

Review of the Regulatory Policy for Type II Interconnection

Analysis of Comments Received, Preliminary Conclusions and Further Consultation

16 December 2003

INTRODUCTION

On 23 May 2003, the Government issued a consultation paper on the review of the regulatory policy for Type II interconnection (First Consultation Paper). The First Consultation Paper examined all aspects of the current policy and regulatory framework of Type II interconnection and consulted the industry and interested parties on whether all or any of these aspects of the policy and regulatory framework would remain applicable and relevant in the current telecommunications market landscape.

2. The first consultation ended on 22 August 2003. A total of 11 submissions were received (including one late submission):

- Kai-Sun Kwong and Gary Moon-Cheung Shiu, Chinese University of Hong Kong
- Xu Yan, Hong Kong University of Science and Technology
- John Ure, University of Hong Kong
- Hong Kong Telecommunications Users Group (HKTUG)
- Hong Kong Cable Television Limited (HKCTV)
- Hong Kong Broadband Network Limited (HKBN)
- Wharf T&T Limited (Wharf T&T)
- Hutchison Global Communications Limited (HGC)
- PCCW-HKT Telephone Limited (PCCW-HKTC)
- New World Telecommunications Limited (NWT)
- Hong Kong Small and Medium Enterprises Association (HKSMEA)

The submissions have been published on the website of the Office of the Telecommunications Authority (OFTA) at www.ofta.gov.hk.

3. In the course of reviewing these submissions, OFTA invited HKBN, HGC, NWT, PCCW-HKTC and Wharf T&T to provide information to clarify certain aspects of their submissions. Supplementary information was subsequently provided by HKBN, NWT, PCCW-HKTC and Wharf T&T. The information was related to sensitive company data or analysis of data of individual companies and was provided to the Government on a confidential basis.

4. The Government has now reviewed the submissions and further information supplied by the respondents and formed some preliminary views. In this Second Consultation Paper, the Government presents its preliminary views and analysis and would like to seek further comments on these views.

GOVERNMENT'S POLICY OBJECTIVES

5. As mentioned in paragraph 2 of the First Consultation Paper, the Government develops its policy on Type II interconnection since 1995 with a view to:

- promoting the telecommunications industry;
- encouraging investment in network;
- facilitating effective competition in the telecommunications market and enhancing consumer choice.

6. The Government is of the view that the above policy objectives remain relevant and applicable in today's telecommunications market, and should be upheld. The key issue is whether the current Type II interconnection arrangement is still necessary for achieving or can still achieve these policy objectives in the changing market environment.

7. As one respondent (Wharf T&T) questions the difference between the policy objective of "encouraging investment in network" in paragraph 2 of the First Consultation Paper and "encouraging efficient investment in telecommunications infrastructure" in section 36A(10)(c) of the Telecommunications Ordinance (Cap 106) (the Ordinance), we would like to take the opportunity to clarify two points on the objective of "encouraging

investment in network”. Firstly, it is important to stress that we should not talk about encouraging investment in the abstract. The investment should have a purpose to serve, whether to enhance competition in the market, provide alternative choices to the consumers/business users or to provide capacity using advanced customer access networks capable of satisfying the increasing demands of customers for high bandwidth and innovative services. An “efficient” infrastructure is not necessarily the infrastructure with the lowest cost, but rather one with the lowest cost for a given functionality. What the Government would like to see achieved is hence telecommunications infrastructure that is invested in efficiently, and deployed efficiently, to promote the general efficiency of the telecommunications industry *and* at the same time provides sufficient capacity and capability to further our goal of developing into a digital city. The business consideration of different operators would help to minimise possible inefficient duplication in investment. In this regard, we consider that there is no inconsistency, as suggested in Wharf T & T’s submission, between the policy objective of “encouraging investment in network” in the First Consultation Paper and “encouraging efficient investment in telecommunications infrastructure” in the Ordinance.

8. Secondly, we would like to point out that investment in network is not confined to customer access network infrastructure investment. Indeed, it includes investment in the customer access networks and the downstream investment in the rest of the networks (switching and trunk transmission) and the facilities for the provisions of services, applications and content. Operators relying on Type II interconnection are required to invest in telecommunications infrastructure as well, such as the core networks and switching facilities, before they are able to provide services. As such, an operator relying on Type II interconnection is as much a serious player in facilities-based competition as that who rolls out its own customer access network¹. Having said that, we would emphasise the importance of

¹ There is an argument that operators relying on Type II interconnection are not making investment in telecommunications facilities, as put forth by respondents in support of discontinuing the current Type II interconnection policy. They claim that the policy discourages investment in advanced telecommunications facilities. They argue that the policy might be sound and necessary in the early stage of liberalisation to allow new entrants to provide alternative choices to the customers before their network could reach the customers. However, to maintain this policy after eight years of market liberalisation would only encourage operators who have opted to rely on the incumbent’s network to provide services to continue that strategy. This would not contribute to the promotion of investment in advanced telecommunications facilities. It would also be unfair to those new entrants who have spent on customer access network infrastructure investment. In the case of PCCW-HKTC, the claim is that the policy is unfair to it as it is subject to compulsory opening of its copper-based customer access network for interconnection at a regulated price.

encouraging rollout of competitive and advanced customer access networks that are able to support innovative services that require higher bandwidth. Even though the Digital Subscriber Line (DSL) technology will continue to improve to expand the capacity of the copper-based network, it would be undesirable to rely on PCCW-HKTC's copper-based customer access network as the only platform to access all sorts of new innovative telecommunications services. In reviewing the Type II interconnection arrangement, it is therefore imperative for us to examine how far the FTNS operators have achieved in rolling out their customer access networks during these eight years of liberalisation to provide alternative choices to the consumers without relying on Type II interconnection, and what policy would generate incentive to continue investment in competitive customer access networks.

PRELIMINARY ISSUES – LEGAL BASIS

9. Before going into the assessment of the various aspects of the Type II interconnection policy, we consider it necessary to first deal with some preliminary issues raised by some of the respondents which challenge the very basis upon which the Government is entitled to impose the obligation of Type II interconnection in the first place, or to change or modify the existing policy and regulatory framework of Type II interconnection. In this connection, we refer in particular to the submissions made by PCCW-HKTC, HKCTV and Wharf T&T. These preliminary arguments will be addressed first to provide a firm ground upon which the Government is entitled to formulate a Type II interconnection regulatory policy that can best achieve the policy objectives in paragraph 5.

The Legal Basis of the Existing Regime

10. Under the existing framework, PCCW-HKTC, HGC, Wharf T&T and NWT have the obligation to provide Type II interconnection to each other, and they are also entitled to request for Type II interconnection, provided that there are customer requests. Under HKCTV's fixed telecommunications network services (FTNS) licence, HKCTV has the obligation to provide interconnection to the coaxial cable portion of its network to other operators as a form of Type

II interconnection.

11. PCCW-HKTC submits that it is unaware of any existing unrestricted obligation under the terms of its FTNS licence or the Ordinance which requires them to provide Type II interconnection or pursuant to which it is entitled to receive Type II interconnection “as of right”. HKCTV submits that the obligation under Special Condition (SC) 6.1 of HKCTV’s FTNS licence is to provide access to service providers through the Service² (as defined in that FTNS licence) provided by HKCTV on the frequency assigned by the Telecommunications Authority (TA) in the in-building coaxial cable distribution system (IBCCDS) only.

12. FTNS licensees, including PCCW-HKTC and HKCTV, are subject to the obligation under General Condition (GC) 13 to interconnect its “service” and “network” with other FTNS networks and services licensed under the Ordinance and, where directed by the TA, other telecommunications networks and services licensed, or deemed to be licensed, or exempt from licensing under the Ordinance. GC13(3) further imposes an obligation on the FTNS licensees to ensure that interconnection is done promptly, efficiently and at charges which are based on reasonable relevant costs. With regard to HKCTV, its argument that its obligation to interconnect under its FTNS licence is restricted to the cable modem service operating over the frequency assigned by the TA in the IBCCDS only is erroneous. Schedule 2 of HKCTV’s FTNS licence describes “network” (which under GC 13 is subject to interconnection) as the hybrid fibre coaxial cable network. The combined effect of GC13 and SC6 is that HKCTV has the obligation not only to interconnect its “service” (i.e. the cable modem service) but also its “network”.

13. Moreover, FTNS licensees are bound by sections 36A and 36B of the Ordinance which empower the TA to determine the terms and conditions for interconnection and to direct licensees to secure interconnection. In each case, the “interconnection” in question includes Type II interconnection. Under section 36A(3D), “interconnection” includes access to, or interconnection with, any *element* of a telecommunications network on an unbundled basis *at any point that is technically feasible*. Local loops and IBCCDS are elements of a telecommunications network. Interconnection to them is technically feasible.

² The “Service” defined in HKCTV’s FTNS licence is the entire cable modem service rather than the transmission service over the coaxial cable portion of HKCTV’s network.

As explained in Annex 1 on “Constitutional Issues Arising from Type II Interconnection”, section 36A was amended in 2000 to clarify the power of the TA with respect to Type II interconnection. Therefore the obligation of FTNS licensees, including HKCTV, to interconnect their networks includes obligation to provide Type II interconnection.

14. Concerning the reference in the First Consultation Paper to Type II interconnection “as of right”, that term should be understood in a general rather than strictly legal way to distinguish between the application of Type II interconnection to different categories of licensees. It is existing Government policy as more particularly spelt out in the Statement on “*Implementation of the Full Liberalization of the Local Fixed Telecommunications Network Services Market from 1 January 2003*” that the FTNS operators licensed in 1995 have obligation to provide Type II interconnection to each other, and they are also entitled to request Type II interconnection as of right, provided that there are customer requests. On the other hand, the wireless FTNS operators licensed in 2000 and new entrants from 2003 onwards do not have a similar right to Type II interconnection (at the exchange level). Rather, the requests from wireline-based new entrants from 2003 onwards for interconnection will be considered on a case-by-case basis.

Qualifying Conditions for Section 36A

Applicability of the test under Section 36AA(3)

15. In the First Consultation Paper, we invited comments on whether any qualifying conditions should be introduced into the Type II interconnection policy framework to decide whether any levels or aspects of the current Type II interconnection should continue. In response to this question, PCCW-HKTC contends that the specific restrictions imposed on the TA’s power to order compulsory sharing of facilities under section 36AA should be extended to qualify the TA’s power to make determination on Type II interconnection. PCCW-HKTC takes the view that if the mere sharing of facilities under section 36AA falls under an “essential facilities” test, then Type II interconnection, which, in PCCW-HKTC’s view amounts to the compulsory giving up of full control and use of local loops, must be subject to the same or to an even stricter test. The reasons for this are variously given as “logic” and to “avoid

constitutional issues”. With respect to the “constitutional issues”, responses are given in Annex 1 of this Paper. In substance, PCCW-HKTC is saying that the TA is legally bound to apply the “essential facilities” test.

16. With respect to interpretation of section 36A and section 36AA, it is difficult to conceive how it follows from “logic”, as PCCW-HKTC suggests, that the specific test reflected in section 36AA(3) should extend to the broad language of section 36A as well. Unlike section 36AA(3) which spells out the specific “relevant matters” which the TA must take into account when directing the sharing of facilities, section 36A does not list out the “specific” matters which the TA must consider before he makes a Type II determination. Instead, section 36A(10) requires the TA to “give regard to” general policy objectives as well as “such other matters as the Authority considers appropriate”. Section 36A was amended when section 36AA was added to the Ordinance, so there was an opportunity to include in section 36A the specific matters listed in section 36AA(3), but this was not done. Rather, it was considered appropriate that the TA be guided by general policy issues and such other matters as he, in his discretion, considered appropriate.

“Essential Facilities” Doctrine

17. PCCW-HKTC further submits that the increasing global trend is to reject compulsory unbundling unless it can be justified in accordance with the principles of the “essential facilities” doctrine. A number of respondents’ submissions have drawn our attention to the application of the “essential facilities” doctrine to the local loop unbundling in a number of overseas jurisdictions.

18. To begin with, we have to bear in mind that the TA’s obligation is to carry out the duties entrusted to him by the statute. Accordingly, although overseas examples are enlightening as to how some other jurisdictions have developed the “essential facilities” doctrine and applied such doctrine to local loop unbundling, they are not necessarily relevant to the interpretation of section 36A. The wholesale adoption of overseas precedents would not be appropriate if the legal and regulatory frameworks of the overseas jurisdictions are different from Hong Kong. With respect to the “Application of The Essential Facilities Doctrine”, responses are given in Annex 2 of this Paper.

19. With respect to Hong Kong, under section 36A(10), when conducting a Type II interconnection determination, the TA is obliged to give regard to the broader policy considerations, as opposed to follow a pure competition test (e.g. the “essential facilities” doctrine). Nonetheless, we recognise that the “essential facilities” doctrine has its value in the consideration of whether Type II interconnection furthers the accomplishment of the policy objectives of the Government set out in section 36A(10). For example, it is necessary to consider the extent to which competition and consumer choice are enhanced by Type II interconnection when alternative facilities of reaching the customers are available. As foreshadowed in the First Consultation Paper, after years of the implementation of Type II policy, the new FTNS operators are increasingly gaining prominence in the local market. It is clear that the network coverage of PCCW-HKTC’s competitors now is very different from what it was eight years ago, when the competitors just commenced the network construction. The Government considers that the time is appropriate to conduct an overall review of the entire Type II interconnection policy, to see whether the policy remains relevant and necessary to facilitate effective competition and promote investment incentives in the telecommunications facilities market and other broader policy considerations as prescribed under section 36A(10).

“Legitimate Expectation” of Continuation of Type II Interconnection Policy

20. In Wharf T&T’s submission, it has made references to the Framework Agreement³ and the 1998 Review of Fixed Telecommunications. Wharf T&T claims that, as part of the further commitments by the three new entrants (HGC, Wharf T&T and NWT) in exchange for the extension of the moratorium, they pledged to provide connections between the backbone of their respective networks and specified exchanges of PCCW-HKTC to facilitate the use of Type II interconnection for the purpose of establishing customer access networks to provide services. Wharf T&T thus argues that having implemented Type II interconnection based on the Government’s policy and encouragement on Type II interconnection, without any limitation of time, it has the legitimate expectation that the Government will not seek to revoke or in any way restrict

³ The Framework Agreement between the Government of The Hong Kong Special Administrative Region of the People’s Republic of China, Hong Kong Telecommunications Ltd., Hong Kong Telecom International Ltd., Hong Kong Telephone Company Ltd. and Hong Kong Telecom CAS Ltd.

Type II interconnection.

21. To this argument, we would answer that these are historical events for specific accomplished purposes. No legitimate expectation recognisable at public law, as claimed by Wharf T&T, that the Government will not seek to revoke or in any way restrict Type II interconnection should thereby or anyhow be created. On the contrary, it is trite law that officials ought to be free to change or adjust their policies in the public interests, for otherwise their discretion would be fettered. The duty to act rationally and fairly places an obligation on the Government to consult and to consider the representations made by all parties in the course of the consultation exercise before coming to a decision on whether or not to introduce a change to the Type II interconnection policy and if so, what the changes should be. This is exactly the purpose of the present consultation.

22. During the policy deliberation in the consultation exercise, the Government is of course mindful of taking into account the legitimate concerns of the operators so as to avoid creating, or to minimise, regulatory risks that may undermine investment incentives. Caution will also be taken by the Government to ensure a smooth transition in the event of a change of the current policy.

MATTERS FOR REVIEW

23. There are many aspects to the Type II interconnection arrangement. In the First Consultation Paper, we invited comments on the following aspects:

- interconnection at different points (Points A, B and C – see diagram in Annex 3)
- extension of interconnection to fibre networks
- interconnection for providing narrowband and broadband services
- time at which the local loops were installed
- differentiation between residential and business lines
- consideration of PCCW-HKTC's plan or need to upgrade its customer access network
- differentiation between rural and urban lines.
- access to in-building telecommunications systems

24. As can be seen from the submissions of the respondents, opinions on whether the Type II interconnection should or should not continue are widely divergent. Operators hold entirely opposite views among themselves. PCCW-HKTC, HGC and HKBN advocate broadly the same stance that Type II interconnection should be abolished. Wharf T&T and NWT claim the contrary. HKCTV, on the other hand, is more concerned about the current obligation imposed on it to open up the coaxial cable portion of its network for Type II interconnection by other operators. In any case, the main focus is invariably on *interconnection to copper-based customer access network at different points of interconnection*. Arguments on other issues such as the extension of Type II interconnection to fibre networks, the distinction between narrowband and broadband services, the age of local loops are less intense.

25. The emphasis of the respondents reflects the fact that interconnection to copper-based customer access networks at different points of interconnection is in fact *the* central issue to the entire Type II interconnection regulatory regime. Indeed, having considered all the submissions, we take the view that the other issues that were put forward for discussion in the First Consultation Paper raise less controversy and thus are relatively straightforward to resolve. These other issues will first be discussed in this paper, with our preliminary assessment and preference given, leaving the central issue to the later part of this paper for a thorough deliberation.

ISSUES THAT RAISE LESS CONTROVERSY

Extension of Type II Interconnection to Fibre Networks

26. At present, Type II interconnection does not cover the fibre networks of any of the local FTNS operators. In the First Consultation Paper, we invited comments on whether the section of fibres or fibre-based transmission channels over the customer access networks from a telephone exchange up to the individual flats of a building or home of a customer should be opened up for Type II interconnection, and if so under what circumstances and for what purposes.

27. There is no support at all from the respondents to a *general* extension

of Type II interconnection regime to fibre-based customer access networks. Even for Wharf T&T and NWT, who staunchly support the retention of the existing Type II interconnection regime, their position is to claim only for extending Type II interconnection to fibre-based systems inside buildings.

28. Taking into account the views of the respondents, we reckon that there is not a need to introduce a general extension of the Type II interconnection regime to cover fibre-based customer access networks. The Government welcomes operators' investment in the rollout of competitive fibre-based telecommunications infrastructure which is able to provide choices of innovative and high capacity telecommunications services to suit the needs of the consumers and commercial users. All operators have equal opportunities to lay fibre-based customer access networks. Further, the operators are apparently content with the *status quo* that they can roll out their fibre-based networks according to their own needs and company strategy, free from any right to demand for or obligation to provide Type II interconnection. We therefore see no reason to disturb the *status quo*.

29. As for the narrower issue of extending Type II interconnection to fibre-based in-building telecommunications systems, we are aware that the gross majority of telecommunications systems installed by FTNS operators within buildings (i.e. from Point C in the diagram in Annex 3) are copper-based systems. Fibre-based systems only form a very insignificant percentage of in-buildings systems installed by FTNS operators, and are predominantly found in new and large commercial complex. As in the case of the rollout of other portions of customer access network, operators have equal opportunities to install in-building systems in new buildings. And installation of fibre-based systems in these new buildings is unlikely to be constrained by space availability. As such, we do not see the need to extend Type II interconnection at Point C to fibre-based systems owned by FTNS operators. Any requirement for sharing of such fibre-based systems on "bottleneck" grounds should be considered under section 36AA instead.

30. In taking this view, we have considered the fact that under the Class Licence for In-building Telecommunications Systems, the class licensees are subject to the obligation to open up their in-building telecommunications systems for interconnection, irrespective of the technology (i.e. whether copper or fibre-based) used. We consider that the obligations to provide

interconnection under the Class Licence and under Type II interconnection regime sprang from different considerations. It is the very purpose of the Class Licence to enable building owners to install intelligent in-building systems to receive all forms of public telecommunications and broadcasting services from public network operators or service providers. Interconnection is therefore an indispensable requirement to enable the in-building systems under the Class Licence to be linked up with the public telecommunications networks and services. On the other hand, the in-building part of the FTNS systems is primarily built by FTNS operators to provide their *own* telecommunications services to the residents or occupiers of the buildings. For reasons similar to those for not imposing Type II interconnection requirements on the portion of the fibre-based systems underneath public streets or unleased land, the obligation of Type II interconnection should not be imposed on the in-building portion unless there are justifiable reasons such as those based on section 36AA of the Ordinance.

31. For the reasons discussed above, we take the view that Type II interconnection should not be extended to fibre-based customer access networks owned by the FTNS operators.

Differentiation between Narrowband and Broadband Services

32. In the First Consultation Paper, we discussed whether there should be different Type II interconnection arrangements depending on whether the local loop is used for providing narrowband or broadband services. Except for HKCTV and HKTUG, the respondents generally do not support a distinction being made between narrowband and broadband services. Those who support abolition of Type II interconnection for narrowband also support its abolition for broadband. Those who support retention of the policy are supportive of its retention for both narrowband and broadband. HKCTV however argues that the grounds relied upon in support of Type II narrowband interconnection do not necessarily apply to Type II broadband interconnection. It cites the difference in technology, the lack of reciprocity for broadband interconnection, the difference in costs and services in support of its position. As for HKTUG, it does not object to the termination of Type II interconnection for narrowband services, except in bottleneck and rural areas. However, for broadband, it considers Type II interconnection should be implemented in certain urban areas

and rural areas, as there is still very little choice of broadband services for the majority of consumers.

33. HKCTV's comments should to be viewed in context. At present, its business focus is exclusively on the broadband market and its network is the only hybrid fibre coaxial cable network among the operators, with the copper-based coaxial cable portion of the network (i.e. IBCCDS) being subject to Type II interconnection. Its concerns are naturally on the broadband market and the technology it uses.

34. As for more general question of distinguishing between Type II interconnection for narrowband and broadband *for the purpose of deciding whether the policy should continue or be changed*, we agree with the majority of the respondents that there should not be a differentiation in treatment. After all, the interconnection is implemented by the same physical copper local loop. No distinction is justified on the basis that that piece of local loop is used for narrowband or broadband services. The difference, such as that in costs, is relevant only in determining the cost of interconnection *after* concluding that Type II interconnection should continue. Further, regulatory policies in other countries generally do not distinguish between unbundling copper local loops used for narrowband and broadband services. In taking the view that no distinction should be made, we have noted HKTUG's concern that consumers seem to have fewer choices of broadband services. In deciding on the regulatory policy, we would take the consumer benefits into account with a view to enhancing their choices in the telecommunications market.

35. We consider that, for the purpose of deciding whether Type II interconnection arrangement should continue or be changed, no distinction should be made between interconnection for narrowband and broadband services.

Age of the Local Loops

36. In the First Consultation Paper, we also explored whether different considerations should be given to the age of the local loops. Those who have responded to this question in their submissions all consider that the time in which the local loops were installed is irrelevant in determining whether the

local loops should be subject to Type II interconnection. As there is no support to this suggestion, and recognising that there is potential difficulty in determining the age of the local loops and hence the subsequent implementation, we shall not pursue the idea any further.

Differentiation between Residential and Business Buildings / Lines

37. In the First Consultation Paper, we raised the question of whether separate regulatory treatment would be justified depending on whether the telephone lines or the buildings concerned were classified as business or residential. There is no support from the submissions to this suggested way of differentiation. Those who have responded to this question generally claim that the classification of business and residential lines is driven by difference in demands, usage pattern, expected level of service etc from the customers. The classification is not a reflection of the difference in the costs of network rollout or difficulty of access to the customers. In the light of the comments from the respondents, we shall not pursue this suggestion any further.

Upgrade of PCCW-HKTC's Network

38. In the First Consultation Paper, we also invited comments on whether due consideration should be given to PCCW-HKTC's plan to upgrade its copper-based customer access network to a fibre-based one. The concern was the upgrade might lead to a large scale retirement of copper local loops being used or available for Type II interconnection. This might be more than a practical issue in the implementation of Type II interconnection but affect the basis of Type II interconnection.

39. In response to this issue, PCCW-HKTC says in its submission:

PCCW-HKT's practice is not, in fact, to decommission copper cables to a customer building when fibre is installed. Instead, PCCW-HKT continues to provide its voice services over the copper network, transferring only the broadband services to the fibre. This would mean that the copper cables remain in place both at the exchange end and at the customer end. There is, therefore, no immediate impact

on co-located FTNS operators simply as a result of PCCW-HKT's network upgrade programme. Whilst PCCW-HKT reserves its property rights for any future decisions to decommission copper, its current and medium term operational procedures should not raise any policy concerns in this context. (paragraph 781 of PCCW-HKTC's submission)

PCCW-HKTC has clarified that the upgrade of its network will unlikely lead to the decommissioning of copper local loops in the current and medium term. We also observe that, as the DSL technology continues to improve, the value of a copper local loop has also increased. A couple of years ago, a copper local loop was generally only able to provide a broadband downstream capacity of up to 1.5 Mbps. Nowadays, the capacity is expanded to 6 Mbps and is able to support various multimedia services. Thus, rather than fast becoming an “obsolete” network, the copper-based customer access network is steadily developing its potential and becoming more valuable in delivering broadband and multimedia services. Thus, we consider that there is little chance, at least in the foreseeable future, of seeing vast amount of copper local loops being retired. In the circumstances, PCCW-HKTC's plan to upgrade its network will not have serious policy implications and therefore should not form a relevant consideration in this review exercise in deciding the future course of Type II interconnection arrangement.

Other Issues

40. In the First Consultation Paper, we also discussed the following issues separately:

- differentiation between urban and rural lines
- access to in-building telecommunications systems.

41. In the case of urban and rural differentiation, at the moment, the classification is one made on the basis of PCCW-HKTC's own exchange classification – “urban lines” refer to the local access links (LALs) of PCCW-HKTC's urban exchanges, whereas “rural lines” refer to the LALs of its rural exchanges. The starting point for any urban / rural discussion is

therefore the classification of exchanges. In turn, the exchange, or more precisely the main distribution frame (MDF) of the exchange, is exactly the point at which interconnection at Point A is effected. Hence the urban / rural classification issue is invariably intertwined with the consideration of *the* central issue, i.e. interconnection at Point A.

42. As for the access to in-building telecommunications systems including IBCCDS, this is interconnection at Point C. The discussion of these issues can therefore not be made without referring to the issue on the points of interconnection. As such, these issues will rather be considered in the next part of this Paper as we move on to discuss our preliminary analysis on the three points of interconnection for the purpose of furthering the policy objectives set out in paragraph 5 above.

THREE POINTS OF INTERCONNECTION

43. The prime concern of the respondents in the entire Type II interconnection policy review is whether interconnection to copper-based customer access network at different points of interconnection should continue or not. It is useful to recap at this point that we have drawn some preliminary conclusions in respect of the other less controversial issues in the earlier part of this Paper. The discussion of the three points of interconnection will be made within the confines of the preliminary conclusions drawn so far:

- the discussion will focus only on interconnection to *copper-based* customer access network, as we have concluded that Type II interconnection should not be extended to fibres
- we do not favour a policy that differentiates between interconnection for broadband and narrowband services and between interconnection to residential and business lines
- the age of the local loops and PCCW-HKTC's plan to upgrade its customer access network are not relevant considerations in deciding whether Type II interconnection should continue or not.

44. On the other hand, in discussing the three points of interconnection, we shall also look at the following issues as and when relevant:

- the urban and rural lines
- the appropriateness of introducing some criteria or qualifying conditions to decide whether Type II interconnection should continue or not
- the transitional options (where the existing policy or any part thereof is to be discontinued).

INTERCONNECTION AT POINT C

45. The discussion begins with interconnection at Point C, which involves issues less complicated than those of Point A.

46. Interconnection at Point C refers to interconnection to the in-building wiring part, including IBCCDS, of an FTNS operator's customer access network. For blockwiring systems, the physical interconnection is generally made at the MDF of the in-building wiring system. For IBCCDS, the physical interconnection of Point C may be at the headend (of the IBCCDS) or at the connection point of the vertical riser (or trunk) cable and horizontal drop cable of the IBCCDS, whichever is technically feasible. At present, local FTNS operators have the right and obligation to interconnection at Point C. They have generally entered into commercial agreements for the interconnection arrangement to use the copper wires of in-building wiring systems installed by other operators. For interconnection to IBCCDS, HKCTV has not reached agreement with any FTNS operators. A request for determination by a fixed carrier (restricted) licensee under section 36A of the Ordinance is currently in progress.

47. Views from the respondents are diverged as to whether interconnection at Point C should continue, or if so under what circumstances. NWT and Wharf T&T are in support of continuing Type II interconnection at Point C, citing the lack of space in installing alternative blockwiring systems within buildings in support. They do not favour the introduction of any

qualifying conditions (essential / bottleneck facilities test) to decide whether Point C in individual buildings should be subject to Type II interconnection.

48. HGC too recognises that bottlenecks could occur inside buildings, but considers that a bottleneck facilities test equivalent to that set out in section 36AA(3) of the Ordinance should be used to decide whether Type II interconnection should be imposed in individual cases.

49. HKBN considers that the problem of bottlenecks inside buildings has been exaggerated. In most cases, there is plenty of unused space in the various common areas of the buildings for the accommodation of additional equipment and cabling facilities. Type II interconnection should only be available on a case-by-case basis where bottlenecks are proved. From its practical experience, HKBN considers that true bottleneck only lies in “drop-in cable facilities”, which it refers to as “Point D”.

50. PCCW-HKTC says there are adequate statutory provisions to ensure access to buildings and facilities. It can find no bottleneck at the building MDF level (Point C), except on very rare occasions. However these are operational difficulties which can invariably be resolved through operational-level negotiation with the building management company. In addition, the industry has negotiated reciprocal commercial agreements for leasing in-building wiring from each other. PCCW-HKTC is now increasingly seeking blockwiring access from other FTNS operators and building management companies. As at the end of February 2003, PCCW-HKTC had leased 201,417 blockwiring connections to other operators and leased in 69,520 blockwiring connections from other operators⁴. There is therefore no justification for treating in-building wiring as a bottleneck and requiring mandatory unbundling.

51. HKCTV comments that interconnection of IBCCDS by an operator could cause disturbances such as noise ingress, dispersions, interfering harmonics, etc. In addition, there are more than one IBCCDS in a building and hence interconnection should not be mandatory. HKCTV considers that interconnection charges determined at a cost-based level would give the newcomers in Pay TV services, who have not invested much in IBCCDS, considerable cost advantage over an incumbent operator like HKCTV who has

⁴ Paragraph 445 of PCCW-HKTC's submission.

invested significantly in IBCCDS and therefore distort competition in the Pay TV service market. If interconnection is mandatory, it should only apply to the single drop cable entering each flat and the “tap-to-tap” method should be used.

52. An academic, Xu Yan, advocates Type II interconnection at Point C, which he calls “Type III interconnection”.

Analysis and Preliminary View

53. Other than PCCW-HKTC, the respondents have not provided any data to show the current status of operators’ lease of in-building wiring systems from each other. However, even just by looking at PCCW-HKTC’s figures, we can see that the supply and demand pattern is not entirely lopsided. Whilst PCCW-HKTC remains the one who provides the majority of Type II interconnection at Point C, other operators are also quite active in leasing in-building wiring to PCCW-HKTC. And we have to bear in mind that these figures do not include the leasing arrangements not involving PCCW-HKTC. Taking all these into account, we believe that it is a fair comment to say that there exists an actual and mutual need from operators to lease in-building wiring systems from each other to provide services to end-customers.

54. These leasing arrangements are made between the operators themselves on a commercial basis. Indeed, all along there have been no major arguments among operators regarding blockwiring leasing arrangements that have been brought to the attention of the TA. PCCW-HKTC says in its submission that as the current commercial arrangements are functioning well, there is no need to impose an interconnection obligation on the operators.

55. We do not agree to PCCW-HKTC’s view. Much as we are pleased to see that the blockwiring leasing arrangements are working well, we consider that Type II interconnection arrangement has played a crucial part in helping the smooth operation of the leasing arrangements. Without the backing of a regulatory policy that mandates interconnection at Point C, we are not convinced that local FTNS operators would always be prepared to enter into reciprocal agreements with each other for leasing in-building cables at reasonable prices. The bargaining position of FTNS operators is not always balanced, particularly when a new entrant owning no or very few in-building

wiring systems has to negotiate with an established operator owning a considerable number of such systems. Without Type II interconnection at Point C being mandatory, an FTNS operator might be tempted to consider if it would gain more share in the market at the retail level by blocking its competitors' access to the customers in the building where it owns the in-building wiring system than to open the system to interconnection by its competitors.

56. The crucial issue is therefore whether an interconnection policy with regard to Point C furthers the Government's policy objectives in the updated circumstances. If so, the interconnection policy should continue and the TA will follow the established practice of encouraging operators to negotiate commercial agreements to realise the policy. Intervention will only be appropriate where negotiations fail.

57. The starting point for consideration is whether there exist any constraints in the installation of blockwiring systems within buildings. In this regard, we made the following comment in the First Consultation Paper:

Although the local FTNS licensees generally have the right to enter into buildings to roll-out their own in-building telecommunications systems, it is highly unlikely that the demand of all licensed FTNS operators to roll out networks within buildings can be accommodated given the limited space in the common parts available within buildings. Further, from the angle of effective deployment of resources, it is not economically sensible to install multiple in-building telecommunications systems to provide services to a limited number of users. (paragraph 47 of the First Consultation Paper)

We consider that this comment remains valid after taking into account the comments in the submissions. The constraints that exist in the rollout of in-building wiring systems should be taken to cover both physical and economic constraints. In terms of physical constraints, it is true that newer buildings will have more space available for installation of multiple in-building systems, including blockwiring systems and IBCCDS⁵. But there is always a

⁵ To enable network operators to accommodate their equipment and wiring in buildings, Regulation 28A of the Building (Planning) Regulations (Cap 123), which came into operation on 1 November

limit to such space. As for older and smaller buildings, the problem is even more acute. For all types of buildings, new and old, the access into the individual premises is always a “bottleneck” as installation of additional access would cause disturbance to aesthetics and inconvenience to the residents. With the liberalisation of the local FTNS market, there can be multiple operators interested in providing services to end customers. The space available for installation of blockwiring systems and IBCCDS within buildings, and access to individual premises, would simply not be able to accommodate limitless demands from operators.

58. From an economic point of view, there can also only be a limited number of blockwiring systems or IBCCDS that a building can economically support. What that number will be is a question depending on the size of the building, the number and nature of the occupiers of the building in question, and the investment strategy of the operator concerned. There might simply not be a business case for any operator to install additional systems in the same building, even assuming space is not a problem. This is also not effective deployment of resources. The availability of interconnection at Point C thus plays an important part to enable operators who are faced with physical and economic constraints to install their own systems inside buildings to provide high bandwidth services to the end customers in those buildings through their self-built customer access networks.

59. HKCTV comments that the interconnection of IBCCDS by an operator could cause disturbances such as noise ingress, dispersions, interfering harmonics, etc. We agree that when more operators interconnect to the IBCCDS, the system will have accumulated noise and signals of different levels and formats existing at different frequencies. However, if all the systems to be connected to the IBCCDS observe the technical requirements and comply with HKTA1104 specification⁶, all the services can co-exist without any problem. We are of the view that operators should rather coordinate and improve the IBCCDS when they make interconnection to it. This “technical

2000, requires every commercial building, industrial building, residential building (other than a building for residence of a single family) and hotel building to be provided with access facilities for telecommunications and broadcasting services in accordance with the design requirements specified by the Building Authority. For the minimum specifications for cabling access facilities to be included into the design of new buildings, see Practice Note for Authorized Persons and Registered Structural Engineers – Access Facilities for Telecommunications and Broadcasting Services issued by the Building Authority: <http://www.info.gov.hk/bd/english/documents/pnap/Pnap201.pdf>.

⁶ Performance Requirements for In-building Coaxial Cable Distribution System (IBCCDS), HKTA 1104 (Issue 4) October 1999.

problem” hence does not form a valid ground to exclude IBCCDS from the interconnection policy applicable at Point C.

60. At present, IBCCDS are used for the delivery of television programme services and telecommunications services (e.g. the cable modem service of HKCTV). These services can co-exist within the same IBCCDS because the frequencies for the delivery of the services are coordinated and assigned by the TA. As competition intensifies in the market for television programme services, and with the future introduction of digital terrestrial television broadcasting (with capacity to carry telecommunications services as well), more television programme services and telecommunications services would need to be delivered to viewers and customers over the IBCCDS. The number will exceed the number of IBCCDS that can be accommodated in a building from the economic and physical feasibility point of view. Without Type II interconnection at Point C to IBCCDS, competition and consumer choice would be severely restricted.

61. Our preliminary view is therefore to maintain Type II interconnection at Point C for both in-building blockwiring systems and IBCCDS. In taking this view, we have not applied a pure “bottleneck” or “essential facilities” test, and have rather considered whether the interconnection policy would best achieve the Government’s policy objectives. We consider that the outcome of such an analysis is consistent with what an “essential facilities” test is meant to produce, that is whether interconnection to the facilities in question is essential to attain the policy objectives of facilitating effective competition and enhancing consumer choices. From the analysis given above, it is clear that Type II interconnection at Point C will facilitate effective competition and enhance consumer choices within buildings.

62. And we do not think that this policy will defeat our policy objective of encouraging investment in network. After all, operators that require interconnection at Point C will already have invested in rolling out networks all the way to the buildings in question. Further, the continuation of the current policy at Point C would rather facilitate the efficient use of and investment in in-building systems. Where there is not a business case for an operator to install yet another additional system within a building, with the availability of Type II interconnection, it can choose to put the systems already installed by other operators into better use by leasing lines from those systems, and

channeling its own resources into other areas of network or services development. Further, for the time being, multiple in-building systems installed are generally using the same technology (i.e. copper wires and coaxial cables). Even if Type II interconnection at Point C were abolished, the FTNS operators would not be forced to install in-building fibre-based systems to the residents' or occupiers' premises. Therefore the argument of Type II interconnection arrangement at Point C undermining investment in fibre-based in-building wiring systems does not apply.

63. HKCTV suggests that interconnection, if mandated, should only apply to the single drop cable of the IBCCDS entering each flat and using the "tap-to-tap" method. This means that the interconnecting operators are required to install the rest of the IBCCDS, i.e. the vertical cables, in the buildings before they can interconnect to the drop cables. These additional vertical cables would not provide additional capacity to the buildings, as the bandwidth is essentially restricted by the bandwidth of the drop cables to the users' premises. These vertical cables would therefore simply represent duplication of infrastructure or inefficient investment. As regards HKCTV's comment on interconnection using the "tap-to-tap" method, according to TA Statement No. 8 (Revised) dated 18 March 2003, interconnection shall be facilitated at any point in a network where interconnection is technically feasible. In the case of IBCCDS, we consider both the headend and the connection points of the vertical cable and horizontal drop cable are points where interconnection is technically feasible.

64. It is also relevant to point out that, according to the information provided by PCCW-HKTC, there exists a mutual need among operators to lease in-building blockwiring systems from each other. The leasing prices are the result of commercial agreements. It is therefore not a case where the incumbent operator is subject to a one-sided obligation to provide interconnection without benefiting from the policy as well. The current commercial leasing arrangements are functioning well. We would like to see that this healthy practice continues with the back up of a sound interconnection policy.

65. In the case of IBCCDS, there appears to be less of a mutual need as for the in-building blockwiring systems and the newcomers would always seek interconnection to HKCTV's IBCCDS. HKCTV is concerned about the

apparent advantage given to newcomers in lowering costs and risks. Type II interconnection can provide an additional revenue stream to HKCTV derived from resources in the IBCCDS that it has invested in which would otherwise be idling. It would also avoid inefficient duplication of investment, enhance competition and broaden consumer choice. We consider that HKCTV's concerns can be addressed by the appropriate charging principles adopted in the determination of charges. Despite HKCTV's objection to cost-based interconnection charges, HKCTV also suggests in the submission that it considers Fully Distributed Cost "to be a more appropriate method of costing than [Long Run Average Incremental Cost]".

66. Our preliminary view is therefore that the existing right and obligation of local FTNS operators, including fixed carriers (restricted), to demand and /or provide Type II interconnection of copper-based in-building blockwiring systems and IBCCDS at Point C should continue to exist. We would like to invite comments from interested parties on our view.

INTERCONNECTION AT POINT A

67. Interconnection at Point A refers to interconnection to the MDF within an exchange (see the diagram in Annex 3). At present, PCCW-HKTC, HGC, Wharf T&T and NWT have the obligation to make available their copper-based local loops for interconnection at Point A to each other. However, given that the wireline-based local FTNS networks of HGC, Wharf T&T and NWT are mainly based on fibre-to-the-building configurations and there are hardly any local loops (except copper blockwirings within buildings, i.e. interconnection at Point C) for the other FTNS operators to interconnect to at their local exchanges, Type II interconnection to copper-based local loops at Point A is, in reality, invariably provided by PCCW-HKTC to the other three operators.

68. The respondents' position on the question of Type II interconnection at Point A can be roughly divided into two main camps:

- PCCW-HKTC, HGC, HKBN, John Ure, KS Kwong and Gary Shiu are not in support of the continuation of the existing interconnection policy at Point A. Many of them advocate the introduction of qualifying conditions (such as essential /

bottleneck facilities test) to determine whether interconnection in individual cases are justified. PCCW-HKTC further claims that by applying the essential facilities test, its copper-based customer access network is plainly not an essential facility and therefore should not be subject to Type II interconnection.

- Wharf T&T and NWT support the continuation of the existing interconnection policy. They do not consider that the introduction of qualifying conditions is appropriate.

Our Approach

69. Our aim is to develop an interconnection policy that would best promote a market environment conducive to investment in network and facilitate effective competition in the telecommunications market and enhance consumer choices. So doing, we believe, would also achieve the third policy objective of promoting the telecommunications industry. The course taken should be a balanced one which can fulfil all these objectives.

Updated Market Status

70. At this point, it is useful to look at the updated market status of operators making use of direct access⁷ or Type II interconnection at Point A to provide services to end customers. In the First Consultation Paper, we provided the market data as at the end of December 2002. In the following two tables, the figures are updated to the end of August 2003.

⁷ Direct access may also require the use of Type II interconnection at individual building level, i.e. Point C, to reach the customers.

Table 1
Narrowband Market (as at end of August 2003)

	No. of lines connected via Type II interconnection at Point A	No. of lines connected via direct access to buildings	Total no. of lines	Market share
HGC	407,422	538,307	945,729	24.8%
HKBN				
NWT				
Wharf T&T				
PCCW-HKTC	0	2,865,970	2,865,970	75.2%
Total	407,422	3,404,277	3,811,699	100%

71. According to Table 1, narrowband services that were provided via Type II interconnection at Point A made up 10.7% of the total market, whilst services that were provided via direct access made up 14.1%. Out of the 945,729 lines provided by the new operators, those provided via Type II interconnection at Point A made up 43% and those provided via direct access made up 57%.

Table 2
Broadband Market (as at end of August 2003)

	LMDS and leased circuits	xDSL	FTTB	HFC	Total no. of lines	Market share
HGC	-	-	√	-	542,743	45.6%
HKBN	√	-	√	-		
HKCTV	-	-	-	√		
NWT	-	-	√	-		
Wharf T&T	-	√	√	-		
Others	√	√	-	-		
PCCW-HKTC	-	√	√	-	648,708	54.4%
Total	<100,000	570,924	269,685	>200,000	1,191,451	100%

72. The data for the “xDSL” column in Table 2 include the broadband access lines connected via direct access as well as interconnection at Point A, however it should be noted that the number of lines for Type II interconnection at Point A only makes up a tiny and insignificant portion. The number of lines connected by PCCW-HKTC already includes the lines that are supplied to Internet services providers (ISPs) under tariffs for wholesale broadband conveyance services for providing retail broadband services.

73. The following observations are made on the different market landscape in the narrowband and broadband markets:

- (a) HKCTV’s FTNS network has achieved over 80% home passed. With over 200,000 broadband access lines, it has contributed significantly to the sizable market share obtained by the new entrants vis-à-vis that of PCCW-HKTC, the incumbent in the broadband market. With the use of the cable modem technology, its network offers no dedicated bandwidth for a customer and thus access performance varies with the number of customers sharing the available bandwidth. Furthermore, as HKCTV is currently not providing any voice telephony services, consumers in the narrowband market cannot yet benefit from HKCTV’s network;
- (b) In the narrowband market, lines connected via Type II interconnection at Point A makes up more than 10% of the total market. This is in contrast to there being virtually no LALs connected for broadband services. One main reason is that broadband Type II interconnection was not available until March 2001. Narrowband Type II interconnection (which was available from 1995) has obviously had a head start on the matter. Besides, the uncertainty over the interconnection charges for broadband Type II interconnection⁸, as well as the marketing strategy of individual operators, have also contributed to painting the different market landscape.

⁸ PCCW-HKTC offered Type II interconnection under tariff, but the tariffed price was considered unacceptable by Wharf T&T and NWT which since requested a determination of the charges under section 36A of the Telecommunications Ordinance. PCCW-HKTC applied for, and the court granted, a stay order for the TA to proceed with the determination of the interconnection charges pending the outcome of the policy review on Type II interconnection.

- (c) Competition in the market of narrowband telephone service is intensifying since the re-balancing of the tariffs for residential telephone line services in 1999. New FTNS operators are offering services at prices discounted from those of PCCW-HKTC by a margin of around 18 - 36% in areas within the coverage of their networks. Some FTNS operators provide coverage through their self-built networks, while some rely on Type II interconnection at Point A for the coverage. HKCTV has yet to offer telephone service on its hybrid fibre coaxial cable network. PCCW-HKTC has responded by offering selective price reductions targeting different groups of customers, term plans and value-added services such as fixed line short message services.
- (d) Competition in the market for broadband Internet access services is also intense, but mainly among FTNS operators providing the broadband services and the ISPs affiliated with FTNS operators. The ISP affiliated with PCCW-HKTC is offering broadband service using the conveyance service provided by PCCW-HKTC. A number of ISPs are also offering broadband services using the conveyance service provided by PCCW-HKTC. The new FTNS operators through their self-built networks are offering broadband services, but they have not offered the conveyance services to ISPs on any significant scale. The ISP affiliated to HKCTV is offering an Internet access service based on HKCTV's cable modem service, but the cable modem platform of HKCTV has not been opened to competing ISPs.
- (e) To the ISPs not affiliated with any FTNS operators, the only choice of wholesale supply of the underlying conveyance service is practically only that of PCCW-HKTC. There have been complaints about the lack of sufficient margin for these ISPs. Therefore as of today, these ISPs have not been effective competitors against the players who are themselves FTNS operators or affiliated with FTNS operators. The aggregate market shares of these ISPs not affiliated with PCCW-HKTC or other FTNS operators is less than 10%. The broadband services

offered by FTNS operators or ISPs affiliated with FTNS operators have captured more than 90% of the market.

- (f) In terms of quality and innovation, the services offered over the conveyance service of PCCW-HKTC have common technical characteristics in terms of the speed limitation over the local loops. To a certain extent, product differentiation is done by the value-added services provided over the broadband services and the performance of the services over the international connections. For services offered over self-built customer access networks, the speed can be up to 10 Mbps in both the downstream and upstream directions.

Rollout of Customer Access Networks

74. Through co-location at PCCW-HKTC's exchanges, HGC, Wharf T&T and NWT are able to reach to over 50% of the residential customers in Hong Kong by interconnection at Point A⁹. The actual customers that are served via Type II interconnection at Point A already exceed 10% of the total number of customers. One important assessment that has to be made by the Government is, assuming Type II interconnection at Point A is to be withdrawn, what the impact would be on the consumers that are enjoying choices of services either through Type II interconnection at Point A or direct access at present. This necessitates an assessment of the rollout of alternative customer access networks by the new entrants.

75. In its submission, PCCW-HKTC has performed an assessment of the network coverage of the other operators. The assessment covers buildings that are already connected and those that could reasonably be connected. According to PCCW-HKTC, buildings that could reasonably be connected are buildings that lie within a radius of 50 metres from the duct network laid by each FTNS operator, or within 1,000 metres of LMDS transmitters. For residential customers, it has focused its study on the top 800 residential housing estates, covering 1.7 million households. Taking the total number of

⁹ See "Legislative Council Brief – 1998 Review of Fixed Telecommunications – Progress Report on the Issue of Further Local Fixed Telecommunications Network Services Licence" dated 10 September 1999: www.ofta.gov.hk.

households residing within these 800 estates as the base, which represents 72% of Hong Kong households, PCCW-HKTC draws a conclusion that almost every household has a potential choice of network operator¹⁰.

76. The picture painted by PCCW-HKTC is optimistic. However, even assuming that PCCW-HKTC's approach of counting the duct network and conducting site inspection to estimate the extent of an operator's backbone network is acceptable, we consider that an assessment based on an operator's "would-be" coverage is dangerous and misleading. The fact that the backbone network of an operator is lying within 50 or 1,000 metres of a building does not mean that direct access will be provided to that building, whether within a reasonable time or in a long period of time. The decision a network operator makes to extend its network the last 50 metres to a building is a complex one involving many different considerations. For example, on the technical side, a network operator has to take into account roadwork planning (such as how to deal with congestion in busy districts) and other physical barriers in gaining access to buildings (such as space for equipment and cabling ducts leading into and within the buildings).

77. In terms of marketing strategy, each company may have its own business plan in targeting certain groups of users or buildings / districts first. There may be more incentive to serve a cluster of buildings in nearby locations first before moving on to the more scattered buildings when the issue of cost is considered. As the cost on a per customer basis will decrease as the number of customers increases, an operator will need to assess the market potential in the building and the buildings nearby to evaluate the return and risks of investment. Thus, a building with a small number of households (such as village houses or pre-war buildings) is more likely to be less attractive to the operators in general. An operator may not choose to roll out to these buildings even if its backbone network is lying close. At the end of the day, each operator may come up with a very different plan in terms of rollout of the customer access network and such plan does not depend on whether a particular building is lying within 50 or 1,000 metres of its backbone network.

78. PCCW-HKTC has included HKCTV's network into the study. We agree that HKCTV by far possesses the most extensive network among new network operators. However, its network is currently only offering broadband

¹⁰ See Chapter 8 of PCCW-HKTC's submission.

data services to the consumers. It is not a fully-fledged network capable of offering both narrowband and broadband services to the customers. Its trial on voice over IP has been running for some time, and OFTA has been following the trial closely. Our assessment is that the technology is not steady and mature enough to support the large-scale provision of voice services on a commercial basis. In fact, in recent months, we have seen a roll back of the trial.

79. Nonetheless, PCCW-HKTC's study based on the 800 estates is a helpful starting point to enable us to compile our own study on the operators' network rollout. At the request of OFTA in a meeting with PCCW-HKTC to clarify certain aspects of its submission, PCCW-HKTC has provided to us a full list of the estates it used in its study. The list covers 875 estates of each over 300 households. In total, there are 6,409 buildings, comprising 1.67 million of households. Our own exercise is to map the data that OFTA currently has on buildings with *actual* direct access by new operators (HKCTV's network excluded) against the buildings in PCCW-HKTC's list. The aim is to assess how far the residents in these 875 sample estates have the choice of alternative narrowband and broadband services offered by other operators via direct access.

80. In the submissions to the First Consultation Paper, the operators have not provided updated information on their network coverage with particularity down to individual buildings with direct access. As we consider such information important for our assessment of the future course of Type II interconnection arrangement at Point A, we have asked the operators (HGC, Wharf T&T, NWT and HKBN) to provide such information at our meetings with them to clarify their submissions. We are thankful for HKBN's cooperation, which has promptly delivered to us building lists showing the exact buildings with direct access as at June 2003. In response to our request, NWT has provided us with the updated number of direct access buildings and the districts in which they are located. Wharf T&T has provided us with the updated number of buildings with direct access. HGC has declined to provide such information. As no new information is provided by HGC, and the information provided by NWT and Wharf T&T is not specific enough, we can only rely on the data that OFTA has collected in the past on these three operators to make our assessment¹¹. Therefore, the results may not be as

¹¹ Data relating to the buildings directly accessed by HGC and NWT were up to end of 2002. Data of

current as we like them to be, but they are nonetheless representative in presenting a general picture of the actual status of operators' network rollout. On the positive assumption that the number of buildings with direct access can only grow, rather than decrease, the results that we obtain may probably even be regarded as conservative. *Indeed, we would like to ask operators, when providing their comments to this Second Consultation Paper, to provide updated information on their network coverage to enable us to conduct a more accurate study.* The information should include:

- The nature (residential / commercial) and exact location of the buildings with direct access
- The number of units of each building
- Indication of whether direct access is made by self-built customer access network or leased circuit
- The technology (copper, fibre, wireless) used for rolling out the self-built access
- The services (narrowband / broadband) that are available and being provided to each building
- The plan (say within the next six months) of rolling out self-built customer access network and / or replacement of leased circuit with self-built access.

81. From the mapping exercise¹², we obtain the following results:

- Out of 2,295,000 units in Hong Kong, around 1,050,000 units (households), i.e. roughly 45% households have or will have alternative choice of services via direct self-built access to the buildings.
- Out of 6,409 buildings falling within PCCW-HKTC's list, 2,567 have alternative choice of services via direct access to the buildings. Out of these 2,567 buildings, 561 of them have more than one choice of alternative suppliers via direct access. There are additional 186 buildings that fall outside of PCCW-HKTC's list that have alternative direct access. Thus the total number of buildings with direct access is over 2,700 buildings, all differing

Wharf T&T were up to March 2000.

¹² Direct access covers direct access using self-built networks or leased circuits.

in size and number of units.

- Mapping these buildings against the boundary of PCCW-HKTC's exchanges, we find that the customer access networks of HGC, Wharf T&T, NWT and HKBN combined have spread into 52 of PCCW-HKTC's exchanges: 15 exchanges in the Hong Kong Island, 17 in Kowloon and 20 in the New Territories (including Lantau Island).
- We note that some of the major property development with over 300 units have not yet had alternative direct access.
- Except for a small minority of cases, operators tend to pick buildings or estates with large number of households (such as over 300 units) to roll out their networks

82. According to statistics of the Buildings Department, there are 42,000 private buildings in Hong Kong¹³. However, 98% of all households are housed within less than 16,000 buildings, based on the claimed coverage and the number of buildings connected of PCCW-HKTC's broadband network.

83. These results lead to some very important observations:

- One would think that large property development would be the target of new operators when planning their network rollout. The fact is however that no alternative access has yet been made to some of these estates. We would not speculate the reasons behind the lack of alternative access to these estates but would like to invite interested parties to comment on this point. In particular, we would welcome operators to share their experiences, in particular in respect of the difficulties they meet in rolling out their networks to the buildings under their target. Whatever the reasons of the lack of direct access, the fact is that if Type II interconnection is withdrawn from these estates, the residents will immediately lose choice of service providers.
- The exercise also confirms our assessment of operators' business

¹³ Data from the Task Force on Building Safety and Preventive Maintenance.

priorities that they tend to roll out their customer access networks to buildings with a larger number of households. Smaller buildings with a small number of households, even if they are located in the urban districts, may never attract the interest of the new operators. For these buildings, it is simply commercially not viable for the operators to lay optical fibres from the backbone networks to the buildings. The availability of Type II interconnection of copper-based LALs at Point A does not undermine the investment incentive of new operators in rolling out their networks to these buildings.

- Nonetheless, we do observe that some operators are very active in rolling out their own fibre-based customer access networks and are in fact making constant and healthy progress. Indeed for buildings with larger number of households (including those located in the New Territories), the facts available before us show that it is commercially viable for operators to roll out alternative customer access networks.

84. As for the status of operators' rollout in commercial buildings, we are not provided with any list of buildings upon which PCCW-HKTC based to compile its own study. In any case, from the data available to us, although the operators (HGC, Wharf T&T, NWT and HKBN) have their own network rollout strategies, with some of them placing more emphasis on residential buildings, and some in commercial buildings, the fact is that in varying degree, all have rolled out their customer access networks to commercial buildings. We see no reason why the observations that were drawn in the previous paragraph regarding residential buildings cannot apply to commercial buildings.

Analysis on Whether Type II Interconnection Furthers Policy Objectives

The Analytical Framework

85. In this section, we shall compare the extent to which the Government objectives stated in paragraph 5 are accomplished *with* and *without* Type II interconnection. The difference between the “*with*” and “*without*” scenarios

will show the extent to which the accomplishment of these objectives are facilitated by the existence of Type II interconnection arrangement.

86. We are conscious that we should apply the minimum and proportionate regulation to address problems due to market imperfections. Type II interconnection is a form of regulatory intervention. The continuation of the policy is justified only if the facilitation of the accomplishment of the government policy is significant to offset the resources and effort that are incurred in implementing the policy.

87. We find that the flow is better if we discuss the policy objectives in the following order. This does not carry any implication on the relative importance of the policy objectives:

- facilitating effective competition in the telecommunications market and enhancing consumer choice.
- encouraging investment in network
- promoting the telecommunications industry.

Facilitating Effective Competition and Enhancing Consumer Choice

88. Competition will enhance consumer interests in terms of lower prices, better quality, wider choice and greater innovation. Under section 36A(10)(b), consumer interest is also one of the factors that the TA is required to have regard to in making a determination under section 36A.

89. At present, narrowband telephone services are provided over the local loops of PCCW-HKTC. Narrowband telephone services may also be provided by other FTNS operators reaching the customers through Type II interconnection or their self-built customer access networks (fibres to the buildings and connected to the in-building wiring systems). As stated in paragraph 78, telephone service is not yet available over the cable modem services of HKCTV and is not expected to be provided on a large scale within three years. In terms of product differentiation, there is relatively narrower scope for innovation for narrowband telephone services and competition is mainly on the basis of price and perhaps quality of service.

90. Broadband services are provided over PCCW-HKTC's local loops using the DSL technology. ISPs also provide broadband services through the underlying conveyance service provided by PCCW-HKTC. The underlying conveyance service of PCCW-HKTC is also based on the DSL technology. Through Type II interconnection, other FTNS operator may provide broadband services using DSL technology using PCCW-HKTC's local loops for the access to the customers. The extent of innovation of these services relying on the local loops of PCCW-HKTC is restricted by the speed limitation of the copper-based local loops. Some product differentiation is possible through value-added services, capacity of the international circuits, quality of after-sale support, etc. Otherwise, price is the main basis for competition. Broadband services are also provided by other FTNS operators over their self-built customer access networks. Because these self-built access networks would be based on fibres, and the length of the in-building wiring is relatively short, there is scope for better capacity, higher speed (beyond 10 Mbps) and greater innovation for the broadband services provided. Broadband services are also provided over the cable modem platform operated on the HKCTV's network. At present, due to the adoption of a proprietary technical standard, this platform is not yet open to other ISPs than the ISP affiliated with HKCTV¹⁴. When the platform is upgraded to an open standard, HKCTV is obliged under licence conditions to open this platform to competing ISPs. Product differentiation is restricted by the capacity limitation of the cable modem platform which is shared among all users in the same cluster.

91. Therefore our analysis on the extent to which the policy objective of facilitating effective competition in the telecommunications market and enhancing consumer choice is facilitated or obstructed by the Type II interconnection is given below.

Buildings that are Connected by PCCW-HKTC's Local Loops, HKCTV's Network and the Customer Access Network of at least one New FTNS Operator

¹⁴ HKCTV has carried out some upgrading of its network and has submitted an application to OFTA for approval of a tariff for a wholesale conveyance service available to ISPs. This application is being considered at the time of issue of this second consultation paper.

(a) Without Type II Interconnection

92. Without Type II interconnection, for broadband services, the residents in the building has the choice of those of PCCW-IMS, HKCTV's affiliated ISPs and the new FTNS operator(s) with customer access network(s) and the ISPs using the wholesale conveyance service of PCCW-HKTC. There are about four ISPs not affiliated with FTNS operators which are active¹⁵ in the provision of broadband services. If there is one alternative customer access network, the residents in the buildings would have the choice of about seven operators. Out of these seven services, five would be quite similar as they are operated over the local loops of PCCW-HKTC. If there are two alternative customer access networks, the number of choice would be about eight. Although there appear to be a large number of competitors (seven or eight), in actual fact, the ISPs relying on PCCW-HKTC's broadband conveyance service have not been effective competitors. Hence, the number of effective competitors (which are PCCW-HKTC, HKCTV, and the new FTNS operator(s)) in the building is around three or four. However, we should bear in mind the capacity limitation of the network of HKCTV due to the shared nature of the platform, which would attenuate the level of effective competition in the building.

93. For narrowband telephone services, the residents in the building has the choice of those of PCCW-HKTC and the new FTNS operator(s) with alternative customer access network(s). Suppose, there is one alternative customer access network, the choice is two. If there are two alternative customer access networks, the choice is three.

(b) With Type II interconnection

94. With Type II interconnection, for broadband services, if the building is located within the service area of a co-located exchange, the choice is increased to include services of the new FTNS operators using Type II interconnection, potentially two to three¹⁶. Type II interconnection would

¹⁵ With market share exceeding 1% of the total market.

¹⁶ If the new FTNS operators using Type II interconnection are willing to offer wholesale conveyance services to non-affiliated ISPs, the number of choices to residents in the building may not be significantly increased, as the same ISPs could reach the customers through PCCW-HKTC without Type II interconnection. However, there would potentially be more competition in the underlying conveyance services, resulting in more effective competition in the downstream market for the end-users.

increase competition and consumer choice, from say, three effective competitors to five or six. However, arguably the building has already some competition and choice in broadband services without Type II interconnection, the increase provided by Type II interconnection may not be significant. In addition, the additional choices brought by Type II interconnection would all have the inherent speed limitation of the local loops. Therefore we consider that the increase in competition and consumer choice in broadband services with Type II interconnection for this category of buildings may not be significant.

95. For narrowband services, if the building is located within the service area of a co-located exchange, the choice is increased to include the services of the new FTNS operators using Type II interconnection. The increase can be potentially two or even three, resulting in four to five choices. The additional choices would be telephone services which would be quite similar to those available without Type II interconnection. Type II interconnection therefore would increase competition and consumer choice, but arguably as the building has already some competition and choice in narrowband services without Type II interconnection, the increase provided by Type II interconnection may not be significant.

Buildings that are Connected by PCCW-HKTC's Local Loops and HKCTV's Network

(a) Without Type II Interconnection

96. Without Type II interconnection, for broadband services, the residents in the building have the choice of those of PCCW-IMS, HKCTV's affiliated ISPs and the ISPs using the wholesale conveyance service of PCCW-HKTC. The number of choices is about six, out of which five based on the PCCW-HKTC's local loops are quite similar and the reliance on PCCW-HKTC's conveyance service would limit the competitive effectiveness of the non-affiliated ISPs. The number of effective competitors in the building would only be two. However, we should bear in mind the capacity limitation of the network of HKCTV due to the shared nature of the platform, which would attenuate the level of effective competition in the building.

97. However, for narrowband telephone services, the residents in the building has the choice of those of PCCW-HKTC only, i.e. there is no competition.

(b) With Type II Interconnection

98. With Type II interconnection, for broadband services, if the building is located within the service area of a co-located exchange, the choice is increased to include the services of the new FTNS operators using Type II interconnection, potentially two to three. Type II interconnection would bring additional competition and choice in broadband services from, say two effective competitors to four to five.

99. For narrowband services, if the building is located within the service area of a co-located exchange, the choice is increased to include the services of the new FTNS operators using Type II interconnection, potentially two to three. The increase of competition and consumer choice in narrowband services provided by Type II interconnection would therefore be significant, bringing competition and choice to a building in which there was none.

Buildings that are Connected by PCCW-HKTC's Local Loops Only

(a) Without Type II Interconnection

100. Without Type II interconnection, for broadband services, the residents in the building has the choice of those of PCCW-IMS and the ISPs using the wholesale conveyance service of PCCW-HKTC. Therefore the number of choices is about five, all with similar characteristics and with four weak competitors against PCCW-IMS.

101. For narrowband telephone services, the residents in the building has the choice of those of PCCW-HKTC only, i.e. no competition.

(b) With Type II Interconnection

102. With Type II interconnection, for broadband services, if the building is located within the service area of a co-located exchange, the choice is increased to include services of the new FTNS operators using Type II

interconnection. Although these additional choices would have the inherent speed limitation of the local loops, the potential increase in the number of effective competitors would be significant. The increase of competition and consumer choice in broadband services provided by Type II interconnection would therefore be significant.

103. For narrowband services, if the building is located within the service area of a co-located exchange, the choice is increased to include the services of the new FTNS operators using Type II interconnection. The increase of competition and consumer choice in narrowband services provided by Type II interconnection would be significant.

104. There is the possibility that even with Type II interconnection, the increase of competition and consumer choice for both narrowband and broadband services would not materialize for this category of buildings which are connected by PCCW-HKTC's local loops only. This is where the building is located in an area for which it is not commercially viable for the new FTNS operators to serve even through Type II interconnection (e.g. either the new FTNS operators are reluctant to co-locate in the particular exchange or the distance of the building from the co-located exchange is such that the higher rural interconnection charge is applicable).

Encouraging Investment in Network

105. As mentioned before, there are two types of investment - investment in the customer access networks and the downstream investment in the rest of the network (switching and trunk transmission) and the facilities for the provisions of services, applications and content.

106. The decision of an FTNS operator in whether to invest in the customer access network will depend on a number of factors:

- The availability of Type II interconnection and the level of the interconnection charges
- The return and risk of investing in the customer access network
- Strategic consideration on whether the operator intends to take control of its own customer access network for better quality of service and more capacity for the provision of high-speed and

innovative services to meet future demand.

107. The interconnection charge will cover the capital, operating, maintenance costs as well as a reasonable cost of capital commensurate with risk of investment. This aims to fairly compensate the owner of the local loops in providing an interconnection service over the local loops for its competitors.

108. The investment in laying a fibre to a building would involve an assessment of the revenue from the building and whether such revenue would provide a sufficient return for the investment. Economy of scale affects significantly the projected return as much of the costs is fixed. Therefore unless the operator projects that it would be able to acquire sufficient market share in the building, investment would not be made. There is also the risk that the projected market share and revenue do not materialize.

109. The use of Type II interconnection would avoid the risk of investing in its own customer access network when the market share or revenue from the customers is lower than forecast. Therefore, even if the interconnection charge is set at an economically efficient level, the existence of Type II interconnection may tilt the decision towards using Type II interconnection instead of building its own customer access network, if the operator does not wish to assume the risk and attach less importance to the strategic advantage of owning its customer access network.

110. The existence of Type II interconnection may tilt the decision towards using Type II interconnection if the building is already connected by alternative fibre-based customer access networks because it may not be commercially viable for the latecomers to install additional fibre-based networks to the building.

111. The existence of Type II interconnection may also send a signal to an operator who is considering whether to invest in a fibre connection to a building that once the fibre is installed, potential revenue would be diverted to operators competing using Type II interconnection possibly with a lower cost base.

112. For some buildings where the projected return does not justify the investment of an alternative network, or where installation of an alternative network is not feasible because of physical constraints, the existence of the Type II interconnection would not undermine investment incentive on the customer access networks to those buildings as the investment would not be made anyway. On the other hand, the existence of Type II interconnection would enable the operators to serve customers in those buildings and hence attract investment in the downstream part of the network.

113. Therefore our analysis on the extent to which accomplishment of the policy objective of encouraging investment in network is facilitated or obstructed by the Type II interconnection is given below.

Buildings for which it is Commercially Viable and Physically Feasible to Install Additional Customer Access Networks

114. For some buildings where there is clearly a better business case for investment in fibre-based customer access networks than reliance on Type II interconnection and the physical environment of the buildings enables the connection of such alternative customer access networks, investment in the networks will be made with or without Type II interconnection arrangement. These buildings are the major commercial buildings and some large scale residential developments.

115. For other buildings where the business case for the installation of additional customer access networks is less clearcut, although the installation is commercially viable and physically feasible, with the availability of Type II interconnection, the decision may be tilted towards in favour of using Type II interconnection instead of investing in those networks if the operator perceives the use of Type II interconnection approach would be less costly, less risky and take less time. However, if the operator attaches more significance to the strategic consideration of having control over its own customer access network, then the effect of the Type II interconnection arrangement may not be significant as the operator would decide to invest anyway. This is proved by the investment in customer access networks in the past years despite the existence of the Type II interconnection arrangement.

Buildings for which it is Commercially Not Viable or Physically Not Feasible to Install Additional Customer Access Networks

116. If the installation of additional customer access network is commercially not viable or physically not feasible, the availability of Type II interconnection arrangement or not should not undermine the investment in the customer access networks as the investment would not be made in any case. On the other hand, Type II interconnection arrangement in this situation would enhance investment in the downstream part of the networks.

Promoting the Telecommunications Industry

117. The Government wishes to promote a thriving, vigorous and dynamic telecommunications industry that would

- enhance Hong Kong's position as a telecommunications hub
- enhance the competitiveness of Hong Kong
- further the strategic objectives of Digital 21

The vision is that Hong Kong should be provided with a high capacity, efficient infrastructure supporting a wide variety of services, applications and content to fulfil the needs of the community in a modern information society.

118. It could be argued that this objective can be fulfilled not only by network operators constructing their networks from end to end, including the customer access networks and the core networks, but also network operators investing in core network and other downstream infrastructure relying on the customer access networks of other operators for customer access. However the capacity, speed and therefore the extent of innovation of the services provided to end-users may be restricted by the capability of the customer access networks over which all services, applications and content need to be delivered.

119. On balance, we consider this objective is better fulfilled by more emphasis on the availability of a high capacity and high efficiency infrastructure rather than over reliance on a legacy network based on copper local loops. Therefore the accomplishment of the policy objective of promoting the telecommunications industry is closely linked to the willingness

of the operators to invest in the network infrastructure and opening up this infrastructure to providers of services, applications and content. Our analysis on the accomplishment of this objective is similar to that of encouraging investment in network and needs not be repeated here.

Summary

120. In sum, we conclude that Type II interconnection has different degrees of effects in achieving the Government's policy objectives for different buildings. For some buildings such as those that are commercially and physically viable to install, and are indeed already installed with alternative customer access network of at least one new FTNS operator, the increase in competition and choice for both narrowband and broadband services with Type II interconnection would only be moderate. On the other hand, the availability of Type II interconnection to such buildings may discourage investment in additional fibre-based access networks, even when it is commercially viable and physically feasible to do so. In such cases, the positive effect of enhancing competition and choice should be balanced against the possible dampening of investment incentive and the negative effect on promoting the telecommunications industry. The balance would be tilted towards a conclusion that Type II interconnection for such buildings does not further Government policy objectives to the extent that sufficiently offsets the regulatory cost of Type II interconnection.

121. Nevertheless, for some other buildings such as those which are either commercially not viable or physically not feasible for alternative customer access network to be installed, and have therefore not yet been connected by alternative customer access networks, Type II interconnection would significantly increase competition and choice for both narrowband and broadband services. On the investment side, Type II interconnection would not undermine the investment incentive in installing fibre-based customer access networks for these buildings. Instead, it would increase investment in the downstream infrastructure. In such cases, the availability of Type II interconnection would best achieve Government's policy objectives.

122. We shall develop our choices based on our assessment on the impact of Type II interconnection on the facilitation or obstruction of accomplishment of the Government objectives.

Choices in Type II Interconnection Arrangement at Point A

123. The question before us is, with the information before us on market status and network rollout, the observations drawn from our mapping exercise, the arguments made by the respondents, and our analysis on the impact of Type II interconnection on the accomplishment of Government policy objectives, what course the Government should take in the context of Type II interconnection at Point A that would best achieve the policy objectives. As we can see there are various choices before us:

- Choice 1 – maintain *status quo*
- Choice 2 – withdraw Type II interconnection at Point A in all areas
- Choice 3 – withdraw Type II interconnection in some areas. This choice will in turn lead to several “options” of how the areas are to be decided or defined.

We shall discuss these choices and make our preliminary assessment as to what impact each choice would have on the industry and consumers.

Choice 1 – Maintain *Status Quo*

124. Choice 1 is to maintain current interconnection policy at A without any adjustment. With 36 PCCW-HKTC’s exchanges already co-located by HGC, Wharf T&T and / or NWT, these new operators can already reach over 50% of Hong Kong’s population and provide services to the buildings served by the co-located exchanges, irrespective of whether these buildings are large or small, new or old. The coverage achieved by Type II interconnection is one prominent and positive feature that self-built customer access networks cannot beat, at least in the foreseeable future given the general behaviour of the new operators of setting their targets on buildings with larger number of households. Therefore, with continuation of the current policy, competition and choice will be significantly enhanced in buildings not yet connected by fibre-based customer access networks of the new operators and those for which such alternative network is unlikely for some time. For buildings already

connected by the alternative access networks, the enhancement of competition and choice arguably is less significant, but consumers that are currently enjoying a choice of services via Type II interconnection but not via direct access of self-built networks will continue to have a choice of alternative operators. We would also expect charges of telecommunications services will be maintained at a lower level, as interconnection is only made upon customer request and the requesting operator would not need to incur substantive upfront investment in rolling out the customer access networks and bear the investment risks.

125. There is nonetheless a downside of this choice. One of our policy objectives is to encourage network investment, with a view to developing advanced and competitive customer access networks that can support new innovative and high capacity services. An over-reliance on the copper-based customer access network of PCCW-HKTC will not help achieve this objective. If the current policy is to be maintained in its entirety, it may, as we have analysed above, discourage investment in the rollout of new customer access networks to buildings even when it is commercially viable and physically feasible to do so. It will be a negative signal to the operators who have been actively rolling out their own customer access networks.

126. Indeed, by relying on the results of the mapping exercise, we note that significant progress has been made by operators in building alternative direct access to the buildings (covering up to 45% of households). This has already excluded the networks (or the part of the networks) which are only able to provide broadband services. Further, looking at the market share in the narrowband market, we see that lines provided by new operators via direct access are more than those provided via Type II interconnection. Alternatives making use of advanced (fibre-based) alternative networks are already available to a lot of consumers, many of whom have actually chosen such services. The enhancement of competition and choice would not be significant to these consumers.

127. Our analysis above show that maintaining the *status quo* may not best serve to meet Government's policy objectives in the light of the current competition status and market conditions, given its effect of discouraging investment in alternative customer access networks. Therefore, balancing various policy objectives, and taking into account the interest of the consumers,

the need to encourage efficient investment in telecommunications infrastructure, and the status of competition among operators, we consider that it would not be appropriate to maintain the policy as it is.

Choice 2 – Withdraw Type II Interconnection Obligation at Point A in All Areas

128. Choice 2 is to withdraw Type II interconnection at Point A in its entirety. On the positive side, this would facilitate investment in and rollout of innovative, high capacity customer access networks, as no operators can fall back on interconnection with the other operators' customer access networks to provide services. However, investment would be encouraged only for buildings for which it is commercially viable and technically feasible to roll out the alternative customer access networks. For buildings which are either commercially not viable or technically not feasible to roll out the alternative customer access network, the withdrawal of the Type II interconnection would not force the new operators into investment in the customer access networks. The downstream investment in the infrastructure would also be adversely affected as the operators fail to gain access to the customers.

129. Even for buildings for which it is commercially viable and technically feasible to roll out the alternative customer access networks, it always takes time for networks to be rolled out to buildings. Operators that are rolling out their networks progressively continue to need time to roll out their own networks, and replace Type II interconnection accordingly. As we can see from the mapping exercise, after eight years of liberalisation, there is still a lack of alternative self-built access to some of the large property development which are generally viewed to be economically feasible to connect to. Marketing strategy of each operator of course plays an important part in deciding the network coverage of the network. However we must also bear in mind that there may be potential difficulties in roll out (physical / technical limitations) that inhibit the progress of network expansion. In view of the extent of the present network coverage of the operators, withdrawal of Type II interconnection completely at this stage will likely lead to the lack of competition in short and medium term in areas where no alternative self-built customer access networks have yet been rolled out. Consumers who are currently enjoying a choice of services via Type II interconnection but not via

direct access of self-built networks will immediately lose the choice, with no certainty of when self-built networks will be rolled out to their buildings.

130. The situation will be worse in areas or buildings where new operators choose not to roll out at all because of a lack of business case or physical constraints. Typical cases are small / old buildings with a small number of households. Many of these buildings are currently located in areas served by PCCW-HKTC's exchanges that have been co-located, meaning that occupiers in these buildings currently do have choice of operators through Type II interconnection. If the policy is withdrawn entirely, the occupiers in these buildings will immediately lose the choice of operators, with small chance of attracting operators to roll out alternative customer access networks to them in a long time to come. In this situation, we fail to see how the withdrawal of Type II interconnection would have an impact in encouraging investment in alternative advanced customer access networks.

131. Consideration should also be given to the fact that at present, some operators have been heavily relying on Type II interconnection at Point A. An immediate withdrawal of the policy would have a huge impact on these operators, causing major market disruptions and abruptly upsetting the balance in the market.

132. Therefore, we see that withdrawing the Type II interconnection arrangement in its entirety may again not best meet Government's policy objectives. In particular, the withdrawal of current interconnection at Point A in all areas will drastically disrupt the market balance and harm the interest of the consumers. We do not favour this choice.

Choice 3 – Withdraw Type II Interconnection Obligation in Some Areas

133. The above analysis shows that neither the continuation of the current arrangement or its abolition outright will best achieve Government's policy objectives. We see that there is a case for reducing the current obligation for Type II interconnection to make it more pertinent and fitting to the updated market condition. The question is how much reduction should be made, and in what way. We welcome comments on any suggestions.

134. A possible way to reduce the obligation is to withdraw Type II interconnection in some areas but not in other areas where justified. To facilitate discussion, we have identified some possible options as follows:

- Option 1 – differentiation by exchange areas
- Option 2 – differentiation by the number of units / households within individual buildings
- Option 3 – differentiation by reference to whether a building is already connected by an alternative self-built access.

Option 1 – Differentiation by Exchange Areas

135. One way of demarcating the areas or buildings that will or will not be subject to Type II interconnection obligation is demarcation by PCCW-HKTC's exchange areas. Under this option, the exchanges of PCCW-HKTC will be separated into two groups, one continue to be subject to Type II interconnection obligation and one not. In deciding which exchange should fall into which group, an assessment will be made on the extent of alternative self-built customer access networks that have already been rolled out within the boundary of the exchange.

136. The advantage of this option is that it is easy to administer. The exchange area of a PCCW-HKTC's exchange, by definition, covers all the buildings served by local loops connected to that exchange. It would therefore not be difficult to decide whether a particular building should continue to be subject to Type II interconnection once the exchanges have been separated into two groups. The question is the yardstick to be adopted in the initial separation process. The relevant consideration is how far self-built alternative customer access networks have been connected to the buildings covered by a particular exchange. If there are already extensive coverage of alternative access networks within the area, the exchange concerned should not be subject to Type II interconnection. It is therefore necessary to decide whether 50%, 70% or even a higher percentage of the coverage of new operators' networks combined in an particular exchange area would be an appropriate threshold that would relieve the exchange from Type II interconnection obligation.

137. The downside of this option as we see it is, whatever the threshold may be, unless it is set at 100% (which is impractical), there will always be buildings lying within the boundary of an exchange that have no alternative direct access. These buildings (mostly small and old buildings) are not economical for any operator to roll out direct access to, and they are present all over Hong Kong. If Type II interconnection obligation is to be withdrawn by reference to exchange areas, there are bound to be consumers who are currently enjoying a choice via Type II interconnection that will lose the choice immediately, with little chance of attracting operators to roll out customer access networks to them in the long term. The withdrawal of Type II in these buildings will not serve as an incentive for operators to invest in rolling out alternative advanced customer access networks to these buildings.

138. Again, balancing various policy objectives, and taking into account the interest of the consumers, the need to encourage efficient investment in telecommunications infrastructure, and the status of competition among operators, we consider that a demarcation by exchange area without taking into account the characteristics of individual buildings and the status of rollout of competitors' networks to these buildings is not a viable option.

Option 2 – Differentiation by Number of Units of Buildings

139. Another option is to set a threshold on the number of units within a building. By adopting this option, buildings that have units above the threshold will no longer be subject to Type II interconnection obligation. This option will ensure that uneconomical buildings that are not likely to attract new operators to roll out to them will continue to have the choice of operators through Type II interconnection. This option will provide incentive to operators to roll out their self-built customer access networks.

140. However, we see a number of difficulties with this option. First, there is the need to set a threshold, which in itself could be quite an arbitrary exercise. Even if the number of units in a building is less than the chosen threshold, several buildings could be clustered together and the overall size of the cluster may well exceed the threshold. Second, as we observe from our own mapping exercise, after eight years of liberalisation, some leading housing estates with a high number of units on a per building basis (and hence should be economically viable to serve via self-built customer access networks) still

do not have alternative customer access networks rolled out to them. The reasons may be physical, technical or economical. But the fact is if Type II interconnection obligation is not available to these buildings, consumers who have been enjoying a choice of services via Type II interconnection in those buildings will immediately lose the choice, and this loss of choice is likely to last in the short and medium term, until the new operators have overcome all difficulties in rolling out customer access networks to them.

141. Thus, balancing various policy objectives, and taking into account the interest of the consumers, the need to encourage efficient investment in telecommunications infrastructure, and the status of competition among operators, we consider that Option 2 has more shortcomings than advantages and is not preferable.

Option 3 – Differentiation by Existence of Alternative Self-Built Access Network

142. Taking into account the shortcomings of Options 1 and 2, in particular of separating the buildings into two groups without reference to the actual status of each building, we consider that the third option (Option 3) of differentiation by reference to whether a building is already connected by an alternative self-built customer access network is worth exploring further. Put it simply, the concept is that once a building is connected by at least two self-built customer access networks, that building will cease to be subject to Type II interconnection obligation at Point A. If this option is taken, we shall be able to take into account the actual status of network rollout to each building before including / excluding it from Type II interconnection obligation. As such, competition via Type II interconnection in small and old buildings that are generally regarded as uneconomical or physically difficult to serve by direct self-built access can be maintained. On the other hand, since a building will only be excluded from Type II interconnection obligation when there is at least one alternative self-built customer access network rolled out to it, competition among operators and choice of customers will be guaranteed even with the removal of Type II interconnection obligation.

143. We consider that this option will provide incentive to operators to roll out customer access networks as quickly as possible. For those operators which have not been relying on Type II interconnection to roll out networks,

and would like to see the policy withdrawn, they will have the incentive to roll out to buildings which are not yet connected by a second self-built customer access network. As soon as these buildings are connected, Type II interconnection obligation at Point A will not be available for these buildings. For those operators which have been heavily relying on Type II interconnection, they may also start to catch up with the others by speeding up their self-built projects, as the number of buildings that will continue to be subject to Type II interconnection obligation can only decrease.

144. We consider the possibility of this option causing all new FTNS operators to withhold rolling out their customer access networks realizing that as long as a building is not connected by an alternative customer access network, they can all continue to rely on Type II interconnection to reach their customers in the building. With competition in the market, we consider this possibility remote. It is most likely that at least some operators would adopt more forward looking strategies and their incentive to roll out their own networks would be enhanced by the signal that Type II interconnection would be withdrawn in the buildings to which they have self-built access.

145. We therefore consider that this option will serve to facilitate the roll out of advanced and competitive telecommunications infrastructure to buildings which, for the time being, do not yet benefit from having a choice of services provided through alternative self-built customer access network. On the other hand, this option will be able to take care of the interest of the consumers who are currently enjoying a choice via Type II interconnection but not via direct access of self-built networks.

146. Thus, balancing various policy objectives, and taking into account the interest of the consumers, the need to encourage efficient investment in telecommunications infrastructure, and the status of competition among operators, we consider that Option 3 is the preferred way forward.

147. If this option is to be adopted, the following criteria may be used in determining whether a building is connected by an alternative access network:

- A building should be connected by at least two self-built customer access networks. (The copper-based local loop network of PCCW-HKTC will be counted as one.) Direct access to

buildings making use of leased circuits will not be counted, as our policy objective is to encourage investment in facilities.

- Further, for the time being, we would not count the cable modem service over the hybrid fibre coaxial cable network to be the second access network for the following reasons:
 - the lack of narrowband telephony service over the cable modem platform;
 - the capacity limitation due to the shared nature of the platform;
 - the technical limitation of the current platform to offer services to competing ISPs. (OFTA has however been monitoring the development of cable modem technology and expects the limitation to be resolved over time.)

Therefore, for the time being, only the copper-based local loop networks or fibre-based customer access networks will be counted.

- We would not include alternative access networks provided by leasing circuits from the incumbent operator.
- The operators with the self-built access networks are technically and commercially ready to offer services to the occupiers within the building.
- The offer of services should include the offer of both narrowband and broadband services.

Given the criteria above, for the time being, the network of HKCTV will not be counted as it is currently not yet able to offer voice services on a commercial basis. We are also aware that operators may make use of means other than copper or fibre to roll out their customer access networks. An example is the use of wireless technology. However, for the time being, as the use of these other means or technologies is either not able to support both narrowband and broadband services, or the transmission capacity is constrained by the technology or subject to variations due to loading, customer access networks so

rolled out will not be taken into account. We may however conduct a separate review as and when these technologies mature.

148. In terms of implementation, we initially consider that a list of buildings that are connected by two or more self-built customer access networks will be compiled and updated periodically, say once a year. As soon as a building falls into that list, Type II interconnection at Point A shall not apply, subject to any transitional provisions that we may decide (see paragraph 151 onwards).

149. We recognise that if this option is taken, the business of the operators which have been heavily relying on Type II interconnection may be affected. The customers who are now being served via Type II interconnection may also be affected. However, we consider that this is an issue that can be addressed when we work out the transitional policy. The aim is to find a way that will best achieve Option 3 without causing undue hardship to operators who have been relying on Type II interconnection and disruptions of services provided to their customers.

150. Balancing various policy objectives, we consider that Option 3 should be taken as the policy of interconnection at Point A. We shall set out our preliminary thoughts on the possible approach to implement this option in the next part of this Paper.

Transitional Period Allowed for the Implementation of Option 3

151. Our preference is to adopt Option 3 as the policy of interconnection at Point A. Assuming that Option 3 will be our policy, the next question is how this option should be implemented.

152. In determining the transitional approach, we consider that it would not be appropriate to terminate Type II interconnection obligation immediately, for the following reasons:

- (a) Allowing a transitional period will reduce disruption to services enjoyed by customers.

- (b) Immediate termination would mean immediate loss of the competition and choice that are currently available in those buildings from Type II interconnection. Allowing a transitional period will allow some of this competition and choice to be maintained through new customer access networks.
- (c) It will also be unfair to the operators that have relied on Type II interconnection to provide their services in the market. Allowing a transitional period will provide an opportunity for these operators to roll out their customer access networks and remain as active competitors in the buildings concerned.

153. In devising the details of the transitional plan, there are two main aspects that we need to consider:

- Growth of new lines via interconnection at Point A – whether growth of new Type II lines should immediately cease once a building is connected with two self-built customer access networks, or a transitional period should be imposed during which lines can continue to grow.
- Treatment of those Type II lines that are already connected – there is a choice between requiring the existing Type II lines to be phased out within a certain period of time, or to remain connected until customers voluntarily switch suppliers.

Growth of New Lines

154. We consider that it is probably too abrupt an approach if the growth of new Type II lines should cease as soon as a building is connected by two self-built customer access networks. Operators who have been heavily relying on Type II interconnection will require time to adjust and plan their future network roll out strategy in the light of the new interconnection policy. The immediate loss of competitiveness of these operators in buildings where they have access via Type II interconnection but not access by self-built networks will cause undue hardship to these operators. The market balance will be abruptly upset, which would have a negative impact on the competition

in the market.

155. We consider that any change of policy that would have an impact on the market balance should be introduced with a transitional period to allow parties affected to adjust to the policy. Therefore, our initial thought is to allow new Type II lines to continue to grow, say, for three years after a building is connected by two self-built customer access networks. This will allow operators which have been heavily relying on Type II interconnection sufficient time to consider any adjustment to their network and market planning in the light of the new policy.

Treatment of Lines Already Connected

156. As for the lines that are already connected via Type II interconnection at Point A, one approach is to phase out these lines in, say, during a three-year transitional period. That is to say, these lines should within three years of the commencement of the new policy be replaced by lines that are provided via self-built access networks. If the operators which are currently providing services via Type II interconnection to these customers are not able to roll out their own self built networks to these buildings within the time, the customers will have to switch to other operators which have self-built access.

157. We consider that this option will likely cause disruption to the end customers' enjoyment of telecommunications services. Considering that there can be buildings with as many as one million households which will meet the criteria of being connected by at least two self-built customer access networks, the potential number of end customers that may be inconvenienced by this approach is huge. In considering any implementation policy, we should give due regard to the interest of the consumers. With a view to avoiding causing disruptions to consumers' peaceful enjoyment of telecommunications services, we consider that lines that are already connected as at the commencement of the transitional period should remain connected after the transitional period. However, the interconnection charges for these lines supplied under Type II interconnection arrangement should migrate to a market-determined level after another three-year period, called the "grandfathering period" immediately after the end of the "transitional period" for the building concerned. The reason why we consider that the interconnection charges should not immediately move to a market determined level by the end of the transitional period is that this

could lead to termination of the service to the lines already connected by Type II interconnection if commercial agreement could not be reached.

158. By the same token, we consider that lines that are connected during the three-year transitional period (during which new lines can continue to grow) should remain connected after the transitional period. Otherwise, the consumers will be forced to switch services suppliers after enjoyment of less than three years of services (assuming the operators are not able to roll out to the buildings within three years). However, the interconnection charges for these lines supplied under Type II interconnection arrangement should also migrate to a market-determined level after the three-year “grandfathering period” immediately after the end of the “transitional period” for the building concerned.

The Proposed Transitional and Grandfathering Approach

159. In summary, we consider that the following transitional approach should be adopted for those Type II lines within buildings that are connected by at least two alternative self-built networks:

- For each building connected by an alternative customer access network, there should be a three-year “transitional period” to be immediately followed by a three-year “grandfathering period” (see paragraph 162 below on our suggestion on how to count the three years for the “transitional period”).
- Type II interconnection at Point A shall continue to be allowed during the “transitional period”.
- For those lines that are already connected before the start of the “transitional period”, they should be allowed to remain connected after the “transitional period”, but after the “grandfathering period”, the interconnection charges will be subject to commercial negotiations and agreements only.
- For those lines that are connected within the “transitional period”, they should also be allowed to remain connected after the “transitional period”, but after the “grandfathering period”, the

interconnection charges will be subject to commercial negotiations and agreements only.

The Charging Principles

160. A question may arise as to what charges for interconnection at Point A should be during and after the “transitional period” and the “grandfathering period”.

161. Our initial thought is that during the two periods, the charges of interconnection for the new lines as well as the pre-existing lines that remain connected shall be based on the prevailing charging principles applicable to Type II interconnection in general. Given that these periods are to allow both the operators and their customers to adjust to the new policy, we do not consider that the charging principles should be different from those applicable to the buildings that are not subject to withdrawal of the policy. After the grandfathering period, we consider that the interconnection charges should only be determined by commercial negotiations and agreements as there will be a sufficiently long period for operators to adjust their business plans and strategies.

Manner of Implementation

162. As for the manner of implementation of the transitional approach in contemplation, we propose the broad framework as follows:

- When the review exercise is completed, a “cut-off date” will be announced (the first cut-off date). The three-year transitional period will start to run from the first cut-off date.
- Prior to the first cut-off date, operators are required to supply information to OFTA to enable OFTA to develop a list of buildings that are connected by at least two self-built customer access networks. OFTA will verify the list and publish the list on the first cut-off date (the first building list).
- Buildings that fall within the first building list will have Type II interconnection at Point A withdrawn, subject to the three-year

transitional period that begins to run from the first cut-off date.

- The process of naming a new cut-off date and developing a new list of buildings will be repeated once a year. Buildings that fall within the new list of buildings will be subject to the three-year transitional period that begins to run from the corresponding new cut-off date.
- During the three-year transitional period and the three-year grandfathering period, the charges of interconnection shall be based on the prevailing charging principles applicable to Type II interconnection.
- After the three-year grandfathering period, affected operators will decide whether to switch the customers to self-built direct access networks or continue to serve them via Type II interconnection at Point A at interconnection charges to be determined by commercial agreement.

Preliminary Conclusion on the Way Forward for Type II Interconnection at Point A

163. We consider that a combination of Option 3 and the proposed transitional period as well as grandfathering period as described above would be the desirable way forward that best serve to achieve the Government's policy objectives of encouraging investment in competitive and advanced telecommunications infrastructure, facilitate and maintain competition in the industry, as well as enhance choices to the consumers. We would invite interested parties to comment on our proposed way forward.

INTERCONNECTION AT POINT B

164. Under the current Type II interconnection arrangement, interconnection is also available at Point B. No operators are currently using this point for interconnection. Even Wharf T&T and NWT, who both support the continuation of the entire Type II interconnection arrangement, have made

no indication of support of this Point. In fact Wharf T&T considers that interconnection at Point B may not be feasible due to the difficulty of installing equipment at street levels.

165. It appears to us that the retention or abolition of interconnection at Point B will have no impact on the market in the foreseeable future. Our inclination is to retain the policy for the moment. Whilst interconnection at Point B may not appear to be a feasible or necessary choice for operators at present, it might become attractive as it could be used to provide higher bandwidth broadband services using VDSL technology in future. The situation can be reviewed in a few years' time taking into account the evolution of technology and market needs by that time.

REVIEW OF INTERCONNECTION POLICY AFTER THREE YEARS

166. The telecommunications market is constantly evolving, and at a rapid pace. A Type II interconnection arrangement which is suitable at one point of time may not continue to be suitable at other times. After this review is completed, we consider that it would be appropriate for us to revisit the issue and start a review of the entire policy again, say, in three years. By then, we would assess the market status and the network rollout of the operators again to see if the policy would need to be further adjusted.

INVITATION OF COMMENTS

167. We would invite all interested parties to comment on the issues that are discussed in this Paper and our preliminary views taken on these issues. Views and comments should reach the Office of the Telecommunications Authority on or before **24 February 2004**. **In giving their comments, parties are requested to provide all relevant evidence, such as network rollout data, market and company records, data, statistics, and economic analysis as appropriate in support.** Any person who submits the views and comments should be aware that we may publish all or any part of the views and comments received and disclose the identity of the source in such manner as we see fit. Any part of the submission which is considered commercially confidential should be marked. We would take such markings into account in

making a decision as to whether or not to disclose such information.
Submissions should be addressed to

Office of the Telecommunications Authority
29/F Wu Chung House
213 Queen's Road Central
Wanchai
Hong Kong
Attention: Senior Regulatory Affairs Manager (Economic
Regulation) 3
Fax: 2803 5112
E-mail: ecchui@ofta.gov.hk

An electronic copy of the submission should be provided by e-mail to the address indicated above.

168. After we have received and reviewed the comments to this Consultation Paper, we shall finalise our decisions on Type II interconnection arrangement.

Office of the Telecommunications Authority
16 December 2003

CONSTITUTIONAL ISSUES ARISING FROM TYPE II INTERCONNECTION

Basic Law Article 105

Article 105 of the Basic Law (BL) reads as follows:

The Hong Kong Special Administrative Region shall, in accordance with law, protect the right of individuals and legal persons to the acquisition, use, disposal and inheritance of property and their right to compensation for lawful deprivation of property.

Such compensation shall correspond to the real value of the property concerned at the time and shall be freely convertible and paid without undue delay.

2. It is not in dispute that BL105 provides for constitutional protection of property rights. If the Government seeks to deprive (徵用) private properties, BL105 requires compensation for the real value of the properties concerned.
3. PCCW-HKTC considers that Type II interconnection is very different from network sharing or Type I interconnection. It takes the view that Type II interconnection amounts to compulsory unbundling which involves a transfer of the complete control and use of the loop to another operator. As such, Type II interconnection amounts to a “deprivation” of property under BL105, and requires compensation to be based on the “real value” of the property.
4. The Telecommunications (Amendment) Bill 1999 (the Bill) was introduced to the Legislative Council in May 1999. In the legislative process, PCCW-HKTC (formerly known as Cable & Wireless HKT) raised concerns over the constitutionality and legality of certain provisions in the Bill. As far as the interconnection regime is concerned, similar BL105 arguments were raised in the course of legislation as those made at the present instance.

5. The Government gave its detailed response to the concerns raised by PCCW-HKTC in the Administration's Response to the Cable & Wireless HKT (CWHKT)'s Submissions on the Legal and Constitutional Issues Arising from the Telecommunications (Amendment) Bill 1999 (the "Administration's Response")¹⁷.

6. While the Government does not intend to repeat the debate on BL105, the following comments should be noted.

7. At paragraph 84 of the Administration's Response, it is stated that:

Implementing... [Section 36A and Section 36AA] would not deprive... [PCCW-HKTC] of its assets or render them useless. ...[PCCW-HKTC] would not only be able to continue to use the assets itself (though such use will be subject to regulation), but would also be entitled to compensation for the use by others.

8. At paragraph 665 of the PCCW-HKTC's submission, PCCW-HKTC took the view that the above quoted statement in paragraph 84 of the Administration's Response is only accurate in describing network-to-network (Type I) interconnection but is not accurate when addressing Type II interconnection, which, in PCCW-HKTC's submission, amounts to a transfer of the complete control and use of the local loop to another licensee.

9. In this connection, the TA would like to clarify one important point. The Administration's Response was prepared in the context of the debate concerning the legal and constitutional issues arising from the Bill. As far as the interconnection regime is concerned, the amendments to section 36A of the Ordinance (as effected by the Bill) were made to clarify the powers of the TA on local loop unbundling, i.e. Type II interconnection. In this connection,

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http://www.legco.gov.hk/lcsearch/showdoc.htm?mylink=/search/marker?s=5&o=4&t=2&a=15&r=2&k=1,&g=0&PROPERTY=2;&MERGEFIELD=-&CODECONVERT=-&SORTFIELDS=-&SIM_START=1&SIM_NUM=10&REL_START=1&REL_NUM=10&LINK=-&REDIRECTTO=-&PATHLINK=-&p=%22Administration%20Response%20to%20the%20Cable%20%26%20Wireless%20HKT%20%28CWHKT%29%A1%A6s%20Submissions%20on%20the%20Legal%20and%20Constitutional%20Issues%20Arising%20from%20the%20Telecommunications%20%28Amendment%29%20Bill%201999%22&c=16,383&i=http%3A%2F%2Fwww.legco.gov.hk%2Fyr98-99%2Fenglish%2Fbc%2Fbc18%2Fpapers%2Fa883e01.pdf&j=14299&v=&n=&link=http%3A%2F%2Fwww.legco.gov.hk%2Fyr98-99%2Fenglish%2Fbc%2Fbc18%2Fpapers%2Fa883e01.pdf

paragraph 22 of the Legislative Council Brief (the “Legco Brief”) states that:

*The three new FTNS licensees generally welcomed the proposals for amendments to the Telecommunications Ordinance in order to clarify the powers of the TA on interconnection. The clarifications we propose are that the TA be given unequivocally the powers to make a Determination on interconnection at **any technically feasible point, (i.e. including the local loop)** and on such terms (including those which are cost-based) as appear to the TA to be fair compensation for access to and use of the appropriate part of the network or line...*

10. Hence, the whole debate between PCCW-HKTC and the Government in 1999-2000 as to whether the implementation of sections 36A and 36AA would amount to a deprivation (徵用) of property rights for the purposes of BL 105 took place against the context of the Government’s proposed legislative amendments which dealt with (*inter alia*) the TA’s powers to make a determination on **Type II interconnection**. In other words, that debate did relate to Type II interconnection. Paragraph 65 of the Administration’s Response (which referred to the submission by PCCW-HKTC) gives further support to this. It states:

*In [CWHKT]’s view, the power to **mandate unbundling of network elements** and the sharing of facilities will inevitably encroach on the property rights of the licensee compelled to grant access to its network for interconnection or its facilities for sharing, and thereby constitutes a deprivation of private property. (emphasis added)*

11. PCCW-HKTC’s present submission on BL105, when considered in substance, is a repetition of its views expressed in the context of the Bill. On this basis, the TA continues to hold the view that Type II interconnection does not involve any deprivation (徵用) of property rights for the purposes of BL 105. The reasons for this view as set out in paragraphs 69-78 and 91-92 of the Administration’s Response remain valid.

Deprivation of property rights

12. PCCW-HKTC argues that Type II interconnection (in PCCW-HKTC’s terms “compulsory unbundling”) amounts to a deprivation of property under

BL105 because:

- The local loop of PCCW-HKTC is wholly or partially disconnected from PCCW-HKTC network and re-connected to the network of the acquiring carrier.
- The acquiring carrier is entitled to use all (a full loop) or part (a partial loop) of the transmission bandwidth on the local loop.
- PCCW-HKTC ceases to be able to use all or a material part of the transmission bandwidth available on the local loop.
- The customer/supplier relationship migrates from PCCW-HKTC to the acquiring carrier.

13. In PCCW-HKTC's view, unbundling deprives PCCW-HKTC of all of its essential property rights in its local loop. Where the effect of permitting someone to use the owner's property is to exclude the owner from making any realistic or effective use of its own property, that is a *de facto* deprivation of the property so used.

14. On the other hand, Wharf T&T considers that there is no deprivation of any property rights at all under Type II interconnection. In providing access to its local loop, PCCW-HKTC will be compensated by the requesting operators at charges determined by the TA if there is no agreement reached between the parties. Further, PCCW-HKTC's obligation only arises where the customers have decided to exercise their liberty to subscribe services from the requesting operator. In that sense, PCCW-HKTC remains to be the true owner of the local loops and it is being paid for the leasing of such loops.

15. Like all other BL105 arguments, the debate on whether Type II interconnection constitutes a *de facto* deprivation is not new. In paragraphs 91 to 92 of the Administration's Response, the issue of *de facto* deprivation was considered. The approach set out therein is in line with the jurisprudence developed by the local courts on the meaning of "deprivation" (徵用) under BL 105 since the issuance of the Administration's Response. Briefly, the TA takes the view that while a substantial interference with the enjoyment of possessions without formally divesting the owner of his title may amount to *de facto*

deprivation (徵用) for the purposes of BL 105 in certain cases, the TA's power under sections 36A and 36AA does not involve any such *de facto* deprivation (徵用) since the parties subject to the TA's above power will not lose all their ability to exploit, dispose or make use of their telecommunications system/services or facilities. PCCW-HKTC continues to own, maintain and operate the local loops subject to Type II interconnection.

16. An important characteristic of Type II interconnection in Hong Kong is that it will only be permitted on customer request. The customer has a freedom of choice on service operators and may, at any time, chooses to port back to PCCW-HKTC's network. The basic objective behind the Type II interconnection arrangement is to allow the end customer connected to the local loops to have a choice of networks for interconnection to the local loops. Type II interconnection means interconnection by one network operator to the local loops of another operator with the local loops being one element of the network that will continue to be operated and maintained by the owner of the local loops after the interconnection. Type II interconnection is the supply of an interconnection service, which is a form of conveyance services, using the local loops. The owner of the local loops operates and uses the local loops to provide the interconnection service and receives a payment from the user of the interconnection service for the provision of this service. It should not be interpreted as the total transfer of the right of use of the local loops as this is not the spirit behind Type II interconnection requirement. In providing interconnection to its local loop, PCCW-HKTC will be compensated by the requesting operators at fair and reasonable charges determined by the TA if there is no agreement reached between the parties.

Calculation of Compensation

17. PCCW-HKTC argues that according to BL105, in making a determination in relation to Type II interconnection, the TA is obliged to provide PCCW-HKTC with compensation corresponding to the "real value" of the local loop. PCCW-HKTC considers that assessment of the "real value" should involve a forward-looking inquiry which requires an analysis of the possible uses of the local loop, the retail services that may be supported and the retail prices of those services. Any bottom-up costing analysis is, in PCCW-HKTC's view, wrong.

18. As discussed above, the TA does not consider that Type II interconnection amounts to a deprivation (徵用) of property under BL105. Hence, the consideration of “real value” compensation is not relevant in the present case. That said, however, the concept of “fair compensation” has been incorporated into section 36A(3B) which provides that any interconnection charge shall be based on the relevant reasonable costs attributable to interconnection and, in determining the level, or method of calculation, of the relevant reasonable costs attributable to interconnection, the TA may select from among alternative costing methods what he considers to be a “fair and reasonable” costing method. The bottom-up approach therefore is based on the statutory requirement of compensating the interconnection parties by reference to the “costs” attributable to the interconnection.

Application of the “Essential facilities” Doctrine

The “essential facilities” doctrine has its antecedents in US antitrust law. In *MCI Communications Corp v AT&T*, the essential facilities doctrine is put as follows:

- (1) control of the essential facility by a monopolist;
- (2) a competitor’s inability practically or reasonably to duplicate the essential facility;
- (3) the denial of the use of the facility to a competitor; and
- (4) the feasibility of providing the facility.

2 In its submission, PCCW-HKTC comments that the Federal Communications Commission (FCC)’s attempt to drift away from a rigorous economic analysis under the essential facilities doctrine in the enforcement of the unbundling policy has been struck down by the US courts. In particular, PCCW-HKTC relies on the ruling in the case *U.S. Telecom Association v FCC* [2002] where the court stated that:

In the end, then, the entire argument about expanding competition and investment boils down to the Commission’s expression of its belief that in this area more unbundling is better. But Congress did not authorize so open-ended a judgement. It made “impairment” the touchstone. The Commission argues that [relevant unbundling provisions], directing it to consider necessity and impairment “at a minimum”, clearly allows it to consider other elements. We assume in favour of the Commissioner that that is so. But to the extent that the Commission orders access to UNEs in circumstances where there is little or no reason to think that its absence will genuinely impair competition that might otherwise occur, we believe it must point to something a bit more concrete than its belief in the beneficence of the widest unbundling possible.

3. As the judgment has expressly spelt out, the reason for adopting a

high threshold on unbundling in US is because the relevant legislation in US, s.251(d)(2) of the US Telecommunications Act, contains express qualifying conditions on the Commissioner's exercise of his power to mandate unbundling – namely whether access is “necessary” and whether the failure to provide access would “impair” competition. In other words, the essential facilities doctrine in the US has been developed within the context of the Act, which expressly stipulates “necessity” and “impairment” as the tests for unbundling. This is in contrast with the position in Hong Kong where there are no express conditions requiring any section 36A decision on Type II interconnection to be subject to the “necessity” and “impairment” tests.

4. In the European Union (EU), the “essential facilities” concept is embedded in the Access Notice¹⁸ and the concept will in many cases be of relevance in determining the duties of the operator holding a dominant position. Paragraph 68 defines “essential facility” as a facility or infrastructure which is essential for reaching customers and/or enabling competitors to carry on their business, and which cannot be replicated by any reasonable means. Further, paragraph 69 stipulates that “*a company controlling the access to an essential facility enjoys a dominant position within the meaning of Article [82 of the Treaty Establishing the European Community]*”, a provision governing the abuse of powers by operators holding a dominant position. Therefore, dominant operators will be restricted from using their control over access to facilities to limit developments of the market which may amount to an abuse.

5. In the leading case on this subject *Oscar Bronner GmbH v Mediaprint Zeitungs*, Advocate-General Jacobs analysed all cases, including US cases, on the essential facilities doctrine. The European Court of Justice held that for a refusal to grant access to amount to an “abuse”, the following criteria will have to be assessed:

- (1) Access to the essential facility is indispensable.
- (2) There is a demonstrable potential consumer demand for the would-be-product (i.e. the requesting operator's product).
- (3) The refusal is likely to eliminate all competition in the market.
- (4) The refusal is incapable of being objective justified.

6. A feature of the “essential facilities” doctrine used in the EU and the US is that the doctrine has developed under the anti-trust or competition law

¹⁸ Notice on the Application of the Competition Rules to Access Agreements in the Telecommunications Sector (98/C 265/02)

regime.

7. In Hong Kong, however, Type II interconnection is governed by a regime separate and distinct from the fair competition provisions of the Ordinance and there is no general competition law. The competition provisions outlaw conduct, which substantially restricts competition or amounts to abuse of dominance. For these provisions to come into play, the prohibited conduct with the substantial effect must be established.

8. By contrast, the objective of the interconnection provisions is to facilitate interconnection. It is not a pre-requisite to the use of the interconnection provisions that a party should have engaged in anti-competitive or abusive conduct. This is therefore distinguishable from the US and EU jurisprudence which develops the “essential facilities” doctrine on account of whether refusal to supply the local loop amounts to “impairment” to competition or an abuse.

9. Section 36A(10) has imposed an obligation on the TA to consider some specific factors before exercising the power under section 36A, namely:

- (a) The Government’s objectives for the telecommunications industry;
- (b) consumer interest;
- (c) encouraging efficient investment in telecommunications infrastructure;
- (d) the nature and extent of competition among the parties to the interconnection concerned and their respective abilities to compete with each other fairly;
- (e) such other matters as the Authority considers appropriate in the particular circumstances of the case.

It is clear that the “essential facilities” considerations are not specifically listed as factors that the TA is statutorily obliged to consider under section 36A.

10. The first factor to be considered under section 36A(1) is the Government’s policy objectives. Paragraph 2 of the First Consultation Paper states that the Government develops its policy on Type II interconnection with a view to:

- (a) promoting the telecommunications industry;
- (b) encouraging investment in network;
- (c) facilitating effective competition in the telecommunications market and enhancing consumer choice.

Whilst the TA is obliged to give regard to the broader policy considerations, as opposed to following a pure competition test (e.g. the “essential facilities” doctrine) in making determinations under section 36A, we nonetheless recognise that the “essential facilities” doctrine has its value in the consideration of whether Type II interconnection furthers the accomplishment of the policy objectives of the Government set out in section 36A(10). For example, a consideration of whether a facility is “essential” would affect the extent to which Government policy objectives can be accomplished if access to the facility is allowed or denied. If a facility is not “essential”, then the difference in the level of competition/consumer choice with and without access to the facility will not be as significant as the case when the facility is “essential”. Therefore the “essential facilities” doctrine will have indirect relevance to the formulation of the Type II interconnection arrangement and the TA’s consideration in making a determination. The TA is also required to take an overall view of all the relevant factors set out in section 36A(10), balancing the various factors if required, before making a determination on Type II interconnection. On this basis, it does not necessarily follow that if a facility is not “essential”, Type II interconnection to it should not be allowed.

11. The TA notes that Australia and Canada have also taken into account wider policy concerns rather than the strict application of the “essential facilities” doctrine (as developed in US and EU) to establish their local loop unbundling regimes. The Australian Competition and Consumer Commission (ACCC), for example, is guided by principles such as:

- (a) promoting competition in markets for telecommunications services;
- (b) achieving any-to-any connectivity in relation to carriage services; and
- (c) encouraging the economically efficient use of – and investment in – infrastructure

as required by Part XIC Section 152AB(2) of the Trade Practices Act.

12. Canada, on the other hand, is guided by other policy motivations for local loop unbundling, as stipulated in section 7 of the Canadian Telecommunications Act, which are, among others, as follows:

- (a) to facilitate the development of the Canadian telecommunications system;
- (b) to promote reliable and affordable telecommunications in rural and urban areas in all regions;
- (c) to enhance the efficiency and competitiveness of Canadian telecommunications on both the national and international level.

13. From the above analysis, it is clear that there is no universal application of the “essential facilities” doctrine to local loop unbundling. OFTA notes that in other jurisdictions, mandated local loop unbundling, by and large, is the current policy. Although there is general recognition that the policy should be subject to constant review given the dynamic development of the industry, none of the countries that have deployed local loop unbundling has completely abandoned it, whether after application of the relevant principles or the application of an “essential facilities” test.

14. In the US, for example, the *Triennial Review Order* released by the FCC on 21 August 2003 determined the continued unbundling for legacy copper facilities and reduced unbundling for next-generation network facilities.

15. In the EU, unbundled access to the local loop is provided for in the EC Regulation 2887/2000/EC on *Unbundled Access to the Local Loop* (effective 2 January 2000). The regulation requires operators with significant market power to offer fully unbundled access or shared access on cost based prices. Directive 2002/19/EC on *Access to, and Interconnection of, Electronic Communications Networks and Associated Facilities* is effective from 25 July 2003, by which a national regulatory authority may require operators with significant market power to allow access to their local loops on an unbundled basis.

16. In Australia, the ACCC in July 1999 declared that the incumbent operator is subject to the obligation of unbundling its copper networks¹⁹. In

¹⁹ In July 1999, the ACCC issued a report entitled “*Declaration of Local Telecommunications Services – A Report on the Declaration of an Unconditioned Local Loop Service, Local PSTN Originating and Terminating Services, and a Local Carriage Service under Part XIC of the Trade*”

Canada, the Canadian Radio-television and Telecommunications Commission (CRTC) mandated the unbundling of certain incumbent local exchange carriers' (ILECs) service and facility components that were considered as "essential facilities". In the same decision, CRTC also mandated that certain facilities, functions or services which did not meet the definition of an essential facility, but for which the competitive supply is very limited (near-essential facility), also be unbundled for a period of five years. By an order in March 2001, the CRTC extended the sunset period for near-essential facilities indefinitely.²⁰

Practices Act 1974". In June 2003, the ACCC decided in a paper, *Expiry Dates for Declared Services*, that the expiry date for Unconditional Local Loop Service will be July 2006 and for Line Sharing in October 2007.

²⁰ Order CRTC 2001 – 184 *Local Competition: Sunset Clause for Near-Essential Facilities*

The Three Points of Interconnection

