

Optus Submission to
Australian Competition and Consumer Commission
on
Telstra's December 2007 Exemption Application for Fixed Line
Services in the Optus HFC Area
(Public version)

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Table of Contents

1. Introduction	3
2. Optus' Use of its HFC Network and Telstra Wholesale Services	6
Residential services on the HFC network	6
Business and wholesale services	7
Use of Telstra wholesale services in serviceable premises	9
Use of Telstra wholesale services in unserviceable premises	10
Inactive areas	11
3. Unserviceable Premises	13
Why are premises unserviceable?	13
Economic feasibility	15
The ladder of investment	24
4. Efficient Use of and Investment in Infrastructure	26
Efficiency of investments	26
Disincentive to invest	28
Optus' ongoing investments	31
5. Promotion of Competition	33
Impact of restrictions on Optus	33
Full facilities-based competition	34
Appendix A: Optus HFC MDU Build Overview and Cost Summary	37
Appendix B: Telstra ESAs and Optus HFC Footprint	41
Appendix C: HFC Serviceability in Miller TESA (Map)	42

1. Introduction

1.1 On 18 December 2007 Telstra made an application under section 152AT of the TPA to the ACCC seeking an exemption from the supply to Optus of the following services:

- Local carriage service (LCS);
- Wholesale line rental (WLR);
- Public switched telephone network originating access (PSTN OA);
- Line sharing service (LSS); and
- Unbundled local loop service (ULLS);

to customer premises within 75 metres of Optus' HFC network in Sydney, Melbourne and Brisbane.

1.2 This submission contains Optus' response to that application as well as responding to parts of the ACCC's January 2008 discussion paper. Optus notes that while it wishes to assist the Commission by responding to the discussion paper to the best of its ability, it is hampered in doing so by uncertainty as to the scope of the exemption sought by Telstra's application given its express contingency on other extant exemption applications. This issue was raised in our letter of 21 February 2008. Optus reserves its rights in respect of the fundamental threshold issues raised in that letter. Optus intends to provide further information in response to the discussion paper in due course.

Executive Summary

1.3 The current situation (in which Optus has access to the declared services which the exemption, if granted, would remove) has been reached because it has been found to satisfy the key objective set by section 152AB of the TPA. Telstra's proposed exemption would depart from that position and relies on it being able to establish at least two fundamental propositions. First, that discriminating against Optus by removing its access to the various declared services within its HFC footprint will encourage Optus to invest more in the development of its HFC network than it is otherwise likely to. Second, that such investment will encourage efficient use of infrastructure and will promote competition as those concepts are understood under s152AB as contributing to the LTIE. This submission will demonstrate that the ACCC cannot be satisfied as to either proposition and it must therefore reject Telstra's application.

1.4 In essence, Telstra is asking the Commission to trade-off the competitive landscape achieved and likely to be achieved going forward where Optus is able to compete on a level playing field with its competitors with a situation of immediately reduced competition and efficiency which imply a welfare reduction for end-users without any definite offsetting dynamic gain in the long run. Telstra

has not and cannot show that the hypothetical gain in dynamic efficiency at some long distant future date outweighs the gains made and to be made under the current situation in a way that can satisfy the Commission in accordance with the statutory burden in s152AT.

- 1.5 Optus supplies residential customers via its HFC network, rather than Telstra's CAN, where the premises are serviceable by HFC. However, Optus is not able to provide all residential customer premises located within its HFC network footprint with HFC network services. A minority of these unserviceable premises are single dwelling units. The majority are multi dwelling units (MDUs). Optus' use of its HFC network and Telstra wholesale services are set out in Section 2 and Appendices B and C.
- 1.6 One of Telstra's core propositions is that the proposed exemption will motivate Optus to make significant additional investments in its own HFC network infrastructure. Optus submits that the proposed exemption would not motivate additional investments by Optus in its HFC network. The ACCC cannot be satisfied that, if the exemption order is granted, it will be economically feasible for Optus to invest in its existing HFC network in order to expand the range of customers that are serviceable by that network (as discussed in Section 3 and Appendix A). This position is borne out by analysis of past HFC network investment decisions and the economics of serviceability which have not changed as a result of the comparatively recent commercial availability of ULLS to Optus. Making ULLS available to Optus didn't change the way Optus used and developed its HFC and so the ACCC cannot be satisfied that its removal will have any impact; particularly not the impact upon which Telstra's application depends.
- 1.7 Optus notes that in 2002, it had to write down the value of the HFC network by almost \$1.4 billion. This fact strongly suggests that it would be reckless to expect an exemption to motivate further significant investment to expand this network. This is even more pertinent given the imminent rollout of an FTTN network that will be subsidised by up to \$4.7 billion with government funding.
- 1.8 Optus submits that the proposed exemption would not promote efficient investment in infrastructure for the following reasons (discussed in Section 4):
 - (a) Even if the proposed exemption did motivate additional investments by Optus, any impact of the proposed exemption in promoting such investment would not be efficient;
 - (b) The proposed exemption is likely to deter Optus and other operators from investing in infrastructure-related projects in future (a real risk which Telstra's own economic advisor Martin Cave has highlighted¹); and
 - (c) Optus currently maintains a program of investment in the HFC network, which would continue regardless of whether the exemption was granted.

¹ Cave report, p14

- 1.9 Even if the ACCC decided that the proposed exemption might motivate additional investment in infrastructure, Optus considers that the proposed exemption would not promote competition, for the following reasons (discussed in Section 5):
- (a) The proposed restrictions on Optus would harm competition; and
 - (b) The full facilities-based competition that the proposed exemption is purportedly designed to encourage would not necessarily represent an improvement in the conditions for competition.

2. Optus' Use of its HFC Network and Telstra Wholesale Services

- 2.1 Optus supplies residential customers via its HFC network, rather than Telstra's CAN, where the premises are serviceable by HFC.
- 2.2 However, Optus is not able to provide all residential customer premises located within its HFC network footprint with HFC network services. A minority of these unserviceable premises are single dwelling units. The majority are multi dwelling units (MDUs).
- 2.3 The HFC network also contains a number of areas where the network infrastructure build was incomplete and the network was never activated.

Residential services on the HFC network

- 2.4 Optus currently uses the HFC network to provide telephony, data and pay TV to residential customers.
- 2.5 The total number of HFC network connections is shown in the table 1.1 below. There has been an increase in the number of HFC network connections –up from **CiC** in financial year 2003/04 to **CiC** in February 2008.
- 2.6 The proportion of voice, data and pay TV customers for HFC is also shown in the table 1.1 below. There has been an increase in the number of cable internet customers on our HFC network –up from **CiC** in the financial year 2003/04 to **CiC** in February 2008.
- 2.7 There has however been a decrease in the number of telephony customers and pay TV customers. However, this decrease should be considered in the context of the downward trend in the number of fixed telephony lines generally (including Telstra copper CAN retail lines).
- 2.8 The proportion of voice and data customers for ULLS is also shown in table 1.1 below. There has been a significant increase in the number of ULLS customers for both voice and data in recent years.
- 2.9 Optus notes however that the number of voice and/or data customers for ULLS is still significantly lower than the total number of voice and/or data customers on its HFC network. In February 2008, the number of voice customers on the HFC network was **CiC** whilst the number of voice customers on ULL was only **CiC** . Similarly, in February 2008, the number of data customers on the HFC network was **CiC** whilst the number of data customers on ULL was **CiC** .
- 2.10 Further, Optus notes that the growth in ULLS customers is matched by a decline in resale based customers, which reflects a specific decision by Optus to migrate existing resale customers to ULLS. Optus' voice resale customer numbers have dropped from **CiC** .

CiC

Business and wholesale services

- 2.11 Optus does not supply business or wholesale services via its HFC network. It is misleading to think of Optus' HFC network as a complete substitute for the copper CAN. The HFC network is suitable infrastructure for the provision of retail consumer services, but is not suitable for business and wholesale services. Tellingly, Telstra itself does not provide significant business or wholesale services through its own HFC network.
- 2.12 The HFC network is not suitable for business services because it is not capable of meeting business customers' typical requirements with regard to quality of service, including features such as availability, symmetric capacity and diversity.
- 2.13 With regard to availability, business customers typically require "business grade" availability of 99.95%. **CiC** The HFC network is an aerial network so is particularly vulnerable to disruption by storms and vehicle damage (as opposed to the copper CAN, an underground network). Aerial networks are generally acknowledged to have lower availability compared to underground networks and are thus not suitable for business purposes.
- 2.14 Business customers typically require symmetric "business grade" upload / download capacity which the HFC network is not able to deliver. Further, both business and wholesale customers require consistency of service. However, since HFC is a shared network, capacity is affected by congestion levels and particular speeds cannot be guaranteed. This feature of the HFC network also creates difficulties which limit the ability of wholesale customers to control the quality of service they provide to their customers (a typical requirement of wholesale customers).
- 2.15 Business customers often require a diverse network, for secure continuous operation. The HFC is not a diverse network and is not able to provide this requirement.
- 2.16 Telstra argues that any further investment required to make the HFC into a business grade network is technologically feasible. It has sought to support its argument with the expert opinion of Mr Harris (Harris Communication Consulting). For example, Harris suggests (p4) that Optus could acquire new equipment in the cable core network and deploy new customer premises equipment in order to offer E1 services; and acquire a new CMTS in order to provide business grade Layer 2 VPN services and voice services. These new services could also require new customer premises equipment.

- 2.17 Optus notes that none of the issues discussed above (such as availability and diversity) will be addressed by Harris' suggested measures.
- 2.18 Optus has identified a number of issues and omissions in the Harris report, which means that the Commission cannot be satisfied that its conclusions are correct. Harris did not appear to take into account the following:
- (a) Optus' nodes are at least twice as large as Telstra's nodes, and up to four times as large in some areas. This means that the constraint of upstream bandwidth is a much larger problem for Optus than it is for Telstra. In most Optus nodes there are multiple 6MHz bands required for each telephony and high speed data service. Optus submits that only about 45 MHz of the upstream bandwidth is usable;
 - (b) obstacles in providing wholesale services on the HFC network, for example, the provision of backend IT systems for billing and data usage to service the wholesale customers, which are not only costly but also require a long development time;
 - (c) whilst there may be available spectrum of Optus' HFC network, this is unusable unless the CMTSs are upgraded to DOCSIS 3.0 and channel bonding is available for the downstream data;
 - (d) for Optus, unlike Telstra, the upstream spectrum carries two two-way services: high speed data and telephony. For many nodes in the Optus network telephony penetration exceeds 40% and is saturated, whereas for high speed data, which is in the growth phase, some nodes are exceeding 50%. This fact, combined with the fact that Optus, on average, has larger nodes than Telstra, implies that there are multiple upstream carriers for these two services and hence in some nodes growth can only come via node splitting if acceptable quality of service is to be maintained;
 - (e) other obstacles, for example, VOIP equipment manufacturers have recommended a maximum number of cable modems of only several hundred per node in order to have an acceptable voice service, regardless of available upstream spectrum, which means some nodes will have to be split for VOIP at initial introduction; and
 - (f) many commercial buildings are unserviceable, often for similar reasons to MDUs (as noted in the next chapter).
- 2.19 Further, Telstra's theoretical technical arguments cannot be divorced from more practical considerations. Optus notes that the Harris report does not address the riskiness of investment or the conditions necessary for profitable investment in the network. Optus contends that it is inadequate from an economic point of view to discuss only the engineering feasibility of adding to the capacity of the network. By way of analogy, it may be technically possible to build a bridge between Melbourne and Tasmania to encourage tourism; however it would not automatically follow that it is economically profitable to do so.

- 2.20 Consequently, Optus submits that its HFC network is not a viable substitute for Telstra's copper network with regard to business and wholesale customers and the ACCC cannot be satisfied that the proposed exemption would motivate additional investment to change this situation.

Use of Telstra wholesale services in serviceable premises

- 2.21 Optus currently does not use the Telstra fixed line network to provide services to premises that are serviceable by the Optus HFC network footprint. Optus has an internal Business Rule that specifies that where HFC is available for supply to a customer, that customer will be supplied with HFC and not with ULLS or resale products.
- 2.22 As an example of this policy in action, we provide an extract from a solution design document relating to an Optus software product which performs web-based on-line serviceability checks for all customer premises (the results of which determine the supply solution offered to the customer):²

“Reduced On-Net Cannibalisation – the Serviceability tool/SOS solution will follow the current Business Rule that indicates that HFC customers are only ever offered On-Net Products and Bundles.”

- 2.23 Following Optus' DSLAM rollout it became necessary to amend the Business Rule and the serviceability software product to account for the availability of the ULLS. The amendment is illustrated in the following quotations from our solution design documents describing the changes to the SOS applications required as a result of the DSLAM rollout:

2.2 Programme Scope³

...

2.2.1 Inclusions

...

2.2.1.1 SOS/SQ – Serviceability Application

Update of the SOS/SQ Application to cater for the Serviceability Qualification for the ULLS product set (ULL-Telephony and ULL-DSL)

- *Modify Business Rules engine to include ULL in the product hierarchy between HFC products and the Resale DSL product.*
- ...

2.1 Project Review

⁴

2 Optus (July 2004) Detailed Business Requirement Specification: SOS Strategic Serviceability Tool, p18. This application is used by all Optus sales channels to determine serviceability for the customer.

3 Optus (July 2005) SOS Solution Design (Bigfoot CRS), p6.

4 Optus (July 2007) IT Allocated Functional Specification Project Name: Serviceability and Online Solution Component: SOS Serviceability Qualification (SQ), Version Number: 7.1.5 (Part 1). This application is used by all Optus sales channels to determine serviceability for the customer

The existing SOS/SQ business rules will be updated to reflect the new product hierarchy (to slot ULL in before Resale DLL but after HFC);

- 2.24 The amendment described above ensures that where HFC is available for supply to a customer, that customer will only be offered HFC products, even if ULLS is available. Optus' definition of serviceable premises did not change at the time this amendment was introduced.
- 2.25 As this Business Rule demonstrates, Optus is committed to serving customers via its HFC network where possible.

Use of Telstra wholesale services in unserviceable premises

- 2.26 Optus serves customers via the Telstra fixed line network only if the customer premises are not serviceable via the HFC network. Of the 2.2 million homes passed by the Optus HFC network, around 0.8 million homes are classified as "unserviceable", including approximately 0.5 million homes in MDUs.
- 2.27 There are a total of 262 Telstra Exchange Service Areas (TESA) which overlap with Optus HFC footprint. Optus has installed 179 DSLAMs in these TESA. However ULLS is not uniformly available throughout these TESAs as it is affected by:
- (a) Distance limitation –the quality/speed of service for data deteriorates as the copper line travels further from the exchange. ULLS are not serviceable in areas where the straight line distance is greater than 4.5km from the exchange;
 - (b) Telstra's existing deployment of pair gain systems where a copper pair has been spilt and provides more than 2 services over the same line. In the 179 TESAs where Optus has installed DSLAMs, 142 TESAs are affected by pair gain; and
 - (c) a significant ULLS provisioning issue in respect of MDUs which has meant that practicable access to MDUs has not been available via the ULLS. As evidence of this point, Optus refers the ACCC to the access dispute between Optus and Telstra in respect of provisioning of ULLS in Multi-Dwelling Units.
- 2.28 Optus refers the ACCC to the spreadsheet attached at Appendix B⁵ which has been constructed using data from the Geocoded National Address File (GNAF) database and which shows:
- (a) All of the Telstra Exchange Service Areas (TESAs) which overlap with the Optus HFC footprint (column A);
 - (b) The TESAs in which Optus has installed DSLAMs (column B with a Y);

- (c) The number of GNAF addresses that are HFC serviceable within each of the TESA (column D) – note that all others are unserviceable;
 - (d) The number of GNAF addresses that are affected by Telstra pair gain system (column F);
 - (e) The number of GNAF addresses that are affected by distance of over 4.5 km from the exchange (column G).
- 2.29 Optus refers the ACCC to Appendix C⁶ where it shows the Optus HFC coverage within the Miller TESA:
- (a) The grey dots indicate where the GNAF addresses are;
 - (b) The yellow lines indicate where the major roads are;
 - (c) The green dots are the HFC serviceable GNAF addresses; and
 - (d) The red dots are pair gain affected GNAF addresses.
- 2.30 There are a total of 28,043 GNAF addresses in the Miller TESA. 6,807 GNAF addresses are HFC serviceable. Of the 21,236 HFC non serviceable GNAF addresses, 10,335 (49%) are affected by pair gain.
- 2.31 Another example is the Pymble exchange. Of the 7,871 HFC non serviceable GNAF addresses in this ESA, 6,528 (83%) are affected by pair gain.

Inactive areas

- 2.32 The HFC network contains a number of areas where the network infrastructure build was incomplete and the network was never activated.
- 2.33 Inactive areas tend to be in areas with low residential density, which makes it difficult to achieve the required economies of scale. Consequently, activation of the network in these areas is not commercially viable. Typically these low density areas are semi rural and at the fringes of metropolitan areas. Other inactive areas may be due to physical inability to connect to the main network due to constraints such as tram and rail lines, rivers, etc. Also expanding the network in some inactive areas would require local Council DA approval which in many cases is unlikely given community aversion to overhead cables.
- 2.34 This raises the question of why Optus would have built its network in these areas in the first place. The answer is that, because of significant time pressure to build infrastructure before the Telecommunications Act amendment came into force in 1997 (since that amendment made it more difficult for carriers to build infrastructure, and gave local authorities greater power to block proposals) the network was rolled out rapidly without due consideration to its connectivity to the main network in some areas. As a result, the network in some areas was never commercially viable.

⁶ Appendix C: Map Optus HFC coverage within Miller (MILL) TESA as at 12 March 2008

- 2.35 The decision to not activate the cable in these areas was taken well before ULLS became commercially viable in 2003. It follows that activation was not commercially attractive in these areas regardless of the availability of the ULLS.
- 2.36 Another reason why Optus might choose not to make the investment required to activate a new area of network is because it is unable to attract sufficient customer demand to achieve the required economies of scale, because Telstra's HFC would capture some of the market share that would have otherwise gone to Optus' HFC. This issue is explored further elsewhere in this submission.
- 2.37 Optus submits that if the proposed exemption was granted it would not suddenly become commercially attractive for Optus to "activate" areas within Optus' HFC footprint where the network infrastructure build was incomplete and the network was never activated (and which have never been commercially viable).

3. Unserviceable Premises

- 3.1 Telstra contends that the proposed exemption would motivate additional investments by Optus in order to connect unserviceable premises to its HFC network. Telstra argues that as a result of the proposed exemption applying to the ULLS (and presumably the other declared services to which Optus' access is proposed to be removed as well although the scope of this exemption application is unclear in that regard), after some modest investment it would be feasible and economical for Optus to offer telephony and broadband services via its HFC network to all customers within its HFC footprint including those in MDUs, commercial buildings and unserved SDUs.
- 3.2 Telstra's argument is mistaken. The proposed exemption would not motivate additional investments by Optus. As is set out in detail later in this section, the suggested additional investments (in some cases) would not be technically feasible; and in any case the ACCC cannot be satisfied that, if the exemption order is granted, it will be economically feasible for Optus to invest in its existing HFC network in order to expand the range of customers that are serviceable by that network.
- 3.3 Optus' position is entirely consistent with the history of various business case decisions which Optus has made in the past – before ULLS was commercially available – and with the fact that the value of the HFC network has been substantially written down. It is also supported by the fact that at the time of Optus' DSLAM rollout the changes to the product hierarchy (considered in Section 2) introducing ULLS did not make any difference to Optus' view of the 'serviceability' of customer premises by the HFC network. Making ULLS available to Optus has not changed the way Optus uses and has developed its HFC and so the ACCC cannot reasonably be satisfied that its removal will have any impact; particularly not the impact upon which Telstra's application depends.
- 3.4 Optus deals below with Telstra's assertions about:
- (a) cable operators in other jurisdictions;
 - (b) estimates of likely costs; and
 - (c) more generally, Professor Cave's 'ladder of investment' hypothesis.

Why are premises unserviceable?

Single dwelling units (SDUs)

- 3.5 Approximately 13% of the total number of SDUs in the network area) are unserviceable for a variety of reasons, including:
- (a) located in a heritage area where overhead access is denied and undergrounding is not feasible;

- (b) distance of some SDUs from the main HFC cable, since quality of voice telephony deteriorates (the signal fades) once the distance is greater than 50m;
- (c) the nature of the terrain e.g. we cannot meet the minimum cross road height for the drop cable;
- (d) land previously zoned non-residential now rezoned to be residential;
- (e) there are areas which were stranded or built but never activated due to the difficulty of reaching the area with backhaul fibre, or because that fibre diversity cannot be provided. For example, there are many pockets in Melbourne cut by tram lines (Richmond hub with 11,000 homes was only activated in 2004 due to recent availability of diverse fibres).

MDUs (and commercial buildings)

- 3.6 The majority of the 0.8 million unserviceable homes are located in MDUs. Also, many commercial buildings are unserviceable, often for similar reasons to MDUs.
- 3.7 The reasons why Optus may be unable to provide telephony services via its HFC network to an MDU or commercial building include:
- the original network RF design and build did not accommodate MDUs and commercial buildings in the majority of instances;
 - some MDUs and commercial buildings are located in areas without power poles;
 - difficulties in securing agreement from Body Corporates which typically control the MDU common area and wiring access. Such agreement can be particularly difficult to secure where Telstra already supplies the building from its HFC network, since Body Corporates typically view one cable provider as sufficient. Telstra typically obtains this first-in advantage since, by law, all SDUs and MDUs have to be provided with voice telephony, and therefore the provision of HFC services by Telstra is a small incremental cost;
 - difficulties in retrofitting for access to individual buildings for HFC telephony due to the physical space requirements of the network equipment, for example lack of space for installing multiple CAUs (Cable Access Unit - equipment required for HFC telephony: a separate CAU is required for every apartment in MDU common areas); and
 - Optus' cable telephony vendor Motorola has not had an appropriate technology capable of servicing multiple dwelling apartments (eg, multi-line CAUs) from the HFC network and is no longer in this business.
- 3.8 Optus notes that similar technical issues also exist in overseas jurisdictions and have created similar problems for the cable operators in those jurisdictions as they have for Optus in Australia.

3.9 For example, Canadian operators have encountered significant difficulties in supplying MDUs. In 2003, the CRTC (the Canadian regulator) found that there were significant barriers to entry for HFC into MDUs,⁷ including:

- Delays in attempting to negotiate acceptable agreements with building owners resulting in loss of potential customers;
- Building owners enter into arrangements with incumbent telephony operators that prevent competitive local exchange carriers (CLECs) from gaining access to serve customers in MDUs. The CRTC subsequently ruled that such arrangements were unjustly discriminatory and contrary to MDU access conditions;
- Fees for use of in-building wire are under the responsibility and control of building owners who impose unreasonable terms and fees before CLECs can grant access (the only alternative for CLECs is to build their own in building wire);
- CLECs have to pay fees for:
 - i) space occupied by telecommunications facilities;
 - ii) additional facilities and utilities to accommodate additional LEC requirements in an MDUs, eg provisioning, installation, construction, electric power; and
 - iii) additional services such as approval of plans, safety and security measures; and
- Before installing or upgrading new in-building wire, CLECs have to get approval from building owners' wiring plans, access to closets, panels and any common pathways required.

3.10 Optus further notes that whilst Telstra argues that Optus will use its HFC to provide telephony services to MDUs, Telstra itself does not provide telephony services via its HFC network.

Economic feasibility

3.11 Optus submits that the ACCC cannot be satisfied that, if the exemption order is granted, it will be economically feasible for Optus to invest in its existing HFC network in order to expand the range of customers that are serviceable by that network. In this regard, Optus notes that:

- (a) high network access build costs and low penetration are the two major issues confronting rollout of HFC telephony and broadband to multi dwelling units (MDUs);
- (b) Optus' commercial analysis of investment to connect MDUs has produced negative results with a low NPV and long payback period;

⁷ CRTC, Telecom Decision 2003-45

- (c) comparison with cable companies in other jurisdictions is misleading, since the circumstances facing those cable companies are very different from the circumstances facing Optus in Australia; and
- (d) the costs of servicing MDUs put forward by Telstra cannot be relied upon.

The economics of MDU access

- 3.12 High network access build costs and low penetration are the two major issues confronting rollout of HFC telephony and broadband to multi dwelling units (MDUs).
- 3.13 Unlike Single Dwelling Units (SDUs), MDU sites must be prepared to deliver services (“site make ready”) prior to the site being available for sales. The costs associated with site make ready are unique to MDUs and must be addressed as part of the opportunity cost of assessing the MDU customer base.
- 3.14 The significant network access costs involved in connecting MDUs to the Optus HFC network fall into three main categories:
- (a) Network enhancement or upgrading costs, required since a majority of the MDUs have not been RF designed or built, due to both inaccuracies in the original data capture of MDU information and the fact that a large numbers of MDUs have been developed over the last 10 years. The information required include distance from the street network to the communications room in the MDU, the number of units per floor, etc. which are need for the redesign. To recapture up-to-date MDU data and then upgrade our network (via a redesign and build, including the addition of new power supplies, directional couplers, hot taps and amplifiers to enable sufficient signal level to service them) is a significant cost;
 - (b) Lead-in cable cost – this is the cost of bringing the network cable from the street into the communications room. This cost is likely to be significant given the masonry construction of most MDUs. The cost will be increased if underground cabling is required due to the need to replace concrete driveways⁸. This cost can be in the range of thousands of dollars depending on the unit. Note that Telstra have an advantage since, given that Telstra is legally required to provide a telephony service when the MDU is initially constructed, the installation of co-axial cable lead-in into an MDU is only an incremental cost on top of the shared cost of works already required; and
 - (c) Lateral cable wiring from the comms room to the unit – once the lead-in cable is installed to the communications room then the normal practice would be to install the drop cable to the unit which requires service.
- 3.15 These costs must be incurred irrespective of the number of customers served in the building. If a large market share of the building could be achieved, then the

⁸ We note that in Telstra’s forward looking cost analysis for ULLS, Telstra seeks to claim a substantial cost for replacing driveways. Whilst this cost is inappropriate for ULLS, since Telstra will never face it, such a cost must be incurred in order to upgrade the HFC.

costs could be spread over a large number of customers, unit costs lowered, and serving the building could become economic. If a large market share cannot be achieved, unit costs are high and serving the building is uneconomic. Optus commercial analysis has shown that customer penetration would not meet the level required to make such a build economic.

- 3.16 A high level cost analysis of HFC and copper build networks is illustrated in Figure 3.1. It illustrates that access networks with significant external plant build requirements such as HFC or copper conform to a build curve with high cost at low penetration. The curves illustrate that such networks are most cost effective at subscriber penetration levels of greater than 30%.

Figure 3.1: Access cost efficiency is highly dependent on penetration

CiC

- 3.17 Most international HFC cable operators (eg, in the U.S. and Singapore) typically have subscriber penetrations greater than 50%, resulting in a low cost per subscriber. For various reasons noted below under the heading “Cable operators in other jurisdictions”, Optus’ expected penetration levels are much lower.
- 3.18 Optus focuses on provision of higher margin telephony and high-speed data bundled services through HFC. Potential subscriber penetration on the MDU market is circa **CiC** for telephony, and **CiC** for HSD. Figure 3.2 shows a simple expected uptake for a telephony and HSD bundle.

Figure 3.2: Uptake over time

CiC

- 3.19 The low **CiC** penetration figure for HSD has been a key factor behind the lack of economic feasibility for connecting MDUs to the HFC network. **CiC**

Optus commercial analysis of MDU access

- 3.20 Optus has carried out numerous reviews of MDU access via the HFC network since 1995. These have consistently demonstrated that a viable business case cannot be proved. Many of these business cases were carried out *prior to the emergence of ULLS* as a commercially viable alternative option for supply to residential customers (after October 2003).⁹
- 3.21 Given Telstra’s contention that Optus has not invested in its HFC network because it has been able to purchase the ULLS, the relevant time period for testing Telstra’s arguments depends on the time period over which the ULLS has been available, commercially viable and able to be feasibly deployed. Although the ULLS was declared in 1999, it did not become commercially viable for residential

⁹ Assuming that ULLS was an option for supply to MDUs (and Optus submits that it was not an option).

customers until after 2003. The commercial viability of the ULLS depended on a number of factors including the price of equipment, achievable scale and the regulated price (set at \$22 in October 2003).¹⁰

- 3.22 Even once the ULLS had become commercially viable, deployment was not immediately possible. Additional time was required due to the long lead times for deployment of equipment and the need for the negotiation of significant inter-operator agreements with Telstra, which in some cases took a number of years. Optus began supplying ULLS-based services to some consumers in November-December 2005, and the full commercial rollout began in early 2006. Optus considers that 2005 was the earliest feasible date for full-scale commercial supply of ULLS-based services to residential customers.¹¹
- 3.23 It follows that the negative conclusions of studies into the economic feasibility of accessing MDUs via the HFC network which were carried out up until October 2003 are good evidence for the proposition that such investments are not economic, regardless of the availability of the ULLS. For example, an Optus internal report dating to April 2000 found that the business case was sufficiently unattractive (for example, the report noted “*the long payback period for the MDU program*”)¹² that Optus did not begin serving MDUs (and has not done since).
- 3.24 The most recent analysis of the economic feasibility of accessing MDUs via the Optus HFC network was carried out in July 2003 (prior to the emergence of ULLS as a commercially viable alternative option for supply to residential customers). The results of this analysis are set out in Appendix A. The conclusions were that the commercial analysis of such an investment is negative with a low NPV and long payback period, and that current HFC technologies are not well suited for MDU applications.
- 3.25 More generally, Optus submits that the numerous reviews of MDU access via the HFC network which it has carried out prior to the emergence of ULLS have established the absence of economic feasibility for the connection of MDUs to the HFC network – regardless of whether or not the ULLS is available. The proposed exemption will not alter this position.
- 3.26 A potential response to this point is that even though the ULLS was not commercially viable at that time, Optus did have access to Telstra resale services such as Wholesale Line Rental (WLR). So it could be argued that Optus decided against extending the HFC to MDUs because it preferred to serve the relevant customers via WLR; and thus, denying Optus access to WLR now would motivate Optus to invest further in its HFC network. This is not the case. Serving residential customers via the WLR service is a low margin business and is not commercially attractive. As evidence of this point, Optus has taken the commercial decision to exit the market for supplying WLR to residential customers (and accordingly Optus’ voice resale customer numbers have dropped from CiC in FY 05/06 to CiC by February 2008).

10 ACCC (October 2003), Model Price Terms and Conditions Final Determination

11 Even after the full-scale commercial rollout of the ULLS, however, supply was not available for all customers. There has been no practicable viable access to MDUs via ULLS (as evidenced by the existence of an access dispute on this subject). 06.09.21 Letter from Optus to ACCC re MDU provisioning issue

12 Cable and Wireless Optus (April 2000), Commercial Launch Initial Investigation Report: Multi Product MDU , p11

- 3.27 Telstra has stated recently that "You don't earn a low rate of return on a high-risk project." Telstra considers that it would require "a return north of 18 per cent" if it was to participate in building a fibre-to-the-node network, "because that is our average return on other investments".¹³ Optus notes that the investments it is apparently expected to make as a result of the proposed exemption application involves far greater risk than a fibre-to-the-node network, in which Telstra (if it were the successful tenderer) would be likely to secure close to 100% penetration (through retail and wholesale).
- 3.28 Further, Optus notes that in 2002, following a strategic review of the consumer business, a decision was taken to write down the value of the HFC network by AUD1,384 million, to a carrying amount of AUD640 million, as of 31 March 2002; and in SingTel's group financial statements by AUD837 million, to a carrying amount of AUD640 million, as of 31 March 2002. This decision demonstrates that the HFC network has not produced the return on investment that was expected, and casts further doubt on the proposition that the proposed exemption would motivate Optus to invest in its HFC network.
- 3.29 Further empirical support for Optus' position is provided by the existence of premises unserviceable by HFC or ULLS. Telstra has contended that Optus is failing to serve customers via its HFC network because it is able to serve them more easily using Telstra wholesale services, particularly the ULLS. Telstra implies that it is economically feasible for Optus to expand service provision via the HFC, and that Optus would undertake such expansion if the ULLS were not available. If this were true, however, then one would expect Optus to be serving customers via HFC to premises where ULLS is already unavailable (for example, in pair gain affected areas). However, this is not the case. There are significant numbers of premises adjacent to the HFC network where ULLS is unavailable due to pair gain, which are not served by the HFC network, as discussed in the first section of this paper, and as illustrated in the map of the Miller TESA, attached at Appendix C.

Cable operators in other jurisdictions

- 3.30 In support of its thesis, Telstra points to the success of cable companies in other jurisdictions. Optus submits that the comparison with cable companies in other jurisdictions is misleading, since the circumstances facing overseas cable companies are very different from the circumstances facing Optus in Australia. Consequently, the success of operators elsewhere has little bearing on the economic feasibility of a putative investment by Optus in its HFC network.
- 3.31 Optus submits that the relative success of cable companies in other jurisdictions may be explained in large part by the unfavourable market profile of Australian MDUs and by the fact that some or all of the following circumstances apply in overseas jurisdictions (but none apply in Australia):
- the incumbent fixed line operator is prohibited from owning a cable network;

¹³ The Weekend Australian, March 24 2008, "Telstra wants network return 'north of 18pc'"

- cable operators had geographical monopolies which allowed them to fully exploit the available economies of scale; and / or
- Pay TV has been very popular in those countries and is not controlled by the incumbent telephony operator.

3.32 These factors have allowed cable companies in other jurisdictions to secure higher penetration rates than Optus and thus to achieve substantially more attractive scale economies than Optus – a crucial factor in considering the commercial attractiveness of expanding a network. These factors are conveniently overlooked by Telstra because they highlight the unprecedented advantage it has enjoyed over its international peers.

Unfavourable market profile of Australian MDUs

3.33 Most apartment buildings in Australia are small by international standards, with fewer than 12 dwellings per building. Further, in Australia customers in the MDU market are more transient by international standards, with a higher proportion of renters, who are less likely to be willing to sign up to long duration service contracts and more likely to change provider, compared to owners.

Incumbent prohibited from owning cable

3.34 In Canada for example, telephone companies were initially not permitted to compete in the cable industry (and vice versa), and were not permitted to own or control cable companies. Competition was only introduced after the cable operators were well established.¹⁴ For example, the Government noted in its Convergence Policy Statement that neither cable nor telephone companies should have a head start over the other, but that competition should not be unduly delayed.¹⁵

3.35 In the USA for example, incumbent telephone companies were barred from providing video service in all but the most rural areas under the *Cable Communications Policy Act 1984*, and similarly cable operators were limited to providing subscription TV.¹⁶ It was only in 1996 that *the Telecommunications Act 1996* repealed a statutory prohibition against an entity holding attributable interests in a cable system and a local exchange carrier with overlapping service areas¹⁷. The Act stated, “*the Commission shall ...permit a person or entity to own or control a network of broadcast stations and a cable system*”¹⁸ This removed barriers to local exchange carriers entry into the video marketplace in order to facilitate competition between incumbent cable operators and telephone companies.

3.36 By contrast, in Australia, the incumbent fixed network telephony operator owns both the copper CAN and the largest HFC network. This situation is very unusual, perhaps unique. As is noted in an article written by Joshua Gans and

14 Most cable operators established their businesses by providing cable TV in distinct geographical regions of Canada in the 1950s. 15 CRTC, Decision 97-149, referring to the Government’s Convergence Policy Statement of 6 August 1996.

16 Cable Communications Policy Act 1984, which prohibited common carriers from providing video programming directly to subscribers in their telephone service areas.

17 http://www.fcc.gov/Bureaus/Cable/News_Releases/2000/nrcb0003.html

18 <http://www.fcc.gov/Reports/tcom1996.pdf>

Jerry Hausman, "Australia is perhaps the only large country where a single firm owns both of the key, fixed-line networks."¹⁹

Cable operators' geographical monopolies

- 3.37 In other jurisdictions, not only are the cable companies protected from competition from the telephony incumbent but also the degree of overlap with other cable operators has generally been limited. In Canada for example, cable operators typically operate in distinct geographical regions, with some overlaps in major cities such as Toronto.²⁰
- 3.38 This point is also acknowledged in the Gans / Hausman article (in relation to cable operators in the United States), which notes: "and then because of the internet, *cable television companies - for years also cosy monopolists - entered into telecommunications in earnest.*"²¹ [emphasis added]
- 3.39 By contrast, in Australia the two cable operators are far from cosy geographic monopolies. Rather, there is a considerable degree of geographical overlap between Optus and Telstra' networks,²² both of which pass around 2.5 million homes.^{23, 24} Telstra duplicated Optus' network immediately as (or even before) it was rolled out in a clear (and ultimately successful) anticompetitive attempt to undermine the competitive impact and viability of the Optus HFC. This overlap drastically reduces Optus' expected market share by comparison with cable rollout in other jurisdictions.

Pay TV

- 3.40 The success of cable companies in other jurisdictions has largely been driven by subscription television services. For example, Cable TV accounts for 43% of Canadian operator Rogers Cable's total revenue whilst home phone revenue only accounts for 12% and internet (including DSL) accounts for 17%²⁵. Cable telephony was only first introduced in Canada by Eastlink in 1999²⁶, with other operators such as Rogers Cable and Cogeco Cable launching their service in 2005²⁷. In 2007 Rogers Cable (the largest cable operator in Canada) had 2.3 million basic cable subscribers (ie, pay TV), 1.3 million high speed internet subscribers and only 365,000 cable telephony subscribers.²⁸
- 3.41 Pay TV services have been more popular in other jurisdictions than in Australia, and as a result cable companies have been more successful in other jurisdictions than in Australia.²⁹

19 AFR, 7 Aug 2006, "T3 must ring in rule changes"

20 Information about cable operators in Canada including geographical service area and products is provided in the attachment to this appendix.

21 AFR, 7 Aug 2006, "T3 must ring in rule changes"

22 ACCC, ACMA, Communications Infrastructure and Services Availability report 2006-07

23 <http://www.smh.com.au/news/wireless--broadband/telstra-switches-on-superfast-downloads/2007/09/12/1189276775465.html>

24 ACCC, ACMA, ACCC, ACMA, Communications Infrastructure and Services Availability report 2006-07, p9

25 Rogers Cable, corporate fact sheet, second quarter 2007

26 http://en.wikipedia.org/wiki/Bragg_Communications

27 Rogers Cable 2006, Annual Report, <http://en.wikipedia.org/wiki/Cogeco>

28 Rogers Cable, corporate fact sheet, second quarter 2007.

29 In general free to air television as been more popular in Australia than in many overseas jurisdictions in cable operators have extensive networks. The reasons for this may vary from quality of transmission, licence allocation and local cultural differences (eg

- 3.42 Telstra is a 50% owner of Foxtel, whose subscription television service is the dominant platform for pay TV in Australia (available to over 70% of Australian homes).³⁰ Telstra's half ownership of Foxtel has had significant implications for the economics of the Optus HFC.
- 3.43 Historically, Optus aggregated and sold a competing subscription television service. In Australia, Telstra HFC network overbuild and competing Pay-TV service had three primary outcomes: (a) the Optus network build was truncated, (b) the Pay TV market was fragmented and subscriber penetrations on both the Optus and Telstra network were reduced, and (c) competitive pressures in bidding for pay TV content for content resulted in high cost content that was unsustainable. The above factors drove up the cost per subscriber on both the Optus network and Telstra network, and both networks initially exhibited long-term negative cash flows. Ultimately, the structure of the Pay TV market in Australia was simply not viable.
- 3.44 Optus and Foxtel eventually entered into a content sharing arrangement. The effect of this arrangement is that Foxtel took over the content agreements Optus had with content providers and in return Optus would resell the Foxtel subscription television package. Whilst successful in consolidating an otherwise fragmented industry, this arrangement has lessened the degree of product differentiation Optus can engage in over its HFC.
- 3.45 Similarly, with respect to any product or application which Optus can invest in that is unique to the HFC platform, it is less able to differentiate because of the geographical overlap of the Telstra HFC. In contrast, cable operators in overseas jurisdictions have been able to differentiate their offering when compared to incumbent local loop operators in terms of applications, content and platform.
- 3.46 As a result of these unusual, Australia-specific circumstances, Optus has captured less pay TV market share on its HFC network than operators in other jurisdictions have been able to do.

Economies of scale

- 3.47 The above factors related to pay TV and the overlap of the Telstra HFC reduce Optus' achievable scale economies. Economies of scale are important to many aspects of operating the HFC. Expanding the network involves substantial fixed costs that are common to the provision of services to more than one home or unit.
- 3.48 In considering the business case for making an investment to extend (and in-fill) the geographic coverage of their HFC networks cable companies in other jurisdictions have been able to factor in substantial economies of scale.
- 3.49 By contrast, for the reasons discussed above, when considering expanding and in-filling its HFC network coverage (for example connecting MDUs), Optus cannot factor in substantial economies of scale. This severely weakens the commercial

the anti-siphoning list for sports coverage). Notwithstanding the reason, the penetration of subscription television in Australia is relatively low.

³⁰ <http://en.wikipedia.org/wiki/Foxtel>

attractiveness of these courses of action for Optus as compared with cable operators in other jurisdictions.

- 3.50 Optus notes that the above factors, which undermine the economic feasibility of connecting MDUs to the HFC network in Australia (by comparison with most overseas jurisdictions), do not relate to the availability of Telstra fixed line services. As a result the ACCC cannot be satisfied that the proposed exemption would motivate additional investment in the HFC network.
- 3.51 Finally, Optus notes that in the United States, for example, despite the advantages enjoyed by cable operators (which are not available to Optus in Australia), the FCC has *not* consistently found in favour of rolling back access regulation in cable areas. Optus notes that Telstra has referred to forbearance decisions of the FCC in order to claim that its approach is conservative by comparison with international precedent,³¹ in particular the Omaha UNE decision and the Anchorage UNE decision. Optus refers the ACCC to a more recent FCC decision where the FCC did not grant forbearance in six Metropolitan Statistical Areas (MSAs) since there was not a sufficient level of facilities based competition (“the Verizon decision”).³²

Telstra’s cost figures

- 3.52 In order to support its argument that Optus would connect MDUs to its HFC network, Telstra relies on the costs of servicing MDUs outlined by Mr Harris in Section 7.3 of his Report.
- 3.53 Optus submits that these costs cannot properly be used to compare with the costs Optus would actually incur for the following reasons:
- a. Labor and material costs are different in the US than in Australia. No breakdown of costs has been presented in the report for purposes of comparison;
 - b. There are three significant costs involved in connecting MDUs to the Optus HFC network, as discussed above (which Telstra has not fully taken into account):
 - i. Network enhancement or upgrading costs;
 - ii. Lead-in cable cost; and
 - iii. Lateral cable wiring from the comms room to the unit.

31 Telstra (2007), Application for exemption from standard access obligations in respect of the SingTel Optus HFC network (schedule A to Telstra’s exemption application), 17 December 2007 p 61

32 In the Verizon decision, the FCC did not believe Verizon faced a sufficient level of facilities based competition since: cable operators play a limited role in serving enterprise customers; Verizon’s market shares are sufficiently higher than the aggregate of other cable operators’; there is no record of other competitors in these MSAs that have deployed their own extensive last-mile facilities for use in serving the enterprise market; and there is no significant alternative sources of wholesale inputs for carriers (FCC (2007), FCC 07-212, Petition of the Verizon Telephone Companies for Forbearance Pursuant to 47 U.S.C. 160(c) in the Boston, New York, Philadelphia, Pittsburgh, Providence and Virginia Beach Metropolitan Statistical Areas, WC Docket No 06-172, released December 5, 2007; pp16, 22, 23).

- c. In the US the network boundary is in the street and home wiring is deregulated. That is the home owner, or body corporate, can have his/her premises wired by third parties and not the cable operator. Also, because of this, the quality of the internal wiring in the US is generally of a lower standard than Australia. It is not clear that the table of costs in the report factors in such differences to allow a like-for-like comparison.

The ladder of investment

- 3.54 Telstra appears to rely on the ladder of investment hypothesis proposed by Professor Cave in order to predict that that full facilities-based competition will result if the proposed exemption was granted. Optus notes that the ladder of investment hypothesis is not a theory of investment. A theory of investment suggests the necessary conditions for profitable investment. The ladder of investment hypothesis is at best a normative untested hypothesis.
- 3.55 Optus submits that it would be entirely unsafe to rely on the ladder of investment hypothesis proposed by Professor Cave to predict that Optus will make investments to connect unserviceable premises if the proposed exemption was granted.
- 3.56 The ladder of investment hypothesis has serious flaws and does not represent a theoretical basis upon which the ACCC could be satisfied that the exemption sought will be in the LTIE because it does not address fundamental real world issues including:
 - (a) risks associated with investments
 - (b) necessary conditions for profitable investments
 - (c) appropriate levels of investment
 - (d) appropriate timing and sequencing of investment and
 - (e) different historical, political, economic and regulatory environments that different telecommunications firms operate in.
- 3.57 Optus submits that the ladder of investment hypothesis may correlate or concur with the experience in some jurisdictions but no causation can be reasonably inferred. This may be the reason why Professor Cave himself readily admits its limitations: "...no more than a hypothesis, as scientific testing of an imprecise proposition of this kind remains problematic." (p1)
- 3.58 Optus submits that it is not able reasonably to be inferred as a matter of theory that an access seeker denied access will invest in its own infrastructure. It is also not clear when such a firm might invest, and what type of infrastructure it might invest in. Increased investment by the access seeker will depend, among other things on whether the expected risk-adjusted return covers its cost of capital.
- 3.59 It would be interesting to see how Professor Cave would argue the case that having written off over a billion dollars on the HFC the shareholder of Optus

should make further substantial investments in the network. Further, Professor Cave's theory conveniently overlooks the imminent arrival of fibre to the node national broadband network that will be subsidised by the Australia taxpayer by up to \$4.4 billion.

4. Efficient Use of and Investment in Infrastructure

- 4.1 Optus submits that the proposed exemption would not promote efficient investment in infrastructure because, as discussed in section 3, it would not motivate additional investment by Optus to connect unserviceable premises.
- 4.2 Even if the ACCC decided that the proposed exemption might motivate additional investment by Optus in its HFC network, however, Optus considers that the proposed exemption would not be in the LTIE because it would not encourage economically efficient use of or investment in the HFC network, for the following reasons:
- (a) investments to make the HFC network suitable for business and wholesale services and/or to connect unserviceable premises to its HFC network would not be efficient;
 - (b) the proposed exemption may deter Optus and other operators from investing in infrastructure-related projects in future; and;
 - (c) Optus currently maintains a program of investment in the HFC network, which would continue regardless of whether the exemption was granted.

Efficiency of investments

- 4.3 As noted above, the proposed exemption will not motivate additional investment to make the HFC network suitable for business and wholesale services and/or to connect unserviceable premises to its HFC network.
- 4.4 Nevertheless, even if the proposed exemption did motivate additional investment in the HFC network, Optus submits that any impact of the proposed exemption in promoting such investment would not be efficient. Optus takes this view for the following reasons.
- 4.5 First, Optus submits that Telstra's copper CAN should be considered enduring bottleneck infrastructure. Telstra's CAN has ample capacity. All existing demand for telephony and internet services could be served at least cost via the copper CAN (as opposed to the CAN plus other access networks). Accordingly, the CAN possesses natural monopoly characteristics and the current access regime leads to an efficient use of the network. The existence of alternative infrastructure (eg, the HFC networks operated by Telstra and Optus) does not necessarily mean that access networks are not a natural monopoly, since these networks may represent inefficient duplication. The existence of these networks is insufficient in and of itself to warrant the removal of regulation; just as the absence of alternative infrastructure is not necessarily sufficient to satisfy a case for the continued declaration of a service.
- 4.6 Alternatively, Optus submits that at the very least, access to the unserviceable and business premises should be recognised as a bottleneck (if not the entire CAN). As noted above, the high costs of installing lead-in cable to MDUs must be

incurred irrespective of the number of customers served in the building. If a large share of end users in the building cannot be won, unit costs are high and serving the building becomes uneconomic. This is likely to be the case in MDUs, because of the existence of Telstra's competing HFC and copper networks, and the typically low proportion of owner occupiers in Australian MDUs. In these circumstances access to declared services serves a valuable purpose in controlling industry production costs and controlling the incumbent's market power.

- 4.7 Second, Optus submits that even if the proposed exemption did motivate additional investment in its HFC network, it would cause a deterioration in technical efficiency since it would result in the supply of services to some customers via a more costly infrastructure than is currently the case.
- 4.8 As Telstra has stated (*Telstra's exemption application* p49), the cost of connecting and serving customers varies by customer. Optus faces a range of costs across the homes passed by its HFC network. Some homes are less costly to connect and serve using HFC; others are much more costly due to, for example, difficult terrain, or being a long distance from the HFC cable. In order to minimise production costs, Optus is more likely to serve the latter homes using Telstra wholesale services. Optus considers that this approach is technically efficient because the cost of serving a particular customer is minimised.
- 4.9 Third, Optus submits that its dual purchase policy is fully consistent with the promotion of dynamic efficiency. The emergence of ADSL as a new technology has widened choices for producers and consumers alike. Optus can now use an efficient wholesale input to serve premises unserviceable by HFC as it seeks to minimise production cost. Further, the availability of ULLS and DSLAMs allows Optus to serve more customers and better respond to customers' needs. Optus is responding optimally to technological development.
- 4.10 Optus notes that that the access price for the ULLS is set by the ACCC according to the efficient cost of supply including a normal commercial return on investment. Such a price provides the most accurate signal to guide an access seeker to make its build or buy decision without distortion, and thus promotes efficient investment in infrastructure. This has been recognised by the ACCC,³³ and also by the Competition Tribunal, for example:

“Overall, therefore, efficient investment by both access providers and access seekers would be expected to be encouraged in circumstances where access charges were set to ensure recovery of the efficient costs of investment (inclusive of a normal return on investment) by the access provider in the infrastructure necessary to provide the declared service.”

³⁴

- 4.11 It follows that the proposed exemption is not necessary to promote efficient investment since the ULLS access price already sends the correct economic signal to achieve this objective. By removing the signal, the proposed exemption can only diminish the incentives for efficient investment. In the case where the access

³³ ACCC, 1997, Access Pricing Principles – Telecommunications, A Guide, p8

³⁴ ACT, Telstra Corporation Ltd (No 3) [2007] ACompT 3, [164]

seeker is 'forced' to invest in its network rather than use the more efficient option of using the incumbent's network, it will not satisfy the efficient investment criterion. An economic entity forced to invest can hardly ever be efficient – for if it was an efficient investment, the access seeker would have already invested in these projects.

- 4.12 Further, if the ACCC were to grant the proposed exemption, it would effectively be placing itself in the position of “picking winners” by determining the most efficient infrastructure investment for Optus to pursue (ie, HFC rather than DSLAMs). Optus submits that the ACCC cannot be confident in its ability to perform this function to the requisite degree of satisfaction, given the myriad of factors that influence the decision to invest in a given infrastructure. To take just one current example, the planned roll out of FTTN technology under the Government's National Broadband Network program would certainly impact on the economics of investing in an HFC network in Australia. Further, to grant the exemption in order to encourage Optus to invest in HFC is to attempt to force Optus into investing in an old technology. HFC may have been a leading edge technology in the mid 90s but it may no longer be so – and the ACCC as a regulator cannot be in the best position to determine this. Indeed, Telstra appears to have no plans to further extend its own HFC
- 4.13 The decision about the level, timing and pattern of investment is best made by the party bearing the risk of that particular investment. This fundamental idea underlies the operation of the market system, and is integral to allocative, technical and dynamic efficiency. The best way for the ACCC to promote efficient investment in infrastructure is to do exactly what it has already done: set a cost-reflective ULLS access price, and allow access seekers to make their own investment decisions on that basis.

Disincentive to invest

- 4.14 The HFC exemption application sought by Telstra, if successful, will exclude Optus from accessing Telstra's fixed line services in areas where Optus' HFC cable network is within 75 metres of customer premises. The primary basis on which Telstra seeks this exemption is that it will increase infrastructure based-competition. In particular, Telstra has argued that in order to achieve infrastructure-based competition, Optus should not be allowed access to Telstra's fixed line services in areas where it is able to use its own network.
- 4.15 It has already been demonstrated above in Section 3 that the exemption order will not motivate additional investment by Optus in its existing HFC network in order to expand the range of customers that are serviceable by that network.
- 4.16 Further, Optus believes that the long term dynamic efficiency benefits claimed by Telstra in support of the exemption are illusory. A discriminatory HFC-based exemption would in reality create a disincentive for:
- Optus to invest in its HFC network outside of the exempt areas; and
 - other interconnecting carriers to develop their networks at all,

for fear that any investment in new networks or network extensions would cause them to lose access to Telstra's fixed line services in accordance with the precedent set by this exemption application.

- 4.17 This problem has been acknowledged to be a "*serious issue*" by Professor Cave. On page 14 of his Report, Cave states that the HFC exemption is a discriminating access policy that:

"... will create disincentives for investment in the future: an operator will fear that if it invests, it (and it alone) will be forced to negotiate for access on commercial terms, or be denied access, ... which continues to be available to other competitors which have undertaken less infrastructure investment."

- 4.18 Cave acknowledges this serious issue, but presents a belief that there is an antidote available as the means of avoiding this outcome. He suggests that in order to avoid undermining Telstra's claimed long term dynamic efficiencies by ensuring that interconnecting carriers continue to invest in their own networks, the ACCC must make it clear that the granting of the HFC exemption order is a highly exceptional situation that could only occur in a very limited set of circumstances. Accordingly, the ACCC would be required to disclaim any intention to make similar exemption orders except where:

- (a) an interconnecting carrier had substantially invested in its own network to the extent that it had constructed all the assets necessary for self-supply; and
- (b) that carrier nonetheless continued to seek access to products from a competitor that was broadly equivalently endowed.

- 4.19 There are two fundamental problems which render the solution proposed by Professor Cave impossible to achieve thereby leaving the serious issue he identifies for dynamic efficiency unresolved.

- 4.20 The first problem with Professor Cave's antidote is that it only removes the disincentive to invest for interconnecting carriers that currently do not have their own networks or have very undeveloped networks. Interconnecting carriers such as Optus that have more developed networks will remain extremely unlikely to continue to invest in those networks. Such interconnecting carriers may actively seek to avoid reaching the "*highly unusual circumstances*" that, according to Telstra, should result in the granting of an exemption order. Accordingly, the disincentive to invest will remain in place for many operators, thereby placing significant limitations on the likelihood that optimal infrastructure-based competition will be achieved in the Australian telecommunications industry.

- 4.21 Even more fundamental is a second problem with Professor Cave's solution. Cave has effectively suggested that in order to avoid a situation where interconnecting carriers cease to invest in their own networks, the Commission should implement a policy of refusing to grant discriminating exemption orders, except where specific, highly unusual circumstances arise. This should be executed by publicly

emphasising the unusual nature of the HFC exemption situation and disclaiming any intention to grant similar such exemptions in the future. Optus submits that a 'signalling' solution of that type is not actually able legally to be implemented by the Commission. With respect, it is a proposal which pays no heed to the statutory and broader legal context in which the ACCC's decision-making arises.

- 4.22 The Commission is not at liberty to merely apply policy in its decision making process in relation to exemption orders. Rather, it is required to apply the legal test set out in sections 152AS – 152ATA of the *Trade Practices Act 1974* (TPA). Pursuant to these provisions, the only ground on which the Commission may make such a determination is if it "will promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services."
- 4.23 The Commission may institute a policy of not instigating its own investigations into whether particular discriminatory exemption orders should be granted. However, such a policy will be of no assistance if it receives further discriminatory exemption applications from Telstra. If such an application is received in the future, the Commission will be required to consider it on the grounds set out in the TPA.
- 4.24 This was acknowledged by the Commission in relation to its policy that it would not make a declaration requiring Telstra to provide interconnecting carriers with access to its ADSL2+ broadband infrastructure. During his appearance before the Senate Estimates Committee on 21 February 2008, the Executive General Manager of the Commission's Regulatory Affairs Division, Mr Dimasi, testified that if such carriers sought a declaration that would require such access to be provided, it would have no choice but to examine the issues under the legislation, despite the existence of such a policy.
- 4.25 Similarly, if Telstra submitted further exemption applications to the Commission that targeted an interconnecting carrier on the basis of its network, the Commission would be required to consider that application on the basis of the legal test set out in the TPA. Despite Telstra's claims that the HFC exemption order represents highly unusual and exceptional circumstances, can the Commission be confident that Telstra will forebear from seeking further exemptions if other interconnecting carriers roll out their own networks? Optus submits on the evidence of Telstra's approach to date that any such confidence would be entirely misplaced.
- 4.26 Furthermore, the application of a policy not to grant discriminatory exemption orders except in particular circumstances, as suggested by Cave, is likely to be in excess of the administrative powers of the Commission. First, such a policy is very likely to be *ultra vires* in the sense that it goes beyond the confines of the powers conferred by sections 152AS – 152ATA of the TPA. This is because the application of this policy would prohibit the Commission from considering whether a discriminatory exemption order is in the LTIE. Such a consideration is clearly required by the TPA and any application of policy that excludes a proper analysis of this criterion would be *ultra vires*.
- 4.27 The inflexible application of such a policy by the Commission, without regard to the merits of a particular case, would undoubtedly constitute an improper exercise

of the power conferred upon the Commission by sections 152AS – 152ATA of the TPA. This type of decision is reviewable pursuant to sections 5(1)(e) and 5(2)(f) of the ADJR Act, which relate to the exercise of a discretionary power in accordance with a policy with regard to the merits of a particular case.

- 4.28 To conclude this section, the only approach suggested by Professor Cave as an antidote to the problems he identifies for long run dynamic efficiency created by granting an HFC exemption order would not be able to be implemented by the Commission.

Optus' ongoing investments

- 4.29 Optus submits that the current access regime does not diminish its incentive to invest both in its own HFC network as well as in DSLAMs in Telstra exchanges.

Investments in the HFC network

- 4.30 As noted above, the proposed exemption will not motivate *additional* investment in the HFC network.

- 4.31 However Optus currently maintains a program of investment in the HFC network. The program includes the following projects:

- Kew Hub in Victoria, which supplies 12 nodes or more than 10,000 SDUs, which was previous inactive, was activated in 2004 at a cost of **CiC**;
- A number of individual nodes have been activated in recent years – for example, work to activate Node no. 33 EB 43, Wheelers Hill, Victoria, which supplies approximately one hundred homes, was completed in June-July 2007; and
- A number of “tap upgrade” projects, which are modifications to the network to increase capacity and allow new customers to be connected, at an ongoing cost of typically \$150,000 to \$200,000 a year.

- 4.32 Optus notes that it has continued to make substantial investments in its HFC network even after ULLS became commercially viable in 2003. This investment is not motivated by the proposed exemption and would continue regardless of whether the exemption was granted.

Investments in DSLAM infrastructure

- 4.33 Optus has made significant investments in DSLAM infrastructure in recent years. To date Optus has installed **CiC** “commercial ready” DSLAMs in Telstra exchanges.
- 4.34 The proposed exemption would jeopardise the continuation of this infrastructure investment program.

4.35 Further, the exemption would leave stranded Optus' past investment in equipment necessary to provide ULLS based products. These investments were made in good faith in reliance on the existence of a declared ULLS, and the potential for the proposed exemption to render them uneconomic raises issues of potential liability and compensation.

5. Promotion of Competition

- 5.1 Optus submits that the proposed exemption would not promote effective competition. This follows from Optus' submissions earlier in this paper that the proposed exemption would not motivate additional investment in infrastructure.
- 5.2 Even if the ACCC decided that the proposed exemption might motivate additional investment by Optus in its HFC network. Optus nevertheless considers that the proposed exemption would not be in the LTIE because it would not promote competition, for the following reasons:
- (a) The proposed restrictions on Optus would harm competition; and
 - (b) The full facilities-based competition that the proposed exemption is purportedly designed to encourage would not necessarily represent an improvement in the conditions or environment for competition.

Impact of restrictions on Optus

- 5.3 Optus submits that the proposed exemption would have a discriminatory effect on Optus and would harm competition.
- 5.4 Optus uses Telstra wholesale services to serve MDUs and provide business services. For example, Optus is expanding its DSLAM footprint in Telstra's exchanges. To date Optus has installed CiC "commercial ready" DSLAMs in Telstra exchanges.
- 5.5 An exemption would effectively force Optus DSLAMs off Telstra exchanges and inhibit Optus' ability to compete with Telstra. Practical choices available to end-users downstream will diminish as Optus will not be able to offer a service to many of the customers we now serve via ULLS. This would clearly lessen competition and increase Telstra's market power.
- 5.6 Optus is a key competitor to Telstra due to its size, resources and breadth of competitive activity (including residential, business and wholesale customers). According to JP Morgan, Optus had around 17 per cent of broadband subscribers in 2007, compared to Telstra's 48 per cent share.³⁵ Smaller telcos are unlikely to place the same degree of competitive constraint on Telstra. For example, iiNet and AAPT had only 4.1 and 3.4 per cent of broadband subscribers respectively in 2007.
- 5.7 The proposed exemption would also severely impact on Optus' competitive position in the corporate and government segment due to its potential restriction on Optus Business' ability to access the WLR and LCS wholesale services.
- 5.8 Competition in the corporate and government (C&G) market segment has distinctive features which are not present in the consumer and small business

³⁵ JP Morgan research note reported in The Australian, 19 March, "Mobile phone revenue continues to grow"

segments, and which make the C&G segment particularly sensitive to the availability of access to Telstra resale services. These include:

- (a) procurement of services on a 'whole of business' (WOB) basis with preference for a single bill and a single point of contact for all telecommunications needs;
 - (b) requirements for specialised and complex features on top of basic telephony services; and
 - (c) customer inertia due to the high cost of changing providers.³⁶
- 5.9 While the proposed exemption may impede competition to an extent in the consumer and small business segments, it could have more severe consequences for competition in the C&G segment, as a result of the typical C&G requirements for ubiquitous service and WOB contracts. **CiC**

Full facilities-based competition

- 5.10 Telstra appears to expect the Commission to accept that the proposed exemption would promote effective competition as a theoretical matter by virtue of causing a shift from access-based competition to infrastructure-based competition. This theoretical assumption does not withstand close scrutiny.
- 5.11 Optus submits that it would be entirely unsafe for the Commission to rely without more on the ladder of investment hypothesis proposed by Professor Cave as a basis for being satisfied that Optus making investments to connect unserviceable premises to its HFC network will improve the conditions or environment for competition. The full facilities-based competition that the proposed exemption is purportedly designed to encourage would not necessarily represent an improvement in the conditions for competition.
- 5.12 The first and most obvious point is to repeat the matters outlined above which show that the proposed discriminatory exemption would harm Optus' ability to compete by removing its ability to access various declared services.
- 5.13 Second, at least one of those declared services, the ULLS, cannot be simply dismissed as an 'access' service and thereby deemed by a theory to be inherently inferior to a 'facilities based' service such as that which can be provided by an HFC network. ULLS is effectively a service which allows facilities based competition³⁷, although it is typically described as 'partial' or 'quasi' facilities based competition. DSL technology using the ULLS continues to be the most important technology for broadband competition in Australia.
- 5.14 Broadband penetration has reached around 64 per cent of Australian households, up from 49 per cent in 2006. This uptake shows no sign of slowing down and

³⁶ These features were set out in more detail in Optus' letter to Robert Wright of 10 January 2008, entitled "Impact of WLR / LCS Exemptions in the Corporate and Government Market Segment"

³⁷ The Chairman of the ACCC noted to the Senate Estimates Committee as recently as 21 February 2008 (E122) that "[w]e have favoured facilities-based competition because we think, ultimately, that that is the more sustainable competition and it does involve, as I have indicated, the installation of switching devices, not the installation of new copper networks but the installation of switching devices, in Telstra exchanges".

placed Australia in line with OECD average. This is reflected in the fact that in 2007 DSL was used for 73 per cent of connections whereas cable only accounted for around 14 per cent of total broadband services.³⁸

- 5.15 The significant successes in the broadband space in recent years have come about a result of the current access-based competition regime, and particularly Optus' access to services provided by Telstra as required by the unbundling of the local loop. The ACCC has recognised this. For example:

*“...The main source of broadband growth has come via Digital Subscriber Line (xDSL) technology. The up-swing in broadband take-up is broadly mirrored by the trend in relation to xDSL technology...”*³⁹

*“...information provided to the Commission on a confidential basis reveals Telstra's competitors have been able to obtain a larger market share in retail broadband than in the traditional fixed voice services...”*⁴⁰

- 5.16 Similar successes have been achieved overseas. In Europe, notwithstanding the obvious differences, access based competition has also greatly stimulated competition, for example, a report by ECTA [1908] (pro-competition body) shows that countries with the highest broadband take-up including leaders Denmark and the Netherlands, as well as Sweden, Finland and the UK, have all benefited from competition through effective unbundling of the local loop. The report goes on to show that these countries are amongst the best broadband performers in the world today. Innocenzo Genna, Chairman of ECTA said:

“People often do not realise that the choice they have of broadband provider and speeds and prices available depends on how effectively the regulator has opened up the last mile of the network to competitors. Policy-makers ignore this at their peril, because the choice we have today may be gone tomorrow if we do not act to keep telecoms markets open, and Europe's competitiveness is at stake”. (p1)

- 5.17 Genna added:

“Because fixed networks are particularly expensive to build it is not always economical to duplicate the last mile- the line going to each home- because it will push up the retail cost of broadband and may not be justifiable to financial investors. Instead what we need is a mechanism to share bottleneck access infrastructure on an equal basis. Functional separation could be a way to enforce infrastructure sharing rules more easily...” (p1)

- 5.18 The proposed exemption both underestimates the utility of Optus' access to ULLS to allow it to compete but also more fundamentally puts at risk the gains that have already been made.

³⁸ JP Morgan research note reported in The Australian, 19 March, “Mobile phone revenue continues to grow”

³⁹ ACCC, Fixed Services Review, A second position paper, April 2007, p9

⁴⁰ ACCC, Fixed Services Review, A second position paper, April 2007, p11

- 5.19 Further, Optus submits that the hypothetical efficiencies resulting from infrastructure-based competition are not in and of themselves a benefit to consumers. Only if these efficiencies are translated in to lower prices or better services are consumers better off.
- 5.20 Even in the hypothetical situation where infrastructure-based competition yielded gains, Telstra has yet to show in a way that could satisfy the ACCC that these gains would be passed to end-users. If efficiencies in the use of the infrastructure are retained as profits for producers, this is not in the LTIE. If insufficient competitive constraint was placed on Telstra (for example if the competing infrastructure was too costly to be competitive), then there is no guarantee that prices would fall or consumers would benefit.
- 5.21 In a previous submission, Telstra relied on an article by Joshua Gans and Jerry Hausman to justify its argument that full infrastructure-based competition is best. However an honest reading of this article makes clear its chief conclusion as follows:

“The federal government should force Telstra to divest its cable infrastructure and its interest in Foxtel. In return, it should be allowed to invest in the next generation of broadband technologies without regulatory intervention. Why? Because with the cable network safely in the hands of a competitor who would offer broadband and telephone service, there would be no need for regulation.”⁴¹

- 5.22 Gans and Hausman make clear that effective competition in Australia can come about if there are two viable alternative networks. This crucially requires that Telstra’s HFC be in the hands of an effective competitor. Optus submits that the size of the various Australian markets for telecommunications services are too small to warrant a copper network in addition to *two* HFC networks. Optus considers that its HFC network would be better placed to compete with Telstra’s copper network if Telstra did not also own an HFC network (which prevents Optus from obtaining scale economies). This realisation is why Telstra rolled out its HFC in the first place, to destroy the economic viability of the Optus HFC.
- 5.23 Optus submits that Telstra’s contention that facilities-based competition is always superior is untested and uncertain. Optus considers that the ACCC cannot be satisfied that full infrastructure-based competition (even if achieved at some future date) is always and unambiguously in the LTIE.

41 Joshua Gans and Jerry Hausman, T3 must ring in rule changes, Australian Financial Review, 7 August 2006 [UI: 174]

Appendix A: Optus HFC MDU Build Overview and Cost Summary

HFC Technology for MDUs

HFC Technology comprises Motorola CableComm equipment for Local Area Telephony, DOCSIS Cable modem for High-Speed data, and Digital PAY-TV. A Coax lead-in is made from the street into the Common Area of the MDU. Telephony is delivered by placing a Motorola Customer Access Unit (CAU) in the common area and jumpering the copper to the Main Distribution Frame of the MDU. High Speed data requires a much more extensive installation procedure, with coax cable being laid from the common area to the dwelling where the high speed data service is to be delivered.

HFC Coverage

The Hybrid Fibre Coax (HFC) network was rolled out to residential areas in metropolitan Sydney, Melbourne, and Brisbane. The HFC network avoids the Central Business Districts of the major cities and typically bypasses commercial areas in suburbs.

Some inner city suburbs in these cities could not be reached because these areas do not have overhead power lines. The HFC passes approximately 513,000 dwellings located in Multiple Dwelling Units and that are not currently serviced. This represents a sizeable fraction of the total number of dwellings in the three cities.

Overview of past experience

The delivery of services to MDUs was always problematic for a number of reasons, both commercial and technical. The problems experienced included:

- The original rapid rollout of the HFC network did not take MDU density into account, requiring a significant capital intensive re-work of the HFC network to support this market.
- The high cost and technical complexities of installing drops to individual units from the common area made the service expensive to deliver. While the telephone connection required only an installation in the common area, a high-speed data connection

requires a coax lead to the individual unit. The complexity of wiring means that the labour for an MDU installation is significantly longer and more expensive than for an SDU installation.

- Unlike SDUs, MDUs require the network and site make-ready requirements to be completed prior to the site being released for sales. Essentially, equipment must be installed in the common area before a service can be sold to a customer.
- Major time and resources required for relationship management with Body Corporates. Body Corporate negotiations can take six months to obtain permission to deploy services.
- Motorola Telephony Customer Access Unit (CAU) is not designed for MDU applications - it is large and bulky, while the common area of some MDUs is limited. A Multiple line unit was designed by Motorola, but never produced.

Other factors that were also considered:

- The Local Access Telephony vendor selected did not have an appropriate technology available to service multiple dwelling apartments from the HFC network. That is Motorola could only supply 1 & 2 line units, not multiple telephone line units.
- The Customer Service Guarantee (CSG) legislation dictates carrier liabilities in respect to the delivery of offered service and delay in the provisioning of the service. Optus is at risk of incurring CSG where the as-built line capacity of the site is exceeded by customer demand. This risk is a function of the customer 1st line penetration, Second line penetration and the design rule for the specific building. CSG will become payable where the customer is offered a one or multiple lines of telephony and at the point of installation is determined that there is insufficient customer access capacity to deliver the service. These CSG risks were considered to be too high with respect to MDUs.

Figure 2 details the network architecture and costs associated with getting a serviceable MDU to market on the HFC network.

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Figure 2. HFC MDU Cost

Market size and profile

The target population for this study are people living in Multiple Dwelling Units (MDUs) in the major capital cities of Australia. Special focus is given to Sydney, Melbourne, and Brisbane, because these are the cities where Optus has HFC network, and thus the largest existing network footprint.

Table 2.1 provides an estimate of Australian MDU population using a combination of 2002 Australian Census data and Optus internal Geographic Information System data on the number of dwellings within Multiple Dwelling Units in the major capital cities across Australia. This table also contains estimates of the number of serviceable households that could feasibly be targeted with HFC Technologies and Optus Fibre in CBD areas. Serviceability in HFC areas is defined as MDUs that currently have a coax lead-in to the common area. Serviceability estimates in CBD areas are difficult to obtain because building entry costs are widely variable from building to building and entry costs drive serviceability. In addition, fine-grained data regarding MDU location mapped to fibre location is not available. As a consequence, a conservative serviceability estimate of 50% was used for these areas (the commercial evaluation is not sensitive to the serviceability fraction). The decision factor in a network roll out would be determined by the cost of entry, which is usually characterised by the distance of the Fibre to the MDU (around 120 meters) and the lack of blockages.

Table 2.1. Dwellings located in MDUs (not currently serviced by Optus)

Capital City	MDU Dwellings*	Passed by HFC		Near OB Fibre	
		Total	Serviceable**	Total	Serviceable**
Sydney	344,000	251,000	79,000	17,000	8,500
Melbourne	208,000	199,000	62,000	9,000	4,500
Brisbane	69,000	64,000	20,000	547	274
Adelaide	45,000	-	-	464	232
Perth	42,000	-	-	6,000	3,000
Canberra	11,000	-	-	6,000	3,000
TOTAL	719,000	514,000	161,000	39,000	19,500

Most apartment buildings in Australia were built before 1990. Because of relatively strict zoning and legal limitations, these buildings are usually between two to three stories high, have no lift, and generally have less than 12 dwellings per block. These apartment buildings are spread across the entire metropolitan area of the major cities, but are usually clustered within two kilometres of a suburb centre, particularly near train stops. Large, high rise apartment buildings are a recent phenomenon, and entered the Australian market primarily from 1980 to the present. Thus, in spite of the high visibility of these high rise apartment blocks, they represent a small (though growing) fraction of the entire MDU market.

Commercial summary of the MDU market using HFC Technology & OB Fibre in the CBD

Technical and commercial groups within Optus investigated the commercial viability of rolling out services to Multiple Dwelling Units in HFC coverage areas and CBD areas covered by Optus Business fibre. The MDU HFC market (excluding CBD areas) was extensively investigated. The conclusions of the investigation were strongly negative result (long payback period and low NPV). Since that time, there has been a significant change in cost structure and product focus, so the business case has been re-examined. This section provides a summary of the new analysis.

Tables 2.2, 2.3, and 2.4 summarise the results of the commercial investigation using recent cost estimates, market projects, and bundling strategies.

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Key points:

- The commercial analysis is negative with a low NPV and long payback period
- The current HFC Technologies are not well suited for MDU applications
- There are a number of technical and legal issues that still remain

Appendix B: Telstra ESAs and Optus HFC Footprint

5.24 [CiC]

Appendix C: HFC Serviceability in Miller TESA (Map)

5.25 [CiC]