

15 August 2013

OpenNet Pte Ltd
152 Beach Road
#31-05/08 Gateway East
Singapore 189721

Attention: Mr Mark Blake
Chief Executive Officer

Dear Sirs,

**DIRECTION OF THE INFO-COMMUNICATIONS DEVELOPMENT
AUTHORITY OF SINGAPORE: MODIFICATION OF OPENNET PTE LTD'S
("OPENNET") INTERCONNECTION OFFER ("ICO")**

1. Pursuant to Section 27(1) of the Telecommunications Act (Cap 323) (the "**Act**") and Condition 32.1 of OpenNet's Licence to Provide Facilities-Based Operations issued to OpenNet on 1 April 2009 ("**FBO Licence**"), the Info-communications Development Authority of Singapore ("**IDA**") hereby issues this direction ("**Direction**") to OpenNet.
2. Please refer to the following:
 - (a) Code of Practice for Next Generation National Broadband Network NetCo Interconnection Code ("**NetCo Code**");
 - (b) IDA's letter to OpenNet titled "Review of the Prices for OpenNet Interconnection Offer Services under the Next Generation Nationwide Broadband Network NetCo Interconnection Code" dated 7 June 2013; and
 - (c) IDA's decision on the Public Consultation on OpenNet's proposed Co-Location Space and Service in Co-Location Room 1 & Co-Location Room 2 under OpenNet's ICO issued on 15 August 2013 ("**IDA's Decision on OpenNet's Proposed Co-Location Services**").
3. For the avoidance of doubt, capitalised terms not specifically defined herein shall have the meanings ascribed to them in the NetCo Code.

4. Under Section 12.1 of the NetCo Code, unless IDA directs otherwise, the provisions of Section 12 set out the price control arrangements which would be used by IDA to review and modify the prices under the ICO. Under Section 12.3 of the NetCo Code, IDA shall review and may require OpenNet to modify the price(s) of Mandated Services set out in the ICO on the First Review Date¹. Further, Section 12.6 of the NetCo Code provides that if a particular Target Price determined by IDA at the First Review Date is higher than the corresponding price offered by OpenNet at the First Review Date, OpenNet shall not increase the price offered under the ICO at any time before the next price review point.
5. Considering that OpenNet has offered the ICO for more than three years and the terms and conditions of the ICO have undergone substantial revisions to keep pace with market developments, IDA was of the view that it was appropriate for IDA to commence its review of the charges for services offered under OpenNet's ICO in the third year. IDA has since concluded its review.
6. Based on IDA's assessment of the projected revenues and costs for the relevant services offered under OpenNet's ICO for the 3-year period from April 2013 to March 2016, IDA notes that there is a projected deficit. Nevertheless, as informed in IDA's letter dated 7 June 2013, IDA reiterates that there will be no upward adjustment to the prices under the ICO, in accordance with Section 12.6 of the NetCo Code, save where IDA expressly permits any changes by way of direction, where justified, as set out below for the charges for Co-Location Services and the associated power charges.
7. Together with the issuance of IDA's Decision on OpenNet's Proposed Co-Location Services whereby IDA has rejected OpenNet's proposal to merge the existing Schedule 12 (Co-Location Service), Schedule 12B (Co-Location Supplementary Cooling Service) and Schedule 12C (Co-Location Space & Service in New Co-Location Room) into a new Schedule 12 to OpenNet's ICO, IDA has completed its determination for the applicable charges of the Co-Location Services being offered separately under their respective schedules.

Directed Modifications

8. With regard to the applicable charges under the ICO for Co-Location Services, IDA hereby directs OpenNet to modify Schedule 15 (Charges) to the ICO to incorporate the IDA-determined monthly recurring charges set out in the following table:

¹ The First Review Date shall mean the earlier of the date five years after the date that the ICO was first offered by OpenNet, or at such time as IDA may consider appropriate, provided that the First Review Date shall not be earlier than three years from the date that the ICO was first offered by OpenNet, i.e., from 27 April 2010.

| Schedule | Co-Location Services | Unit | S\$ Per Month |
|----------|---|------------------|--------------------|
| 12 | Co-Location Space (25 year term) | Per square metre | 367 (No change) |
| 12 | Co-Location Space (2 year term) | Per square metre | 590.19 |
| 12B | Co-Location Supplementary Cooling Service (for all Central Offices except Tuas) | Per cooling unit | 1,647.38 |
| 12C | Co-Location Space (2 year term) | Per rack space | 2,465.24 |

9. Further, IDA hereby directs OpenNet to propose, for IDA's consideration and approval, such modifications to OpenNet's ICO as are necessary such that the associated monthly recurring power charges in Schedules 12 and 12C to OpenNet's ICO shall be derived based on the following formula:

A x B x C x D where

A = Circuit breaker size (in Amperes) provided to the Requesting Licensee

B = Supply voltage (in Volts)

C = Customised conversion factor

D = Prevailing electricity tariff for low tension supplies (\$/kWh) published by SP Services on a quarterly basis

and the proposed customised conversion factor, "C".

The proposed modifications should include, but not be limited to, the following schedules to OpenNet's ICO:

- (i) Schedule 12 (Co-Location Service);
 - (ii) Schedule 12C (Co-Location Space & Service in New Co-Location Room); and
 - (iii) Schedule 15 (Charges)
10. Without limitation, IDA's reasons for its determination of the charges for Co-Location Services and the associated Power Charges respectively are set out in Annex A.
11. In OpenNet's proposed modifications to its ICO, IDA reminds OpenNet that:
- (i) to the extent that any of OpenNet's proposed modifications fails to effectively implement IDA's required modifications or, in IDA's

view, is not acceptable, IDA will direct OpenNet to adopt specific drafting language in the ICO;

- (ii) IDA will reject any of OpenNet's proposed modifications that are not for the purpose of giving effect to IDA's required modifications as set out in this Direction;
 - (iii) to the extent that any ancillary or consequential modification to any provision in OpenNet's ICO is necessary in order to give effect to this Direction, OpenNet shall propose such modification for IDA's consideration and approval; and
 - (iv) OpenNet shall make all necessary editorial corrections for typographical, cross referencing and pagination errors.
12. For the avoidance of doubt, save for what is set out above, IDA reiterates that there shall be no other changes to the prices under the ICO.
13. OpenNet must submit to IDA the softcopy, in clean and marked-up versions, of its ICO incorporating OpenNet's proposed modifications to effect IDA's required modifications and the charges specified in paragraphs 8 and 9 above **within ten (10) business days of the date hereof**. The marked-up version must clearly identify each of OpenNet's proposed modifications to its ICO. The softcopy submission must be in both Adobe PDF and Microsoft Word format, and emailed to IDA_ILO@ida.gov.sg.
14. Any clarification on this Direction must be made in writing, addressed to our Ms Aileen Chia (Deputy Director-General (Telecoms & Post)), and emailed to IDA_ILO@ida.gov.sg. Please note that any query or clarification from OpenNet shall not affect OpenNet's obligation to comply fully with this Direction, including, in particular, the timelines to be complied with.

Yours faithfully



Leong Keng Thai
Deputy Chief Executive Officer / Director-General (Telecoms & Post)

EXPLANATION OF IDA'S DETERMINATION IN THE DIRECTION*Co-Location Services*

1. IDA notes that the 25-year Co-Location Space service for the initial 120 square metres per Central Office offered under Schedule 12 to OpenNet's ICO at \$367 per square metre was the only Co-Location service submitted by OpenNet as part of its bid proposal to the NetCo Request For Proposal ("RFP"). The 2-year Co-Location Space for the initial 120 square metres offered under Schedule 12, the Co-Location Space in the New Co-Location Room under Schedule 12C, and the Co-Location Supplementary Cooling service offered under Schedule 12B to OpenNet's ICO are ICO services which were offered only after the award of the NetCo RFP.
2. IDA had assessed that the majority of the Requesting Licensees may not be able to commit to a 25-year term agreement for Co-Location Space and had agreed to OpenNet's proposed 2-year term agreement to be made available to the industry, in the public interest. In this regard, IDA notes that to-date, no Requesting Licensee has taken the 25-year term Co-Location Service. Instead, Requesting Licensees have only been taking up the shorter 2-year term Co-Location Service.
3. With regard to the monthly recurring charge of the shorter 2-year term service, IDA had required that the charges be proportionate to the 25-year term service until IDA conducted the first ICO price review, when IDA could assess all relevant information and costs data to determine a cost-based charge. Having completed its assessment, based on all relevant information and cost data, IDA has determined the cost-based ICO charges for Co-Location Services as directed in paragraph 8 of this Direction.
4. In IDA's determination of the appropriate cost-based charges for each Co-Location Service, IDA has considered that there is considerable disparity in the underlying costs for Co-Location Services in Co-Location Room 1 and Co-Location Room 2 for the following key reasons: (i) the difference in heat load limit per rack between Co-Location Room 1 and Co-Location Room 2; (ii) the difference in demand forecast, where the former room has reached almost full utilisation in all Central Offices except Tuas; and (iii) the difference in costs to set up the 2 rooms, where the former, as part of OpenNet's bid proposal to the RFP, enjoyed certain cost advantages, which are not extended to the latter.
5. Notwithstanding any other provisions of Section 12 of the NetCo Code, IDA reiterates that Section 12.1 expressly allows IDA to permit upward variations to the ICO prices by way of direction where appropriate.

6. In view of the reasons set out above, IDA considers that there are good grounds for IDA to permit the changes to the ICO charges for Co-Location Services as directed by IDA in paragraph 8 of this Direction.
7. For the avoidance of doubt, please note that nothing in the foregoing shall constrain or fetter IDA's rights in any manner, nor be construed as granting any expectation on any party that IDA will take or not take any particular course of action in the future. IDA will consider all relevant facts and circumstances in deciding whether there is merit in IDA exercising its power to issue a direction to permit upward variations in the ICO prices prior to the next review point after the First Review Date.

Power Charges

8. In the Public Consultation on OpenNet's Co-Location Services, IDA notes that OpenNet has proposed that the associated monthly recurring power charge be as follows:

A x B x C x D where

A = Circuit breaker size (in Amperes) provided to the Requesting Licensee

B = Supply voltage (in Volts)

C = Customised conversion factor (to be approved by IDA)

D = Prevailing electricity tariff for low tension supplies (\$/kWh) published by SP Services on a quarterly basis

9. IDA has assessed and sees merit in revising the current approach to derive power charges as the proposed approach is more equitable in reflecting the costs of power which Requesting Licensees require for their co-located equipment. Further, IDA notes that the majority of the co-located equipment requires direct current. Further details of IDA's assessment are set out below.
10. First, OpenNet's proposed approach reflects the cost differential between supplying the two forms of electric power, namely alternating current and direct current, as opposed to the current approach which averages the costs and results in cross subsidisation from direct current to alternating current.
11. Second, instead of using a pre-determined electricity tariff for the next 3 years, the revised approach will adopt the prevailing electricity tariff for low tension supplies published by SP Services Ltd. Given the uncertainty in the price trend of electricity tariffs, IDA considers that this is a fairer approach to both OpenNet and Requesting Licensees, as it would better avoid any under-recovery by OpenNet or over-payment by Requesting Licensees.

12. Finally, OpenNet's proposed approach to apply a conversion factor, "C", would take into account the fact that a circuit breaker will not be sized to operate at its rated load capacity. While IDA agrees that a factor should be applied, IDA also views that this factor should be no higher than 80% of the circuit breaker's rated load capacity, which is the standard derating factor for a standard circuit breaker.
13. In this regard, IDA has assessed that charging by per fused ampere may no longer be appropriate, given its limitation in reflecting the underlying costs. Therefore, IDA has agreed to allow OpenNet's proposed approach to derive power charges, and requires OpenNet to propose the rate of the conversion factor, "C", for IDA's consideration and approval.
14. In view of the reasons set out above, IDA considers that there are good grounds for IDA to permit the changes to the ICO charges for the associated monthly recurring power charges for OpenNet's Co-Location Services as directed by IDA in paragraph 9 of the Direction.
15. For the avoidance of doubt, IDA reiterates what we have said above at paragraphs 5 and 7 in their entirety with respect to IDA's rights as regards any future changes to the associated monthly recurring power charges for OpenNet's Co-Location Services.