



**SUMMARY OF RESPONSES OF REQUEST FOR COMMENTS FOR
PROPOSED ESTABLISHMENT OF A DATA CENTRE PARK IN SINGAPORE**

20 JULY 2010

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OVERVIEW OF PROPOSED ESTABLISHMENT OF A DATA CENTRE PARK IN SINGAPORE

- 1.1 The Info-communications Development Authority of Singapore (“IDA”) is proposing the development of a data centre park (“DCP”), which is a specialised industrial park for data centres (DC) with infrastructure, facilities and design guidelines supportive of the setup of premium DCs.
- 1.2 The development of a DCP in Singapore will strengthen Singapore’s position as an economic hub by attracting MNCs and enterprises to set up their premium DC operations here. It will also help to entrench Singapore as an infocomm and media hub by having more premium DCs such as banks and telco carriers located here. Such DC infrastructure will attract world-class Internet and media companies to host their content and services in Singapore, thus attracting more Internet traffic and international network providers. Ultimately, this will enhance Singapore’s global connectivity and competitiveness.

REQUEST FOR COMMENTS FOR PROPOSED ESTABLISHMENT OF A DATA CENTRE PARK IN SINGAPORE

- 1.3 This RFC aims to seek industry’s views, inputs and/or comments on the following:
 - a) Ownership and operating structure for the DCP;
 - b) Business model of DCP; and
 - c) Technical specifications for the DCP.

The information gathered will be used to develop the implementation plan for the DCP.

- 1.4 The RFC closed on 19 May 2010, 12 p.m. with a total of 15 submissions from generation companies (“gencos”), DC players and network providers among others. See [Annex 1](#) for the list of RFC respondents.

SUMMARY OF RFC RESPONSES

- 1.5 IDA respects that the RFC responses might contain commercially sensitive information that was shared in confidence with IDA. As such, only a summary of RFC responses to the key project parameters is listed in [Table 1](#) below.

Table 1 – Summary of RFC Responses

S/N	Project Parameter	Summary of Responses
1	Supply of DC Space in the DCP and demand growth pattern for DC space in Singapore	<p><u>Total rackable space of 120,000sqm</u></p> <p>3 RFC responses agreed that 120,000sqm was sufficient to meet the demand of commercial DC space for the next 5 years beyond 2012-2013 and more.</p> <p>7 RFC responses opined that the DCP should be developed in a modular and scalable manner.</p> <p><u>20,000sqm for each DC building</u></p> <p>3 RFC responses opined that 20,000sqm per DC building was too large. Smaller DCs of 5,000-10,000sqm were more acceptable.</p>
2	Profile of companies to be located in the DCP	<p>The majority of RFC responses agreed that the following profile of companies will likely be located in the DCP:</p> <ul style="list-style-type: none"> i) Financial institutions ii) DC collocation & service providers iii) Telco players and Government iv) MNCs and other direct end users v) Content providers vi) DC REITs
3	Priorities of top line benefits of the DCP	<p>The majority of RFC responses agreed that the following benefits would be very important:</p>

		<p>i) Long-term TCO/operating cost savings, energy savings, telecoms savings.</p> <p>ii) Shortened time-to-completion.</p> <p>iii) Defrayment of upfront capital cost and initial phase of DCP implementation e.g. investment allowance from government.</p> <p>iv) Scalability for expansion of DC capacity.</p> <p>v) Increase in rackable space.</p>
4	Power Provisioning for DCP	<p>3 RFC responses expressed concern that the Islanded Power Park model provides no back-up power from the grid.</p> <p>5 RFC responses opined that either option was viable, with the following considerations -</p> <ul style="list-style-type: none"> - Reliability of gas supply had to be ensured; - Economics for power production, operations, maintenance and cooling provision would have to be proven; - Environmental issues had to be studied; - Chosen option must not pass operation cost to end users; - Grid should only be a backup source of power; - Reliability of tri-gen plant needed to be addressed (e.g. SLAs);

		<p>- Protection and backup for critical services such as power was preferred, however this needed to be balanced with the cost to customers.</p>
5	Ownership and operating model of DCP	<p><u>Private & government ownership</u> 2 RFC responses proposed that a private entity and government should own/operate the DCP e.g. PPP or Build, Own and Operate (BOO) model.</p> <p><u>Single owner</u> 2 RFC responses proposed that the DCP should be owned by a single entity, to ensure an operational model with the least cost and reduce the complexity of ownership.</p> <p><u>Other comments</u> 1 RFC response opined that the land owner, DCP owner, Special Infrastructure owner and Special Infrastructure operator should not be affiliated to any DC operator to prevent any conflict of interest.</p> <p>1 RFC response proposed that the DCP allow flexibility in the structure of role/ownership as too many layers of ownership may increase the total costs of operating a DC in the DCP over the long-term.</p>
6	Business Model for DCP	<p><u>Business Model</u> 2 RFC responses proposed a partnership between a private and a Singapore government entity.</p> <p>1 RFC response proposed that the DCP should be owned by a single entity to allow for maximum flexibility to develop infrastructure</p>

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		<p>to support the DCP and develop various buildings utilising different approaches, such as:</p> <ul style="list-style-type: none"> - Develop a single building for a specific user. - Develop a building and lease space to multiple users. - Develop multiple units for individual floors.
7	Governance and regulatory framework for DCP.	<p>3 RFC responses opined that there should be a price regulation for connectivity services.</p> <p>1 RFC response proposed that power costs be subsidised for the first few years to the tenants in the DCP.</p> <p>1 RFC response proposed to establish a competitive pricing and control framework for at least 2-3 special infrastructure operators to offer diversity and competitive pricing to the DC operator and/or end user.</p>
8	Power density of 1600W/sqm to support the next generation of DCs operation.	<p>4 RFC responses opined that the average load density of 1600W/sqm is inadequate to support the next generation of DCs operation.</p> <p>4 RFC responses opined that the average load density of up to 1,600W/sqm is adequate.</p>
9	PUE of 1.35 and if this benefit is compelling enough for players to site their DCs in the DCP.	<p>7 RFC responses agreed that PUE of 1.35 will be beneficial and compelling for companies to locate their DCs in the DCP.</p>

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		1 RFC response opined that the PUE may not be a major factor if the overall infrastructure costs plus utility costs end up much higher.
10	Backup power requirements for DCP	<p>5 RFC responses indicated that backup generators are required.</p> <p>5 RFC responses indicated that connection to Power Grid as an alternate backup source of power should be considered.</p> <p>2 RFC responses indicated that a backup source of power would not be required if the DCP can commit on SLAs for the tri-gen plant.</p>
11	Using diesel as an alternative backup fuel to natural gas	5 RFC responses accept diesel as an alternative backup fuel to natural gas.
12	Locate an IX node in the DCP.	9 RFC responses fully support locating an IX node in the DCP.
13	Fibre/Ethernet services and other Telecommunication facilities in the DCP	<p>7 RFC responses indicated that Fibre/Ethernet services should be offered by an independent and neutral third party provider.</p> <p>1 RFC response indicated that Fibre/Ethernet services should be offered by the DCP operator.</p> <p>2 RFC responses indicated no preference on the owner and provider of Fibre/Ethernet services as long as more than one provider would be allowed.</p> <p>The RFC responses proposed various telecommunication facilities comprising cross-connect, fibre connectivity within the park, local loop and IP transit</p>

		and Meet-Me-Rooms.
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NEXT STEPS

1.6 IDA thanks all respondents to the DCP RFC for their inputs.

MEDIA QUERIES

1.7 Please direct all queries to the following contact:

Mr John Thomas
Manager, Next Generation Wireless and Platforms
Email: IDA_DC_PARK@IDA.GOV.SG
DID: (65) 6211 1332

ANNEX 1

LIST OF RESPONDENTS TO IDA'S RFC ON PROPOSED ESTABLISHMENT OF A DATA CENTRE PARK IN SINGAPORE

As of the RFC closing deadline of 19 May 2010, 12:00pm, IDA had received a total of 15 submissions from gencos, DC players and network providers among others. The 15 respondents are listed below.

No.	Company
1	Ascendas Pte Ltd
2	Avocent Asia Pacific Pte Ltd
3	BlueTel Networks Pte Ltd
4	Digital Realty Trust
5	France Telecom Long Distance (S) Pte Ltd
6	Fujitsu Asia Pte Ltd
7	IBM
8	Keppel Datahub/Keppel DHCS
9	M1 Limited
10	Piller Power Systems
11	Savvis Singapore Co Pte Ltd
12	Singapore Telecommunications Ltd
13	Tuas Power Ltd
14	VerizonBusiness
15	1-Net Singapore Pte Ltd