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Fuinnimh & Acmhainní Nádurtha
Department of Communications,
Energy & Natural Resources

National Broadband Plan

CONNECTING COMMUNITIES

Ireland's Broadband Intervention Strategy

Updated - December 2015

www.broadband.gov.ie



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Connecting Communities - A message from Minister Alex White, T.D.

The publication of this National Broadband Plan (NBP) intervention strategy is a defining moment for telecommunications in Ireland. It marks the launch of a major Government procurement process which will deliver a high-quality infrastructure that stands the test of time and reaches all parts of Ireland. It will see every citizen in Ireland having access to quality high speed broadband services.

The history of broadband in Ireland has been mixed and the NBP recognises for the first time that quality broadband is a utility that is just as important as electricity. It is by far the most significant Government communications project in Ireland's history, and it will establish us as an international leader in this field. Previous State interventions have struggled to keep pace with consumer and business demand, which has risen exponentially on foot of rapid technological developments. This Government's commitment to deal conclusively with Ireland's broadband challenge, coupled with our productive cooperation with industry, will change that.

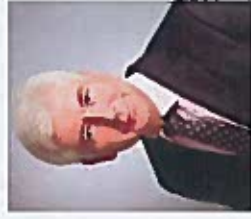
An intervention on this scale requires substantial funding. This Government has allocated an initial €275 million for the NBP network build-out. We expect that further funding will become available over the lifetime of the contract, which will be for up to 25 years. This complements accelerated commercial investment. Industry is investing some €2.5 billion to roll out enhanced telecommunications services. High speed services are now available to approximately 1.2 million premises in Ireland. By the end of 2016, 70% of premises – 1.6 million properties – will have access to quality high speed broadband. This intervention strategy focuses on the remaining 30% of our country – areas where there is no certainty of commercial investment, but where families and businesses are equally entitled to high quality broadband access.

This Government recognises that effective broadband connectivity is vital to social inclusion and economic growth at local and national levels. The National Digital Strategy has demonstrated the possibilities that digital technologies offer citizens, communities, schools and small businesses. The National Broadband Plan will enhance these possibilities and it confirms our determination to ensure that all our citizens have the same access to information, culture, ideas, and all the other opportunities that quality broadband offers.



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Connecting Communities - A message from Minister Alex White, T.D.



Every aspect of this strategy has been carefully designed and developed, with maximum consultation with industry and other stakeholders, in order to deliver the highest level of broadband access in the best possible way.

I am confident that it will bring enhanced equity and opportunity, transform our country for the better and help us realise our connected future.

Alex White

Alex White

Minister for Communications, Energy and Natural Resources, December 2015

The NBP is a Government policy initiative which aims to deliver high speed broadband to every citizen and business in Ireland. This is being achieved through a combination of accelerated commercial investment by telecoms operators, and a proposed State intervention to provide high speed broadband to those parts of the country where there is no certainty that the commercial sector will invest.

Ireland's Broadband Intervention strategy was published on 15th July last for public consultation seeking the views of industry, stakeholders and members of the public on the detailed measures proposed. This public consultation ran until the 25th September. Over 40 submissions were received and carefully considered before the strategy was revised. This updated strategy document reflects the outcome of this consultation process. It should be noted that the competitive procurement process will be underpinned by the key principles outlined in this document.

This document sets out a series of detailed Government policy objectives in respect of the proposed State intervention. Specifically it sets out the key elements of the intervention - what services are required and how they will be delivered by the successful bidder(s).



3: Purpose of this document

Purpose of this document

The purpose of this document is to fully inform industry, stakeholders and members of the public, of the updated measures in the intervention strategy.

This updated strategy has been developed following intensive engagement with industry and wider stakeholders. In addition, the European Commission has set out detailed guidelines on what is required to obtain State Aid approval for Government interventions in the broadband sector. The Department of Communications, Energy and Natural Resources (DCENR) has followed these guidelines when developing the intervention strategy. The strategy is also informed by detailed input from expert advisors who were commissioned by the Department to produce the following reports

- 1 Broadband Strategy for Ireland;
- 2 NBP Cost Benefit Analysis (CBA);
- 3 State Aid Compliance Report;
- 4 Financial Appraisal Report;
- 5 Ownership Report;
- 6 Funding Report;
- 7 Governance Report;
- 8 Technical Report; and
- 9 Network Cost Modelling Report.

Purpose of this document

All the above reports have been updated to take into account, where appropriate, submissions made by stakeholders as part of the consultation process.

The reports are published on www.broadband.gov.ie. The Financial Appraisal Report and Cost Modelling Report, are not published due to the commercially sensitive nature of these reports which contain cost modelling for the intervention. It is also not our intention to publish the 'full' CBA Report for the same reasons. Readers/stakeholders are encouraged to refer to the published reports for detailed descriptions of the issues considered and the experts' recommendations. Confidential and commercially sensitive information has been redacted from the published reports.

The key elements of this strategy will be reflected in the requirements of the competitive procurement process. The Department will not change the strategy during the procurement unless it is absolutely necessary to do so, for example for reasons of consistency with State Aid Guidelines or public procurement rules.

The NBP sets out the means by which the Government will deliver its commitment to provide high speed broadband to all parts of Ireland.

Achieving universal access to high speed broadband is also a key target under the EU Digital Agenda for Europe which envisages that by 2020 all EU citizens will have access to speeds of 30Mbps, and that 50% of citizens will be subscribing to speeds of 100Mbps.

A key principle of the NBP is to support and stimulate commercial investment through policy and regulatory measures. This collaboration with industry has been informed by the Next Generation Broadband Task Force in May 2012 where industry advised Government on measures that could help accelerate investment.

Commercial investment since then has considerably exceeded expectations. In 2012, industry committed to providing high speed broadband to 1 million addresses in Ireland by 2015, with top speeds ranging from 100Mbps for cable and 70Mbps for eFibre services. Today, cable is delivering speeds of up to 240Mbps to over 700,000 addresses and eFibre services of up to 100Mbps are available to circa 1.2 million addresses. Legislation enacted in 2014 has enabled the use of ESB's national distribution system to deliver fibre services. This has resulted in a new wholesale operator entering the market, adding increased competition for ultra-fast services. Two companies are now investing in fibre-to-the-home services. This commercial activity far exceeds what was envisaged in 2012, and represents a significant step-change in the quality of broadband connectivity now available to many business and residential customers.

These industry investments in the region of €2.5 billion are transforming the broadband experience of millions of Irish citizens. A second key principle of the NBP is a recognition that industry investment will not extend to all parts of Ireland. The Government has therefore committed to a State-led intervention into those areas



4: Background

4 Background

where it has been demonstrated that there is no certainty that industry investment will be forthcoming.

The High Speed Broadband Map 2016 (published in November 2014), shows the extent of industry commitments to end 2016 and indicates that 70% of addresses in Ireland will have access to high speed broadband within that timescale. The balance of 30%, approximately 757,000 addresses, represents the target for the State intervention.

The Department has now revised the investment period under assessment upwards in order to consider investment plans that have been announced or proposed by commercial operators for the period 2016 – 2020. This process has resulted in the development of the High Speed Broadband Map 2020 which is being published along with this document.

Delivering high speed broadband to these areas presents a significant challenge. With only 67 people per km², Ireland has one of the lowest population densities in Europe. Some counties in Ireland have a population density as low as 19 people per km². This low population density, coupled with a thinly distributed rural population makes the deployment of high speed broadband network infrastructure challenging and costly.

This document, together with the associated expert reports, set out in detail how Government will intervene to ensure high speed services are provided to these areas.



5: Vision - High speed broadband for all

Vision – High speed broadband for all

Seamless access to technology and the internet is a necessity for any modern economy or society.

The Government recognises that quality high speed broadband is essential for today's economy and society in this transformational digital age. The provision of high speed broadband enables citizens, businesses and institutions to access information, services and opportunities that would otherwise be out of reach. The NBP reflects Government objectives to deliver new opportunities for jobs, growth and social inclusion. Furthermore, it aims to underpin and support wider public policy objectives and initiatives both nationally and within the European context

This intervention strategy supports the vision of the NBP and the State led intervention under the NBP – to connect all our communities by dealing definitively with the broadband connectivity challenge in rural areas. This will be achieved by delivering high speed broadband to all premises that will not be able to access such services through commercial investment alone.

This vision is informed by the fact that in Ireland, the digital economy:

- represents 5% of GDP and is anticipated to be some 10% of GDP by 2020
- employs almost 100,000 people directly and indirectly

Vision – High speed broadband for all

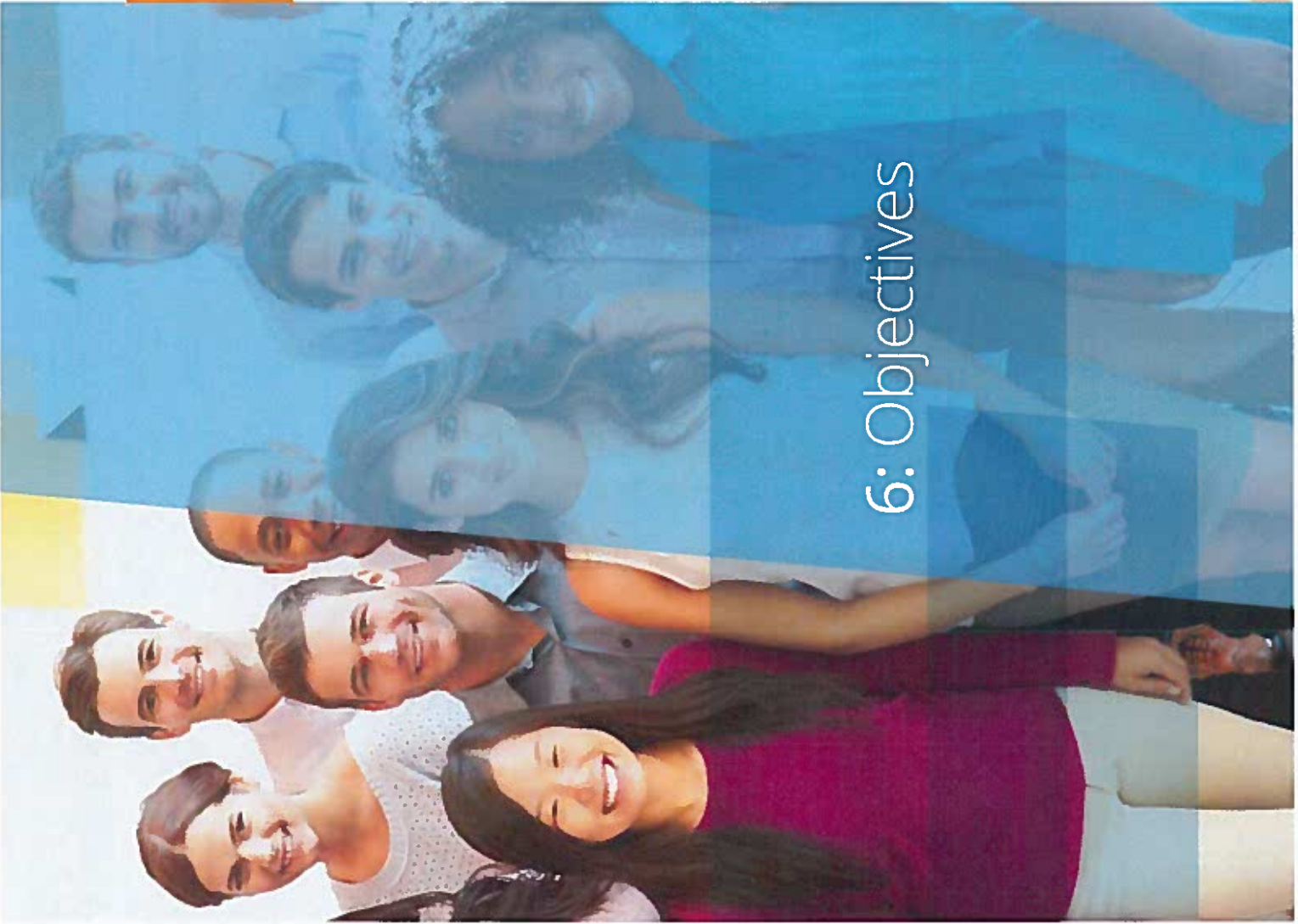
Traditional industries such as farming and retail are increasingly relying on technology to compete nationally and globally.

Broadband is also essential to the delivery of internationally traded services. The Economic and Social Research Institute (ESRI) predicts that over 70% of Irish exports will be traded services by 2025¹. Quality broadband allows enterprises and workers more flexibility in terms of working patterns. The efficient delivery of public services including education, healthcare and central and local government services is increasingly reliant on digital platforms. In addition, social and leisure activities are also progressively more dependent on Information & Communications Technology (ICT).

The Government's ambition is that 100% of premises will have access to high speed broadband and bidders will be asked to achieve this at the lowest cost to the State. The intervention aims to ensure that there will be no need for any further State intervention in the provision of high speed broadband in Ireland.

Delivering on this vision, will make Ireland a leader in the provision of ubiquitous high speed broadband. This in turn will open up opportunities locally, nationally and internationally. The implications for Ireland of the intervention are likely to be wide ranging. These will include positive impacts on job creation, improved business productivity, faster deployment and take-up of new services and increased competition in the provision of high speed broadband services.

¹ Fitzgerald J. et al. ESRI, Medium Term Review, 2008-2016, 2008.



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Objectives

Building on the vision for a digitally enabled economy, the State led intervention under the NBP has the following key objectives:

- 1 Deliver the intervention as quickly as possible to ensure a national high speed broadband network for Ireland.
- 2 Every home and business to have access to high speed broadband with a choice of service providers.
- 3 Ensure that the network can meet current and future demand.
- 4 Maximise re-use of existing infrastructure.
- 5 Incentivise additional commercial investment.
- 6 Stimulate growth and retention in jobs while enabling e-farming, e-health, trading online, e-education, tourism, savings for consumers etc.

These objectives mean that high quality and reliable broadband services will be provided, value for money will be achieved and Government policy on economic recovery and jobs will be supported.

Who will benefit?

Through ongoing commercial investment, most of our cities and towns will benefit from commercially available high speed broadband over the coming years. The areas that are not covered by commercial investment are the target for the State funded investment.

The ambition of the strategy is to achieve 100% access to high speed broadband in the intervention area by the end of 2020. The profile of the area to be addressed by the intervention strategy or potential commercial investments over 2016-2020 includes:

- 96% of national land mass
- 100,000km of road network
- Over 757,000 postal addresses
- 1.8 million citizens (38% of national population)
- 688,000 members of active labour force (38% of national total)
- 214,000 white collar employees (34% of national total)
- 89% of farm employment (139,000 farmers nationally)
- 80,266 farms (94% of national total of farms)
- 63,440 non-farm businesses (B&Bs, shops, doctors, etc.)
- 62,226 SMEs, primarily micro
- 1,522 schools (40% of total)
- 601 business parks (7% of national total)

7: Who will benefit?

A detailed CBA has been carried out to assess the return over the lifetime of the State intervention. The CBA demonstrates that the benefits of this intervention outweigh the costs and that there will be a positive benefit across all areas of Irish society.

BENEFICIARY	POTENTIAL BENEFITS
General Public	<ul style="list-style-type: none"> Savings from remote working Reduced costs of communications bundles e.g. mobile, internet, television, land line Time savings for online transactions Monetary saving from 'shopping around' online
Business located outside the intervention area whose employees live and commute from the intervention area	<ul style="list-style-type: none"> Increased productivity from employees living in the intervention area as they would have an 'always on' capability Gains from working from home
Farming Community	<ul style="list-style-type: none"> Advanced ICT integration in farming Time savings from remote monitoring of livestock
SMEs	<ul style="list-style-type: none"> Access to international markets Time savings from online services leading to increased productivity
eHealth	<ul style="list-style-type: none"> Remote monitoring of elderly people in their homes Enhanced home-based care as an alternative to hospitalisation

BENEFICIARY	POTENTIAL BENEFITS
Jobs and Entrepreneurship	<ul style="list-style-type: none"> Job creation Improve financial performance of existing businesses Enabling the formation of new enterprises in the intervention area which would previously have been restricted by a lack of access to reliable high speed broadband Enhanced competitiveness in the attraction of foreign investment
Education	<ul style="list-style-type: none"> Availability of online educational tools which complement classroom learning Easier access to specialist teaching resources e.g. applied maths through online tutorials or webcasts Enabling online student fora and project teams Early engagement with technology leading to longer term benefits from IT literacy
Environmental and Social Benefits	<ul style="list-style-type: none"> Promotion of social inclusion through equal access to online services Reductions in travel needs, thereby reducing fossil fuel consumption Opportunity for more balanced regional development Enabling energy efficiency through smart technologies in the home, including smart meters.

A conservative approach was adopted in the profiling of these benefits. The intervention has further potential to support a broad range of other public policy priorities, including in the areas of social inclusion, tourism and public sector reform.



8

Key elements of the updated strategy

8.1 THE INTERVENTION AREA

In order to establish the extent of the intervention area and to ensure that public funds are not spent where commercial investment is forthcoming, a detailed mapping exercise of current and planned high speed broadband deployment has been carried out. This has involved public consultation, engagement with industry and an assessment of notified commercial investment plans.

The High Speed Broadband Map 2020 shows where high speed broadband services are or will be provided commercially over the next 5 years. It also establishes where commercial operators have concrete plans to roll-out new high speed broadband coverage. Under EU State Aid Guidelines, the Government can only intervene in the market where there is likely to be market failure.

The High Speed Broadband Map 2020 as published provides a measure of certainty to potential bidder(s) as to the intervention area for procurement. The Department does not propose to change the intervention area during the procurement unless it is absolutely necessary to do so, for example for reasons of consistency with State Aid Guidelines or public procurement rules.

8.2 HIGH SPEED BROADBAND – DEFINITION OF SERVICES

To ensure that citizens and businesses have access to reliable, future proofed services, the intervention strategy requires the build-out of a wholesale, open access network capable of meeting defined minimum standards and is future proofed.

The Department requires the following technical standards to be met by the winning bidder(s) in the procurement process:

- A minimum of 30Mbps download
- A minimum of 6Mbps upload or twice the maximum upload speed of existing broadband in the intervention area, whichever is greater
- Latency (one-way) – no more than 25 milliseconds
- Jitter – no more than 25 milliseconds
- Packet loss – not more than 0.1%
- Service availability – at least 99.95% of the time

In addition to these technical standards, the winning bidder(s) must ensure the availability of a range of high quality wholesale services to allow retail competition to develop.

The intervention strategy also requires measures to meet the specific needs of business as well as ensuring scalability in terms of future anticipated growth in demand for bandwidth.

Accordingly bidder(s) will be invited to put forward:

1. Minimum speeds for businesses, which can be built into the service standards of the winning bidder(s) contract.

2. Proposals to ensure that the network is future proofed to meet growing bandwidth demand. This is considered the optimal approach. At the outset the Department will not prescribe future speeds which may not reflect future market developments and technology evolution. The winning bidder(s) network will be subject to periodic reviews on a 3-5 year basis to ensure that it is keeping pace with demand.

For more information on service specifications, please see Sections 4 and 5 of the updated Technical Report.

8.3 CHARACTERISTICS OF THE NETWORK

A wholesale, open access infrastructure

Given the commercial challenges of investing in the intervention area, the Department believes that each area will be served by one high speed network only, rather than the multiple network structure that exists in some commercial areas. Delivery of the network (or networks if more than one successful bidder emerges) will require Government subvention. Given the competitive constraints of a non-commercial area, the challenge is to design an intervention model that can ensure that consumers have a choice of retail service provider and can avail of affordable and competitive high speed broadband services.

Accordingly it is proposed that the intervention will fund the building of a wholesale, open access network. As described in Section 8.9, it is proposed that the network will be rolled out to be as close as possible to end users to ensure all premises can be connected.

This open access nature will allow any retail company to access the network on transparent and equal terms and conditions. In this way, the strategy aims to promote strong

competition at retail level, recognising that only one wholesale physical infrastructure is likely to be viable over the long term in any geographic area.

In the unlikely event of some users not being able to obtain the minimum retail service they require, DCENR can require the winning bidder(s) to provide an affordable retail package of services to those users, which should be comparable to prices charged in areas outside the intervention area.

Providing backhaul and access connectivity

For technical and commercial reasons discussed in greater detail in the expert reports, the network must be as close as possible to each premise so as to ensure availability of a high speed connection once the end user makes an order for retail services. Given the highly dispersed nature of rural housing development, delivering a backhaul only network is unlikely to ensure that all premises can avail of services in a timely or affordable manner.

In order to facilitate a competitive market where retailers can provide services to all premises in the intervention area, the wholesale network to be built will have to include provisions to deliver backhaul and access to premises

8.4 WHO WILL OWN THE NETWORK?

The Government has considered a range of options for the ownership of the network.

Five ownership options were presented in the proposed strategy published in July. The options ranged from a commercial stimulus model, in which a limited amount of Government funding is used to stimulate commercial investment in the intervention area, to a fully owned public utility, funded entirely by the Exchequer.

The five options were:

- 1 A commercial stimulus model where public funds are made available to make private investment commercially viable.
- 2 A concession type arrangement where a commercial company designs, builds and owns the network for the duration of the contract but the asset reverts to the State at the end of contract.
- 3 A joint venture / equity share arrangement with the winning bidder(s)
- 4 A concession type arrangement similar to option 2 except that ownership of the asset resides with the State from the outset.
- 5 Public ownership where a new utility type company is set up to design, build and manage the broadband network required for the intervention area.

As a result of the consultation process, further appraisal from both a financial and non-financial perspective, the options have now been reduced to two, namely a commercial stimulus model and a concession type arrangement.

These two options are still under consideration by Government. A decision will be made on the optimal ownership model for the State in early 2016, prior to the issuing of the formal tender documents. The two models will be assessed against the short, medium and long term objectives of the NBP so as to ensure the best economic and social return on any State investment made.

Potential bidders who have expressed an interest in bidding during the Pre-Qualification Questionnaire (PQQ) process will be notified of the preferred ownership model prior to the initiation of the competitive dialogue process.

For further detail on the consideration and recommendations in relation to ownership options, please refer to the updated Ownership report.

8.5 HOW THE NETWORK BUILD WILL BE FUNDED?

The estimated level of funding required has been informed by detailed network modelling, financial analysis and engagement with industry.

The exact amount of funding will ultimately be determined by the competitive procurement process. Bidders will be expected to meet the standards set out in this updated strategy.

Various options have been explored in terms of the source of funding to the commercial sector and the State including commercial market lenders, the European Investment Bank (EIB), Ireland Strategic Investment Fund (ISIF) and the European Fund for Strategic Investment (EFSI). All of these organisations have expressed an interest in funding any commercial aspect of the investment.

The Government contribution towards the cost of delivering this project may be achieved through a combination of exchequer, EIB and EFSI sources with €75 million also committed under the European Regional Development Fund (ERDF).

An initial stimulus package of €275 million for the NBP has been earmarked by Government as part of its five year Capital Plan². This provides the initial stimulus for the early years of the State intervention under the NBP. It may be possible to spread the total cost of the publicly-funded element of the intervention over the lifetime of the contract (25 years) with some front-loading during the construction phase. Mechanisms will be put in place to provide for contract compliance and to ensure value for money (see Section 8.7 below).

² <http://www.per.gov.ie/en/capital-investment-plan-2016-2021/>

Having regard to the importance of a competitive procurement process, it is not the intention to indicate the overall estimated Exchequer funding parameters at this stage.

8.6 PROCUREMENT

The intervention strategy has been updated to provide clarity ahead of the formal public procurement which will commence in December 2015. It is anticipated that the contract to deliver the State intervention will be classified as a services concession and will be awarded by way of procurement following the competitive dialogue process. There are five stages to this competitive dialogue process:

- 1 PPQ and Project Information Memorandum (PIM).
- 2 Invitation to participate in dialogue (ITPD).
- 3 Submission of detailed solutions (Department reserves the right to incorporate a refined solution stage).
- 4 Invitation to submit a final tender.
- 5 Selection of preferred bidder(s)/contract award³.

Following the Government decision on the optimal ownership model outlined in Section 8.4, there will be a single tender process with three lots; Lot 1, Northern Intervention Area, Lot 2 Southern Intervention Area and a Combined Lot. Any Bidder wishing to bid for the Combined Lot must also tender individually for Lot 1 and for Lot 2. A tender for the Combined Lot will not be considered to be a compliant tender unless that Bidder has also submitted a compliant tender for Lot 1 and for Lot 2.

³ It will be stipulated to bidders that any contract award will be conditional on receiving State Aid approval for the intervention.

A map of the procurement lots is available at Appendix II. This approach is aimed at maximising competition in the procurement and allowing smaller operators to bid while potentially realising savings for the Exchequer.

As the costs associated with deploying infrastructure can be extremely high, the re-use of existing infrastructure in the intervention area should minimise the cost to the State. All bidders will be required to comply with relevant laws and regulations relating to access to existing infrastructure that they own or control in the intervention area.

The Department will also expect relevant existing infrastructure to be shared where reasonable requests for access are made that are critical to the requester's bid. It will be important that such information is made available as soon as possible to ensure no one bidder has an unfair advantage in the procurement process. This is also a requirement under the EU State Aid Guidelines⁴ which state:

Since the reusability of existing infrastructure is one of the main determinants for the cost of broadband roll-out, Member States should encourage bidders to have recourse to any available existing infrastructure so as to avoid unnecessary and wasteful duplication of resources and to reduce the amount of public funding. Any operator which owns or controls infrastructure (irrespective of whether it is actually used) in the target area and which wishes to participate in the tender, should fulfil the following conditions: (i) to inform the aid granting authority and the NRA⁵ about that infrastructure during the public consultation, (ii) to provide all relevant information to other bidders at a point in time which would allow the latter to include such infrastructure in their bid. Member States should setup a national database on the availability of existing infrastructures that could be reused for broadband roll-out.⁶

⁴ EU Guidelines for the application of State Aid rules in relation to the rapid deployment of broadband networks (2013/C250/1)

⁵ National Regulatory Authority

The procurement will be for a 25 year contract with the first five years relating to build-out and embedding service delivery. Measures to ensure ongoing service provision beyond the lifetime of the contract will be considered. The continuous evolution of the regulatory regime should ensure that contract conditions which are critical to the competitive functioning of the market can be continued through robust regulation.

8.7 ENSURING THAT THE NETWORK DELIVERS

The ambition of the proposed intervention is to deal conclusively with outstanding high speed connectivity issues in areas where there is no certainty that the commercial sector will invest. The Public Spending Code obliges public sector bodies to ensure that contracts are managed and delivered to the specified standard, within budget and on time. Regardless of the ownership model, robust governance arrangements will be required in order to ensure that the service is delivered and evolves to continuously meet consumer demand over the duration of the contract, and beyond.

The governance of any contract(s) will include:

- Build-out milestones with claw-back mechanisms for the State for efficiencies/savings over and above those identified in any bid
- Linking Key Performance Indicators (KPIs) with service credits to compensate the contracting authority for underperformance
- Alignment with relevant regulatory mechanisms such as wholesale products, pricing, non-discrimination - etc. (see Section 8.2)
- A financial claw-back mechanism for the State for commercial profits over and above those envisaged in the winning tender

- A financial claw-back mechanism for any savings that are achieved, particularly during the construction phase of the project
- Termination and step-in clauses in the event of persistent sub-standard performance or issues of insolvency that may arise

To ensure alignment with best practice regulation, the governance arrangements will include measures to align with existing regulatory rules for the sector.

Measures to ensure that services continue, post-contract, will be a consideration in contract negotiations with the preferred bidder(s) where ownership is not retained by the State.

As the contracting authority, DCENR will lead, manage, enforce and be responsible for the overall management of the contract, including contract governance.

8.8 KEY FEATURES OF THE WHOLESALE NETWORK

What services can retail service providers expect from the wholesale company?

The intervention strategy envisages multiple retailers purchasing services from the wholesale network company and offering a range of high speed services to consumers. All retail service providers will have open access to the wholesale network to maximise retail competition. The terms and conditions of this access, including wholesale prices, will be monitored through the contract. A list of the required wholesale products which the wholesale operator would have to provide from the outset is specified in Section 5 of the updated Technical Report.

Retailers will not be permitted to use the network to offer broadband products to consumers that fall below the minimum broadband service outlined above until deployment of the network is completed and a 30Mbps service is available to all. This to stimulate demand for high speed broadband services from the start thereby reducing upfront and operational costs over the lifetime of the intervention. It is expected that this will reduce the level of funding required from the State. Overtime, this condition will potentially become less relevant as the availability of high speed broadband improves. This condition will be removed once all consumers have access to the minimum high speed broadband specification.

What other services can the wholesale network support?

Telecommunication infrastructures are capable of delivering a wide variety of consumer services and are not limited to providing broadband only services. The network should be utilised as much as possible in order to maximise value for money and reduce the cost to the State. Therefore, the wholesale operator will be permitted to provide other wholesale services such as voice, multicast (TV), machine to machine, leased line services, as long as this is provided on an open and equal basis, subject to such services not running contrary to the NBP objectives or giving rise to a need for more funding.

How can retailers be assured of equal access to the network?

Across the world, many telecoms companies operate at both a wholesale and retail level. Where a company has significant market power, regulators impose measures to reduce the risk of the wholesale company favouring its retail arm.

As the wholesale network or networks in the intervention area are likely to operate as a monopoly the contract with the winning bidder(s) will therefore include stringent

conditions to ensure equal access by all operators. These conditions include:

- Accounting separation between the wholesale and retail arms of any winning bidder(s)
- Marketing and branding for the company that builds out the network must be distinct and separate from its existing retail branding
- Retailers will have equal access to the network, defined in regulatory terms as "equivalence of inputs"
- A suite of contractual undertakings with the winning bidder(s) covering equality of pricing, equivalence of inputs, operational key performance indicators, performance incentives for wholesale only operations, service credit deductions for non-performance

Where the Government is not satisfied that there are sufficient safeguards around transparency and governance generally, the establishment of a separate limited company may be required. Any such requirement will be notified to bidders as part of the competitive dialogue process.

In addition to these safeguards, the updated intervention strategy sets out measures to ensure that smaller retail companies will have access to the network on fair and non-discriminatory terms. For example, small companies should not be unfairly disadvantaged due to their size and scale compared to larger companies. To this end:

- The winning bidder(s) will be required to demonstrate that all retail operators can interact with the company, regardless of size; and

- The winning bidder(s) will be required to publish a list of retailers who have been granted access to the service

Retail and wholesale services must be affordable

One of the key principles of the updated strategy is that the services to be delivered must be of similar speed and quality to those available in urban areas and towns. Also, prices including connection costs for existing premises, must be aligned with national prices for such services.

Where possible, prices are capped to the levels of the most comparable regulated prices outside of the intervention area. Where direct comparisons do not exist, the closest related regulated price should be used with adjustments for relevant cost differences.

Further details on wholesale access products are contained in Section 5 of the updated Technical Report and details on pricing are contained in Section 8 of the updated Broadband Strategy for Ireland Report.

8.9 TIME FRAMES FOR THE ROLLOUT OF THE NETWORK

Despite representing only 30% of addresses in Ireland, the intervention area currently covers 96% of the land area of the country, and covers the equivalent of 100,000km of road. Ensuring access to high speed future proofed broadband services in such an area therefore represents a significant logistical and financial challenge.

Notwithstanding this, intensive engagement with industry stakeholders has indicated that the network could be rolled out within 3 – 5 years of the contract award to a winning bidder(s).

The Government is determined to ensure that the network is built out as quickly as possible and at minimum cost to meet the EU Digital Agenda Target of delivering a ubiquitous minimum 30Mbps service by 2020.

In this context, the intervention strategy sets out the following targets for build-out in the intervention area:

- 60% of addresses passed by 2018⁶; and
- All addresses passed by 2020

It is anticipated that the physical build of the network will commence in 2016, once a contract with bidder(s) is in place.

The prospective bidder(s) are experts in network roll-out and offer different network architectures and technologies to deliver the network. Industry is best placed to determine the sequencing of the network deployment to maximise efficiencies during network build. The Department will engage with the winning bidder(s) on the optimum rollout strategy, having regard to priority business and consumer needs, including areas of particularly poor service, and areas of strong demand. The Department also reserves the right to require certain areas to be addressed as a priority. This will be discussed as part of the competitive dialogue process. These factors will need to be balanced against the most efficient network rollout and the technology being deployed.

8.10 TIME FRAMES FOR CONNECTING PREMISES

In order to meet consumer demand and expectations, the intervention strategy will impose connection time frames on the bidder(s) that deliver the wholesale open access network.

⁶ Combined with existing commercial investment, this will result in 85% of premises nationally being covered by 2018

The target service connection times will be set out as part of the procurement requirements. These targets will specify:

- a short connection time if the service is pre-ordered sufficiently in advance of the rollout so that it can be delivered during the deployment; and
- industry standard connection times for premises for whom orders are placed after the deployment is completed

While these will be the target timeframes, bidder(s) will be invited to propose more demanding connection times in their bids.

As part of the governance arrangements that will be put in place, service credits will be imposed on the wholesale operator where these targets are missed.

Further details on connection time frames and service delivery are contained in the expert reports.

8.11 CONNECTING CONSUMERS - EXISTING AND NEW PREMISES

A key principal for connecting consumers is that prices are affordable. The Department will adopt the following approach in relation to consumer connections:

- Ideally, as many premises as possible will be connected during the deployment stage. This will serve a dual purpose of lowering connection costs and stimulating demand for services
- As part of the procurement process, bidders will be asked to outline their connection costs to premises. These may vary depending on whether a customer is connecting during or after deployment and could be subject to discounts for

early sign up. Typically however commercial operators build connection costs into their monthly retail offerings as part of customer contracts

- Bidders will be required to set out a standard wholesale connection cost for existing premises in their bids. Their required subsidy amount should incorporate the difference between the actual and standard connection costs recognising that some connection costs will be higher than the standard. Consumers in existing premises will pay no more than the standard connection charge set out in the bid of the successful bidder(s) regardless of the actual cost of connection

- New premises will be built in the intervention area over the lifetime of the proposed contract. Bidders will be asked to commit to providing high speed broadband services, on request, to all premises (new and existing). In exceptional circumstances the successful bidder(s) will be allowed to charge an excess connection charge for new premises built post-network rollout, depending on how far the premises are from the nearest connection point. This is the practice used in the provision of other utility services. Bidders will be required to provide a process and pricing regime for connecting new premises

8.12 AVAILABILITY OF SERVICE

A key principle of the updated strategy is that the network must pass all residential and business premises in the intervention area, and to connect premises on request during deployment. Passing a premises means that the network is built as close as possible to premises so that the final connection to the premises is as short as possible to meet minimal service delivery times.

8.13 DEMAND MEASURES

Customers in the intervention area stand to realise very significant economic benefits from the availability of high speed broadband⁷. The stronger the demand for services, the lower the likely cost of the intervention to the State which ultimately delivers better value for money to the Exchequer.

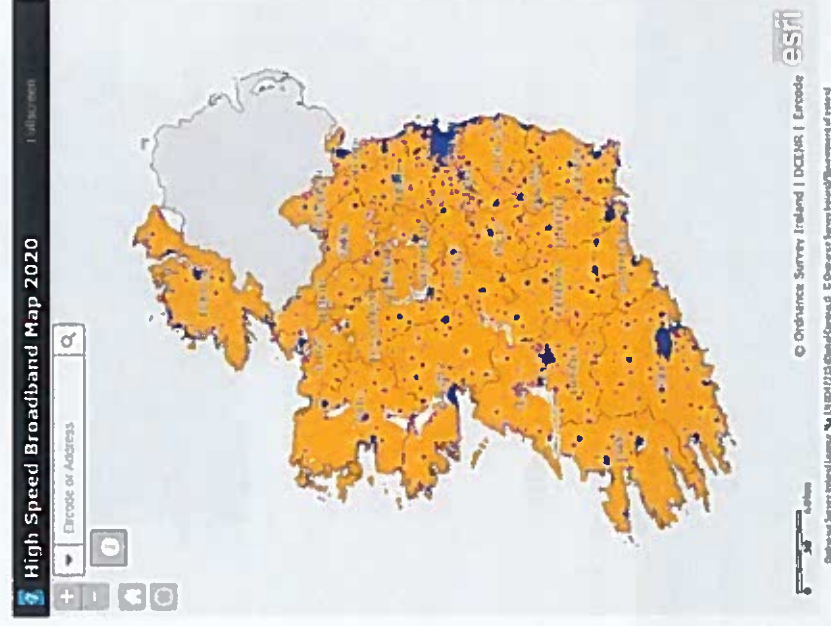
Ensuring strong demand for services is therefore proposed as an important principle underpinning this updated intervention strategy.

Bidder(s) will be required to:

- show how they intend to encourage early take-up and commit to such measures in their contract(s); and
- outline how they propose to engage with communities (both local and business) on the benefits of the network and its availability in their area

Appendix I High Speed Broadband Map 2020

This map can be accessed through www.broadband.ie. You can use your Eircode, address or townland to find out information relating to your premises and broadband coverage. You can look up an address to find its Eircode with the Eircode Finder tool which is available on our website.



9: Appendix I – High Speed Broadband Map 2020

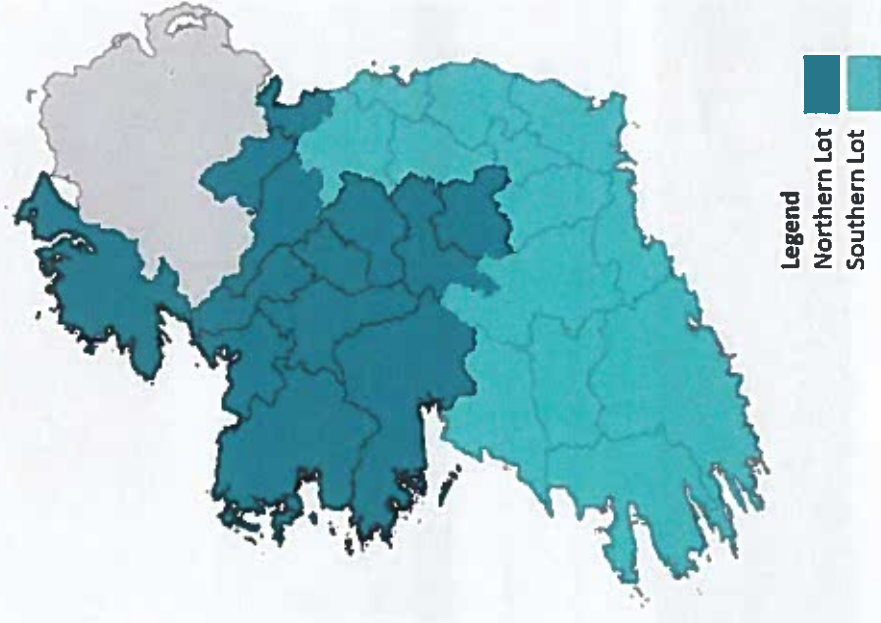
10: Appendix II – Map of Procurement Lots

10

Appendix II
Map of Procurement Lots

The map below shows the lots for procurement.

NBP Lots based on ERDF regions



Access network

The element of infrastructure that connects individual premises or groups of premises to the network

Address(es)

An address is a delivery point, i.e. a postal address used to enable the delivery of mail by An Post

Backhaul

In a hierarchical telecommunications network the backhaul portion of the network comprises the intermediate links between the core network and the access network that connects to end user premises

CBA

Cost Benefit Analysis

DCENR

The Department of Communications, Energy and Natural Resources

EC

European Commission

EIB

European Investment Bank

ERDF

European Regional Development Fund

ESRI

Economic and Social Research Institute

FTTH

Fibre to the home

11: Glossary of terms

FTTP

Fibre to the premises. Describes a network architecture where optical fibre is used to deliver connectivity right up to the end user premises

FWA

Fixed wireless access. Describes a type of network architecture where the final connection to the end user premise is made with a radio link

ICT

Information & Communications Technology

Intervention area

The areas of the country which will require State intervention to bring about the deployment of high speed broadband services

ISIF

Ireland Strategic Investment Fund

Jitter

The variation in the time, generally measured in milliseconds (ms), between packets arriving at a destination, which can be caused by network congestion, timing drift, or route changes. Low jitter is desirable for real-time services including voice, video and online gaming

KPI

Key performance indicators. A set of quantifiable measures used to measure or compare performance

Latency

The time it takes, generally measured in milliseconds (ms), for a source to send a packet of data to a receiver. The key causes of latency tend to be propagation delay, serialisation, data protocols, routing and switching, and queuing and buffering. Low latency is desirable for real-time services including voice, video and online gaming

Mbps

Megabits per second

NBP

National Broadband Plan

NDFA

National Development Finance Agency

NGA

Next Generation Access

Open access network

A network that allows third parties to make use of the infrastructure owner's network assets

Passive

Refers to network elements without an active electronic component. Typically comprises civil engineering infrastructure, ducts, dark fibre and street cabinets

PIM

Project Information Memorandum

PoH

Points of handover. A network element where another network can interconnect for the purposes of 'handing over' network traffic from one network to another

PoP

Points of presence. The point of interconnection between the access and core networks

PIP

Physical infrastructure provider

PQQ

Pre-Qualification Questionnaire

QoS

Quality of Service. A set of standards and mechanisms for ensuring a given quality of performance of services provided over the network

RSP

Retail service providers. Firms that sell retail products to end users. They do not necessarily have their own network infrastructure

SAG

State Aid Guidelines. The European Commission's document setting out guidance on the application of State Aid rules for the rapid deployment of broadband networks

SMEs

Small and medium sized enterprises

WNP

Wholesale network provider

Notes



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