

REQUEST FOR PROPOSALS (RFP)

Notice No. INCAP/P/PMA/FIBER GRID/178/2015 Dt:05-08-2015

Selection of Project Monitoring Agency (PMA) for Andhra Pradesh Fiber Grid – Phase I

**Vice Chairman & Managing Director
INCAP, Hyderabad**



**Infrastructure Corporation of Andhra Pradesh Ltd.,
10-2-1, III Floor, FDC Complex, AC Guards
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Key Information& Dates

1	Tender Inviting Authority	Infrastructure Corporation of Andhra Pradesh, #10-2-1, III Floor, FDC Complex, AC Guards, Hyderabad – 500028, Telangana
2	Job Requirement	The tender document for Selection of Project Monitoring Agency (PMA) for Andhra Pradesh Fiber Grid – Phase I Project
3	Publication of the tender document	06 August 2015
4	Cost of Tender Document	The Bid document for Selection of Project Monitoring Agency (PMA) for Andhra Pradesh Fiber Grid – Phase I Project can be downloaded from the official website of INCAP (i.e. www.incap.co.in) and at the time of submission of the bid document the bidder has to submit the cost of tender document, a non-refundable fee of INR 5000/- + VAT INR 700 in the form of demand drafts in favor of “Vice Chairman & Managing Director, INCAP, Hyderabad” payable at Hyderabad.
5	Contact person for clarification	Chief General Manager (Technical) Infrastructure Corporation of Andhra Pradesh, #10-2-1, III Floor, FDC Complex, AC Guards, Hyderabad – 500028, Telangana Email ID: cgmt@incap.co.in
6	Last date for receiving queries / clarifications	13 August 2015 till 5:00 PM through e-mail
7	Last date for submission of Bids	Up to 03:00 PM on 20 August 2015 at INCAP, #10-2-1, III Floor, FDC Complex, AC Guards, Hyderabad – 500028, Telangana
8	Bid Security /Earnest Money Deposit Amount Payable	The Bidder shall furnish, as part of its bid, a bid security in the form of Bank Guarantee / Demand Draft drawn in favour of “Vice Chairman & Managing Director, INCAP, Hyderabad” payable at Hyderabad for an amount of INR 3,30,000/- (INR Three Lakh Thirty Thousand Only) payable at Hyderabad.
9	Opening of Technical Bids	04:00 PM on 20 August 2015 at INCAP, #10-2-1, III Floor, FDC Complex, AC Guards, Hyderabad – 500028, Telangana
10	Technical Presentation	The date will be communicated to the bidders at a later stage
11	Date, Time & Venue for the opening of Financial / Commercial Bid for technically qualified bidders	The date will be communicated to the bidders at a later stage

DISCLAIMER

The information contained in this tender Document or subsequently provided to Bidder(s) or Applicants whether verbally or in documentary form by or on behalf of Vice Chairman & Managing Director, Infrastructure Corporation of Andhra Pradesh, or any of their employees or advisors, is provided to the Bidder(s) on the terms and conditions set out in this tender document and all other terms and conditions subject to which such information is provided.

This tender document is not an agreement and is not an offer or invitation by the Vice Chairman & Managing Director, Infrastructure Corporation of Andhra Pradesh to any party other than the Applicants who are qualified to submit the Bids (“Bidders”). The purpose of this tender document is to provide the Bidder(s) with information to support the formulation of their Proposals. This tender document does not purport (claim) to contain all the information each Bidder may entail (require). This tender document may not be appropriate for all persons, and it is not possible for the Vice Chairman & Managing Director, Infrastructure Corporation of Andhra Pradesh, their employees, or advisors to consider the investment objectives, financial situation, and particular needs of each Bidder who reads or uses this tender document. Each Bidder should conduct its own investigations and analysis and should check the accuracy, reliability and completeness of the information in this tender document and where necessary obtain independent advice from appropriate sources. The Vice Chairman & Managing Director, Infrastructure Corporation of Andhra Pradesh, their employees and advisors make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the precision (accuracy), reliability or completeness of this tender document. The Vice Chairman & Managing Director, Infrastructure Corporation of Andhra Pradesh may in their absolute discretion, but without being under any obligation to do so, update, improve or supplement the information in this tender document.

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ABBREVIATIONS/ ACRONYMS / DEFINITIONS

The following abbreviations and acronyms have been used in this document.

ABBREVIATION/ ACRONYM	DESCRIPTION
ABD	As Build Diagram
ADSS	All-Dielectric Self Supporting Cable
AP	Andhra Pradesh
AWO	Advance Work Order
BSS	Business Support System
B. Tech	Bachelor of Technology
BER	Bit Error Rate
CD	Compact Disk
CRM	Customer Relationship Management
CV	Curriculum Vitae
DB	Decibels
DB/KM	Decibels per Kilometre
DC	Data Centre
DCN	Data Communication Network
DR	Data Recovery Centre
DWDM	Dense Wavelength division multiplexing
EMD	Earnest Money Deposit
EPDCL	Eastern Power Distribution Company of A.P. Ltd.
F1	Financial Quote for the bidder under consideration
FAT	Field Acceptance Testing
FCAPS	Fault, Configuration, Accounting, Performance, Security
FDB	Fiber Distribution Box
FDMS	Fiber Distribution Management System
Fmin	Minimum Financial Quote
Fn	Normalized Financial Score
GoAP	Government of Andhra Pradesh
GPON	Gigabit capable Passive Optical Network
GIS	Geographic Information System
GO LIVE	Date of commissioning of the entire network
INCAP	Infrastructure Corporation of Andhra Pradesh
INR	Indian Rupee
IPR	Intellectual Property Rights
IT	Information Technology
ITB	Instruction To Bidders
KV	Kilo Volt
LCO	Local Cable Operator
LD	Liquidated Damages
MBA	Master Of Business Administration

MCA	Master of Computer Applications
MoU	Memorandum of Understanding
M. Tech	Master of Technology
NOC	Network Operations Centre
NOFN	National Optical Fiber Network
Nm	Nanometer
NMS	Network Management System
O & M	Operation and Maintenance
OFC	Overhead Fiber Cable
OLT	Optical Line Terminal
ORL	Optical Return Loss
OSC	Optical Supervisory Channel
OSNR	Optical Signal to Noise ratio
OSS	Operations Support System
OTDR	Optical time-domain Reflectometer
OTN	Optical Transport Network
PBG	Performance Bank Guarantee
PGDBM	Post Graduate Diploma in Business Management
PMA	Project Monitoring Agency
PMU	Project Monitoring Unit
PON	Passive Optical Network
PoP	Point of Presence
PSU	Public Sector Undertaking
PRx	Received Power
PTx	Transmit Power
QA	Quality Assurance
QC	Quality Control
QCBS	Quality and Cost Based Selection
RFP / Tender Document	Request For Proposal
ROW	Right Of Way
SDH	Synchronous Digital Hierarchy
SLA	Service level Agreement
SONET	Synchronous Optical Network
SPV	Special Purpose Vehicle
SPDCL	Southern Power Distribution Company of A.P. Ltd.
T	Start of project- date of signing of the contract
Tb	Technical Score
TEC	Technical Evaluation Committee
The Authority	INCAP or any other designated agency of the GoAP
TV	Television
VAT	Value Added Tax

SECTION 1: INVITATION FOR BIDS

1. Invitation for bids

This invitation for bids is for “Selection of Project Monitoring Agency (PMA) for Andhra Pradesh Fiber Grid – Phase I Project”. Sealed offers prepared in accordance with the procedures enumerated in this document shall be submitted to the **Vice Chairman & Managing Director, INCAP, Hyderabad on or before 03:00 PM on 20 August 2015.**

The Bid document can be downloaded from the official website of Infrastructure Corporation of Andhra Pradesh (i.e. <http://www.incap.co.in>). At the time of submission of the bid document the bidder has to submit the bid amount against a non-refundable fee of **INR 5000/- + VAT INR 700** in the form of demand drafts in favor of “Vice Chairman & Managing Director, INCAP, Hyderabad” payable at Hyderabad.

Failure to furnish the above mentioned demand draft would result in rejection of the bid.

2. Due Diligence

The Bidder is expected to examine all instructions, forms, terms and specifications in the bidding document. The bid should be precise, complete and in the prescribed format as per the requirement of the bid document. Failure to furnish all information required by the bidding document or submission of a bid not responsive to the bidding document in every respect will be at the Bidder's risk and may result in rejection of the bid.

3. Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of its bid and Vice Chairman & Managing Director, INCAP, hereinafter referred to as "the Authority", will in no case be held responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

4. Content of Bidding Document

The requirements, bidding procedures and contract terms are prescribed in the bidding document. This bidding document include:

- Section 1: Invitation for Bids
- Section 2: Introduction
- Section 3: Instructions to Bidders
- Annexure 1: Contents and Format of Technical Bid
- Annexure 2: Content and Format of Financial Bid
- Annexure 3: Evaluation Criteria: Technical Bid
- Annexure 4: Service Level Agreements (SLAs)
- Annexure 5: Instructions to be followed while laying Aerial Optical Fiber Cable
- Annexure 6: Guidelines for Quality, Inspection & Testing
- Annexure 7: Roles and Responsibility
- Annexure 8: Guidelines for Installation of ADSS Aerial Optical Fiber Cable

5. Clarification of Bidding Documents

A prospective bidder requiring any clarification on the bidding document may notify the Authority in writing or by e-mail. The following official may be contacted for this purpose:-

Chief General Manager (Technical)

Infrastructure Corporation of Andhra Pradesh (INCAP),
10-2-1, III Floor, FDC Complex, AC Guards,
Hyderabad – 500028, Telangana
Tel: +91-40-2332-1771/2
E-Mail: cgmt@incap.co.in

The bidder shall submit any queries related to the Bid document in the following format not later than **05:00 PM on 13 August, 2015**.

S. No	Page No	Reference Clause	Queries	Recommendations/Explanation of the <<Name of the Bidder>>

6. Amendment of Bidding Documents

At any time before the deadline for submission of bids, the Authority may, for any reason, whether at its own initiative or in response to the clarification requested by a prospective Bidder, modify the bidding document by amendment.

All such amendments shall be uploaded on the website of INCAP, (www.incap.co.in) and shall be binding on the bidders.

If required in order to allow prospective Bidders reasonable time to take the amendment into account in preparing their bids, the Authority reserves the right to extend the deadline for the submission of bids.

SECTION 2: TENDER DETAILS

1. Project Background

1.1 Vision of Andhra Pradesh Fiber Grid Project

The AP Fiber Grid Project has been conceived by the GoAP with the following Vision: “To establish a highly scalable network infrastructure, accessible on a non-discriminatory basis, to provide on demand, affordable and end-to-end broadband connectivity of 10 to 20 Mbps for ALL households and 1 to 10 Gbps for ALL institutions & Multi-Dwelling Units by 2018, to enable realization of the Vision of Digital AP, in partnership with the Government of India and the private sector”.

1.2 AP Fiber Grid Ecosystem

Diagram below depicts planned architecture for aerial and underground networks:

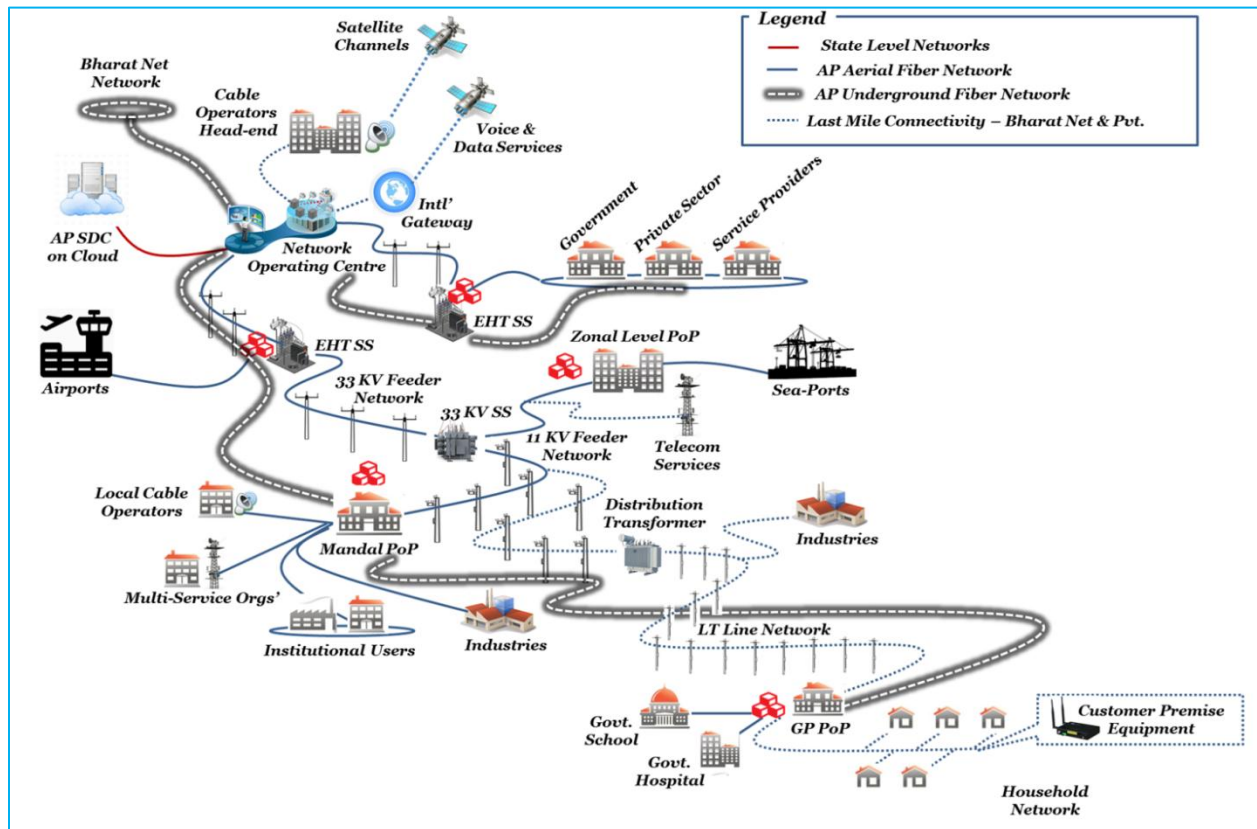


Figure-1: Schematic view of AP Fiber Grid Project

AP Fiber Grid Project is planned to be implemented in two phases.

Phase-I of the Project is planned to be implemented first which intends to create overhead fiber network across AP State. The fiber will be laid overhead and using the network of electricity poles across the State. As per the estimate done by GoAP the approximate length of fiber to be laid as part of this project is 22,500 Kms. For this project GoAP through INCAP has floated the

tender to select an implementation agency also referred as ‘contractor’ to lay the fiber network, create requisite number of PoPs, supply and install the networking equipment, set up NOC at central location, implement OSS and BSS software, Set up cable TV headend and operations & maintenance of the same for one year duration post Go Live. For more information please refer to the tender No. INCAP(AP)/P/Optical Fiber Grid / 62/2014, Dated:07.07.2015 and the related corrigendum published by the Authority in this regard.

Phase-II of the project involves laying of underground Optic Fiber Network across the State under National Optic Fiber Network (NOFN) / Bharat Net Scheme of Government of India. The tender document for this project will be floated at a later date. Once Phase-II project is implemented Phase-I project shall work as extended network as well as back up network at few locations for Phase-II project.

In later parts of this tender document, the details of Phase-I project are mentioned in detail and only Phase-I project is in the scope of the Project Monitoring Agency (PMA) as selected through this tender process.

1.3 AP Fiber Grid Project – Phase I

In the Sections below details, regarding various components of Phase-I of AP Fiber Grid Project are mentioned. :

1.3.1 Supply and installation of 22,500 Km of Optical Aerial Fiber across AP

This component of the project would involve laying aerial optical fiber across the State so that the State, District, Zonal and Mandals are connected with each other using ring topology as much as possible. In addition, the last mile connectivity will be made available through a network of Local Cable Operators that have the capability to provide bandwidth.

Optical fiber shall be laid by the contractor primarily along the electrical pole network under the control of EPDCL and SPDCL. Scope of work of contractor would involve:

- a. Verification and optimization of routes designed based on GIS survey
- b. Laying of optical fiber

Total length of aerial fiber to be laid across the State is estimated to be around **22,500 Km**. This would comprise of various rings like State Ring, District Ring, Zonal Ring and Mandal Ring.

1.3.2 Creation of PoPs at identified locations

As a part of project implementation, Point of Presence (PoP) would be created at the State, District and Mandal level. The objectives of the PoPs would be to enable the customers / ecosystem partners like Local Cable Operators etc. to have easy access to the network. These PoPs shall be created at locations identified by the state Govt. A total of 2449 PoPs have to be created across the state.

It is envisaged that the following would form part of PoP infrastructure –

- a. Passive fiber termination equipment
- b. Electronics equipment and related infrastructure

- c. Power provisioning including grid power and backup power
- d. Other cabling and minor civil works etc. to be performed by the contractor as per the tender issued in this regard

Location for PoPs at various levels is envisaged to be as below:

Level	PoP Location
State	Strategic Location
District	District Collectorate Offices or any other identified Govt. office
Zone	Electricity Substations
Mandal	Electricity Substations
Sub Station	Electricity Substations

These locations are spread across State of Andhra Pradesh. Exact details of the each site can be taken from the list of sites published as part of the tender published for selection of contractor for implementation of Phase-I Project.

1.3.3 Creation of Central Infrastructure

Central IT infrastructure will be required to centrally monitor and manage the Network. This comprises of establishment of Network Operations Center and development and deployment of Operations Support System and Business Support Systems. The required solutions shall be collocated at NOC location. Disaster recovery site will be planned at a later date and not part of this project

a) Network Operations Center (NOC)

Network Operations Center (NOC) will host the IT infrastructure required for running the core applications including OSS and BSS. There shall be fool proof arrangement for complete replication of data on secondary site in the form of back up, storage and replication so that there is minimum loss of data. The Authority also intends to offer OSS and BSS solutions to eco system partners as service on cloud. The data center will also have capabilities to host this application and offer the same in the form of Software as a Service to eco system partners. Contractor will also set up all the relevant infra to enable this functionality.

The NOC would be the central location from which network administrators manage, control and monitor the network. NOC would have the capability of analyzing problems, performing troubleshooting, communicating with site technicians and tracking problems until they are resolved. NOC shall also have the capability able to monitor the DC from the central location.

Data Communication Network (DCN) shall be established for exclusive use for data communication between central NMS and remote network devices. Contractor will also set up NOC including monitoring Software (NMS). Non furnished space for NOC shall be provided by GoAP.

b) Network Management System

In order to achieve increased reliability and improved performance by seamless monitoring and management of the network, a Network Management System (NMS) shall be developed. The

NOC operators would be able to access the network for effective monitoring and management. Key modules of NMS application will be finalized as per the scope of services being offered.

c) Business Support System

BSS application would enable automation of following key functions –

- a. Customer life cycle management (CRM, Billing, Web Self Care)
- b. Analytics
- c. Integration with NMS for seamless process execution across the customer handling and network domains

d) Cable TV Headend

Cable TV headend would enable following key functions

- a. Establish required infrastructure for a 250 Channel Digital Headend and integration of DRM
- b. Capable of both SD & HD streaming
- c. Installation of Antenna farms
- d. Establishment of Edgecoms in Mandal PoPs
- e. Integration of video streams on GPON interface

1.3.4 Creation of AP Fiber Corporation to manage Implementation & Assets

In order to carry out the implementation and O&M of the network and drive subsequent utilization, a Special Purpose Vehicle (SPV) “**Andhra Pradesh Fiber Net Ltd.**” will be incorporated. The SPV will own the complete fiber network assets and other network / other assets implemented as part of Phase-I project, drive the necessary procurement, contracts and make decisions about its requirements including collaboration with Central Government initiatives and other relevant efforts. The architecture, design, innovation, management, operational oversight and monetization of this network would be managed by the SPV.

1.4 Project Monitoring Agency (PMA)

The Andhra Pradesh Aerial Fiber Grid project Phase-I is a State wide infrastructure implementation project which leverages the infrastructure of the electricity distribution companies spanning over 22,500 km. A contractor is being selected through separate tender process to implement this project. However considering the nature and complexity of the project, the Authority has decided to select a Project Monitoring Agency who will monitor the implementation of the Phase I project and certify the work performed by the contractor in parallel.

Accordingly, this tender document is floated to select PMA. PMA would be responsible to oversee the work being done by the Implementing Agency / contractor and to verify quality of work as well as quantity of work. PMA would be responsible for providing commissioning certificates for successfully commissioned sites including all other project components.

The responsibilities of PMA will include:

- i). Review of adherence to standards, guidelines and procedures laid down by the Authority for the project including the parameters mentioned in the tender floated for the selection of contractor
- ii). Responsible for the project management activities during implementation and till Go Live of Phase-I of the Project. This will involve review and certification of all the components and work performed by contractor in line with the scope of work assigned to contractor.
- iii). Responsibility of Quality Review of the work done by contractor on day to day basis for all 100% sites. Certification and verification of the work will require visit to each site and PMA shall deploy its teams at all the sites. This deployment shall be scheduled in line with the site wise project plan / work plan details submitted by contractor to the Authority.
- iv). Designate Nodal officer/ Relevant technical staff / work force for each District (at central level as well field staff) to monitor the activities and progress of the project on daily basis
- v). Preparation and uploading all data/reports on project management tool, and/or sending the same to the Authority officers at appropriate address as per pre-defined procedures
- vi). Publish procedures, guidelines, checklists and report formats for the project progress,
- vii). Ensuring availability of verification and validation personnel in line with the implementation schedule and site level coordination with contractor for carrying out the tasks.
- viii). Verify the route map and fiber route GIS data uploaded by contractor in its GIS tool,
- ix). Conduct and approve all pre-defined tests for ensuring quality of work done by Implementing Agency including
 - Field Acceptance Test,
 - End to End Testing – PoP to PoP
 - End to End Testing – PoP to OLT
 - Testing of all other components as per details defined in the contractor tender document
- x). Regularly update the project progress on project management tool of the PMA and provide online access of the same to authorized officials of the Authority. For this a suitable Project management tool need to be brought by the PMA as service and will upload the daily progress of the project and also the status of each activity against planned milestone. PMA shall provide access of the tool to at least 5 officials of the Authority.
- xi). Review Monthly Progress Report submitted by contractor for work done in the respective Districts and submit to the Authority.
- xii). Verification of Contractors final deliverables including ABDs
- xiii). PMA will be responsible to verify the roadometer measurement performed by contractor to ascertain the route length where OFC has been laid. (in case the measurement needs to be taken in the field, which is inaccessible for the roadometer to operate, the GIS coordinates need to be taken to measure the length of the fiber that has been laid / installed in the field)
- xiv). Review and certification of supply and implementation of all other components as involved in the project

2. Scope of Work

The scope of work for the project monitoring agency is defined with reference to the set of services which need to be taken up under the project. In addition to scope details as mentioned in Para 1.4 above, broadly the scope of work would also include the following:

- ***Validation, Testing & Certification***
 1. Validation of project planning & execution schedule submitted by contractor
 2. Review of Network Design & Route Map and provide inputs to contractor for improvements
 3. Overhead Fiber Cable laying testing & certification
 4. Electronics & Network Equipment testing & certification
 5. NOC & Point of Presence (PoP) testing & certification
 6. End-to-End Network testing & certification
 7. Testing and certification of other components like OSS, BSS, NMS, Cable TV Head End and all other components installed by contractor to meet the project requirements
- ***Project Monitoring Support during implementation Phase till Go Live***
 1. Weekly & Monthly Status Reporting& Continuous Monitoring
 2. SLA Monitoring, Payments & Penalties
 3. Support Implementation Agency in execution of works
 4. Support department in coordination & communication activities with other project stakeholders

The details on the above aspects of scope of work are covered subsequently.

Note:

1. *The structure / format of the report/deliverable shall be finalised by the project monitoring agency with the Authority before the commencement of the activity concerned.*
2. *Please refer to the contractor tender document no INCAP(AP)/P/Optical Fiber Grid / 62/2014released by INCAP for more details about the AP Aerial Fiber Grid Project.*

2.1 Validation, Testing & Certification

2.1.1. Validation of Project Planning & Execution Schedule

This will entail review and validation of the detailed project plan & execution schedule prepared by selected Contractor for the project. All deviations from the proposed scope of work, initial proposal submitted, deployment and execution schedule, timelines and deliverables of the Contractor need to be documented and presented to the project stakeholders for review and acceptance.

Deliverable:

The “***Project Planning & Execution Schedule Review Report***” shall cover (not limited to)

- Project Charter
- Project Plan

- Project Execution Schedule
- Deviations (if any) from the original plan (by the implementation agency)
- Manpower Deployment Plan
- Quality Assurance Plan

2.1.2. Validation of Network Design & Route Map

The selected Contractor will conduct an independent assessment of the Network Design and Route Map provided to them. The PMA needs to validate the “final” network design and route map submitted by the contractor.

Deliverable:

The “***Network Design & Route Map Review Report***” shall cover (not limited to)

- Review Recommendations on the final network design & route map submitted by the contractor
- Impact analysis of deviations (if any) given by the Contractor
- Component wise acceptance of the Network Design & Route Map

Note:

- *The “Draft Network Design & Route Map” will be provided by the Contractor*
- *The PMA needs to make a presentation of the prepared report to the Authority team.*
- *GIS coordinates will be taken by the contractor during the laying, installation, commissioning of the OFC network. The Route Map will need to be validated in-line with the provided GIS coordinates.*

2.1.3. OFC Testing & Certification

The PMA will work in-line with the agreed execution schedule during the OFC laying / installation at the field level. The PMA needs to test and certify each section of the installed OFC at the field level. Once an identified route is completed by the Implementation Agency, the PMA will test and certify that the OFC laying / installation is satisfactory.

PMA need to agree a project plan with the contractor and need to make its review / certification staff available for each site in line with the rollout plan. Certification for each completed site needs to be completed in parallel and in line with rollout plan of the contractor. Field coordination with the contractor needs to be done by the PMA. Policy level guidelines may be issued by the Authority.

The following need to be covered (but not limited to) to ensure quality of OFC laying / installation:

1. OFC Quality in line with Contractor tender requirements
2. OFC Laying / Installation Standards Compliance
3. OFC Splicing Standards Compliance
4. OFC installation Accessories Compliance
5. OFC Testing for operation
6. Verification of GIS details as uploaded by contractor in the GIS tool

Note:

- Necessary testing equipment required to meet standards compliance will be provided by the contractor.
- The PMA will use the equipment to validate the reports submitted by the Contractor.
- PMA is advised to read the tender issued by the Authority for selection of Implementing Agency / Contractor to have a look at the tools that will be brought by contractor. If any additional tools etc. are required the same need to be arranged by PMA at no additional cost to the Authority.
- After completion of the testing for each route, PMA need to submit the report in prescribed format to the Authority.
- For installation guidelines please refer Annexure 8 of this document.

OFC Testing & Certification Formats:

2.1.3.1. Test Format 1: Physical Inspection of ADSS OFC & Accessories

S. No.	Name of Items	Quantities (or Length) Installed / Used (Verified as per Physical Inspection)	Observations	Remarks
1	24 Core Optical Fiber Cable		Accessories: Length: Sag:	
2	FDMS		Routing & Tagging of Fibers	
3	FDB		Routing & Tagging of Fibers	
4	Any other items			

2.1.3.2. Test Format 2: Report for Splice loss on an ADSS Fiber Cable Section

Section Identity/No. : _____
 Section Length : _____ Kms
 Splice No. : _____

Tube Colour	Fiber Colour	Fiber Number	Splice Loss (dB)	
			1310 nm	1550 nm
		1		
		2		
		3		
		4		
		TO		
		21		
		22		

		23		
		24		

Name, Signature & Seal of the Authority Official
Date:

(Accepted / Rejected)

Name, Signature & Seal of PMA Official
Date:
Remarks, if any:

Note: Splice Loss Measurement using OTDR

1. The fiber under test is connected to the OTDR which directly displays the splice loss after suitably adjusting the markers. The observations shall be recorded for both the windows i.e. 1310 nm and 1550 nm.
2. For the splice(s) within the ADSS Fiber Cable section (in cases where the ADSS Fiber Cable section is more than 2 Kms in length) the splice loss shall be measured for all the 24 fibers. The splice no. shall be counted from POP side towards the nearest POPs. The test results shall be recorded in the format given in Form 3 of the Formats for the Test Report.
3. Specification: Max Splice Loss 0.05 dB for one fiber per splice for straight/branch joints.

2.1.3.3. Test Format 3: Attenuation Test for ADSS Fiber Cable Section in the POP using Power Meter (for each fiber)

Section Identity/No : _____
Section Length : _____ Kms
Transmit Power (PTx) : _____ dB

Fiber No.	Testing at 1310 nm			Testing at 1550 nm		
	Level at Rec. End	Loss (in dB)	Attenuation per KM (dB/Km)	Level at Rec. End	Loss (in dB)	Attenuation per KM (dB/Km)
	(PRx)	(A=PTx-PRx)	(A/section length)	(PRx)	(A=PTx-PRx)	(A/section length)
1						
2						
TO						
23						
24						

Name, Signature & Seal of the Authority Official
Date:

(Accepted / Rejected)

Official

Name, Signature & Seal of PMA

Date:
Remarks, if any:

Note:

- a. Carry out total section attenuation loss as mentioned in table above.
- b. All the cables should meet the standard for both the wavelength i.e.1310 nm and 1550 nm as per specification given above i.e. less than 0.43 dB/Km for 1310 nm and 0.30 dB/km.for1550 nm.
- c. Connect standard optical source with 1310 nm and 1550 nm at particular level (say P1 dBm.) at one end of the fiber. Measure with power meter the power at the other End of the fiber (say P2 dBm.)
Thus, attenuation of the fiber = (P1 - P2) dB.
- d. Specifications
 - i. **At 1310 nm**
Total Link Loss \leq 0.36 dB/km x Section Length + (0.05 dB/Splice)x(No. of Splices) + 0.5 dB x No. of Connectors + splitter loss
 - ii. **At 1550 nm**
Total Link Loss \leq 0.21dB/km x Section Length + (0.05 dB/Splice)x(No. of Splices) + 0.5 dB x No. of Connectors
- e. All the 24 Fibers of the ADSS Fiber Cable shall be tested with the pigtail spliced to each fiber one by one for taking the test readings as per the table above.
- f. Attenuation test shall also be taken with OTDR at 1550nm and 1310nm and printout for each fiber at each window shall be obtained.

2.1.3.4. Preparation of OTDR Traces Report

- a. This method uses an optical time-domain reflectometer (OTDR). Unlike a Power Meter, the OTDR can identify and locate the position of each component in the network. The OTDR will reveal splice loss, connector loss and reflectance, and the total end to end loss.
- b. For End-to-End measurements including joint enclosures must be carried out to document the characterization of the joint loss and the total link loss. The OTDR measurement must be conducted upstream (i.e., from the OLT to POP).
- c. Carry out OTDR measurements and take traces taken on all wavelengths (1310 nm / 1550 nm).Soft copy of this report needs to made available for updating in Test reports

2.1.4. Electronics & Network Equipment testing & certification

The PMA will work in-line with the agreed execution schedule during the installation of Electronics & Network Equipment at the field level. The PMA needs to test and certify the each location where electronics and network equipment is installed for its operations and acceptance.

Note: Necessary testing equipment required to meet standards compliance will be provided by the contractor. After completion of the testing for each site PMA need to submit the report in prescribed format to the Authority. PMA will use the equipment to validate the reports submitted by the contractor. Any additional tool need to be arranged by PMA at no additional cost to the Authority.

Electronics & Network Equipment Testing & Certification Format

2.1.4.1. Test Format 4: Field Acceptance Test for POP

Name of District:

Name of Mandal:

PoP Name:

Latitude & Longitude:

Test Requirements:	1310 nm	1550 nm
Cable Attenuation per km (dB)		
Total Physical Cable Length (km)		
Splice Loss Mean Value (dB)		
Total Number of Splices		
Maximum Connectors Loss (dB)		
Total Number of Connectors		
Total Section Loss (dB)		

Test Period: From _____ to _____

Total Route Length of ADSS Fiber Cable laid from POP to POP: _____ Kms

Total ADSS Fiber Cable length tested: _____ Kms

No. of Straight Joints: _____

No. of Branch Joints: _____

No. of FDBs: _____

Name, Signature & Seal of the Authority Official

(Accepted / Rejected)

Date:

Name, Signature & Seal of PMA Official

Date:

Remarks, if any:

2.1.5. NOC & Point of Presence (PoP) Testing & Certification

PMA will work in-line with the agreed execution schedule during the set-up, installation and commissioning of Network Operations Centre and Points of Presence. The PMA needs to test and certify commissioning the each PoP and the centralized NOC including other components as mentioned in contractor tender document like OSS, BSS, NMS, Cable TV Head end and other components.

Note: For this verification / certification if any specific tool is required the same shall be arranged by PMA at no additional cost to the Authority.

NOC & PoP Testing & Certification Format

2.1.5.1. Test Format 5: End to End Testing of Route From PoP to PoP

1. The End to End testing from POP to POP shall be carried out using Power meter/source and with OTDR after splicing Optical Fiber Cable.
2. The average attenuation (dB/Km) for cable shall be recorded in the given format:
 - a. Tested Length : _____ Km
 - b. Total loss on the length : _____ dB
 - c. Average Attenuation per Km. : _____ dB/Km
 - d. Fiber length used : _____ Km
 - e. Net loss for Fiber at FDMS : _____ dB
3. End to end Testing shall be done in one direction only for the two wavelengths i.e. 1310 nm & 1550 nm from POP to POP side using Power meter and source. The Fiber connected to each port shall also be tested using the OTDR and the traces obtained shall be recorded for future reference.
4. The Implementing Agency entrusted with the task of laying the Optical Fiber Cable shall be responsible for co-ordination for conducting this test.
5. After carrying out this test, the respective POP shall be detected in the NMS by the central NOC team of the Authority and shown as active at the NOC. The Authority shall publish the list of mandals and substations in each district which have gone active.
6. Test for End-To-End link stability (including 48 hours of BER test) for each PoP.

2.1.5.2. Test Format 6: End to End Testing of Route from PoP to OLT

1. The End to End testing of the ADSS Fiber Cable route from the POP to OLT shall be done by measuring the power received at each POP location using the power meter and source. Thus total attenuation would be recorded.
2. The attenuation shall be tested from POP to each FDB at POP in one direction only for two wavelengths 1310 nm and 1550 nm.
3. The tests shall be carried on the fiber connected to each of utilized ports.
4. The test results shall be recorded in separate sheet for each port.
5. Specifications: The total attenuation from POP to POP at each location should be well within the available power budget for GPON equipment which is 28 dB. The maximum value should be about 25 dB.

6. The fiber connected to each port shall also be tested using the OTDR and the traces obtained shall be recorded for future reference.

2.1.5.3. Test Format 7: NOC Active Components Test

S. No	Description	PMA Remarks
Section 1	Acceptance Tests	
A	After completion of the installation work, the complete system shall be tested for H/Ware and S/Ware functions and features. Contractor's engineers, under the supervision and guidance of the Contractor's experts will carry out this work. Thereafter, the Contractor, along with the representative nominated by the Authority, shall carry out the Acceptance tests to prove performance of the different equipment, sub-system, and the overall installation to the entire satisfaction of the Authority.	
B	The Contractor shall submit sufficiently in advance before the start of the acceptance tests, a list of all the acceptance test and procedures, it proposes to conduct to demonstrate that the system satisfies all the requirements of the specifications. The Authority shall have the right to propose modifications or additions to tests or measuring techniques before commencements of tests.	
C	As a part of the acceptance tests, it shall be checked that:	
	All documentation should be supplied & fully updated.	
	All hardware and software items are in perfect working order at the time of taking over.	
	Acceptance tests, including stability test as defined will have to be completed to the full satisfaction of the Authority.	
	All the network elements & route shall be brought in the NMS with complete testing of FCAPS functionality.	
Section-2	Testing of Technical Specification & Equipment Configuration and compliances	
A	System Requirement.	
	The DWDM equipment shall allow multiple wavelengths to be added or dropped from each of the terminal stations	
	The interfaces are to be G.709 compliant.	
	Mandatory laser shutdown shall be implemented in case of fiber break.	
	Optical supervisory channel (OSC):	
B	Testing of Link Margin / Route –Span Design	
	The proposed DWDM system should be capable of supporting	
	No regenerators required in a link.	

	No of spans supported without regeneration in a link.	
	The link engineering calculations along with link margins	
	All the link margin calculations shall be done based on EOL of electronics.	
C	Testing of Mandatory design parameters:	
	Return Loss should be > 40 dB	
	4dB end to end link margin	
	Per span margin shall be more than or equal to 4 dB	
	Auto shut down of laser & power amplifier	
	System should support Automatic Level control, Automatic Gain control, and Automatic equalization of the links for per channel addition/deletion.	
D	NMS capability testing	
	Regarding NMS functionality the performance management capability to be available on per channel basis in addition to line side.	
	Alarms:	
	Derived Power supply failure alarm	
	Loss of input at Optical Add/Drop multiplex equipment	
	Input channel failure Optical Add/Drop multiplex equipment.	
	Hardware mismatch alarm	
	Loss of Supervisory Channel	

2.1.5.4. Test Format 8: Acceptance test of DWDM and IP rings

ACCEPTANCE TEST FORMAT FOR DWDM AND IP RINGS			
Section	Sub section	Task Description	Remarks
1		Shelf Configuration & Management	
	1	Assign unique ID to the shelf	
	2	Shelf Interconnection	
2		Stand Alone Testing & Configuration Assignment	
1		Equipment Inspection (Visual Inspection for any damage)	
2		Shelf Power Verification	
3		Shelf Power Redundancy Check	
4		In-Bay/Standalone Testing for all the modules (Standalone Testing)	
5	1	Channel Module - Launch Power (Tx)	
	2	Channel Module - Receiver Sensitivity (Rx)	
	3	Channel Module - Centre Wavelength	
	4	ALS function test for Transponder	

	5	Optical Amplifier Test(To check Gain of amplifier)	
	6	Multiplexer/Demultiplexer test(to Check insertion loss and Ports of Multiplexer/Demultiplexer and Patch cords	
	7	BER(Stability)test for 48 hours	
3		Circuit Turn-Up (i.e. Commissioning) & Link Testing	
	1	Forward & Reverse Commissioning (Channel Balancing)	
	2	OSNR Measurement at Terminal Location & Documentation of Results	
4		Handover Documentation	
	1	Acceptance Test Document along with Stability Report	
	2	Network Measured OSNR Details (Verify Power & OSNR Delta for Channel travelling in same segment)	

2.1.6. End-to-End Network Testing & Certification

The PMA will work in-line with the agreed execution schedule and needs to test and certify commissioning End-to-End Network Operations for the AP Fiber Grid Project Phase I. This will require testing of all installed infrastructure, hardware and software of the project, Standard Operating Procedures for NOC, Processes for Network Management, Service Provisioning & Monitoring. The End-to-End Network testing will be required to be done in phases along the commissioning of the districts. The PMA will need to ensure timely completion of testing for commissioning of the entire network for the project.

Note: For this verification / certification if any specific tool is realized, the same shall be arranged by PMA at no additional cost to the Authority.

Project Commissioning (Go-Live) Format

AP Aerial Fiber Grid Project Phase 1 Go Live deliverables				
S. No.	Scope	Quantity in Units	Plan	Units in Operation
1	Optical Fiber cable and Installation	22500 Kms		
2	Installation & Commissioning of District level PoPs	12 Nos.		
3	Installation & Commissioning of Zonal Hub Level PoPs	49 Nos.		
4	Installation & Commissioning of Mandal Level PoPs	605 Nos.		
5	Installation & Commissioning of Substation Level PoPs	1784 Nos.		
6	NOC and CA TV HeadEnd	1 No		

Note: 22,500 Kms is the estimated length and the actual length may vary.

2.2 Project Monitoring Support(during project implementation phase)

The project monitoring agency shall provide the required support to the Authority in monitoring, supervising & managing the various activities to be conducted by the Contractor.

The Project Monitoring / Management activities herein would broadly include the following:

- Coordinate with the stakeholders of the project to ensure smooth implementation & monitoring of the Project
- Providing strategic advice to the Authority on the project
- Assist the Authority in escalating, tracking the resolution and follow up with the Contractor for the issues and problems / grievances raised by the stakeholders of the project.
- Review and assist the Authority in the appraisal of project plans, execution schedules, report, design documents etc. as submitted by the Contractor.
- Escalate Technical & Functional issues to the Authority on any delay in achievement of milestones by Contractor& assist in timely resolution of the issues
- Support the Authority in preparation of Change Request for the project, if required
- Regular review of the SLAs; preparation and analysis of SLA deviation statements based on the SLAs defined in the contract.
- Escalation of SLA reports and associated issues to the Authority
- Assist the Authority in reviewing the payment to be made to the Contractor as per the payment schedule defined in their contract. The payment to be made would be derived based on the performance of the vendor on the SLAs defined, penalty if applicable and other terms & conditions as defined in the contract.
- Oversee the change management activities being carried out by the Contractor.

- Support the Authority in giving sign-offs achieved milestones by Contractor.
- Provide regular support to the Authority for brainstorming discussions on improvement of project, with officers of the Authority & other stakeholders.
- Provide support to the Authority during regular interaction with the stakeholders and support the Authority in preparation of monthly reports on functioning of the project, problems of the stakeholders and gathering of suggestions for improvement of the project
- Any other specific activities related to the monitoring / management of the AP Fiber Grid Phase-I project or assigned by the Authority.
- For the above mentioned activities, the PMA shall be required to provide a 'Core Team' i.e. team of experts in varied fields such as Optical Fiber Cable, Electronics & Network Equipment, Solution Architecture and Quality Assurance etc.

3. Composition of the team and expertise required

The team proposed by the bidder for the assignment needs to have a judicious mix of consultants with expertise in the area of technology, domain, processes, etc.

The project team shall consist of 'core team' and 'field teams' as given below:

- **Core Team**(to be based at the location designated by the Authority)
 1. **Project Manager**
 - ✓ should lead the entire team for the project
 - ✓ should be MBA/PGDBM and M.Tech/B.Tech/MCA.
 - ✓ should have at least **10** years of relevant experience out of which at least **6** years of experience should be in large scale Network Implementation projects including e-Governance in India.
 - ✓ should have experience in IT & Networking projects, preferably from Central/State Government of India.
 - ✓ should have experience in contracts management and providing project management support for projects, preferably of Central/State government of India.
 - ✓ should have experience of leading the team for IT & large scale network projects preferably of Central/State government of India.
 2. **Optical Fiber Cable Expert**
 - ✓ should be M.Tech/B.Tech/MCA
 - ✓ should have at least **7** years of relevant experience out of which at least **2** years of experience in large scale Network Implementation projects for Fiber deployments including SWAN/Underground fibers deployments with Telecom companies in India.
 - ✓ should have experience in contracts management and providing project management support for projects, preferably of Central/State government of India.
 3. **Electronics & Network Equipment Expert**
 - ✓ should be M.Tech/B.Tech/MCA

- ✓ should have at least 7 years of relevant experience out of which at least 2 years of experience in large scale Network Implementation projects including IP and DWDM equipment in Large OEM supplier or with Telecom companies in India.
- ✓ should have experience in contracts management and providing project management support for projects, preferably of Central/State government of India.

4. *Solution Expert (OSS/BSS / Server Network Equipment)*

- ✓ should be M.Tech/B.Tech/MCA.
- ✓ should have at least 7 years of relevant experience out of which at least 2 years of experience in large scale Network Implementation projects including e-Governance in India.
- ✓ should have experience in IT & Networking projects, preferably of Central/State Government of India.
- ✓ should have experience in contracts management and providing project management support for projects for Central/State government of India.
- ✓ should have at least 2 years of experience of deployment of OSS/BSS and Server farms in Large OEM supplier or with Telecom companies in India.

5. *Cable TV Headend Equipment Expert*

- ✓ should be B.Tech/MCA
- ✓ should have at least 7 years of relevant experience out of which at least 2 years of experience in deployment of Cable TV Headend with MSOs.
- ✓ should have experience in Testing and commissioning of Dish farm.
- ✓ Should have experience in contracts management and providing project management support for projects for Central/State government of India

6. *Quality Assurance Expert*

- ✓ should lead the entire field team for the project
- ✓ should be MBA/PGDBM and M.Tech/B.Tech/MCA.
- ✓ should have at least 7 years of relevant experience out of which at least 2 years of experience in large scale Network Implementation projects for Fiber and Electronic deployments in India /abroad
- ✓ should have experience in contracts management and providing project management support for projects for Central/State government of India.
- ✓ should have experience of leading the field team for large scale network projects for Central/State government of India.

• *Field Teams*

The Field Teams shall accompany the field execution units of the contractor and validate all works carried out by them, as per the formats defined in Section 2 of this tender document. The bidder may deploy the field team personnel with minimum qualification of graduation in any discipline and with minimum 3 years of relevant experience in the implementation of the project. The bidder may deploy a minimum

of 10 skilled people in each district during the execution / implementation phase of the project.

The field teams will be required to undertake the following tasks (but not limited to):

1. Data collection as per the specified formats / standards / processes
2. Geo-Tagging locations / getting corrected from contractor for Longitude & Latitude coordinates for all installation sites, PoPs, Electricity Poles (on which OFC is installed)
3. Testing of fiber, electronics and network equipment using the testing equipment used by the contractor and validate their reports.

Note

- *The bidder will ensure that in the event of change of core team members during the course of the project, prior intimation to the Authority and suitable knowledge transfer takes place. Also the replacement of the resource should be of higher or similar skill-set, experience level and shall need to be approved by the Authority.*
- *PMA shall submit the mobilization plan including the list of core team as proposed in the bidding document. Any deviations proposed in the mobilization plan will be subject to approval by the Authority as per the relevant conditions of the contract.*

4. Project Timelines /Schedule for Completion of Task

S. No.	Milestone / Deliverable	Timelines
VALIDATION, TESTING & CERTIFICATION		
1.	Project Planning & Execution Schedule Review Report	C + 2 weeks
2.	Network Design & Route Map Review Report	C + 2 weeks
3.	Testing & Certification Report of Network Operating Centre, Headend and all other components of NOC	C + 2 weeks
4.	Testing & Certification Reports for the ‘first’ 2 identified Districts (at least 95% PoPs) : 1) OFC Testing & Certification Report 2) Electronics & Network Equipment Testing & Certification Report 3) PoP Testing & Certification Report 4) Other tests as per requirement	C + 2 weeks
5.	Testing & Certification Reports for the ‘additional’ 5 identified Districts (at least 95% PoPs) : 1) OFC Testing & Certification Report 2) Electronics & Network Equipment Testing & Certification Report 3) PoP Testing & Certification Report 4) Other tests as per requirement	C + 2 weeks
6.	Testing & Certification Reports for the remaining 6 identified Districts (at least 95%	C + 2 weeks

S. No.	Milestone / Deliverable	Timelines
	PoPs) : 1) OFC Testing & Certification Report 2) Electronics & Network Equipment Testing & Certification Report 3) PoP Testing & Certification Report 4) Other tests as per requirement	
7.	Testing & Certification Reports for the remaining PoPs : 1) OFC Testing & Certification Report 2) Electronics & Network Equipment Testing & Certification Report 3) PoP Testing & Certification Report 4) Other tests as per requirement	C + 2 weeks
8.	Project Commissioning (Go-Live) Report	C + 2 weeks

Note:

- *C- Submission / Completion of respective work by the Contractor*
- *While the overall milestones are defined above, the contractor is required to align with the SI for undertaking the testing of sites immediately after the commissioning is done. The compliance to the same need to be reported to the authority on the daily basis via daily progress report.*
- *The timelines provided are for submission of the deliverables and need to be strictly adhered to by the bidders. The bidder is advised to plan the activities in parallel to avoid any delay in the project.*
- *The bidder shall have to present any/all of the above reports in the form of PowerPoint presentations if requested by the Authority .*
- *Bidder is advised to carefully go through the implementation schedule and timelines provided in the Contractors tender separately and plan their activities in conjunction with the timelines and execution schedule mentioned therein.*
- *The expected time duration is 39 weeks from the date of signing of agreement by the bidder, however this is dependent upon the completion of activities by the SI.*

SECTION 3: INSTRUCTIONS TO BIDDERS

Preparation of Bids

1. Language of Bid

The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Authority shall be written in English language only.

2. Documents Constituting the Bid

The Proposal submitted by the Bidder shall comprise the following documents:

- Technical bid (including documents in proof of eligibility criteria) in the formats specified in Annexure 1 of this tender document.
- Financial bid in the formats specified in Annexure 2 of this tender document.
- Any other information that is to be submitted during the course of Proposal process.

3. Eligibility Criteria

This invitation to bid is open to all organisations meeting the following minimum eligibility criteria

Sl. No	Eligibility Criteria	Proof Required
1.	The bidder should be a company registered under the Companies Act, 1956 / 2013 for last the 5 years as on 31.03.2015.	<ul style="list-style-type: none">• Copy of Certificate of Incorporation / Registration from Registrar of Companies along with Memorandum and Articles of Association.• As per the Form – 3 in Part 2, Annexure 1.
2.	The bidder should have an average annual turnover of not less than INR 30 Crores in the last three financial years ending on 31.03.2015, from its operations in India.	<ul style="list-style-type: none">• A Certificate duly certified by the statutory auditor of the Bidder clearly mentioning the annual turnover of the bidder in India, as per the Form - 4 in Part 2, Annexure 1.• Audited financial statements reflecting overall turnover for the last three financial years ending on 31.03.2015.• In case the audited statements for FY 2014-15 are not available, provisional financial statement duly certified by the statutory auditor of the bidder shall be submitted.
3.	The Bidder should have an average annual turnover of at least INR 15 Crores from Services of IT Advisory / Consultancy/ Testing / Verification / Validation of Projects related to	<ul style="list-style-type: none">• A Certificate duly certified by the statutory auditor of the Bidder clearly mentioning the annual turnover of the bidder from Services of IT Advisory / Consultancy / Testing / Verification / Validation of Projects related

Sl. No	Eligibility Criteria	Proof Required
	Information & Communication Technology sector in India for the last three financial years ending on 31.03.2015.	to Information & Communication Technology sector in India, as per the Form - 4 in Part 2, Annexure 1.
4.	<p>The Bidder should have successfully undertaken the execution or monitoring of at least one project related to Services of IT Advisory / Consultancy / Testing / Verification / Validation of Projects related to Information & Communication Technology sector for a Central Government/ State Government/ PSU/ Government bodies of India, within the last 5 years as on date of publishing of this tender document. The fee from such project(s) for the bidder should be at least INR 75 lakhs.</p> <p>The Project activities include but are not limited to OFC laying / setting up of PoPs /NOC / setting up of NMS / OSS / BSS etc.</p>	<ul style="list-style-type: none"> • Detail of the assignments as per the Form – 5 in Part 2, Annexure 1. • Copy of Work order and certificate of completion attested by the authorised signatory of the bidder.
5.	As on date of submission of the proposal, the bidder should not have been blacklisted by any Government entity (Central or State Government or PSU) in India or is under a declaration of ineligibility for fraudulent or corrupt practices by any Government entity (Central or State Government or PSU) in India	<ul style="list-style-type: none"> • No Conviction certificate duly signed by authorised signatory. <p>As per the Form – 6 in Part 2, Annexure 1.</p>
6.	The bidder should have submitted the Tender document fee (non-refundable) and the EMD as mentioned in this tender document.	<ul style="list-style-type: none"> • Tender Document Fee: Demand Draft • EMD: Bank Guarantee / Demand Draft

Any bid failing to meet the above stated eligibility criteria shall be summarily rejected and will not be considered for Technical Evaluation.

Note: The contractor for the AP Fiber Grid Phase I project and the PMA cannot be the same agency in view of conflict of interest. Thus the PMA work will not be awarded to the contractor (including any of the consortium members) selected for the AP Fiber Grid Phase I project. In

case the bid for AP Fiber Grid Phase I is finalized before the selection of PMA, the PMA bid of that agency which gets selected for the AP Fiber Grid Phase I project will not be evaluated.

Change in Eligibility Criteria: If there is any change in the status of the bidder on any of the above clauses at any stage during the bid process till the award of the project, the bidder should immediately bring the same to the notice of the Authority.

4. Consortium & Sub Contracting

Consortium is not permitted. Bidder may take field staff for assistance to the core team from any subcontractor. Name of such subcontractors need to be mentioned in the technical proposal. However, the Bidder shall be responsible for compliance with respect to delivery of services by field staff and the compliance to relevant labour laws.

5. Technical Bid

Technical Bid shall comprise of the Cover Letter, compliance to eligibility criteria, Technical Proposal and an undertaking (for contents and formats of the technical bid kindly refer Annexure 1).

Note: Any reference / mention of the financial quote or price schedule in the Technical Bid shall be at the Bidder's risk and may result in rejection of the bid.

6. Financial Bid

The Financial Bid should comprise of the cover letter and price schedule in accordance with ITB Clauses 3 and 4. The bidder needs to ensure that the financial bid is in the format provided in Annexure 2. Non adherence to the format of the financial bid as specified in Annexure 2 of the bid document shall be at the Bidder's risk and may result in rejection of the bid.

As part of its quote, the bidder shall provide item wise breakup of the financial bid, as per the format provided in Annexure 2. The Financial Bid should strictly conform to the prescribed format to enable evaluation of the bid. Prices shall be quoted in Indian Rupees (INR).

Prices quoted by the Bidder shall be fixed and no variation will be allowed under any circumstances. No open-ended bid shall be entertained and the same is liable to be rejected straight away. A special care must be taken to ensure that the bids do not have any hidden costs or conditional costs, lest the proposal may be liable for rejection.

7. Bid Security

The Bidder shall furnish, as part of its bid, a bid security in the form of Bank Guarantee / Demand Draft drawn in favour of "Vice Chairman & Managing Director, INCAP, Hyderabad" payable at Hyderabad for an amount of INR 3,30,000/- (INR Three Lakh Thirty Thousand Only). EMD should be valid for a period of 120 days from the date of submission of the bid.

Any bid not secured in accordance with ITB Clauses mentioned above, shall be rejected by the Authority, without any further correspondence, as non-responsive.

Discharge of Bid Security

Unsuccessful Bidder's bid security will be discharged / returned as promptly as possible but not later than 60 days after the expiration of the period of bid validity prescribed by the Authority.

The successful Bidder's bid security will be returned subsequent to receipt of the Performance Bank Guarantee from the Bidder.

Forfeiture of Bid Security

The bid security can be forfeited if a Bidder

- Withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form or
- Does not accept the correction of errors pursuant to ITB Clause 15 or
- In case of the successful Bidder, if the Bidder fails to
 - o sign the Contract in accordance with ITB Clause 15 and 20
 - o furnish performance bank guarantee in accordance with ITB Clause 21

8. Undertaking

An undertaking from the Bidder, stating the compliance with all the conditions of the Contract and Technical criterion of the Bidding Document is required. No deviation or assumptions will be acceptable to the Authority in accordance with Annexure 1 of this tender document.

9. Period of Validity of Bid

The bid shall remain valid for 180 days after the date of submission of bids. The Authority holds the rights to reject a bid valid for a period shorter than 180 days as non-responsive, without any correspondence.

Extension of Period of Validity

In exceptional circumstances, the Authority may solicit the Bidder's consent to an extension of the period of validity. The request and the response thereto shall be made in writing. Extension of validity period by the bidder should be unconditional. The bid security provided under ITB Clause 4 shall also be suitably extended. A Bidder may refuse the request without forfeiting the bid security. A Bidder granting the request will not be permitted to modify its bid.

10. Submission of Bid

The bidder shall submit hard copy of the bid documents as per the details given below:

- Technical Bid, duly signed on each page by the authorised signatory of the bidder,
- Financial Bid, duly signed on each page by the authorised signatory of the bidder,
- Soft copy of Technical Bid in a CD,
- Soft copy of Financial Bid in a CD

The Bidder should submit his Bid in the prescribed format only. If any Bidder fails to submit his Bid in the prescribed manner, the offer is liable to be rejected.

The bid shall be signed by the person authorized by the bidding firm. **A letter of authorization shall be supported by a written power-of-attorney / Board Resolution, accompanying the bid.** Scanned or digitized signatures are not permitted. Non adherence to this clause would make the bid liable for rejection.

The bidder shall submit the technical and financial bid in 2 sealed envelopes:

- **Sealed Envelope 1:** containing hard and soft copy of Technical bid along with the EMD and Tender Fee. The envelope should be super scribed as “EMD, Tender Fee and Technical Bid”.
- **Sealed Envelope 2:** containing hard and soft copy of Financial bid. The envelope should be super scribed as “Financial Bid- Do not open with Technical Bid”.

Both these sealed envelopes should be enclosed in another sealed envelope stating the contents of the envelope. The envelope indicating the name and address of the Bidder should be sent to:

Vice Chairman & Managing Director
Infrastructure Corporation of Andhra Pradesh (INCAP),
10-2-1, III Floor, FDC Complex, AC Guards,
Hyderabad – 500028, Telangana

If the outer envelope is not sealed and marked as required, the Authority will assume no responsibility for the bid’s misplacement or premature opening. The bids submitted by Telex, fax or email shall not be entertained. Any condition put forth by the bidder non-conforming to the bid requirements shall not be entertained at all and such bid shall be rejected.

Last date for Submission

The Bids must be received by the Authority on or before **03:00 PM, 20 August 2015**. In the event of the specified date for the submission of Bids being declared a holiday for the Authority, the Bids will be received up to the appointed time on the next working day.

Extension for Last date for Submission

The Authority may, at its own discretion, extend this deadline for submission of bids by amending the bid document in which case all rights and obligations of the Authority and Bidders previously subject to the deadline, will thereafter be subject to the deadline as extended.

Late Bids

Any bid received by the Authority after the deadline for submission of bids prescribed by the Authority, will be summarily rejected and returned unopened to the Bidder. The Authority shall not be responsible for any postal delay or non-receipt / non-delivery of the documents. No further correspondence on this subject will be entertained.

Note

- *Any interlineations, erasures or overwriting shall be valid only if the person or persons signing the bid have authenticated the same with signature.*
- *No bidder shall contact the Authority on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded. If the Bidder wishes to bring additional information to the notice of the Authority, it should be done in writing. Any effort by a Bidder to influence the Authority in its decisions on bid evaluation, bid comparison or contract award shall be liable for rejection of the bid.*
- *The Authority reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time before the contract is awarded, without thereby incurring any liability to the affected Bidder or Bidders, with or without assigning any reason.*

11. Modification and Withdrawal of Bids

The Bidder may modify or withdraw its bid after the bid submission provided that the Authority receives written notice of the modification or withdrawal before the expiration of deadline prescribed for submission of bids.

No bid may be modified subsequent to the deadline for submission of bids.

12. Bid Opening and Evaluation of Bids

Opening of Technical Bids

The Authority will open all Technical Bids at **04:00 PM on 20 August 2015** in the office of Vice Chairman & Managing Director, INCAP, Hyderabad.

Technical Bids will be opened and evaluated in detail. However any bid failing to meet any one of the eligibility criteria shall be summarily rejected and will not be considered for further evaluation.

The bidders may be requested to make a presentation to the TEC (Technical Evaluation Committee) based on their Technical proposal submitted for the project. The date and time for the presentation shall be intimated to the bidders well in advance through email or fax.

Opening of Financial Bids

Financial Bids will be opened and compared after the technical evaluation has been completed for those Bidders whose technical bids reach the minimum score /standard as specified in this tender document.

In the event of the specified date of Bid opening being declared a holiday for the Authority, the Bids shall be opened at the appointed time and location on the next working day.

Clarification of Bids

During evaluation of bids, the Authority may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing. If the response to the clarification is not received before the expiration of deadline prescribed in the request, the Authority reserves the right to make his own reasonable assumptions at the total risk and cost of the Bidder and also may reject the bid.

Rejection of Bid

If a bid is not responsive and not fulfilling all the conditions it will be rejected by the Authority and shall not subsequently be accepted even if it is made responsive by the Bidder by correction of the non-conformity.

13. Evaluation of Bids

The bid proposal will be evaluated using the following criteria.

S. No.	Description	Details
1	Stage-I : <ul style="list-style-type: none">• Technical Bid.• Technical Bid Presentation.	Only the bids meeting the eligibility criteria shall be further evaluated. This stage is scored out of 100.
	<i>Minimum absolute technical score to qualify for financial evaluation is 70 as specified in Annexure 3 of this tender document.</i>	
2	Stage-II: <ul style="list-style-type: none">• Financial Bid	Financial bids of only the bidders having the minimum absolute technical score of 70

Technical Bid Evaluation: In the first stage only the technical bids would be evaluated:

- **Technical Evaluation:** The Technical Evaluation Committee (TEC) will undertake a detailed evaluation of the technical bids. In order to evaluate the bids the TEC will examine the information supplied by the bidders in their technical bids. Each Technical Bid will be assigned a technical score 'T1' out of a maximum of 100 as per the criteria specified in Annexure 3 of this tender document.
Every technical bid shall be awarded an absolute technical score of 'Tn' marks out of a total of 100 marks
Minimum absolute technical score to qualify for financial evaluation is 70 as specified in Annexure 3 of this tender document. TEC's decision in this regard shall be final & binding and no further discussion/interface will be held with the bidders whose bids are technically disqualified/rejected.

Evaluation of Technical Proposals by TEC shall not be questioned by any of the Bidders. TEC may ask Bidder(s) for additional information to verify claims made in Technical Bid documentation from the Bidder on the already submitted Technical Proposal at any point of time before opening of the Financial Proposal.

- **Technical Score Formulation:**The highest evaluated absolute Technical score (Tmax) will be given the maximum technical score (Tn) of 100 points. The technical scores (Tn) of the other bidders will be computed as per the formula for determining the technical scores as given below:

$$\mathbf{T_n = 100 \times (T_1 / T_{max})}$$

Where,

Tn = normalized Technical score for the bidder under consideration,

T1 = Absolute Technical Score for the bidder under consideration,

Tmax = Maximum absolute Technical Score obtained by any bidder

Financial Bid Evaluation:The Financial bids of those bidders who qualify the technical evaluation will only be opened. The bidders whose bids do not qualify on technical evaluation criteria may collect their un-opened financial bids from the Authority on prior intimation within 15 days from opening of the financial bids. The Financial Bids of the technically qualified bidders will be evaluated as per the evaluation criteria explained below.

- The lowest evaluated Financial Proposal (Fmin) will be given the maximum financial score (Fn) of 100 points. The financial scores (Fn) of the other Financial Proposals will be computed as per the formula for determining the financial scores given below:

$$\mathbf{F_n = 100 \times (F_{min} / F_1)}$$

Where,

Fn = normalized financial score for the bidder under consideration

F1 = financial quote for the bidder under consideration.

Fmin = minimum financial quote obtained by any bidder

- **Final Evaluation of the Proposal**

Proposals will be ranked according to their combined technical (Tb) and financial (Fn) scores using the weights

Where:

T = 0.70, the weight given to the Technical Score;

F = 0.30, the weight given to the Financial Score;

T + F = 1

The combined technical and financial score (**S**) = **Tn x T + Fn x F**

The bidder who scores the highest combined technical and financial score as detailed above will be considered for selection and award of the contract.

Normally there would be no post tender negotiations. If at all negotiations are warranted, it would be only under exceptional circumstances and the Authority shall reserve the right to negotiate with the bidder (s) whose proposal has been ranked first by the committee on the basis of Joint Technical and Financial Evaluation. If the

Authority is unable to finalize a service agreement with the bidder ranked first, the Authority may proceed to the next ranked bidder, and so on until a contract is awarded. the Authority reserves the right to present a contract to the bidder selected for negotiations. A contract will be awarded to the responsible, responsive bidder whose proposal conforms to this tender document and is, in the opinion of the Authority, the most advantageous and represents the best value to the project, price and other factors considered.

Note

- *The evaluation of the financial proposals shall be carried out considering the cost of the project to the Authority as indicated in the format provided for Financial Bids vide **Annexure 2** of this tender document.*
- *Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the Authority's processing of bids or award decisions may result in the rejection of his Bid.*

14. Award of Contract

Before the expiry of the period of validity of the proposal, the Authority shall notify the successful Bidder in writing by registered letter or by email, that its bid has been accepted. The Bidder shall acknowledge in writing receipt of the notification of award and will enter into agreement within specified time.

The Agreement shall be signed on all the pages by the person(s) duly authorized to bind the bidder to the contract. The Authority may negotiate certain terms with successful Bidder before signing of the agreement. After the signing of the agreement the bidder will initiate the execution of the work as specified in the agreement.

The incidental expenses of execution of agreement / contract shall be borne by the successful bidder.

15. Performance Bank Guarantee

- The successful bidder shall at his own expense deposit with organization, within seven (7) working days of the date of notice of award of the contract or prior to signing of the contract whichever is earlier, an unconditional and irrevocable Performance Bank Guarantee (PBG) from a Nationalized bank acceptable to the Authority, payable on demand, for the due performance and fulfilment of the contract by the bidder.
- The performance guarantee shall be denominated in the currency of the Contract and shall be by bank guarantee.
- This Performance Bank Guarantee will be for an amount equivalent to 10% of contract value (i.e. 10% of F1) which is payable to the bidder, through this contract. All charges whatsoever such as premium; commission etc. with respect to the Performance Bank Guarantee shall be borne by the Bidder.

- The performance bank guarantee shall be valid till the end of three months after the completion of the contract period. This additional three months is required for facilitating closure of the project.
- The Performance Bank Guarantee may be discharged/ returned by the organization upon being satisfied that there has been due performance of the obligations of the Bidder under the contract. However, no interest shall be payable on the Performance Bank Guarantee.
- In the event of the bidder being unable to service the contract for reasons attributable to the Bidder, the organization would invoke the PBG. Notwithstanding and without prejudice to any rights whatsoever of the organization under the Contract in the matter, the proceeds of the PBG shall be payable to the organization as compensation for any loss resulting from the Bidder's failure to complete its obligations under the Contract. The Authority shall notify the Bidder in writing of the exercise of its right to receive such compensation within 14 days, indicating the contractual obligation(s) for which the Bidder is in default.
- The Authority shall also be entitled to make recoveries from the Bidder's bills, performance bank guarantee, or from any other amount due to him, the equivalent value of any payment made to him due to inadvertence, error, collusion, misconstruction or misstatement.

16. Annulment of Award

Failure of the successful Bidder to comply with the requirement shall constitute sufficient ground for the annulment of the award and forfeiture of the bid security in which event the Authority may make the award to the Bidder who has obtained the next rank under the QCBS criteria.

17. Termination of Contract

Termination for Default

The Authority may, without prejudice, to any other remedy for breach of contract, by written notice of default sent to the qualified Bidder, terminate the contract in whole or in part if:

- The qualified Bidder fails to deliver any or all of the obligations within the time period(s) specified in the contract or any extension thereof granted by the Authority.
- The qualified Bidder fails to perform any other obligation(s) under the contract.

However, the disputes if any may be referred to Arbitration as per ITB.

Termination for Insolvency, Dissolution etc.

The Authority may at any time terminate the contract by giving written notice to the qualified Bidder without compensation to the qualified Bidder, if the qualified Bidder becomes bankrupt or otherwise insolvent or in case of dissolution of firm or winding up of company, provided that such termination will not prejudice or effect any right of action or remedy which has accrued thereafter to the Authority.

Termination for Convenience

The Authority reserves the right to terminate by prior written notice, the whole or part of the contract. The notice of termination shall specify that termination is for the Authority's convenience, the extent to which performance of work under the contract is terminated and the date on which such termination becomes effective.

18.No Claim Certificate

The qualified Bidder shall not, be entitled to make any claim, whatsoever, against the Authority under or by virtue of or arising out of this contract nor shall the Authority entertain or consider any such claim after Bidder shall have signed a "no claim" certificate in favour of the Authority in such forms as shall be required by the Authority after the works are finally accepted.

19.Suspension

The Authority may by a written notice of suspension, suspend all payments to the qualified Bidder under the contract, if the qualified Bidder failed to perform any of its obligations under this contract, (including the carrying out of the services) provided that the such notice of suspension:

- shall specify the nature of the failure and
- shall request the qualified Bidder to remedy such failure within a specified period from the date of issue of such notice of suspension.

20. Intellectual Property Rights

- The Authority shall own and have a right in perpetuity to use all Intellectual Property Rights which have arisen out of or in connection with the implementation of this Contract, including all processes, products, data, knowledge products, training material and other documents which have been developed by the appointed consulting agency during the performance of Services and for the purposes of inter-alia use or sub-license of such Services under this Contract. The consulting agency undertakes to disclose all Intellectual Property Rights arising out of or in connection with the performance of the Services to the Authority and execute all such agreements/documents and file all relevant applications, effect transfers and obtain all permits and approvals that may be necessary in this regard to effectively transfer and conserve the Intellectual Property Rights of the Authority.
- PMA shall ensure that while it uses any software, hardware, processes or material in the course of performing the Services, it does not infringe the Intellectual Property Rights of any person and the consulting agency shall keep the Authority indemnified against all costs, expenses and liabilities howsoever, arising out any illegal or unauthorized use (piracy) or in connection with any claim or proceedings relating to any breach or violation of any permission/license terms or infringement of any Intellectual Property Rights by the consulting agency during the course of performance of the Services.
- The Authority shall retain all right, title and interest in and to any and all data, entered or generated by the consulting agency for the Authority pursuant to this agreement, and any modifications thereto or works derived there from.

21. Schedule of Payments / Payment terms

The payment cycle for the appointed bidder / consulting agency would start from the date of signing of contract. The payment to be made to the consulting agency shall be subject to the performance of the consulting agency on the SLAs (Service Level Agreements) defined in Annexure 4 of this tender document.

The payment to the appointed bidder / consulting agency shall be made as per the details given below:-

S.No.	Milestone / Deliverable	Amount (%)
1.	Submission of Inception Report	5% of F1
2.	Vetting & Certification of the Network Route & Design	10% of F1
3.	Acceptance report for Commissioning of the 'first' Two identified Districts	15% of F1
4.	Acceptance report for Commissioning of the NOC	10% of F1
5.	Acceptance report for Commissioning of the next Five Districts	25% of F1
6.	Acceptance report for Commissioning of the next Six Districts	25% of F1
7.	Acceptance report for Commissioning of all PoPs and other project components to be implemented by contractor (Go-Live)	10% of F1

Note: 1) F1 is the Total Quote / Cost for the project as quoted in the financial bid.

2) All the payments will be made for the above scheduled deliverables upon approval by the Authority.

22. Confidentiality

The Selected Bidder and its personnel shall not, either during the term or after expiration of this contract, disclose any proprietary or confidential information relating to the services, contract or the Authority's business or operations without the prior written consent of the Authority.

23. Force Majeure

- Notwithstanding the conditions of the Bid, the Bidder shall not be liable for forfeiture of its performance guarantee, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the contract is the result of an event of Force Majeure.
- For purposes of this Clause, "Force Majeure" means an event beyond the control of the Bidder and not involving the Bidder's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Authority either in its sovereign or contractual capacity, wars or revolutions, fires, floods, earthquakes, epidemics, quarantine restrictions and freight embargoes.
- If a Force Majeure situation arises, the qualified Bidder shall promptly notify the Authority in writing of such conditions and the cause thereof. Unless otherwise directed

by the Authority in writing, the Bidder shall continue to perform its obligations under the contract as far as reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. The Authority may terminate this contract, by giving a written notice of minimum 30 days to the Bidder, if as a result of Force Majeure the Bidder being unable to perform a material portion of the services for a period of more than 60 days.

24. Arbitration and Jurisdiction

In the event of any dispute relating to the import or meaning of any terms and conditions which could not be solved amicably by the parties, the parties may refer the matter to the Arbitrator to be appointed by the Authority on the request of either of the parties for arbitration in consonance with the provisions of the Arbitration and Conciliation Act, 1996, on the designated reference in dispute. All legal proceedings shall lie to the jurisdiction of courts situated in Hyderabad.

25. Conflict of Interest

- The bidder should provide professional, objective, impartial advice and services and at all times hold the Authority's interests paramount, strictly avoid conflicts with other assignments/jobs or their own corporate interests and act without any consideration for future work.
- The bidder shall not be eligible to bid for the activities related to the project which are in direct conflict, either directly or as a member of consortium or through some other party.
- Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, the Authority shall forfeit and appropriate the Bid Security or Performance Security, as the case may be.
- The contractor for the AP Fiber Grid Phase I project and the PMA cannot be the same agency in view of conflict of interest. Thus the PMA work will not be awarded to the contractor (including any of the consortium members) selected for the AP Fiber Grid Phase I project. In case the bid for AP Fiber Grid Phase I is finalized before the selection of PMA, the PMA bid of that agency which gets selected for the AP Fiber Grid Phase I project will not be evaluated.

26. Indemnity

The Consulting Agency shall execute and furnish to the Authority, a Deed of Indemnity in favour of the Authority in a form and manner acceptable to the Authority, indemnifying the Authority from and against any costs, loss, damages, expense, claims including those from third parties or liabilities of any kind howsoever suffered, arising or incurred inter alia during and after the Contract period out of any negligence or wrongful act or omission by the Consulting Agency. The indemnity shall be to the extent of 100% in favour of the Authority.

27. Exit Management

This Clause sets out the provisions, which will apply when the contract has expired or when the contract is terminated. The Parties shall ensure that their respective associated entities carry out their respective obligations set out in this clause.

Transfer of Assets

- The PMA shall hand over all approved and pending reports to the Authority without any cost to the Authority.
- In case of contract being terminated by the Authority, the Authority reserves the right to ask PMA to continue running the project operations for a period of 3 months after termination orders are issued. The SLA penalty would be applicable during this period.
- Upon service of a notice under this Article the following provisions shall apply:
 - Payment to the outgoing PMA shall be made to the tune of last set of completed services / deliverables, subject to requirements.
 - The outgoing PMA will pass on to the Authority and/or its nominated agency , the subsisting rights in any products on terms not less favorable to the Authority, than that enjoyed by the outgoing PMA.

Cooperation and Provision of Information

- During the exit management period
 - The PMA will allow the Authority access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable the Authority to assess the existing services being delivered,
 - Promptly on reasonable request by the Authority, the PMA shall provide access to and copies of all information held or controlled by them which they have prepared or maintained in accordance with this contract relating to any material aspect of the services (whether provided by the PMA or Associates appointed by the PMA). The Authority shall be entitled to copy of all such information. Such information shall include details pertaining to the services rendered and other performance data. The PMA shall permit the Authority or its nominated agencies to have reasonable access to its employees and facilities as reasonably required to understand the methods of delivery of the services employed by the PMA and to assist appropriate knowledge transfer.

Confidential Information, Security and Data

The PMA will promptly on the commencement of the exit management period supply to the Authority the following:

- Information relating to the current services rendered and Purchased,
- Documentation relating to Project's Intellectual Property Rights,
- Documentation relating to Associates(if any),
- All current and updated data as is reasonably required for purposes of the Authority or its nominated agencies transitioning the services to its replacement Bidder in a readily available format nominated by the Authority,
- All other information (including but not limited to documents, records and contracts) relating to the services reasonably necessary to enable the Authority or its nominated agencies, or its replacement Bidder to carry out due diligence in order to transition the provision of the Services to the Authority or its nominated agencies, or its replacement Bidder (as the case may be).

General Obligations of the PMA

- The PMA shall provide all such information as may reasonably be necessary to effect as seamless a handover as practicable in the circumstances to the Authority or its replacement Bidder and which the PMA has in its possession or control at any time during the exit management period.
- For the purposes of this Clause, anything in the possession or control of any PMA, associated entity, or its Associates is deemed to be in the possession or control of the PMA.
- The PMA shall commit adequate resources to comply with its obligations under this clause.

Exit Management Plan

- The PMA shall provide the Authority with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the Contract as a whole and in relation to the Project Implementation.
 - A detailed program of the transfer process that could be used in conjunction with a replacement Bidder including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer,
 - Plans for provision of contingent support to the Authority and replacement Bidder for a reasonable period after transfer.
- In the event of termination or expiry of Contract, and Project Implementation, each Party shall comply with the Exit Management Plan.
- During the exit management period, the PMA shall use its best efforts to deliver the services.
- Payments during the Exit Management period shall be made in accordance with the Payment Terms.
- This Exit Management plan shall be furnished in writing to the Authority or its nominated agencies within 30 days from the date of issue of AWO to the Selected Bidder.

28. Notices

Any notice, request or consent required or permitted to be given or made pursuant to this Contract shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Authority to whom the communication is addressed.

29. Fraud and Corruption

The bidders shall observe the highest standard of ethics during the Selection Process. Notwithstanding anything to the contrary contained in this RFP, the Authority shall reject a Proposal without being liable in any manner whatsoever to the bidder, if it determines that the bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice (collectively the "Prohibited Practices") in the Selection Process. In such an event, the Authority shall, without prejudice to its any other rights or remedies, forfeit and appropriate the Proposal Security or Performance Security, as the case may be, as mutually agreed genuine pre-estimated compensation and damages payable to the Authority for, inter alia, time, cost and effort of the

Authority, in regard to the RFP, including consideration and evaluation of such bidder's Proposal.

Without prejudice to the rights of the Authority under contract, if a bidder or Consultant, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Selection Process, or after the issue of the LOA or the execution of the Agreement, such bidder or Consultant shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Applicant or Consultant, as the case may be, is found by the Authority to have directly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.

For the purposes of this Section, the following terms shall have the meaning hereinafter respectively assigned to them:

- (a) "corrupt practice" means the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Selection Process (for removal of doubt, offering of employment or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly with Selection Process or LOA or dealing with matters concerning the Agreement before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Selection Process); or (ii) engaging in any manner whatsoever, whether during the Selection Process or after the issue of LOA or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Agreement, who at any time has been or is a legal, financial or technical adviser the Authority in relation to any matter concerning the Project;
- (b) "fraudulent practice" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Selection Process;
- (c) "coercive practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Selection Process or the exercise of its rights or performance of its obligations by the Authority under this Agreement;
- (d) "undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or (ii) having a Conflict of Interest; and
- (e) "restrictive practice" means forming a cartel or arriving at any understanding or arrangement among Applicants with the objective of restricting or manipulating a full and fair competition in the Selection Process.

30. Period of Contract

The Authority intends to appoint a Selected Bidder/Consulting Agency for the time period as mentioned in Section 2 Clause 4 i.e. from the start of the project till declaration of Go-Live of all components of the project. (Within estimated 39 weeks). Any extension to the contract duration will be subject to mutually agreed terms.

SECTION 4: Annexures

Annexure 1: Contents and Format of Technical Bid

In preparing the Technical Proposal, Bidders are expected to examine this Bid document in detail. The proposal should cover all the aspects of the scope of work. Any bid not found responsive with this Bid document shall be rejected. Material deficiencies in providing the information requested may also result in rejection of the Proposal.

PART 1: FORMAT FOR COVER LETTER

[On the letterhead of the organization]

To
Vice Chairman & Managing Director,
Infrastructure Corporation of Andhra Pradesh (INCAP),
10-2-1, III Floor, FDC Complex, AC Guards,
Hyderabad – 500028, Telangana

Sub: Technical Bid for “Selection of Project Monitoring Agency (PMA) for Andhra Pradesh Fiber Grid – Phase I” for Infrastructure Corporation of Andhra Pradesh (INCAP)

Sir,

1. Having examined the Bid document, Annexures and corrigenda /addenda numbers _____ thereto, we, the undersigned, in conformity with the said bid document, offer to provide the said services on terms of reference to be signed upon the award of contract for the sum indicated as per financial bid.
2. We acknowledge having received the following addenda to the bid document:

Addendum/Corrigendum No.	Dated

3. We have read the provisions of the tender document and confirm that these are acceptable to us. We further declare that additional conditions, variations, deviations, assumptions if any, found in our proposal shall not be given effect to.
4. We undertake, if our proposal is accepted, to provide the services comprised in the contract within time frame specified, starting from the date of receipt of notification of award from the Authority.

5. We agree to abide by this proposal for the period of 180 days from the date of submission of the bid and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
6. We agree to execute an agreement in the form to be communicated by the Authority, incorporating all terms and conditions with such alterations or additions thereto as may be necessary to adapt such agreement to the circumstances of the standard and notice of the award within time prescribed after notification of the acceptance of this proposal.
7. Unless and until a formal agreement is prepared and executed, this proposal together with your written acceptance thereof shall constitute a binding contract agreement.
8. We hereby confirm that we do not have any conflict of interest in accordance with Section 3 Clauses 35 of the tender document.
9. As security for the due performance of the undertaking and obligation of the bid we submit herewith a Demand Draft / Banker's Cheque bearing no. _____ dated _____ drawn in favour of "Vice Chairman & Managing Director, INCAP, Hyderabad" payable at Hyderabad.

We understand that if the details given in support of claims made above are found to be untenable or unverifiable, or both, our bid may be rejected without any reference to us. We also understand that if there is any change in the eligibility criteria status till the date of award of contract to the successful bidder, it is our responsibility to inform the Authority of the changed status at the earliest.

We further clearly understand that the Authority is not obliged to inform us of the reasons of rejection of our bid.

Dated this _____ day of _____ 2015

Signature
(Bidder Seal)

In the capacity of

Duly authorized to sign bids for and on behalf of:

PART 2: FORMATS FOR COMPLIANCE TO ELIGIBILITY CRITERIA

CHECK LIST FOR COMPLIANCE TO ELIGIBILITY CRITERIA				
Sl. No	Eligibility Criteria	Proof Required	Check List (Yes/No)	Page Reference
1.	The bidder should be a company registered under the Companies Act, 1956 / 2013 for last 5 years as on 31.03.2015.	<ul style="list-style-type: none"> • Copy of Certificate of Incorporation / Registration from Registrar of Companies along with Memorandum and Articles of Association. • As per the Form – 3 in Part 2, Annexure 1. 	Yes / No	Page No. <<>>
2.	The bidder should have an average annual turnover of not less than INR 30 Crores in the last three financial years ending on 31.03.2015, from its operations in India.	<ul style="list-style-type: none"> • A Certificate duly certified by the statutory auditor of the Bidder clearly mentioning the annual turnover of the bidder in India, as per the Form - 4 in Part 2, Annexure 1. • Audited financial statements reflecting overall turnover for the last three financial years ending on 31.03.2015. • In case the audited statements for FY 2014-15 are not available, provisional financial statement duly certified by the statutory auditor of the bidder shall be submitted. 	Yes / No	Page No. <<>>
3.	The Bidder should have an average annual turnover of at least INR 15 Crores from IT Advisory Services / Consultancy / Testing / Verification / Validation of Projects related to Information & Communication Technology sector in India for the last three financial years ending on 31.03.2015.	<ul style="list-style-type: none"> • A Certificate duly certified by the statutory auditor of the Bidder clearly mentioning the annual turnover of the bidder from IT Advisory Services / Consultancy / Testing / Verification / Validation of Projects related to Information & Communication Technology sector in India, as per the Form - 4 in Part 2, Annexure 1. 	Yes / No	Page No. <<>>

CHECK LIST FOR COMPLIANCE TO ELIGIBILITY CRITERIA

Sl. No	Eligibility Criteria	Proof Required	Check List (Yes/No)	Page Reference
4.	<p>The Bidder should have successfully undertaken the execution / monitoring of at least one project related to IT Advisory Services / Consultancy / Network monitoring / Testing / Verification / Validation in the field of Information & Communication Technology sector for a Central Government/ State Government/ PSU/ Government bodies of India, within the last 5 years as on date of publishing of this tender document.</p> <p>The fee of the project for the bidder should be at least INR 75 lakhs.</p> <p>The Project activities include but are not limited to OFC laying / setting up of NOC / setting up of NMS / OSS / BSS etc.</p>	<ul style="list-style-type: none"> • Detail of the assignments as per the Form – 5 in Part 2, Annexure 1. • Copy of Work order and certificate of completion attested by the authorised signatory of the bidder. 	Yes / No	Page No. <<>>
5.	<p>As on date of submission of the proposal, the bidder should not have been blacklisted by any Government entity (Central or State Government or PSU) in India or is under a declaration of ineligibility for fraudulent or corrupt</p>	<ul style="list-style-type: none"> • No Conviction certificate duly signed by authorised signatory. • As per the Form – 6 in Part 2, Annexure 1. 	Yes / No	Page No. <<>>

CHECK LIST FOR COMPLIANCE TO ELIGIBILITY CRITERIA

Sl. No	Eligibility Criteria	Proof Required	Check List (Yes/No)	Page Reference
	practices by any Government entity (Central or State Government or PSU) in India			
6.	The bidder should have submitted the Tender document fee (non-refundable) and the EMD as mentioned in this tender document.	<ul style="list-style-type: none">• Tender Document Fee: Demand DraftEMD: Bank Guarantee / Demand Draft	Yes / No	Page No. <<>>

Form – 1: Power-of-attorney / Board Resolution for signing of bid

The bidder shall submit the Power of attorney/ Board Resolution for the authorized signatory(s) of the bidder who has signed the bids.

Note:

- 1. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants and when it is so required the same should be under common seal affixed in accordance with the required procedure.*
- 2. Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a resolution/power of attorney in favor of the Person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- 3. In case the Application is signed by an authorized Director / Partner or Proprietor of the Applicant, a certified copy of the appropriate resolution / document conveying such authority may be enclosed in lieu of the Power of Attorney.*

Form – 2: Format for Bid Security (in case of Bank Guarantee)

Whereas _____ (hereinafter called "the Tenderer") has submitted its tender offer dated _____ 2015 for "Selection of Project Monitoring Agency for Andhra Pradesh Fiber Grid – Phase I" for Infrastructure Corporation of Andhra Pradesh, Hyderabad (hereinafter called "the tender") KNOW ALL MEN by these presents that WE _____ of _____ (hereinafter called the Bank:) are bound to _____ (hereinafter called "the Authority") in the sum of _____ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the Said Bank this _____ day of _____ 2015.

THE CONDITIONS of this obligation are:

If the tenderer withdraws its tender during the period of tender validity specified by the tenderer on the Tender Form; or If the Tenderer, having been notified of the acceptance of its tender by the Authority during the period of tender validity: fails or refuses to execute the contract Form if required; or fails or refuses to furnish the Performance Security, in accordance with the instruction given in tender document; We undertake to pay the Authority up to the above amount upon receipt of its first written demand, without the Authority having to substantiate its demand, provided that in its demand the Authority will note that the amount claimed by it is due it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions. This guarantee will remain in force up to and including and any demand in respect thereof should reach the Bank not later than the above date.

Date:

Place:

(Signature of the Bank)

Form – 3: Certificate of Incorporation

The bidder should be a company registered under the Companies Act, 1956 / 2013 for last 5 years as on 31st March 2015.

Bidder Name:	
Incorporated as _____ in year _____ at _____.	
Registration Number	
<i>Please provide Certificate of Incorporation</i>	

Form – 4: Annual Turnover

The bidder should provide:

- Details of Average Annual turnover of at least INR 30 Crores in the last three financial years (i.e. 2012-13, 2013-14& 2014-15), from operations in India, along with audited Financial Statements.
- Details of Average Annual turnover of at least INR 15 Crores from IT Advisory Services / Consultancy / Testing / Verification / Validation of projects related to Information & Communication Technology sector in India in the last three financial years (i.e. 2012-13, 2013-14& 2014-15), from operations in India.
- Bidder should provide statutory auditor's certificate as per the below given format:

We hereby certify that the annual turnover of M/s. _____ (Name of the bidder) in the last three financial years from operations in India is as given below:

Annual Turnover for the Last 3 Financial Years in Indian Rupees (in Crores)		
Year (2012-13)	Year (2013-14)	Year (2014-15)

(Signature of Statutory Auditor)

Name of Statutory Auditor:

Name of Statutory Auditor Firm:

Seal

We hereby certify that the Annual turnover from IT Advisory Services / Consultancy / Testing / Verification / Validation of Projects related to Information & Communication Technology sector in India of M/s. _____ (Name of the bidder) in the last three financial years from operations in India is as given below:

Annual Turnover for the Last 3 Financial Years in Indian Rupees (in Crores)		
Year (2012-13)	Year (2013-14)	Year (2014-15)

(Signature of Statutory Auditor)

Name of Statutory Auditor:

Name of Statutory Auditor Firm:

Seal

Form – 5: Previous Experience

The Bidder should have successfully undertaken the execution / monitoring of at least one project related to IT Advisory Services / Consultancy / Network monitoring / Testing / Verification / Validation in the field of Information & Communication Technology sector for a Central Government/ State Government/ PSU/ Government bodies of India, within the last 5 years as on date of publishing of this tender document.

The fee of the project for the bidder should be at least INR 75 lakhs.

Please provide details of the assignments as per below given format.

Assignment name:	Approx. value of the contract (in INR):
Country: Location within country:	Duration of assignment (Months):
Name of Client:	Total No of staff-months of the assignment:
Address:	Approx. value of the services provided by the firm under the contract :
Start date (month/year): Completion date (month/year):	No of professional staff-months provided by associated Consultants:
Status of the project: (completed/partially completed/on-going etc.):	Two references of the client (Name, Designation & Contact details along with email id)
Name of senior professional staff of your firm involved and functions performed (indicate most significant profiles such as Project Manager/ Project Lead etc.):	Name of associated Consultants, if any:
Narrative description of Project:	
Description of actual services provided by your staff within the assignment:	

Kindly provide the copy of work order and certificate of completion attested by the authorized signatory of the bidder. In case this is not provided the experience cited shall not be considered for evaluation.

Form – 6: No - Conviction Certificate

As on date of submission of the proposal, the bidder should not have been blacklisted by any Government entity (Central or State Government or PSU) in India or is under a declaration of ineligibility for fraudulent or corrupt practices by any Government entity (Central or State Government or PSU) in India.

[On the letterhead of the organization]

No-Conviction Certificate

This is to certify that ----- (Name of the organization), having registered office at -
----- (Address of the registered office), as on date of submission of the proposal, have not been blacklisted by any Government entity (Central or State Government or PSU) in India or is under a declaration of ineligibility for fraudulent or corrupt practices by any Government entity (Central or State Government or PSU) in India.

Signature:

Name of the Authorized Signatory:

Designation:

*** No conviction certificate should be duly signed by Authorized Signatory*

Note: In case, information required by the Authority is not provided by the bidder in the forms/formats provided above, the Authority shall proceed with the evaluation based on information provided and may not request the bidder for further information. Hence, responsibility for providing information as required in the above forms lies solely with the bidders.

PART 3: FORMATS FOR TECHNICAL PROPOSAL

Form – 1: Undertaking

Bidder should provide an undertaking in the format given below on the letterhead of the bidder’s organization.

[On the letterhead of the organization]

It is certified that the information furnished here in and as per the proposal / documents / clarifications submitted is true and correct and nothing has been concealed or tampered with. We have gone through all the conditions of Bid and are liable to any punitive action for furnishing false information / documents.

We have read the provisions of the tender document, Annexure thereto and addendums. We understand that any additional conditions, variations, deviations, assumptions if any, found in our proposal shall not be given effect to and shall not be binding on the Authority in case our proposal is accepted.

Dated this _____ day of _____ 2015

Signature

(Bidder Seal)

In the capacity of

Duly authorized to sign bids for and on behalf of:

Form – 2: Past Experience

Instructions

The Bidders should provide their experience for evaluation as mentioned in **Annexure 3, Clause A** of this tender document in various competency areas along with work order and completion certificates for the same.

The Bidder is required to submit credentials for each of the following competencies:

- Experience in Verification / Testing / Validation / Monitoring services in pulling / laying of Optical Fiber Cable for project monitoring /IT Consultancy to Central Government/ State Government/ PSU/ Government bodies, within the last 5 years in India.
- Experience in Verification / Testing / Validation / Monitoring services in setting up of NOC / Data Centre / Gateways / CATV's etc. for Central Government/ State Government/ PSU/ Government bodies/Private Organizations within the last 5 years, in India
- Experience in Verification / Testing / Validation / Monitoring services in setting up of WAN based network PoPs and its related electronics equipment for Central Government/ State Government/ PSU/ Government bodies within the last 5 years, in India.
- Experience in Verification / Testing / Validation / Monitoring services related to Network related Management / OSS / BSS for Central Government/ State Government/ PSU/ Government bodies within the last 5 years, in India.

The Bidder should submit credentials that best illustrate ability to provide the services required as per the tender document. Even if the same credential covers more than one competency, it still needs to be repeated under the specific competency heading.

Please provide details of the assignments as per below given format.

Assignment name:	Approx. value of the contract (in INR):
Country: India Location within country:	Duration of assignment (Months):
Name of Client:	Total No of staff-months of the assignment:
Address:	Approx. value of the services provided by the firm under the contract :
Start date (month/year): Completion date (month/year):	No of professional staff-months provided by associated Consultants:

Status of the project: (completed/partially completed/on-going etc.):	Two references of the client (Name, Designation & Contact details along with email id)
Name of senior professional staff of your firm involved and functions performed (indicate most significant profiles such as Project Manager, Project Lead etc.):	Name of associated Consultants, if any:
Narrative description of Project:	
Description of actual services provided by your staff within the assignment:	
Relevancy to the current assignment:	

Kindly provide the copy of work order and certificate of completion /self-certificate attested by the authorized signatory of the bidder (In case of self-certificate the bidder needs to provide proof of completion of the stated value of the concerned experience cited). In case these are not provided the experience cited shall not be considered for evaluation.

Form –3: Key Personnel CVs

- The bidder should submit the CV of only one personnel for the purpose of evaluation as per the evaluation criteria mentioned in **Annexure 3, Clause B** of this tender document:
 - **Core Team**
 - Project Manager
 - Optical Fiber Cable Expert
 - Electronics & Network Equipment Expert
 - Solution Expert (OSS/BSS / Server Network Equipment)
 - Cable TV Headend Equipment Expert
 - Quality Assurance Expert

- The bidder shall submit only one CV for each skill-set
- The Bidder should ensure that the CV details should best illustrate the ability of the resource to undertake the responsibilities envisaged in the project.
- In the *marking scheme, preference* will be given to resources with experience in similar roles and activities, magnitude of operations etc., a Government/Semi-Government/PSU experience will be preferred.
- The Bidder needs to strictly adhere to the formats provided below and provide information against each of the line items. Any non-conformance shall constitute a deviation from Tender conditions.
- The CVs provided by the bidder for the proposed resources shall be treated as final and cannot be substituted before or during the course of the project. In case, the bidder needs to replace/substitute any resource or the Authority finds a resource not meeting the Authority’s expectations, in that case the bidder shall find a replacement with equivalent or higher skill-set than currently proposed resource.
- For all the above resources the bidder should use the CV Format as given below:

Proposed position:				
1. Name of Firm:				
2. Name of Staff:				
3. Date of Birth:		Nationality:	Indian	
4. Education:	Year	Institution	Degree	
5. Certifications if any	<<provide details and documentary proof for the same>>			
6. Countries of Work Experience:				
7. Languages:	Language	Speaking	Reading	Writing

8. Employment Record:	Total Years of Experience:		
	Year	Employer	Position
9. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:	Name of assignment / project:		
	Year:		
	Location:		
Client:			
Main project features:			
Positions held:			
Activities performed:			
Name of assignment / project:			
Year:			
Location:			
Client:			
Main project features:			
Positions held:			
Activities performed:			
Name of assignment / project:			
Year:			
Location:			
Client:			
Main project features:			
Positions held:			
Activities performed:			

Form – 4: Approach, Methodology and Work Plan Proposed For the Project

Proposed approach, methodology and work plan based on the understanding of scope of the project which will also be used for evaluation as mentioned in **Annexure 3, Clause C** of this tender document.

Some of the parameters to be evaluated would include:

- Understanding of the project and its objectives.
- Overall approach and its responsiveness to the objective of the assignment.
- Methodology to be adopted.
- Project Plan with milestone and timelines
- Organization and Staffing
- Risk Management.

Based on the requirement of the Authority, the proposed team (i.e. proposed core team and strategy team), may be asked to make a presentation highlighting their understanding on the project based on the requirements / scope of work, staff deployment plans etc. provided in this tender document.

Annexure 2: Content and Format of Financial Bid

FORMAT FOR FINANCIAL BID:

Table 1: Validation, Testing & Certification & Project Monitoring Support

Rates in INR

S.No.	Category	Total Price, exclusive of taxes (A)	Taxes (B)	Total Price, inclusive of taxes (C=A+B)	
				In Figures	In Words
a.	Validation, Testing & Certification				
Total Quote / Cost for the project (F1)					

Key considerations on the financial format provided above:

- No deviations will be accepted from the Annexure 2 – Financial Format, by the Authority.
- All the prices should be inclusive of all taxes and duties which should be clearly specified.
- The above rates shall be fixed and remain valid for the entire contract duration.
- Payments will be made as per the payment terms mentioned in this tender document after deducting penalties if any based on the SLAs as defined in Annexure 4 of this tender document.
- No price variation shall be allowed during the period of contract.
- The Authority will not make any additional payments apart from the amounts quoted in the above provided format.

Signature of Tenderer _____

Business Address _____

Date: _____

Place: _____

Annexure 3: Evaluation Criteria: Technical Bid

S. No.	Evaluation Criteria	Maximum Score									
A	<p>PAST EXPERIENCE OF THE FIRM (Kindly provide all citations for each category in the format as provided in Annexure 1 along with the copy of work order and certificate of completion /self-certificate attested by the authorized signatory of the bidder (In case of self-certificate the bidder needs to provide proof of completion of the stated value of the concerned experience cited).</p>	50									
A. 1.	<p>Experience in Verification / Testing / Validation / Monitoring services in pulling / laying of Optical Fiber Cable for project monitoring /IT Consultancy to Central Government/ State Government/ PSU/ Government bodies of India, within the last 5 years. No of Projects:</p> <table border="1" data-bbox="326 1031 1222 1203"> <tr> <td data-bbox="326 1031 440 1094">A</td> <td data-bbox="440 1031 846 1094">Less than 2 projects</td> <td data-bbox="846 1031 1222 1094">10 Marks</td> </tr> <tr> <td data-bbox="326 1094 440 1157">B</td> <td data-bbox="440 1094 846 1157">2 - 5 projects</td> <td data-bbox="846 1094 1222 1157">12.5 Marks</td> </tr> <tr> <td data-bbox="326 1157 440 1209">C</td> <td data-bbox="440 1157 846 1209">More than 5 projects</td> <td data-bbox="846 1157 1222 1209">15 Marks</td> </tr> </table>	A	Less than 2 projects	10 Marks	B	2 - 5 projects	12.5 Marks	C	More than 5 projects	15 Marks	15
A	Less than 2 projects	10 Marks									
B	2 - 5 projects	12.5 Marks									
C	More than 5 projects	15 Marks									
A.2.	<p>Experience in Verification / Testing / Validation / Monitoring services in setting up of NOC / Data Centre / Gateways / CATV's etc. for Central Government/ State Government/ PSU/ Government bodies/Private Organizations within the last 5 years, in India. No of Projects:</p> <table border="1" data-bbox="326 1461 1222 1633"> <tr> <td data-bbox="326 1461 440 1524">A</td> <td data-bbox="440 1461 846 1524">Less than 2 projects</td> <td data-bbox="846 1461 1222 1524">5 Marks</td> </tr> <tr> <td data-bbox="326 1524 440 1587">B</td> <td data-bbox="440 1524 846 1587">2 - 5 projects</td> <td data-bbox="846 1524 1222 1587">7.5 Marks</td> </tr> <tr> <td data-bbox="326 1587 440 1640">C</td> <td data-bbox="440 1587 846 1640">More than 5 projects</td> <td data-bbox="846 1587 1222 1640">10 Marks</td> </tr> </table>	A	Less than 2 projects	5 Marks	B	2 - 5 projects	7.5 Marks	C	More than 5 projects	10 Marks	10
A	Less than 2 projects	5 Marks									
B	2 - 5 projects	7.5 Marks									
C	More than 5 projects	10 Marks									
A. 3.	<p>Experience in Verification / Testing / Validation / Monitoring services in setting up of WAN based network PoPs and its related electronics equipment for Central Government/ State Government/ PSU/ Government bodies within the last 5 years, in India. No of Projects:</p>	15									

S. No.	Evaluation Criteria			Maximum Score
	A	Less than 2 projects	10 Marks	
	B	2 - 5 projects	12.5 Marks	
	C	More than 5 projects	15 Marks	
A. 4.	Experience in Verification / Testing / Validation / Monitoring services related to Network related Management / OSS / BSS for Central Government/ State Government/ PSU/ Government bodies within the last 5 years, in India. No of Projects:			10
	A	Less than 2 projects	5 Marks	
	B	2 - 5 projects	7.5 Marks	
	C	More than 5 projects	10 Marks	
B	KEY PERSONNEL PROPOSED FOR PROJECT (Kindly provide CV of all the key personnel in the format as provided in Form 3 of Part 3 in Annexure 1). The marking of the resources shall be relative based upon the profiles proposed by bidders.			35
B.1.	Project Manager <ul style="list-style-type: none"> • should be MBA/PGDBM and B.Tech/MCA from premier institute. • should have project management certification such as PMP etc. • should have atleast 10 years of experience with at least 6 years of experience in large scale IT Advisory projects including e-Governance in India. • should have experience in optical fiber related implementation/monitoring projects of Central/State/PSU Government of India. • should have experience of leading the team for IT monitoring/implementation projects for Central/State/PSU, Government of India. 			6
B.2.	Optical Fiber Cable Expert <ul style="list-style-type: none"> • should be M.Tech/B.Tech/MCA from premier institute. • should have at least 7 years of experience with at least 2 years of experience in large scale optical fiber monitoring/implementation projects in India. • should have experience in optical fiber related 			6

S. No.	Evaluation Criteria	Maximum Score
	implementation/monitoring projects of Central/State/PSU Government of India.	
B.3.	<p>Electronics & Network Equipment Expert</p> <ul style="list-style-type: none"> • should be M.Tech/B.Tech/MCA from premier institute. • should have atleast 7 years of experience with at least 2 years of experience in large scale communication technology monitoring/implementation projects in India. • should have experience in electronics and network equipment related implementation/monitoring projects. 	6
B.4.	<p>Solution Expert (OSS/BSS / Server Network Equipment)</p> <ul style="list-style-type: none"> • should be M.Tech/B.Tech/MCA from premier institute. • should have at least 7 years of experience with at least 2 years of experience in large scale communication technology monitoring/implementation projects in India. • should have 3 years of experience in OSS/BSS/Server network equipment in implementation/monitoring projects. 	6
B.5.	<p>Cable TV Headend Equipment Expert</p> <ul style="list-style-type: none"> • should be M.Tech/B.Tech/MCA from premier institute. • should have at least 7 years of experience with at least 2 years of experience in cable TV headend equipment related monitoring/implementation projects in India. 	6
B.6.	<p>Quality Assurance Expert</p> <ul style="list-style-type: none"> • should be M.Tech/B.Tech/MCA from premier institute. • Professional Certification in Quality expected • should have at least 7 years of experience with at least 2 years of experience in Quality Assurance for IT related monitoring/implementation projects in India. 	5
C	<p>APPROACH & METHODOLOGY</p> <p>Approach & Methodology proposed by the bidder in the technical proposal and technical presentation.</p> <ul style="list-style-type: none"> • Understanding of the project and its objectives. • Overall approach and its responsiveness to the objective of the assignment. • Methodology to be adopted. • Project Plan with milestone and timelines • Organization and Staffing 	15

S. No.	Evaluation Criteria	Maximum Score
	<ul style="list-style-type: none"> • Risk Management (The schedule and venue for technical presentation shall be communicated to the successful bidders)	
	Total Marks (A+B+C)	100

The bidder needs to achieve an overall technical score of 70 to qualify in the technical evaluation.

Annexure 4: Service Level Agreements

Service Levels and Penalties:

Bidder is expected to meet the following Service Levels in the normal course of carrying out the activities as per the detailed Scope of Work. In case of default on any or all such Service Levels, the Authority will reserve the right to levy Penalties on the Bidder.

S.No.	Service	Expected Service level	Penalty level in case of breach of the expected service level
1.	Deployment of the core team during the contract period after signing the contract with the Authority.	Minimum Commitment per month <ul style="list-style-type: none"> • 2 weeks for the Project Manager • 1 week for other experts 	INR5,000 per day to be made in case the resources are not made available onsite as per the expected service level.
2.	Replacement of personnel of the core team during the contract period as initiated by the Bidder.	<ul style="list-style-type: none"> • Maximum 2 weeks from date of approval from the Authority, including Minimum 1 week of handover time. 	INR 5,000 per day to be made in case the resources are not made available onsite as per the expected service level.
3.	Completion of Field Acceptance Testing of OFC laid between District/Mandal/Substation POP	Perform the Acceptance Testing within one week of Contractor's 'offer for commissioning'	<p>INR 10,000 per day to be made in case expected service level is not met for the completion of the related milestone.</p> <p>Additionally a penalty of INR 1,000 per day shall be levied for the delay incurred in testing and reporting by the PMA after the site has commissioned by the contractor (e.g. if a site is commissioned and reported by the contractor at 5:00 PM on 1st Nov 2015 and the testing and reporting work is not completed by the PMA by 5:00 PM on 2nd Nov 2015, a penalty of INR 1,000 shall be levied from 3rd Nov 2015 onwards for each day until the testing is completed and reported by the PMA to INCAP)</p>
4.	Completion of End to End Testing	Perform the End to End Testing within	INR 10,000 per day to be made in case

S.No.	Service	Expected Service level	Penalty level in case of breach of the expected service level
	from NOC to Substation	one week of Contractor's 'offer for commissioning'	expected service level is not met.
5.	Completion of End to End Testing of the entire Network including NOC, Headend & Network	Perform the End to End Testing within two weeks of Contractor's 'offer for commissioning'	INR 10,000 per day to be made in case expected service level is not met.

Calculation of Penalties

The penalty percentages applicable for violation of Service Levels are specified in the table above.

In situation, where the Bidder has incurred a Penalty of equal to or more than 10% of total contract value at any time during the Contract Period, the Authority reserves the right to terminate the Contract altogether without further notice.

Annexure 5: Instructions to be followed while laying Aerial Optical Fiber Cable

Cable Pulling and Joining/Splicing

- **Cable Pulling**

The Optical Fiber cables are available in drums in lengths of approx. 2 kms. The cables shall be installed through already laid Electrical Poles. The location of the installation should be recorded for preparation of documentation.

- **Jointing/ Splicing**

Optical Fiber Cable Joints will be at varying distances depending upon the fiber to be laid for connecting District, Mandals and Substations. The 24 fibers are to be spliced at every Joint & at both ends (Terminations) in the equipment room. PMA to verify all the 24 fibers are spliced and not only had the fibers intended for usage.

The Infrastructure required for cable splicing i.e.

- Splicing machine
- PON OTDR
- Optical talk set
- Tool kit etc.

Will be arranged by Contractor including additional accessories. e.g. Genset /Engine etc. required at site for splicing.. Site Images and GPS coordinates shall be taken by Contractor through Digital Cameras and Handheld GPS unit brought by Contractor. The Optical Fiber Cable thus jointed end-to-end will be tested by Contractor in the presence of PMA for Acceptance Testing for splice losses and transmission parameters as specified by the Authority and prevalent at that time.

Annexure 6: Guidelines for Quality, Inspection & Testing

A. Quality Control

1. It is imperative that the PMA / contractor is/are fully conversant with the general practices and shall be fully equipped to carry out the work in accordance with the Specifications. The PMA is expected and bound to ensure quality of works in accordance with Specifications laid down. The PMA shall engage adequate and experienced supervisors to ensure that work has been carried out as per Specifications and with due diligence and in a professional manner. A two stage testing process will be incorporated as follows:
 - a. The first level of testing shall be carried out by the Contractor . Once the contractor is confident about the quality assurance of their work and material then they will hand it over to testing teams of PMA.
 - b. The PMA testing teams shall carry out the second level of testing.
2. In addition to Acceptance Testing being carried out by PMA, all works at all times shall be open to inspection by the Authority. The PMA shall be bound, if called upon to do so, to offer the works for inspection without any extra payment. The presence of monitoring teams nominated by the Authority during construction shall not preclude separate acceptance testing teams to recheck adherence to all aspects as mentioned in the contract.
3. Based on the implementation plans of contractor, PMA will need to create its own site wise QA, quantity verification and testing plan.
4. PMA plans should indicate scheduled start and end date for each site.
5. The PMA shall communicate their plan to the Authority and contractor as per the respective sites under PMA. Any changes in the plan also have to be communicated to the Authority and Implementing Agency by PMA.
6. PMA will be responsible for checking whether the materials being supplied by Implementing Agency are of such quality standards as mentioned in the Engineering Instructions and Construction Specifications.
7. PMA will be responsible for receipt of lot verification certificate for equipment/materials verified by contractor QC Teams.
8. PMA will be responsible to witness and verify the OTDR testing performed by Contractor to ascertain the length of optical fiber used. Key parameters OTDR testing report should include are
 - a. Date (entered manually)
 - b. Location (entered manually)
 - c. Length of fiber (automatically generated)
 - d. No. of joints (automatically generated)
 - e. Average Loss (dB/Km) (automatically generated)

B. Inspection and Testing

1. All materials furnished and all work performed under this Contract shall be inspected and tested. The Implementing Agency / contractor shall furnish all manpower and materials for tests, including testing facilities, power and instrumentation, and replacement of damaged parts. The costs shall be borne by the Implementing Agency and shall be deemed to be included in the contract price.
2. The entire cost of testing for factory & site acceptance, routine tests, production tests and

other test during manufacture & site activities specified herein shall be treated as included in the quoted unit price of materials, except for the expenses of the Authority representative.

3. Prior notice of at least 15 days should be given to PMA by Implementing Agency for making the representative of PMA available for observing the factory tests. Any cost of pertaining to making available the PMA representative at the necessary site shall be solely borne by PMA and non-chargeable to the Authority.
4. All tests conducted by Implementing Agency must be verified by PMA.
5. Should any inspections or tests indicate that specific item does not meet Specification requirements; the appropriate items shall be replaced, upgraded, or added by the PMA / Implementing Agency as necessary and as applicable to correct the noted deficiencies at no cost to the Authority. After correction of a deficiency, all necessary retests shall be performed to verify the effectiveness of the corrective action.

C. Testing Methodology

1. Acceptance Tests

- a. PMA would be responsible to oversee the work being done by Contractor to ensure quality of work as well as quantity verification. Contractor need to coordinate with PMA for getting the certification done and the schedules for the same need to be planned by the contractor in consultation with the PMA. All records and testing output conducted by Contractor has to be verified by PMA. PMA will have the responsibility of Quality Review of the work done by Contractor on day to day basis for all 100% sites. GIS co-ordinates of the entire OFC route at an interval of every 500 meters (including Equipment Site, Jointing / Splicing) shall be captured by Contractor and will be updated in the GIS tool deployed by the contractor for this project. This GIS tool need to be bought in the name of the Authority and will belong to Authority.
- b. The works shall be deemed to have been completed only after the same has been accepted by PMA as per the process mentioned in this tender and after it has been informed by PMA to the Authority confirming the completion of work. The various testing will be undertaken by Implementing Agency in the presence of PMA. Implementing Agency may conduct its own test prior for self-assessment before asking for tests to be conducted in the presence of PMA. Certificate will be issued by PMA representative after successful completion of testing (for each milestone).
- c. The Implementing Agency shall be responsible to provide test/ measurement tools and testers for conducting various tests. It will be ensured by the PMA that there is no compromise on the network attributes with specific reference to connectivity to District, Mandal and Substations.
- d. The Implementing Agency, after having satisfied himself of completion of work, from POP to Final OLT at Mandal, Substation end, shall offer the work to PMA for conducting Testing. The work shall be offered for Inspection as soon as link testing to POP is complete. Scope of Acceptance Testing in next clause.
- e. The Implementing Agency shall be obligated to remove defects/deficiencies pointed out by the PMA without any additional cost. the Authority does not take any responsibility of return of defective used items / items previously accepted by Implementing Agency.
- f. **Scope of Acceptance Testing**

It is essential to verify the integrity and the capability of the Network and its readiness

for intended services as per formats given in test procedure. The purpose of acceptance and testing is to verify integrity of measurement and quality of work done.

2. Field Acceptance Test Schedule and Testing Procedure

- a. As per technical requirements, the Acceptance Test is required to be carried out for all 24 Fibers in each cable section, and the Authority Acceptance Test schedule is to be followed for proper testing of the Optical Fiber Cable network
- b. The Optical Fiber Cable sections shall be identified on ABDs attached with the Acceptance Test Report and in the GIS tool.
- c. Testing shall be done in each Optical Fiber Cable section in one direction only and for two wavelengths viz. 1310 nm and 1550 nm using power meter and source. OTDR traces would be obtained for each OF Cable sections to measure and record the splice loss wherever applicable.

3. Measurement & Inspection

- a. Measurement: The measurement books are to be prepared by Contractor PoP-wise and are to be certified by PMA. One hard bound copy (duly signed on each page by Contractor and PMA) and soft copies (scanned) in three CDs will be handed over by PMA to the Authority every month.
- b. Method of recording of complete nomenclature of items, as given in the agreement need not be reproduced in the measurement sheet for recording the measurement but corresponding item code as provided, shall be used.
- c. The measurements of various items of work shall be taken and recorded in the measurements sheet. The measurements shall be taken and recorded by Contractor which will be countersigned by the PMA. PMA shall be directly responsible for supervision of work, shall be responsible for accuracy of 100% of measurements. All the support in terms of tools, availability of manpower at sites and all other assistance etc shall be provided by the contractor. The Authority, without any prejudice, reserves the right to carry out any kind of inspection of the works being carried out by PMA and Contractor at any time to ascertain its quantity and quality.

4. Method of Measurement

The measurement of the work shall be done activity-wise as and when the item of work is ready for measurement. The methods of measurement of various items are enumerated as under:

a. Measurement of length of cable

The length of cables laid on poles shall be measured by use of PON OTDR. The length should be cross-verified with the marking of lengths on the cables. The lengths shall be recorded in sheet provided in the measurement book.

b. Measurement of other items

The measurement/ numerical details of other items shall be recorded in the sheets provided for respective items viz.

- Termination of Cable in equipment room
- The number of joints.

- Record splice loss details for each joint.
- c. The PMA & Contractor shall sign all the measurement recorded in the measurement sheet/book. This will be considered as an acceptance by the PMA of measurements recorded in the MB by Contractor.
- d. Measurement of the work of cable for calculation of services portion will be taken equal to the length cable on pole (as measured in the Roadometer) and not the total length of the cable laid through pole.

5. Timely Action by PMA

- a. Timely reporting and action, to a great extent, can prevent occurrence of sub-standard work, which will be difficult or impossible to rectify later on. It is incumbent on the part of PMA for supervision of work to point out the defects in work in time during progress of the work. The PMA responsible for supervision of work shall without any loss of time submit a report of occurrence of any sub-standard work to the Authority besides making an entry in the site order book. A notice in respect of defective work shall be given to the Contractor in writing during the progress of work asking the Contractor to rectify/replace/remove the sub-standard item of work and also definite time period within which such rectification/removal/replacement has to be done. After expiry of the notice period, if the Contractor fails to rectify/ replace/ remove the sub-standard items, the defects shall be rectified/replaced/removed by the Authority, at its sole discretion, through some other agency at the risk and cost of the Contractor.
- b. Non-reporting of the sub-standard work in time on the part of PMA shall not in any way entitle the Contractor to claim that the defects were not pointed out during execution and as such the Contractor cannot be absolved of the responsibility for sub-standard work and associated liabilities.

Annexure 7: Roles and Responsibility

The roles and responsibilities of the key stakeholders during the execution of work is detailed in the Responsibility Matrix below.

Legend

<i>Primary</i>	<i>Entity with primary responsibility for an activity is expected to drive the activity and ensure successful completion</i>
<i>Secondary</i>	<i>Entity with secondary responsibility for an activity is expected to provide support to the primary owner</i>

Project Stage: Planning

Activities	The Authority	Contractor	PMA
Approvals and Authorizations			
Securing Right Of Way (ROW) permissions through State Electricity MOU agreements	Primary		
Securing permissions for access to POPs locations the State level agreements	Primary		
Implementation Schedule			
Submission of preliminary implementation schedule		Primary	
Implementation Plan collation from Contractor		Secondary	Primary
Information Sharing			
Designating a PMA Nodal officer for each District			Primary
Designate one senior PMA official to coordinate with the corporate office of the Authority			Primary
Publishing acceptance, testing and sign off procedures			Primary
Publishing guidelines for maintenance of Contractor warehouse records			Primary
Publishing of templates, checklists, data submission formats			Primary
Project Management Setup			
Commissioning of Project Management Tool			Primary
Publishing procedures, guidelines, checklists and report formats			Primary

Project Stage: Implementation

Activities	The Authority	Contractor	PMA
Site Access and Verification			

Coordination with local authorities for access to site locations (District, Mandal and, Substation sites etc.)	Secondary	Primary	Secondary
Site level coordination and verification of availability at site		Primary	Secondary
Resolution of discrepancies with respect to readiness of sites for equipment installation.		Primary	Secondary
Verification of GIS data uploaded by Contractor in the GIS tool			Primary
Provisioning			
Provisioning of testing tools (PON OTDR, Roadometer, Power meter etc.) for field acceptance testing and end-to-end testing		Primary	
Laying of OFC and Network Testing			
Conducting tests as per Field Acceptance Test Procedures for OFC and Network Testing		Primary	
Provisioning of equipment for photography		Primary	
Take site images at designated locations and images of the testing procedures carried out		Primary	
Approval of material supplied by Contractor as per Engineering guidelines		Secondary	Primary
Approval of Field Acceptance Test Reports			Primary
Conducting End-to-End Test as per Test Procedures		Primary	Secondary
Approval of End-to-End Test Reports			Primary
Request for Commissioning certificate		Primary	Secondary
Issuance of Commissioning certificate	Primary		
Request for Final Completion certificate		Primary	Primary
Issuance of Final Completion certificate	Primary		
Regular update of project progress on project management tool as well as sharing with relevant officials as per laid down procedures		Primary (for Contractor Deliverables)	Primary (for PMA Deliverables)
Update of actuals against the planned estimates (for schedule, material, sites status etc.)		Secondary	Primary
Communicate updated schedule to all stakeholders			Primary
Invoice and Payment			
Submission of Contractor invoices with all relevant test reports		Primary	

Verification of Contractor work and approval of invoices and relevant test reports submitted by Contractor		Secondary	Primary
Final Verification of document submitted by Contractor and certification by PMA	Primary		Secondary
Approval of Contractor invoices and release of payment	Primary		
Submission of PMA invoices			Primary
Verification of PMA invoices	Primary		
Approval of PMA invoices and release of payment	Primary		
Monitoring of implementation, calculation of LD and penalties etc.	Primary		
Imposition of LD and Penalty on the net payment to Contractor and PMA respectively	Primary		
Prepare Monthly Progress Report for work done in the respective work package and submit to PMA & the Authority		Primary	Secondary
Review Monthly Progress Report submitted by Contractor for work done in the respective work package and submit to the Authority		Secondary	Primary

Annexure 8: Guidelines for Installation of ADSS Aerial Optical Fiber Cable

1. Scope

This document is intended to provide guidelines for selection of appropriate methodology for aerial installation of ADSS optical Fiber Cable on Existing Electrical Poles of 440/220/132/33/11 KV Lines and LT lines as per the route map and network design.

2. Installation Techniques

The techniques used in installation of Aerial ADSS Optical Fiber Cables are described here. With the proper installation hardware and skilled resource, any of these methods can be used to install ADSS cable. Many a times, it will become necessary to use a combination of these methods to achieve full installation.

Selection of the specific technique (i.e. Moving Drum method, Stationary Drum method or Manual Installation method), or a combination thereof, shall largely depend on the actual site conditions. The Contractor shall select the most appropriate installation technique suitable to the site conditions.

a. Moving Drum Method

In this method the cable is pulled directly from the cable drum mounted on a moving vehicle as it drives along the pole line. The cable drum must be mounted on a proper support to allow easy cable pay off. At the dead-end point, the cable is terminated using Termination Assembly sets and tensioned using turnbuckles to maintain cable sag within permissible value.

To start installation, park the vehicle with the cable drum approximately 15 - 20 meters away from the pole facing away from it down the pole line. The cable must pay off from top of the drum towards the rear of the vehicle.

Install the termination supports and temporary hooks on the poles at the starting point and subsequent poles. Pull off the necessary amount of slack, lift the dead-end to the top of the pole and mount on the termination assembly.

Once the cable is fixed at both ends with at the terminating assemblies, carry out tensioning. After the cable section is properly tensioned and secured at both ends lift the cable out of the hooks at each of the intermediate pole and support it with the suspension set assemblies.

b. Stationary Drum Method

In this method of aerial cable installation, the cable is pulled along the cable route through temporary support hardware. Stationary drum installation method requires installation of temporary support hardware such as pulley blocks.

A rope wound on the tension limiting winch is passed through the pulleys and connected to the cable on the drum installed on a stand which allows free rotation of the drum. The pulling load should normally not exceed 60% of the maximum permissible cable tension recommended by cable supplier.

The cable drum and winch locations must have vehicular access. The cable drum should always be placed on leveled ground so that its flanges are vertical thus avoiding rubbing of cable against flanges. The orientation should be such that the cable pay-off is directly in the direction of pull. Always pay-out the cable from top of the drum and not from bottom. The

drum should have provision to allow controlled pay-out of cable. Cable pay-out needs to be controlled to prevent free running or jerking.

Once the cable is completely pulled end to end, it is then ready for installation of permanent supporting system of terminating and suspension set assemblies at required locations and tensioning for sag control.

c. Manual Installation Method

Manual installation method technique is similar to stationary drum method, except that in this case the cable is uncoiled from the drum and placed on the ground in the shape of 8.

The pulling operation is same as in stationary drum method. The hardware requirement and pulling equipment also remains same.

For pulling in both directions, two loops of shape of 8 can be made and each can be pulled in separate directions. Loops of size 4 to 5m x 1.5m should be sufficient in most cases.

3. Installation of Accessories

a. Pole Clamp

Prior to fixing any temporary supports/stringing blocks or permanent cable suspension / termination assemblies, it is necessary to fix pole clamps. Appropriate type of pole clamps will be required depending on the shape of the pole. The two halves shall be opened and fixed at the specified height using tightening bolts.

b. Terminating (or Dead End) Assembly

Termination assemblies are required at dead ends locations where:

- i. cable needs to be terminated at the end facility
- ii. loops are to be kept for future maintenance activities

For double sided termination assembly 2 sets would be required.

To fix a termination Assembly following accessories are required:

- i. Protective Helix on the cable,
- ii. Terminating Helix with a thimble,
- iii. Clevis Thimble,
- iv. Spiral Vibration Damper

c. Suspension Assembly

ADSS optical fiber cable shall be supported on all intermediate poles between two terminating poles using the pole clamp and a suspension assembly set.

To fix a suspension Assembly following accessories are required:

- i. Protective Helix on the cable,
- ii. Suspension Helix,
- iii. Clevis Thimble,
- iv. Spiral Vibration Dampers

d. Installing Cable Loop / Storage / Joint Closure

Cable loops are to be provided for future maintenance purposes at regular spacing. A fixture is required to be installed. Excess cable is then wound & kept on support. The fixture provides a means to ensure proper bend radius is maintained. Separate clamp is required for installation of Joint Closures.

e. Supporting Jumper Cable Clamp

Jumper cable hanging between a pair of Termination Assemblies installed at locations where there is sharp change in direction need to be supported with a special twisted link. To support jumper cable, Use already installed pole clamp.

f. Cable Tensioning

After the required length of cable has been placed, the cable shall be properly tensioned before it is permanently secured into suspension assemblies.

The temporary dead end should be installed 4 to 5 m from the pole so that after complete tension is applied, appropriate permanent termination assembly set can be installed while the cable is in tension. The chain hoist will also need to be tied to the pole directly using a sling and not onto the pole clamp.

Once the cable sections are under the required tension and the sag is within limits (i.e. less than 1% of span), the “free” end of the cable used for tensioning is fitted with termination assembly set and terminated. Once the load is transferred on to permanent termination end, the temporary arrangement shall be removed.

g. Machinery / Equipment / Tools

- i. Ropes and light weight ladder for installation of termination/suspension assemblies, clamps etc.
- ii. Temporary supports, dynamometer, chain hoists, temporary dead ends, steel cables, etc. required during cable laying and/or cable pulling and cable tensioning operations as applicable will have to be arranged by the Contractor.
- iii. Van with portable splicing machines and OTDR, power meter, cable preparation kits, etc. for splicing and testing of installed ADSS Optical Fiber Cable.
- iv. Other tools and tackles shall include wrenches, spanners, screw drivers, hammer, ropes etc.
- v. All safety equipment such as safety belts, insulating and cotton gloves and hard hats, fluorescent vests etc. as required

END OF DOCUMENT