Australian Government

Department of Communications, Information Technology and the Arts

# NATIONAL COMMUNICATIONS FUND
# MID-TERM REVIEW

**DECEMBER 2004**

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# 1. SUMMARY

## OVERVIEW

At the time of conducting the mid-term review of the National Communications Fund (NCF) not all of the projects had commenced delivering services and so it is not possible to assess the full extent of the success of the program in meeting its objective of achieving significant improvements in service delivery in the education and health sectors through funding large-scale telecommunications projects in regional areas. Nor can we accurately assess the degree to which the program is improving telecommunications services generally in regional communities. However, we can look at the progress that has been made to date and provide an assessment of whether the program appears to be on track to meet its objectives.

For those projects where new services have commenced, the findings in relation to improvements in service delivery are very clear.

Feedback from project managers and technicians implementing the projects, education and health practitioners using the new services, and end users of the services was overwhelmingly positive.

Benefits from the projects are already being gained in many areas:

- School of the Air students in remote New South Wales and across the Northern Territory can see their teacher for the first time and interact with their classmates in lessons thanks to broadband satellite connections.
- New broadband infrastructure is supporting video conferencing for telehealth services in Western Australia and New South Wales so that patients in regional areas can consult a city specialist from their local hospital or health centre rather than facing the time, expense and disruption of a long journey to the city.
- In Tasmania, schools now enjoy high speed Internet access for every pupil in the classroom, for the first time providing a viable online teaching format. Both schools and health agencies now regard the services as a valuable work tool, where before they used to have to wait so long to even download an email or retrieve an attachment that they gave up trying to use it.
- Regional health services in New South Wales are making significant cost savings through shared administrative applications and processes.
- Education, health and other professionals in regional areas of these states are taking advantage of better electronic communications with their peers for personal and professional support along with access to online education and professional development.
- Although it is early days in terms of seeing substantial regional development benefits, the rollout of NCF project infrastructure is providing jobs in some regional areas. In Western Australia for example it was reported that the project will potentially generate 45 new jobs and create an additional 25 000 hours of regional work during the deployment phase.

- NCF projects have brought broadband communications to many small communities that would not otherwise have received these services (or not in the short- to medium-term). Some examples are Tambar Springs, New South Wales, population 94; Nubeena, Tasmania, population 255; and several hundred isolated homesteads throughout outback New South Wales and the Northern Territory accessing broadband satellite services for educational and personal use.
- Access to TAFE courses has increased so that parents can learn new skills, older kids can stay in their communities and still study, TAFE can aggregate students to offer a wider range of courses in small centres, and training packages can be delivered closer to the workplace in areas such as agriculture and aquaculture.

More benefits along these lines are expected as the remainder of the projects are fully implemented.

Any negative comments to the review usually related to minor implementation issues, such as setting up the equipment, getting used to new systems, or wanting more money to extend the activity further. When we asked 'Do you prefer the old system?' the answer was always an emphatic 'No!'

Several of the projects have used NCF funding as a catalyst for bigger projects or are integrating the NCF component into a state-wide communications strategy. The $8 million NCF funding provided to a consortium of Western Australian Government agencies served as a base for them to develop a project for a state-wide communications network and secure more than $50 million in additional funding from the Western Australian Government. The South Australian *RegNet* project, which is receiving $6 million in NCF funding, is part of that state's $20 million Education Telecommunications Procurement, or eduCONNECT, project. The Tasmanian NCF project integrates with the state government's Networking Tasmania initiative. Most of the NCF projects require the collaboration of a range of state and territory government agencies.

The review was informed that another catalytic effect of the program has been the bringing together of different state agencies who have not previously collaborated closely on major projects.

An unanticipated outcome of the program has been the development by Telstra of two new products, Government Wideband IP (or GWIP) and Business DSL (BDSL), with which it has won the contracts for carrier services for more than half of the projects. Telstra missed out on early NCF project contracts, but proved to be very competitive in later tenders with the GWIP/BDSL package. These services are providing higher speed broadband to regional areas at a much lower price than had been previously available. One result is that several of the NCF projects that have awarded contracts to Telstra have been able to increase the scope of their projects significantly. The Network WA project is reaching 308 sites in 58 towns when it had originally forecast that it would reach 58 sites in 19 towns, and the Broadband for Rural Tasmania project has increased its reach from around 20 towns to nearly 50. Telstra is now offering GWIP or its equivalent more widely than just to the NCF projects.

In addition to the competitive tender processes conducted by almost all projects, several projects, e.g. in New South Wales and South Australia, have introduced

alternative carriers, resulting in increased competitive pressures on all market participants.

In June 2003 the Australian Government announced that it would allocate $23.7 million to the Coordinated Communications Infrastructure Fund (CCIF) to fund broadband infrastructure projects that improve the delivery of health, education and government services in regional communities. The CCIF builds on the NCF, and some of the successful projects that have been announced to date are extensions of NCF projects. Several of the NCF projects themselves build on projects funded under the Networking the Nation program, for example telehealth projects in Western Australia and Queensland and education projects in Tasmania.

Most of the NCF projects are nearing completion of the rollout of their infrastructure or have completed it; only two projects still have substantial infrastructure rollout still to occur. Several projects experienced delays in the first year of the program which set back their progress in achieving milestones within agreed timeframes. Completion by the end of June 2005 is in doubt for one project, the Queensland Government's Outbacknet, which at the time of writing has not finalised arrangements for the provision of broadband services.

Sustainability is being built in to all of the projects. Where the projects are installing new high-speed broadband connectivity, they are generally finding that the new improved services can be delivered at the same or for less cost than for the old connections. In the majority of projects, ongoing operating costs are being met from state governments' recurrent funding of their education and health agencies. As this funding is an ongoing part of state government budgets for core service delivery, the sustainability of the services is secure. In addition to savings on telecommunications costs, there are additional savings to state budgets, such as the significant saving in travel time and costs through the adoption of telehealth, leading to direct cost savings (e.g. smaller vehicle fleets) and increased productivity of staff.

The program is being administered efficiently according to the criteria set out by the Department of Finance and Administration for reviews of this type. The departmental resources applied to its management are within the range of resources used for similar programs and departmental administrative expenditure to date is running slightly below the allocation provided for the program.

## SUMMARY ASSESSMENT AGAINST KEY PERFORMANCE INDICATORS

### 1. The contribution of the program to improved service delivery in the education and health sectors in regional Australia

The majority of the NCF projects are performing well against this indicator and substantial progress has been achieved.

New infrastructure is being rolled out across significant areas of regional Australia with connectivity ranging from 128Kbps to 20Mbps, in many cases scalable to much higher capacities, 100Mbps up to 1Gbps, as demand for bandwidth increases. The majority of initial connections are in the 512Kbps–2Mbps range.

A number of benefits from the projects are already being gained in many areas:

- School of the Air students in remote regional areas can see their teacher for the first time and interact with their classmates in lessons thanks to broadband satellite connections.
- New broadband infrastructure is supporting video conferencing for telehealth services so that patients in regional areas can consult a city specialist from their local hospital or health centre rather than facing the time, expense and disruption of a long journey to the city.
- Schools now enjoy high speed Internet access for every pupil in the classroom, for the first time providing a viable online teaching format.
- Access to TAFE courses has increased so that parents can learn new skills, older kids can stay in their communities and still study, TAFE can aggregate students to offer a wider range of courses in small centres, and training packages can be delivered closer to the workplace in areas such as agriculture and aquaculture.
- Increased use of applications including email, Internet and access to databases such as those containing specialist medical information and health records.

All projects are consistent with a broad range of national and state/territory education and health service delivery initiatives and telecommunications standards.

**2. The contribution of the program to the development of high bandwidth services in regional communities**

Overall results indicate that the program has supported the development of high bandwidth services in regional communities.

The program has brought forward in time progress towards equity of service delivery between the metropolitan and regional areas. The program has initiated the early development of high bandwidth services in regional communities well ahead of general commercial development. In particular, it has accelerated the development of DSL infrastructure in regional areas. One of the most tangible impacts on telecommunications has been the provision of ADSL broadband services in many of the towns covered by the program. The program has initiated and stimulated interest in the potential benefits from the availability of improved telecommunications infrastructure in regional areas.

**3. The degree to which each project has achieved or is likely to achieve the outcomes outlined in the initial application for funding and as set out in the relevant Funding Deed**

About half of the projects have exceeded the number of sites and towns initially proposed in their funding applications and the funding deeds by a considerable margin. Seven out of the eight projects are within budget and are expected to remain so for the duration of the project. (The timeframe for the project expenditure final budget for the remaining project is still to be determined.) The receipt of cash and in-kind contributions totalling more than $120 million is proceeding according to the forecasts in the Funding Deeds.

**4. Progress towards sustainability of the services after the cessation of NCF funding, including ongoing development and upgrading**

All of the projects are expected to be sustainable and are based around similar models to ensure sustainability, involving recurrent costs being met from the participating agencies' on-going budgets. In the majority of projects, these budgets are directly funded by the state/territory governments, which enhances the sustainability of the projects. In most cases, services are upgradeable as demand for higher bandwidth emerges.

**5. The nature and level of involvement of other organisations**

All eight projects have the direct participation of government education and health agencies and will receive more than $120 million in cash and in-kind contributions. Several projects identified one outcome of the NCF as its catalytic effect in bringing about collaboration between government agencies to develop broader projects.

# 2. BACKGROUND TO THE REVIEW

The National Communications Fund (NCF) is a $50 million program (plus $2.2 million running costs) established in 2001 to support significant telecommunications projects in the education and health sectors in regional Australia. The NCF aims to help improve service delivery in these sectors, and will also encourage the development of high bandwidth data services in regional communities.

The NCF is a key element of the Australian Government's response to the Telecommunications Service Inquiry. Funding is available over three years (2002–03 to 2004–05). Eight successful projects were announced by the Prime Minister on 18 July 2002. The eight projects in all states and the Northern Territory fully commit the $50 million program funds with additional cash and in-kind contributions of around $120 million provided by the consortium members.

The NCF Guidelines provide that the NCF program will be evaluated during the term of the program, and on completion, to determine its success in meeting the Australian Government's objectives. The projects are required to keep adequate records and provide information relating to the project and program in order to participate in a mid-term review and final evaluation of the NCF.

In this review, the success of the NCF to date is measured by considering the performance of the eight funded projects against the key performance indicators (KPIs) and in progressing the objective of the program. This includes the contribution of the program to improved service delivery in the education and health sectors in regional Australia and the establishment of backbone network capacity and last mile connectivity. The review also considers community benefits, including number of users of the services, number of locations where the services are delivered and quality standards of the services.

The review also assesses the performance of the projects in meeting the milestones set out in their individual funding deeds and the efficient administration of the program.

## SCOPE OF THE REVIEW

The mid-term review provides an opportunity to take stock of progress with implementation and what the NCF and the eight projects have achieved. Funding agreements were signed with each of the projects between November 2002 and October 2003. Most of the projects had just commenced the delivery of services and some had not reached this stage at the time of this review. Therefore this review is likely to provide early indications, rather than firm conclusions, on achievements against the program's objectives.

The review considers the progress of the projects against the KPIs covering:

- the contribution of the program to improved service delivery in the education and health sectors in regional Australia

- the contribution of the program to the development of high bandwidth services in regional communities
- the degree to which each project has achieved or is likely to achieve the outcomes outlined in the initial application for funding and as set out in the relevant funding deed
- progress towards sustainability of the services after the cessation of NCF funding, including ongoing development and upgrading
- the nature and level of involvement of other organisations, including the financial and/or in-kind contributions from other organisations supplementing the Australian Government's investment.

The detailed KPIs for the program are at Appendix 1.

In particular, the review considers the degree to which each project has achieved or is likely to achieve the outcomes outlined in the initial application for funding and as set out in the relevant funding deed. The review also considers implementation of network rollout and delivery of services against the project budget and timelines.

An important consideration was progress towards sustainability of the services after the cessation of NCF funding, including ongoing development and upgrading. The contributions and involvement of other organisations are relevant in this respect, including participation by education and health service providers, telecommunications carriers, other service providers, community organisations and local governments.

The review also considers the overall design and operation of the program and the efficiency and effectiveness of the Department of Communications, Information Technology and the Arts' (DCITA) administration of it.

## TERMS OF REFERENCE OF THE REVIEW

The mid-term Review will:

- evaluate progress made by grantees towards meeting the objective of the NCF, which is:

  'To achieve significant improvements in service delivery in the education and health sectors through funding large-scale telecommunications projects in regional areas. Priority will be given to projects that improve telecommunications services generally in regional communities, as well as improving the delivery of education and health services.'
- evaluate the actual and potential outcomes and impacts of the NCF
- evaluate the efficiency of program management by DCITA
- propose any recommendations for adjusting the operation of the remainder of the program, or that may be relevant to other programs such as the CCIF.

In evaluating the actual and potential outcomes and impacts of the NCF, the Department will assess the performance of each project against its objectives and in terms of the program KPIs.

The Department will take account of the current status of the NCF projects as well as broader developments in regional telecommunications and service provision, including other government programs and any relevant commercial/market developments.

## METHODOLOGY

This review was conducted by officers of the Department of Communications, Information Technology and the Arts.

Information for the review was gathered through visits to the eight project sites and consultation with a range of key stakeholders between May and November 2004. Stakeholders that were consulted include:

- consortium members of funded projects
- organisations involved in the NCF projects particularly those using the NCF services
- telecommunications carriers
- relevant Australian Government and State/Territory Government agencies
- end users of some of the services.

A list of these organisations is at Appendix 2.

# 3. THE NATIONAL COMMUNICATIONS FUND AND KEY DEVELOPMENTS

In March 2000, the then Minister for Communications, Information Technology and the Arts, Senator the Hon Richard Alston, established the Telecommunications Service Inquiry to assess and make a certification on the adequacy of telecommunications services in Australia. This assessment found 'that while the majority of Australians enjoy adequate (telecommunications) services, there are some people in parts of rural and remote Australia for whom key service aspects are not adequate'. The Inquiry made a number of recommendations to provide a framework to address the areas of concern identified in the report and ensure that the telecommunications sector would continue to improve the services available to Australians.

One area identified in the report was reliable access to the internet and adequate data speeds. Accordingly Recommendation 8 of the TSI suggested 'that the Government establish a national communications fund to assist significant communications projects by key users such as education or health. A core criterion for funding such projects should be the extent to which they will improve communications services generally available to surrounding regional, rural and remote communities'.

The National Communications Fund was set up in response to this recommendation. The Australian Government allocated $50 million in program funding to achieve significant improvements in the delivery of education and health services by funding large-scale telecommunications infrastructure projects in regional Australia. By funding such projects, the NCF also aimed to enhance the delivery of broader telecommunications services in regional communities.

Following consultation with a range of stakeholders, the NCF program guidelines were issued by the then Minister for Communications, Information Technology and the Arts in October 2001, along with a call for applications by the end of February 2002.

The selection criteria covered the:

- nature and extent of education and/or health needs present in the regional area which the project is seeking to address
- characteristics of, and demand for, the proposed services to be delivered by the project, including education and/or health services and other services
- benefits and outcomes of the project in terms of improvements to the delivery of education and/or health services to regional communities; consequential improvements to high bandwidth services in regional communities; consistency with overall directions in education and/or health and other regional telecommunications initiatives; and the development of Australian Information and Communications Technology (ICT) capabilities
- reason NCF funding is required for the project to proceed

- extent to which the Commonwealth's funding will be leveraged by support from private, government and other sources.
- degree to which the project is sustainable after NCF funding ceases
- quality of the project plan, management strategy and financial plan
- quality of expertise and experience of the proposed management team with regard to establishing and managing the project
- nature and range of organisations involved in the project and their capacity to contribute to project outcomes.

The Department received 59 applications for NCF funding. A two-stage selection process involved a desktop assessment by the Department and outside specialists, leading to the shortlisting of 15 applications. These applications were independently assessed and the applicants interviewed by a six member Selection Advisory Panel.

On 18 July 2002 the Prime Minister announced the eight successful applicants for NCF funding. The projects cover all states and the Northern Territory.

The projects are:

- Broadband for Rural Tasmania Project ($3 million)
- Grampians Rural Health Alliance Network ($8 million)
- Health and Education Information Access for Rural and Regional NSW ($3.5 million)
- Network WA ($8 million)
- New South Wales and Northern Territory Interactive e-Learning Initiative ($8 million)
- Northwest and New England Broadband Telecommunications Network ($5.5 million)
- outbacknet@qld ($8 million)
- Regional Network Delivering Education Services, SA ($6 million).

The projects are described in more detail in Chapter 4.

## KEY DEVELOPMENTS IN REGIONAL COMMUNICATIONS

The implementation of the NCF from 2001 has taken place during a period of continuous change in regional telecommunications. Information and communications technologies (ICT) have continued their rapid advance and regional Australians have become increasingly aware of the opportunities this has offered to deliver economic and social benefits for their local communities.

The Australian Government's decision to fund the NCF in response to the TSI had the objective of accelerating the introduction and adoption of broadband technologies, targeting health and education services in particular.

## Networking the Nation

The NCF is by no means the first or only Australian Government program to address the communications needs of people living in regional Australia. The Networking the Nation (NTN) program was established in 1997 to assist the economic and social development of regional, rural and remote Australia by funding projects which enhance telecommunications infrastructure and services; increase access to, and promote use of, services available through telecommunications networks; and reduce disparities between metropolitan and country communities in access to such services and facilities. Over its seven year life, the NTN committed around $321 million in funding to a total of 762 projects. Many of these projects were relatively small, locally-focussed projects, but there were several multi-million dollar projects that covered large geographic areas. The projects encompassed a wide variety of activities including:

- demand and feasibility studies
- Internet access centres, training and awareness programs
- points of presence enabling local call access to the Internet
- communications infrastructure, including mobile and cable infrastructure
- videoconferencing, websites and online services.

Some of the NCF projects build on NTN projects. For example, Network WA is providing broadband connectivity which will enhance the almost 80 telehealth videoconferencing sites in 56 country towns and 14 metropolitan locations that were installed and funded by the NTN program across Western Australia. Broadband for Rural Tasmania is similarly providing funding for broadband connections to, among other sites, schools which received computer equipment, cabling, training and support through the NTN Connecting Tasmanian Schools project.

In assessing the applications for NCF funding, the selection panel was mindful of the opportunities to build on programs such as the NTN and the need to avoid duplication.

In the time since the NCF applications were formulated access to telecommunications and infrastructure in regional areas has continued to increase, through commercial deployments in regional telecommunications markets and through government programs seeking to supplement these market developments.

In addition to basic voice telephony, three measures of these advances are in mobile telephones, Internet connections and the availability of broadband services.

## Mobile telephone services

Mobile telephone services include both terrestrial and satellite services. Australian Bureau of Statistics (ABS) figures show that in 1998 37 per cent of regional households had access to some type of mobile phone. That use has continued to grow,

to 54 per cent in 2000 and 66 per cent of regional households had access to a mobile phone in 2002 [Ref ABS 8146.0].

In 2000, Telstra's CDMA mobile phone network was the most extensive terrestrial network in Australia. It covered 96.9 per cent of the population and 12.5 per cent of the Australian landmass (both metropolitan and regional areas). This CDMA network is still the most extensive network, now covering more than 98 per cent of the population and 18 per cent of the landmass. Resellers such as Optus also provide CDMA services. In addition to mobile voice services, data services such as 1xRTT (which can deliver speeds ranging from 144Kbps to 2Mbps) on the CDMA network are being provided in regional areas. The alternative GSM network covers about 96 per cent of the Australian population but does not have such an extensive regional coverage as the CDMA network.

The Australian Government has contributed to the expanded CDMA network in particular through its support of capital costs for around 600 new mobile phone base stations or repeaters, in towns and along regional highways, under a number of programs, including those arising out of the TSI. This will increase further through the 62 locations to receive mobile phone coverage under the Australian Government's response to the Regional Telecommunications Inquiry. In addition, the Government provided funding towards nearly 10 000 km of near-continuous GSM coverage along 16 major national highways.

For people living or working beyond the range of terrestrial mobile phone coverage, generally in the more remote parts of Australia, satellite mobile phone services have developed further. For example, handsets have continued to reduce in size, dual mode satellite/GSM and satellite/CDMA phones have been introduced into the market, and phone prices and call costs have trended downwards. The Australian Government commenced subsidising the purchase of satellite phone handsets in 2002 through the Satellite Phone Subsidy Scheme.

## Internet

According to the Australian Bureau of Statistics, the proportion of all regional households with access to the Internet has increased strongly, rising from 10 per cent in 1998 to 26 per cent in 2000 and 47 per cent in 2003 [Ref ABS 8146.0]. Forty-eight per cent of farms used the Internet as part of their business operations at June 2002, up from 11 per cent in 1998 [Ref ABS 8150.0].

In selected remote areas (Telstra's 'extended zones') for a limited time period from mid-2001, customers were offered an 'always on' two-way satellite service for Internet access up to 400Kbps, on a concessional basis. Also, as part of the Australian Government's response to the Telecommunications Service Inquiry, the Internet Assistance Program was implemented in September 2001 as a joint initiative between the Australian Government and Telstra, with Telstra contributing up to $38 million and the Australian Government contributing $10 million over three years. This program was to help Internet users obtain a dial-up Internet data speed equivalent to at least 19.2Kbps.

## Access to broadband

Broadband infrastructure has not yet penetrated regional markets to the same extent as mobile and Internet technologies. The major current technology with widespread applicability is ADSL (as opposed to specific cable services available mainly in capital cities). ADSL, even where it is installed, has a limited reach from the exchange and at January 2004 ADSL regional coverage on a national basis was not extensive.

In March 2004 the Australian Government announced a $142.8 million National Broadband Strategy focusing on the broadband needs of regional Australians, in partnership state, territory and local government.

The key elements of the National Broadband Strategy are:

- $2.9 million over four years for a national coordination mechanism, the National Broadband Strategy Implementation Group
- $107.8 million over four years for the Higher Bandwidth Incentive Scheme (HBIS), providing a financial incentive to service providers to offer broadband services in regional areas at prices reasonably comparable with those available in urban areas
- $8.4 million to support demand aggregation in regional Australia through funding of demand aggregation brokers, to coordinate demand at a regional level and generate a viable business case for rolling out infrastructure to areas that would not otherwise receive broadband services
- $23.7 million through the Coordinated Communications Infrastructure Fund to accelerate the rollout of broadband into regional Australia using key sectors such as health education and government services as anchor tenants.

## Coordinated Communications Infrastructure Fund

The CCIF encourages further broadband investment for projects that have aggregated demand across key sectors such as health and education and across particular geographic areas. The CCIF thus continues and expands the objectives of the NCF and several projects of the seven funded through the first round of the CCIF complement NCF projects in Western Australia, Queensland, Victoria and New South Wales.

In Western Australia for example, a CCIF project will establish a broadband backbone and last mile services to 12 Indigenous communities, including schools, police, justice and health agencies, in one of the most remote regions of Australia, the Ngaanyatjarra Lands. Queensland Health is receiving CCIF funding to expand the scope of its NCF funded network project to a further 16 remote towns in Far North Queensland.

The projects to be funded in the second and final CCIF round will be announced in early 2005.

## Department of Health and Ageing e-health initiatives

**Broadband for Health** is a $35 million initiative of the Australian Government Department of Health and Ageing (DHA) to provide broadband Internet access to general practitioners and Aboriginal Community Controlled Health Services across Australia, since expanded by $14.5 million to also cover pharmacies. Subsidies are available to help meet the costs of professional installation and 12 months usage of the most economical, qualified service. DCITA has worked with DHA to ensure complementary outcomes from the NCF and Broadband for Health.

**Health*Connect*** is a network of electronic health records that aims to improve the flow of information across the Australian health sector. It involves the electronic collection, storage and exchange of consumer health information via a secure network and within strict privacy safeguards. Under Health*Connect*, health-related information will be collected at the point of care, such as at a hospital or a doctor's surgery. It will be documented in a standard electronic format and stored as part of a secure network. This information may then be retrieved online when needed or be exchanged between authorised health care providers—but only with the consent of the consumer. Work on a staged national implementation of Health*Connect* has begun in coordination with the states and territories and in full consultation with consumer and health care provider groups.

**Medi*Connect*** is a secure national electronic system to help improve quality and safety in the way we manage our medicines. By drawing together information about the medicines people use, Medi*Connect* will ensure that doctors, pharmacists and hospitals are better able to help prevent the health problems that can be caused when medicines are used inappropriately. Medi*Connect* is an Australian Government initiative within the framework of *Health Online: A Health Information Action Plan for Australia*.

## State/Territory initiatives

Due to the health and education focus of the program, all of the NCF projects have state or territory government involvement at some level. The projects are thus well integrated with state and territory health, education and ICT policies and initiatives, including the following telecommunications initiatives:

- New South Wales Telecommunications Strategy—broadband for an information society
- Building a Better Territory: The Economic Development Strategy for the Northern Territory
- Victoria's Growing Tomorrow's Industries Today
- Tasmanian Government Broadband Action Plan
- Western Australian ICT Strategy—'Enabling Future Prosperity' (draft);
- Broadband SA program
- Queensland's Telecommunications Infrastructure Strategy (draft).

# 4. DESCRIPTION OF THE EIGHT PROJECTS

Details of the service status of the projects are at Appendix 3.

## BROADBAND FOR RURAL TASMANIA (BTR)

The project will improve the provision of education and health services to regional locations in Tasmania through an increase in the quantity, quality and affordability of the local telecommunications infrastructure. It will achieve this by upgrading the capacity of telecommunications services to regional locations and to individual education and health sites within these locations.

The project will enable videoconferencing, streaming video and other broadband services to assist the local health and educational services provided through the Department of Health and Human Services, the Department of Education, TAFE Tasmania and the University of Tasmania. A range of new services will be delivered such as:

- access to high-speed Internet and online resources for school students
- access to specialist teachers and Telehealth consultation through videoconferencing
- access to TAFE Tasmania's online training packages
- better access to the University of Tasmania's online resources and more support for electronic teaching at the University's Rural Health Teaching sites.

The project goal is to deliver improved education and health services to more than 90 sites in at least 47 regional towns throughout Tasmania.

The project will also provide integrated management, technical and business structures and services to support the ongoing operation and performance of the telecommunications and related services delivered to all locations and sites, including network and services monitoring, diagnostics and maintenance and help desk services.

The NCF funding of $3.0 million is being supplemented by cash and in-kind contributions of at least $5.5 million from the Tasmanian Government, TAFE Tasmania and the University of Tasmania. The cash contributions include the recurrent telecommunications costs of the project to 2007–08. Cash contributions by the Tasmanian Government agencies to the project comprise their expenditure on telecommunications services provided through the project.

The Funding Deed is being managed by the Tasmanian Department of Premier and Cabinet (DPAC) on behalf of a project consortium also consisting of the:

- Tasmanian Department of Education
- Tasmanian Department of health and Human Services
- Institute of TAFE Tasmania
- University of Tasmania.

## Progress

Telstra was selected in late 2003 as the telecommunications carrier for the project through a competitive tender. The result of the tender enabled the coverage to be extended to more than twice the original commitment of at least 20 towns.

Pilot trials at two locations (Queenstown and Scottsdale) were completed in November 2003 and services have since been rolled out to education and health sites in the remainder of the towns.

By the end of September 2004, 48 towns had been connected to the broadband services, mostly being delivered via Business DSL. 59 educational sites, 28 health facilities and six other sites (such as libraries and Online Access Centres) had broadband access, the majority at 2Mbps. The project is delivering services to all regional schools with enrolments above 300. One additional town not covered in the project plan had been connected, where a 2Mbps BDSL service has been provided to the District School.

Orders for further additional services have also been placed for the connection of an additional institution in one town and the upgrading of services to three schools originally connected at 2Mbps to 4 Mbps.

The services being delivered include:

- video-conferencing facilities for Telehealth consultations, access to specialist teachers and participation in online classrooms
- improved high speed access to the Internet and online educational resources, providing educational opportunities for rural students and teachers alike;
- the Institute of TAFE's range of online training packages
- the University's wide range of electronic resources to support electronic clinical teaching and service delivery at their Rural Health Teaching sites.

At 30 September 2004, the only remaining work to complete the BRT roll out is the connection of one site and upgrading interim 1.5Mbps services to five institutions to the full 2Mbps capacity.

### THE GRAMPIANS RURAL HEALTH ALLIANCE NETWORK

The Grampian Rural Health Alliance Network (GRAHNet) is receiving $8 million to install, operate and connect the healthcare sector in the Grampians region of Victoria to a broadband network consisting of GWIP, BDSL and ADSL. The project will provide major broadband capability at local hospitals in at least 40 rural and remote towns. In these towns GRAHNet will also provide 80 non-hospital connections to sites such as general practitioners, community health centres, pharmacies, home and community care service providers in local government agencies and community enterprise and learning centres.

Overall the project will benefit a region of more than 200 000 people. The goal is to enhance the healthcare services delivered by the Grampians rural healthcare agencies,

strengthen the relationship between the Grampians communities and the healthcare agencies, and significantly assist the growth of the region.

The high speed and high capacity integrated voice, video and data telecommunications services will allow health services to fully engage in relevant Commonwealth, state and local healthcare initiatives and will provide cost effective broadband communications services to local communities in rural and remote towns at prices equivalent to capital cities.

GRHANet in the short-term will meet the healthcare needs of the rural healthcare agencies and the community, through access to the significant number of healthcare initiatives emerging at all levels, such as the Federal Authority Notification Systems, Victoria's Clinicians Health Channel and Grampians Connectingcare.

In the longer term it will enable the realisation of broader community health, education and business initiatives by interconnecting the greater part of the region's public healthcare agencies. The Project will establish infrastructure with sufficient capacity to enable broadband services to be made available to other members of the community.

## Progress

After a slow start, the project is now well into full scale roll out of the network and services.

Initial delays were due to several factors, including the incorporation of GRAHNet Ltd as the body to manage the project on behalf of the consortium of health services, the resolution of issues over the other contributions from the Victorian Government and the need to tender for a carrier after the breakdown of arrangements with the carrier which had been a consortium member in the original NCF application by GRHANet.

Following the announcement of Telstra as the carrier and Dimension Data for network management and routing in May 2004, the network rollout has proceeded rapidly from June. To 30 September 204, 28 exchanges were enabled or part enabled, including the Melbourne POP and Melbourne payroll system link.

Notable achievements in the progress of the project have been:

- arrangements made with Telstra for broader community access to ADSL services through the infrastructure enabled for GRHANet, with a commission arrangement providing revenue to GRHANet
- a baseline assessment by the University of Ballarat of ICT usage by the Health Services and others in the region, to allow future measurement of the impact of GRHANet
- GRHANet's assessment that the financial model underpinning the services being implemented is sustainable

- organisations that have undertaken work on the business case for joining the network include health services, local government; regional libraries, rural ambulance and other health care groups
- a technical officer has been employed to assist health agencies move to the new system
- ADSL is available to the general communities in towns where exchanges have been enabled and takeup has been strong, with well over 100 connections in six towns where ADSL launches have been held
- connections from the Melbourne POP to all Victorian Rural Health Alliances have been completed; services include internet, data back-up, link to payroll servers and call manager servers (for IP telephony). This co-location arrangement with other health alliances on the Melbourne POP, a GRHANet initiative, delayed the completion of the Melbourne link and implementation of services under GRHANet, but will deliver significant synergies and savings
- productivity increases are already evident from the speed of the GRHANet connection compared to the previous ISDN services.

A strength of this project is the community access aspect. GRAHNet has been holding a series of launches to publicise and promote the adoption of ADSL as the possibility of broadband arrives at these towns. GRAHNet's arrangement with Telstra whereby GRAHNet receives a commission for ADSL/BDSL connections is an incentive for the organisation's efforts to promote community buy in.

## HEALTH AND EDUCATION INFORMATION ACCESS FOR RURAL AND REGIONAL NSW

The New South Wales Department of Information Technology and Management (DITM) has been awarded $3.5 million to establish a broadband telecommunications network for the delivery of health and education services. The project is delivering education and health services to a minimum of 60 nominated sites in 18 rural and regional towns across New South Wales. All 60 selected sites will receive at least 2 Mbps access scalable to higher data rates of between 10 Mbps and 100 Mbps connectivity. The funding will be supplemented by more than $4 million of cash and in-kind contribution from the project partners.

The Project's objectives are to upgrade and/or install new telecommunications infrastructure to deliver 'last mile' telecommunications services to the selected sites and towns including Bathurst, Bega, Broken Hill, Dubbo, Lismore and Orange. Soul Pattinson Telecommunications (SPT) was awarded the contract to deliver infrastructure and services for all 18 towns covered by the project.

New education telecommunications services include connecting 18 TAFE campuses, 17 high schools, two primary schools and one central school with increased bandwidth to access the internet and, amongst other things, the School Online Curriculum Content Initiative which includes learning materials from kindergarten to Year 10 and the Adult and Community Education Gateway to assist adult community learners to search for courses, obtain information and inquire about content and

availability. Approximately 73 000 TAFE students, 16 000 high school and primary students and 500 teachers and administrative staff will benefit from the services.

Online health services such as patient care processes, patient records, multimedia telehealth services (e.g. the transmission of images, voice and data between two or more health units to provide clinical advice, consultation and online training) and improved access to NSW Health clinical support systems will be delivered to 16 hospitals, four health care centres, one Aboriginal medical service and one corrections health facility, in accordance with NSW Department of Health roll-out schedule. More than 7000 users will benefit from these services.

The telecommunications infrastructure includes wireless and optical fibre technologies. This infrastructure will enable the delivery of online primary, secondary and vocational education programs and resources as well as a suite of online health care systems critical to the requirements of NSW Department of Health.

The project will also offer training for teachers and health care professionals in programs as well as management and administrative systems and provide a sustainable service delivery platform to encourage further development of education and health service initiatives.

The project is being managed by the NSW DITM on behalf of its consortium members, the NSW Department of Health (DOH) and Department of Education and Training (DET).

## Progress

Since the commencement of the project in December 2002, it has moved from concept to the rollout of initial 2 Mps broadband services. A significant number of health and education services have been connected.

The project has delivered services to 15 education sites and 39 health sites, 30 of which are additional nominated sites and, all of which were originally nominated under the project. This indicates that a significant amount of leveraging the project has brought to the New South Wales regional telecommunications market. The project team anticipates this degree of leveraging to continue and expand as communities recognise the commercial opportunities being provided by the Project.

For example, a number of regional Area Health Services have taken up additional services, the further development of an informal State Wide Health VPN and the commencement of actual infrastructure deployment. Agreement has also been reached with the DET to implement school services under a lower service level agreement, (Bronze level), possibly over a second fibre pair, to meet their operational requirements within each town.

In response to a request from the New England Smart Communities Action Project (NESCAP), and complimentary to the roll-out of the fibre loop in Armidale, the New South Wales Government has sponsored a trial of Wireless Local Loop (WLL) Services in Uralla, (a town of less than 3000 population). The WLL service from

Uralla has interconnected with the project Network Access Point in Armidale and will allow for a direct comparison of the fibre and wireless technologies to be undertaken.

### NETWORK WA

The *Network WA* project aims to deliver improved education and health services to regional Western Australia using broadband telecommunications. The project has been awarded $8 million in Australian Government funding for improved health- and education-related telecommunications networks in regional communities across Western Australia. This funding will be supplemented by more than $60 million of in-kind contributions from the project's partners, primarily the WA Departments of Health and Education and Training.

Network WA will be rolled-out to a total of 308 sites in 58 towns across all nine State regions—Gascoyne, Goldfields-Esperance, Great Southern, Kimberley, Midwest, Peel, Pilbara, South West and the Wheatbelt.

The project will provide a scalable, broadband service that enables the reliable delivery of all health and education services 24-hours-a-day, seven-days-a-week, as well as addressing security issues. Bandwidth of at least 2Mbps up to 10Mbps will be provided at the targeted sites. The increased bandwidth will allow the WA Government to deliver new and improved services including telehealth and teleradiology services, improved health and medical records, improved student access to email and the Internet, improved student information and administration, remote classes, videoconferencing and real-time multimedia applications. Services will be delivered to schools, hospitals, health clinics and colleges of TAFE and will allow regional Western Australians to benefit from broadband services in education and health.

The availability of these services will allow flow on benefits to local businesses and communities, including small business, local government, community organisations and other government agencies.

The roll out of Network WA will be completed by mid-2005.

The project is managed by a consortium of the WA State Government Departments of the Premier and Cabinet, Education and Training, Health, Treasury and Finance, Industry and Resources and with the involvement of the Catholic education sector, and the university sector.

## Progress

The WA Government chose Telstra as its preferred supplier in March 2004.

About 32 towns in eight of the nine regions have been rolled out: Gascoyne, Goldfield, Kimberley, MidWest, Peel, Pilbara, SouthWest and the Wheatbelt. Some of the major towns include: Broome, Bunbury, Exmouth, Geraldton, Kalgoorlie, Karratha, Mandurah, Margaret River, Northam and Port Hedland.

A total of 190 sites have been connected since commencement of the project to 30 September 2004. These consist of 160 education and training sites and 30 health sites.

The 160 education and training sites include:

- 126 schools
- eight education offices
- six employment offices
- 20 TAFEs.

The 30 health sites include:

- 27 hospitals
- two community health facilities
- one mental health facility

A total of 20 Health sites have been equipped with IP capable videoconferencing equipment. Ten have either become operational or have been tested for the use of IP videoconferencing.

In addition, the increased bandwidth services of the Network WA project have been taken up by both private and public sector organisations. For example, private businesses have installed services at Bunbury (4MB), Busselton (2MB) and Mandurah (2MB) and the Water Corporation of WA installed a 4MB GWIP service in Northam. The Water Corporation installation is a trial and if successful plans to install similar service at seven other regional sites.

## NEW SOUTH WALES AND NORTHERN TERRITORY INTERACTIVE E-LEARNING INITIATIVE

The New South Wales and Northern Territory Interactive eLearning Initiative is receiving $8 million in funding to establish a broadband distance learning infrastructure for School of the Air students, remote schools, small rural communities and isolated homesteads in the Clarence, Dubbo and Murray-Darling areas of New South Wales and the whole the Northern Territory. The Australian Government funding is being matched by $15.1 million contributions from the consortium members SingTel Optus, the NSW DET and the NT Department of Employment Education and Training (DEET).

The project will provide two-way broadband Internet Protocol (IP) services to support interactive teaching and learning for school-age Distance Education/School of the Air (DE/SOTA) students, students and adults in isolated aboriginal communities, and adults living in small regional towns/hamlets and seeking vocational education. Services will initially be available for use by the participating New South Wales and Northern Territory education systems, but the infrastructure is capable of being expanded for use by education systems across the country. The infrastructure has also been designed to address school and community based learning requirements, but has

the further capability of supporting other small community telecommunications requirements.

Satellite technology will be used for the distribution of broadband services using both two-way and one way satellite customer infrastructure.

Learning services will initially be delivered to 547 sites in small rural towns and isolated homesteads in the Clarence, Dubbo and Murray-Darling areas in New South Wales and the whole of the Northern Territory.

The infrastructure consists of teaching studios in the regional New South Wales and in the Northern Territory centres, satellite dishes at approximately 225 schools and homesteads in the Northern Territory and 320 schools and homesteads in New South Wales, two portable trailers (which act as portable sites) six teaching studios and the Interactive Distance Learning (IDL) software.

The initiative allows School of the Air children, remote schools and TAFE students to see and hear their teacher. It also allows students to interact with their teacher and class mates to a level that provides great improvements in education delivery, and offers them similar levels of education to those available in cities.

The core application is the IDL package capable of supporting multicast, two-way audio to up to two students within a classroom at any one time, email within the classroom between students and teachers, interactive whiteboard, application sharing (based on MS Windows applications), controlled Internet access, record and store lessons for student review, classroom statistics, and pop-up questions. The project will develop and modify teaching resources and courses for delivery to users, and train and support teachers and students in the use of IDL.

Teaching and learning applications will be used by existing DE/SOTA Centres, Aboriginal education and TAFE Outreach programs. The proposal includes professional development funding for support of teachers in the IDL technology, and learning materials production costs for the modification of existing online courseware for use with this technology.

## Progress

The project has established a satellite hub at the Optus Satellite Earth Station located at Belrose, Sydney, NSW. Terrestrial communications backbones are used to provide a 1Mbs link between the teaching studios and the Satellite Earth Station.

At this point seven studios have been built in both states: four in NSW in Dubbo, Port Macquarie and two in Broken Hill, with a further two planned; and two in NT in Darwin and Alice Springs. NSW Health has advised that the satellite program is one of the few growth areas in the Department in a climate of cutbacks. Lessons stared in Term 1 of 2003 for 85 NSW School of the Air Students around Broken Hill, coverage has extended greatly since then. Nearly half the sites in NSW (203 of 321) and all of the 225 sites in the NT have been connected. In addition nearly 260 TAFE students are receiving lessens via IDL in NSW and TAFE and Optus have submitted an application to CCIF to expand on this success.

The project has also deployed the two mobile VSAT trailers for use in remote and Indigenous communities.

The students and parents who are receiving the service were unanimous in expressing the improvement that the new system delivers over the old radio system. Parents and teachers reported children being much more engaged with their work, teachers and peers. The technology is also broadly regarded as very transformative in the different methods that teachers can adopt in teaching and engaging the children. Other impacts include communication between teachers across jurisdictions, and increased discussion about and potential improvements in teaching methodology.

## NORTHWEST AND NEW ENGLAND BROADBAND TELECOMMUNICATIONS NETWORK

The project is receiving $5.5 million in NCF funding to develop a broadband telecommunications network to improve the delivery of the health and tertiary educational services to the Northwest and New England region of New South Wales. The project aims to address the common requirements of the consortium members, New England Area Health Service (NEAHS), University of New England (UNE) and the New England Institute of TAFE (NEI).

Telstra has been selected as the preferred supplier. Telstra will establish a broadband network connecting 48 health and tertiary education sites in 33 towns in the New England and Northwest region of NSW.

The project will provide backbone and access services to the individual health and education facilities as well as upgrading the facilities within each site to take advantage of the increased capacity and services provided by the broadband network. The upgrades at each site will include the replacement or enhancement of existing equipment and systems, or in some cases, provision of new equipment and services. The combined infrastructure will support voice, data and video services. The project will include the provision of IP telephony handsets, videoconferencing equipment, videoconferencing switching units, routers and switches as part of the upgrade of facilities at individual health and education sites.

The benefits to be delivered by the project include remote patient diagnosis to reduce the need to move patients, online access to clinical information for remote community health workers, nurses and doctors working in remote areas will be able to get immediate specialist clinical advice through the network and a reduction in the cost and time it takes to get a diagnostic response through the use of national or international providers of imaging diagnosis.

Through the new or upgraded telecommunications infrastructure the UNE and the NEI will offer access to specialist teachers, online learning and outreach education programs through high speed Internet and online resources.

The potential benefits to other users will include cost effective broadband access to the Internet and to Sydney for organisations such as small business and local government within the region.

## Progress

In addition to the NCF funds, the consortium has already contributed more than $5.6 million.

The infrastructure roll out has been completed and extends broadband services to 44 sites in 23 towns at a minimum capacity of 2 Mbps, and a further 10 minor sites in 10 additional towns at a minimum of 128 Kbps with a 384 Kbps dial up for videoconferencing. The outcome of the tender for carriage services allowed the final infrastructure described above to include 20 more sites and 10 more towns than originally agreed on in the funding Deed.

The network is scalable and offers a guarantee on pricing over the life of the contract.

NEAHS currently has installed and running over the new network:

- data communication
- voice communication
- video conferencing
- mobile data service.

The benefits to NEAHS of these services are that:

- the carriage of voice over the IP network is significantly reducing the cost of voice communications for the health service
- NEAHS is actively promoting the use of video to reduce travel and the savings in travel are beginning to be realised
- there is an increasing demand for remote medical diagnosis using Video over IP, however at this time suitable testing has not been completed to meet medicolegal requirements
- NEAHS is rationalising the use of remote files and server management. The implementation of the broadband network has allowed the reduction in site based ‘File and Print’ servers as it is now possible to transfer the file and print traffic over the network. This will also allow the centralisation of backup procedures and reduce the need for travel to service these machines.

NEAHS has recently added the Telstra 1xRTT mobile data connection to the VPN, thus allowing suitably equipped laptops to access the network through the CDMA telephone network. This is anticipated to be a huge assistance to the delivery of health care by allowing clinicians to access and record data in real time when away from the health facility, such as when visiting patients at home.

TAFE currently has installed and operating over the network

- terminal services
- file and print traffic
- voice communication

- video conferencing
- backup over the WAN
- data replication and storage management.

The increased bandwidth has enabled the delivery of terminal services and file and print services for more sites. The increased demand for access to information in the educational sphere by students and teachers alike is improved through the access to information systems not previously deliverable outside of the normal LAN network. This is allowing people at the smaller campuses to receive similar facilities to those attending the larger campuses like Tamworth.

Voice communication has been implemented over the new network and is having a significant cost savings impact for the NEI-TAFE. Video conferencing for both administrative and educational purpose is on the increase. TAFE is developing this delivery method for education to maximise the course diversity to all sites.

TAFE has implemented remote backup and data replication applications on their network as part of the roll on effect of having the capacity in the network links. This allows for fail over sites in case of disasters and has lead to improved performance through the use of synchronised data storages in separate locations which can be accessed concurrently.

The UNE currently has installed and operating over the network

- high quality video
- Internet access
- mixed video and voice conferences.

The UNE has invested highly in the use of video for the delivery of educational services, with the advent of the zero cost video this is being expanded rapidly. They are now delivering educational services like remote one on one tutorials, remote attendance at lectures, inter- university seminars and student information sharing sessions. This is achieved through the use of the video and voice combined services on the one network. UNE has implemented internal IP telephony to allow students to communicate between remote and central campuses at zero cost. Students in all centres can now access the internet for research and general enquiries at high speed through the connection to the internet on the new network.

Students using the local University Access Centre can now access the full range of electronic resources that were previously only available to those on the Armidale campus.

## OUTBACKNET@QLD

The *Outbacknet@qld* project will deliver improved health and education services via high capacity integrated voice, video and data communications to western and south-western Queensland. It will provide a broadband network to 70 regional communities covering more than 70 000 residents, including more than 7000 Indigenous Australians.

The funding deed is being managed by Queensland Health and the project is being implemented by a State Government consortium also including Education Queensland and the Department of Employment and Training and the Department of Innovation and Information Economy.

NCF funding of $8.0 million is being supplemented by financial and in-kind contributions totalling $22.7 million from the consortium members.

The infrastructure will provide a cost-effective sharing arrangement between the Queensland agencies, so that through demand aggregation and management, communities obtain access to greater bandwidth.

The development of new telecommunications infrastructure or upgrades to existing telecommunications infrastructure will provide affordable, flexible and shared broadband IP services to the selected communities and cost-effective alternatives in 'last mile' services. A minimum outbound capacity of 5 Mbps and inbound capacity of 3 Mbps will be provided to allow education and health facilities to access TAFE and health services.

The site upgrades will include the replacement or enhancement of existing equipment and systems, or in some cases, provision of new equipment and services. The combined infrastructure will support voice, data and video services and will include the provision of IP telephony handsets, videoconferencing equipment, videoconferencing switching units, routers and switches.

The project will deliver a range of advanced health services, previously unavailable, infrequently provided, or difficult to access for sites located in regional and rural areas of south-western and western Queensland. Such services include new teleradiology facilities, new ophthalmology facilities, and improved health videoconference facilities to support remote consultations and allow access to scarce specialist resources by the targeted communities. Another significant benefit is the reduction in patient travel reducing stress, and risk for patients and their families and providing substantial savings to Queensland Health.

Education delivery will be improved through the use of online services for 83 primary and secondary schools serving 11 400 students and 1140 teachers. Online services for government primary and secondary schools will allow them to benefit from the increasing availability of on-line education services (such as Le@rning Federation, Digital Resource Centre, Learning Place). TAFE students will have improved services and subject choices through the use of video streaming and video on demand at 13 centres encompassing 6000 students and 1100 education providers.

## Progress

Significant preparatory work has been carried out on service delivery and equipment within the institutions to be connected, however the project has suffered a long delay in the identification of telecommunications services suitable for the health and education purposes of the project, with the ability to also provide wider community access to broadband facilities.

In December 2003 the project issued a restricted tender for carrier services to carriers selected under the SmartNet state-wide tender, but, after extensive discussions with potential service providers, could not find a satisfactory service offering, using either satellite or terrestrial technologies.

A suitable stand-alone satellite solution for 41 isolated schools was negotiated during the first half of 2004 and this element of the project was completed in June 2004.

A second restricted tender for the remaining Outbacknet sites was issued in October 2004. This tender also sought services for the related CCIF project announced in April 2004, to provide DSL capability for telephone exchanges in 16 remote towns in Far North Queensland to provide services similar to Outbacknet to small hospitals and health clinics, schools, ambulance and fire stations and TAFE campuses.

Preparatory work for the delivery of health services which have been completed includes:

- new end-point equipment installed in 27 hospitals to enable high-grade videoconferencing and training delivered to clinicians
- investigation of medical image capture equipment (including the stimulation of local industry to produce a prototype clinical equipment, an unexpected outcome)
- service delivery planning and the establishment of service level agreements, patient safety, standards and medico-legal policies.

Preparations for the education services, in addition to the implementation of satellite services at remote sites mentioned above, include:

- telephony systems in schools upgraded in preparation for the improved data services
- increased electronic course content developed for vocational training.

### REGNET

The RegNet project (Regional Network Delivering Educational Services) is receiving NCF funding of $6 million to deliver multimedia network based educational services to 242 educational sites throughout regional and rural South Australia, including schools, preschools and TAFE.

RegNet forms part of a state-wide project, eduCONNECT, that is implementing a ‘tiered’ model providing capacities of 2 Mbps to schools with more than 800 students, 1Mbps between 501 and 800 students and 512Kbps to smaller schools.

eduCONNECT and RegNet are significantly upgrading the existing Department of Education and Children's Services (DECS) schools' network from the present ISDN based schools' network infrastructure in regional South Australia to an IP-based network that provides remote support, a guaranteed quality of service and the ability to upgrade bandwidth.

The new network will enable the provision of video conferencing, video streaming, IP/TV, the delivery of other multimedia rich applications to the schools through provision of 'always on' and symmetrical network connectivity at all schools and central locations.

RegNet will enable online teaching and learning and professional development opportunities for staff, students and local regional and rural communities by providing:

- fast Internet and email services;
- video and audio streaming in the form of a multicasting service delivering scheduled multimedia content
- content distribution allowing schools to contribute as well as receive educational materials
- infrastructure that enables a videoconferencing service for all schools
- videoconferencing to enable enhanced vocational education and training in regional and rural schools and the opportunity for community users to access TAFE's videoconferencing service
- access for community use such as libraries, local governments, local community groups, through the use of school based facilities
- centralised network support and service desk.

RegNet will enable regional schools to cluster and share resources, build websites and create virtual learning environments between and amongst sites. It will allow the implementation of national online learning strategies in schools, including the e-schooling initiative, the Le@rning Federation and the SA Curriculum Standards Accreditation framework. RegNet will cater for, and customise delivery of, educational services in line with cultural and geographical requirements for students within Aboriginal communities.

It is planned that all schools will be connected to the new services by first term 2005.

The South Australian Department of Education and Children's Services has the overall management of the project.

## Progress

Contracts with the preferred suppliers for the various services segments were announced by the South Australian Minister for Education and Children's Services in June 2004. The contracted eduCONNECT suppliers/service areas are:

- Telstra, CSM/AirNet and SPT: Schools Telecommunication Carriage Services

- Telstra: Pre-schools Telecommunication Carriage Services
- CSM/AirNet: Application and Hosting Services
- Internode Systems: Internet Service Provider
- Vectra/NDC: Managed Router Services
- Electroboard and Centra Software: Video Conferencing
- Telstra: Content and Distribution Services
- AAPT: Audio Conferencing.

Schools have been offered a choice of a fixed monthly service fee with download and storage limits, or 'pay for what you use' charges. The packages deliver four times the present bandwidth and costs about two-thirds of current download charges.

RegNet sites are mostly receiving Telstra carriage services (BDSL where installed, frame relay otherwise), except for a number of very remote sites where satellite services will be provided by CSM/AirNet.

'Early adopter' trials were completed during October 2004 with five eduCONNECT schools and one preschool, including RegNet sites.

Service connection is being carried out as a two stage process—installation of carriage service then installation of an on-site router and connection of the new services. By early November 2004, 42 per cent, or just over 100 RegNet sites had received carriage services.

A comprehensive communications strategy has been implemented including:

- roadshows conducted during 12-25 October (Roxby Downs still to be done)
- newsletters issued to schools and preschools
- establishment of a specific eduCONNECT website, with information including roadshow materials, factsheets, site connection schedule and much more
- demonstration CDs for the new suite of educational services.

Training commenced in mid-October 2004 for at least four representatives from each school district, to enable transition to the new services. Field Liaison Officers have been employed to work with schools during the transition.

TAFE has approval for the procurement process to acquire high capacity bridging equipment for enhanced video conferencing under RegNet.

Other early outcomes from the project include:

- schools which have been connected to the new services are very pleased with the increase in bandwidth and are looking forward to using the new video conferencing capability, e.g. for linking between small local school in a specific local area
- Health SA (170 sites) is upgrading to BDSL where possible as a result of RegNet/eduCONNECT

- the project has generated new investment by carriers in regional telecommunications infrastructure.

# 5. ASSESSMENT AGAINST KEY PERFORMANCE INDICATORS

## OVERVIEW OF PERFORMANCE

The mid-term review of the NCF has assessed the progress that has been made to date and concludes that the program appears to be on track to meet its objectives. Most of the NCF projects are nearing completion of the rollout of their infrastructure or have completed it and sustainability is being built in to all of the projects.

At the time of conducting the review not all of the projects had commenced delivering services and so it is not possible to assess the full extent of the success of the program in improving service delivery in the education and health sectors and improving telecommunications services generally in regional communities.

However, feedback from project managers and technicians implementing the projects, education and health practitioners using the new services, and end users of the services was overwhelmingly positive. It is evident that benefits from the projects are already being gained in many areas and more benefits are expected as the projects are fully implemented. Users are finding greatly increased utility in moving to 'always on' broadband services from earlier technologies such as dial up ISDN services. Several of the projects have used NCF funding as a catalyst for bigger projects and are integrating the NCF component into state-wide communications strategies.

Since the time of applying for NCF money, technology has changed and now the projects can get more, better, cheaper services. One result is that several of the NCF projects have been able to increase the scope of their projects significantly. An unanticipated outcome of the program has been the development by Telstra of two new products, Government Wideband IP (or GWIP) and Business DSL (BDSL). In addition several projects have introduced alternative carriers, resulting in increased competitive pressures on all market participants.

The program is on track to meet the key performance indicators for the program as indicated by the assessment of this review that:

- four of the eight projects are well established, three projects are partly established and one project is still to roll out significant infrastructure
- the four well established projects have met or exceeded all obligations against the milestones in their funding deeds to date
- the projects are performing well against all of the key performance indicators, including contribution of NCF to improved service delivery in the education and health sectors in regional Australia, the contribution of the program to the development of high bandwidth services in regional communities and the progress towards sustainability of the services after the cessation of NCF funding.

A number of lessons can be drawn from the program to date, which may be relevant for the planning of similar programs in the future, for both program administration and the management of individual projects.

The lessons include:

- The large scale of the NCF grants has enabled the projects to bring about some significant changes in regional telecommunications, to catalyse large co-investments, and has been the incentive for carriers to offer new and better services.
- Implementation can take a long time to start – there has been an unexpected length of time taken for many of the projects to reach the stage of network roll out. However, in general, once carriers have been engaged, the pace of network roll out and the connection of user sites has been relatively rapid.
- The applications that are being used are not always the ones that might have been expected, e.g. health administration rather than telehealth services.
- The type of technology chosen can determine the spread of broader community benefits.
- For some projects, the involvement of one of the major telecommunications carriers has allowed the project management team to focus on service delivery rather than network development, however several projects have also provided opportunities for the involvement of smaller carriers and other suppliers.
- Program administrators need to be flexible when managing projects that deal with new technology.
- Education and health services have different requirements.
- Despite the wide coverage of the NCF and CCIF, large areas of regional Australia are still without access to broadband communications.
- The eight projects are demonstrating different approaches to similar issues.

## ASSESSMENT OF DETAILED KPIS

### 1. The contribution of the program to improved service delivery in the education and health sectors in regional Australia, including:

### (a) The establishment of backbone network capacity and last mile connectivity.

All of the NCF projects aim to initiate the establishment of backbone network capacity and/or last mile connectivity in regional Australia. Four of the eight projects are well-established, three projects are partly established and one is still to rollout significant infrastructure. Sufficient backbone capacity and last mile connectivity are being provided to enable the required service levels at the project sites. The review considers that the majority of the NCF projects are performing well against this indicator and that substantial progress has been achieved.

To date new NCF–funded broadband connections have been installed in nearly 150 towns across Australia. Services are being provided to nearly 750 education sites (schools, TAFEs, universities and School of the Air homesteads) and around 130 health sites (hospitals, health centres, GP surgeries, etc.).

New infrastructure is being rolled out across significant areas of regional Australia with connectivity ranging from 128Kbps to 20Mbps, in many cases scalable to much higher capacities, 100Mbps up to 1Gbps, as demand for bandwidth increases. The majority of initial connections are in the 512Kbps–2Mbps range. The types of technology include satellite, Telstra's GWIP service using fibre connections, DSL services via existing copper infrastructure using ADSL/BDSL technology, wireless local loop and ISDN.

Carrier services for the projects are being provided by Telstra, Optus, Soul Pattinson Telecommunications (SPT) and Agile Communications. Telstra and SPT are providing backbone capacity to a number of areas. All carriers are providing last mile connectivity.

In the majority of projects, the services being offered to users represent a significant cost reduction compared to prices that had previously been offered. In New South Wales, for example, it enables users to deploy wide band services at prices equivalent to those formerly charged for ISDN services of significantly less bandwidth; typically 2Mbps bandwidth for the same price as 128kbps Onramp2 ISDN services. Significantly, these services are able to be taken up within established agency budgets, thus ensuring continuing viability of the enhanced end services.

**(b) The extent of delivery of services relevant to the education and health needs in the regional areas addressed by the projects.**

The funding applications of the eight projects identified the needs of the targeted regions both in terms of addressing deficiencies in existing telecommunications infrastructure and providing access to improved education and health services. It was widely submitted that problems with the availability, quality, price and reliability of telecommunications services, in particular the lack of competitively priced infrastructure, were major inhibitors to the provision of improved services. The services available at the time (late 2001) were mostly limited to dial-up ISDN and frame relay through expensive last mile (or as one submission put it, often the last 10 to 20 miles) connections, with no capacity to upgrade to broadband services like ADSL. This had led to outcomes such as isolation and alienation from an increasingly 'on-line' service delivery environment, many schools giving up trying to access the internet in any meaningful way, and poor staff attraction/retention in both education and health.

Improvements in services and additional services identified in the applications included support for national and state government health and education initiatives reliant on the availability of broadband services, online health services (telehealth, rural health education, clinical information, ancillary services such as child psychologists, speech pathologists), online education services (access to quality curriculum material, collaborative learning programs, access to specialist teachers, trainers and student support services), improved management and administrative

systems (patient information and records, hospital management) and professional staff development.

The need for these types of services is reflected in the funding deeds and project plans of all projects. These services will be available in regional areas where either delivery has not been possible using the current telecommunications infrastructure or the current quality of service is poor. In most of the projects, service delivery is at an early stage, as infrastructure rollout has just been completed or is still under way.

A number of benefits from the projects are already being gained in many areas. One of the first groups to benefit under the NCF was School of the Air Students. These children, located in remote parts of New South Wales and across the Northern Territory, can see their teacher for the first time and interact with their classmates in lessons, thanks to broadband satellite connections.

New broadband infrastructure is supporting video conferencing for telehealth services so that patients in regional areas can consult a city specialist from their local hospital or health centre rather than facing the time, expense and disruption of a long journey to the city. In Western Australia, for example, Perth-based consultants can now undertake complex post-operative examinations of country patients who need to demonstrate movement using the 'television picture quality' of broadband videoconferencing.

Schools served by the NCF projects now enjoy high speed Internet access for every pupil in the classroom, for the first time providing a viable online teaching format. A number of educational institutions stated that the project has provided higher speed secure Internet and Intranet access to teachers, administration staff and students as well as faster information exchange enabling improved management of resources.

Access to TAFE courses has increased so that parents can learn new skills, older kids can stay in their communities and still study, TAFE can aggregate students to offer a wider range of courses in small centres, and training packages can be delivered closer to the workplace in areas such as agriculture and aquaculture.

Regional health workers in many areas now have online access to clinical records, laboratory test results and specialist clinical advice, including diagnosis, for patients in critical situations, with significantly reduced risk of delays due to congestion in the health network. Health services are also making more use of business applications including email, Internet, access to databases such as those containing specialist medical information and health and medical records and centralised administration systems such as payroll processing. For example, the Mid-North Coast Health Service in New South Wales has implemented a centralised procurement application and a patient information system hosted remotely from a data centre located at Taree Base Hospital.

The projects are beginning to deliver benefits to regional Australians and have the potential to provide substantially greater future benefits. Most projects expect that more will emerge as the participating organisations find different ways to take full advantage of their access to broadband services.

**(c) The development of related education and health applications and content.**

The development and delivery of education and health applications and content is a central part of all projects, although these developments are generally being undertaken with the resources of participating organisations; few of the eight NCF projects are developing new applications using NCF funds.

In some projects, participating organisations are developing applications separately (e.g. both Health and Education Departments in New South Wales are working on a range of applications currently in the implementation phase and being rolled-out on a state-wide basis). Other projects are targeting the use of applications being implemented by external organisations (e.g. in Tasmania the HealthConnect trial by the Federal Department of Health and Ageing).

**(d) Community benefits, including number of users of the services, number of locations where the services are delivered and quality standards of the services.**

The overall number of users of NCF services has not been identified at this stage of the projects, as the services are being progressively connected. However user numbers are significant. For example School of the Air students on more than 300 homesteads are using the NCF satellite services and in Tasmania the 56 regional schools connected represent enrolments of more than 16 000 students.

The number of towns connected to date is nearly 150 and the number of user sites is just under 900. For example, in Western Australia about 30 telehealth sites, 15 other health sites, 78 educational and training sites, 67 regional schools and district education office sites are now connected via the new broadband services. In Tasmania, in addition to the school sites mentioned above, the sites connected include three TAFE campuses, 26 health centres and 22 libraries.

Commercial quality of service performance standards have been generally established through service level agreements or similar arrangements between the projects and the carriers engaged to provide telecommunications services. The standards include performance criteria such as provision and maintenance of end-to-end connectivity at specified capacities; network availability (e.g. 99.95 per cent); maximum response times to problems (e.g. four hours on a 24/7 basis); regular performance reporting and periodic review; equipment deployment, maintenance, lifetime and refresh; fault detection, reporting and response procedures; technical performance (e.g. packet loss, latency, jitter, burst capacity).

The review was informed that the quality of broadband IP videoconferencing is better than existing ISDN technology. Teachers and administrative staff are utilising the services for improved access to Finance, HR, and Student Information System applications.

**e) Consistency with national and state/territory education and health service delivery initiatives and with service and information standards established and/or adopted under these initiatives.**

All projects are consistent with a broad range of national and state/territory education and health service delivery initiatives and telecommunications standards. At the national level, examples of strategies being delivered include National HealthConnect, Regional Health Strategy and Healthy Horizons, Australian Flexible Learning Framework for the National VET System 2000–04, Learning for the Knowledge Society and the Le@rning Federation Project

At the state/territory level, all of the NCF projects have government involvement, particularly the education and/or health agencies. The projects are thus well integrated with state and territory health, education and ICT policies, initiatives and standards.

In South Australia the NCF project will enable schools to access a range of education applications and standards including the e-Schooling initiative, the SA Curriculum Standards Accreditation framework, and provides a suite of centrally-provided educational services. In Western Australia the project is consistent with, and extends, existing policies or directions, notably regional initiatives such as the state telehealth program, the state education network e2c and is consistent with directions under the Flexible Learning Framework and state and national health policy. In New South Wales, relevant policies and directions include the NSW Government Action Plan for Health and the Telecommunications Strategy for the NSW Health Service.

**2. The contribution of the program to the development of high bandwidth services in regional communities, including:**

**(a) Delivery of services of a nature, range and quality relevant to community needs.**

Most of the NCF projects offer opportunities for improvements to telecommunications services generally in the communities they cover, providing improved access to higher bandwidth for businesses and community organisations.

The program has encouraged the early deployment of ADSL infrastructure in many locations, which has significantly raised availability of broadband services within regional communities. The enabling of exchanges with BDSL and ADSL technologies has allowed community access to broadband services which would not be available in this timeframe in the absence of the project.

The type of telecommunications technology chosen has been found to affect the availability of broader community access. In Queensland, satellite technology could have been used satisfactorily to deliver health services but would not enable shared connectivity with the whole community. The Grampians project switched from what would have been an essentially closed microwave system to Telstra BDSL delivering an easier pathway for broader community access.

In terms of education and health services, in South Australia the program has enabled enhanced community services such as vocational education and training in regional

and rural schools and has provided the opportunity for community users including parents to access TAFE's videoconferencing service.

The Telstra Network WA service has been taken up by the Catholic Education Office of Western Australia, Curtin University, and Royal Flying Doctor Service increasing the availability of their services to regional communities.

Some families on isolated homesteads in the Northern Territory are able to use the infrastructure provided to their School of the Air student children to access Internet banking and other services.

Some of the projects also plan to provide access to the infrastructure to other state agencies beyond education and health, for example state justice, police and emergency services.

**(b) Consistency with telecommunications developments generally in regional areas.**

The projects are consistent with the general direction of commercial development and in most cases have enabled the early availability of high bandwidth services in regional communities well ahead of commercial deployment. The range of technologies being installed by the NCF projects, from DSL through to satellite, are those which current commercial trends indicate would be expected to be deployed commercially to regional areas as costs come down and demand increases over time.

The accelerated availability of DSL in regional areas, which is a particular outcome already from the NCF, is helping progress towards equity of service delivery between the metropolitan and regional areas.

The program is also consistent with government policies and programs for the development of telecommunications in regional areas. As described in Chapter 3, the NCF complements a range of Australian Government regional communications initiatives such as the Networking the Nation Program and the Coordinated Communications Infrastructure Fund.

At the state/territory level, the projects have been developed in line with relevant telecommunications strategies, including:

- New South Wales Telecommunications Strategy—Broadband for an information society
- Building a Better Territory: The Economic Development Strategy for the Northern Territory
- Victoria's Growing Tomorrow's Industries Today
- Tasmanian Government Broadband Action Plan
- Western Australia ICT Strategy—'Enabling Future Prosperity' (draft);
- Broadband SA program
- Queensland's Telecommunications Infrastructure Strategy (draft).

**(c) Impact on telecommunications within the targeted communities including improvements in sustainable competition.**

One of the most tangible impacts on telecommunications has been the provision of DSL broadband services in most towns covered by the NCF program. Importantly, this also opens up potential access by other providers to Telstra DSL facilities, thereby introducing competition at the service provider level. This allows greater opportunity for competition and significant reductions in prices for broadband.

In Western Australia, the project has been the catalyst for opening up contracts to the market over and above the two initial suppliers, Telstra and Optus. This allows greater opportunity for competition in the WA regional government market aiding sustainable competition as the Government agencies can act as anchor tenants for new suppliers including Swiftel Ltd, Amcom Pty Ltd, Comindico Australia Pty Ltd and Didasko Technologies Pty Ltd.

In South Australia the selection of multiple carriers and service providers (Telstra, CSM/AirNet, SPT, Internode Systems, Vectra/NDC, Electroboard, Centra Software and AAPT) has been seen to increase the competitive pressures on all providers. SPT is also participating as the service provider in New South Wales.

**(d) Regional development benefits.**

Regional development benefits are not broadly discernable at this early stage of the program. However there are some early indications of the type of longer term outcomes which could be expected as new opportunities are enabled by the availability of broadband services:

- The New England Institute of TAFE is establishing a new Film and Television School in Armidale, which will be provided with broadband access over the NCF 27 delivered optical fibre to service its immediate and future needs. This development is a direct result of the NCF 27 Project Team working with NESCAP and raising awareness of the broadband initiatives within the town.
- In Western Australia, the project has generated 45 new jobs and created an additional 25 000 hours of regional work during the deployment phase. It has also improved the quality of broadband IP videoconferencing which appears to be better than existing ISDN technology.
- In South Australia, the availability of TAFE courses to community members through regional school facilities will have some impact on skill development and retention in regional South Australia.

**3. The degree to which each project has achieved or is likely to achieve the outcomes outlined in the initial application for funding and as set out in the relevant Funding Deed, including:**

**(a) Implementation of network rollout and delivery of services.**

Processes were put in place as part of the program administration to ensure that the outcomes outlined in each project's initial application for funding were translated in the respective funding deeds into specific project descriptions (including scope, goal, objectives and services to be delivered) and performance milestones.

All projects were required under the funding deed to submit a document setting out the minimum specifications of the telecommunications network required to provide the health and education services to be implemented. This document was required to be submitted to the DCITA for review prior to bids being invited from network providers. The Department engaged a telecommunications specialist to review these documents, which were generally found to be satisfactory and attracted only minor comments and suggestions. The projects have proceeded to put these plans in to action.

About half of the projects have more than exceeded their targeted number of sites and towns initially proposed in the deed by a considerable margin. Tasmania will connect at least 47 towns compared to the original target of at least 20, in Western Australia the number of towns increased from 19 to 62 and New England from 23 to 33.

These enhanced outcomes are attributed to the significant advances in telecommunications technologies and pricing between the time funding applications were put together and the finalisation of arrangements with carriers and service providers. One project commented that what had been achieved in practice 'just was not possible at the time of the application'. As noted elsewhere, these advances have been reflected in some significant increases in the scope of some projects within the original budget.

The funding deeds specify, as part of the project descriptions, the services to be delivered in line with the initial applications for funding. To the extent that service delivery has commenced at the present stage of the roll out, it appears that all of the projects are implementing appropriate services, although the review observed that the first applications to be used are not always the ones that were anticipated at the planning stage.

For example in the health area, it has turned out that the implementation of administrative systems and business services such as centralised hospital patient administration and payroll systems and voice over IP telephony are able to be implemented with a more immediate impact on costs than more complicated telehealth services, which require more development and staff training. This is not to say the more sophisticated services will not be implemented, but the timing of implementation has not been as expected at the outset of the program. In education, the services implemented have been more in line with expectations, eg access to online resources and interactive educational content.

The review also found that there can be an advantage in the selection of a large carrier, which at least one project observed had allowed it to focus on the delivery of services rather than network development.

**(b) Being within budget.**

Seven out of the eight projects are proceeding within budget and are expected to remain so for the duration of the project. The receipt of cash and in-kind contributions, totalling more than $120 million across all of the projects, is also proceeding according to the budgets in the funding deeds.

The Outbacknet project is the only one in which, the network rollout and service delivery is running well behind the timetable initially anticipated and the final budget will not be determined until arrangements with a carrier have been negotiated.

**(c) Being on time.**

Seven out of the eight projects have progressed to a stage where it can be forecast with a high degree of confidence that they will be completed on time, by the end of the three year funding period of the NCF program in June 2005.

Network implementation for the Outbacknet project in Queensland is running well behind time due to a long delay in the identification of telecommunications services suitable for the health and education purposes of the project, with the ability to also provide wider community access to broadband facilities. The completion date of the project will not be known until a contract with a carrier is finalised.

The RegNet project in South Australia also experienced some long initial delays, however it has now commenced the roll out of the network and services and is expected to make up the lost ground and complete the project on time during the first half of 2005.

One of the main lessons from the implementation of the projects has been the unexpected length of time taken for many to reach the stage of network roll out. However, in general, once carriers have been engaged, the pace of network roll out and the connection of user sites has been relatively rapid. The time taken from the date of announcement of the successful applicants for the NCF grants (July 2002) to the commencement of infrastructure rollout has ranged from only a few months to more than 30 months.

**4. Progress towards sustainability of the services after the cessation of NCF funding, including ongoing development and upgrading.**

All of the projects are expected to be sustainable and are based around generally similar models to ensure sustainability. The model involves all recurrent costs being met from the participating agencies' on-going budgets. In the majority of projects, these budgets are directly funded from the state/territory governments, which enhances the sustainability of the projects.

For example, the WA Budget for 2004–05 allocated $335 million for a rolling 10-year investment program in health I&IT. In a number of projects, the recurrent charges for telecommunications services reflect the fact that the project has made a capital outlay towards the cost of the networking equipment. In New South Wales, the cost of commercialised services that will be provided using the local fibre loops will represent an ongoing recurrent cost reduction to the community because the project has also made a major contribution towards the cost of the establishment of the local loops.

In the majority of the projects, services are upgradeable as demand for higher bandwidth emerges. In some schools in Tasmania, services are already being upgraded from the original 2Mbps BDSL service to 4Mbps capacity.

**5. The nature and level of involvement of other organisations, including:**

**(a) The financial and/or in-kind contributions from other organisations supplementing the Australian Government's investment.**

The Australian Government's investment of $50 million is being supplemented by more than $120 million in cash and in-kind contributions by the consortium members of the eight projects. The majority of these contributions are from state government agencies. Other organisations making contributions include, for example in Tasmania, the University of Tasmania and in Victoria, the Grampians Health ICT Alliance, and the Grampians Primary Care Partnership Agencies.

**(b) State and territory government involvement and contributions.**

All eight projects have direct participation by government education and health providers. In the majority of projects central agencies of state governments are included in both the financial and operational management of the projects. GRHANet is the only project in which the state government is making a financial contribution but is not involved directly in the management of the project.

Typical state government participation includes departments such as the Departments of Health, Education and Training, The Treasury and the Premier and Cabinet.

Several projects identified the effectiveness of the NCF program in encouraging close collaboration between State Departments where this had not previously existed, in particular where both education and health services are being delivered through one project.

Some 97 per cent of the $120 million cash and in-kind contributions by the consortium members of the eight projects noted above is contributions from state governments and their agencies.

**(c) Participation by education and health service providers, telecommunications carriers, other service providers, community organisations and local governments.**

All eight projects have direct participation of government education and health providers (see 5(b)).

Telstra has been contracted to provide telecommunications services to five of the projects. Other telecommunications carriers with a major role in specific projects are Optus and SPT. In South Australia, the project has contracted eight suppliers of various services, including three to provide telecommunications carriage (Telstra, CSM/AirNet and SPT) and related educational infrastructure and services.

While community organisations and local government are not involved as consortium members, some of these organisations are becoming involved as the telecommunications services delivered by the projects become available more widely in the communities covered. For example, in New South Wales, the project is engaging with local community organisations, such as New England Smart Communities Action Project (NESCAP), Greater Murray Development Board (GMDB) and local governments. The Grampians project is actively marketing the availability of ADSL to its communities and interest has emerged from local government, regional libraries, rural ambulance services and other health care groups.

**(d) Participation by Australian ICT businesses and the contribution to the development of Australian ICT capabilities to deliver education and/or health products, services and information.**

Apart from the NSW/NT project headed by Optus, Australian ICT businesses are not participating in the projects as consortium members. However, in the six other projects that have commenced roll out of services, the carriers and other key contracted businesses have become integral participants in the development and implementation of the projects.

For example, the selection of eight service providers in South Australia for the project means the participation of a range of Australian ICT businesses and the potential to develop Australian ICT capabilities in educational ICT services (delivered by Centra, CSM Technology, Electroboard and Vectra) and internet services (Internode Systems).

# 6. EFFICIENCY ASSESSMENT

The review has assessed the program as a whole according to the terms of the Reviews of Lapsing Programs: Generic Terms of Reference issued by the Department of Finance and Administration in Estimates Memorandum 2003/25. Other program management issues are also described.

## DEPARTMENT OF FINANCE AND ADMINISTRATION CRITERIA

**1. The extent to which departmental and program inputs have been minimised, or outputs maximised, in achieving the program's intended products and services**

### Departmental inputs

Departmental staffing resources are detailed in item 3, below. In summary:

- comparatively greater resourcing was applied to the competitive project selection process during the implementation phase
- this level of resourcing has now been reduced by over 50 per cent for the ongoing monitoring of funding deeds and general program administration
- the actual departmental costs of administering the NCF will be slightly less than the $2.2 million allocated for running costs.

The initial level of resources was considered to be the minimum necessary for sound program implementation, thereby ensuring maximum benefits from the program. This level dealt with the assessment of applications including consultation with other relevant Australian Government departments, the appointment and operations of the independent expert selection panel, and the announcement of the successful applicants.

### Program inputs

The total value of program inputs (Administered Funds of $50 million) was fixed by Government decision. Progress payments to the funded projects have been made according to due dates specified in the funding deeds, and dependent upon the achievement of milestones by the individual projects**.**

### Outputs

The program outputs in terms of value for money and the program objectives, including significant improvements in education and health services and in telecommunications services generally in regional communities, were maximised through the competitive application process and project selection according to selection criteria advertised as part of the program guidelines issued prior to the call for applications.

The ongoing monitoring of the funded projects is ensuring that the anticipated outputs, as set out in the respective applications, are being achieved.

## Risk management

In administering the program, the Department has sought to maximise the outputs through active risk management strategies at the successive stages of program implementation. The risks inherent in the nature of the projects and the capacities of the applicant organisations were taken into account in assessments of applications against the selection criteria.

The monitoring of project performance against the milestones built into the funding deeds and the linking of progress payments to the achievement of the milestones minimises risk and ensures the delivery of project outcomes. This is achieved through both quarterly and annual reporting by projects against the milestones in the funding deed, and annual submission of audited financial statements. Monitoring of the receipt of Quarterly and Annual Reports and the processing of progress payments is tracked through the program database maintained by the Department.

**2. The impact of the program on costs borne by the community, clients and other Governments**

The program has been implemented at minimum cost to the community, clients and other governments. There are no continuing costs borne by the general community or other governments, except where a government is a member of a project consortium. While one-off costs were incurred by organisations which submitted applications, this was a voluntary decision on the part of the applicants.

The total administration costs borne by clients (the projects themselves) are minimised by virtue of the relatively small number of funded projects. The main compliance cost for projects is in the preparation and submission of quarterly and annual reports. The funding deeds specify concise quarterly reports in order to minimise the time and effort required while meeting Australian Government accountability requirements.

An additional cost borne by clients is in the contributions, both cash and in-kind, made by consortium members to the projects. However, these were foreseen and volunteered by applicants before funding was awarded, as representing value for money investments by them in these projects.

**3. Trends over time in the ratio of administrative to program costs**

Departmental resources devoted to the NCF averaged about five full-time equivalents (FTEs) in the 2001–02 and 2002–03 financial years. This average was composed of staff between the EL 2 and APS 6 levels and heavily weighted around EL 1. There have been significant changes in staff numbers throughout the project; for example the grant assessment period required eight FTE. Since the successful programs were announced in July 2002 the trend has been diminishing staff, currently there are less than three FTE for project monitoring.

The current average monthly staffing costs (including overheads) of about $26 000 represent less than half of the approximate average monthly staffing costs of $56 000 during the selection phase (all staffing costs calculated at 2003–04 values).

The annual administrative costs for the NCF are not separately identified in the Departmental budget. At the commencement of the program total running costs of $2.2 million were allocated over the four year period from 2001–02 to 2004–05, including the application assessment phase in the first year. Based on the staffing figures above, it is likely that the actual departmental costs of administering the NCF will be slightly less than the $2.2 million allocated.

Benchmark figures for the ratio of departmental to administered costs for eight programs were provided in the Origin Consulting review of Networking the Nation, showing ratios ranging from more than 20 per cent down to about five per cent. For the NCF, the ratio of administrative costs ($2.2 million) to program costs ($50 million) is 4.4 per cent. The NCF therefore appears to rank very well in terms of this cost ratio; however, as noted in the Origin report, a range of external factors can significantly influence this measure.

**4. Instances where there have been delays in implementation of the program. Explain under or overspends in the years to date. Indicate how this experience has been factored into estimates of future spending**

Within the projects there have been a number of minor delays across almost all of the projects due to a range of circumstances such as the amount of time required to negotiate contracts, delays in receiving ordered equipment and delays in network rollout due to the wet season.

A minor underspend in Administered Funds of $0.1 million occurred in 2002–03.

A more substantial underspend of $7.1 million occurred in 2003–04. This resulted from delays to several projects. The significant components of this figure were $1 million, $2 million, and $4 million and in the respective cases of GRHANet (Vic), RegNet (SA), and outbacknet (Qld). The Department successfully applied to the Department of Finance and Administration for these amounts to be rephased across to the 2004–05 financial year.

The GRHANet project was originally intended to be an extension of the University of Ballarat Network provided by OmniCONNECT. The consortium of regional health services had to incorporate a legal entity able to sign the funding Deed with the Department. Incorporation of GRAHNet Ltd as the body to manage the project on behalf of the health organisations took a lot longer than expected, as did the resolution of issues over the ‘other contributions’ from the Victorian Government and the appointment of a full-time Project Manager. By the time these delays had been overcome OmniCONNECT withdrew from the project, necessitating a tender process to find an alternate carrier. Since the announcement of Telstra as the successful tenderer in May 2004 rollout is well under way and the project is on track to meet the original completion date.

In the case of RegNet there were substantial delays due to a change of State Government Minister, a re-tendering process for service providers, the fact that the NCF project was one component of the broader rollout of a whole of South Australian education network, and protracted contract negotiations. The project has now signed contracts with service providers and network rollout is well under way. The project has advised the Department that it expects to meet the scheduled completion date.

Outbacknet has experienced extreme difficulties and lengthy delays in finding a network solution that provides the services required at an appropriate price. Outbacknet aims to build a network that not only meets the needs of the health and education users but also allows community connectivity to broadband. Outbacknet has recently gone to tender a second time. It is unlikely that this project will be completed by the end of 2004–05.

Some delays have also been experienced at times due to internal Departmental clearance processes, including legal clearance of variations to Funding Deeds.

**5. If the review recommends that the program continue, the review should indicate where it could be improved and/or simplified to increase its efficiency and effectiveness**

Not applicable, as no extension of this program is proposed.

## Other program management issues

The funding deeds for six of the eight projects have required variations to date and it is likely that the other two deeds will need to be varied before the end of the funding period. The variations generally reflect the changes in scale and scope of the projects that have been realised through better and cheaper technology offerings than were envisaged at the time of signing the deeds. Some variations have been necessary in order to accommodate unavoidable delays in meeting project milestones. The variations have not reduced the projects' obligations under the deeds or adversely affected the implementation of the program as a whole.

Several of the projects have commented that they were frustrated at times by delays in finalising funding deeds or deed variations caused by internal DCITA processes. The Department has taken steps to streamline these processes where possible and provides explanations to the projects of the requirement for full accountability if that is the cause of the delay.

### Conclusion

The program is being managed efficiently, with due regard to minimising administrative and other costs to the Australian Government, the community, clients and other governments while managing risk.

All but one of the eight NCF projects are on track to meet the agreed milestones in their funding deeds by the end of the funding period. The program outputs, as measured by performance against the key performance indicators, are on track to deliver the benefits anticipated by the program. In many cases, the projects are

delivering more services than originally expected at the time of awarding the funding. It is still anticipated that the remaining project will recover momentum and deliver its planned outcomes.

# 7. LESSONS LEARNT

## LESSONS LEARNT

A number of lessons can be drawn from the progress of the program to date and from the information gathered during the mid-term review. These lessons may be relevant for the planning of similar programs in the future, for both program administration and the management of individual projects.

Several of the projects commented that the large scale of the NCF grants has enabled the projects to bring about some significant changes in regional telecommunications, to catalyse large co-investments, and has been the incentive for carriers to offer new and better services.

The unexpected initial implementation time taken for many of the projects to reach the stage of network roll out has been one of the main lessons. However, in general, once carriers have been engaged, the pace of network roll out and the connection of user sites has been relatively rapid. Across the eight NCF projects, the time taken from the date of announcement of the successful applicants for the NCF grants in July 2002 to the commencement of infrastructure rollout ranged from only a few months, to more than 30 months. The range of factors causing delays to the commencement of roll out has included:

- change of state government
- ministerial decision to retender for a carrier
- restructuring of state departments
- incorporation of a company to be the grant Recipient and manage the project
- lack of final agreement with the carrier initially nominated leading to retendering for a carrier
- lack of suitable responses to carrier tender leading to extensive negotiations and retendering
- dependence on the progress of whole-of-government tenders to select the carrier for the project
- protracted negotiations on contract terms with preferred carrier following tender
- need to reconfigure the project scope following the offer of a lower grant amount than was sought in the application
- difficulties in finalising funding deeds with the Commonwealth.

In the health area, the first services to be implemented have often been administrative systems and business services such as centralised hospital patient administration, centralised payroll systems and voice over IP telephony, as these show a more immediate impact on cost savings than sophisticated telehealth services, which require more preparation and staff training. This is not to say the more sophisticated services will not be implemented in the relatively near future. In education, the

services implemented have been educational applications, eg access to online resources and interactive educational content.

The choice of telecommunications technology can be crucial to the extent of broader community benefits. During its extended tendering and negotiations with potential carriers, Queensland Health has found that it could have used use satellite infrastructure for its health services but would not be able to share connectivity with the whole community. The Grampians project switched from what would have been an essentially closed microwave system to DSL, delivering broad community access to broadband services.

Advances in technology have delivered better and cheaper services. A number of projects drew attention to the significant advances in telecommunications technologies and pricing between the time funding applications were put together and the finalisation of arrangements with carriers and service providers. One project commented that what had been achieved in practice 'just was not possible at the time of the application'. As noted elsewhere, these advances have been reflected in some significant increases in the scope of some projects within their original budget.

Selection of one of the major telecommunications carriers has assisted projects in some circumstances, allowing them to focus on service delivery rather than network development. One project, which changed its approach from deploying a network through a small carrier to a contract with Telstra for telecommunication services, commented that the change had freed up the project management staff to concentrate on other aspects of the project, such as liaison with the user organisations and the delivery of applications and content across the network. Under the original configuration, for example, last mile connections would have been likely to have absorbed a lot of staff time and attention. However, several projects have also provided opportunities for the involvement of smaller carriers and other suppliers.

Program administrators need to be flexible when managing projects that deal with new technology. As described above, most of the projects underwent changes in scope or nature of service delivery between the time of their funding applications and the commencement of roll out of infrastructure. The objectives of the projects did not change and the level of services eventually delivered was generally greater than originally envisaged.

Education and health services have different requirements. Education users typically require access to services during set hours on weekdays and can cope with low levels of service unavailability. Health users require around the clock availability of totally reliable services.

Despite the wide coverage of the NCF and CCIF, large areas of regional Australia are still without access to broadband communications. The benefits of high bandwidth communications for education and health services already being observed through the NCF projects should be equally available to other communities.

The eight projects are demonstrating different approaches to similar issues. Future projects of this nature can draw on these experiences to find the best solutions for their own circumstances.

# APPENDIX 1

## NATIONAL COMMUNICATIONS FUND—KPIs

1. The contribution of the program to improved service delivery in the education and health sectors in regional Australia, including:
   - the establishment of backbone network capacity and last mile connectivity
   - the extent of delivery of services relevant to the education and health needs in the regional areas addressed by the projects
   - the development of related education and health applications and content
   - community benefits, including number of users of the services, number of locations where the services are delivered and quality standards of the services
   - consistency with national and state/territory education and health service delivery initiatives and with service and information standards established and/or adopted under these initiatives.

2. The contribution of the program to the development of high bandwidth services in regional communities, including:
   - delivery of services of a nature, range and quality relevant to community needs
   - consistency with telecommunications developments generally in regional areas
   - impact on telecommunications within the targeted communities including improvements in sustainable competition
   - regional development benefits.

3. The degree to which each project has achieved or is likely to achieve the outcomes outlined in the initial application for funding and as set out in the relevant funding deed, including:
   - implementation of network rollout and delivery of services
   - being within budget
   - being on time.

4. Progress towards sustainability of the services after the cessation of NCF funding, including ongoing development and upgrading.

5. The nature and level of involvement of other organisations, including:
   - the financial and/or in-kind contributions from other organisations supplementing the Australian Government's investment
   - state and territory government involvement and contributions

- participation by education and health service providers, telecommunications carriers, other service providers, community organisations and local governments
- participation by Australian ICT businesses and the contribution to the development of Australian ICT capabilities to deliver education and/or health products, services and information.

# APPENDIX 2

## ORGANISATIONS CONSULTED

### Broadband For Rural Tasmania

Dept of Education
Dept of Health and Human Services
Dept of Premier and Cabinet
Scottsdale District Hospital
Scottsdale High School
Scottsdale Primary School
Telehealth video conference from Hobart Multipurpose Centre to Huonville and Burnie
University of Tasmania

### Grampians Rural Health Alliance Network - GRHANet

GRHANet Ltd
GRHANet Ltd Board
Hepburn Health Service

### Health and Education Information Access for Rural and Regional New South Wales

Department of Commerce
Health
Mid North Coast Area
Soul Pattinson
Telecommunications

### Network WA

Department of Health
Department of Industry and Resources
Dept of Education and Training
Dept of Treasury and Finance
Goldfields Education District
Goldfields South East Health Region, WA Country Health Service
InfoHEALTH Alliance
KRH Telehealth
Medical Services KRH
Member for Eyre
Office of e-Government

Telstra
Telstra Country Wide, WA/SA/NT
Telstra - State and Local Government WA

## Northwest and New England Broadband Telecommunications Network

New England Area Health Service
New England Institute of TAFE
University of New England
Video links to:
- Gwabegar RTC
- Narrabri UNE Access Centre
- Warialda Hospital

## Outbacknet@qld

Cherbourg Hospital;
Cherbourg State School
Network Operations Centre
Queensland Health:
Queensland School for Travelling Show Children (at Mt Gravatt State School)
Telehealth Service Centre
Toowoomba Hospital

## Regional Network Delivery Educational Services

Clare Primary School
Department of Education and Children's Services
TAFE SA
Technology School of the Future

# APPENDIX 3

## SERVICE STATUS

## Broadband for Rural Tasmania as at 30 June 2004

### Schools

Total schools connected to BRT services as at 30th June 2004 equals **50**, servicing a total enrolment of **14,810** students.

| School | Student Enrolments | School | Student Enrolments |
|---|---|---|---|
| Beaconsfield Primary | 284 | King Island District | 275 |
| Boat Harbour Primary | 237 | Latrobe High | 405 |
| Bothwell District | 98 | Latrobe Primary | 264 |
| Bridport Primary | 196 | Lilydale District Library | 498 |
| Brighton Primary | 528 | Longford Primary | 351 |
| Bruny Island District | 41 | Margate Primary | 355 |
| Cambridge Primary | 303 | Mountain Heights | 329 |
| Campania District | 216 | Oatlands District | 402 |
| Campbell Town District | 216 | Ouse District | 101 |
| Cressy District | 271 | Perth Primary | 244 |
| Cygnet Primary | 222 | Rosebery District | 205 |
| Deloraine High | 256 | Scottsdale High | 437 |
| Deloraine Primary | 342 | Scottsdale Primary | 375 |
| Dodges Ferry Primary | 442 | Smithton High | 376 |
| Dover District | 123 | Smithton Primary | 446 |
| Evandale Primary | 196 | Snug Primary | 203 |
| Exeter High | 457 | Sth George Town Primary | 259 |
| Exeter Primary | 552 | Spreyton Primary | 421 |
| Flinders Island District | 125 | St Marys District | 367 |
| Forest Primary | 117 | Swansea Primary | 71 |
| Forth Primary | 196 | Tasman District | 287 |
| Geeveston District | 231 | Triabunna District | 197 |
| Hagley Farm Primary | 478 | Wesley Vale Primary | 291 |
| Huonville High | 457 | Westbury Primary | 171 |
| Huonville Primary | 505 | Yolla District | 400 |

**Libraries**

These libraries are co-located with Department of Education schools or with Online Access Centres

| Library Site | Library Site |
|---|---|
| Beaconsfield | Rosebery |
| Deloraine | Scottsdale |
| Geeveston | Swansea |
| Lilydale | Tasman |
| Queenstown | |

**Online Access Centres**

The specific Online Access Centres, which are co-located with Department of Education schools and some libraries, connected up to 30 June 2004 are:

| OAC Site | OAC Site |
|---|---|
| Bothwell | Margate |
| Brighton | Rosebery |
| Bruny Island | Swansea |
| Campbell Town | Tasman |
| Forth | Triabunna |
| Geeveston | Yolla |
| Lilydale | |

**Health services**

To date the Department of Health and Human Services has connected BRT broadband services to the following 13 rural institutions:

| RHTS Site | RHTS Site |
|---|---|
| Campbell Town | Deloraine |
| Huonville | George Town |
| Latrobe | Oatlands |
| Queenstown | St Helens |
| St Marys | Scottsdale |
| Smithton | Swansea |
| Westbury | |

**TAFE**

To date the project has delivered a range of benefits for TAFE Tasmania, and in turn its clients and staff, at the two rural campus locations—at Queenstown and Smithton.

**University of Tasmania**

For the University's Department of Rural Health, the connection of BRT broadband services has been realised at the following 8 Rural Health Teaching Sites (RHTS) to date:

| RHTS Site | RHTS Site |
|---|---|
| Scottsdale | Queenstown |
| Campbell Town | Oatlands |
| St Marys | Smithton |
| Dover | George Town |

Detailed description of services being delivered:

*Schools*

- enhanced communications and collaboration through improved access speed available for email, web access and other collaboration tools
- improved research facilities for students through better access to Internet
- ability for teachers to better integrate ICT into classroom activities.

*Libraries*

- better communications and collaboration for library staff through improved speed available for email, web access and other collaboration tools
- improved research facilities for patrons of the local library through better access to Internet.

*Online Access Centres*

- many Online Access Centres located in rural areas of the State now have capacity to provide high speed Internet and related services to their local communities via the higher bandwidth delivered from the BRT project.

*Health Services*

- substantially improved access to all agency network facilities including email and web access, client information systems plus IP-based video conferencing (at six institutions currently, increasing to a minimum of nine institutions by late 2004).
- BRT broadband services and will be available to directly or indirectly support the 740 staff in delivering services from these rural-based health institutions
- the bandwidth provided by BRT to each sites is expected to be sufficient for the anticipated substantial increases in the number of PC's that will be connected at these sites as a component of the rollout of the major DHHS Client Clinical Information System. This application is designed to support the delivery of services to clients in community and rural environments such as those serviced by BRT

*TAFE*

- enhanced communications and collaboration through improved access speed available for email, web access and other collaboration tools to the other 20 TAFE campus locations around the state
- improved delivery of e-Learning from the major campuses at Burnie and Hobart to both the Queenstown and Smithton campuses
- scope to deploy new ICT technologies like web-cams to support remote learning
- improved research facilities for students through better and faster Internet access;

- access to national training packages which can be delivered closer to the workplace in the case of the mining sector on the West Coast (around Queenstown)
- the ability for teachers to better integrate ICT into teaching activities.

*University of Tasmania*

- access to these broadband services has made a standard suite of enhanced ICT facilities available at each Rural Health Teaching site within Tasmania.
- visiting students can now enjoy access to the same level and quality of on-line learning and research resources and clinical teaching opportunities that are available to students located at the State's city based major teaching campuses.
- the specific areas of service improvements include significantly faster access to web and host resources, improved email transmission and downloading and the capacity to connect to the major teaching sites via high quality video-conference sessions.

## Grampians Rural Health Alliance—GRHANet as at 30 September 2004

| Towns to be connected | Towns connected |
|---|---|
| Ararat | GWIP, BDSL, ADSL |
| Avoca | |
| Bacchus Marsh | GWIP, BDSL, ADSL |
| Ballan | BDSL, ADSL |
| Ballarat | GWIP, BDSL, ADSL |
| Bannockburn | |
| Beaufort | GWIP, BDSL |
| Beulah | |
| Birchip | |
| Buninyong | |
| Caroline Springs | |
| Charlton | |
| Clunes | BDSL, ADSL |
| Creswick | BDSL, ADSL |
| Daylesford | GWIP, BDSL, ADSL |
| Dimboola | BDSL |
| Donald | BDSL |
| Edenhope | |
| Elmhurst | |
| Goroke | |
| Haddon | |
| Halls Gap | |
| Harrow | |
| Hopetoun | |
| Horsham | GWIP, BDSL, ADSL |
| Jeparit | BDSL, ADSL |
| Kaniva | BDSL, ADSL |
| Lake Bolac | BDSL |
| Linton | |

| | |
|---|---|
| Melbourne | |
| Melton | BDSL, ADSL |
| Meredith | |
| Minyip | |
| Murtoa | |
| Natimuk | |
| Nhill | GWIP, BDSL, ADSL |
| Rainbow | |
| Rokewood | |
| Rupanyup | |
| Skipton | BDSL |
| St Arnaud | GWIP, BDSL, ADSL |
| Stawell | GWIP, BDSL, ADSL |
| Trentham | BDSL, ADSL |
| Warracknabeal | BDSL, ADSL |
| Wendouree | |
| Willaura | BDSL |
| Woomelang | BDSL |
| Wycheproof | BDSL, ADSL |
| Melbourne POP | Completed |
| Payroll link, St Kilda Rd | Completed |

## Health and Education Information Access for Rural and Regional NSW

| **Service** | **Town** |
|---|---|
| Mid Nth Coast Area Health Service | Kempsey |
| *Mid Nth Coast Area Health Service* | *Forster* |
| Mid Nth Coast Area Health Service | Coffs Harbour |
| Mid Nth Coast Area Health Service | Coffs Harbour |
| *Mid Nth Coast Area Health Service* | *Wingham* |
| Mid Nth Coast Area Health Service | Taree |
| *Mid Nth Coast Area Health Service* | *Bellingen* |
| *Mid Nth Coast Area Health Service* | *Wauchope* |
| Mid Nth Coast Area Health Service | Port Macquarie |
| Mid Nth Coast Area Health Service | Liverpool |
| *Mid Nth Coast Area Health Service* | *Macksville* |
| Mid Nth Coast Area Health Service | Tamworth |
| *Mid Nth Coast Area Health Service* | *DOH Foveaux St* |
| *Mid Nth Coast Area Health Service* | *Dorrigo* |
| *Mid Nth Coast Area Health* | *Bulahdelah* |

| | |
|---|---|
| *Service* | |
| *Mid Nth Coast Area Health Service* | *Gloucester* |
| *Mid Nth Coast Area Health Service* | *Camden Haven* |
| Mid Nth Coast Area Health Service | 0 (INTERNET) |
| *Northern Rivers Area Heath* | *Kyogle Hospital* |
| **Service** | **Site** |
| *Northern Rivers Area Health* | *Mullumbimby Hospital* |
| *Northern Rivers Area Health* | *Nimbin Hospital* |
| *Northern Rivers Area Health* | *Byron Bay Hospital* |
| *Northern Rivers Area Health* | *Coraki Hospital* |
| *Northern Rivers Area Health* | *Maclean Hospital* |
| *Northern Rivers Area Heath* | *Tweed Hospital* |
| Northern Rivers Area Heath | Lismore Hospital |
| Northern Rivers Area Heath | Grafton Hospital |
| *Northern Rivers Area Heath* | *Casino Hospital* |
| *Northern Rivers Area Heath* | *Murwillumbah Hospital* |
| New England Area Health | Tamworth Base Hospital |
| New England Area Health | Tamworth Comm Health Centre |
| New England Area Health | Tamworth Sexual Health Centre |
| New England Area Health | Moree District Hospital |
| *New England Area Health* | *Moree Aboriginal CHC* |
| *New England Area Health* | *Armidale Aboriginal CHC* |
| *Greater Murray Area Health* | *Wagga Area Office* |
| Greater Murray Area Health | Wagga Base Hospital |
| *Greater Murray Area Health* | *Wagga Materials Management* |
| *Greater Murray Area Health* | *Albury Area Office* |
| *Greater Murray Area Health* | *Albury CHC* |
| Greater Murray Area Health | Albury Base Hospital |
| *Greater Murray Area Health* | *Diggers Road Campus* |
| *Greater Murray Area Health* | *Mercy Hospital* |
| Greater Murray Area Health | Griffith Base Hospital |
| *Greater Murray Area Health* | *HDOC* |
| DET NCI | Coffs Harbour TAFE |
| DET NCI | Lismore TAFE |
| DET NCI | Port Macquarie TAFE |
| DET RIT | Wagga TAFE |
| DET | Albury High School 1 |
| *DET* | *Albury High School 2* |
| *DET* | *Albury High School 3* |

| | |
|---|---|
| DET | Armidale TAFE |
| DET | Broken Hill TAFE |
| DET | Moree TAFE Campus |
| *DET* | *Moree Albert St Campus* |
| *DET* | *Moree Carol St Campus* |
| DET | Moree Public School |
| *DET* | *Moree East Public School* |
| DET | Tamworth TAFE |
| DOH | Dubbo Base Hospital |
| DET | Dubbo High School |
| DET | Dubbo TAFE |
| **Service** | **Site** |
| DOH | Foveaux St |
| DET | Orange TAFE Campus |
| DET | Orange High School |
| DET | Bathurst TAFE Campus |
| DET | Bathurst High School |
| DOH | Broken Hill District Hospital |
| DET | Broken Hill TAFE Campus |
| DET | Broken Hill High School |

## Network WA as at 30 September 2004

Services to 32 towns in eight of the nine regions have been rolled out to date.

| Gascoyne | Goldfields | Kimberley | MidWest | Peel | Pilbara | SouthWest | Wheatbelt |
|---|---|---|---|---|---|---|---|
| Exmouth | Kalgoorlie<br>Laverton<br>Kambalda<br><br>Leonora | Broome<br>Derby<br>Wyndham | Geraldton<br>Kununurra<br>Meekatharra | Mandurah | Karratha<br>Newman<br>Port Hedland<br>Roebourne<br>South Hedland<br>Tom Price<br>Paraburdoo | Australind<br>Bridgetown<br>Bunbury<br><br>Busselton<br>Capel<br><br>Collie<br>Donnybrook<br>Harvey<br>Manjimup<br>Margaret River<br>Pemberton<br>Yarloop | Northam |

## New South Wales and Northern Territory Interactive eLearning Initiative

| | |
|---|---|
| Ltyentye Apurte CEC | Nyangatjatjara College - Mutitjulu Campus |
| Xavier CEC & Murrupurtiyanuwu Catholic School | Neutral Junction School |
| Adelaide River | Newcastle Waters School |
| Alcoota School | Ngukurr CEC |
| Alekarenge CEC | Ntaria |
| Alyangula Area School | Numbulwar School |
| Amanbidjie School | Nyirrpi |
| Ampilatwatja School | Pularumpi School |
| Angurugu CEC | Robinson River School |
| Barunga CEC | Ti Tree School |
| Belyuen School | Wallace Rockhole School |
| Borroloola CEC | Warruwi School |
| Bulman School | Watiyawanu School |
| Corella Creek School | Willowra Primary |
| Docker River School | Woolianna School |
| Douglas Daly Primary School | Wugularr (Beswick) |
| Elliott CEC | Yirrkala CEC |
| Galiwinku (Shepherdson College) CEC | Yuendumu CEC |
| Gunbalanya CEC | Pine Creek School |
| Haasts Bluff | Dundee Beach Primary School |
| Harts Range Primary | Regional Training Centre – Jabiru |
| Jabiru Area | Regional Training Centre - Katherine |
| Jilkminggan | Regional Training Centre - Nhulunbuy |
| Kalkaringi School | Regional Training Centre - Tennant Creek |
| Katherine School Of the Air | Alice Springs School of the Air |
| Lajamanu CEC | Katherine School of the Air |
| Laramba Primary | Northern Territory OEC |
| Maningrida CEC | Timber Creek School |
| Mataranka Primary School | Titjikala (Maryvale) School |
| Milikapiti School | Umbakumba (Groote) |
| Milingimbi CEC | Urapunga School |
| Milyakburra School | Murray Downs School |
| Mt Allan School | |
| | |
| **Schools with IDL software Installed** | |
| Finke School | Epenarra School |
| Stirling School | Kiana School |
| Utopia Primary | Wogayela (Rockhampton Downs) School |
| Areyonga School | Gochan Jiny Jirra |
| Imanpa School | Mamaruni School |
| Ipolera School | Gapuwiyak CEC |
| M'Bunghara School | Ramingining CEC |
| Walunguru School (Kintore) | Bulla Camp School |
| Yulara Primary School | Minyerri School |

| | |
|---|---|
| Alpurrurulam CEC | Pigeon Hole School |
| Canteen Creek School | Yarralin School |
| Tamar House | Warrego Primary |
| Papunya School | |
| | |

NSW School Sites Commissioned

| **Albury** | **Armidale** |
|---|---|
| Balldale Public School | Ashford Public School |
| Brungle Public School | Ebor Public School |
| Cabramurra Public School | Gum Public School |
| Lowesdale Public school | Niangala Public School |
| Mullengandra Public School | Nowendoc Public School |
| Nangus Public School | Red Range Public School |
| Pleasant Hills Public school | Thalgarrah Field Studies Centre |
| Talbingo Public School | Woolbrook Public School |
| Walbundrie Public School | Yarrowitch Public School |
| Crestview Public School | Dundurrabin |
| Gerogery Public School | **Total** |
| Humula Public School | |
| Rand Public School | |
| **Total** | |

| **Batemans Bay** | **Bathurst** |
|---|---|
| Ando Public School | Errowanbang Public School |
| Bibbenluke Public School | Lagoon Public School |
| St Georges Basin Public School | Neville Public School |
| Tomerong Public School | Perthville Public School |
| Wolumla Public School | Bylong Upper Public School |
| **Total** | **Total** |

| **Blacktown** | **Broken Hill** |
|---|---|
| Macdonald Valley Public School | White Cliffs Public School |
| **Total** | **Total** |

| **Clarence/Coffs Harbour** | **Central Coast** |
|---|---|
| Hernani Public School | Central Mangrove Public School |
| Karangi Public School | Kulnura Public school |
| Coutts Crossing Public School | Peats Ridge Public School |
| Cowper Public School | Yarramalong Public school |
| Tucabia Public School | **Total** |
| Woodford dale Public School | |
| Copmanhurst Public school | |
| Corinda Public School | |
| **Total** | |

| **Dubbo** | **Deniliquin** |
|---|---|
| Enngonia Public School | Booligal Public School |
| Weilmoringle Public School | Conargo Public School |
| Louth Public School | Nowra Hill Public School |
| Wannaaring Public school | Mallan Public School |
| Byrock | Burraboi Public School |
| Coolabah Public School | Clare Public School |

Drinane Public School
Eumungerie Public School
Gwabegar Public School
Hermidale Public School
Stuart Town
Marra Creek Public school
Nymagee Public School
Wongarbon Public School
Beckom Public School
Beelbangera Public School
Darlington Public School
Goolgowi Public School
Grong Gron Public School
Hanwood Public School
Lake Wyangan Public School
Matong Public School
Murrami Public School
Rankin Springs
Tallimba Public School
West Wyalong Public School
Whitton Public School
Yanco Public School
Yoogali Public School
Girilambone Public School
**Total**

Barooga Public School
Berrigan Public School
Blighty Public School
Bunnaloo Public School
Euston Public School
Jerilderie Public School
Mathoura Public School
Moama Public School
Moulamein Public School
Tocumwal Public School
**Total**

| **Griffith** | **Tamworth** |
|---|---|
| Boree Creek Public School | Currabubula Public School |
| Euabalong West Public School | Ellerston Public School |
| Naradham Public School | Somerton Public School |
| Wamoon Public School | Walhallow Public School |
| Burcher Public School | Belltrees Public School |
| Binya Public School | Moonan Flat Public School |
| **Total** | Timbumuri Public School |
| | **Total** |

| **Lismore** | **Wagga Wagga** |
|---|---|
| Old Bonalbo Public school | Maimuru Public School |
| Greville Public school | Ladysmith Gravensend |
| Tuntable Public School | Uranquinty Public School |
| Afterlee Public School | Bribbaree Public School |
| Collins Creek Public School | Collingullie Public School |
| Dorroughby Public School | Currawarna Public school |
| Doubtful Public School | Eurongilly Public School |
| Maniford Public School | Illabo Public School |
| Rukenvale Public School | Wallenbeen Public School |
| Stratheden Public School | **Total** |
| Wiangaree Public School | |
| Leeville Public School | |
| Mummulgum Public School | |
| **Total** | |

| **Moree** | **Orange** |
|---|---|
| Yetman Public School | Caragabal Public School |
| Carinda Public School | Corinella Public School |
| Gravensend Public School | Cummnock Public school |
| Mallawa Public School | Euchareena Public School |

| | |
|---|---|
| Pilliga Public School | Spring Terrace Public School |
| Gulargambone Central | Woodstock Public School |
| Quambone Public School | Wylangala Dam Public School |
| **Total** | Bedgerebong Public School |
| | **Total** |
| **Maitland** | **Shell Harbour** |
| Broke Public School | Avoca Public School |
| **Total** | Camberwarra Public School |
| | **Total** |
| **Port Macquarie** | **Tweed Heads Ballina** |
| Millbank Public School | Stokers Siding Public School |
| Byabarra Public School | Carool Public School |
| Comboyne Public School | Fernleigh Public School |
| Herons Creek Public School | Teven-Tintenbar Public School |
| Long Flat Public School | Wilsons Creek Public School |
| Lord Howe Island Public School | Duranbah Public School |
| Rollands Plains Upper Public School | **Total** |
| Yarras Public School | |
| **Total** | |
| **Taree** | |
| Oxley Island Public School | |
| Bobin Public School | |
| Coolongolook Public School | |
| Crowdy Head public school | |
| Hannam Vale Public School | |
| Mitchells Island Public School | |
| Mount George Public school | |
| Seaham Public school | |
| **Total** | |

## Northwest and New England Broadband Telecommunications Network as at June 2004

| Town | Member | Capacity |
|---|---|---|
| Armidale | NEAHS | 10 Mbps |
| | NEI TAFE | 2 Mbps |
| | UNE | 10 Mbps |
| Barraba | NEAHS | 2 Mbps |
| Bingara | NEAHS | 2 Mbps |
| Boggabilla | NEI TAFE | 2 Mbps |
| | NEAHS | 2 Mbps |
| | UNE | 2 Mbps |
| Boggabri | NEAHS | 2 Mbps |
| Coonabarabran | NEI TAFE | 2 Mbps |
| | UNE | 2 Mbps |
| Emmaville | NEAHS | 2 Mbps |
| Glen Innes | NEAHS | 2 Mbps |
| | NEI TAFE | 2 Mbps |
| | UNE | 2 Mbps |
| Gunnedah | NEAHS | 2 Mbps |
| | NEI TAFE | 2 Mbps |
| | UNE | 2 Mbps |
| Guyra | NEAHS | 2 Mbps |
| Inverell | NEAHS | 2 Mbps |
| | NEI TAFE | 2 Mbps |
| | UNE | 2 Mbps |
| Manilla | NEAHS | 2 Mbps |
| Moree | NEAHS | 2 Mbps |
| | NEI TAFE | 2 Mbps |
| | UNE | 2 Mbps |
| Narrabri | NEAHS | 2 Mbps |
| | NEI TAFE | 2 Mbps |
| | UNE | 2 Mbps |
| Quirindi | NEAHS | 2 Mbps |
| | NEI TAFE | 2 Mbps |
| | UNE | 2 Mbps |
| Tamworth | NEAHS | 10 Mbps |
| | NEI TAFE | 4 Mbps |
| | UNE | 4 Mbps |
| Tenterfield | NEAHS | 2 Mbps |
| | NEI TAFE | 2 Mbps |
| | UNE | 2 Mbps |
| Tingha | NEAHS | 2 Mbps |
| Uralla | NEAHS | 2 Mbps |
| Walcha | NEAHS | 2 Mbps |
| Warialda | NEAHS | 2 Mbps |
| Wee Waa | NEAHS | 2 Mbps |
| Werris Creek | NEAHS | 2 Mbps |
| Mungindi | NEAHS | 2 Mbps |
| Toomelah | NEAHS | PRI |
| Gwabegar | NEAHS | 2 Mbps |
| Pilliga | NEAHS | 2 Mbps |
| Premer | NEAHS | 2 Mbps |
| Tambar Springs | NEAHS | PRI |
| Walhollow | NEAHS | PRI |
| Nundle | NEAHS | PRI |

| | | |
|---|---|---|
| Bundarra | NEAHS | PRI |
| Ashford | NEAHS | PRI |

PRI refers to Primary Rate Interface. These are the sites that receive a minimum of 128 Kbps with 384 Kbps dial up for video conferencing using PRIs.

## Outbacknet@qld as at 30 June 2004

Education Queensland
Satellite connections to remote schools

| |
|---|
| Begonia State School |
| Dunkeld State School |
| Evesham State School |
| Hannaford State School |
| Hebel State School |
| Kindon State School |
| Kioma State School |
| Stonehenge State School |
| Teelba State School |
| Westmar State School |
| Wycombe State School |
| Yaraka State School |
| Auburn River State School |
| Bedourie State School |
| Builyan State School |
| Burra Burri State School |
| Cameron Downs State School |
| Coolabunia State School |
| Durong South State School |
| Gogango State School |
| Grosmont State School |
| Jambin State School |
| Lochington State School |
| MacKenzie River State School |
| Mistake Creek State School |
| Peek-A-Doo State School |
| Prospect Creek State School |
| Riverleigh State School |
| Stamford State School |
| Winfield State School |
| Dows Creek State School |
| Mount Charlton State School |
| Valkyrie State School |
| Yam Island State School |
| Maroon Outdoor Education Centre |
| Stanley River Environmental Education Centre |
| Sunday Creek Environmental Education Centre |
| Barambah Environmental Education Centre |
| North Keppel Island EEC |
| Camp Fairbairn Outdoor Education Centre |
| Kinchant Dam Outdoor Education Centre |

## Regional Network Delivering Educational Services (SA) as at 3 November 2004

At 3 November 2004, 42 per cent, or just over 100 RegNet sites had received carriage services.

For eduCONNECT as a whole, including RegNet sites, 19 schools were connected to the new educational services during the first week of November 2004 and ongoing connections were expected to occur at a rate of 40-45 schools per week until the roll out is completed.

The project's published connection schedule as at 12 November 2004 showed 47 eduCONNECT sites fully connected to the educational services, including the following RegNet sites:

| School | Hookup Date |
|---|---|
| Clare Primary School | 12/10/2004 |
| Eudunda Area School | 10/11/2004 |
| Kapunda High School | 8/11/2004 |
| Kapunda Primary School | 9/11/2004 |
| Mount Compass Area School | 8/11/2004 |
| Murray Bridge High School | 9/11/2004 |
| Murray Bridge South Primary School | 8/11/2004 |