



*Irish Rural Link*  
*Nasc Tuaithe na hÉireann*

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**THE GOOD, THE BAD & THE  
INADEQUATE:  
IRISH RURAL LINK'S EVALUATION OF  
THE NATIONAL BROADBAND  
SCHEME**

February 2009

## EXECUTIVE SUMMARY

Irish Rural Link (IRL) considers the National Broadband Scheme (NBS) announced by the Communications Minister Eamon Ryan on 22<sup>nd</sup> January 2009 as a welcome first step towards addressing the deep digital divide that exists between urban and rural Ireland. IRL has delayed on making an official response to the scheme until it has an opportunity to make this detailed evaluation, which has been informed by our own analysis, the experiences of our members and a meeting with Minister Ryan and Department of Energy, Communications and Natural Resources (DCENR) officials on the 29<sup>th</sup> January. Irish Rural Link is campaigning for the delivery of an efficient, future proofed, equitably priced broadband product for all rural areas. As part of IRL's engagement with the Department on this matter the DCENR has made comments on a draft of this document which are included here, *highlighted and in italics*. We also welcome comments and submissions from the public in an effort to ensure all rural homes and business can access essential high quality broadband.

- IRL accepts that the combination of a large, dispersed rural population, the sale of Eircom's fixed line business and EU rules on competition and Government interference in the marketplace presented a unique set of challenging circumstances for Government to address the broadband situation in rural areas.
- Irish Rural Link has a real concern that the proposed broadband solution is based almost solely on mobile broadband with ComReg questioning the reliability and capacity of mobile broadband technologies.
- Mobile broadband may be unable to support some of the tasks expected of it by rural dwellers including VoIP and gaming. Contention ratios are a known problem with the technology chosen.
- Up to 12,000 houses and business premises that cannot access any broadband are excluded from the NBS. According to the Department the NBS cannot serve these premises as they are already substantially served areas. To try to serve them would give rise to an unacceptable level of market distortion.
- Despite the Press Release stating "100% broadband coverage of the country by September 2010" this is not case. In reality the NBS will not ensure 100% of Irish people have access to broadband. Instead it means 100% of Ireland's geographical area will have theoretically some sort of broadband coverage but there are no guarantees that a household or business will have broadband of a certain speed or quality or at a reasonable price.
- The NBS will not provide the quality of internet to allow rural SMEs and tourism developments to participate in the web economy. The business customer will need faster speeds and more reliable technology.
- Contingency plans must be in place in the event of delays relating to planning permission for 160 required telecommunications masts.
- There must be a mechanism to ensure that broadband provision in rural areas is future proofed and of the highest possible standard to stem the widening of the digital divide between rural Ireland and both urban Ireland and the rest of the world.
- The NBS does not provide rural dwellers with the best possible access to broadband and representing the NBS as creating "100% coverage" that allows rural communities and business to breach the digital divide is misleading. The solution proposed by the NBS can only be considered as 'midband' and an interim solution towards the provision of true, high speed broadband to rural Ireland.

## INTRODUCTION: THE GOOD

Irish Rural Link became involved in trying to address the disadvantaged situation of rural areas regarding broadband because over the past number of years many rural community groups have been hugely frustrated by the failure to make broadband available in rural areas. However, they have also been frustrated by the apparent lack of a coherent leadership and 'voice' on rural broadband and ICT issues. The idea behind Connect Rural Ireland, an initiative of Irish Rural Link, was to give rural communities a vehicle to campaign on rural broadband and other rural ICT issues. At all times Irish Rural Link attempts to be neutral in its approach and consider a wide range of views with the ultimate aim of delivering an efficient, future proofed, equitably priced broadband product for all rural areas.

IRL accepts that the combination of a large, dispersed rural population and the sale of Eircom's fixed line business presented a unique set of challenging circumstances for Government to address the broadband situation in rural areas.

Following the conclusion of a competitive tendering process, the Department of Communications, Energy and Natural Resources has entered into a contract for the delivery of the NBS with 3 Ireland. 3 will extend its network to provide mobile wireless broadband services into the NBS area. Initially, the service is to have a minimum download speed of 1.2 mbps. Two upgrades of speeds are planned during the lifetime of the contract. These product upgrades are to be carried out at no cost to the customer. According to the Department's Press Release "Ireland will have 100% coverage by September 2010; half of the area under the scheme will be covered by the end of this year."

Any fixed residential or business customer located within the NBS coverage area can apply for broadband services from 3 Ireland. There are approximately 223,000 buildings located within the NBS coverage area, covering 1028 Electoral Divisions (EDs). The product provided by 3 Ireland will cost €19.99 per month with a connection fee of €49 which includes the cost of the necessary equipment. Wireless mobile broadband services will be provided in the NBS area with approximately 8% of areas receiving a satellite service. An uncharged monthly data cap of 15GB (12GB download and 3GB upload) will apply for the wireless product while 11GB (10GB download and 1GB upload) will be available for satellite users.

According to the Department subscribers can expect the following speeds at launch

<b>Wireless Mobile</b>	<b>Min (at cell edge)<sup>1</sup></b>	<b>Max (at cell centre)</b>
Download Speed	1.2Mbps <sup>2</sup>	5Mbps
Upload Speed	200kbps <sup>3</sup>	1.8Mbps
<b>Satellite</b>	<b>Min</b>	<b>Max</b>
Download Speed	1Mbps	1Mbps
Upload Speed	128kbps	128kbps

Two upgrades of the wireless product are planned by 3 in the coming years without any increase in the monthly recurring charge:

<b>July 2010</b>	<b>Min (at cell edge)</b>	<b>Max (at cell edge)</b>
Download Speed expected	1.6Mbps	6.8Mbps
Upload Speed expected	1.2Mbps	4Mbps
<b>October 2012</b>	<b>Min (at cell edge)</b>	<b>Max (at cell edge)</b>
Download Speed expected	2.3Mbps	10.4Mbps
Upload Speed expected	1.4Mbps	4.8Mbps

The schedule for roll-out is 21 months and the first services will be deployed in spring 2009. Announcing the scheme, Minister Ryan said, "For too long, rural Ireland has been without this essential service. Today's announcement is a boost for the rural economy. Now businesses throughout the country can have ready access to the national and international markets."

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Employment will be created and sustained. Quality of life will improve for rural residents and communities will be strengthened”.

From our meeting with the Minister and his officials it is clear that the Department is confident that the incentives and penalties in place are sufficient to ensure roll out and speeds will be as planned.

## ANALYSIS: THE BAD

### **Technological Limitations**

It is critical to ensure that the technology platform for the National Broadband Scheme is capable of delivering broadband of a quality and speed necessary to allow users access the new technologies and services that will be available in the coming years.

Irish Rural Link has a real concern that the proposed broadband solution is based almost solely on mobile broadband with ComReg questioning the reliability and capacity of mobile broadband technologies.<sup>4</sup> According to ComReg mobile broadband is suitable only for a specific group of customers that fit the following profile:

- Do not require a fixed telephone line
- Value mobility
- Do not require a high-end broadband service (in terms of speed and quality of service).
- Are not heavy internet users<sup>i</sup>

There is no reason to believe that those living in rural areas covered by the NBS (or those excluded by the NBS who still cannot get broadband) fit this profile more neatly than those in urban areas who have benefited from broadband to date.

This is a rapidly evolving sector and with the possibilities of new emerging technologies there must be a mechanism to ensure that broadband provision in rural areas is future proofed and of the highest possible standard to stem the widening of the digital divide between rural Ireland and both urban Ireland and the rest of the world.

### **DCENR's Comments:**

*The ComReg report refers to mobile broadband in a general way. While the 3 solution is provided using a mobile broadband technology their network has been designed and will be optimised to deliver broadband to specified fixed locations and as such is configured as a fixed broadband solution. This is particularly the case in those locations where the Nextivity Customer Premises Equipment will be deployed by 3.*

*3's network technology is a Nokia Siemens Network I-HSPA solution. I-HSPA (Internet High Speed Packet Access). It is an industry leading technology which allows operators to offer high quality broadband services in a highly cost efficient way. 3's network can also be upgraded to Long Term Evolution (LTE) which is the next step in mobile broadband technology.*

*The DCENR has assessed the solution and the design proposed by 3 with regard to the technology that will be deployed, the number of base stations that will be deployed and traffic that the network is expected to carry. The DCENR is satisfied that this network has been designed from the ground up to provide a quality of service to meet the broadband needs of 3's customers in the NBS Coverage Areas. The quality of the network is monitored for the duration of the contract and upgrades of the network and network equipment are automatically triggered when contractually agreed levels of traffic are exceeded – these*

<sup>i</sup> Commission for Communications Regulation (2008), *Consultation Document 08/41, Market Analysis: Wholesale Unbundled Access*, p. 23-24, available at <http://www.comreg.ie/fileupload/publications/ComReg0841.pdf>

*levels are set to ensure that the network is upgraded before traffic levels reach a level where quality degrades.*

Mobile broadband may be unable to support some of the tasks expected of it by rural dwellers (VoIP<sup>5</sup>/ games). Skype runs as a service on an IP. As such 3's network does not really see it as unique traffic. So if IP traffic is slow then Skype will be slow or un-attainable. 3's own Skype offering is a (additional) subscription service where 3 can prioritise and route '3 Skype' to ensure that it works.

Contention ratios<sup>6</sup> may be a problem with the technology chosen and the speeds promised and cannot be guaranteed because of the nature of the technology. (i.e. Wireless Broadband is designed as a Mobility Solution so additional Mobile Broadband Subscribers can easily move into and out of any area.).

***DCENR's Comments:***

*The network supports VoIP - 3 offers a VoIP service on its existing network using Skype and further information available at <http://www.3ireland.ie/on3/skype-faq.htm>*

*The contention ratios exceed those of the most commonly available broadband product in Ireland and will reduce further with each upgrade of the network. The contention ratios are monitored by the DCENR and thresholds are set to allow for upgrades in capacity to be triggered well in advance of minimum contention ratios being breached.*

*While it is true that mobile users cannot be controlled, in practice, mobile users adhere to well established and somewhat predictable usage patterns. Most mobile will be in buildings and the network has been designed to provide for multiple users in each building. In addition, buildings such as hotels, cafes and schools etc are factored into the design and will show up in capacity measurements.*

*3 are contractually obliged to address all contention issues.*

***NBS: When 100% does not mean 100%***

1<sup>st</sup> July 2008 was picked as the cut off point for deciding what areas were included in the NBS and which were not. The situation for many has changed since that date as, for example, some exchanges may have been enabled and still now qualify for the scheme.

Up to 12,000 houses and business premises are located in these EDs outside the NBS who cannot access any broadband and no provision has been made for their needs. This figure of 12,000 excludes households or businesses outside the NBS whose only broadband options are prohibitively expensive or of unsatisfactory quality. Satellite broadband is probably the only option for them, but at what price? There is no provision within the scheme to deal with this situation.

The Department make the following comments on the roll-out and design of the Scheme:

*The NBS will be rolled out on an electoral division basis and will address electoral divisions (EDs) that are without adequate broadband services.*

*In finalising the scope of the NBS, the Department wanted to reach as many unserved premises in Ireland as possible while minimising the impact of the scheme on businesses already providing broadband services in rural areas.*

*EU State Aid and competition rules govern how states can intervene in areas where there are existing service providers. The NBS (which was approved by the EU Commission) is prohibited from providing a service in served areas where to do so would give rise to an unacceptable level of market distortion.*

*After compiling existing broadband coverage maps in the State, the Department determined which EDs should be addressed by the NBS based on levels of the existing coverage in relevant EDs. Where an Electoral Division (ED) is completely unserved it is included in the National Broadband Scheme (NBS).*

*It was difficult to solve the issue of a partially served EDs and these areas were given very detailed consideration and a process to decide whether or not the scheme would address a partially served ED was designed. EDs that are substantially covered by an existing service provider are deemed to be served and thereby excluded from the NBS. Where an ED is not substantially covered, it will be addressed by the Scheme.*

*A number of premises (up to 12,000 homes and business) within already substantially covered areas (i.e. areas currently covered by a broadband service provider) may have difficulties for technical and other reasons (long lines, pair gains, no line of sight etc), in receiving a broadband service. The Department emphasise that that it is important to realise that a balance had to be struck between reaching as many unserved people as possible and minimising the impact of the scheme on service providers already operating in rural areas.*

*It is the Department's hope that, over time, as competition increases, service providers will be attracted to offer service, given that the surrounding area is already commercially viable for existing service providers.*

Following the launch of the NBS Irish Rural Link were very concerned with the details coming out and more particularly the fact that the Press Release, and features in almost all the national and local papers were repeating that there was going to be "100% broadband coverage of the country by September 2010" when this was not the case. In reality the NBS will not ensure 100% of Irish people have access to broadband. Instead it means 100% of Ireland's geographical area will have theoretically have some sort of broadband coverage but there are no guarantees that a household or business will have broadband of a certain speed or quality or at a reasonable price.

We have received correspondence from people who cannot get broadband currently because they live too far from an enabled exchange or their line quality is too poor and Eircom are refusing to upgrade the line. Others will be excluded from the NBS on the basis of the maps as the only broadband available in their area requires line of sight from a base station and this may be obstructed for a variety of reasons, e.g. topography, agricultural and other development, trees etc.

A number of IRL members have expressed frustration that the only alternative currently is satellite which is prohibitively expensive while nearby is covered by NBS and they will get either HSPA or satellite at a 'reasonable' charge. The NBS will do nothing for those who live in those areas that cannot get the service currently and will disadvantage them further.

We requested a meeting with Minister Ryan and his officials to clarify matters. At the meeting we received a lot of clarity regarding details of the scheme. More importantly we felt optimistic that the Department officials would be prepared to work with us to try to resolve some of the anomalies and particularly the situation for those people that are unfortunately in non-NBS EDs, and still unable to receive broadband. However it was made clear to us that the Government were always going to be constrained by EU law relating to interference with the market in any attempt to facilitate the delivery of broadband to rural areas.

### **SMEs and Tourism**

The demands and expectations of the Small and Medium Enterprise/tourist sectors in rural areas are not adequately dealt with in the NBS. The business customer will need faster speeds and IRL are concerned that rural businesses will not be adequately serviced and this technology will not be adequate for a SME with 5-10 computers upwards.



It is disingenuous to suggest that the NBS will allow rural businesses to compete on a level footing with other businesses currently served by broadband in Ireland and beyond. This is a major concern in view of the competitive disadvantage rural businesses have suffered historically. The Government's vision for Ireland's future economic growth "Building Ireland's Smart Economy" (2008) aims to build a "digital services export economy which will only require a high speed broadband network, a renewable electricity supply and our own ingenuity to succeed". Rural Ireland's ability to contribute to this smart economy is severely constrained by the lack of broadband and IRL do not believe the NBS will allow rural SMEs fully realise their potential.

***DCENR's Comments:***

*The 1.2 Mbps product is the minimum speed available and is comparable to what is currently available in the marketplace in urban areas. Businesses can operate efficiently at this speed – sending and receiving emails and files, surfing the web, and updating their own websites. They will also be able to communicate speedily with the outside world which they currently cannot do.*

*The minimum speed will be considerably exceeded for customers located closer to the cell centre with average throughputs well in excess of the minimum. In practice, larger businesses will be located in villages and hamlets, which will more than likely be closer to cell centre rather than cell edge. Businesses can sign up to multiple connections.*

*Under the NBS contract terms, the NBS broadband products will be upgraded to higher specifications (speeds, contention and data caps) in July 2010 and October 2012 without any increase in the monthly recurring charge.*

*Independent testing of the service is something that the DCENR supports and encourages.*

The Department must consider an alternative programme aimed at the small business user (this may mean subsidising 2-way satellite) who need higher speeds than can be offered by the NBS.

***Planning Concerns***

390 telecommunications masts will be required to deliver the service promised in the NBS. 230 of these are already in place but may require upgrading. Despite assurances from the Department that much of the infrastructure is already in place legitimate local concerns regarding the location of the remaining 160 masts may delay the roll out of the scheme and contingency plans must be put in place to allow for this.

***DCENR's Comments:***

*3 is contractually obliged to deliver the sites (including obtaining the necessary planning permission) within specified timeframes. The DCENR has examined in detail 3's rollout plan and is satisfied with the adequacy of 3's experience, processes and mitigation steps in this regard.*

*However, the DCENR does recognise that obtaining planning permission continues to represent a risk to the project and any help or advice provided by IRL in this regard would be greatly appreciated.*

## CONCLUSION: THE COMPLETELY INADEQUATE?

The NBS does not provide rural dwellers with the best possible access to broadband and representing the NBS as creating “100% coverage” that allows rural communities and business to breach the digital divide is misleading. The solution proposed by the NBS can only be considered as ‘midband’ and an interim solution towards the provision of true broadband to rural Ireland.

Irish Rural Link are concerned that rural Ireland will be left behind in the “Knowledge Society Strategy” promised by the Government by mid-2009 as rural Ireland lacks the high speed broadband allowing rural areas to further Ireland’s enterprise, educational and environmental objectives. “Building Ireland’s Smart Economy” describes broadband as “a key enabling infrastructure for the knowledge-intensive services activities on which future prosperity will increasingly depend”. “Building Ireland’s Smart Economy” also outlines a number of supports for SMEs and reiterates the Government’s commitment to “continue to provide the best possible range of supports through these [public] agencies while removing barriers to business start-ups where they exist”.

“The Framework for a Pact for Stabilisation, Social Solidarity and Economic Renewal” agreed with the Social Partners in 2009 restates the importance of entrepreneurship and business start-ups to the changing Irish economy. IRL are of the opinion that rural based businesses and entrepreneurs cannot fully benefit from any supports or contribute to national prosperity if they are forced to make do with an inadequate rural broadband service. The NBS will not provide the quality of internet to allow rural SMEs and tourism developments participate in the web economy.

### ***DCENR’s Comments:***

*The Department is satisfied that the NBS will provide speeds comparable with products available in the market for urban area and greatly assist in bridging the digital divide.*

*Businesses currently without any broadband service will benefit by being able to send and receive emails and files, surf the web, and update their own websites. Under the NBS contract the broadband products will be upgraded to higher specifications (speeds, contention and data caps) in July 2010 and again in October 2012 without any increase in the monthly recurring charge.*

The opportunities broadband presents for reducing an individual’s carbon footprint, through the possibilities for teleworking, the ability to bank, shop etc. online cannot be fully realised with the broadband to be rolled out under the NBS.

### ***DCENR’s Comments:***

*The speeds and quality of broadband provided under the scheme allow individuals to telework, bank and shop online. Mobile broadband is used by many organisations today, particularly those with mobile workforces.*

In their meeting with IRL Minister Ryan and his officials outlined clearly the constraints they worked under in order to try and rectify the broadband situation for rural dwellers. EU State Aid and competition rules prevent the State from intervening in areas where there are existing service providers and the NBS is prohibited from providing a service in served areas where, in the Department’s words “to do so would give rise to an unacceptable level of market distortion”. Perhaps this explains how the scheme has evolved to what it is now. While the Department has drawn favourable comparisons with the Schools Broadband initiative for rural schools however we are aware of much dissatisfaction with the broadband being provided to many rural schools.

Irish Rural Link will be encouraging its members who avail of the NBS to perform regular tests with utilities such as [www.irishisptest.com](http://www.irishisptest.com) to ascertain whether the level of service provided is in line with the speeds announced.



More emphasis must be put on laying down passive infrastructure (e.g. civil engineering works such as ducts, and other network elements such as dark fibre<sup>7</sup> Indeed much dark fibre is already available and unused at present) including synergies with energy, transport and water networks. IRL believe these have been ignored in favour of a 'quick fix' solution.

**If you are a rural businessperson - or are aware of a Small or Medium rural Enterprise (SME) - which is being constrained by the lack of broadband and who are excluded from the NBS (or do not believe the NBS will deliver a service which meets their needs) please contact us. Also Irish Rural Link is hoping to hear from households who are outside the NBS who cannot access adequate broadband currently. Detailed maps, including individual county maps are available on the Department of Communications, Energy & Natural Resources website [www.dcenr.gov.ie/NBS](http://www.dcenr.gov.ie/NBS). Further information and an online checking facility are available at [www.three.ie/NBS](http://www.three.ie/NBS) .**

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## GLOSSARY

<sup>1</sup> **Cell:** A cell refers to the area covered by a given radio mast's radio coverage. Roughly speaking signal strength in a Cell reduces as you move from away from the mast signal strength reduces (you see fewer bars on your mobile phone for example and the quality of the call deteriorates (UMTS technology used in realising 3's solution can account for this to some degree). **Cell Edge:** The 'edge' of radio coverage for a given mast.

<sup>2</sup> **Mbps:** Mega bits per second. A measure of speed of data transfer capability over a given medium. Eg. A 3 Mbs Broadband DSL line offers (up to) 3 Mega bits per second data transfer speeds. Mega refers to 1,000,000.

<sup>3</sup> **Kbps:** Kilo bits per second. 1000 bits per second.

<sup>4</sup> **Mobile Broadband:** A Wireless High Speed Data Transfer Solution. This was designed as a Mobility Solution. Speeds, Quality and Latency are typically not as good as that of a Wired Solution. Wireless Broadband modems are typically either a Mobile (phone) handset or a Small USB device (similar to a USB Flash/Memory Key). These are the Mobile Broadband equivalents of the old Dial Up (56k) modems used on Computers in the past. Configuration of PC's in a home/business network will be required to share a Mobile Broadband Connection. It's not just plug and play to do this.

<sup>5</sup> **VoIP:** VoIP stands for Voice over Internet Protocol. It is another way of making phone calls. Skype is the most well know VoIP provider. VoIP is especially popular with long-distance calls to other people using VoIP. You can also use your VoIP service to make calls to landlines and mobiles, but this requires people to pay call costs to your VoIP provider. These are still lower than calling from a landline.

<sup>6</sup> **Contention:** Most broadband access services share a single connection path between many customers - this is referred to as contention. A contention ratio of 40:1 means that up to 40 customers are sharing the same connection. When usage is light, contention does not pose a problem. However, the quality of the connection can deteriorate if many customers use the connection at the same time. For example, if all 40 users are using a 1.2 mbps broadband service at the same time, your access speed is reduced to about 13kps. For example, the contention ratio may vary from 1:1 (i.e. you are guaranteed that you are the only person using the 1.2 mbps service) to 48:1 (i.e. up to 48 users may be sharing the same 1.2 mbps service at one time). Peak usage times can seem slower because of network congestion. When signing up for a broadband service, service providers will quote the contention rate for the service being provided. Contention is an issue with services such as ADSL, satellite and wireless broadband access.

<sup>7</sup> Fibre Optic Cable are strands of glass cable over which data can be transferred at very high speeds. **Dark Fibre** is Fibre Optic Cable that has been laid but not connected to anything/any network or subscriber(s).