TRADE PRACTICES ACT 1974

Declaration under section 152AL(3)

1. The Australian Competition and Consumer Commission (the Commission) declares pursuant to section 152AL(3) of the *Trade Practices Act 1974* (the Act) that the Unconditioned Local Loop Service (ULLS) is a "declared service" for the purposes of Part XIC of the Act.

2. This declaration takes effect on 1 August 2006 and expires on 31 July 2009.

3. The service is described in Appendix 1.

4. The declaration was made by decision of the Commission on 19 July 2006.

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Graeme Samuel
Chairman

Dated: 28 July 2006

Appendix 1

Service description for the ULLS

The unconditioned local loop service is the use of unconditioned communications wire between the boundary of a telecommunications network at an end-user's premises and a point on a telecommunications network that is a potential point of interconnection located at or associated with a customer access module and located on the end-user side of the customer access module.

Definitions

Where words or phrases used in this declaration are defined in the *Trade Practices Act 1974* or the *Telecommunications Act 1997*, they have the meaning given in the relevant Act.

In this Appendix:

boundary of a telecommunications network is the point ascertained in accordance with section 22 of the *Telecommunications Act 1997*;
communications wire is a copper based wire forming part of a public switched telephone network;
customer access module is a device that provides ring tone, ring current and battery feed to customers' equipment. Examples are Remote Subscriber Stages, Remote Subscriber Units, Integrated Remote Integrated Multiplexers, Non-integrated Remote Integrated Multiplexers and the customer line module of a Local Access Switch;
public switched telephone network is a telephone network accessible by the public providing switching and transmission facilities utilising analogue and digital technologies.

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NETWORK STRATEGIES
• Telecommunications Strategy •

Micro-trenching: can it cut the cost of fibre to the home?

Government funding of fibre to the home (FTTH) networks is one of the key issues exercising the creative thinking of telecommunications carriers around the world. Naturally, the public insists that government money is spent wisely, so cost-effective solutions must be used for publicly funded fibre roll-out.

> *"...while micro-trenching can in principle significantly reduce the cost of deploying fibre, it cannot be used everywhere and should not be relied upon as a ubiquitous solution."*

Want to know more about this topic? Contact the author Michael Waterman

The costs of fibre to the home are dominated by the civil works required to put fibre in the ground, amounting to as much as three quarters of the total cost of the network. There are currently a number of options for deploying fibre, such as direct burying (cable straight into the ground or pre-installed in a direct buried duct), installing in existing or new ducts laid in trenches, drilling directly under the surface of the ground, and using poles for overhead cable. These methods can be very expensive – for example, putting ducts in trenches down the middle of a busy road requires traffic management, digging trenches, laying the ducts, backfilling the hole and reinstating the surface of the road – all of which can add up to more than NZD200 for every metre of trench deployed.

In recent months, micro-trenching technologies for laying fibre have been attracting attention in New Zealand. Micro-trenching, such as the 'vertical inlaid fibre' system marketed by Canadian firm Teraspan, can replace traditional trenches with a narrow slit that is sliced or sawn in the surface of the road. It makes use of micro-ducts with narrow, vertical cross-sections (12mm by 30mm for example, rather than circular) and very small diameter fibre cables (for example 24 fibres in a 4mm diameter cable, and 72 fibres in a 6.1mm cable).

While digging and re-instating the road for a traditional trench is a time-consuming and expensive exercise, the micro-trench can avoid many costs as it does not penetrate the surface layer of the road (asphalt). This means the crew

can dispense with traditional expensive backfill material and road re-surfacing, instead backfilling with grout, concrete or similar substances, which once sealed may be practically invisible. It is claimed that micro-trenching can cut the cost of the civil works by 80%.

However micro-trenching is not necessarily a panacea for affordable FTTH in New Zealand - there are a number of practical issues that must be addressed:

Road movement: The surface of the road can move with the weight of the traffic. Even quite small movements can be sufficient to crush or otherwise damage cables and ducts. To reduce movement, cables are installed along the edge of the gutter of the road, where the curbing will add strength.

Road thickness: Micro-trenches must be at least 100mm deep, and thus the road surface needs to be at least that thick. Cutting through the asphalt and into the base of the road will seriously reduce the cost-effectiveness of micro-trenching, as extra measures are required to ensure water does not penetrate the road base (potentially causing subsidence and long term road damage).

Road resurfacing: When roads are resurfaced, the fibre must be physically removed from its micro-trench beforehand, and reinstalled afterwards, to avoid any damage being done to it when the old road surface is milled down. This reduces the long term cost-effectiveness of this system.

Other utilities: It has been suggested that the trenching saw may "slice through storm water drains, gas pipes and electricity cables before operators even knew they were there" – although we note that in general drains, pipes and other cables are usually well below the asphalt surface of the road. It may be more likely that laying a micro-duct close to the surface of the road will make the telecommunications network more susceptible to damage by general contractors and the maintenance/installation of other utilities.

Can micro-trenching be used in NZ?

Many (if not most) New Zealand road surfaces are less than 100mm thick, in which case micro-trenching would cut into the base of the road. As noted above, the biggest problem with this is that it can allow water to get into the road base, which can weaken the road. The costs of fixing this reduces the overall cost-benefit of micro-trenching.

In addition, many road surfaces in New Zealand – particularly suburban streets – are surfaced with chipseal. Micro-trenching in chipseal may cause additional issues.

However micro-trenching in footpaths and grass verges may be more suitable

than using the road in many instances, with the added advantage of traffic management plans not being required.

In conclusion, while micro-trenching can in principle significantly reduce the cost of deploying fibre, it cannot be used everywhere and should not be relied upon as a ubiquitous solution. Micro-trenching should be treated as just one of a number of techniques, with different solutions being used in different places according to which is most suitable and cost-effective.

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