



Axia NetMedia Corporation

Backhaul Blackspots Initiative Stakeholder Consultation Paper

Response to the Department of Broadband,
Communications and the Digital Economy

Australian Government

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Introduction

Axia NetMedia Corporation is pleased to respond to the Department of Broadband, Communication and the Digital Economy's (DBCDE) Stakeholder Consultation Paper outlining the Backhaul Blackspots Initiative for fibre infrastructure for regional areas in Australia. Axia would like to submit both our observations on the issues for consultation and also briefly describe our vision for the Australian market and how Axia might participate in that vision.

Axia's Experience

Axia has Next Generation Network (NGN) initiatives in Alberta, France and Singapore. The Alberta SuperNet was Axia's first NGN implementation. It utilizes the Community Interconnect model that Axia proposed as the base of the NGN. The Alberta SuperNet proved that a government facilitated Open Access Network used for its own broadband requirements and made available to the whole marketplace, has economic benefits that significantly supersede the value of the up-front investment and recurring services commitment.

Axia is also building and operating 13 regional broadband networks in France under a variation of a Public Private Partnership (PPP) model called a Délégations de Service Public (DSP). These Open Access DSP networks in France have more of a regional character than the SuperNet. Rather than the focus being solely on connecting all communities in a jurisdiction, it goes one step further and creates a fibre backbone within a community. Once again Axia, through its joint venture company Covage, offers broadband services on an un-conflicted Open Access basis to Local Access Service Providers of all types – DSL, WiMax, 3G/4G mobile carriers and FTTP.

Axia led the OpenNet consortium which was recently awarded the FTTP Network Operating Company (NetCo) project in Singapore. OpenNet is responsible for creating a fibre grid that connects every one of Singapore's approximate 1.4 million residences and businesses. Axia surprised the global communications sector by demonstrating that a metropolitan FTTP grid can be built for low network access fees of \$15/month for residential and \$50/month for non-residential.

Axia has remained committed to lending its expertise to solving the digital divide for regional and rural Australia as well as businesses, residents and government locations. Our submissions to State and National initiatives (including the National Broadband Network) have broadened our insight and provided us with additional knowledge of the Australian market place.

Next Generation Networks

Axia builds only state-of-the-art high-performing fibre optic networks. When "passive" fibre networks are combined with leading "active" electronics, they create a Next Generation Network (NGN). NGNs are characterized by utilizing Internet Protocol (IP) to deliver full duplex and symmetrical broadband services. IP is the accepted standard of the technology world, allowing disparate systems and networks to be integrated together in a proficient and economic manner. NGNs also create the ability to define various Qualities of Service (QoS) suitable for a wide variety of applications. Various QoS levels are critical to enabling emerging IP services such as High Definition IPTV, Voice over IP (VoIP) and High Definition videoconferencing. Axia's Next Generation Networks deliver Real Broadband™ with the following characteristics:

- Guaranteed bi-directional capacities from 1 Mbps to multiple Gbps;
- Unlimited throughput with no additional fees tied to download or upload aggregate throughput; and
- Guaranteed service levels, monitored 24 hours a day, 7 days a week to ensure the network is always available.
- Optional rate structures to cater to different transport / connectivity needs.
- Provide the ideal backhaul network for advanced wireless services.

Comments on the Backhaul Blackspots Initiative Stakeholder Consultation Paper

Axia fully supports the government's broadband objective of accelerating the roll-out of the NBN and using this Backhaul Blackspots Initiative as one of the first efforts to define the NBN Company services and cost make-up. It is imperative that the infrastructure deployed to address Backhaul Blackspots is also built into the national FTTP project. NGNs provide significant economic stimulus in regional and rural areas, as long as the NGN services are deployed on an equitable cost and quality basis.

Response to Issues for Consultation

Locations

On Axia's existing networks in Alberta, France and Singapore one rate structure applies across the entire network, regardless of geographical location. Consistent rate structures will be an important success factor of the NBN and must be implemented in the Backhaul Blackspots Initiative. Axia's costing analysis of implementing a jurisdiction-wide open access network in Australia, suggests that rates will drop a minimum of one half, up to a fraction of the rates that are currently in the market today.

When determining which routes qualify for the Backhaul Blackspots Initiatives, there is a trade off in prioritisation to those locations that could potentially become commercially viable after a capital injection and those that will never be self sufficient on a stand alone basis. As the build out of the NBN occurs, the projects that are more remote will leverage the commercially vibrant communities in order to ensure one rate structure exists across Australia. The first stage of deployment will then depend on capital injections to support a community, rural or regional, until cross subsidization can occur.

The initial phase of this initiative will show that the NBN model is one that brings Australia forward as a world leader in communications technology. It should include a series of projects that will be the model of how each type of community, rural regional and metropolitan will reap the benefits of the future NBN.

In addition to the already outlined prioritization suggestions, Axia believes the following are key to selecting projects:

1. Significant Economic Development Benefits

Projects that prove to have the most economic development impact should be given preference. Proposals should include a summary of how the economic development benefits are achieved at a residential, business and government level.

2. Contribution and Flexibility to Working With NBN

All projects must be easily rolled into the NBN once the structure is in place. Projects that allow for the maximum contribution to the NBN should be given preference. Serving the Backhaul Blackspots as multiple pilot projects around Australia is only feasible if the intention is to show case "best in class" examples of how a NGN network can be delivered nationally. Each fibre project awarded under the Backhaul Blackspots Initiatives should therefore roll into national broadband network company ownership structure.

In order to demonstrate the effectiveness of an NBN, the Government of Australia must proceed in showcasing network development for rural, regional and urban Australia with a minimum of one project delivering FTTP services.

Delivering services to existing Backhaul Blackspots in regional Australia is a preliminary step in rolling out a national network. As the Government funds projects to efficiently provide services to the underserved areas of Australia, the Government should ensure that they retain ownership of the assets put in place to serve these locations or put in place stringent guidelines in which IRUs will transfer to NBN Co.

3. Project Readiness

Preference should be given to projects that are “shovel-ready”. Proponents should provide plans that explain the schedule and rollout plan to ensure the Australian Government can determine a project’s readiness. In order to reach the timing goals of the Australian Government and to ensure that end users observe a significant improvement quality and cost of service, all Backhaul Blackspots Initiatives should begin within a month of award. The resulting construction should take no longer than 12-18 months to complete.

4. Government Support

Given the limited funds devoted to the Backhaul Blackspots and the large realm of project possibilities for this initiative, the Australian Government should give preference to those projects that have local government support. Jurisdictions that have come forward and offer their full support in the way of accessing licenses, permits and infrastructure will reduce the amount of time required to see end user benefits. Local Governments that are willing to move their services over to the NBN in an efficient manner will ensure successful service take up and fill the role as key tenants on the network. Some of the main benefits of a Next Generation Network are realized in Education, Health and Government services.

Design and Operational Parameters

1. Construction of Backhaul Blackspots Initiative Assets Should be Considered as an NBN Showcase and Technology Demonstrator

Besides the obvious benefit of construction of deployment of fibre to Backhaul Blackspots, this initiative will be the first significant construction that will occur as part of the NBN. In this respect, it is an opportunity for the government to showcase what the NBN will actually do in the real world, for the residents of all Australia. This project will also form the “first impressions” for the NBN, so standards should be set high and not compromised in any way.

The government has the ability to leverage this project to show “quick wins” for the NBN. This initiative should be the foundation to show the true impact of the NBN both in technology and lean operational performance. The following benefits can be obtained through careful selection of projects:

- **Demonstration of NBN impact.** There is considerable benefit in showing the public at large the impact of NBN-like performance, and how such services will be leveraged to change the lives of Australians. Availability of access to existing and new services (where they were not available before) will help build widespread public support and understanding of what the NBN can do for all Australians.
- **Demonstration of True Open Access.** Deploying truly open access network assets that are managed in an open access framework would compel new and emerging service providers to see the value of an un-conflicted backhaul carrier. This would allow more organized business planning by services providers, resulting in a quicker take up and higher performing services.
- **Demonstration of Technology Performance.** There has been widespread debate regarding whether various types of technologies are sufficient or appropriate for delivering NBN level services. Careful deployment of high performing services (fibre and/or wireless) would show real-world results, and validate the design approach for the NBN.
- **Demonstration of Implementation and Operational Costs.** Further support of the overall NBN approach can be achieved by monitoring and extrapolating actual implementation and operational costs associated with projects executed under this initiative. This data can be used to validate the overall NBN plans and budgets in a very objective manner.

Projects should be reviewed, and approved on the basis that they address these points while reaching Backhaul Blackspots.

2. Assets that are Constructed Should be Complete, Operational and In-line with the NBN

As this project will be ahead of the overall NBN rollout, proponents must organize how such assets are operated in the interim. For an asset to be considered operational, access seekers should be able to procure relevant services, under reasonable terms that are in-line with the overall approach

of the NBN. Proponents should be required to ensure that the assets are operational when completed.

It is important that the assets constructed under this initiative be complete and comprehensive. They must provide connectivity back to existing gateway interconnect points. While construction of new fibre back to the gateway interconnect may not be required, the Backhaul Blackspots Initiative should include the procurement and operation of such backhaul (including the terms) as part of the initiative.

Projects should also provide a means of interconnect and the ancillary services associated with interconnect. This should include (but not be limited to) collocation and interconnect services. The collocation and interconnect assets and services should be considered just as important as the bandwidth, VPNs and QoS services in showing real impact.

The government should not consider the construction of stranded assets, which are those without a pre-designed method of connecting to the international gateway. Additionally, at least one of the approved projects should show how the interconnection between the various categories of projects (urban, regional and rural/remote) would combine to show a comprehensive solution.

The government should strongly favour projects which are shown to seamlessly fold into the NBN, both from an assets and operational point of view.

The government must avoid any construction arrangement, where the funding is used in any manner to construct assets that do not become part of the NBN. Any shared cost/shared IRU approach would be a government subsidy to a competitor of the NBN.

3. NBN Wholesale Services: Type and Capacity

Any projects considered for inclusion as part of the Backhaul Blackspots Initiative should deliver services of a character that is in-line with the vision for the overall NBN. The government has an opportunity under the Blackspots Initiative to show the quality and impact of the services that would ultimately become part of the NBN.

The services delivered using assets created under the Backhaul Blackspots Initiative should include only wholesale services such as:

- Layer 2 bandwidth with Committed Access Rates;
- Layer 3 bandwidth with Committed Access Rates;
- Virtual Private Networks (VPNs);
- At least 4 levels of bandwidth Quality of service;
- Collocation Services; and,
- Alternate Points of Interconnect.

Services should not be made available directly to retail customers.

The services delivered should be capable of being utilized (as the underlying backhaul) to deliver services that are in line with the NBN targets of 100 Mbps to 90% of the population, and 12 Mbps to the rest. While the initial deployment of electronics on a given route can be driven by demand, the design of the underlying technology (fibre), distances and architecture should be considered to ensure that each community served can be easily upgraded to at least 1 Gbps of Committed Access Rate bandwidth or beyond.

The services that are offered should be available equally, and under the same terms to all customers i.e. "Equivalence of Inputs". Favourable consideration should be given to proponents who can show how such services can become part of the NBN.

The services offered should be easily transitioned into the NBN suite of services, when such services are developed.

4. Open Access and Locations for Points of Interconnect

The government has the opportunity under this initiative to show the real world impact of a true Open Access approach. Significant consideration should be given to projects that can embody open access principles. Proponents should be measured on:

- Low bandwidth prices that are consistent anywhere on the particular network;
- Attractive non-price terms of the services to be delivered;
- Ease of access for service providers;
- Power and flexibility of the services; and,
- Availability and price of ancillary services such as co-location and tower access.

The projects approved under this initiative should give careful consideration to the manner and locations in which access seekers will connect to the network in each of the communities served. It is also necessary to ensure that access seekers have a location to collocate their equipment used to interconnect. For this reason, some type of Point of Presence (PoP) should be constructed in or near each of the communities that are intended to be served. The locations chosen should be selected on the basis of their ability to provide free and easy access to customers and provide necessary connectivity to the community. Examples of appropriate interconnect locations are as follows:

- Existing Central Offices where un-encumbered third party access and collocation can be obtained,
- Newly constructed stand-alone Points of Presence, located centrally in a community, or on a nearby high spot providing good quality wireless reach to the community,
- Customer Premise PoPs where access agreements can be obtained, and
- Handhole/Manhole fibre interconnection points (where access seekers have their own infrastructure and facilities).

Consideration should be given to the construction of wireless towers, in conjunction with and collocated with, the community PoP. It is our experience that once backhaul is readily available in a community, the next largest barrier to service providers is the availability of towers for wireless service providers to locate their equipment. These towers would enable wireless service providers the ability to quickly provide services the reached community. These towers should be administered on an Open Access basis providing equal available to all access seekers and as part of the overall infrastructure.

5. Timeframes and Technologies

The services delivered should be used to showcase and validate the performance of the various technologies that are expected to be used in the NBN.

Overall, the Backhaul Blackspots Initiative should include projects with each of the following technologies:

- Community Interconnect fibre;
- Fibre to the premise (Residential and Business);
- Fibre to the premise (Government);
- Wireless of the end of Community Interconnect; and,
- Satellite.

Multiple initiatives that employ a variety of solutions will help to ensure that the NBN is structured appropriately. Proving out each of these solutions types is essential to the success of the NBN.

Projects should be chosen on the basis that they can be quickly designed, constructed and commissioned. Use of existing assets, where available, should always be considered, so that construction resources can be focussed on areas where no existing assets are available. Two main criteria should be applied in terms of selecting appropriate projects under this Initiative:

- Projects that can become operational in less than 12-18 months
- Projects that do not require any regulatory adjustments

With a well organized community interconnect model, each community reached can be used as a regeneration point. When ubiquitous coverage is achieved in a region or on a particular route, the need for intermediate regeneration points can be considerably reduced. For the remaining locations

where regeneration is still required, small self contained units can be deployed, using solar or other available power. It would be beneficial for the NBN project as a whole to define a standard for such regeneration units, and take advantage of economies of scale in their construction and operation.

6. Redundancy vs. Reach

The Backhaul Blackspots Initiative should focus on providing the maximum reach, in exchange for redundancy, in the first stage. In the early stages of the NBN, there is more economic and political value in providing maximum reach as compared to providing redundant connections.

The value of the step change that is achieved by going from a "blackspot" to a connected community is far greater than that obtained from providing redundant links. While we do not minimize the value of redundancy, it can be left to the NBN to provide, so that this initiative can have the greatest impact.

Operational and Ownership Arrangements

As the Commonwealth has recognised through its NBN initiative, super fast broadband is a truly essential 21st century infrastructure just as the electrical grid was the infrastructure that drove growth and innovation through the 20th century. Therefore, in Axia's opinion, the Australian NBN must ultimately be structured and operated like a utility. It must provide a ubiquitous and consistent service to all Australians. Like any utility, it must harness the economies of scale that are created by building a fibre optic network on a national basis and pass those economies back to the market in the form of high-quality services at low prices relative to the market today.

The operational and ownership model that is suggested in the DBCDE's Backhaul Blackspots Initiative Stakeholder Consultation Paper contains elements of our suggested utility approach to these Next Generation Networks, but there are also elements that work to counter this objective. Included are specific observations and comments below.

1. Ownership Arrangements

Next Generation fibre optic networks that are built on a no-conflict, open access basis take on monopoly, utility-like characteristics. Therefore, as the NBN is going to be a monopoly network in Australia, the Commonwealth should either own, or at the very least maintain strategic control, of the fibre assets over the long term. In the regulatory, governance and commercial models that are utilized by the Backhaul Blackspot Initiatives, proponents must acknowledge the monopoly character of the NBN. They must also be complementary to the approach that NBN Co ultimately adopts to implement the NBN.

The best way for the Backhaul Blackspots Initiative to be executed and not set undesirable precedents for NBN Co. would be for all government funding to be utilized solely on acquiring government owned assets or assets that the government has the unconditional right to own in the future.

2. Operational Arrangements

The operational arrangements for the Backhaul Blackspots Initiative will be complicated since in any scenario the winning proponent will be expected to provide operational services only until such time that NBN Co can take over operations to provide its mandated services. Therefore, the operational element of the Blackspots projects will be temporary and transitional in nature. Proponents should be evaluated upon their ability to deliver "best in class" services as well as their operation methodology and ease of transfer to NBN Co. The wholesale services delivered must ensure that Australia will recognize the full benefit of the network by building and supporting vibrant and competitive Retail and Application Service Provider sectors in the jurisdictions in which networks are built.

3. Commercial Viability

If the NBN is properly structured with the appropriate commercial, regulatory and corporate governance models, then it will be commercially viable in its own right. However, these next generation networks require the full scope and economies of scale associated with a roll-out that combines high-density commercially viable regions with other less dense commercially challenged regions.

The Backhaul Blackspots Initiatives by nature, will fall into the “less dense commercially challenged” regions and projects. Therefore, the DBCDE must recognize that these Blackspot projects will require financial support until such time as they can be rolled into the larger scope of NBN Co. This financial support can take different forms such as direct capital support during operation, or it can take the form of a ‘purchase price’ at the time of integration into the NBN that recognizes the operational costs up to that point.

Axia welcomes the opportunity to discuss the contents of our response to the DBCDE’s Backhaul Blackspots Initiative Stakeholder Consultation Paper further with the department prior to release of the formal Request for Proposal.