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Working Document

Subject: Broadband lines in the EU: situation at 1 July 2012

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Explanatory note

The Commission has been publishing data on the number of broadband lines in the Member States gathered in the context of COCOM since 2003.

The COCOM broadband report has been expanded to keep up with the technological changes of this dynamic market, and now includes information also on mobile broadband and speeds, as well as on retail prices. The information on speeds is especially relevant now, since the broadband targets of the [Digital Agenda for Europe](#) are expressed in terms of speeds.

The report consists of:

- A 'Word' document with the analysis of the data collected from the relevant ministries and regulatory authorities and other broadband-related statistics published by the Commission (data on coverage, retail and wholesale prices and the broadband state aid cases)
- Two additional 'Excel' documents presenting the data tables
 - A document containing all the data for all Member States that allows to construct graphs on broadband lines by market share, technology and speed
 - A document that allows access to all data on a specific Member State and to easily construct graphs on its broadband market.

Broadband lines in the EU: situation at 1 July 2012

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1. Executive summary

- **95.7% of EU homes are already passed by at least one fixed broadband network.** 9.1 million homes still do not have fixed broadband coverage, more than 90% of which are in rural areas. Looking at wireless technologies, HSPA is available to 94.9%, while high capacity KA-band satellite broadband has full coverage in all but four EU Member States. This means **the EU is close to achieve the target of 100% coverage of at least basic quality of broadband by the end of 2013.**
- **Next Generation Access (NGA) technologies capable of providing at least 30 Mbps are available to half of EU homes. This means we are halfway to achieve the objective of making at least 30 Mbps broadband available to all homes by 2020.** At the same time, 35 million out of the 40 million rural homes are still waiting for NGA to arrive. Cable Docsis 3.0 is the most widespread NGA technology, covering 36.6% of homes at the end of 2011.
- **Only 2.5% of lines (about 2% of homes) feature speeds of 100 Mbps or above, as opposed to the Digital Agenda target of 50% of European households subscribing to at least 100 Mbps in 2020.** For the first time, more than half of all EU fixed broadband lines provide speeds equal to or higher than 10 Mbps.
- There are six EU Member States (Belgium, Cyprus, Luxembourg, the Netherlands, the UK and Malta), where all households have access to at least basic broadband. NGA is the most widespread in the Netherlands, Malta and Belgium.
- **Fixed broadband take-up** (lines as a percentage of population) **grew only by 0.5 percentage points and reached 28.2% in July 2012.**
- The Netherlands (39.3%), Denmark (39.1%), France (35.8%) and Germany (33.9%) have the highest penetration rates of fixed broadband. On the other hand, there are four Member States below 20%: Romania (16%), Bulgaria (17.7%), Slovakia (18.5%) and Poland (19.2%). The highest increase in take-up over the last twelve months was recorded in Latvia, Lithuania, Poland and Czech Republic.
- As for competition on the fixed broadband market, **the market share of incumbent operators stood at 42.6%** in July 2012 as opposed to 43.5% a year ago. New entrants had 77.4% of all net additions in the first half of 2012.
- **DSL remained the most common broadband technology with a market share of 74.6%** in the EU in July 2012. The share of this technology has been decreasing slightly (by 6.2 p.p. since January 2006). **Cable modem is the second most common fixed broadband technology with a stable market share of 17% in the EU.**
- **Next Generation Access technologies still have a low share in fixed broadband lines.** Despite a coverage of 50.1% of all households, **only 16% of EU fixed broadband lines are NGA.** NGA is most widely used in the Netherlands, Belgium and Malta, and remains marginal in Greece, Cyprus and Italy.
- **Broadband connections are getting faster, but ultrafast internet access is still rare in the EU.** Looking at headline speeds, only 12.1% of fixed broadband lines were at least 30 Mbps in July 2012, which corresponds to about 8% of homes.
- **Mobile broadband has been the fastest growing segment in the broadband market, although growth has slowed down in the last six months.** The penetration of large screen mobile broadband subscriptions (using dedicated data cards or USB

modems) increased to 8.8% (measured as mobile broadband SIM cards as a percentage of population) by July 2012. Looking at all active mobile broadband users (including smart phone users, too), mobile broadband penetration reached 47.8% in July 2012.

- There are more and more public funding schemes supporting broadband rollout in Europe. In 2012, the European Commission took 21 decisions regarding broadband projects involving public funding. **The total amount of broadband State aid approved in 2012 was approximately € 6.5 bn, which is more than three times higher than a year earlier.**

2. Broadband coverage¹

The [Digital Agenda for Europe](#) has set three targets related to broadband access, two of which refer to broadband coverage

- All homes should have access to broadband of at least a basic quality by 2013,
- All homes should have access to high-speed broadband of at least 30 Mbps by 2020.

At the end of 2011, DSL was the most widespread fixed broadband technology, with a coverage of 92.3% in Europe. Among fixed technologies, cable has the second largest footprint of 42%. Looking at mobile technologies, HSPA is available to 94.9% of European homes and LTE is emerging (8.4%). KA-band satellite broadband is available everywhere in all but 4 Member States (Estonia, Latvia, Lithuania and Sweden). Looking at high-speed broadband technologies capable of at least 30 Mbps download, Docsis 3.0 cable has by far the highest coverage of 36.6% followed by VDSL (20.6%) and FTTP (11.5%).

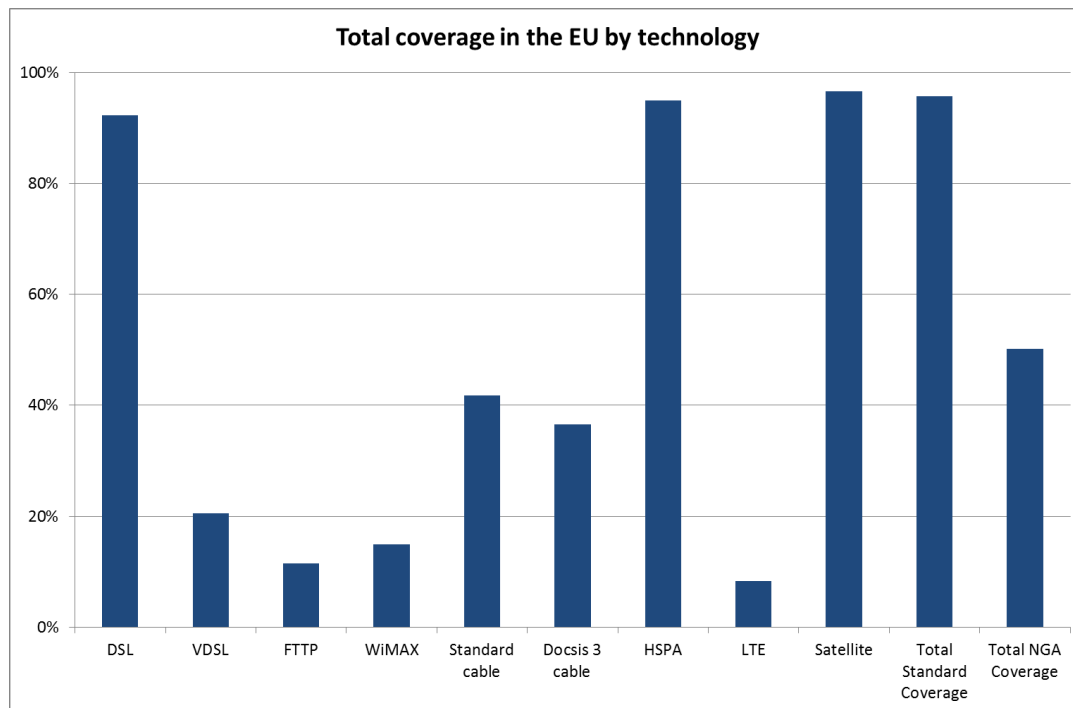
To monitor the progress towards the above targets of the Digital Agenda, two technology combination indicators were developed: standard broadband and NGA broadband.

- "Standard broadband" refers to the overall coverage of DSL (including VDSL), cable (including Docsis 3.0), WiMax and FTTP, and measures the progress towards the basic broadband for all coverage target,
- "NGA broadband" refers to the overall coverage of cable Docsis 3.0, VDSL and FTTP, and measures the progress towards the at least 30 Mbps broadband for all coverage target.

Standard broadband is available to 95.7% of homes leaving a gap of 9.1 million homes without access. At the same time, 50.1% of homes are already covered with (passed by) at least one NGA technology.

¹ This section has been drafted based on the study ["Broadband coverage in Europe in 2011"](#) by Point Topic.

Figure 1 Total broadband coverage in the EU by technology, end of 2011

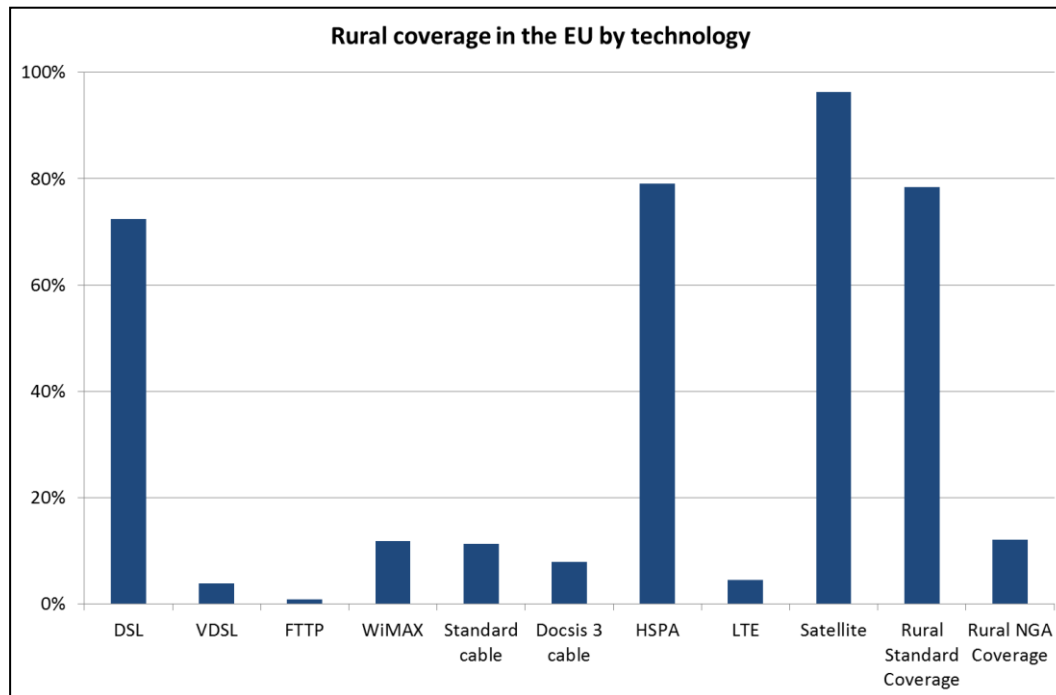


Source: Point Topic

Broadband coverage is significantly lower in rural areas (Figure 2). DSL is the most important fixed broadband technology also in rural areas, covering 72.4% of rural homes as opposed to 92.3% of all homes. DSL is followed by WiMax (11.8%) and cable (11.3%). In terms of wireless technologies, both satellite (96.3%) and HSPA (79.1%) exceed the rural coverage of DSL. NGA technologies have been deployed mainly in urban and sub-urban areas so far.

As for the technology combination measures, standard broadband is available to 78.4% of rural homes, while the same ratio for NGA broadband is only 12% (Figure 2).

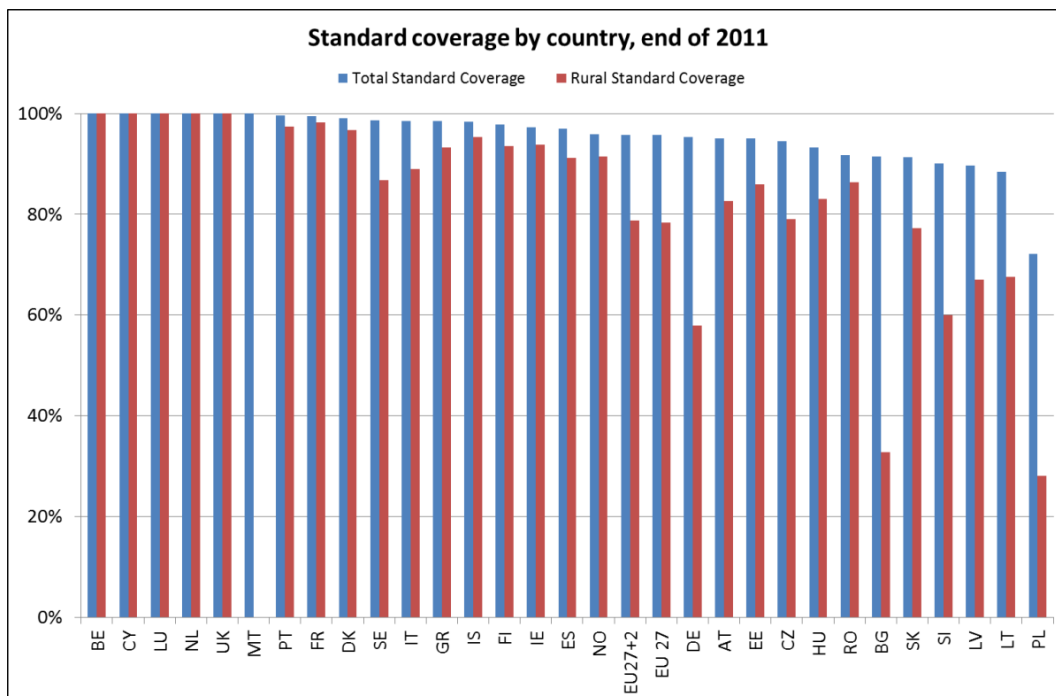
Figure 2 Rural broadband coverage in the EU by technology, end of 2011



Source: Point Topic

In Belgium, Cyprus, Luxemburg, the Netherlands, the UK and Malta all the homes are already covered by a fixed broadband technology (Figure 3). At the same time, more than 10% have no coverage in Poland, Lithuania and Latvia. In addition to that, rural standard broadband coverage is below 40% in Poland and Bulgaria.

Figure 3 Standard broadband coverage by country, end of 2011 *



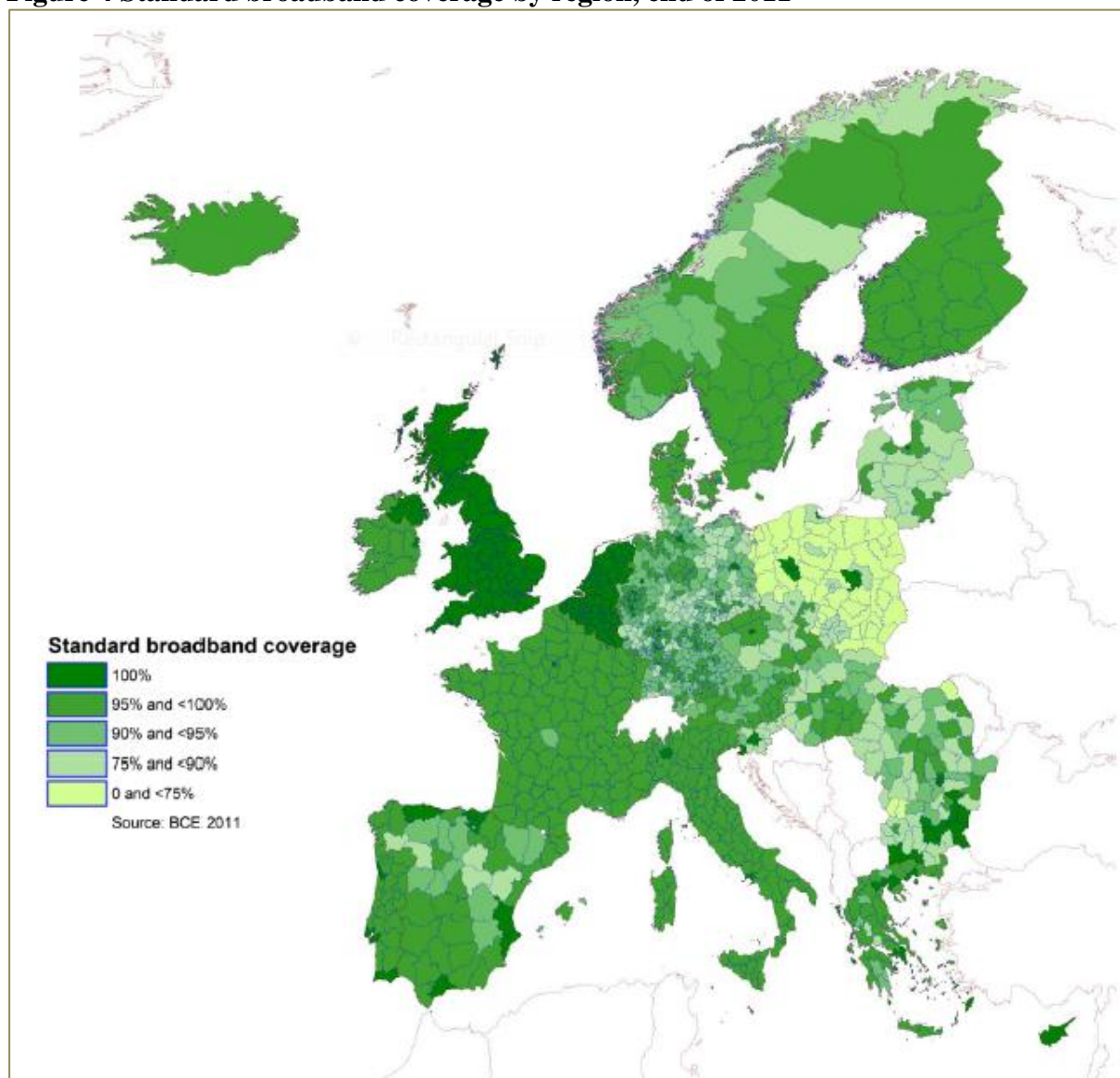
Source: Point Topic

* **Germany:** official definitions for broadband coverage are much more rigorous than those applied in most other countries. Germany publishes detailed statistics for broadband coverage based on the

availability of services providing a minimum of 1Mbps download speed. **Malta:** there are no rural areas.

As stated previously, 9.1 million homes in the EU are not covered by any standard broadband technology. More than 90% of these homes are in rural areas. Most of the homes lacking fixed broadband coverage are located in Poland.

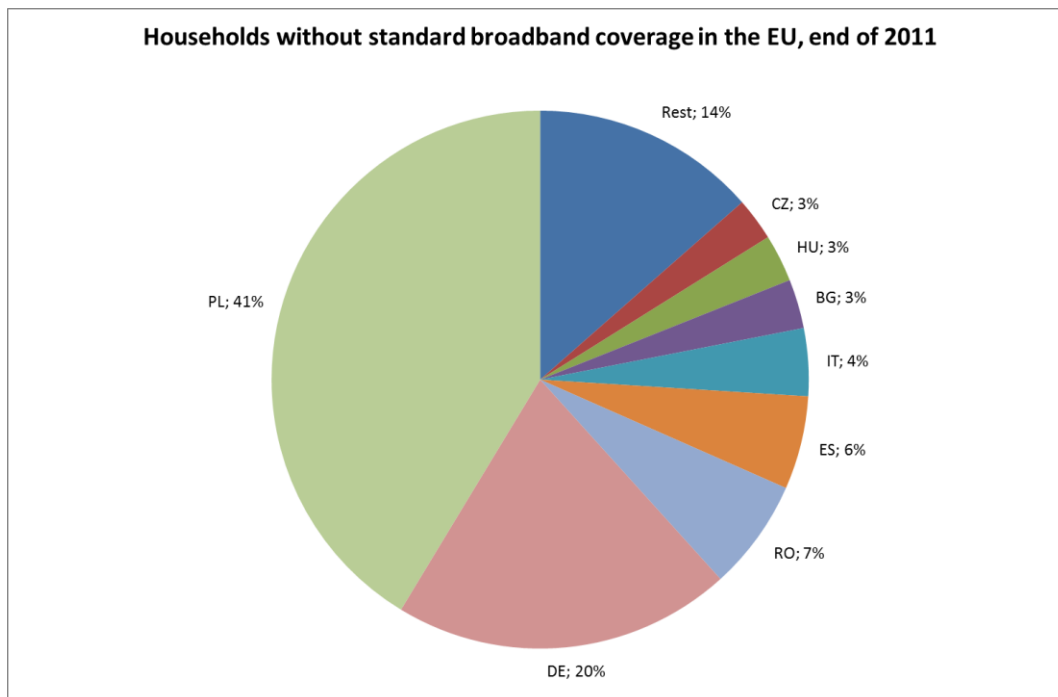
Figure 4 Standard broadband coverage by region, end of 2011*



Source: Point Topic

* Germany's official definitions for broadband coverage are much more rigorous than those applied in most other countries. Germany publishes detailed statistics for broadband coverage based on the availability of services providing a minimum of 1Mbps download speed, whereas other Member States report on a lower threshold (144 kbps).

Figure 5: Households without standard broadband coverage in the EU, end of 2011*



EC services based on Point Topic

** Germany's official definitions for broadband coverage are much more rigorous (minimum 1 Mbps download) than those applied in most of the other Member States.*

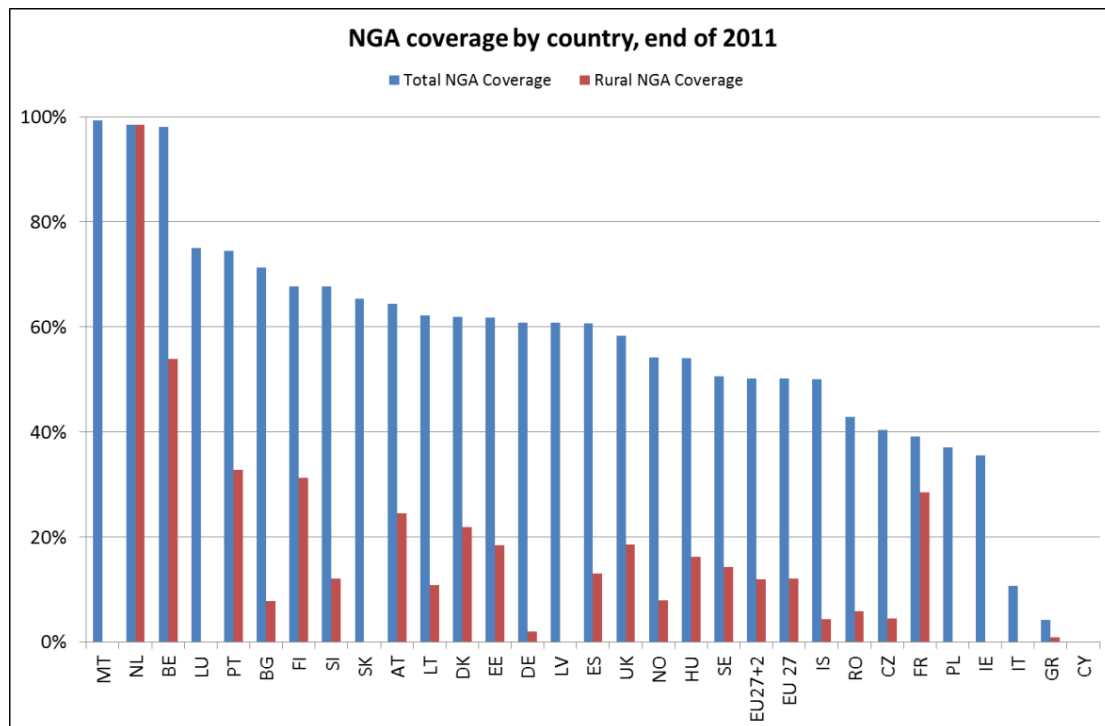
In terms of NGA coverage, the Netherlands, Malta and Belgium are the best performing Member States mainly because of the very wide availability of both cable Docsis 3.0 and VDSL. At the other end of the list, Cyprus, Italy and Greece have very low NGA coverage.

FTTH networks currently cover only 11.5% of EU homes. Five EU Member states have less than 1% coverage (UK, Belgium, Cyprus, Malta and Greece), while FTTH covers more than 50% of homes in Latvia (60.8%), Lithuania (59.4%) and Slovakia (57%).

NGA networks mainly cover urban areas: only 12% of rural EU homes have NGA, which translates into 5 million homes out of the 40 million rural homes in the EU. No homes in rural areas can yet subscribe to NGA in Luxemburg, Cyprus, Ireland, Italy, Slovakia, Latvia and Poland.

The country level analysis shows that Member States are much more homogenous in standard broadband coverage, whereas in NGA very high variations can be observed. The differences between total and rural coverage are also much more significant in NGA.

Figure 6 NGA coverage by country, end of 2011



Source: Point Topic

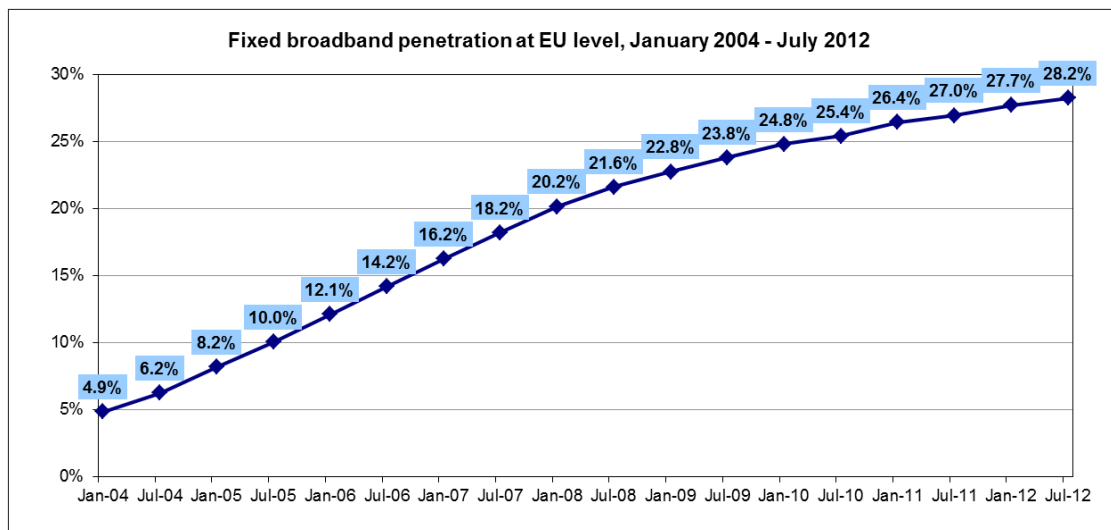
* NL: NGA coverage refers to, Docsis 3.0. MT: there are no rural areas.

3. Fixed broadband take-up

In this report the term fixed broadband penetration refers to the number of broadband subscriptions as a percentage of population². Fixed broadband penetration continued to increase during the first half of 2012, but it grew at a very low rate (only 0.5 p.p. compared to January 2012 and 1.3 p.p. increase year-on-year). Penetration reached 28.2% in July 2012, meaning that there is still room for improvement since full penetration would correspond approximately to 40-45 lines per 100 inhabitants³. Figure 8 shows that the number of added lines per day stood at 16,703, which is 72% lower than the highest recorded growth in January 2006, but also 47% lower than three years ago.

The take-up of fixed broadband is much lower than the coverage. In 2011, 67.3% of EU households had a fixed broadband subscription as opposed to the coverage rate of 95.7%⁴. This means that around 70% of those who could have a broadband subscription (i.e. living in areas covered by at least one network) actually have a subscription. Lack of interest and lack of skills are the principle reasons for not using the internet. 77% of non-users do not consider the cost of the subscription as the main reason for not subscribing.

Figure 7 Fixed broadband penetration at EU level, January 2004 – July 2012

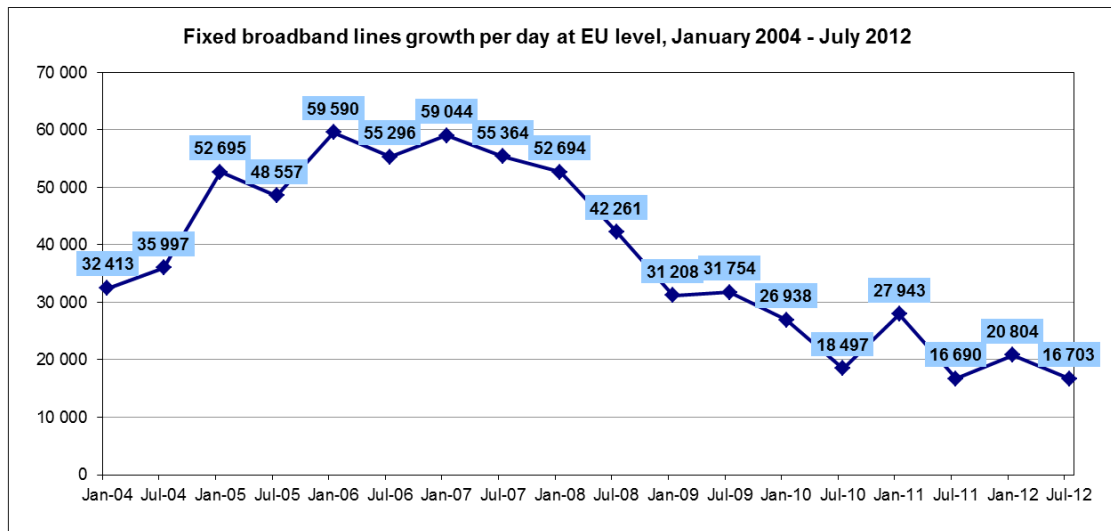


² Since the number of broadband lines include both business and residential lines, these data cannot be used directly to calculate household penetration

³ Considering that the current population penetration of 28.2% corresponds to 67.3% of homes

⁴ Source: Eurostat - Community survey on ICT usage in Households and by Individuals

Figure 8 Fixed broadband lines growth per day at the EU level, January 2004 – July 2012



Differences across Member States are some significant than in coverage. The Netherlands (39.3%), Denmark (39.1%) have by far the highest penetration rates (lines as a percentage of population), followed by France (35.8%) and Germany (33.9%). On the other hand, there are four Member states below 20%: Romania (16 %), Bulgaria (17.7%), Slovakia (18.5%) and Poland (19.2%). The gap between the best and the worst performing Member States is continuously decreasing; the coefficient of variation of penetration rates went down from 26.5% in July 2011 to 23.7% in July 2012.

In terms of penetration growth by Member State, there was an increase in all Member States in the last 12 months except for Austria, where mobile broadband often appears to be a substitute to fixed broadband. The highest increases were registered in Latvia (3.2 p.p.), Lithuania (3.2 p.p.), Poland (2.9 p.p.) and the Czech Republic (2.5 p.p.) over the last 12 months, all four still being below the EU average in penetration.

Figure 9 Basic and high-speed (30 Mbps and above) penetration, July 2012

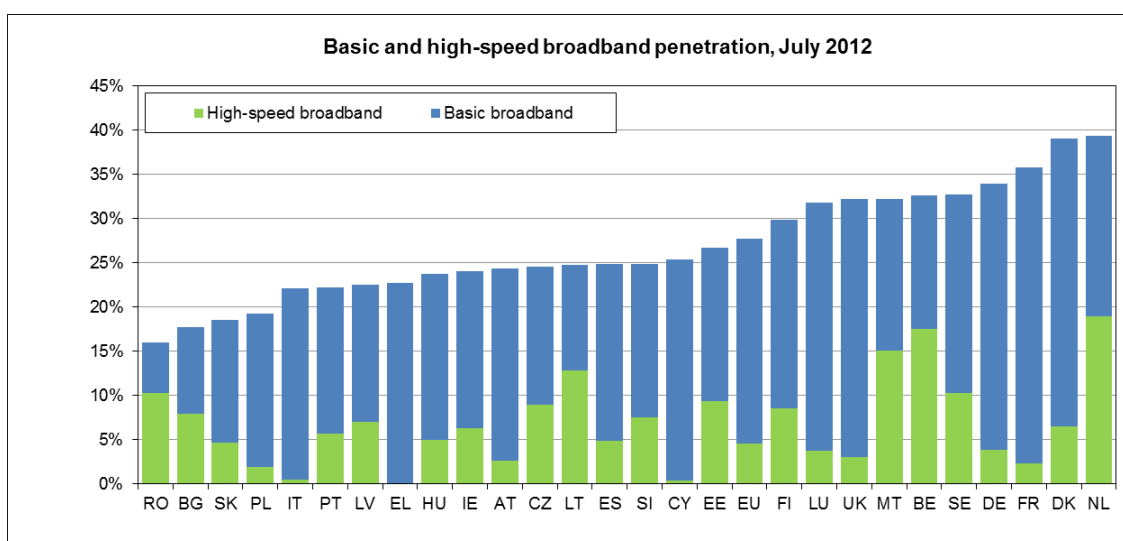
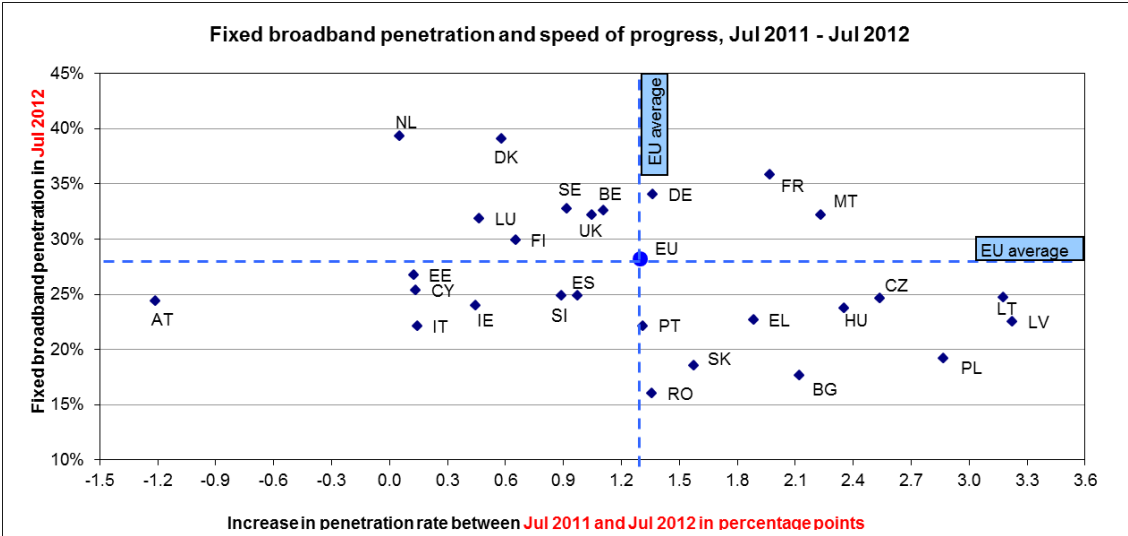
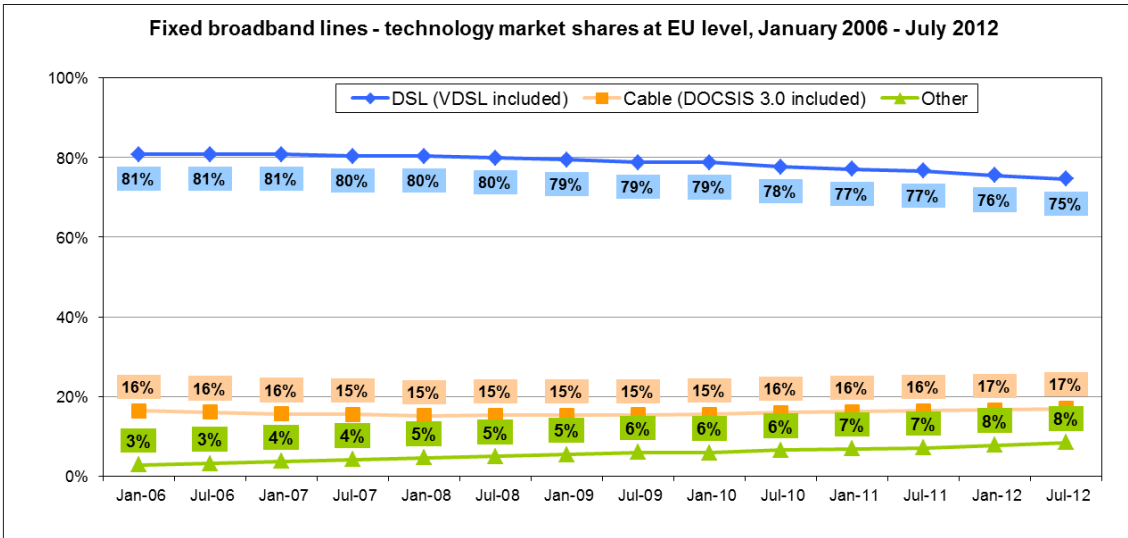


Figure 10 Fixed broadband penetration and speed of progress, July 2011 - July 2012



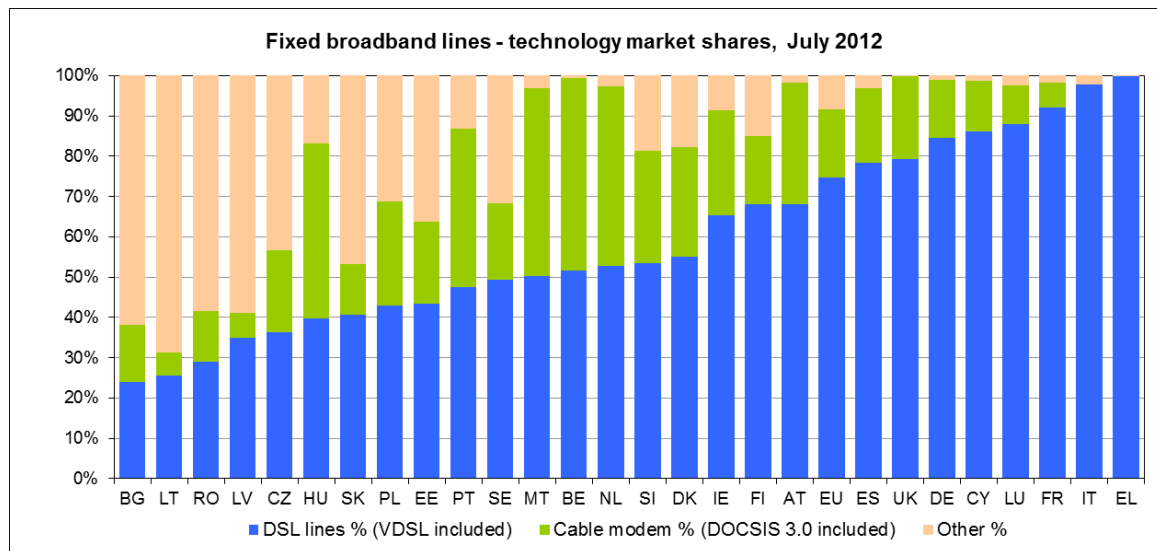
DSL remained the most common broadband technology with a market share of 74.6% in the EU in July 2012. The market share of DSL remained relatively stable over time with a decrease of 6.2 p.p. since January 2006. Cable broadband is the second largest technology in terms of take up with a market share of 17%. Other technologies registered an increase of 1.2 p.p. compared to July 2011 mainly thanks to the increase in FTTH and FTTB lines.

Figure 11 Fixed broadband lines – technology market shares at EU level, January 2006 - July 2012



The market share of DSL varies greatly among Member States from 24% in Romania to 100% in Greece. In 16 EU Member States, more than 50% of fixed broadband lines are DSL. Alternative technologies are more significant in Eastern European Member States (Figure 12).

Figure 12 Fixed broadband lines, technology market shares, July 2012



For the first time, growth in the DSL segment including VDSL (5,256) was lower than cable (5,423) and other technologies (6,024). Net additional in DSL has declined, while Cable has shown a relatively stable performance over the past 6 years.

Figure 13 Fixed broadband net adds by technology at EU level, January 2006 - July 2012

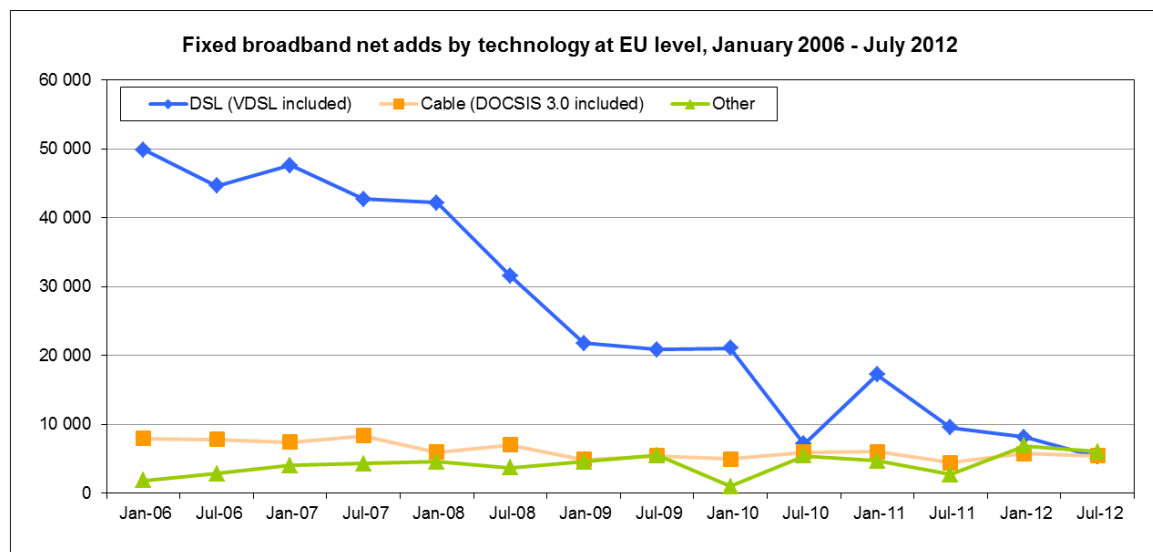
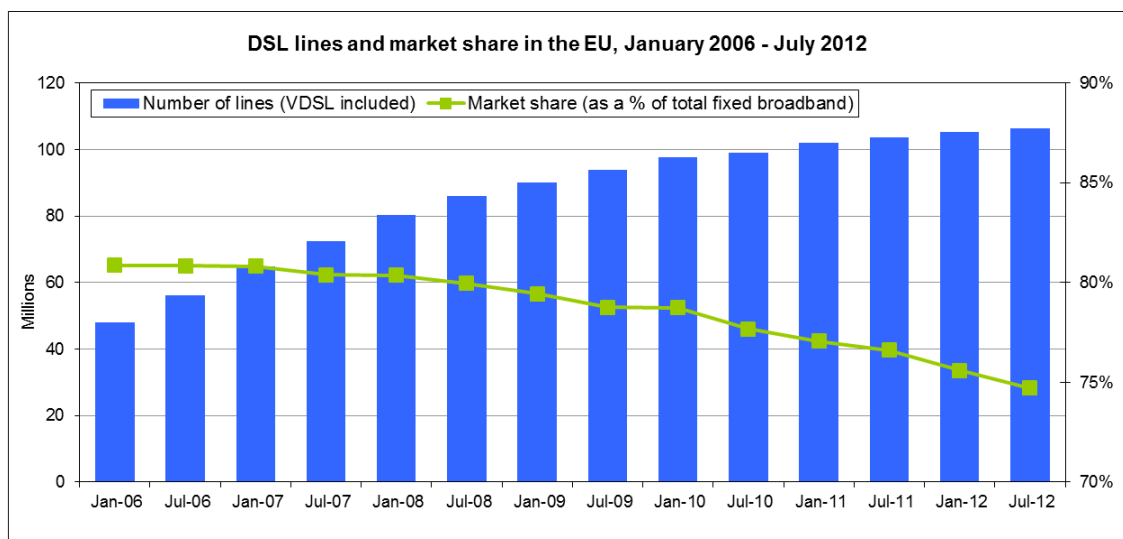
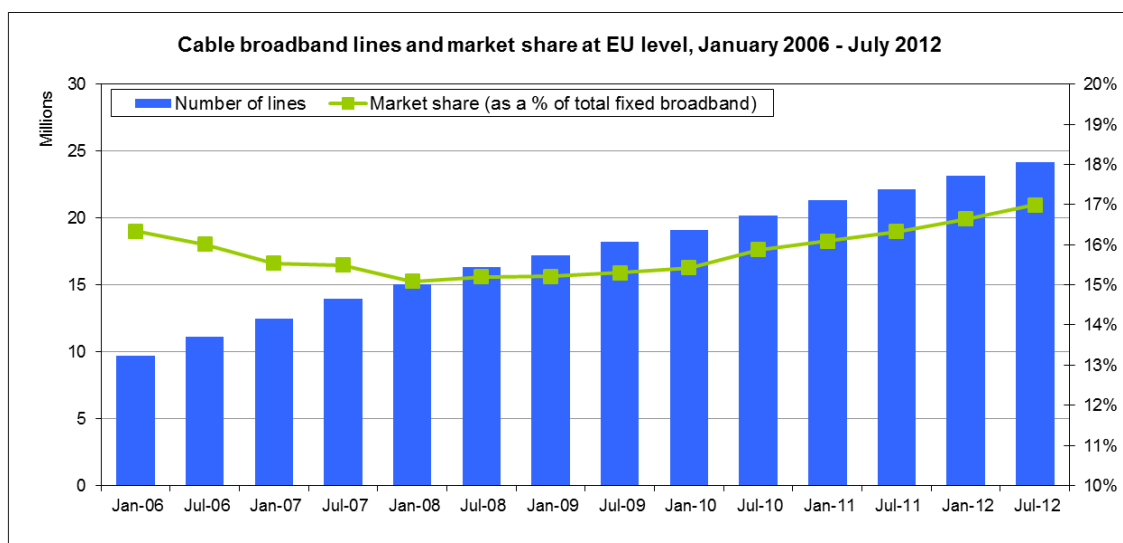


Figure 14 DSL lines and market growth in the EU, January 2006 - July 2012



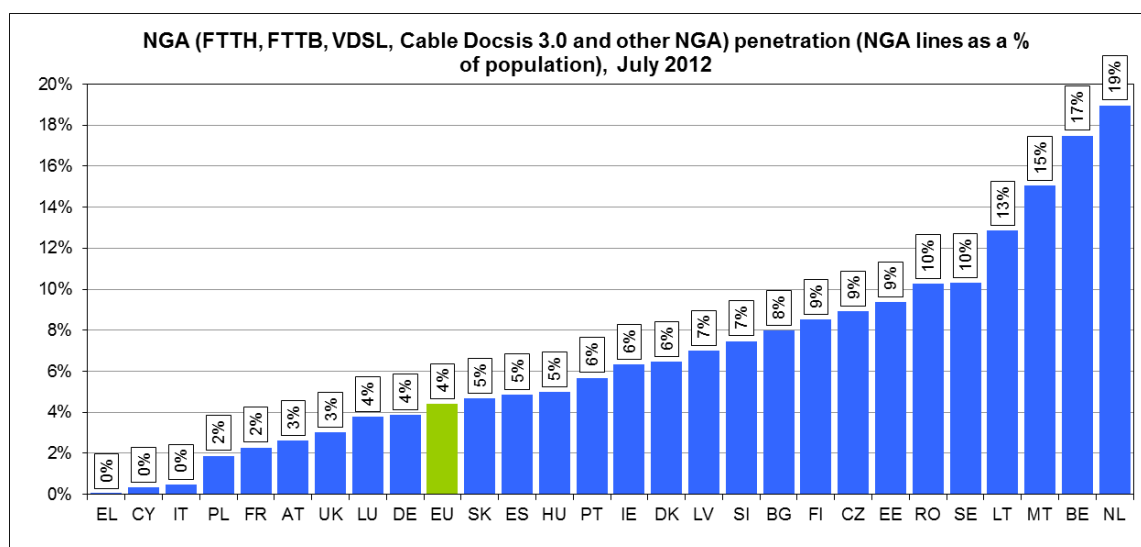
The cable broadband market share increased slightly over the past three years, reaching 17% of total fixed broadband lines in July 2012. Cable was a major competitor of DSL in Belgium (48%), Malta (47%), the Netherlands (44%) and Hungary (43%), where this technology represented almost half of fixed broadband lines market.

Figure 15 Cable broadband lines and market growth at EU level, January 2006 - July 2012



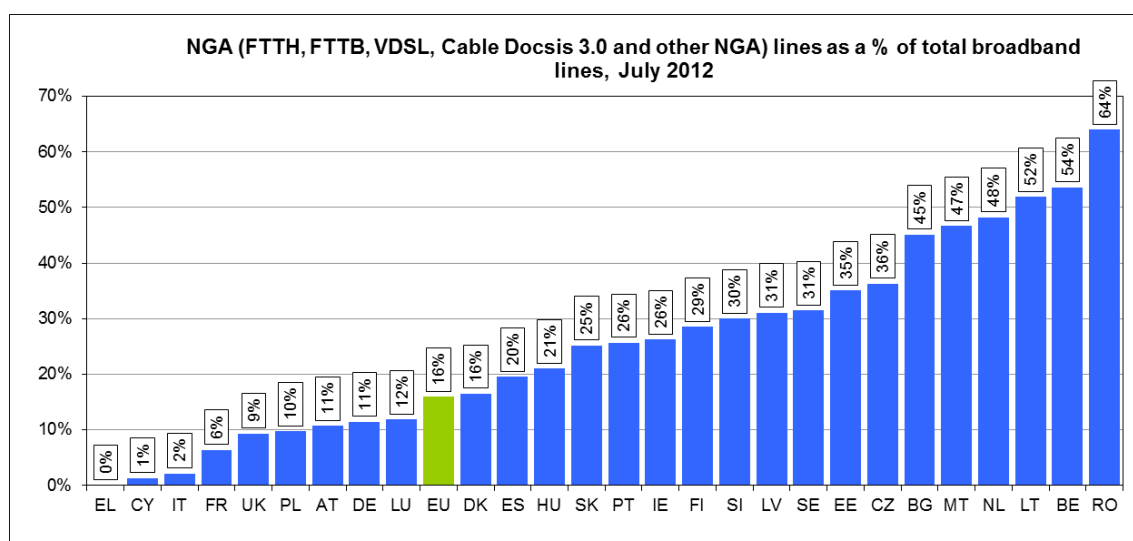
Regarding Next Generation Access technologies providing very high speed broadband, the EU average penetration rate is still low, reaching 4% in July 2012. In this report, FTTH, VDSL, Cable Docsis 3.0. and other NGA (any other technology capable of at least 30 Mbps download) are considered as NGA technologies. Different trends can be identified in terms of penetration behaviour: the Netherlands, Belgium, Malta and Lithuania registered a penetration rate above 10% of total population. On the other hand, NGA is marginal in Greece, Cyprus and Italy (Figure 16).

Figure 16 NGA penetration, July 2012⁵



The majority of fixed broadband lines are NGA in three Member States: Romania (64%), Belgium (54%) and Lithuania (52%) as opposed to an EU average of 16%. On the other hand, Cyprus, Italy, France and UK feature figures below 10%.

Figure 17 NGA lines as a % of total broadband lines, July 2012⁶

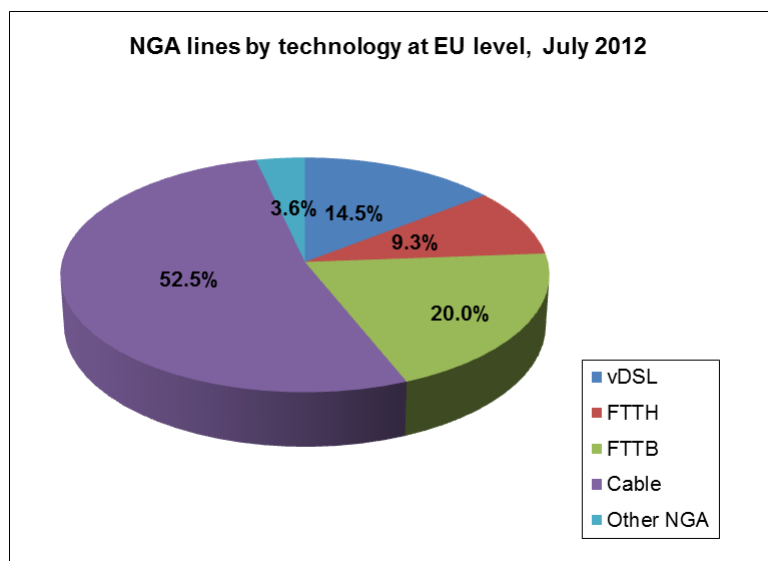


Cable technology has the largest NGA customer base; at EU level it represents 52.5% of NGA lines. FTTB is the second largest technology with 20% of NGA lines followed by VDSL with a share of 14.5%. FTTH takes a very low share of the market (9.3% of NGA lines and 1.5% of total EU fixed broadband lines).

⁵ For BE, FR and LV, NGA penetration is calculated as the penetration of at least 30 Mbps lines

⁶ For BE, FR and LV, the percentage of lines of at least 30 Mbps is given

Figure 18 NGA lines (take-up) by technology, July 2012



4. Fixed broadband market shares

Market shares are calculated at the national level for the incumbent operators and new entrants. Broadband markets are geographically fragmented in many cases. This suggests that a large number of homes may be served by only one provider.

The average market share of incumbents (weighted on the number of broadband lines) in the EU has been slightly declining over the last three years. In July 2012, incumbents had 42.6% of the lines, which is 0.9 p.p. lower than a year ago.

Figure 19 Fixed broadband lines by operators at EU level, January 2006- July 2012

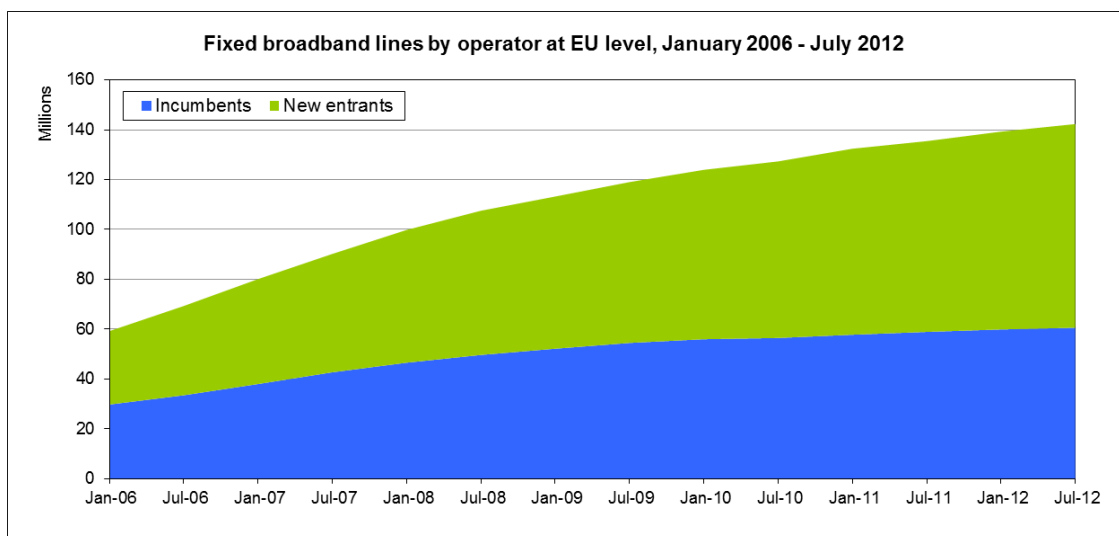
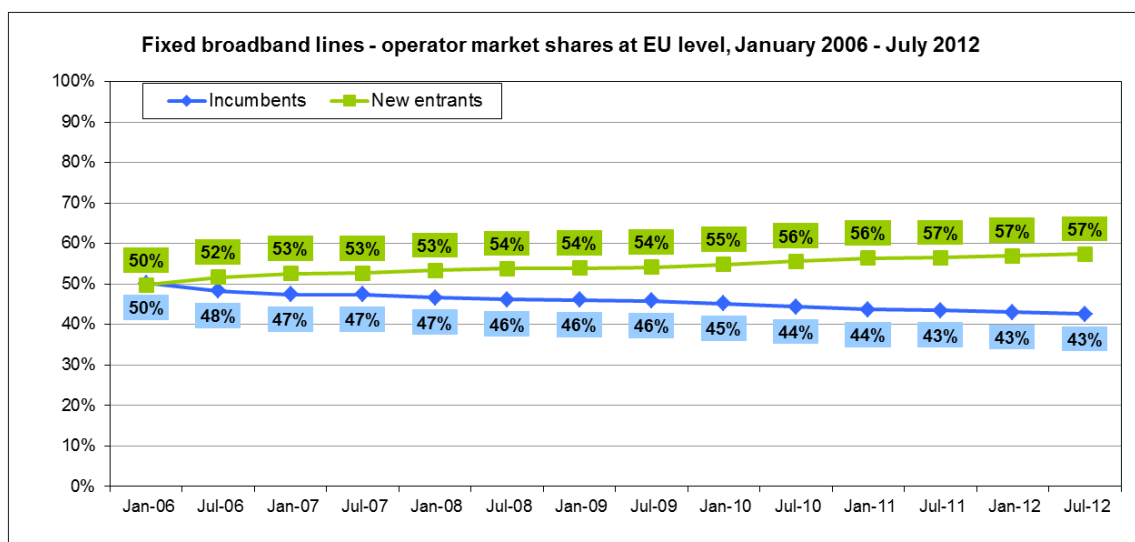
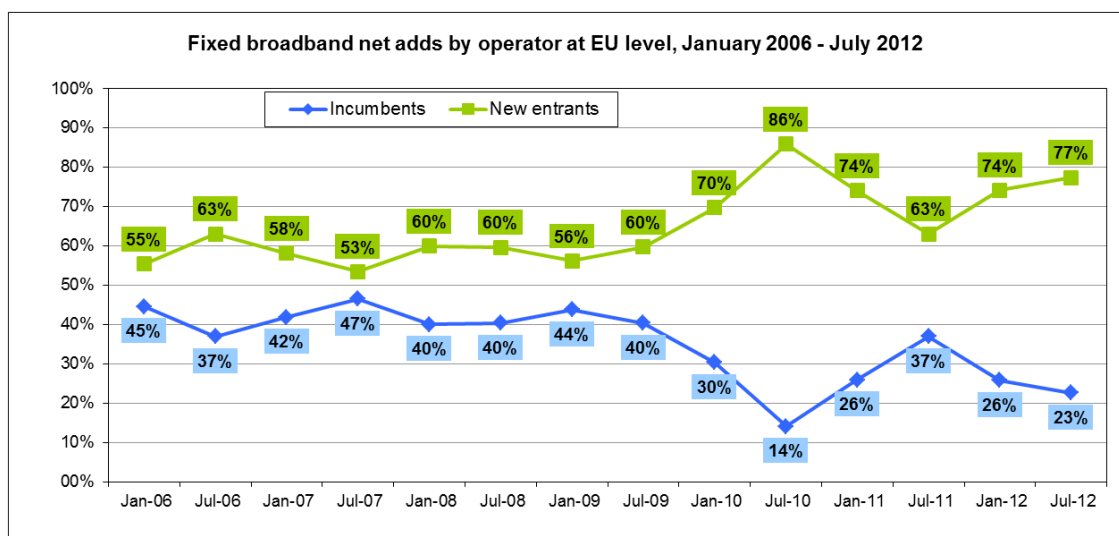


Figure 20 Fixed broadband lines – operator market shares at EU level, January 2006- July 2012



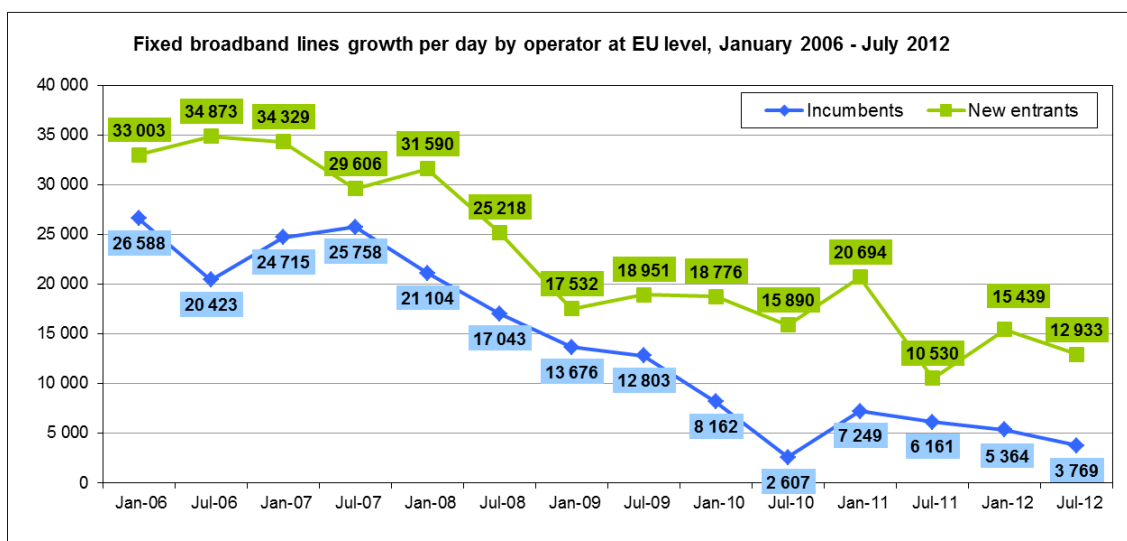
Despite that new entrants were responsible for 77.4% of net additions in the first half of 2012, it did not impact much on the market shares, because total net additions were very low.

Figure 21 New additions market share per day at EU level, January 2006 - July 2012⁷



Both incumbent and new entrant operators were confronted with decreasing figures in terms of lines growth per day. As a matter of fact, incumbents and new entrants reduced their growth levels by 29.7% and 16.2% respectively compared to January 2012.⁸

Figure 22 Fixed broadband lines growth per day by operator at EU level, January 2006 - July 2012

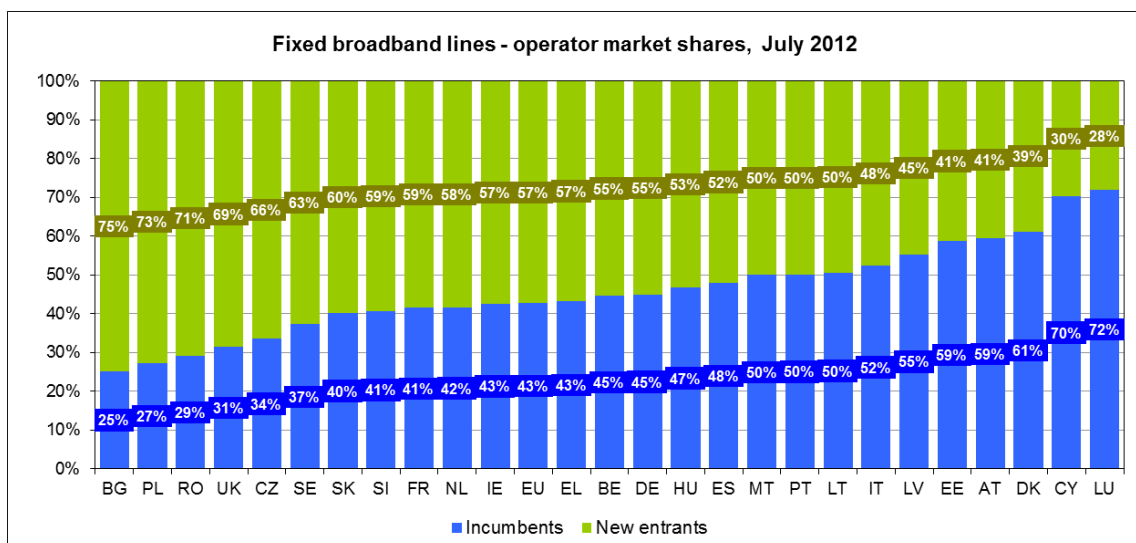


Looking at the Member State level, the market share of incumbent operators was the highest in Luxemburg (72%), Cyprus (70%) and Denmark (61%) and the lowest in the Bulgaria (25%), Poland (27%) and Romania (29%) (Figure 23).

⁷ The peak in July 2010 was due to a revision of the data series by some NRAs

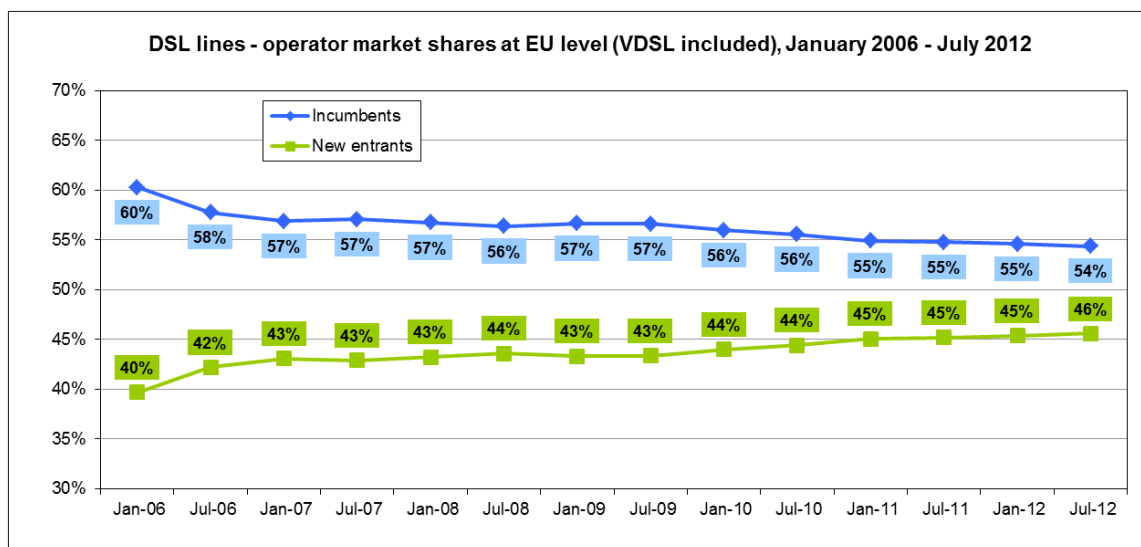
⁸ Due to the seasonality effect figures referring to the first half of the year tend to be lower than those of the second half of the year.

Figure 23 Fixed broadband lines – operator market shares, July 2012



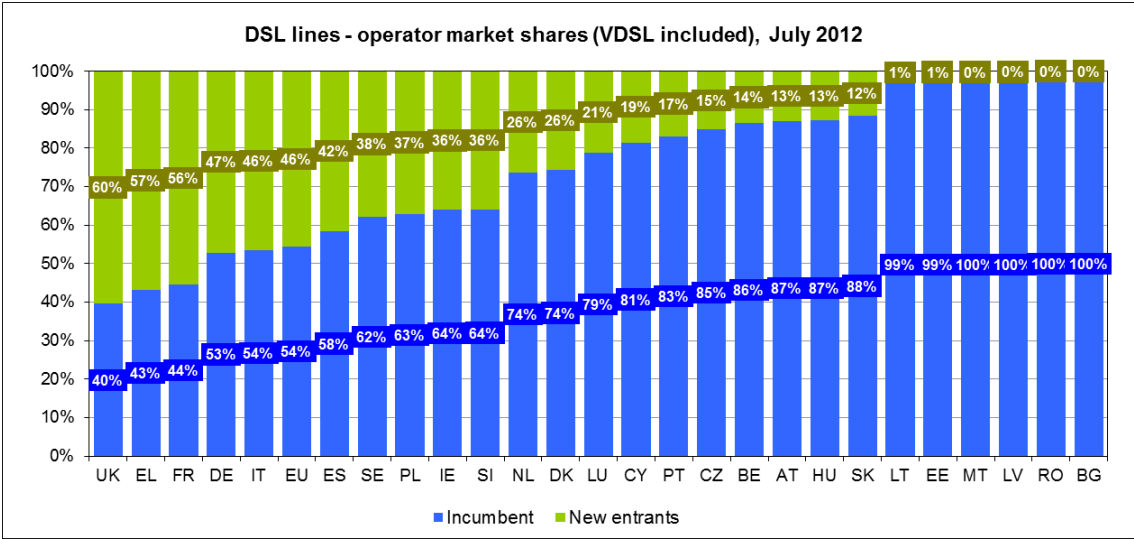
Looking at the DSL market, incumbent operators still have a share of more than 50% of subscriptions, reaching 54% in July 2012, which means a decrease of 1 p.p. compared to January 2012.

Figure 24 DSL lines – operators' market shares at EU level, January 2006 - July 2012



In Bulgaria, Romania, Latvia, Malta, Estonia and Lithuania there is virtually no competition in the DSL retail market. At the same time, in the UK, Greece and France, new entrants have the majority of DSL subscriptions (Figure 25).

Figure 25 DSL lines – operators' market shares, July 2012



Local Loop Unbundling (LLU) is currently the main form of access for new entrants in the DSL market. The share of unbundled lines (either full LLU or shared access) stood at 80.6% of new entrants DSL lines in July 2012. There has been a strong migration towards full LLU from the other access types.

Figure 26 New entrants' DSL lines by type of access at EU level, July 2012

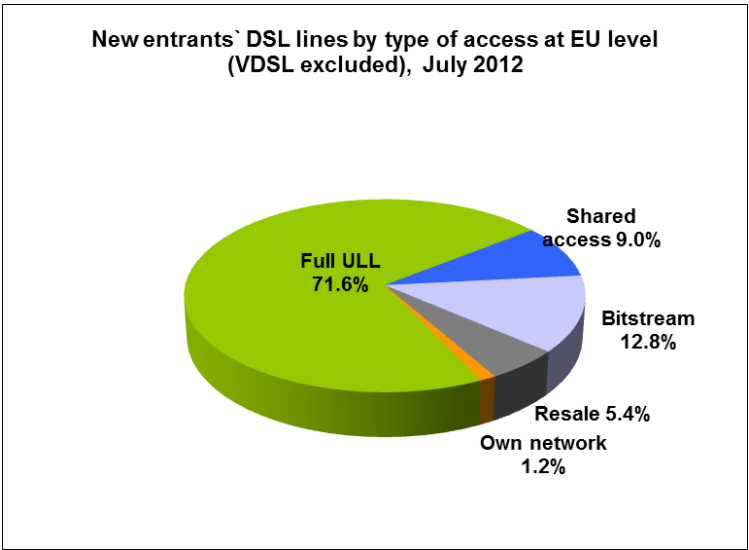
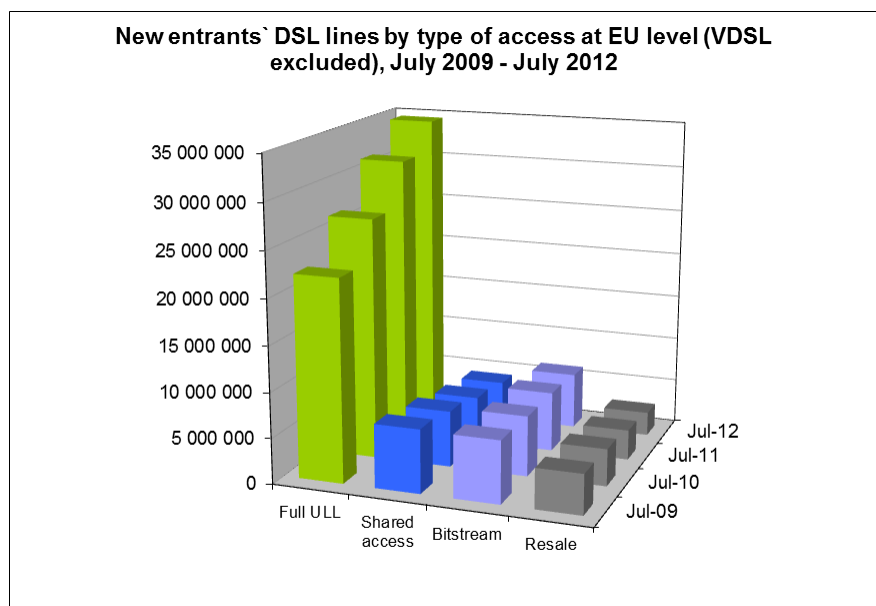
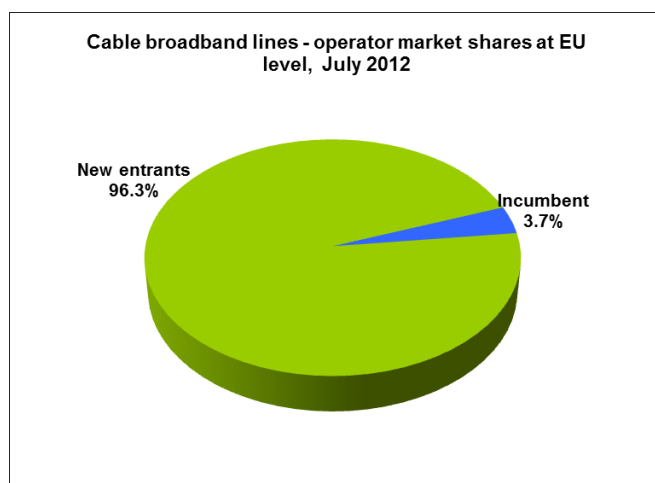


Figure 27 New entrants' DSL lines by type of access at EU level, July 2009 - July 2012



Cable modem broadband is almost exclusively provided on new entrants' networks. The only exceptions are Finland, Denmark and Hungary, where incumbent operators have a considerable presence on the cable market, with market shares of 100%, 65.2% and 23.5% respectively.

Figure 28 Cable broadband lines – operator market shares at EU level, July 2012



5. Fixed broadband speeds

This report presents the distribution of broadband lines by advertised headline speeds. The Commission has launched a study on measuring the actual broadband connection speeds. The first results of this study will be published in the first quarter of 2013.

In terms of headline speeds, as of July 2012, 56% of fixed broadband lines provided download speeds of 10 Mbps and above. On the other hand, only 5% of fixed broadband connections were below 2 Mbps download speed. There has been substantial progress in broadband speeds, as only 9% of lines were at least 10 Mbps in January 2008. This is the first time that more than half of all EU fixed broadband lines provided speeds equal or higher than 10 Mbps.

Figure 29 Fixed broadband lines by speed at EU level, January 2008 - July 2012

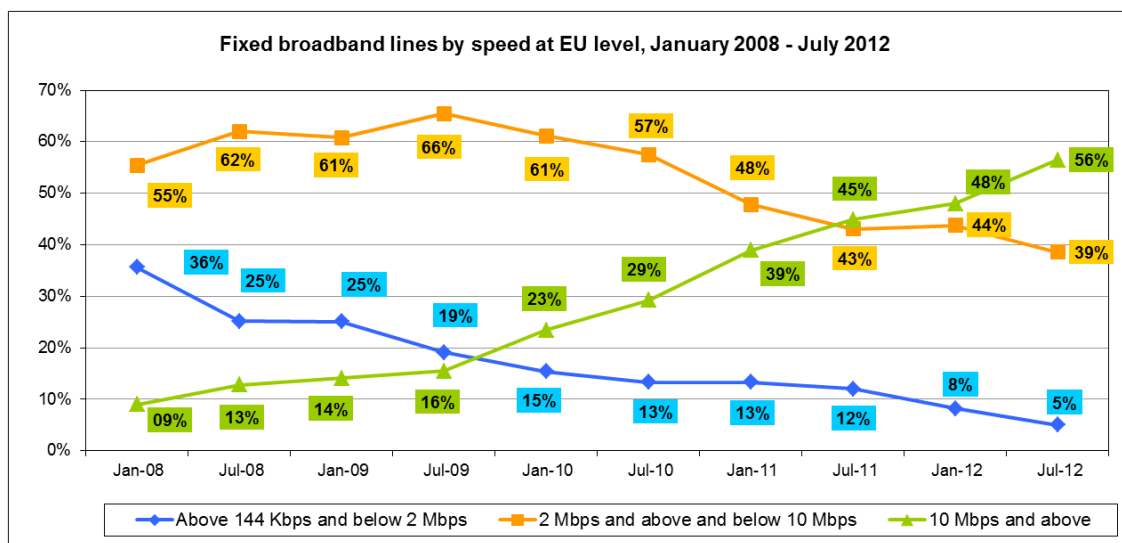
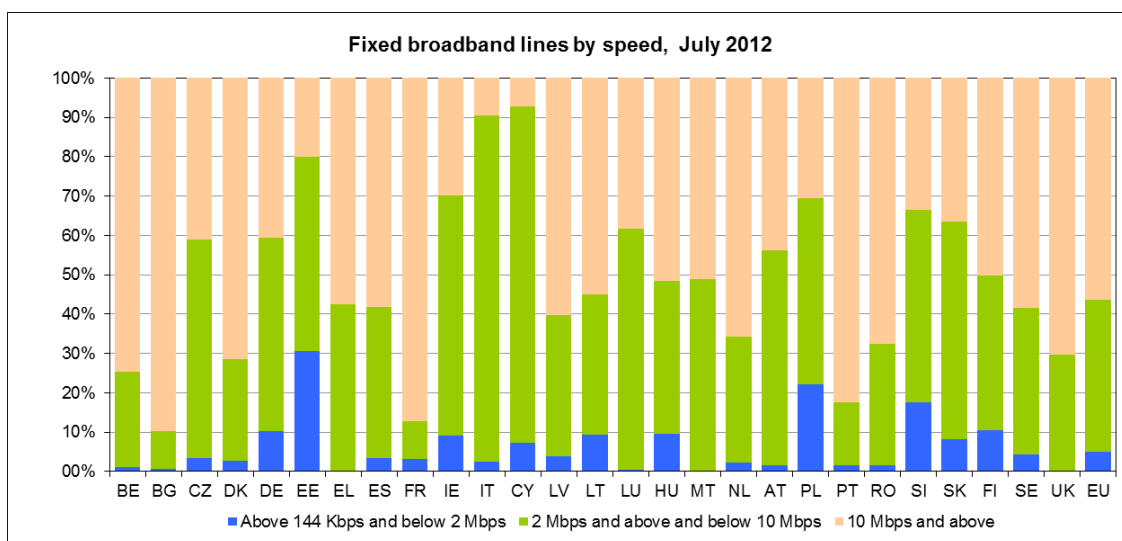
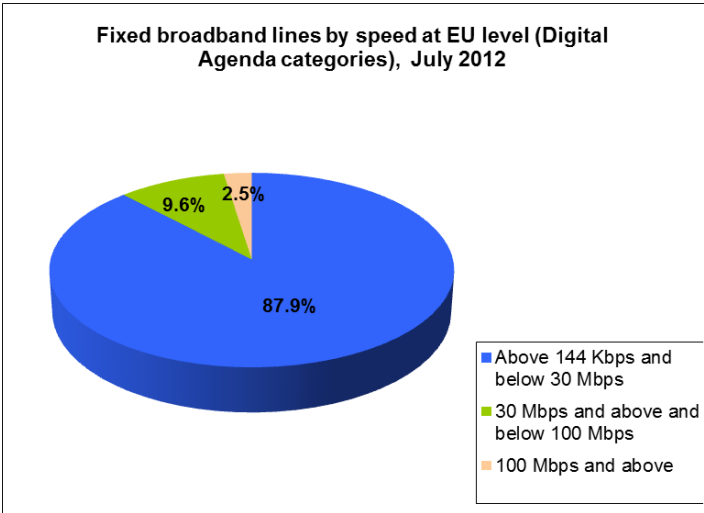


Figure 30 Fixed broadband lines by speed, July 2012



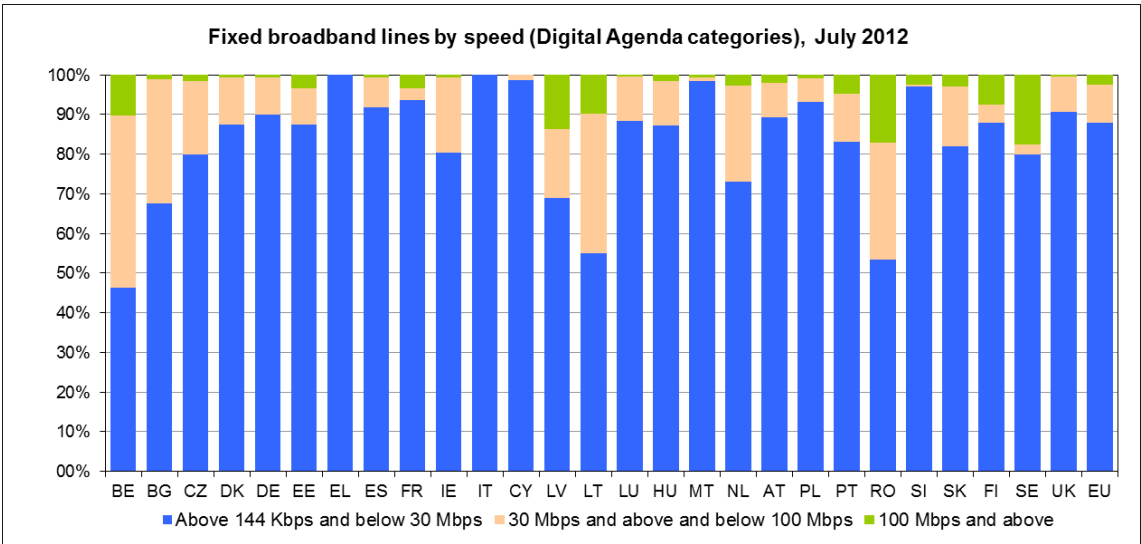
At the same time, the EU is still weak in very high speed broadband, despite the fact that the number of lines of at least 30 Mbps went up by 82% in the last twelve months. As of July 2012, only 12.1% of fixed broadband lines are at least 30 Mbps (download), and only 2.5% at least 100 Mbps (download). This also reveals that 26% of lines provided on NGA networks have less than 30 Mbps headline download speed.

Figure 31 Fixed broadband lines by speed at EU level (Digital Agenda categories), July 2012



Belgium, Lithuania, Bulgaria, Romania, and the Netherlands are the most advanced Member States in very high speed broadband with more than 20% of lines being at least 30 Mbps (download). In Belgium and the Netherlands, very high speed broadband is driven by strong infrastructure competition, while Lithuania, Bulgaria and Romania seem to be leapfrogging legacy broadband.

Figure 32 Fixed broadband lines by speed (Digital Agenda categories), July 2012



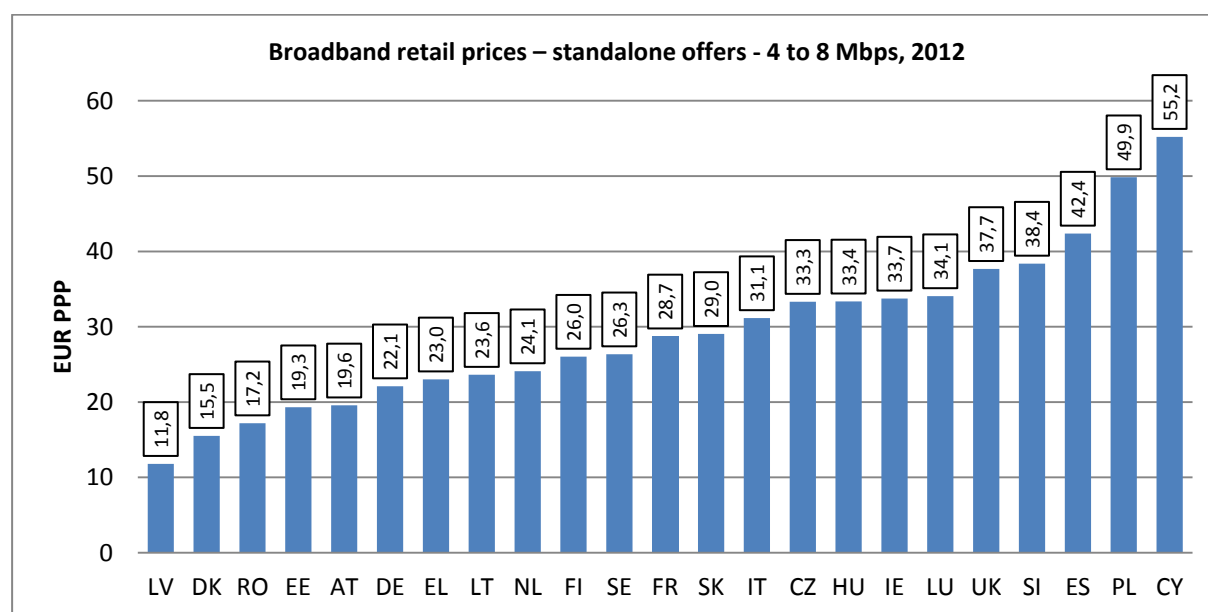
6. Fixed broadband retail prices⁹

This section compares the median prices of the most popular categories of fixed broadband products. Purchasing Power Parity is introduced to better determine the relative costs of broadband offerings. These comparisons must be interpreted taking into account the disparities in consumption patterns of different Member States. In particular, comparisons should be done looking at the speeds, types of offers and technologies that are most popular in each Member State.

The charts below present prices for standalone broadband products and bundles of broadband and fixed telephony with download speeds of 4 to 8 Mbps and 12 to 30 Mbps.

At Member State level, median prices of broadband standalone products with a download speed between 4 and 8 Mbps were the lowest in Latvia (€11.8), Denmark (€15.5) and Romania (€17.2) and the highest in Slovenia (€38.4), Spain (€42.4) and Poland (€49.9). In only 4 out of the 27 countries, no offer was available for this basket (Belgium, Bulgaria, Malta and Portugal). These four countries only had broadband standalone with faster speeds. In Cyprus and France only one offer was available suggesting that this may not be a typical type of offer in these countries.

Figure 33 Broadband retail prices – standalone offers 4 to 8 Mbps, 2012

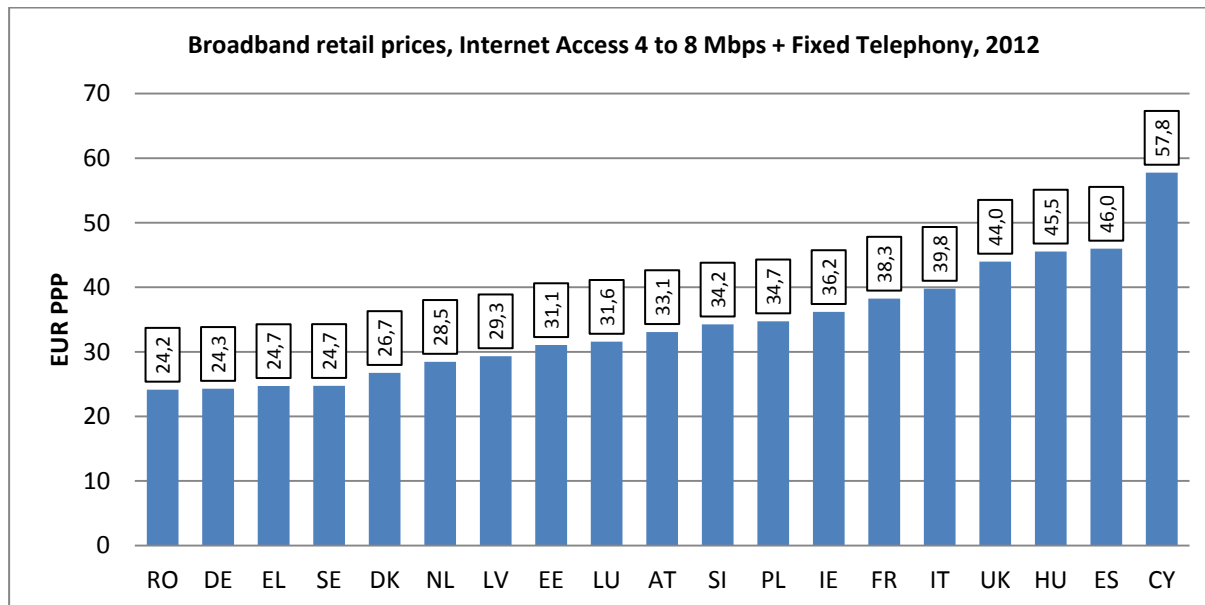


Source: EC services based on Van Dijk

Median prices of bundles of fixed broadband access and fixed telephony were the lowest in Romania (€24.2), Germany (€24.3) and Greece (€24.7) and the highest in Hungary (€45.5), Spain (€46) and Cyprus (€57.8). In 8 out of the 27 countries, no offer was available for this category. In Estonia, France and Slovenia, only one offer was available.

⁹ This section has been drafted based on the study ["Broadband internet access cost 2012"](#) by Van Dijk.

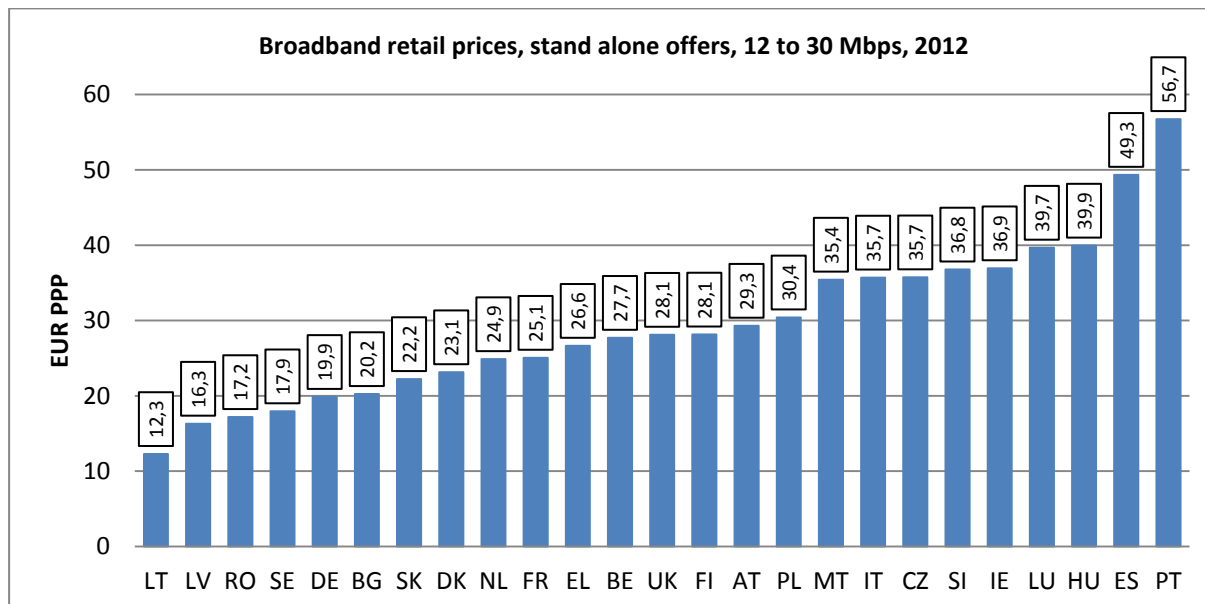
Figure 34 Broadband retail prices - Internet Access 4 to 8 Mbps + Fixed Telephony, 2012



Source: EC services based on Van Dijk

Figure 35 shows the median prices of offers including broadband internet access only, with a download speed between 12 and 30 Mbps. The median prices were the lowest in Lithuania (12.3 EUR), Latvia (€16.3) and Romania (€17.2). The median prices were the highest in Hungary (€39.9), Spain (€49.3) and Portugal (€56.7). In only 2 out of the 27 countries, no offer was available for this basket (Czech Republic and Estonia).

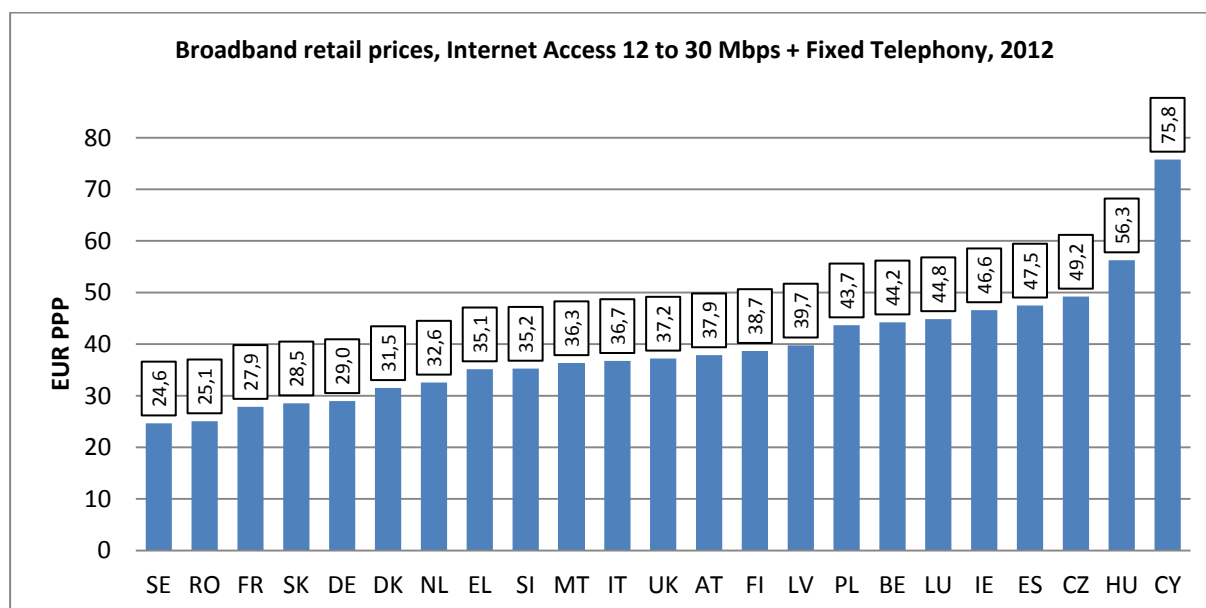
Figure 35 Broadband retail prices – standalone offers 12 to 30 Mbps, 2012



Source: EC services based on Van Dijk

Finally, looking at the median prices of bundles of fixed broadband access and fixed telephony, prices were lowest in Sweden (24.6 EUR), Romania (€25.1) and France (€27.1), and highest in the Czech Republic (€49.2), Hungary (€56.3) and Cyprus (€75.8). In 4 out of the 27 countries, no offer was available for this basket (Bulgaria, Estonia, Portugal and Latvia). In 3 other countries, only one offer was available (Finland, Malta, Slovakia).

Figure 36 Broadband retail prices - Internet Access 12 to 30 Mbps + Fixed Telephony, 2012



Source: EC services based on Van Dijk

7. Mobile broadband take-up

Mobile broadband remained the fastest growing segment of the broadband market. The total number of active mobile broadband users increased by 2.5 p.p., reaching a penetration rate of 47.8% (Mobile broadband SIM cards as a percentage of population). Furthermore, whereas the market of large screen mobile broadband users increased by only 0.5 p.p. in the last six months, the handheld devices market reached 39% of all active users, which means a 2 p.p. higher penetration rate than six months ago.

Mobile broadband is extremely popular in the Nordic countries with an outstanding penetration of 102.6% in Sweden, 95.7% in Finland and 91.8% in Denmark. On the other hand, Hungary and Belgium registered the lowest penetration with figures of 18.7% and 25.9% respectively.

Figure 37 Mobile broadband penetration at EU level, January 2009 - July 2012

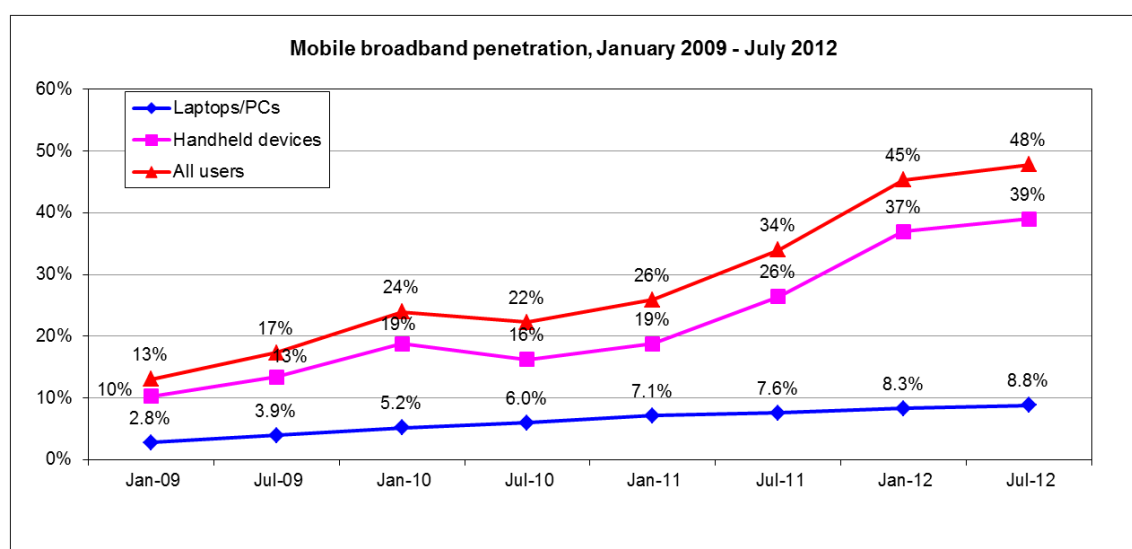
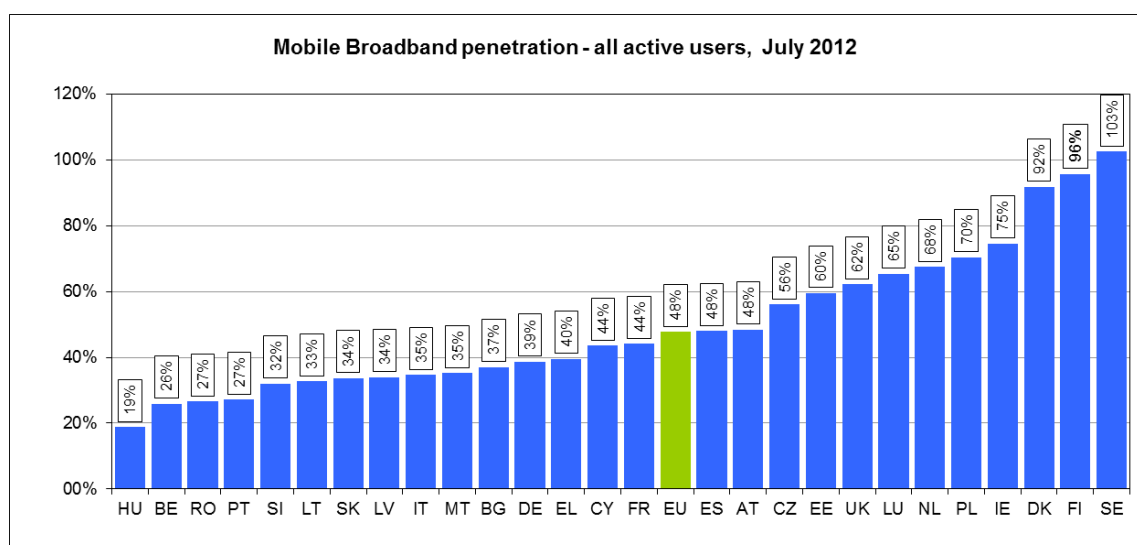


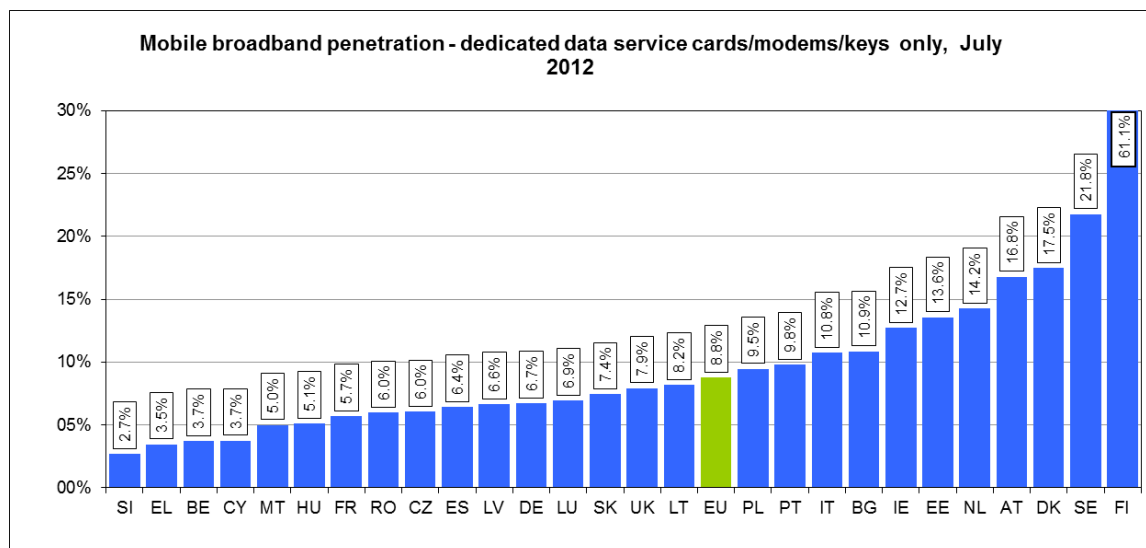
Figure 38 Mobile broadband penetration – all active users, July 2012



In terms of large screens devices (mainly notebooks and tablets), the penetration rate has even appeared to decline in a few countries (Czech Republic, Greece, Spain, Ireland, Hungary,

Austria, Portugal and UK) in the last six months. This may be as a result of a high churn rate. Finland (8.3 p.p.) and Bulgaria (7.3 p.p.) registered the highest level of growth in this segment for the period January-July 2012. Finland is the leader in terms of mobile broadband penetration on large screens (61.1%).

Figure 39 Mobile broadband penetration – dedicated data service cards/modems/keys only, July 2012



8. Annexes

ANNEX 1: Definitions

- **Broadband connection:** a connection enabling higher than 144 Kbit/s download speed. As of January 2010 it is estimated that 1-2 Mbps is the minimum download speed and that just a fraction of all retail broadband lines provide speeds of 144 Kbit/s.
- **DSL:** Digital Subscriber Line
- **Cable broadband:** Broadband connections by means of cable TV access.
- **Satellite:** Broadband connections via satellite.
- **NGA:** Next Generation Access Technologies including VDSL, FTTH, FTTB, Cable NGA and other NGA as defined below.
- **VDSL:** Very high bitrate digital subscriber line. It uses copper networks in the access. Typically the physical network interface at the delivery point at subscriber's home would be a RJ-11 type connector. Fibre to the Node + vDSL lines should be included in this category. VDSL is deployed over existing wiring used for analog telephone service and lower-speed DSL connections.
- **FTTH:** Fibre to the Home. A communications architecture in which the final connection to the subscriber's premises is Optical Fibre. The fibre optic communications path is terminated on or in the premise for the purpose of carrying communications to a single subscriber. In order to be classified as FTTH, the access fibre must cross the subscriber's premises boundary and terminate:
 - inside the premises, or
 - on an external wall of the subscriber's premises, or
 - not more than 2m from an external wall of the subscriber's premises.

FTTH services may deliver just one application, but generally deliver several such as data, voice and video. This FTTH definition excludes architectures where the optical fibre terminates in public or private space before reaching the premises and where the access path continues to the subscriber over a physical medium other than optical fibre (for example copper loops, power cables, wireless and/or coax).¹⁰
- **FTTB:** Fibre to the Building: An optical fiber reaches the boundary of the building, such as the basement in an multidwelling unit, and the final connection to the subscriber's premises is a physical medium other than Optical Fiber.

¹⁰ Source: FTTH Council

- **NGA cable:** Lines transmitting very high-speed data transfer on an existing coaxial cable TV network. Typically the physical network interface at the delivery point at subscriber's home would be an F connector type.
- **Other NGA:** Technologies other than FTTH, FTTB, VDSL and Cable NGA, which are capable of at least 30 Mbps download (headline speed).
- **Incumbents:** Organisations having enjoyed special and exclusive rights or de facto monopoly for the provision of voice telephony services before liberalisation, regardless of the role played in the provision of access by means of technologies alternative to the PSTN.
- **New entrant:** Alternative telecommunications operators, as well as internet service providers (ISPs).
- **Fully unbundled lines:** Fully unbundled lines supplied by the incumbent operator to other operators (new entrants), excluding experimental lines. In the case of full unbundling, a copper pair is rented to a third party for its exclusive use. As fully unbundled lines (LLU) supplied by the incumbent operator to the new entrants could in principle be used for services other than broadband, the total number of LLU for access to internet will be lower than the total number of LLU.
- **Shared access lines:** Shared access lines supplied by the incumbent to other operators (new entrants), excluding experimental lines. In the case of shared access, the incumbent continues to provide telephony service, while the new entrant delivers high-speed data services over that same local loop.
- **Bitstream access:** It refers to the situation where the incumbent installs a high-speed access link to the customer premises, and makes this access link available to third parties (new entrants), to enable them to provide high-speed services to customers. Bitstream depends in part on the PSTN, and may include other networks such as the ATM network. Bitstream access is a wholesale product that consists of the provision of transmission capacity in such a way as to allow new entrants to offer their own, value-added services to their clients. The incumbent may also provide transmission services to its competitor, to carry traffic to a 'higher' level in the network hierarchy where new entrants may already have a broadband point of presence.
- **Simple resale:** In contrast to bitstream access, simple resale occurs when a new entrant receives and sells on to end users a product (with no possibility of value added features to the DSL part of the service) that is commercially similar to the DSL product provided by the incumbent to its own retail customers, irrespective of the ISP service that may be packaged with it. Resale offers are not a substitute for bitstream access because they do not allow new entrants to differentiate their services from those of the incumbent (i.e. when the new entrant simply resells the end-to-end service provided to him by the incumbent on a wholesale basis).
- **Retail access:** Access provided to end users.

- **Mobile broadband:** internet access on third generation technologies (3G) and higher speed mobile technologies (i.e. HSPA or LTE). In the case of UMTS the unit of reference is SIM/USIM cards (including modem/dongles). For the CDMA standard, the unit of measurement should be the number of User Equipments.
- **Mobile broadband – standard mobile subscriptions:** Number of subscriptions which have made an Internet mobile connection in the last 90 days through a standard mobile subscription. Standard mobile subscriptions are typical voice subscriptions which also provide access to the Internet but are not purchased separately. Standard mobile subscription excludes dedicated Internet mobile subscriptions. An Internet mobile connection is a connection to the open Internet using Internet Protocol (IP). Hence, subscriptions which only offer “walled garden” or email-only services (or SMS/MMS only) as well as those offering access to the open Internet but that only have made access to "walled garden" and email-only services in the last three months will not be considered. Bundled offers (i.e., voice and data access) for a unique (flat rate) tariff are to be counted if a data connection has been made in last 3 months.
- **Mobile broadband - Dedicated data subscriptions for stand-alone services via cards/modems/keys only:** Number of subscriptions to dedicated data services over a mobile network which are purchased separately from voice services as a stand alone service (modem/dongle), i.e. excluding mobile handset users. All dedicated data subscriptions with a recurring subscription fee are included as "active data subscriptions", regardless of actual use. Pre-paid mobile broadband plans (i.e. all non-recurrent fee subscriptions) require active use in previous 3 months. Subscriptions which only offer “walled garden” or email-only services (or SMS/MMS only) will not be considered. Bundled offers (i.e., voice and data access) are excluded.
- **Dedicated data subscriptions for add-on data package to a voice service requiring an additional subscription:** Number of subscriptions to dedicated data services over a mobile network which are purchased separately from voice services as an add-on data package to voice service which require an additional subscription (i.e. excluding datacards/dongles). Recurrent fee subscriptions (i.e., contract) are included automatically. Prepayment subscriptions (or any other type of non-recurrent subscription) need to pass the activity criterion (a usage occurred in the last 3 months). Subscriptions which only offer “walled garden” or email-only services (or SMS/MMS only) will not be considered. Bundled offers (i.e., voice and data access) are excluded.

ANNEX 2: Methodology

The data in this document (except for broadband coverage and retail prices) have been collected by the European Commission, Communications Networks, Content and Technology Directorate General, from national ministries and regulatory authorities except when noted. The definitions have been agreed in the Communications Committee (COCOM).

Throughout the document broadband lines are defined as those with a download capacity equal to or higher than 144 Kbit/s. As indicated in section 5 of the document, only 5% of fixed broadband connections provided a download speed below 2 Mbps.

Data refer to 1 July 2012.

In some cases information for some types of access is not available. In a number of countries certain figures are estimates, as the National Regulatory Authorities had not received consolidated data from operators. It should also be noted that in some cases information only refers to major broadband access providers and that broadband access lines provided by small operators are not included.

This report includes information from all 27 Member States.

Data should be interpreted taking the below comments of Member States into consideration:

Austria

Retail lines by speeds: Bitstream and resale lines are not included.

Belgium

Mobile broadband: January 2012 data were restated.

Czech Republic

Retail lines by speed: January 2012 figures were restated.

Finland

Incumbent wholesale lines: Incumbent activated main lines includes also entrants' own use of activated main lines.

Retail lines: There are 28 SMP operators in Finland. SMP operators are operating as incumbent in their own operating area and as entrant in others incumbents' operating areas. FICORA only collects data on whole country level. Though, incumbent/entrant data is not available. NGA/Cable includes subscriptions which are offered with Docsis 3.0 technology (Docsis 3.0 is used in the network and in the end user premise). Normally, all the cable television networks are upgraded to Docsis 3.0, but not all the end user have Docsis 3.0 equipments in use. NGA/Fiber to the building - Ethernet + LAN (FTTB) includes fibre/Ethernet, fibre/HomePNA and fibre to building subscriptions.

Mobile broadband: i) Actual usage of standard mobile subscriptions includes others active data users (1.042.300) who have used data services in the last three months. ii) The number of dedicated data subscriptions for stand-alone services via cards/modems/keys only is estimated. Estimates are based on the sum of the number of i) mobile broadband lines with a monthly fee and no data cap (2 153 500) and ii) mobile broadband lines with a monthly fee and data cap (1 950 000) and the sum (4 103 500) is multiplied by 80 %. Based on FICORA's customer research 80 % use mobile broadband (without or with data caps) via laptops or tablets, 20 % use it via desktop pc and 20 % use it via mobile phone (many use mobile broadband with many terminals and there is no restrictions of terminals used by operators).

iii) Dedicated data subscriptions for add-on data package to a voice service requiring an additional subscription is estimated. The estimate is based on the sum of the number of i) mobile broadband lines with a monthly fee and no data cap (2 153 500) and ii) mobile broadband lines with a monthly fee and data cap (1 950 000) and the sum (4 103 500) is multiplied by 20 %.

France

Mobile broadband: Figures include estimations.

Germany

Incumbent wholesale lines: Incumbent activated main lines: Excluding public payphones, bitstream access and simple resale.

Retail lines: VDSL included in new entrants' DSL figures for own network, Full LLU, shared access, bitstream access and resale. New entrants' VDSL figures are based on estimates. New entrants' own network DSL figures are based on estimates. Full ULL includes wholesale DSL lines (bitstream access, DSL resale) supplied by alternative operators to other alternative operators on the basis of unbundled local loops provided by the incumbent. Bitstream access includes only bitstream access lines supplied by the incumbent to new entrants. For resale only DSL resale lines supplied by the incumbent to new entrants are included. For FWA number of subscribers is reported. In case of cable modem and cable NGA, lines on cable infrastructures based on FTTB/FTTH are excluded. In case of cable NGA, lines with a capacity equal to or higher than 30 Mbps are reported. Other wireline access supplied by the incumbent refers to the estimated number of leased lines, other wireline access supplied by new entrants refers to the estimated number of leased lines and powerline access lines. Public access WI FI Hotspots: Data based on estimates. Fibre lines (FTTB/FTTH) including fibre lines provided by cable operators.

Mobile broadband: Data includes estimates.

Greece

Mobile broadband: January 2011 figures restated.

Italy

Mobile broadband: Historical data (January 2011 – January 2012) were restated.

Lithuania

Incumbent wholesale lines: The same 2 agreements can be used and for fully unbundled lines and for shared access lines.

Retail lines by speeds: Speed is defined as downstream speed rates that are ensured.

Mobile broadband: Data includes estimates.

The Netherlands

Retail lines: January 2012 figures were restated.

Mobile broadband: January 2012 figures were restated.

Poland

Retail lines: January 2012 data were revised.

Portugal

Retail lines: Includes internet access lines only. Cable NGA excludes those lines below 30 Mbps.

Slovenia

Retail lines: Only internet access lines are reported. January 2012 figures were restated.

Spain

Mobile broadband: January 2012 data were restated.

UK

Mobile broadband: Data as of January 2012.

ANNEX 3: Prices of the local loop

This annex illustrates the cost of connection and monthly rental for both Fully Unbundled Access (full Local Loop Unbundling (LLU)) and Shared Access (SA) to the loop. Monthly rental and connection fees are presented as well as the total average monthly cost, which is calculated as the monthly fee + the connection fee distributed over three years.

Unless otherwise stated, connection fees include the technical expertise to assess the speed that can be conveyed through and disconnection fees (where applicable). Furthermore, only the price for a single line is presented here (charges may be different in the case of subsequent access). It is assumed that the loop is active and it will be used to provide both telephony and DSL services. Unless otherwise stated, figures exclude a whole range of additional one-off costs that may exist in some Member States.

The following charts illustrate the monthly total cost for the full Local Loop Unbundling and Shared Access (connection and monthly fees) based on the assumption that the loop is used for three years. The EU average since 2005 is also shown.

Figure 40 LLU monthly average total cost at EU level, 2005 – 2011

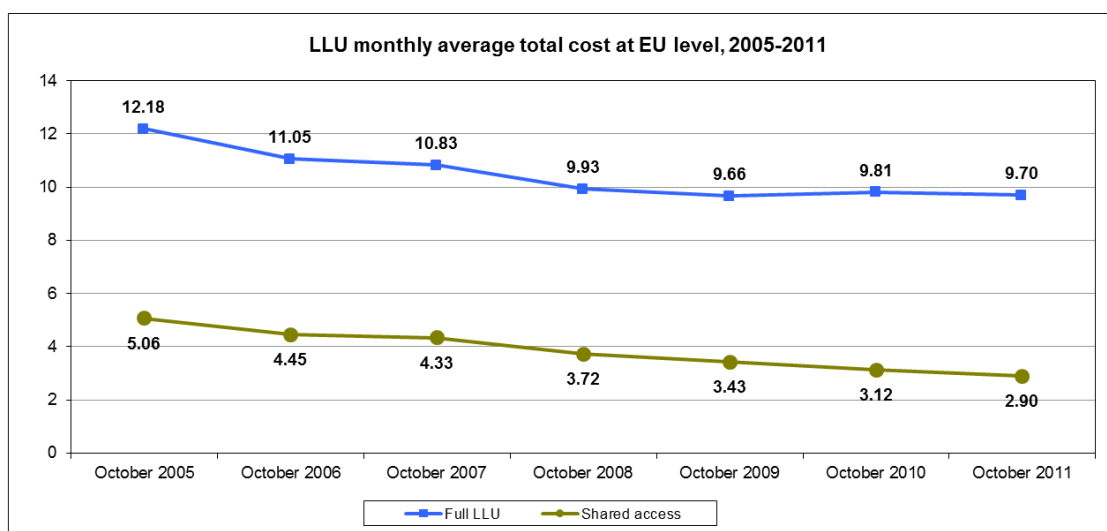
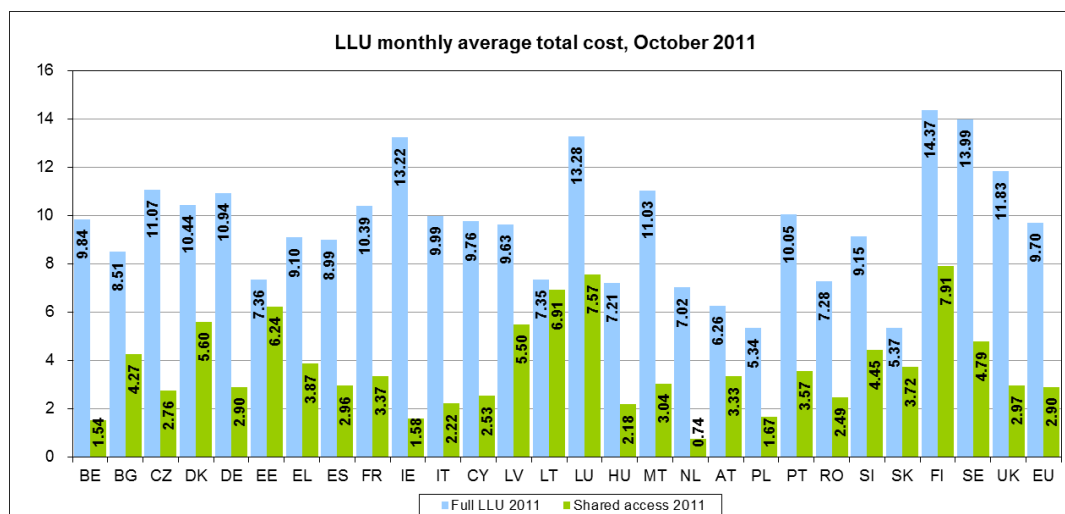


Figure 41 LLU monthly average total cost, October 2011



For methodological remarks please see: http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/electronic_communications_2012.pdf (Section 4.6).

ANNEX 4: Broadband state aid developments

In 2012, the European Commission took 21 decisions regarding broadband projects involving public funding. All but one of these were found to be compatible with the Treaty (article 4(3) decision types). The total amount of the aid approved was approximately € 6.5 bn.

In 2011, the European Commission took 15 decisions regarding broadband projects involving public funding with total amount of the aid amounted to about € 1.7 bn.

Regularly updated information on all Broadband State aid decisions can be found here:
http://ec.europa.eu/competition/sectors/telecommunications/broadband_decisions.pdf

#	Decision name	MS	Decision Date	Aid amount (million €)	Decision type	Type
1	SA.34188 (2012/N) - Next Generation Broadband in North Yorkshire – alterations to existing aid	UK	4/04/2012	20	Article 4(3)	Basic
2	SA.33151 (2011/N) - Basic broadband deployment in white areas of Slovakia	SK	7/05/2012	113	Article 4(3)	Basic
3	SA.34166 (2012/N) - Development of Rural Area Information Technology	LT	16/05/2012	61	Article 4(3)	Basic + NGA
4	SA.33222 (2011/N) - Wielkopolska Broadband Network	PL	23/05/2012	100	Article 4(3)	Basic+ NGA
5	SA.33807 (2011/N) - National Broadband Plan	IT	24/05/2012	1471	Article 4(3)	Basic/ NGA
6	SA.33540 (2012/N) - City of Birmingham – Digital District NGA Network (under appeal)	UK	12/06/2012	11	Article 4(3)	NGA
7	SA.34845 (2012/N)- Breitbandinfrastrukturausbau Thüringen (amendment)	DE	4/07/2012	17	Article 4(3)	Basic
8	SA.33063 (2012/C) – Trentino NGA	IT	25/07/2012	n.a.	Article 4(4)	NGA
9	SA.33099 (2012/N) – High Speed broadband in Rioja	ES	24/08/2012	3	Article 4(3)	NGA
10	SA.34809 (2012/N) – NGA Breitband Markt Reisbach	DE	30/08/2012	0,1	Article 4(3)	NGA
11	SA.34290 (2012/N) - Modifications in the aid scheme supporting the development of high-speed broadband infrastructure in sparsely populated areas of Finland	FI	7/09/2012	28	Article 4(3)	NGA

12	SA.35233 (2012/N) – Broadband Marche - Amendment	IT	11/09/2012	n.a.	Article 4(3)	Basic + NGA
13	SA.34732 (2012/N) – BULGAS – FIBERSAR –NGA Sardegna	IT	27/09/2012	82	Article 4(3)	NGA
14	SA.34031 (20101/N) - Next generation broadband in Valle d'Aosta	IT	08/10/2012	26	Article 4(3)	NGA
15	SA.33092 Regional broadband network in Silesia	PL	19/10/2012	17	Article 4(3)	NGA
16	SA.33473 Broadband network project in Mazovia	PL	29/10/2012	120	Article 4(3)	Basic+ NGA
17	SA.35000 NGA Bayern	DE	20/11/2012	2000	Article 4(3)	NGA
18	SA.33671 National Broadband scheme for the UK - Broadband Delivery UK	UK	20/11/2012	1800	Article 4(3)	NGA
19	SA.33641 Metropolitan Area Networks (MAN)/Fibre to the Home (FTTH)	EL	30/11/2012	75	Article 4(3)	NGA
20	State aid SA.33386 Broadband network in Lower Silesia	PL	14/12/2012	52	Article 4(3)	NGA
21	SA.34199 Digital Plan - Super-fast broadband	IT	18/12/2012	500	Article 4(3)	NGA