

**BROADBAND CONNECT  
AND  
CLEVER NETWORKS**

*Response to Discussion Paper*

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for the  
Government of South Australia**

## Introduction

The Connect Australia program is an opportunity to generate a significant improvement in the broadband services available to regional, rural and remote communities. The funding levels and time scale for the component programs will provide a major boost to the current and future planning and projects and ideally Connect Australia should enhance work that has already been undertaken by all levels of government, commercial interests and communities.

However there is also a substantial challenge that all parties involved in these programs must recognise. That challenge is to develop the level of coordination that will enable the maximum benefit to be derived from the entire Connect Australia program. Such coordination needs to extend across usage sectors, communities, regions, agencies and jurisdictions.

The frequent reference to strategic and sustainable solutions within the Discussion Paper is to be commended. However the actual structure, funding allocations and timing of the Connect Australia components as announced, particularly the combination of Broadband Connect and Clever Networks, will challenge our collective ability to provide suitably-coordinated solutions.

### **BROADBAND CONNECT**

The basis for Broadband Connect is the existing ‘bottom-up’ customer demand-driven approach employed within the previous Higher Bandwidth Incentive Scheme (HiBIS). Although it stimulates carrier activity and responsiveness, this approach needs to be modified or overlaid with a much more strategic approach. While the support of HiBIS in providing broadband services is acknowledged, there are some opportunities to improve on the HiBIS program that should be implemented when determining the final guidelines for Broadband Connect.

#### **Carrier Behaviour: “Cherry Picking” and First not Best**

The processes of post-implementation rebate used for HiBIS and proposed for Broadband Connect are administratively simple and place the onus of risk on the carriers. However commercial carriers, by their nature, operate under principles that are not necessarily conducive to the stated strategic aims of sustainable competitive broadband solutions covering regional, rural and remote communities.

A desire by providers to rapidly acquire the more easily serviced and more lucrative portions of the market is understandable and similarly predictable is a rapid defensive response by incumbent providers to proposed alternatives that may erode market share. Conversely, the creation of innovative solutions becomes a high-risk strategy for emergent carriers if a competitor is capable of gaining major portions of the potential market through subsidised access on an existing medium.

Therefore, the level of open, shared planning often required to ensure effective provision and rapid adoption in regional, rural and remote communities is less likely under a scheme that rewards providers according to the individual share of the captured market. Additionally, planning resources, that may be available through all levels of government and local community sectors, cannot be fully employed to derive maximum benefit if a major imperative for carriers is to be the first to market rather than the best.

As future infrastructure development moves into more commercially difficult areas, a greater degree of strategic intervention will be required to correct this situation. Solutions designed to use commercially viable segments as an anchor-point for more difficult nearby areas have a much greater likelihood of achieving success. Additionally, a support process that accommodates the needs of diverse groups within a region is more likely to advance innovative solutions using new forms of technology. The practice of rebate subsidy for individual connections encourages a bias towards the adoption of the simplest to implement technologies even though the scheme is considered to be technology neutral.

### **ISP Issues**

Some ‘up front’ funding would seem appropriate where significant capital costs are involved in setting up infrastructure to meet demand. This is a very real concern for smaller ISPs with limited access to capital. We note that DCITA has acknowledged this pressing issue and has indicated that it is prepared to consider allowing some up-front capital subsidy from the Broadband Connect program. Our experience is that this is more easily achieved via managed regional/area projects rather than tactical or opportunistic solutions.

Consideration should be given to requiring that an ISP demonstrates that its technology and network design proposal is the most appropriate for the intended situation.

Many ISPs have found the HiBIS qualification process onerous and difficult. Evidence of this is that only two ISPs in South Australia have so far been accredited in almost 2 years of HiBIS program operation. Consideration should be given to streamlining the process and adopting a more realistic risk management profile.

There are many situations where ‘local’ ISPs are used by a major provider as a retail customer interface. To facilitate these relationships the registration of the smaller ‘retail ISPs’ needs to be facilitated so that the wholesale ISP providing infrastructure and access services, and taking most of the financial risk, can recoup their due proportion of the Broadband Connect subsidies.

Consideration should also be given to allowing wholesale accredited ISPs to underwrite retail ISP resellers by guaranteeing service provision in order to encourage more of the smaller local ISPs to seek Broadband Connect retail accreditation.

### **Dominant Carrier Behaviour**

It has become obvious that a dominant carrier can respond to any regional competition and protect its market by enabling exchanges with ADSL, where it would otherwise not have done so, to secure the core customer market within ADSL reach and damage the alternative provider’s, and perhaps community organisation’s, business case.

This is a problematic issue for the operation of Connect Australia. The HiBIS program sought to curb the impact of a dominant carrier by limiting the percentage of available funds that could be acquired by a single carrier. Limitations should also apply to the proportion of funding any carrier acquires from Broadband Connect, but more severe limitation may be appropriate given the larger quantity of funds available and the inherent advantage of dominant carriers to move quickly in acquiring the funds.

However the carrier behaviour is driven by more than just a desire to capture the maximum available proportion of subsidy funds. Innovative solutions for regional broadband offer opportunities for carrying Voice Over IP traffic and the associated dramatic transformation in

call pricing plans. Hence dominant carriers in the voice market have more to protect than a share of the broadband market and their behaviour in broadband provision often reflects that situation.

Given Telstra's position in the market, its dominance in regional areas, its ownership of the existing customer access network, exchange and backhaul infrastructure, it has ample opportunity and capacity to manipulate and damage the market for its competitors, particularly in regional areas.

There would be a case for restricting the ability of large dominant providers to receive subsidies for new broadband services in an area for 6 or 12 months where an alternative provider has nominated and committed to providing service. This, also, would be more easily managed if a 'project' approach were taken for regions/areas where the intent and coverage are clearly defined.

### **Demand Analysis and Strategic Planning**

The proposed Broadband Connect subsidy scheme is an appropriate methodology to overcome the disadvantage of isolated customers. However, in more populated areas the scheme gives the control of the demand aggregation and resultant financial subsidy to the carrier sector, particularly the dominant carrier. There is anecdotal evidence of communities not divulging demand aggregation data because the release of that data diminishes the community's ability to participate in the selection of an appropriate solution for their area. This applies particularly where a community seeks to develop a solution that addresses the needs of the total community, not just those in locations that can be easily and quickly provided with broadband access.

An effective process of collecting, mapping and analysing broadband demand and then engaging with ISPs to examine potential solutions for delivery requires the collaborative participation and resources of local authorities, government and the community. This process has been used to generate many locally relevant solutions within the Broadband SA program (see [http://www.innovation.sa.gov.au/\\_\\_data/assets/pdf\\_file/2986/bbsaa4demandagg.pdf](http://www.innovation.sa.gov.au/__data/assets/pdf_file/2986/bbsaa4demandagg.pdf)).

This does not preclude remote and isolated customers from obtaining satellite services as is now the case. However it would be wise to minimise the loss of community benefit through the uncoordinated provision of the satellite services, especially in situations where aggregated demand could provide a better and more cost effective alternative.

### **Community Demand Aggregation Fatigue**

There is still a need for some form of demand aggregation but there is a growing perception that community level demand aggregation is rapidly becoming ineffective due to 'application form and broadband aggregation fatigue'. Extensive drawn-out 'down every street' community demand aggregation programs will be of rapidly decreasing value.

Short and concise demand aggregation campaigns rather than lengthy programs have been used in many regions of South Australia supported by the Broadband SA program. These are delivering outcomes that are timely and provide information crucial to the participation of ISPs in the construction of sustainable business cases for regional investment.

The information being gathered by demand aggregation must be mapped to not only provide the quantum of demand (that are recorded in current demand registers) but also mapped

spatially to determine *where* the demand is located. The location mapping is very useful when considering wireless solutions.

Future aggregation and brokering should be done on a more strategic basis and in conjunction with a more focused approach as indicated above. The demand aggregation process must work with communities, preferably using regional bodies and regional industry organisations.

In future, there is a need to shift the focus from not only providing access to broadband, but also to include applications and effective usage of broadband services.

Other activities of future demand aggregation and brokering could include:

- Facilitating and convening ‘instructional’ opportunities through community-based organisations
- Assisting with the convening and brokering of projects and opportunities as outlined above.
- Working with State/Commonwealth to identify strategic projects and opportunities
- Industry sector Brokers, specialising in key industry sectors such as the wine industry or tourism to provide support and identify opportunities for these industry sectors in strategic regional projects and also promote best-practice use of broadband services to support and improve business processes.

We are supportive of continuing with a State Demand Aggregation Broker, jointly funded between the State and the Commonwealth. In South Australia’s case, the State Broker works very closely with the Broadband SA program and we see this as continuing.

### **Technology Neutrality and Meeting Future Needs**

The assumed benefit of technology neutrality in the operation of Broadband Connect could be questioned if a longer-term view is adopted. The adoption of ADSL and wireless broadband technologies may provide sufficient bandwidth to meet current demands, but appropriate planning for future needs may require technologies with more scalable bandwidth.

### **ISDN Relevance for Subsidy Level?**

The HiBIS scheme provided two levels of subsidy depending on the availability of ISDN at the customer premises. The concept of ISDN as an option for broadband is one that the market regards with diminishing relevance and the continued use of its availability as a criterion for determining the level of subsidy is less appropriate over time.

The desire to provide a higher level of subsidy in isolated regions, where satellite technology is seen as the only viable option for broadband, means that a criterion for identifying these regions is required. However the nexus between geographic isolation and a higher level of subsidy should be a measure more directly related to the level of isolation. Several other choices for a remoteness index are already available.

### **Backhaul Connections**

It is now well recognised that access to affordable backhaul is a major problem for ISPs and other competitive carriers trying to build a business case to provide broadband services into increasingly remote, sparsely populated and uneconomical areas. As a case in point, the

DSLAM deployments in regional South Australia by Agile Communications would simply not be possible, according to that carrier, without competitively priced backhaul connections. This has necessitated Agile building its own backhaul into the upper South East region of the Coorong to provide ADSL access in Tailem Bend, Meningie and Tintinara.

**The Clever Networks program alone is unlikely to meet the needs to provide the required backhaul links into the required access areas.**

The current allocations of funding commits a substantial proportion (Broadband Connect) to a rebate scheme and a much smaller proportion to Clever Networks which is expected to “support Broadband Connect by developing infrastructure and generating demand to extend the reach of competitive broadband solutions to regional, rural and remote communities”. An analogy can be made between Clever Networks funding the “trunks”, ie the backhaul to major network interconnection points and Broadband Connect funding the “leaves”, ie the connections to individual premises.

Yet the current funding allocation (\$878 million to Broadband Connect and \$113 million to Clever Networks) and timing assumes that the major cost will occur through the earlier connection of “leaves” while the “trunks” represent a lower proportion of costs and can be built later.

However the construction of competitive backhaul can be a major factor in delivering sustainable metropolitan parity pricing into non-metropolitan areas. Therefore consideration should be given to allowing some Broadband Connect funding to be used for the provision of competitive backhaul which is required to provide regional broadband access. Broadband Connect funding must be available to assist with the backhaul links (or part thereof) that:

- directly enable a terrestrial access solution
- provide the required ‘incentive’ for ISPs to go where they might otherwise not go
- provide additional leverage to obtain a whole of region/area solution versus just the ‘easy’ customers.

Competitively priced backhaul also brings additional wholesale and high speed data opportunities to the region (it can be used for VPNs, backup and storage for multi-site businesses and government agencies).

However, the timing for Clever Networks also restricts the ability of that program to serve this expected role. Although Clever Networks is scheduled to begin on 1 July 2006, the associated administrative processes imply that resultant projects might not begin until mid 2007. A delay of that extent is unacceptable to some potential projects and the value of Connect Australia would be diminished if it could not contribute to some of the regional planning that is already developing.

It is hoped that discussions about potential regional solutions can proceed in advance of the 1 July 2006 start-date for Clever Networks. Without that, there is a risk that uncoordinated use of Broadband Connect funds to connect many individual premises will negatively affect the viability of potential projects to deliver more sustainable and more widespread access.

## BROADBAND CONNECT – RESPONSE TO DCITA QUESTIONS

Q1 How can the design and delivery of Broadband Connect be optimised to achieve long term sustainable quality broadband solutions for regional, rural and remote Australians?

Q2 What means can/should be used to encourage further capital investment in infrastructure that will support competitive networks and services under Broadband Connect and beyond?

Q3 How can Broadband Connect funding be structured to provide the best incentives for investment?

Questions 1 through 3 are predicated on a stable regulatory climate and requires recognition of important externalities to Broadband Connect and Clever Networks. For example

- ACCC pricing on Unbundled Local Loop as an indication of market cost structures in the access network.
- The Telecommunications Legislation Amendment (Competition and Consumer Issues) Bill 2005 ("Competition Bill") which includes the important competition and access regime related amendments and is of most interest to the telecommunications industry
- Preservation or otherwise of The Trade Practices Act 1974 , Part X1B Competitive conduct, X1C Access Regime- Any to any connectivity, Long Term Interest of End Users
- Operational separation bill<sup>1</sup>

As described earlier, a more strategic, region-wide approach should be adopted for planning the delivery of broadband. This assists the development of long-term sustainable solutions that will remain well beyond any short-term subsidy programs. This should be implemented in a manner that discourages ‘cherry picking’ and provides the best possible opportunity for affordable broadband access to more regional users.

A necessary condition for such planning is the option of Broadband Connect providing up-front funding of the capital requirements, particularly for building competitive infrastructure,. This is a major concern for smaller service providers which often find it difficult to take the risk of a retrospective funding arrangement.

However, funding from the program for the construction of infrastructure should require the availability of wholesale access to that infrastructure at competitive rates.

It is also appropriate to require that the service provider uses the most appropriate technology solution for any given situation in order to address the registered demand for broadband. This is particularly related to comments regarding satellite technology.

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[www.dcita.gov.au/tel/connect\\_australia/operational\\_separation/determinations\\_relating\\_to\\_the\\_operational\\_separation](http://www.dcita.gov.au/tel/connect_australia/operational_separation/determinations_relating_to_the_operational_separation)

Q4 Is terrestrial or satellite the most appropriate means of delivering broadband in regional, rural and remote areas?

Q5 Can satellite be delivered as competitively as terrestrial services?

Satellite-based delivery of broadband services provides an essential complement to terrestrial solutions such as DSL and wireless. However, the many drawbacks of satellite broadband (such as cost, latency and performance) will limit its usefulness, except to the more remote locations where alternative forms of broadband service are unavailable.

Although satellite has the advantage of being available everywhere, its use should not be encouraged in regions where viable investment would create other solutions. The marginal cost of satellite broadband for each additional customer is high, compared to the equivalent marginal cost of terrestrial services when a reasonable concentration of demand is present (perhaps in towns with populations greater than 50).

Hence, satellite services should not be subsidised where a viable terrestrial service is available or will be available through a strategic program or where Broadband Connect has or will subsidise the enablement of a DSL or wireless solution.

There is some evidence of satellite being used to deliver 'quick fixes' in situations where it detracts from demand that could otherwise justify ADSL or wireless deployment.

Q6 Should participating providers be required to commit formally to service the areas they identify in registration applications?

Q7 Should annual renewal of funding agreements specify timeframes for commencement of services in areas of greatest need?

Q8 Should a system of prioritised funding for services connected in areas of greatest need (beyond what has been provided under the HiBIS two-tiered incentive structure) be introduced?

Q9 What can be done further to overcome barriers to capital investment in sustainable technologies in less commercially viable regional areas?

Q10 How can the high cost of some technologies be reconciled with increasing customer expectations for higher speeds and usage allowances especially in more remote areas?

Q6. While it is desirable to ensure some certainty to coverage areas, a requirement that providers formally commit to service a particular area may have limited value in the absence of a clearly defined project, with identified objectives and business case, in response to identified demand. Such information would be required to assess the validity of the provider's commitment

Q7. If service providers register for services in a particular area, then they should be required to indicate timeframes for service availability so that the decisions of local communities can be made with improved knowledge of the provider's plans.

Q8. Basing funding prioritisation on social and demographic parameters removes the tendency for any solution to be technology limited. A variety of socio-economic indices are available for use by the Australian Bureau of Statistics<sup>2</sup>.

Some form of prioritised funding would provide incentive to service the areas. Priority areas should be those that can be identified through demand aggregation and with the assistance of local communities and State and Local Government. By approaching the market through a project-based arrangement, this could be achieved.

Q9. In many regional and rural areas there is evidence of providers being willing to commit capital investment within the local region but are limited in their options to acquire the necessary backhaul to complete their service delivery. If competitively priced access to the incumbent's backhaul networks became more readily available, it would remove the need to overlay the continent with additional high-capacity transport networks and generate more options for regional deployment by providers.

A higher level of subsidy could be applied to less commercially attractive areas as a result of linking subsidy levels to relevant criteria. Alternatively, a scheme could allow a provider to obtain exclusive access to an area by restricting subsidies to that provider for a period of say 6-12 months from implementation of the service. Selection of the exclusive provider would require a competitive process but could be done in conjunction with local and regional communities (the South Australian Broadband Development Fund uses a similar approach). In that scenario, the selected provider has considerable incentive to promote the service extensively within that period. Access to competitive backhaul would also make it viable to deploy infrastructure to less commercially viable areas.

Q10. Adoption of standards-based platforms drives down the cost of production, introduces the possibility of service innovation and increases long-term sustainability. The cost of communications technology continues to fall, while the functionality and capacity continues to increase. However the development of new infrastructure often has an associated civil construction component (eg towers and equipment housing), the costs for which do not exhibit the same downward trend as technology components and may actually rise.

Collaborative projects, involving governments at all levels, business and local community, can utilise the combined knowledge, information sources and planning resources of all parties to work with broadband providers and design the most appropriate solution for local conditions and deliver cost effective access. Through such processes, the best advantage can be made of existing facilities and there is increased likelihood of innovative solutions for difficult areas, potentially avoiding the high costs associated with higher speeds and download quotas.



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<sup>2</sup> ABS Information Paper. Census of Population and Housing. Socio-Economic Indices for Areas 2039.0

Q11 Should it be mandatory for program participants under Broadband Connect to provide additional information as listed below as a condition of registration?

- intended future service areas (with approximate dates of commencement of supply;
- the viable geographic reach of broadband services from central transmission points for service delivery;
- technical barriers limiting the application of providers' technology in regional communities;
- the capacity of providers' technology to support varying types of broadband traffic and use;
- the range of service speeds providers' technology would be able to support;
- the capacity of providers' technology to provide services now and to accommodate new developments such as increased speed , usage and applications in the future;
- the particular relevance of the technology to other communication services (for example, capacity to be used also for supporting mobile telephony services);
- a summary of the broad nature of technology they employ; and
- anticipated timing and target areas for their technology deployment in regional Australia.

Q11. Availability of the information listed in the question would provide a considerable improvement in the ability of regional and local development organisations and intending retail users to determine their own plans for access to broadband services. Therefore a requirement for detailed service specifications is supported. However, service providers will probably want to restrict access by others to such information, even if it becomes a requirement to provide DCITA with such information.

The Australian Government has responded to the Productivity Commission on the review of telecommunications competition regulation. As a result, amendments have been implemented in the Telecommunications Competition Act 2002 retaining the obligation for carriers to lodge Industry Development Plans. While the web page that describes these plans was updated as late as August 2005, some of the plans are dated.

In targeting areas of need, if the parameters that describe such areas are based on social and economic indicators and are technology agnostic then many of the requirements of question 11 would be satisfied<sup>3</sup>. Some access providers have found that it is difficult to enact the Facilities Access Agreement (FAA) because access infrastructure is placed in inappropriate environments such as

- retail outlets with inappropriate power and air conditioning
- local Government premises with lack of the above
- street side cabinets with tie cables to more appropriate accommodation.

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<sup>3</sup> The question makes reference to mobile telephony services. Prior to the advent of WiMaX, technology provision thereof is both narrowband and architecturally distinct from high bandwidth data (IP) services.

Q12 On what basis would you argue that certain specific technologies will have the most impact on the delivery of regional broadband services in the next three to five years?

Q13 How would you compare the effectiveness of these technologies to others in the market place?

Q14 To what extent will broadband technologies be able to augment capacity to meet rapidly expanding consumer expectations for higher bandwidth and more advanced applications?

Q15 Can complementary technologies provide better solutions for delivery of services in regional Australia?

Q16 What innovative approaches should Broadband Connect adopt in its program design to utilise these technologies most efficiently and effectively?

Q17 What capacity do existing technologies have to accommodate the introduction of new developments, such as increased speeds, usage and other applications?

Q12 – 17 These questions may be best answered after DCITA’s proposed consultancy on technology options.

Q12. In Internet Protocol (IP) transport or backhaul networks, the only differentiator is speed or bandwidth capability either in a symmetric or asymmetric context. In maintaining technology neutrality in the transport network - see Q11 - the result of innovation reduces to the cost of bandwidth provision only. Product, service and price innovation would be in the access network at the network’s edge where the requirement for bandwidth demanded by applications could be stated as follows:

- Data transfer 1- 20 Mbps
- Compressed video 4- 6 Mbps
- Voice applications 10 kbps

Q13. A measure of effectiveness given the above would be the cost per Mbps per customer in the following contexts:

- Remote
- Rural
- Regional

Based on socio-economic indices (population distribution for example) the choice of suitable broadband platform(s) could be readily identified. From experience with broadband infrastructure projects in regional and rural South Australia, the organisational and infrastructure requirements to successfully deliver broadband services cannot be a one size fits all approach.

Q14 - 17. In the access network, the ratification of the IEEE 802.16 standards on which WiMAX certification is predicated shows promise with respect to high capacity (1 Mbps) symmetric services.

Wired services such as ADSL offer speeds of up to 24 Mbps. Both these technologies have scaleable and affordable bandwidth because they are based on IP packets ‘from the ground up’. Such flexibility stands in contrast to the development of cellular data services which are less flexible and more expensive in part because of:

- The cost of acquiring the spectrum on which the services operate
- The high price of transport infrastructure – usually Asynchronous Transfer Mode (ATM)

There is a fundamental issue regarding the desirability of “future-proofing” infrastructure choices to accommodate future demands. Optical fibre deployment has that characteristic but is less commonly employed because of the installation cost. Nevertheless there is a risk that much of the current infrastructure activity will be short-lived in its ability to meet the needs for future applications.

Again, collaborative planning involving multiple interests across a regional area provides the most appropriate process for considering a variety of technology options.

Q18 Should the current system of incentive payments to providers for the supply of broadband services be retained?

Q19 Would an up front method of payment be more effective?

Q20 How else could the method of payments to providers be adjusted to achieve more satisfactory outcomes for providers and people living in regional, rural and remote Australia?

Q21 Should funding be provided:

- based on the number of customers connected?
- the number potential premises with potential access?
- a combination of both methods?

Q22 If funding was based on the number of premises with potential access should it then only be provided for infrastructure?

Q18-22. The system of retrospective payments after delivery of the required service is an administratively simple scheme, but it lacks the ability to directly support more strategic planning processes that involve a greater element of community consultation, aggregation and collective planning with governments, business, community and provider sectors.

More flexibility to set incentive payments to allow for particular circumstances eg to allow for the cost of additional backhaul should be considered.

Subsidies should be allowed for up-front payments, for which allocations may then be credited as services are delivered to customers.

Funding should be provided on both the number of customers connected and potential addressable premises. This would provide added incentive to provide the most appropriate solution at lowest marginal cost. Funding should only be available for infrastructure.

Q23 How can methods of payment under Broadband Connect be better structured to ensure that providers are not overcompensated for the supply of broadband services?

Q23. Limitations on the provider’s ability to access payments need to consider all the possibilities that may eventuate. The 12-month limit applied to the Stage 1 transition from HiBIS creates a potential risk for a provider that has invested in new infrastructure. Although a well-researched business case may support expectations of a payback period of less than 12-months duration, unpredictable fluctuations in the regional economy could adversely affect

such timing. For example, local flood, fires or unfavourable weather patterns could seriously disrupt revenue for local participants and cause unexpected delays in decisions to adopt broadband.

In association with the provisions defined in Q11 above, it is reasonable to require providers to reveal to DCITA the cost of providing a new service in a region. That cost can be used to determine an upper limit of the total subsidy derived from connecting customers within the region, with due recognition to the potential future income stream that will also apply.

Q24 Should the current HiBIS threshold model for speed and usage be maintained at existing levels under Broadband Connect?

Q25 Should the model be retained with increased minimum speed and/or usage requirements?

Q26 Should two separate minimum speeds with two subsidy levels be introduced?

Q27 Do threshold requirements need to be expanded to accommodate other issues such as latency?

Q28 Should the Broadband Connect Stage 1 price caps be retained under Stage 2?

Q29 Should a greater range of price caps be introduced than the two currently available?

Q30 Should the current funding cap level of 60 per cent continue under Broadband Connect?

The current broadband threshold should be reviewed to better meet user expectations. Two years ago, a speed of 256K/64K was considered adequate. Now, a minimum of 512K/128K may be a frequent choice for metropolitan users, and the Broadband Connect program should seek to maintain multiple elements of parity between regional and metropolitan usage. If the minimum model is required, provision should be made for a higher speed option with a slightly higher subsidy level.

Additional factors such as latency and value-added services such as Voice over IP (VOIP) capability should also be considered. These could be used to bias provision towards terrestrial services (wire, fibre and wireless) which have considerably less latency than satellite services.

A cap for the total funds received by a provider must remain, and a reduction to less than 50 per cent may be appropriate given the larger quantity of funds available and the inherent advantage of dominant providers to move quickly in acquiring the funds. There should also be restrictions on the total amount received by a provider per year. This would allow for greater opportunities for competition and reduce predatory market behaviour.

## CLEVER NETWORKS

The principle of this program in facilitating strategic projects and backhaul is laudable and fully supported. However it is a very small contribution (only \$113 million out of a total \$1,100 million Connect Australia program) to the overall requirement for this level of infrastructure development. The proportion of running costs allocated to this program also appears quite high (12%).

Again, a strategic approach to the use of this funding is required and should be developed with a combination of Local, State and Commonwealth input.

A purely competitive approach is not the best use of this funding. In many cases the most need is where the basic ROI is not the greatest. However the overall benefits outweigh the financially rationalised outcomes.

States should be given the opportunity to present an overall State/Regional infrastructure summary, nominated priorities and a strategy from which a national view and a set of national priorities could be developed for funding consideration. The collateral benefit of this approach would be the development of a national network overview and the opportunity to consider projects that span jurisdictional boundaries.

Importantly, however, the timing of this program is unfortunate. Backhaul, which is the principal purpose of this program, is also a principal issue for regional projects.

The work done on demand aggregation and the development of projects, in South Australia at least, requires that proposals be initiated within the first months of 2006. Delays will significantly reduce momentum and the value of the demand aggregation work.

**Strong consideration should be given to Clever Networks funding availability as early as possible in 2006/07 if it is to be most effective. Should funding not be available, guidelines must be established and applications called for as soon as possible to enable approved projects to receive funding as early as possible in 2006/07.**

## CLEVER NETWORKS – RESPONSE TO DCITA QUESTIONS

*What form of broker network will provide the best outcome?*

Q1 Considering the current DAB program structure - involving State, community and sectoral brokers - is the current arrangement the best model for catalysing broadband developments in regional, rural and remote Australia or how should it evolve?

Q2 What role can/should brokers play in promoting or facilitating the effective use of broadband applications in order to enable communities and businesses to capture the transformational benefits of broadband?

Q3 What other resources or programs should the brokers be aware of in this role?

Q4 Should the broker role include an increased focus on 'effective use' outcomes and, if so, how can this best be achieved?

Q5 Should uptake and effective use of broadband by specific groups be targeted and, if so, which ones?

Q6 How might the brokers play a role in facilitating/supporting community-wide connectivity and community-wide (cross-sectoral) networks?

Q7 Should future demand aggregation activities be focussed in areas that have yet to receive terrestrial broadband services under HiBIS to support the delivery of the new Broadband Connect program?

As described under the general comments earlier, community demand aggregation has reached the end of its usefulness and further demand aggregation activity should incorporate a sectoral basis, addressing the needs of significant industries, supported and coordinated with the State Demand Aggregation Broker.

Effective use of broadband or broadband applications is the next step in encouraging broadband take-up and use, particularly amongst the business community.

*Targeted services for Clever Networks initiatives*

Q8 Are health, education, emergency services and local government the appropriate services for Clever Networks to target?

Q9 Should there be priorities within this group?

Q10 What other sectors, if any, should also be considered?

Q11 Should there be a focus on particular applications/sectors which will require and drive network or industry capabilities?

Q12 What strategies could be incorporated into the program design to ensure that investment under Clever Networks provides the greatest holistic community benefit?

While Health, Education, Local Government are obvious sectors for Clever Networks to engage, other sectors or agencies within State Governments are also appropriate services that would benefit from Clever Networks projects.

Projects coordinated centrally within State Government for example would be most appropriate given the process envisaged for Clever Networks. Applications and interfacing with service providers (by calling tenders etc) are often demanding and time consuming tasks and it may be more efficient for this to be managed by a coordinating body on behalf of user agencies within a jurisdiction. The South Australian Telecommunications Strategy Implementation Group is an example of such activity.

*Infrastructure and application-focussed investment issues*

Q13 Is there an ideal balance between infrastructure and applications streams and, if so, how can it be identified?

Q14 What is the best balance between competitively determined and strategic investment funding?

Q15 Would potential proposals be improved if the guidelines permit proposals which encompass both infrastructure and applications aspects?

Q16 What key strategic investments in broadband infrastructure have the potential to provide the best outcomes?

Competitive, scalable and cost effective backhaul infrastructure would deliver significant benefits to regional communities, with complementary programs such as Broadband Connect and South Australia's Broadband Development Fund able to deliver appropriate access

networks to deliver services. This would be consistent with the tighter integration of all three funding programs, and is a model that has been very successful in the development of projects for Pt Lincoln and the Eyre Regional Development Board.

These projects have taken a holistic approach to the requirements within a locality or region and consider both the provision of infrastructure and the potential applications that will be supported. This is a consequence of the processes encouraged by the Broadband SA program as a precondition for applications for support from the SA Broadband Development Fund.

This approach will become increasingly relevant if consideration is given to support for broadband applications in particular industry sectors.

The Broadband Development Fund process also combines elements of strategic investment decisions and competitive processes.

*Funding for Clever Networks initiatives*

Q17 Are there complementary sources of funding/contributions which should be considered in developing the guidelines for the Clever Networks program?

Yes, the Broadband Development Fund and Broadband Connect are complementary funding sources. Other potential funding sources include Broadband for Health. The Clever Networks guidelines should clearly allow for such integration and complementary funding sources to be included as part of a strategic project.

**Utilising new and emerging technologies**

*Utilising new and emerging technologies*

Q18 Should there be specified minimum broadband specifications (eg. bandwidth, latency etc) for Clever Networks and, if so, what should they be and how should they be determined?

Q19 What steps / mechanisms can or should be incorporated, if any, into Clever Networks to enable regional, rural and remote communities progressively to transition to high / higher bandwidth networks?

Q20 New technologies are showing considerable promise in providing broadband access to users well outside the current DSL limitations. What strategies should be adopted to encourage and support deployment of these new technologies, and to ensure newly emerged technologies are not precluded during the lifecycle of the program?

Q18 – 20. Wire line broadband access platforms have a predictable range of speeds from 8 to 24 Mbps at a nominal distance of between 2 and 4 Km from any Digital Subscriber Line Access Module (DSLAM) location. Wireless broadband platforms are in a considerable state of maturation, the extent to which will only be understandable as products come to market-See Appendix A. ‘The Promise and Reality of WiMAX’. Both wired and wire line platforms can have acceptable levels of bandwidth and latency depending on implementation and configuration.

Developing Clever Networks funding submissions along the lines of identifiable demand on a per regional basis considering social and economic indices with a view to being technology agnostic has the potential to produce a community wide result on a regional basis. Decisions regarding technology can be made at an appropriate point in time on an ‘as needs’ basis as a result.

Broadband networks should be appropriate for the intended application and should be:

- Carrier grade
- Scalable
- Allow for redundancy (critical for Health)
- Use appropriate and cost effective technology (eg microwave point-point links)

### **Sustainability of new infrastructure or applications**

#### *Sustainability of Clever Networks initiatives*

Q21 What supporting information should be required in Clever Networks proposals in order for their sustainability beyond the life of the program to be evaluated effectively, and what factors should be considered in determining sustainability?

Sustainability is determined by several factors, including the business case assessment, the choice of technologies and the ability of the planning process to obtain the early involvement of the intended user community. The integration of proposed projects into comprehensive regional or State/Territory planning is a critical factor and should enable a proposal to demonstrate

- support by applicants ie anchor tenancy
- a sustainable business case

### **New infrastructure access arrangements**

#### *New infrastructure access arrangements*

Q22 For any new infrastructure created or made available, should there be specified minimum infrastructure access arrangements for parties other than infrastructure owners, such as a wholesale-rate for backhaul?

Q23 How realistic is such a requirement, and how tangible are the likely benefits of the approach?

Q24 How can an appropriate charging regime for such access be determined?

Q22 -24 The terms ‘backhaul’ and ‘transport’ are used as synonyms for that part of network infrastructure where the only function is to transport bits at high speed (bandwidth) and *not* connect customers. Connection of customers is the function of the access network.

As transport networks have no market differentiator other than bandwidth (speed) we suggest while capital may flow to invest in such, without coupling backhaul capacity to demand for bandwidth in the access network, new entrants in the backhaul market alone would have difficulty sustaining the profitability.

In response to competition thereof, the incumbent will lower the price of bandwidth to match that of new entrants. Unlike new entrants, the incumbent can both increase available bandwidth and reduce the price at incremental cost to itself. See also ‘Infrastructure v applications’ and Appendix B ‘Broadband market sustainability in fully privatised jurisdictions’

A possible alternative to the above is to treat the backhaul or transport network as a natural monopoly<sup>4</sup>. That is, with the only potential differentiator between new operators being bandwidth, the lowest price can be obtained by having one operator. Attempts of ‘Operational Separation’ splitting the incumbent into wholesale (transport or backhaul network) and retail (access network) at least in part realises the ability of the dominant player to increase (bandwidth) supply at incremental cost to itself.

Wholesale access to services provided from the new infrastructure should be mandatory. While the actual rates for such access will be determined as part of commercial negotiations, part of the selection criteria for selecting the service provider would be to assess the willingness to wholesale services and the commercial rates for such services.

### **Linkages to other initiatives**

#### *Links to other initiatives*

Q25 What other program activities should be taken into consideration in determining Clever Network program eligibility and entitlement?

State-based programs such as South Australia’s Broadband SA should be seen as complementary programs with opportunities for tighter integration.

### **Program evaluation**

#### *Embedding and undertaking program evaluation*

Q26 Having regard to the possible diversity of the activities under Clever Networks, what strategies can/should be considered?

The evaluation for Clever Networks should address the overall impact of the program, its administration and the implications it creates for future programs. The outcomes of the program will be derived from assessments of the individual funded projects. The nature of those projects will require attention to the timescales involved and the diversity of participants that are likely to be involved in many projects.

The most important aspect of Clever Networks will be the long-term benefits that are delivered. However the full extent of these benefits may only become evident over a far longer time period than the implementation phase of individual projects. To assist the assessment of those long-term benefits, extended data gathering provisions, where appropriate, should be embedded in the funding conditions.

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<sup>4</sup> Natural monopolies arise where the largest supplier in an industry, or the first supplier in a local area, has an overwhelming cost advantage over other actual or potential competitors. This tends to be the case in industries where capital costs predominate, creating economies of scale which are large in relation to the size of the market, and hence high barriers to entry; examples include water services, electricity and telecommunications.