For discussion
on 8 March 2010

Legislative Council Panel on
Information Technology and Broadcasting

Landing of Submarine Cables

PURPOSE

This paper informs Members of the preliminary findings and recommendations of a consultancy study commissioned by the Office of the Telecommunications Authority ("OFTA") on the landing of submarine cables in Hong Kong, including the measures that the Administration should adopt in order to facilitate and promote the landing of new cables in the territory.

BACKGROUND

2. Submarine cables are a major component of external telecommunications networks[1]. IDD, international private leased circuits, electronic mail, social networking portal and Internet surfing, etc. all require connections via external telecommunications networks. In particular, service industries (such as financial, trading, logistics, tourism and data-intensive industries) rely heavily on external telecommunications networks in their daily operation.

3. There are currently nine submarine cable systems that land in Hong Kong at six submarine cable landing stations ("SCLS"). These SCLS are located at Tong Fuk (with two stations), Deep Water Bay, Cape D'Aguilar, Chung Hom Kok and Tseung Kwan O ("TKO"). A map showing the locations of SCLS is given at **Annex**.

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[1] Submarine cables account for over 70% of the external telecommunications capacity in Hong Kong. Overland cables and satellite links account for the rest.

4. The demand for submarine cable capacity in Hong Kong has been on the rise. Apart from the increasing bandwidth requirements for business, the rising demand is fuelled by the popularity of bandwidth-hungry Web 2.0 applications over the Internet, point-to-point file sharing and video streaming. The rapid growth of the external and transit traffic between the Mainland and Southeast Asian countries routing through Hong Kong as a telecommunications hub also accounts for the increasing demand. Between September 2005 and September 2009, the equipped and activated submarine cable capacity[2] of Hong Kong has increased from 0.6 Terabit[3] per second (Tbps) and 0.3 Tbps to 2.7 Tbps and 1.8 Tbps respectively, representing a cumulative increase of 350% and 500%, or an average annual growth of 46% and 57% respectively.

5. The earthquake in Taiwan in December 2006 resulted in serious damage to a number of submarine cables, which caused widespread disruption to external telecommunications services in the whole region. In view of the risk of the loss of external connectivity arising from the submarine cable faults, it is important for Hong Kong to enhance its network redundancy and resilience with additional submarine cables running along diversified routes.

6. Other Southeast Asian economies such as Malaysia and Singapore have been aggressively developing their telecommunications infrastructure to support the growth of their service industries. These economies have streamlined their application procedures for acquiring land to build new SCLS[4], laying submarine cables in their waters and landing them at the SCLS.

7. In view of these industry and regional developments, there is a pressing need for Hong Kong to step up its effort to attract the landing of new submarine cables. In his Policy Agenda in 2009-10, the Chief Executive indicated that the Administration would review the procedure for landing submarine cables in Hong Kong with a view to making it simpler

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2 "Equipped capacity" refers to the capacity of the external circuits, which are equipped with the necessary termination equipment so that the capacity is readily available to customers in Hong Kong upon request. "Activated capacity" refers to the capacity of the external circuits, which are being used by the customers.

3 One Terabit is equal to 1×10^{12} bits.

4 Generally speaking, SCLS is a building which accommodates the onshore ends of the submarine cables and the necessary equipment that connects the submarine cables to the local telecommunications network.

and speedier for interested parties to install new submarine cables with or without affiliated data centres. In this connection, OFTA commissioned a consultancy study in late 2009 to confirm the economic benefit of, and recommend measures to facilitate, the landing of new submarine cables in Hong Kong. The preliminary findings and recommendations of the consultant are summarised in the following paragraphs.

FINDINGS OF THE CONSULTANCY STUDY

Economic Benefit of Landing Submarine Cables in Hong Kong

8. The consultant confirmed that submarine cables play a crucial role in creating jobs and adding value to the economy in Hong Kong. Submarine cable connections are also of vital importance in supporting the operation of Hong Kong's key service industries.

Analysis of the Strengths, Constraints, Opportunities and Threats of Hong Kong as a Potential Landing Point for Submarine Cables

9. Regarding the landing of submarine cables, the consultant has identified two major groups of factors that submarine cable owners will consider in choosing landing points: (a) strategic factors, including regional demand for bandwidth, geographical location of the landing point, presence of other submarine and land cable systems for interconnection, and general business environment; and (b) regulatory factors, including government policies, ease of administrative processes, and facilitating investment environment. The analysis of the consultant on Hong Kong's position is set out below.

Strengths

10. Hong Kong is centrally located between Japan, South Korea and Southeast Asia, making it a natural geographical hub for these economies. Hong Kong also serves as a gateway for the Mainland. Any new submarine cable system which lands in Hong Kong will be able to interconnect readily with the existing systems for exchange of transit traffic and mutual system backup.

11. Hong Kong is highly valued for its stable and pro-business environment, free market approach, and transparent regulatory and judiciary systems. These give assurance to investors in respect of their huge investments (amounting to a few billion Hong Kong dollars for a cable system) in the submarine cable systems, which have a typical life span of 20 years or more. Hong Kong is also highly valued for its position as a financial centre in the region, high density of regional corporate headquarters and the confluence of key technology segments (such as data centres and content service providers) which drive the growth of the submarine cable industry in Hong Kong. Also, Hong Kong consumers are at the forefront of information technology applications, driving further demand for bandwidth.

Constraints

12. Currently, parties interested in landing new submarine cables in Hong Kong have to get in touch with various government departments on issues such as land acquisition, approvals for the laying of submarine cables through the waters of Hong Kong, landing at an existing SCLS or building a new SCLS. We have received feedbacks from the industry that when compared with the other economies in the region, it takes a relatively long time for potential applicants to identify the relevant authorities and acquaint themselves with the application processes.

13. Due to the geography of Hong Kong, the submarine cables are landed in Hong Kong from international waters via the southeast direction. This has restricted the choice of landing sites for submarine cables even though Hong Kong has a long coastline. Currently, there are three major areas for landing of submarine cables with SCLS: (1) Tong Fuk in the southern part of Lantau Island; (2) Deep Water Bay, Cape D'Aguilar and Chung Hom Kok in the southern part of the Hong Kong Island; and (3) TKO in the eastern part of the New Territories. As most of the existing submarine cables are landed at Tong Fuk and Deep Water Bay, there are advantages in having additional cables landed in SCLS or new pieces of land elsewhere. The SCLS at TKO is spacious and could offer the necessary physical diversity. However, the existing operator is restricted by the current land lease from subletting the vacant space in the SCLS to enable more submarine cables to be landed there (see paragraph 19 below).

Opportunities and Threats

14. The consultancy study reveals that there will be high growth in the demand for external bandwidth from the Mainland and Southeast Asia[5] as a result of the continuous development of their economies and telecommunications infrastructure in the region. Hong Kong should therefore be in a strong position to take advantage of this growth. Hong Kong may also benefit by the potential growth of the overland cables connecting the Mainland, India and Europe as we may route the transit traffic between these economies and other countries in Southeast Asia. However, it is noteworthy that other landing points in the region, including those in Singapore, Taiwan and the Mainland remain the competitive alternatives to Hong Kong for selection by owners of new submarine cables.

RECOMMENDATIONS OF THE CONSULTANT

Increasing the Transparency of Application Processes

15. At present, the industry may find it difficult to get hold of the necessary information in respect of the application procedures and the statutory approvals for landing a new submarine cable in Hong Kong. The consultant has identified the need to increase the transparency of the application processes with a view to promote understanding of the application processes. In this regard, OFTA plans to launch a dedicated web page to provide the industry with the relevant information, including (i) information on the existing SCLS in Hong Kong and the potential sites for SCLS, (ii) an information note on the necessary statutory approvals, and (iii) contacts of the relevant government departments and parties.

16. OFTA will also offer a single-point-of-contact service whereby applicants may submit their applications together with the necessary information to OFTA. OFTA will then coordinate with the relevant government departments and, if necessary, line up meetings with them to expedite the vetting processes.

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[5] For the consultancy study, Southeast Asia is considered as countries including Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

Enhancing Coordination within Government to Expedite Approval Processes

17. Currently, parties interested in landing new submarine cables in Hong Kong have to approach various government departments[6]. If a new SCLS is to be built, the processes involve even more departments. The consultant recommends establishing an ad-hoc working group with representatives from relevant government departments and parties to deal with such applications. This will enhance collaboration and coordination among various parties and reduce the time required to process the applications. OFTA is following up on this recommendation.

Ensuring Close and Timely Collaboration to Facilitate Cable Repairs

18. Any submarine cable fault (which may be due to a natural disaster or unintentional damage by vessels passing by) will adversely affect the external connectivity of Hong Kong. To enable timely repair of faulty cables, the consultant recommends that applications for temporary operating licence for the cable repair vessel and employment visas for personnel on board the repair vessel to enter Hong Kong waters should be processed as quickly as possible to enable early restoration of the affected external telecommunications services. With the assistance of other relevant government departments, OFTA has issued an information note which aims to help submarine cable operators understand more about the application procedures and requirements. OFTA will also strengthen the liaison with other departments with a view to deal with any request for assistance from the industry expeditiously.

Considering the Relaxation of Lease Conditions of Existing SCLS in Tseung Kwan O Industrial Estate ("TKOIE")

19. All SCLS, except the one in TKOIE, may be shared by the equipment of new submarine cables subject to the terms and conditions of the land grant of the SCLS and relevant statutory requirements. The industry has raised concerns over the concentration of submarine cables at Tong Fuk and the southern part of the Hong Kong Island. They suggest

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[6] The government departments may include the Lands Department, Environmental Protection Department, Marine Department, Agricultural Fisheries and Conservation Department, Home Affairs Department and Leisure and Cultural Services Department, depending on the nature and scope of the project.

that the shared use of the existing SCLS at TKOIE, and any new SCLS that may be built at TKOIE, should be permitted for landing additional submarine cables. SCLS should also be allowed to co-locate with affiliated data centres. The intention is to provide for enhanced redundancy and diversity so that the risk of multiple cable failures in the event of an accident or disaster would be minimized. In this respect, the consultant recommends the relaxation of the lease conditions of the SCLS at TKOIE to allow shared use of the SCLS for landing new submarine cables and co-location of affiliated data centres. OFTA is working with the Hong Kong Science and Technology Parks Corporation, which manages the TKOIE, to take forward this recommendation.

Use of the Designated Land in Chung Hom Kok Teleport

20. At the Chung Hom Kok Teleport site, nine lots have been set aside for use as external telecommunications stations. Two of the concerned lots have been granted for the provision of external telecommunications services, one for SCLS and another for satellite earth station. To facilitate the industry to gather information on the available lots and source sites for new SCLS, the relevant information will be included in the web page to be launched by OFTA. Interested parties may also approach OFTA for assistance and referral about the land acquisition in Chung Hom Kok Teleport for setting up of new SCLS.

WAY FORWARD

21. OFTA and the consultant conducted an industry workshop on 28 January 2010 to brief the stakeholders including industry players and relevant parties on the preliminary findings and recommendations of the consultancy study. Both local and overseas representatives welcomed the proposed initiatives to facilitate the landing of more submarine cables in Hong Kong. The consultancy study will be completed by end March, and OFTA will then review the consultancy report and further study with the relevant stakeholders as to how the recommended measures should be taken forward.

Commerce and Economic Development Bureau
(Communications and Technology Branch)
Office of the Telecommunications Authority
1 March 2010

Annex

Locations of Submarine Cable Landing Stations in Hong Kong