

**Legislative Council**  
**Information Technology and Broadcasting Panel**

**Charges for the Use of Telecommunications Networks**

**Purpose**

In Hong Kong, telecommunications services of various types (e.g. external telephone services, Internet access services and other types of value-added services (VAS)) may be operated by service providers who are not network operators. Customers gain access to these services through the networks which include fixed networks and mobile networks. The network operators therefore perform conveyance services which provide the connections between the telecommunications service providers and their customers.

2. The service providers who use the conveyance services of the network operators are required to pay interconnection or access charges to fairly compensate the network operators for the use of network resources consumed in the provision of the conveyance services. This paper briefs Members on the charges related to the usage of the networks by service providers, including the Public Non-exclusive Telecommunications Service (PNETS) charge and local access charge (LAC).

3. In a multi-network environment, it would not be fair for any particular network operator to bear the full burden of extending its network to provide basic services<sup>1</sup> to customers in all parts of the territory, irrespective of the cost of serving those customers. At present, certain types of service providers have to pay the universal service contribution (USC) to share the burden of providing universal coverage of basic services in Hong Kong. This paper also briefs members on the USC.

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<sup>1</sup> Basic service comprises a public switched telephone service, a reasonable number of public payphones including payphones located within publicly or privately owned facilities to which the public have access, a reasonable number of payphones for hearing impaired and physically disabled, operator provided directory enquiries, fault reporting, service difficulty and connection services, a tropical cyclone warning service, a thunderstorm and heavy rain warning service, a flood warning service and access to a number or numbers for emergency services i.e. the scope of universal service.

## **Public Non-exclusive Telecommunications Service (PNETS) Charge**

### ***Background***

4. PNETS charge is an interconnection charge paid by the VAS providers, including Internet services providers (ISPs) and data service operators, to the local fixed telecommunication network services (FTNS) operators to cover the cost for the use of the fixed networks in connecting the customers of the VAS to the service providers' facilities in a "dialled-up" access. A similar interconnection charge exists for the connection of fixed line customers to mobile phone services. Typically, ISPs pass the network usage cost to their customers and the PNETS charge appears as a separate item in the customers' bills. Mobile phone operators, on the other hand, do not charge customers separately.

5. The imposition of PNETS charge on the service providers of VAS and indirectly on the users of such VAS is a fair arrangement in the Hong Kong environment where the telephone lines are charged on a flat rate basis. Without such a PNETS charges, users of VAS, particularly Internet access services, who tend to occupy telephone lines for prolonged periods, would be unfairly subsidised by light volume users who pay the same charge for a telephone line. The time sensitive PNETS charge would also deter inefficient use of network resources and help prevent severe network congestion.

6. The TA only regulates the level of the PNETS charge that is levied by the dominant network operator, Cable & Wireless HKT Telephone Limited (CWHKTC). The charges levied by the other three FTNS licensees are set by market forces although they would normally use CWHKTC's charge level as a benchmark.

7. The calculation of PNETS charge is based on a fully distributed cost model. Under the model, all costs including network depreciation, operation and maintenance, cost of capital as well as indirect fixed costs are allocated to different types of calls handled by CWHKTC's network such as calls to residential and business lines as well as calls to VAS and mobile phone services. The allocated cost elements of each particular call type are then classified as either line or usage sensitive. The final outcome of the model is two major chargeable items - line rental per month and usage charge per occupancy minute.

## *Review of Methodology*

8. The cost model for PNETS was developed in 1996 after industry consultation. The TA has conducted three annual reviews on the PNETS charge under the established cost model, resulting in reduction in both line cost and conveyance cost per occupancy minute. The latest review was concluded in October 1999, with the new, lower charges effective from 1 October 1999. The monthly rental of the lines used by all VAS providers, including ISPs, has been reduced from \$82 per line per month to \$79 per line per month. The per minute usage charge to VAS providers has also been reduced from 3.3 cents per minute to 2.7 cents per minute, an 18% reduction. Likewise, the per minute usage charge for mobile phone operators has been reduced from 6.4 cents to 5.9 cents from 1 October 1999, an 8% reduction.

9. In view of the changes in the telecommunications market environment over the past few years, the TA considers it timely now to review the current cost model and will be consulting the industry shortly on it. There are three major issues for consultation. The first is the choice of cost standards. Under the existing model, a fully distributed cost standard is used. In other cases of interconnecting charges among the FTNS operators, the long run average incremental cost<sup>2</sup> approach is employed. In the review, we have to consider whether we should continue to adopt the fully distributed cost standard. The second is the possible adoption of a two-tier charging structure. At present, a single-tier charging structure is used with the PNETS charge calculated only on the basis of the duration of the conveyance (i.e. the cost of maintaining that connection). Thus, the cost of setting up the connection for a call (or “call attempt cost”) is not separately accounted for. As an alternative, it is possible to adopt a two-tier charging structure, which comprises separate charges for call attempt cost per call and conveyance cost per minute. This alternative may be a better representation of call behaviours and hence should provide a more accurate basis for allocating costs. The third is whether and, if so, how the conveyance charge could be refined by differentiating between the delivery of a call which just transits the network and the conveyance of a call which originates from or terminates at the network in question. The

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<sup>2</sup> The long run average incremental cost approach will take into account the unique business risk and rate of return involved in network investment. The cost elements can incorporate an adjusted cost of capital to reflect the market risk that is fair and compensatory. Under specific circumstances, some of the relevant common and/or joint costs can also be included.

former (i.e. transit only) could be subject to a transit charge which may be different from the latter conveyance charge.

## **Local Access Charge**

### ***Background***

10. LAC is an interconnection charge paid by the operators of external telecommunications services to the local FTNS operators for the use of their local network facilities for the delivery of external traffic to and from customers in Hong Kong. LAC was introduced to replace the delivery fee arrangement from 1 January 1999 as the competition in the external telecommunications services market was expected to force tariffs to align with the underlying costs of production and would make the revenue-sharing based delivery fee arrangement no longer viable. LAC is the outcome of a series of consultation by the TA. It includes all cost components in the operation of the local networks (including the cost of the local loops which the PNETS charge does not cover) plus a cost of capital which duly reflects the risk of investment in the local fixed networks.

11. The TA only sets the level of LAC that could be imposed by CWHKTC on the external service/gateway operators, due to its dominant position in the market for local services. The other FTNS licensees fix their own levels of charges although they would normally use the CWHKTC's charge level as a benchmark.

12. The major rationale behind the TA's setting of LAC level is to ensure a fair charge to the external service operators for their use of the local networks and on the other a fair compensation to the FTNS operators. Accordingly, the calculation of LAC is cost-based and the result represents the costs that would be incurred by the external service operators if they constructed the local networks themselves. This helps maintain commercial incentive to local FTNS operators to invest in and roll-out their networks. A forward-looking costing standard is employed and the cost elements also include a cost of capital which is commensurate with the risks faced by the FTNS operators in the local fixed network market. The current level of LAC for outgoing traffic stands at 15.1 cents while that for incoming traffic stands at 15.8 cents. The difference reflects the cost of managing number portability.

### ***Review of LAC Level***

13. In his Statement on Local Access Charge and Modified Delivery Fee Arrangements on 25 November 1998, the TA has stated that the level of LAC would be subject to review on an annual basis to take into the consideration the current level of the cost components of the charge.

14. The LAC is therefore due for review now. The TA is of the view that the rapid technological and market developments in the telecommunication industry may have led to significant changes in the costs of operation of the telecommunications networks. He therefore intends that the review should revisit the various cost components adopted in the current calculation of LAC to ensure that the calculated level would continue to represent a fair charge as well as an adequate compensation. The TA will issue a consultation paper shortly to invite comments from the industry.

### **Universal Service Contribution**

#### ***Background***

15. Under the current telecommunications regulatory framework, CWHKTC, insofar as it remains the dominant local carrier, has the Universal Service Obligation (USO) of providing a good, efficient and continuous basic telecommunication service at reasonable cost on a non-discriminatory basis to all persons in Hong Kong, even if it is not economically viable to do so in respect of some groups of customers. The other network operators and service providers are required to contribute to the additional costs borne by CWHKTC for the fulfillment of the USO. The contribution is shared by the other network operators and service providers in proportion to the traffic minutes of the external telecommunications services operated by them. The current levels of USC are 6.8 cents for Category A routes (which are routes that have already been liberalised) and 10.6 cents for Category B routes (which are routes where the market is not yet liberalised).

## ***Review of Methodology***

16. The net cost of USO in serving each individual uneconomic customer (who would otherwise not be served on a purely commercial basis if there were no USO) is the difference between the total relevant costs and the total relevant revenues of that particular client. The totaling of the net cost of USO of each individual customer is the amount of USC. The methodology was adopted by the TA on 14 January 1998 after consultation with the industry. Since then, there have been significant changes in the telecommunication market environment. As these changes have significant impacts on the scope of relevant costs and revenues, the TA considers it timely to review the present methodology for calculating the USC.

17. On 23 September 1999, the TA issued a consultation paper to invite comments from the industry on the proposed changes to the present USC calculation methodology. The TA's preliminary view is that the changes in income earned over the local network of the USO provider for originating/terminating calls from/to the external service/gateway operators as well as the broadened scope of services offered by the USO provider should be included in the calculation of the USC. The TA has received a total of eight submissions from the telecommunications operators and is now considering the comments. He plans to issue a report giving his conclusion on the review in early 2000.

## **Way Forward**

18. The changes in the market environment in both the domestic and external services markets call for reviews on the methodologies for the calculation of the various network access charges discussed in this paper. The TA is now taking steps to consult the industry and will consider carefully their views before deciding on the appropriate costing methodologies for calculating the various charges connected with network usage.