Open Access Model for Next Generation Optic Fibre Broadband Network

The Nigerian Model

Expression of Interest – Invitation for Comments

Contents

1. Part I - Introduction

1) The Nigerian Communications Commission (NCC) on July 26, 2012 held the first industry consultation on Broadband Initiative with the theme "Demand as catalyst for broadband services in Nigeria". The purpose of the consultation was to engage the industry stakeholders on the future direction of the Next Generation Broadband Network (NBN) in Nigeria. Thereafter, the NCC conducted one-on-one sessions with select operators/industry stakeholders between the 15th – 22nd July, 2013 on the strategic objectives for the deployment of nationwide optic fibre infrastructure for broadband, as well as to seek their input on this initiative.

2) A second round of industry stakeholders' workshop was subsequently held on 15th November, 2013 to discuss stakeholders' feedback on the revised model for the deployment of the nationwide broadband fibre infrastructure in Nigeria. The revised industry model took into account feedback from the first round of industry stakeholder's session, and is designed to be complementary to the existing industry structure.

3) The objective for this Invitation for Comments document is to seek market inputs for the subsequent phases of the RFP process. In particular, this document presents the key commercial, technical and legal guidelines for the deployment of the NBN in Nigeria. Important information on the RFP process can be found at the end of this document **PART VI – RFP Information**. Interested parties are requested to submit their Expression of Interest (EOI) for the upcoming RFP process as well as their comments in response to this document.

2. Part II: Industry Structure

1) A typical NBN network and services infrastructure can be segregated into three main layers:

   a) Passive Infrastructure layer (Layer 1)
   Layer 1 operators are responsible for the design, build and operation of the passive NBN infrastructure (e.g. rollout of fibre, maintenance of ducts, handholes and manholes).

   b) Wholesale layer (Layer 2)
   Layer 2 operators are responsible for the design, build and operation of the active NBN infrastructure (e.g. terminal equipment, optic fibre electronics, routers, switches, data centers).

   c) Retail Service Providers (RSP)
   Purchase bandwidth connectivity from wholesale operator (s) and compete with each others in providing competitive and innovative services to end-users.

2) The current industry structure in Nigeria consists of integrated operators offering end-to-end services and long distance operators offering wholesale services amongst others. This structure, which has served the country well in terms of penetration of mobile services, has faced limitation in terms of increasing availability and penetration of high speed broadband infrastructure and services.

3) To achieve the objective of a nationwide broadband metropolitan and backbone deployment on an open access, non-discriminatory basis, the NCC has proposed new industry structure for the open access model for the country as shown in the diagram below.

4) The main distinction between the revised industry structure and the existing industry structure is the introduction of new entities called InfraCos. As described in more detail in the following sections, the rationale for the inclusion of InfraCos is to address existing market gaps in the metropolitan fibre segment. The introduction of InfraCos is expected to be ***complementary to the existing industry structure*** and help achieve the objectives of the Nigeria's National Broadband Plan.

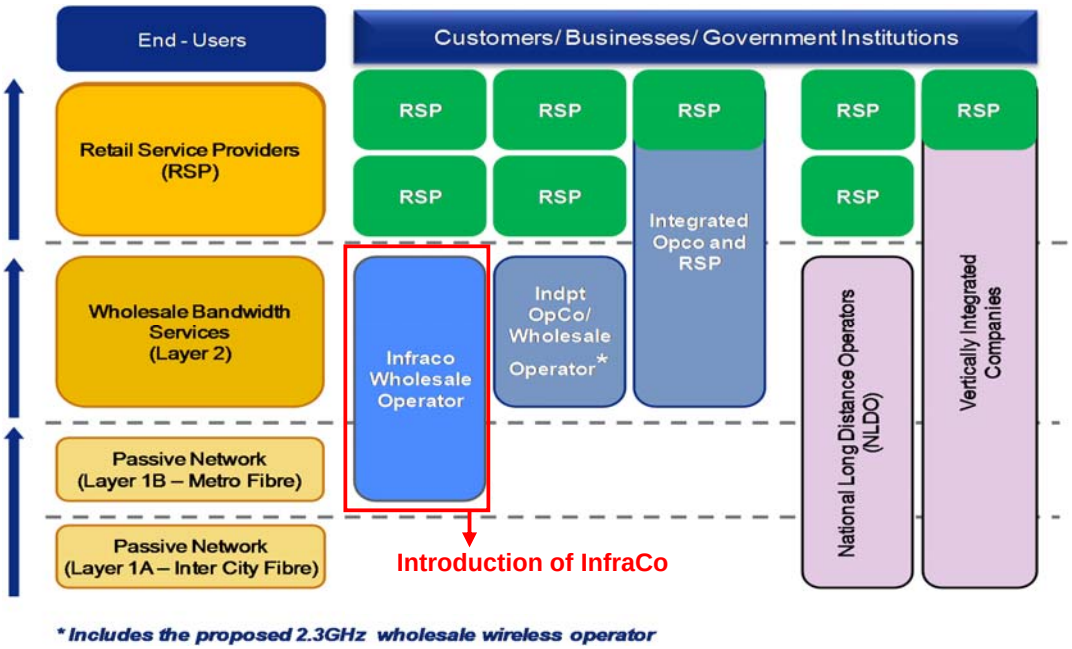

FIGURE 1: BROADBAND INDUSTRY STRUCTURE FOR NIGERIA

5) This proposed industry structure consists of the following players:

a) InfraCos (Layer 1B and Layer 2)

InfraCos shall be licensed, geographically focused entities. InfraCos shall provide wholesale Layer 2 transmission services on a non discriminatory, open access, price regulated basis. InfraCos may also provide Layer 1 (dark fibre) services on commercial basis.

The InfraCos shall focus on the deployment of metropolitan and regional fibre and provide end-to-end transmission services, to be available at points of access (PoAs), to access seekers. InfraCos may do this by leveraging existing inter-city fibre to deploy their services, purchase/lease transmission or long haul fibre capacity from other providers where available for the purpose of interconnection, as well as connect to international bandwidth providers.

The customers for InfraCos include the following:
- Wholesale Wireless Last Mile Operators
- RSPs that require wholesale bandwidth
- Independent operators/ wholesale operators who require to lease transmission services and
- Other access seekers such as Vertically Integrated Operators

b) Wholesale Wireless Last Mile Provider (Layer 2)

The Wholesale Wireless Last Mile Provider shall interconnect with the InfraCos at their Points of Access (PoA), thereby creating an integrated broadband service

nationwide to homes/ businesses. The last mile is outside the scope of the InfraCo.

The last mile connectivity shall be deployed using a mixture of existing technologies, including wireless and fibre optic broadband. The available 2.3GHz spectrum license shall be auctioned to provide last mile wireless access on a wholesale basis.

c) Vertically Integrated Telco Companies

Vertically integrated telco companies consist of mainly existing private telcos that have presence across the three layers. Accounting separation and price regulation (between wholesale Layer 1 and/or Layer 2 and RSP business) will be considered to bring transparency and cost reflective pricing.

d) National Long Distance Operators (NLDOs)

NLDOs consists of private companies that construct own and operate transmission networks for carrying long distance telecommunications services within Nigeria.

e) Retail Service Providers (RSP)

i. The RSPs are expected to ride on the wholesale last mile provider to provide services to homes, businesses and schools; and

ii. RSPs will however retain the flexibility to obtain services from variety of operators and can leverage on other operators beyond InfraCos to meet end-user needs.

3. Part III: Commercial Principles

The success of the InfraCo rests heavily on the commercial viability of this enterprise. Hence, structuring the key commercial principles and articulating them to the industry is a crucial exercise during the early stage of the RFP process. The following diagram summarizes the major components.

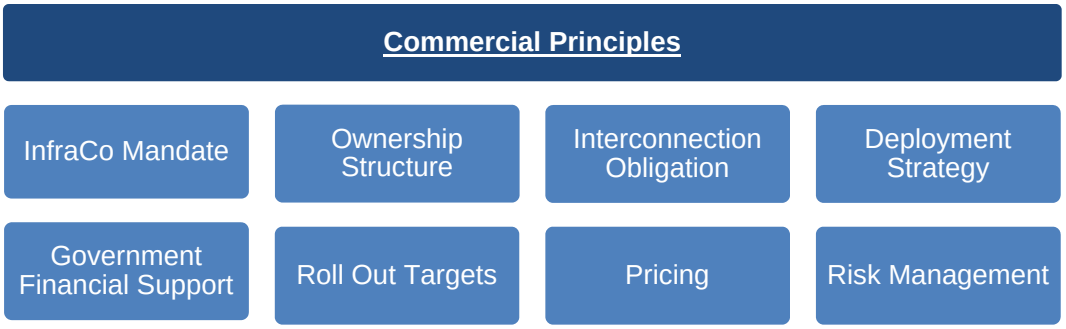

FIGURE 2: COMMERCIAL PRINCIPLES

NCC requests the industry to study these commercial principles in detail and provide comments in sections where appropriate.

1) InfraCo Mandate

The Infracos shall provide price-regulated, wholesale layer 2 metropolitan fibre access, within a licensed zone, on an open-access, non-discriminatory basis to access seekers. The InfraCo mandate shall ***exclude*** the last mile.

These services shall be end to end (PoA to PoA) metro fibre within an InfraCo area and nationwide (by InfraCos arranging services from other InfraCos and intercity operators). InfraCos may also provide Layer 1 (dark fibre) metro transmission services within their assigned zones on a commercial basis.

InfraCos shall source long distance inter capital city transmission by lease/rental of capacity from existing operators to link and carry traffic from one licensed zone to other zones/states in Nigeria, as well as to international submarine cables. InfraCos may also purchase existing fibre assets from long distance intercity operators.

InfraCos may focus on laying fibre infrastructure to Operators BTS in the first two years in order to mitigate the possible slow uptake in the early days and encourage business transactions with existing operators.

Each InfraCo shall cover one geo-political zone. There shall be a separate InfraCo for Lagos state. Hence, a total of 7 InfraCos are proposed for the country.

2) Ownership Structure

InfraCo shall be an independent private entity. There shall be no government ownership of InfraCos. Any NCC licensee or other potential investor shall be able to invest in InfraCo. Layer 3 access providers (RSP) may own shares but shall have ***no controlling interests*** in InfraCos (structural separation).

More details can be found in ***Part V: Licensing conditions***.

3) Inter-Connection Obligation

InfraCo shall have the obligation to inter-connect to backbone inter-city fibre, as well as the obligation to inter-connect to other InfraCos so as to be able to provide end to end (PoA to PoA) national connectivity to the access seekers. Inter-city fibre will be put on an Access List to facilitate inter-connection. In addition, the prices for the inter-city layer 2 services will be regulated by NCC.

4) Deployment Strategy

The deployment/roll out of the services would be in phases across Nigeria. The first phase of deployment shall cover the following zones: Lagos state and North-Central zone. The second phase of deployment shall cover the rest of the 5 zones, namely, North-West, North-East, South-East, South-South and South-West.

In order to achieve the objectives for the broadband plan, the ***core states*** that shall be chosen within each zone[1] for the initial roll-out shall include the following characteristics:

a) States with a high population density

b) States that are considered urban (High demand and market uptake)

c) States that have RoW charges that are regulated and agreed upon by the NCC and Federal Ministry of Communications Technology.

d) Location and accessibility of existing fibre

e) Cost and complexity of provisioning new fibre

In addition to the core states, the bidder shall be required to identify and include other states to meet the targets for roll-out plan[2] in their respective zones. Within each of the states, LGAs shall be selected to form part of the roll-out plan.

[1] The only exception is Lagos, which is a state itself.
[2] Details of the roll-out target can be found in section 6 of **Part IV: Commercial Principles**

In line with the National Broadband Plan, the national roll out plan shall achieve deployment/roll out to **50%** of the population at the end of the deployment phase. However, the actual roll-out targets will be different for each geo-political zone due to the peculiarities of each zone. The expected roll out targets for each state can be found in section 6.

5) Government Financial Support

There shall be a one-off government financial support to facilitate the roll-out of the InfraCos. The government financial support shall be linked to the meeting of roll-out targets during the deployment phase. More details on the roll out targets can be found in the following section 6.

The government financial support shall be linked to a percentage of capital costs. States that do not have agreed RoW charges shall not be eligible for government financial support. A greater proportion of this support shall be given to zones which are considered less commercially viable. InfraCo shall be able to obtain the government financial support earlier if it meets the roll-out targets ahead of schedule. This provides an incentive for the InfraCo to roll-out ahead of time.

During the RFP process, one of the primary bid parameters is the level of government financial support required. The bidders shall have to include the level of government support (if needed) in their proposals during the RFP process. Details of the government financial support shall be made known at a later stage during the RFP process.

6) Roll Out Targets

The framework for the disbursement of the government financial support shall be based on meeting pre-identified targets at certain points in time during the roll-out phase. The roll-out targets will likely be different for each geopolitical zone due to the peculiarities of zone. But cumulatively, they need to meet the overall Broadband plan's objectives of ***50%*** of the population by end of the deployment phase. Based on this, the proposed roll-out targets for phase 1 are shown below. Details on the roll-out targets for phase 2 will be shown at a later stage.

Year	**2014**	**2015**	**2016**	**2017**
Disbursement of government financial support[3]	**x_1% of capital cost**	**x_2% of capital cost**	**x_3% of capital cost**	**x_4% of capital cost**
Total percentage of population in Lagos state	30%	50%	75%	98%
Total percentage of population in North-Central zone	5%	10%	15%	20%

TABLE 1: Roll out Targets for Phase 1

[3] This will be one of the main bid parameters set during the main RFP process.

Year	2014	2015	2016	2017
Disbursement of government financial support[4]	**x_1% of capital cost**	**x_2% of capital cost**	**x_3% of capital cost**	**x_4% of capital cost**
Total percentage of population in South-South zone	30%	45%	60%	70%
Total percentage of population in North-West zone	10%	20%	30%	40%
Total percentage of population in North-East zone	2.5%	5%	7.5%	10%
Total percentage of population in South-West zone	30%	45%	60%	76%
Total percentage of population in South-East zone	30%	50%	75%	90%

Table 2: Roll-out Targets for Phase 2

7) Pricing

InfraCo pricing will be one of the main bid parameters during the RFP process. During the RFP process, potential Bidders are requested to propose the structure of the revenue model for consideration and give a range of prices for the following services:

a) Provision of InfraCos wholesale PoA to PoA layer 2 services

b) Provision of InfraCos layer 1 metro fibre on a commercial basis

Note that for 7(a), end to end PoA to PoA connectivity is assumed and the range of prices should be inclusive of the layer 1A connectivity.

8) Risk Management

The purpose of the risk management exercise shall be to identify, allocate and mitigate relevant risks as far as practicable. The risk management framework shall include the following steps: risk identification, risk analysis, risk allocation and risk mitigation. The key output from this process shall be summarised in the risk matrix as shown in **Annex A**. As a starting point, the key risks identified for this project are summarized as follows:

a) Construction Phase

[4] This will be one of the main bid parameters set during the main RFP process in stages 2 and 3.

Construction Risk

Construction risk refers to the risk that the construction of the fibre infrastructure by the InfraCo takes longer or incurs more costs than originally planned. The biggest time and cost risks are related to route selection and the construction of fibre.

The timing of the construction of fibre infrastructure, access to existing fibre/layer 2 services and the availability of InfraCo services are crucial to the overall success of the National Broadband Plan. Time overruns also invariably translate to additional cost that translates to higher capital expenditure. Given the nature of construction and large scale projects, time and cost overruns are likely to occur. Taking this into account, careful planning is required to avert construction work delays as much as possible. Financial contingency arrangements, such as construction insurance, may also be a prudent step in the event of any unavoidable cost overruns.

Site Risk

Site risk occurs when the required land site is unable to be secured for the project, in the manner or at the cost anticipated, or that the land site will generate unanticipated liabilities, resulting in the contracted service delivery being adversely affected. In the case of InfraCo, securing agreement of RoW is one of the main risk factor here. InfraCos shall obtain government financial support to construct new fibre in areas where the state had agreed RoW arrangements.

b) Operation Phase

Demand Risk

Demand risk is the risk of a lack of sufficient demand for InfraCo's services to make it commercially viable. Considerations need to be made towards both internal and external factors which affect demand for the InfraCo's services. Internal factors include those which the InfraCo can influence directly, such as the price of products and services. External factors however consist of those beyond the direct influence of the InfraCo, such as lack of internet penetration leading to low demand, etc.

It is envisaged that demand for broadband services provided by InfraCo would increase slowly in the initial phases of the project, with the assumption that it takes time to get RSPs to purchase InfraCos' services during the initial years. As more and more RSPs purchase services from InfraCo, demand for the InfraCo should ramp up faster as the entry of these large RSP players will be seen as recognition and confidence in the InfraCo. This will attract other players to buy services from InfraCo.

Weak demand for InfraCo services, especially in the initial years of operation, may result in weak cash flows for the project and thereby a longer payback period on investment for InfraCo.

Demand risk may be mitigated by requiring the wholesale wireless provider (2.3 GHz) to purchase bandwidth access from the InfraCo in areas where InfraCo has provided a PoA.

Operational Risk

Operating risk refers to the increased costs due to inadequacies in the operations process which prevents private entities from delivering the contracted services according to the agreed specifications and/or within the budgeted costs. Responsibility for this risk usually rests on the private sector. In the case of InfraCo, a well structured programme to ensure adequate maintenance, well-trained manpower and well-defined reporting channels is usually the best way to mitigate this risk.

Technical Obsolescence Risk

Technical obsolescence refers to the risk that the technology currently is use has been superseded by a newer and more advance technology. In the case of InfraCo, the use of fibre as a medium to transmit data is proven to be a long term asset. Nonetheless, there is a risk that the InfraCo equipment and electronics may become obsolete sooner than expected given the pace of change in the ICT sector. The InfraCo needs to provide for capital replacement for such equipment and electronics at pre-determined intervals to mitigate this risk.

c) Both Construction and Operation Phase

Financing Risk

Financing risk refers to the risk that financiers are not able to provide or continue to provide funding to the Project, the risk that financial parameters will change, or the risk that financial structure is not sufficiently robust to provide fair returns to debt and equity over the life of the Project.

The recent credit crisis has resulted in project finance lenders increasing risk margins, reducing loan tenors and retreating from underwriting exposure. While this situation has since recovered substantially, investors are still concerned about increased risks and obtaining financing for large scale infrastructure projects is still considerably difficult. This trend has implications for the potential ability to finance the project. It is therefore critical that during the structuring phase of the project, risks are analysed in detail and allocated to the parties best placed to manage such risks.

The bidder shall have the option to use the proposed templates to perform their own risk management exercise.

4. Part IV: Key Licensing Conditions

The diagram below sets out the key licensing conditions that will form part of the InfraCo license to be awarded at the end of the RFP process.

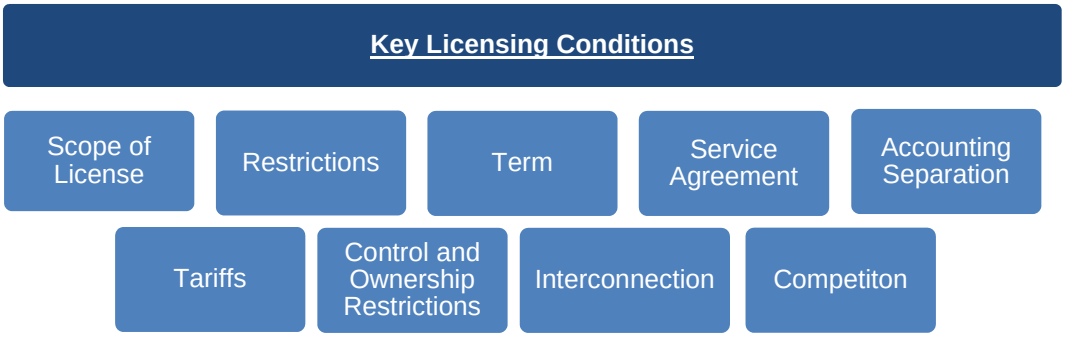

FIGURE 3: KEY LICENSING CONDITIONS

NCC requests the industry to study the key licensing conditions in detail and provide comments in sections where appropriate.

1) Scope of License

To provide and operate on a wholesale basis an Open Access Metropolitan Fibre Network within the Licensed Area, in particular to:

a) Construct, maintain, and operate Fibre Optic Network Facilities and to provide Layer 1B and Layer 2 Network Services within the Licensed Area.

b) Lease inter-capital city capacity and to construct, maintain, and operate and/or lease inter-regional city capacity to link and carry traffic between the Licensed Area and other cities and regions in Nigeria and to international submarine capacity.

c) Carry traffic within the Licensed Area and on the inter-city/region links.

d) Establish Points of Access for the purpose of interconnecting with the networks of Access Providers and other InfraCos.

2) Restrictions

The Licence does not permit the Licensee to operate as an Access Provider (i.e. provide retail telecommunications services to end user customers), nor to carry international traffic (i.e. it can only provide domestic wholesale network services and will need to interconnect with an international gateway if its customers need international bandwidth).

3) Term

For 20 years, renewable for further 5 year periods.

4) Service Agreement

Within 90 (ninety) days from the Effective Date of the Licence, the Licensee shall submit to the Commission for its approval a form of Service Agreement containing the terms and conditions for the provision of Services to prospective Customers.

5) Tariffs

To be lodged for approval by Commission. The Licensee shall provide the specified telecommunications service at the charges and upon the terms and conditions so approved by the Commission and shall not depart therefrom without prior written approval by the Commission of the proposed changes, provided that the Licensee shall be at liberty to offer discount schemes to its customers, without the prior approval of the Commission in a fully transparent and non-discriminatory manner. Tariffs and charges to be published.

6) Control and Ownership Restrictions

The Licensee shall ensure that it

a) Is acting alone or in concert with its Associates, has no Effective Control over any other Access Provider / Operator, e.g. The Licensee cannot have an ISP as one of its subsidiaries;

b) is not under the Effective Control of any other Access Provider/ Operator, whether acting alone or in concert with its Associates, e.g. The Licensee can not be the subsidiary of an ISP; and

c) is not under the Effective Control of the same Controlling Entity, acting alone or in concert with its Associates, as any other Access Provider/ Operator, e.g. The Licensee and an ISP can not be subsidiaries of the same ultimate parent.

In cases where the relationship is not one of parent and subsidiary, the degree of effective control of one party over the other will need to be examined.

‘‘Effective Control’’ means the ability of a Controlling Entity to cause a Controlled Entity to take, or prevent the Controlled Entity from taking, a decision regarding the management and major operating decisions of the Controlled Entity, and without limitation, includes the situation where such ability – i) is exercisable by the Controlling Entity through direct or indirect voting power in the Controlled Entity; or ii) is exercisable on the basis of rights acquired via contracts, agreements or any other arrangements entered into between the Controlling Entity and the Controlled Entity. There shall be a rebuttable presumption that an Access Provider has Effective Control over the Licensee if an Access Provider alone or together with its Associates, is in a position to control not less than 30%, of the voting power in the Licensee.

7) Competition

Standard Prohibitions against Undue Preference and Undue Discrimination, Cross-Subsidies and anti-competitive conduct. Sharing of infrastructure and facilities with other similarly Licensed persons and the terms and conditions shall be subject to the prior approval of the Commission.

8) Accounting Separation

Licensee to establish as soon as reasonably practicable, and not later than 12 months from the Date of Award, accounting and reporting arrangements sufficient to enable the Licensee's finances in relation to a Telecommunication Service provided pursuant to this Licence to be assessed and reported separately from its other Telecommunications Services and from the other commercial activities of the Licensee.

9) Interconnection

Licensee must interconnect its telecommunications system with other Operator's networks in accordance with the principles of neutrality, non-discrimination and equality of access pursuant to terms and conditions negotiated in good faith between them. Capacity requirements of 2.3GHz wholesale providers will also be given priority over other access seekers in the circumstance where capacity rationing is required.

5. Part V: Technical Specifications

The technical specifications form the core part of the RFP documentation. The principle that shall be adopted for the purpose of structuring the technical section shall be output-based as far as possible. The diagram below highlights the key technical specifications that shall be considered.

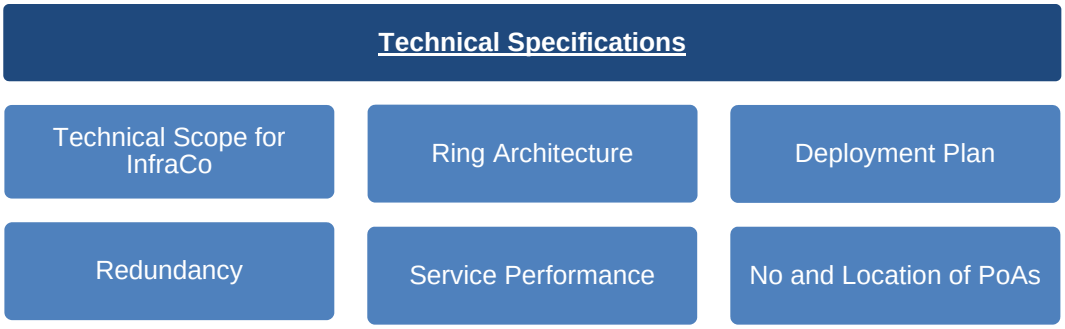

FIGURE 4: TECHNICAL SPECIFICATIONS

NCC requests the industry to study the technical specifications in detail and provide comments in sections where appropriate.

1) Technical Scope for InfraCo

InfraCos shall make arrangements for the necessary fibre at the regional/metropolitan level up to the point where the last mile provider will provide last mile technologies. The scope for InfraCo shall ***exclude*** the last mile. The InfraCo arrangements for access to fibre shall be through a combination of new construction and utilisation of existing fibre systems by leasing transmission services and/or dark fibre from existing operators.

2) Ring Architecture

The architecture for the fibre usage shall be a three layer ring architecture, comprising of the following types of rings:

a) Metropolitan (Local) Rings

The metropolitan or local rings shall provide extension of the broadband backbone to PoA locations close enough to customer locations that will support the “last mile” investments by other service providers.

The InfraCos shall form Metropolitan Rings through a combination of new construction and utilisation of existing fibre systems by leasing transmission services and/or dark fibre from existing operators. These shall typically be connected at one or more points to a Regional Intercity Ring and/or a National Intercity Ring.

It is anticipated that each Metropolitan Ring shall serve in the range of 2-10 LGAs. Target areas within LGAs shall be divided into grid areas, each with at least one point-of-access (PoA).

The backbone and metropolitan optic fibre deployed on each Metropolitan Ring shall pass through each PoA, and shall be dimensioned with sufficient fibres to allow multiple access seekers at each PoA.

Points of Access (PoA) for InfraCos customers to connect electronics shall be provided at multiple locations on each Metropolitan Ring. These PoAs are the locations at which access seekers shall connect "last mile" technologies and/or central service provision equipment.

b) Regional Intercity Rings

The Regional Intercity Rings shall provide extension of the broadband backbone National Intercity Rings to Metropolitan Rings.

The number of Regional Intercity Rings shall be expected to be in the range of 1-4 per region (an estimated 12-18 across Nigeria). The InfraCos shall form Regional Intercity Rings through a combination of new construction and utilisation of existing fibre systems by leasing transmission services and/or dark fibre from existing operators. Hence InfraCos shall form reliable Regional Intercity Rings by leasing from multiple existing operators and by InfraCos construction where required.

These rings shall typically be within a geopolitical zone and may be within a State. These shall typically be connected at one or more points to a National Intercity Ring.

Points of Access (PoA) for InfraCos customers to connect electronics shall be provided at multiple locations on each ring. LGAs shall be connected in some cases directly to Regional Intercity Rings (via a PoA). These PoAs are the locations at which access seekers shall connect "last mile" technologies and/or central service provision equipment.

c) National Intercity Rings

The National intercity fibre systems are already well developed and are owned and operated by existing operators. These cross between States and in some cases between Geopolitical zones.

The InfraCos shall utilise these existing fibre systems by leasing transmission services and/or dark fibre from existing operators. InfraCos shall form reliable National Intercity Rings by leasing from multiple existing operators. InfraCos shall cooperate and interconnect to provide national end to end services.

InfraCo Points of Access (PoA) for InfraCo customers to connect electronics shall be provided at multiple locations on national intercity "rings". LGAs shall be connected in some cases directly to National Intercity Rings (via a PoA). These

PoAs are the locations at which access seekers shall connect "last mile" technologies and/or central service provision equipment.

3) Deployment Plan

Bidders shall comply with the roll-out targets as set in ***Part III: Commercial Principles*** in this document. Bidders shall provide the following information:

a) Selected LGAs for PoA access

b) Timing of when the LGA s will be provided with PoA access

c) Information on the % of population zone (KPIs for disbursement of government subsidy) on a year by year basis.

Bidders shall determine the type of deployment methods to use to minimize construction costs during the RFP process.

Bidders shall advise the intended construction methods to be used, these may include:

a) Micro-trenching

b) Boring and directional boring

c) Trenching and duct

d) Trenching/boring and corrugated duct

e) Direct buried cable

f) Aerial cable

g) Other techniques

4) Number and Location of PoAs

The number and location of PoAs required for deployment shall be based on the bidder's own assessment of the requirements as set forth in the technical requirements.

InfraCos shall ensure that each PoA is equipped and offers end-to-end services to other PoAs in other states, such as Lagos and Abuja.

InfraCos shall design the architecture such that the PoAs are located on the ring architecture to ensure access and reliability of service. The approach to locate PoAs shall be on the basis of areas that are served (these maybe LGAs) and have at least one PoA within a 10km square grid area (for the areas to be serviced by InfraCo) as a minimum requirement.

Bidders shall also be asked to consider the provision of additional PoAs where they consider them to commercially viable. The factors that may result in additional PoAs include:

a) Proximity to areas which are assessed as high demand areas, such as commercial areas and schools, offices, hospitals and other government facilities

b) Proximity to mobile network base sites

c) Proximity to areas with high population densities

An additional guideline for locating the PoAs shall be:

Within 5x5km Grid

Have at least one PoA within a 5km square grid area (for the areas to be serviced by InfraCo) in certain areas of sufficient demand density, such as schools, hospitals and commercial areas.

Within 2x2km Grid

Have at least one PoA within a 2km square grid area (for the areas to be serviced by InfraCo) in certain areas of higher demand density, such as schools, hospitals and commercial areas.

5) Redundancy and Points of Failure

Bidders shall ensure that InfraCo systems and services have a minimum number of single points of failure. Single points of failure shall be identified and explained by Bidders. Bidders shall ensure that the fibre infrastructure have automated self-healing properties in the event of a fibre cut to increase service availability of the system.

Ring architecture shall be used by the InfraCos. A given ring shall not have common route segments (that is each segment of a given ring shall be on a geographic route that is diverse from all other segments on that ring). Exceptions to this shall be identified and explained by Bidders.

6) Service Performance

InfraCos shall provide end to end (PoA to PoA) layer 2 services. The Layer 2 services expected to be offered by InfraCos are:

a) Ethernet services at various speeds

- It is expected that services will be provided on a protected basis, that is a single cable cut on a fibre ring will not result in a loss of service

- Ethernet standards are published by Institute of Electrical and Electronic Engineers, Inc. (IEEE)

- Carrier Ethernet service guidelines are published by the Metro Ethernet Forum (MEF)

b) SDH (Synchronous Digital Hierarchy) services at various speeds

- It is expected that services will be provided on a protected basis , that is a single cable cut on a fibre ring will not result in a loss of service

- SDH standards are published by the International Telecommunications Union (ITU)

InfraCos shall meet the minimum technical standards for end to end (PoA to PoA) layer 2 services for latency, jitter and packet loss. More details shall be provided in due course during the RFP process.

InfraCos Bidders shall meet targets for service restoration time. More details shall be provided in due course during the RFP process.

6. Part VI: RFP Information

RFP Process

1) The RFP process for the licensing of InfraCos will be conducted in two phases. Phase 1 involves the RFP process for Lagos state and North-Central zone. Phase 2 involves the RFP process for the remaining 5 zones - North-West, North-East, South-East, South-South and South-West (excluding Lagos state). Each phase is expected to be completed in 6 months.

2) The first phase is split into 2 stages. In stage 1, an Invitation to Comment document will be issued with details on key guidelines and key principles. The objectives for this stage are:

   a) Inform potential bidders about what the requirements of the RFP process.

   b) Provide bidders an opportunity to provide written feedback and an expression of interest in the project.

   c) Allow bidders to start forming consortiums and financial backing.

Existing NCC licenses including UAS, National Carriers, NDLO, CDMA, Metropolitan Licensees, ISPs etc that wish to participate in the InfraCo may bid in partnership with other operators/ financial investors. Such licensees will be subject to the Effective Control conditions set out in Part IV above.

   d) Provide more time for all parties involved to develop and finalise their bid contents

3) During the 2nd stage of the 1st phase, the full RFP process will be conducted, including issuance of the detailed RFP document, tender evaluation and awarding of licenses for InfraCos for Lagos state and North-Central zone.

4) During the 2nd phase, the roll-out of InfraCo to the other zones will be conducted. More details of the proposed timeline are shown in the following table.

S/No	Activity	Date
Phase 1		
	Stage 1	
1.1.1	*Issue "Invitation for Comments" document*	*Jan 2014*
1.1.2	*Comments/Expression of interest received from industry*	*Feb 2014*
	Stage 2	
1.2.1	*Publication of RFP document*	*Feb 2014 – Mar 2014*
1.2.2	*Bid end date*	*Early Apr 2014*
1.2.3	*Evaluation of RFP document* - *Pre-qualification, detailed technical and financial*	*Apr 2014*

S/No	Activity	Date
	review	
1.2.4	*Short-listing of pre-qualified bidders and final presentation*	*May 2014*
1.2.5	*Selection of successful bidders*	*May 2014*
1.2.6	*Negotiation of contract terms with successful bidders*	*Jun 2014*
1.2.7	*Award of InfraCo license*	*Jun 2014*
Phase 2		
2.1	*Update of RFP and support documents from previous phase*	*Jul 2014 – Aug 2014*
2.2	*Publication of RFP document*	*Aug 2014 – Sep 2014*
2.3	*Bid end date*	*Early Oct 2014*
2.4	*Evaluation of RFP document* - *Pre-qualification, detailed technical and financial review*	*Oct 2014*
2.5	*Short-listing of pre-qualified bidders and final presentation*	*Nov 2014*
2.6	*Selection of successful bidders*	*Nov 2014*
2.7	*Negotiation of contract terms with successful bidders*	*Dec 2014*
2.8	*Award of InfraCo license*	*Dec 2014*

TABLE 2: TIMELINE FOR RFP PROCESS

Proposed Bid Evaluation Parameters

The bids shall potentially be assessed on the following commercial, technical and legal parameters. Please note that this list is not comprehensive and may be modified later.

S/No	Commercial
1	**Revenue Model**
1.1	Pricing
1.2	Demand profile
1.3	OPEX
2	**Capital Structure**
2.1	Gearing Ratio: D/E ratios, etc
2.2	Coverage Ratios: DSCR, LLCR, etc
3	**Cost Indicators**
3.1	Capital cost per user
3.2	Capex during deployment phase
3.3	Operating cost per user
4	**Profitability Indicators**
4.1	IRR (Project IRR & equity IRR)
4.2	ROE
4.3	Payback period

S/No	Technical
1	**Technical Architecture Requirements**
1.1	Level of redundancy (No of single points of failure, etc)
1.2	Reliability indicators (system availability, etc)
1.3	Turn-around-time (mean-time-to-repair, etc)
2	**Technical Performance**
2.1	PoA to PoA limit of delay
2.2	Layer 2 interface types and speeds
2.3	Jitter, Packet loss ,etc
3	**Project Management Indicators**
3.1	Industry Knowledge and Experience
3.2	Reporting process
3.3	Integrated logistics support management
3.4	System safety management
3.5	Business continuity plan

S/No	Legal/Regulatory
1	**Legal/Regulatory Requirements**
1.1	Fulfillment of license conditions for InfraCo

TABLE 3: PROPOSED BID EVALUATION PARAMETERS

Scope of Content for RFP Documents

1) Volume 1: Instruction to Bidders
   a) Introduction
   b) General Terms and Conditions of the InfraCo RFP Process
   c) Project Implementation
   d) Legal, Commercial and Financial Information
   e) Proposal Preparation
   f) Procedure for Selection of proposals
   g) Award and Execution of InfraCo Contract
   h) Contractual and Financial close

2) Volume 2: Submission Requirements
   a) Introduction
   b) InfraCo Executive Summary
   c) Commercial Proposition
   d) Technical Proposition
   e) Financial Proposition
   f) Regulatory Proposition
   g) Scenarios

3) Volume 3: InfraCo Project Overview
   a) NGBN Project Background, Vision, Strategic Objectives.
   b) InfraCo Output Specifications
   c) Governance Framework Overview
   d) Current Regulatory Regime and Framework Application

e) Key Commercial and Legal Principles
f) Financial Support and Abatement Regiment
g) Minimum off-take Agreement

4) Volume 4: InfraCo Output Specifications
   a) Network Relationship Model
   b) InfraCo Network Requirement
   c) Technical Open Access
   d) Other Technical Requirements
   e) Requirements from Government Agencies

5) Volume 5: InfraCo Conditions of Contract
   a) Conditions Precedent and Grant of Rights
   b) Contractor Obligations
   c) Financial Support
   d) Project Governance
   e) Reporting and Audit requirements
   f) Warranties, indemnities and Liabilities
   g) Term and Termination

6) Volume 6: Regulatory Document
   a) InfraCo license including Structural Separation Requirements, Accounting Separation Requirements; Tariff controls

7. Part VII: Expression for Interest / Invitation for Comments

NCC invites any interested party to submit their Expression for Interest for the upcoming RFP. Further to this, NCC requests the industry to provide comments for this consultation document and any other related issues not covered here but which are considered to be relevant to the development of the NBN.

NCC reserves the right to make public all or parts of any submissions made in response to this consultation, and to disclose the identity of the respondent. Any part of the response which the respondent considers is commercially sensitive must be clearly stated.

The dateline for submission is three (3) weeks from date of newspaper publication.

Please submit enquiries via e-mail to:

Broadband Implementation Committee Secretariat
Nigerian Communications Commission
Plot 423 Aguiyi Ironsi Street, Maitama, Abuja
E-mail: eogoh@ncc.gov.ng / aikemefuna@ncc.gov.ng / kuzoekwe@ncc.gov.ng

ANNEX A: Risk Matrix

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
1. Planning and Design Risks						
1.1	Delayed planning approval	The risk that the necessary approvals (including access) on the sites may not be obtained, leading to construction delays and cost overruns. These necessary approvals include that of planning and other statutory approvals.		✓	Low	The InfraCo is the appropriate party to take on design risk and to bear risk regarding development approval for building and works (i.e. approval of scale, design and configuration). Some form of Government assistance and support in this area may be required to mitigate the risk for the InfraCo.

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
1.2	Construction and installed equipment does not meet requirements	Construction and other equipment do not allow required specifications to be satisfied (due to planning and design errors). This may lead to delays due to re-design, new procurement and installation.		✓	Medium	InfraCo is responsible for the costs for construction and installation of the required equipment so as to achieve the required specifications. InfraCo will bear design and construction risks.
2. Site Risks						
2.1	Site Approvals and Conditions	The risk that adverse ground conditions are discovered which lead to an increase in construction costs and / or construction delays.		✓	Low	The InfraCo is responsible for the procurement of relevant sites and land. Government will assist in ensuring RoW charges are agreed and harmonised across the states.)

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
3. Construction and Installation Risks						
3.1	Failure to meet design specifications	The risk that construction and the installed equipment do not meet design specifications resulting in increased construction and installation costs.		✓	Medium	InfraCo is responsible for meeting mandated specifications so that it is fit for its intended purpose.
3.2	Cost overruns	The risk that construction and installation costs exceed estimated price.		✓	Medium	As per above.
3.3	Time overruns	The risk that construction and installation duration exceeds estimated time.		✓	Medium	InfraCo bears the risk in terms of meeting the stipulated timetables

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
3.4	Sub-contractor failure	The risk that sub-contractors are unable to fulfil their contractual obligations to the project due to insolvency or unforeseen financial circumstances or change in control.		✓	Low	Prior consent from the Government may be required for a change in sub-contract.
3.5	Third party claims	Risk that third party claims arise during the course of construction and installation and result in claims against InfraCo; thereby causing cost and time overruns.		✓	Low	InfraCo bears the risk of third party claims (e.g. from sub-contractors, employees) against them.
4. Transition / Commissioning						

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
4.1	Completion and Commissioning	The risk that either the physical or operational commissioning tests that are required to be completed for provision of services to commence cannot be successfully completed (on time and on budget).		✓	Low	It is the InfraCos responsibility that the fibre/ equipment installations meet the specified requirements and user technical requirements.
5. Operating Risks						
5.1	Failure to meet performance and/or service specifications	The risk that required level of services is not provided as required.		✓	Low	This risk should be borne by InfraCo and is managed under the service agreements.

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
5.2	Incorrect estimate of whole-of-life costs/life-cycle /Cost of service provision higher than expected	The risk that actual operating costs will be higher than estimated.		✓	Low	It is the InfraCos responsibility that the operating costs meet planned estimates. Market benchmarking mechanisms may be explored in the various agreements among parties to allow InfraCo to go to the market at periodic intervals to re-align their rates with the market.
5.3	Sub-contractor failure	The risk that sub-contractors suffer financial failure.		✓	Low	Prior consent from the Government may be required for a change in sub-contract.
5.4	Regulatory non-compliance	The risk that the design of the fibre network infrastructure does not meet current or future regulatory requirements.		✓	Low	Regulatory requirements which significantly impact the InfraCo will consist of requirements which affect the design of the fibre infrastructure. As such, the InfraCo will be responsible for addressing these risks.
6. Market/Demand risks						

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
6.1	Technical obsolescence or innovation	The risk that contracted service is not keeping pace, from a technological perspective, with requirements.		✓	Medium	InfraCo has to manage the risk of technological trends influencing the demand of the fibre infrastructure services. As the InfraCo has the most influence in the design and operations of the NBN network, the InfraCo has the responsibility of ensuring that the NBN's technology remains updated.
6.2	Demand risks	The risks that demand for the NBN falls short of expected levels.		✓	Medium	InfraCos have to manage the risk of various market forces influencing the demand for NBN.
6.3	Market Competition	The risk that competitive advantage of the NBN falls short of expected levels.	✓	✓	Medium	InfraCos have to compete for demand with the existing and new layer 2 service providers. As the InfraCo have the most influence in the determining the competitiveness of the NBN, the InfraCo should take the lead in implementing actions that raise the competitiveness of the NBN. The government may need to intervene to help raise the competitiveness of the NBN.
7. Finance Risks						

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
7.1	Availability of finance	Risk that finance is unavailable when required to fund debt/equity required for the project		✓	Medium	It is the InfraCo's responsibility to manage its own financing risks. This is a risk to be borne by individual debt holders.
7.2	Interest rates	Risk that interest rates move adversely increasing the cost of the project.		✓	Medium	As per above.
7.3	Changes in applicable tax rates	Applicable tax rate changes include corporate and stamp duty	✓	✓	Low	It is the InfraCos responsibility to pay its own taxes. This is a common business risk. Government may however consider a form of concession in the form of a five-year tax holiday.
7.4	Attainment and costs of insurance	The risk that the cost of insurance varies from the base line.		✓	Low	It is the InfraCos responsibility to purchase its own insurance. This is a common business risk.
7.5	Foreign exchange risk	Risk that foreign exchange exposure causes value of payments received or paid by entities to be insufficient to fund on-going operations		✓	Low	It is the InfraCos responsibility to manage its own foreign exchange risk. This is a common business risk.

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
8. Legislative Risk						
8.1	Change in law	Risk of legislative change affecting the project or entities		✓	Low	Unless change in law is discriminatory, general change in law is considered a common business risk which should be borne by the InfraCo.
9. Force Majeure						
9.1	Force majeure risks	The risk that entities are unable to meet contracted service delivery (pre or post completion) is caused by reason of force majeure events.		✓	Low	Force Majeure Events include: • War, civil war, invasion or act of foreign enemy, armed conflict or terrorism; • Acts of rebellion, riot, civil commotion or strikes of a political nature occurring; • Nuclear, chemical or biological contamination; • Epidemic or plague; or • Pressure waves caused by devices travelling at supersonic speeds.
10. Sponsor Risks						

	Risk Category	Description of risk	Risk Allocation		Risk Rating	Comments
			Government	InfraCos		
10.1	Insolvency risk	The risk that after the execution of contracts InfraCo becomes insolvent or its financial burdens exceed its financial capacity and results in corporate failure.		✓	Low	This may fall under a default termination event under the project/concession agreement (if applicable) between the government and the private sector entity(s) and the government may be provided to right to re-tender under such an event.
10.2	Change of Control or Ownership	Risk that a change in control of InfraCo results in a weakening in its financial standing or causes any other detriment to the project.		✓	Low	Government may impose an embargo on changing ownership during the first [X] years of operation.