

## **LEGISLATIVE COUNCIL BRIEF**

### **MEASURES TO FACILITATE THE DEVELOPMENT OF DATA CENTRES**

#### **INTRODUCTION**

At the meeting of the Executive Council on 10 January 2012, the Council ADVISED and the Chief Executive ORDERED that a time-limited scheme to facilitate the development of data centres<sup>1</sup> be introduced from a date to be specified in 2012-13 till 31 March 2016, comprising the following —

- (a) For **change in use** to data centre use for parts of industrial buildings<sup>2</sup> aged 15 years or above in “Industrial” (I), “Other Specified Uses” annotated “Business” (OU(B)) or “Commercial” (C) zones, the Government would waive the fees for issuing waivers now chargeable according to standard rates for using existing industrial buildings for Information Technology and Telecommunications (IT&T) industries (which include data centres), subject to the details to be worked out (such as the definition of partial use of the building and the alterations permissible, etc).

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<sup>1</sup> A data centre is a facility for housing computer systems and associated components, such as telecommunications and storage systems. It generally includes backup power supplies, backup data communication connections, environmental controls (e.g. air-conditioning, fire suppression) and security devices.

<sup>2</sup> An industrial building refers to a building lawfully erected on a lot which, under the lease conditions, shall not be used for any purpose other than for industrial or godown purposes or both. Such lots are referred to as “industrial lots”. Special factories such as those located in industrial estates, storage premises in container terminals and flatted factories built by the Housing Authority are excluded.

This concession would apply to data centres of all tiers<sup>3</sup>.

- (b) For development of high-tier data centres – wholly or in conjunction with other uses, and irrespective of zoning, involving **lease modification** (including land exchange) on existing industrial lots (including redevelopment of existing buildings, development of new buildings and change of use of new buildings), the Government would assess the premium for the lease modification on the basis of high-tier data centre use for the part of the proposed development for **data centre use** (even if the modified lease may permit low-tier data centre use under specified conditions). That is, the premium payable for such lease modification, if approved, will reflect the amount of gross floor areas (GFA) to be specified in the modified lease for data centre use. The premium on the **non-data centre part**, if any, of the proposed development will be assessed according to what is specified or permitted in the modified lease according to the usual practice.
- (c) For the **disposal of suitable government sites for data centre use**, including the sites in Tseung Kwan O (TKO) announced in the 2011-12 Policy Address, the Conditions of Sale would be tailor-made for high-tier data centre use and the tender reserve price would be assessed on the basis of the GFA for high-tier data centre use (irrespective of whether the actual development includes exclusively high-tier data centres or a mix of high- and low- tier data centres) and the GFA for other non-data centre permitted uses, if any.

## **JUSTIFICATIONS**

### 2. Data centres are essential infrastructure to sustain Hong Kong's economy

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<sup>3</sup> Data centres are classified into four tiers according to serviceability levels and building requirements. High-tier data centres encompass those classified as Tier 3 and above. According to the Uptime Institute, the four tiers of data centres are classified as follows —

- Tier 1 data centre has the lowest availability of 99.67% with basic site infrastructure;
- Tier 2 data centre has availability of 99.75% with redundant site infrastructure;
- Tier 3 data centre has availability of 99.98% with concurrently maintainable site infrastructure; and
- Tier 4 data centre has availability of 99.99% with fault-tolerant site infrastructure including electrical power storage and distribution facilities. All operating components have to be duplicated, including power supply, backup generator, cooling equipment, etc.

Kong's continued economic development, in particular in the financial, information and communications technology (ICT), e-commerce and media sectors. Consultants have advised that demand for data centre space, measured in terms of Raised Floor Space<sup>4</sup> (RFS), will grow at a compound annual growth rate of 9.8% from 2009 to 2015. An additional 170 000 m<sup>2</sup> of RFS will be required for data centres by 2015, including some 47 000 m<sup>2</sup> for high-tier ones. This implies an extra land requirement of some five hectares alone for high-tier data centres as from 2011, assuming a plot ratio of 5 and a GFA to RFS ratio of 5:1.

### **Unique and demanding site requirements for data centres**

3. High-tier data centres have unique and demanding site requirements. They typically require sites that are at least half to one hectare large with dual sources of power supply; superb telecommunications network connection; and minimal exposure to risks, such as flooding, neighbouring hazardous industries and natural disasters. They require stand alone fuel tanks for emergency power generation, security features, and very stringent floor loading, floor-to-ceiling height and power supply specifications. The power consumption of a high-tier data centre (requiring about 20 – 30 MVA or mega volt amperes) can be as much as 10 – 15 times that of a 320-unit residential building (typically requiring about 2 MVA electricity). Whereas data centres within Industrial Estates (IEs) are bound by the cap on plot ratio (2.5), those outside the IEs tend to be built up to around 10 – 15 storeys, given the tough loading and power specifications for high-tier data centres.

### **Constraints in securing new government sites**

4. The IEs have offered much-needed interim relief to enable Hong Kong to meet the demand for high-tier data centres in recent years. Since 2010, the Hong Kong Science and Technology Parks Corporation has made available some 12 hectares of land in the TKO IE for developing high-tier data centres, of which 3.5 hectares was allocated/assigned in 2011. However, unmet demand remains very high. And new sites or assignment cases offering opportunities for bidding are very limited. The IE admission policy of not allowing "subletting" is a further constraint to our continued reliance on IEs to meeting the needs of data centre operators. Data centre developers may consider those government sites allowing data centre use on the Government's Land Sale Programme or acquire such sites in the private property market. However, industry feedback is less than lukewarm because only few sites are technically suitable for data centre development, and of these sites, competing uses (such as offices and

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<sup>4</sup> Raised Floor Space is the built-up floor space available in data centres for provision of data centre services. It is a common unit for quantifying data centre space.

other commercial uses) are likely to out-bid data centres in financial terms. Over the past one to two years, at least four international and three local companies have expressed interest in investing in data centres in Hong Kong but were frustrated by lack of suitable sites. As a result, many have chosen other locations. This represents unmet demand and lost business opportunities for Hong Kong, and is fast undermining Hong Kong's position as an ICT hub.

5. After a thorough land search, we managed to identify at best about five hectares of land potentially suitable for data centre development, of which two hectares in TKO may be made available earlier to meet the medium to long term needs and the Chief Executive has unveiled this intention in the 2011-12 Policy Address. In addition, another adjacent site of about one hectare could also be made available for data centre use after 2013. The first available site within these some three hectares can only be available for bidding in 2013 at the earliest. The technical feasibility of the other sites requires further assessment and their availability is subject to many considerations, including rezoning, termination and relocation of existing uses and possible need for decontamination.

### **Measures to encourage better use of industrial buildings**

6. To cope with the more urgent needs for data centre development in Hong Kong, we need to contemplate better use of existing industrial buildings. We have a large stock of industrial buildings which are not optimally used mainly because of relocation of our manufacturing industry to the Mainland. As such, the Government has been encouraging the industry to make use of industrial buildings for IT&T use (including data centre use). The Lands Department (LandsD) has introduced standard rates for charging waiver fees for using existing industrial buildings for IT&T industries since 2001, which are relatively attractive in order to encourage the use of floor spaces in industrial buildings for IT&T. In case of redevelopment of existing industrial buildings for data centre use involving lease modification, the land premium will be assessed by LandsD in accordance with the applicable practice.

7. Since April 2010, Development Bureau (DEVB) has implemented a package of measures to encourage wholesale conversion and redevelopment of industrial buildings for mainly non-industrial uses (Revitalisation Scheme). The objective of the measures is to provide more suitable premises through revitalisation of under-utilised industrial buildings to meet Hong Kong's changing economic and social needs. For cases involving wholesale conversion, owners of eligible industrial buildings aged 15 years or above in I, OU(B) or C zones may apply for a special waiver at nil waiver fee for change of use of the entire existing buildings for the lifetime of the existing building or until expiry or termination of the current lease, whichever is earlier. For

redevelopment cases situated in non-industrial zones, premium for the lease modification would be assessed on the basis of proposed development intensity accepted by Government, subject to not less than 60% of the maximum GFA permissible under the relevant OZP to be built, and optimal use of the proposed development. Up till end of November 2011, LandsD has approved a total of 38 applications under the Revitalisation Scheme, comprising 28 cases of wholesale conversion and 10 of redevelopment.

8. Data centres could benefit from the Revitalisation Scheme. However, as data centres are highly specialised facilities with stringent requirements, if an industrial building owner is ready to take forward wholesale conversion or redevelopment, he/she may find "data centre" use less attractive than other uses like office, retail, hotel, etc. Of the 28 cases of wholesale conversion approved by LandsD (as referred to in paragraph 7 above), five are designated a number of non-industrial uses and IT&T uses (including data centres). In addition, LandsD are processing six other applications to provide for IT&T uses and some other non-industrial uses. It is yet unclear how many of them and to what extent the industrial buildings covered by such approvals will be used for data centres.

9. The measures in paragraphs 6 and 7 above, given their wider objectives, are not targeted to facilitate the development of data centres. We need an effective strategy to facilitate the timely development of data centres in Hong Kong, one that would take into account the unique and demanding site requirements for the development of data centres, known constraints in securing new government sites, and the strong industry demand for "quick fix". Without this, Hong Kong would be fast losing out to strong competitors in the region. We will therefore introduce specific incentives to encourage changing the use of existing industrial buildings or lease modification involving industrial lots for data centre use, as explained in the following paragraphs.

### **Concession for change of use [paragraph 1(a) above]**

10. The industry as a whole considers that using industrial buildings for data centres would be the fastest and most practical way to increase the supply of data centres in Hong Kong. However, even with the introduction of the standard rates for charging waiver fees for IT&T use in 2001, there were only eight cases of using parts of industrial buildings for data centre use, among a total of 59 cases of using industrial buildings for IT&T use as at end of November 2011. Room exists for the Government to offer further facilitation to incentivise the development of data centres in existing industrial buildings.

11. To this end, the Government will forgo the waiver fees for change in use for data centre use in parts of the existing industrial

buildings. The lotowner of an existing industrial building may apply for change to data centre use and the application may be approved by LandsD acting in the lessor capacity on a nil waiver fee basis. The nil waiver fee for this specific change in use may be valid for the lifetime of the existing building or until expiry or determination of the current lease, whichever is earlier. The industrial buildings have to be aged 15 years or above (counting from the date of last-issued Occupation Permit for the existing building), and have to be situated in I, OU(B) or C zones, where data centre use is always permitted in planning terms.

12. Data centre remains an industrial use in planning terms (not lease terms). The partial data centre use may co-exist with the industrial and/or godown uses permitted under the leases. If the building under application is in multiple ownership, different owners of the units of the building may apply individually for change of use into data centre for their respective units. In other words, the owners of the same building would not need to submit a joint application. Also, the cessation of the data centre use by any individual owner would not necessarily result in the cancellation of other waivers in the same buildings. The applications for such waivers will, however, be subject to payment of the applicable administrative fee which is aimed at recovering the cost of processing such applications and deterring frivolous applications. For the avoidance of doubt, existing industrial building owners with waivers for change of existing industrial buildings to IT&T use may choose to terminate or not to renew the existing waivers, according to the terms of the waivers, and apply under the new measures for change of use of the industrial buildings to data centres use at nil waiver fee waivers. In the event of future lease modification, the before-value of the lot in the premium assessment will be assessed according to the original industrial use of the industrial lot, not the data centre use allowed under the waiver.

13. The concession will encourage more and faster conversion of industrial buildings for data centre use so as to strengthen Hong Kong's position as a regional data centre hub.

#### **Concession for lease modification of industrial lots [paragraph 1(b) above]**

14. The existing industrial buildings cannot satisfy the demand for high-tier data centres. For redevelopment cases, data centre use is far less attractive than other competing uses. It is because high-tier data centres are typically less than 10 storeys and the development normally would not exceed a plot ratio of 5. But a typical commercial redevelopment (e.g. an office building) in "OU(B)" and former industrial sites can usually reach a plot ratio between 9 and 12. Therefore, to compete with other potential users of suitable sites, data centre users would have to pay for significant unutilised development potential. Besides, data centres have very unique and stringent site requirements.

This will reduce the choice of industrial buildings for high-tier data centres and hence the bargaining power of data centre investors in acquiring such buildings. These explain why there has not been a single case of data centre development through redevelopment of industrial buildings.

15. In view of data centres' apparent disadvantaged position vis-à-vis other uses and taking into account the huge land cost differential between IEs and the open market, we consider it necessary to provide incentives to make lease modification of industrial lots a more attractive option for high-tier data centre development. In this regard, for lease modification of industrial lots for high-tier data centres, the Government assesses the premium for the lease modification on the basis of high-tier data centre use having regard to the amount of GFA for data centre use as specified in the modified lease instead of the development intensity and optimal use as permitted under the relevant OZP . There is precedent for this arrangement where the Conditions of Sale of some Government sites are tailor-made for hotel only use and tender reserve prices are assessed on such basis or where the lease modification premium for redeveloping industrial buildings into hotels is also assessed on the basis of "hotel only use", though the development intensity as permitted in the Conditions of Sale or the modified lease is the maximum development intensity permitted under the relevant OZP.

16. Even if the modified lease may permit low-tier data centre use under specified conditions, the lease modification premium for the **data centre part** would be assessed entirely on the basis of high-tier data centre use, while that for the **non-data centre part** would be assessed according to what is specified or permitted in the modified lease. To avoid excessive under-utilisation of land, the data centre part of the proposed development has to reach at least 40% of the maximum development intensity allowed for the site or a plot ratio of 2.5, whichever is higher, as the minimum GFA to be specified in the lease. This arrangement for data centre is more relaxed than the practice of specifying a minimum GFA at 60% of the maximum permissible development intensity followed in the Revitalisation Scheme.

17. This concession should apply to high-tier data centres only, irrespective of the zoning of the industrial lots. We will work out a set of unique lease conditions to ensure that only genuine high-tier data centres can benefit, including stipulating typical setup specifications for high-tier data centres, such as large-capacity servers, high-capacity power supply, connection to high-bandwidth networks and purpose-built redundant supporting facilities. There will also be a 30% cap on ancillary office space. Furthermore, as data centres are heavy power users, we will consider if it is necessary to mandate compliance with specified environmental requirements, such as power efficiency and certification by recognised bodies.

## **Disposal of government sites for data centre use [paragraph 1(c) above]**

18. The three hectares of land in TKO as mentioned in paragraph 5 above is in close proximity to the TKO IE where there is a cluster of data centres, and will be disposed of **for data centre use** by way of public tender. The Conditions of Sale will be tailor-made primarily for high-tier data centre purpose and the tender reserve price be assessed on the basis of the GFA for high-tier data centre use (irrespective of whether the actual development includes exclusively high-tier data centres or a mix of high- and low- tier data centres) and the GFA for other non-data centre permitted uses, if any, as specified in the Conditions of Sale. In the event that the Government can identify and dispose of by end March 2016, more sites for data centre use only, the Conditions of Sale and the setting of the tender reserve price should likewise follow the high-tier data centre use approach.

## **IMPLEMENTATION**

19. We will introduce the measures in paragraph 1 above as a data centre-specific time-limited scheme to be effective on a date to be specified in 2012-13 till 31 March 2016. We will work with LandsD to determine the commencement date, taking into account the time needed to put the implementation arrangements in place, including the preparation of and consultation on the relevant Practice Notes.

## **COMPLEMENTARY FACILITATION MEASURES**

20. Upon conclusion of the Office of Government Chief Information Officer (OGCIO) consultancy in late 2010, the Financial Secretary announced in the 2011-12 Budget the policy to facilitate the development of high-tier data centres. We have since introduced the following –

- (a) **One-stop portal:** launched in July 2011 to provide information on policy and technical issues relating to data centre development in Hong Kong.
- (b) **Facilitation Unit:** launched in July 2011 to offer proactive and one-stop advice to parties seeking information or help on data centre development in Hong Kong.
- (c) **Government facilitation:** Given their unique mode of operation, the on-site requirements for data centres are different from those for other industrial buildings. For instance, data centres require much fewer lorry parking

lots because loading and unloading activities are infrequent; fewer sanitary facilities as only a small crew is on duty at any one time; higher headroom for accommodating servers above raised floor; extra floor area for fall-back plant rooms and supporting facilities, etc. OGCIO has been collaborating with the concerned departments to identify scope for streamlining, fine-tuning the regulatory regime to better serve the legitimate needs of data centres, and expediting the vetting processes. OGCIO's data centre portal will continue to provide information on the applicability of standard provisions on data centres to enhance regulatory transparency.

## **IMPLICATIONS**

21. The economic, financial, civil service, Basic Law and human rights, environmental and sustainability implications are set out at Annex A.

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## **PUBLIC CONSULTATION**

22. Making enough suitable land for high-tier data centres has been a topical issue in the ICT industry. In 2008, the Innovation and Technology Commission commissioned a study into the land administration and supply/demand of lands by data centres in Hong Kong, among others. In 2010, OGCIO commissioned a study into the wider economic impacts attributed to the data centre sector. In both studies, industry participants were interviewed and consulted. In the OGCIO's study, over 50 industry players and stakeholders were interviewed and consulted, including professional bodies and Chambers of Commerce. Some have expressed concern about the affordability of the data centres for small-to-medium-sized companies. Some suggested the Government should build tailor-made data centres on the new land and lease the sub-divided units to small-to-medium-sized companies. The Digital 21 Strategy Advisory Committee and the Task Force on Industry Facilitation have been consulted and are supportive of measures to facilitate data centre development. The Legislative Council Panel on Information Technology and Broadcasting has also raised concerns about Hong Kong's competitiveness if it is difficult for data centres to set up here.

## **PUBLICITY**

23. The measures at paragraphs 1(a) and (b) above were announced in the 2012-13 Budget. We will arrange briefings to

articulate the new measures. We will also disseminate the information through our data centre portal ([www.datacentre.gov.hk](http://www.datacentre.gov.hk)).

## **BACKGROUND**

24. Data centres are an essential infrastructure to support pillar economic sectors, notably financial services, and trading and logistics. These two economic sectors accounted for 52% of total data centre space, against their Gross Domestic Product contribution of 39% in 2009. With the increasing reliance of these sectors on ICT, together with the advent of high-frequency stock trading, cloud computing, and e-commerce, the demand for data centre services is surging. Co-location of critical business operations and supporting data centres is essential to avoid network latency (delay) and improve efficiency. Therefore, businesses prefer to have data centres within the city of their mission-critical operations to reduce risks. Many regional data centres of financial institutions are located where their regional headquarters are, and multi-national companies locate their support, research and development and ICT operations in cities where their data centres are located. Competition to attract data centres is keen in the region. Some economies, for instance, have been offering incentives such as tax breaks, large green field sites, streamlined processes to expedite the application and licensing approval to entice data centre operators in the past 10 years. Against such backdrop, the shortage of suitable sites has put Hong Kong in a disadvantaged position. As a result, some big-name global data centre operators and multi-national companies have turned to other places.

## **ENQUIRY**

25. Enquiries relating to this brief may be directed to Mr. Kenneth Cheng, Assistant Government Chief Information Officer, at 2810 2627.

**Commerce and Economic Development Bureau  
Office of the Government Chief Information Officer  
February 2012**

## **IMPLICATIONS OF THE MEASURES**

### **Economic Implications**

Data centres provide critical telecommunications infrastructure for the smooth operation of a wide range of economic sectors including the financial, trading and logistics, and ICT sectors. The measures should facilitate the development of more data centres in Hong Kong, thereby helping to improve our competitiveness as an international business and financial services hub.

2. Yet the measure for charging the premium on a high-tier data centre use basis and lower development intensity accepted by Government, both for disposing of new sites for data centre use and for lease modification, may incur economic costs in terms of reduced development/redevelopment potential of the sites concerned, as represented by the land revenue difference compared with the alternate scenario of having the sites for the optimal use.

### **Financial Implications**

3. The measure as set out in paragraph 1(a) of the Legislative Council (LegCo) brief (i.e. to charge nil waiver fee for the change of use in parts of industrial buildings for data centre use) will lead to revenue forgone. However, under the current Revitalisation Scheme, the Government is already forgoing waiver fee for wholesale conversion of industrial buildings aged 15 years or above in I, OU(B) or C zones. Therefore, the additional revenue forgone will mainly be caused by the waiver fee exemption for changing part of the industrial buildings for use as data centre.

4. Paragraph 1(b) of the LegCo brief introduces the measure to assess lease modification premium for development of data centres on industrial lots on the basis of high-tier data centre use and a lower development intensity accepted by the Government. Under the Revitalisation Scheme, the Government is already offering the incentive of “pay for what you build” by assessing premium based on the “actual (vs maximum)” development intensity of not less than 60% of the maximum permissible GFA and the optimum use of the proposed development. The additional revenue forgone will arise from that part of the measure for assessing lease modification premium on the basis of “actual use” (vs “optimal use”) and for allowing a 40% (vs 60%) minimum development intensity, as well as from the broader coverage of the measure to all industrial lots irrespective of zoning (not only those in non-industrial zones under the Revitalisation Scheme). The indicative revenue forgone cannot be estimated at this stage. It will

depend on the response to the measure. In case of high-tier data centre development in conjunction with other uses, the land premium forgone should be less as the non-data centre part of the development will be assessed at full market value according to what is specified or permitted in the modified lease.

5. The two hectares of TKO land mentioned in the 2011-12 Policy Address is zoned “Government, Institution or Community”. Tailor-making the Conditions of Sale for high-tier data centre use and assessing the tender reserve price on the basis referred to in paragraph 18 of the LegCo brief would incur opportunity cost to the Government as represented by the difference in land value as compared to the land concerned being used for other more profitable uses permissible on obtaining the required planning permission under the current zoning. Depending on the zoning and location, applying the same arrangement to other potential sites may also lead to land revenue forgone, which has to be estimated on a case by case basis.

### **Civil Service Implications**

6. Depending on the response to the additional incentives above, additional staff resources may be required to process applications. Where necessary and justified, they will be considered under the established resource allocation mechanism.

### **Basic Law and Human Rights Implications**

7. The measures are in conformity with the Basic Law, including the provisions concerning human rights.

### **Environmental Implications**

8. Data centres have been operating in Hong Kong for a long time and are environmentally clean. Data centre operators are keen to adopt green ICT measures to cut down power consumption as far as possible. Custom-built data centres on redeveloped sites can take full advantage of the latest environmental technology to reduce power consumption.

### **Sustainability Implications**

9. The measures will facilitate the further development of the data centre sub-sector, in particular the high-tier data centres which have more stringent requirements on sites. Any potential environmental impact should be pre-empted or minimised to acceptable standards. Green measures should be observed for electricity consumption for data centres.