



TNEB - Annexure To LOA

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Annexure 1: Scope of Work



ANNEXURE 1: SCOPE OF WORK

The detailed scope of work has been as mentioned in various sections of the SRS document as follows: Please note that Since the execution of RAPDRAP scheme is within the stipulated time is a pre-requisite to convert the amount sanctioned by MoP from loan to grant, the vendor is required to plan project execution activities strictly as per the timelines given. If the MoP & PFC issues any amendment to the SRS document till the date of opening of this bid document, those amendments will become an integral part of this bid document. For which a separate intimation will also be given to empanelled SIs. 4 Towns of Puducherry and 1 town of Andaman & Nicobar will be included in the ITIA Scope. The Data Center and Disaster Recovery Center resources and space will be shared by the two utilities. Bidders should accordingly provision the same in their technical and commercial bids.

1) Section G1

- a. Intent of Specification
- b. Scope of Work
- c. Other Services and Items
- d. Specific Exclusions
- e. Utility's Current IT Infrastructure
- f. Arrangement by the Contractor
- g. Software tools
- h. Warranty, operational guarantee and system reliability with 'on-site' support
- i. Annual Maintenance Contract
- j. Price Loading for Evaluation of Bids
- k. Payment terms
- l. Project synopsis
- m. Bid Schedule
- n. Basic reference drawings
- o. Spares
- p. Time schedule
- q. Implementation schedule
- r. Quality assurance plan
- s. Qualifying requirements

2) Section G2

- a. Introduction
- b. System Functionality
- c. Module: Meter Data Acquisition
- d. Module: Energy Audit
- e. Module: New Connection



- f. Module: Disconnection & Dismantling
- g. Module: GIS based customer Indexing and asset mapping
- h. Module: GIS based integrated network analysis module
- i. Module: Centralized Customer Care Services
- j. Module: Management Information System (MIS)
- k. Module: Web Self Service
- l. Module: Identity and Access Management system
- m. Module: System Security Requirement
- n. Development of Commercial Database of Consumers
- o. Module: Metering
- p. Module: Billing
- q. Module: Collections
- r. Module: Asset Management
- s. Module: - Maintenance Management

3) Section G3

- a. Introduction
- b. LAN
- c. VPN/MPLS WAN
- d. Implementation Plan
- e. Cabling System and Component Specifications
- f. Switches
- g. Mail / Messaging System
- h. Firewalls and NIDS System
- i. Servers
- j. Storage & Backup Subsystem
- k. Enterprise Management System including Network Management, Monitoring & Network Performance Analysis
- l. Routers
- m. IP PBX and IP Phones
- n. Anti Virus Solution
- o. Hardware for AMR based Data Logging System
- p. Hardware for customer care center related equipment
- q. Spot Billing Machine
- r. Work Station
- s. Printers
- t. IDMS & Kiosks
- u. UPS & Battery system
- v. Disaster Recovery Center



4) Section G4

- a. Introduction
- b. Clause 2: Objectives
- c. Clause 3: Scope of Work
- d. Clause 4: Field survey and mapping
- e. Clause 5: Indexing
- f. Clause 6: Deliverables
- g. Clause 7: Implementation Methodology
- h. Clause 8: Satellite Imagery Specifications

5) Section G5

- a. Introduction
- b. Duration & payments
- c. Penalty clause
- d. Qualifying requirements of FMS vendor
- e. Scope of Work
- f. Service management controls
- g. Resources for project & service management
- h. FMS duration, availability & criticality
- i. Change of Service levels

The ITIA shall be responsible for integration of the IT system created under the R-APDRP scheme at all the selected Project Areas, Central Customer Care Centre, Disaster Recovery Centre and Data Centre, by using inter-operability profile/APIs, etc., for data exchange & seamless integration.

Reference to the following should be made for seeking the details about the utility:

Appendix-F: Geographic and administrative information

Appendix-G: List of offices for WAN connectivity

Appendix-H: Review of current IT Systems

Appendix-I: List of manuals/business processes to be converted to electronic form

Appendix-J: Review of current business processes

Appendix-K: Website

Appendix-L: List of goods and related services



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6) Utility Obligations

For successful execution of the project, Utility shall provide the following to the Agency: -

- a. Utility shall assign one Project Manager for smooth execution of Project activities, approvals, acceptance of implemented systems, payments etc. who shall be single point of contact for the bidder.
- b. Metering database (hard / Soft copy as per availability) of consumers, Distribution Transformers and substation feeders
- c. Billing and revenue database (hard / Soft copy as per availability) of consumers including consumer name, category, sanctioned load, mailing address, tariff structure, outstanding amounts, security deposits, etc.
- d. Asset database (hard / Soft copy as per availability) of utility including poles, Distribution Transformers, Substation feeders etc.
- e. List of existing offices along with mailing address and concerned authorized Utility official covering Head Quarter / Circles / Zones / Division / Sub-divisions / Billing Centers / Collection Centers etc.
- f. Location wise name and number of users of the system
- g. Authorization for procurement of Satellite Image, as per SRS document
- h. Authorization to fulfill all formalities to acquire Leased Line / Broadband / GPRS communication and any other such authorizations required for the successful implementation of the project.
- i. Permission for conducting the field surveys / installations for execution of project.
- j. Providing shutdowns on Agency's request as per pre-decided schedule.
- k. Utility shall provide the Building and Electricity Connection for Data Centre, Customer Care Centre and Disaster Recovery Site as these facilities shall be owned by the Utility.
- l. After the installation of the equipment and its acceptance, it will be utility's responsibility to safeguard those equipments/goods.



Annexure 2: General Conditions of Contract



ANNEXURE 2: GENERAL CONDITIONS OF CONTRACT

<p>(1) Definitions</p>	<p>The following words and expressions shall have the meanings hereby assigned to them:</p> <p>1.1.1. “Contract” means the Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.</p> <p>(b) “Contract Documents” shall mean the following documents listed, including any amendments thereto be read and construed as part of this Agreement, viz.:</p> <ul style="list-style-type: none">i. the Detailed award of contract;ii. the Service level agreement;iii. the Special Conditions of Contract;iv. the General Conditions of Contract;v. the Scope of Work;vi. the System Requirement Specification Document (SRS)vii. the Instructions to bidders;viii. the Purchaser’s Notification to the Supplier for Award of Contract;ix. Supplier’s response (proposal) to the RFP, including the Bid Submission Sheet and the Price Proposal submitted by the Supplier;x. Appendix A to B & E to O;xi. Acceptance of purchaser’s notificationxii. RFQ document (Identification No: R-APDRP/ITIA/2008/11) along with all corrigendum, clarifications and related documents issued by the Nodal Agency <p>1.1.2. “Contract Price” means the price payable to the Supplier as specified in the Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.</p> <p>1.1.3. “Day” means calendar day.</p> <p>1.1.4. “Delivery” means the transfer of the Goods and services from the Supplier to the Purchaser in accordance with the terms and conditions set forth in the Contract.</p> <p>1.1.5. “Completion” shall mean the completion of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.</p> <p>1.1.6. “GCC” means the General Conditions of Contract.</p> <p>1.1.7. “Goods” means all hardware, software, networking equipment and/or other equipment accessories and materials that the Supplier is required to supply to the Purchaser under the Contract.</p> <p>1.1.8. “Intellectual Property Rights” means any patent,</p>
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	<p>copyright, trademark, trade name, service marks, brands, propriety information, whether arising before or after the execution of this Contract and the right to ownership and registration of these rights.</p> <p>1.1.9. "Purchaser's Country" shall mean India.</p> <p>1.1.10. "Purchaser" means the entities purchasing the Goods and Related Services.</p> <p>1.1.11. "Related Services" means the services to be provided as per the requirements / conditions specified in the Contract. In addition to this, the definition would also include other related/ancillary services that may be required to execute this Contract.</p> <p>1.1.12. "SCC" means the Special Conditions of Contract.</p> <p>1.1.13. "Service Level Agreement" (SLA) shall mean the Service Level Agreement entered into between the Purchaser and the Supplier.</p> <p>1.1.14. "Subcontractor" means any natural person, private or government entity, or a combination of the above, including its legal successors or permitted assigns, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier, as per the provisions of Clauses 19 of the GCC.</p> <p>1.1.15. "Supplier" means the empanelled System Integrator (SI) whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Agreement, and includes the legal successors or permitted assigns of the Supplier.</p> <p>1.1.16. "The MoP" is the Ministry of Power, Government of India.</p> <p>1.1.17. "The Site," shall mean all identified locations within the State of Tamil Nadu, where the Supplier carries out any installation of Goods or is required to provide any Related Services.</p> <p>1.1.18. "OEM" means the Original Equipment Manufacturer of any equipment / system / software / product that are providing such goods to the Purchaser under the scope of this Tender / Contract.</p> <p>1.1.19. "Kick Off Meeting" means a meeting convened by the Purchaser to discuss and finalize the work execution plan and procedures with the Supplier.</p> <p>1.1.20. the term "in writing" means communicated in written form with proof of receipt</p>
1. Contract Documents	1.1. Subject to the order of precedence set forth in the Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory.



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2. Corrupt Practices	<p>2.1. The Purchaser requires bidders, suppliers, and contractors to observe the highest standard of ethics during the execution of such contracts.</p> <p>2.1.1. The following definitions apply:</p> <p>“corrupt practice” means the offering, giving receiving, or soliciting, directly or indirectly, of any thing of value to influence the action of any party in the procurement process or the execution of a contract;</p> <p>“fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;</p> <p>“collusive practices” means a scheme or arrangement between two or more bidders, with or without the knowledge of the Tamil Nadu Electricity Board, designed to influence the action of any party in a procurement process or the execution of a contract;</p> <p>“coercive practices” means harming or threatening to harm, directly or indirectly, persons, or their property to influence their participation in a procurement process, or affect the execution of a contract;</p> <p>2.1.2. The Purchaser will reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract.</p> <p>2.1.3. After the award of the contract if it is comes to the knowledge of the Utility that the Supplier has engaged in corrupt, fraudulent, collusive, or coercive practices at any stage, the Purchaser shall forthwith terminate the contract as per the provisions of GCC Clause 33.</p>
3. Interpretation	<p>3.1. In this Contract unless a contrary intention is evident:</p> <p>A. In case of any conflict with any provision relating to the SRS document and the RFP document, the provisions of the RFP document shall prevail for all intents and purposes</p> <p>B. the clause headings are for convenient reference only and do not form part of this Contract;</p> <p>C. unless otherwise specified a reference to a clause number is a reference to all of its sub-clauses;</p> <p>D. unless otherwise specified a reference to a clause, sub-clause or section is a reference to a clause, sub-clause or section of this Contract including any amendments or modifications to the same from time to time;</p> <p>E. a word in the singular includes the plural and a word in the plural includes the singular;</p>



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	<p>F. a word importing a gender includes any other gender;</p> <p>G. a reference to a person includes a partnership and a body corporate;</p> <p>H. a reference to legislation includes legislation repealing, replacing or amending that legislation;</p> <p>I. where a word or phrase is given a particular meaning it includes the appropriate grammatical forms of that word or phrase which have corresponding meanings</p> <p>J. In the event of an inconsistency between the terms of this Contract and the Bid document and the proposal, the terms of this contract hereof shall prevail.</p> <p>K. (K) Whenever a material or article is specified or described by the name of a particular brand, manufacturer or trade mark, the specific item shall be understood as establishing type, function and quality desired. Products of other manufacturers may also be considered, provided sufficient information is furnished so as to enable the Purchaser to determine that the products are equivalent to those named</p>
	<p>3.2. Incoterms</p> <p>The meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by Incoterms.</p> <p>3.2.1. EXW, CIF, CIP, and other similar terms, shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce at the date of the Invitation for Bids or as specified in the SCC.</p>
	<p>3.3. Entire Agreement</p> <p>The Contract constitutes the entire agreement between the Purchaser and the Supplier and supersedes all communications, negotiations and agreements (whether written or oral) of parties with respect thereto made prior to the date of Contract.</p>
	<p>3.4. Amendment</p> <p>No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.</p>
	<p>3.5. Waiver</p> <p>3.5.1. Subject to GCC Sub-Clause 3.5.2 below, no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time</p>



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	<p>by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract. Neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.</p> <p>3.5.2. The waiver by either party of a breach or default of any of the provisions of this contract by the other party shall not be interpreted as :</p> <p>A) A waiver of any succeeding breach of the same or other provision, nor shall any delay or omission on the part of the other party to exercise; or</p> <p>B) A way to avail itself of any right, power, or privilege that it has or may have under this contract to operate as waiver of any breach or default by the other party.</p> <p>3.5.3. Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.</p>
	<p>3.6. Severability</p> <p>If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract or the contract as a whole and the remaining provisions of the contract shall remain in full force and effect.</p>
4. Language	<p>4.1. The official language of the Contract is English. Contract as well as all correspondence and documents relating to the Contract exchanged by the Supplier and the Purchaser, shall be written in English. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, the English translation shall govern.</p>
	<p>4.2. The Supplier shall bear all costs of translation to English and all risks of the accuracy of such translation. The Supplier shall be bound to the English translation and what has been stated therein.</p>
5. Consortium	<p>5.1. If the Supplier is a consortium, the members of such consortium shall be jointly and severally liable to the Purchaser for the fulfillment of the provisions of the Contract. Only the Lead Member (as mentioned at the Empanelment stage) shall have the authority to conduct all businesses for and on behalf of the Consortium during the bidding process and, in the event the Consortium is awarded the Contract, during contract execution The composition of the consortium cannot be altered.</p> <p>5.1.1. Without prejudice to Clause 5.1 of this GCC, for the</p>



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	<p>purposes of fulfillment of it's obligations as laid down under the Contract where the Purchaser deems fit and unless the context requires otherwise, Supplier shall refer to the Lead Member who shall be the sole point of interface between the Purchaser and the Consortium and would be absolutely accountable for the performance of its own, the other members of Consortium and/or its Team's functions as also the subcontractors.</p> <p>5.1.2. All payments shall be made by the Purchaser in favour of the Lead Member.</p>
6. Notices	<p>6.1. All notices and other communications under this contract must be in writing, and must either be mailed by registered mail with acknowledgement Due. Or hand delivered with proof of it having been received.</p> <p>6.2. If mailed, all notices will be considered as delivered after 5 days, of the notice having been mailed. If hand delivered, all notices will be considered, when received by the party to whom the notice is meant and sent for.</p> <p>6.3. All notices under this contract shall be sent to or delivered at the address as specified by the parties in the SCC.</p>
	<p>6.4. A Notice shall be effective when delivered or on the Notice's effective date, whichever is later.</p>
7. Governing Law	<p>7.1. The Contract shall be governed by and interpreted in accordance with the laws of the India. The High Court of Judicature at Chennai and Courts subordinate to such High Courts shall have exclusive jurisdiction in respect of any disputes relating to the tendering process, award of Contract and execution of the Contract.</p> <p>7.2. In all cases, this contract shall be governed by and interpreted in accordance with the Law of the Union Of India. In this context, the expression 'Law' takes within it's fold Statutory law, Judicial Decisional Law and Delegated Legislation as well</p>
8. Settlement of Disputes	<p>8.1. The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.</p>
	<p>8.2. If the parties fail to resolve such a dispute (The date of commencement of the dispute shall be taken from the date when this clause reference is quoted by either party in a formal communication clearly mentioning existence of dispute or as mutually agreed) or difference by mutual consultation within twenty-eight (28) days from the commencement of such consultation, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the SCC.</p>
9. Scope of Work	<p>9.1. The Goods and Related Services to be supplied are specified in Appendix-L. At the time of awarding the contract, the Purchaser</p>



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	<p>shall specify any change in the Scope of Work. Such changes may be due for instance, if the quantities of goods and related services are increased or decreased at the time of award.</p> <p>"The evaluation shall be made on the overall cost of the items and quantities mentioned in the RFP. However, while placing the order, or during the execution, the utility reserves the right to modify the quantities of individual items to the extent of +/- 20% of the mentioned BoQ subject to within a range of 10% of the value of the overall project cost."</p>
	<p>9.2. Unless otherwise stipulated in the Contract, the Scope of Work shall include all such items not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Delivery and Completion of the Goods and Related Services as if such items were expressly mentioned in the Contract.</p>
10. Delivery	<p>10.1. Subject to GCC Sub-Clause 32.1, the Delivery of the Goods and Completion of the Related Services shall be in accordance with the Implementation Schedule specified in the Appendix-N. The details of shipping and other documents to be furnished by the Supplier are specified in the SCC.</p>
11. Supplier's Responsibilities	<p>11.1. The Supplier shall supply all the Goods and Related Services included in the Scope of Work and Appendix-L in accordance with GCC Clause 9, and the Implementation Schedule, as per GCC Clause 10.</p>
12. Purchaser's Responsibilities	<p>12.1. Whenever the supply of Goods and Related Services requires that the Supplier obtain permits, approvals, and import and other licenses from local public authorities, the Purchaser shall, if so required by the Supplier, make its best effort to assist the Supplier in complying with such requirements in a timely and expeditious manner.</p> <p>12.2. The Purchaser shall bear all costs involved in the performance of its responsibilities, in accordance with GCC Sub-Clause 13.1.</p> <p>12.3. The Chief Information Officer (CIO) of Tamil Nadu Electricity Board or any other person designated by the utility shall act as the nodal point for implementation of the contract and for issuing necessary instructions, approvals, commissioning, acceptance certificates, payments etc. to the Supplier.</p> <p>12.4. The CIO of Tamil Nadu Electricity Board or any other person designated by the utility shall approve all such documents within 15 working days.</p> <p>12.5. Purchaser may provide on Supplier's request, particulars/ information / or documentation that may be required by the Supplier for proper planning and execution of Scope of Work under this contract.</p> <p>12.6. Purchaser shall provide to the Supplier sitting space and infrastructure and utilities, in the Purchaser's offices at such</p>



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	location as may be mutually decided by the Parties.
13. Contract Price	13.1. The Contract Price shall be as specified in the Agreement subject to any additions and adjustments thereto, or deductions there from, as may be made pursuant to the Contract as also subject to provisions of Clause 13.2.
	13.2. Prices charged by the Supplier for the Goods delivered and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid, with the exception of any price adjustments authorized in the SCC.
14. Terms of Payment	14.1. The Contract Price shall be paid in the manner specified in the SCC. No invoice for extra work/change order on account of change order will be submitted by the Supplier unless the said extra work /change order has been authorized/approved by the Purchaser in writing.
	14.2. The Supplier's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, accompanied by the documents submitted pursuant to GCC Clause 10.
	14.3. Payments shall be made promptly by the Purchaser, no later than forty five (45) days after submission of an invoice or request for payment by the Supplier, and the Purchaser has accepted it.
	14.4. If any excess payment has been made by the Purchaser due to difference in quoted price in proposal and Supplier's invoice, the purchaser may without prejudice to its rights recover such amounts by other means after notifying the Supplier or deduct such excess payment from any payment subsequently falling due to the Supplier.
	14.5. The currency in which payment shall be made to the supplier under this contract is Indian Rupees (INR).
15. Taxes and Duties	15.1. The prices quoted by the supplier shall be inclusive of all duties/taxes/levies. Responsibility for including all applicable taxes/duties/levies in the proposal lie with the bidder and the utility shall not be responsible for any error/omission on the part of the bidder. Payment of taxes/duties/levies shall not be made separately.
	15.2. For goods supplied from outside the Purchaser's country, the Supplier shall be entirely responsible for all taxes, duties, stamp duties, license fees, and other such levies imposed outside the Purchaser's country.
	15.3. For goods supplied from within the Purchaser's country, the Supplier shall be entirely responsible for all taxes, duties, entry tax, license fees, other levies etc, incurred until delivery of the Goods and Related service to the Purchaser. The Purchaser will provide Central sales tax Form C, whenever applicable.
	15.4. The cost of Entry Tax as applicable will be the liability of the Supplier i.e. the price quoted will be inclusive of Entry Tax. The



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	<p>amount of Entry Tax will be deducted from the Supplier's invoice and remittance to tax dept. will be made by the Purchaser under the TIN number of Purchaser. If any liability is raised by the commercial tax department, Govt. of Tamil Nadu on account of Entry Tax at a later date, the same shall be to the Supplier's account and accordingly recovery shall be made from the supplier's pending bills/security deposit as available with the Purchaser.</p>
16. Performance Security	<p>16.1. The Supplier shall, within fourteen (14) days of the notification of Contract award, provide a Performance Security for the due performance of the Contract in the amounts and currencies specified in the SCC.</p>
	<p>16.2. The Purchaser shall at its sole discretion invoke the Performance Security and appropriate the amount secured thereunder, in the event that the Supplier commits any delay or default in Delivery of the Goods or Related Services or commits any other breach of the terms and conditions of the Contract.</p>
	<p>16.3. The Performance Security shall be denominated in the currencies of the Contract, and shall be in one of the forms stipulated by the Purchaser in the SCC.</p>
	<p>16.4. The Performance Security shall be discharged by the Purchaser and returned to the Supplier not later than fourteen (14) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless specified otherwise in the SCC.</p>
17. Intellectual Property	<p>17.1. Purchaser shall own and have a right in perpetuity to use all newly created Intellectual Property Rights which have been developed solely during execution of this Contract, including but not limited to all Source code, Object code, records, reports, designs, application configurations, data and written material, products, specifications, reports, drawings and other documents which have been newly created and developed by the Supplier solely during the performance of Related Services and for the purposes of inter-alia use or sub-license of such Services under this Contract. The Supplier undertakes to disclose all such Intellectual Property Rights arising in performance of the Related Services to the Purchaser 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 Purchaser. To the extent that Intellectual Property Rights are unable by law to so vest, the Supplier assigns those Intellectual Property Rights to Purchaser on creation.</p> <p>17.2. The Supplier shall be obliged to ensure that all approvals, registrations, licenses, permits and rights etc. which are inter-alia necessary for use of the goods supplied / installed by the Supplier, the same shall be acquired in the name of the Purchaser, and the same may be assigned by the Purchaser to the Supplier solely for the purpose of execution of any of its obligations under the terms of this Contract. However, subsequent to the term of this</p>



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	<p>Contract, such approvals, registrations, licenses, permits and rights etc. shall endure to the exclusive benefit of the Purchaser.</p> <p>17.3. The Supplier shall ensure that while it uses any software, hardware, processes, document or material in the course of performing the Services, it does not infringe the Intellectual Property Rights of any person and the Supplier shall keep the Purchaser 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 Supplier or its personnel during the course of performance of the Related Services. In case of any infringement by the Supplier, the Supplier shall have sole control of the defense and all related settlement negotiations</p> <p>17.4. Subject to sub-clauses 17.1 to 17.3, the Supplier shall retain exclusive ownership of all methods, concepts, algorithms, trade secrets, software documentation, other intellectual property or other information belonging to the Supplier that existed before the effective date of the contract. .</p>
<p>18. Confidential Information</p>	<p>18.1. Both parties undertake to each other to keep confidential all information (written as well as oral) concerning the business and affairs of the other, which has been obtained or received as a result of the discussions leading upto or the entering of the contract</p> <p>18.2. After the entering of the contract the Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents, data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier under this Clause.</p>
	<p>18.3. The Purchaser shall not use such documents, data, and other information received from the Supplier for any purposes unrelated to the Contract. Similarly, the Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than the design, procurement, or other work and services required for the performance of the Contract.</p>
	<p>18.4. The obligation of a party under GCC Sub-Clauses 18.1 and 18.2 above, however, shall not apply to information that:</p> <p>18.4.1. the Purchaser or Supplier need to share with the institutions participating in the financing of the Contract;</p> <p>18.4.2. now or hereafter enters the public domain through no fault of that party;</p> <p>18.4.3. can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or</p> <p>18.4.4. Otherwise lawfully becomes available to that party from a</p>



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	third party that has no obligation of confidentiality.
	18.5. The above provisions of GCC Clause 18 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.
	18.6. Each of the parties to this contract, undertakes to the other to take all such steps as shall from time to time be necessary to ensure compliance with the provisions of the above clauses by its employees, agents and sub-contractors. 18.7. The provisions of GCC Clause 18 shall survive completion or termination, for whatever reason, of the Contract.
19. Subcontracting	19.1. Except as provided hereunder under Clause 19.2 of the GCC, the Supplier shall not be permitted to sub-contract any part of its obligations under the Contract. 19.2. Supplier shall sub-contract the Network solution provider (NSP) role and GIS solution provider (GSP) role only from the empanelled members (as per the list issued/updated by the Nodal Agency). Supplier shall have flexibility to subcontract Meter Data Acquisition Solution Provider (MDASP) role, as per his requirement. In case Supplier decides to subcontract MDASP role, the MDASP subcontractor shall only be selected from the empanelled list of MDASP (as per the list issued/updated by the Nodal Agency). 19.3. The Supplier shall select the sub-contractors from the empanelled list only. The names and roles of the same shall be clearly mentioned in the proposal/bid. 19.4. The Supplier shall ensure that the sub contractor appointed has sufficient capacity to undertake the execution of the tasks they will perform under this Contract. 19.5. The Supplier indemnifies and shall keep indemnified Purchaser against any losses, damages, claims or such other implications arising from or out of the acts and omissions of such subcontractor. The Supplier shall be responsible for making all payments to the subcontractor as may be necessary, in respect of any Services performed or task executed, and the Purchaser shall not be responsible for any part or full payment which is to due to such subcontractor. 19.6. All rights of use of any process, product, service or facility developed or any other task performed by the subcontractor for the Supplier, under this contract would lie exclusively with the Purchaser in perpetuity free from all liens, encumbrances and other third party rights and the Supplier shall, wherever required, take all steps that may be necessary to ensure the transfer of such ownership in favor of the Purchaser. 19.7. Nothing in this clause 19 of the GCC shall relieve the Supplier from its any of its liabilities or obligations under this Contract. The Purchaser reserves the right to hold Supplier liable for any act/omission of any subcontractor. 19.8. Where the Purchaser deems necessary, it shall have the right to require replacement of any subcontractor with another subcontractor and the Supplier shall in such case terminate



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	<p>forthwith all agreements/contracts other arrangements with such subcontractor and find suitable replacement for such subcontractor to the satisfaction of the Purchaser at no additional charge, from the empanelled list (as per the list issued/updated by the Nodal Agency). Failure to terminate all agreements/contracts with such sub-contractors, shall amount to a breach of the terms hereof.</p> <p>19.9. The Supplier shall be responsible for ensuring that the Subcontractor shall comply with all relevant and applicable provisions of the Contract. In default on the part of the subcontractor to comply with the terms and conditions of the Contract wherever applicable, shall amount to breach on the part of the Supplier, and the Purchaser in addition to all other rights, have the right to claim damages add recover from the Supplier all losses/ or other damages that may have resulted from such failure</p>
<p>20. Specification and Standards</p>	<p>20.1. Technical Specifications and Drawings</p> <p>20.1.1. The Supplier shall ensure that the Goods and Related Services comply with the technical specifications and other provisions of the Contract.</p> <p>20.1.2. The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.</p> <p>20.1.3. The Goods and Related Services supplied under this Contract shall conform to the standards mentioned in Section VI, Scope of Work and, when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the country of origin of the Goods.</p>
	<p>20.2. Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Section VI, Scope of Work. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with GCC Clause 31.</p>
<p>21. Packing and Documents</p>	<p>21.1. The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the final destination of the Goods and the absence of heavy handling facilities at all points in transit. The Purchaser shall not be responsible in any manner for any loss or damage caused to the Goods during Transit.</p>
	<p>21.2. The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and in any other instructions ordered by the Purchaser.</p>



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<p>22. Insurance</p>	<p>22.1. The Goods supplied under the Contract shall be fully insured by the Supplier, in INR, against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery, in accordance with the applicable Incoterms or in the manner specified in the SCC.</p>
<p>23. Transportation</p>	<p>23.1. Obligations for transportation of the Goods shall be borne by the Supplier and shall be in accordance with the Incoterms specified in Sections VI, Schedule of Supply.</p>
<p>24. Inspections and Tests</p>	<p>24.1. The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of to ensure that the Goods and Related Services are complying with the functional parameters, codes and standards specified in the Scope of Work at Section VI, to the satisfaction of the Purchaser.</p>
	<p>24.2. The inspections and tests may be conducted on the premises of the Supplier, at point of delivery, and/or at the final destination of the Goods, or in another place in the Purchaser's country as per the requirement of Section VI. Subject to GCC Sub-Clause 24.3, if conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.</p>
	<p>24.3. The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in GCC Sub-Clause 24.2, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.</p>
	<p>24.4. Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser.</p>
	<p>24.5. The Purchaser may require the Supplier to carry out any test and/or inspection to verify that the characteristics and performance of the Goods or Related Services comply with the technical specifications, codes and standards under the Contract.</p>
	<p>24.6. The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.</p>
	<p>24.7. The Purchaser may reject any Goods / Related Services or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods/ Related Services or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to GCC Sub-Clause 24.4.</p>
	<p>24.8. The Supplier agrees that neither the execution of a test and/or inspection of the Goods / Related Services or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to GCC Sub-Clause 24.6, shall release the Supplier from any warranties or other obligations under the Contract.</p>
<p>25. Liquidated Damages and Penalty</p>	<p>25.1. Except as provided under GCC Clause 30, if the Supplier fails to deliver any or all of the Goods or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to 0.5% of the value of the Goods or Related Services,</p>



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	<p>supplied beyond stipulated delivery schedule for each week or part thereof of delay until actual delivery or performance, subject to a maximum of 10% of value of such goods and services.</p> <p>25.2. In addition, the Supplier is liable to the Purchaser for payment penalty as specified in the SLA.</p> <p>25.3. If the Goods and Related Services supplied do not meet the minimum specifications as per the Contract, and the same is not replaced/modified by the Supplier to meet the requirements within 14 days of being informed by the Utility, the Utility shall be free to impose any penalty as deemed fit. In addition, the Utility shall reserve the right to terminate the contract and recover liquidated damages by forfeiting the performance guarantee submitted by the Purchaser.</p>
26. Warranty	<p>26.1. The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.</p>
	<p>26.2. Subject to GCC Sub-Clause 20.1, the Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.</p>
	<p>26.3. The warranty shall remain valid for the period Specified in the SCC.</p>
	<p>26.4. The Purchaser shall give Notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.</p>
	<p>26.5. Upon receipt of such Notice, the Supplier shall, within the period specified in the SCC, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.</p>
	<p>26.6. If having been notified, the Supplier fails to remedy the defect within the period of warranty specified in the SCC; the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.</p>
27. Liability/ Indemnity	<p>27.1. The Supplier hereby agrees to indemnify the Purchaser, for all conditions and situations mentioned in this clause, in a form and manner acceptable to the Purchaser. The supplier agrees to indemnify the Purchaser and its officers, servants, agents ("Purchaser Indemnified Persons") 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:</p> <p>(a) any negligence or wrongful act or omission by the Supplier or its agents or employees or any third party associated with</p>



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	<p>Supplier in connection with or incidental to this Contract; or</p> <p>(b) any infringement of patent, trademark/copyright or industrial design rights arising from the use of the supplied Goods and Related Services or any part thereof.</p> <p>27.2. The Supplier shall also indemnify the Purchaser against any privilege, claim or assertion made by third party with respect to right or interest in, ownership, mortgage or disposal of any asset, property, movable or immovable as mentioned in any Intellectual Property Rights, licenses and permits</p> <p>27.3. Without limiting the generality of the provisions of this clause 27.1 and 27.2, the Supplier shall fully indemnify, hold harmless and defend the Purchaser Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities and damages which the Purchaser Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any Goods, Related Services, information, design or process supplied or used by the Supplier in performing the Supplier's obligations or in any way incorporated in or related to the Project. If in any such suit, action, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Supplier shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the suspension of the injunction or restraint order. If, in any such suit, action, claim or proceedings, the Goods or Related Services, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined, the Supplier shall promptly make every reasonable effort to secure for the Purchaser a license, at no cost to the Purchaser, authorizing continued use of the infringing work. If the Supplier is unable to secure such license within a reasonable time, the Supplier shall, at its own expense, and without impairing the specifications and standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process, or modify the same so that it becomes non-infringing.</p> <p>Survival on Termination</p> <p>The provisions of this Clause 27 shall survive Termination.</p>
	<p>27.4. Defense of Claims:</p> <p>27.4.1. If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in GCC Sub-Clause 27.1, 27.2, or 27.3 the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.</p> <p>27.4.2. If the Supplier fails to notify the Purchaser within twenty-</p>



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	<p>eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf</p> <p>27.4.3. The Purchaser shall, at the Supplier's request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing</p>
28. Limitation of Liability	<p>28.1. Except in cases of gross negligence or willful misconduct :</p> <p>28.1.1. neither party shall be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser; and</p> <p>28.1.2. the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort, or otherwise, shall not exceed the amount specified in the Contract Price. Provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the Supplier to indemnify the Purchaser with respect to patent infringement.</p>
29. Change in Laws and Regulations	<p>29.1. Unless otherwise specified in the Contract, if after the date of the Invitation for Bids, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in the place of the Purchaser's country where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date, then such Delivery Date shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract.</p>
30. Force Majeure	<p>30.1. The Supplier shall not be liable for forfeiture of its Performance Security, 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.</p>
	<p>30.2. For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to wars or revolutions, earthquake, fires, floods, epidemics, quarantine restrictions, and freight embargoes.</p>
	<p>30.3. If a Force Majeure situation arises, the Supplier shall promptly and no later than seven days from the first occurrence thereof, notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier</p>



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	<p>shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event</p> <p>30.4. The decision of the Purchaser with regard to the occurrence, continuation, period or extent of Force Majeure shall be final and binding on the Supplier.</p>
<p>31. Change Orders and Contract Amendments</p>	<p>31.1. The Purchaser may at any time order the Supplier through Notice in accordance GCC Clause 6, ("Change Order") to make changes within the general scope of the Contract in any one or more of the following:</p> <p>31.1.1. drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;</p> <p>31.1.2. Specifications for hardware, software and Related Services</p> <p>31.1.3. the method of shipment or packing;</p> <p>31.1.4. the place of delivery; and</p> <p>31.1.5. the Related Services to be provided by the Supplier.</p>
	<p>31.2. If any such Change Order causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery and Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's Change Order.</p>
	<p>31.3. No variation or modification of the terms of the contract shall be made except by written amendment signed by the parties.</p>
<p>32. Extensions of Time</p>	<p>32.1. If at any time during performance of the Contract, the Supplier or its Subcontractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to GCC Clause 10, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.</p>
	<p>32.2. Except in case of Force Majeure, as provided under GCC Clause 30 or where the delay in delivery of the Goods or completion of Related Services is caused due to any delay or default of the Purchaser, any extension granted under clause 32.1 shall not absolve the Supplier from its liability to the pay of liquidated</p>



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	damages pursuant to GCC Clause 25.
33. Termination	<p>33.1. Termination for Default</p> <p>33.1.1. The Purchaser may, without prejudice to any other remedy for breach of Contract, by Notice of default sent to the Supplier, terminate the Contract in whole or in part:</p> <ul style="list-style-type: none"> (i) if the Supplier fails to deliver any or all of the Goods or Related Services within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 32; or (ii) if the Supplier, in the judgment of the Purchaser has engaged in corrupt, fraudulent, collusive, or coercive practices, as defined in GCC Clause 2, in competing for or in executing the Contract; or (iii) Any representation made by the bidder in the proposal is found to be false or misleading (iv) if the Supplier commits any breach of the Contract and fails to remedy or rectify the same within the period of two weeks (or such longer period as the Purchaser in its absolute discretion decide) provided in a notice in this behalf from the Purchaser. (v) as specified in the SLA <p>33.1.2. In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 33.1.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.</p>
	<p>33.2. Termination for Insolvency</p> <p>The Purchaser may at any time terminate the Contract by giving Notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser.</p>
	<p>33.3. Termination for Convenience</p> <p>33.3.1. The Purchaser, by Notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The Notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the</p>



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	<p>Contract is terminated, and the date upon which such termination becomes effective.</p> <p>33.3.2. The Goods that are complete and ready for shipment within twenty-eight (28) days after the Supplier's receipt of the Notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:</p> <p>(i) To have any portion completed and delivered at the Contract terms and prices; and/or</p> <p>(ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.</p> <p>33.4. Consequences of Termination</p> <p>Upon Termination of the Contract, the Supplier shall:</p> <p>(i) Prepare and present a detailed exit plan within five calendar days of termination notice receipt to the CIO of Tamil Nadu Electricity Board ("Exit Plan").</p> <p>(ii) The CIO and along with designated team will review the Exit plan. If approved, Supplier shall start working on the same immediately. If the plan is rejected, Supplier shall prepare alternate plan within two calendar days. If the second plan is also rejected, CIO or the authorised person will provide a plan for Supplier and it should be adhered by in totality.</p> <p>(iii) The Exit Plan should cover at least the following :-</p> <p>a. Execute all documents that may be necessary to effectively transfer the ownership and title, including OEM warranties in respect of all equipment;</p> <p>b. Handover all developed codes, related documentation and other Configurable Items, if any in his possession;</p> <p>c. Handover the list of all IT Assets, passwords at all locations to the Purchaser.</p> <p>(iv) The supplier and CIO (or the authorised person) will sign a completion certificate at the end of successful completion (all points tracked to closure) of the Exit Plan.</p>
34. Assignment	34.1. The Supplier shall not assign, in whole or in part, their obligations under this Contract.
35. Disclaimer	35.1. Purchaser reserves the right to share, with any consultant of its choosing, any resultant Proposals in order to secure expert opinion. 35.2. Purchaser reserves the right to accept any proposal deemed to be



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	in the best interest of the Tamil Nadu Electricity Board.
36. Public Disclosure	<p>36.1. All materials provided to the Purchaser by bidder are subject to Country and Tamil Nadu public disclosure laws such as RTI etc.</p> <p>36.2. The Supplier's Team shall not make or permit to be made a public announcement or media release about any aspect of this Contract unless the Purchaser first gives the Supplier its written consent.</p>
37. SLA Audit	<p>37.1. A designated team / person from Tamil Nadu Electricity Board will review the performance of Supplier against the SLA each month. The review / audit report will form basis of any action relating to imposing penalty on or breach of contract of the Supplier.</p>
38. Adherence to safety procedures, rules regulations and restriction	<p>38.1. Supplier shall comply with the provision of all laws including labour laws, rules, regulations and notifications issued there under from time to time. All safety and labour laws enforced by statutory agencies and by Purchaser shall be applicable in the performance of this Contract and Supplier's Team shall abide by these laws.</p> <p>38.2. Access to the Datacenter Sites and Purchaser's locations shall be strictly restricted. No access to any person except the essential personnel belonging to the Supplier who are genuinely required for execution of work or for carrying out management/maintenance who have been explicitly authorised by the Purchaser shall be allowed entry to the Datacenter Sites and some Purchaser's locations. Even if allowed, access shall be restricted to the pertaining equipment of the Purchaser only. The Supplier shall maintain a log of all activities carried out by each of its personnel.</p> <p>38.3. The Supplier shall take all measures necessary or proper to protect the personnel, work and facilities and shall observe all reasonable safety rules and instructions. Supplier's Team shall adhere to all security requirement/regulations of the Purchaser during the execution of the work. Purchaser's employee also shall comply with safety procedures/policy.</p> <p>38.4. The Supplier shall report as soon as possible any evidence, which may indicate or is likely to lead to an abnormal or dangerous situation and shall take all necessary emergency control steps to avoid such abnormal situations.</p> <p>38.5. The Purchaser will be indemnified for all the situations mentioned in this clause in the similar way as defined in GCC clause 28.</p>
39. Non-Solicitation of Staff	<p>39.1. For the purpose of this contract, both parties to this contract agree, not to solicit either directly or indirectly with a view to provide or offer employment to, offer to contract with or entice a staff member of the other party to leave without the consent of the other during he term of this agreement and for an additional period of 180 days after termination</p>



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40. Survival	40.1. The clauses of this contract, which by nature are intended to survive termination of this contract, shall remain in effect after such termination
41. Deviation in Quantity	41.1. The evaluation will be made on the overall cost of the items and quantities mentioned in the RFP. However, while placing the order, or during the execution, the utility reserves the right to modify the quantities of individual items to the extent of +/- 20% of quantity mentioned in the BoQ subject to within a range of 10% of the value of the overall project cost.



Annexure 3: Special Conditions of Contract

**ANNEXURE 3: SPECIAL CONDITIONS OF CONTRACT**

The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.	
GCC 1.1(j)	The Purchaser's country is: The Union Of India
GCC 1.1(k)	The Purchaser is: Tamil Nadu Electricity Board, India
GCC 1.1 (q)	The web-site is: <u>www.tneb.in</u> . The details regarding the RFP process shall be available on the same. The eligible bidders should visit the website from time to time and get the status updates. All details uploaded on the website from time to time shall be deemed to have been provided to all the bidders.
GCC 3.2	The version of Incoterms shall be: Incoterms 2000
GCC 4.1	The language shall be: English
GCC 6.1	For notices, the Purchaser's contact details shall be: <u>Chief Engineer / R-APDRP</u> <u>6th Floor, Eastern Wing</u> <u>TNEB, Corporate Office,</u> <u>144, Anna Salai, NPKRR Maligai,</u> <u>Chennai - 600 002</u> <u>Fax: 044 28521322</u> <u>Email: cerapdrp@tnebnet.org</u>
GCC 7.1	The governing law shall be: Laws applicable in exclusive jurisdiction of The High Court Of Judicature at <u>Chennai</u> , India and all courts subordinate to it's exclusive Jurisdiction.
GCC 8.2	The formal mechanism for the resolution of disputes shall be: If the parties fail to resolve such a dispute or difference by mutual consultation within twenty-eight (28) days from the commencement of such dispute and difference, either party may require that the dispute be referred for resolution to the formal mechanisms, described below (The date of commencement of the dispute shall be taken from the date when this clause reference is quoted by either party in a formal communication clearly mentioning existence of dispute or as mutually agreed) : <ol style="list-style-type: none">The mechanism for resolution of disputes for bidders shall be in accordance with the Indian Arbitration and Conciliation Act of 1996. The Arbitral Tribunal shall consist of 3 (Three) Arbitrators. Each Party shall nominate an Arbitrator and the two nominated Arbitrators shall mutually agree and nominate a third Presiding Arbitrator.The Arbitrators shall necessarily be retired High Court Judges and the umpire shall be a retired Chief Justice.The place for arbitration shall be Chennai
GCC 10.1	Details of shipping and documents to be furnished by the Supplier shall be: FOR GOODS SUPPLIED FROM ABROAD AS PER INCOTERMS CIF : Upon shipment, the Supplier shall notify the Purchaser and the Insurance Company by



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	<p>telex or fax the full details of the shipment (Consignment through air is also possible), including Contract number, description of Goods, quantity, the vessel, the bill of lading number and date, port of loading, date of shipment, port of discharge, etc. The Supplier shall send the following documents to the Purchaser, with a copy to the Insurance Company.</p> <ul style="list-style-type: none">(a) Copy of the Supplier's invoice showing the description of the Goods, quantity, unit CIF price and total amount;(b) Copy of on-board bill of lading marked "freight prepaid".(c) Copy of the packing list identifying contents of each lot.(d) Insurance certificate;(e) Copy of test certificate approval and dispatch instructions issued by the purchaser (combined or separately).(f) Certificate of Origin.(g) Manufacturer's or supplier's Warranty Certificate <p>The Purchaser shall receive the above documents at least two weeks before arrival of the Goods at the port or place of arrival and, if not received, the Supplier will be responsible for any consequent expenses.</p> <p>For goods from within the Purchaser's country as per INCOTERMS EXW basis including freight and insurance charges:</p> <p>Upon delivery of the Goods to the transporter, the Supplier shall notify the Purchaser and send the following documents to the Purchaser;</p> <ul style="list-style-type: none">a) Copy of the Supplier's invoice showing the description of the Goods, quantity, unit Ex-works price and total amount;b) Copy of Motor Transport Receipt (MTR) of a transport contractor approved by Indian Bankers Association or material receipt certificate from consignee.c) Copy of test certificate approval and dispatch instructions issued by the purchaser combined or separately.d) Copy of packing list identifying contents of each lot.e) Insurance certificate;f) Certificate of Origin.g) Manufacturer's or supplier's Warranty Certificate <p>The Purchaser shall receive the above documents before the arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.</p>
GCC 13.2	<p>The price adjustment shall be:</p> <p>The bidders may please note that the prices are upward/downward Adjustable. Purchaser reserves the right to review and negotiate the charges payable at any time to incorporate downward revisions as applicable and necessary, including due to lowering of any applicable taxes, duties and any other statutory levies.</p> <p>Prices shall not be subject to any upward/downward revision on any account whatsoever throughout the period of contract. Provided that any revision in taxes, statutory levies, duties which is not occasioned due to any change in place, method and time of supply or non-performance / non-fulfillment of any condition of any exemption considered by the vendor at the time of proposal, shall be considered for price adjustments.</p> <p>The utility reserves the right to increase or decrease the number of towns under the</p>



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	<p>contract subject to the limit of 30% of the number of towns covered under the contract. It is clarified that this increase or decrease of 30% shall not entitle either party to claim revision of the unit price of the goods supplied.</p> <p>In case of services where lump-sum prices are quoted, the increase or decrease of 30% of the number of towns shall be subject to mutual negotiations.</p>
GCC 14.1	<p><u>General terms and conditions of Payment Schedule</u></p> <ol style="list-style-type: none">1) All payments shall be made by the Purchaser in favour of the Supplier (System Integrator)2) The release of payments will be Performance (output) based, where the payments are made for measured deliverables and outputs. The SLAs will govern the penalty and reductions from payments for inferior deliverables.3) Payments made under the Contract shall be intimated to MOP/PFC in accordance with the terms and conditions of the financing agreement between the Purchaser and the MoP, and will be subject in all respects to the terms and conditions of that financing/Loan Agreement4) System Integrator should obtain completion certificate for each project area from the utility and raise an invoice against the same.5) Payments against invoice submitted (accompanied with all requisite documents) shall be released within 45 days of submission of invoice.6) System Integrator needs to ensure completion of all works for a project area (town) before submitting the invoice. This includes supply of required hardware, software, customization, installation and commissioning. In addition others activities like field survey, integration of identified legacy systems etc. shall also be completed. Payments shall be made town wise and approved only after the entire scope of work for a town is completed. In case even part of the work is pending (applications or hardware or networking etc.) payment for that town shall not be made.7) Cost of setting up the data centre (including all hardware and implementation cost) should be mentioned separately.8) In case go-live of any project area/data centre is delayed, the entire cost and/or time over-run shall be the responsibility of the Supplier and shall be borne by him only.9) Power to withhold: Notwithstanding anything contained in the payment schedule mentioned below, if in the opinion of the Purchaser, any work done or supply made or service rendered by Supplier is deficient in any manner in comparison to the prescribed standards, Purchaser shall be at liberty to withhold a reasonable portion of the payments due to the Supplier, till such work/ supply/ service is made confirming to the prescribed standards. These powers to withhold payments shall be without prejudice to any other power/ right of the purchaser under this contract.10) All payments for Facilities Management Services (FMS) shall only be made after submission of the Audit reports (in original) which shall be submitted by the Supplier along with the invoices and acceptance of the same by the Purchaser. <p><u>Payment Schedule</u></p>



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Phase	Activity	Payment Schedule	Milestones
Advance Payment		10 % of Project Cost (excluding FMS, Bandwidth charges and Sales & Service taxes)	On Issuance of Letter of Award by Utility & team mobilisation by Vendor
Data Centre (DC)	Data Centre Design	5% of cost quoted for Data centre	On submission & approval of High Level Design, Low Level Design
	Installation, Commissioning & Configuration of Hardware, Networks & Operating System	25% of cost quoted for Data centre	On System testing by Vendor & management confirmation that material is received & commissioned as per the Work order
	Installation, Configuration & Customisation of Application Software	20% of cost quoted for Data centre	On System testing by Vendor & management confirmation that software is installed & running as per the Work order
	User Acceptance testing	30% of cost quoted for Data centre 15% of Project management cost	On Management approval of User Acceptance testing, established through operational connectivity of project areas of all utilities of state, Disaster Recovery centre, central customer care centre, etc. with the data centre
Disaster Recovery Centre (DRC)	Disaster Recovery Centre Design	5% of cost quoted for Disaster Recovery centre	On submission & approval of High Level



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				Design, Low Level Design
		Installation, Commissioning & Configuration of Hardware, Networks & Operating System	25% of cost quoted for Disaster Recovery centre	On System testing by Vendor & management confirmation that material is received & commissioned as per the Work order
		Installation, Configuration & Customisation of Application Software	20% of cost quoted for Disaster Recovery centre	On System testing by Vendor & management confirmation that software is installed & running as per the Work order
		User Acceptance testing	30% of cost quoted for Disaster Recovery centre 5% of Project management cost	On Management approval of User Acceptance testing, established through operational connectivity of data centre with the Disaster Recovery centre
	Customer Care Centre (CC)	Customer Care Centre Design	5% of cost quoted for Customer Care centre	On submission & approval of High Level Design, Low Level Design
		Installation, Commissioning & Configuration of Hardware, Networks & Operating System	25% of cost quoted for Customer Care centre	On System testing by Vendor & management confirmation that material is received & commissioned as per the Work order



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		Installation, Configuration & Customisation of Application Software	20% of cost quoted for Customer Care centre	On System testing by Vendor & management confirmation that software is installed & running as per the Work order
		User Acceptance testing	30% of cost quoted for Customer care centre 10% of Project management cost	On Management approval of User Acceptance testing, established through operational connectivity of project areas with the central customer care centre, etc.
	Sub-Division Office	Infrastructure Design	5% of cost quoted for SDO	On submission & approval of High Level Design, Low Level Design
		DGPS Survey Results	80% of DGPS Cost (divided by number of project areas covered)	On Submission of DGPS Survey results & approval (project area wise)
		Installation, Commissioning & Configuration of Hardware, Networks & Operating System	25% of cost quoted for SDO	On System testing by Vendor & management confirmation that material is received & commissioned as per the Work order
		Installation, Configuration & Customisation of Application Software	15% of cost quoted for SDO	On System testing by Vendor & management confirmation that software is installed & running as per the Work order



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		Integration with legacy applications & Data Centre network	5% of cost quoted for SDO 5% of Project management cost	On Management approval that the systems are integrated with Data Centre & legacy apps
		User Acceptance testing	30 % of cost quoted for SDO 5% of Project management cost	On Management approval of User Acceptance testing
		User Training	5% of Project management cost	On User Training as confirmed by Management
	Other offices	Infrastructure Design	5% of cost quoted for individual offices	On submission & approval of High Level Design, Low Level Design
		Installation, Commissioning & Configuration of Hardware, Networks & Operating System	25% of cost quoted for individual offices	On System testing by Vendor & management confirmation that material is received & commissioned as per the Work order
		Installation, Configuration & Customisation of Application Software	15% of cost quoted for individual offices	On System testing by Vendor & management confirmation that software is installed & running as per the Work order
		Integration with legacy applications & Data Centre	5% of cost quoted for SDO	On Management approval that the systems are integrated with Data Centre &



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		network	5% of Project management cost	legacy apps
		User Acceptance testing	30% of cost quoted for individual offices 20% of Project management cost (divided by number of offices covered)	On Management approval of User Acceptance testing
		User Training	10 % of Project management cost (divided by number of offices covered)	On User Training as confirmed by Management
	After Completion		10 % of Project Cost (excluding FMS)	After 3 months of Go-Live date, based on management confirmation that system is meeting the performance requirements as specified in Work order
	<p><u>End of Contract:</u> Payment of the balance 10% of the contract value (except the FMS cost) will be made after three months of successful running of the system. The payment may be released earlier provided the supplier submits the Bank Guarantee (BG) for an amount equivalent to 20% of contract value. This BG shall remain in force up to and including 6 months after warranty period.</p> <p><u>Facilities Management Services:</u> Cost for support and maintenance will be payable quarterly during the 5 years support and maintenance period from the date of "Enterprise wide rollout - go live date". Quarterly installments will be 1/20th of the total IT support and maintenance cost. Payments will be subject to the Audit reports for that quarter. The payment will be with reference to the cost mentioned in Appendix D.3.</p>			
GCC 14.5	The currencies for payments shall be in Indian Rupees (INR).			
GCC 16.1	The Supplier shall provide Performance Security of ten (10) percent of the total Contract Price. The currency and amount of Performance Security shall be specified at the time of awarding the contract to successful bidder.			
GCC 16.3	The Performance Security shall be in the form of Bank Guarantee issued by a Scheduled Bank as notified by Reserve Bank of India.			
GCC 21.2	The packing, marking and documentation within and outside the packages if applicable shall be: As specified (if any) in Technical Specification			



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GCC 22.1	The insurance coverage: Goods supplied under the contract shall be also fully insured on all risk basis during inland transit up to destination store in the purchaser's country. The supplier must insure the Goods in an amount equal to 110% of CIF/EXW price of Goods.
GCC 26.3	The period of validity of the warranty shall be 36 (Thirty Six) months from the date of commissioning or 42 (forty two) months from date of delivery at Purchaser's stores whichever is earlier.
GCC 26.5	In case any damage or defect is found during verification after receipt of material at Purchaser's stores or material develops defects within warranty period, the supplier shall attend/replace such defects free of all charges within 30 days of being notified by the Purchaser, of the occurrence of such defects. In case the defect is not attended or replacement of material is not received within specified period, then apart from encashing the performance security deposit, the Purchaser may also take suitable penal action including debarring from all future business.



Annexure 4: Contract Forms



ANNEXURE 4: CONTRACT FORMS

A. Agreement

THIS AGREEMENT is made on this _____ (eg. 3rd) day of _____ (eg. February), _____ (eg. 2009), between _____ of _____ (hereinafter called "the Purchaser") which expression shall unless repugnant to the context thereof include his successors, heirs, assigns, of the one part, and _____ of _____ (hereinafter called "the Supplier") which expression shall unless repugnant to the context thereof include his successors, heirs, assigns, of the other part.

WHEREAS the Purchaser had invited bids for certain Goods and Related Services, viz., _____ (eg. Name of bid) vide their bid document number _____, dated _____

AND WHEREAS various applications were received pursuant to the said bid

AND WHEREAS the Purchaser has accepted a Bid by the Supplier for the supply of those Goods and Related Services in the sum of _____ (hereinafter "the Contract Price").

And in pursuance of having accepted the said bid the parties have agreed to enter into this agreement.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract referred to.
2. The following documents (collectively referred to as "Contract Documents") shall be deemed to form and be read and construed as part of this Agreement, viz.:
 - a) The Detailed award of contract;
 - b) The Service level agreement;
 - c) Instructions to Bidders
 - d) The Special Conditions of Contract;
 - e) The General Conditions of Contract;
 - f) The SRS document
 - g) Corrigenda dated 31.10.2009;
 - h) Corrigenda dated 30.12.2009;
 - i) Corrigenda dated 4.01.2010;
 - j) The Scope of Work;
 - k) The Technical Specifications
 - l) The Purchaser's Notification to the Supplier for Award of Contract;
 - m) Vendor's response (proposal) to the RFP, including the Bid Submission Sheet and the Price Schedules submitted by the Supplier;
 - n) Appendix A to B & E to O;
 - o) Acceptance of purchaser's notification

In the event of any discrepancy or inconsistency within the Contract documents, then the documents shall prevail in the order listed above.



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3. In consideration of the payments to be made by the Purchaser to the Supplier as indicated in this Agreement, the Supplier hereby covenants with the Purchaser to provide the Goods and Related Services and to remedy the defects therein and bring them in conformity in all respects with the provisions of the Contract.

4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Related Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of _____ on the day, month and year indicated above.

Signed by _____ (Authorised Utility official)

Signed by _____ (for the Supplier)

Witness-1

Witness-2



B. Performance Security

(To be accompanied with the Bank Guarantee)

Date: _____

Contract Name and No. : _____

To: _____

WHEREAS _____ (hereinafter called "the Supplier") which expression shall unless repugnant to the context thereof include his successors, heirs, assigns has undertaken, pursuant to Contract No. _____ dated _____, _____ to supply _____ (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the aforementioned Contract that the Supplier shall furnish you with a security _____ issued by a reputable guarantor for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract.

AND WHEREAS the undersigned _____, legally domiciled in _____, (hereinafter "the Guarantor") which expression shall unless repugnant to the context thereof include his successors, heirs, assigns have agreed to give the Supplier a security:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of _____ and we undertake to pay you without protest and demur, upon your first written demand declaring the Supplier to be in default under the Contract, without cavil or argument, any sum or sums within the limits of _____ as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This security is valid until _____ hours of the _____ day of _____, _____.

Name _____

In the capacity of _____

Signed _____

Duly authorized to sign the security for and on behalf of _____

Date _____



C. Service Level Agreement (SLA)

C.1 Purpose of this Agreement

The purpose of this SLA is to clearly define the levels of service to be provided by Supplier to Purchaser for the duration of this contract or until this SLA has been amended. The benefits of this SLA are to:

- 1 Trigger a process that applies Purchaser and Supplier management attention to some aspect of performance only when that aspect drops below an agreed upon threshold, or target.
- 2 Makes explicit the performance related expectations on performance required by the Purchaser
- 3 Assist the Purchaser to control levels and performance of services provided by Supplier
- 4 This SLA is between Supplier and Purchaser.

C.2 Description of Services Provided

Supplier shall provide service as defined in Section VI - Scope of Work, in accordance to the definitions and conditions as defined in the Section VII - GCC and Section VIII - SCC.

C.3 Duration of SLA

This Service level agreement would be valid for entire period of contract. This SLA may be reviewed and revised according to the procedures detailed in Section C.10 of SLA (SLA Change Control).

C.4 Service Level Agreements & Targets

This section is agreed to by Purchaser and Supplier as the key supplier performance indicator for this engagement. The following section reflects the measurements to be used to track and report systems performance on a regular basis. The targets shown in the following tables are for the period of contact or its revision whichever is later.

Table 1: Service Level Chart

Mapping with Section G5 of SRS Document	Service	Parameter	Service Level	Validation	Penalty
5.1	Project Management	Submission of Monthly Project Status reports & Conducting Status meetings	100%	<ul style="list-style-type: none"> • Minutes of Meetings • Approval of Status reports by Engineer- 	2% of monthly FMS charges for every default



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Mapping with Section G5 of SRS Document	Service	Parameter	Service Level	Validation	Penalty
				in-Charge	
5.2	Helpdesk	Resolution of ticket logged as per the Severity definition chart	99%	Reports generated from Ticket logging system	95%-99% calls resolved in specified time: 2% penalty on the monthly FMS charges 90% - 95% calls resolved in specified time: 5% penalty on the monthly FMS charges
5.3	Install, Moves, Add, Changes (IMAC) Services	Should be part of Monthly project status report	95%	Report	0.2% of monthly FMS charges
5.4	Asset / Inventory Management	Provide monthly MIS Asset Inventory	95%	Report	0.2% of monthly FMS charges
		Provide monthly MIS on new requirements with procurement time	95%	Report	0.2% of monthly FMS charges
		Conduct Annual Physical Asset verification	100%	Management approval of Physical Asset Verification report	0.5% of Yearly FMS charges
5.5	Supplier Management Services	Evaluation of Supplier Performance on quarterly basis	100%	Management approval of Supplier Performance evaluation report	0.5% of Quarterly FMS charges
		Tracking of Supplier SLA & tickets logged with suppliers	95%	Status of tickets logged with Suppliers	0.5% of monthly FMS charges
		MIS reporting on AMC tenure, License fees	95%	Report	0.2% of monthly FMS charges
5.6	Desk Side Technical support Services	Resolution of ticket logged as per the Severity definition chart	95%	Reports generated from Ticket logging system	1% of monthly FMS charges
5.7	Antivirus Management	Rollout of latest anti-virus	98%	Reports generated	1% of monthly FMS charges



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Mapping with Section G5 of SRS Document	Service	Parameter	Service Level	Validation	Penalty
		definition file on workstations and Servers on being made available on Supplier's website		from Anti Virus software console	
5.8	LAN & local server administration	Resolution of ticket logged	99%	Reports generated from Ticket logging system	Covered under 5.1
5.9	Network Monitoring & Management	SI to monitor the availability of the network link for 99% uptime. SI should measure link availability on a monthly basis.	99%	Downtime reports Reports on the Network performance	Penalty of 2% per month will be deducted from the monthly FMS charges of that utility, if the reports are not submitted by the SI. Important: A separate SLA will be signed with bandwidth provider.
		Resolution of ticket logged related to Networks	99%	Reports generated from Ticket logging system	Covered under 5.1
		Data Centre Network Availability Minimum of 99.8% uptime measured on a monthly basis	99.8%	Report	<ul style="list-style-type: none"> • 2% of monthly FMS charges for less than 99.8% • 3% of monthly FMS charges for less than 98.0% • 5 % of monthly FMS charges for less than 95% •
		Regional Offices Network Availability	98%	Report	<ul style="list-style-type: none"> • 2% of monthly FMS charges for less than



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Mapping with Section G5 of SRS Document	Service	Parameter	Service Level	Validation	Penalty
		Minimum of 98% uptime measured on a monthly basis			98% <ul style="list-style-type: none"> • 3% of monthly FMS charges for less than 97% • 5% of monthly FMS charges for less than 95%
		Divisional & Other Offices Network Availability Minimum of 97% uptime measured on a monthly basis	97%	Report	<ul style="list-style-type: none"> • 2% of monthly FMS charges for less than 97% • 3% of monthly FMS charges for less than 95%
5.10	Data Centre Operations	MIS reporting on physical and environmental conditions controls	95%	Report	0.2% of monthly FMS charges
		MIS reporting of health checkup of all systems & modules installed	95%	Report	0.2% of monthly FMS charges
5.11	Server Administration / Management	Rollout of patches (OS, infra level) on workstations and Servers after patch being approved on test environment	98%	Patch update report	0.5% of monthly FMS charges
		Uptime of app servers	99.8%	Report	<ul style="list-style-type: none"> • 2% of monthly FMS charges for less than 99.8% • 3% of monthly FMS charges for less than



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Mapping with Section G5 of SRS Document	Service	Parameter	Service Level	Validation	Penalty
					98% <ul style="list-style-type: none"> 5 % of monthly FMS charges for less than 95%
		Uptime of utility servers except email	99.8%	Report	<ul style="list-style-type: none"> 2% of monthly FMS charges for less than 99.8% 3% of monthly FMS charges for less than 98% 5 % of monthly FMS charges for less than 95%
5.12	Database Administration services	MIS report of database scheme, disk space, storage and user role	99%	Report	0.5% of monthly FMS charges
5.13	Backup/Restore Management	The Supplier should take backup as per the backup schedule defined by utility	99%	Report	If the negligence is found in monthly audit, the Bidder would be penalised a sum of Rs. 5,000/- per negligence.
		Utility would periodically (once a quarter on a random day) request the Supplier to restore the backup data	100%	Report	Rs 5000/- for every restore test failure
5.14	Mail Messaging System /	Uptime of email server	99%	Report	<ul style="list-style-type: none"> 2% of monthly FMS charges for less than



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Mapping with Section G5 of SRS Document	Service	Parameter	Service Level	Validation	Penalty
					99% <ul style="list-style-type: none"> • 3% of monthly FMS charges for less than 98% • 5% of monthly FMS charges for less than 95%
		Provide monthly MIS of user account and mailboxes created/deleted.	95%	Report	0.2% of monthly FMS charges
5.15	Management of utility's EMS	Daily MIS of server and device health checkup (CPU, disk space, memory utilization, I/O utilization, Central Storage etc.)	100%	Reports generated from EMS system	0.5% of monthly FMS charges
6.1	Incident management	Resolution of ticket logged in Incident Management tool	99%	Reports generated from Ticket logging system	0.5% of monthly FMS charges
6.2	Ticketing Management	Same as 6.1			
6.3	Problem Management	Supplier shall analyze all the incidents and provide a root cause report every month if there are more than 10 incidents of the same type. Supplier shall take the needed corrective action to prevent further issues due to the same cause.	100% timely submission covering all incidents logged in that month	<ul style="list-style-type: none"> • Root cause report • Incident report stating problems faced by the users • Document detailing corrective action 	<ul style="list-style-type: none"> • 5% penalty on the monthly FMS charges of that Project Area, if the Supplier does not submit a problem report for that month. • 5% penalty on the monthly FMS charges of that Project Area, if the Supplier



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Mapping with Section G5 of SRS Document	Service	Parameter	Service Level	Validation	Penalty
					does not perform the corrective action for more than one calendar month.
6.4	Change Management	Resolution of Change Management ticket logged in Change Management tool	99%	Reports generated from Change Management System	Covered under 5.1
6.5	Release Management	Same as 6.1			
6.6	Email Listner	Same as 5.14			
6.7	Availability Management	Should be part of Monthly status report	95%	Report	0.2% of monthly FMS charges
6.8	Performance Management	Should be part of Monthly status report	95%	Report	0.2% of monthly FMS charges
6.9	Capacity management	Should be part of Monthly status report	95%	Report	0.2% of monthly FMS charges
6.10	Security Management	Should be part of Monthly status report	95%	Report	0.2% of monthly FMS charges
7	Resource Management	Number of shift days for which resource present at the designated location / Total number of shift days	98% averaged over all resources designated for SI services - calculated on a monthly basis	<ul style="list-style-type: none"> Attendance track Call Log Audit calls/ visits Measured on a monthly basis	If the resource availability is less than 95%, then payment shall be deducted based on the pro-rata basis. (Total FMS cost per day divided by nos. of persons deployed)
					Further



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Mapping with Section G5 of SRS Document	Service	Parameter	Service Level	Validation	Penalty
					deduction Rs.2,000/- per day per engineer/shall also be made on account of loss of utility/service
		Resource provided is not as per specified certification / experiences	100% of the resource given	Experience Certificate of FMS personnel submitted by Supplier to Utility	Per day deduction = 0.5 * (Monthly value for that manpower as per SOR) / 30

Uptime Calculation for the month:

$$\{[(\text{Actual Uptime} + \text{Scheduled Downtime}) / \text{Total No. of Hours in a Month}] \times 100\}$$

"Actual Uptime" means, of the Total Hours, the aggregate number of hours in any month during which each equipment, is actually available for use.

"Scheduled Downtime" means the aggregate number of hours in any month during which each equipment, is down during total Hours, due to preventive maintenance, scheduled maintenance, infrastructure problems or any other situation which is not attributable to Supplier's (or Service provider's) failure to exercise due care in performing Supplier's responsibilities.

The Purchaser would provide a maximum of 04 hours of planned downtime for the preventive maintenance (as part of scheduled downtime) per month per equipment/service.

The downtime for scheduled maintenance (patch application, upgrades - OS, Database, etc.) would need to be mutually agreed between Utility and the Bidder. To reduce this time, various maintenance activities can be clubbed together with proper planning.

"Total Hours" means the total hours over the measurement period i.e. one month (24 * number of days in the month).



Downtime Calculation:

The recording of downtime shall commence at the time of registering the call with Supplier or Service Provider for any downtime situation for the equipment.

Downtime shall end when the problem is rectified and the application/ service is available to the user.

Down time will not be considered for following:

1. Pre-scheduled preventive maintenance and health checks (Scheduled Downtime).
2. Failover time (30 minutes) in case of cluster environment. Beyond which the service would be considered to be not available and appropriate penalty shall be imposed on the Supplier.
3. Bug in any application which causes the non-availability of the service.

If the utility elects to continue the operation of the machine / equipment, when a part of the machine is giving problem and leading to downtime, the commencement of downtime shall be deferred until the utility releases the machine / equipment to the Bidder for remedial action.

Severity definition chart is tabulated below for reference.

Table 2: Severity Definition Chart

Support Category	Criteria	Resolution	Maximum Response Time
Critical	The system is unable to be used for normal business activities. There is certainty of financial loss to PURCHASER.	90 Minutes	15 Minutes
Urgent	There is a problem with part of the system, which impacts on Purchaser's decision making. No viable workaround is available. There is a likelihood of financial loss.	4 Hours	1 Hour
High	The efficiency of users is being impacted, but has a viable workaround.	6 hours	2 Hours
Medium	A low impact problem that affects the efficiency of users but has a simple workaround.	12 Hours	8 Hours
Low	A fault, which has no particular impact on processing of normal business activities.	One Week	8 Hours



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C.5 Breach of SLA

In case the Supplier does not meet the service levels mentioned in Section C.4 of this Appendix & Section G5 of SRS document, for three (3) continuous time-periods as specified in the relevant clause, the Purchaser will treat it as a case of breach of Service Level Agreement. The following steps will be taken in such a case:-

1. Purchaser issues a show cause notice to the Supplier.
2. Supplier should reply to the notice within three working days.
3. If the Purchaser authorities are not satisfied with the reply, the Purchaser will initiate termination process as described in clause 33 of Section VII, GCC.

C.6 Exclusions

The Supplier will be exempted from any delays or slippages on SLA parameters arising out of following reasons:-

1. Delay in execution due to delay (in approval, review etc) from Purchaser’s side. Any such delays will be notified in written to the IT Team.
2. The network links will be provided by a third party and the Supplier will monitor and report any problems on behalf of third party. If Supplier notifies and Purchaser approves that the delay or fault was due to the third party link services then such loss will not be considered for tracking Supplier’s SLA parameters (Also reduced from total service time).

C.7 Monitoring and Auditing

IT Team of Purchaser will review the performance of Supplier against the SLA parameters each month, or at any periodicity defined in the contract document. The review / audit report will form basis of any action relating to imposing penalty or breach of contract. Any such review / audit can be scheduled or unscheduled. The results will be shared with the Supplier as soon as possible. Purchaser reserves the right to appoint a third-party auditor to validate the SLA.

C.8 Reporting Procedures

The Supplier’s representative will prepare and distribute SLA performance reports in an agreed upon format by the 10th working day of subsequent month of the reporting period. The reports will include “actual versus target” SLA performance, a variance analysis and discussion of appropriate issues or significant events. Performance reports will be distributed to the Purchaser’s IT Team.

C.9 Issue Management Procedures

C.9.1 General

This process provides an appropriate management structure for the orderly consideration and resolution of business and operational issues in the event that quick consensus is not reached



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between Purchaser and Supplier. It is expected that this pre-defined process will only be used on an exception basis if issues are not resolved at lower management levels.

C.9.2 Issue Management Process

- Either Purchaser or Supplier may raise an issue by documenting the business or technical problem, which presents a reasonably objective summary of both points of view and identifies specific points of disagreement with possible solutions.
- Purchaser and the Supplier's representative will determine which committee or executive level should logically be involved in resolution.
- A meeting or conference call will be conducted to resolve the issue in a timely manner. The documented issues will be distributed to the participants at least 24 hours prior to the discussion if the issue is not an emergency requiring immediate attention.
- Management of Purchaser and Supplier will develop a temporary, if needed, and the permanent solution for the problem at hand. The Supplier will then communicate the resolution to all interested parties.
- In the event a significant business issue is still unresolved, the arbitration procedures described in the Contract will be used.

C.10 SLA Change Control

C.10.1 General

It is acknowledged that this SLA may change as Purchaser's business needs evolve over the course of the contract period. As such, this document also defines the following management procedures:

- 1) A process for negotiating changes to the SLA.
- 2) An issue management process for documenting and resolving particularly difficult issues.
- 3) Purchaser and Supplier management escalation process to be used in the event that an issue is not being resolved in a timely manner.

Any changes to the levels of service provided during the term of this agreement will be requested, documented and negotiated in good faith by both parties. Either party can request a change. Changes will be documented as an addendum to this document and consequently the contract.

C.10.2 SLA Change Process

Both the parties may amend this SLA by mutual agreement in accordance. Changes can be proposed by either party. Normally the forum for negotiating SLA changes will be Purchaser's monthly review meetings.

C.10.3 Version Control

All negotiated SLA changes will require changing the version control number. As appropriate, minor changes may be accumulated for periodic release (e.g. every quarter) or for release when a critical threshold of change has occurred.



C.11 Management Escalation Procedures

The purpose of this escalation process is to provide a quick and orderly method of notifying both parties that an issue is not being successfully resolved at the lowest possible management level. Implementing this procedure ensures that purchaser and Supplier management are communicating at the appropriate levels. Escalation should take place on an exception basis and only if successful issue resolution cannot be achieved in a reasonable time frame.

- 1) All issues would be raised to the project management team, which is completely responsible for the day to day aspects of the implementation. The project management team shall classify the issues based on their severity level and resolve them within appropriate timelines.
- 2) If project management team is unable to resolve an issue, the issue would be escalated to the top management with options/ risks detailed for decision. Top management will make decisions based on the options/ risks presented by the IT team.
- 3) In case one or both the parties are unsatisfied with the decision of the top management of the Purchaser, the dispute will be resolved as specified in clause 8 of Section VIII - GCC.

C.12 Signature Page

IN WITNESS WHEREOF, the parties hereto have caused this Service Level Agreement to be executed by their respective authorized representatives as of the date first written above.

Supplier

Purchaser

(On Behalf of all consortium members also)

Signature -----
 Name -----
 Address -----
 Company -----
 Date -----

Signature -----
 Name -----
 Designation -----
 Date -----



D. Advance Bank Guarantee

Ref: _____

Bank Guarantee: _____

Date: _____

Dear Sir,

In consideration of M/s _____ (Hereinafter referred as the `Purchaser`, which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, and assigns), having awarded to M/s. _____ (hereinafter referred to as the `ITIA` which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of Purchaser's

Contract Agreement No. _____ dated _____ and the same having been unequivocally accepted by the ITIA. resulting in a Contract valued at _____ for _____ (Scope of Work)

Contract (hereinafter called the 'Contract') and the Purchaser having agreed to make an advance payment to the ITIA for performance of the above Contract amounting to _____ (in words and figures) as an advance against Bank Guarantee to be furnished by the ITIA.

We _____ (Name of the Bank) having its Head Office at _____ (hereinafter referred to as the Bank), which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators executors and assigns) do hereby guarantee and undertake to pay the Purchaser immediately on demand any or, all monies payable by the ITIA to the extent of _____ as aforesaid at any time upto _____ @ _____ without any demur, reservation, contest, recourse or protest and/or without any reference to the ITIA. Any such demand made by the Purchaser on the Bank shall be conclusive and binding notwithstanding any difference between the Purchaser and the ITIA or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. We agree that the guarantee herein contained shall be irrevocable and shall continue to be enforceable till the Purchaser discharges this guarantee.

The Purchaser shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee, from time to time to vary the advance or the extend the time for performance of the Contract by the ITIA. The Purchaser shall have the fullest liberty without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Purchaser and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any convenience, contained or implied, in the Contract between the Purchaser and the ITIA any other course or remedy or security available to the Purchaser. The Bank shall not be relieved of its obligations under these present by any exercise by the Purchaser of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Purchaser or any other indulgence shown by the Purchaser or by any other matter or thing whatsoever which under law would but for this provision have the effect of relieving the Bank.

The Bank also agrees that the Purchaser at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the ITIA and notwithstanding any security or other guarantee that the Purchaser may have in relation to the Consultant's liabilities.

Notwithstanding anything contained herein above our liability under this guarantee is limited to _____ and it shall remain in force upto and including _____ @ _____ and shall be extend from time to time for such period (not exceeding one year), as may be desired by M/s. _____ on whose behalf this guarantee has been given.



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Date this _____ day of _____ 2010.

at _____

WITNESS:

(Authorized Signatories of the Bank)

1.
(Signature)

.....
(Signature)

.....
(Name)

.....
(Name)

.....
(Official Address)

.....
(Designation with Bank Stamp)

Attorney as per Power of
Attorney No. _____

Dated: _____

Strike out, whichever is not applicable

@ The date will be ninety (90) days after the date of completion of Contract.



Annexure 5: Price Schedule



ANNEXURE 5: PRICE SCHEDULE



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Project townwise cost details with the reasons for the difference in rate against each town				
Sl. No	Project Area	quoted	corrected to arithmetic	Remarks
1	Project Area with Data Centre and Customer Care Centre (Chennai)	1,351,489,165.00	1,359,761,794.70	backup server requirement 1 no. quoted for 7 nos.(page14 of vol Ia)- included GPRS aggregation gatewaycost quoted but not included in the totalling(page no. 22 of vol I a)- included Form 5 in chennai has unit rate in decimals and in other towns it is round off .All the towns corrected with chennai rates.Directory software and spam filter cost included in the messaging solution ,spares for maintaining agreed performance level rate as 0 but quantity as 1.software application and licence in the customer care package quantity quoted but rates not quoted.



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2	Project Area with Disaster Recovery Centre Cost (Madurai)	585,353,407.00	564,268,352.18	GPRS aggregation gateway cost quoted but not included in the totalling (page no. 22 of vol I a) - included IP PBX requirement 1 no. not offered. (form 7 disaster recovery centre) - included testing server not provided (page 53 of vol la) - included Installation and testing taxes not quoted (Page no.46 of vol 1a) (for 7 grand total corrected)
3	Chengalpet	7,628,102.00	7,628,101.78	
4	Mariamalainagar	9,083,482.00	9,083,481.74	
5	Dharapuram	6,979,644.00	6,979,644.38	
6	Palladam	10,123,557.00	10,123,556.72	
7	Coimbatore	48,318,321.00	48,318,320.68	
8	Coonoor	7,616,434.00	7,616,433.66	
9	Gudalur	6,007,047.00	6,560,127.01	town 7 details available in town 32
10	Mettupalayam	7,205,140.00	7,205,140.14	
11	Pollachi	6,727,915.00	6,727,915.29	
12	Tirupur	22,170,800.00	22,170,800.38	
13	Udhagamandalam	10,801,240.00	10,801,239.90	
14	Udumalpet	7,828,436.00	7,828,435.92	
15	Valparai	10,136,854.00	10,152,786.47	HT lines length 92 Km quoted for 2 KM (page 192 of vol la) - corrected
16	Attur	8,432,432.00	8,432,431.73	
17	Bhavani	6,306,736.00	6,306,736.12	
18	Edappady	7,767,563.00	7,767,562.63	
19	Erode	22,372,858.00	22,372,858.10	

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20	Gobichettypalayam	8,076,782.00	8,076,781.62	
21	Mallasamudram	6,285,412.00	6,285,411.77	
22	Mettur	7,799,693.00	8,827,247.77	network connectivity chrges not provided for other offices(page 261 of vol la)-corrected
23	Namakkal	8,489,706.00	8,489,705.97	
24	Periyasemur	5,702,991.00	5,702,991.45	
25	Rasipuram	7,748,386.00	7,034,385.63	bar code reader rate quoted as rs. 180000/- instead of rs.5000/- (page no. 290 of vol l a) - corrected
26	Salem	50,977,021.00	50,977,020.66	
27	Sathyamangalam	7,987,622.00	7,980,066.69	
28	Tiruchengode	10,404,724.00	10,404,724.20	
29	Vellakoil	9,241,681.00	9,241,680.62	
30	Bodinayakanur	6,766,310.00	6,766,310.42	
31	Chinnmanur	6,347,457.00	6,442,051.32	UPS requirement in other offices 3 nos. quoted 2 nos(page no. 68 of vol lb). - corrected
32	Devakottai	5,588,888.00	5,588,887.67	
33	Dindigul	13,158,603.00	13,158,602.62	
34	Gudalooore	6,559,252.00	6,007,046.81	town 32 details given in town 7 town 7 gudalore no. of consumers 10586 quoted for 10525 page no. 104 of vol lb)-corrected
35	Kambam	6,048,873.00	6,048,873.10	
36	Karaikudi	8,087,535.00	8,087,535.24	
37	Keelakarai	5,331,009.00	5,331,009.27	
38	Kodaikanal	6,663,114.00	6,663,161.45	Ht line length 67.058 KM quoted for 56.788 KM(page

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				no.148 of vol IB)- corrected
39	Melur	6,212,169.00	6,212,168.82	
40	Palani	6,680,367.00	6,680,366.70	
41	Paramakudi	6,474,551.00	6,474,551.29	
42	Periyakulam	6,430,960.00	6,430,959.74	
43	Ramanathapuram	7,494,113.00	7,494,112.57	substation available 2 nos. quoted for 3 nos. (page no. 203 of vol IB) - not corrected
44	Rameswaram	4,880,175.00	4,880,175.47	
45	Sivagangai	6,799,190.00	6,799,190.33	
46	Theni	8,767,280.00	8,767,280.43	
47	Thirumangalam	6,688,169.00	6,688,169.20	
48	Usulampattai	5,880,934.00	5,880,933.70	
49	Amabasamudram	6,551,748.00	6,551,748.49	cash/cheque collection kiosk - 2 nos quoted in other offices - not in our achedule(page no. 267 of vol IB) - not corrected
50	Aruppukottai	7,593,127.00	7,593,126.55	
51	Kadayanallur	7,706,528.00	7,706,527.59	
52	Kollencode	6,614,028.00	6,614,027.53	
53	Kovilpatti	8,363,981.00	8,363,981.40	
54	Muthiahpuram	6,625,783.00	6,620,472.41	HT lines length 30 Km quoted for 60 KM (page 37 of vol IC)- corrected
55	Nagercoil	14,271,580.00	14,271,579.53	
56	Puliyangudi	6,165,734.00	6,165,734.33	
57	Rajapalayam	18,383,667.00	18,383,667.39	
58	Sankarankovil	7,656,991.00	7,656,989.55	
59	Sattur	5,672,523.00	5,672,538.65	HT lines length 19.953 KM quoted for 19.863 KM (page no. 87 of vol IC) - corrected
60	Sivagasi	8,551,309.00	8,551,308.86	

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61	Srivilliputhoor	7,711,688.00	7,711,688.32	
62	Tenkasi	7,900,173.00	7,900,172.75	
63	Thoothukkudi	15,046,746.00	15,046,745.68	
64	Tiruchendur	5,817,971.00	5,817,970.68	
65	Tirunelveli	29,716,096.00	29,716,095.66	
66	Vikrampuram	6,128,930.00	6,128,930.00	
67	Virudhunagar	8,282,865.00	8,282,865.40	
68	Aranthangi	7,793,954.00	7,793,953.61	
69	Jayankondam	7,092,011.00	7,092,011.08	
70	Karur	17,841,503.00	17,841,503.45	
71	Kumbakonam	10,619,800.00	10,619,800.04	
72	Manapparai	7,954,702.00	7,954,702.36	
73	Mannarkudi)	7,197,867.00	7,197,866.85	
74	Mayiladuthurai	7,271,386.00	7,271,386.34	
75	Nagapatinam	9,432,342.00	9,432,341.65	
76	Pattukottai	7,016,120.00	7,016,120.27	
77	Perambalur	9,088,463.00	9,088,462.97	
78	Pudukottai	11,576,074.00	11,576,073.80	
79	Sirkali	6,125,584.00	6,125,584.29	
80	Thanjavur	12,961,859.00	12,987,358.82	IP phone requirement 2 nos. quoted 1 no.(page no. 31 of vol ID) - corrected
81	Thuraiyur	5,913,688.00	5,913,687.85	
82	Tiruchirappalli	35,420,537.00	35,420,536.59	
83	Tiruvarur	7,077,834.00	7,077,833.81	
84	Vedharniyam	5,675,965.00	5,675,964.85	
85	Ambur	9,551,513.00	9,551,513.36	
86	Arakkonam	7,464,167.00	7,464,167.02	
87	Arcot	6,906,476.00	6,906,476.44	
88	Dhampuri	10,552,766.00	10,566,229.88	cable requirement 2 set quoted for 1 set (page 112 of vol ID)- corrected
89	Gudiyatham	8,097,781.00	8,097,780.97	
90	Hosur	11,701,403.00	11,701,402.84	



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91	Kanchipuram	12,959,976.00	13,665,020.66	GPRS modem requirement 198 nos. quoted for 95 nos, (page no.142 of vol ID) - corrected.router in other offices requiremnt 4 nos. quoted for 3 nos. (page no. 146 of vol ID) -corrected
92	Krishnagiri	7,973,574.00	7,973,573.83	
93	Melvisharam	5,333,779.00	5,333,778.76	
94	Pernampattu	5,670,064.00	5,670,064.17	
95	Thirupathur	7,464,179.00	7,464,179.03	
96	Thiruvallur	9,661,316.00	9,661,316.01	
97	Tiruttani	9,335,256.00	9,335,256.01	
98	Vaniyambadi	9,717,815.00	9,717,814.90	
99	Vellore	14,784,914.00	14,784,914.13	
100	Arni	7,391,465.00	7,391,464.55	
101	Chidambaram	6,527,772.00	6,527,771.60	
102	Cuddalore	13,919,210.00	13,919,209.57	
103	Kallakurichi	7,452,118.00	7,452,117.97	
104	Nellikuppam	5,701,324.00	5,701,323.80	
105	Panruti	6,935,160.00	6,985,242.29	work station PCs without UPS requirement 2 nos. quoted 1 no. (page no. 287 of vol ID) - corrected
106	Tindivanam	9,421,958.00	9,421,957.77	
107	Tiruvannamalai	11,202,168.00	11,202,168.25	
108	Tiruvettipuram	6,079,222.00	6,079,221.99	
109	Villupuram	12,369,040.00	12,369,039.90	
110	Virudhachalam	8,490,109.00	8,490,109.43	
	Total FMS Charges	94,952,000.00	94,952,000.00	
	Total Cost of ownership(1+2+3+4+5+... +110) = Rs.	3,084,359,778.00	3,072,753,596.58	11,606,181.42



Annexure 6: Work Schedule



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ANNEXURE 6: WORK SCHEDULE

Detailed Work Plan with Timelines:

Refer to next page.



C. GIS Solution Provider

Phase	Tasks	Resources / Teams	Key Indicators			
			Results	Specifications	Relevant Quantities (estimated)	Estimated Duration
Project Initialization	Recruitment and Implementation Design	- Project Manager - Auxiliary personnel	- Team Mobilisation - Detailed Documentation of Implementation Process	- Design Parameters, Resource identification, Process Flow	-	15 Days
Base Map Preparation	Existing Data Collection	- Auxiliary personnel along with Technical Staffs 3 Resources	- Data collection report containing: - Areas of interest covered - Physical Area Maps - Existing Electrical Network assets - Non Spatial Information related to Electrical Assets	Data Collection pertaining to the list of Towns	Data Collection for 110 Towns	2 Months
	Procurement of Satellite Imagery	Project Manager / Lead	Satellite Imagery for the Required Area	High Resolution Imagery - IKONOS / Quickbird	For 110 Towns	2 Months
	Collection of Ground Control Points	Field Survey - 4 Teams GPS / Total Station Instruments	Team Movement Planning Locations of GCP	Accessibility condition, overhead obstruction for suitability of GPS observation is considered	625 Points Approx.	2 Months
	Image Processing	- 2 Image Processing Technicians; - 3 workstations	Mosaic of Seamless Images	Geo-Rectified Images	137 Scenes Approx.	2 Months



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Phase	Tasks	Resources / Teams	Key Indicators			
			Results	Specifications	Relevant Quantities (estimated)	Estimated Duration
		ns - Eradas Imagine Software				
	Heads on Interpretation	- 5 Interpretation Experts + 3 GIS Experts + 1 Team Lead	Seamless Base Map in Geodatabase	As per the Layer list specification	4348.20 Sq.km	5 Months
Asset Mapping	Data Model Design	2 GIS-DB Experts	Database Design of All Asset Features	As per the G4 7.1.1 in SRS Doc		15 Days
	DGPS Survey - Base Line Network	Field Survey - 5 Teams and 1 Team Lead	Positionally Corrected Baseline Network	All the electrical features for the extent of 4,348.20 Sq.Km		14 Months
	Landmarks Survey		Surveyed Landmark Locations	As per the G4 7.1.1 in SRS Doc		14 Months
	Attribute Data collection		Non Spatial Information	As per the Field collection Form		14 Months
	Linking Spatial & Non Spatial, GIS Database Organisation (QA/QC, Topology, Migration)	2 GIS Experts	Seamless Digital Network			10 Months
Consumer Indexing	Indexing Philosophy	2 - Sr. Survey Engineers	Proper Indexing for Field Collection Data			15 Days



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Phase	Tasks	Resources / Teams	Key Indicators			
			Results	Specifications	Relevant Quantities (estimated)	Estimated Duration
	Door - to - Door Consumer Survey	Field Survey - 196 Teams and 2 Team Leads	Electrical Network at the end of Consumer	Every consumer need to survey. No of Consumers as per RFP = 64, 22, 319		14 Months
	Attribute Data Collection		Non Spatial Information of Consumer	As per the Field collection Form		14 Months
	Linking Spatial & Non Spatial, GIS Database Organisation (QA/QC, Topology, Migration)	25 - GIS Experts and 1 Team Lead	Seamless Consumer Network Data			10 Months
Integration	System Design (pre-Implementation Plan, Development and Testing) and Approval	Development Team of 20 Resources	Development / Implementation Plan, Customized GIS Based Network Analysis Application			First Five Months
	Integration of entire IT Infrastructures created at data centre.		Seamless Integration at all levels	Integration, Validation, Rules and Behaviours		Last 7 Months



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Phase	Tasks	Resources / Teams	Key Indicators			
			Results	Specifications	Relevant Quantities (estimated)	Estimated Duration
	Sub Division, Customer care centres, Electrical Substation and others					
	Complete GIS Based Asset Information Management System (AIMS)		Final Deliverable Data	100 % perfect with all aspects		Last Month



Productivity Schedule:

Productivity Schedule																				
Task Name		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	
Award of Contract	1 Day																			
Team Mobilisation	15 Days																			
Base Map Preparation	8 Months																			
Existing Data Collection	2 Months				3 Staff would be deployed															
Procurement of Satellite Imagery	2 Months				Approx. 137 Scenes would be procured															
Collection of GCPs	2 Months				4 Staff would be deployed															
Image Processing	2 Months				2 Staff would be deployed															
Heads on Interpretation	5 Months									6 Staff would be deployed										
GIS Database Organisation	5 Months									3 Staff would be deployed										
Asset Mapping - Field Activity	17 Months	Chennai (Pilot)				Other Towns														
		Deployment of 5 Staff for Asset Mapping & 2 Staff for GIS DB Organisation																		
Cumulative Production By end of Every Month - Sq.Km.		260	520	780	1040	1300	1560	1820	2080	2340	2600	2860	3120	3380	3640	3900	4160	4360		
Consumer Indexing - Field Activity	17 Months	Chennai (Pilot)							Other Towns											
		Deployment of 198 Staff for Consumer Indexing & 26 Staff for GIS DB Organisation																		
Cumulative Production By end of Every Month - Consumer Nos.		377800	7,55,600	11,33,400	15,11,200	18,89,000	22,66,800	26,44,600	30,22,400	34,00,200	37,78,000	41,55,800	45,33,600	49,11,400	52,89,200	56,67,000	60,44,800	64,22,600		
GIS System Integration	17 Months	Deployment of a Team of 20 Experts for Application Development. End to end Solutions would be ready for Pilot Area																		



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Annexure 7: Project Team Structure & Resource Plan



ANNEXURE 7: PROJECT TEAM STRUCTURE AND RESOURCE PLAN

A. Project Team Structure

System Integrator Lead - ITI Limited

Name of Staff	Position Assigned	International or Domestic	Firm	Employment status with the firm (Full time/ Associate)	Education (Degree, Year, Institution)	Area of Expertise and number of years of relevant experience	Task Assigned
A. Professional Staff							
P.Manickavelu	Program Manager	Domestic	ITI Limited	Full Time	ME in Communication Systems, 1975, Anna University	Project Management, 17 Years	Project Management
Sudhindra.M.S	Project Manager	Domestic	ITI Limited	Full Time	BE Mechanical, 1980, BVB College of Engineering	Project Coordination, 16 Years	Associate Project Manager for Network implementation
Nagaraj K.V	Security Expert	Domestic	ITI Limited	Full Time	BE Electronics and Communication Engineering , 1986, RV College of Engineering	15 Years	Implementation of Intrusion prevention and detection in VPN network to protect from vulnerabilities
M. Murali	Project Engineer	Domestic	ITI Limited	Full Time	BE Electronics and Communication Engineering	8 Years	Site survey preparation , Project implementation plan, Network



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					, 1998, BMS College of Engineering		design
AJAY R.AERPUL	Project Engineer	Domestic	ITI Limited	Full Time	BE Electronics and Communication Engineering , 1992, PDA College of Engineering	12 Years	Implementation of Campus Wide Area Networking
MUKESH GUPTA	Senior Engineer and System Administrator	Domestic	ITI Limited	Full Time	BE Electronics and Communication Engineering , 2001, Madan Mohan Malviya regional Engineering College, Jaipur	7 Years	System Administration
MOHIT PABBI	Senior Engineer	Domestic	ITI Limited	Full Time	BE Electronics and Communication Engineering , 1997, PTU. MBA, 2000, Panjab University	8 Years	Implementation of Video Conferencing systems
FRANCIS TOPPO	IT Manager	Domestic	ITI Limited	Full Time	BE (Computer) , 1992, Delhi University	12 Years	Implementation of Expansion of Internet Infrastructure
SANJAY JAIN	Associate Project Manager	Domestic	ITI Limited	Full Time	BE Electronics and Communication Engineering , 1983, MITS (Jiwaji University,	16 Years	Project Management and installation of high end servers



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					Gwalior)		
P.C.Basak	Chief Manager	Domestic	ITI Limited	Full Time	M. Tech (Power Electronics, Electrical, 1986, IIT, Kharagpur	12 Years	Service support for large switching Networks
B. Support Staff							
Bimal Chandra Bairgya	Team Member	Domestic	ITI Limited	Full Time	BE (Electrical Engg), 1989, Durgapur Engineering College / Burdwan University	10 Years	Support
Nikhil Bakare	Team Member	Domestic	ITI Limited	Full Time	BE(Electrical), 1984, Jadavpur University Calcutta	20 Years	Support
Arun Sharad Kulkarni	Team Member	Domestic	ITI Limited	Full Time	3 year Diploma in Electrical Engg, 1982, Shri Vaishnav Polytechnic , Indore / M.P.Board of Technical Education, Bhopal	22 years	Support
Niranjan Jaiswal	Team Member	Domestic	ITI Limited	Full Time	3 year Diploma in Electronic & Telecommunication, 1984, Government Polytechnic Ranchi , Bihar Board of Technical Education, Patna	18 Years	Support



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Jayant NarayanRao Ranaware	Team Membe r	Domestic	ITI Limited	Full Time	Diploma in Electrical Engineer, 1981, Maharashtra state board of Technical Examinatio n Mumbai	20 Years	Support
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System Integrator Second- Navayuga Infotech

Name of Staff	Position Assigned	International or Domestic	Firm	Employment status with the firm (Full time/ Associate)	Education (Degree, Year, Institution)	Area of Expertise and number of years of experience	Task Assigned
A. Professional Staff							
Prasada Reddy	Solutions Architect	Domestic	Navayuga	Full Time	M.E - E& C (April 1995) from R.V College of Engineering B.E - E & C (April 1992) Narayana Engineering College	Area of Expertise - MBC. Relevant Experience - 13 Years	Designing Workflow Processes, Control Management
Brahmanand Reddy	Team Lead - Web Self Services	Domestic	Navayuga	Full Time	B.E - Electrical from JNTU (July 1994)	Area of Expertise - MBC & Web Self Services Relevant Experience - 10 Years	Team Lead - Web Self Services
Sridhar	Technical Architect	Domestic	Navayuga	Full Time	B.E - Telecommunications from NIT - Calicut (2004)	Area of Expertise - Security	Designing Workflow Processes, Control Management
Anand Laxman	Program Manager	Domestic	Navayuga	Full Time	M.Tech - Computer Science, 1995, Bharat Institute of Engineering and Technology	Program Management - 8 Years	Program Management, Project Planning, Project Communication, Project Procurement, Project



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							Monitoring , Quality Management, Project Delivery, Risk Management
Sambasiva Rao.G.V	Project Manager	Domestic	Navayuga	Full Time	M.Tech, 1998, Gogte Institute of Technology	Project Manager - 6 Years	Project Planning, Impact Analysis, Requirement gathering. Risk Management, People Management, Project Planning and tracking, Project Reviews and Audits, Metrics collection and Process improvements.
Nagesh Rao .C	System Administrator	Domestic	Navayuga	Full Time	M.Tech, 2000, UVCE	System Administration - 9 Years	Networking technologies, Designing and planning the network, Setting up the network, Maintaining the network, Expanding the network.



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Nagarjun Reddy	Senior Software Engineer	Domestic	Navayuga	Full Time	M.Tech, 2001, Padmasri Dr.B.V.Raju Institute of Technology	Software Development - 6 Years	Developing business logic, front-end application
R.V.S.N Suresh Kumar	Senior Software Engineer	Domestic	Navayuga	Full Time	MCA, 2002, University of Madras	Software Development - 5 Years	Developing business logic, front-end application
B. Support Staff							
	Technicians - 4 nos.	Domestic		Full Time		Repair & Maintenance	Repair & Maintenance of Modem, MIU, DCU & SBM
	Support staff-3 nos.	Domestic		Full Time			Support to Data centre staff



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Network Solution Provider - IBM

Name of Staff	Position Assigned	International or Domestic	Firm	Employment Status with the Firm (Full Time / Associate)	Education (Degree, Year, Institution)	Area of Expertise and Number of years of Relevant Experience	Task Assigned
Vinayak L Salunkhe	Program Manager-PMO	Domestic	IBM India, NSP	Full Time	Diploma in Electrical Power System	17 Years	Project Manager : Site Services
Suresh Naik	Technical Lead	Domestic	IBM India, NSP	Full Time	B.E. (Specialized in Software Engg., Telecommunication & Microwave Engg.)	12 Years	Project Manager and Onsite Tech Lead
Jay Joshi	Technical Lead	Domestic	IBM India, NSP	Full Time	Diploma in Digital Electronics	14 Years	IT Specialist
Deepak Wani	Technical Lead	Domestic	IBM India, NSP	Full Time	Diploma In Industrial Electronics with Distinction	17 Years	Team Lead(MA) - Western Region
Dharmendra Patani	Project Executive	Domestic	IBM India, NSP	Full Time	Bachelor of Engineering	25 Years	IT Management Consultant : Site Services
Aniruddha Parnaik	Technical Lead	Domestic	IBM India, NSP	Full Time	Master in Management Science (Information Systems)	12 Years	IT Specialist / Technical Lead
Sushil Lohani	Project Manager/S DM	Domestic	IBM India, NSP	Full Time	Bachelor of Engineering	13 Years	Project Manager
Suresh Augustine	Lead Engineer and Transition Manager	Domestic	IBM India, NSP	Full Time	Bachelor of Business Management	11 Years	Manager / Transition
Sanjeev Chhabra	Sr. Network	Domestic	IBM India,	Full Time	BE, MBA	19 Years	Country Lead-End



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	Manager		NSP				User Services (Transition Management)
Gaurav Suresh Dharasania	Technical Lead	Domestic	IBM India, NSP	Full Time	Masters of Telecom Management	10 Years	Competency Manager - Systems and Messaging
Darbar Singh Dabas	Network Manager	Domestic	IBM India, NSP	Full Time	MBA (Operations Management)	10 Years	Data Center Ops Manager
Sareeta Narayan Mandavkar	Technical Lead	Domestic	IBM India, NSP	Full Time	B.Sc (Chemistry)	10 Years	IT Specialist



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GIS Solution Provider - Navayuga Infotech

Name of Staff	Position Assigned	International or Domestic	Firm	Employment status with the firm (Full Time/ Associate)	Education (Degree, Year, Institution)	Area of Expertise and number of years of relevant experience	Task Assigned
A. Professional Staff							
Mr. Ravinder Raju. K	Project Director	Domestic	Navayuga	Full time	<ul style="list-style-type: none"> • M Tech (Aeronautics), IIS, Bangalore, 1969 • BE (Electrical), Madras, 1962 	31 years of experience in the field of Aerial Remote Sensing	Responsible Key Expert for this Project as a Project Director, Attending High Level Meeting, Strategic Decision Making.
Mr. Sailendra Pillai.	Project Manager - Survey & Mapping	Domestic	Navayuga	Full time	<ul style="list-style-type: none"> • M S , Digital Photogrammetry and GIS, Anna University, 2004 • B.E Geo Informatics , Anna University. 1998 	12+ years of experience in Survey(GPS/G PR/Total Station), Mapping (photogrammetry and LIDAR), GIS development and Image processing	Overall project planning, management and monitoring
Mr. Narottam Dubey	Domain Expert	Domestic	Navayuga	Full time	<ul style="list-style-type: none"> • Ph D, Environmental Science & Engineering , ISM Danbad • M.Sc. (M.Tech (Applied Geology), IIT Roorkee. 	15 years of experience and is Responsible for building value added solutions on GIS using various industry standard products.	Responsible for building value added solutions on GIS using various industry standard products.
Mr. Sashidhar Kalva	Manager - Utility Mapping (Electricity)	Domestic	Navayuga	Full time	<ul style="list-style-type: none"> • M S , Remote Sensing and GIS, Anna University, 2005 • BE, Civil, Anna University. 1999 	10+ years of experience in aerial survey & mapping, cadastral mapping and GIS database Design	Responsible for Delivery of Utility Mapping Database



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Mr. Susheel Kumar Nath	GIS Delivery Manager	Domestic	Navayuga	Full time	• M.Tech. Remote Sensing and GIS, JNTU, Hyderabad.	14 years of experience in Project Management, GIS etc	Responsible for Delivery of GSP Application Development
Mr. Niranjana Murthy	ERP Integration Consultant	Domestic	Navayuga	Full time	• ME. IT	More than 10 years of experience in IT, Datacenter and FMS activities,	Responsible for FMS Activities.
Mr. Ardhendu Das	GIS Consultant	Domestic	Navayuga	Full time	• M. Sc. Computer Science	15 years of experience in System Designing, OpenGIS, .NET Development, GIS Application Development, Spatial Data Infrastructure - OGC Services Interoperability	Team / Client Management
Mr. Anil Painuly	GIS Data Analyst	Domestic	Navayuga	Full time	• Msc., Phd Agricultural Statistics	Have 15 years of extensive experience, in the field of Urban Planning, Water Resources, Power Transmission, Environment & Ecology, Roads & Highways, Traffic & Transportation, Agriculture using GIS and Remote Sensing techniques.	Data Control & Supervise GIS Data production.
Mr. Abhisekh Dondapani	Project Manager - Utility Survey and Mapping	Domestic	Navayuga	Full time	B.Tech, Civil, 1999	10+ years of experience in Utility Survey using DGPS	Responsible for GIS solutions of Electrical Network Analysis & DGPS survey
Mr. Kirthy Reddy. M	Asst Manager	Domestic	Navayuga	Full time	DME	10+ Years of Experience in	Surveying and Mapping



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	(GIS)					Survey and GIS Mapping	Database organisation
B. Support Staff							
Mr. Raghav Mishra	Senior GIS Engineer	Domestic	Navayuga	Full time	DME, Govt Polytechnic, Bidar, 1995	10+ years of experience as GIS / CAD Database	Responsible for Asset Mapping Data Collection Mapping and Analysis, QC
Mr. Phuspendra Bhuyan	Team Lead (Survey)	Domestic	Navayuga	Full time	Diploma in Mechanical Engineering, 1995	11 years of experience in Photogrammetry, GIS	Quality assurance of utility Survey Datasets
Mr. Sabya Sachi Goud	Team Lead (Asset Survey)	Domestic	Navayuga	Full time	Diploma in Computer Science & Engineering, 1997	10+ years experience in Photogrammetry. And GIS	Responsible for Asset Mapping.
Mr. Gopi Reddy .L	Team Lead (Consumer Indexing)	Domestic	Navayuga	Full time	B.Sc. (Electronics), 1991	12 + Years of experience in GIS/ Utility Survey / Photogrammetry	Responsible for Consumer Mapping
Mr. Manjesh Kumar Rai	QC Engineer (Mapping)	Domestic	Navayuga	Full time	DME, 1992	12+ years of experience in Quality Control / utility Mapping	Responsible for Mapping Quality
Mr. Shantanu Ghosh	Lead-DGPS Survey Team	Domestic	Navayuga	Full time	BA, 1991	19+ Years of Experience in DGPS Survey	Responsible for DGPS Survey
Mr. Manoj Ayyapam	Lead-Survey Team	Domestic	Navayuga	Full time	DEE, 1999	19+ Years of Experience in DGPS Survey	Responsible for Consumer Indexing
Mr. Srinivas Gudivadu	Lead-Survey Team	Domestic	Navayuga	Full time	MSc	19+ Years of Experience in DGPS Survey	Responsible for DGPS Survey
Mr. Chandresekhar Munda	Team Lead - GIS	Domestic	Navayuga	Full time	D.M.E (Mec Gen), 1994	13+ Years of Experience in GIS Photogrammetry	Utility Mapping Database Organisation
Mr. Vijay Bhaskar Reddy	Sr. CAD Executive	Domestic	Navayuga	Full time	ITI, 1998	10+ years of experience in CAD / GIS	Electrical Network asset Mapping Datasets



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MDAS - Analogics

Name of Staff	Position Assigned	International or Domestic	Firm	Employment status with the firm (Full time/ Associate)	Education (Degree, Year, Institution)	Area of Expertise and number of years of relevant experience	Task Assigned
A. Professional Staff							
Durgaiah	GM-Operations	Domestic	Analogics	Full Time	B.E (Electrical)-1971	Field co-ordination - 10 Years	Chief works Manger (Field co-coordinator)
Sikinder Reddy	Sr. Manager-Projects	Domestic	Analogics	Full Time	BTECH (EEE)-2004	Product development & project implementation - 5 Years	Project coordinator
Ravi Reddy	Sr. Software Engineer	Domestic	Analogics	Full Time	MSc (computer science)-2003	Software development & Integration - 5 Years	Software Management
Raghavendra Rao	Manger IT	Domestic	Analogics	Full Time	BTech(Computer Science)-1992	Data Centre Management-16 Years	Manger at Data Center
Laxmi Bhargavi	Database Administrator	Domestic	Analogics	Full Time	BE (Computer Science)-2004	Database Administration- 4 Years	Database Administrator
Ranjith	Network Administrator	Domestic	Analogics	Full Time	MCA-2005	Network Management	Network Management
Sateesh	Sr. Engineer-Projects	Domestic	Analogics	Full Time	B-Tech (computers)-2004	Data Management - 4 years	Data Management
Harish	Sr. Engineer-Projects	Domestic	Analogics	Full Time	B.Tech (Electrical)-2003	Data Management - 3 years	Data Management
B. Support Staff							
	Technicians - 4 nos.	Domestic		Full Time		Repair & Maintenance	Repair & Maintenance of Modem, MIU, DCU & SBM
	Support staff- 3 nos.	Domestic		Full Time			Support to Data centre staff



B. Resource Planning and Estimation

System Integrator

N o.	NAME OF STAFF	POSITION	STAFF INPUT IN WEEKS										
				W	W	W	W	W	W	W	W	W	W
				1	2	3	4	5	6	7	8	9	10
	A.												
1	Ananad Laxman	Program Manager	78										
2	Manickvelu	Program Manager	78										
3	Sambasiva Rao	Project Manager	78										
4	Sudhindra.M .S	Project Manager	78										
5	Prasada Reddy	Technical Architect Billing/ Collection	78										
6	Sridhar. P	System Architect - Customer Care	78										
7	P.C Basak	Project Manager Billing/Collection	78										
8	Brahmanada Reddy	Project Manager Web Self Services	78										
9	Satya Prasada	Technical Manager- New Connection/Disconnection	78										
10	Murthy	Lead QA-Customer Care	78										
11	Prasad	Lead QA-Customer Care	78										
12	B. Reddy	Lead QA Connection/Disconnection	78										
13	Sridhar. H	Analyst QA- Security MIS	78										
14	Nagarjun Reddy	Project Leader - Security/MIS	66										
15	R.V.S.N Suresh Kumar	Project Leader - Customer Care	66										



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N o.	NAME OF STAFF	POSITION	STAFF INPUT IN WEEKS																
				W	W	W	W	W	W	W	W	W	W						
				1	2	3	4	5	6	7	8	9	10						
16	Srikant	Project Leader Web Self Services/Security/MIS	66																
17	Nagesh	Project Leader Billing and Collection	66																
18	Guruprasad	Team Lead Web Self Services	66																
19	Rajesh	Team Lead Billing/Collection	66																
20	Raghunath	Lead Programmer Billing/ Collection	66																
21	Pradeep	Database Analysts	66																



GIS Solution Provider

Table 11: Proposed Resource Planning and Estimation

No	Name of Staff	Position	Staff Input																				Total
			Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	
A. Professional Staff																							
1	Mr. Ravinder Reddy	Project Director																				7 Weeks	
2	Mr. Sankaran Pillai	Project Manager - Survey & Mapping																				65 Weeks	
3	Mr. Narayan Dubey	Senior Supt																				65 Weeks	
4	Mr. Sankaran Kalar	Manager - Utility Mapping & Database																				72 Weeks	
5	Mr. Sushant Kumar Sankar	GIS Delivery Manager																				72 Weeks	
6	Mr. Narayan Murthy	GIS Integrator Co-ordinator																				72 Weeks	
7	Mr. Arvind Das	GIS Consultant																				72 Weeks	
8	Mr. Anil Kumar	GIS Data Analyst																				72 Weeks	
9	Dr. Akhlesh Chandrasekar	Project Manager - Utility Survey and Mapping																				72 Weeks	
10	Mr. Arvind Reddy M	Team Manager GIS																				72 Weeks	
B. Support Staff																							
11	Mr. Rajan Reddy	Senior GIS Engineer																				72 Weeks	
12	Mr. Praveen Kumar	Team Lead Survey																				72 Weeks	
13	Mr. Arvind Reddy	Team Lead GIS Survey																				72 Weeks	
14	Mr. Arvind Reddy	Team Lead Consumer Mapping																				72 Weeks	
15	Mr. Narayan Kumar Reddy	GIS Engineer Mapping																				72 Weeks	
16	Mr. Arvind Reddy	Lead GIS Survey Team																				72 Weeks	
17	Mr. Arvind Reddy	Lead Survey Team																				72 Weeks	
18	Mr. Chandrasekar Murthy	Team Lead GIS																				72 Weeks	
19	Mr. Arvind Reddy	GIS Database																				72 Weeks	
Onsite																							
Offsite																							



MDAS Solution Provider

No.	Name of Staff	Position	Total
	A. Professional Staff		
1	Durgaiah	GM- Projects	260
2	Sikinder Reddy	Sr. Manager	52
3	Ravi Reddy	Sr. Software Engineer	104
4	Raghavendra Rao	Manger IT	260
5	Laxmi Bhargavi	Database Administrator	260
6	Ranjith	Sr. Networking Engineer	104
7	Sateesh	Sr. Engineer- Projects	260
8	Harish	Sr. Engineer- Projects	260
260			
	B. Support Staff		
9	4 Resource	Technicians - 4 nos.	260
10	3 Resource	Operators for DA & Processing Servers- 3 nos.	260
11	3 Resource	Support staff-3 nos.	260



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Annexure 8: Technical Specifications



ANNEXURE 8: TECHNICAL SPECIFICATIONS

Item description	Make/Model	Technical Specification
Hardware / Equipment		
Server Hardware		
Database Server for GIS in cluster fail-over Mode	IBM P570	Power 6 Proc, Clock Speed 5.0 GHz, 8 Processor Chips per server, 16 cores, 384 GB RAM per server, HDD 300GB x 2, 1 x DVD Drive, 2 x 10G Ethernet, 2 x PCIe Gigabit Ethernet, 2 x Gigabit Fiber Card, 2 x HBA Card
Database Server for other applications in cluster fail over Mode	IBM z10	<p>System z10EC Model 2097-E12</p> <p>Z10 Enterprise Class Processor,</p> <p>4.4 GHz, 1 Book Model (Scalable to 4 books within the same footprint)</p> <p>12 IFLs (Can be upgraded up to 64 IFLs in the same footprint)</p> <p>384 GB RAM per server (Can be upgraded to 1.5TB in the same footprint)</p> <p>HMC with Console, 2 Internal Battery</p> <p>12 FICON ports for Peripheral connectivity (Rated at 8 Gbps)</p> <p>12 Fast Ethernet ports (Auto-negotiate at 10/100/1000Mbps)</p> <p>IBM System 10 EC Model E12(2097-E12) populated with 12 IFLs which can deliver the equivalent throughput of 38,00,000 tpmC from day one.</p>
GIS Application Server	IBM x3950 M2	X7460, 2.66 GHz, 4 Processors per server, 6 Core per proc., 48 GB RAM per server, HDD 146 GB x 9 per



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		server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Data Acquisition Server	IBM x3950 M2	X7460, 2.66 GHz, 4 Processors per server, 6 Core per proc., 64 GB RAM per server, HDD 146 GB x 9 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Application Server for others	IBM x3950 M2	X7460, 2.66 GHz, 4 Processors per server, 6 Core per proc., 48 GB RAM per server, HDD 146 GB x 9 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Testing, Development & QA Server	IBM x3950 M2	X7460, 2.66 GHz, 4 INTEL XEON Processors per server, 6 Core per proc., 48 GB RAM per server, HDD 146 GB x 5 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Access Control Server	IBM x3650 M2	X5570, 2.93 GHz, (1 X QUAD Core) , 2 Processors per server, 4 Core per proc., , 16GB RAM per server, HDD 300Gb, 4 Ethernet Ports, 2 Fiber Ethernet Ports
Anti-Virus Server	IBM x3650 M2	X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 8 GB RAM per server, HDD 146 GB x 2 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
DNS Server	IBM x3650 M2	X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 8 GB RAM per server, HDD 146 GB x 2 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
LDAP Server	IBM x3650 M2	X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 8 GB RAM per server, HDD 146 GB x 2 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Web Server	IBM x3650 M2	X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 8 GB RAM per server, HDD 146 GB x 2 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Reverse Proxy Server	IBM x3650 M2	X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 8 GB RAM per server, HDD 146 GB x 2 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports



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EMS/NMS Server with Network Operation Console	IBM x3650 M2	X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 8 GB RAM per server, HDD 146 GB x 2 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Mail/ Messaging Server	IBM x3650 M2	X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 8 GB RAM per server, HDD 146 GB x 2 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Storage & Backup Devices		
SAN storage	IBM DS8300	64 GB Cache, 40 x 4 Gbps Host ports, Global Mirror (Asynchronous) Replication License, Raw Capacity 123.7 TB, 256 x 146 GB, & 192 x 450 GB, RAID 10 & RAID 5 Number of Disks: 146 GB / 15K FC – 164 Data disks, 76 Parity Disks, 16 Hot spares, 21.284 TB Effective Binary Capacity, 37.376 TB Effective Raw Capacity 450GB/15K FC - 156 Data disks, 24 Parity Disks, 12 Hot spares, 61.704 TB Effective Binary Capacity, 86.400 TB Effective Raw Capacity
Fiber Channel SAN switch	Cisco 9509 MDS	162 ports, port speed 8 Gbps, OS support AIX, HP-UX, Windows FC Ports (8 Gbps Speed): 162 FC IP Ports: 4
SAN Cabling (Included above)		
Backup Server	IBM P520, IBM x3650	Power 6 Proc., 4.7 GHz, 2 Proc. per Server, 2 Core per Proc., 16 GB RAM, 300 GB x 4 per server, 4 port 4 gbps



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	M2	FC HBA, 4 Ethernet Ports, 2 Fiber Ethernet Ports X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 8 GB RAM per server, HDD 146 GB x 2 per server (15K), 4 Ethernet Ports, 2 Fiber Ethernet Ports
Tape Library	IBM-TS3500	IBM TS1130 Drives Offered: 12, Slots Offered: 237, Cartridges Offered: 1500, 8 Hrs. backup time
Other Storage Device	IBM-TS1130	TS1130 tape drive, 1152 tracks, 1 TB HB/JX media native capacity, 160 MBps native sustained data rate. IBM TS1130 Drive Speed: 350 MBps, LTO4 Drive Speed: 240 MBps
Server Racks		
IDF/MDF Floor Mount Racks	Valrack Moducab	Floor Mount Racks
Switches		
Core Switch	3Com S7510E	No of CPU Modules--> Two Backplane Speed--> 2.44Tbps Packet forwarding Rate--> 780Mpps Port Speed--> 10/100/1000 and 10G DRAM--> 512Mb per Module FLASH-->64Mb per Module
Access Switch	3Com S7510E	No of CPU Modules--> Two Backplane Speed--> 2.44Tbps Packet forwarding Rate--> 488 Mpps Port Speed--> 10/100/1000 and 10G DRAM--> 512Mb



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		per Module FLASH-->64Mb per Module
Distribution Switch	3Com S7510E	No of CPU Modules--> Two Backplane Speed--> 2.44Tbps Packet forwarding Rate--> 780Mpps Port Speed--> 10/100/1000 and support for 10G DRAM--> 512Mb per Module FLASH-->64Mb per Module
Layer II Switch	3Com - H3C S3600 Series	Backplane Speed--> Switching capacity for up to 28 ports:-12.8Gbps and for up to 52 port -17.6Gbps Packet forwarding Rate--> Packet forwarding speed for up to 28: - 9.53Mpps and for up to 52 ports:- 11.78Mpps Port Speed--> "10/100 BASE-TX and 4 nos. of 1G ports" DRAM--> 64M FLASH--> 16M
Routers		
Router for MPLS/ VPN Network	3Com SR6616	No. of CPU Modules→TWO Backplane speed→700Gbps Switching performance→Greater than 200Mpps LAN ports→"8 port 10/100/1000



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		<p>These Lan ports are also routed ports</p> <p>WAN ports→ 8 nos. of 1000 base-x ports</p> <p>32 Serial ports</p> <p>8 nos. of G.703 and 8 Nos.of ISDN PRI E1/channelised E1 ports</p> <p>DRAM→1Gb DRAM</p> <p>FLASH→256 Mb</p>
Router for Internet Gateway	3Com SR6616	<p>No. of CPU Modules→TWO Backplane speed→700Gbps</p> <p>Switching performance→Greater than 200Mpps</p> <p>LAN ports→"8 port 10/100/1000</p> <p>These Lan ports are also routed ports</p> <p>WAN ports→ 8 nos. of 1000base-x ports 32 Serial ports</p> <p>8 nos. of G.703 and 8 Nos.of ISDN PRI E1/channelised E1 ports</p> <p>DRAM→1Gb DRAM</p> <p>FLASH→256 Mb</p>
Router for MPLS/ VPN Network (Sub Division and Other offices)	3Com - H3C MSR 30-20	<p>No. of CPU Modules→One</p> <p>Backplane speed→2Gbps</p> <p>Switching performance→300Kpps</p> <p>LAN ports→2 Gigabit Ethernet (GE)</p> <p>WAN ports→Two high speed synchronous ports</p> <p>Two high speed Async/Sync ports</p> <p>One port ISDN BRI</p>



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		DRAM→256Mb FLASH→256Mb
Other Active Devices		
Application Load Balancer	f5 LTM-1600	1 Gbps Traffic throughput, 1 Gbps bulk encryption H/w SSL, 1 Gbps S/w compression, Dual Core CPU, 4 GB RAM, 320 GB HDD, 4 Gb Eth. CU ports, 2 optional SFP, 300W dual power option
Cabling System		
Cables, Jacks etc.	DIGI LINK	CAT 6 , CAT6 Unshilded RJ45
Workstation / Equipment Cords	DIGI LINK	CAT 6 patch cords
Fiber,Optical,Cable,Connectors,Patch Cord etc	DIGI LINK	Optipus
Cables, Jacks etc. (Sub Division & Other Offices)	DIGILINK P350	CAT 6 , CAT6 Unshilded RJ45
Workstation / Equipment Cords (Sub Division & Other Offices)	DIGILINK G600	CAT 6 patch cords
UPS & Battery System		
Critical Load UPS Minimum 160KVA	Uniline 160 KVA	Gigaline Online 30 min backup time, (180x2Vx500AH) SMF- Hitachi/Exide/Global Yuasa /Panasonic make with 2 Year warranty Min 160 KVA with 10% of critical server loads,Input :



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		380/400/415V, Output : 415V,3 Phase,4 wire,Backup time: 30 Minutes at full load,over load capacity:125% for 10 Minutes/150% for 10 sec,Protection:Isolation Transformer shall be provided at the output of the inverter.
Service Load UPS Minimum 50KVA	Uniline 50 KVA	Gigaline Online 30 min backup time, (180x2Vx150AH)SMF- Hitachi/Exide/Global Yuasa /Panasonic make with 2 Year warranty Min 50 KVA with 10% of critical server loads,Input : 380/400/415V, Output : 415V,3 Phase,4 wire,Backup time: 30 Minutes at full load,over load capacity:125% for 10 Minutes/150% for 10 sec,Protection:Isolation Transformer shall be provided at the output of the inverter.
5 KVA UPS	Uniline Maxipower 5 KVA	Online, 2 Hrs. backup time, (30x12Vx65AH), SMF- Hitachi/Exide/Global Yuasa /Panasonic make with 2 Year warranty
2 kVA UPS	Uniline GL2000 VA	Online, 2 Hrs.backup time, (20x12Vx26AH), SMF- Hitachi/Exide/Global Yuasa /Panasonic make with 2 Year warranty
IP Telephony		
IP PBX	3Com	VCX IP, 50K concurrent sessions System shall have IP architecture and provide support for integrated telephony solution for Analog & IP Phones, E1, PRI gateways over IP architecture. Will support following protocols:



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		<ul style="list-style-type: none"> • Session Initiation Protocol (SIP) Trunk support • Coder-decoder (codec) support for automated bandwidth selection: G.711 mu-law, a-law, G.723.1 • Shall utilize LAN QoS features for providing end to end QoS 802.1p and IP Tos/DSCP QoS features
IP Phones	3Com	<p>3101 BSP, 50K concurrent sessions, 350 licenses</p> <p>10/100BASE-T Ethernet connection through an RJ-45 interface for LAN connectivity</p> <p>Differentiated Services Code Point (DSCP) tagging</p> <p>Support for G.711μ, G.711a and G.729a/b audio compression codecs.</p> <p>Software upgrade supported using a Trivial File Transfer Protocol (TFTP) server</p> <p>Voice activity detection, silence suppression, comfort-noise generation, and error concealment.</p> <p>H.323 / SIP Support.</p> <p>Inline Power (7.5W), 802.1af POE (15.4W) and Power Adapter Options for power.</p>



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Machines		
Touch Screen KIOSK	Accel-Kiosk	Infok 4000, Dual core 2.0 GHz Processor, 4 MB L2 Cache, 4 GB RAM, 160 GB HDD, 52x CD ROM Drive, 2 Speakers, Serial, Parallel & USB ports, 104 key keyboard & Mouse (for service purpose), 10/100 MBPS Network interface, 17" LCD-TFT Monitor with Capacitive type interactive Touch Screen
IDMS along with Automatic Token Dispenser Machine	Accel-QMS	Trans Q, Micro Controller based embedded design, 4 x 20 back lit LCD display for operational guidance, 4 buttons for selection of service, 80 mm Thermal Printer with auto cutter for issuing tokens, Display Driver for connecting the Main Display Unit (USB to VGA), 19" LCD Monitor to be used as Main display unit.
Cash/ Cheque Collection KIOSK	Accel CDM 4000 "Plus"	CDM 4000, 2 GB RAM, 160 GB HDD, 52x CD ROM Drive & Speakers, 10/100 MBPS Network Interface, Web cam & Internal Modem, Serial/ Parallel / USB ports, 104 Key keyboard and Mouse (for service purpose), 15" LCD-TFT Monitor with Capacitive type Interactive touch Screen. Laser Barcode Scanner for reading the barcoded bills, Cheque handling system with MICR Reader and 42 column Alphanumeric Printer for printing the transaction details on reverse side of cheque, Currency Acceptor for accepting denominations of INR 5,10, 20, 50, 100, 500 & 1000, Coin acceptor for accepting 1Re. & 5 Re.Coins, A4 laser Printer, 80 mm Thermal Printer with auto cutter for issuing receipts.
Hand Held Spot Billing Equipment connected with Portable Printer	Analogic HHU -AP 428	32 bit ARM proc., upto 60 MHz, 512 KB Program Memory, 8 MB Data Memory (Expandable to 16 MB), High-speed USB interface, Wireless Interface for PC communication, 128 x 64 pixel Graphic display/20 x 4



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		Char. LCD display, Built-in 2" or 3" impact printer, 30 key elastomeric key pad, Built-in 2.2 Ahr Lithium Ion battery, Rugged ABS case, Infrared port, RS 232 Port, RTC with 10 years battery back up, 24 column Alpha Numeric & High speed 2.7 lines per sec printer
Hardware for AMR based Data Logging System		
Data Converter Unit	Analogic DCU-AC 610	ARM 9 proc., Linux Kernel 2.6 OS, RS-232 / USB 2.0 interface, WLAN, Integrated GSM/GPRS/EDGE/CDMA 1x, Integrated low power radio module/RS 485 communication, 64 MB SDRAM / 256 MB Flash, MIU Hi speed proc., 64 KB Program Memory.
Cabling, connectors and other required hardware	DIGILINK	CAT 6 patch cords
Modems for AMR System**		
GPRS Modem	Analogic CAMR-AC 608	Built-in ARM proc., 4 MB non-volatile data memory, 1 open collector output for external device control, 1 input for Tamper sensing, RTC with battery backup, Dual-band 900/1800 MHz E-GSM/GPRS modem, Max. output power 2 Watts for GSM 900 MHz, 1 Watt for GSM 1800 MHz, SIM interface 3V/5V, GSM data rate 14.4 Kbps max (depends on service provider), GPRS data rate 115 Kbps max.
EDGE Modems	Analogic CAMR-AC 608	Built-in ARM proc., 4 MB non-volatile data memory, 1 open collector output for external device control, 1 input for Tamper sensing, RTC with battery backup, Dual-band 900/1800 MHz E-GSM/GPRS modem, Max. output



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		power 2 Watts for GSM 900 MHz, 1 Watt for GSM 1800 MHz, SIM interface 3V/5V, GSM data rate 14.4 Kbps max (depends on service provider), GPRS data rate 115 Kbps max.
Workstation PCs, Printers & Others		
Workstation PC (including UPS, Computer chair,table etc.) For Sub-Stations Only	HP Compaq	HP Compaq Pro 6005 Business PC, AMD Phenom II X2 B55 Dual Core Processor, AMD 785G chipset, 3.00-GHz, HT bus 3.0 GT/s clock speed, Total 7MB Cache: 1MB L2 cache, 6MB L3 Cache, 4-GB DDR3 Sync DRAM NON-ECC (2 x 2GB), Memory Expandable max to 16GB, 1066/1333 Mhz RAM speed, 250-GB SATA 3.0-Gb/s SMART-IV Hard Drive (7200 rpm) with NCQ, Integrated SERIAL ATA II, Provision of Total of 2*Internal hard drive support, Integrated ATI Radeon HD 4200 graphics, 1280x1024 @ 60Hz Digital resolution, Integrated High Definition Graphics, HP 17-inch Widescreen LCD Monitor @ 60 Hz, HP PS/2 104 keys keyboard, HP PS/2 2 Button optical Scroll Mouse, HP 16X/48X SATA DVD-ROM Drive, 4 SATA Interface, USB Total 10: (4) front ports; (6) rear ports, PS/2 mouse, PS/2 keyboard and other accessories.
Workstation PC (Computer chair,table etc.)	HP Compaq	HP Compaq Pro 6005 Business PC, AMD Phenom II X2 B55 Dual Core Processor, AMD 785G chipset, 3.00-GHz, HT bus 3.0 GT/s clock speed, Total 7MB Cache: 1MB L2 cache, 6MB L3 Cache, 4-GB DDR3 Sync DRAM NON-ECC (2 x 2GB), Memory Expandable max to 16GB, 1066/1333 Mhz RAM speed, 250-GB SATA 3.0-Gb/s SMART-IV Hard Drive (7200 rpm) with NCQ, Integrated SERIAL ATA II, Provision of Total of 2*Internal hard drive support, Integrated ATI Radeon HD 4200 graphics, 1280x1024 @ 60Hz Digital resolution,



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		Integrated High Definition Graphics, HP 17-inch Widescreen LCD @ 60 Hz, HP PS/2 104 keys keyboard, HP PS/2 2 Button optical Scroll Mouse, HP 16X/48X SATA DVD-ROM Drive, 4 SATA Interface, USB Total 10: (4) front ports; (6) rear ports, PS/2 mouse, PS/2 keyboard and other accessories.
Dot Matrix Printers	WeP HQ 1070+DX	350 CPS or higher speed, 24 Pin, Letter Quality, 132 or higher, Both Serial and Centronics Parallel with printer cable, Dust Cover & requisite drivers
Slip Printer	Not required	
Network LaserJet (B/W) Printer	HP LJ 3015dn	Upto 42 ppm letter, upto 4 ppm A4, upto 1200 x 1200 dpi, 540 MHz proc., 120 MB expandable upto 640 MB memory, PCL 103 internal font set.
A4 Size Inkjet / Bubble Jet printer	HP Officejet Pro K8600 Colour Printer series	HP Thermal Inkjet, 1200 x 1200 dpi B/W & 4800 x 1200 dpi color optimized, upto 35 ppm (draft) & upto 15 ppm (laser comparable speed) for B/W, upto 34 ppm (draft) & upto 15 ppm (laser comparable speed) for Color, 32 MB RAM, 1 Eth., 1 USB 2.0,
Line Printer	Wep Printronix P7-500	Up to 500 lines per minute (@ 10, 15 & 17.4 cpi), 100% duty cycle. No upper limit, 10,12,13.3,15,17.1,20 Throughput, 10,12,13.3,15,17.1,20 Enhanced Throughput, 6, 8, 10.3, n/72, n/216 line pitch, Standard: IEEE 1284 compliant parallel, serial with 38.4K baud transfer.
A3 Size Inkjet Color Printer	HP Officejet Pro K8600 Colour Printer series	HP Thermal Inkjet, upto 600 X 600 rendered dpi for B/W, upto 4800 x 1200 optimized dpi for Color, upto 33 ppm (draft) & upto 8 ppm (laser comparable speed) for B/W, upto 32 ppm (draft) & upto 7 ppm (laser comparable speed) for Color, 32 MB RAM, 1 Eth., 1 USB 2.0 for A3 size paper



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Bar Code Reader	Unitech MS 810	650 nm Light source, upto 420 mm depth of field, 80 scans/sec. speed, 0.1 mm resolution max, 38 deg. Scan angle, PS/2 & USB interfaces.
Media for DAT drive	IBM	--
Blank Catridges for Tape Library	IBM	--
Software License- Application		
AMR based Meter Data Acquisition & Analysis Software	Analogic	ADAS
Energy Audit Software	Phoenix -mPower	mPower
New Connection & Disconnection Management System	Phoenix -mPower	mPower
GIS Application	ESRI ArcGIS Server/ESRI ArcGIS Desktop/ESRI ArcSDE/Telvent MnM ArcFM/PRDC MiPower / MiPDAP	ESRI ArcGIS Server/ESRI ArcGIS Desktop/ESRI ArcSDE/Telvent MnM ArcFM/PRDC MiPower / MiPDAP
GIS based Integrated Network Analysis Software	PRDC MiPower / MiPDAP	PRDC MiPower / MiPDAP
Management Information System Software	Phoenix mPower	mPower
Identify & Access Management System Software	IBM	Tivoli Identity and Access Manager
MBC Software	Phoenix mPower	mPower



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Asset Management System Software	IBM-Maximo	Maximo
Maintenance Management System Software	IBM-Maximo	Maximo
Misc Software & Solutions		
Enterprise Management System (EMS) Solution	IBM - Tivoli Network Manager	Tivoli Network Manager
Messaging Solutions	IBM-Lotus Domino	Lotus Domino
Directory Software	IBM -Tivoli Directory Integration	Tivoli Directory Integration
SPAM Filter	IBM	--
IDS & Firewall System	IBM	IBM
Development of Web portal and web self service	Phoenix mPower	mPower
Basic Software License		
Software Licenses-Server OS	Novell / Microsoft	Linux, Windows 2003 / 2008
Software Licenses-Anti Virus	CA Anti Virus	CA Threat Manager
Software Licenses - Databases	IBM	DB2

Other Customer Care Components:



Server Hardware	Make/Model	Technical Specifications
Application Server	IBM x3650 M2	X5570, 2.93 GHz, 2 Processors per server, 4 Core per proc., 32 GB RAM per server, HDD 146 GB x 4 per server (15K)
Customer Care related Equipments		
Hand Set	Aspect	Aspect
Head Set	Aspect	Aspect
Call Switching Equipment	Aspect	Aspect
IVRS (Interactive Voice Response System) server	Phoenix -eCall (Price Included in MBC software cost)	eCall
CTI (Computer Telephony Integration) Server	Phoenix -eCall (Price Included in MBC software cost)	eCall
Automatic Call Distributor	Phoenix -eCall (Price Included in MBC software cost)	eCall
Dialer	Phoenix -eCall (Price Included in MBC software cost)	eCall
Voice logger server	Phoenix -eCall (Price Included in MBC software cost)	eCall
Soft telephone	Phoenix -eCall (Price Included in MBC software cost)	eCall



Software		
Software License - Application		
Automated Call Distribution Software	Phoenix - eCall	eCall
Computer Telephony Integration Software	Phoenix - eCall	eCall
Answering Service Software	Phoenix - eCall	eCall
Interactive Voice Response Software	Phoenix - eCall	eCall
Softphone Software	Phoenix - eCall	eCall
Voice Broadcasting Software	Phoenix - eCall	eCall
Basic Software License		
Software Licenses - Server OS	Novell	Linux
Software Licenses - Databases	IBM	DB2



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Annexure 9: Bill of Materials



ANNEXURE 9: BILL OF MATERIALS

		Total
	Summary Bill of Materials	
1	Workstation PC's, Printers & Others	
1.1	Workstation PC (Including UPS, Computer chair, table etc.)	327
1.2	Workstation PC (Computer chair, table etc.)	1624
1.3	Dot Matrix Printers	1567
1.4	Slip Printer	0
1.5	Network LaserJet (B/W) Printer	257
1.6	A4 Size Inkjet / Bubble Jet printer	0
1.7	A3 Size Inkjet Color Printer	255
1.8	Line Printer	39
1.9	Bar Code Reader	1172
2	AMR based Data Logging System	
2.1	Modem	37803
2.2	Data Concentrator Unit	327
2.3	Cabling, connectors and other required hardware	327
3	Cabling System	
3.1	Cables, Jacks etc.	1241
3.2	Fiber Optical Cable, Connectors, Patch Cord etc.	3
3.3	Workstation / Equipment Cords	1951
4	IP Telephony	
4.1	IP PBX	2
4.2	IP Phones	254



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5	Machines	
5.1	Touch Screen KIOSK	1
5.2	Cash/ Cheque Collection KIOSK	10
5.3	Hand Held Spot Billing Equipment	1988
5.4	IDMS along with Automatic Token Dispenser Machine	1
6	Customer Care related Equipments	
6.1	Hand Set	30
6.2	Head Set	30
6.3	Call Switching Equipment	1
6.4	IVRS (Interactive Voice Response System) server	1
6.5	CTI (Computer telephony Integration) server	1
6.6	Automatic Call Distributor	1
6.7	Dialer	1
6.8	Voice Logger	1
6.9	Soft telephone	30
7	Switches	
7.1	Core Switch	4
7.2	Access Switch	4
7.3	Distribution Switch	4
7.4	Layer II Switch	1241
7.5	Router for MPLS/ VPN Network	816
7.6	Router for Internet Gateway	4
8	Storage and Backup device	
8.1	SAN storage (80 TB usable)	2
8.2	Fiber Channel SAN switch	4
8.3	SAN Cabling	2
8.4	Backup Server	2
8.5	Tape Library	2



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8.6	Other Storage Device	2
9	Server Racks	
9.1	IDF/MDF Wall Mount Racks	0
9.2	IDF/MDF Floor Mount Racks	22
10	UPS & Battery System	
10.1	2/5 kVA UPS	1165
10.2	Critical Load UPS	4
10.3	Service Load UPS	4