Response to the Department of Communications,
Information Technology and the Arts
Discussion Paper on

Broadband Connect and Clever Networks:

Supporting Investment in Sustainable Broadband Infrastructure

January 2006

Government of Western Australia

BROADBAND CONNECT

The key policy objectives of Broadband Connect are to:

- support equitable access to broadband services for residential, small business and not-for-profit consumers across regional, rural and remote Australia;
- provide incentive payments that reflect market cost structures and promote competition in the provision of services;
- facilitate delivery of broadband through the most appropriate, cost effective and sustainable technologies;
- ensure that funding is targeted strategically according to demonstrated need and governed by effective and accountable program management;
- ensure that quality services are delivered and maintained; and
- ensure that high cost delivery areas receive services at prices comparable to metropolitan areas.

1. Potential for innovation in program design

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?

Backhaul cost is an area that has to be addressed for the objectives of this program – and the "future-proofing" of regional Australia – to be achieved. A single dominant industry player controls the infrastructure, limits the products it sells on a wholesale basis, and charges seemingly unreasonable charges for others to purchase the capacity that would allow them to compete in the provision of services to the customer. As an example, charges for a 45 Mb link to a near Perth location are approximately $200,000 per month; with the same capacity service to a key regional centre on the south coast over $600,000 per month. Telstra will also not sell or make available dark fibre. Retail competition in the provision of last mile services is thus made problematic.

A news item on 13 January 2006 announced that Telstra was informing its wholesale customers that it would not be registering as a wholesale provider under Broadband Connect. Internet Service Providers who are on-selling

products based on Telstra's will not be able to access the scheme, thus further reducing competition and customer choice.

Broadband Connect must be part of a multi-pronged approach by the Commonwealth Government. Other providers wishing to offer solutions in regional areas must be able to buy dark fibre where this is available. If access to affordable wholesale backhaul was also made obtainable, unnecessary duplication of backhaul infrastructure could be avoided. If the government is serious about the benefits of competition, Telstra's retail arm should be required to purchase its products from Telstra Wholesale and these products should be made available to all players on an equal footing.

Unless all backhaul infrastructure is open for access to all players on an equal basis, competitive backhaul will need to be constructed in regional areas. Realistically, there will never be competitive backhaul infrastructure available throughout Australia. But unless the government takes regulatory action, it is only the provision of significant pieces of alternative backhaul that will force down prices and enable competition in the last mile provision of services.

Consequently, Broadband Connect funding needs to be made available for providers wishing to build their own backhaul infrastructure. Part of the $878 million could be provided as grant subsidies where applicants demonstrate that they would build competitive backhaul in strategic locations to progress the aims of Broadband Connect. Key core routes could also be identified as appropriate for competitive backhaul. Where government funds fibre optic backhaul infrastructure, sufficient spare capacity should be made available for leasing at an ACCC-determined rate.

Indigenous communities are another area requiring special attention. Consideration should be given to increasing the size of the subsidy paid for provision of broadband to these communities to encourage solutions, particularly for communities of more than 200. There are eighteen of these in Western Australia.

The provision of basic broadband service to regional Australia is of primary importance, although to fully provide a long term solution into the regions, there must be a greater emphasis on an increased level of advanced services, speeds, and throughput limits. For a service to be sufficient for the next five to seven years, capability and usage limits must be much higher to match the increased requirements of applications and services available at present and into the future. Solutions must be scalable to at least 2 Mb in the short to medium term. Anything less than this and the government's investment, while meeting a critical current need, will be only of short-term value and will need to be duplicated in two to three years time.

2. Terrestrial or satellite expansion

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?

This program is currently based on the premise of technological neutrality. This must be reviewed – what may be appropriate in remote areas as a solution should not be accepted as being appropriate in a high population area. Technological neutrality can run counter to the objective of the program to facilitate delivery of broadband through the most appropriate, cost effective and sustainable technologies. Government funding can often be wasted in the deployment of less than optimal technology solutions.

By allowing – even encouraging – the provision of one-off rather than community solutions in towns, market distortion occurs. Satellite can be rolled out very quickly with no substantial up-front investment (the cost is in the ongoing provision of service). The provision of satellite as a broadband solution can destroy the business case for providers of other technological solutions – even with a subsidy.

What needs to be encouraged through this subsidy program is the roll-out of strategic infrastructure that not only meets the needs of each customer on the demand register, but also all of the other potential customers in that geographic area. The goal of the government is to encourage increasing broadband take-up until Australia at least regains parity with some of our trading partners and other OECD members. This requires strategic investment decisions. A satellite solution does not meet this criterion, and it is a more expensive option.

While the new generation of broadband satellites recently launched by IPstar and Inmarsat promise lower latency and more affordable services, the benefits are yet to be experienced. They do, however, offer the possibility of more cost-effective solutions becoming available for remote locations and very small communities. Satellite backhaul from a community solution can also be an attractive proposition in remote areas.

3. Areas of greatest need

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?

Requiring a formal commitment to service areas identified in registration applications would appear to be counter-productive. At this early stage of the process, a provider is unlikely to have any real sense of the demand for, or viability of, services throughout a region. It would therefore lead to areas being defined very narrowly. If two providers committed (perhaps unknowingly) to the same area, and were required to provide a service, this could undermine the business case for both. This could also be potentially used by a more cashed-up player to destroy competitors.

The absence of a mandated timeframe to deploy infrastructure following a commitment by a HiBIS/Broadband Connect provider can leave a community with no infrastructure for a lengthy period and limited alternatives. For example, an announcement by Telstra that it intends to deploy DSL infrastructure into a community sends a clear market signal to competitors, creating a significant disincentive to other potential investors. Telstra tends to take the low-hanging fruit through the DSL service, leaving those outside the reach of the service for the competing provider. This provider needs to lock in as many of the town's businesses and households to underpin the business case in the provision of broadband services to outlying areas. It is sometimes, however, taking a year to deploy the DSL solution. This has the effect of not only closing the marketplace to competitors, but does not deliver a service to the community within a reasonable timeframe.

This could be addressed by a requirement for providers, when registering for Broadband Connect, to give an indication of the length of time they would need to provide a service from the time they make their investment decision and public announcement. A reasonable extension of time could be allowed to this, say three months, and after this time there could be a financial penalty, say a 10% reduction in the subsidy paid for the first x customers. There should be provision for a waiver of the penalty if the provider shows that the delay was due to factors beyond their control.

4. Effectively targeting support to areas of need

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.

Program participants should be required to provide all but the first and last items. It is information that would be readily available to the providers, and the requirement would not be unduly burdensome.

This information would be particularly valuable for communities in making decisions about the attractiveness and suitability of various options that may be available to them. It is also critical to demand aggregation brokers, enabling them to provide appropriate advice.

5. Innovative technologies

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?

Fibre is, of course, the ultimate current technology. It not only provides very fast speeds with low latency and high quality of service now, but is scalable to meet needs well into the future. Realistically, however, fibre is a solution for new developments (greenfields sites) and backhaul. The cost of deployment would seem to preclude fibre-to-the-home solutions in existing rural and remote towns, and even major cities. Where other utility networks are being deployed, for example water, gas or underground power, fibre to the home may be a realistic option although this is likely to be a very long-term and erratic solution.

At present the technology being used in the provision of broadband that can deliver increased speeds in accordance with market needs is wireless. It has both reasonable upgrade paths and speeds suitable to meet the expected service levels over the next three to five years, when a 10Mb minimum speed is a likely scenario. Limits are currently imposed by internet service providers, not by the technology itself. Wireless is also particularly suited to regional areas as coverage of an entire discrete town is often possible from a single tower, and out-lying thinly populated areas also benefit from a terrestrial solution. If backhaul costs were set at a reasonable level, this would be a very cost effective solution for many regional areas.

DSL is restricted by both the very limited distance signals can be transmitted, and its scalability. The quality of the copper wiring on which it depends for carriage to the home or business is degraded in many regional areas, further reducing its effectiveness. ADSL has, however, proven to be the most effective way to get higher speed services to consumers in the short-term with HiBIS having a dramatic impact upon the demand levels that were needed to initiate exchange upgrades in regional areas.

ISDN is not sustainable in achieving expected service speeds and so should not constitute part of any funded solution.

Satellite, although it has a wide coverage area with relatively easy installation, is also not likely to be suitable for long term broadband provision. The usage allowances are low, precluding users from regularly accessing services such as video and VoIP. The bandwidth available will most likely not meet customer expectations over the next five years. In addition to this, the latency can affect many applications currently in use or planned for the future.

A critical issue is backhaul. There are a number of possible solutions. The first – but not an easy solution – is for the Commonwealth Government to tackle head-on the charging structure for getting the data from regional areas to metropolitan areas. Another is requiring existing dark fibre to be made available to other providers as this could then provide a competitive market. A third option is for the Commonwealth to fund alternative backhaul provision. The money available for Clever Networks is limited in this respect, being less than 13% of the allocation to Broadband Connect. Broadband Connect could, however, be designed to allow for (tendered) grants for competitive terrestrial

backhaul, to be combined with subsidies for last mile solutions. This could be fibre optic or microwave links.

Freeing up the backhaul bottleneck – and thus facilitating real competition at the last mile – would be the most significant change that could be made which would have a very significant and lasting impact on competition, affordability and future proofing in most regional areas.

6. Incentives

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?

The current system of incentive payments has been effective in extending the reach of affordable broadband. However, as would be expected, the harder – less populous, more remote, more expensive – sites are the ones that still need solutions. Backhaul costs are often the issue. Either these need to be addressed directly as discussed earlier in this paper, or the payment system needs to be modified to partly counter this. This can be done in two ways. The incentive payment levels themselves could be adjusted to take into account the backhaul cost to provide a link from a regional town back to the metropolitan area. A second method of addressing this would be to make available up-front payments to providers if they are building alternative backhaul. Both methods could operate simultaneously, but obviously as solutions for different locations.

Funding should not be provided on the basis of the number of potential premises with potential access. This not only disadvantages smaller communities, it provides no incentive for providers to raise awareness and maximise take-up.

7. Timeframe for payments

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?

Providers should only be allowed to claim payments to the extent of the costs incurred in providing access, inclusive of an allowance for backhaul charging. Audited costs should be supplied by providers before claims are paid out. In this way, there should not be overcompensation.

The twelve-month limit on subsidy claims encourages providers to maximise take-up rates. This limit should be waived, or perhaps doubled, in the case of broadband infrastructure provision in new residential developments and in Indigenous communities. In new developments, the take-up is dependent upon the sale of the lots and the construction times for the housing, rather than any activities of the broadband service provider. Due to issues of low income, poor housing and a very low rate of computer ownership, Indigenous communities will be slow adopters of the technology. There needs to be positive incentives for broadband providers to delivery services in these communities.

8. Speed

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?

256/64 has never been considered to be “broadband”, but it did provide a significant improvement over what was being achieved with a dial-up connection. ICT industry performance expectations of broadband are significantly higher than 256/64, and this impacts upon the applications and services being developed.

While 256/64 may currently be sufficient for limited household use, this speed will not continue to service the needs of many households or most small businesses in the medium to longer term. A minimum speed of 256/64 does not adequately take into consideration the needs of many medium bandwidth users in regional areas. These include real estate agents, independent agricultural dealerships and tourism operators. Many teleworkers also require higher speeds, otherwise gains in working remotely are lost through delays in transmitting and receiving data.

512/128 products are increasingly viewed as entry-level products for metropolitan users (see Optus' DSL offerings for example) and competitive pricing in the ADSL market is further reducing the price of 512/128 products. Consideration should be given to raising the minimum threshold speed to at least 512/128. Offerings should be scalable to at least 2 Mbps.

The download limit threshold of 500MB is too low for most users. Users are incurring substantial costs as a consequence – particularly those reliant on satellite technology.

The download threshold for technology that applies a usage limit (upload and download), rather than a simple download limit, should be double that of the lowest download limit available under the scheme. The assumption that most users are merely receivers of information is proving incorrect.

The Commonwealth should encourage providers to offer shaping options with their products. The shaping feature can assist businesses and households to determine an appropriate monthly download limit without incurring substantial penalty costs. It would be useful if all Broadband Connect products could have a shaping option for at least the first three months. This is particularly important in communities that have experienced poor dial-up speeds and/or had limited exposure to broadband, as it provides users with time to more accurately assess their usage.

Attention should also be given to the specification of maximum sharing ratios to reduce the severe compression ratios that limit bandwidth in peak periods.

There is a need for low latency to accommodate the expanding use of VoIP. In addition to this, the increasing use of video-conferencing facilities means that latency needs to be sufficiently low to enable a good quality service. Video-conferencing is an important broadband usage in regional areas. Because of this – and the availability of technologies allowing for improved satellite latency – latency threshold standards should be developed and included as part of the Broadband Connect quality of service requirements.

9. Customer prices

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?

Price caps are an important means of ensuring that the broadband services provided in regional areas are affordable – the goal of this program. Pricing levels and caps according to the technology by which the broadband service is provided, should also be minimised. People in regional areas generally

have no choice in the technology by which they receive broadband. The nature of the technology should be irrelevant to the end user, and this includes price and quality of service.

The only way to ensure the Broadband Connect is not used to strengthen market dominance is to significantly limit the funding available to any one carrier. It is thus recommended that a yearly cap and a whole of program cap of no more than 60% of the funding available be enforced.

10. Other Issues

Customer Eligibility

The categories of eligible customers should be specifically expanded to include providers of emergency services in isolated and remote areas, and community facilities such as telecentres (online access centres) and libraries in regional, rural and remote areas. While part of a larger organisation, local emergency services often consist of offices with less than five staff based in locations such as national parks and state forests where accessing broadband communications is problematic but essential to the provision of their services.

Libraries and telecentres are community-based facilities offering services, including internet access and data retrieval, to the wider community. Broadband access is critical both to their operation and their ability to enable those without internet facilities at home to obtain the benefits of connection to the world.

Establishing Customer Eligibility

The HiBIS program has demonstrated the ease with which industry can shift the burden of proving eligibility from the carrier to the customer. Many HiBIS registered carriers have been requiring customers to contact Telstra for evidence of ISDN connectivity. This has caused enormous confusion in the community and, in some cases, allowed Telstra to pre-empt the consumer decision-making process by promoting their HiBIS services to a customer that is seeking confirmation of eligibility. To ensure fairness and prevent confusion it is important that the burden of proving customer eligibility rests with industry and not the consumer. This principle should apply regardless of whether ISDN continues to be the means of determining subsidy levels.

Western Australia supports a model that incorporates an automated eligibility checker that is independent of Telstra. The Australian Communications and Media Authority (ACMA) should be the vehicle for this service. Customers could put in address and phone number details and receive a yes/no result on service eligibility. The customer could then be asked if they wish their details to be forwarded to the local community broker for information on broadband services coming to the area or advice on selecting a broadband service.

Applications Process

There is a need for a streamlined application process that will increase the willingness of carriers to seek accreditation. Aside from the large carriers, the majority of carriers have limited experience with complex government processes and may lack the resources and skills in this area. A number of non-HiBIS providers expressed their disappointment at the lengthy and complex application process.

Auditing Provisions

It is essential that the Commonwealth has the right and ability to audit Broadband Connect providers' claims. If complaints are received, there should be the right to both suspend payments and suspend a provider's registration until the complaints are fully investigated.

The current monitoring regime needs to be enhanced. There should be a greater capacity for users, champions, brokers and other stakeholders to raise issues and request investigation.

There must also be a mechanism for dealing with ongoing failure to meet the quality of service obligations placed on providers, including sanctions.

Program Review

There should be a formal review of Broadband Connect in mid-2008 so that changes in technology and market conditions can be assessed and used to modify the program for the remaining two years.

CLEVER NETWORKS

The policy objectives of Clever Networks are to:

- improve terrestrial broadband for unserved users; that is, communities either outside the reach of ADSL, or too small to attract ADSL;
- create a situation under which regional infrastructure can improve network reach and competition within a more coherent and commercially sustainable environment;
- support deployment of new technologies as they evolve; for example, higher bandwidth services, mobile broadband and wireless services;
- support development and use of innovative broadband applications that deliver improved health, education and other services;
- assist communities to develop skills and capabilities to realise the social and economic benefits broadband can provide; and
- leverage multiple sources of investment including from service providers and all levels of government to provide the greatest possible benefit.

1. The role of the brokers' network

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?

There appears to be an assumption underlying some of the statements in the discussion paper that broadband infrastructure is now widely deployed and available across regional Australia and that consequently the emphasis

should now be on effective use of the infrastructure. Although this might be accurate in some jurisdictions, this is far from the case in Western Australia with many regional and remote locations still without adequate services.

HiBIS, the Demand Aggregation Brokers and other programs and activities have brought very significant improvements over the past two years, but many areas of Western Australia are still without access to affordable terrestrial broadband infrastructure. Uniform improvement has not been achieved. For example, in the Peel and South West regions and much of the Wheatbelt area of Western Australia, most towns will have access by the middle of the year; in the Great Southern and parts of the Mid West and Goldfields-Esperance regions, solutions are likely but may require longer than the next six months. The Kimberley, Pilbara, Gascoyne and parts of the Mid West and Goldfields-Esperance regions are more problematic – population densities are generally less, the size of the largest towns are smaller and, most importantly, their distance from Perth is very large. (The regions are shown on the map included as Appendix 1.)

Consequently there is still a strong need for demand aggregation strategies and development of business cases to encourage infrastructure deployment in many areas to ensure that parts of the country are not left with individual satellite broadband as their only solution. It may be that satellite will provide the most effective backhaul in remote towns, but community solutions can still allow for terrestrial last-mile that provide services to all the area – both current and future users.

Geographic brokers have proven very effective in this State. They have local knowledge and credibility, have strong support from key business and regional development organisations in the area and can act as champions on an on-going basis. Sectoral brokers are less effective as the only way to aggregate sufficient demand in most towns in this State is to aggregate demand across sectors, bringing together business, community and government users.

It is important, though, that the geographic brokers do not work in isolation. Much can be learnt from other brokers – not only in what strategies have been particularly successful, but also because different brokers will bring different areas of expertise to the job. Some may have a strong technical background, others may have keen marketing skills and yet others may have links to critical players in government, for example. This network must be built into the program, and supported. In Western Australia, the State-based broker has played the key role in bringing together the community-based brokers, supporting them and ensuring, as far as possible, that they build on the experience of the other brokers.

The geographic region must be large enough to include all of the outlying areas dependent upon a major regional centre or centres. Without this, it is easy to cherry-pick solutions – the program would, then, not deliver the best long-term outcome for all of regional Australia. Geographic regions should be those that have a sense of themselves as a region, for example, economic

development zones. In Western Australia, there are nine regional development areas that are well-defined and have a sense of cohesion (refer to Appendix 1). They are based on local government areas, have identifiable regional centres and are economic zones for the purposes of State Government activities. These make an ideal base for community-based brokers. It also better allows for the demand aggregation brokers to be more fully involved in Clever Network projects. In order to give coverage across Australia and due to the limited funding available, geographic regions should not be narrowly defined.

Without the community and state demand aggregation brokers, the roll-out of broadband infrastructure under the HiBIS program would have been significantly impaired in Western Australia. Existing carriers would have concentrated their efforts on the large towns, particularly in Victoria and New South Wales. Some regional towns in Western Australia would have received ADSL on their own merits, but it has only been the activities of the brokers in galvanising demand and preparing business cases that has generated broadband roll-out. This can be clearly seen in the progression of towns in which they have worked, developed demand registers and recruited local champions to towns with broadband infrastructure. Through their activities, Western Australia now has two viable local wireless broadband providers rolling out solutions in regional areas. Now only is wireless more scalable than ADSL, it does not have the same distance limitations and, where microwave links are provided, can bring terrestrial broadband to very small towns located between larger communities. It is far more a regional solution.

The duration of the brokers' employment is another critical factor. Twelve months is not long enough to build the on-the-ground network, aggregate demand, develop business cases and bring regional solutions. Experience has shown that six months is needed for the initial demand aggregation part of the task. The work on delivering a solution, including the roll-out, can take another year. As has been identified in the discussion paper, valuable follow-up activities – including assistance and advice about the effective use of the infrastructure – can maximise the benefits from the investment. In addition, more intensive work is needed to take full advantage of the aggregation opportunities across government, business and the community, and this is especially important as the towns get smaller and more remote.

The best model for catalysing broadband developments is thus a focus on geographic regions. Priority should be given to regions which are yet to receive significant terrestrial broadband under HiBIS, and to those regions where activities have commenced but where the needs of significant parts of the region are yet to be addressed.

In determining whether regions (and organisations) that have received funding under the current program should be funded under any new program, careful attention needs to be given to the success of the current work, including the quality of the project plan. Some may be ill-conceived; others may have not yet had enough time to achieve widespread results.

Much can also be achieved by funding brokers to promote and facilitate the effective use of broadband applications. This would effectively form phase two of the current brokers' program. This type of activity has been shown to be successful in Western Australia in stimulating the take-up and effective use of the internet. An internet adviser was employed in two regions partly funded by the development commissions and partly by Telstra. These people worked, particularly with the local business communities, to provide basic technical advice and ensure that computers and modems were configured to best make use of the internet connections that were available. This role could and should be extended to both increase broadband adoption, and to provide advice on how broadband can be used most fruitfully and efficiently by the businesses and households with connections. It is essential, though, that the program is not linked to any one provider of broadband. Just as technology neutrality is sought, so must there be provider neutrality. Brokers must be seen to be independent of providers.

To avoid impacting on the viability of local businesses, brokers when performing this function should only provide initial and short-term advice. It is important that brokers make themselves aware of others within the region that can provide in-depth and ongoing service. A list should be developed and distributed to all beneficiaries of the broker's advice and assistance. Consumers should be encouraged to use these contacts for ongoing support and for complex issues so that the strength of the support network within the region, whether it is in the provision of technical support or training, is built up.

Brokers must also build on the networks and programs that are currently in place in each jurisdiction. Regional Development Commissions are responsible for stimulating economic development in a particular region. They recognise the importance of the availability and take-up of broadband to this and are keen to support well-formulated activities in their regions. They have strong business links and networks which can be utilised by brokers, and may be able to offer other in-kind support. Development Commissions must be able to put forward project proposals under a new broker scheme.

In Western Australia, there is a well-established telecentre network comprising 113 regional community-owned and operated technology centres. These provide access, training and support to individuals and businesses across the State. Telecentres have proven invaluable under the current program in providing local champions and a centre for a locally-based demand register. Their already established infrastructure which includes extensive local networks, community capacity-building, ICT training initiatives, and venues would be invaluable in promoting and facilitating the effective use of broadband applications by businesses and communities.

Some telecentre co-ordinators may, in fact, make ideal brokers for the region. There should not be undue restrictions on the new program that would prevent this.

When calling for applications, emphasis should be placed on applicants addressing the particular objectives sought for the region, the way they intend

to achieve these and how they will make use of existing regional and community support networks to do so. States will have a key role to play in advising on the relative strategic priorities, the practicality of the proposal and any other networks or programs that are relevant to the proposal and that should be included in a planned solution.

Take-up and effective use by specific groups should not be specified within the program guidelines. Needs and target groups will differ from region to region but the emphasis should be as wide as possible, focusing on both business and residential users.

The Demand Aggregation Broker program is, in fact, more closely linked to bringing successful outcomes from the HiBIS and Broadband Connect programs – with the focus being on addressing the needs of individual small businesses and residences. While they can have a role to play in assisting with stimulating take-up under a CCIF or Clever Networks project, these projects are both generally more limited in their geographic spread and involve large scale proponents that already recognise the need for and benefits to be obtained through broadband. Because of this and the relatively limited funding for Clever Networks, funding for the Broker program should be drawn from the $878 million allocated to Broadband Connect.

2. Targeting the delivery of key services through broadband

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?

It is appropriate to review the objectives of the National Broadband Strategy at this point. These are:

- To facilitate fair and reasonable access to broadband and its benefits by all Australians.
- To enhance choices and opportunities for all Australians in work and other aspects of daily life independent of location, background, age or interests.
- To maximise the quality and range of services available to all communities through innovative use of broadband for education, learning, health and delivery of government services.

- To strengthen the social cohesion of communities through better access to online services leading to enhanced communication between people, particularly in regional, rural and remote communities.
- To increase productivity by providing a platform for Australian innovation and transforming the economy, enhancing GDP, and improving the international competitiveness of Australian industry - leading to employment and wage growth.
- To facilitate the innovative use of broadband by business to improve processes, employ new business strategies, access new opportunities and deliver enhanced services to end-users.
- To support the research community to participate effectively in collaborative national and global research and learning networks.
- To foster creativity in the way Australians work, live and play, and to provide new opportunities for the celebration and evolution of Australia's diverse ideas, history and culture.
- To strengthen infrastructure for the information economy by developing a range of tools and practices to promote market confidence in broadband applications. These include standards, interoperable systems and security.

The focus of government broadband initiatives is thus in making the benefits of broadband available affordably to as much of the Australian population as possible. This can be through the provision of access to broadband directly, such as by means of subsidies under the Higher Bandwidth Incentive Scheme and Broadband Connect, and initiatives such as the Government of Western Australia providing access throughout its telecentre network. Alternatively it can be through the quality and range of services that are made available through the use of broadband by others. These services are not just provided by government, but also by business and other non-government organisations.

The overall goal of the Clever Networks program is to bring benefits to the end user. This is the measure that should be used in determining program guidelines and in assessing project proposals – that is, the extent and range of the benefits accruing. The CCIF selection criteria 1 and 2 need to be modified to better capture this aspect. It is currently unclear whether Criterion 1 refers to telecommunications/broadband services or the services that are to be delivered by means of the broadband. Criterion 2 focuses on the delivery of services, when a better assessment criterion would be “The benefits and outcomes of the project in terms of the improvements it will make to regional communities”.

Education and Health have benefited from earlier programs – particularly the National Communications Fund – but many schools and hospitals in regional areas that were not covered by this program do not have suitable access to broadband. In Western Australia, there are 47 schools that rely on a shared satellite link, and another 109 schools that only have access to a 512 kbps link or worse. A further 36 schools have access to either 1 or 2 Mb, where a 10 Mb broadband connection is needed. In the health sector, 42 government sites in regional Western Australia do not have access to adequate

broadband services, relying on connections that are limited to 2 Mbps or less, with variable latency. While higher quality broadband services are technically feasible for these sites, the cost of establishing and operating the services makes them currently unworkable.

Emergency services are an increasingly important component of government service delivery and need to be supported by ubiquitous access to broadband. Emergency services encompass the full range of potential incidents, from fire and rescue, hazard management and law enforcement to catastrophic man-made and natural disasters and terrorist attacks. Enabling emergency services to have real-time access to geospatial data, for example, could save lives and limit damage. Major incidents are likely to involve a wide range of government agencies at all three tiers of government. It is therefore essential that solutions be sought to giving as many government agencies access to robust and scalable bandwidth, on a Statewide basis as can be achieved. This is vital in a State like Western Australia with its huge open spaces and dispersed population.

Despite this, Clever Networks initiatives should not be limited to health, education, emergency services and local government. Significant benefits can be delivered from many other areas if given access to improved broadband services. One example is the Department of Justice's use of videoconferencing to enable remote court hearings without the need for witnesses to leave their local communities (with the associated disruption and lack of productivity), and for virtual prison visits (thus reducing the risk of deaths in custody from those that are feeling isolated and alienated). Another example is improved monitoring of people at risk in the community through the sharing of information by relevant government departments such as police, community development and education, enabled by real-time data sharing requiring broadband connections.

There are many other examples possible, but the point is that it should not be for Clever Networks to target in advance "appropriate services" or to determine priorities within groups. The emphasis must be on the benefits to Australians that will result from the funding. In order to ensure the greatest holistic community benefit priority should be given to those projects which deliver improvements across sectors. This enables benefits to be achieved in the delivery of government services by both large and small agencies. In addition, by aggregating demand, solutions become feasible in smaller – and often more needy – communities. In Indigenous communities, for example, it may be the aggregation of demand for ongoing broadband services across education, health, police, justice, community development and local government, plus the capital contribution from the Commonwealth Government that makes a solution sustainable.

A key focus must be on how broadband is also made affordably available to businesses and the general community. Many businesses and residents may not be able to avail themselves of the improved government services without access to broadband themselves. It must be remembered that government is not the only source of "services", and economic and productivity

improvements will only be achieved if industry also has affordable access. It is important to Australia's productivity and competitiveness that access to broadband is made available as widely as possible. Consequently it should be a requirement of projects that services are also offered to others in the community at affordable prices and on reasonable terms. This is not currently part of the selection criteria and must be.

3. Infrastructure versus applications

Infrastructure and application-focused 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?

The roll-out of infrastructure and adoption of broadband services brought about by recent government initiatives highlights the fact that the gap in Australia is access to affordable, quality infrastructure to supply the broadband services – rather than on the availability of applications. New applications are important, but from a government (and business) point of view implementing improved broadband applications is often problematic unless the application can be implemented across the entire organisation. With parts of the organisation on dial-up, satellite with its latency issues or limited "higher" speed internet connections, the benefits and opportunities provided by broadband applications cannot be fully realised. Consequently the emphasis of this program should be on infrastructure. Too much still needs to be done across regional, rural and remote Australia in this area – and the market will not address this without assistance – to move on to other areas of expenditure. In some regions, due to the operation of the market, population density and the actions of various levels of government, adequate infrastructure (and even competitive infrastructure) has been provided. The money now available should consequently be directed at those areas of Australia where government intervention is necessary to stimulate broadband solutions. The $113 million available through the Clever Networks program should not be spent on applications. Matching contributions, though, could be in the form of the costs of developing appropriate applications.

The emphasis must be on strategic investment. Consequently it is vital that States and Territories are able to influence the focus of the investment within their jurisdiction. The jurisdictions, through the National Broadband Strategy Implementation Group (NBSIG), must be able to provide advice to the Commonwealth on the strategic value of the proposals. Once this is

determined, there should be a competitive process to decide the successful provider. This ensures a value-for-money solution that is directed at the areas which are deemed to be most worthy.

There is a tension between strategic investment in backbone infrastructure and town/community-based solutions, with both areas deserving funding.

Backhaul prices are crippling the opportunities for competition in regional areas. For example, the cost to another provider of a 45 Mb backhaul link to Rockingham from Perth is nearly $200,000 per month, and Rockingham is just 47 kilometres from the centre of Perth. The cost of a similar link to Albany 404 kilometres from Perth is over $600,000 per month. Contrast this with charges of $2,000 per month within the metropolitan area, including to Armadale which is 30 kilometres from the CBD.

Currently there is no competitive broadband backbone infrastructure within Western Australia outside a link between Perth and Bunbury – a mere 185 kilometres. The opportunity may exist to leverage State Government assets and rights-of-way and a Clever Networks capital investment to provide competitive backhaul into the north of the State. As well as bringing direct benefits to the towns near its path, the presence of competition has the potential to force prices down in regional areas across the State.

While the Higher Bandwidth Incentive Scheme (HiBIS) and its replacement, Broadband Connect, fund infrastructure provision indirectly through customer subsidies, they are not providing solutions in small towns where residential customer demand is low. This is particularly true of Indigenous communities. Government services are critical to the economic and social well-being of the population, and broadband enables the delivery of quality targeted services, giving residents opportunities that would not otherwise be available.

There are over 300 Indigenous communities in remote and rural Western Australia. In late 2003/early 2004, 274 communities participated in the Environmental Health Needs Survey (EHNS), representing almost 17,000 Indigenous people. Many of these 274 communities are in very remote areas of the State, with 80% of the Indigenous population living in communities of 50 or greater in size. Only about 50 communities are in or adjacent to established towns. In the Kimberley and Western Desert regions of the State, the Indigenous population forms at least 25% of the total population. The EHNS 2004 report, published recently, focused on environmental health, but also included an analysis of telecommunications services. This analysis showed that only 14% of communities had access to the Internet, with 18% having access to computers. Payphones were available in 47% of communities, and satellite phones in 24%. There are some recent programs to address these issues, such as in parts of the Western Kimberley and in the Warburton regions, but much more needs to be done. Economic development of these Indigenous communities is a key current issue, with this development being hampered until telecommunications services improve. The communities will also require some capacity building assistance, to ensure that community members are able to more fully utilise these new

telecommunication services once they become available – this could be an appropriate focus of the Backing Indigenous Ability Program and State Government initiatives. Community broadband access points, such as telecentres, will have a critical role to play.

Consequently, "best outcomes" must be widely defined. Clever Networks must make strategic investments in both backbone infrastructure and town-based solutions. The project guidelines must cater for both.

4. Alternative contribution sources for proposals

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?

The discussion paper states, "Preference will be given to those funding applications where there is at least matching funding from non-Australian Government sources". This requirement disadvantages those jurisdictions most in need. The jurisdictions with low population densities, small town sizes and long distances are the least attractive for commercial solutions. Yet the more remote the area, the greater the reliance on communications services, as evidenced by the findings of the State's *Telecommunications Needs Assessment*[1] and so the greater importance of broadband provision to the Australians living in these regions. These same factors – low population density and huge distances – make the provision of other services, such as education, health, law and order, and local government, more costly to provide and hence have a greater relative impact on associated State and Local Government budgets than in other jurisdictions without these factors.

While telecommunications breaks down the tyranny of distance, the costs of the provision of the infrastructure is distance related. Hence, the costs of projects within a State like Western Australia are also proportionally much higher.

A "fair" consideration of proposals must take these factors into consideration along with the amount of matching funding, including in-kind contributions, that is able to be provided.

Timing of commitments to funding contributions can also be an issue where these are dependent upon budgetary cycles for consideration and possible allocation.

The size of telecommunications industry contributions will be affected by the marginality of the business case. It is the intent of programs such as this one

[1] *Telecommunications Needs Assessment: the communications needs of regional Western Australians*, (2003), Government of Western Australia, www.doir.wa.gov/tna.

to focus on areas of market failure – areas that will only be viable with a capital injection. Consequently the greater the ability of the provider to contribute, the less is the imperative for government to fund the proposal as the likelihood that a solution would be found commercially becomes greater. In addition, the capacity to contribute is likely to be related to the size of the industry player, thus disadvantaging new and smaller industry participants and thus running counter to competitive outcomes.

Having said this, it is in Australia's interest to make the available funding stretch to bring as much benefit as possible. All potential sources of contributions should be explored as part of project proposals. This should include aligning other Commonwealth programs and department initiatives to provide the best overall strategic outcomes for the country.

5. 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?

While the idea that a higher level of broadband capability could be specified under Clever Networks is appealing, it implies that all areas currently have some coverage and that all applications require high speeds. As is stated in the section of the National Broadband Strategy titled "What is Broadband?", "Different users in the economy have different needs from broadband. Some users will have a need for very high capacity and high speed, while for others low latency or guaranteed redundancy may be more important. Achieving full benefits from broadband requires matching specific needs with available solutions."

While the health and education sectors would welcome minimum speeds of 10 Mbps being set as a standard, for many other services this is currently unnecessary and would be unaffordable. Libraries and telecentres would welcome a 2 Mbps broadband connection. What is important is that the broadband provided under the projects must be scalable, so that money is not invested in areas that have only a short-term return and with no possibility of expansion. Applications, and more critically tender responses, must address

how the solution can be upgraded in the future to cater for increasing broadband demand, both in terms of additional users and greater bandwidth.

To cater for new and emerging technologies, project proposals should be non-technology specific. It is at the tender evaluation stage that a decision can be made about the most appropriate technology to meet the specific needs of the project. The calling of tenders – and non-specific technology tenders – does have the disadvantage of a longer lead time but it is the best way to ensure that projects can avail themselves of technology advances that emerge during the course of the program.

Funding under Clever Networks should not be made available for pilots where a carrier has already made a commitment to roll-out that specific new technology on a commercial basis.

Network and technology schemes that are likely to be of long-term benefit must be the objective of the program. Terrestrial infrastructure capable of high-bandwidth, low latency broadband should be deployed wherever feasible.

6. 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?

If the Commonwealth Government's goal is to only intervene and provide funding in cases of market failure (and thus in those areas which are commercially unattractive), it is unrealistic to expect that no further intervention will be necessary in all situations. In cases where the revenue generated by the provision of broadband covers all of the ongoing costs and generates a small profit, there will come a time when equipment will need to be upgraded. This is likely to be at least partially offset by increasing demand for broadband services both by increased take-up and increased usage, and by decreasing costs in provision over time – in line with existing global trends. The possibility of further intervention being required is a risk that the Commonwealth Government must take and be prepared to bear if Australia is to be "a world leader in the availability and effective use of broadband, to deliver enhanced outcomes in health, education, community, commerce, and government and to capture the economic and social benefits of broadband connectivity".[2]

It needs to be recognised that there are locations where it will only be government spend that makes the provision of broadband sustainable within

[2] Vision statement within the National Broadband Strategy.

the community. Government, by acting as the anchor tenant, can provide the ongoing business case that ensures that broadband services will continue to be supplied. This applies to many small towns and Indigenous communities. All tiers of government must contribute, and so there needs to be coordination and collaboration on initiatives by Commonwealth, State and local governments, and agencies within these tiers of government. For example, all jurisdictions should undertake to notify all agencies under their authority of projects that are approved for funding and require that liaison takes place with the project proponents over all broadband activity or proposed activity within that region. This should minimise actions that are at cross-purposes or duplications, and maximise the benefits to all concerned.

Proposals should include an assessment of the ongoing spend available from government sources that will underpin the sustainability of the solution, together with an assessment of the income needed by a provider to operate the service based on what is occurring in other locations. This will be further refined and established during the tender process and evaluation.

There should be a requirement of the successful carrier to provide scalable broadband services for a minimum ten-year period in return for the capital investment.

Projects should not only be evaluated on financial grounds. Broadband brings benefits far in excess of the economic ones, and assessment of proposals should weigh all of the benefits likely to accrue from the investment. As well as new business, employment and trade opportunities, broadband delivers improved education and health outcomes, and stronger and safer communities, as examples.

7. 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?

This is a difficult area. The best outcome for consumers – be they government, business or individuals – is to have a competitive environment. This not only allows for price competition, but also potentially the provision of a range of services targeted at different segments of the market. For an infrastructure owner, the best outcome is sole access that allows them to fully recover their investment and a premium for taking the risk of being the first mover in the market place. Anything less is likely to impact upon their

willingness to invest in marginal areas. Any funding from government does, however, reduce both the owner's own investment and the amount of risk they take on.

This situation is further complicated by the leading carrier's near exclusive ownership of backhaul in regional areas of Australia. Through this, very high backhaul rates are charged that impact upon the viability of any other provider offering last mile solutions.

The National Communications Fund delivered significant benefits to health and education delivery throughout Australia. In Western Australia, the money from this fund, underpinned by significant contributions from State Government agencies in ongoing spend, enabled the upgrading of exchanges in fifty-eight towns throughout regional areas and the provision of 2Mb or 10Mb connections to over 300 schools and health sites. A key problem, however, was that the benefit of this upgrade was not available more widely to the community and businesses. There was no requirement for the carrier to make improved services available to other end users, or to provide higher bandwidth affordably to other possible providers who could then on-sell broadband services to the community.

Where government funding is being provided every effort should be made to open up use of the infrastructure as widely as possible. There must, as a minimum, be a requirement that broadband services are either offered affordably directly to businesses and the community as a result of Clever Networks funding, or that they are offered affordably as a wholesale product to other potential providers for on-selling. Infrastructure should also operate on an open access regime. Taxpayer-funded infrastructure should operate on a strong open access regime that is in addition to Australian Competition and Consumer Commission (ACCC) determinations. The process for access to externally funded infrastructure should be clearly defined in any tender to ensure that others can access the infrastructure in a reasonable amount of time.

The ACCC is best placed to determine appropriate access and charging regimes, but this must be done proactively. Currently disputes are drawn-out and expensive as it is in the incumbent's interest to prevent access for as long as possible. Instead of taking this approach – of waiting for complaints – the ACCC should actively encourage and lead agreement before the infrastructure is in place. This is increasingly the model that is being adopted in the United Kingdom by their regulator, Ofcom.

8. 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?

Another broadband program that should be integrated – or at least, closely aligned – is the Commonwealth Department of Health and Ageing's Broadband for Health. Just as prospective Broadband Connect providers will be able to utilise infrastructure provided under Clever Networks, so could Broadband for Health providers. This would also contribute to the viability and sustainability of the projects. This is especially important in Western Australia where the State is so vast and population centres are a long way apart.

There may well be other initiatives, both current and emerging, that should be considered. The strategy outlined in section 5 of writing to agencies should highlight these.

Making appropriate use of telecentres and other online access centres, including libraries, should also be considered by project proponents. These centres can provide a key role in both providing training and awareness on broadband use, and in championing broadband within the community. They also provide access to a wide range of government and community based services.

9. Program evaluation

Embedding and undertaking program evaluation

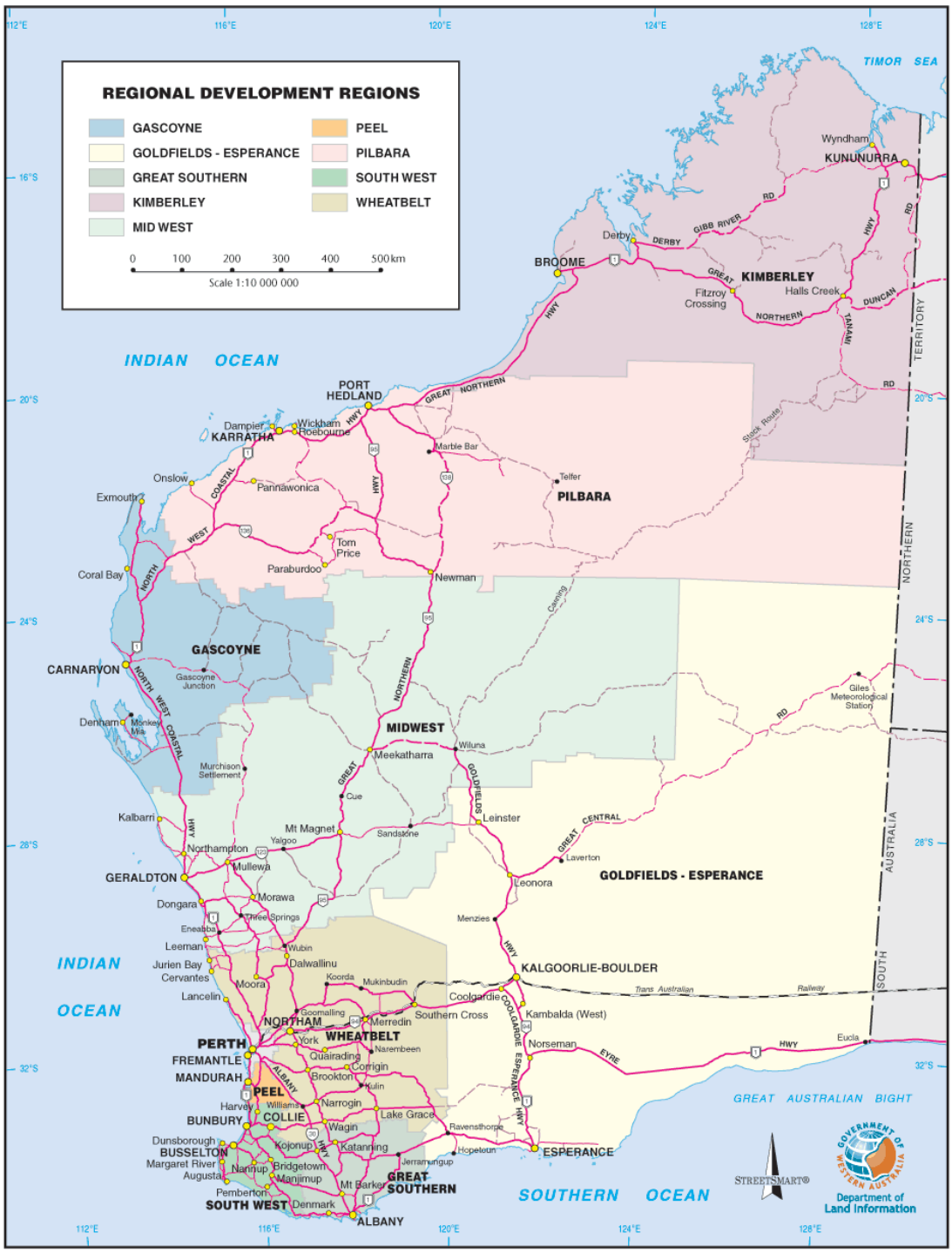
Q26 Having regard to the possible diversity of the activities under Clever Networks, what strategies can/should be considered?

As projects under Clever Networks are likely to be diverse, an appropriate evaluation measure would be achievement against the objectives of the National Broadband Strategy. The National Broadband Strategy Implementation Group's Measurement Working Group is already tasked with measuring progress against the National Broadband Strategy itself. The work that is being done here – and some of the measures used – should be applied at the project level.

To facilitate program evaluation, the criteria and process need to be clearly specified before projects are undertaken. Evaluation must be non-intrusive and not impose significant overheads on the project. There must, however, be accountability.

Appendix 1:

REGIONAL DEVELOPMENT REGIONS OF WESTERN AUSTRALIA



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Appendix 2:

The following have contributed to the preparation of this submission:

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Department of Conservation and Land Management
Department of Education and Training
Department of Health
Department of Indigenous Affairs
Department of Industry and Resources
Department of Local Government and Regional Development
Department of the Premier and Cabinet (Office of e-Government)
Department of Treasury and Finance
Fire and Emergency Services Authority
Gascoyne Development Commission
Goldfields Esperance Development Commission
Great Southern Development Commission
Kimberley Development Commission
Main Roads Department
Murdoch University, representing the University sector
Peel Development Commission
State Library of Western Australia
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