Submission to Department of Broadband Communications and the Digital Economy

on

Regulatory Reform for 21st Century Broadband

AARNet Pty Ltd

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Part A - Introduction, summary

1. Introduction, summary

The Internet was born 40 years ago in a lab at the University of California. Today it spans the entire planet and is ubiquitous in the daily lives of more than 1.5 billion people.

It is easy to forget that it was the research and education community that was responsible for the introduction of the Internet. These institutions are the heart of demanding, advanced scientific applications. Universities are also the source of innovation in health care systems, cutting-edge health research, medical education, clinical care, and rural telemedicine. The bandwidth demands of today's advanced scientific applications – tens of gigabits per second – foreshadow similar bandwidth needs in homes and businesses in the future.

AARNet Pty Ltd (AARNet), as Australia's national education and research network, is therefore pleased to make this Submission to the Department of Broadband Communications and the Digital Economy (the **Department**) in response to its discussion paper – *Regulatory Reform for 21st Century Broadband*.

AARNet makes this Submission on behalf of its shareholders: 38 Australian Universities and the Commonwealth Scientific and Industrial Research Organisation (**CSIRO**), who acknowledge AARNet as essential, enabling digital infrastructure for research and education both nationally and internationally:

AARNet welcomes the opportunity to comment on the approach being determined by the Department to address possible changes to legislation affecting the creation of broadband and other telecommunications infrastructure, and access to that infrastructure.

AARNet makes the following submissions.

In respect of land access

A. The *Telecommunications (Low-impact Facility) Determination 1997* should be reviewed to take account of changes to network infrastructure generally, as well as network infrastructure that is, or likely to be applied, in the design, construction and ongoing operations and maintenance of a national broadband, or other high bandwidth, telecommunications networks.

B. Alternatively, consideration should be given to amending Schedule 3 to the *Telecommunications Act 1997* to add a fourth category or instance, through which a carrier is able to exercise rights to access, install and maintain network infrastructure without being subject to State and Territory laws. It is suggested that this be a process that is a less formal and less rigorous version of the facility installation permit process, through which a carrier makes an application to install particular infrastructure, and ACMA makes a determination whether or not to grant a permit or permission to install such infrastructure, after having taken into a range of interests or factors, which would be prescribed.

C. Schedule 3 to the *Telecommunications Act* should be amended to make clear that a carrier should be able to access, and conduct works and maintenance on, land that is the subject of registered native title, or a registrable claim for native title, in the same way, and subject to the same conditions as would be the case for freehold land.

D. The *Telecommunications (Low-impact Facility) Determination 1997* should amended to remove provisions, the effect of which is that a facility, which would otherwise be designated 'low-impact', ceases to have that designation because it is to be located in an area of environmental significance.

E. Schedule 3 to the *Telecommunications Act* be amended to insert processes of the type referred to in paragraphs 2.16 and 2.17 of Part B of this Submission**.**

In respect of access to facilities

F. The regulatory regime should dispense with the current model of setting out a blueprint and/or guidelines for negotiating facilities access in favour of a requirement for an owning carrier to grant access on terms and conditions that reflect a set of mandatory principles governing access. The role of the regulator should be limited to overseeing facilities access provisions to ensure that they are consistent with the mandatory principles, and have powers to require changes to conditions where they do not reflect such principles.

G. The Telecommunications Act be amended provide for carriers to have some form of access to the telecommunications infrastructure of 'non-carriers' who are currently able to own and operate such infrastructure through the exemptions to section 42 that appear in the Act. Such access should extend not only to the 'telecommunications' infrastructure of such non-carriers, but also to 'non-

telecommunications' infrastructure which such bodies nevertheless use or apply to house or locate their telecommunications infrastructure.

H. The regime providing for such right of access should be separate and discrete from the facilities access regime that regulates access as between two carriers. Access to 'non-carrier' infrastructure must preserve and protect the ability of such non-carriers to continue performing their key functions. Consideration should be given to imposing a time limit on the period of required access. Certain 'exempted' non-carriers, such as defence and security agencies should also be exempted from such access regime.

In respect of separation of 'wholesale' and 'retail'

I. Any legislation intended to effect any operational separation of Telstra should be clearly limited to Telstra, and not impose obligations or requirements on other carriers to effect separation between ownership of infrastructure (and provision of access to it) and the provision of services to customers.

2. About AARNet

AARNet is a licensed carrier under the *Telecommunications Act 1997* (Cth.) (the **Act**).

AARNet is a proud innovator of digital technology. 2009 will mark our twentieth anniversary as the genesis of the Internet in Australia. In 1989 the Australian Universities and the CSIRO, under the umbrella of the Australian Vice-Chancellors' Committee **AVCC)**, initiated a project called the Australian Academic and Research Network.

Twenty years ago 99% of the Australian internet traffic was between AARNet's shareholders (the Australian Universities and CSIRO. A small amount of commercial traffic emerged mainly from organisations that had a close association with the tertiary and research sector. In addition to providing support for the teaching, learning and research activities of universities and research organisations, AARNet also positioned itself as a wholesale backbone Internet Service Provider. This encouraged smaller ISPs to emerge without the requirement for extensive capital investment in international and domestic infrastructure. This strategy grew the ISP market from 2 commercial ISPs in 1992 to over 300 by June 1995. By 1995 the total use by the non-AARNet user base had increased to ~20% of total traffic and the commercial customer base of AARNet was sold to Telstra, spawning what was to become Telstra BigPond. This stimulated further growth of the commercial and private use of the Internet in Australia.

The intellectual property and expertise transfer to industry resulted in development of the Internet in Australia that would not have otherwise occurred at such a rapid rate.

AARNet Pty Ltd was incorporated on 22 December 1998 with the sole shareholder being the Australian Vice-Chancellors' Committee (**AVCC**). The company became fully operational in March 2000 after completing the transfer of functions from the AVCC, with current shareholders being the 38 universities and CSIRO.

In 2001 AARNet deployed its first international capacity by acquiring 310 Mbps of capacity from Sydney via Hawaii to Seattle. This provided access to the advanced research and education networks of many countries including North America, Europe, Japan, Taiwan, Asia and South America. In 2002 AARNet was the prime motivator in implementing GrangeNet which provided the first high capacity research network [5 Gbps] from Brisbane to Sydney and 10 Gbps between Sydney, Canberra and Melbourne. However in the same year AARNet acquired dark fibre on all segments of the Nextgen network and built a fully diverse and redundant national backbone from Brisbane to Perth. Known as AARNet3 this was officially launched at Parliament House, Canberra on the 14th September 2006.

Today AARNet has completely transformed from a reseller of commercial capacity to the owner and operator of one of the largest research and education networks in the world. With a significant infrastructure development group AARNet has had to physically build thousands of kms of dark fibre, and to collaborate with infrastructure owners and ISP's in every state and internationally to secure the last mile access. With more than 30,000 kms of dark fibre and serving more than 2 petabytes of data annually AARNet is a model of a national research and education network increasingly looked to as an exemplar by the rest of the world.

Therefore, AARNet is not merely a provider of carriage services, it is an acquirer of capacity on other telecommunications networks, but is also a installer, provider and owner of telecommunications infrastructure. It will continue in each of these capacities for the purposes of its future operations.

AARNet is a 'not-for-profit' company, whose activities are limited to the provision of telecommunications services to benefit the research and education sector.

AARNet also draws attention to its commentary on the significance of National Research and Education Networks (NRENs), which is annexed to this submission.

3. AARNet's position in legislative reform

AARNet understands that the Department is consulting the community to seek views of reforms to existing legislation and regulation in anticipation of the rollout of national telecommunications network that will offer greatly enhanced capacity and functionality to Australian businesses, governments, the education and research sectors and, most importantly, to Australian residents. A 21st century telecommunications network infrastructure requires a 21st century approach to issues such as access to facilities and services, and to the competitive environment through which telecommunications facilities and services are offered to service providers and consumers alike.

AARNet endorses that view. Further, it is enthusiastic about reforms that will not only facilitate the supply of, and access to, high-bandwidth telecommunications infrastructure throughout Australia, but also avoid imposing disincentives for parties, who either own or are prepared to invest money in, new telecommunications infrastructures.

AARNet considers that it is significantly different to, and its network and the services it provides, are significantly different to those of commercial operators in Australia. Accordingly, it is concerned to ensure that reforms directed at the commercial service providers or infrastructure owners, or at promoting competition within the industry generally, do not adversely affect the research and education sector and the services and capacity that it enjoys currently.

At the same time, it wishes to identify reforms that may facilitate the rollout of the proposed National Broadband Network, but also ensure that the benefit of such reforms are made available not just to the entity or entities that will undertake that rollout, but also other carriers and/or parties wishing to invest in, and/or provide, high bandwidth telecommunications infrastructure.

AARNet wishes to make submissions on the following matters.

(a) The arrangements concerning access to land for the purposes of installing and maintaining telecommunications infrastructure.

(b) The arrangements dealing with access to telecommunications facilities.

(c) The proposed provisions addressing the separation of the provision of 'wholesale' services and 'retail' services.

Part B – Land Access

1. Preamble

1.1 Schedule 3 to the *Telecommunications Act 1997* (Cth.) is intended to address and overcome two key barriers to a carrier's ability to provide telecommunications infrastructure to enable to it supply telecommunications and related services. First, it enables carriers to access land to, undertake works necessary to install particular kinds of telecommunications infrastructure, and to provide ongoing maintenance of that infrastructure without having to acquire any title or interest in that land. A requirement for a carrier to acquire such title or interest would be impractical from many standpoints, and would make the provision of telecommunications infrastructure uneconomic.

1.2 Secondly, Schedule 3 accords carriers some degree of immunity from the operations of State and Territory laws concerning land use, and in particular property, environmental and planning laws.

2. Limitations of Schedule 3

2.1 However, there are some significant limitations to the land access arrangements in Schedule 3, as well as some uncertainty for carriers as to how they address the operations of particular Commonwealth and State/Territory laws which may affect land.

Not all infrastructure is covered

2.2 The first limitation to Schedule 3 is that powers given to carriers only applies to particular kinds of telecommunications infrastructure: '*low-impact facilities*', infrastructure that is the subject of a 'facility installation permit' and infrastructure that is a '*temporary facility*' for use by a defence organisation for defence purposes. The latter two categories of infrastructure are, at least practical purposes, irrelevant in terms of civil and/or commercial carriers. AARNet's understanding is that, to date, no 'facility installation permit' has ever been issued and, in view of the process and requirements to procure such a permit, no carrier is ever likely to apply for one.

2.3 The equipment and infrastructure that is considered to be a 'low-impact facility' is described in the *Telecommunications (Low-impact Facilities) Determination 1997* (**Determination**), a disallowable instrument made under Schedule 3 to the Act. In order to be a 'low-impact facility', equipment or infrastructure must:

(a) fit within one of the categories listed in the Determination; and

(b) assuming it does fit within one of those categories, also be installed in or on a category of land that for which that category of equipment is designated.

The four categories of land are: commercial, residential, industrial and rural, and the designation depend on the use to which that land is put.

2.4 The effect of the Determination is that some kinds of equipment, even though it fits within the description in the Determination will be considered 'low-impact facilities' if installed in, say, industrial or rural areas, but not if they were installed in commercial or residential areas. For other kinds of equipment, it will be considered 'low-impact' irrespective of where it is installed.

2.5 AARNet notes that most of the structures and equipment that are listed in the Determination, which would be located 'above ground' have height restrictions attaching to them. AARNet considers that, for a range of reasons: technical, financial, security, geographical, or combination two or more, it may not always be possible for a fibre-optic cable network to be located underground or in/on structures that fall under the height restrictions in the Determination. For example, it may be necessary to erect towers either to hold equipment, or on which to run cable[1]. If design of a fibre-optic-cable network will be comprised of a combination of equipment and structures that are 'low-impact facilities' and those that are not 'low-impact facilities' then the viability of, or capacity to deliver, that network may be jeopardised, in the sense that the parts that are not low-impact will be subject to a different set of laws, which may operate in a manner that frustrates the construction, delivery and ongoing maintenance and operation of that network.

Submission:

A. AARNet considers either that the Determination should be reviewed to take account of changes to network infrastructure generally, as well as network infrastructure that is, or likely to be applied, in the design, construction and ongoing operations and maintenance of a national broadband, or other high bandwidth, telecommunications networks.

B. Alternatively, consideration should be given to amending Schedule 3 to add a fourth category or instance, through which a carrier is able to exercise rights to

[1] A related issue of carrier's rights to access existing facilities, such as towers, that may be owned by non-carriers is addressed later in this submission.

access, install and maintain network infrastructure without being subject to State and Territory laws. It is suggested that this process would be a less formal and less rigorous version of the facility installation permit process, through which a carrier makes an application to install particular infrastructure, and ACMA makes a determination whether or not to grant a permit or permission to install such infrastructure, after having taken into a range of interests or factors, which would be prescribed. An approach such as that in Part 3 of Schedule 3A might be useful template for such a permit application process.

Addressing issues concerning native title and sites of significance to indigenous groups

2.6 If the land on which the equipment is to be installed is an '*area of environmental significance*', then such equipment cannot be considered low-impact (even if such land is residential, commercial, industrial or rural. Areas of environmental significance include land that is:

(a) protected from 'significant environmental disturbance' by Commonwealth, State or Territory laws;

(b) subject to heritage conservation laws of the Commonwealth, State or Territory; or

(c) subject to Commonwealth, State or Territory laws recognising the significance of that land to indigenous groups.

If equipment ceases to have the status of 'low-impact facility' then a carrier will be subject not only to the abovementioned laws, but also the State and Territory laws concerning property, environment and planning issues.

2.7 AARNet notes that, as well the effect of the Determination, the provisions of the *Telecommunications Code of Practice 1997* (which is also invoked under Schedule 3), a carrier has a range of notification requirements in respect of the conduct of '*low-impact facility activity*' (that is, activities directed at the installation of low-impact facilities) where such activities are to occur or near the same areas as those listed in paragraph 2.6 above[2]. The Code of Practice then prescribes that the '*Environment Secretary*'[3] has

[2] AARNet points out, without further comment, that there is some inconsistency here. The effect of the Determination is that a facility cannot be a low-impact facility if it is located on an 'area of environmental significance', yet the Telecommunications Code of Practice's definition of 'low-impact facility activity' suggests that a carrier can install a low-impact facility on such areas.

powers, by notice, to require the carrier not to proceed with such activity, either on an interim or permanent basis.

2.8 If the Department's intent is to provide access to high bandwidth telecommunications and data services not only to major urban centres, but also to regional and remote Australian locations, then it will be inevitable that telecommunications infrastructure will need to be installed and operated in and across parts of Australia that will be the subject of native title laws, as well as laws protecting sites of significance to indigenous communities.

2.9 The law is not clear as to whether laws 'recognising the significance of that land to indigenous groups' is reference only to statutes addressing aboriginal heritage – which affect particular locations - or extends to address native title.

2.10 On the question of native title legislation, AARNet's advice is that the kinds of access, installation and works contemplated for the installation, and continued location of, telecommunications infrastructure is not addressed adequately (or at all) in the provisions of the *Native Title Act 1993,* and that it is not clear whether a carrier would be required to enter into an agreement contemplated by the Native Title Act, and/or provide compensation to the holders of, or claimants for, native title in particular land (should native title exist).

2.11 Whilst, arguably, under the Native Title Act, this may already be the position, AARNet believes that for land over which there is registered native title, the process and procedure for a carrier to access, conduct works and/or maintenance should be the same as that which would apply to freehold land. A similar position should exist in respect of land over which native title is claimed or asserted. AARNet notes that that process allows for the title holder to object, on prescribed grounds, to the proposed access and refer objections to the Telecommunications Industry Ombudsman. There is also the capacity for a party to seek compensation under Schedule 3.

Submission:

C. Schedule 3 to the** Telecommunications Act **should be amended to make clear that a carrier should be able to access, and conduct works and maintenance on, land that is the subject of registered native title, or a registrable claim for native title, in the same way, and subject to the same conditions as would be the case for freehold land.

[3] Defined as the Secretary to the Commonwealth Department that administers the *Environment (Impact of Proposals) Act 1974.*

2.12 Addressing, or clarifying the position with respect to native title will, however, provide only partial assistance for carriers wishing to provide telecommunications infrastructure. Where the route of a proposed network, or the works required to install such network, pass through locations of heritage significance to indigenous groups, the practical effect of most State and Territory laws relating to Aboriginal heritage is that the carrier is required to negotiate with the relevant group that has registered or claims that such location is of significance, not only to procure the conduct of a survey (to determine whether in fact such a location will be disturbed), but also to then obtain permission or consent from the relevant responsible State government to proceed.

2.13 To date, AARNet's advice and experience is that negotiation with indigenous groups to procure that a survey is conducted takes considerable time. Often, securing the co-operation or involvement of the claimant groups requires series of meetings (the costs of which – including those of the indigenous attending - are met by the carrier). Further, some groups appear unwilling to make distinctions in their approach between a project such as a mine (where there may be extensive and possibly permanent damage to a given site) and a telecommunications project where the disturbance of the land is likely to be minimal and temporary. As such, their expectations for compensation or fees far outstrip the relative value of the works to be undertaken.

2.14 It is not AARNet's position that the powers of access given to carrier should override all laws relating to protection of Aboriginal heritage, or indeed, laws relating to protection of environmentally-sensitive or protected sites. However, it does believe that the process addressing what should occur when the route of a network will or may pass over or through a site of significance to an indigenous group, or indeed an environmentally-sensitive or protected areas, should be streamlined, in a number of respects. To facilitate the building of new infrastructure in a significantly more timely and cost effective manner.

2.15 First, the fact that a facility, which would otherwise be considered 'low-impact', happens to be located in an 'area of environmental significance' should not, of itself, mean that that facility ceases to be designated 'low-impact'. It is submitted that, under the current Telecommunications Code of Practice, there is already a degree of protection in the sense that a carrier is required to give notifications to persons or bodies with authority over such locations, and that the Commonwealth has the capacity to suspend or even prevent activities being conducted by a carrier on such locations.

2.16 Secondly, and consistent with the approach with respect to native title, carriers should be able to issue land access notices to indigenous groups who have registered locations or areas of cultural significance under State heritage laws, and exercise rights of access unless the claimant issues an objection in respect of such access. The objection process could be tailored to address likely concerns that indigenous groups would have, and in particular, it could mandate the conduct of a survey within a prescribed period, and if such survey were not conducted within that period, the objection would lapse.

2.17 AARNet notes that, under the current process in Schedule 3, where an owner or occupier of particular land cannot be located, there are measure that the carrier can take to give notice of proposed activity. To the extent no heritage or like claim was actually registered, Schedule 3 could impose obligations on the carrier to make enquiries as to the existence of such claims[4], and it is submitted that a public notice or advertisement in a newspaper circulating in the relevant State, would be an appropriate means of giving notice of proposed land access.

Submission

D. ***The*** *Telecommunications (Low-impact Facility) Determination1997* ***should amended to remove provisions, the effect of which is that a facility, which would otherwise be designated 'low-impact', ceases to have that designation because it is to be located in an area of environmental significance.***

E. ***Schedule 3 to the*** *Telecommunications Act* ***be amended to insert processes of the type referred to in paragraphs 2.16 and 2.17 above.***

[4] This might require the carrier to make contact with a person or group asserting native title in the relevant area, and to make enquiries of State/Territory heritage protection or cultural departments.

Part C – Facilities access

1. Preamble

1.1 AARNet notes that, in Chapter 3 of the Department's discussion paper, the Department has raised the issue of access by a particular carrier to another carrier's infrastructure. The suggestion is that the process for, or arrangements for enforcing, such access be similar to, or even absorbed into, arrangements for access to wholesale services under Part XIC of the *Trade Practices Act 1974*. AARNet further notes that, in its discussion of the operation of Part XIC, the Department indicates that the intention of that Part is directed at promoting competition, 'any-to-any connectivity' and *the efficient use of, and investment in, telecommunications infrastructure* (***AARNet's emphasis***).

1.2 In terms of a rollout of a new or enhanced telecommunications infrastructure, AARNet believes that one element of promoting or enhancing 'efficiency' is to make effective use of infrastructure that already exists. However, as well as addressing the process for accessing infrastructure owned by licensed carriers, AARNet believes that consideration should be given to changing telecommunications laws to extend the rights of access not only to telecommunications infrastructure of 'carriers' but also infrastructure of 'non-carriers'.

2. Current Access arrangements

2.1 AARNet notes and endorses the criticisms of the facilities access regime that appears currently in Schedule 1 to the *Telecommunications Act*.

2.2 Given the deficiencies identified in the current operation of Part XIC of the *Trade Practices Act*, AARNet does not believe it is appropriate that the regime for facilities access should either be modelled on that in Part XIC or subsumed into the process in Part XIC. As a general approach, a model that relies principally on contractual negotiation, and invokes a determination of a body, such as the Australian Competition and Consumer Commission, to overcome a failure of contractual negotiation, is unlikely to deliver a timely or efficient result. Under that approach, the carrier that owns or controls the infrastructure maintains the more dominant position: it has the benefit of 'incumbency' in the sense that, even if the 'arbitrating' ultimately determines against it, the body seeking access incurs loss through delay and lost opportunities, and its terms are less likely to be substantially overridden or rejected if its conduct and terms are not overtly anti-competitive.

2.3 The Department notes that one of criticisms of the facilities access regime is that there is a Code of Access in respect of access to certain telecommunications infrastructure[5], which outlines steps in a process of dealing between the owner of infrastructure and the carrier seeking access, but that those steps themselves introduce points of disputation. Further, AARNet notes that the dispute resolution procedure built into the Code results in ACCC being an 'arbitrator of last resort'.

2.4 Nevertheless, AARNet observes that regulators should not lose sight of the fact that substantial amounts of money are required to establish and maintain a telecommunications network, and the party that has invested that money should be entitled not only to derive a reasonable rate of return, but also to impose measures to ensure that the integrity and ongoing operation of that network is preserved and that it has adequate protections against legal and other risks that it may face by permitting other carriers the right to access and use that network and/or infrastructure of which it comprised.

2.5 Accordingly, it is submitted that an approach that removes, or substantially limits the capacity of the infrastructure owner, to set the terms of access will operate as a disincentive for carriers to provide telecommunications infrastructure, and persons who may be considering investing in, or financing, the provision of such infrastructure.

2.6 Whilst it is not an overt element of the current facilities access regime, there is undercurrent in the legislation and codes of conduct that a carrier that owns infrastructure will not provide access to another carrier unless it is forced to do so. The regulatory model then mandates how the parties must negotiate, and indicates some principles underlying the terms that should be agreed, but ultimately shies away from prescribing the terms on which access must be given.

2.7 AARNet does not advocate that the regulator should remove the right of a provider of facilities to set the terms of access, or prevent it from negotiating terms of access. However, it is suggested that either the existing Code of Access, or Schedule 1, is amended to impose mandatory principles governing access, which would operate as a template around which contracts governing access could be concluded. Such principles would, on the one hand, recognise that a carrier seeking access is entitled to the same level of access to facilities as the 'owning' carrier and that the level of service and

[5] Namely, *A Code of Access to Telecommunications Transmission Towers, Sites of Towers and Underground Facilities*

reliability owing to such 'accessing' carrier must be no less than that enjoyed by the owner. Such principles must also permit the owner to impose reasonable standards and requirements to protect its assets and personnel, and its capacity to provide services to its customers (and access to other carriers). Whilst the parties should be free to agree on matters beyond the scope of the mandatory principles, their contract must nevertheless reflect, or be consistent with, those principles.

2.8 The role of the regulator should alter from one of arbitrating and setting terms and conditions where parties cannot agree to one of oversight: confirming that facilities access provisions do reflect the mandatory principles and making directions to change facility access conditions so that those principles are reflected.

Submission:

A. The regulatory regime should dispense with the current model of setting out a blueprint and/or guidelines for negotiating facilities access in favour of a requirement for an owning carrier to grant access on terms and conditions that reflect a set of mandatory principles governing access. The role of the regulator should be limited to overseeing facilities access provisions to ensure that they are consistent with the mandatory principles, and have powers to require changes to conditions where they do not reflect such principles.

3. Access to infrastructure of 'non-carriers'

3.1 There is little doubt that the delivery of a national broadband network, and indeed any high bandwidth network that will service a large area, will require the creation of substantial new telecommunications infrastructure. The delivery of such infrastructure will some at a significant cost. However, it is submitted that the resources devoted to the creation of such new infrastructure might be applied more effectively if better use is made of existing infrastructure, both telecommunications infrastructure, and other infrastructure on or through which telecommunications equipment and fibre optic cable could be located.

3.2 AARNet notes that there is significant telecommunications infrastructure in existence which is owned and operated by parties that are not licensed carriers under the *Telecommunications Act*, but who are able to own and operate such networks by virtue of the exemptions to section 42 of the Act that appear in sections 45 to 51 of the Act.

Amongst those parties are bodies such as rail transport companies or authorities, and electricity supply companies. Aside from extensive fibre-optic cable networks and associated equipment, such bodies may have related infrastructure such as transmission towers.

3.3 As the entities to whom these exemption are extended are not carriers under the Act, the facilities access regime does not apply to them. It is submitted that the cost of providing high bandwidth infrastructure throughout Australia – but particularly to locations in remote Australia, where infrastructure of rail and electricity bodies may actually well-established, and/or better developed than existing infrastructure used for civil telecommunications – may be reduced or used more efficiently if carriers had access to the infrastructure of these 'exempt' bodies. Whilst recognising that there may be constitutional limitations, some consideration should also be given to extended rights of access to 'non-telecommunications' infrastructure that is nevertheless being used or applied by such 'exempt' bodies to locate or house their existing networks, such as transmission towers.

3.4 AARNet recognises that the entities that enjoy the exemptions under the Telecommunications Act each provide a 'public good', and that their telecommunications networks are an intrinsic element of their capacity to continue to providing that 'public good'. AARNet is not advocating that the exemptions be removed.

3.5 It is also recognised that opening their telecommunications infrastructure to access to commercial telecommunications carriers may have adverse implications for such entities' ability to fulfil their functions. However, such concerns could be addressed through a 'special' access regime that recognised the non-carriers' right to prevent or restrict access by carriers where such access would adversely affect the non-carriers' ability to fulfil its key functions. Those concerns could also be addressed by making clear that any rights of access were on a temporary basis, that is, for a period of time necessary to enable carriers to establish their own purpose-built infrastructure. AARNet notes that, amongst the 'non-carriers' to whom exemptions are granted are bodies responsible for defence and security. It is acknowledged that such bodies should be exempted from any access regime, as any requirement for them to grant access to their facilities may compromise the capacity to defend and secure the nation effectively.

3.6 As the provider of a National Research and Education Network, AARNet points out the provision of high bandwidth telecommunications networks to education institutions throughout the country – and in particular to regional and remote locations where access

to a range of materials and resources may be available only via the Internet or related technology – is itself a public good. To the extent that the rollout of telecommunications infrastructure, which may facilitate the supply of enhanced telecommunications and data services to schools and educational institutions throughout Australia, may be assisted or provided more cheaply if AARNet and other carriers had some right to access infrastructure of non-carriers, such access should be made available.

Submission:

B. ***The*** *Telecommunications Act* ***be amended provide for carriers to have some form of access to the telecommunications infrastructure of 'non-carriers' who are currently able to own and operate such infrastructure through the exemptions to section 42 that appear in the Act. Such access should extend not only to the 'telecommunications' infrastructure of such non-carriers, but also to 'non-telecommunications' infrastructure which such bodies nevertheless use or apply to house or locate their telecommunications infrastructure.***

C. ***The regime providing for such right of access should be separate and discrete from the facilities access regime that regulates access as between two carriers. Access to 'non-carrier' infrastructure must preserve and protect the ability of such non-carriers to continue performing their key functions. Consideration should be given to imposing a time limit on the period of required access. Certain 'exempted' non-carriers, such as defence and security agencies should also be exempted from such access regime.***

Part D – Separation of 'wholesale' and 'retail'

1. AARNet acknowledges and understands that the Department's discussion paper is focussed on arrangements for the operational separation of Telstra. AARNet does not propose to express a view as to whether or not such a separation should be mandated and, if is mandated, how that separation should occur.

2. However, AARNet is concerned that legislation implemented to effect a separation of Telstra's operations would apply to other carriers such that a carrier, or a party wishing to enter the Australian telecommunications market, would effectively have to choose whether it wished to be an owner of infrastructure and supplier of services on a wholesale basis, on the one hand, or a supplier to services directly to customers and end-users at a 'retail' level.

3. AARNet's capacity to provide high bandwidth telecommunications services to the education and research sector is derived in part from acquiring capacity from the networks of other carriers, but also from AARNet's fibre-optic assets which is owns and utilises to provide services directly to its members and customers.

4. Accordingly, any suggestion that a separation of 'wholesale' and 'retail' be implemented or enforced on an industry-wide basis, would severely compromise AARNet's position as a National Research and Education Network provider. It is submitted that it would operate as a disincentive for it, and many other carriers, investors and financiers to put money into the development and provision of new and advanced telecommunications infrastructure.

Submission:

Any legislation intended to effect any operational separation of Telstra should be clearly limited to Telstra, and not impose obligations or requirements on other carriers to effect separation between ownership of infrastructure (and provision of access to it) and the provision of services to customers.

For further information regarding this submission, please contact:

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Annexure

THE UNIQUE ATTRIBUTES OF A NATIONAL RESEARCH AND EDUCATION NETWORK

All developed nations have National Research and Education Networks (NRENs) not only to serve the specialised network requirements of scientific research but to underpin the development of the next generation of the internet. These NRENs around the world have evolved in parallel to meet the very demanding applications of research, education and health, and Australia peers with these networks on an equal footing to form an international grid.

THE SPECIAL NETWORKING REQUIREMENTS OF RESEARCH AND EDUCATION

The needs of the research and education community typically encompass the high-end of general community needs, but also go well beyond them in capacity and performance requirements. However it is the Pareto principle that applies to the research and education data traffic: 90% of users account for 10% of traffic, but remaining 10% of users account for 90% of traffic.

The current wave of innovation driving the demand for high band-width includes eVLBI, the Large Hadron Collider (LHC), high energy physics, medical research and telemedicine. The data-driven experiments, simulations, and analyses of science today all require high-speed broadband to move data from remote instruments to the lab and to share massive data sets among scientists globally. The current needs of astronomy are for gigabits of data per second and at a flat cost to the astronomers. Astronomy in Australia would simply be isolated from the rest of the world without the national and international network connections of AARNet. However more important is the architecture of dedicated light paths over these network connections. Lightpaths can only be effected with access to the underlying network infrastructure.

Why does this matter? Because these scientists will help us model climate change, discover genetic markers for inherited diseases, and explore the potential of low carbon and renewable energy sources. The future is one in which:

- Scientists and researchers from around the world collaborate using the techniques of eResearch to address global issues;
- telemedicine delivers efficient and personalized healthcare to all Australians;
- telepresence saves energy costs in travel and sparks new forms of collaboration and social interaction;

- eLearning and eScience provide high-quality education to the underserved with access scientific instruments and data;

- eGovernment creates a truly engaged and participatory democracy for all; and

- eCommerce allows all communities to participate more fully in the global economy.

To serve this demanding nature of research and education AARNet requires access to infrastructure, not to managed services to enable a swift and economical response. AARNet needs a national broadband strategy that considers these needs and links innovation in our research and education sector to a rapid upgrading of the commercial broadband infrastructure. This will promote innovation in our Universities and flow on to the wider community.

THE TRANSFORMATIVE POWER OF ADVANCED NETWORKS

The university community brought us ARPANET in the 1970's, the Internet in the 1980's, the graphical World Wide Web browser in the 1990's, and Google and Facebook in the current decade. These and other transformative innovations from the research and education sector around the world have generated countless millions of jobs and countless billions of dollars in economic growth. Universities continually educate new generations of innovators, workers, and consumers.

It is the higher education and research community that has pioneered the use of hybrid networks (packet-switched & dedicated fibre); the development of federated identity and access systems; and applied research into network use and development and generally stimulated innovation and technological advances of the internet.

This pioneering role continues as the research and education community brings to bear its considerable research, development and intellectual resources on the application of the Internet to further the economic and social development of Australia.

The value of this pioneering role makes it imperative that the research and education community continue to operate in a national, inclusive and cost effective way at the far extremes of the broadband capacity scale, well ahead of the market's ability to deliver that capacity at a realistic cost.

AARNet has a proven track record, working in concert with state and regional entities with the specific aim of reaching underserved communities with connectivity *and* content that are orders of magnitude more demanding than those of the general community, business and government.

Because of the specialised nature of many of the applications it supports, AARNet (in common with other NRENs) has developed considerable skill in its technical abilities in lighting dark fibre and deploying it to meet diverse needs in the most cost-effective fashion. This capability sets AARNet apart from most other network providers and as a source of independent network advice.

The research and education community has much experience in deploying, managing, operating, and continually upgrading broadband networks on campuses. AARNet with its advanced optical networks throughout the States and regional Australia has developed the highest-performing optical backbone capability in Australia. In the course of acquiring and deploying fibre across Australia and internationally to build this network, AARNet has had a long and successful record of partnering with a wide variety of telecommunications companies, government agencies, utilities and others possessing or desiring fibre assets.

Every nation must learn from experiences at the "bleeding edge" of any technological innovation. The experiences of the R&E community have demonstrated that the acquisition of very high bandwidth is only affordable and sustainable through the acquisition of infrastructure rather than the acquisition of capacity on a managed network, “managed services”.

While AARNet recognises that the funding of NBN activities may require a continuation of the practice of selling communication services based on the potential returns from managed services, it strongly believes that any national fibre network must make special arrangements to preserve a percentage of the fibre for sale at construction cost plus, to support the particular very high bandwidth needs of research and education community.