CORNING

CORNING INCORPORATED
REPLY TO

ERG Consultation Document on Regulatory Principles of NGA

1 Introduction

Corning welcomes the opportunity to respond to the European Regulators Group consultation on the Regulatory Principles of Next Generation Access Networks (NGA).

We believe that there is now a critical window of opportunity for Europe to put in place a regulatory framework for next generation access networks which will offer the right balance on one hand between appropriate regulation to maintain competitiveness and on the other a regime which will encourage the required investment in access networks which Europe urgently requires to maintain its global competitiveness. It is particularly vital that both aspects receive critical attention.

There is a danger that maintaining the current approach will not provide sufficient certainty and may indeed delay the required investment. For NGA to be appropriately regulated requires first that large scale NGA networks are deployed. In the remainder of our comments we therefore focus critically on this required balance of approach.

2 General Approach: priority between different rationales

Corning believes that the EC regulatory framework should favour a policy encouraging investment in infrastructure at the deepest level in order for customers to benefit from both effective long term competition and continuous innovation in services (infrastructure based competition rationale). The development of facilities based competition (as opposed to service competition) is also key to enabling the removal of ex-ante regulation at the earliest opportunity (reducing red tape rationale).

In determining the approach to regulation of NGA it is also necessary to consider how to approach the question of the technology neutrality rationale. According to the text in the 1999 Communication Review, technology neutrality means that “the legislation should define the objectives to be achieved, and should neither impose, nor discriminate in favour of, the use of a particular type of technology to achieve these objectives”. However we believe that this should be a subsidiary objective to the

achievement of facilities based competition. There is a danger that considerations of technology neutrality could lead to the development of inappropriate regulation of NGA. We 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. Therefore NGA networks are clearly distinct from legacy copper networks and wireless from fixed NGA networks. It may also be appropriate to consider whether different 'flavours' of NGA are also substitutable, for example FTTH networks have a capability potentially two orders of magnitude greater than xDSL approaches. We therefore believe that in taking a facilities based competition approach it is important to clearly differentiate between facilities 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 capabilities.

In setting out an overall approach to regulation of NGA we believe that it is necessary to fill in the gaps in the current Regulatory Framework which provides only a partial and incomplete view on the type of competition Europe needs and to clearly set out a hierarchy between these different rationales. If this hierarchy continues to be unclear then any approach based on one rationale is likely to be challengeable on the basis of another.

To address such a new scenario, there is no one size fits all solution. The ERG should present a view taking into account the competitive regional landscape (geographical segmentation).

In the case where an operator (fixed network incumbent or alternative operator) is building a completely new network with no pre-existing infrastructure, no ex-ante regulation should apply as there is no barrier to entry. This should also apply in areas of substantial infrastructure competition (so-called black areas), for example in high density metropolitan areas (where an adequate business case exists for deployment and where there is likely to be access to civil infrastructure) or where there is a broadband capable network (eg cable TV, alternative NGA).

At the opposite end, in the isolated, low density, rural areas (so-called white area), no spontaneous private sector investment can be expected, even in the long-term, due to mere return on investment constraints (such areas often lack earlier generation broadband coverage). Regulation will not be able to respond to the problem and the role of public authorities will be crucial in these so-called policy driven areas.

Finally, between the market-driven and the policy driven areas, there is a large area representing the high risk "grey areas". In these areas, the incumbents face regulatory uncertainty as the specifics of ex-ante regulation, once put in place, can significantly damage their business case. On the other hand, most of the alternative players that have invested in the unbundling of the local loop face the high sunk costs in physical infrastructure (ducts, poles etc) made by the incumbents.

If there were to be no regulation of new infrastructure partially built on legacy elements, then an NRA would have to face the roll out of unregulated NGA networks

that would probably replace the regulated legacy infrastructure without being able to intervene in case of foreclosure of the market.

On the other hand one could imagine that treating the new investment in the same way as the legacy infrastructure (by applying cost oriented regulation) would not be an appropriate approach to encouraging new investments.

In the grey and the white areas, the public authorities have a clear role to play in decreasing the barriers to entry and in facilitating the access to civil infrastructure.

This illustrates the difficulties of balancing investment in new infrastructure against the problems of foreclosure which it can create, and we will return to this later with a proposed approach which we believe has the potential to address these issues.

3 NGA Scenarios

Broadly speaking we believe that the consultation document sets out an appropriate range of scenarios but as noted earlier the consultation specifically defines wireline networks to exclude cable TV architectures. As noted earlier we believe that a more appropriate definition may be based around the service delivery capability of the infrastructure and that where existing networks are capable of delivering substitutable services at a wholesale level then the provision of relief on regulation should be considered on a geographic basis.

We note the business case analyses referred to in the consultation and the conclusion that costs per line/user increase as operators deploy fibre closer to the customer premises. We believe that an important driver for NGA deployment will also be savings in operational costs for operators. Fibre networks are more robust than copper, and particularly where an incumbent has an old infrastructure which has had little recent investment, the operational cost savings are significant. Of course the condition of the copper network also has a significant bearing on the performance of xDSL technologies and in particular on the achievable speed and penetration of xDSL service. On the other side, the alternative operators that may take the decision to deploy their own NGA may be able to save on the cost of ULL rental.

We support the view that VDSL has a lower initial deployment cost and is faster to deploy than FTTH networks. However an operator's decision to deploy VDSL will also have to take into account future investments. Nielsen's Law which predicts a 50% increase in end user bandwidth per annum (see Fig 1), would imply that end user bandwidths will grow to around 100Mbps symmetric by 2010, thereafter exceeding even optimistic scenarios for real world VDSL bandwidths. At the same time our own simple discounted total investment analysis indicates that a VDSL deployment followed by an FTTH upgrade to achieve future speed demands is only efficient if the FTTH investment has to begin after year 9. It could therefore be argued that operators deploying VDSL are likely to be doing so for reasons of speed of deployment and uncertainty over future regulation and returns on investment and as argued by others because it is more difficult to replicate.

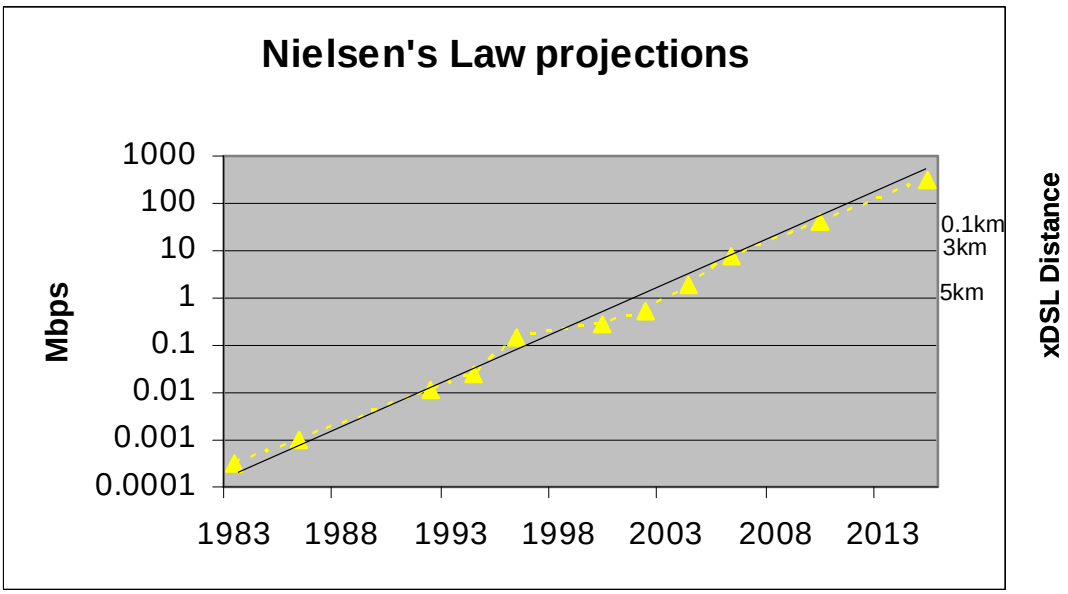

Fig 1 Nielsen's Law and VDSL capability

The consultation document raises some of the issues around regulation of VDSL and sub-loop unbundling including access to street cabinets and their size and planning issues together with questions around the business model for a new entrant to access sub-loop unbundling. We would also point out the technical difficulties of sub-loop unbundling where complex cross-talk issues at the higher transmission speeds may require very careful planning rules and/or restrict the bandwidth capability.

The regulatory impact of some incumbents' proposals to retire their existing exchange/ MDU sites is understood but regulators will also have to assess the impact of retiral of the physical copper infrastructure, recognising that this may have to wait on the completion of an initial NGA deployment. While this will have an impact on current LLU operators there will also be a positive impact if copper cables are recovered. The scrap value of copper can contribute significant economic savings and the consequent freeing up of duct space will have a positive impact on any strategy for duct sharing.

4 Regulatory Implications

As noted earlier, a key question which needs to be addressed at an early stage is whether the aim of NGA regulation should be to promote service based or facilities based competition.

The current Recommendation on relevant markets notes that[1]: "The aim of the new Regulatory Framework is ultimately to achieve a situation where there is full infrastructure competition between a number of different infrastructures. This can occur within or between platforms. Regulation mandating access to existing networks

[1] Explanatory Memorandum, p.25.

serves as a transitional measure to ensure services competition and consumer choice until such a time as sufficient infrastructural competition exists".

We strongly support the view that in the case of new investments in NGA, regulation should aim to promote infrastructure competition wherever possible with access prices safeguarding investment incentives because this will lead to self-sustaining competition and has the potential to lead to a complete removal of sector specific ex-ante regulation (reduce the red tape). Furthermore these measures should promote the immediate and widescale NGA investment which is required. Services competition should only be relied upon when facilities-based competition is not possible or as a transitory step towards facilities-based competition. In other words, the ladder of investment concept should apply on a market basis and not on an operator basis. It is therefore important to be clear about what priority should be applied to regulatory remedies in each part of the network on a geographic basis.

It is also of particular importance to be clear about the relative roles of regulation and public policy aims and to ensure that both policies are in alignment. Regulation which conflicts with public policy drivers in the broadest sense (including public investment to ensure the availability of appropriate ubiquitous services and also the protection of consumer interests) needs to be avoided. This implies that public policy must be well delineated in order to enable appropriate regulatory responses. This is particularly important where issues around NGA such as the emerging digital divide, and the possibility of future changes to the USO are still under debate.

We note the discussion in the consultation document in relation to a future definition of the 'local loop' in relation to Market 11 which is currently defined as wholesale unbundled access (including shared access) to metallic loops and sub-loops. The definition of the local loop will be challenged by NGA networks where aggregation (either at the electrical or optical level) may occur at substantially different points from today. In most NGA scenarios this will now occur at the street cabinet or possibly in the building basement in the case of MDUs. For clarity it may therefore be appropriate to define the local loop as that part of the network from the customer to the first aggregation point (electrical or optical).

In terms of a future redefinition of Market 11 we believe that it will also be important to consider how to treat back-haul services and in particular to ensure that this is treated in a way which does not discourage operators from investing in new infrastructure. This is an important issue when the first electrical aggregation point may in future be in excess of a hundred kilometres from the customer (for example in an optically amplified superPON). It may therefore be important to define an appropriate ancillary market to Market 11.

We believe that in addressing both these aspects of Market 11, it would be possible to do so by creating a new market for physical infrastructure (consisting of ducts, poles etc). This would then focus regulation on the true bottleneck asset. In this scenario we do not believe that it would be necessary to modify the current Market 11 definition but it would still be necessary to consider the provision of backhaul services (bitstream) if the first electrical aggregation point was deep in the network (for example in a VDSL scenario).

An alternative approach which may be favoured is to modify the present Market 11 definition to remove reference to metallic loops for the sake of technology neutrality (but note our earlier reservation about whether technologies are substitutable). In this case it will be absolutely necessary to be clear about the imposition of remedies both on a geographic basis and on a hierarchical approach which would ensure the development of the maximum amount of facilities based competition. This is illustrated in Figure 2. This aims to set out a geographically based hierarchy of remedies.

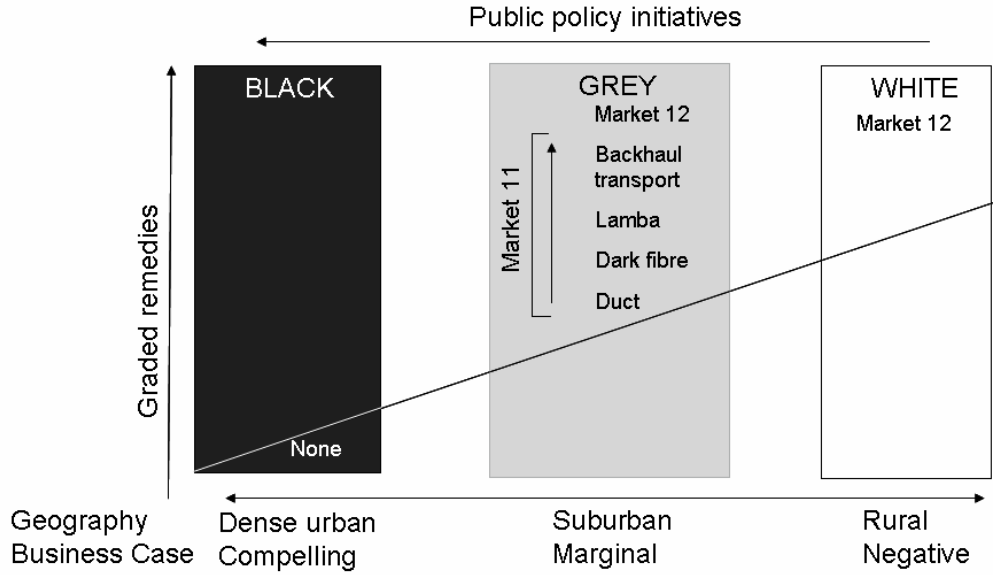

Fig 2 Model for establishing geographical hierarchy of remedies

In the so-called black areas with clear competition, for example as evidenced by the existence of an existing NGA capable network (such as a cable network with DOCSIS capability or an alternative FTTH network), it would not be appropriate to apply ex-ante regulation to NGA investments.

At the other extreme in the white areas, which could be defined as having no LLU operators, there would be no case for facilities based competition and regulation would be restricted to Market 12 and the provision of wholesale bitstream services.

In the intermediate grey areas, identified for example by the presence of at least one existing ULL operator, it would be appropriate to apply remedies in a tiered manner. If ducts were available (at a regulated price) then this would be the sole remedy (thus encouraging investment). If not then dark fibre could be mandated, then potentially a specific fibre wavelength, and finally electrical transport. Wholesale bitstream services (Market 12) could be mandated in these areas until such times as the remedies tending to develop an effective facilities based competition are effectively implemented. The pricing of the Wholesale bitstream service should not be cost oriented and should incentivise the investment in the lower rung of the ladder of investment starting at the duct level. This approach, as can be seen, also sets out a clear relationship between Markets 11 and 12 which we believe is required.

Public policy initiatives in the white and grey areas should have the aim of removing barriers to the development of facilities based competition. An example would be the creation of new duct networks which could be offered by a public authority on a non-discriminatory basis.

The definition of Market 12 would appear to continue to be appropriate to NGA deployments although we believe that it will be necessary to carefully consider the impact of any regulatory proposal on an operator's return on investment and that cost oriented pricing is unlikely to be appropriate for NGA investments.

5 Conclusions

We believe that it is necessary to carefully balance regulation of next generation access networks in order both to maximise facilities based competition and also to ensure that investments are made in a timely manner across the EU in order to maintain European competitiveness and to ensure that the objectives of the Lisbon agenda are achieved.

Ex-ante regulation should be focused on existing and potential bottlenecks which in the case of next generation access deployment are substantially around the availability of the necessary physical infrastructure (ducts, poles etc).

In order to maximise the potential for facilities based competition and to establish the regulatory certainty necessary for sustainable investments to be made we believe that it is important for a geographically focused, tiered set of remedies to be set out which link both Markets 11 and 12, thus establishing clear guidelines for the regulation of NGA networks. We encourage the ERG to consider this approach.