Norlink
Communications

Submission to Parliamentary Inquiry into
Wireless Broadband Technologies

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1. EXECUTIVE SUMMARY

Norlink Communications (Norlink) is one of the few organisations in Australia that is actually establishing itself as a "last mile telco" in a specific regional market. Norlink is regionally owned and focused to provide high quality, cost effective, fast and accessible telecommunications services to its constituents in the Northern Rivers of NSW.

We expect to begin delivering full commercial services over our own infrastructure before end CY 2002. To date some 5 years of planning and research has been expended to achieve this goal, which will be a true milestone in regional telecommunications in Australia.

The general market and demand for broadband services in Australia is growing at a significant rate in mainly urban areas. Unfortunately due to the poor quality local distribution through old copper cables, the distance that the users are from traditional telephone exchanges and the high use of pair gain systems means regional users are not benefiting from access to new applications.

Norlink is implementing a new alternative "wireless local loop" access technology to connect residents, and business organisations for provision of voice and data services. Our research and customer enquiry level indicates that there is a significant demand, due to the inability of the incumbent carriers to satisfactorily provide broadband services to regional areas through conventional means.

Like all infrastructure initiatives, funding is a critical issue, our initial rollout has been majority funded from Federal and State Government sources, allowing us to deploy, test and review our business model.

Unlike most other organisations, we are focused at achieving a full commercial viability in the majority of regional Australia, small to medium towns. Any town/city of over 50,000 people can justify a business case to create a regional telco, or attract a large telco player to deliver services, but it is the smaller communities who are paying the price through loss of opportunity and people.

Community ownership and participation are key components of our business model. Our eTown™ program has been designed to enable us to fulfil our objectives and create a model that is transferable to any community in Australia.

While we recognise the challenge in front of us, and fully understand the dynamics of the mass market, we believe that a commercially viable "micro telco model" is the only way that smaller communities in regional Australia will gain value from the ever increasing advances in technology.

Australia needs its small towns and communities to survive, not draw the entire population into a handful of regional centres and capital cities.

Wireless technologies are the most cost effective way to establish a high speed telecommunications infrastructure in the short to medium term. In the longer (15-20 year horizon) it is our belief that optical fibre will be predominant in the local loop. The issue is how to fund this significant capital outlay for small regional areas. The answer lies in community ownership of the infrastructure assets and cross subsidisation.

Since large communities have the same requirements as smaller ones, it is reasonable to expect that they will require their telecoms spend to be reinvested into their communities. Large corporate organisations, who rely of quick return on investments will never be able to justify the expenditure

to "wire up" smaller communities. Therefore the onus returns to the smaller community to fund its own infrastructure.

Wireless technologies are an enabler for the "micro telco" and therefore access to the technology, expertise and spectrum are all key ingredients for a successful outcome.

We do not advocate that wireless technology or spectrum become less regulated, on the contrary, we believe that for the long term benefit and viability of a "micro telco" that regulations must be in place to provide the ability to assure our clients of "continuity of service". Without regulation interference and signal distortion will impede our ability to offer "Quality of Service" guarantees and enter into "Service Level Agreements".

Technologies such as 802.11 and mobile/portable telephony have their place in the market, but not as the primary vehicle to deliver services to fixed locations, only true point to multipoint WLL technology is able to provide levels of service people have become accustom to from the traditional fixed wire-line network.

It is not in the community's best interest for 802.11 technologies to become the "CB Radio" of today.

Norlink have secured long-term access to licensed spectrum through a leasing agreement with a spectrum owner, therefore eliminating a number of business risks. The process to obtain this access to spectrum has been long and complex and is beyond the resources of many small organisations. The issue of sub leasing of spectrum is not complementary to many of the conditions imposed on licensed spectrum holders and should be reviewed with the "micro telco" in mind.

Norlink's submission relates to a brief to the committee on the work Norlink has undertaken in the Northern Rivers as an example of the use of Wireless Local Loop technology in a rural and regional context. Issues discussed are:

- Access to spectrum
- delivering WLL services to smaller communities
- our "eTown™" process

Norlink is identifying and implementing local strategies that will enable regional and rural communities to build on the deployment of our enhanced telecommunications services delivering both social and economic benefits.

1.1 Summary of Recommendations

Norlink recommendations to the inquiry are summarised as follows:

1. Determine methods of providing security of access to spectrum for community based regional telcos.

2. A review of the Rules made by the ACA that requires Spectrum license holders and sub lessees to agree that termination for whatever reason that:

    a. will be final and conclusive as against the licensee or sub lessee;
    b. cannot be challenged, appealed against, reviewed, quashed or called into question in any court; and
    c. will not be subject to prohibition, mandamus, injunction or order for specific performance in any court;

3. On going funding of research in the needs of regional communities for broadband technologies and its innovative deployment.

4. Continued government support for the economic and social development of small communities through better telecommunications.

2. TERMS OF REFERNCE

The Committee has been asked by the Minister for Communications, Information Technology and the Arts, to inquire and report on the current and potential use of wireless technologies to provide broadband communication services in Australia, including regional Australia, having particular regard to the following:

- The current rollout of wireless broadband technologies in Australia and overseas including wireless LAN (using the 802.11 standard), 3G (eg UMTS, W-CDMA), bluetooth, LMDS, MMDS, wireless local loop (WLL) and satellite;

- The inter-relationship between the various types of wireless broadband technologies;

- The benefits and limitations on the use of wireless broadband technologies compared with cable and copper based broadband delivery platforms;

- The potential for wireless broadband technologies to provide a 'last mile' broadband solution, particularly in rural and regional areas, and to encourage the development and use of broadband content applications;

- The effect of the telecommunications regulatory regime, including spectrum regulation, on the development and use of wireless broadband technologies, in particular the Radiocommunications Act (1992) the Telecommunications Act (1997), and Parts XIB and XIC of the Trade Practices Act:

- Whether Government should make any changes to the telecommunications regulatory regime to ensure that Australia extracts the maximum economic and social benefits from the use of wireless broadband technologies; and

- Likely future national and international trends in the development and use of wireless broadband technologies.

3. NORLINK TECHNOLOGY SELECTION

Norlink's has selected Wireless Local Loop (Fixed Wireless) Technology to deploy its services throughout the Northern Rivers. Below discusses some of the issues considered during the technology selection and subsequent move into implementation.

3.1 Wireless Local Loop (Fixed Wireless) Technology

Fixed-wireless systems use antennae mounted on rooftops to receive radio signals from a local distribution point. Fixed wireless broadband can transmit data over a large area resulting in a lower investment cost per customer. The transmission area for wireless broadband services can be up to 50km in radius because towers are used to deliver information, instead of copper cable.

The large number of customers served from a single source offsets the investment requirements, enabling providers to offer wireless broadband at a competitive price.

Broadband via WLL has many attributes such as:

- it is cheaper to deploy than a wired solution;
- it is faster to implement;
- it can be configured for one or more applications.

Other benefits are:

- speed of network deployment is much quicker with wireless systems enabling rapid, early market entry;

- deployment and upgrading costs are much lower than for wireline alternatives for which engineering (cabling and trenching) costs are significantly higher;

- maintenance, management and operation expenditure is lower. Wireless systems can be rolled out much faster, enabling an earlier return on investment;

- scalable architectures enable expanded coverage and services in direct relation to the level of demand;

- only one network architecture is required to provide a full suite of interactive voice, video and data services that can be expanded as and when desired.

The latest generation of WLL works very well and can be very cost-effective, easy to roll out, fast to connect, can cover huge areas, handles high volume and large bandwidth and it has a high availability.

3.2 Access to spectrum

In choosing to deploy a Fixed Wireless solution for the Northern Rivers Norlink considered both unlicensed spectrum and licensed spectrum. In the first instance we considered using unlicensed spectrum with an aim to graduate to licensed spectrum when our "Prototype" had been proven.

To do so had a number of risks such as transmission power restrictions, potential interference and security issues. After a critical risk assessment of these issues on our medium term objectives, we decided against this solution.

Norlink select a technology using the 2.3Ghz spectrum, the license for which was held by a subsidiary of Austar United Broadband Pty Ltd. Austar have been very pro-active in working with Norlink to achieve an agreement to the use of this spectrum in the Northern Rivers. However, as a regional telco making a significant investment in the deployment of technology that is restricted to the use of one or two spectrum bands raises the significant issue of security of capital investment.

While Norlink was able to negotiate a mutually beneficial agreement, it has been extremely difficult due to the rules laid out in the Radio Communications Act.

It is our recommendation to the inquiry that it consider methods of providing security of access to spectrum for community based regional telcos and a review of the Rules made by the ACA that requires Spectrum license holders and sub lessees to agree that termination for whatever reason that:

- will be final and conclusive as against the licensee or sub lessee;
- cannot be challenged, appealed against, reviewed, quashed or called into question in any court; and
- will not be subject to prohibition, mandamus, injunction or order for specific performance in any court;

4. NORLINK DEVELOPMENT

Norlink is continually looking to enhance regional telecoms use through the appropriate use of telecommunications technology. Below provides some insight into these issues and further recommendations to the inquiry.

4.1 Extending the Reach of the Network

In deploying Fixed Wireless (WLL) to communities in the Northern Rivers, Norlink is well aware that because of Line of Sight (LOS) restrictions many very small communities may not be able to benefit form access to the Norlink Network.

We will be undertaking research with our technology partners, local communities and Southern Cross University to develop innovative solutions to enable the delivery WLL services to smaller more isolated communities.

Through Norlink's local partner the Northern Development Task Force we are participating in two research projects.

- One in conjunction with the Queensland University of Technology - Regional development of audiovisual industries in the digital era: prospects for the Northern Rivers region of NSW. Research has already mapped audiovisual industry activity in the region and estimated the total number of people involved in 'creative industries' in the region in 2000 to be 3500, which is 4.1% of the local work force.

- The second project is with the University of Queensland. It is looking at the drivers and impediments to rolling out high speed data transfer infrastructure and will be comparing two sites (Northern Rivers and the ACT) covering, political, cultural, economic and technical aspects. It will also look at how telecommunications fit into regional development models, and how important high-speed data transfer availability will be to regional centres in the future.

It is our recommendation to the committee that it consider the on going funding of research in regional communities on the needs of regional communities for broadband technologies and its innovative deployment.

4.2 Economic and Social Development

Through our "eTown™" process identifying and implementing local strategies that will enable regional and rural communities to build on the deployment of these enhanced telecommunications services delivering both social and economic benefits.

"eTown™" is the phrase we have coined for the rejuvenation of small regional townships through the use of advanced telecoms infrastructure to deliver cost effective high bandwidth services. We are working closely with these communities to identify and develop opportunities that will provide economic and social development through the use of telecommunications. Town "Steering Committees" facilitated by the local council and supported by Norlink Communications will also drive user acceptance and service take up.

It is our recommendation that the committee consider continued government support for the economic and social development of small communities through better telecommunications.

5. NORLINK COMMUNICATIONS

Norlink Communications has a unique opportunity to enter a growing market and become a real market leader. In Australia today there is no successful regional telco model that actually improves the long-term economic development prospects of a regional area. There have also been significant failures in this market place.

Norlink has reviewed successful and failed regional Telco's, both within Australia and oversees and developed, in conjunction with our partners, a model that will deliver not only long term benefits to the Northern Rivers community, but also offer expansion to other regional areas of Australia.

The Norlink model is to become a "last mile" carrier using, initially, fixed wireless technology. Partnerships will be leveraged to offer backhaul and long haul voice and data services, effectively allowing Norlink to focus on the important areas of customer care and retention.

The major shareholder in Norlink Communications is Norlink Limited as the vehicle delivering the Norlink Limited objective of *"…enhanced economic and social development through improved telecommunications".*

Norlink Limited was established in 1996 to drive the process of creating an information economy in the Northern Rivers region of NSW. Norlink represents the interests of eight peak bodies from local government and the economic, social and technology sectors across the region. The Norlink initiative *Networking the Northern Rivers* has undergone several phases to facilitate access to, and availability and usage of, enhanced telecommunications and thus promote economic and social development within the region.

5.1.1 Networking the Northern Rivers
In 1998 Norlink Ltd first obtained funding under the Commonwealth Government's *Networking the Nation* (NTN) program to embark on the first phase of the program, known as "*Networking the Northern Rivers".*

> *Stage 1*- involved broad-ranging investigations and consultations across the region as well as training and awareness activities. The Norlink Brand was being established within the region.

> *Stage 2* - evolved from the consultative process, it promoted and encouraged the use of Internet and IT in local communities. A facilitator assisted communities to develop a strategic approach to implement actions appropriate for each community. Several small projects resulted from this process.

> *Stage 3* - commenced investigations into potential telecommunications partners and a number of expressions of interest (EOI) were provided from potential new entrants into the Northern Rivers market. The model envisaged at this stage was one of subsidising an existing carrier to become the region's telco. While this model did not prove to be sustainable, the responses received assisted Norlink to create a revised model and strategies going forward.

> *Stage 4* - In mid 2000 we adopted a new model for achieving the required regional outcomes: Setting up a commercial entity, which would have several technology partners

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initially, then increasing its capabilities and eventually becoming the regional telco (over 2-3 years).

5.1.2 Norlink eTown™ (Regional Telco Prototype Business Model)

The Norlink eTown™ is the initial stage of the company's overall regional telco strategy. Our evolutionary path will be guided and supported by the implementation of this stage. It will help us understand the issues and impacts of deployment of this model to a regional area. It is intended that the transition from the eTown™ phase to a full operational configuration will be an incremental step and require no structural changes when we deliver a full commercial service and create a sustainable enterprise as a core outcome.

Through the establishment of, initially, four "eTown™" in the Northern Rivers region of NSW we will enhance and refine our business and delivery models as well as assist to grow the economy of the selected local communities. This stage has been designed to implement, test, review and modify our strategies as we progressively rollout infrastructure. As we progress through the implementation phase we will refine our long-term implementation strategies. This stage is the foundation for us to build a small regional telco that will then expand throughout the region and be the model for future deployment.

Norlink eTown™ has been funded in part by the Federal Government Networking the Nation program, the NSW State Government has also supported it. In total $1.75M contribution has been already secured for the project.

This stage will test strategies articulated in the Northern Rivers Regional Telecommunications Strategic Plan, which was finalised in late 2000. This strategic plan has three core strategies Access, Customer Acquisition and a Backbone Strategy.

Norlink eTown™ will provide enhanced telecommunications services, using the latest generation of Wireless Local Loop (WLL) technology to deliver both voice and high-speed data services. Initially services will be provided to three Northern River's towns, Mullumbimby, Maclean, Kyogle and the regional city of Lismore.