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USAID ENERGY POLICY PROGRAM

REQUEST FOR PROPOSAL ERP IMPLEMENTATION PROJECT AT NTDCL

FINAL V 2.3

July 2014

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USAID ENERGY POLICY PROGRAM

REQUEST FOR PROPOSAL

ERP IMPLEMENTATION PROJECT AT NTDCL

FINAL V2.3

Contract No: AID-EPP-I-00-03-00004

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DISCLAIMER

The contents of this document are the sole responsibility of Advanced Engineering Associates International, Inc. (AEAI) and do not necessarily reflect the views of USAID or the United States Government.

KEY INFORMATION SHEET

Sr. #	Key Information	Details
1.	RFP Document Issue Date	xx-xx-xxxx
2.	Pre-Proposal Conference	[TBD] (RFP Document Issue Date + 20 Days)
3.	Availability of RFP Document	The RFP will appear on AEAI's Energy Policy Program (EPP) website until the submission deadline
4.	Last Date for Submission of Bids	xx-xx-xxxx at 1600 hrs. (30 days following RFP Issue Date)
5.	Mailing Address	USAID Energy Policy Program Procurement Department Advanced Engineering Associates Int'l House 4, Street 88, Sector G 6/3 Islamabad.
6.	Correspondence Email	erp@ep-ep.com.pk
7.	AEAI's EPP Website	http://www.ep-ep.com.pk/
8.	Evaluation Committee	EPP's ERP Team
9.	Presentation by Vendor (Optional)	Prospective vendors may present their solutions before the bid closing date. Vendors should submit their request to make presentations in writing to: erp@ep-ep.com.pk. Presentations should not exceed 60 minutes, including a question and answer period.

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I. Acronyms

Abbreviation	Explanation
ERP	Enterprise Resource Planning
ATS	Automatic Transfer Switch
CMMI	Capability Maturity Model Integration
CPPA	Central Power Purchasing Agency
CRPEA	Contract Registrar and Power Exchange Administrator
L&CA	Legal & Corporate Affairs
MP&M	Material Procurement & Management
GSO	Grid Station Operations
GSC	Grid Station Construction
EHV	Extra High Voltage
PD	Project Director
SO	Systems Operations
DISCO	Distribution Company
DR	Disaster Recovery
LDP	Load Dispatch Project
PMU	Project Management Unit
DSS	Decision Support System
PC	Planning Commission
PPIB	Private Power and Infrastructure Board
EPP	Energy Policy Program
ETL	Extract Transform Load
GENCO	Generation Company
IPP	Independent Power Producer
ISO	International Standards Organization

ITIL	Information Technology Infrastructure Library
LAN	Local Area Network
WAN	Wide Area Network
NEPRA	National Electric Power Regularity Authority
NPCC	National Power Control Center
NTDCL	National Transmission and Despatch Company Limited
OEM	Original Equipment Manufacturer
OLAP	On-Line Analytical Processing
OLTP	On-Line Transaction Processing
PDU	Power Distribution Unit
PPC	Pre-Proposal Conference
LOE	Level of Effort

2. Introduction

2.1. Energy Policy Program

The Energy Policy Program (EPP) is a multi-year, USAID-funded initiative to increase power generation, improve transmission capacity and reliability. EPP works with selected energy enterprises to assist the Government of Pakistan's sector reform efforts. The program supports the joint goals of the United States Government (USG) and the Government of Pakistan in reforming the power sector, and is designed to address Pakistan's chronic electricity shortage.

2.2. Advanced Engineering Associates International, Inc. (AEAI)

Advanced Engineering Associates International, Inc. (AEAI) is a global engineering, energy and environmental services company. Headquartered in Cambridge, Massachusetts, the company currently has active regional and project offices in Washington, D.C., Europe, and Asia. It has undertaken hundreds of assignments related to energy infrastructure, industrial and energy efficiency, and clean energy projects for bilateral and multilateral development agencies such as the U.S. Agency for International Development (USAID), World Bank, International Finance Corporation (IFC), United Nations Development Programme (UNDP), International Energy Agency (IEA), Inter-American Development Bank (IDB), U.S. Trade and Development Agency (USTDA), and U.S. Environmental Protection Agency (EPA). AEA's clients also include other government agencies, utilities and corporations.

2.3. National Transmission and Despatch Company Limited (NTDCL)

The National Transmission and Despatch Company Limited (NTDCL) Limited was incorporated on November 6, 1998; and commenced commercial operations on December 24 that same year. NTDCL was organized to take over all the properties, rights, assets, obligations and liabilities of 220 kV and 500kV Grid Stations and Transmission Lines owned by Pakistan's Water and Power Development Authority (WAPDA). NTDCL operates and maintains twelve 500 kV and thirty 220 kV Grid Stations, 5077 km of 500 kV transmission lines, and 7359 km of 220 kV transmission lines.

NTDCL was granted Transmission License No.TL/01//2002 on December 31, 2002 by the National Electric Power Regularity Authority (NEPRA) to engage, on an exclusive basis, in the transmission of power, pursuant to Section 17 of the 1997 Regulation of Generation, Transmission and Distribution of Electric Power Act.

NTDCL is charged with the following responsibilities:

2.3.1. System Operator

Secure, safe, and reliable operation, control and dispatch of generation facilities.

2.3.2. Transmission Network Operator

Operate and Maintain (O&M), plan, design and expand the 500 kV and 220 kV transmission network.

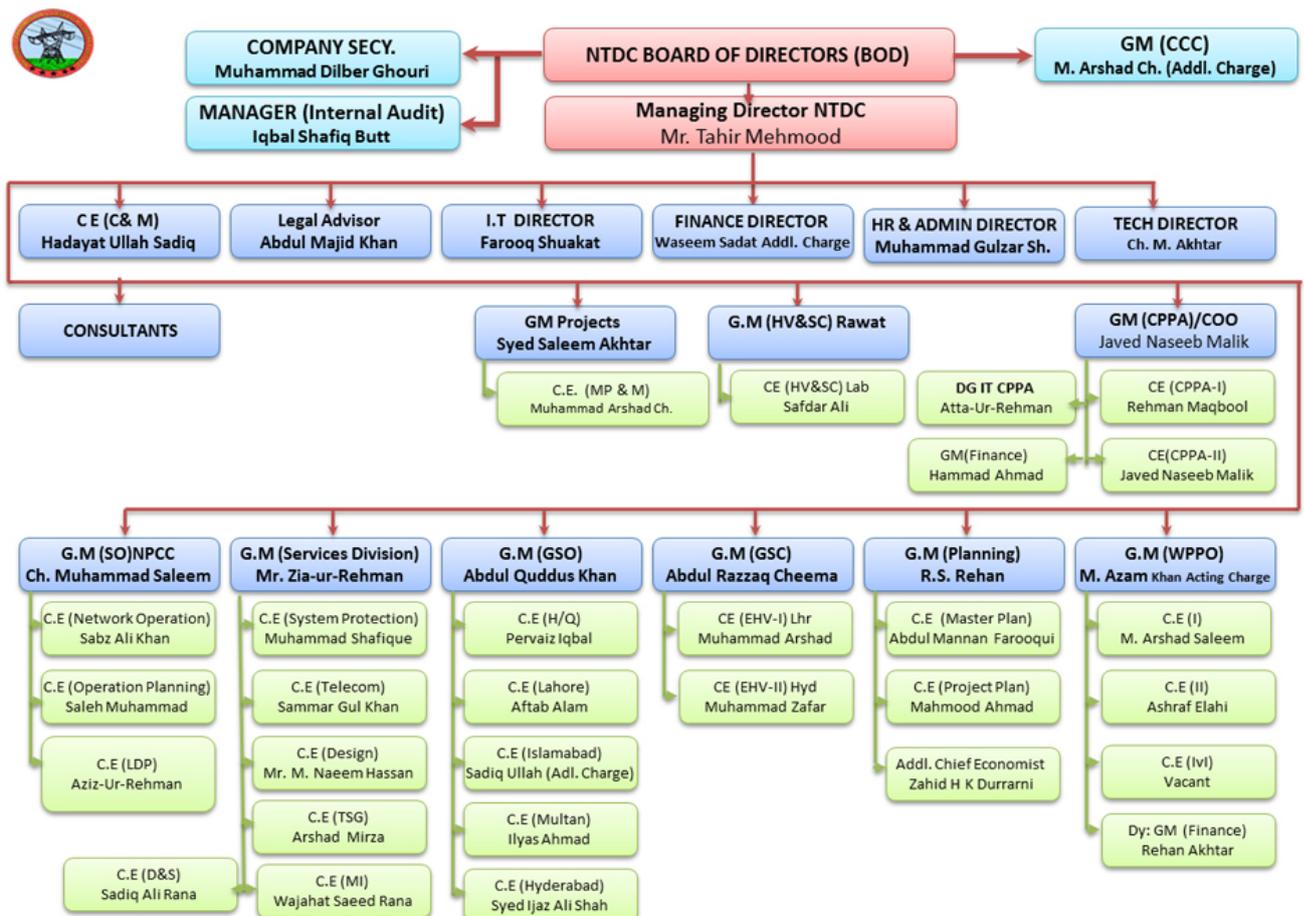
2.3.3. Contract Registrar and Power Exchange Administrator (CRPEA)

Record and monitor contracts related to bilateral trading systems.

2.3.4. Central Power Purchasing Agency (CPPA)

Procure power from GENCOs, hydels and IPPs on behalf of the Distribution Companies (DISCOS) for delivery through the 500 kV, 220 kV and 132kV networks.

2.4. Organizational Structure NTDC



2.5. NTDCL Board of Directors

1	Mr.Vaqar Zakaria	Chairman
2	Mr. Sohail Akbar Shah	Member
3	Mr. Asjad Imtiaz Ali	Member
4	Mr. Shah Jehan Mirza	Member
5	Mr. Tahir Mahmood	Member
6	Mr. Mohsin M. Syed	Member
7	Mr. Babar Sattar	Member

3. NTDCL Departments

3.1. Managing Director NTDCL

NTDCL's Managing Director (MD) has overall responsibility for running the business affairs of the company. He is also responsible for formulating and implementing strategies that accomplish the mission and vision of the company.

The following Directorates and Offices report to the Office of MD NTDCL:

- Technical Director.
- HR and Administration Director.
- Finance Director.
- IT Director.
- Legal Advisor.
- Manager Audit.

3.2. Chief Operating Officer (CPPA)

The Central Power Purchasing Agency (CPPA) is responsible for procuring power from the GENCOs, hydels and IPPs on behalf of the Distribution Companies (DISCOs), for delivery through Pakistan's 500 kV, 220 kV and 132kV networks.

The following offices are part of CPPA:

- General Manager (GM).
- Chief Engineer I.
- Chief Engineer II.
- GM Finance.
- Director General of Information Technology.

3.3. General Manager (GSO) NTDCL

The General Manager (GM) Grid System Operations (GSO) is responsible for operating and maintaining the 500 kV and 220 kV transmission networks.

The following chief engineers report to the GM (GSO):

- Chief Engineer GSO (HQ).
- Chief Engineer GSO Lahore.
- Chief Engineer GSO Islamabad.
- Chief Engineer GSO Multan.
- Chief Engineer GSO Hyderabad.

Below are the details of Pakistan's transmission network:

Description	Grid Stations (No.)	Transmission Line Length (kms)
500 kV	12 Stations	5,023
220 kV	30 Stations	7,319

3.4. 500 kV Grid Stations

Locations of the 500 kV Grid Stations are as follows:

Sr. No.	GSO NTDC Region	Name of G/S		
1	ISLAMABAD	500kV	G/S	SHEIKH MUHAMMADI PESHAWAR
2		500kV	G/S	RAWAT
3	LAHORE	500kV	G/S	SHEIKHUPURA
4		500kV	G/S	GATTI (FAISALABAD)
5		500kV	G/S	NOKHAR
6	MULTAN	500kV	G/S	NEW MULTAN
7		500kV	G/S	MUZAFFAR GARH
8		500kV	G/S	YOUSAF WALA
9	HYDERABAD	500kV	G/S	GUDDU
10		500kV	G/S	DADU
11		500kV	G/S	JAMSHORO
12		500kV	G/S	NKI (KARACHI)

3.5. 220 kV Grid Stations

NTDCL operates and maintains the following 220 kV Grid Stations

Sr. No.	GSO NTDC Region	Name of G/S		
1	ISLAMABAD	220kV	G/S	BURHAN
2		220kV	G/S	BANNU
3		220kV	G/S	DAUD KHEL
4		220kV	G/S	MARDAN
5		220kV	G/S	SANGJANI
6		220kV	G/S	SHAHI BAGH
7		220kV	G/S	UNIVERSITY
8	LAHORE	220kV	G/S	BUND ROAD
9		220kV	G/S	GHAKKAR
10		220kV	G/S	JARANWALA
11		220kV	G/S	KALA SHAH KAKU
12		220kV	G/S	LUDEWALA
13		220kV	G/S	NISHAT ABAD
14		220kV	G/S	NEW KOT LAKPAT
15		220kV	G/S	RAVI
16		220kV	G/S	SARAFRAZ NAGAR
17		220kV	G/S	SIALKOT (SAHOWALA)
18		220kV	G/S	WAPDA TOWN
19		220kV	G/S	SHALAMAR
20		220kV	G/S	SUMUNDARI ROAD
21	MULTAN	220kV	G/S	NEW MUZAFFAR GARH
22		220kV	G/S	BAWALPUR
23		220kV	G/S	VEHARI
24	HYDERABAD	220kV	G/S	HALA ROAD
25		220kV	G/S	QUETTA INDUSTRIAL
26		220kV	G/S	SIBBI
27		220kV	G/S	SHIKAR PUR
28		220kV	G/S	T.M.KHAN
29		220kV	G/S	DAHARKI
30		220kV	G/S	ROHRI

3.6. General Manager Grid Station Construction (GSC)

The General Manager (GSC) is responsible for arranging the construction of 500kV and 220kV Grid Stations, as well as transmission lines. There are two Chief Engineers, one for the northern region, and one for the southern region.

3.7. General Manager (GSC) North NTDC

- Manager (HQ).
- Chief Engineer (EHV-I).
- Manager (EHV).
- PD EHV Lahore.
- PD EHV Islamabad.

3.8. General Manager (GSC) South NTDC

- Chief Engineer (EHV-II).
- Manager (EHV).
- Manager (Construction).
- PD EHV Multan.
- PD EHV Hyderabad.

3.9. General Manager – System Operations (SO) NPCC

The General Manager SO is responsible for:

- Operational control of the primary EHV network.
- Economic power dispatch.
- Monitoring and maintaining system security, stability and reliability.
- Scheduling of maintenance shut-downs on power plants and network elements.
- Short-to-medium term operational planning, including preparation of power position according to plant availability as notified by the generators.
- Advance notifications to thermal plants for fuel arrangements.
- Collection of system data and preparation of reports.

The following chief engineers fall under the GM SO:

- Chief Engineer (Operation Planning).
- Chief Engineer (Project LDP).

- Chief Engineer (Network Operation).

3.10. General Manager (Projects) NTDC

The General Manager (Projects) is responsible for:

- Liaising between NTDC and the Asian Development Bank (ADB) to implement the Power Transmission Enhancement Investment Program.
- Ensuring that the project is physically executed and completed according to the prescribed standards and specification, and on schedule.
- Ensuring implementation of subprojects by coordinating with different departments of NTDC.
- Preparing reports for submission to ADB.
- Ensuring implementation of ADB's Environmental and Safeguard Policies.
- Coordinating with project preparatory and monitoring consultants.

The following personnel fall under the GM Projects:

- Manager PMU.
- Manager Coordination.
- Dy. Manager PMU.

3.11. General Manager (Planning) NTDC

The General Manager Planning's responsibilities include:

- Preparing PC-I's & PC-II's for transmission lines and grid stations projects.
- Conducting load flow studies for newly-proposed hydel, thermal and other generating plants.
- Identifying suitable locations and undertaking associated studies for new IPPs.
- Undertaking interconnection studies for proposed IPPs, along with load flow and transient stability studies; and preparing PC-I's for upcoming projects for power evacuation and dispersal, and the interconnection facilities.
- Undertaking Power Market Surveys.

The following personnel fall under the GM Planning:

- Chief Engineer (Master Planning).
- Chief Engineer (Project Planning).
- Chief Economist.

3.12. General Manager WAPDA Power Privatization Organization (WPPO)

The General Manager WPPO is responsible for:

- Dealing with IPPs installed under the 1994 Power Policy.

- Administering Power Purchase Agreements with IPPs installed under the 2002 Power Policy.
- Coordinating with the Ministries, NEPRA, and PPIB regarding issues faced by the IPPs; and with corporate entities regarding the design and installation of interconnections.
- Managing payment to IPPs.
- Providing assistance to NEPRA in granting generation and distribution licenses.

The following personnel fall under the GM WPPO:

- Deputy GM (Finance).
- Chief Engineer (I).
- Chief Engineer (II).
- Chief Engineer (III).
- Chief Engineer (IV).

3.13. General Manager (Service Division)

The Service Division is an independent, engineering consultancy with its Head Office at WAPDA House in Lahore. The Service Division was established by the Ministry of Water and Power to provide technical assistance related to transmission lines and grid stations to different corporate entities that were constituted after the Power Wing of the Water and Power Development Authority (WAPDA) was restructured.

The Service Division has several departments, headed by a Chief Engineer with offices in Lahore, including:

- Chief Engineer (Design and Standards).
- Chief Engineer (Design).
- Chief Engineer (Material Procurement and Management)
- Chief Engineer (System Protection).
- Chief Engineer (Telecommunication).
- Chief Engineer (Material Inspection).
- Chief Engineer (TSG).

3.14. Design and Standard Department

- Prepares bidding documents and evaluates procurements of goods and services for grid stations and transmission lines.
- Prepares specifications for equipment and material.
- Prepares engineering drawings for grid stations and transmission lines.
- Selects and approves grid station sites, transmission lines routes, and profiles.
- Factory tests and inspects material.
- Undertakes material planning, inventory management, and allocation for grid station and transmission line projects, as well as contingent works.

- Provides engineering services for planning, installation, and maintenance of metering at delivery points.

3.15. System Protection Department

- Prepares and vets protection system drawings and designs.
- Prepares and vets interconnection drawings.
- Relays setting calculations.
- Conducts tripping and fault analysis of 500/220/132 kV lines, and reviews relay settings for indiscriminate tripping.
- Prepares specifications and selects protection equipment.
- Conducts on-site and factory testing of protective equipment.
- Prepares cross-trip schemes, per NPCC's recommendations.

3.16. Telecommunication Department

- Undertakes telecom network planning and integrated solutions for links.
- Undertakes SCADA system planning, design and implementation.
- Prepares specifications and selects telecom and SCADA equipment.
- Provides telecom services to load dispatch and NPCC Islamabad.
- Conducts master planning of telecom network for the power utilities.

3.17. Material Inspection

- Counts ordered quantity and samples per technical specifications.
- Tests selected samples per approved protocols.
- Issues test reports.
- Issues inspection certificates.

3.18. Technical Services Group

- Monitors, maintains, and tests grid stations and transmission lines.
- Provides a technical training course for engineers and technicians.
- Conducts technical audits of grid stations and transmission lines.
- Performs pre-commissioning tests of grid station.
- Analyzes equipment failures in the national grid, and recommends remedial measures.
- Tests energy meters at cut-off delivery points at grid stations.
- Conducts thermo-vision surveys of grid stations and transmission lines.

4. Instructions to Vendors

4.1. GENERAL INSTRUCTIONS

4.1.1. Cost of RFP Document

This Request for Proposal (RFP) and associated bidding documents is free of cost. EPP may not receive any payment for the release of these documents. An electronic copy of the RFP document can be downloaded from EPP's website: www.ep-ep.com.pk/opportunities.html and can also be obtained from the AEAI office by requesting on the correspondence email mentioned in the Key Information Sheet.

4.1.2. Eligibility and Responsibility of Vendors

Proposals will only be accepted from parties that meet the following eligibility conditions:

- Have not been convicted for an offense concerning professional conduct.
- Have not been found guilty of grave professional misconduct (proven by any means).
- Have fulfilled obligations related to payment of taxes.
- Are not guilty of serious misinterpretation in supplying and/or withholding of information.
- We are not declared at serious fault of implementation owing to a breach of their contractual obligations.
- Are not on any list of sanctioned parties issued by the Pakistan Government or any of the donor Agency(s).
- The vendor/supplier is not associated with any terrorist organization.

Vendors are expected to thoroughly review all instructions, forms, terms, and requirements in the RFP. Failure to furnish all information required by the RFP document, or submission of a proposal deemed non-responsive may result in the proposal being rejected. Vendors are invited to submit a Technical Proposal and a Financial Proposal. These proposals will be the basis for contract negotiations with the successful vendor.

Vendors should familiarize themselves with local conditions, and take them into account in preparing their proposals. To obtain first-hand information on the assignment and local conditions, vendors are encouraged to visit the Client before submitting a proposal; and to attend a Pre-Proposal Conference (PPC). Attending the PPC is optional.

Vendor will submit their company profile, as per the template provided in **Appendix A**, as well as profiles of any proposed sub-contractors or implementation partners (if any) as per the template provided in **Appendix B**.

Vendor will also submit audited annual accounts (balance sheets and profit and loss statements) for themselves and any proposed sub-contractors or implementation partners (if any) for the last three financial years as per the template provided in **Appendix C**.

Vendors are encouraged to submit copies of any quality certificates from an internationally-recognized agency (e.g. CMMI, ITIL, ISO, Six Sigma, etc.).

Vendor will provide their relevant project experience, including client's name, duration of the assignment, number of professional staff who undertook the assignment, value of the assignment, and a brief description of the services rendered as they relate to NTDC's requirements (template provided in **Appendix D**).

Vendors are instructed to submit the resumes of professional staff proposed to undertake this assignment (template provided in **Appendix E**).

Vendor will submit pricing details as per the template provided in **Appendix F** that includes price for Data Centre implementation, price for ERP application licenses, price for ERP implementation and recurrent cost.

Vendor will submit client-side hardware and bandwidth requirements as per the template provided in **Appendix H**.

Vendor will submit an affidavit for Non-Disclosure Agreement as described in **Appendix I**. The intent is to get the assurance from the vendor that Non-Disclosure Agreement will be signed at the time of contract award, if successful.

4.1.3. Cost of Proposal Preparation

Vendors shall bear all costs associated with the preparation and submission of their proposals and any subsequent contract negotiation. AEAI is not bound to accept any proposal, and reserves the right to cancel the selection process at any time prior to contract award, without incurring any liability.

4.1.4. Vendor Solution Presentation Session

Prospective Vendors are invited to present their solution to AEAI. Vendors are instructed to request a date and time to make their presentations prior to the proposal submission date. The presentation should not be more than 60 minutes including Q & A session.

4.1.5. Pre-Proposal Conference

AEAI will hold a Pre-Proposal Conference (PPC) as per the schedule on the Key Information Sheet. At the PPC, AEAI will address questions raised by vendors. Vendors are required to submit their queries to the email address in the Key Information Sheet at least **2 (two) days** prior to the PPC. Queries not submitted before this deadline may not be addressed at the PPC. AEAI will only entertain the queries that are already submitted through email by the vendors and will not take questions from the floor during the session.

AEAI reserves the right not to respond to any or all queries raised.

Attending the PPC is not mandatory. An e-mail notification will be sent to all vendors that have indicated their intention to attend the PPC should the date or location change.

4.1.6. Conflict of Interest

AEAI policy requires that bidders and vendors provide professional, objective and impartial advice, and strictly avoid conflicts of interest with other assignments or their own corporate interests; and act without any consideration for future work.

4.1.7. Fraud and Corruption

AEAI requires bidders and vendors to adhere to the highest ethical standards, both during the selection process and throughout the execution of a contract.

- a. In pursuance of its Fraud and Corruption policy, AEAJ defines, for the purpose of this paragraph, the terms set forth below as follows:
 - i. “Corrupt Practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the selection process or in contract execution.
 - ii. “Fraudulent Practice” means a misrepresentation or omission of facts in order to influence a selection process or the execution of a contract.
 - iii. “Collusive Practices” means a scheme or arrangement between two or more consultants with or without the knowledge of the Client, designed to establish prices at artificial, non- competitive levels.
 - iv. “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.
- b. In pursuance of its Fraud and Corruption policy, AEAJ will reject a proposal for award if it determines that the vendor recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing.

Vendors, their sub-contractors and their associates shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by AEAJ in accordance with the above paragraphs. Furthermore, vendors shall be aware of the provisions on fraud and corruption stated in the specific clauses in the General Conditions of Contract.

4.1.8. Proposal Validity

Vendor may only submit one proposal. If a vendor submits or participates in more than one proposal, all such proposals shall be disqualified. However, this does not limit the participation of the same sub-contractor, including individual experts, to more than one proposal.

Vendors’ proposals must remain valid for 90 days after the submission date. Should the need arise; however, AEAJ may extend the validity period of the proposals.

4.1.9. Clarification and Amendment of RFP Documents

The amendments in any of the terms and conditions including technical specifications of this RFP document will be notified in writing either through post or by fax or by email or publish through website to all prospective vendors who have shared their contacts while getting the tender documents from AEAI and will be binding on them.

Vendors may request a clarification of any of the RFP documents up to the number of days indicated in the Key Information Sheet before the proposal submission date. Any request for clarification must be sent in writing, or by standard electronic means to AEAI's email address indicated in the Key Information Sheet. AEAI will respond by standard email, and will send written copies of the response (including an explanation of the query but without identifying the source of inquiry) to all Vendors. Should AEAI deem it necessary to amend the RFP as a result of a clarification, it shall do so following the below procedure.

At any time before the submission of proposals, AEAI may amend the RFP by issuing an addendum in writing, or by standard electronic means. Any addendum will be sent to all vendors. Vendors are instructed to acknowledge receipt of all amendments. To give vendors reasonable time to take an amendment into account in their responses, AEAI may, if the amendment is substantial, extend the deadline for the submission of proposals.

4.1.10. Availability of Professional Staff/Experts

Having selected the successful Vendor on the basis of, among other things, an evaluation of proposed professional staff, AEAI expects to negotiate a contract on the basis of the professional staff named in the successful vendor's proposal. Before contract negotiations commence, AEAI will require reasonable assurances that the proposed experts are actually available for the duration of the assignment. AEAI will not consider substitutions during contract negotiations unless both parties agree that undue delay in the selection process makes such substitutions unavoidable; or that such changes are critical to meet the objectives of the assignment. If this is not the case, and if it is established that key staff were offered in the proposal without confirming their availability, the firm may be disqualified.

4.1.11. Involvement of Sub-Contractor(s)

Where Vendor expects to sub-contract a part of the specified Scope of Work, the same must be clearly stated in their proposal, describing the work to be sub-contracted, the reasons for sub-contracting, and the details of the sub-contractor, including previous work performed by the sub-contractor in a similar area. If the vendor does not envision involving a sub-contractor(s) during the proposal process, but desires to do so during project execution, they must first obtain approval, in writing, from AEAI.

4.1.12. Joint Venture

All vendors comprising a joint venture shall be legally constituted.

All partners of the joint venture shall, at all times and under all circumstances, be liable jointly to AEAI for the execution of the entire contract in accordance with the contract terms and conditions

The proposal cover letter, and in the case of successful the vendor, the Contract Agreement Form, shall be signed so as to be legally binding on all partners.

One of the joint venture partners shall be nominated as “in-charge,” and this authorization shall be evidenced by submitting a power of attorney signed by legally- authorized signatories of all the joint venture partners.

The partner-in-charge shall be authorized to incur liabilities, receive payments and receive instructions for and on behalf of any or all partners of the joint venture.

A copy of the agreement entered into by the joint venture partners shall be submitted with the proposal stating the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it and which persons will be directly responsible for due performance of the Contract and can give valid receipts on behalf of the joint venture, the proportionate participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. No amendments/modifications whatsoever in the joint venture agreement shall be agreed to between the joint venture partners without prior written consent of AEAI.

4.1.13. Submission of Proposals

Vendors are instructed to submit hard and soft bound forms, with all pages numbered. Proposals should also have an index. Incomplete proposals will summarily be rejected.

Number of Copies of Proposal

Vendor shall prepare one original and five hard copies of the following, along with a soft copy submitted on CD-ROM:

- a. Technical Proposal (separately), clearly marked "Technical Proposal – Original Copy" and "Technical Proposal –Copy of Proposal."
- b. Financial Proposal, clearly marked "Financial Proposal."

Prices should not be indicated in the Technical Proposal.

All of the columns on the quotation form shall be duly, properly and exhaustively filled in. The rates and units shall not be overwritten. Rates shall always be presented in figures and words.

The proposals shall be submitted in two parts:

- Envelope 1:** Technical Proposal super-scribed as “**Envelope 1 - Technical Proposal**”, complete with all technical details. In the technical proposal, there should not be any indication about the prices of any of the products and services offered.
- Envelope 2:** Commercial Proposal, containing the Price Schedule super-scribed as “**Envelope 2 - Commercial Proposal**”.

The two sealed envelopes should be placed in a single sealed envelope. Clearly write “**ERP END to END Solution**” on the envelope, which should be mailed to the office mentioned on the Key Information Sheet, up to the due date and time also mentioned on the Key Information Sheet.

4.1.14. Proposed Prices

Vendor must provide the prices of the proposed solution using the Price Schedule Templates as per **Appendix F**.

Prices provided on the Price and Recurrent Costs Schedules (as per the templates) shall be

listed individually in the following manner:

- a. Unit and total prices of products offered, inclusive of all duties and taxes etc.
- b. Module wise prices for implementation services as per prescribed templates 4A, 4B, 4C and 4D under **Appendix F** section 4.
- c. Recurrent costs on the Recurrent Costs Form, as follows:
 - The cost of all software updates, recurrent licensing fees, and any other items needed to execute the project, plus any other recurrent supply of products specified in the RFP.
 - The cost of all maintenance and technical support services, and any other recurrent services specified in the RFP, including all taxes payable by the successful Vendor thereon. AEAI shall not be liable to pay any of the aforementioned charges, taxes, expenses, etc. at any point during or after the period of this contract.
- d. Totals of Product, Services and Recurrent Costs, on the Proposal Price Summary Form.

Vendor should separately highlight the prices for software/licensing costs, and implementation/services/maintenance costs.

Prices quoted by Vendor shall be fixed. Proposals submitted with adjustable price quotations will be rejected, and the Vendor shall not hold AEAI liable in anyway.

Vendor should also submit a milestone-based payment schedule for AEAI's consideration, per the RFP.

4.1.15. Late Proposals

Any proposal received after the time and date for receipt of proposals prescribed on the Key Information Sheet will be rejected.

4.1.16. Modification and withdrawal of Proposals

Vendors are allowed to modify or withdraw their proposals any time prior to the last date prescribed for receipt of proposals, by submitting written notice to AEAI.

Subsequent to the last date for receipt of proposals, no modifications are allowed.

4.1.17. Eligibility Criteria

Vendors must meet the following eligibility criteria:

- I. The proposed software should be an off-the-shelf, web-enabled solution of international repute (vendors are asked to provide literature/brochures, and any other technical documents deemed necessary).
- II. Expected Go-Live date of the ERP Project is the end of **August, 2015**.
- III. The prime vendor/subcontractor should provide services related to the implementation of the proposed software for at least last 5 years in Pakistan.
- IV. The prime vendor and its subcontractors should provide a certificate/official letter stating that they or any of their consortium members are not blacklisted in Pakistan

or any other country.

- V. The prime vendor and its subcontractor(s) should provide a certified, official letter stating that on similar projects, they have not been terminated or been a defendant in a legal proceeding for the failure to deliver satisfactory performance.
- VI. The prime vendor must be able to depute experienced consultants having the required knowledge and skill set for the implementation of the proposed software, who have gone through at least 10 (ten) complete project lifecycles of the implementation of the proposed software.
- VII. The prime vendor must have demonstrated knowledge and experience of working on at least 2 projects of similar size and scope within the utility sectors, preferably the electricity sector.
- VIII. The prime vendor should be able to demonstrate the features of the proposed solution to AEAI, covering features and functionality that is relevant to NTDC operations.
- IX. The prime vendor should have annual sales turnover of PKR Five Hundred Million and above in each of the last three financial years.
- X. References along with contact details for key projects shall be provided.
- XI. The prime vendor should have direct authorization from the Software Manufacturer to sell and support the components offered.
- XII. The prime vendor must provide a company registration certificate, etc.
- XIII. The prime vendor must provide audited financial statements for the last 3 financial years.
- XIV. An agreement between the principal vendor and subcontractor, if any, should be included in the bid.

4.1.18. Schedule of Events

S. #	Events	Date & Time/Duration
1.	Floating the RFP	Mentioned in Key Information Sheet
2.	Last date for submission of queries	Mentioned in Key Information Sheet
3.	Pre-Proposal Meeting	Mentioned in Key Information Sheet
4.	Last date and time of proposal submission	Mentioned in Key Information Sheet
5.	Software demo / solution presentation by shortlisted vendors	Shortlisted vendors will be informed
6.	Contract Award / Signing	Shortlisted vendors will be informed

4.1.19. Evaluation Process

AEAI's ERP Team will select the winning proposal per the following:

- I. Proposals will be examined to determine whether they are complete, whether any computational errors have been made, and whether the proposals are generally in order. Proposals will be examined and evaluated to determine whether the vendor meets eligibility criteria, completeness of the proposals, whether the documents have been properly signed. Any proposals found to be non-responsive for any reason or not meeting the minimum levels of the performance or eligibility criteria specified in the various sections of this RFP will be rejected and not included for further consideration.
- II. Clarification meetings may be conducted with each or any vendor to discuss any matters, technical or otherwise.

4.1.20. Evaluation of Proposals and Scoring

A two-stage procedure will be utilized in evaluating proposals, with evaluations of the Technical Proposal being completed prior to any Financial Proposals being opened and compared. The total points possible for proposals are 1000, out of which the Technical Proposal will carry 800 points, and Financial Proposal will be weighted on 200 points. Financial Proposals will only be opened for submissions that passed the minimum technical score of 70% of the obtainable score of 800 points in the evaluation of the Technical Proposals. If a Technical Proposal achieves 70% of the 800 possible points, the vendor will be considered in the following manner:

The total amount of points allocated for the Financial Proposal is 200. The maximum number of points (200 points) will be allotted to the lowest- price proposal that is opened, and which obtain the threshold points in the evaluation of Technical Proposals. All other Financial Proposals will receive points in inverse proportion to the lowest price. For example:

$$\text{Price Score} = \frac{(\text{Total Price Score i.e. } 100 * \text{Lowest Price})}{\text{Price Score of Vendor}}$$

Example:

1st Lowest Price = 1000 2nd Lowest Price = 1050

- a. Price Score of 1st Lowest Vendor = $(200 * 1000)/1000 = 200$
- b. Price Score of 2nd Lowest Vendor = $(200 * 1000)/1050 = 190.5$

4.1.21. Technical Proposal Evaluation Criteria

S #	Summary of Technical Proposal Evaluation Criteria	Score Weight
I.	Form I: Organizational Strengths and Technical Expertise	250

2.	Form2: Proposed Work Plan (Methodology, Approach, WBS, Activities, Technical Solution etc.)	250
3.	Form3: Proposed project Team (Personnel, Structure etc.)	300
	Sub Total (Technical)	800
	Sub Total (Financial)	200
	TOTAL SCORE	1000

4.1.22. Deciding Award of Contract

AEAI reserves the right to ask for a technical elaboration/clarification in the form of a technical presentation from the successful vendor in addition to their already-submitted Technical Proposal at any point of time. The vendor shall furnish the required information to AEAJ and its appointed representative on the date asked for, at no cost to the AEAJ. AEAJ may, at its discretion, visit the office of the successful vendor, any time before the issuance of a Letter of Award.

Vendors who qualified during the evaluation process as described in this RFP will be informed via email, mail or fax.

Further, the vendor with highest score will not necessarily be selected. In case the commercial terms cannot be finalized with the vendor that receives the highest score, then the vendor with the next highest score will be selected, and so on, until a contract is awarded.

4.1.23. Award of Contract

After completing negotiations, AEAJ will award a Contract to the selected vendor, and promptly notify all other vendors that submitted proposals. The successful vendor is expected to commence work on the assignment on the date and at the location agreed to during finalization of the contract.

4.1.24. Confidentiality

As used herein, the term “Confidential Information” means any information, including information created by or for the other party, whether written or oral, which relates to internal controls, computer or data processing programs, algorithms, electronic data processing applications, routines, subroutines, techniques or systems, or information concerning the business or financial affairs and methods of operation or proposed methods of operation, accounts, transactions, proposed transactions or security procedures of either party or any of its affiliates, or any client of either party, except such information which is in the public domain at the time of its disclosure or thereafter enters the public domain other than as a result of a breach of duty on the part of the party receiving such information. It is the express intent of the parties that all the business processes and methods used by the successful vendor in rendering the services hereunder are the Confidential Information of the successful vendor.

The successful vendor shall keep confidential any information related to this tender with the same degree of care as it would treat its own confidential information. All vendors shall note that the confidential information will be used only for the purposes of this tender, and shall not be disclosed to any third party for any reason whatsoever.

At all times during the performance of the services, the successful vendor shall abide by all applicable security rules, policies, standards, guidelines and procedures. The successful vendor should note that before any of its employees or assignees are given access to the Confidential Information, each such employee and assignee shall agree to be bound by the terms of this tender, and such rules, policies, standards, guidelines and procedures by its employees or agents.

The successful vendor should not disclose to any other party and keep confidential the terms and conditions of this contract agreement, any amendment hereof, and any attachment or annex hereof.

The obligations of confidentiality under this section shall survive rejection of the contract.

4.1.25. Arbitration

AEAI and the selected Vendor shall make every effort to resolve amicably by direct informal negotiation in case of any disagreement or dispute arising between them under or in connection with the contract.

If, after fifteen (15) days from the commencement of such informal negotiations, AEA and the selected Vendor have been unable to amicably resolve dispute, either party may require that the dispute be referred for resolution to formal mechanisms, which may include, but are not restricted to, conciliation mediated by a third party acceptable to both.

4.2. SPECIAL INSTRUCTIONS

4.2.1. Implementation

- I. The successful vendor should provide details of the implementation methodology to be adopted, and include a component-wise, detail-level plan until the expected go-live date of the project (end of **August, 2015**).
- II. A detailed time schedule should be provided, highlighting the principal milestones and activities, in detail, with the overall time span and deliverables associated with each milestone.
- III. Details should be provided of the project organization that will be maintained, including relationships between the various parties and the communication process and plan.
- IV. The successful vendor should provide a Change Management strategy document along with their implementation plan. The Change Management document should discuss, in detail, how to help NTDCL's Human Resources Department adapt to the new ERP platform.
- V. Project progress reporting and issues escalation mechanisms shall be highlighted.
- VI. Details of how the identified resources will be utilized during the various phases of the project should be described. These should include estimates of the total staff input (professional and support staff; staff time and location) needed to carry out the project.
- VII. A quality assurance process should be described.

- VIII. The successful vendor must clearly specify the facilities required by their staff during implementation.
- IX. AEAI, at its discretion, may also ask for replacement of any expert at any stage of the project if AEAI or NTDC considers that said expert is engaged in questionable activities or the performance of the expert is not at par with the required standard.

4.2.2. Acceptance Criteria

For payments to be released to the successful vendor, and the milestone to have been achieved successfully, it is essential that certain acceptance criteria and procedures are followed.

1. Criteria

The acceptance criteria for the successful completion of the defined deliverables as laid out in the Deliverables section of the Format for Technical Proposals for a defined milestone.

2. Procedure

Before every milestone, the successful vendor will submit their pre-milestone final version of the deliverables pertaining to the milestone for assessment and acceptance. The deliverables will then be assessed according to the standards and requirements of NTDC for that particular deliverable. For certain milestones, a successful completion report of the Test Model will be required as laid out in the Deliverables section. Assessment will then be carried out by the NTDC Technical and Business Teams for the project. The final assessment of successful completion will lie with the Project Steering Committee, to which the Technical and Business Teams report.

4.2.3. Representation and Warranties by the Vendor

The successful vendor confirms that all representations and warranties set forth in the contract are true, complete and correct in all respects;

All equipment including material to be installed by the successful vendor during the project shall be new, and the product should not be de-supported or declared end of life within the next 3 years. A certificate to that effect should be furnished from OEM. All equipment shall conform to the codes, standards and regulations applicable to networking facilities, and benefit from the usual manufacturer's guarantees. The warranty period will start right after go-live acceptance signoff by the relevant stakeholders.

4.2.4. Bankruptcy and Insolvency

AEAI can terminate the contract if the successful vendor becomes bankrupt and/or becomes insolvent with 15 days' notice. AEAI, in such an instance, will not be responsible for any loss or financial damage to the service provider due to the termination. AEAI will also, in such cases, have the right to recover any pending dues by invoking the performance bank guaranty or any such instrument available.

4.2.5. Natural Disaster

Neither party shall be responsible to the other for any delay or failure in performance of its obligations due to any occurrence commonly known as Force Majeure which is beyond the

control of any of the parties, including, but without limited to, fire, flood, explosion, acts of God or any Governmental body, public disorder, riots, embargoes, epidemics, strikes, lockouts or other labor disputes, insurrections, civil commotion, war, enemy actions. If a Force Majeure arises, the successful vendor shall promptly notify AEAI in writing of such condition and the cause thereof. Unless otherwise directed by AEAI, the successful vendor shall continue to perform his 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. The successful vendor shall be excused from performance of his obligations in whole or part as long as such causes, circumstances or events shall continue to prevent or delay such performance. Force Majeure will provide schedule relief only for the project on a day for day basis and will not provide financial relief.

5. TERMS OF REFERENCE & TECHNICAL REQUIREMENTS

5.1. TERMS OF REFERENCE

5.1.1. Project Requirements

The requirements set forth in this proposal are based on specifications currently envisioned. It is anticipated that certain modifications, adjustments or additions may be required. Vendor should, therefore, use the descriptions of the Proposed System as minimal essential requirements, not as an exhaustive or fixed list of all specifications. Each vendor is strongly encouraged to demonstrate in its proposal any requirements, features or services that such vendor believes is necessary or advisable, in addition to or in lieu of, those specifically identified in this RFP. This project will be on turnkey basis, including supply of all required equipment, software, licenses, hardware, implementation, installation materials, masonry works and services needed for installation, integration and configuration of the supplied equipment, software, testing, training and post-implementation support for 1 year (inclusive of license renewal and hardware support with parts).

The sections that follow describe the specific requirements for inclusion in the proposal. Vendor should describe, provide information or make comments that would demonstrate their adherence to these requirements. This information should be presented in the same sequential order as the requirements described in this proposal.

5.1.2. Data Centre Deployment

Vendor will supply, install, test and commission the Data Center on a turnkey basis per the below specifications.

- Primary equipment will be sourced from reputable international manufacturers, whose systems are already deployed in the country and are fully supported by OEM.
- All installations must be completed with the required accessories, fittings and tool kits; and all product technical specifications must be submitted with Technical Proposals, including instruction manuals and Single Line Diagrams (SLDs).
- Vendors may propose additional items that they deem necessary, but are not mentioned in the requirements.
- Vendors will warrant that the goods supplied under the contract are new, the most recent or current models, and incorporate all the latest improvements in design and materials. Vendors will further warrant that all goods supplied under this Contract have no defect arising from design, material or workmanship, or from any act or omission of the vendor that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.
- Vendors will ensure that the selected equipment hardware and software will not be at End of Life for the next 3 years, and end of support for the next 4 years after final acceptance.
- Vendors must offer a comprehensive warranty, support and maintenance, inclusive of parts for repair and replacement of batteries and consumables aligned with

support (24x7x365) for a period of one (1) year, inclusive of any PM (Preventive Maintenance during warranty) wherever required. The repair/replacement warranty will include the hardware, parts and components maintenance, all software upgrades, patch serving and technical support. Vendors will maintain an emergency on-call team of skilled technicians and engineers equipped with the necessary tools for emergency fault calls. Vendor should also share post warranty maintenance costs after one (1) year.

5.1.3. ERP Implementation Requirements

During the implementation phase, the following functions will be performed with full documentation. The successful vendor should assume that this is not an all-inclusive list. AEAI expects the successful vendor to use best practices to identify additional areas that are required for successful project implementation. Within these functions, the successful vendor will be responsible for the following activities.

- Project Management - The successful vendor will be responsible for managing all tasks and deadlines. Furthermore, the successful vendor will be responsible for defining the implementation approach, project methodology, tools and templates.
- Design/Specification - The successful vendor will be responsible for defining the appropriate design specifications, supply, deployment and configuration of complete backend hardware, including servers, switches, fiber and other server-level connectivity and racks, databases and application Licensing sizing, and 3rd party system software (e.g., server operating system). Network connectivity among Divisional setup of the Company (e.g., Internet connection type/speed) will be the responsibility of NTDC. Hardware, including laptops, desktops, and wireless routers will be supplied by NTDC. The successful vendor must share network bandwidth requirements with NTDC in their proposal.
- Change Management - The successful vendor should provide a Change Management Plan along with implementation plan. The Change Management Plan should discuss, in detail, how to help NTDC's Human Resources Department adapt to the ERP platform. The successful vendor is also required to provide comprehensive workshops on the Change Management Plan for NTDC's management.
- The warranty period will start immediately following the go-Live acceptance of the relevant stakeholders.

5.1.4. Training Requirements

The successful vendor will provide comprehensive training to the management/designated officers/officials (end users and operators) of the Company or the Company Nominees; and advance/specialized training for IT staff in order to ensure smooth operations of the system. The IT staff will be specifically trained on administering, managing, troubleshooting, security, replication, backup and recovery. The successful vendor will also be required to develop user and technical training materials. The training must encompass the operation, administration, and use of the solution.

5.1.5. Support Requirements

All deliverables will be under warranty for 1 year or per the original warranty (whichever is higher). Warranty period will immediately following the Go-Live acceptance signoff by the relevant stakeholders.

5.1.6. Vendor's Expected Project Team

The successful vendor's implementation team should include:

Project Roles

- Project Director.
- Project Manager.
- Change Lead.
- System Architect.
- Functional Module Lead – Financial Management.
- Functional Module Lead – Inventory and Procurement Management.
- Functional Module Lead – Meter Data Management/Energy Purchase, Sale and Distribution.
- Functional Module Lead – T&D Projects Management.
- Functional Lead – Data Center Infrastructure Implementer.
- Technical Lead.
- Data Team Lead.
- Functional Consultant.
- Technical Consultant.
- Developer.

5.2. PROPOSAL FORMAT

5.2.1. Technical Component

Vendors' Technical Proposal should be concisely presented and structured in the following manner, but may include additional information deemed necessary to represent their qualifications and relevant experience.

Description of Firm (Organizational Strength and Technical Expertise):

Detailed company profile highlighting organizational strength, technical expertise, and financial position. A brief description of the firm, and information related to recent experience on projects of a similar magnitude. Vendors should also include the principal point of contact with email address, phone number and fax number of the vendor's authorized representative. Vendors must provide information that will facilitate the evaluation of their substantive reliability, financial and managerial capacity to provide the services required. Vendors should also include relevant experience on implementing mission critical national level projects.

Understanding of the Requirements for Services including Assumptions:

Include any assumptions as well as comments on the data, support services and facilities to be provided by the Company as indicated in the specifications, or as may otherwise be necessary. Vendors are encouraged to augment their proposals with Schematic Diagrams, and may comment or suggest additions to the Terms of Reference that may strengthen their response and demonstrate their ability to implement this project.

5.2.2. Technical Part Structure

Vendors are asked to structure the Operational and Technical sections of their proposals as follows:

Management Plan:

This section should provide corporate capabilities that include the year, province, state and country of incorporation; and a brief description of the vendor’s present activities. It should focus on services related to the proposal. This section should also describe the organizational unit(s) that will become responsible for the contract, and the general management approach to achieve the desired results. Vendors should include relevant past performance experience on similar projects, and identify an authorized representative who can negotiate on the vendor’s behalf.

Resource and Capability Plan:

This section should fully explain the vendor’s resources in terms of personnel and facilities necessary to undertake this assignment.

Proposed Methodology:

This section should demonstrate the vendor’s responsiveness to the specifications by identifying the specific components proposed, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics, and demonstrating how the proposed methodology meets or exceeds the specifications. The operational and technical sections of the proposal should not contain any pricing information whatsoever. Pricing information must only be included in the Price Schedules. All references to descriptive material and brochures should be included in the appropriate response paragraph, though materials and documents, themselves, may be provided as additional sections to the proposal. Information which the vendor considers proprietary, if any, should be clearly marked “proprietary” next to the relevant part of the text, and it will then be treated accordingly.

5.2.3. Financial Component

The Financial Proposal must be submitted separately, per the instructions given in this RFP.

5.2.4. Deliverables

A comprehensive ERP END-TO-END Solution of a tier one, commercial off-the shelf integrated ERP is required. Expected Go-Live for the project is the end of August 2015. The deliverables fulfilling the TECHNICAL REQUIREMENTS are documented in the below sections, but are not necessarily limited to:

Project Phase	Deliverable / Phase Output
Kick-Off Project	<ul style="list-style-type: none"> Project Charter Document and Sign-Off

Project Requirements/Gap Analysis Report	<ul style="list-style-type: none">• Gap Analysis and Review of Future Process Model. Gap Analysis Report with Solution• Project Scope Document and Sign-Off
Project Design	<ul style="list-style-type: none">• Complete architecture design of the Data Center
Organizational Change Management concerning implemented ERP modules	<ul style="list-style-type: none">• Organizational Change Management Strategy Document• Change Management Communication Plan• Proactive Change Impact Assessment and Action Plan• User Readiness Checks including Check-list and Tracking to take Timely Mitigating Actions for Go-Live and to ensure Optimal User Readiness
Extensive and Comprehensive Key User Training	<ul style="list-style-type: none">• Key User Training Plan Document• Key User Training Material• Plan and Execute Key User Training with Daily Reporting on Assessments and Attendance
Setup/Build/Customization/Development and Integration	<ul style="list-style-type: none">• Data Center delivery and deployment• Development server installation and availability• QA server installation and availability• Production server installation and availability• Each Module Setup Configuration Documents
Data Conversion and Model	<ul style="list-style-type: none">• Data Strategy Document and Sign-Off• Data Conversion Scope Document and Sign-Off• Reconciliation and Validation of Data

User Acceptance Testing	<ul style="list-style-type: none"> • Testing Requirements and Strategy Document and Sign-Off • Business Test Scenarios (A representative sample covering most simple and complex business scenarios of selected sites) • User Acceptance/Integration Testing Sign-Off
Extensive and Comprehensive End User Training	<ul style="list-style-type: none"> • End User Training Plan Document • End User Training Material • Plan and Execute End User Training with Daily Reporting on Assessments and Attendance • Training of System Administration Staff
Transition to Production and Go Live according to the implementation and rollout plan	<ul style="list-style-type: none"> • Go Live and Roll-out Strategy • Complete Production Environment • Project Closure Report • On Site Support Plan • On Site Support
SOP Documentations	<ul style="list-style-type: none"> • Complete Operational and Functional SOPs (documents) for implemented modules.

5.2.5. Constraints

Constraints must be clearly defined, as the vendor’s initial proposal will be based on the constraints already referenced.

5.2.6. Major Activities

Vendors are responsible for the complete integration and operationalization of the proposed solution per the functionality requirements defined in the TECHNICAL REQUIREMENTS sections.

5.2.7. Project Management and Monitoring

The ERP Project Steering Committee, along with functional teams, will carry out formal technical reviews to ensure system development and implementation to accomplish the desired goals within a specified schedule and budget.

5.2.8. Warranty

All deliverables shall be under a 1 (one) year warranty or per the original warranty (whichever is higher). Warranty period will start right after Go-Live acceptance signoff by the relevant stakeholders.

5.2.9. Costing

The Company seeks Financial Proposals where all payments are tied to deliverables. The proposals must clearly indicate ALL COSTS that the Company has expected to incur over the life of this contract, based on the information contained in this RFP. The proposals must provide a detailed description of all costs.

Vendors will quote the cost of the complete solution as per the Terms of Reference, and must calculate the itemized cost of all components of this project in a structured manner per **Appendix F**.

5.3. TECHNICAL REQUIREMENTS

5.3.1. General

A comprehensive, (ERP) end-to-end solution that includes a suite of integrated applications specific to the utility industry is the ultimate objective of this project.

The successful vendor must provide an effective and cost beneficial solution, keeping in view the specific information and application needs of NTDCL. The Technical Proposal should clearly describe how vendor will meet the needs of NTDCL, either directly, in whole or in part, or through alternatives. Further, vendor must suggest solutions that will require minimum customization or add-ons, maximum or completely seamless integration between applications, lower systems implementation risk, while at the same time providing the best possible performance at a reasonable price.

Vendors should present a fully responsive Technical Proposal to address the requirements defined in the following sections, and explain their approach to each requirement. Proposals must also identify any requirement vendors cannot satisfy. Sufficient details should be included to demonstrate the vendor's knowledge of the project, and their ability to satisfy each requirement.

Each vendor can submit only one proposal.

5.3.2. Phased Implementation

In order to integrate business functions, ERP modules must be deployed and implemented in a phased approach.

Interested parties are encouraged to submit proposals in accordance with the functional, technical and other requirements set forth in this RFP document. Vendor should define the total duration, with timeline, to deploy the modules, and plan its sub activities following the timeline as represented by a Gantt chart included with their proposal. All phased deliverables should be clearly defined.

5.3.3. Turnkey Solution

AEAI expects an end-to-end solution and desires to engage the consulting companies for the following activities till the expected Go-Live for the project by end of August, 2015 and delivers the following:

- Data Center Deployment
- As-Is To Go-Live.

- Go-Live to Operational.
- Capacity Building and Technology Transfer.
- Operational to Handover to User with Complete Technology Transfer.
- Free One Year Warranty.

5.4. KEY OBJECTIVES

The key objectives are to ensure NTDCL continues to reap the best value out of its IT investments, and develop a mechanism to enhance competency, build knowledge and enable proactive road-mapping in achieving productivity and effectiveness through technology enablement.

ERP will be the primary vehicle to take NTDCL to next level of business network transformation by focusing on:

5.4.1. Strategic Information Management

- Empowering and connecting users, driving business process innovation and seamless user experience.
- Creating and managing a unified view of information from cradle to grave.
- Actionable insights for better decision making.

5.4.2. Transparency and Operational Excellency

- Ensuring business compliance and managing risk.
- Enhancing operational efficiencies and better alignment of organizational goals and objectives by improving business process management.
- Improving operational resource utilization through efficient planning, budgeting and forecasting.
- Understanding more accurately the true cost of various processes, services and network combinations.
- Enhanced enterprise agility, harmonized IT governance, improved operational efficiencies and better alignment of organizational goals and objectives.
- Clear and defined Strategic IT Roadmap in the key focus areas of business process innovation, Technology Strategic Information Management and Operational Efficiency.
- One-Stop Center for New Technologies and business advisory services for all impacted business functions of NTDCL.

5.4.3. Technology and Innovation

- Building a platform for change that caters for agility and adopts itself to required processes changes.
- Allowing with proportionally smaller cost of change to easily modify processes and orchestrate them across business networks.

- Ensuring innovation by taking full advantage of industry best practices in both business process design and technical approach that the vendor has knowledge of through experiences with other clients and external research and relationships.

5.5. Functional Requirements

5.5.1. Data Center

Functional areas that will establish a Data Center include, but are not limited to, the following major components of Critical Physical Infrastructure:

- Data Center Power System.
- Data Center Cooling System.
- In-row Aisle Containment.
- Racks and Accessories.
- Environment Management and Monitoring System.
- Access Controls.
- Fire Detection and Suppression.
- Data Center and Related Civil Works.
- Project Management.

The Data Center will have a self-contained pod of 3+3 racks, and the space will be optimized as much as possible. In-Row UPS and cooling will be used.

The successful vendor will be given the Data Center room at NTDCCL, and utilize this space as they perform their work. They will be provided with raw power from a utility source and a generator source until the Racks PDUs for dual power distribution to the Servers, SANs and Networking Equipment are installed. Provision of an ATS panel, distribution panel for the Data Center for raw power distribution to the UPS, Cooling units and allied equipment will also be the successful vendor's responsibility.

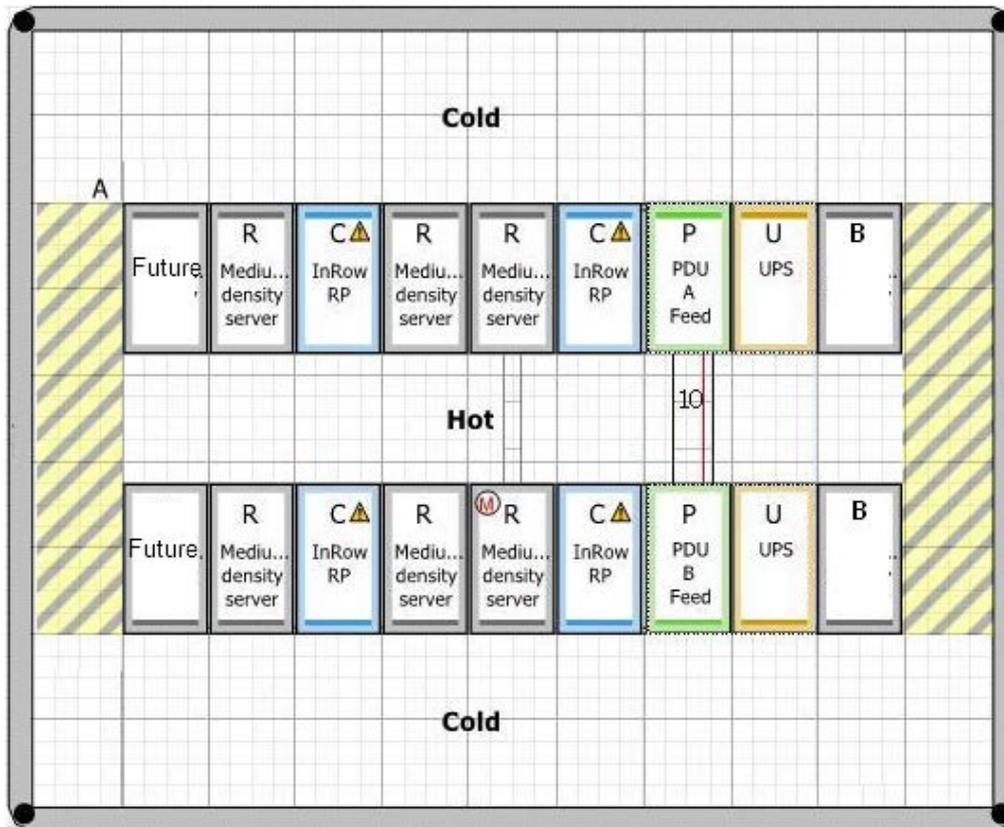
The Data Center will house 6 Racks (server/network), in-row cooling units, two UPS, battery bank and an in-row power distribution rack in a pod. The Data Center will use hot aisle containment for enhancing the efficiency of the Data Center's cooling. The Pod will contain all elements, including the server/network Racks, in-row cooling, UPS/battery bank, power distribution racks, rack PDU in server racks, and industrial sockets. The successful vendor should design each server rack with power availability of 32Amps per rack, with three phase availability until rack level.

Responsibility of the successful vendor will include:

- Scope of internal work for Data Center (facilities and physical premises).
- Civil works for finishing the inside of DC- vapor barrier, paint, fireproof doors, antistatic vinyl flooring, etc.
- Precision cooling—in-row, hot aisle contained.
- UPS and power distribution rack-based
- Overhead power and network cabling architecture.
- Pod creation and hot aisle containment (the system will be a hot aisle contained system).

- All internal electrical and grounding works including UPS and distribution until PDU is in server racks.
- VESDA-based fire detection and suppression system within the Data Center.
- Security and access controls (passive RFID/finger reader and integrated CCTV).
- Blanking panels should be provided to completely isolate hot aisle.
- No raised flooring and false ceiling will be used inside the Data Center.
- Cable runways will be on top of the rack, and cable ladders will provide connectivity between racks. The cable runways will be separate for power and networks.
- In-row power distribution unit (32 Amp breakers for each PDU for network/server rack.)
- VESDA-based fire detection system for pod and the entire room.
- Fire suppression system.
- Temperature/humidity, and water leak sensors for Data Center.
- Main panel board for UPS input required.

A holistic diagram of the desired Data Center is presented below.



The following section contains the functionalities that vendors must provide for in their responses.

5.5.2. Data Center Power System

The power system required for this Data Center will have 2(N+1) redundancy, i.e. there will be two independent paths for power, and the UPS's will have one extra power module installed in each.

There will be two modular UPS's of 48kW scalable to 96kW; scalability can be enhanced by adding 16kW power modules, along with a power distribution rack to distribute power until the racks are installed.

- Power to in-row cooling units will be excluded from the UPS.
- 100% of the load to accommodate fault overload conditions.
- All components will have two UPS's for redundancy (2N.)
- Operational and fault messages will be relayed to the centralized monitoring solution via SNMP protocol for critical alarms.
- Will contain an additional module to cater the requirements of internal redundancy of "N+1."
- Load per rack is considered to be 7kW, and each rack will have two rack PDU's of 32Amp - 3phase.
- The UPS should provide 120 minutes of back up at 80% of its offered capacity

- The distribution of power to the racks will be carried out from the PDU's from the UPS's. The cables must be terminated at both ends with the help of industrial sockets.
- The successful vendor must deploy a grounding/earthing system for the Data Center.

Battery:

The UPS battery will be of modular construction, hot swappable with a steel enclave, and the battery jars must be housed within each removable battery. The UPS will incorporate a battery management system to continuously monitor the health of each removable battery module. This system will notify the owner in the event that a failed or weak battery module is found.

PDU/System Bypass:

The PDU/system bypass cabinet will provide power to the critical load from the bypass source, during times where maintenance or service of the UPS is required. The PDU/system bypass will provide a mechanical means of complete isolation of the UPS from the critical output distribution.

As a minimum, the PDU/system bypass must contain the following features and accessories:

- Appropriately-rated circuit breakers to fully isolate the UPS during times where maintenance is required. For PDU/system bypass panels equipped with an input transformer, there must also be a molded case switch to isolate the transformer primary windings from the mains input to the system.
- Emergency Power Off must be provided. Upon its activation all the UPSs and Air Conditioners shall be shut off. It should be able to integrate with the Data Center management system.

Power Distribution System:

The Power distribution system must include raw power input from the building's power system, power distribution panels for power distribution to the Data Center's UPS, cooling units, lighting and other allied equipment.

It must also include power distribution to rack PDUs from UPS power distribution system including integrated power cabling system over racks through power cable troughs.

The system should be modular and scalable so that it can be upgraded without removing exiting components to meet future power needs.

For the purposes of distributing power within an IT enclosure, rack mount power distribution units must be available for installation within the IT enclosure.

Main Distribution Board:

The Main Distribution Board must be installed. The power supply system comprising utility supply, gen set supply and automatic transfer of power supply system must be provided by the successful vendor. It must feed the UPS's, cooling units, and luminaries.

The main incoming feeder and the respective UPS feeder must be housed in the same cubicle.

The Main Distribution Board must be a floor-mounted and indoor type. The main bus bars must be either imported or local, and 99.99% pure electric copper. The phase and neutral bus bars must be of the same rating as the incoming feeder. Four earth bus bars must be run throughout the MDB. Each earth bar must have half the rating of a phase bus bar.

Specifications:

The Switchboard must be made of sheet steel, floor mounted, cubicle type, totally enclosed, and dust tight. It must be complete in all respects with material and accessories, factory assembled, and finished all according to the specifications provided.

- It should have wiring diagrams in the pocket on the inside of each door of the panel.
- It should be suitable for 400 volts AC, 3 phase 4 wires, and 50 Hz system.
- It should be labeled with stainless steel nameplate on the front side of door for each incoming and outgoing circuit.
- All the circuits should be properly labeled as mentioned in the single line diagram.

Automatic Transfer Switch:

The unit must be equipped with an Automatic Transfer Switch (ATS). The ATS must automatically switch from a main power supply to a secondary power supply in the event of a power outage without change in equipment operation. The ATS will monitor the main power supply so that when the power is restored to the primary source it will automatically switch from the secondary source back to the main power source.

Cables:

All the cables supplying power to the cooling units, UPS's and other equipment in the Data Center must be selected considering an ambient temperature of 40 Celsius. Whereas, cables feeding power to the rack PDU's from the UPS PDU should be of the same brand as the UPS and recommended by the UPS Vendor or local cabling, per the specifications considering an ambient temperature of 40 Celsius.

The color code for the three phase circuits will be red, yellow and blue for phase conductors; and black for the neutral conductor. Where the insulated earth conductor is installed, it must have green or green-yellow color insulation.

Single-phase circuits must have insulation of red color for phase/line, black color for neutral, and green or green-yellow color for the earth conductor. All DC circuits must have insulation of white color for positive, black color for negative, and green or green-yellow color for earth conductor.

The ends of each length of multi-core armored or unarmored cables must be properly marked for clock-wise and anti-clock-wise sequence of the core colors.

Cables for Conduit or Channel Wiring:

All cables/wiring in concealed or surface-mounted PVC conduits, or in covered channels must be single core PVC insulated.

Cable/Wiring Inside Lighting Column:

All cables/wiring in side lighting columns from the cable connection box to the light fixtures/lanterns must be 3 core PVC insulated, PVC sheathed, and high temperature resistant.

Installation

All installation material, labor, tools, cable and accessories for cable installation must be furnished by the successful vendor.

The successful vendor will be solely responsible for furnishing the correct lengths of cables to avoid joints in cable length except where necessary.

Necessary precautions for safety of the cables will be taken during installation to avoid scratches/ cuts to the cable surface. The pulling force on cable at all times shall remain well within the manufacturer's recommended limits. Prior to installation of jointing and termination kits, the cable lengths must be checked and tested to ensure that the cables are

in sound condition, and no damage has taken place during handling and installation. After installation, the cables will again be tested prior to commissioning per recommendations of the standards according to which the cable is manufactured.

5.5.3. Data Center Cooling System

The following list represents an overview of the general air conditioning requirements – details have also been provided in earlier sections. In case of conflicting requirements, the vendor should ask for clarifications.

1. In-row precision air conditioning systems specifically designed for rigorous environmental control with automated monitoring and control of heating, cooling, humidification/dehumidification and air filtering functions should be installed.
2. The air conditioning system should not require any manual intervention to restart itself after a power failure.

The cooling system will comprise of precision air cooled, in-row air conditioners such that upon failure of any single air conditioner, the rest will have the capacity to manage the heat load (e.g. the system will be N+1 redundant). The outdoor units of the cooling system will be able to work under any environmental condition where ambient temperatures can reach 50 Celsius.

The hot aisle must be contained to prevent mixing of hot air with cold air, and for the maximum efficiency of in-row cooling units while minimizing the occurrence of hot spots in the system. The hot aisle containment system must be from the same vendor as the racks, thus avoiding risks of any possible leakage points and compatibility issues.

- The precision air conditioners will be in-row types, and must be installable adjacent to the racks in a row. The units will be hot aisle containment system compatible. The rope leak sensor shall be provided with each unit. Each cooling unit must be capable of being remotely monitored via SNMP card. Similar units should be able to be grouped together without any external device for load sharing and energy saving.
- The hot aisle containment must have sliding doors in order to optimally utilize the Data Center room space.
- Unit must be provided with Thermal-Magnetic circuit breakers.
- Units must include a main disconnect switch.

Temperature and Humidity Sensors

- **Internal Temperature Sensors:** Thermistor temperature sensors must be mounted behind the front and rear doors to provide control inputs based on supply and return air temperature. Sensor accuracy must be within +/- 1 degree Centigrade accuracy.
- **Internal Humidity Sensors:** Humidity sensors must be mounted behind both the front and rear doors and shall provide control input based on humidity in supply air. Humidifier sensor must be +/- 3% RH accuracy full scale.

Cable Water Detector

- The leak detection sensing cable should be shipped loose with the unit. The sensing cable should be able to raise an alert if water or other conductive liquids comes into contact with the cable anywhere along its length.

Bridge Power Cable Trough

- An overhead power distribution bridge that sits between adjacent racks and allows for removal of the unit without disrupting the overhead power cabling, should be provided as an accessory.
- Cable trough will be constructed of cold rolled steel, with a black powder coat finish.

Bridge Data Partition

- An overhead cable distribution that sits between adjacent racks and allows for removal of the unit without disrupting overhead cabling should be provided as an accessory.
- A data partition will be constructed of cold controlled steel with a black powder coat finish.

5.5.4. Racks and Accessories

Six, branded server racks of 42U will be installed inside the Data Center, with blanking panels covering the empty spaces to enhance cooling efficiency of the in-row cooling units.

Cable management in the Data Center will be accomplished with the help of a cable tray from the Main Distribution Board (MDB) to the nearest rack. It will be perforated and hanging from the ceiling with suitable supports and accessories.

A cable tray must be built. All the cables for cooling units and racks will be carried with the help of power troughs on top of the rack enclosures supplied by the rack vendor.

A similar cable tray will be run to the roof top for supplying power to the outdoor units of the air conditioners.

5.5.5. Security and Environmental Management System

The security and environmental monitoring system shall comprise the following:

- Integrated Security Cameras.
- Temperature & Humidity & Water Sensors.
- Other Sensors.

Description:

The security cameras will be fixed type with a built in motion sensor; whereas the environmental monitoring system includes a sensor in each rack that can monitor both temperature and humidity. Also, the environmental monitoring device will have the capacity to not only house the sensors but the cameras as well.

The centralized management software not only monitors and records footage from cameras, but it is also connected to the environmental monitoring device and the UPSs; the in-row cooling; or any SNMP enabled device and sensors installed inside the Data Center. This software is capable of delivering information sent by the devices on a single screen.

Environment Management and Monitoring System:

The system should be able to assist users in monitoring their facilities equipment or environment information. This information includes health and status of the equipment, room temperature, air humidity, air-con speed or airflow and other information. It should be able to alert the user when an abnormal condition occurs. It should also provide periodical reports to the users, such as alarms summary and usage summary of equipment.

An example of such a usage summary report is the total Run-Time of all Air Conditional Units. The user should be able to use these reports to generate a Maintenance Service Report.

5.5.6. Access Control System

It should be an RFID based card reader and a Biometric Finger print reader. In case of an issue in any or both of the above mentioned devices, there should be a manual process to handle entry and exit from the Data Center.

5.5.7. Fire Detection and Suppression System

A fire and smoke detection system should be (VESDA) based that provides an early warning alert and conforms to the following features:

1. Programmable temperature sensors.
2. The control panel should be programmable to allow adjustments to sensitivity and parameters, such as time delays, threshold, passwords and other features.
3. Fire alarm monitors, control panels and notification mechanisms should be installed. Automated alerts when thresholds are reached should also be sent to the designated staff.

A fire extinguishing system is required to be installed in the Data Center. It should comply with NOVEC 1230 standards.

Fire suppression systems, such as NOVEC or similar alternative, should be installed and should not be harmful to the staff and equipment in case of release.

5.5.8. Data Center Civil Works

Data Center anti-static vinyl flooring, wall painting and paint work are in the scope of the vendor and the entire Data Center must be dust free by sealing all windows by a proper sealant and vapor barrier.

Painting of ceilings and walls is required in the Data Center. Any paint work must comply with the following requisites:

1. Fire-resistant, durable paints must be applied to all areas on ceilings, walls and floors. Painting includes the preparation of the various surfaces, primer and top coat.
2. Walls shall be painted with an anti-humidity, anti-dust material (primer).
3. Two layers of water resistant epoxy are required to be applied on the floor.
4. All materials used in the Data Center should not emit any fumes, contaminants or corrosive gasses at any point in the lifetime of the Center.

Cabling Scheme (Structured Cabling)

- The Vendor shall provide a diagram of how the structured cabling will be deployed to support the Data Center.
- Emergency Lighting is required.

- The emergency exits in the Data Center need to be indicated with permanently illuminated 'emergency exit' signs. Safety lights or battery powered lights need to be set up where necessary.

5.6. ERP System

A complete ERP system is required, including supply of license and media, hardware, installation, implementation, training and support (product and on-site) of a tier one commercial off-the-shelf integrated solution. The expected "Go-Live" for the project is scheduled for the end of August 2015.

The successful vendor should deploy and configure a complete hardware system that includes, but is not limited to:

- Redundant Application Servers (test, development, production and training).
- Redundant Database Servers.
- Storage Area Network (SAN).
- Tape Library and Archiving Solution.
- Connectivity between these infrastructure such as fiber channels, fiber cables, fiber switches, etc.

The infrastructure should have internal redundancy for power, network and other important components.

The ERP system is required to handle the following functional areas of NTDCL.

- Meter data management including Energy Purchase, Sale and Distribution.
- Financial Management.
- Inventory and Procurement Management.
- Transmission and Dispatch Projects Management.

The following section contains the functionalities that must be catered by the proposed ERP solution in the modules/areas described above.

5.6.1. Meter Data Management (Purchase, Sale and Distribution)

The Meter Data Management module should support all processes (but not limited to) associated with Meter Procurement, Installation and Certification. In addition, processes for entering meter reading data also should be supported. This includes the scheduling and preparation of meter readings, meter-reading result entry, plausibility checks for meter-reading results, and comprehensive monitoring of meter-reading results.

The energy purchase, sale and distribution module should cover all processes (but not limited to) for energy forecasting and demand planning, energy procurement and energy selling.

The energy purchase, sale and distribution module also should enable NTDCL to manage and compare energy portfolios as well as to close open items. NTDCL should be able to manage business agreements with trading partners in the form of deal confirmations. It should cover all processes for receiving, validating and storing energy data of any equidistant time series independent of the unit the measurement. A repository should be used as the data basis for any succeeding business processes such as billing and settling of energy data.

A minimum 100 customized reports as per NTDC requirements should be developed by the Vendor.

5.6.2. Financial Applications

Financial Application modules include, but are not limited to, General Ledger, Accounts Receivable, Accounts Payable, Cash Flow/Banking System, Consolidated Accounts, Fixed Assets & Budget Management that support a broad range of Utility Industry-Specific processes and should be compatible and integrated with all the other modules of the overall solution.

Transactions will be processed at Accounting Units and consolidation will take place at the Head Office.

A minimum 100 customized reports as per NTDC requirements should be developed by the Vendor.

5.6.3. Procurement/Inventory Management/Warehouse Management

The Procurement/Inventory Management/Warehouse Management Module should support processes (but not limited to) related to procurement of services and devices/equipment, inventory and warehouse management of devices/equipment, receipt issuance and stock transfer procedures as applicable to NTDC supply chain processes.

Transactions will be processed at the Filed/Regional/Warehouse Level and consolidated at the Head Office.

A minimum 100 customized reports as per NTDC requirements should be developed by the Vendor.

5.6.4. Transmission and Dispatch Projects Management

The T&D Projects Management module should support all processes (but not limited to) for the project management aspects of planning, enhancement, operation, maintenance, and support of utility grids. This module should enable NTDC to construct, engineer, and extend grids. This should cover investment planning through to project accounting.

A minimum 100 customized reports as per NTDC requirements should be developed by the Vendor.

Below is the estimated number of users in NTDC. The head office and remote sites are included in the below list.

NTDCL Users Information Sheet

<i>Module and Location</i>	<i>Estimated of Users</i>	<i>Number</i>
Financial Management		
Head Office	30	
Remote Sites	181	
Inventory and Procurement Management		
Head Office	20	
Remote Sites	4	
Meter Data Management		
+		
Energy Purchase, Sale and Distribution		
Head Office	111	
Remote Sites	106	
T&D Projects Management		
Head Office	12	
Remote Sites	88	

5.7. Solution Requirements

5.7.1. Hardware Deployment Layout and Specifications

The successful vendor will share the hardware deployment layout in accordance with the ERP project and develop hardware specifications that will be required in the ERP implementation.

The successful vendor will also provide quantities and specification of hardware, including complete backend hardware that is already mentioned in **section 5.1.3**. The Vendor will also provide layouts of the hardware keeping in view the existing hardware in NTDC and its compatibility with the new systems. The Vendor will also SUGGEST/ADVISE client-side hardware (including printers, scanners, laptops, desktops, LAN and WAN etc.) required (mapped module wise in **APPENDIX H**), which will then be arranged by NTDC.

5.7.2. Network Deployment Layout and Specifications

The successful vendor will mention the network dependencies, if any, in accordance with the ERP project. The successful vendor will share the physical & logical network layout and the specifications of the network hardware. The layout and specifications for the internal connectivity within and between the various offices will be shared with NTDCL and AEAI. NTDCL will be responsible for providing connectivity and required bandwidth according to the specifications provided by the Vendor.

5.7.3. Database and its Administration Tools

The successful vendor is required to supply the latest version of Database that effectively supports the proposed ERP solution. To this extent, certification of ERP manufacturer that the particular version of the Database is fully supported by the ERP should be provided. The Vendor also must provide an install base of the Database with the proposed ERP in projects of comparable size.

- The Database should have a support for ETL.
- The Database should have support for SAN storage and cluster environment.
- Load balancing and failover must be supported to minimize down time.
- The Database should support DR sites and automatic standby configurations.
- It must be capable of operating in the DR environment and support synchronous as well as asynchronous data replication at remote DR site.
- The Database should be capable of supporting large amounts of data in terabytes.
- The Database should have support for transmission of data from other new systems as well as from existing legacy systems.
- It should support libraries to enable backup on tape and disk drives.
- It should have support for new firewalls and n-tier network architecture.
- It should have support for OLAP, OLTP and DSS systems.
- For effective monitoring and management of the Database, the Vendor is required to provide, as part of its solution, Database Administration Tools that will help database administrators in database monitoring, storage analysis, capacity planning and performance monitoring and include trend analysis, size estimation and table creation.

5.7.4. ERP Application Licensing

The successful vendor is required to supply the latest version of Application Licenses supporting the proposed ERP Solution and also the quoted OS/Middle Tier Plugins/Third Tier software and Database.

The successful vendor is also required to propose an optimal licensing/pricing model.

5.7.5. Application Development Tools

All application development and maintenance will be carried out on the centrally located development server. The Contractor will be required to propose and supply application

development tools consistent with the proposed ERP package. It is expected that the proposed solution comes with a built-in 4GL development environment tool set.

5.7.6. Query and Report Generator Tools

The successful vendor must provide complete query and report generator functionality, preferably within the provided system. The report generator functionality must include a scheduling or production process for routine reporting.

The report generator functionality must be robust and oriented to the skills of "average" desktop systems users and should support SQL. It is expected that the solution would support industry standard report generators. Formatting and statistical capabilities such as averaging, multi-level sub-totaling, percent change comparisons, standard mathematical operations and financial calculations are required. Generated reports must be able to be saved in several output formats, at a minimum: MS Word, MS Excel, Text, PDF, HTML and XML.

The successful vendor must describe its query and report generator systems in detail in the Technical Proposal.

5.7.7. Integration Tool

In order to effectively manage and run the complete solution, the proposed ERP solution must have an in-built and powerful integration platform to integrate various existing/legacy applications and execute and monitor the complete solution. There should be a facility to import/export data from MS Excel to ERP system and vice versa.

5.7.8. Third Party Software

The successful vendor will be responsible to ensure that all required 3rd party software, operating systems, system management and monitoring tools, backup and recovery software, database administration tools, disaster recovery and business continuity tools, APIs/interfaces, etc. are made available, documented, designed, implemented and operational to meet NTDCL requirements in the proposed ERP solution.

It is the responsibility of the Vendor to offer AEAI a complete solution in all respects – delays or costs arising out of any shortcoming will have to be borne by the Vendor.

5.8. Technology Requirements

5.8.1. New Technology

The system should be designed in such a way as to easily allow the incorporation of new technologies as they become available.

5.8.2. Multiple Environments

In addition to the production environment, the system must support independent copies for training, development, and testing. These environments must be sufficiently isolated (SEPARATE HARDWARE SERVERS) from production and from each other so that operations in one environment will not affect those of another.

The environments will be employed as follows:

- a. Production: all production processing will be performed in this environment.
- b. Development: all development activities including unit and system testing will be conducted in this environment.
- c. Test: after all development, unit and system testing has been completed, this environment will be used for User Acceptance Testing before the system is accepted into production.
- d. Training: for all in-house implementation and post implementation training activities

5.8.3. Data Conversion and Migration

Extract transform and loading will be the responsibility of the Vendor, however cleaning of data will be done by NTDCL.

5.8.4. System Performance

The system must be responsive with a high availability feature. The system should support rapid fail-over or redeployment in the event of problems or planned maintenance. Ninety-nine percent of all fail-over events must take place in less than five minutes. Any volume (batch) processing must not interfere with online responsiveness or availability. The Contractor must provide system availability figures of its proposed solution. In case various components have different values, these must be specifically mentioned.

5.8.5. Archive and Purge

The system must support the periodic archival and purging of unused or obsolete information. Archived information should be available for historical reporting in such a manner that queries could be performed on archived data using automated data retrieval functions. The Contractor must provide a complete data archival plan.

5.8.6. Recovery

The system must automatically recover to the last complete prior transaction in the event of a failure. The system must clearly indicate to the user that a transaction failed and that it must be re-entered. Recovery must occur without operator intervention. The Vendor must provide contingency and backup recovery procedures with Guaranteed Service Level Agreements (SLAs).

5.8.7. Backup and Reorganization

The system must provide for the unattended daily backup of all information and data to a media through a tape library that can be stored offsite for disaster recovery purposes. Backups must not prevent the system from being available at all times and must not disrupt system operations. There should be no performance degradation during the data backup process. Database reorganizations should not significantly impair system availability. The Vendor must provide the calculation of time taken to backup data with respect to data size increase.

5.8.8. Print Management

The system should provide a method for managing the print environment for report distribution so that reports are directed to the appropriate print facility. Both high speed centralized printing facilities as well as local LAN-based printing facilities will be employed in addition to printing over the internet/intranet.

5.8.9. Technology Architecture

The Vendor should provide recommendations of the technology architecture under which the proposed ERP Package will operate, with the following features:

- N-Tiered Client/Server architecture incorporating thin presentation-logic-client communication with client-neutral, web-based server applications, communicating with the database.
- Thin client, for remote users.
- Complete ERP back-end infrastructure should be placed at the NTDCCL Data Center.

While designing the technology architecture, the Vendor should ensure that the following are kept under consideration:

- Solutions should be scalable with complete platform independence – NTDCCL does not intend to be tied down to a single platform.
- Solutions should be effortlessly portable from one system to another.
- Optimization of licensing costs for the platform software .
- NTDCCL will be responsible for providing connectivity and required bandwidth according to the layout and specifications provided by the Vendor.
- Simplicity of system administration and operation, ease of business continuity planning and execution.

5.8.10. Authentication

The system must support authentication methods that will assure that only authorized users are able to access protected data and transactions.

Appendix A: Company Profile

Vendor name:			
Type of business activity	Manufacturer <input type="checkbox"/>	Distributor <input type="checkbox"/>	Retailer <input type="checkbox"/>
	Service <input type="checkbox"/>	Consulting <input type="checkbox"/>	
Registered office: (address, telephone, fax, website and email)			
Contact Person: (name, designation and contact details)			
Is Vendor prime contractor:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Please share sub- contractor Name(s)			
All equipment & services provided by the Vendor or sub-contractor has back to back support from its principal partner	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Years of experience:			
Annual turnover: (Rs. million)			
No. of permanent staff:	Area	Number	
	Certified Consultants		
	Sales/Marketing		
	Management/Administration		
	Help Desk Staff		
	Development Staff		
	Other		
	Total:		
No. of offices in Pakistan:			
Years of experience in implementation of similar projects:			

Certifications if any: (ISO, CMMI, others.)				
Software brand name:				
Fully operational customer installations, in total completed:	Location	Lahore	National	International
	Public sector			
	Non-public sector			
	Overall:			
Software version proposed and years in production:				
Fully operational customer installations of the version proposed in this RFP completed:	Location	Lahore	National	International
	Public sector			
	Non-public sector			
	Overall:			
Vendor's closest support facility/sales office to NTDCL, Lahore				
Vendor's company headquarters (Address, telephone, fax and email)				

Appendix B: Sub Contractor Company Profile

Sub-Contractor name:																			
Type of business activity	Manufacturer <input type="checkbox"/> Service <input type="checkbox"/>	Distributor <input type="checkbox"/> Consulting <input type="checkbox"/>	Retailer <input type="checkbox"/>																
Registered office: (address, telephone, fax ,website and email)																			
Contact Person: (name , designation and contact details)																			
Is subcontractor an authorized distributor/reseller/service provider of the equipment supplied? If yes, please share their authorized letter from the principal contractor	Yes <input type="checkbox"/> No <input type="checkbox"/>																		
Years of experience:																			
Annual turnover: (Rs million)																			
No. of permanent staff:		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Area</th> <th style="width: 30%;">Number</th> </tr> </thead> <tbody> <tr> <td>Certified Professionals</td> <td></td> </tr> <tr> <td>Sales/Marketing</td> <td></td> </tr> <tr> <td>Management/Administration</td> <td></td> </tr> <tr> <td>Help Desk Staff</td> <td></td> </tr> <tr> <td>Development Staff</td> <td></td> </tr> <tr> <td>Other</td> <td></td> </tr> <tr> <td>Total:</td> <td></td> </tr> </tbody> </table>	Area	Number	Certified Professionals		Sales/Marketing		Management/Administration		Help Desk Staff		Development Staff		Other		Total:		
Area	Number																		
Certified Professionals																			
Sales/Marketing																			
Management/Administration																			
Help Desk Staff																			
Development Staff																			
Other																			
Total:																			
No. of offices in Pakistan:																			
Years of experience in implementation of similar projects:																			
Certifications if any: (ISO, CMMI, others.)																			

Software/Hardware brand name:				
Fully operational customer installations, in total completed:	Location	Lahore	Nationwide	International
	Public sector			
	Non-public sector			
	Overall:			
Vendor's closest support facility/sales office to NTDCL, Lahore				
Vendor's company headquarters (address, telephone, fax and email)				

Appendix C: Template for Financial Position

I. Balance Sheet

ASSETS	2013	2012	2011
	(Rupees '000)		
CURRENT ASSETS			
Cash and bank balance			
Loans and advances			
Stocks			
NON-CURRENT ASSETS			
Property and equipment			
Intangible assets			
Long term investments			

EQUITY AND LIABILITIES	2013	2012	2011
	(Rupees '000)		
EQUITY			
Capital reserves			
Revenue reserves			
NON - CURRENT LIABILITIES			
Long term borrowings			
Deferred liabilities			
CURRENT LIABILITIES			
Trade and other payables			
Short term borrowings			
Taxation			

2. Profit and Loss Account

	2013	2012	2011
	(Rupees '000)		
Sales			
Cost of Sales			
GROSS PROFIT			
Other expenses			
Finance cost			
Other income			
NET PROFIT BEFORE TAXATION			
Provision for taxation			
NET PROFIT AFTER TAXATION			

Note: The above financial statement is required both for the implementation partner & its sub-contractors (if any)

Appendix D: Vendor's Project Experience

Please give complete details of the projects required in following format.

Assignment name:	
Client name:	
Client address:	
Start and end dates:	
No. of professional staff assigned:	
No. of staff months, duration of assignment:	
Total value of assignment: (PKR million)	
Descriptions of assignment:	

Appendix E: Resume Format

1. General Information

Name:	
Designation:	
Date of Joining:	
Base station city:	
Role assigned for this project:	
Email:	
Mobile:	

2. Education

S #	Institution	Degree	Major	Year	GPA/ Division
1.					
2.					
3.					

3. Certification (If Applicable)

S #	Certification Name	ID #	Date obtained	Date till valid
1.				
2.				
3.				

4. Experience

Total experience (Year): _____

S #	Company	Designation/ Position	Description of duties	Duration (yy mm)
1.				
2.				
3.				

5. Project Experience

S #	Project	Role	Description of duties	Duration (yy mm)
1.				
2.				
3.				

6. Signature

Signature: _____

Appendix F: Pricing Details

I. Proposal Price Summary

Description	Total Price in PKR
Data Center Implementation	
ERP Application Licenses	
ERP Implementation	
Recurrent Cost (Post Implementation 3 Years Support)	
Grand Total	

Signature: _____

Stamp: _____

2. Data Center Implementation

S #	Description	Required Quantity	Unit Price	Total Amount, PKR
Data Center Hardware Cost				
1.				
2.				
3.				
Data Center related Software Cost (if any)				
1.				
2.				
3.				
S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Data Center Setup Cost (if any)				
1.				
2.				
3.				

Signature: _____

Stamp: _____

3. ERP Application Licenses

S #	Description	Required	Unit Price	Total Amount, PKR
-----	-------------	----------	------------	-------------------

		Licenses		
1.	Meter Data Management including Energy Sale, Purchase and Distribution			
2.	Financial Management			
3.	Inventory and Procurement Management			
4.	Project Management			

Cost for Additional licenses

S #	Description	Unit Price
1.	Meter Data Management including Energy Purchase, Sale and Distribution	
2.	Financial Application	
3.	Inventory Management	
4.	Project Management	

Signature: _____

Stamp: _____

4. ERP Implementation Cost

Please provide the module wise ERP implementation cost as per the below mentioned templates. Also attach the respective timeline with each template to show the completeness of work by end of **August, 2015**.

4A: Cost for Implementing One (01) Module

S #	Description	Required Quantity	Unit Price	Total Amount, PKR
Back End Hardware Cost				
1.				
2.				
3.				
4.				
S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Implementation Cost				
1.	Meter Data Management including Energy Purchase, Sale and Distribution			
S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Training Cost				
1.	Meter Data Management including Energy Purchase, Sale and Distribution			
ERP Project Implementation Timeline Attached			Yes <input type="checkbox"/>	No <input type="checkbox"/>

Signature: _____

Stamp: _____

4B: Cost for Implementing Two (02) Modules

S #	Description	Required Quantity	Unit Price	Total Amount, PKR
Back End Hardware Cost				
1.				
2.				
3.				
4.				
S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Implementation Cost				
1.	Meter Data Management including Energy Purchase, Sale and Distribution			
2.	Financial Application			
S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Training Cost				
1.	Meter Data Management including Energy Purchase, Sale and Distribution			
2.	Financial Application			
ERP Project Implementation Timeline Attached			Yes <input type="checkbox"/>	No <input type="checkbox"/>

Signature: _____

Stamp: _____

4C: Cost for Implementing Three (03) Modules

S #	Description	Required Quantity	Unit Price	Total Amount, PKR
Back End Hardware Cost				
1.				
2.				
3.				
4.				
S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Implementation Cost				
1.	Meter Data Management including Energy Purchase, Sale and Distribution			
2.	Financial Application			
3.	Inventory Management			
S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Training Cost				
1.	Meter Data Management including Energy Purchase, Sale and Distribution			
2.	Financial Application			
3.	Inventory Management			

ERP Project Implementation Timeline Attached	Yes <input type="checkbox"/>	No <input type="checkbox"/>
--	------------------------------	-----------------------------

Signature: _____

Stamp: _____

4D: Cost for Implementing Four (04) Modules

S #	Description	Required Quantity	Unit Price	Total Amount, PKR
Back End Hardware Cost				
1.				
2.				
3.				
4.				
5.				
S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Implementation Cost				
1.	Meter Data Management including Energy Purchase, Sale and Distribution			
2.	Financial Application			
3.	Inventory Management			
4.	Project Management			

Signature: _____

Stamp: _____

S #	Description	Estimated LOE, Hrs.	Hourly Rate	Total Amount, PKR
Training Cost				
1.	Meter Data Management including Energy Purchase, Sale and Distribution			
2.	Financial Application			
3.	Inventory Management			
4.	Project Management			

ERP Project Implementation Timeline Attached	Yes <input type="checkbox"/> No <input type="checkbox"/>
--	--

Signature: _____

Stamp: _____

5. Recurrent Cost (Post Implementation 3 Years Support Renewal Cost)

S #	Description	Year 1 (Warranty)	Year 2	Year 3	Year 4	Total Cost
1.	Data Center Support	X				
2.	ERP Application Licenses	X				
3.	Post Implementation Support Services	X				
	Total Cost					

Signature: _____

Stamp: _____

Appendix G: Technical Proposal Evaluation Criteria

S #	Summary of Technical Proposal Evaluation Criteria	Score Weight
1.	Form1: Organizational Strengths and Technical Expertise	250
2.	Form2: Proposed Work Plan (Methodology, Approach, WBS, Activities, Technical Solution etc.)	250
3.	Form3: Proposed project Team (Personnel, Structure etc.)	300
	TOTAL SCORE	800

Form I: Organizational Strengths and Technical Expertise

(Total Marks 250)

S. No.	Description	Max. Marks	Marks Obtained
1.	Company established (No. of years) <ul style="list-style-type: none"> • More than 20 years (25 points) • 10 to 20 years (15 points) • Less than 10 years (10 points) 	25	
2.	Annual turnover <ul style="list-style-type: none"> • Above PKR 900 Million (25 points) • PKR 700 to 900 Million (15 points) • Below PKR 700 Million (10 points) 	25	
3.	No. of permanent staff (certified consultants) <ul style="list-style-type: none"> • More than 20 (25 points) • 10 to 20 (15 points) • Less than 10 (15 points) 	25	
4.	Number of total permanent staff <ul style="list-style-type: none"> • more than 1,000 (25 points) • 500 to 1,000 (15 points) • Less than 500 (10 points) 	25	
5.	Number of offices in Pakistan <ul style="list-style-type: none"> • 05 or more offices (25 points) • 03-04 offices (15 points) • 01-02 offices (10 points) 	25	
6.	Years of experience in implementation of similar projects <ul style="list-style-type: none"> • More than 15 years (25 points) • 10 to 15 years (15 points) • Less than 10 years (10 points) 	25	
7.	Local references of proposed software (Refer 4.1.17, Eligibility I & VI) in the public sector organizations in Pakistan <ul style="list-style-type: none"> • More than 10 projects (25 points) • 5 to 10 projects (15 points) • Less than 05 project (10 points) 	25	

8.	<p>Local references of proposed software (Refer 4.1.17, Eligibility I & VI) in the non-public sector organizations in Pakistan</p> <ul style="list-style-type: none"> • More than 30 projects (25 points) • 20 to 30 projects (15 points) • Less than 20 projects (10 points) 	25	
9.	<p>International references of proposed software (Refer 4.1.17, Eligibility I & VI) in the public sector organizations</p> <ul style="list-style-type: none"> • More than 50 projects (25 points) • 30 - 49 projects (15 points) • Less than 30 projects (10 points) 	25	
10.	<p>International references of proposed software (Refer 4.1.17, Eligibility I) in the non-public sector organizations</p> <ul style="list-style-type: none"> • More than 100 projects (25 points) • 50 - 99 projects (15 points) • Less than 50 projects (10 points) 	25	

Form 2: Proposed Work Plan

(Methodology, Approach, Activities, and Technical Solution, etc.) **(Total Marks 250)**

S. No.	Description	Max. Marks	Marks Obtained
1.	Compliance with RFP technical requirements <ul style="list-style-type: none"> • 95% to 100% (50 points) • 80% to 94% (30 points) • 70% to 79% (10 points) • Less than 70% (0 points) 	50	
2.	Methodology and Approach	150	
	a) Integration and interoperability (flexibility to integrate with other modules and products)	10	
	b) Data Migration Strategy	10	
	c) Implementation Strategy	10	
	d) User Readiness	10	
	e) Configuration and Customization level	10	
	f) Requirement Gathering Analysis	10	
	g) Change Management Strategy	10	
	h) Go Live Strategy	10	
	i) Authorization Matrix	10	
	j) Quality Assurance and Bug Fixing	10	
	k) Issues Tracking and Resolution	10	
	l) Capacity Building & Training Plan	10	
	m) Post Implementation Support Plan	10	
	n) Backup and Restore Strategy	10	
	o) Data Center Deployment Plan	10	
3.	Adherence to internationally recognized project management methodologies such as PMI etc. <ul style="list-style-type: none"> • Yes (25 points) • No (0 points) 	25	
4.	Maximum time required for complete implementation from the date of award of contract (For end to end solution covering all pilot and roll out sites) <ul style="list-style-type: none"> • 24 to 30 months (25 points) • 31 to 40 months (15 points) • More than 40 months (10 points) 	25	

Form 3: Proposed Project Team

(Personnel, Structure, etc.)

(Total Marks 300)

S. No.	Description	Max Marks	Marks Obtained
1.	Location of certified consultants <ul style="list-style-type: none"> • 3 major cities of Pakistan (30 points) • 2 major cities of Pakistan (20 points) • 1 major city of Pakistan (10 points) 	30	
2.	Base station (Lahore) of consultants <ul style="list-style-type: none"> • More than 5 consultants (20 points) • 1 to 4 consultants (10 points) • Less than 1 consultant (0 points) 	20	
3.	Total No. of certifications of the team (certifications x staff) <ul style="list-style-type: none"> • More than 50 certifications (50 points) • 25 to 50 certifications (25 points) • Less than 25 certifications (10 points) 	50	
4.	Project managers (accumulated) experience of working with the power sector of Pakistan (number of years) <ul style="list-style-type: none"> • More than 20 years (30 points) • 10 to 20 (20 Points) • Less than 10 years (10 points) 	30	
5.	No. of project managers having experience of working with power sector of Pakistan <ul style="list-style-type: none"> • More than 5 consultants (20 points) • 1 to 4 consultants (10 points) • Less than 1 consultant (0 points) 	20	
6.	Project managers (accumulated) experience of working with the power sector other than Pakistan (number of years) <ul style="list-style-type: none"> • More than 20 years (30 points) • 10 to 20 (20 Points) • Less than 10 years (10 points) 	30	
7.	No. of project managers having experience of working with power sector other than Pakistan <ul style="list-style-type: none"> • More than 5 consultants (20 points) • 1 to 4 consultants (10 points) • Less than 1 consultant (0 points) 	20	

8.	Project team's experience of working on the proposed software (Refer 4.1.17, Eligibility I) <ul style="list-style-type: none">• 03 projects (50 points)• 02 projects (25 points)• 01 project (10 points)	50	
9.	Experience level and relevance of proposed team <ul style="list-style-type: none">• 150 or more person years (50 points)• 100 to 149 (25 points)• Less than 100 (10 points)	50	

Appendix H: Client-side Hardware and Bandwidth Requirements

Module and Location	Client-side Hardware Required (e.g. printers, scanners, laptops, desktops etc.)	Bandwidth Required (LAN/WAN)
Meter Data Management, including Energy Purchase, Sale and Distribution		
Head Office		
Remote Sites		
Financial Management		
Head Office		
Remote Sites		
Inventory and Procurement Management		
Head Office		
Remote Sites		
T&D Projects Management		
Head Office		
Remote Sites		

Appendix I: Affidavit for Non-Disclosure Agreement

Vendor will provide an affidavit on legal paper of the value not less than PKR 100 declaring that the organization will enter into a Non-Disclosure Agreement (NDA) with NTDCL, if selected.

NDA will be provided by the NTDCL at the time of contract.

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