Proposal for Comment

Rural Broadband Initiative

September 2009

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Making a submission

The Ministry of Economic Development is seeking comments on this proposal by **5.00pm, Friday 30 October 2009**.

Please reference the relevant section and paragraph numbers from the document where relevant.

Please include your name, organisation's name (if applicable), and your address (postal and/or email) when making your submission.

Please send your comments in writing by email (preferred option) to:

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Glossary

ADSL	or 'Asymmetric Digital Subscriber Line', a common variant of xDSL technology that allows the use of copper wires to send high-speed data (for example, Internet service downloads) in a downstream direction and lower-speed data (for example, uploading data to a Website) in the other.
Backhaul	a data transmission link service that transports aggregated data (such as Internet traffic from multiple customers) between an aggregation point near to the user (for example an exchange or fibre enabled cabinet) and transports it to a network node on the core network.
DSL	or 'Digital Subscriber Line', a family of technologies that provide digital data transmission over a copper loop circuit. Examples are ADSL (Asymmetric DSL) and VDSL2 (Very High Speed DSL).
DSLAM	or 'Digital Subscriber Line Access Multiplexer', a network device, located in an exchange or in a cabinet that houses DSL modems. The DSLAM separates the telephone and data signals and feeds them into the appropriate networks. The DSLAM also provides aggregation capabilities between the access network and the core network. It is at the first point in the network where traffic from multiple customers is aggregated into a single network.
FTTN	or 'Fibre-to-the-Node', a telecommunications architecture based on fibre cables run to a cabinet servicing a neighbourhood. Customers connect to this cabinet using traditional copper cabling. FTTN allows the delivery of high-speed broadband services. Speed varies according to how close the customer is to the cabinet.
Levy	the Telecommunications Development Levy proposed as part of the Government's Telecommunications Service Obligations (TSO) reforms.
MED	the Ministry of Economic Development.
Minister	the Minister for Communications and Information Technology.
RBI	the Government's Rural Broadband Initiative, proposed as part of the Government's Rural Telecommunications Strategy.
TSO	or 'Telecommunications Services Obligations', obligations in relation to a TSO instrument, which is an agreement between the Crown and a telecommunications service provider for the supply of service(s) which would not otherwise be available to users at an affordable price (for example, the Local Service TSO for local residential telephone services).
UFB Initiative	the Government's Ultra-fast Broadband Investment Initiative. An overview of the UFB Initiative is available at www.med.govt.nz/ultra-fast-broadband.

Executive summary

Introduction

i. Rural broadband speeds and service options are limited and there are few commercial incentives to upgrade rural telecommunications infrastructure. However, there are clear benefits to rural communities, the rural economy and to New Zealand more generally, in improving telecommunications services in rural areas. Analysis conducted by the Ministry of Economic Development shows backhaul as the key constraint on improving rural broadband services.

ii. The Government's Rural Broadband Initiative (**RBI**), therefore, seeks to facilitate the necessary investment in rural backhaul to improve the broadband capability of the fixed and wireless networks in rural New Zealand.

iii. The RBI is a key part of the Government's wider strategy to increase New Zealand's global competitiveness. It complements the Ultra-fast Broadband Investment Initiative (**UFB Initiative**), which will deploy ultra-fast broadband to 75 percent of New Zealand's population.

Objectives and priorities

iv. The Government has identified schools as a priority for connection to ultra-fast broadband. The Government also wishes to improve the standard of broadband services in rural areas given the economic and social benefits expected to result from doing so.

v. Given the Government's priorities and desire to accelerate infrastructure investment in the current economic climate, the RBI will focus specifically on connecting rural schools to ultra-fast broadband, while seeking to maximise the resulting spill-over benefits of those connections for rural communities.

vi. The key objectives the Government aims to achieve in rural New Zealand are:

- Ultra-fast broadband to 97 percent of New Zealand schools (serving 99.7 percent of New Zealand students).
- Improving coverage of fast broadband services so that 97 percent of New Zealand households and enterprises are able to access broadband services of 5Mbps or better.

vii. These objectives are to be achieved through progressive network upgrades over 10 years (beginning in 2009/10), focusing in the first six years on connecting schools to ultra-fast broadband.

viii. In order to ensure rural communities benefit from rolling-out fibre to schools, specific spill-over benefit criteria and open access requirements will be included in the tender process for selecting provider(s) to deploy ultra-fast broadband to rural schools.

Funding

ix. The Government intends to spend up to $300 million to improve rural broadband. The Government will be providing a direct contribution of $48 million along with an additional $52 million from the UFB Initiative in the early years of the RBI,

recognising the need to accelerate investment in the rural telecommunications network. This $52 million would be paid back to the UFB Initiative over time.

x. It is proposed that the balance of funding be sourced from the Telecommunications Development Levy (of up to $252 million) proposed as part of the Government's reform of the local residential Telecommunications Service Obligations (Local Service TSO). This will be supplemented by school, industry and rural community contributions.

Procurement process

xi. The Government proposes to tender for the provision of ultra-fast broadband to rural schools, employing a relatively flexible process to encourage interest from a range of suppliers. Funding will be made available on a grants basis.

xii. Through the tender process the Government will seek proposals to connect identified regional clusters of rural schools as well as proposals to connect all rural schools on a nationwide basis. Proposals will be evaluated on set criteria, including the level of Government subsidy required and revenue to be gained from serving schools, and the level of community spill-over benefits expected to result.

1. Introduction

1.1 Purpose

1. The Government is currently considering policies to improve the quality and availability of telecommunications services in rural areas, including both direct funding of infrastructure in rural areas through the funding of ultra-fast broadband to rural schools, and restructuring the Local Service TSO to better target industry funding at the needs of rural users.

2. This paper sets out, and seeks comment on, the Government's proposed approach to improving the state of rural broadband. It is proposed that this be achieved by rolling-out fibre to rural schools and seeking to leverage off that investment to maximise the spill-over benefits to rural communities.

1.2 Context

1.2.1 Rural New Zealand

3. New Zealand has approximately 585,000 people (approximately 200,000 households) living in rural regions, representing 13.8 percent of the population.[1] Although New Zealand is a highly urbanised country by international standards, the degree of urbanisation varies considerably throughout the country. Population density (people per square kilometre) ranges from over 500 in main urban areas to less than five in remote rural areas.[2] Approximately eight percent of the population lives in remote rural areas, covering approximately 86 percent of New Zealand's land area.[3]

4. The rural sector is an important contributor to the New Zealand economy. For the year ended March 2009, approximately 64 percent of New Zealand's total merchandised exports were from the agriculture, horticulture and forestry sectors. All of this export income is based on produce grown in rural areas. The rural sector is also a significant component of New Zealand's tourism sector.

5. Further, rural economic activity is mainly concentrated in remote rural areas. A breakdown of 2005/06 farmgate revenues by rural area indicated that approximately 64 percent of the value of rural primary production was generated in remote rural areas.

1.2.2 Rural broadband

6. Poor commercial incentives (driven by low population density) have resulted in a long history of low investment in New Zealand's rural telecommunications network. However, there are clear benefits to rural communities, the rural economy and to New Zealand more generally, in improving telecommunications services in rural areas.

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[1] Statistics New Zealand, June 2007 estimate.

[2] Statistics New Zealand 2006.

[3] Statistics New Zealand 2006.

Rural broadband and economic productivity

7. Advanced broadband services are widely recognised as a key enabler of economic growth and the development of a knowledge-based economy. High-speed broadband enables the development of innovative new services, helping to transform sectors and offering significant benefits to users including:

    - increasing access to information
    - supporting online transactions
    - supporting more flexible work practices
    - creating new areas of economic activity.

8. Given New Zealand's relative dependence on its rural sectors for economic growth and productivity improvements, the benefits to New Zealand of improving rural broadband could be significant. In particular, high-speed broadband has the potential to increase innovation and productivity on the farm, and in farm-related industries. ICT applications, combined with access to broadband, are likely to become essential tools for maintaining New Zealand's competitive advantages in farming given, for example, pasture and stock management, weather monitoring, bio-security and traceability imperatives.

9. Access to advanced broadband services would also benefit the wider rural economy. In the tourism industry, for example, many businesses have taken advantage of the Internet to develop non-traditional business models, allowing customers in other countries to research and book directly with service providers. Rural broadband should facilitate the rapid development of these types of tourism services (for example bed and breakfasts, farmstays, eco-tourism and adventure tourism), generating significant benefits for rural communities.

Rural broadband and rural communities

10. Broadband could also provide rural communities with significant social, educational and health benefits. Depending on connection speeds, the availability of broadband in remote rural areas could facilitate:

    - distance learning, enabling students to take courses not normally offered by a local faculty
    - improved delivery of e-government services
    - improved health services (for example, facilitating the transport of large volumes of diagnostic data such as high definition x-rays)
    - remote working, providing many New Zealanders with the flexibility to work from home
    - delivery of entertainment needs, including the development of community portals.

11. Rural residential users, in particular, will benefit from broadband services that provide improved access to distance learning, e-government services and e-health services.

12. Rural schools would also benefit significantly from high-speed Internet connections, enabling them to, for example:

    - access and share specialist teachers with other schools
    - access digital learning resources (for example, National Library)
    - use high-speed broadband for teacher professional development
    - access shared administrative services.

Current and future capabilities

13. New Zealand has approximately 100 percent broadband coverage through satellite technology. Although the market may technically be providing a broadband option for consumers, the Government's broadband speed objectives are likely to be more efficiently achieved through facilitating the roll-out of alternative technologies capable of providing higher broadband speeds at lower costs (with satellite playing an important role in more remote areas).

14. Approximately 30 percent of Telecom's rural telephone lines (that is, lines in Telecom Zone 4[4]) are currently capable of providing DSL broadband services to users, compared with 99 percent of urban telephone lines. The key constraint is that it is not commercially viable (mostly owing to low population density) to augment backhaul[5] capability for broadband service provision in many rural areas.

15. Approximately 87 percent of rural fixed network lines could support DSL-based broadband service (with downstream speeds of 1 Mbps or above) providing a DSLAM[6] and satisfactory backhaul were installed.

16. While both Vodafone and Telecom have 97 percent population coverage through their 3G mobile networks, the lack of fibre backhaul means data speeds over the networks are likely to be low in rural areas.

17. The Government, therefore, is considering a policy that will facilitate the necessary investment in rural backhaul to improve the broadband capability of the fixed and wireless networks in rural New Zealand.

18. As noted above, rural communities are often either unable to obtain broadband services, or only able to access services that are inferior to the Government's target speeds and quality. There are two key reasons for this:

    - Copper local loops in rural areas are generally longer than loops in urban areas and are often conditioned with repeaters to optimise long lines for voice services. DSL technology is more effective at short distances, and ineffective at distances beyond seven kilometres. Further, ADSL1 technology, which is significantly

[4] Telecom Zone 4 equates to areas served by exchanges with less than 500 lines (approximately 16 percent of lines). Zone 4 is not covered by Telecom's Fibre-to-the-Node upgrade programme.

[5] Backhaul is a data transmission link service that transports aggregated data (such as Internet traffic from multiple customers) between an aggregation point near to the user (for example an exchange or fibre enabled cabinet) and transports it to a network node on the core network.

[6] Digital Subscriber Line Access Multiplexer – a network device, located in an exchange or in a cabinet that houses DSL modems. The DSLAM is connected to the local backhaul.

slower than ADSL2+ or VDSL, is generally deployed in rural exchanges. Rural lines are also often affected by rural specific sources of interference, such as electric fences.

- Backhaul from exchanges, cabinets and cell sites in rural areas is often via copper or radio rather than optical fibre.

19. Services to rural users can, therefore, be improved by:

    - Shortening the copper loops in rural areas by rolling-out fibre to cross-connect cabinets, installing later generation DSL equipment in the cabinet (or a new cabinet), and removing the repeaters on the, now shorter, copper loops.
    - Building out optical fibre backhaul to rural exchanges, cabinets, and cellular and wireless sites.

1.3 Rural Telecommunications Strategy

20. In parallel to the Government's urban UFB Initiative, the Government intends to implement a Rural Telecommunications Strategy to improve telecommunications services for rural users.

21. The strategy will include a series of initiatives including:

    - investing directly in rural communities to provide fast broadband to rural users (through the RBI)
    - improving the effectiveness of the Local Service TSO
    - better targeting of industry funding through a Telecommunications Development Levy.

22. This is a key part of the Government's wider strategy to increase New Zealand's global competitiveness, particularly compared to other OECD countries.

1.3.1 Rural Broadband Initiative

23. As outlined in this document, the Government intends to spend up to $300 million to improve rural broadband. This will be sourced from a combination of direct Government funding and contributions from the proposed Telecommunications Development Levy.

24. The RBI will facilitate the necessary investment in rural backhaul to improve the broadband capability of the fixed and wireless networks in rural New Zealand. The RBI will focus specifically on connecting rural schools to ultra-fast broadband, while seeking to maximise the resulting spill-over benefits of those connections for rural communities.

25. The key broadband objectives the Government proposes to achieve in rural New Zealand are:

    - Ultra-fast broadband (100 Mbps+) to 97 percent of New Zealand schools (serving 99.7 percent of New Zealand students).

- Improved coverage of fast broadband services so that 97 percent of New Zealand households and enterprises are able to access broadband services of 5 Mbps or better.

1.3.2 Local Service TSO reform

26. The Government is proposing to reform the Local Service TSO. The Local Service TSO is primarily a consumer protection mechanism and ensures the availability and affordability of basic telecommunications services in rural New Zealand.

27. As part of the TSO reforms it is proposed that a Telecommunications Development Levy be introduced to obtain funding for subsidisation of telecommunications services, with a focus on rural New Zealand. This levy would consolidate (and be no greater than the sum of) existing TSO levies.

28. The Government's TSO reform proposals are outlined in a discussion document titled *TSO Reform and Funding Telecommunications Development*. An electronic copy of the document is available at: www.med.govt.nz/tso. Submissions on the TSO reform proposals are also due by 5.00pm Friday 30 October 2009.

1.3.3 Relationship to the Ultra-fast Broadband Investment Initiative

29. Under the UFB Initiative the Government is seeking to accelerate the roll-out of ultra-fast broadband to 75 percent of New Zealanders, concentrating in the first six years on priority broadband users such as businesses, schools and health services, plus green field developments and certain tranches of residential areas.

30. This will be supported by Government investment of up to $1.5 billion, alongside additional private sector investment, and be directed to open-access infrastructure.

31. On 16 September 2009, the Minister for Communications and Information Technology (**Minister**) released a final overview document titled *New Zealand Government Ultra-fast Broadband Investment Initiative – Overview of Initiative*. An electronic copy of the final overview document is available at: www.med.govt.nz/ultra-fast-broadband.

32. As noted above, the UFB Initiative will provide service to 75 percent of New Zealanders. The remaining 25 percent of New Zealanders are likely to live in areas that cost more to serve, making it unlikely that the roll-out of fast broadband services will be accelerated in their areas through an investment model.

33. The RBI will specifically target the 25 percent of households and enterprises that will be beyond the footprint of the UFB Initiative, reflecting the differing needs of these communities and the different economic dynamics of providing telecommunications services to them. Initially the RBI will focus on the 16 percent of the population that live in areas described as Telecom Zone 4, because these are the areas that are also outside the footprint of Telecom's Fibre-to-the-Node programme.

34. The Government's goal is to improve telecommunications services for all New Zealanders, utilising the tools that are appropriate to the area to be served.

2. Objectives and priorities

35. The timely availability of cost-effective advanced broadband services is considered to be an important enabler of economic growth and the development of a knowledge based economy. Given New Zealand's dependence on its rural sectors for economic growth and productivity improvements, the benefits to New Zealand of improving rural broadband could be significant.

2.1 Objectives

36. The Government has identified schools as a priority for connection to ultra-fast broadband. For both social reasons and the long-term economic prosperity of rural areas, it is important that rural students have similar educational opportunities to urban students. Access to comparable broadband services is, and will be, a key part of achieving this goal.

37. The Government also wishes to improve the standard of broadband services in rural areas generally. There are key economic and social implications of the widespread availability of broadband services, particularly for the delivery of improved education, health and community services. It is also desirable that the Government promotes future-proof technology options, such as optical fibre, that will be able to meet the needs of rural schools and communities for years to come.

38. Given the Government's priorities, and desire to accelerate infrastructure investment in the current economic climate, the RBI will focus specifically on connecting rural schools to ultra-fast broadband, while seeking to maximise the resulting spill-over benefits of those connections for rural communities.

39. The key objectives the Government aims to achieve in rural New Zealand are:

    - Ultra-fast broadband to 97 percent of New Zealand schools (serving 99.7 percent of New Zealand students).
    - Improving coverage of fast broadband services so that 97 percent of New Zealand households and enterprises are able to access broadband services of 5 Mbps or better.

40. These objectives are to be achieved through progressive network upgrades over ten years (beginning in 2009/10), focusing in the first six years on connecting schools to ultra-fast broadband.

41. The Government's objectives for rural New Zealand are set out in more detail in the table below:

Table 1: Rural broadband targets

Service Standard	To whom	2015/16 Coverage Targets	Technology Options
Fast Broadband 5 Mbps	Households & enterprises	97% of NZ (80%+ of rural)	DSL + terrestrial wireless + satellite (with fibre backhaul)
Super-fast Broadband 10 Mbps+	Remote primary[i] schools	3% of NZ schools[ii] (7% of rural schools)	DSL + terrestrial wireless (with fibre backhaul)
Ultra-fast Broadband 100 Mbps – 1 Gbps	Schools	97% of NZ schools[ii] (93% of rural schools)	Fibre[iii]

[i] Given that the greatest educational (and potentially community) impact will likely result from connecting remote secondary and area schools (due to their student populations and significance to smaller communities), the Government will seek to connect these schools to ultra-fast broadband, with alternative solutions sought for remote primary schools.

[ii] North and South Island schools only. This does not include early childhood centres or schools on offshore islands (for example the Chatham, Stewart, Great Barrier, and Waiheke islands).

[iii] Alternative access technology options will be considered for the more expensive to serve schools on a case-by-case basis, but must be capable of providing at least a 100 Mbps service.

2.2 Priorities

2.2.1 Schools

42. As discussed above, the Government has identified schools as a key priority for connection to ultra-fast broadband. Compared to larger urban schools, rural schools are disadvantaged without quality broadband as they also have limited ability to access offline resources such as major public libraries or specialist teachers. Furthermore, there is anecdotal evidence that rural schools in areas without quality broadband may struggle to attract teachers, partly because of the difficulty for those teachers accessing professional development and ongoing learning opportunities.

43. Schools are also often located centrally within rural communities, which maximises the spill-over benefits that will result from rolling-out fibre to schools.

Non-state schools

44. Under the School Network Upgrade Project (**SNUP**), the Ministry of Education is not funding upgrades for private or state integrated[7] schools. This means that private

[7] State integrated schools are former private schools which are now 'integrated' into the state system; however the capital assets (land, buildings etc) of state integrated schools are non-Crown assets. The Ministry of Education provides operational funding for state integrated schools (on the same basis as state schools) but does not provide any funding for capital upgrades/maintenance. The large majority of state integrated schools are Catholic schools.

and state integrated schools will need to self-fund internal network upgrades and drop costs[8] for connecting to fibre.

45. The Government will support the roll-out of fibre to non-state schools, providing the schools commit to upgrading their internal networks (if necessary), funding the drop costs and purchasing a fibre service.

Remote primary schools

46. Three percent of schools, or approximately 75 primary schools (serving approximately 0.3 percent of students), are very expensive to serve with an ultra-fast broadband connection on a per student basis. Alternative broadband solutions capable of 10 Mbps+ will be sought for these remote primary schools.

47. Decisions as to whether an individual primary school will be provided an ultra-fast or alternative service will be made on a case-by-case basis (for example, through a tender process), allowing wider factors such as likely community spill-over benefits and the student population of the school to be taken into account.

Schools on offshore islands

48. A number of schools are situated on offshore islands (for example, Chatham, Stewart, Great Barrier, and Waiheke Islands). Decisions relating to these schools will be made in 2010/11 in consultation with the Ministry of Education. Many of these schools are currently served by satellite broadband, and it will be necessary to investigate potential alternative service options before specific objectives for these schools can be set.

2.2.2 Health institutions

49. Health institutions are also priority broadband users. In rural areas, in particular, better broadband access will help remove distance as a barrier to receiving quality healthcare.

50. Under the UFB Initiative, hospitals will be a priority for connection to fibre within the first six years of the initiative. It is likely that a number (less than 40) of relatively small hospitals that are not already connected to fibre will lie outside the footprint of the UFB Initiative.

51. It is proposed that most rural hospitals and health care provider sites of significance to rural communities[9] within one kilometre of a rural school connected under the RBI should also be connected to fibre (with funding for the fibre drop cost and any other connection costs being provided from other sources).

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[8] Drop costs are the costs of connecting premises to the fibre optic cable running down the street. Drop costs are a significant component of fibre-to-the-premise installation costs.

[9] For example, health centres in small towns that are far from a hospital and therefore would benefit from being able to provide hospital-like services such as telemedicine as part of primary health care.

52. This would be determined on a case-by-case basis by taking into account:

- the additional cost incurred in connecting the hospital or health site
- the need and potential benefit to be derived from a fibre connection – particularly in terms of enabling improved primary care services
- the significance of the hospital or health site to the local community, and the potential benefits that would result from connecting it to fibre
- the availability of funds (outside of funding for the RBI) to contribute to the fibre drop and connection costs
- the willingness and ability of the health provider to purchase a fibre-based service.

2.2.3 Rural communities

53. There are considerable social and economic benefits in extending ultra-fast broadband beyond schools and health institutions to the local communities themselves. In addition to rolling-out ultra-fast broadband to rural schools and health sites, the Government will seek to leverage off that investment to maximise the spill-over benefits to surrounding rural communities, with the long term aim of increasing 5 Mbps broadband coverage to 97 percent of New Zealand households and enterprises.

Maximising benefits for local communities

54. These spill-over benefits will be achieved by:

- Including spill-over benefit criteria in the tender process for selecting provider(s) to deploy ultra-fast broadband to rural schools (that is, weighting the criteria in favour of proposals that increase the coverage and quality of broadband services in surrounding rural communities).

  For example, in rolling-out fibre to the local school, it may be feasible to also run fibre to the local exchange and other copper wire centres such as cross-connect cabinets, as well as local cellular sites. Despite the greater cost of doing so, the spill-over benefits in improved DSL services from the exchanges and cabinets should be considerable, particularly if the DSL equipment at those locations was upgraded. There are also likely to be considerable spill-over benefits from connecting cellular and wireless sites to fibre.

- Ensuring that where the Government has financially contributed to fibre roll-out in rural areas, open access is required on the same basis as fibre deployed under the UFB Initiative (recognising that the pricing requirements may differ to reflect commercial realities).

  While such open access requirements may negatively impact on the investment proposition for the provider deploying such infrastructure, they would enable competitors to access the fibre to facilitate the provision of 3G mobile services[10] and other wireless networks, for example.

[10] The fibre route would still need to be extended to a local "hill-top" as it is most unlikely that a cell site could be effectively co-located at a school, exchange or cabinet site.

55. Consideration has also been given to the allocation of funding, on a contestable basis, for subsidising innovative community initiatives that extend upon rural backhaul upgrades. Comment would be welcomed on whether a small proportion of funding earmarked for the RBI should be allocated for this purpose. Such funding could be used to, for example:

- Fund local ‘broadband champions’ to stimulate and guarantee broadband demand in their communities, leverage in-kind contributions, and then work in partnership with commercial providers to deploy improved rural broadband access networks.
- Provide grants to commercial suppliers to deploy improved rural broadband access networks (for example, satellite based solutions for remote users).
- Provide grants to community groups to negotiate and work with commercial suppliers to deploy improved rural broadband access networks.

3. Funding

3.1 Cost estimates

56. Expert estimates indicate that it would cost around $300 million to improve rural broadband infrastructure such that services of a quality closer to what is currently available in urban areas can be delivered. The key cost component is the upgrade of backhaul to rural exchanges and major cabinets.

57. Given the objective to connect rural schools to ultra-fast broadband, cost estimates have also been sought with this in mind. Expert estimates indicate that it would cost upwards of $300 million to connect every rural school in the North and South Islands to fibre capable of providing a 100 Mbps+ service, with the most remote schools driving around 50 percent of the cost.

58. It is not surprising that cost estimates for connecting rural schools align with cost estimates for improving rural broadband more generally given the key cost component for connecting rural schools is also backhaul upgrades, that is there is a considerable overlap in the required infrastructure deployment.

3.2 Proposed funding approach

59. The Government intends to spend up to $300 million to improve rural broadband. The Government will be providing a direct contribution of $48 million along with an additional $52 million from the UFB Initiative in the early years of the RBI, recognising the need to accelerate investment in the rural telecommunications network. This $52 million would be paid back to the UFB Initiative over time.

60. It is proposed that the balance of funding be sourced from the Telecommunications Development Levy (of up to $252 million) proposed as part of the Government's reform of the local residential Telecommunications Service Obligations (Local Service TSO). This will be supplemented by school, industry and rural community contributions.

3.2.1 Funding sources

Government

61. The Government appropriated $48 million in Budget 2009/10 for funding improvements in rural broadband.

62. Any direct government funding for rural broadband would be contestable and provided on a grants basis.

Telecommunications Development Levy

63. As part of the Government's TSO reform proposals, it is proposed that a Telecommunications Development Levy be introduced to provide subsidy funding for, among other things, infrastructure deployment projects consistent with Government goals and priorities for rural telecommunications.

64. Further information on the proposed levy is outlined in the TSO reform discussion document titled *TSO Reform and Funding Telecommunications Development*. An electronic copy of the document is available at: www.med.govt.nz/tso.

65. It is proposed that up to $252 million of the levy funds be allocated over six years to fund improvements in the rural telecommunications network. As with direct government funding, any levy funds allocated for rural broadband would be contestable and provided on a grants basis.

66. The levy contribution would be dependent on TSO reform. Therefore, there would be a lag before this funding would be available for rural telecommunications infrastructure upgrades. It is expected that the Telecommunications Development Levy could be introduced on 1 July 2010, with funds available in 2010/11.

Schools

67. At present, schools (including rural schools) make their own arrangements for Internet connectivity. Most schools negotiate separately with an Internet service provider for Internet connectivity.[11] Individual schools have very little negotiating power or capability. This individual school-based model of procurement means that in general, providers, not schools set the terms for connectivity standards and prices.

68. Services such as Internet connectivity (including over fibre), network management and security tend to have significant economies of scale, meaning that bundling demand and centralising procurement substantially increases value for money.

69. Schools' demand for, and procurement of, these services is currently fragmented across 2,500 schools. If this demand were aggregated, and a national or regional tenders let to supply these needs, the Ministry expects that substantial volume discounts or significantly improved service for the same money could be negotiated, leading to improved service to schools at a lower price than they could negotiate on a school-by-school basis.

70. In addition, the extent to which the government is prepared to centrally procure and guarantee a level of demand will be reflected in the bid prices of operators offering to connect rural schools to fibre. If schools' demand were sufficiently aggregated and guaranteed over time, bid prices are likely to fall accordingly.

71. For these reasons, the Ministry considers that a more coordinated approach is needed to procuring and funding connectivity to schools.

Industry

72. Running a competitive tender for rolling-out fibre to rural schools would place competitive pressure on bidders and potentially leverage industry contributions. The extent of any industry contribution would be heavily dependent on the level of Government/levy funding that is made available, the extent to which schools' demand is aggregated and guaranteed over time, the expected level of community demand, and the access terms required by the Government.

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[11] A few groups of schools have formed local 'loops' and procure their connectivity as a bulk deal. These arrangements work well for the few schools that belong to them, but rely on a local champion school to lead them and the co-operation of other schools. Such ad-hoc arrangements do not allow government to guarantee schools' demand to providers.

Rural communities

73. Provisioning fibre to rural schools will encourage the development of local broadband initiatives and in-kind contributions. Depending on access terms, this could take the form of local wireless, cellular, xDSL and potentially fibre networks. In-kind contributions by local communities, such as providing resources to build infrastructure to expand fibre coverage across a rural community, may play a significant role in local areas and maximise spill-over benefits from providing fibre-links to schools.

3.2.2 Timing

74. The Government recognises the need to accelerate investment in the rural telecommunications network and therefore intends to front-load spending in the early years of the RBI. It is likely that this will lead to expenditure in the first two years of the RBI in excess of the funding available from the proposed levy and the $48 million Government appropriation.

75. In order to achieve this it will be necessary for the Government to 'underwrite' up to $52 million spending in early years, pending income from the proposed levy. Such underwriting will be sourced from funding currently appropriated for the UFB Initiative and will be reimbursed in later years from the proposed levy. This is not intended to decrease the funds available for the UFB Initiative.

4. Procurement process

4.1 Proposed approach

76. The Government proposes to tender for the provision of ultra-fast broadband to rural schools, employing a relatively flexible process to encourage interest from a range of suppliers. The first round of the tender process will involve the Government:

- Identifying approximately five to ten regional clusters of rural schools[12] that are a priority for connection to ultra-fast broadband. To minimise the risk of overlap with the UFB Initiative, the initial focus will predominantly be on schools located within the area defined as 'Zone 4' by Telecom, which equates to areas served by exchanges with less than 500 lines (approximately 16 percent of lines), but will not be in highly remote locations.[13]

- Specifying the service standard to be provisioned to these schools.

- Specifying how spill-over benefits to rural communities (for example, improved broadband coverage/quality, improved mobile services, increased competition) would be taken into account in the assessment of proposals.

- Calling for proposals to serve the identified clusters of rural schools, as well as calling for proposals to serve all rural schools on a nationwide basis. Bidders would also be able to suggest variations on the Government's stated requirements (for example, variations on cluster size and service standards) if they consider such variations would enable the Government to achieve its objectives at lower cost. However, such suggestions would need to be made in conjunction with an accompanying proposal that is compliant with the Government's requirements.

- Evaluating proposals based on set criteria regarding:
  - the level of the subsidy required and the revenue to be gained by the bidder from serving the schools over a set period (for example, ten years).
  - the level of spill-over benefits expected to result from the proposal, for example the number of people/households who will be able to access improved (5 Mbps+) broadband services and the degree of open access offered.

77. Following the call for proposals there are two likely paths that the tender process could take:

- direct negotiation with a provider on a nationwide proposal, or

[12] It is expected that a regional cluster would include approximately ten to 15 schools. Dependent on health buy-in, nearby health sites may be included in the regional clusters, however it is likely that there will be a greater focus on connecting health sites in later years (post years 1-2) of the RBI.

[13] The details of the UFB Initiative are yet to be finalised, and the exact footprint of the initiative is not likely to be known for some time. As such there is a risk of overlap between the coverage of the UFB Initiative and the coverage of the RBI. By focusing on Zone 4 (which will not be covered by the UFB Initiative) the risk of overlap is minimised. This will mean that there will be schools not covered by either the UFB Initiative or the RBI in the short term; however this can be addressed in future years by expanding the coverage of either or both initiatives.

- direct negotiations with one or more providers on cluster proposals.

78. The decision on which path to take will be dependent on the strength of any nationwide proposal and the certainty of funding availability.

79. If a nationwide proposal is not selected, further clusters of schools will be identified in future years and the tender process would be repeated for those schools.