



Wales Office  
Swyddfa Cymru

# Building a more prosperous Wales: Infrastructure for a modern economy

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## FOREWORD

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**STEPHEN CRABB MP**  
**PARLIAMENTARY UNDER SECRETARY OF STATE FOR WALES**

I am delighted to present this report by the Wales Office Infrastructure Working Group on Wales's future infrastructure needs and the progress being made to deliver the world class infrastructure Wales deserves.

Infrastructure investment is key to securing stronger and more sustainable economic growth in Wales. For businesses to invest and grow, they need confidence that they will have access to the infrastructure that will support that growth – transport, energy and telecommunications. This infrastructure must be secure and resilient, located in the right place and accessible at the right time.

To deliver this certainty it is imperative that we, in UK government, work closely with the private sector and the Welsh Government to identify and deliver the infrastructure priorities that will secure Wales's long term economic success.

I would like to thank the core members of the Working Group for their efforts over the last year – supported by a wide number of industry experts and leading Welsh businesses. Their ideas and knowledge have enabled me to hear first-hand about specific infrastructure challenges that must be overcome if we are to build a truly modern economy in Wales.

A great strength of the Group has been the invaluable input of Welsh Government alongside colleagues from UK government. The UK and Welsh governments have a shared responsibility for infrastructure investment in Wales and business is looking for the two governments to work together closely to deliver the new infrastructure Wales needs. Devolution must be an enabler of efficient infrastructure investment in Wales not a barrier to strategic projects.

The UK government is ambitious for Wales. Investment in world class infrastructure is at the heart of our vision for a modern economy in Wales. Together with the National Infrastructure Plan, this report sets out a programme of infrastructure priorities that lay the foundations for long term growth and economic renewal in Wales.

A handwritten signature in black ink that reads "Stephen Crabb". The signature is written in a cursive, flowing style with a large initial 'S' and a trailing dot at the end.

Stephen Crabb MP

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## SUMMARY

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Strong infrastructure networks across all sectors form the backbone of a modern economy, and increasing investment in these networks is a central part of the government's long term economic plan to improve the prosperity of Wales. Wales has the lowest economic output per head of population of any nation or region of the United Kingdom and investment in infrastructure plays a crucial role in addressing this issue - creating jobs and expanding market opportunities will open up new economic possibilities which will allow Wales to prosper.

Previous governments have failed to invest sufficiently in infrastructure in Wales. The UK government is ambitious for Wales and the Welsh economy, and central to that ambition are our infrastructure investment plans. Established last year, the Wales Office Infrastructure Working Group brought together investors, operators, industry experts and providers of Welsh infrastructure, together with representatives of both governments in Wales. The Group discussed the main challenges in delivering projects already in the pipeline in Wales and explored further infrastructure needs.

This document outlines the Group's ambitions for a transformed Welsh infrastructure network, which will play its part in transforming the economy of the United Kingdom into one ready to face the challenges of the coming decades. This document aims to inform the future agenda for infrastructure in Wales, looking at both the delivery of current government commitments and ahead to potential future infrastructure projects.

To maximise the opportunities from infrastructure investment in Wales, the Group recommends that:

- **Wales's two governments work together in planning and delivering Wales's infrastructure needs.** There are already good examples of this, including the involvement of the Welsh Government on the Working Group, and collaborative working on the UK National Infrastructure Plan and the Wales Infrastructure Investment Plan. It is essential that this joint working is built on by sharing data and tools on all of the infrastructure investment planned, to ensure that Wales's infrastructure plans are coherently mapped out. This work will provide certainty and clarity to investors and the end users.
- **Infrastructure providers work together to seek out opportunities to plan and deliver infrastructure collaboratively.** There is great potential for joined up delivery of infrastructure in Wales by providers of infrastructure. Examples could include the laying of telecommunications infrastructure concurrently to improvements to the road network or major projects and looking at joint ventures between infrastructure providers to fund enabling infrastructure projects such as bridges. This collaboration will not only benefit the providers by making a project more affordable and viable, but also benefit the end customer significantly by bringing forward projects more quickly and at a reduced cost.

- **Investors unlock all the existing sources of finance and develop innovative options to fund infrastructure.** The financial crisis not only placed constraints upon the role of the public sector in funding infrastructure, but it also significantly reduced the amount of private and foreign investment due to adverse credit conditions. To avoid delays to investment, the UK government has launched the £40 billion UK Guarantees scheme, delivered by Infrastructure UK. Potential projects in Wales should ensure that they take advantage of schemes such as the UK Guarantees scheme where appropriate, to reduce financial barriers to delivery. Projects also need to continue to look beyond the historical model of public sector funded infrastructure and draw in the expertise and financing from the private sector.
- **Businesses in Wales seize the supply chain opportunities available.** Infrastructure is not only vital for economic growth once operational, but can also stimulate the economy during construction. With the scale of investment already in the pipeline, both governments must engage with the supply chain in Wales to make sure that Welsh businesses have the opportunity to bid for contracts. The Wales Office has worked with other UK government departments this year to encourage Welsh supply chain participation, including with major projects such as the north Wales prison. Businesses in Wales must seek out the opportunities available to retain as much of the economic value from these large scale projects within Wales as possible.

## FINANCING INFRASTRUCTURE IN WALES

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The future of the Welsh economy rests upon both the UK and Welsh governments continuing to prioritise the need to meet Wales's infrastructure challenges. The scale of these challenges are significant, indeed investment estimates for both planned and potential projects across Wales's transport, energy and telecommunications networks are around £15 billion. These projects (both planned and potential) are detailed in **Annex 1**.

It is essential that barriers, both financial and in terms of disproportionate regulation, are removed to encourage more infrastructure investment in Wales – harnessing all sources of investment to ensure Wales has the right infrastructure investment in a timely way. Ensuring investment in Wales is delivered is the responsibility of both governments in Wales, and our joint working with the private sector on the financing and delivery of infrastructure in Wales is vital.

### **UK government action:**

As a share of GDP, public investment will be higher on average over this decade than under the whole period of the previous term of government in Westminster. Since the 2010 Spending Review, each Budget and Autumn Statement has recognised the need to increase capital investment and the Welsh Government has received their share of these increases. In addition, we are also co-financing strategic infrastructure in Wales, including £69 million of UK government funding for the Superfast Cymru project.

Wales continues to receive European Structural Funds. The UK government's aim for future rounds of funding has been to focus on those regions with the lowest GDP per capita, and the UK government has used the full flexibility available to do this. As a result, Wales will receive around €2.145 billion for the 2014-20 programmes.

The Wales Bill will provide the Welsh Government with new tax and borrowing powers that it can use to invest further in renewing Wales's infrastructure and support growth in the Welsh economy. The Welsh Government will therefore have the tools to invest in vital projects including essential improvements to the M4 around Newport.

We have recognised that the private sector can help us to deliver our infrastructure needs. The UK is at the forefront of pioneering a mixed model of infrastructure investment split between the public and private sectors. This is consistent with ensuring that infrastructure is provided in a way that drives efficiency and value for money and does not jeopardise the sustainability of the public finances.

### **Future needs:**

- ***We must explore new models for financing infrastructure.*** Through the Wales Infrastructure Investment Plan the Welsh Government has generated around £1.8 billion of additional investment by the use of innovative finance interventions for vital projects including the A465 Heads of the Valleys improvements. Private sector financing and foreign direct investment need to be further utilised in Wales. Both governments need to work together to explore new models for using private financing in delivering infrastructure in Wales.

- ***We must explore the potential for obtaining further European funding for infrastructure.*** In addition to the funding Wales will receive through European Structural Funds, other opportunities for European funding need to be maximised. As outlined in the transport section below, the Trans-European Transport Network (TEN-T) routes in Wales are vital gateways to European markets and significant European funding is available through the Connecting Europe Facility to co-fund transport projects. Both governments in Wales must work together to bid for this funding.



## TRANSPORT

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**Aim:** *To better connect Wales – locally, nationally and globally – allowing for economic growth through a modern transport system by providing stronger links to market opportunities*

The United Kingdom has a proud history of innovation in transport infrastructure, and the UK government is proud to be funding the largest investment in transport infrastructure since World War II. Investment in this area is key, as poor transport hinders both job creation and access to the jobs market, particularly in topographically challenging areas like parts of Wales. Modern and functioning transport systems are a fundamental factor in determining the suitability of a location for business investment.

Economic productivity is higher where areas of economic mass are greatest, and good transport infrastructure can ensure that existing centres of economic activity within Wales are better integrated whilst also improving Wales's connections to economic centres across the United Kingdom and internationally. Road, rail, sea and air travel all have the potential to play a greater part in realising this.

There has been an unprecedented growth in travel over the last decade. For rail alone, in 2010 over 26 million passenger journeys started or ended in Wales; an increase of 65 per cent since 2000. Forecasts suggest that the rail network will see a further 30 per cent passenger growth over the next five years. Similarly, analysis from the Department for Transport indicates that likely rises in both population and economic growth will cause a significant rise in demand for use of the UK's road network, estimating that by 2040 traffic growth across all roads could be over 40 per cent. In Wales, the roads carry the highest proportion of journeys to work by car compared with other areas of the UK.

Welsh ports play a strong part in the movement of the UK's freight traffic and are themselves natural locations for process and value adding industries where critical mass can be a key determinant of success. In 2012, ports across Wales handled 11 per cent of the total freight exports from UK major ports by weight – amounting to over 14 million tonnes of freight. This is in addition to over 30 million tons of foreign freight coming into the UK which is handled by Welsh ports every year. Some of Wales's most important economic activities are port based – energy, steel, fishing and leisure. It is critical that freight routes and access to key infrastructure modes such as ports and airports are properly supported and investment opportunities grasped.

### **UK government action:**

To achieve a prosperous economy for the long term Wales needs a transport system that matches this ambition and work is already underway.

Over the coming years we will see the delivery of the largest investment package in our railways since the Victorian era. Capital investment in the railway network in Wales is provided by Network Rail, specified and funded by the UK Department for Transport on an England and Wales basis through the High Level Output Specification. The Welsh Government also has powers to develop and fund rail infrastructure projects in Wales, being responsible for the day to day management of and funding for the Wales and Borders franchise. Together, Wales's governments are investing over £1 billion in rail electrification in south Wales. This includes electrification of the Great

Western main line, set to deliver faster journey times and increased passenger capacity by 2018. Coupled with our ambitious programme of track renewals and signal improvements across the Welsh rail network, planned investment will deliver faster, greener, quieter and more reliable journeys for passengers across Wales.

The UK government's plans for High Speed 2 (HS2) also present significant opportunities for Wales. The planned route will provide enhanced connections in north, south and mid-Wales – with improved journey times from north Wales to London via the planned hub station at Crewe and reduced travel times via Birmingham for those travelling from mid-Wales, while south Wales will benefit from the Great Western main line to HS2 connection at Old Oak Common.

Whilst HS2 is addressing capacity issues on our national network, it is just one element of the UK government's transformational plans for rail across the country. Other investments, such as the planned spur linking the Great Western main line and Heathrow Airport and the establishment of Crossrail, will better connect south Wales businesses to international markets and bring Cardiff within 2 hours travel time of Canary Wharf.

With devolved responsibility for highways in Wales, the Welsh Government has outlined its plans to improve the road network as part of the Wales Infrastructure Investment Plan. Congestion on the M4 around Newport has long been identified by business communities in Wales – and across the United Kingdom – as a key investment priority. In order to assist the Welsh Government, the UK government is providing the Welsh Ministers with early access to its new borrowing powers, which are being provided through the Wales Bill. This means that the Welsh Government can make progress on this project in advance of the new borrowing powers being implemented in April 2018. This borrowing capability could also allow the Welsh Government to invest in other economically vital infrastructure, for example north Wales's key arterial route, the A55. The Severn crossings as the gateway to south Wales are also an integral element of the strategic infrastructure of Wales and ongoing use of the crossings is central to the vitality of the nation. The UK government will ensure that the future of the crossings is secure in the interests of roads users in England and Wales.

Responsibility for aviation and ports policy in Wales rests with the UK government. A successful regional airport is an important element of Wales's viability as a business hub. The commitment by government to provide start-up aid to eligible regional airports to support new routes – our Regional Air Connectivity Fund – is an opportunity to spread Cardiff Airport's reach to new destinations, expanding its role in overall UK aviation.

### **Key challenges:**

- ***Meeting the growth in demand:*** A modern transport infrastructure network equips a country for future economic growth and is often a pre-requisite for economic expansion to occur. Making provision now for future capacity needs is vital to ensure that this growth is not choked off as demand increases. Releasing space on crowded rail lines and easing congestion on Wales's roads are vital steps towards meeting future demands. The long lead time from planning to completion means that decisions to take investment projects forward have to be made well in advance of the point that they are expected to come into service. The UK government's National Infrastructure Plan and the Welsh Government's Wales Infrastructure Investment Plan are vital tools in this process. We must continue to work together to ensure that planning and implementation is as effective as possible.

- **Passengers' transport needs should not be curtailed by political boundaries:** A challenge of devolution is making sure it doesn't impinge upon citizens' ability to travel or affect the quality of their experience. The devolution settlement must not be a barrier to investment in Wales or compromise the availability of seamless transport. Fluid cross-border networks must be sustained by cohesive investment and maintenance on both sides of the border. Arrangements could be formalised for investment in strategic cross border roads to enhance this.
- **Using enhanced transport infrastructure to drive economic growth:** Routes along the north and south of the country are part of Trans-European Transport Network (TEN-T) and are vital gateways to European markets and beyond for businesses in Wales and across the United Kingdom. All of Wales's major ports are also located along the TEN-T network. These strategic routes need adequate investment along their entire length and a holistic approach needs to be adopted to ensure that investment meets the ambitions of businesses across Wales. Opportunities for European investment must be seized and improvements made on the road network in Wales through proper planning and assessment of potential projects.

### Future needs:

- **Improved local connectivity:** We must set an ambition for a transport network that better connects local areas of Wales, and adequately integrates different transport services, allowing for better commuter travel to major urban areas and employers and linking economic centres with each other. Proposals are being developed by the leaders of local projects for future rail investment and will be considered as part of Network Rail's planning. Advocates for projects such as local rail improvements to link major employment centres between north east Wales and north west England, are clear that they would help people access employment markets and allow businesses to expand.
- **Better connected to the rest of the UK:** It is important to ensure that Wales benefits from transport improvements in England and the rest of the UK as far as possible; with appropriate links made to bridge infrastructure projects and aspirations in Wales and England. The huge improvement in accessibility for north and mid-Wales offered by HS2 has significant implications for demand on linked local networks. North east Wales and north west England are an informally unified economic region which has the potential to be bolstered by continuous London to Holyhead services utilising the high speed network. Linked to this would be the electrification of the north Wales main line – a proposal being advocated by business and local government leaders across north Wales. This investment merits full consideration in examining the potential of the planned high speed network's impacts on Wales.
- **Open to the global market:** Seamless travel and faster journeys along Wales's key transport corridors – with Wales's borders crossed imperceptibly – would enhance Wales's image as a great place to invest. Air travel is an economic enabler in the UK, allowing businesses to connect to the global market. Heathrow is without question one of the most important of Europe's aviation hubs but we have to be ambitious for Wales's business growth, and that ambition includes a successful regional airport. Welsh sea ports are also key strategic infrastructure assets; they have a major role to play in the UK's Western trade and passenger access. In addition to realising the potential of Welsh ports to support the flows of goods and people, there is massive potential for Wales to develop a better share of the ever growing cruise market boosting tourism and Wales's international profile. It is vital that our ports and airports are easily accessible with improved road and rail links to them.

## ENERGY

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**Aim:** *For Wales to be at the forefront of energy production within the UK, delivering a modern, efficient, resilient energy network and contributing to the future energy security of the nation.*

Energy security is a fundamental necessity for a secure economy. The UK has, through a combination of liberalised energy markets and firm but fair regulation maintained a relatively resilient energy system, of which Wales's production and natural resources have always played a part. Wales is an energy rich country and remains a net exporter of energy within the UK, a fact which has always been central to ensuring the UK's energy security. Milford Haven alone has the capacity to deliver around 35 per cent of the UK's gas supply. In recent years, however, there has been a decline in the share of the UK's total generation which comes from Wales.

Large scale investment in gas and low carbon generation technologies is vital in order to replace our ageing energy infrastructure, maintain secure energy supplies and contribute to tackling climate change. The UK's ageing power plants and an outdated grid are coming to the end of their operating lives at the same time that demand for energy is growing. Over the next decade around a fifth of the UK's existing power generating capacity will come off line. It is estimated that around £110 billion worth of investment will be required between 2014 and 2020 in electricity infrastructure alone. These levels of investment are unprecedented but the UK government is determined to deliver the energy needs of a 21st century economy as part of its long term economic plan. The planned investment in UK energy infrastructure is more than that planned for transport, water, and communications put together.

To deal with the challenges of increased energy consumption across the UK a radical transformation is not optional – it is essential. From new nuclear, to offshore wind, solar, marine and wave power, and traditional energy sources such as oil and gas, Wales has the right natural resources, skills and expertise to compete in both the internal UK and international energy markets.

### **UK government action:**

We have already taken radical action, making the biggest changes to the electricity market since privatisation. The result has been record levels of energy investment since 2010, but the challenge for Wales is to ensure that this investment continues to be spread across the UK.

The right framework has now been set for investment in the energy sector:

- Electricity Market Reform, brought forward in the Energy Act 2013, introduced Contracts for Difference. These provide long-term electricity price stability in low carbon generation, reducing some of the major risks that are currently faced by generators;
- The commitment to reduce corporation tax to the joint lowest in the G20 by 2015 makes the UK one of the most attractive places in the world to invest;
- The UK Guarantees Scheme is being used to support the biggest energy priorities, such as at Hinkley Point C and in principle at Wylfa Newydd, demonstrating the determination to be the destination of choice for energy investment; and
- A system of commercial tax incentives and regulatory rationalisation in the shale gas industry introduced by the government in successive budgets will allow for extensive exploration of potential shale gas extraction sites across the UK.

These measures have already begun to attract investment in the energy market in Wales, and the first signs of a healthy energy generation pipeline to help meet the challenge we face are apparent. The National Infrastructure Plan lists more than 15 projects already in the pipeline, from large scale offshore wind farms to smaller Combined Cycle Gas Turbines, and there is the potential for more.

Hitachi's decision to build a new nuclear power station at Wylfa highlights the attractiveness of north Wales as a place to do business and invest, creating thousands of jobs and providing massive supply chain opportunities for British companies. Last year the UK government announced a new co-operation 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 this development.

The Green Investment Bank, backed by £3.8 billion of government funding, is making a significant contribution to the development of a green economy. It has already invested in Wales providing over £55 million investment in Rhyl Flats windfarm; £11 million minority share in an operational biomass plant in Port Talbot and £220 million investment in Gwynt y Môr offshore windfarm.

We are now one step closer to realising the full potential of marine energy – resources which are plentiful around Wales. Sea Generation Wales was awarded £10 million of funding through the UK government's Marine Energy Array Demonstrator scheme, to help Sea Generation test their innovative turbine formation out at sea, and provide invaluable insight to other projects on how we can best harness the power of the sea.

### **Key challenges:**

- **Upgrading access to the grid:** Energy companies looking to invest in Wales need certainty that their projects can be connected quickly and easily. With new energy generation coming on line it is essential that they can connect in appropriate time, at reasonable cost and without causing problems in the existing network. As grids develop, a balance must be struck between the requirement to transport energy around the network with the need to provide long-term value for money for existing and future customers. It is essential that future flexibility is built in, and the systems must be responsive to customers' needs.
- **Streamlined planning processes:** It is essential that investors have clarity, particularly over planning decisions. Businesses express frustration that the planning system can lead to delay and indecision, holding up projects unnecessarily. The UK government is committed to continuing reform of the planning system for major energy projects where it has responsibility in Wales but the Welsh Government also has an important role to play. It is their responsibility to determine projects below 50MW onshore, and 1MW offshore, and to issue environmental permits for all developments in Wales. Whoever is responsible, investors must have confidence that Wales is a great place to invest.
- **Attracting investment and supporting finance:** The UK must attract investment now, if we are to continue to enjoy the resilient and secure energy supplies that are essential for economic growth, and if we are to ensure that consumer bills are affordable in the long term. Whilst the investment to build new power stations will come from private industry, government also has a role to secure the investment attracted to the UK. Wales must be ready – we must minimise the barriers to investment, and show the world we are open for business. The UK government's significant investment in UK Trade and Investment will help to attract increased levels of foreign direct investment to all parts of the UK.

## Future needs:

- ***Delivering a diverse energy mix:*** We must protect the UK's energy security, insulate business and domestic consumers from volatile global fossil fuel prices and deliver maximum economic benefits from the local resources – ensuring that Wales returns to the forefront of supplying energy in the UK once again. It is vital that Wales continues to attract investments from companies such as Hitachi, RWE and Vattenfall, and that they cover a wide spectrum of energy technologies – gas, wind, wave and tidal, solar, Carbon Capture and Storage, and nuclear. Alongside traditional energy sources, shale gas represents a significant economic opportunity and Wales is well placed to attract investment. The industry will be governed by robust regulations already in place to ensure on-site safety and mitigate seismic activity and air pollution. A recent report published by Ernst and Young indicated that at peak, the shale gas industry could support up to 64,000 direct and induced jobs across the UK.
- ***Harness new technologies:*** As the country moves from the older, more polluting power generation to cleaner energy sources investment in new technology will be critical. Wales is already a hotbed of innovation – but there is more that can be achieved. Wales's universities play a critical role in the development and testing of new technologies at centres such as the Marine Energy Research Centre at Swansea University and the Institute of Energy at Cardiff University. There is a clear opportunity for these to become nationally and internationally renowned centres of excellence for energy research, and develop close links with industry to find the right solutions to meet the country's future needs.
- ***Increase community involvement:*** It is not just big generators that will deliver the energy infrastructure that is needed. Local communities can also make an important contribution to maintaining the UK's energy security, limiting environmental impacts and keeping energy costs as low as possible. By grasping the opportunities now, communities can make a big difference – Germany and Denmark already have a vibrant community energy sector, and research has shown that schemes involving local communities could supply enough electricity for one million homes by 2020. With the abundance of natural resources Wales is perfectly placed to take full advantage of these opportunities.

## TELECOMMUNICATIONS

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**Aim:** *Strengthening Wales's digital connections through the UK government's programme of investment – to ensure that Wales is fit for the digital age*

A successful and modern economy is reliant upon a modern telecommunications network. For too long businesses and families in Wales and across the UK have been unable to reap the full benefits of the internet or fully compete in the new globalised economy because of poor internet and mobile connectivity. The provision of timely information is key to the economic success of the entire business community. That is why, as part of our long term economic plan to build a stronger and more competitive economy, we are making unprecedented levels of investment in the broadband infrastructure of the UK to deliver superfast broadband to 95 per cent of the UK by 2017. Improved telecommunications – through the provision of faster broadband and upgraded mobile phone voice and data infrastructure – means increased economic productivity, innovation and competitiveness, not only for individual businesses but ultimately for the economy of Wales as a whole. This investment will bring substantial benefits; it is estimated that every £1 we invest in improved broadband infrastructure will deliver around £20 worth of benefits to the economy over the years to come.

Digital communications are transforming our society – the number of mobile-connected devices now exceeds the number of people on earth. Devices are also becoming ever more intelligent, connected and mobile. Millions of autonomous sensors, machines, gadgets and devices are being connected to a cloud based infrastructure to form the Internet of Things (or machine to machine market), the next phase of the internet. We need the infrastructure in place to take advantage of advances in digital and mobile communications.

### **UK government action:**

The UK government, through its programme of investment, aims to achieve a transformation in broadband access; with everyone in the UK able to access broadband speeds of at least 2 megabits per second, and 95 per cent of the UK having access to fibre broadband with superfast speeds of at least 24 or more megabits per second by 2017.

Mobile broadband technology has reached a tipping point. Wireless networking technology now enables speeds fast enough for high-value applications and fast, powerful, mobile devices are affordable to large segments of society. Users benefit from access to the internet anywhere and could have a transformation effect for businesses in Wales, particularly those in rural locations.

Wales currently has the lowest proportion of homes and businesses which can avail themselves of superfast broadband access in the UK, with provision significantly lower in rural and semi-urban areas. This is the result of years of under investment, challenging topography and weak take-up, and it is holding the Welsh economy back. The UK government is determined that Wales reaps the benefits of this investment in digital infrastructure.

## **Superfast Cymru**

In Wales, the UK government has invested £69 million in 'Superfast Cymru' – a programme being delivered by the Welsh Government which will provide 96 per cent of homes and businesses in Wales with superfast broadband coverage by spring 2016. Together with European funding, the Welsh Government has also provided significant funding towards the project – demonstrating what can be achieved through collaboration in the public and private sectors. The UK government has provided an additional £10 million funding to market test supplier solutions for the remaining areas which will not be covered by the superfast broadband roll-out – those which are the most 'hard to reach'.

## **Super Connected Cities in Cardiff and Newport**

The UK government has also invested £150 million to support cities to develop the digital infrastructure capability they need to remain internationally competitive and attractive places to invest, visit and do business. There are 22 Super Connected Cities in the programme.

In Wales, Cardiff will receive up to £10.2 million and Newport up to £6 million and both cities are set to benefit through the provision of widespread public wireless and a connection voucher scheme to help SMEs improve their broadband connectivity. A new commercially funded internet exchange will be provided in Cardiff, along with a demonstrator facility showcasing new digital technology, to establish Cardiff as the leading UK digital city outside of London.

## **Mobile Infrastructure Project**

The UK government is also investing up to £150 million to improve the quality and coverage of mobile voice and basic data network services to as many premises and roads as possible, in areas where no network coverage is currently provided by any Mobile Network Operator. Wales is set to benefit through the early phases of the roll-out of this project, which will see the provision of new mobile phone masts in many areas of rural Wales – particularly mid and north Wales and including along the A470. The new mobile phone masts, from which the four mobile network operators will provide coverage, will also be compatible with future technological developments. As well as further extending the mobile coverage that many now see as a utility, the Mobile Infrastructure Project (MIP) has been estimated to provide significant economic benefits.

## **Roll-out of 4G**

Ofcom has attached a coverage obligation to one of the 800 MHz lots of spectrum. The winner of this lot is Telefónica UK Ltd. This operator is obliged to provide a mobile broadband service for indoor reception to at least 98 per cent of the UK population (expected to cover at least 99 per cent when outdoors) and at least 95 per cent of the population of each of the UK nations – England, Northern Ireland, Scotland and Wales – by the end of 2017 at the latest.

## **Key challenges:**

- **Driving demand for superfast broadband:** Superfast and ultrafast broadband open up a huge range of leading-edge technologies to both families and businesses right across Wales, enabling businesses to expand their local, and indeed global reach – be they in rural Wales or our towns and cities. Despite improvements in the infrastructure in Wales, take-up of broadband in Wales still lags the rest of the United Kingdom. Raising awareness amongst households and businesses of the many benefits and opportunities that increased speeds can bring – to drive demand for its uptake – is critical.



- **Hard to reach areas:** Addressing hard to reach areas is particularly important. Even with the planned significant investment there remain parts of Wales that by 2016 will still not be connected. The outcome of the £10 million funding to market test supplier solutions for these hard to reach areas will be particularly important.
- **Facilitating development:** The private sector is active in investing in new mobile services in Wales with substantially increased network coverage expected over the next few years for both mobile voice and data network services, including 4G. A recent report by Ofcom states that one in ten consumers in Wales access the internet exclusively through a mobile phone and nearly a quarter of homes in Wales use only mobile phones to make and receive phone calls at home. Both of these figures are significantly higher than the UK average. Given the importance to consumers in Wales of mobile coverage, it is extremely important that the planning system in Wales is able to support the provision of the necessary infrastructure to enable this vital innovation.

### Future needs:

- **Quicker, more reliable, connections:** Ultra-fast broadband enables large volumes of data to be rapidly uploaded from, and downloaded to, widely distributed networks. It has several potential advantages over standard and superfast broadband; larger volumes of data can be transmitted and managed, permitting new applications that are currently impractical, and facilitating new technologies, products and markets. It will particularly benefit organisations that use large amounts of data to coordinate and control their operations, including financial institutions, some creative industries, public utilities, central and local government and makers of markets of all types. Targeted provision will support existing businesses and make Wales an even more attractive place to invest. As technologies expand from the 'internet of people' to the 'internet of things' where connections may be time critical, the reliability, resilience and security, and greater ubiquity of networks, will become increasingly important. The UK government is working to develop a UK digital communications infrastructure strategy. This will consider any measures needed to ensure that the UK continues to benefit from world-class communications networks as technology and the digital economy develop further. It will be published later this year.
- **Joined-up thinking:** There are many opportunities for enhancing telecommunications through collaboration. By working with other utilities when laying fibre-optic cables, consumers and businesses in Wales will benefit from less disruption and better value for money. Working with public transport providers so that access to wi-fi on bus and train journeys becomes routine, would increase productivity while on the move. There are also opportunities to incorporate telecommunications as standard into new developments, regeneration projects or wider spatial plans, becoming a key part of the planning and procurement process. Operational requirements and moving towards the 'internet of things' will mean that communications infrastructure will increasingly become an important element of future transport and energy networks, with opportunities to explore the possibility of usage beyond the core customer.

## INFRASTRUCTURE INVESTMENT PROJECTS AND PRIORITIES FOR WALES

Investment priority / Future opportunity	Potential start date	Potential end date	Funding source and estimated approximate cost (where known)	Status
<b>TRANSPORT</b>				
Electrification of the Great Western Main Line	2014	2018	Public - over £1 billion	In progress
M4 easement works	2016	2021	Public/private - £1 billion proposed investment	In progress
Western Rail Access Scheme – south Wales link to Heathrow Airport	2019	2021	Public/private - £500 million public contribution	Planned
Electrification of north Wales lines and interconnections with high speed spine			Public	Locally supported
Local rail improvements to link major employment centres between north east Wales and north west England				Locally supported
Cross border road investment strategy in play for future cross border route improvement works				Locally supported
TEN-T route investment			Public/private	locally supported
Port cruise terminal development			Public/private	Locally supported

Investment priority / Future opportunity	Potential start date	Potential end date	Funding source and estimated approximate cost (where known)	Status
<b>ENERGY</b>				
Wylfa Newydd, generation of electricity up to 2700MW	2015	2020	Private - £8 billion to be supported by UK Guarantee	Supported
Pen Y Cymoedd, generation of electricity up to 256MW	2014	2016	Private - £365 million	Consented
Anglesey Aluminium Biomass, generation of electricity up to 299MW	2017	2020	Private	Planning Approved
Celtic Array - Rhiannon Wind Farm, generation of electricity up to 2.2GW	2017	2025	Private	Scoping
Gwynt Y Môr, generation of electricity of up to 576MW	2012	2015	Private - £2 billion	In progress
Mid Wales Transmission		2019	Private - £207 million	Planned
North Wales Upgrades, transmission		2020	Private - £549 million	Planned
Wylfa Pembroke HVDC link, transmission		2022	Private - £672 million	Planned
Wales & West R110-GD1, gas distribution	2013		Private - £849 million	Planned
Amlwch LNG, gas import of 85 million cubic meters a day	2014		Private	Planned
Dragon LNG, gas import of 7.6bn cubic meters per annum			Private	Planned

Investment priority / Future opportunity	Potential start date	Potential end date	Funding source and estimated approximate cost (where known)	Status
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## TELECOMMUNICATIONS

Superfast Cymru	2014	2016	Public/private £440 million (£220m public contribution)	In progress
Super Connected Cities	2013	2015	Public - £150 million	In progress
Mobile Infrastructure Project	2013	2015	Public - £150 million	In progress
Facilitating development	2014			In progress
4G roll-out	2013		Private	In progress
Driving demand for superfast broadband				Consumer driven
Hard to reach areas				Supported by consumers
Ultrafast connections				Supported by consumers