Nine Elms broke ground in November<br>• First phase of the Riverlight residential scheme in Nine Elms is scheduled to open in autumn 2014<br>• New US Embassy is scheduled for completion 2017 |
| **40. Local infrastructure funding** | | | • 89 per cent of Growing Places funding has already been earmarked or allocated to 305 specific projects |

| Priority Investment<br>➢ Key Projects or Programmes | Construction Start | Construction Finish | Progress and Future Milestones |
|---|---|---|---|
| ➢ Growing Places Fund<br>➢ Regional Growth Fund<br><br>**Funding**: Public<br>**Status**: In construction | Started<br>Started | Ongoing<br>Mar 2015[2] | • These are anticipated to add a gross output of 217,000 jobs, 77,000 homes, 5.3 million square metres of commercial floorspace, and 5,300 businesses<br>• 159 (52 per cent) of projects, with an estimated total value of £1.5 billion are already underway<br>• Local Enterprise Partnerships have used the £652 million Growing Places Fund they earmarked or allocated to projects to unlock £2.6 billion of extra investment; of which £1.8 billion is from private sector partners and £774 million from public sector partners<br>• The Regional Growth Fund has currently provided funding for infrastructure projects up to and including Round 4, which announced winning bids in July 2013<br>• More than 20 infrastructure-specific projects have received over £200 million in support<br>• These include improving transport infrastructure around the Port of Southampton, improving the A5 and other infrastructure around the MIRA enterprise zone and improving roads and pedestrian areas around Newcastle Science City |

[2] This represents the date by which all Round 4 funding will be drawn down by projects

# B Infrastructure performance

B.1 Performance and cost indices for each infrastructure sector were first set out in the 2011 National Infrastructure Plan, and subsequently updated in the National Infrastructure Plan 2012. This annex further updates those indices with data collected over 2012 from across each infrastructure sector.

## Interpreting the indices

B.2 The data used to construct the performance indicators presented in this document have been collected from a range of public sources; including Government publications and regulatory reports by private sector infrastructure providers.

B.3 The base year for these indicators is 2005, with the index set at 100 for that year in each infrastructure sector. An improvement in performance compared to 2005 is shown by an index number greater than 100, whilst deterioration in performance is shown by a number lower than 100.

B.4 Although the performance indices have been calculated using a quantitative methodology, this exercise is not without its challenges. The data used has been collected from a wide range of sources, each with their own sampling methodologies, and often using different measures. Therefore aggregation formulas have been used which make use of weightings to ensure different data sets are given an appropriate weighting. Where data has not been available, it has been aggregated using simple, unweighted averages.

## How the index numbers were calculated

B.5 The index number for the performance indices were calculated using a range of inputs. Where applicable, these inputs reflect dimensions including:

- capacity, access and availability
- asset or capacity utilisation
- service quality and reliability
- asset condition
- carbon emissions
- safety
- efficiency

B.6 Where more than one input exists that can be used to measure a particular dimension; an arithmetic unweighted average was calculated to derive the value of the overall index number for that dimension. Once an index number has been determined for each dimension, an arithmetic unweighted average is calculated to provide a final performance index for each infrastructure sector.

B.7 Where data was given for a financial year, the data was entered for the year on which the 31 March fell in that financial year. For example, data given for the financial year 2011-12 was entered as 2012.

## Changes in methodology

B.8 Since these performance indices were first published in the National Infrastructure Plan 2011, there have been a number of changes in the data available for use. Where possible, the same data sources used in previous versions have been used. In some cases however, these data sources are no longer available and it has been necessary to use an alternative source and revising back years data where possible. These are indicated in the notes accompanying the relevant sector tables.

B.9 Cost indices used in previous years have now been incorporated into the performance indices, where appropriate, as a benchmark of efficiency. In the case of communications, cost indices (which take into account the pricing of landline, mobile and broadband services) have now been incorporated into the service quality and reliability measures. In both cases, numbers over 100 represent an improvement.

B.10 In exceptional cases, indices have been dropped where they are no longer deemed to be an appropriate indicator of performance.

## Performance measures for water

B.11 In 2012, Ofwat made significant changes to the information collected and published about water and sewage companies. These changes mean that most of the indicators used to measure performance and cost in previous versions of the National Infrastructure Plan are no longer available.

B.12 Ofwat is working with the industry to ensure that new robust performance data is made available by water companies. Once this process is complete, the data will be used to compile performance indicators for future versions of the National Infrastructure Plan.

## Sources used in compiling the performance indicators

B.13 The sources used to compile these indicators can be found on the Infrastructure UK website.[1]

[1] https://www.gov.uk/government/organisations/infrastructure-uk

# Major roads

## Table B.1: Performance indicators for major roads, 2005 to 2012

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Major roads performance index** | 100 | 98 | 98 | 102 | 104 | 107 | 108 | 113 |
| **Capacity, access and availability** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Motorway density (measured per head of UK population) | 100 | 100 | 100 | 99 | 99 | 99 | 98 | 97 |
| Motorway density (measured per unit of UK land area) | 100 | 101 | 101 | 101 | 102 | 102 | 102 | 103 |
| Motorway density (measured per Licensed Vehicles) | 100 | 100 | 98 | 98 | 98 | 99 | 99 | 99 |
| **Asset or capacity utilisation** | 100 | 99 | 98 | 99 | 100 | 101 | 100 | 101 |
| Average capacity utilisation of motorways | 100 | 99 | 98 | 99 | 100 | 101 | 100 | 101 |
| **Service quality and reliability** | 100 | 93 | 92 | 105 | 104 | 104 | 104 | 104 |
| Average vehicle delay on the slowest 10 per cent of journeys on the Strategic Road Network | 100 | 93 | 92 | 105 | 104 | 104 | 104 | 104 |
| **Asset condition** | 100 | 101 | 101 | 101 | 102 | 103 | 103 | 103 |
| Motorway and all purpose trunk road condition (HA managed) | 100 | 101 | 101 | 101 | 102 | 103 | 103 | 103 |
| **Carbon emissions** | 100 | 103 | 104 | 102 | 105 | 108 | 107 | 109 |
| Carbon emission by road vehicles | 100 | 103 | 104 | 102 | 105 | 108 | 107 | 109 |
| **Safety** | 100 | 103 | 112 | 129 | 145 | 172 | 165 | 178 |
| Fatalities on all roads | 100 | 103 | 112 | 129 | 145 | 172 | 165 | 178 |
| **Efficiency** | 100 | 91 | 78 | 82 | 74 | 64 | 78 | 96 |
| Investment and maintenance on major roads | 100 | 91 | 78 | 82 | 74 | 64 | 78 | 96 |

# The rail network

## Table B.2: Performance indicators for the rail network, 2005 to 2012

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Passenger rail performance index** | 100 | 111 | 114 | 120 | 128 | 132 | 137 | 141 |
| **Capacity, access and availability** | 100 | 138 | 140 | 141 | 144 | 151 | 154 | 157 |
| Train frequency | 100 | 138 | 140 | 141 | 144 | 151 | 154 | 157 |
| **Asset or capacity utilisation** | 100 | 83 | 97 | 96 | 131 | 96 | 91 | 97 |
| Percentage of passengers in excess of capacity – total | 100 | 83 | 97 | 96 | 131 | 96 | 91 | 97 |
| **Service quality and reliability** | 100 | 103 | 105 | 108 | 108 | 109 | 109 | 110 |
| Public Performance Measure | 100 | 103 | 105 | 108 | 108 | 109 | 109 | 110 |
| **Asset condition** | 100 | 140 | 137 | 152 | 158 | 187 | 208 | 221 |
| Infrastructure failures per train – km | 100 | 140 | 137 | 152 | 158 | 187 | 208 | 221 |
| **Safety** | 100 | 108 | 119 | 129 | 131 | 141 | 144 | 145 |
| Reported casualties | 100 | 108 | 119 | 129 | 131 | 141 | 144 | 145 |
| **Efficiency** | 100 | 93 | 84 | 96 | 96 | 108 | 119 | 117 |
| Annual cost of franchised passenger services | 100 | 93 | 84 | 96 | 96 | 108 | 119 | 117 |

Note: Rail Performance Indices in previous years included a measure for passenger traffic measured in Train-km (Tkm), taken from the International Union of Railways online database. As this measure has not been updated for 2011 or 2012, the Rail Performance Indices in this year's National Infrastructure Plan use the similar Timetabled Train-kilometres (TTkm) provided on the Office of Rail Regulations website.

The assessment presented in this document is not meant to supersede or interfere with the Office of Rail Regulation's role as the safety and economic regulator for Britain's railways nor is it meant to provide any additional targets for the sector.

# Airports

**Table B.3: Performance indicators for airports, 2005 to 2012**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Airports performance index** | 100 | 100 | 101 | 101 | 101 | 96 | 101 | 100 |
| **Capacity, access and availability** | 100 | 99 | 99 | 98 | 97 | 97 | 96 | 95 |
| Capacity (ATM) per capita | 100 | 99 | 99 | 98 | 97 | 97 | 96 | 95 |
| Capacity (Terminal Passengers) per capita | 100 | 99 | 99 | 98 | 97 | 97 | 96 | 95 |
| **Service quality and reliability** | 100 | 101 | 104 | 104 | 104 | 95 | 106 | 105 |
| Average delay per flight at main UK airports | 100 | 90 | 88 | 93 | 128 | 90 | 137 | 132 |
| International destinations served by UK airports (weekly) | 100 | 105 | 109 | 108 | 104 | 103 | 105 | 105 |
| International destinations served by London airports (daily) | 100 | 100 | 102 | 100 | 94 | 92 | 92 | 93 |
| Long-haul destinations served by London airports (daily) | 100 | 106 | 113 | 109 | 103 | 100 | 105 | 103 |
| Number of international passenger flight departures – all UK airports | 100 | 103 | 106 | 105 | 96 | 92 | 96 | 95 |
| Number of international passenger flight departures – London airports | 100 | 103 | 107 | 106 | 100 | 95 | 100 | 99 |
| Average delay per flight at main UK airports | 100 | 100 | 101 | 101 | 101 | 96 | 101 | 100 |

The assessment presented in this chapter is not meant to supersede or interfere with the Civil Aviation Authority's role as the UK's specialist aviation regulator nor is it meant to provide any additional targets for the sector.

# Container ports

**Table B.4: Performance indicators for container ports, 2005 to 2012**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Container ports performance index** | 100 | 99 | 98 | 103 | 115 | 112 | 113 | 93 |
| **Capacity, access and availability** | 100 | 100 | 99 | 99 | 99 | 98 | 98 | 97 |
| Deep-water container capacity per capita | 100 | 100 | 99 | 99 | 99 | 98 | 98 | 97 |
| **Asset or capacity utilisation** | 100 | 96 | 87 | 88 | 104 | 93 | 96 | 96 |
| Deep-water container capacity utilisation | 100 | 96 | 87 | 88 | 104 | 93 | 96 | 96 |
| **Service quality and reliability** | 100 | 101 | 109 | 123 | 143 | 145 | 144 | 87 |
| Lead time to import | 100 | 100 | 122 | 148 | 180 | 180 | 179 | 68 |
| Liner shipping connectivity index | 100 | 102 | 96 | 98 | 107 | 110 | 110 | 106 |

Complete data on ‘deep water ports productivity’ and ‘container traffic’ in 2012 was not available at the time this document went to press. 2011 data has therefore been used.

# Electricity

**Table B.5: Performance indicators for electricity infrastructure, 2005 to 2012**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Electricity performance index** | 100 | 105 | 101 | 102 | 101 | 104 | 104 | 105 |
| **Capacity, access and availability** | 100 | 100 | 99 | 101 | 103 | 109 | 106 | 105 |
| Generating capacity per capita | 100 | 101 | 101 | 102 | 103 | 109 | 106 | 105 |
| Generating capacity per economic unit of output | 100 | 99 | 97 | 99 | 104 | 110 | 106 | 106 |
| **Asset or capacity utilisation** | 100 | 106 | 103 | 107 | 108 | 114 | 120 | 119 |
| Peak load as a percentage of generating capacity | 100 | 106 | 103 | 107 | 108 | 114 | 120 | 119 |
| **Service quality and reliability** | 100 | 110 | 96 | 104 | 108 | 106 | 112 | 115 |
| Unplanned interruptions per 100 customers | 100 | 105 | 89 | 102 | 108 | 109 | 113 | 121 |
| Unplanned minutes lost per customer | 100 | 136 | 94 | 115 | 125 | 116 | 135 | 139 |
| Transmission system availability | 100 | 100 | 100 | 100 | 99 | 100 | 99 | 100 |
| Reliability of supply of the transmission system | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Asset condition** | 100 | 100 | 102 | 99 | 95 | 97 | 90 | 88 |
| T&D losses as a percentage of total electricity supplied | 100 | 100 | 102 | 99 | 95 | 97 | 90 | 88 |
| **Carbon emissions** | 100 | 106 | 103 | 102 | 93 | 94 | 91 | 100 |
| Carbon intensity of electricity generation | 100 | 106 | 103 | 102 | 93 | 94 | 91 | 100 |

The assessment presented in this document is not meant to supersede or interfere with Ofgem's role as regulator of the gas and electricity sector nor is it meant to provide any additional targets for the sector.

# Gas

**Table B.6: Performance indicators for gas infrastructure, 2005 to 2012**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Gas performance index** | 100 | 111 | 137 | 144 | 148 | 161 | 171 | 192 |
| **Capacity, access and availability** | 100 | 138 | 235 | 286 | 295 | 343 | 409 | 470 |
| Gas import capacity | 100 | 163 | 358 | 462 | 472 | 576 | 704 | 802 |
| Gas storage capacity | 100 | 112 | 113 | 109 | 119 | 110 | 114 | 138 |
| **Asset or capacity utilisation** | 100 | 126 | 152 | 135 | 143 | 147 | 127 | 147 |
| Average import capacity utilisation | 100 | 111 | 143 | 155 | 139 | 139 | 143 | 164 |
| Peak import capacity utilisation | 100 | 159 | 202 | 141 | 172 | 182 | 123 | 155 |
| UK gas supply cover | 100 | 109 | 110 | 108 | 118 | 120 | 114 | 124 |
| **Service quality and reliability** | 100 | 81 | 62 | 54 | 54 | 56 | 50 | 52 |
| GB gas supply interruptions | 100 | 81 | 62 | 54 | 54 | 56 | 50 | 52 |
| **Asset condition** | 100 | 99 | 99 | 100 | 99 | 99 | 99 | 99 |
| Gas distribution leakage | 100 | 99 | 99 | 100 | 99 | 99 | 99 | 99 |

Revised data on the length of the Gas Transmission Network in 2012 was not available at the time this document went to press. 2011 data has therefore been used.

The assessment presented in this document is not meant to supersede or interfere with Ofgem's role as regulator of the gas and electricity sector nor is it meant to provide any additional targets for the sector.

# Communications

**Table B.7: Performance indicators for communications infrastructure, 2005 to 2012**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Communications performance index** | 100 | 187 | 199 | 221 | 237 | 253 | 288 | 323 |
| **Capacity, access and availability** | 100 | 113 | 131 | 144 | 155 | 167 | 176 | 175 |
| Communications paths | 100 | 106 | 111 | 114 | 117 | 118 | 119 | 119 |
| Mobile subscriptions | 100 | 106 | 111 | 114 | 119 | 119 | 119 | 119 |
| Broadband penetration rate – households | 100 | 100 | 129 | 140 | 158 | 158 | 183 | 183 |
| Broadband penetration rate – businesses | 100 | 118 | 119 | 133 | 135 | 134 | 143 | 143 |
| Broadband subscriptions | 100 | 132 | 157 | 173 | 181 | 181 | 204 | 204 |
| Secure servers | 100 | 118 | 156 | 187 | 221 | 289 | 287 | 282 |
| **Service quality and reliability** | 100 | 260 | 267 | 298 | 318 | 340 | 400 | 472 |
| Observed average broadband connection speeds | 100 | 372 | 372 | 418 | 461 | 511 | 627 | 758 |
| Cost of telephone and broadband services | 100 | 148 | 161 | 177 | 175 | 168 | 172 | 186 |

The methodology used by the Organisation for Economic Co-operation and Development (OECD) to calculate broadband costs changed in 2013. As in the OECD's own documents, methodology has not been applied to previous years when compiling these performance indicators.

The assessment presented in this document is not meant to supersede or interfere with Ofcom's role as regulator and competition authority for the UK communications industries nor is it meant to provide any additional targets for the sector.

# Flood risk management

**Table B.8: Performance indicators for flood risk management, 2005 to 2012**

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Flood risk management performance index** | 100 | 117 | 98 | 120 | 127 | 156 | 172 | 152 |
| **Capacity, access and availability** | 100 | 104 | 110 | 115 | 120 | 130 | 143 | 154 |
| Households better protected against moderate or significant flood risk as a percentage of total number of households in England | 100 | 104 | 110 | 115 | 120 | 130 | 143 | 154 |
| **Asset condition** | 100 | 100 | 100 | 148 | 160 | 161 | 162 | 162 |
| FRM asset condition | 100 | 100 | 100 | 148 | 160 | 161 | 162 | 162 |
| **Efficiency** | 100 | 146 | 84 | 99 | 102 | 179 | 210 | 140 |
| FDGiA Expenditure per additional household protected | 100 | 146 | 84 | 99 | 102 | 179 | 210 | 140 |

These figures will be reviewed in light of the Environment Agency's plans to develop a set of new performance indicators to monitor the flood risk programme.

# Waste

## Table B.9: Performance indicators for waste management, 2005 to 2012

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| **Waste performance index** | 100 | 102 | 104 | 107 | 112 | 109 | 113 | 111 |
| **Capacity, access and availability** | 100 | 115 | 114 | 111 | 111 | 110 | 116 | 111 |
| Landfill capacity | 100 | 101 | 99 | 93 | 88 | 85 | 82 | 75 |
| Incineration capacity | 100 | 130 | 129 | 128 | 135 | 135 | 150 | 148 |
| **Asset or capacity utilisation** | 100 | 115 | 112 | 117 | 126 | 120 | 119 | 116 |
| Landfill life left – non-hazardous waste (commercial sites) | 100 | 106 | 107 | 118 | 133 | 130 | 129 | 130 |
| Incineration capacity usage | 100 | 124 | 117 | 116 | 118 | 109 | 110 | 102 |
| **Service quality and reliability** | 100 | 100 | 116 | 129 | 141 | 149 | 155 | 161 |
| Household recycling rate | 100 | 100 | 116 | 129 | 141 | 149 | 155 | 161 |
| **Efficiency** | 100 | 79 | 75 | 70 | 69 | 58 | 60 | 55 |
| Cost of disposing of municipal waste | 100 | 79 | 75 | 70 | 69 | 58 | 60 | 55 |

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