



सत्यमेव जयते

भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
उत्तर क्षेत्रीय विद्युत समिति  
Northern Regional Power Committee

NIT No: 03/2018

**BID DOCUMENT**

**Through E-Procurement**

Name of the Package:

**Notice Inviting Tender (NIT) for "Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network"**

Last Date of Receipt of Bids: 14<sup>th</sup> November ,2018, upto 14:00hrs

Date of Opening of Technical Bid: 15<sup>th</sup> November, 2018 at 15:00 hrs

Date of Opening of Financial Bid: To be informed Later

[www.nrpc.gov.in](http://www.nrpc.gov.in)

17<sup>th</sup> October, 2018



भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
उत्तर क्षेत्रीय विद्युत समिति  
Northern Regional Power Committee

No- NRPC/OPR/107/PDMS/2018/

Dated-17<sup>th</sup> October, 2018

**Notice Inviting Tender (NIT) for "Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network"**

The online Bids are invited on behalf of NRPC Constituents from eligible agencies for "Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network" under Two Bid system.

The validity of the quotation should be at least 120 days from the date of opening of this tender. The technical Bid and Financial Bid shall be uploaded with the scanned copy of duly signed full bid documents. EMD and other documents as per clause 3 of ITB shall be provided in the envelope.

Original documents as per clause 3 of ITB must be delivered to the office of Member Secretary, Northern Regional Power Committee (NRPC) through post or in person at below address and scanned copy of the full Bid documents must be uploaded on the CPP portal by **14<sup>th</sup> November ,2018, upto 14:00hrs:**

**Member Secretary,  
Northern Regional Power Committee,  
18-A, Qutab Institutional Area, Shaheed Jeet Singh Marg,  
Katwaria Sarai, New Delhi-110016**

**Member Secretary, NRPC**

**TENDER SCHEDULE:**

Tender Name	Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network
Tender Reference	<b>NRPC/OPR/107/PDMS/2018/ Dated: 17<sup>th</sup> October, 2018</b>
Type of Tender	<b>Two Bid System</b>
Last Date and Time for receipt of sealed tender offers	<b>14<sup>th</sup> November ,2018, upto 14:00hrs</b> (In case this date is declared a public holiday then the next working day shall be the last date)
Time and Date of Opening of sealed technical Bids	<b>15<sup>th</sup> November ,2018, 15:00hrs</b> (In case this date is declared a public holiday then the next working day shall be the tender opening date)
Time and Date of Opening of sealed financial Bids	<b>To be informed Later</b>
Place of Opening tender offers	<b>NRPC, Delhi</b>
Address of Communication	<b>Member Secretary, Northern Regional Power Committee, 18-A, Qutab Institutional Area, Shaheed Jeet Singh Marg Katwaria Sarai, New Delhi-110016 Email: <a href="mailto:ms-nrpc@nic.in">ms-nrpc@nic.in</a> Email: <a href="mailto:seo-nrpc@nic.in">seo-nrpc@nic.in</a></b>
Contact/ Telephone Numbers Website	<b>Phone: 011-26868681 <a href="http://www.nrpc.gov.in">http://www.nrpc.gov.in</a></b>
Earnest Money Deposit (EMD)	<b>Rs. 70,00,000/- (Rupees Seventy Lakhs Only) payable as A/c payee Demand draft/Bank Guarantee on any scheduled commercial Indian bank in favor of "NRPC Protection Database Fund".</b>
Tender Submission mode	<b>Online</b>
Mode of tendering	<b>E-tendering</b>

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## SECTION A: DEFINITIONS AND ABBREVIATIONS

The following words and expressions shall have the meanings hereby assigned to them:

- (a) "Act" shall mean the Electricity Act 2003 unless otherwise specified.
- (b) "Agency" shall mean the Bidder.
- (c) "Applicable Law" means the laws and any other instruments having the force of law in India, as they may be issued and in force from time to time;
- (d) "Bank" or "Banks", refers to all scheduled Indian Banks as per the RBI.
- (e) "Buyer" means the Purchaser calling for BID.
- (f) "Contract" means the Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, annexures and all documents incorporated by reference therein.
- (g) "Contract Documents" shall mean the following documents listed, including any amendments thereto be read and construed as part of this Agreement, viz.:
  1. All provisions of Tender vide Reference No: **NRPC/OPR/107/PDMS/2018/ dated 17<sup>th</sup> October,2018**  
Tender Name: *"Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network"* including all Annexures /Appendices;
  2. Vendor's response (proposal) to the NIT, including the Bid Submission Sheet and the Price Schedules submitted by the Supplier;
  3. The Purchaser's Notification to the Supplier for Letter of Intent;
  4. Acceptance of purchaser's notification
  5. The Purchaser's Notification to the Supplier for Letter of Award;
- (h) "Contract Price" means the price payable to the Supplier as specified in the Contract, subject to such adjustments thereto, as may be made pursuant to the Contract.
- (i) "Day" means calendar day.
- (j) "Delivery" means the transfer of the Goods and/or Services from the Supplier to the Purchaser in accordance with the terms and conditions set forth in the Contract.
- (k) "Completion" shall mean the completion of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.
- (l) "Effective Date" means the date on which this Contract comes into force and effect pursuant to Clause 8 of GCC;
- (m) "NRPC" Shall mean Northern Regional Power Committee with responsibilities and functions as provided in the Act.
- (n) "GCC" mean the General Conditions of Contract.
- (o) "Goods" means all hardware, software, networking equipment and/or other equipment accessories and materials that the Supplier is required to supply to the Purchaser under the Contract.
- (p) "Go Live" means the date from which the project is implemented with all functionality as envisaged in the scope of work. Thereafter, defect liability period shall begin.
- (q) "Government" means the Government of India or any state government of India unless the context implies otherwise.

- (r) "Intellectual Property Rights" means any patent, copyright, trademark, trade name, service marks, brands, propriety information, whether arising before or after the execution of this Contract and the right to ownership and registration of these rights
- (s) "Party" means the Purchaser or the Agency, as the case may be;
- (t) "Personnel" means persons hired by the Supplier as employees and assigned to the performance of the Services or any part thereof; "Foreign Personnel" means such persons who at the time of being so hired had their domicile outside the Government's country; and "Local Personnel" means such persons who at the time of being so hired had their domicile inside the Government's country;
- (u) "Project" means all Activities covered under present contract
- (v) "Purchaser's Country" shall mean India.
- (w) "Purchaser" means the NRPC. It has been used to mean Owner or Purchaser in this document.
- (x) "Related Services" means the services to be provided as per the requirements / conditions specified in the Contract. In addition to this, the definition would also include other related/ancillary services that may be required to execute this Contract.
- (y) "RPC" shall mean Regional Power Committee
- (z) "Starting Date" means the date referred to in Clause 8 of GCC;
- (aa) "Services" means the work to be performed by the Supplier pursuant to this Contract for the purposes of the Project, as described in the Scope of Work hereto;
- (bb) "Subcontractor" means any natural person, private or government entity, or a combination of the above, including its legal successors or permitted assigns, to whom any part of the Goods to be supplied or execution of any part of the Services is subcontracted by the Supplier.
- (cc) "Supplier" means the natural person, private or government entity, or a combination of the above, whose Bid to perform the Contract has been accepted by the Purchaser and is named as such in the Agreement, and includes the legal successors or permitted assigns of the Supplier. Supplier has been used to mean Agency in this document.
- (dd) "The MoP" is the Ministry of Power, Government of India.
- (ee) "The Site," shall mean all identified locations within the NRPC jurisdiction, where the Supplier carries out any installation of Goods or is required to provide any Services.
- (ff) "Third Party" means any person or entity other than the Government, the Purchaser, the Agency or any other party as implied by the usage and context
- (gg) "OEM" means the Original Equipment Manufacturer of any equipment / system / software / product.
- (hh) "Owner" means the "Purchaser" calling for BID.
- (ii) "in writing" means communicated in written form with proof of receipt.

Words and expressions used and not defined in the tender document but defined in the Act or Regulations made there under have the meaning assigned to them in the Act or Regulation.

## SECTION B: INTRODUCTION

### B.1 Synopsis

NRPC Secretariat on behalf of all the constituents of Northern Region requires the services of eligible, qualified Firms/agencies for Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network. The detailed scope of the work is at **Section-E**.

Northern Regional Grid comprises the electrical system of the States of Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand, NCT of Delhi, Union Territory of Chandigarh, CTU/ISTS Transmission licensees, ISGS / Generating companies etc.

The work shall broadly include the following deliverables:

- Database building for Protection Setting of Northern Region power system.
- Protection Setting Calculation Tool.
- Web Based Protection Database Management System.
- Hardware setup and software package capable of meeting the following objectives, but not limited to:
  - Classified database structure and data of all apparatus, electric lines and their protection system details at 220 kV and above, except for Himachal Pradesh, Jammu and Kashmir and Uttarakhand where details to be collected at 132 kV and above as well as having a user friendly interface for browsing and editing the contents of the database. The details are also to be collected for all 132 kV and above pooling substations for REs in Northern Region.
  - Classified database structure for bays at 132 kV except for Himachal Pradesh, Jammu and Kashmir and Uttarakhand where data can be updated at 66 kV level by Users through Web Based application.
  - Tool for simulating the performance/ behavior of the protection system under all possible steady state and transient state of the power system, including effect of changing one or more settings of the relays, apparatus and network topology.
  - Diagnostics Tool for verifying Protection coordination among various protective relays
  - Generation of reports
- Five-Year Support Period from the date of completion of Defect Liability Period.

### B.2 Need for Implementation

As a follow, up of one of the recommendations of Enquiry committee headed by Chairperson, CEA on grid disturbance that took place in Indian grid on 30<sup>th</sup> and 31<sup>st</sup> July 2012 MoP constituted a '**Task Force on Power System Analysis under Contingencies**' in December 2012

One of the recommendations of the report submitted by the Task force was related to the creation and maintaining of protection related database stating:

*"There is also a need for creating and maintaining data base of relay setting. Data regarding settings of relay in their network should be compiled by the CTU and STUs and furnished to RLDC and SLDC respectively and a copy should also be submitted to RPC for maintaining the data base".*



Northern Regional Grid comprises the electrical system of the States of Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand, NCT of Delhi, Union Territory of Chandigarh, CTU/ISTS Transmission licensees, ISGS / Generating companies etc.

System security is a critical element of power system operations and management. An updated and secure information system including an up to date web based protection database is necessary to ensure that the protective relays will function correctly with proper discrimination to provide the requisite reliable, sensitive and selective isolation of faulty power system equipment.

In various Protection Sub- Committee (PSC) meetings of NRPC, it was also felt that a protection data base for transmission system of Northern Region is urgently needed. This tender is being called for “Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network”.

### **B.3 Objectives**

1. To collect data of all apparatus, electric lines and their protection system details at 220 kV and above except for Himachal Pradesh, Jammu and Kashmir and Uttarakhand where data to be collected at 132 kV and above for building a centralized web-based Protection database and model the of the Northern region power system and to regularly update the same. Similarly, to collect data of protection system details for all the thermal and gas generator units of rating 100MW and above, for all hydro units of rating 25MW and above, for all Nuclear energy units and for solar plants and wind generators connected to grid at 132kV and above. All the ICTs connected to be included with LV side also.
2. To provide provision in the database to update/edit details for 132 kV where collection of data is at 220 kV and above as well as for 66 kV where collection of data is at 132 kV and above by Users through Web Based application.
3. To create facility to store all types of relay settings in one system irrespective of the OEM. The data archiving should comply relevant cyber security norms and privacy standard.
4. To maintain the log of protection settings (modification of settings etc) and maintain a template for each relay used in the system.
5. To model the complete Power system network for which data has been collected as mentioned in objective 1, so as to verify the coordination between power plant and transmission system protections.
6. To create an interface between Protection Setting Calculation Tool and protection database to compute the various relay settings for each relay.
7. To analyze faults/disturbances simulated in the modeled network based on the protection database relay settings.
8. To establish the web based sharing of database system for protection relay setting and networks cases which can be imported to the Network in the Protection Setting Calculation Tool.
9. To create a hierarchical Role based access control system along with the reporting procedures for relay setting modifications.

## SECTION C: INSTRUCTIONS TO BIDDERS

### 1. Preparations of Bids:

- a. Bid Documents can be downloaded from NRPC website <http://www.nrpc.gov.in> or from the Central Public Procurement Portal <http://eprocure.gov.in/eprocure/app> free of cost.
- b. Bidders should register in the e-procurement module of Central Public Procurement Portal through the website <http://eprocure.gov.in/eprocure/app> for participating in the bidding process.
- c. Bidders should also possess a valid Digital Signature Certificate (DSC) of Class III for online submission of bids.
- d. Bids received on CPP portal (<http://eprocure.gov.in/eprocure/app>) only will be considered. Bids in any other form sent through sealed cover/email/post/fax etc. will be rejected.
- e. The original copies of documents as mentioned in clause 3 of ITB and EMD / Bank Guarantee should be submitted to the office of Member Secretary, Northern Regional Power Committee (NRPC) by **14th November ,2018, upto 14:00hrs** either through post or in person. The bid will be opened of those documents received by office within stipulated date and time. Other bids will not open and it will be treated as rejected.
- f. The bidders should upload the scanned copy of duly signed full bid documents (.rar) along with compliance report/statement. All the tender documents (Technical & Financial bid) to be uploaded as per this tender are to be digitally or duly signed by the bidder.
- g. All the communications with respect to the tender shall be addressed to:

**Member Secretary,  
Northern Regional Power Committee,  
18-A, Qutab Institutional Area, Shaheed Jeet Singh Marg,  
Katwaria Sarai, New Delhi-110016**

### 2. Important Dates:

1	Last date and time for receipt of Bid	<b>14.11.2018 at 14:00 hrs</b>
2	Date and Time of opening of Technical Bid	<b>15.11.2018 at 15:00 hrs</b>
3	Earnest Money Deposit	<b>Rs. 70,00,000 /-</b>

### 3. Submission of Original Documents: Bidders are required to

#### 4. submit the following documents in original to the Purchaser's office.

- I. Original EMD/Bank Guarantee as per **Annexure I**;
- II. Undertaking confirming correctness of information and documents submitted with the Bid, using the Format given in **Annexure - E**; and
- III. Original Power of Attorney as per the formats in **Annexures F and G**.

These original documents should be received by the Purchaser before the date and time fixed for opening of Technical Part of Bids either by registered/speed post/courier or by hand, failing which the Bid will be declared non-responsive, and will not be opened. Hard copies of Bids or any other documents are not required to be submitted.

#### 5. Bidder may be asked to give demonstration for the the "Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network" before the Technical evaluation committee on a date informed by NRPC.

Constituents: Constituents for this tender shall mean the electricity utilities of the states of Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand, NCT of Delhi, Union Territory of Chandigarh, CTU/ISTS Transmission licensees, ISGS/Generating companies, NRLDC and NRPC

#### 6. Project completion time: scheduled implementation of all functionalities as per the scope of work shall be 18

months from the date of award. Thereafter there shall be a defect liability period of 1 year from the date of 'Go Live' and subsequently a support period of 5 years.

7. Exchange Rate: For any financial figure in other than Indian rupees the exchange rate as on the date of transaction shall be considered for conversion to Indian rupee value.

8.

Sr No	Milestones for the project	Duration (From date of award)
1.	Submission of all design documents for the Protection Setting Calculation Tool Implementation.	1 <sup>st</sup> month
2.	Delivery of required Hardware - servers.	2 <sup>nd</sup> month
3.	Delivery of 52 Nos base license of protection calculation Tool along with 52 no. of Laptops.	3 <sup>rd</sup> to 8 <sup>th</sup> month
4.	Protection database and substation SLD preparation for Protection Setting Calculation tool.	Up to 15 <sup>th</sup> month
5.	Supply of centralized web based database management system & customization.	10 <sup>th</sup> to 11 <sup>th</sup> month
6.	Completion of Training program on the protection setting, building the network data for load flow and fault calculations.	3 <sup>rd</sup> to 15 <sup>th</sup> month
7.	Site Acceptance Test (SAT) with one pilot state system	10 <sup>th</sup> to 15 <sup>th</sup> month
8.	Go live with all Northern Region constituents data	16 <sup>th</sup> to 18 <sup>th</sup> month
9.	Defect Liability Period	19 <sup>th</sup> to 30 <sup>th</sup> month
10.	Continuation of technical support services up to 5 years from completion of Defect liability period	31 <sup>st</sup> to 90 <sup>th</sup> month

9. Cancellation of contract: The contract is subject to cancellation due to any of the following reasons:

- If the Supplier is found to have submitted false particulars / fake documents for securing the award.
- The Supplier's performance will be monitored for quality, commitment to delivery, adherence to the guidelines, Statutory regulations, Conduct / Discipline etc., while executing jobs. Any deviations from stated conditions can lead to appropriate deterrent action/penalty as deemed fit by Purchaser.
- If the Supplier refuses to execute the job as per the scope of work/quoted rates, after the purchaser issues the letter of award (LoA).
- Any other reason deemed fit by the competent authority/purchaser for cancellation.
- Sharing of data/network information with other utilities/country without permission.
- Any Power system network cyber security issues observed.

Such Supplier's, whose contract is cancelled due to any of the above reasons, will not be considered for subsequent assignments for a period of Five years.

10. Language of Bid: The language of the Bid shall be English

11. Corrigendum: Should the Purchaser deem it necessary to amend the Bid Document, it shall do so by uploading the corrigendum on the website(s). At any time prior to the deadline for submission of the Bid, the Purchaser may amend the Bid Document by issuing corrigenda. In order to provide prospective Bidders reasonable time in which to take the amendment into account in preparing their Bids, the Purchaser may, at its discretion, extend the last date for the receipt of Bids. Any corrigendum issued shall be part of the Bid Document and uploaded on nrpc.gov.in and CPP Portal only and no press notification will be issued in this regard.

12. Cost of preparation of Bid: The Bidder shall bear all costs associated with the preparation and submission of its BID and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the BID process.

13.Submission of Bid: The Bidder shall submit the Bid using the appropriate Submission Sheets provided in the Annexures. These forms must be completed without any alterations to their format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.

14.Rights of Use: All rights of use of any process, product, service or facility developed or any other task performed by the Supplier during execution of the engagement for the Purchaser would lie exclusively with the Purchaser in perpetuity free from all liens, encumbrances and other third party rights and the Supplier shall, wherever required, take all steps that may be necessary to ensure the transfer of such ownership in favor of the Purchaser.

15.Area of Work: The Supplier may be required to work anywhere in any State or union territory of India within the concerned area of the Purchaser.

16.Confidentiality: The Supplier and the personnel of any of them shall not disclose any proprietary or confidential information relating to this contract without the prior written consent of the owner. Purchaser shall ensure confidentiality of the Bids submitted.

17.Earnest Money Deposit (EMD): The Bidder shall furnish as part of its Technical Proposal, an EMD in original form and of the amount and currency specified below. The EMD shall be payable in form of Demand Draft/Bank Guarantee in favor of "NRPC Protection Database Fund" payable at Delhi drawn on any scheduled commercial bank. The bidder should upload the scanned copy (.pdf) of the EMD along with other Technical bid and Price Bid documents.

Earnest Money Deposit for the tender shall be **Rs 70,00,000/- (Rs. Seventy Lakhs only)**. Earnest Money will not fetch any interest.

The EMD made will be forfeited if:

- i. If a Bidder:
  1. Withdraws its bid during the period of Bid Validity.
  2. Invalidates its bid pursuant to Paragraph 16 above.
- ii. In the case of a successful bidder, if the bidder
  1. Fails to submit the Performance Security Guarantee within 28 (Twenty Eight) days from the issue of letter of award.
  2. Fails to sign the Contract Agreement within 28 (Twenty Eight) days from the date of issue of letter of award.
  3. Violates any of the provision mentioned in the Bid Document.

The EMD will be refunded:

- i. To the unsuccessful Bidder:
  1. After the acceptance of the "Letter of Award" by the successful bidder.
- ii. To the successful Bidder:
  1. Only after furnishing an unconditional and irrevocable Performance Security Guarantee within 28 days (Twenty Eight days) from the date of issuance of award, of 10% of the contract price.
  2. If for any reasons beyond the control of the purchaser, the purchaser fails to award LOA within 60 (Sixty) days from the date of opening of the Price Bid.

18.Price Offer:

- i. The Bidder shall provide ONLY ONE Price Bid. In case of more than one price Bid, the submission will be rejected by the purchaser as non-responsive.
- ii. Prices will be firm and inclusive of all cost excluding taxes and no change alternate/conditional price offers shall be allowed.

iii. The price quoted by the Bidder shall be fixed during the Bidders performance of the contract.

19. Performance Security Guarantee: Within twenty-eight (28) days from the issuance of Letter of Award by the Purchaser, the successful Bidder shall furnish the Performance Security Guarantee in accordance as provided below. The value of Performance Security Guarantee would be 10% of the Bid value/contract price.

The successful Bidder will have to furnish a Performance Security Guarantee Deposit @10% of the Bid value/contract price in the form of an irrevocable bank guarantee as per the format at **Annexure-H** from a scheduled commercial bank within 28 days from the issuance of Letter of Award (LoA).

This guarantee will be for faithful performance of the contract in accordance with the terms and conditions and technical specification specified in the Bid documents. The purchaser shall be at liberty to deduct appropriately from the Performance Security Deposit such sums as are due and payable to the agency by purchaser as may be determined in terms of the contract.

The performance guarantee shall remain valid for a period of 60 days beyond the date of completion of defect liability period and shall be renewed for a further period of 60 days beyond completion of Technical support period by 1% of the Bid value/contract price. Performance Security Guarantee in form of bank guarantee will be discharged and returned to the successful Bidder after satisfactory performance of all the terms and conditions of contract.

20. Bid Validity Period: Bid should be valid for a period of 120 days from the date of opening of proposal.

21. Acceptable Banks: All bank related documents should be submitted only from a bank listed in Schedule-2 of Reserve Bank of India (RBI).

22. Currency of Contract: The currency of contract shall be Indian Rupees only.

23. NRPC shall mean the Northern Regional Power Committee as defined under the Electricity Act, 2003 and having its secretariat at 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi – 110016 and headed by Member Secretary.

24. The website of NRPC is at [www.nrpc.gov.in](http://www.nrpc.gov.in)

25. Purchaser/owner shall mean the NRPC.

26. The competent Authority for this Tender shall be The Member Secretary, NRPC.

27. The competent Authority reserves the right to cancel this tender without assigning any reason whatever.

28. Part Bids, incomplete Bids will not be accepted.

29. The competent authority reserves the right to postpone and/or extend the date of receipt of tender or to withdraw the tender notice without assigning any reasons thereof. In such an event, Bidders shall not be entitled to any compensation, in any form whatsoever.

30. Terms and Conditions described in this NIT shall be binding on all Bidders.

31. All entries in the tender forms should be legible and filled clearly. If the space for furnishing information is insufficient, a separate sheet duly signed by the authorized signatory may be attached.

32. Each page of this tender document/NIT should be signed by the Bidder or by the authorized signatories with seal of the agency and require to be enclosed with the technical Bid. Signing each page of this document will be implied as its acceptance in unequivocal manner with clear understanding and interpretations.

33. All pages in technical and commercial Bid/response documents shall be stamped with the official company seal and duly signed by the authorized signatory.
34. Late Bids: Any Bid received after the deadline for submission of Bids prescribed, shall not be accepted.
35. Bidder is expected to examine all instructions, forms, terms and requirements in the Bid document. The invitation to Bid together with all its attachments thereto shall be considered to be read, understood and accepted by the Bidder in full and binding manner. Failure to furnish all information required by the Bid document or a Bid not substantially responsive to the Bid document in every respect may result in rejection of the Bid.
36. The language of the Bid shall be English. All documents enclosed should also be in English language. In case the original document is in a different language, a certified true translation in English language must be furnished, in which case, for purposes of interpretation of the Bid, the translation shall govern. All such translated documents should bear the signature and stamp of the authorized signatory of the Bidder signing the document, as a token of authentication of the same.
37. The Bidders will have to accept unconditionally all the Terms and Conditions of NIT along with an undertaking in support of the authenticity of the declarations regarding the facts, figures, information and documents furnished by the Bidder in order to become an eligible Bidder. Conditional Bids against the terms of the Bid may be rejected upon sole discretion of purchaser.
38. Based on undertaking furnished by the Bidder, as per format given at **Annexure-E**, certifying the authenticity and statement made in the Bid, if any information or document submitted by the Bidder is found to be false/incorrect, the offer shall be considered absolutely null and void and penal action as deemed fit shall be taken against the Bidder which may include termination of contract / forfeiture of all dues including EMD/ Security Deposit / banning of the firm along with all partners of the firm as per provisions of law. Further, suitable action shall be taken for claiming damages from the Bidder.
39. NRPC reserves the right to accept or reject any or all offers in part or not to make any procurement against this tender, without assigning any reasons. No dispute of any kind can be raised against this right of the NRPC in any court of law or elsewhere.
40. The purchaser shall be entitled and it shall be lawful on his part to forfeit the amount of Performance Security in whole or in part in the event of any default, failure or neglect on part of the agency in fulfillment or performance of the contract under reference in all respects to the satisfaction of the purchaser. The purchaser shall be entitled to deduct from the amount of Performance Security any loss or damage which the purchaser may suffer due to any act or default of the Agency as per stipulations of the contract.
41. In the event of termination of agreement for any reasons, or in the event the successful Bidder is discharged of its obligations clauses 34-37 of GCC shall be applicable.
42. After award and before starting of work the selected agency shall give a presentation detailing the proposed architecture and their work plan, support services required and deliverables.
43. The Bidder will be responsible for sizing the hardware to support the scalability and performance requirements of the protection database application. The Bidder shall ensure that the servers are sized adequately and redundancy is built into the architecture required to meet the service levels mentioned in the NIT.
44. The IT Infrastructure proposed should be compatible with infrastructure at NRPC and constituents.
45. The Bidder will be responsible for providing all the details of the Bill of Material (BoM) and specifications of the IT Infrastructure proposed, specifications of the system software, all other equipment proposed as part of its

Technical Proposal. The price quote submitted by the Bidder should include costs for these.

46. After completion of the 5-year support period the successful agency will provide a proposal for AMC which may be accepted /declined by the purchaser.

## SECTION D: SCHEDULE OF REQUIREMENTS

### D.1 Deliverables

- a. Web based database management tool for remote access-52 Licenses
- b. Protection calculation & Analysis tool with laptop computers - 52 Licenses
- c. User Manuals- 52 sets
- d. Associated servers for installation and Deployment of application and database software along with standard Operating System –With Main and Back up.
- e. Training for 5 days at NRPC premises and 5 days at each Constituent premises including printed reading material/soft files.
- f. 1 year Defect Liability Period and 5 year comprehensive Support including incorporation of any new network configuration, addition of new substation, change of relays, settings, CT/PT, support for database software, web access and various analysis engines.

### D.2 Minimum Hardware Bill of Quantities (BOQ) and Specifications

Sl. No.	Server Role/Requirement	Hardware Description (Higher or Equivalent)	Quantity
1	Web Server	Processor : 64 bit processor, 3.06 GHz RAM : 64 GB RAM, Storage : 1 TB Raid : RAID 1 and 5 (Supported) Power Supply: Redundant power supply Network: 4 × 1GbE (std.) Operating system: Windows / Linux /Unix	2
2	Database Server	Processor : 64 bit processor, 3.06 GHz RAM : 64 GB RAM, Storage : 1 TB Raid : RAID 1 and 5 (Supported) Power Supply: Redundant power supply Network: 4 × 1GbE (std.) Operating system: Windows / Linux /Unix	2
3	Historian/ Storage Server	Processor : 64 bit processor, 3.06 GHz RAM : 64 GB RAM, Storage :2 TB Raid : RAID 1 and 5 (Supported) Power Supply: Redundant power supply Network: 4 × 1GbE (std.) Operating system: Windows / Linux /Unix	2
4	Application Server	Processor : 64 bit processor, 3.06 GHz RAM : 64 GB RAM, Storage : 1 TB Raid : RAID 1 and 5 (Supported) Power Supply: Redundant power supply Network : 4 × 1GbE (std.) Operating system: Windows / Linux /Unix	2
5	Laptop Systems	Intel Processor i5-5 <sup>th</sup> Gen, 6GB RAM 1 TB SATA, 14' LED, Windows 10 Professional/above along with the Licensed Antivirus till the support period	52
6	Database	Oracle / MySQL / Postgresql / MS Sql	As per design
7	Firewall	Layer 7 Standard firewall	
8	Switches/Routers	Layer 2 / Layer 3 Standard	
9	Backup	Netgear RN 516 – Bay 2TB × 6 Hardisk HDD Warranty from Netgear for 5 years	

The above may be considered as minimum requirement. The party may offer higher version or better version to match suitability of proposed system.



## SECTION E: DETAILED SCOPE OF THE PROJECT

### E.1 Synopsis

Bidder should supply fully developed and successfully tested Protection Analysis Software Package with following requirements but not limited to the following modules for the supply of Software and Database building activities:-

Broad scope of supply includes following.

1. Power system data collection from sites through field visits and Database building activities.
2. Protection Setting Calculation Tool.
3. Web Based Protection Database Management System.
4. The vendor should develop and maintain a hardware setup and software package capable of meeting the following objectives; but not limited to:
  - Classified database structure and data of all apparatus, electric lines and their protection system details at 220 kV and above, except for Himachal Pradesh, Jammu and Kashmir and Uttarakhand where details to be collected at 132 kV and above as well as having a user friendly interface for browsing and editing the contents of the database.
  - Extracted setting of various relay (proprietary format for numerical relay and excel template for static relays) shall be imported directly into Web Based Protection Management System.
  - A user friendly interface for browsing and editing the contents of the database.
  - Tool for simulating the performance/ behavior of the protection system under all possible steady state, transient state and dynamic state of the power system, including effect of changing one or more settings of the relays, apparatus and network topology.
  - Diagnostics tool for verifying proper coordination among various protective relays.
  - Generation of reports.
5. Five-Year Support Period from the date of completion of Defect Liability Period (01 year from the date of Go Live).

### E.2 Database Building Activities

1. One time power system network model building and its updation till the end of support period and thereafter a provision for it being updated by the authorized user, for simulating the performance/ behavior of the protection system under all possible steady state and dynamic/transient state of the power system, including effect of changing one or more settings of the relays, apparatus and network topology. The protection setting calculation Tool, apart from having the functionality of Load-Flow, Short circuit and dynamic simulations, should also have the capability of importing network from system file of available load flow software in common data exchange file formats such as IEEE/.csv/.xls/.txt/.xml or any other NRPC defined formats for the rest of the National Grid.
2. The protection setting calculation tool should be capable of interacting with the database.
3. It should be capable of Fault simulation at each Node and on each transmission line, and generate relay-based integrity report including discrepancies, if any.
4. Data should be made available at substation by concerned utilities if not it should be fetched from relay using proprietary software of relays. Data should be entered manually for electromechanical relays and numerical relays for which data fetching using proprietary software is not possible.

5. Data collected from respective substations to be validated by concerned utility before populating the same in the database.
6. Complete modeling of NR transmission network for 220 kV and above as well as 132 kV and above for Himachal Pradesh, Jammu and Kashmir and Uttarakhand including HVDC systems, FACTS devices connected with NR, with relevant system parameters collecting from the field like transmission lines, generators, transformers, reactors, substation layouts, and associated protective relays in the substations. The model should include CT, PT, Isolator, Breaker and other bay equipment's ratings along with rating of the BUS and the type of conductor used for the BUS. The modeling should be done as per bus-breaker philosophy instead of node oriented model.
7. GUI based interface for users to develop and maintain network in Web Based Protection Management System.
8. Building of network Database, creating templates for all relay models, provision of designing new templates for new relay models and populations of relay data for all existing substations of 220 kV and above as well as 132 kV and above voltage level for Himachal Pradesh, Jammu and Kashmir and Uttarakhand, of Northern region including Generating station switchyards, RE Pooling substations, HVDC substations as well as the Generators.
9. Prepared network should be ready for load flow analysis and the same has to be verified with the NR constituents. Both MW and MVAR flow should be computed and Voltage Level at different Buses should be ascertained along with suggestive conditions to reduce or enhance Bus voltage.
10. Short circuit, transient stability/ dynamic studies and contingency analysis have to be simulated and the results have to be demonstrated to the NR constituents for approval. There should be features to study low frequency oscillations, 3<sup>rd</sup> zone tripping, PSS tuning support and Voltage collapse prediction feature.
11. Transient stability and grid disturbance simulation studies for the Northern region database and performing the COMTRADE file analysis.
12. Over current and distance relay coordination settings have to be calculated and coordination curves should match the existing protection schemes of the substations. Some critical contingencies have to be discussed with NR constituents and the same has to be simulated and results to be demonstrated.
13. Computation of critical clearing time for the most of the voltage level and critical stations.
14. Review of the unit protection for the elements like Generators, GT's, Unit transformers, Station transformers, ICT's, Main power transformers, Reactors, Dynamic and Static Compensators, bus-bars, transmission lines and other differential protection relays.
15. Following are estimated details of the existing sub-station in the NR region.

No. of 765 kV Substations	No. of 400 kV Substations	No. of 220 kV Substations	*No of 132 kV substation	No. of HVDC stations
30	210	640	111	07

\* For Jammu and Kashmir, Himachal Pradesh and Uttarakhand.

However, all the 220 kV and above substations in the northern region added upto the completion of support period to be modeled in the software with all details. The pooling station for Renewable Energy Sources connected at 132 kV and above is to be included.

16. Capacity building and training at NRPC Office and each state.

### E.3 Protection Setting Calculation Tool

This module shall calculate relay settings for all the type of distance/ overcurrent/ Earth Fault / differential/ line/ transformer/ Reactor/ Generator and other protection relays. Relay co-ordination will be conducted for relays of all make and with user defined characteristics as per the protection philosophy followed by NRPC.

The Protection Setting Calculation Tool should be capable of:

1. Relay co-ordination for radial and interconnected power system networks.
2. Relay co-ordination for Main and backup protection
3. Fault Level calculation will be a part of relay co-ordination program.
4. Built-in standard relays library data along with up to date application guide and user manual of all relays for different manufacturers, including but not restricted to the following protection features
  - i. Line protection: Distance, over current, earth fault, over voltage
  - ii. Line Differential protection
  - iii. Transformer Differential Protection
  - iv. Transformer Over fluxing Protection
  - v. Transformer Thermal Overload Protection
  - vi. Transformer Low Impedance Restricted Earth Fault Protection and High Impedance Restricted Earth Fault Protection
  - vii. Transformer back-up over current and earth fault protection
  - viii. Generator, Generator Transformer, Generator Overall and Unit Differential Protection
  - ix. Generator Inter – Turn Differential Protection
  - x. Generator Transformer Low Impedance and High Impedance Restricted Earth Fault Protection
  - xi. Generator Stator Earth Fault Protection (Both 95% and 100% protection)
  - xii. Generator Rotor Earth Fault Protection
  - xiii. Generator Loss of Excitation Protection (Field Failure) (with and without Under voltage)
  - xiv. Generator Forward Power and Reverse Power Protection
  - xv. Generator Back-Up Impedance protection
  - xvi. Generator Inadvertent energization
  - xvii. Generator Negative Sequence Protection,
  - xviii. Generator Pole Slip Protection
  - xix. Generator Thermal Overload Protection
  - xx. Feeders Directional and Non-Directional Over current and Earth Fault Protection with standard and nonstandard curves (User defined curves).
  - xxi. FACTS devices, Reactor, Breaker protection.
5. Plotting log-log graphs.
6. Checking existing relay settings.
7. Computing unit protection settings for Generators/ line/transformer /reactor/ busbar/ Breaker protection (LBB and auto recloser)/ FACTS devices etc.
8. Computing Out of Step Tripping Protection Settings for inter-regional lines, power swing analysis.
9. Displaying sequence of operation of relays with respect to tripping time.
10. Capable of conducting co-ordination check for relays of all make and with user defined characteristics as per the Protection philosophy followed by NRPC or protection guidelines recommended by NRPC.
11. Performing Disturbance analysis.
12. Having standard power system components and relay symbols.
13. Instantaneous settings for relays.
14. Automatic computing zone settings for distance protection.
15. Viewing existing and newly computed relay settings simultaneously with remarks/comments for deviation from existing.
16. Having Pre-loaded standard relay curves.
17. Having Directional and non-directional features of relays.
18. Calculating/checking overload factor, unbalance factor and discrimination time (user defined/selectable) for each relay
19. Doing Inbuilt discrimination time calculation for grading of relays.

20. Having inbuilt facility to model the back-up protection settings of all the generating units / GTs connected to the grid at 220 kV and above level as well as 132 kV and above level for Himachal Pradesh, Jammu and Kashmir and Uttarakhand, with the exception where the generator is connected to the lower voltage network, as it will also be considered so that coordination between power plant and transmission system protections may be tested / verified.

#### **E.4 Web- based Protection Database Management System**

Web-based Enterprise license of Database tool and populating of all the relay templates and also relay field data into the software and customizing the approval procedures.

Protection data management system is an asset management tool for maintaining information on relay attributes and settings. The software should be capable of maintaining the entire data belonging to all relays. Once data fits in the software it should be capable of porting the data to any third party application for analysis and also various reports generated. The data would be accessed over web or remotely for use in protection setting calculation tool.

The Web based Protection database management system shall have following capabilities

1. Role based access control
2. Flexible customization of user roles, grants, actions from Master control panel
3. User Access Monitor
4. Relay Template Management: Facility to Create/ Edit/ Delete/ Import/Export relay templates and should be capable to attach documents to relay template and relay data.
5. Relay Data management: Create/ Edit/ Delete/ View/ Lock/ Unlock/ Copy/ relay data. Should also be capable of downloading relay data from the relays and also uploading the data from the software to the relays.
6. Configuration management: Should have option to configure user defined levels for generating relay indexing.
7. Work flow Management
8. Relay template life cycle management
9. Relay data life cycle management
10. Availability of historical fault data.
  - (a) The User should have option to enter actual reason for the nature of fault.
  - (b) Based on the User-fed actual reason for the nature of the fault, Web Based Protection Database Management System should be capable of updating its database for analysis.
11. Database sizing: The software should be capable of analyzing, storing, and handling all fault records (Disturbance record, Event Logger, COMTRADE files, etc.) for a minimum period of 5 years; and the updated database to be used for fault analysis should be permanently available.
12. History logger: The Web-based Protection database Management software should be capable of tracking all user activities including user operations, data management, template management, configuration management and workflow and the same shall be logged over a period of time.
13. Import and Export: There shall be an option to import/export template and data from any third party application in standard formats.
14. Integration of Third Party application: It should be capable of integrating any third party application to share data between protection database management system software and Protection setting calculation tool and vice versa.
15. Should be capable of drawing of Relay characteristics curve from the relay setting data.
16. Generation of reports:

- a. Capable of generating reports as per user requirement in the standard format like .xls, .pdf. etc.
- b. Should be capable of accepting setting data as per the audit and verify/compare the field setting with protection database setting and generate error report.
- c. Should be capable to store and retrieve audit reports.
- d. Should be capable to store and retrieve element tripping incidence report.
- e. Should be capable to store and retrieve setting guidelines as per various committee recommendations, showing a pop up for relay settings which needs to be changed according to them and generating automatic reconciliation requests for relay settings in the database through Automatic Reconciliation Tool.
- f. Web-based Checklist for protection audit should be made available for Constituents to self-auditing.
- g. Should be capable of calculating and maintaining data of dependability index, security index and reliability index of protection performance.
- h. The GUI should be capable of showing and retrieving results, reports from database based on user defined search queries on different attributes viz. name/location, voltage level, relay type, breaker type, bus bar scheme, element type etc.
- i. The GUI should be capable of applying filters on the database based on user defined search queries on different attributes viz. name/location, voltage level, relay type, breaker type, bus bar scheme, element type etc.

## **E.5 Technical Specification of the Software**

As per **Annexure-A (III)**.

## **E.6 Defect Liability Period and Five-Year Support Period**

The following are the broad activities envisaged during the defect liability period (01 year from the date of Go Live) and the five year support period for this project.

1. Technical support for the protection setting calculation tool and training programs every quarterly basis. Updating and entering the protection and network database of the NR region during the support period on regular basis which shall include changes in system configuration, addition of new substations, generators, etc.
2. Bug fixing and free updation of the software release during the period.
3. Performing the grid events and any other major tripping simulation occurring in the system.
4. Deployment of two qualified protection engineers for the period. The engineers shall be available for the technical support during official working hours. Additional manpower shall be made available for collecting data for a new substation added during the support period through field visit.
5. Providing the expert technical advice from the protection expert on the grid disturbance and simulation studies For Grid Events and any other major tripping.

## SECTION F: BID EVALUATION AND SELECTION OF AGENCY AND AWARD OF WORK

The following is the Bid process/ evaluation methodology that will be adapted by purchaser for appointment of Agency.

1. **Two Bid System Procedure:** Bidders should submit the Bid online with all the requisite documents and hard copy of documents as per clause 3 of ITB. Initially, only the Technical Proposals will be opened at the date and time advised in the Bidding Document. The Technical Proposals are evaluated by the purchaser.
2. Following the approval of the technical evaluation, and at an address, date and time advised by the purchaser, the Price Proposals will be opened for technically approved Bidders. The Price Proposals are evaluated and, following approval of the price evaluation, the Contract is awarded to the Bidder who's Bid has been determined to be successful based lowest quote.
3. **Preliminary Evaluation:** The technical proposals will be reviewed for deviations, acceptance of terms and conditions, adherence to scope of work, formats required, purchase of Bid document etc. along with the demonstration during Bid evaluation. In case of non compliance on any of the above, Bids will be considered as technically non-responsive.

#### 4. **Mandatory Qualifying Requirements for Technical Evaluation:**

- i. The Bidder must have executed protection system data base modeling and analysis for a big transmission utility. They should have completed at least 1 Job with the protection modeling, database building, simulations and protection setting calculation to a large transmission utility with more-than **100** sub-stations in the last five years ending 31.03.2018. The documentary evidence for the same shall be submitted in the form of documents like PO/WO/Completion Letter/Reference letter/Payment received should be submitted along with the Bid.
- ii. Bidder must have protection expert team and support team for support this tender in India. Details such as address, phone no and name of relevant personnel along with their designation should be provided.
- iii. The following minimum human resource requirements are to be deployed by the Bidder for execution of the Project/ Tender:

Key Personnel	Qualifications/Experience	No
<b>Power System Advisors and Team Leader</b>	He/ She should be Ph.D/ Master's Degree holder in power systems domain with 10 years of power system and protection field. He/ She should have advised several projects in protection and one project for complete modeling of network with protection elements and database modeling	2
<b>Senior Power System Consultants</b>	He/ She should be Bachelor/ Master's Degree with more than 10 years of experience in transmission system protection analysis and studies.	2
<b>Software Consultants/Experts</b>	He/ She should be Bachelor/Master's Degree with more than 7 years' of experience in designing database concepts for power system products. He/she should have experience in handling data base structures for any reputed power system domain applications. He/ She should have successfully completed the implementation of database structure design for any power system application under reputed projects of India /International to support this project in the past 3 years.	2
<b>Power System Engineers</b>	He/She should be Bachelor /Master's Degree holder in Electrical Engineering and should have minimum 3 years'	20



	experience in power system consulting services and protection system	
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- iv. Bidder should have very good understanding of power system network model of Indian grid and have completed at least 1- assignments in providing power system planning studies, operational studies, and protection audit to an electrical utility in India. Bidders should also have a good understanding of NR Power System.
  - v. Bidder must have at least Rs. 20 Crores (Rupees TWENTY Crores in words) each year average turnover for the past three financial years that is from 01.04.2015 to 31.03.2018. Certificate from CA is to be submitted.
  - vi. Bidder should have positive net worth in the last three audited financial years ended 31.03.2018. Certificate from CA is to be submitted.
  - vii. The proposed protection setting calculation engine/software must be in use for at least 7 years ending 31.03.2017 in any utility in India/Abroad. The documentary evidence for the same shall be submitted in the form of documents like PO/WO/Completion Letter/Reference letter/Payment received should be submitted along with the Bid.
  - viii. Key protection simulation functionality as at **Annexure-B** (Technical Bid) shall be complied and confirmation documents shall be submitted along-with the Bid. The same may be demonstrated for the technical evaluation committee of NRPC as part of the technical evaluation.
  - ix. The company should practice ISO industry standard Quality process and systems for the software development and activities. The company should have a relevant ISO 9001 certificate for the software development and power system consultancy and the same should be submitted along with the Bid.
  - x. Bidder should not be in blacklist of any department of Government in India and Abroad.
5. **Documents Comprising the Technical Bid:** Technical Bid shall contain no prices or price schedules. Technical Bids containing such price information will be rejected.

Each Bidder shall submit with its First Stage Bid the following attachments:

- a. EMD
- b. Covering Letter and Technical Bid Form at **Annexure-B**

- 6. **Technical Bid Form:** The Bidder shall complete the Technical Bid Form **Annexure-B** in the manner and details indicated therein and submit the same, along with Covering Letter and all necessary enclosures, with its first stage Bid.
- 7. **Technically Qualified Bidder:** The technical Bids shall be opened by a Tender Evaluation Committee (TEC) formed for this purpose. The Qualifying Criteria & Technical Bid shall be analyzed first. TEC will scrutinize the offer to determine whether the offer is complete, whether required technical documentation have been furnished, whether the documents have been properly signed, whether the Bidder has made successful demonstration and whether the offer is in order. The decision of the Evaluation Committee in the evaluation of the Qualification criteria and Price Bids shall be final and binding.
- 8. **Price Bid:** The Price Bids may be opened on the same day or at a later date to be intimated on the same day based on the number of Bids received.

All figures in financial Bids shall be in Indian currency only. The Price Bid must be submitted in format at **Annexure-C** only. Validity of the Price Bids shall be 90 days from the date of opening of financial Bid.

- 9. **Selection of Successful Bidder:** The Employer will award the contract to the successful Bidder (also referred to as L1 Bidder) whose Bid has been determined to be substantially responsive and to be the lowest evaluated Bid, further provided that the Bidder is determined to be qualified as per the Qualification Requirement specified in **Annexure-B** to perform the project satisfactorily and verification of the documents, submitted by the Bidder towards meeting the Qualifying Requirements (QR) and /or any other Documents submitted in the

Bidding, with their originals as specified.

10. **Notification of Award and Initiation of Contract:** The Bidder, who's Bid, has been accepted, will be notified of the award by NRPC prior to expiry of the Bid validity period by registered letter/speed post. This letter (hereinafter and in the Conditions of Contract called the "Letter of Intent"(LOI)) will state the sum that purchaser will pay the Supplier in consideration of the execution, completion and maintenance of the Works by the Supplier, as prescribed by the Contract (hereinafter and in the Contract called "the Contract Price").
11. The successful qualified Bidder(s) will confirm acceptance of LOI through 'Letter of Acceptance' within seven days from the date of issue of LOI along with the Performance Security Guarantee.
12. Award of work: Thereafter "Letter of Award" shall be issued after receipt of 'Letter of Acceptance' and submission of Performance Security.
13. Upon the furnishing of Performance Security Guarantee Deposit by the successful Bidder and receipt of "Letter of Acceptance" NRPC will promptly notify the other Bidder(s) that their Bids have been unsuccessful and refund the Bid Security/Earnest Money Deposit as promptly as possible.



## SECTION G: GENERAL CONDITIONS OF CONTRACT

1. Contract Documents	1.1 All documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory.
2. Corrupt Practices	<p>The Bidder shall not have been blacklisted by any State/Central Government or PSU Organization or bilateral/multilateral funding agencies or any foreign agency for breach of ethical conduct or fraudulent practices as on date of submission of the proposal. There should be no investigations pending/proceedings contemplated against the Bidder by any Government agency.</p> <p>2.1 The Purchaser requires Bidders, suppliers, and contractors to observe the highest standard of Business ethics during the execution of the contract.</p> <p>(a) The following definitions apply:</p> <p>“corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of any party in the procurement process or the execution of the contract;</p> <p>“fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of the contract;</p> <p>“collusive practices” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the Purchaser, designed to influence the action of any party in the procurement process or the execution of the contract;</p> <p>“coercive practices” means harming or threatening to harm, directly or indirectly, persons, or their property to influence their participation in the procurement process, or affect the execution of the contract;</p> <p>(b) The Purchaser may reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract.</p>

<p>3. Interpretation</p>	<p>3.1 In this Contract unless a contrary intention is evident:  (a) the clause headings are for convenient reference only and shall not limit, alter or affect the meaning of the Contract;  (b) unless otherwise specified a reference to a clause number is a reference to all of its sub-clauses;  (c) unless otherwise specified a reference to a clause, sub-clause or section is a reference to a clause, sub-clause or section of the Bid Document including any amendments or modifications to the same from time to time;</p> <p>3.2 Amendment  No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.</p> <p>3.3 Non-waiver  (a) Subject to GCC Clauses 30 and 32 below, no relaxation for bearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract to operate as waiver of any subsequent or continuing breach of Contract.   (b) Any waiver of a party’s rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.</p> <p>3.4 Severability  If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.</p>
<p>4. Language</p>	<p>4.1 The Contract as well as all correspondence and documents relating to the Contract exchanged by the Agency and the Purchaser, shall be written in English.</p> <p>4.2 Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in English, in which case, for the purposes of interpretation of the Contract, this translation shall govern.</p> <p>4.3 The Agency shall bear all costs of translation to English and all risks of the accuracy of such translation.</p>
<p>5. Joint Venture/Consortium/Association</p>	<p>5.1 Joint Venture / Consortium /Association of two or more partners are allowed with following conditions:</p>

	<p>(i) The Bid shall be signed so as to be legally binding on all partners.</p> <p>(ii) One of the partners responsible for performing a key component of the contract shall be designated as leader; this authorization shall be evidenced by submitting with the Bid a power of attorney signed by legally authorized signatories.</p> <p>(iii) The leader shall be authorized to receive instructions for and on behalf of any and all partners of the joint venture, and the entire execution of the contract, including payment, shall be done exclusively with the leader, provided or otherwise requested by the joint venture and agreed between the Purchaser and the leader.</p> <p>(iv) All partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms.</p> <p>(v) A copy of the agreement entered into by the joint venture partners shall be submitted with the Bid, including inter-alia delineation of responsibilities and obligations of each partner appended thereto, notwithstanding the joint and several liability.</p> <p>(vi) The joint venture agreement should indicate precisely the responsibility of all members of JV in respect of planning, design, manufacturing, supply, installation, commissioning and training. All members of JV should have active participation in execution during the period of the contract and should not be varied/modified subsequently without prior approval of the Purchaser; and</p> <p>(vii) In order for a joint venture to qualify, each of its partners or combination of partners must meet the minimum criteria listed in the Qualification Requirement for the Bidder for an individual Bidder for the component of the contract they are designated to perform.</p> <p>(viii) Failure to comply with the requirement of Sub-Clause (vii) above will result in rejection of the joint venture Bid.</p>
6. Eligibility	6.1 Eligibility criteria shall be as per the Technical Bid evaluation criteria.
7. Location	7.1 The Services shall be performed in the state or union territory of India within the concerned area of the Purchaser or at such location as required by the Purchaser.
8. Effectiveness of Contract	8.1 This Contract shall come into force on the date of issuance of Letter of award by the Purchaser.
9. Warranty/ Licenses and Annual Maintenance Contract (AMC)	<p>9.1 Server, storage hardware and Laptops supplied in the contract shall be covered under warranty for at least five years onsite manufacturer's warranty.</p> <p>9.2 Warranty period for the all other hardware shall be on site for two years or as per manufacturer standard warranty whichever is higher.</p> <p>9.3 All warranties and licenses for hardware and software shall be in favor of purchaser.</p>
10. Authorized Representatives	<p>10.1 Any action required or permitted to be taken, and any document required or permitted to be executed under this Contract, may be taken or executed:</p> <p>a) on behalf of the Purchaser by competent authority or his designated representative;</p> <p>b) on behalf of the Agency by the holder of Power of Attorney (PoA) or his designated representative.</p>
11. Notices	<p>11.1 Any Notice given by one party to the other pursuant to the Contract shall be in writing.</p> <p>11.2 Any such notice, request or consent shall be deemed to have been given if sent by registered post or e-mail to such Party at the following address:</p> <p>For the Purchaser: Member Secretary, NRPC Email: <a href="mailto:ms-nrpc@nic.in">ms-nrpc@nic.in</a> and <a href="mailto:seo-nrpc@nic.in">seo-nrpc@nic.in</a></p>

	<p>Telephone: 011-26868681</p> <p>For the Agency: _____</p> <p>Postal address: _____</p> <p>E-mail: _____</p> <p>Telephone: _____</p>
12. Governing Law	12.1 The Contract shall be governed by and interpreted in accordance with the laws of India. The Courts in Delhi shall have exclusive jurisdiction with respect to the tendering process, award and execution of the Contract.
13. Settlement of Disputes	<p>13.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation on any disagreement or dispute arising between them under or in connection with the Contract.</p> <p>13.2 If the parties fail to resolve such a dispute or difference by mutual consultation within twenty-eight (28) days from the commencement of such consultation, either party may require that the dispute be referred for resolution to the formal mechanisms specified below (The date of commencement of the dispute shall be taken from the date when this clause reference is quoted by either party in a formal communication clearly mentioning existence of dispute or as mutually agreed):</p> <p>a. The mechanism for resolution of disputes for Bidders shall be in accordance with the Indian Arbitration and Conciliation Act of 1996 as amended from time to time. The Arbitral Tribunal shall consist of a sole arbitrator appointed on agreement of the Parties. If within 30 days of commencement of dispute, the Parties fail to appoint a sole arbitrator, then the panel shall include 3 (Three) Arbitrators. Each Party shall nominate an Arbitrator and the two nominated Arbitrators shall mutually agree and nominate a third Presiding Arbitrator.</p> <p>b. The place for arbitration shall be Delhi.</p>
14. Scope of Work	<p>14.1 The services to be rendered by Agency shall be as per scope of work (Given in the <b>Section E of the Bid Document</b>).</p> <p>14.2 At the time of awarding the contract, the Purchaser shall specify any change in the Scope of Work. Such changes may be due to increase or decrease in the scope of work at the time of award.</p> <p>14.3 Unless otherwise stipulated in the Contract, the Scope of Work shall include all such items not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for attaining Delivery and Completion of Related Services as if such items were expressly mentioned in the Contract.</p>
15. Commencement of Services	15.1 The Supplier shall begin carrying out the Services immediately viz. from the date of issue of Letter of Award (the "Starting Date").
16. Delivery	<p>16.1 The Delivery of services and Completion of the Related Services shall be in accordance with the milestones specified in the <b>Clause 7 of ITB</b> and acceptance of the services rendered by the Purchaser.</p> <p>16.2 The Supplier, in relation to its deliverables, shall provide any supporting data or information required by the Purchaser.</p>
17. Agency Responsibilities	<p>17.1 The Supplier shall provide the services mentioned in the Scope of Work and the Delivery and Completion Schedule, as per <b>Section–E of the Bid Document</b>.</p> <p>17.2 The Supplier shall bear all costs involved in the performance of its responsibilities, in accordance with GCC Clause 18.</p>

18.Purchaser's Responsibilities	<p>18.1 For successful completion of the work, as and when required by the Supplier, the Purchaser may facilitate the collection of data by the agency.</p> <p>18.2 The Competent authority of Purchaser shall act as the nodal point for implementation of the contract and for issuing necessary instructions, approvals, commissioning, acceptance certificates, payments etc. to the Supplier.</p> <p>18.3 Purchaser may on its discretion provide, on Supplier's request, particulars/information / or documentation that may be required by the Supplier for proper planning and execution of Scope of Work under this contract.</p>
19. Contract Price	<p>19.1 Prices charged by the supplier for the service provided under the Contract shall not vary from the prices quoted by the supplier in its Bid (Bid value).</p> <p>19.2 The Contract Price shall be as specified in the contract subject to any additions and adjustments thereto, or deductions there from, as maybe made pursuant to the Contract.</p> <p>19.3 The Contract Price shall be paid in the manner specified in the Payment Schedule <b>GCC 49</b>.</p> <p>19.4 No invoice for extra work/change order on account of change order will be submitted by the Supplier unless the said extra work /change order has been approved by the Purchaser in writing.</p>
20. Taxes and Duties	<p>20.1 The supplier shall pay the taxes as applicable duties, fees, levies and other impositions levied under the existing, amended or enacted laws during life of this contract.</p> <p>20.2 The purchaser shall reimburse taxes as applicable related to the execution of the works to the agency and shall perform such duties in regard to the deduction of such tax as may be lawfully imposed.</p> <p>20.3 Payment of taxes/duties shall not be made separately in any case.</p> <p>20.4 For goods/services supplied from outside the Purchaser's country, the Supplier shall be entirely responsible for all taxes, duties, stamp duties, license fees, and other such levies imposed outside the Purchaser's country.</p>
21. Performance Security Guarantee	<p>21.1 The Supplier shall, within twenty eight (28) days of the issue of Letter of Award, provide a Performance Security Guarantee for the due performance of the Contract in the amounts and currencies specified below: The successful Bidder will have to furnish a Performance Security Guarantee @ 10% of the Bid value/contract price in form of an irrevocable bank guarantee as per format at <b>Annexure-H</b> from a scheduled commercial bank within 28 days from the issue of letter of Award (LoA).</p>

	<p>21.2 The performance guarantee shall remain valid for a period of 60 days beyond the completion of defect liability period and shall be renewed for a further period, if required so.</p> <p>21.3 Performance Security Guarantee in form of bank guarantee will be discharged and returned to the contractor after satisfactory performance of all the terms and conditions of contract.</p> <p>21.4 This guarantee will be for faithful performance of the contract in accordance with the terms and conditions and technical specification specified in the Bid documents.</p> <p>21.5 The Purchaser shall at its sole discretion invoke the Performance Security guarantee and appropriate the amount secured there-under, in the event that the Supplier commits any delay or default in Services rendered or commits any breach of the terms and conditions of the Contract.</p> <p>21.6 The Performance Security shall be denominated in the currencies of the Contract.</p> <p>21.7 The Performance Security shall be discharged by the Purchaser and returned to the supplier not later than sixty (60) days following the date of completion of the Supplier's performance obligations under the Contract, unless specified.</p>
<p>22. Intellectual Property</p>	<p>22.1 Purchaser shall own and have a right in perpetuity to use all newly created Intellectual Property Rights which have been developed solely during execution (including the support period) of this Contract, including all records, reports, designs, application configurations, data and written material, specifications, reports, drawings and other documents which have been newly created and developed by the Supplier solely during the performance of Related Services and for the purposes of inter-alia use or sub-license of such Services under this Contract.</p> <p>The Supplier undertakes to disclose all such Intellectual Property Rights arising in performance of the Related Services to the Purchaser and execute all such agreements/documents and file all relevant applications, effect transfers and obtain all permits and approvals that may be necessary in this regard to effectively transfer and conserve the Intellectual Property Rights of the Purchaser. To the extent that Intellectual Property Rights are unable, by law, to so vest, the Supplier assigns those Intellectual Property Rights to Purchaser on creation.</p> <p>22.2 The Supplier shall be obliged to ensure that all approvals, registrations, licenses, permits and rights etc. which are inter-alia necessary for use of the goods supplied / installed by the Supplier (if any), as part of the service obligations under the present contract, shall be acquired in the name of the Purchaser, and the same may be assigned by the Purchaser to the Supplier solely for the purpose of execution of any of its obligations under the terms of this Contract. However, subsequent to the term of this Contract, such approvals, registrations, licenses, permits and rights etc. shall endure to the exclusive benefit of the Purchaser</p> <p>22.3 The Supplier shall ensure that while it uses any software, hardware, processes, document or material in the course of performing the Services, it does not infringe the Intellectual Property Rights of any person and the Supplier shall keep the Purchaser indemnified against all costs, expenses and liabilities howsoever, arising out any illegal or unauthorized use (piracy) or in connection with any claim or proceedings relating to any breach or violation of any permission/license terms or infringement of any Intellectual Property</p>

	Rights by the Supplier or its personnel during the course of performance of the Related Services. In case of any infringement by the Supplier, the Supplier shall have sole control of the defense and all related settlement negotiations.
23. Confidential Information	<p>23.1 The supplier and the personnel of any of them shall not either during the term or after the expiration of this contract, disclose any confidential information relating to the Project, the Services, this Contract or the Owner's business or operations without the prior written consent of the owner.</p> <p>23.2 The Purchaser may use such documents, data, and other information received from the Supplier for any purposes related to the duties and functions of NRPC office. Similarly, The Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than he design, procurement, or other work and Services required for the performance of the Contract.</p> <p>23.3 The obligation of a party under this clause, however, shall not apply to information that:  (a) the Purchaser or supplier need to share with the institutions participating in the financing of the Contract;  (b) now or hereafter enters the public domain through no fault of that party;  (c) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly from the other party; or  (d) Otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.</p> <p>23.4 The above provisions of GCC Clause 23 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.</p> <p>23.5 The provisions of GCC Clause 23 shall survive completion or termination, for whatever reason, of the Contract.</p>
24. Subcontracting	24.1 The supplier may be permitted to sub-contract on data collection activities which may be offloaded to an external agency, however, the supplier itself shall be responsible for the veracity of the data as collected by the external agency.
25. Service Quality	25.1 The Purchaser may reject any Service rendered or any part thereof that fail to conform to the specifications. The Supplier shall take measures necessary to meet the specifications at no cost to the Purchaser.
26. Liquidated Damages and Penalty	<p>26.1 Except as provided under GCC Clause 30, if the Supplier fails to perform any or all of the Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages,</p> <ul style="list-style-type: none"> <li>a) sum equivalent to 0.5% of the value of the Services, supplied beyond stipulated delivery schedule for each week or part thereof of delay until actual performance, subject to a maximum of 10% of value of such services.</li> <li>b) To obtain services from elsewhere, after due notice to the successful Bidder on the account and at the risk of the defaulting service provider.</li> <li>c) To cancel the work order or a portion thereof and if so desired to get the services at the risk and cost of the defaulting supplier,.</li> <li>d) To extend the period of delivery with or without penalty as may be considered fit and proper, the penalty, if imposed shall not be more than the agreed liquidated damages referred to in clause (a) above.</li> <li>e) To forfeit the security deposit fully or partly.</li> </ul>



	<p>f) Whenever, under this contract, a sum of money is recoverable from and payable by the Service Provider, purchaser shall be entitled to recover such sum by appropriation in part or in whole by deducting any sum or which at any time thereafter may become due to the successful Bidder in this or any contract, should this sum be not sufficient to cover the full amount recoverable, the successful Bidder shall pay purchaser on demand the remaining amount. The supplier shall not be entitled to any gain on any such purchase.</p>
<p>27.Liability/ Indemnity</p>	<p>27.1 The Supplier hereby agrees to indemnify the Purchaser, for all conditions and situations mentioned in this clause, in a form and manner acceptable to the Purchaser. The supplier agrees to indemnify the Purchaser and its officers, servants, agents (“Purchaser Indemnified Persons”) from and against any costs, loss, damages, expense, claims including those from third parties or liabilities of any kind howsoever suffered, arising or incurred inter alia during and after the Contract period out of:</p> <p>(a) any negligence or wrongful act or omission by the Supplier or its agents or employees or any third party associated with Supplier in connection with or incidental to this Contract; or</p> <p>(b) any infringement of patent, trademark/copyright or industrial design rights arising from the use of the supplied Goods and Services or any part thereof.</p> <p>27.2 The Supplier shall also indemnify the Purchaser against any privilege, claim or assertion made by third party with respect to right or interest in, ownership, mortgage or disposal of any asset, property, movable or immovable as mentioned in any Intellectual Property Rights, licenses and permits.</p> <p>27.3 Without limiting the generality of the provisions of this article 27.4 and 27.5, the Supplier shall fully indemnify, hold harmless and defend the Purchaser Indemnified Persons from and against any and all suits, proceedings, actions, claims, demands, liabilities and damages which the Purchaser Indemnified Persons may hereafter suffer, or pay by reason of any demands, claims, suits or proceedings arising out of claims of infringement of any domestic or foreign patent rights, copyrights or other intellectual property, proprietary or confidentiality rights with respect to any Goods, Services, information, design or process supplied or used by the Supplier in performing the Supplier’s obligations or in any way incorporated in or related to the Project. If in any such suit, action, claim or proceedings, a temporary restraint order or preliminary injunction is granted, the Supplier shall make every reasonable effort, by giving a satisfactory bond or otherwise, to secure the suspension of the injunction or restraint order. If, in any such suit, action, claim or proceedings, the Goods or Services, or any part thereof or comprised therein, is held to constitute an infringement and its use is permanently enjoined, the Supplier shall promptly make every reasonable effort to secure for the Purchaser a license, at no cost to the Purchaser, authorizing continued use of the infringing work. If the Supplier is unable to secure such license within a reasonable time, the Supplier shall, at its own expense, and without impairing the specifications and standards, either replace the affected work, or part, or process thereof with non-infringing work or part or process, or modify the same so that it becomes non-infringing. Survival on Termination The provisions of this Clause 27 shall survive Termination.</p> <p>27.4 Defense of Claims: If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in GCC Sub-Clause 27.4, 27.5, or 27.6 the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser’s name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or</p>



	<p>claim.</p> <p>27.5 If the Supplier fails to notify the Purchaser within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf.</p> <p>27.6 The Purchaser shall, at the Supplier's request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.</p>
28. Limitation of Liability	<p>28.1:</p> <p>(a) neither party shall be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs; and</p> <p>(b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort, or otherwise, shall not exceed the amount specified in the Contract Price. Provided that this limitation shall not apply to damages arising from gross negligence or willful misconduct of the Supplier the cost of repairing or replacing defective equipment, or to any obligation of the Supplier to indemnify the Purchaser with respect to patent infringement.</p>
29. Change in Laws and Regulations	<p>29.1 Unless otherwise specified in the Contract, if after the date of the Invitation for Bids, any law, regulation, ordinance, order or by law having the force of law is enacted, promulgated, abrogated, or changed in the place of the Purchaser's country where the Site / area of work is located(which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date, then such Delivery Date shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract.</p>
30. Force Majeure	<p>30.1 If the execution of the contract is delayed beyond the period stipulated in the contract as a result of outbreak of hostilities, declaration of an embargo or blockage or fire, flood, acts of nature or any other contingency beyond the supplier's control due to act of God, then purchaser may allow such additional time by extending the delivery period as it considers to be justified by the circumstances of the case and the decision of the purchaser in this regard shall be final.</p> <p>30.2 If and when additional time is granted by the purchaser, the contract shall be read and understood as if it had contained from its inception the delivery date as extended.</p> <p>30.3 Power failure will not be considered as a force majeure conditions.</p> <p>30.4 Supplier affected by an event of Force Majeure shall take all reasonable measures to remove such inability to fulfill its obligations hereunder with a minimum of delay.</p> <p>30.5 Supplier affected by an event of Force Majeure shall notify the Purchaser of such event as soon as possible, and in any event not later than fourteen (14) days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give notice of the restoration of normal conditions as soon as possible.</p> <p>30.6 The Parties shall take all reasonable measures to minimize the consequences of any event of Force Majeure.</p> <p>30.7 The decision of the Purchaser with regard to the occurrence, continuation, period or extent of Force Majeure shall be final and binding on the Supplier.</p>

	<p>30.8 Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.</p> <p>30.9 Not later than thirty (30) days after the supplier, as the result of an event of Force Majeure, have become unable to perform a material portion of the Services, the Parties shall consult with each other with a view to agreeing on appropriate measures to be taken in the circumstances.</p>
31. Change Orders and Contract Amendments	<p>31.1 The Purchaser may at any time order the supplier through Notice in accordance GCC Clause 11, to make changes within the terms and conditions of this Contract, including any modification of the scope of the Services.</p> <p>31.2 If any such Change Order causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery and Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's Change Order.</p> <p>31.3 No variation or modification of the terms of the contract shall be made except by written amendment signed by the parties.</p>
32. Extensions of Time	<p>32.1 If at any time during performance of the Contract, the Supplier should encounter conditions impeding timely completion of Services pursuant to Section-E, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.</p> <p>32.2 Except in case of Force Majeure, as provided under GCC Clause 30 or where the delay in delivery of the Goods or completion of Services is caused due to any delay or default of the Purchaser, any extension granted under clause 32 shall not absolve the Supplier from its liability to the pay of liquidated damages pursuant to GCC Clause 26.</p>
33. Suspension	<p>33.1 The Purchaser may, by written notice of suspension to the Agency, suspend all payments to the supplier hereunder if the supplier fail to perform any of their obligations under this Contract, including the carrying out of the Services as per schedule, provided that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the supplier to remedy such failure within a period not exceeding Seven (7) days after receipt by the supplier of such notice of suspension and shall invoke contract performance guarantee.</p>
34. Termination	<p>34.1 Termination of Contract for Failure to Become Effective (a) If the purchaser fails to issue letter of intent (LoI) within 90 days of the date of opening of Financial Bid for whatever reasons, either Party may, by not less than two weeks (2) weeks' written notice to the other Party, declare this Contract to be null and void, and in the event of such a declaration by either Party, neither Party shall have any claim against the other Party with respect hereto.</p> <p>34.2 Termination for Default (a) The Purchaser may, without prejudice to any other remedy for breach of Contract, by Notice of default sent to the supplier terminate the Contract in</p>

whole or in part:

- i. if the supplier fails to provide acceptable quality of Services within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 32; or
- ii. if the supplier, in the judgment of the Purchaser has engaged in corrupt, fraudulent, collusive, or coercive practices, as defined in GCC Clause 2, in competing for or in executing the Contract; or Any representation made by the Bidder in the proposal is found to be false or misleading
- iii. if the supplier commits any material breach of the Contract and fails to remedy or rectify the same within the period of two weeks (or such longer period as the Purchaser in its absolute discretion decide) provided in a notice in this behalf from the Purchaser.
- iv. If the supplier fail to comply with any final decision reached as a result of arbitration proceedings.
- v. If, as the result of Force Majeure, the supplier is unable to perform a material portion of the Services for a period of not less than sixty (60) days.
- vi. If the supplier has been blacklisted by the any government agency due to misconduct etc.

(b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 34, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered or not performed, and the supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

#### 34.3 Termination for Insolvency

The Purchaser may at any time terminate the Contract by giving Notice to the supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser

#### 34.4 Termination for Convenience

The Purchaser, by Notice sent to the supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The Notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the supplier under the Contract is terminated, and the date upon which such termination becomes effective.

#### 34.5 Consequences of Termination

Upon Termination of the Contract, the supplier shall:

Prepare and present a detailed exit plan within five calendar days of termination notice receipt to the competent authority of Purchaser ("Exit Plan").

The competent authority and along with designated team will review the Exit plan. If approved, Supplier shall start working on the same immediately. If the plan is rejected, supplier shall prepare alternate plan within two calendar days. If the second plan is also rejected, competent authority will provide a plan for Supplier and it should be adhered by in totality.

	<p>The Exit Plan should cover at least the following :-</p> <p>(i)Execute all documents that may be necessary to effectively transfer the ownership and title, including OEM warranties in respect of all leased equipment;</p> <p>(ii) Handover all developed codes, related documentation and other Configurable Items, if any in his possession;</p> <p>(iii) Handover the list of all IT Assets, passwords at all locations to the Purchaser.</p>
35. Cessation of Rights & Obligations	<p>35.1 Upon termination of this Contract pursuant to GCC Clause 34 hereof, or upon expiration of this Contract pursuant to GCC Clause 47 hereof, all rights and obligations of the Parties hereunder shall cease, except</p> <p>a) Such rights and obligations as may have accrued on the date of termination or expiration,</p> <p>b) The obligation of confidentiality set forth in Clause 23 hereof,</p> <p>c) Any right which a Party may have under the Applicable Law.</p>
36. Cessation of Services	<p>36.1 Upon termination of this Contract by notice to pursuant to Clause 34 hereof, the supplier shall, immediately upon dispatch or receipt of such notice, take all necessary steps as provided in Clause 36 hereof, to bring the Services to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum.</p>
37. Payment upon Termination	<p>37.1 Upon termination of this Contract pursuant to Clause 34 hereof, the Purchaser shall make the following payments to the supplier:</p> <p>a) Remuneration pursuant “Payment Schedule” GCC 49 for Services satisfactorily performed prior to the effective date of termination;</p> <p>b) Reimbursable expenditures pursuant to “Terms of Payment” GCC 49 for expenditures actually incurred prior to the effective date of termination; and</p> <p>c) Except in the case of termination pursuant failure to perform, insolvency of the supplier, deliberate false submission by the supplier or for failure to comply with the final decision of an arbitration process, reimbursement of any reasonable cost incident to the prompt and orderly termination of the Contract.</p>
38. Assignment	<p>38.1 The supplier shall not assign to any other party, in whole or in part, their obligations under this Contract except as mentioned in subcontract clause.</p>
39. Disclaimer	<p>39.1 Purchaser reserves the right to share, with any agency of its choosing, any resultant Proposals in order to secure expert opinion.</p> <p>39.2 Purchaser reserves the right to accept or reject any proposal deemed to be in the best interest of the NRPC</p>
40. Public Disclosure	<p>40.1 All materials provided to the Purchaser by Bidder are subject to Country public disclosure laws such as RTI etc.</p> <p>40.2 The Agency shall not make or permit to be made a public announcement or media release about any aspect of this Contract without written consent from the purchaser.</p>
41. Adherence to safety procedures, rules regulations and restriction	<p>41.1 supplier shall comply with the provision of all laws including cyber security laws, rules, regulations and notifications issued there under from time to time. All laws enforced by statutory agencies and by Purchaser shall be applicable in the performance of this Contract and Agencies Team shall abide by these laws.</p> <p>41.2 The Agency shall take all measures necessary or proper to protect the personnel, work and facilities and shall observe all reasonable safety rules and instructions. Supplier’s Team shall adhere to all security requirement/regulations of the Purchaser during the execution of the work.</p>

	<p>Purchaser's employee also shall comply with safety procedures/policy.</p> <p>41.3 The Supplier shall report as soon as possible any evidence, which may indicate or is likely to lead to an abnormal or dangerous situation and shall take all necessary emergency control steps to avoid such abnormal situations.</p> <p>41.4 The Purchaser shall be indemnified for all the situations mentioned.</p>
<p>42. Removal and/or Replacement of Personnel</p>	<p>42.1 Except as the appropriate Purchaser may otherwise agree, no changes shall be made in the Personnel. If, for any reason beyond the reasonable control of the supplier, it becomes necessary to replace any of the Personnel, the Agency shall forthwith provide as a replacement a person of equivalent or better qualifications.</p> <p>If the Purchaser:</p> <p>a) Finds that any of the Personnel has committed serious misconduct or has been charged with having committed a criminal action, OR</p> <p>b) Has reasonable cause to be dissatisfied with the performance of any of the Personnel, then the supplier shall, at the Purchaser's written request specifying the grounds therefore, forthwith provide as a replacement a person with qualifications and experience acceptable to the Purchaser.</p> <p>42.2 The supplier shall bear all additional travel and other costs arising out of or incidental to any removal and/or replacement, and</p> <p>42.3 No extra payment is to be made to the agency due to such replacement of personnel.</p>
<p>43. Fairness &amp; Good Faith</p>	<p>43.1 The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.</p> <p>43.2 Operation of the Contract: The Parties recognize that it is impractical in this Contract to provide for every contingency which may arise during the life of the Contract, and the Parties hereby agree that it is their intention that this Contract shall operate fairly as between them, and without detriment to the interest of either of them, and that, if during the term of this Contract either Party believes that this Contract is operating unfairly, the Parties will use their best efforts to agree on such action as may be necessary to remove the cause or causes of such unfairness, but no failure to agree on any action pursuant to this Clause shall give rise to a dispute subject to arbitration in accordance with GCC Clause 13 hereof.</p>
<p>44. Insurance</p>	<p>44.1 The supplier shall take and maintain at their own cost, insurance coverage against the risks to their personnel and properties relating to this assignment.</p>
<p>45. Conflict of Interest</p>	<p>45.1 The supplier shall not engage, and shall cause their Personnel not to engage, either directly or indirectly, in any business or professional activities which would conflict with the activities assigned to them under this Contract.</p> <p>45.2 The Purchaser considers a conflict of interest to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations, and that such conflict of interest may contribute to or constitute a prohibited corrupt practice.</p> <p>45.3 If the supplier is found to be involved in a conflict of interest situation with regard to the present assignment, the Purchaser may choose to terminate this contract as per Clause 34 of GCC.</p>

46. Standard of Performance	46.1 The supplier shall perform the Services and carry out their obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted techniques and practices used with professional engineering and consulting standards recognized by professional bodies, and shall observe sound management, technical and engineering practices, and employ appropriate advanced technology and safe and effective equipment, machinery, materials and methods. The supplier shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the Purchaser.
47. Expiration of Contract	47.1 Unless terminated earlier pursuant to Clause 34 hereof, this Contract shall expire when, pursuant to the provisions hereof, the Services have been completed and the payments of remuneration and reimbursable expenditures have been made and a completion certificate has been issued by the Purchaser.
48. Risk Purchase Clause	48.1 In the event of failure of the supplier to provide service under this contract within the stipulated date/period of the order, or in the event of breach of any of the terms and conditions mentioned in the order, purchaser shall have the right to procure such service from elsewhere after due notice to the defaulting agency at the risk and cost of the defaulting agency. In the event of failure of the agency as detailed above, the cost as per risk purchase exercise may be recovered from the bills against any other contracts pending with the purchaser. Such cost shall however not exceed the Limit of liability cap defined in GCC clause 28 above.
49. Payment Schedule	<p>49.1 The supplier shall submit the bills in triplicate to the purchaser.</p> <p>49.2 The final payment under this Clause shall be made only after satisfactory completion of the activities mentioned in the Scope of Work and the same being certified by the Purchaser.</p> <p>49.3 If any excess payment has been made by the Purchaser due to difference in quoted price in proposal and Supplier's invoice, the purchaser may without prejudice to its rights recover such amounts by other means after notifying the Supplier or deduct such excess payment from any payment subsequently falling due to the supplier.</p> <p>49.4 The Bidders may please note that the prices are Firm. All statutory taxes, levies, duties, etc. shall be paid on actual.</p> <p>49.5 Payment Terms:</p> <p>The Bidder shall quote GSTN and PAN/TAN in the offer.  Payment would be released via account payee cheque after deduction of statutory taxes.  Payment will be released on presentation of bills in triplicate via account payee cheques/RTGS/NEFT within 60 days from the date of presentation of such bill after completion of milestones and the same being certified by the Purchaser as per the following schedule.</p> <p>For payment against price (see <b>Price-Bid</b>)</p> <p><b>Part A :</b></p> <ul style="list-style-type: none"> <li>➤ 10% on submission of High level design document for implementation of web based protection management system to NRPC.</li> <li>➤ 20 % of the order value on delivery of 52 No of base license of protection calculation engine along with 52 nos of laptops</li> <li>➤ 15 % of the order value on completion of operational database and performing of load flow/ short circuit studies.</li> <li>➤ 20 % of the order value on delivery of web based database management</li> </ul>



	<p>system</p> <ul style="list-style-type: none"> <li>➤ 5 % of the order value after completion of Training program on the desktop based protection setting calculation software.</li> <li>➤ 5 % of the order value on completion of Site Acceptance Tests with one pilot state system</li> <li>➤ 10 % of the order value on completion of Protection database and substation SLD preparation for protection study.</li> <li>➤ 15 % of the order value after uploading all NRPC constituents data along with SLD and Go Live.</li> </ul> <p><b>Part B :</b></p> <ul style="list-style-type: none"> <li>➤ 20% of the order value after upgradation services for data updating related to relays and other consultancy services after each annual support period.</li> </ul> <p>49.6 Notwithstanding anything contained above in 49.5, the payment would be subject to PSDF disbursement.</p> <p>49.7 The Certificate of Completion in respect of the works referred to in 49.2 above shall not absolve the Agency from its liability to make good any defects/bugs which may appear during the period of maintenance specified in the tender arising in the opinion of the Purchaser or on the part of specifications shall be amended and made good by the Agency at its own cost; and in case of default on the part of Agency, the Purchaser may appoint another Agency to amend the same and all expenses consequent thereon and incidental thereto shall be borne by the Agency and shall be recoverable from any moneys due to it under the contract.</p>
50. Monitoring Mechanism	<p>50.1 Purchaser shall nominate a monitoring committee for certification of completion of milestones. No payment shall be released unless the purchaser is satisfied with the completion of works envisaged as per the milestones.</p> <p>The purchaser may design acceptance tests for some or all of the milestones envisaged in the project within the overall scope of works and the agency shall satisfy the purchaser with regard to the correctness of response /performance of the system. The competent authority may choose to be advised by technical experts from relevant field with respect to the design of acceptance tests.</p>
51. Acceptance Tests:	<p>51.1 A list of the various planned tests and a brief explanation follows below:</p> <ul style="list-style-type: none"> <li>➤ Functionality Testing-execute each function, using valid &amp; invalid data to verify the following: <ul style="list-style-type: none"> <li>• The expected result occurs when valid data used.</li> <li>• The appropriate error / warning messages are displayed when invalid data is used.</li> </ul> </li> <li>➤ Integration Testing-Integration testing ensure that interface of coupling between the module is working fine. The goal here is to see if the modules can be integrated properly. Hence the emphasis is on testing interface between modules.</li> <li>➤ System Testing- The System tests will focus on the behavior of the application. Conditions specified in Technical Specifications of the software will be executed against the system and error message testing. Overall, the system tests will test the system testing and verify that it meets the requirements defined in the Technical Specifications of the software.</li> <li>➤ User Acceptance Testing-The purpose of these tests is to confirm that the system is developed according to the specified user requirements and is ready for operational use. Acceptance Testing checks the system</li> </ul>

	against the "Requirements".
52. Guaranteed Availability and Penalty	<p>52.1 The supplier shall ensure that the Guaranteed Availability of the application system shall not be less than 95% (Ninety five percent) during the period of 6 years from the date of 'go live' on quarterly basis.</p> <p>The following calculation shall determine the availability of the total system:  Scheduled Available Time – Downtime  % Availability = -----X 100  Scheduled Available Time</p> <p>Scheduled Available time shall equate to 24 hours x 7 days per week.</p> <p>Downtime: Downtime refers to a period of time that a system fails to provide or perform its function as per the scope of work.</p> <p>In the event that the application system fails to achieve the guaranteed availability as mentioned above, aggregated over the quarter, during 6 years period from the date of 'go live, NRPC shall be at liberty of deducting 1% of annual contract value of Part B for every percent reduction in availability from the agency's bills/performance security as penalty.</p>

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a. Generator Protection Details

S. No.	Protection Function	Preferred Grouping of Protection Functions
1	Duplicated Generator Protection (87G)	
2	Overall Differential Protection (87GT)	
3	Generator Transformer Restricted Earth Fault Protection (64 RGT)	64 RGT, 87GT and 87HV shall be realized in different relays.
4	Over Hang Differential Protection (87HV)	
5	Stator Earth Fault Protection covering 100% of winding (64G1) based on injection principle	64G1 and 64G2 shall be on two different channels of protection.
6	Stator Standby Earth Fault Protection covering 95% of winding (trip) (64G2)	
7	Inter-turn Fault Protection(95G)	
8	Duplicated Loss of field protection (40G1/2)	40G1 and 40G2 shall be on two different channels of protection.
9	Duplicated Back up Impedance Protection, Three pole (21G)	
10	Backup Earth Fault Protection on Generator Transformer HV neutral (51NGT)	
11	Duplicated Negative Sequence Current Protection, alarm and I22t element for trip (46G) matching with the machine characteristics	
12	Duplicated Low-Forward Power / Reverse power Interlock for steam turbine generator (37/32G1 & 37/32 G2), (with a minimum setting range of 0-1%) each having following two stages a) Short time delayed interlocked with turbine trip (0-10 sec) b) Long time delayed independent of turbine trip (0-60 sec)	37/32 G1 and 37/32 G2 shall be in two different channels of protection.
13	Two Stage Rotor Earth Fault Protection (64F) based on injection principle. The relay should be capable of monitoring the healthiness of injection circuit and raising an alarm in case of open	Setting Range for Rotor E/F Protection (Alarm/Trip) – 1KΩ to 20KΩ

	discontinuity in injection circuit.	
14	Duplicated Definite Time Delayed Over-Voltage Protection (59G)	
15	Duplicated Generator Under Frequency Protection (81G) with df/dt elements	
16	Over Fluxing Protection for Generator / Generator Transformer (99 GT)	
17	Duplicated Accidental Back Energization (Dead Machine) protection (50GDM) on two principles a) based on U/V and O/C b) based on CB status and O/C	50 GDM based on the two principle shall be on two different channels.
18	Duplicated Generator Pole slipping protection(98G)	
19	Unit Transformer Differential Protection, 3 pole (87UT)	87UT & 51UT shall be in different channels.
20	Unit Transformer back-up over current protection (51UT)	
21	Unit Transformer LV REF (64UT LV)	64UT LV & 51NUT shall be in different channels.
22	Unit Transformer LV back-up earth fault protection (51NUT)	
23	Gen Transformer OTI / WTI trip	OTI & WTI trip shall be on different channels
24	Gen Transformer Buchholz / PRV / other mechanical Protections	
25	Unit Transformer OTI / WTI trip	OTI & WTI trip shall be on different channels
26	Unit Transformer Buchholz, PRV / other mechanical Protections	
27	Alarm for all cooler / OLTC trouble for GT/UT as applicable.	
28	Excitation Transformer back-up over current protection (51ET)	

## Technical Details of the Project

II	<b>Technical Evaluation Criteria Check-List (shall include the following, but not limited to)</b>
1	Protection database software demonstration – It should be able to produce SLDs showing key protection elements along with the CT, PT, and different type of Relays modeled, run a sample base case LF on data provided, add/update various relay settings in the database and show their operation by simulating a fault.
2	Key protection simulation functionality as at <b>Annexure-B</b> (Technical Bid) shall be complied and confirmation documents shall be submitted along-with the Bid. The same may be asked to demonstrate for the technical evaluation committee.
3	Web-based Protection Database Management System with User Role management and tracking the details.
4	Enhanced database creation including detailed modeling of all relay elements with standard libraries
5	Possible to create user defined Relay template and life cycle management of the relay.
6	Possible to reduce Regional/ Bigger Transmission Network to equivalent network and to perform EMTP Simulation.
7	Distance Relay simulation and showing the zone of Operation in the graph of R/X plot.
8	Relay co-ordination can be conducted for relays of all make and with user defined characteristics for distance, over-current and earth fault relays.
9	Automatic / Interactive / Manual Primary-Backup relay pairs generation.
10	Simulation of relay responses for the program Computed & Existing Field settings of the relays.
11	Highlighting of Relay Operational Sequence after the analysis.
12	Fault simulation and relay trip currents plotted on the SLD for different type of fault currents including user defined fault current.
13	Fault Simulation and Relay trip sequence on the SLD and showing the sequence of relay pick-up.
14	Unit protection of Transformers/lines.
15	Attaching the COMTRADE file to the Relay for analysis.
16	Performing the analysis of the single COMTRADE file for the associated relay through the network element modeled.
17	Viewing of Analog and Digital plots of disturbance files stored in the relay using the COMTRADE Viewer.
18	Merging of two existing COMTRADE files received from disturbance recorder and removing unwanted channels and storing as a new COMTRADE file for further processing.
19	EMTP analysis for the given network and generating COMTRADE files to match with the disturbance records as part of the Post-mortem analysis.
20	Under frequency and df/dt relay modeling and simulation of load shedding schemes.
21	Modeling user defined control block for simulation of AVR, Governor and special protection schemes.

<b>III Technical Specification of the Software</b>	
<b>General/ Graphical User Interface</b>	
1	Graphical User Interface (GUI)
2	User Friendly application interface with integrated help
3	Compatible with latest Microsoft Operating systems/ios/Linux.
4	Support for both RDBMS (.mdb) & ASCII data
5	Graphic editor for generation of single line diagrams.
6	Provision for exporting the Single Line diagram to AutoCAD/EMF,BMP, GIF, JPEG, PNG, TIF, pdf etc.
7	Software based on International (IEEE/ANSI/IEC) standards
8	Single line diagram (SLD)/Network Creation with detailed modeling of all the network elements/apparatus and interfaced with RDB.
9	Module for creating SLD should have advanced features as in a professional Computer aided design (CAD) and Drafting software application.
10	Flexibility in modeling the system. Meaning there is provision for <ul style="list-style-type: none"> <li>➤ SLD-Database integrated mode for network creation</li> <li>➤ Independently draft the SLD using international standard symbols</li> <li>➤ Data entry using interactive forms</li> <li>➤ Associate any SLD with any database at any point of time.</li> <li>➤ Create input data in ASCII files</li> </ul>
11	Automatically generates SLD from given system connectivity data for equivalent networks
12	Different ways of executing analysis <ul style="list-style-type: none"> <li>➤ Run any analysis directly from graphic editor</li> <li>➤ Run while interactively entering data through forms</li> <li>➤ Run studies using ASCII input or other batch file</li> </ul>
13	User defined reports including MIS information of the system under study.
14	Reports in Standard IEEE Formats
15	Generate reports in .csv, html, pdf, xps, prn, emf, png, xls, xml format
16	Should have inbuilt library of all major power system equipment like Generators, lines, cables, transformers, Reactors both Line and Bus, Dynamic and Static Compensators, relays etc. The libraries should have all the equipment that is widely in use by Indian or abroad Utilities and industries and should have the capability to build and manage a new library.
17	User friendly GUI for entering new equipment into library.
18	Software should support modeling of 50,000 buses and associated power system equipments like transformers, lines, Generators etc.
19	Provision for importing of GPS points and generating the network.
20	Performing the analysis of com-trade file for the associated relay through the network element modeled.
<b>Software Licensing/Commercials</b>	
21	Software License should not have any time limitation for the expiry of license.
22	Software License is such that It could be loaded in any number of PCs. The lock required for the functioning of the software would then be attached to whichever PC the software is required to run
23	Life time free software upgrade.
<b>Power Flow Analysis</b>	

24	Solution methods – Gauss-Seidel, Newton-Rapson, Fast De-Coupled, current Injection
25	Zone / Area wise modeling & control, islanding studies.
26	Simulating the dynamic changes in the network
27	Modeling loads as ZIP and its combination.
28	Determine MVAR Compensation.
29	Contingency analysis ranking.
30	Frequency dependent Load flow should use Fast De-Coupled technique. The following options should be made: Flat Tie-Line Control Flat Frequency Control
31	Optimal load flow uses Fast-DeCoupled technique. The facility of P – Optimization, Q – Optimization and P & Q Optimization should be available
32	AC and DC load flow shall be an in-built feature of load flow program
33	Possible to Model HVDC systems and FACTS devices namely – SVC, STATCOM, TCSC, SPS and UPFC.
34	Computation of Total Transfer Capability (TTC) and Available Transfer Capability (ATC) between two Buses/Areas/Zones and estimation of Loop flows.
35	Sub Station wise load flow for utilities.
36	Simple and Detailed Wind Turbine Model considering all the four IEEE/WECC wind turbines models (WT1 to WT4)
37	IEEE/WECC standard models for performing grid interconnection studies, studying wind plant behavior should be included.
38	Should be suitable for modeling of individual Solar plant, Wind Turbine and Wind Farm (Group of Wind Turbines)
39	Provision to enter OEM specific curves for generators in pre-defined formats (such as P, Q).
40	Modeling of ICTs, two and three winding transformers with OLTC, off nominal fixed tap and phase shift.
41	The active and reactive power, load values, R, X B, Transient and Sub-transient values should be acceptable globally as well as zone wise using reduction factors.
42	Should check Generator Capability curve for limit violations.
43	Should Change the load model from the given type to impedance type automatically, when the voltage magnitude at load bus goes below a specified value to have better and realistic convergence.
44	Should be able to identify the feeders for load shedding during under frequency and shed the load to maintain the frequency at desired value.
45	Should have an efficient memory management.
46	Estimation of Inter regional load flow on various corridors by proper modeling of other regions of the country including all scenarios of peak/off peak, seasonal, etc.
	<b>Short Circuit Analysis</b>
47	The module shall Compute fault level for both symmetrical and asymmetrical faults.
48	Report post-fault bus voltages, currents and impedances as seen at relay. Also fault MVA and current, Peak / crest asymmetrical and symmetrical components at fault bus.
49	Shall be able to simulate all series and shunt fault.
50	Should have an option of running fault studies taking initial conditions from load flow results or flat-start.
51	Shall comply with IEC 61363 & IEC 61909 for Short circuit fault analysis.
52	Shall be able to Compute the fault contributions from all buses in the neighborhood of fault and from

	the user defined nodes including HVDC systems.
53	While computing, the software shall take Transformer vector groups, earthing of transformer and generator neutrals into account.
54	Zero sequence, mutual coupling values will be taken from element modeling However, provision for multiplication factors for the calculation of unknown zero-sequence impedance/admittance of lines/transformers, negative/zero sequence resistance/reactance of generators, negative/zero sequence impedance of loads and zero sequence impedance of series reactors/shunt reactors are there.
55	Fault MVA, Fault current, Peak asymmetrical and symmetrical components of current at the fault bus should be calculated.
56	Wind Turbines contribution to Faults for all the four IEEE/WECC generic wind turbines models (WT1 to WT4) and Solar Inverter contribution to Faults.
	<b>Transient Stability (Dynamic) Studies</b>
57	Should be able to conduct system stability study for various faults and disturbances.
58	Should study the effects of sudden load / generation variations.
59	Should allow for modeling of loads, salient and cylindrical rotor synchronous generator, solar and wind generators and calculate their contributions to the faults.
60	User defined modeling of loads such as constant power / current / impedance or as any combination of the three
61	Should be able to model standard IEEE type voltages regulators, AVR, governors, static VAR compensators, power system stabilizers
62	Should support user defined control system
63	Should calculate critical fault clearing time
64	Should plot and analyze machine Power swing curve for various machines in case of fault.
65	Should simulate any disturbance as specified by the user.
66	Should be able to simulate Load shedding schemes.
67	Should simulate the operation of voltage/current/frequency relays and distance relays.
68	Should be able to simulate over/under frequency and df/dt relays for different levels of load shedding at three setting levels of load frequencies.
69	Power swing curves of transmission lines and distance relay performance verification.
70	Should have the feature to simulate ramp up/down of the generation.
	<b>Web based Protection Setting Calculation Tool</b>
71	Software shall support Standard Power System components and Relay symbols.
72	Software should have Inbuilt library of all widely used relays / fuses used in Indian Power system and should be updated when required.
73	Software shall Co-ordinate the settings of relays
74	Fault Level calculation should be an inbuilt feature in the relay co-ordination program
75	Should Simulate relay responses for a given settings of the relays
76	Relay co-ordination for radial and interconnected power system networks.
77	Should be able to plot log-log graph.
78	Should be able to verify existing relay settings as per the database.
79	Switching status for all Relay elements from the screen. Highlighting of Relay Operational Sequence after the analysis.
80	Should display sequence of Operation of Relays with respect to tripping time.
81	Should display the location of Fault on SLD with standard notation after fault creation.

82	Should provide disturbance analysis on mapping of disturbance files as well as fault parameters in xls with corresponding relay.
83	Should be capable to model Differential Protection, Line Differential protection, Distance protection, Over-current, Over Voltage, Earth Fault, Restricted Earth fault, Backup impedance Protection, Negative sequence, thermal overload, over fluxing, inrush current, forward, reverse power protection, inadvertent generator excitation, loss of excitation, under frequency, df/dt, SPS and dv/dt
84	<p>The software should have specific features of various protection including but not restricted to the following:</p> <p>Over Current Relay Coordination:</p> <ol style="list-style-type: none"> <li>1. Phase Relay Coordination</li> <li>2. Earth Relay Coordination (Coordination between Normal Non Directional Earth Fault and Common Earth Fault should be provided.)</li> <li>3. Stand by Earth Fault</li> <li>4. Partial Bus bar Protection Simulation</li> <li>5. Instantaneous Setting for Relays</li> <li>6. Directional and Non directional Feature for Relays</li> <li>7. Pre-loaded Standard Relay Curves</li> <li>8. Normalized Curve and Fault Line Feature</li> <li>9. View existing and newly computed relay settings simultaneously</li> <li>10. Partial Analysis for selected relays</li> <li>11. Quick Solve</li> </ol> <p>Distance Relay Coordination:</p> <ol style="list-style-type: none"> <li>1. Automatic computation of zone setting in terms of Primary and Secondary for the standard/approved relay formats. It will be the approved database (along with facility to update) for all types of conductors (for example from Dog to Quad Moose, Cables etc.) data i.e. R1/X1/Z1R0/X0/Z0, Zero Sequence Impedance angle etc. for computing the Line impedances. For Zone 2 and Zone 3, Zone 4 setting it has the facility to check whether the setting is not covering the next voltage level (considering the Transformer impedances from the Percentage impedances data).</li> <li>2. Recommended Arc Resistance, Tower footing Resistance for different voltage level</li> <li>3. Standard Relay Characteristics (example: mho, circular, quadrilateral, user defined etc.).</li> <li>4. View existing and newly computed relay settings simultaneously</li> <li>5. Impedance seen by the relay for faults</li> <li>6. Solve for the existing and proposed setting calculation as per the user choice.</li> </ol> <p>Transformer Differential Protection:</p> <ol style="list-style-type: none"> <li>1. Choice of relay library based on the manufacturer/generic types.</li> <li>2. User defined bias slope setting</li> <li>3. Provision to enter CT details for 2 winding and 3 winding Transformers &amp; Single Phase Transformer for Railway Application.</li> <li>4. Provision to enter existing relay settings.</li> <li>5. Program Computed Transformer differential settings.</li> <li>6. Program Computed Operating Time</li> </ol> <p>Restricted Earth Fault Relay:</p> <ol style="list-style-type: none"> <li>1. Choice of relay library based on the manufacturer.</li> <li>2. User choice of Current or voltage setting</li> <li>3. Provision to enter current setting range details like minimum, Maximum and step Sensitive or</li> </ol>

Normal selection will be from the REF data.

4. User choice of voltage setting details in % or volts.
5. Choice of continuous, uniform or discrete voltage setting variation.
6. Provision to add and delete voltage setting records.
7. User defined bias slope setting for Low Impedance RE/F application
8. Provision to enter CT details for 2 winding and 3 winding Transformers along with Neutral CT details.
9. Provision to enter existing relay settings.
10. Program Computed Restricted Earth Fault settings.
11. Program Computed Operating Time

Line Pilot Relay:

1. User defined Line Pilot relay characteristics
2. Choice of pilot wire voltage (either 5 or 15 kV)
3. Choice of Loop Resistance between measured and computed data
4. Provision to input isolation transformer data
5. Provision to input CT data
6. Padding resistance as a computed output.

Bus Bar Differential Relay:

1. Provision to enter relay details like max, min and step values of current in %.
2. Provision to enter relay details like max, min and step values of alarm in %.
3. Provision to enter relay details like max, min and step values of time in seconds.
4. Variable resistor Values: Enter Minimum, Maximum and step values
5. Provision to input Pick up Characteristics data for minimum, maximum and step details for over current setting in %, Stabilizing factor (selective), stabilizing factor (check zone) and Time in msec.
6. Provision to view computed and existing stabilizing resistance simultaneously

Line/Cable Differential Relay:

1. User defined values for minimum, maximum and step values in % for differential set, switch on, high set and 2<sup>nd</sup> harmonic restraint.
2. Provision to view computed and existing settings simultaneously.

Generator Overall, Generator Transformer and Unit Differential Protection:

1. Choice of relay library based on the manufacturer.
2. User defined bias slope setting
3. Provision to enter CT details for 2 and 3 and Multiple winding (for Overall differential) Transformers
4. Provision to enter existing relay settings.
5. Program Computed Transformer differential settings.
6. Program Computed Operating Time.

Generator Inter-turn Differential Protection:

1. Choice of relay library based on the manufacturer.
2. User choice of Current or voltage setting
3. Provision to enter current setting range details
4. User choice of voltage setting details in % or volts.
5. Provision to enter CT details



6. Provision to enter existing relay settings.
7. Program Computed Generator Inter-turn Differential Protection settings.
8. Program Computed Operating Time

Generator Stator Earth Fault Protection (Both 95% and 100% protection):

1. Choice of relay library based on the manufacturer.
2. User choice of Selection of 100% Generator Stator Earth Fault Protection (20Hz or Third Harmonic Principle)
3. Provision to enter Voltage setting range details
4. User choice of voltage setting details in % or volts.
5. Provision to enter CT details (for 20Hz Principle)
6. Provision to enter existing relay settings.
7. Program Computed 95% and 100% Stator Earth Fault Protection settings.
8. Program Computed Operating Time.

Generator Rotor Earth Fault Protection

1. Choice of relay library based on the manufacturer.
2. User choice of Selection of Rotor Earth Fault Protection
3. Provision to enter Voltage & Ohms setting range details
4. User choice of voltage setting details in % or volts.
5. Provision to enter existing relay settings.
6. Program Computed Rotor Fault Protection settings.
7. Program Computed Operating Time.

Generator Loss of Excitation Protection (Field Failure) (with and without Under voltage):

1. Automatic computation of Different Stages of Loss of Excitation
2. Standard Relay Characteristics
3. View existing and newly computed relay settings simultaneously
4. Impedance seen by the relay.
5. Provision to enter existing relay settings.
6. Program Computed Rotor Fault Protection settings.
7. Program Computed Operating Time

Forward Power and Reverse Power Protection:

1. Automatic computation of Different Stages of Power Protection.
2. View existing and newly computed relay settings simultaneously
3. Provision to enter existing relay settings.
4. Program Computed Power Relay settings.
5. Program Computed Operating Time

Back-Up Impedance protection

1. computation of zone setting
2. Standard Relay Characteristics (example: mho, circular etc.
3. View existing and newly computed relay settings simultaneously
4. Impedance seen by the relay for faults
5. Quick Solve

Generator Inadvertent energization Protection:

1. Choice of relay library based on the manufacturer.

	<ol style="list-style-type: none"> <li>2. User choice of Selection of Generator Inadvertent energization.</li> <li>3. Provision to enter Voltage &amp; current setting range details</li> <li>4. User choice of voltage setting details in % or volts.</li> <li>5. Provision to enter existing relay settings.</li> <li>6. Program Computed Generator Inadvertent energization settings.</li> <li>7. Program Computed Operating Time.</li> </ol> <p>Generator Negative Sequence Protection:</p> <ol style="list-style-type: none"> <li>1. Choice of relay library based on the manufacturer.</li> <li>2. User choice of Selection of Generator Negative Sequence.</li> <li>3. Provision to enter Voltage &amp; current setting range details</li> <li>4. Provision to enter existing relay settings.</li> <li>5. Program Computed Generator Negative sequence settings.</li> <li>6. Program Computed Operating Time.</li> </ol> <p>Generator Thermal Overload Protection:</p> <ol style="list-style-type: none"> <li>1. Choice of relay library based on the manufacturer.</li> <li>2. User choice of voltage setting details in % or volts and necessary curves.</li> <li>3. Choice of continuous, uniform or discrete voltage setting variation.</li> <li>4. Provision to enter existing relay settings.</li> <li>5. Program Computed Generator Thermal Overload Relay settings.</li> <li>6. Program Computed Operating Time</li> </ol>
	<b>COMTRADE Viewer &amp; Fault Analyzer should be capable of</b>
85	Viewing of Analog and Digital plots of disturbance files of COMTRADE format (both as instantaneous and RMS values) stored in the relay including trajectory of impedance locus
86	Computation of harmonics in the wave forms of analog channels
87	Computation of Harmonics up to the order of N/2 Hz ( $N \geq$ Sampling Frequency)
88	Showing Harmonics view in Tabular form /bar graphs
89	Saving of the analyzed file in Image format
90	Doing automatic Fault Analysis based on multiple COMTRADE Files provided to the system by User. The COMTRADE files shall be attached to the Web based Protection Database Management System once it is made available in NRPC server. The same shall be downloaded by the constituent members. Based on the incident operating database updation and available COMTRADE files in Web based Protection Database Management System, Constituent members shall be able to simulate and conduct the analysis of the incidents in the local designated PC.
91	<p>Generating reports based on the analysis of COMTRADE Files including but not restricted to the following outputs:</p> <ol style="list-style-type: none"> <li>1. Fault Summary &amp; Fault location based on Single-ended and Double-ended fault data.</li> <li>2. Correctness &amp; validation of operation of each relay.</li> <li>3. Actual impedance seen by the distance relay in the R-X plane.</li> <li>4. Identification of nature of Fault (Like fire, tree, decapping, lightning etc.) based on Historical / database available in the Web based Protection Database Management system.</li> <li>5. Suggesting remedial measures to be taken.</li> </ol>
92	<p>Generating Summary of the report (in multiple formats) including the following:</p> <ol style="list-style-type: none"> <li>(i) File Information</li> <li>(ii) Summary of Analog Channels</li> <li>(iii) Digital channel data</li> <li>(iv) Digital channel sequence events</li> <li>(v) Images of analog, digital and phasor diagram/</li> </ol>

	<p>Report types: (Multiple formats)</p> <p>(i) Report-1: Automatic Fault Analysis based on multiple COMTRADE Files provided to the system by User</p> <p>(ii) Report-2: Storing and displaying fault parameters for each line/ equipment based on different search-categories specified by the User such as Duration, Date, Time, Nature of fault, Fault current.</p>
93	Merging of two existing COMTRADE files received from disturbance recorder which can be edited or modified by removing unwanted channels and creating a new COMTRADE file for further processing.
94	Comparing of two or more channels on the same screen.
95	Computational Viewing
96	Customized Printing
	<b>Network Reduction Module should be capable of</b>
97	Importing User defined number of cases into Web based Protection Database Management System.
98	Computing static and dynamic equivalents for the power system network
99	Importing Initial system condition from the load flow
100	Selecting the buses to be retained, individually or zone wise.
101	Giving output for both Ybus and Zbus matrices for the reduced system.
102	Computing impedance values of additional series and shunt connections arising out of network reduction.
103	Creating reduced network database automatically having equivalent generator's inertia, power, voltage and impedance.
	<b>EM Transient Analysis</b>
104	<p>Program shall be capable of</p> <ul style="list-style-type: none"> <li>➤ Modeling all Power system network components / apparatus.</li> <li>➤ Obtaining the statistical analysis of breaker closing and opening.</li> <li>➤ Creating symmetrical and asymmetrical faults with varying fault impedance.</li> <li>➤ Injecting Impulse voltage/current at a bus as disturbance.</li> <li>➤ Incorporating user defined filters.</li> <li>➤ Generating: voltage/current waveforms for three phases, COMTRADE file, Average power &amp; energy output, Generator speed, angle, torque graph etc.</li> </ul>
	<b>Protection Database Management System</b>
105	Web based Protection data management system being an asset management tool for maintaining information on relay attributes and settings, its software should be capable of maintaining the entire data belonging to all relays and Once data fits in the software it should be capable of porting the data to any third party application for analysis and also for generating various reports.
106	Web based Protection Database management system should be remotely accessible.
107	It should have Role based access and user control
108	Should have the facility for Customization of user roles, grants, actions.
109	Generate log for User Access
110	Relay Template Management: Facility to Create/ Edit/ Delete/ Import/Export relay templates and should be capable to attach documents to relay template and relay data.
111	Relay Data management: Create/ Edit/ Delete/ View/ Lock/ Unlock/ Copy/ relay data. Should also be capable of downloading relay data from the relays and also uploading the data from the software to the relays.
112	Configuration management: It should configure user defined levels for generating relay indexing
113	Work flow Management:

	<ol style="list-style-type: none"> <li>1. Relay template life cycle management</li> <li>2. Relay data life cycle management.</li> </ol>
114	History Logger: All user activities including user operations, data management, template management, configuration management and workflow should be logged to track the user activities over a period of time
115	Import and Export: It should have an option to import template and data from any third party application in standard formats like <b>.xml</b> and <b>.xls</b> format
116	There should be an option to integrate any third party application to share data between protection database management software and protection setting calculation Tool.
117	Should be capable of drawing of Relay characteristics curve from the relay setting data.
118	<p>Generation of reports:</p> <ol style="list-style-type: none"> <li>a. Capable of generating reports as per user requirement in the standard format like <b>.xls</b>, <b>.pdf</b>. etc. eg. <ul style="list-style-type: none"> <li>➤ Tripping Event Analysis Report</li> <li>➤ Sequence of Events Operation as viewed from SLDC Operation</li> <li>➤ Sequence of Breakers Tripped as viewed from Substation</li> <li>➤ Relays operated on each element-wise</li> </ul> </li> <li>b. Should be capable of accepting setting data as per the audit and verify/compare the field setting with protection database setting and generate error report.</li> <li>c. Should be capable to store and retrieve audit reports.</li> <li>d. Should be capable to store and retrieve relay tripping incidence report.</li> <li>e. Should be capable to store and retrieve setting guidelines as per various committee recommendations and generating automatic reconciliation requests for relay settings in the database through Automatic Reconciliation Tool.</li> <li>f. Web-based Checklist for protection audit should be made available for Constituents to self-auditing</li> </ol>
119	Should capture the history of Protection audit of the sub-stations and reports to be made available Utility-wise and State-wise.
	<b>Security and Data back-up</b>
120	Latest software and hardware firewalls to be installed for security of the database from hacking or other malicious manipulation. 128 bit SSL protocol should be used to encrypt the channel between the client and server to protect data during transit.
121	All settings data, SLD, configuration data, hierarchy controls, etc. should be backed up by Network Data Management Protocol (NDMP) for faster recovery. All hardware, software for such backup creation shall be deemed to be considered part of the project.
	<b>Reconciliation Facility</b>
122	<p>The package should provide a facility for reconciliation of substation wise relay setting data present on-sit. All constituents should be made available with a red colored buzzer on the dashboard informing about the pending reconciliation which could be seen on clicking the buzzer.</p> <p>The administrator should also be able to see the pending reconciliation status constituent wise/substation wise.</p>
	<b>Disaster Recovery/Backup</b>
123	The database should have automatic backup/failsafe mechanisms to prevent loss of data with at least two separate storages.

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**Format for Covering Letter**

**(on the Letterhead of the Bidding Company)**

Date: \_\_\_\_\_

From: \_\_\_\_\_

Tel.#:

Fax#:

E-mail address#

To,  
Member Secretary,  
Northern Regional Power Committee,  
18-A, Qutab Institutional Area, Saheed Jeet Singh Marg,  
Katwaria Sarai, New Delhi-110066

**Sub: Response to NIT for selection of Bidder for appointment as the Agency for implementation of “Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network”**

Sir,  
I/we \_\_\_\_\_ Consultant/ Developer Firm herewith enclose our Bid for appointment of my/our firm as the agency for implementation of “Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network”. I/We hereby accept and abide by the scope & terms and conditions of NIT document unconditionally.

The details of contact person are furnished below:

- Name:
- Designation:
- Name of the Company:
- Address of the Bidder:
- Phone Nos.
- Fax Nos.
- E-mail address
- Mobile No :

Thanking you,  
Yours sincerely,  
(Signature and Seal)\*

Name:  
Designation:  
Address:  
Date -----  
Place -----

\*To be signed by Managing Director / Chief Executive Officer, being a full time director on the Board/Manager of the Bidding company or Lead Member in case of Consortium.

- Provided that in case of Manager, the Company should confirm through a copy of Board Resolution attested by Company Secretary that the concerned person is appointed as Manager as defined under the Companies Act, 2013 (As amended) for the purpose in question and the Company Secretary **also certifies that the Company does not have a Managing director or CEO.**

**Format for submission of TECHNICAL-BID for “Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network”**

1	Name of the Agency
2	Profile of the Agency (in brief)
3	Name of the Proprietor/Owner/ Managing Director of the Agency
4	Full Address of Registered Office
	a. Telephone No. b. Fax No.
5	Full Address of Local Office (ER)
	a. Telephone No. b. Fax No.

Sl.No.	Technical-Bid Requirements	Documentary Proof attached (Y/N)
1.	<p>a) The Bidder must have executed protection system data base modeling and analysis for a big transmission utility.</p> <p>b) Must have completed at least ONE Job successfully similar to “Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network” for a large transmission utility with more-than <b>100</b> sub-stations with the voltage level of 132 kV and above during last 5 years.</p> <p>The documentary evidence for the same shall be submitted in the form of documents like PO/WO/Completion Letter/Reference letter/Payment received should be submitted along with the Bid.</p>	
2.	Bidder must have protection expert team and support team for support in India. Details such as address, phone no and name of relevant personnel along with their designation should be provided	
3.	Bidder must have at least Rs. 20 Crores (Rupees TWENTY Crores in words) each year average turnover for the past three financial years that is from 01.04.2015 to 31.03.2018. Certificate from CA is to be submitted	

4.	The web based protection setting calculation tool similar to that proposed in the project must be in use for at least 5 years at the time of submission of bid in any utility in India/Abroad. The documentary evidence for the same shall be submitted in the form of documents like PO/WO/Completion Letter/Reference letter/Payment received should be submitted along with the Bid.	
5.	Bidder must be able to assign sufficient number of power system & protection engineer on his role full time with Electrical Engineering degree for the completing the work within the stipulated time. Bidder shall attach Resume of all key personnel as per Bid document as per Format given at <b>Annexure-D</b> .	
6.	Bidder shall have an office set up for technical support in India. Provide full address, telephone, fax, email address and contact personnel.	
7.	Bidder must not have been blacklisted by any Government organization. Declaration as per <b>Annexure-E</b> in this regard is to be furnished.	
8.	Shall have positive net worth in the last three audited financial years ended 31.03.2018. Submit certificate from CA.	
9.	Additional Information, if any which Bidder intends to submit along with the tender like Quality Certifications.	
10.	EMD draft enclosed.	
11.	Copies of latest GST and IT returns. Please submit return for last three years ending 31.03.2018.	
12.	Copy of PAN card, GSTN.	
13.	Copy of Registration Certificate of the Company of Bidder/lead Bidder	
14.	P&L statement of past three financial years certified by CA.	
15.	Copies of ISO-9001: 2015 certification for software development and consultancy	
16.	Listing with NIC documentary evidence copy thereof in respect of Bidder/lead Bidder	
17.	Board Resolution as per format <b>Annexure-F</b>	
18.	Power of Attorney as per format <b>Annexure-G</b>	
19.	Brief note on the work as understood by the Bidder including action plan along with PERT chart and proposed system architecture including details of hardware and software proposed with their technical specifications. Detailed methodology for executing the complete assignment along with key points.	

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**Format for submission of PRICE-BID for “Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network”**

1	Name of the Agency
2	Profile of the Agency (in brief)
3	Name of the Proprietor/Owner/ Managing Director of the Agency
4	Full Address of Registered Office
	a. Telephone No. b. Fax No.
5	Full Address of Local Office (ER)
	a. Telephone No. b. Fax No.

Sl. No.	Item	Price Quote (in Indian Rupees)
Part-A	Price for completion of High level design, Web based database management tool-1 License, PC based Protection setting calculation & Analysis tool with laptop computers - 52 Licenses, User Manuals-52 sets, Associated servers for installation and Deployment of application and database software along with SOP, Training for 5 days at NRPC premises and 5 days at each constituent premises including printed reading material/soft files and all activities upto completion of Defect Liability Period.	
Part-B	5 year comprehensive Support Period after completion of Defect Liability Period incorporating network alteration, addition of substation, change of protective equipments and settings thereto, support for database software, setting calculation tool and various updates.	
Total Contract Price* to be considered for determination of L1 party (Part-A+Part-B)		
Part C	Taxes as applicable (estimated)(with Break up)	
Part D	Grand Total (Part-A+Part-B+Part-C)	

Date:.....

Place:.....

Signature.....

Name.....

Designation.....

(Common Seal)

**Note:**

- The agency shall not be entitled to any other payments other than contract price and statutory taxes as applicable.
- The prices shall remain Firm till completion of the Assignment.



**Format for submission of Resume**

1. Full Name: \_\_\_\_\_
2. Address: \_\_\_\_\_
3. Nationality: \_\_\_\_\_
4. Profession / Present Designation: \_\_\_\_\_
5. Years with firm: \_\_\_\_\_
6. Area of Specialization: \_\_\_\_\_
7. Proposed Position on Team: \_\_\_\_\_
8. Key Qualifications/Experience: (Under this heading give outline of staff member experience and training most pertinent to assigned work on proposed team. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations)
9. Education: (Under this heading, summarize college/ university and other specialized education of staff member, giving names of colleges, dates and degrees obtained)
10. Experience: (Under this heading, list of positions held by staff member since graduation, giving dates, names of employing organization, title of positions held and location of assignments. For experience in last ten years also give types of activities performed)
11. Language: (Indicate proficiency in speaking, reading and writing of each language by “excellent”, “good” or “poor”).

Date:.....

Place:.....

Signature.....

Name.....

Designation.....

Address.....

(Seal)

**Note:**

1. Kindly ensure that the relevant work experience and its applicability to the present assignment are clearly articulated. The CVs should not be longer than 3 type-written pages.

\*\*\*\*\*

**Format for Undertaking to be given by the Bidder**

*[on the Letterhead of the Bidding Company]*

- 1. I,....., Son/Daughter of Shri.....,Proprietor/Owner/ Managing Director/Authorized Signatory of.....,is competent to sign this declaration and execute this tender document;
- 2. I have carefully read and understood all the terms and conditions of the tender and undertake to abide by them.
- 3. The information/documents furnished along with the above application are true and authentic to the best of my knowledge and belief. I/we, am/are well aware of the fact that furnishing of any false information/ fabricated document would lead to rejection of my tender at any stage besides liabilities towards prosecution under appropriate law.
- 4. Certified that no investigations are pending/legal action contemplated against ..... (name of Agency) by any government authority to the best of my knowledge and belief.
- 5. Certified that the agency has not been blacklisted/ security deposit has not been forfeited in case of the Agency during the last five years.

Date:.....

Place:.....

Signature.....

Name.....

Designation.....

(Common Seal)

\*\*\*\*\*

**Format for Board Resolution for appointing/ granting Power of Attorney in favour of an Authorized Personnel of the Bidding Company**

*[on the Letterhead of the Bidding Company]*

The Board, after discussion at the duly convened meeting on ..... (Insert Date), with the consent of all the Directors present and in compliance of the provisions of the Company Act, 2013 (as Amended), passed the following Resolution:

Resolved that Mr./ Ms ..... (Name), Managing Director of the Company, be and is hereby authorized to execute on behalf of the Company, a Power of Attorney in favour of Mr.....(Name),.....(Designation) of the Company granting full power and authorities on behalf of the Company to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Bid for and selection as the Awardee for the project, *“Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network”*.

Resolved further, that any work carried out by the Attorney in relation to the purposes mentioned above shall be binding on the Company.

Resolved further that Mr./ Ms....., Managing Director and Mr./ Ms....., Company Secretary of the Company be and are hereby severally authorized to do all such acts, deeds, and things as may be necessary to give effect to this resolution.

**Certified True Copy**

**Company Rubberstamp to be affixed**

**Note:**

1. This certified true copy should be submitted on the letterhead of the Company, signed by the Company Secretary/ any whole-time Director of the Bidding Company/ Lead Member of Consortium.
2. The contents of the format may be suitably re-worded indicating the identity of the entity passing the resolution.
3. This format may be modified only to the limited extent required to comply with the local regulations and laws applicable to a foreign entity submitting this resolution.

\*\*\*\*\*

**Format-1: Power of Attorney to be provided by the Bidding Company/ Lead Company of the Bidding Consortium in favour of its Authorized Representative**

**Power of Attorney**

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign companies submitting Bids are required to follow the applicable law in their country)

Know all men by these presents, we, ..... (name and address of the registered office of the Bidder) do hereby constitute, nominate, appoint and authorize Mr/Ms.....(name and residential address), who is presently employed with us and holding the position of ..... as our true and lawful attorney (hereinafter referred to as the "Authorized Representative") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Bid for and selection as the Awardee for the project "Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network" , including but not limited to signing and submission of all applications, proposals/Bids and other documents and writings, participating in pre-Bid and other conferences and providing information/ responses to Northern Regional Power Committee (NRPC), representing us in all matters before NRPC, signing and execution of all contracts and undertakings consequent to acceptance of our proposal and generally dealing with NRPC in all matters in connection with or relating to or arising out of our Proposal for the said Assignment and/or upon award thereof to us till the entering into of the Agreement with NRPC.

AND GENERALLY to act as our Attorney or agent in relation to the Proposal for and selection as the Consultant for ["Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network"] and on our behalf to execute and do all instruments, acts, deeds, matters and things in relation to the said Proposal or any incidental or ancillary activity, as fully and effectually in all respects as we could do if personally present.

AND We hereby for ourselves, our heirs, executors and administrators, ratify and confirm and agree to ratify and confirm all acts, deeds and things whatsoever lawfully done or caused to be done by our said Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF We, .....(Insert name of the Bidder on whose behalf PoA is executed), the above named Principal have executed this Power of Attorney on this ..... day of .....

For [Insert name of the Bidder on whose behalf PoA is executed],

..... (signature of the Executant)

Name:

Designation:

**Accepted**

..... (signature of Attorney)

(Name, Designation and Address of the Attorney)

**Attested**

..... (signature of the Executant)

(Name, Designation and Address of the Attorney)

**Signature and Stamp of Notary of the place of execution**

**Witnesses:**

1.

2.

**Note:**

1. In case Bidder being the Lead Company of a Consortium, they should submit for verification, the *Consortium Agreement* entered into among all Members of the Consortium.

\*\*\*\*\*

**Format-2: Power of Attorney to be provided by each of the other Members of the Consortium in favour of the Lead Member**

**Power of Attorney**

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign companies submitting Bids are required to follow the applicable law in their country)

WHEREAS, the Northern Regional Power Committee (NRPC), have issued NIT dated .....(Insert date of issuance of NIT) for inviting the Bids in respect of execution of the project, "Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network", on the terms and conditions contained in the Tender document;

AND WHEREAS ....., ....., and ..... (Insert names of all Members of Consortium) the Members of the Consortium are desirous of submitting a Bid in response to NIT, and if selected execute the Project as per the terms of Tender document;

AND WHEREAS all the Members of the Consortium have agreed under the Joint Deed Agreement dated ..... (Insert date of the Consortium Agreement) entered into between all the Members, to appoint ..... (Insert name of the Lead Member) as Lead Member to represent all other Members of the Consortium for all matters regarding the Bid;

AND WHEREAS pursuant to the terms of the NIT, we, ..... (Insert Name of the Consortium Members), hereby designate M/s..... (Insert name of the Lead Member) as the Lead Member to represent us in all matters regarding the Bid in the manner stated below:

Know all men by these presents, we, ..... (name and registered office address of the Executant) do hereby constitute, nominate, appoint and authorize M/s .....(name and registered office address of the Lead Member), which is one of the Members of the Consortium, to act as the Lead Member and our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Proposal for and selection as the Awardee for the project "Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System network", including but not limited to signing and submission of all applications, proposals/Bids and other documents and writings, participating in pre-Bid and other conferences and providing information/ responses to Northern Regional Power Committee (NRPC), representing us in all matters before NRPC, signing and execution of all contracts and undertakings consequent to acceptance of our proposal and generally dealing with NRPC in all matters in connection with or relating to or arising out of our Proposal for the said Assignment and/or upon award thereof to us till the entering into of the Agreement with NRPC.

AND We hereby agree to ratify and confirm and agree to ratify and confirm all acts, deeds and things whatsoever lawfully done or caused to be done by our said Attorney and that all acts, deeds and things

done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF We, .....(Insert name of the Executant Company on whose behalf PoA is executed), have executed this Power of Attorney on this ..... day of .....

For [Insert name of the Executant Company on whose behalf PoA is executed],

.....(signature of the Executant)

Name:

Designation:

**Accepted**

.....(signature of Attorney)

(Name, Designation and Address of the Attorney)

**Attested**

.....(signature of the Executant)

(Name, Designation and Address of the Attorney)

**Signature and Stamp of Notary of the place of execution**

**Witnesses:**

1.

2.

\*\*\*\*\*

**Format for Bank Guarantee for Performance Security**

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign companies submitting Bids are required to follow the applicable law in their country)

To

The Member Secretary,  
Northern Regional Power Committee,  
18-A, Qutab Institutional Area, Shaheed Jeet Singh Marg,  
Katwaria Sarai, New Delhi-110016

WHEREAS M/s \_\_\_\_\_ having its registered office at \_\_\_\_\_ (hereinafter referred to as the "Supplier") which expression shall repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), in pursuance of the Work Order/LOA No. \_\_\_\_\_ dated \_\_\_\_\_ has undertaken for execution of \_\_\_\_\_ (hereinafter referred to as the "Contract") on behalf of Northern Regional Power Committee, New Delhi ( hereinafter referred to as the " Purchaser")

AND WHEREAS it has been stipulated by you in the said contract that the "Supplier" shall furnish you with a irrevocable bank guarantee by a Scheduled Commercial Bank for the sum specified therein as security for compliance with its obligations in accordance with the contract:

AND WHEREAS we have agreed to give the "Supplier" such a bank guarantee

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the Supplier and we undertake to pay you, upon your first written demand declaring the "Supplier" to be in default under the contract and without cavil or argument, any amount up to and not exceeding Rupees.....Crores (Rs \_\_\_\_\_) only as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein. We hereby waive the necessity of your demanding the said debt from the Supplier before presenting us with the demand. We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the Supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until ..... (Insert the date of validity of the Guarantee as per Clause 21 of GCC)

**In witness where of**

Signature of the authorized officer of the Bank.....

Name and Designation of the Officer.....

Power of Attorney No: .....

For,



..... (Insert Name of the Bank)

Banker's Seal, Name, and Full Address, including mailing address of the Head Office.

**Note:**

1. The stamp papers of appropriate value shall be purchased in the name of bank who issues the 'Bank Guarantee'.
2. 'Bank Guarantee' should remain valid for a period of sixty days beyond the end of support period.
3. 'Bank Guarantee' should be from a schedule commercial bank operating in India as approved by RBI.
4. 'Bank Guarantee' should be sent directly by the banker of the vendor to Member Secretary, Northern Regional Power Committee, Delhi.

\*\*\*\*\*

## Format for Contract Agreement

(On Non-Judicial Stamp Paper of appropriate value to be arranged by the Agency)

THIS AGREEMENT is made this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, between Northern Regional Power Committee on behalf of President of India (hereinafter called "NRPC"/"Purchaser"/"Owner"), of the one part, and

\_\_\_\_\_ of \_\_\_\_\_ (hereinafter called "The Agency"/ "Supplier"), of the other part:

AND WHEREAS the Purchaser has invited Bids for Related Services, viz., \_\_\_\_\_ and has accepted a Bid by the Supplier for the supply of those Related Services in the sum of \_\_\_\_\_ (hereinafter called "the Contract Price"). NOW THIS AGREEMENT WITNESSES AS FOLLOWS:

2. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract referred to.
3. The following documents (collectively referred to as "Contract Documents") shall be deemed to form and be read and construed as part of this Agreement, viz.:
  - i. All provisions of Tender vide Reference No....., Tender ID....., Tender Name....., including all Annexures/Appendices;
  - ii. Vendor's response (proposal) to Tender, including the Bid Submission Sheet and the Price Schedules submitted by the Supplier;
  - iii. The Purchaser's Notification letter to the Supplier for Letter of Intent;
  - iv. Acceptance of Purchaser's Notification letter by the Supplier;
  - v. The Purchaser's Notification letter to the Supplier for Letter of Award;
3. In consideration of the payments to be made by the Purchaser to the Agency as indicated in this Agreement, the Agency hereby covenants with the Purchaser to provide the Related Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Purchaser hereby covenants to pay the Consultant in consideration of the provision of the Goods and Related Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

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

Signed by \_\_\_\_\_ (Authorized Official on behalf of Purchaser)

Signed by \_\_\_\_\_ (Authorized Official on behalf of Supplier)

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**Format of Bank Guarantee for EMD**

Tender Reference No. NRPC/OPR/107/PDMS/2018

Dated 30/08/2018

To,  
Member Secretary,  
North Regional Power Committee,  
18-A, Qutab Institutional Area,  
Shaheed Jeet Singh Marg,  
Katwaria Sarai, New Delhi-110016

Sir,

In response to your invitation to respond to your NIT for Creation and maintaining a Web based Protection Database management system and PC based Protection setting calculation tool for North Regional Grid, M/s -----having their registered office at-----  
----- (hereinafter called the 'Bidder') wish to respond to the said NIT and submit their proposal as specified in the tender document. Whereas the 'Bidder' has submitted the proposal in response to NIT, we, the Bank having our head office are bound unto North Regional Power Committee (NRPC), having its office at NRPC, 18-A, Qutab Institutional Area, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016 (hereinafter called "NRPC"), at the request of the aforesaid Bidder and hereby irrevocably guarantee an amount of Rupees 70 Lakhs (Rupees Seventy Lakhs only) as EMD for which payment will and truly to be made to NRPC Protection Database Fund, as required to be submitted by the 'Bidder' as a condition for participation in the said process of tender and the Bank binds itself, its successors and assigns by these presents.

The EMD for which this guarantee is given is liable to be enforced/ invoked:

1. If the Bidder withdraws his proposal during the period of the proposal validity;  
Or
2. If the Bidder, having been notified of the acceptance of its proposal by NRPC during the period of the validity of the proposal fails or refuses to enter into the contract in accordance with the Terms and Conditions of the NIT in accordance with the Terms and Conditions of the Contract;
3. We do hereby expressly, irrevocably and unconditionally undertake to pay to NRPC Protection Database Fund immediately on first written demand the said amount of Rupees Seventy Lakhs only to be remitted as per written instruction from Member Secretary, NRPC without NRPC having to substantiate its demand, and without any reservation, protest, demur, or recourse. The said guarantee is liable to be invoked / enforced on the happening of the contingencies as mentioned above and also in the NIT document and we shall pay the amount on any Demand made by NRPC which shall be conclusive and binding on us irrespective of any dispute or difference raised by the Bidder.
4. Any notice by way of demand or otherwise hereunder may be sent by courier, email, fax or registered post to our local address as aforesaid and if sent accordingly it shall be deemed to have been given when the same has been posted.
5. This Bank Guarantee shall not be affected by any change in the constitution of the bidder or us nor shall it be affected by any change in constitution of NRPC or by any amalgamation or absorption thereof or therewith.
6. This Bank Guarantee shall come into force from the date of its execution and shall not be revoked by us any time during its currency without NRPC's previous consent in writing.

7. We further agree and undertake to pay NRPC the amount demanded in writing irrespective of any dispute or controversy between NRPC and the bidder in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payments so made by us shall be a valid discharge of our liability for payment hereunder.
8. In order to give full effect to the Guarantee herein contained, you shall be entitled to act as if we were your principal debtors in respect of all your claims against ..... hereby guaranteed by us as aforesaid and we hereby expressly waive all our rights of suretyship and other rights, if any, which are in any way inconsistent with any of the provisions Guarantee.
9. This guarantee will remain in force up to, and any demand made as per clause 3 above shall be construed as demand within these presents and the Bank shall make the payment accordingly.
10. We have the power to issue this Bank Guarantee in NRPC Protection Database Fund's favour under the Memorandum and Articles of Association of our Bank and the undersigned has full power to execute this Bank Guarantee under the Power of Attorney issued by the Bank.

Dated this the \_\_\_\_\_ day of \_\_\_\_\_ 2018

In witness whereof The Bank, through the authorized officer has sets its hand and stamp on this day of at -----.

Place :

SEAL

Code No.

SIGNATURE.

Note:

1. The stamp papers of appropriate value shall be purchased in the name of bank who issues the `Bank Guarantee`.
2. EMD BG should remain valid for a period of one twenty days beyond the date of bid opening.
3. EMD BG shall be from any scheduled commercial bank in favor of "NRPC Protection Database Fund" payable at Delhi.
4. EMD BG should be in favour of "NRPC Protection Database Fund".