CORNING

CORNING LIMITED

RESPONSE TO THE PUBLIC

CONSULTATION ON

THE FUTURE EU 2020 STRATEGY

1. Introduction

Corning welcomes the opportunity to comment on the future EU2020 strategy document.

The Commission's future strategy document identifies '*the need for a sustainable social market economy, a smarter, greener economy, where our prosperity will come from innovation and from using resources better, and where the key input will be knowledge'* and then identifies a number of enablers to achieve that vision.

Corning believes that delivery of this vision depends crucially on having in place the high speed networks necessary to support the implied economic reorientation.

What constitutes Next Generation Access must be clarified quickly by the Commission. Already it is clear that 2mb/s is insufficient even for today's needs. It is also clear that upload speeds will be very important in the future. The implication is that Fibre to the Curb (FTTC) solutions such as vDSL will be unable to meet future demands and run the risk of diverting resources away from network builds that are future proof such as Fibre to the Home (FTTH). This particularly concerns some Member States, where the main network investments to date have been in vDSL which they are categorising as NGA.

Similarly, Corning has concerns that there is a gap between the expectations of wireless solutions and the reality of what wireless can deliver now and in the medium and long term. Wireless has an important and valuable role to play as a complement to NGA networks but it does not have the capacity or characteristics to deliver the kind of transformative services implied in the EU 2020 strategy document.

The assumption that fibre networks will be built in urban/densely populated areas while wireless networks will deliver services in a cost effective manner in rural areas must be challenged now. Such a policy would exacerbate, rather than diminish, digital divide issues. Corning believes that there is an enormous opportunity to use ubiquitous FTTH networks to eliminate digital divide issues, to create sustainable spatial policy and to deliver the kinds of services that can lift Europe's economic growth rate in a sustainable manner.

Corning is anxious that the final strategy document contains sufficient emphasis on getting the necessary networks built.. That is the focus of this submission.

2. **The importance of next generation access deployment**

The objectives identified by the Commission for the EU 2020 strategy document, namely creating value by basing growth on knowledge, empowering people in inclusive societies and creating a competitive, connected and greener economy all have at their base a fully operative digital economy. Fundamental to the creation of a fully operative digital economy is access to the necessary networks. Numerous studies[1] have highlighted the importance of next generation telecommunications infrastructure to national and regional competitiveness. Market forces together with the current European Telecommunications regulatory framework have allowed the development of new core and metropolitan area networks with vastly increased capacity to meet the increasing demand for wide area connectivity but the connections to individual citizens are still limited by technical capacity constraints in the so-called 'last mile'.

There is every indication that the trend towards a 'connected world' will continue apace and new applications appear as quickly as new capacity is put in place. There is a 'chicken and egg' argument here, which comes first the demand for the services or the supply of networks that allow the services to be developed? Whilst Corning recognises and commends the need to ensure a basic broadband capability should be available to all people, today, there is already significant evidence that 2mb download speeds are not sufficient to meet existing demands. IPTV and HDTV require significantly higher download speeds. Many of the business cases put forward by different analysts identifying current and future trends identify a variety of services which require radically higher upload speeds (e.g. real tele-presence and tele-working, home security, home health-care for the elderly etc.)[2].

Corning is concerned that if Public Policy makers take the easy route of specifying low capacity targets that are not capable of delivering true next generation services this will be doubly damaging. In the short term such networks will limit the capability of a knowledge based digital economy in Europe but in the medium term, it will delay the deployment of appropriate NGA networks. Existing FTTC networks are particularly risky in this regards since they deliver improved download speeds but in many instances with no or very little increase in upload speed and yet require significant planning and resources to put in place. A further upgrade to an adequate network will inevitably be delayed or not possible due to lack of investment. The State therefore needs to be more vocal about the kinds of networks it wishes to see in place (based on capacity requirements/performance and functionality rather than specifying technologies).

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[1] eg New Zealand Institute, Defining a broadband aspiration: How much does broadband matter and what does New Zealand Need? Sept 2007. Access Economics: Impacts of a national high-speed broadband network March 2009. Plum Consulting for the UK Broadband Stakeholder Group: A Framework for Evaluating
the Value of Next Generation
Broadband

[2] See for example http://www.ftthcouncil.eu/documents/studies/Analysis_of_Service_Portfolios.pdf

This is particularly true since the role of the State is going to be very important in driving the pace of fibre deployment, either as the party who makes the essential underlying infrastructure investments directly or as a partner with private investors promoting shared networks for all access seekers. The State may operate more indirectly by acting as a facilitator who can ensure funding[3] for projects is available or make the passive infrastructure elements which are the basic building blocks available on terms which could allow operators to quickly deploy their networks.

However, Corning believes that State subsidies cannot be recurring with periodic, iterative investments as particular technologies become outdated or insufficient to meet demand and need to be upgraded further. Such investments are inherently wasteful of resources and create uncertainty for market operators. Therefore Corning believes that the Commission must discourage investments which are likely to become outdated relatively quickly. The Commission needs to stress the fact that fibre end-to-end solutions are a long term investment capable of meeting the needs of end users over the long term. Large scale investments made in alternative solutions run the risk of quickly becoming stranded and leaving behind the very problems they were meant to address such as digital divide by squandering scarce resources on an inadequate solution.

The Commission's primary role, rather than financing these networks itself must be to act as a 'coordinator-in-chief' and must be clear about where it expects the market to deliver by itself, co-ordinate and assist (maybe through Public Private Partnership) where there will only be one mostly commercially deployed network (also setting out any access conditions which will apply to that network in advance) and indicate how universal network coverage will be achieved and financed. Best practice should be identified and promoted. Member States should set targets and progress reports should identify those making most and least progress to achieving those targets. These targets must be based on an honest assessment of the required target speeds that are not misleading. 100% broadband coverage is important but a 2mb/s download and much lower upload speed will not save rural communities in a knowledge based economy. These are the very areas where two way communications is imperative. Targets being set in some Scandanavian Countries look more realistic at100mb/s and symmetric.

A significant part of the problem and the solution is the significant potential scope of externalities associated with such investments which can justify greater State intervention and support. A number of studies have identified significant public benefits beyond the individual in e-health, distance learning, indirect societal impacts of increased tele-working such as reduced CO_2 emissions etc. and a number of countries, notably Japan, Korea, Australia, New Zealand and Sweden have or plan to have directly or indirectly (for example through tax credits) invested public funds available for building next generation access networks with a view to capturing these benefits. It is clear that a gap exists between a private willingness to pay and the costs of deploying FTTH networks widely. Government needs to consider whether in certain areas the benefits that accrue to society would justify large scale public

[3] See for example a Portuguese initiative providing €800 million in available finance for fibre roll-out: http://www.planotecnologico.pt/NewsPage.aspx?idCat=33&idMasterCat=30&idLang=2&idContent=2350&idLayout=6&site=technological-plan

investments such as proposed in Greece (or PPP projects such as in Portugal). Corning believes it could and that the submissions made in the context of the FCC public consultation[4] highlighted a number of public services requiring very high speed, bi-directional capacity such as e-health applications, e-learning and so on.

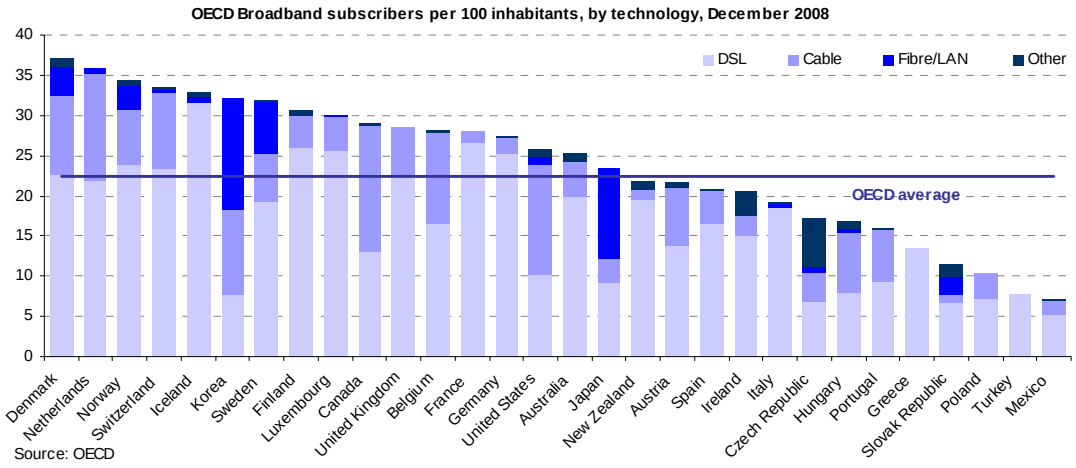
Outside the Scandinavian countries large scale fibre deployments have not been widely adopted in Europe raising the question of whether Europe's global competitiveness is threatened now or will be in the near future.

Corning believe that the Commission needs to place its primary focus on getting the next generation of fibre networks built as quickly and as widely as possible whilst simultaneously facilitating demand and take-up.

3. **The need for policy interventions**

Broadly speaking the European approach is to rely on market led investments to deliver improvements in telecommunication infrastructure. This has been largely successful in delivering basic broadband to the majority of consumers [see Figure 1]. Nonetheless there are considerable (white) areas where even basic broadband is not available. For example, a recent study[5] has shown that around 11% of the UK population is currently unable to obtain 2Mbps headline speeds which the UK government has set as its target for universal availability by 2012 and 19% with headline speeds of greater than 2Mbps do not achieve an average download speed of 2Mbps[6] even though the UK appears to have a leading position in terms of penetration with greater than 90% broadband availability.

Figure 1 OECD Broadband penetration data December 2008



Investments in next generation access networks are of a fundamentally different nature to those in first generation broadband which simply require the addition of new

[4] http://www.broadband.gov/reports.html
[5] Digital Britain report
[6] Ofcom UK broadband speeds 2009 report

electronics in existing central office locations and the creation of a new backhaul IP network. NGA investments may be significantly higher than those for first generation BB.

Nonetheless there is already a business case for investment in NGA in reasonably dense areas where a high number of customers can be 'passed' per unit of investment. A number of studies seem to estimate that approximately 50 to 70% of European customers could be connected on such a market led basis over the next 10 years given an appropriate financial and regulatory environment. This leaves a significant number of 'not spots' and the real prospect of an increasing digital divide in Europe. We have a real concern, given the significant capacity constraints on build rate, that unless there is early and significant public investment, Europe could see penetration of NGA networks to (say) 90% of customers taking a further 10 years to achieve. In other words Europe would not have the telecommunications infrastructure that Japan and Korea already have until 2030.

We therefore see the need for action in setting both an appropriate regulatory framework and establishing and encouraging appropriate public sector led investment at a Member State level but very much co-ordinated at EU level.

In terms of delivering an inclusive society, the Commission's objective must be to get to ubiquitous FTTH networks and seek to eliminate digital divide issues rather than reshape them. This would allow Europe to create a sustainable spatial policy and to deliver the kinds of services across the EU that can transform Europe's economic growth rate.

Wireless solutions will be important and have their place, but the present technology prevents them achieving service parity with FTTH. The options for preventing development and therefore the decline of rural areas must be a key objective.

4. **Our preferred approach to ensure NGA networks get built**

Corning continues to believe that the EC regulatory framework should favour a policy encouraging investment in infrastructure at the deepest network level in order for customers to benefit from both effective long term competition and continuous innovation in services (infrastructure based approach to competition) and to maximise the extent of private investment. This is consistent with the Commission's preferred approach for State Aid to accelerate network deployment. The development of infrastructure based competition (as opposed to service based competition) is also key to delivering long term benefits to consumers.

However, there is a danger that considerations of technology neutrality could lead to the development of inappropriate regulation of NGA. We continue to believe that it is more important to develop regulation at the wholesale level which does not discriminate between networks which are capable of delivering the same set of services (irrespective of the specific network technology employed, for example different 'flavours' of PON) and which recognises that not all technologies are substitutable. One of the key characteristics of NGA networks is the ability to have

significant upload speeds which are only capable of being delivered through FTTH networks (and to a significant extent by hybrid fibre/coax networks). NGA networks are clearly distinct from legacy copper networks (including vDSL or FTTC) and wireless[7] from fixed NGA networks. In addressing future network needs it is clear that only fibre to the home has the potential to meet long term needs for high symmetric (upstream as well as downstream) bandwidth. We therefore believe that in taking an infrastructure based competition approach, it is important to clearly differentiate between infrastructures with different service capabilities and to apply appropriate, and possibly differing, remedies accordingly in order to correctly balance between regulation to maintain competitiveness and encouraging investment in new long term capabilities.

We believe that it is important to recognise that for the first time in the fixed network we are considering the regulation of networks which for the large part are still to be built. We therefore have a one-off opportunity through an appropriate combination of regulation and, where appropriate, State Aid to encourage the market to invest in new networks and capabilities which will serve Europe for at least the next generation of economic development covering the next 20 to 30 years and which will be the key element in driving Europe's economy. We therefore believe that it is vital for the EU to consider the investment timeline and to develop a strategy which maps onto the investment cycle from the initial planning stage, through the investment phase to maturity and eventually to replacement (the latter is difficult to imagine yet in the context of NGA but we already face this issue in today's copper access networks). It is important that regulators are obliged to take a forward looking approach in determining where remedies should be applied since the economics of fibre deployment are radically different from copper so past performance is not necessarily a good indicator of future performance.

In responding to recent consultations by DG Information Society, we have proposed a holistic approach involving the setting out of guidance on the application of symmetric remedies and State Aid rules to investments in NGA together with an elaboration of asymmetric remedies applied to operators with SMP in order to promote the maximum possible clarity enabling operators to make clear and early investment decisions.

We believe that an appropriate way of achieving these objectives is through a 'graded remedies' approach applied within the sector regulation.

In effect interventions would be based on the lowest level in the value chain leaving as much of that chain available to market forces. Where market forces would not work then interventions further up the value chain could be made. Clearly the ability to compete will vary depending on geographic and economic conditions. To elaborate further, in areas where infrastructure competition can be expected to emerge based on access to physical infrastructure alone then the imposition of further remedies would not be appropriate otherwise there is a real danger of stifling the emergence of the desired competitive infrastructure investments. At the other extreme where any investment is unlikely without public investment such as in rural areas then bitstream

[7] Wireless will no doubt be an important complimentary access mechanism but will not act as a substitutue.

remedies alone would be appropriate in combination with equality of input conditions (although we note that access to ducts may also be an enabler for such public sector supported projects). Where physical infrastructure competition is likely to be possible, or is potentially possible, this should be the first solution chosen and promoted by the regulator. Facilitating competition by making passive infrastructures available promotes infrastructure competition.

Making non-replicable passive infrastructures available on regulated terms creates the opportunity for any operator to initiate a network deployment starting a dynamic which may stimulate other operators to make their own investments in NGA, competitively, or pre-emptively if only one network may be viable.

We strongly support the view that remedies should not be applied higher in the value chain where sufficient competition exists or has the potential to exist through multiple investments enabled by access to civil infrastructure. Only where this is not possible or where operators do not enter into appropriate infrastructure sharing agreements should consideration be given to mandated access to dark fibre or unbundled loops.

5. **Co-operative investment in FTTH deployment**

We believe that there is potential for co-operative investments to be made in deploying NGA networks and that there is an important role for the Commission to give advice on how NRAs should manage these processes and/or create a mechanism for exchanging best practice in the creation of appropriate management processes.
National Regulators need also to ensure that all operators in the market are clear on how networks will develop as soon as it is known, so that the process of migration can be managed. Clarity on the conditions that will attach to the new network will enable business plans to be developed which allows investments to be planned and the migration process to be initiated for all operators.

Such collaborative approaches are likely to be key in the so-called grey areas and as a means of minimising the extent of white areas.

Public bodies will have a significant role to play in co-ordinating investors and giving a clear understanding when and where the market will rely on competing infrastructures, where it will be a single commercially deployed infrastructure and where public finance may be available. Without such co-ordination and clarity there may be a danger that Government may in fact hinder or delay network deployments.

An integrated strategy on the need for public investment in the white areas is then required to ensure timely public sector investment in such areas in order to minimise the damage which would result from an extended digital divide.

CORNING

Elwy House
Lakeside Business Village
St David's Park
Ewloe
Flintshire CH5 3XD

f +44 (0) 1244 525380

www.corning.com