

15 July 2011

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(sent via email to ida\_ilo@ida.gov.sg)


Dear Ms Chia

**INTERCONNECTION OFFER FOR THE PROVISION OF SERVICES ON THE NEXT GENERATION  
NATIONWIDE BROADBAND NETWORK – NETWORK COMPANY:  
PROPOSED CO-LOCATION SUPPLEMENTARY COOLING SERVICE**

Nucleus Connect is pleased to submit our feedback and comments on the above consultation paper for IDA's consideration.

Please feel free to contact the undersigned should IDA require any clarification on the points raised in our response.

Yours sincerely  
For and on behalf of  
**Nucleus Connect Pte Ltd**



Ronald Lim  
Head (Regulatory)

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**INTERCONNECTION OFFER FOR THE PROVISION OF  
SERVICES ON THE NEXT GENERATION NATIONWIDE  
BROADBAND NETWORK – NETWORK COMPANY**

**PROPOSED CO-LOCATION SUPPLEMENTARY COOLING  
SERVICE**

Submission by Nucleus Connect Pte Ltd to the Info-  
communications Development Authority of Singapore

15 July 2011

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## 1. Introduction

Nucleus Connect is Singapore's official Next Generation Nationwide Broadband Network (Next Gen NBN) Operating Company. Incorporated on 14 April 2009, Nucleus Connect is responsible for designing, building and operating the world's first open access ultra high-speed fibre network. As the official Next Gen NBN Operating Company, Nucleus Connect plays a pivotal role in the development of a competitive and vibrant broadband market in Singapore by providing all Retail Service Providers (RSPs) with fair and non-discriminatory access to superior wholesale connectivity services on the Next Gen NBN.

As the appointed Network Company of the Next Gen NBN, OpenNet supplies fibre connections and co-location space to Nucleus Connect.

## 2. General Comments

Under the multi-layer model adopted by Singapore's Next Gen NBN, the NetCo is responsible to supply co-location space in its Central Offices (COs). We believe that this was a bid parameter in the NetCo RFP, and is a key service to be provided by the NetCo. The model also contemplates that the NetCo will be a key supplier of co-location space to the appointed OpCo, and that the appointed OpCo would be expected to rollout services nationwide.

It is therefore surprising and unfortunate that when OpenNet was appointed the NetCo, its COs were found to be unfit-for-purpose. Specifically, we would note that the cooling capacity provided by OpenNet in its COs cannot meet the heat load requirements of any nationwide OpCo. Since the Next Gen NBN is supposed to be a nationwide project, one can only conclude that OpenNet's has not met its obligation of providing COs that are fit-for-purpose.

Nucleus Connect therefore submits that IDA should reject OpenNet's proposal of a Co-location Supplementary Cooling Service. Instead, IDA should require OpenNet to increase the cooling capacity such that it meets the requirements of the Next Gen NBN. Nucleus Connect would question how a sub-standard offer for a key NetCo service such as co-location could have been accepted in the first place. Since OpenNet provided a bid that does not meet the requirements of the Next Gen NBN, OpenNet must be required to, at its own expense, ensure that it now meets its obligations of providing a co-location service that is fit-for-purpose. Allowing OpenNet to introduce the Supplementary Cooling Service and charging Requesting Licensees for the service is simply making the Next Gen NBN operators pay for yet another of OpenNet's deficiencies. As a condition to OpenNet's receipt of the \$750m government grant, IDA must ensure that OpenNet meets all the requirements of a Next Gen NBN NetCo. If not, one would question why OpenNet is provided with the

\$750m grant when it cannot even provide a proper service that is fundamental to the Next Gen NBN.

We would further note that if IDA allows the introduction of the Supplementary Cooling Service, any NetCo QP intending to rollout services extensively will have no choice but to opt for Supplementary Cooling in OpenNet's COs. Such is the extent of the deficiency of OpenNet's co-location service.

Without prejudice to Nucleus Connect's position stated above, Nucleus Connect has provided our comments on the proposed Schedule 12B in the following sections.

We believe that in evaluating OpenNet's proposal, IDA should take into consideration the following:

- Requesting Licensees have no control over the Supplementary Cooling System selected and implemented by OpenNet. However, we note that in many parts of the Service Schedule OpenNet has sought to impose onerous obligations on Requesting Licensees. Clearly, if OpenNet is providing the service then OpenNet ought to be responsible for ensuring that the service operates efficiently, and not attempt to pass that responsibility to Requesting Licensees.
- It is unclear how OpenNet will determine actual requirements. As IDA is aware, in an open co-location space such as OpenNet's, cool air cannot be contained but will flow around the entire co-location space. Therefore, one would question how OpenNet intends to determine the actual supplementary cooling requirements for each Requesting Licensee. For example, if one Requesting Licensee takes up the Supplementary Cooling Service, a second Requesting Licensee may not need to install the service, may need fewer units of the cooling system or may be able to run its cooling system at a lower capacity (thereby requiring less power) since the second Requesting Licensee will be able to benefit from the circulating cool air (from the supplementary cooling system installed by the first Requesting Licensee). Therefore the first Requesting Licensee would in effect be subsidising the second Requesting Licensee. OpenNet must therefore provide clear guidelines on how it will ensure that one Requesting Licensee (especially an early mover) does not end up subsidising a second Requesting Licensee.
- Further, we would note that OpenNet itself has contractual obligations to provide a certain level of cooling capacity in its COs. However, based on our estimates, when sufficient Supplementary Cooling Service is subscribed by Requesting Licensees, OpenNet will not need to maintain the level of cooling it has committed to. Therefore, it is important for OpenNet to be able to demonstrate that it is able to and will continue to maintain its committed level of cooling, failing which Requesting Licensees will end up subsidising OpenNet. This would make a mockery of the Next Gen NBN as the industry would end up paying for another OpenNet deficiency.

Nucleus Connect would submit that one way to resolve this is to base any charges payable to OpenNet on the power consumption (relative to the heat generated) by each Requesting Licensee. The power consumption should be computed upfront and as long as a Requesting Licensee does not change its configuration/installed equipment, OpenNet will only receive the same fixed sum per month. This will ensure that OpenNet has the incentive to continue to maintain its committed cooling level, and to actively manage the cooling in its COs.

- The lack of redundancy of the Supplementary Cooling System can affect services to End Users. We note that OpenNet will not be providing redundancy for the Supplementary Cooling System. As stated above, it is already disappointing that OpenNet is allowed to provide COs with sub-standard cooling. If OpenNet is allowed to get away without providing some form of redundancy in its Cooling System, there is a high possibility that if there is any breakdown of the Cooling System or if OpenNet carries out maintenance of the Cooling System, the rapid heat build-up in the equipment will cause service disruption. We would note that OpenNet cannot simply disclaim all responsibility especially since this is a situation where Requesting Licensees are not in the position to take any preventive measures since OpenNet owns and operates its COs, as well as the Supplementary Cooling System.
- The charging principles proposed by OpenNet in Schedule 15 should be subject to public consultation. It is currently unclear how OpenNet intends to charge for the Supplementary Cooling Service since OpenNet's proposal in Schedule 15 has not been made public. As the charging principles can have a bearing on comments provided as part of this public consultation, we would strongly urge IDA to make such information available as soon as possible and to subject it to a public consultation.
- Further, OpenNet must be required to specify all cost components, and not be allowed to introduce any cost components not specified in its ICO without prior approval. Based on Nucleus Connect's experience, OpenNet has frivolously introduced new cost components (such as Project Management Fees) that cannot be justified. IDA must put a stop to such unfair and un-commercial practices and require OpenNet to either specify all its charges in Schedule 15, or specify the cost components (for work whose charges may vary). Any charges or cost components not specified should be borne by OpenNet.
- OpenNet must state its cost allocation principles. This applies to costs (such as overheads, initial setup costs and cost of shared systems) that are shared by all Requesting Licensees. It is important for OpenNet to be upfront about its cost allocation principles to ensure that the first Requesting Licensee does not end up paying a higher proportion of such costs. Nucleus Connect submits that such costs (if recovered by OpenNet) should be shared according to the proportion of space taken up by each Requesting Licensee. Further, the cost should be divided over the entire co-location space, and not just over space currently occupied by Requesting Licensees.

- Requesting Licensees already have “live” equipment in its COs. There is a need for OpenNet to address the current situation where Requesting Licensees are already operating equipment in OpenNet’s CO, and providing services using such equipment. For example, OpenNet states that it will only provide the Supplementary Cooling Service when certain thresholds are met. However, OpenNet has failed to address the situation where current equipment may have breached the heat load limit specified by OpenNet but may still not meet OpenNet’s minimum threshold for providing the Supplementary Cooling Service. We believe that OpenNet needs to address this reality.

### 3. Specific Comments

Nucleus Connect’s comments on the specific clauses can be found below.

Clause	Comments
General	The drafting of Schedule 12B ought to be tightened up for clarity. For instance, use EITHER “Co-Location Supplementary Cooling Service” <u>OR</u> “Supplementary Cooling Service” consistently throughout entire document, not both terms interchangeably – eg: see clauses 1.1 and 1.2.
General	In previous discussions with OpenNet, OpenNet had informed Nucleus Connect that overhead/floor mount units can be shared by multiple side-by-side racks belonging to the same Requesting Licensee. We believe that this understanding must be added to this Service Schedule.
General	In previous discussions with OpenNet, OpenNet had confirmed that they would be able to provide a “non-condensation guarantee” to safeguard the equipment installed by Requesting Licensees from damage due to condensation forming and/or dripping onto such equipment. We would submit that it is important for OpenNet to state this upfront in this Service Schedule.
General	OpenNet should be required to specify that the Supplementary Cooling System can be re-located and should therefore provide for re-location in this Service Schedule. The re-location should be allowed both within the CO as well as from one CO to another.
1.2	The entire wording “Where any work is to be carried out by OpenNet under this Schedule, and the Charge is not defined under Schedule 15 (Charges), the Requesting Licensee shall pay all costs incurred by OpenNet in provisioning Co-Location Supplementary Cooling Service...” onwards ought to be deleted.

Clause	Comments
	For clarity and in order to avoid any potential disputes, all Charges for the Co-Location Supplementary Cooling Service must be clearly stated in Schedule 12B or 15. This is consistent with IDA's position for the charging regime in OpCo's Interconnection Offer. There should not be a generic and vague "backdoor" avenue for OpenNet to impose additional charges.
1.2(a), 1.2(b)	To be deleted in their entirety. See comments on clause 1.2 above.  We also note that Clause 1.2(c) which is referenced in Clause 1.2(b) does not exist.
New 1.2(c)	We propose that a clear statement be made that any disputes related to charges imposed by OpenNet (in particular any charges that are not clearly specified in Schedule 15) will be resolved in accordance with Schedule 17 of the ICO Agreement.
1.4	We believe that any reference to User Accounts should be referred to Schedule 14 and not repeated here. If not, OpenNet should make clear that an additional user account is not required if a Requesting Licensee already has other user accounts active, and can use those user accounts for ordering of this service as well.
1.5	To amend the words "a grossly negligent, wilful or reckless breach of this ICO Agreement" in line 5 to "negligence or breach of this ICO Agreement".  There is no logical or reasonable basis to peg OpenNet's responsibility to a higher test of "gross" negligence or "wilful or reckless" breach. If the damage is caused by OpenNet's negligence or breach of contract, it must be responsible.
1.6	We believe that the reference to Clause 4.3 should instead be to Clause 4.1.
1.7	Site Preparation is a key and critical phase of implementation of the Co-Location Supplementary Cooling Service. There is no reason why there should not be a Service Level Guarantee for such phase.  We would therefore submit that OpenNet must incorporate a Service Level Guarantee for Site Preparation Work timeframe.
2.1	To insert the following words immediately after the words "...will be assessed individually to determine if the technical requirements" in line 3:  "as set out in Table A in Annex 12D and Table B in Annex 12E"

Clause	Comments
	<p>Reason being that the technical requirements for the service must be clearly stated in Schedule 12B. Parties must know with certainty what specific technical requirements are applicable for the service. It cannot be an “open-ended” requirement to be determined and changed at OpenNet’s discretion.</p> <p>There is also a need for OpenNet to clarify how it intends to manage hotspots or high heat load rack (generating &gt;1500W) in the Central Office when its total heat load has not reached the minimum heat load of 26kW. If this issue is not addressed, the Requesting Licensee’s network expansion would be limited and change in service offerings may be necessary.</p> <p>In the event that OpenNet is not yet prepared to offer the Supplementary Cooling Service at any CO, the validity of the existing Customised Agreement (which OpenNet has signed with current Requesting Licensees) must be extended until the Supplementary Cooling Service is made available. This should apply to both existing and new Co-Location Space applications. If not, the ability of current Requesting Licensees to continue to offer services will be impacted.</p>
2.2	<p>There is no logical reason why the Co-Location Supplementary Cooling Service should not have a redundant backup system especially since failure of the system can have repercussions on services provided to end users. In addition, OpenNet must commit to SLGs in the event of such failures. Given the nature of this service, OpenNet should also provide Service Level Availability for this service.</p> <p>To delete the words “Supplementary Cooling Service does not have a redundant backup system.”</p>
3.3(b)	<p>It is likely that the Supplementary Cooling System will not be required from the onset when a Requesting Licensee first takes up co-location space in OpenNet’s COs. Therefore it is highly likely that Requesting Licensees will already have co-location equipment installed in the COs at point of application for the Supplementary Cooling Service. It is therefore unclear as to how OpenNet intends to address “equipment already installed” since this clause only refers to “equipment proposed to be installed”. We believe that this Service Schedule must address the actual current situation where Requesting Licensees are already operating in OpenNet’s COs.</p>
3.3(c)	<p>Requesting Licensees are not in the position to determine the number of supplementary cooling units required. Instead this should be proposed by OpenNet and accepted by Requesting Licensees.</p> <p>Further, OpenNet must be required to provide clear guidelines/formulae and</p>



Clause	Comments
	methodology on how it will determine whether supplementary cooling is required and the number of units required. Such guidelines must be objective and should form part of Schedule 12B.
3.4(c)	Any decommissioning of the Central Office must be subject to IDA's approval. To amend clause 3.4(c) accordingly.
3.5	OpenNet should be required to respond within 3 Business Days, similar to that in Schedule 12, unless it can justify the need for 2 additional Business Days.
3.5(c)	As a NetCo, OpenNet is obliged to provide the Co-Location Supplementary Cooling Service which is crucial to the success of the operations of Next Gen NGN. OpenNet cannot evade this obligation simply on the basis of arguing that there is "insufficient space for installation of system". Accordingly, clause 3.5(c) ought to be deleted in its entirety.
3.5(d)	<p>As a NetCo, OpenNet is obliged to provide the Co-Location Supplementary Cooling Service which is crucial to the success of the operations of Next Gen NGN. OpenNet cannot evade this obligation simply on the basis of arguing that there is "technical or engineering issues". As a NetCo and service provider, it is OpenNet's responsibility to address and resolve these issues.</p> <p>Accordingly, the words "significant health, safety, technical or engineering issues" ought to be amended to "significant health or safety issues".</p>
3.7	<p>To insert the following words immediately after the words "when the service is available" in line 3:</p> <p>"and shall also take reasonable measures to cater for the Co-Location Supplementary Cooling Service or a similar service where possible".</p> <p>In the event that OpenNet is not yet prepared to offer the Supplementary Cooling Service at any CO, the validity of the existing Customised Agreement (which OpenNet has signed with current Requesting Licensees) must be extended until the Supplementary Cooling Service is made available. This should apply to both existing and new Co-Location Space applications. If not, the ability of current Requesting Licensees to continue to offer services will be impacted.</p>
3.8	The allocation of co-location space should be addressed in Schedule 12 and is not relevant to this Schedule. Therefore this Clause 3.8 should be deleted.

Clause	Comments
	Also, it should be clearly specified that Requesting Licensees will not be charged additional co-location space for the footprint used by the Supplementary Cooling System.
4 & 5	OpenNet is well aware of the supplementary cooling requirements of existing OpCos such as Nucleus Connect. Accordingly, the timeframes stipulated in clauses 4.1 and 5.1 ought to be reduced drastically and the existing OpCos should not be made to go through the 'motion' of complying with the timeframes for the sake of doing so.
4.1	<p>We believe that the duration of the project study should be reduced to 10 Business Days as such a study should be straightforward.</p> <p>Further, the Project Study Fee should be a pre-determined fixed charge in Schedule 15.</p>
4.2(b)	<p>To insert the following words immediately after the words "the number of Business Days":</p> <p>"(which shall not exceed the number indicated in Clause 6, Annex 12D and Clause 6, Annex 12E of this Schedule)."</p> <p>In the interests of efficiency, there must be a deadline for OpenNet to complete the Site Preparation Work.</p> <p>In addition, OpenNet should also be required to specify the work to be carried out by OpenNet. The related charges and schedule for such work should also be made known. All these should form part of the Project Study report to be provided to Requesting Licensees.</p>
New 4.4	In order to safeguard Requesting Licensees, we believe that IDA should require OpenNet to state that any charges not specified by OpenNet will be borne by OpenNet.
5.2	To amend the words "after their confirmation in 5.1" in line 3 to "after its confirmation in clause 5.1". Further any Cancellation Fees to be imposed should be a pre-determined fixed charge specified in Schedule 15.
5.3	<p>(i) Erroneous referencing and drafting. To amend the words "provided under clause 4.4 (b) from the date on which the Requesting Licensee notifies under clause 5.1 that it wishes to proceed with Co-Location" in line 1 to the following words:</p> <p>"stipulated in clause 4.2(b) from the date on which the Requesting Licensee notifies OpenNet under Clause 5.1 that it wishes to</p>

Clause	Comments
	<p>proceed with the Co-location Supplementary Cooling Service.”</p> <p>(ii) In view of comments on clause 1.7 above, please insert the following words at the end of clause 5.3:</p> <p>“The Requesting Licensee may seek a remedy for any delay in completing the Site Preparation Work in accordance with clause 1.7([ ]).”</p> <p>OpenNet should also be required to provide a SLG for Site Preparation Work.</p>
5.4	<p>It should be clearly stated that Requesting Licensees will not need to pay OpenNet any co-location access charges for attending the final inspection since this is a requirement by OpenNet.</p> <p>Further, OpenNet should specify the SLG for rectifying any faults discovered during the final inspection.</p>
6 (Heading)	To amend “CONDITION” to “CONDITIONS”
6	As the system is owned and operated by OpenNet, there should be a clear statement that any charges incurred by OpenNet as part of maintaining the system (including access charges to its CO) will be borne by OpenNet.
6.1(a)	<p>(i) To amend the words “at Annex 12D” in line 2 to “as set out in Annex 12D”.</p> <p>(ii) To delete the words “and as amended by OpenNet from time to time”. OpenNet cannot be permitted to change the terms and conditions as and when it wishes. If permitted, it will defeat the whole objective of a mandated service which terms and conditions are regulated.</p>
6.1(b)	<p>(i) To amend the words “at Annex 12E” in line 2 to “as set out in Annex 12E”.</p> <p>(ii) To delete the words “and as amended by OpenNet from time to time”. OpenNet cannot be permitted to change the terms and conditions as and when it wishes. If permitted, it will defeat the whole objective of a mandated service which terms and conditions are regulated.</p>
6.2	Please amend clause 6.2 to stipulate that the Charges set out in clause 6.2

Clause	Comments
	<p>shall not apply if the Requesting Licensee cancels the service in accordance with clause 5.2.</p> <p>Further, as the charges are as yet not made known, Nucleus Connect is unable to provide comments as to whether the charging model and conditions proposed by OpenNet in Schedule 15 are reasonable. We therefore believe that IDA should seek public comments to Schedule 15 when ready.</p> <p>Also, OpenNet should only be allowed to commence charging for this service from the date of the final site inspection, and not from the completion of site preparation work.</p>
6.3	Please amend clause 6.3 to stipulate that revision of charges in Schedule 15 must be subject to IDA's approval.
6.4	The indemnification provisions are too wide and one-sided in OpenNet's favour such that the Requesting Licensees must indemnify OpenNet for losses and damages which result from OpenNet's negligence or breach. Accordingly, clause 6.4 ought to be amended to include a carve-out for "any such actions, claims, proceedings, costs, losses and damages resulting from OpenNet's negligence or breach of this ICO Agreement".
6.4(b)	<p>Is it "Supplementary Cooling Service" or "Co-Location Supplementary Cooling Service"? To be consistent throughout entire document.</p> <p>We would note that OpenNet has not made available any "guidelines on the operational use of the Supplementary Cooling Service". As such, it is unreasonable to accept this clause. In order to safeguard Requesting Licensees, such guidelines should be subject to IDA's approval and/or subject to public consultation.</p>
6.4(d)	To amend "sole discretion" to "reasonable discretion".
6.5	<p>To amend "in its sole discretion" to "in its reasonable discretion". Requesting Licensees should also be given the opportunity to reach a jointly agreed solution, instead of requiring Requesting Licensees to immediately remove the hardware, software or cabling components.</p> <p>In addition, please replace "... OpenNet's operation of the Central Office" with "... OpenNet's operation of the Supplementary Cooling Service". Any concerns with OpenNet's operation of the Central Office should be addressed in Schedule 12, and not in this Service Schedule.</p>
6.6	To define "supplementary cooling system". "Supplementary cooling system"

Clause	Comments
	ought to be defined as “any and all systems, equipment and facilities used in the provision of the Co-Location Supplementary Cooling Service”.
6.7	It must be noted that any disruption to the Supplementary Cooling Service will have an impact on the operations of Requesting Licensee’s equipment and therefore can potentially affect services to End Users. Therefore OpenNet must ensure that any maintenance works does not cause Requesting Licensees equipment to shutdown or auto-reset due to the surge in temperature.
6.8	To insert the following words at the end of clause 6.8:  “, unless such loss results from OpenNet’s negligence or breach of this ICO Agreement”.
6.9	To amend “Requesting Licensee” in line 1 to “The Requesting Licensee”.
6.9(a)	OpenNet is the party that provides the system and ought to be responsible to identify, correct and rectify any defects or problems in the System. The Requesting Licensee is in no position to be able to identify any defect or problem in the System. Similarly, the Requesting Licensee is incapable to provide OpenNet with relevant information on such defect or problem to facilitate correction and/or rectification.
6.9(b)	Erroneous referencing. To amend the words “this Clause 6.7(b)” in line 5 to “this Clause 6.9(b)”.
6.9(d)	OpenNet is in full control of the supplementary cooling system and its technical deployment and installation. Therefore, how does the Requesting Licensee ensure that there is adequate working space around the supplementary cooling unit? Accordingly, clause 6.9(d) ought to be deleted in its entirety.
6.10	OpenNet must be responsible for the Modifications and cannot simply evade its obligations under Schedule 12B by introducing Modifications. Accordingly, clause 6.10 ought to be amended in its entirety as follows:  “OpenNet reserves the right to make any modifications (which include installations, alterations, enhancements, upgrades or replacement works)(“Modifications”) to the supplementary cooling system(s) or part thereof from time to time, provided that the Modifications shall not adversely affect the Co-Location Supplementary Cooling Service and/or OpenNet’s obligations under this Schedule.”
6.11	OpenNet must be responsible for the Modifications and cannot simply

Clause	Comments
	evade its obligations under Schedule 12B by introducing Modifications. Accordingly, clause 6.11 must be deleted in its entirety.
6.12	OpenNet must be responsible for the Modifications and cannot simply evade its obligations under Schedule 12B by introducing Modifications. Accordingly, clause 6.12 must be deleted in its entirety.
6.13	As a NetCo, OpenNet is obliged to provide the Co-Location Supplementary Cooling Service which is crucial to the success of the operations of Next Gen NGN. It is OpenNet's sole responsibility to determine the type of system it uses and it is unfair and unreasonable to pass such risks to the Requesting Licensee. Accordingly, clause 6.13 must be deleted.
7	As the system is owned and operated by OpenNet, there should be a clear statement that any charges incurred by OpenNet as part of fault rectification etc (including access charges to its CO) will be borne by OpenNet.
7.1	As Requesting Licensees do not own or operate the System used by OpenNet to provide the Service, it is not reasonable to expect Requesting Licensees to determine the source of any fault. Instead it must be OpenNet's responsibility to determine the cause of faults, at OpenNet's own cost.
7.3	<p>There appears to be a referencing error to Clause 6.7 in this Clause. It is unclear how Clause 6.7 relates to this clause.</p> <p>The response time should be definitive and not a target. Therefore OpenNet should commit to respond within 4 hours.</p> <p>Further, we believe that OpenNet needs to provide alternative means of escalation should Requesting Licensees not be able to call through its Hotline. Alternatively, OpenNet should provide an SLG for its Hotline.</p>
7.5	<p>Given the critical importance and the potential impact of failure of this System, OpenNet must provide some form of backup. If not, any failure of this System will severely affect a Requesting Licensees ability to continue to provide services until the Cooling System is repaired.</p> <p>Clearly, no operator requiring this service can afford to have prolonged downtime of this service.</p>
7.6	It is plainly unreasonable and untenable for OpenNet to disclaim all liabilities for any loss or damage caused by fault to the supplementary cooling system. If that is the case, then what is OpenNet responsible for under Schedule 12B?? What kind of mandated service is OpenNet providing?

Clause	Comments
	Accordingly, clause 7.6 must be deleted.
8.1	<p>The term of the Co-Location Supplementary Cooling Service licence must be tied to the term of the Co-Location Service licence under Schedule 12. Otherwise, if the term of the Co-Location Service licence will only expire after the term of the Co-Location Supplementary Cooling Service licence, it leaves a highly unsatisfactory situation whereby there is no supplementary cooling service. To amend clause 8.1 accordingly.</p> <p>Further, we believe that the reference to Clause 9 in Clause 8.1(a) should be amended to refer to Clause 10.</p>
8.2 & 8.3	As a NetCo, OpenNet is obliged to provide the Co-Location Supplementary Cooling Service which is crucial to the success of the operations of Next Gen NGN. It is OpenNet's sole responsibility to determine the type of system it uses and it is unfair and unreasonable to pass such risks to the Requesting Licensee. Accordingly, clauses 8.2 and 8.3 must be deleted in their entirety.
9.1	<p>(i) The words "and Co-Location Service licence" in line 2 ought to be deleted. Schedule 12B deals with the Co-Location Supplementary Cooling Service, not the Co-Location Service which is regulated by Schedule 12.</p> <p>(ii) To insert the following words at the end of clause 9.1: "in the operation of the Co-Location Supplementary Cooling Service"</p> <p>(iii) OpenNet should be required to first notify Requesting Licensees of any intention to suspend the licence and allow Requesting Licensees a cure period, rather than take unilateral action to suspend the licence.</p>
9.2(b)	<p>Why is there a need for a Reconnection Charge which is determined solely by OpenNet? There is no such charge for Schedule 12. Accordingly, clause 9.2(b) ought to be deleted in its entirety.</p> <p>If IDA decides to allow the imposition of a Reconnection Charge, then such Charge should be a fixed charge.</p>
10.2(b)	Erroneous referencing. To amend the words "clause 8.1" in line 2 to "clause 9.1".
10.2(d), 10.2(e) &	Reasonable and logical that the Requesting Licensee ought to have a reciprocal right of termination for any of the scenarios stated in clauses

Clause	Comments
10.2(f)	10.2(d), 10.2(e) and 10.2(f) when it is clear that such scenarios are not due to the Requesting Licensee's fault. To amend the clauses accordingly.
10.3	Typographical error. To amend the words "Days prior written notice" in line 2 to "Days' prior written notice".
10.5	To amend the words "month prior notice" in line 2 to "month's prior written notice".
10.6(a)	<p>We believe that Clause 1.5.3 can be found in <u>Annex 12D</u> of Schedule 12. Please amend accordingly.</p> <p>There should not be a need to remove high heat load equipment as long as the heat load can be reduced to meet the level specified in Clause 1.5.3.</p>
10.6(b)	<p>The cost of reinstatement must be reasonable. To amend clause 10.6(b) accordingly.</p> <p>Further, Requesting Licensees must be given an opportunity to approve the costs proposed by OpenNet.</p>
10.6(c)	<p>We propose that the following be added to the end of the clause:</p> <p>" , except where the termination is pursuant to 8.1(b), 8.1(c), 8.2, 10.2(d), 10.2(e), 10.2(f), 10.4, or where the termination is initiated by the Requesting Licensee pursuant to clause 10.1(a)."</p>
10.7	The Requesting Licensees approval for the costs should be obtained by OpenNet prior to commencing disposal works. From past experience, there is no guarantee that OpenNet will impose reasonable charges.
10.8	Clause 10.8 ought to be deleted in its entirety. Termination of Co-Location Supplementary Cooling Service does not result in the automatic termination of Co-Location Service under Schedule 12. Thus, access to Central Office must not be hindered or denied.
Annex 12A	To amend Annex 12A to incorporate Service Level Guarantee for Site Preparation Work.
Annex 12A, Clause 1	<p>We would suggest that for clarity reference should be made to Clause 3.5 of Schedule 12B.</p> <p>It is unclear what OpenNet means by "detailed processing" in the header of the table. Further is the reference to Clause 3.6 correct?</p>



Clause	Comments
Annex 12A, Clause 2	We would suggest that for clarity reference should be made to Clause 4.1 of Schedule 12B.
Annex 12D, Clause 1	There is no 'Clause 4.4 (b)'. Further, Clause 1 is inconsistent with clause 4.2(b) – see comments on clause 4.2(b) above. Moreover, OpenNet's opinion and discretion must be subject to test of reasonableness. Accordingly, Clause 1 ought to be deleted in its entirety.
Annex 12D, Clause 2	<p>OpenNet retains full control of the supplementary cooling system and its technical deployment and operations. OpenNet specifies the Environment Conditions and Parameters. Therefore, it is plainly unreasonable and illogical for the Requesting Licensee to ensure that the supplementary cooling system is operated within the Environment Conditions and Parameters. Likewise, it is also clearly unreasonable and illogical for OpenNet to disclaim all liability and obligations for the maintenance of the Environment Conditions and Parameters. Accordingly, please delete the following paragraph in its entirety:</p> <p>“Requesting Licensee acknowledges and accepts that all responsibility of ensuring that the supplementary cooling system is operated within the Environmental Conditions and Parameters....set out in this Clause 2 and Table A.”</p> <p>We would also note that Table C does not exist.</p>
Annex 12D, Clause 3	<p>To amend Clause 3 as follows:</p> <p>“Requesting Licensee shall be fully responsible for any defect in the supplementary cooling system caused by the negligence or breach of its obligations under this Schedule by Requesting Licensee, its officers, employees, agents or contractors.”</p>
Annex 12D, Clause 4	Clause 4 must be deleted in its entirety. As a NetCo, OpenNet is obliged to provide the Co-Location Supplementary Cooling Service which is crucial to the success of the operations of Next Gen NGN. If OpenNet is not responsible for any loss or damage caused by the use of the supplementary cooling system, then what kind of mandated service is it providing?
Annex 12D, Clause 5	How do we know which “relevant provisions” will be applicable? Please clarify.
Annex 12D, Clause 6	Is Clause 6 even relevant? How does it tie in with clause 4.2(b)? Please tighten up the drafting for clarity. Further, Clause 6 appears to be inconsistent with clause 4.2(b) – see comments on clause 4.2(b) above. To

Clause	Comments
	<p>delete Clause 6 in its entirety.</p> <p>Also, the proposed lead times appear to be unreasonably long and should be shortened.</p>
Annex 12E, Clause 1	<p>There is no 'Clause 4.4 (b)'. Further, Clause 1 is inconsistent with clause 4.2(b) – see comments on clause 4.2(b) above. Moreover, OpenNet's opinion and discretion must be subject to test of reasonableness. Accordingly, Clause 1 ought to be deleted in its entirety.</p>
Annex 12E, Clause 2	<p>OpenNet retains full control of the supplementary cooling system and its technical deployment and operations. OpenNet specifies the Environment Conditions and Parameters. Therefore, it is plainly unreasonable and illogical for the Requesting Licensee to ensure that the supplementary cooling system is operated within the Environment Conditions and Parameters. Likewise, it is also clearly unreasonable and illogical for OpenNet to disclaim all liability and obligations for the maintenance of the Environment Conditions and Parameters. Accordingly, please delete the following paragraph in its entirety:</p> <p>“Requesting Licensee acknowledges and accepts that all responsibility of ensuring that the supplementary cooling system is operated within the Environmental Conditions and Parameters....set out in this Clause 4.3(b) and Table D.”</p> <p>In any event, the references to 'Clause 4.3(b) and Table D' are wrong.</p>
Annex 12E, Clause 3	<p>To amend Clause 3 as follows:</p> <p>“Requesting Licensee shall be fully responsible for any defect in the supplementary cooling system caused by the negligence or breach of its obligations under this Schedule by Requesting Licensee, its officers, employees, agents or contractors.”</p>
Annex 12E, Clause 4	<p>Clause 4 must be deleted in its entirety. As a NetCo, OpenNet is obliged to provide the Co-Location Supplementary Cooling Service which is crucial to the success of the operations of Next Gen NGN. If OpenNet is not responsible for any loss or damage caused by the use of the supplementary cooling system, then what kind of mandated service is it providing?</p>
Annex 12E, Clause 5	<p>How do we know which “relevant provisions” will be applicable? Please clarify.</p>
Annex	<p>Is Clause 6 even relevant? How does it tie in with clause 4.2(b)? Please</p>

Clause	Comments
12E, Clause 6	<p>tighten up the drafting for clarity. Further, Clause 6 appears to be inconsistent with clause 4.2(b) – see comments on clause 4.2(b) above. To delete Clause 6 in its entirety.</p> <p>Further the lead-times appear to be unreasonably long and should be shortened.</p>

#### 4. Conclusion

Nucleus Connect appreciates the opportunity to provide our feedback and comments on the proposed Schedule 12B of OpenNet’s ICO. However, we would strongly urge IDA to reject OpenNet’s introduction of the Co-location Supplementary Cooling Service, and instead require OpenNet to increase the cooling capacity in its COs to meet the requirements of the Next Gen NBN.

Without prejudice to our position, and in the event IDA decides to allow OpenNet to introduce the Service, Nucleus Connect has provided our comments on Schedule 12B for IDA’s consideration.