

Possible Amendments to Telecommunications Legislation

Submission by Communications Experts Group Pty Ltd for Mobile Connectivity and Other Measures

The following submission has been prepared for Communications Experts Group Pty Ltd by Dr W Green CEng, CPEng, CITP, FIEE, FIE(Aust), FBCS, FAIM, SMIEE.

Honours

2023 Neville Thiele Eminence Award.

2016 WA Professional Engineer.



1 Q1 Support Changes to TIND

I support the proposed changes to the TIND as I have promoted the use of mobile services in my reports:

- a) 2006 Peel Regional Infrastructure Development – Telecommunications.
- b) 2019 WA GCIO & DPIRD 2019 Recommendation for the Improvement of Broadband Services including Mobile.
(Recommendations in this report have been implemented successfully).

2 Q2 Additional Issues

To deliver affordable mobile services and minimise anti-competitive conduct, the following additional issues should be considered.

The recommendations are based on my experience as a Chief Engineer at a Telecom company, and designing Fibre and TV infrastructure in WA.

2.1 Provision of Telecom conduits (pipes) from a boundary point to Towers.

In addition to providing land for towers the developer should install 100 mm Telecom conduits (pipes) from a boundary point to all Mobile Towers.

The purpose of the conduit is to reduce the cost of connecting the mobile tower(s) or base stations to the mobile carrier's network and minimise the possibility of one carrier monopolising the conduit.

The following criteria should apply to the use of these conduits:

- a) Can only be used for mobile carriers or other mobile service providers (e.g. fixed wireless links).
- b) No carrier to occupy more than 30% of the available cable space in the conduit.
- c) There should be two or more conduits or paths from the boundary to the mobile tower(s).
- d) Cost of access to the conduit should be included in the cost of mast access.
- e) All mobile towers to support three carriers.
- f) Ideally, the paths of the conduits should form a ring or series of loops.

When the developer provides the access conduit, all carriers will have equal access to the mast(s) even though they install or upgrade their equipment at different times.

2.2 Minimum Standards

2.2.1 While existing or additional new mobile services should be 4G, the minimum standard for the provisions of masts and conduits should be for 5G.

Note: 4G Customers can only connect to one mast, even though they may be capable of receiving data at 120 Mbit/s. 5G Customers only get the benefit of higher speeds when they connect with two or three mobile towers or base stations simultaneously.

2.2.2 Current 5G planning requirements indicate that 4 to 6 times the number of existing mobile towers and/or base stations will be required.

Note: Mobile Towers only supply mobile equipment antenna. Base Stations are stand-alone devices that are usually attached to existing infrastructure such as lamp posts, sides of buildings, etc.

2.2.3 The success of 5G is dependent on the introduction of 60GHz base stations because of

- a) the availability of more spectrum,
- b) lower cost,
- c) lower power consumption that can be supplied using a single cable designed to carry both telecom and power simultaneously.

Refer High Voltage over Ethernet.

Note 1: The amount of power that can be delivered using this technology is sufficient to support multiple Base Stations and CCTV Cameras at one location.

Note 2: Proprietary versions of the High Voltage over Ethernet technology claim a 50% reduction in life cycle costs compared to current practices.

2.2.4 Use of Standards and Guidelines

For reasons given in Section 4 the new legislation should require developers to specify or mandate the use of the following Guidelines and standards

AS/CA S009:2020 Mandatory Standard for Telecom components.

NBN-TE-CTO-284 NBN Standard for installation of external pit and conduit infrastructure.

G645:2017 Guideline for installation of external pit and conduit infrastructure.

Note NBN-TE-CTO-284 has been aligned with G645:2017.

Where high rise buildings are anticipated G670:2023 should be specified.

3 Q3 Achieve Objectives

My experience in providing shared telecommunication access (conduits, mast space and buildings) have proven that the proposed amendments will achieve the aim of encouraging mobile services.

4 Q4 Compliance with Proposed Changes

I have major concerns with the competence of persons designing the proposed mobile infrastructure, and in particular the design of 5G networks.

A number of non-telecom engineers and technicians have produced designs that resulted in:

- a) Carriers not being able to connect services,
- b) Increased capital and operating costs,
- c) Failure or resistance to adequately test the finally installed infrastructure,
- d) There have been a number of cases where the wires were physically connected, but could not transmit data.

Note: In some cases, the errors were made by persons who were registered cablers.

It is recommended that the changes to Legislation include the requirement for persons performing telecommunication design, installation and commissioning be Registered Engineers with State Government Building Registration legislation or be qualified and experienced Telecom technicians.

5 Q5 Proposed Time for Engagement with Carrier

Based on my experience as a Chief Engineer in a telecom the twelve month lead time is too short for the following reasons:

- a) Insufficient time to develop a network proposal,
- b) Insufficient time to prepare a business case,
- c) Insufficient time for carriers to approve budgets based on an annual cycle,
- d) The twelve month lead time gives developers the wrong impression of the need to gain early input from one or more carriers.

It is recommended that a 24 month or 36 month lead time is specified for new projects or estates, with a 12 month lead time for extensions to existing projects.

Note: Developers have to comply with a number of Local Government regulations and environmental standards, which can take up to 36 months to obtain the required approvals.