

M.P. Power Management Company Limited
(A Government of Madhya Pradesh Undertaking)

BIDDING DOCUMENT

for

**Consultancy Services for AI/ML based Advanced Load Forecasting
and Integrated Energy Portfolio Management Solution**

e-Tender

Tender Specification No: CGM-PM/AI-ML/Consultancy/346 dated 26th November, 2025

**The Due date for Submission of Offer by 26th December, 2025 and
Opening on 29th December, 2025**

issued by

**M.P. Power Management Company Limited
Shakti Bhawan, Rampur, Jabalpur MP 482008**

Contents

1. Background.....	3
2. Introduction	3
3. Purpose.....	4
4. Definitions	4
5. Letter of Invitation	6
6. Eligibility Criteria	6
7. Performance parameter and Penalty	14
8. Change Request Process:	17
ANNEXURE I: Data Sheet	19
ANNEXURE-II: Scope of Work	21
ANNEXURE -III: Supplementary Information to Bidder	49
ANNEXURE-IV: Form F-1.....	56
ANNEXURE - IV: Form F-2.....	58
ANNEXURE – IV: Proforma of Compliance Form F-3	59
ANNEXURE – IV: Technical Bid Form F-4	60
ANNEXURE – IV: Technical Bid Form F-5(a).....	61
ANNEXURE – IV: Technical Bid Form F-5(b)	62
ANNEXURE – IV: Technical Bid Form F-5 (c).....	63
ANNEXURE – IV: Format MAF Form F-5(d).....	64
ANNEXURE – IV: Details of Manpower (Form F-6).....	65
ANNEXURE – IV: Financial Bid Form (Form-7)	66
ANNEXURE-IV: Price Bid (Form F-8)	67
ANNEXURE – V: Sample Form of Contract Agreement	68
ANNEXURE – VI: General and Other Terms and Conditions.....	70
Annexure VII: Special Conditions of Contract.....	80
Annexure – VIII: Bank Guarantee Format.....	81
ANNEXURE – IX: Guidelines for E-Procurement System	83

Bidding Document

1. Background

Online Bids are invited from eligible, reputed, qualified consultancy firms having experience in power sectors for selection of consulting agency for **Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution.**

2. Introduction

General information

Madhya Pradesh is one of the forward looking states in terms of the power sector reforms. The erstwhile integrated electricity utility – Madhya Pradesh state Electricity Board (MPSEB) – was unbundled into various successor companies which commenced independent operations in June 2005. The assets and liabilities of the erstwhile MPSEB as on 31st May 2005 have been vested to these six successor companions and a residual MPSEB vide the Transfer Scheme issued by Government of Madhya Pradesh (GoMP). The six successor entities formed under Company's Act, 1956 were one Generation Company (MP Genco), one Transmission Company (MP Transco), one Power Trading Company (MP Tradeco) and three distribution companies (East zone, West zone, Central zone). The Trading Company was responsible for sourcing electricity to all three DISCOMs including short term power.

In April -2012 the Trading Company name has been changed as “M.P. Power Management Co Ltd” and Government of Madhya Pradesh through Gazette notification made the MP Power Management Co. Ltd. the holding company for all three DISCOMs in the state and also merged the MPSEB into MP Power Management Co without liquidation. Since then the erstwhile MPSEB ceased to function.

The primary objective of MPPMCL is to act for various activities related to power management, including power trading, scheduling, and power procurement. The company aims to optimize the utilization of resources, ensure a reliable power supply, and manage the complexities of the power sector in the state.

Key Functions of MPPMCL include:

- 2.1. Power Trading:** MPPMCL engages in power trading activities, buying and selling electricity to ensure a balanced and cost-effective supply for the state.

- 2.2. Scheduling and Coordination:** The Company is involved in scheduling power transactions, coordinating with various stakeholders, and ensuring the smooth flow of electricity in the state.



- 2.3. **Renewable Energy Integration:** As the country focuses on increasing the share of renewable energy, MPPMCL may be involved in integrating renewable sources into the power grid and managing the associated challenges.
- 2.4. **Power Procurement:** MPPMCL is likely involved in procuring power from various sources, including thermal, hydro, and renewable energy projects.
- 2.5. **Grid Management:** MPPMCL plays a role in managing the state's power grid, ensuring stability, and addressing issues related to transmission and distribution.
- 2.6. Madhya Pradesh Power Management Company Limited plays a crucial role in managing and optimizing the power sector in the state of Madhya Pradesh. Its activities encompass power trading, scheduling, and coordination to ensure a reliable and cost-effective power supply for consumers of the State.
- 2.7. The consultancy support for energy portfolio management for MPPMCL were available which is coming to an end in the month of December, 2025. The consultancy requirement for MPPMCL revisited and AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution activities have been identified for consultancy support. It is felt that consultancy support for the AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution activities mentioned in the scope of work is needed for a period of 5 years which can be extended on same terms and conditions of tender with an annual escalation rate of 5%, subject to satisfactory performance of the consultant.
- 2.8. The MPPMCL being holding Company for all three DISCOMs is taking initiative to hire the consultancy agency for the AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution activities mentioned in the scope of work, which shall be carried out at MPPMCL, Jabalpur.

3. Purpose

The Purpose of this document is to invite Offers from reputed, qualified, eligible and leading consultancy firms with experience in process automation, implementation of new concepts/ideas & advisory support especially in the area of power sector including **Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution.**

4. Definitions

The words and expression used in this Bidding Document, are defined as mentioned below to have the same meaning as assigned to them hereunder:

- a) “**Agreement**” means the contract agreement together with all Appendices/Attachments and including all modification made between MPPMCL and the Consultants;
- b) “**Applicable Law**” means the laws and any other instruments having the force of law in the Country, as they may be issued and in force from time to time;
- c) “**Bid**” means The bid submitted by a Bidder(s) in response to this RFP/tender
- d) “**Company**” means the MP Power Management Company Limited.
- e) “**Consultant**” means the successful bidder in favour of whom the Letter of Award has been issued.
- f) “**Contract Period**” or “**Term of the Contract**” means shall be for the period of 05 years

from the date of signing of Contract which can be extended on same terms and conditions of tender with an annual escalation rate of 5%, subject to satisfactory performance of the consultant.

- g) “**COTS**” - Commercial-off-the-shelf, means a software and/or hardware product that is commercially ready-made and available for sale or installation or implementation or lease or license.
- h) “**Effective Date**” means the date on which the contract agreement has been signed between the two. The Consultant must sign the contract agreement (“Agreement”) and submission of performance security within 15 days of receiving of Letter to Award issued by the company.
- i) “**EMD**” means shall be Earnest Money Deposit (EMD)/Earnest Money Deposit which means an amount required to be deposited by the bidder/tenderer along with his offer as a security against his default of entering into Contract.
- j) “**Letter of Award**” means the Official Letter issued by company to consultants authorizing to commence the work as per scope.
- k) “**MSME(s)**” shall means the Micro, Small and Medium Enterprises, whose place of work and registered office are in the state of Madhya Pradesh as defined under the Micro, Small and Medium Enterprises Development Act 2006. Such MSMEs shall have to furnish MSME registration certificate (NSIC/ DIC/ Udyam Certificate) issued by the appropriate authority. Further, submission of such MSME certificate issued in the name of Affiliate / Promoter shall not be considered.
- l) “**Party**” means the Company or the Consultants, as the case may be.
- m) “**Personnel/Resource**” employee of consultants assigned to the performance of the Services or any part thereof.
- n) “**Project**” means the work to be carried out as per scope under the name of Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution.
- o) “**Services**” means the works to be performed by the consultants Pursuant to this Contract for the purposes of the Project, as described in Annexure-II hereto.
- p) “**Third Party**” means any person or entity other than the Government, Company, MP Discoms and the Consultants.
- q) “**DISCOM**” means all three/any of the distribution company in the state of Madhya Pradesh namely Madhya Pradesh Poorv Kshetra Vidyut Vitaran Co Ltd head quarter at Jabalpur, Madhya Pradesh, Madhya Pradesh Madhya Kshetra Vidyut Vitaran Co Ltd head quarter at Bhopal and Madhya Pradesh Paschim Kshetra Vidyut Vitaran Co Ltd head quarter at Indore.
- r) “**GoMP**” means State Government of Madhya Pradesh.



5. Letter of Invitation

To _____

Subject: Invitation of bids for “**Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution”**

Dear Sirs,

M.P. Power Management Co. Ltd. (MPPMCL) is a wholly owned Govt. of MP company hereinafter called Company invites the most suitable technical and competitive financial offers for the assignment named “**Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution”**

You are hereby requested to submit most suitable technical Offers and competitive financial Offers for the **above** assignment.

The following documents are enclosed to enable you to submit your Offer:

- i. Letter of Invitation data sheet (Annexure-I).
- ii. Scope of Work (Annexure-II).
- iii. Supplementary Information for Bidders (Annexure-III).
- iv. Formats for Technical and Financial Offers. (Annexure-IV).
- v. A sample Form of Contract for Consultancy Services under which the services shall Performed (Annexure-V).
- vi. General Conditions (Annexure-VI).
- vii. Special Conditions of Contract (Annexure-VII)
- viii. Bank Guarantee Format (Annexure-VIII).
- ix. Guidelines for submitting bids in E-procurement system (Annexure-IX).

6. Eligibility Criteria

The bidding process will be open to any **Original Equipment Manufacturer (OEM)/ Implementation Partner/ System Integrator (SI)** who will be able to develop, supply, install and implement the solution as per detailed scope of work given in the section above. The bidder can be Original Equipment Manufacturer (OEM) or a System Integrator (SI) along with an Original Equipment Manufacturer (OEM). If the OEM is submitting the bid itself, then it will have to qualify the Bidder Criteria as well as OEM criteria. The OEM is permitted to associate with multiple Bidders; however, each Bidder / SI shall be allowed to submit only one Bid.

In case of OEM Support: The bidder should have a back-end support agreement/arrangement for the proposed solution with the Original Equipment Manufacturers (OEMs) for the entire project period. It is mandatory for the bidder to provide Manufacturer's Authorization (MAF) as per the Form F-5(d) from OEM of the software solution with the bid. In case the OEM is the bidder himself, a self-certified MAF should be submitted.

The bidder will be responsible for submitting the proposal and it will be the single point-of-contact for all information and clarification throughout the Procurement Process. Furthermore, the bidder must refer to the Technical Requirement Specifications as mentioned in the scope of work in the section above.

6.1. Bidders Qualification Requirement:

Qualification of Bidder will be based on meeting the minimum eligibility criteria specified below regarding the Bidder's technical experience and financial requirement as demonstrated by the Bidder's responses in the corresponding Annexure.

- a. Bidder must submit the prescribed online bid document fee, bid security receipt along with the offer.
- b. The bidder should be a public/private limited company/Government of India backed companies incorporated under Company Act 1956/2013 or a registered partnership firm or Limited Liability Partnership firm and should have been in existence in India for the last 10 years as on date of opening of bid and shall have their registered offices in India. Partnership Deed/registration/Certificate of Incorporation needs to be submitted in this regard. Copies of statutory registration such as PAN, GST etc. must also be enclosed.
- c. The Bidder including its affiliates/associates/subsidiary company(ies) must not be suspended/black listed/debarred by any PSU/Centre or State Government Department/Financial Institution/Courts as on date of issuance of the RfP. A self-declaration in this regard is to be submitted in INR 100/- non-judicial stamp paper by authorized signatory.
- d. The Bidder should have successfully implemented at least one (1) assignment having minimum contract value of ₹ 2 crore each for providing software solutions for Day Ahead and Intra Day Demand forecasting, Energy Portfolio Management, Scheduling along with DAM & RTM power sale and purchase support on 24X7 shift basis for a contract period of at least two years for any government power utility in India in the last 7 years as on date of opening of bid. Any ongoing projects having successfully completed one year of operation as on date of opening of bid would also be considered. Completed projects and ongoing projects whose go-live declared before issuance of RfP shall be considered. Documentary evidence such as LOA/PO/WO + work completion or UAT or performance certificates from clients is mandatory.
- e. The minimum average annual turnover (MAAT) of the bidder for last 3 audited financial years (i.e. FY 2022-23, FY 2023-24 & FY 2024-25) should be at least ₹ 10 crores from power sector consultancy business in India. Statutory Auditor Certificate mentioning the annual turnover for the last 3 years to be submitted.
- f. The Bidder should have Positive Net-Worth during the last 3 audited financial years (i.e. FY 2022-23, FY 2023-24 & FY 2024-25). Statutory Auditor Certificate mentioning the net-worth for the last 3 years to be submitted. Copy of the audited Balance sheet and Profit & Loss Statements for the concerned years to be submitted.
- g. The Bidder should have minimum SEI CMM level-3 certificate or its higher version certification. The certificate shall be issued by authorized certification body (CMMI Institute and verified on <https://pars.cmmiinstitute.com>) in name of bidder and shall be valid as on date of RfP. The bidders are required to submit Copy of certification from authorized certification body valid as on date.
- h. Power Traders would not be allowed to participate in the bid process owing to the conflict of interest. An undertaking in this respect shall be provided on a notarized affidavit of ₹ 100.

- i. In case the Bidder submits a proposal along with an OEM, then the Bidder must have experience of undertaking at least one similar implementation with such OEM.

Note:

- i. Pilot Projects / pro-bono projects (Non-Commercial)/ Projects for associates or group companies shall not be considered for the above qualification criteria and technical evaluation.
- ii. Bidders who do not meet the above criteria shall not be evaluated further in the bidding process and shall be treated as disqualified. Bids not accompanying the tender fee, EMD and eligibility requirement documents will be summarily rejected. A Bidder shall be disqualified if it is determined by the MPPMCL at any stage of bidding process that the Bidder has made misleading or false representation in the form, statements and attachments in the proof of the qualification requirements. The Bidders shall also be disqualified if it fails to continue to satisfy the Qualifying Criteria during any stage of the evaluation process. Supplementary information or documentation regarding qualifications may be sought from the Bidders at any time and must be so provided within a reasonable time frame as stipulated by the MPPMCL.

6.2. OEM's Qualification Requirement:

The OEM must meet certain mandatory pre-qualifications with respect to the solution as provided in the table below:

Sl.	Pre-Qualification Criteria	Documents Required to be Submitted
1.	<p>The OEM should have successfully implemented at least two assignments having minimum contract value of ₹ 2 crore each for providing software solutions for Day Ahead and Intra Day Demand forecasting, Energy Portfolio Management, Scheduling along with DAM/RTM Trading of power for a contract period of at least two years for any government power utility in India in the last 7 years as on date of opening of bid. Any ongoing projects having successfully completed one year of operation as on date of opening of bid would also be considered.</p> <p>Note: For above experience, completed projects and ongoing projects whose go-live declared before due date of tender shall be considered.</p>	Documentary evidence such as LOA/PO/WO + work completion or UAT or performance certificates from clients.
2.	<p>The OEM of proposed software solution should have experience of implementation of any 5 functionalities out of the following functionalities, wherein 'software-based day-ahead and intra-day demand forecasting' shall be mandatorily implemented for any government power utility in India during last 7 years as on date of opening of bid:</p> <ol style="list-style-type: none"> a) Day-Ahead and Intra-Day Demand Forecasting b) RE Generation Forecasting c) Scenario Analysis 	Documentary evidence such as LOA/PO/WO and client certificates.

Sl.	Pre-Qualification Criteria	Documents Required to be Submitted
	<ul style="list-style-type: none"> d) Demand Supply position map e) Energy Portfolio Management f) Scheduling Optimization g) Trade Optimization h) Real Time Market Operations i) Deviation Settlement Analysis <p>Any assignment having contract value less than ₹ 2 crore and contract tenure less than 2 years shall not be considered.</p>	
3.	<p>The OEM shall be a Company under the Companies Act 2013 and its amendments or Companies Act, 1956 or, Partnership Firm registered under the Indian Partnership Act, 1932 & should have been in existence in India for the last 10 years.</p>	Certificate of Incorporation / Registration Certificate
4.	<p>The average annual turnover of the OEM for last 3 audited financial years (i.e. FY 2022-23, FY 2023-24 and FY 2024-25) should be at least ₹ 25 crores from power sector business in India.</p>	Statutory Auditor Certificate mentioning the annual turnover for the last 3 years to be submitted.
5.	<p>The OEM should have Positive Net-Worth during the last 3 audited financial years (i.e. FY 2022-23, FY 2023-24 and FY 2024-25)</p>	Statutory Auditor Certificate mentioning the net-worth for the last 3 years to be submitted. Copy of the audited Balance sheet and Profit & Loss Statements for the concerned years.
6.	<p>The proposed Demand Forecasting & EPM Solution should be configurable/customizable with the requirements of the department to reduce implementation efforts, time and cost.</p>	Undertaking from OEM
7.	<p>The proposed solution should be cloud vendor agnostic and could be deployed on any MeitY approved cloud in future.</p>	Undertaking from OEM
8.	<p>The OEM should have minimum SEI CMM level -3 certificate or its higher version certification. The certificate shall be issued by authorized certification body (CMMI Institute and verified on https://pars.cmmiinstitute.com) in name of bidder and shall be valid as on date of RfP.</p>	The OEM is required to submit Copy of certification from authorized certification body valid as on date.
9.	<p>Power Traders are not be allowed to participate in the bid process owing to the conflict of interest.</p>	An undertaking in this respect shall be provided on a notarized affidavit of ₹ 100.

6.3. Submission of Offers:

The Offer shall be submitted online and should follow the form given in the "Supplementary

Information for Bidders.” (Refer Annexure- III).

- a. The bidder shall be required to submit their bids online. The important key dates are as under:-

Sl.	Tender stages	Particulars	Date and Time
1.	Publishing of Tender date	Tender Purchase Online	26 th November, 2025
2.	Document download start date		26 th November, 2025, 18:00 hrs.
3.	Seek Clarification Start date		01 st December, 2025, 15:00 hrs.
4.	Seek Clarification End date		08 th December, 2025, 15:00 hrs.
5.	Online Pre-bid meeting		will be informed later, if required.
6.	Bid submission start date-online	Envelope-C, Envelope-A and Envelope-B	18 th December, 2025, 15:00 hrs.
7.	Bid submission end date-online	Envelope-C, Envelope-A and Envelope-B	26 th December, 2025, 15:00 hrs.
8.	Bid opening date	Envelope-A and Envelope-B	29 th December, 2025, 15:30 hrs.
9.	Financial bid/price offer opening date	Envelope-C	will be informed later

Note:

- a. The date of opening of financial bid/price offer may vary depending upon the time taken in Techno-commercial evaluation. Opening date of Financial/Price Offer will be intimated later to the qualified bidders.
- b. *Note: In Case, the above date is declared as holiday/local holiday then the tender opening date will automatically get shifted to the next working day.*
- c. The Bidder shall upload the following on <https://mptenders.gov.in> portal (through digital signature of authorized person):-
 - i. Following Standard online formats are required to be filled in:
Form F-8: Price bid schedule (in Envelope-C).
 - ii. Following documents are required to be uploaded in formats as attached with this tender/bid document to participate in the bidding process:
 - 1) System generated receipt for online payment made towards Tender Cost and Bid Security (in Envelope-A).
 - 2) Bid covering Letter Form F-1: in Envelope-B.
 - 3) General information Form F-2: in Envelope-B.
 - 4) Letter/Authenticity of information provided Form F-3 (in Envelope-B).
 - 5) Summary of audited financial statements Form F-4 (in Envelope-B).
 - 6) Details of the experience for Day-Ahead and Intra-Day Load Forecasting Form F-5(a) (in Envelope-B).
 - 7) Details of the experience in Energy Portfolio Management along with Power sale and purchase Support on 24x7 Shift-basis projects Form F-5(b) (in Envelope-B).

- 8) Details of the experience of implementation of Forecasting/optimization/portfolio management/trade desk operations using Artificial intelligence/Machine learning technology, during last 7 years for government power utility/company in India. Also, Clause 'd' of 6.1 eligibility criteria in a separate sheet as per Form F-5(c). (in Envelope-B)
- 9) Details of the Manufacturer's Authorization (MAF) Form F-5(d) (in Envelope-B).
- 10) Details of the manpower Form F-6. (in Envelope-B)
- 11) Declaration of financial bid Form F-7. (in Envelope-B)
- 12) Copies of orders/assignments/contract agreements received/executed indicating details of prices along with work completion certificate (in Envelope-B).
- 13) Performance Certificate from the user departments. (in Envelope-B)
- 14) Copy of Partnership deed/registration/certificate of incorporation. (in Envelope-B)
- 15) PAN, GST etc. registration details. (in Envelope-B)
- 16) Power of Attorney for authorized signatory. (in Envelope-B)
- 17) Letter of Authorization. (in Envelope-B)
- 18) Self-declaration on ₹ 100 non-judicial stamp paper regarding the Bidder including its affiliates/associates/subsidiary company (ies) have not been suspended/black listed/debarred by any PSU/Centre or State Government Department/Financial Institution/Courts as on date of issuance of RfP. (in Envelope-B)
- 19) Copy of the last 3 financial years (FY 2022-23, FY 2023-24 and FY 2024-25) audited balance sheet and profit and loss statement (in Envelope-B).
- 20) Statutory auditor certificate mentioning the net worth for the last 3 financial years (FY 2022-23, FY 2023-24 and FY 2024-25). (in Envelope-B)
- 21) Copies of documentary evidence regarding public/private limited company incorporated under Company Act, 1956/2003 or registered partnership firm or limited liability firm. (in Envelope-B)
- 22) Any other information to support offer. (in Envelope-B)

d. The "Technical" and "Financial" Offers must be submitted online.

- i. The "Technical Offer" followed by the name of the assignment should include the bid security, description of the firm/organization, company's financial reports, firm's general & specific experience in the field of the assignment, work experience, etc. and the qualifications and competencies of the personnel proposed for the assignment.
- ii. The Technical Offer should not contain any information pertaining to the quoted prices (Price bid) whatsoever.
- iii. The "Price Bid" should also be submitted only online.
- iv. The Offer should be submitted as mentioned in important key dates above.

6.4. Opening of Offer:

The Technical Offers containing bid security, bid document fee and Technical Offer (Envelope-A & Envelope-B) will be opened as mentioned in important key dates above. Opening date of

Financial/Price Offer will be intimated later to the qualified bidders after completion of Techno-Commercial Evaluation of Technical Offer.

6.5. Bid Evaluation:

A two-stage procedure will be adopted for evaluating the Offers with the Technical Evaluation being done prior to price bid opening. The Technical Offers (Envelope-B) will be evaluated using the following criteria. The technical bid evaluation will follow Quality and Cost Based Selection (QCBS) process.

- A. Relevant Experience
- B. Team Structure profile.

6.6. Evaluation Methodology and Decision of Award of Contract:

Firm's past experience in similar consultancy work and competence, work experience in Power Sector, success stories and the competence of the Consultant's personnel proposed for the project shall be considered as the paramount requirement for evaluation and awarding of contract. The detailed methodology is depicted in Supplementary information for Bidders (Annexure-III).

- 6.7. The documents mentioned above, including this covering letter will form part of the Tender Documents. Each of the above documents and also other documents as per tender requirements, are to be submitted duly stamped & e-signed on each page by your authorized representative as a token of your acceptance, which shall constitute your bid.
- 6.8. **The Bid Security of ₹ 21,00,000/- (Indian Rupees Twenty One Lakh Only) to be submitted online.** The Bid Security of all unsuccessful Bidders shall be returned within thirty (30) days of (i) signing of contract with the successful bidder or (ii) after bid validity period, whichever is earlier. In case, bidder, due to whatsoever reason, withdraws his Offer or fails to comply as per tender document, within the bid validity period, the bid security submitted by him shall be forfeited. The bid security of successful bidder shall be released within 30 days of completion of contractual formalities including its acceptance to Letter of Award and submission of valid CPG.
- 6.9. MSMEs are exempted from paying Bid Security and Bid Processing Cost (please refer to definition of MSME).
- 6.10. **Contract Performance Guarantee (CPG):** In the event of award, the consultant shall be required to deposit an amount (in India Rupees) equivalent to 10% of the contract value (inclusive of GST) towards the contract performance guarantee in the form of Demand Draft/Banker's cheque from nationalized Bank in favor of MP Power Management Company payable at Jabalpur or in the form of Bank Guarantee with validity for a period of 6 month more than the contract period in the prescribed format on a non-judicial stamp paper 0.25% of the amount (as per stamp duty as applicable in the State of MP) subject to maximum ₹ 25000/-, as the case may be, from any of the scheduled bank as performance guarantee.
- 6.11. **Basis of Price Offer:** The Price offer shall be as per bid document for defined period and shall remain firm throughout the period of contract.

The contract period shall be for five years from effective date which can be extended on same terms and conditions of tender with an annual escalation rate of 5%, subject to satisfactory performance of the consultant.

Quoted price will be in Indian Rupees inclusive of Software cost (Development & Implementation of the EPM Software Solution), Software maintenance cost, Manpower Cost

and Training Cost.

The price should strictly be quoted as per the format prescribed in the form F-8 of Annexure-IV.

- 6.12. The Company reserve the right to ask the bidder to justify and establish price/rate reasonableness. In the event of an award of contract, Income tax will be deducted by the company at source as per law and Tax Deduction at Source (TDS) Certificate shall be issued to the Consultant by the Company.
- 6.13. **Times Schedule/Completion Period:** The successful bidder shall require to make available the required number of resources from effective date, having sufficient qualification and experience as per technical Offer. The support period is for five years which can be extended on same terms and conditions of tender with an annual escalation rate of 5%, subject to satisfactory performance of the consultant.
- 6.14. **Signing of Formal Contract Agreement:** In the event of an award, the consultant shall be required to enter into a Contract Agreement with the Company on non-judicial stamp paper as per law of land, within 15 (fifteen) days from the date of the receiving of letter of Award (LOA) or with in such extended time as may be granted by the Company. The pro-forma of sample Contract Agreement is provided at Annexure-V.
- 6.15. **Validity of Bid:** Bidders have to keep their Bids/Quotations valid up to 180 days for our acceptance from the date of opening of the Financial Offers. Selected bidder will be required to maintain the availability of personnel proposed for the assignment.
- 6.16. **Terms of Payment:** Payments as indicated below will be made to consultant within 45 days by the Company on production of Bills in triplicate.

Sl.	Cost Head	Payment Terms	Schedule of Invoices
1.	Software cost towards Development & Implementation of the EPM Software Solution	50% payment shall be made by MPPMCL post the date of Go-Live.	One time
		Balance 50% payment shall be made by MPPMCL upon completion of stabilization period of 8 months after Go-Live	One Time
2.	Software maintenance cost towards EPM module (Including backend support, cloud services, weather data, etc.)	Payment of the Software Maintenance cost shall be made in equal monthly instalments for the remaining contract period post the date of Go-Live.	Monthly
3.	Manpower Cost (for the on- site team deployment of 7 nos. resources)	Applicable from "T": Effective date of contract. Payment shall be made in equal monthly instalments for the contract period post the date of Go-Live.	Monthly
4.	Training Cost	Payment shall be released on completion of all the trainings.	One time

Note:-

- a. The term "EPM Software Solution" in Sr. No. 1 of the table above refers to all the modules in

- the Annexure-II (Scope of Work).
- b. If the date of Go-Live is beyond T+120 days for AI/ML and integrated EPM solution, then the monthly payment of Software Maintenance cost and Manpower Cost on pro-rata basis for the days beyond T+120 days respectively till date of Go-Live will not be paid.
 - c. All the 7 nos. resources shall be deployed on site from the start date of contract (i.e. T) till end of contract including extension period of contract, if any. In case any of the deployed resources will be absent then monthly payment of manpower cost during billing month will be deducted on pro-rata basis. The details of daily attendance should be attached as a part of the bill.
 - d. The Consultant shall submit the monthly bills in triplicate to the Company on the firm's printed bills forms. The bill should clearly indicate the tax component.
 - e. In case of extension of the contract (if applicable) beyond the original contract period of 5 years, then the consultant shall be paid the equated monthly manpower cost along with software Maintenance cost for the extended period of contract on same terms and conditions of tender with an annual escalation rate of 5%, subject to satisfactory performance of the consultant..
 - f. All payments will be made in Indian rupees only.
 - g. No payment will be made by MPPMCL towards travel and logistics required for the execution of the work under the scope of the project. No other costs except accepted price would be payable by MPPMCL.
 - h. GST at the applicable rates would be additionally payable by MPPMCL.

7. Performance parameter and Penalty

The performance criteria and associated penalty for the purpose of Load Forecasting shall be as below:-

- i. To ensure that the Deviation in Accuracy rate of Average load forecasting doesn't exceeds by more than 3% for day-ahead forecast and / or more than 1.5% for intra-day forecast.
- ii. The monthly payment schedule will be subjected to penalty as depicted below.
- iii. No penalty will be applicable on vendor for T+120 days where T is the effective date of contract.
- iv. Penalty shall be applicable on the Software maintenance cost (S. No. 2 of table under Clause 6.16) equated in equal monthly instalments for the remaining contract period post the date of Go-Live. Accordingly, the deduction shall be applicable as per below provisions of the specific month and deducted from the monthly invoice of vendor.
- v. The vendor has to simultaneously meet the performance criteria for both the Day-Ahead as well as Intra-Day forecasts in order to avoid deductions i.e. less than 3% deviation for day-ahead forecast and less than 1.5% deviation for intra-day forecast.
- vi. The calculation of penalty shall be the part of the bill.
- vii. For the purpose of deviation calculations, the following reports shall be considered:



- a. The Day-Ahead forecast report for the next day-ahead "D" shall be shared on or before 06:30 Hrs. of the previous day "D-1".
- b. The Intra-Day forecast reports would be provided every two hours for the balance blocks in a day "D". Thus a total of 48 Intra-Day forecasts reports would be generated for the day "D". For example, the first Intra-Day forecast report would be generated at 23:00 Hrs. of the previous day "D-1" containing the block-wise forecast for 00:00-24:00 Hrs. of day "D", the second Intra-Day forecast report would be generated at 23:30 Hrs. of day "D" containing the block-wise forecasts for 00:30-24:00 Hrs. of day "D" and so on.
- c. From each Intra-Day forecast report, the forecasts for first 2 time-blocks (1/2 hours) would be considered for deviations calculations. For example, from the first Intra-Day forecast report, the forecast for 2 time-blocks between 00:00-00:30 Hrs. would be considered for deviations calculation. Similarly, from the second Intra-Day forecast report, the forecast for the time blocks between 00:30-01:00 Hrs. would be considered for deviations calculations. If the consultant does not provide the Intraday Forecast within time mentioned above due to whatsoever may be the reason, then Day ahead forecast will be considered as Intra-day Forecast.
- d. The block-wise actual demand as obtained from MP SLDC will be considered for calculation of deviation w.r.t forecast report.
- i. The deviation metric for Day-Ahead and Intra-Day forecast error would be as per the following:

The performance metric for Day-ahead and Intra-day deviation calculations would be Mean Absolute Percentage Error (MAPE).

Day-Ahead/Intra-day forecast Error:

- a. At the end of day "D", the Absolute Percentage Error (APE) for each block would be calculated by taking the absolute value of deviation divided by the actual demand of the block.
- b. The MAPE for all days would be netted to obtain the weekly, fortnightly and monthly MAPE for the application of penalties.
- c. Formula for calculating Day-Ahead/Intra-day Forecast Error-

$$\frac{100\%}{n} \sum_1^n \frac{1}{96} \left(\sum_{i=1}^{96} \frac{abs(A_i - F_i)}{A_i} \right)$$

Where, A_i = Actual verified demand by MP SLDC for the time-block 'i' in MW

F_i = Forecasted Demand for the time-block 'i' in MW.

n = no. of days of the billing month.

i = 15-minute time-block number.



- ii. In case the performance criteria is not satisfied, deductions would be applicable. For deductions calculation purpose, initially the deductions for Day-ahead and Intra-day forecast would be calculated separately as per the following:
- In case of Day-ahead Demand Forecast, for each 0.2% change in average accuracy rate of demand forecasting there will be incremental deduction of additional 2% up to maximum 20% as mentioned in the following table:

Table 1: Day-Ahead Forecast Deduction Calculation:

Deviation level in Demand Forecasting accuracy level	% Deduction after the UAT and Go-Live
Up to 3.0%	0%
More than 3% up to 3.2%	2%
More than 3.2% up to 3.4%	4%
More than 3.4% up to 3.6%	6%
More than 3.6% up to 3.8%	8%
More than 3.8% up to 4.0%	10%
More than 4.0% up to 4.2%	12%
More than 4.2% up to 4.4%	14%
More than 4.4% up to 4.6%	16%
More than 4.6% up to 4.8%	18%
More than 4.8%	20%

- In case of Intra-Day Demand Forecast, for each 0.1% change in average accuracy rate of demand forecasting, there will be incremental deduction of additional 4% up to maximum 20% as mentioned in the following table:

Table 2: Intra-Day Forecast Deduction Calculation:

Deviation level in Demand Forecasting accuracy level	% Deduction after the UAT and Go-Live
Up to 1.5%	0%
More than 1.5% up to 1.6%	4%
More than 1.6% up to 1.7%	8%
More than 1.7% up to 1.8%	12%
More than 1.8% up to 1.9%	16%
More than 1.9%	20%



- iii. The applicable deduction would be the total of deductions calculated separately for Day-Ahead and Intra-day as per Table 1 and Table 2 subject to maximum deduction of 20% of respective month's bill. For example, for a month where the Day-Ahead forecast error and Intra-Day forecast error are calculated as 4.9% and 1.85% respectively, the deduction calculation for Day-ahead and Intra-day forecast would be 10% and 16% respectively as per Table 1 and Table 2. Therefore, in this case, the applicable deduction for the relevant month would be sum of the two i.e. (10% + 16% = 26%), maximum 20%.
 - iv. Notwithstanding the above, the consultant would ensure that both Day-Ahead and Intra-Day forecasts are within 3% and 1.5% for at least 70% of the blocks during the billing month in the project execution phase. If this conditions are not met, maximum deduction of 20% would be applicable for the billing month.
 - v. For deviation level in accuracy of demand forecasting exceeding 6% in a week (Monday to Sunday) for the Day-ahead or 2% for the Intra-Day Forecast shall attract issuance of a show cause notice by MPPMCL and continuous deviations observed for more than four consecutive weeks might lead to the termination of contract, which would solely be on the discretion of MPPMCL.
 - viii. Further, the Penalty clause shall not be applicable in case of applicability of any condition under Force Majeure (Act of God, Direct or indirect Political/ non-political events, civil war, pandemic, epidemic etc.)
- 7.1. It is requested to submit the Offer as per requirement in the document. It is a **no deviation bid** and deviations in terms of requirement/provisions/Payment term etc. shall lead to conditional bid and will be liable for rejection.
- 7.2. MP Power Management Company Ltd. Reserves the right to accept/reject any/all offer without assigning any reason.

8. Change Request Process:

- 8.1. For any extra Software development work which is not covered under the scope of work of the tender, MPPMCL may initiate Change Request for the same. The effort estimation required (Change Request) for this work in Man-days (One Man-day = 8 working hrs) shall be mutually agreed by MPPMCL and Bidder. The Change Request has to be carried out by the agency after prior approval of MPPMCL. Additional Work order may be issued by MPPMCL for the Change request.
- 8.2. The following are the examples of situation in which a change in the solution is required:
- i. Development of any additional Module required for enhancing the scope of work of the tender and its functionality / usefulness of the solution
- 8.3. Stepwise change request process:
- i. In such a case where the change in the system is required, a change request shall be made by the users / MPPMCL
 - ii. In response of a change request, the Bidder shall provide an effort estimate in terms of man days / man hours.
 - iii. The effort estimate shall be vetted by the user / MPPMCL.

- iv. After approval of the purchaser, the bidder shall be implementing the change in the solution as desired.

Encl: as above.

[Signature]
Yours Sincerely,
Chief General Manager-PM
MP Power Management Company Ltd.
JABALPUR

ANNEXURE I: Data Sheet

a. The name of the Assignment	: Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution
b. Name of the Company	: MP Power Management Company Limited
c. Bid Identification No.	: CGM-PM/EPM/Consultancy/
d. Coverage	: Madhya Pradesh
e. Scope of work	: As detailed in the Annexure-II
f. Bid Document Fee (Non-Refundable)	: ₹11,800/- (inclusive of GST@18%) Online.
g. Bid Security	: ₹21,00,000/- online mode
h. Contract Performance Guarantee (CPG)	: An amount in Indian Rupees equivalent to 10% of the contract value in form of demand draft in favour of MP Power Management Co. Ltd. payable at Jabalpur or in the form of Bank Guarantee on a non-judicial stamp paper worth 0.25% of contract performance guarantee amount (as per stamp duty as applicable in the state of MP) subject to maximum of ₹ 25,000/-, as the case may be, from any of the scheduled bank with validity of six months more than the contract period.
i. Documents Enclosed Are	: 1) LOI Data Sheet 2) Scope of Work 3) Supplementary information for Bidders. 4) Formats for Technical and Financial Offers. 5) Sample form of Contract 6) General Condition of contract (GCC) 7) Special Condition of contract 8) Bank Guarantee Format (CPG) 9) Guidelines for submitting bid
j. Role of Company	: 1. Nomination of nodal officer and necessary support for co-ordination 2. Monitoring/Review & Provide comments at various stages of the consulting assignment.
k. Pre-Bid Meeting	: The Pre-Bid meeting, if required will be scheduled online. The intended bidders who have any queries may sent them at e-mail: shrikant.vishnu@mppmcl.com Mobile no. +91-9977158213) before the date as mentioned in important key dates. The link of the online meeting shall be shared to the bidders who have purchased the bid document.
l. Last date & time of submission of bids	: as mentioned in important key dates
m. The address for submission of Bids	: Online on https://mptenders.gov.in
n. Mode of Offer Submission	: Online on https://mptenders.gov.in



o. Technical opening date	Offer :	as mentioned in important key dates
p. Price Bid opening date	:	Will be intimated separately post evaluation of Eligibility cum Technical Proposal to the technically responsive bidders
q. Validity period	:	One hundred and eighty (180) days from the date of opening of Eligibility cum Financial Proposal.
r. Effective date (commencement of the assignment) (T)	:	Date of sign of agreement.
s. Contract agreement	:	Duly signed acceptance of Letter of Award and Contract agreement should be signed within 15 days of receiving of Letter of Award.
t. Duration to complete the assignment	:	For a period of five years which can be extended on same terms and conditions of tender with an annual escalation rate of 5%, subject to satisfactory performance of the consultant.
u. Cost escalation for extension period	:	on same terms and conditions of tender with an annual escalation rate of 5%, subject to satisfactory performance of the consultant.
v. Bid evaluation	:	The QCBS (Quality and Cost Based Selection) evaluation shall be done. The weightage for technical and financial score shall be 80% and 20% respectively. The Eligibility cum Technical Proposal will be evaluated as defined in BID Document. The Financial Offer of the bidders, who qualify in the technical evaluation, shall be opened subsequently, on the date which will be intimated separately. (Please refer detailed evaluation procedure in the BID document)

Note: In Case, the above date is declared as holiday/local holiday then the tender opening date will automatically get shifted to the next working day.



ANNEXURE-II: Scope of Work

1.1. Duration of Support

The support is required for period of 5 years which can be extended on same terms and conditions of tender with an annual escalation rate of 5%, subject to satisfactory performance of the consultant.

1.2. Nature of Support

Consultant would provide a holistic solution to MPPMCL for managing the overall power portfolio for the State in the most optimal manner including scheduling, power market analysis, etc.

1.3. Demand Forecasting and Portfolio Management Services

A. Demand/Load Forecasting

1. Short Term Load Forecast

Consultant would generate, Discom-wise and for state of MP overall, demand/load forecast across varying horizon from Day Ahead to up to 7 day ahead at 15 minute intervals. The short-term forecast module would generate, Discom-wise and for state of MP overall, forecast for individual blocks (96 blocks of 15 minutes each) at the following level of granularity:

- i. Intra Day Load Forecast: Intraday load forecast on Hourly rolling basis
- ii. Day Ahead Load Forecast
- iii. Week Ahead Load Forecast

Software should be able to adapt/incorporate new regulatory changes such as forecasting for 5 minutes time interval.

Parameters for Short Term Load Forecast: Considering the present demand mix scenario of Madhya Pradesh, Consultant would include parameters like weather (temperature, humidity, rainfall; wind speed etc.), agricultural cycle, special events, notified supply hours etc. in its load forecasting system.

2. Medium Term Load Forecast

For medium term forecast, apart from the load curve Consultant would also generate the load duration curve in order to analyze the duration for which the load trend to persist.

The Medium Term forecast cast model shall be customized based on the local conditions of Madhya Pradesh and will be capable of generating the following:

A handwritten signature consisting of stylized letters, possibly 'J' and 'E', followed by a checkmark.

- i. Season Ahead Discom-wise Load Forecast: Generic Monthly Load profile (hourly) for a typical day, for each fortnightly/Month, for coming 2-12 months
- ii. Year Ahead Discom-wise Load Forecast: Demand Forecast for up to next five years Discom wise and for state of MP overall with Monthly and Annual Load Duration curves.

Above forecast(s) shall be based on planning/growth dynamics of the state, with generation of specific scenario based forecasts.

Parameters for Medium Term Discom-wise Load Forecast:- The indicative factors to be considered by Consultant for undertaking the said forecast are as below:

- a. Historical & forecasted weather parameters
- b. Demand side management activities by Utility
- c. Econometric parameters such as GDP, growth rate, real estate growth, industrial growth, sale of white goods in load centres, etc.
- d. Population Growth
- e. Government Programs & Regulatory Policies
- f. New connections/Electrification
- g. Any other factors which will affect demand or consumption

B. Supply Availability assessment

1. Under this module, Consultant shall be aggregating all available sources of power in the name of PPAs, Banking and Bilateral, etc. available with Madhya Pradesh.
2. Based upon the demand forecast undertaken in previous module and the supply availability, Consultant would provide deficit/surplus report across horizon. Such report(s) would be available both in tabular as well as in the form of visual display.
3. Following considerations shall be taken while generating demand supply position map:
 - i. The system should be able to consider forecasted demand and available sources of power to create surplus/deficit positions.
 - ii. System should also be able to consider risk-based scenarios for power availability to generate risk based position map along with risk associated under all such defined scenarios.
 - iii. System should be able to generate short term and medium term scenarios for both demand & supply.

C. Integration of RE forecast in Supply availability

1. Consultant shall make sure that its solution is capable of including the forecast of renewable generation and/or integrate the RE forecast(s) of the existing and upcoming RE PPA in the above Supply Availability Assessment Scenario, along with other sources of power procurement.
2. Consultant shall coordinate with SLDC and the RE developers to get the necessary forecasted inputs to get the overall aggregated supply availability for the state from all sources including RE.
3. Any real time changes in the RE supply forecast shall also be taken into consideration by the proposed System.

D. Power Procurement/Sale Planning



Under this module, Consultant shall provide a holistic market strategy and advisory support to Madhya Pradesh's Power Management Department, so as to plan and execute procurement at the least cost by taking into consideration relevant market scenarios and also take advantage of any daily surplus by selling in spot market on cost plus basis.

1. Spot Market Participation Strategy:

This module would include market participation strategy, especially for participation in GREEN Day Ahead Market (GDAM/GTAM)/Day Ahead Market (DAM)/Term ahead Market (TAM)/Real-Time Market (RTM) of Power Exchanges by advising on price and volume risk-mitigation strategies for market participation by the utility. Activities in this module include:

- i. Generation of price forecast for GDAM/GTAM/DAM/TAM/RTM & Derivative Market and preparation of market participation strategy by taking into consideration gap analysis.
- ii. For GDAM/GTAM/DAM/TAM/RTM & Derivative Market participation, the module includes devising risk mitigation strategies for minimizing total cost of procurement and also complementing daily despatch of other available generation sources of the utility.
- iii. Market participation strategy so as to minimize price and volume risk in GDAM/GTAM/DAM/TAM/RTM & Derivative Market.
- iv. Suggestion on market participation for all available products of all exchanges such as Single, Block, Mother-Child bid and LDC etc. to make strategies for potential benefit of MPPMCL. Further, any new product/market changes such as coupling of exchange, ancillary services etc. as they are introduced should also be incorporated in the software.

2. Bilateral Market Participation Strategy:

This module would include assistance in Procurement/Sale through bilateral market, so as to manage price and volume risk associated with Procurement/Sale in the market. This module includes:

- i. Assessment of market conditions and risks, for a horizon of up to one year.
- ii. Price and volume risk assessment, by taking into consideration ongoing and foreseeable market conditions.
- iii. Assessment of existing PPA terms like Penalty and Compensation, Contract Obligation.
- iv. Surplus/Shortfall Optimization if the quantum is to be absorbed
- v. Technical & Commercial constraints of contracted power
- vi. Pool Availability

3. Real Time Market Participation Strategy:

This module would include assistance in procurement/sale through Real Time Market by advising on the prices and volumes for buy/sell in the RTM market which includes price forecast and demand- supply assessment for buy/sell quantum for each RTM session. The Consultant shall provide support for RTM participation.

E. Scheduling and Dispatch Planning

1. Day-ahead Dispatch Model/Schedule Optimizer:

Under this module. Consultant would prepare the final dispatch schedule on Day Ahead basis, based upon the forecasted demand. All costs constraints etc. shall be considered by Consultant to generate most optimal schedule for day-ahead dispatch so as to meet the demand at the least-cost given available resources and risks.

Some of the considerations while preparing the optimal schedule shall include:

- i. Policy constraints such as notified supply-hours, must-run renewables, emissions, etc.
- ii. Technical constraints such as ramp-up, ramp-down, technical minimum etc.
- iii. Transmission constraints considering:
 - a) Import and export capacity of each region
 - b) ATC, TTC and TRM of each Inter-State corridors
 - c) Short term margin available for each Inter-State corridors
 - d) Availability of the corridor under GNA/T-GNA for sale/purchase of power
 - e) Regulatory constraints such as over-drawl limits, DSM charges etc.
 - f) Existing ST, MT and LT PPA contracts and their costs (MERIT Order)
 - g) Existing generation availability (schedule outages, forced outages)
 - h) Short-term Demand forecasts
 - i) RES intermittency

The module would have the ability to generate day-ahead and Intraday position map(s) considering forecasted demand & power availability from all tied-up sources like Long Term, Medium Term, Short Term OTC (Bilateral and Banking), and Exchange traded DAM/Spot market.

2. Real-time Dispatch Model/Schedule Optimizer:

Under this module, Consultant would prepare the final dispatch schedule before gate closure, based upon the real time forecasted demand. All costs constraints etc. shall be considered by Consultant to generate most optimal schedule for real time dispatch so as to meet the demand at the least-cost given available resources and risks. These modules also include the schedule of power for participation in RTM on power exchanges considering the RTM price forecast.

Some of the considerations while preparing the optimal schedule shall include:

- i. Policy constraints such as notified supply-hours, must-run renewables, emissions, etc.
- ii. Technical constraints such as ramp-up, ramp-down, technical minimum etc.
- iii. Transmission constraints considering:
 - a) Import and export capacity of each region
 - b) ATC, TTC and TRM of each Inter-State corridors
 - c) Short term margin available for each Inter-State corridors
 - d) Availability of the corridor under GNA/T-GNA for sale/purchase of power
 - e) Regulatory constraints such as over-drawl limits, DSM charges etc.
 - f) Existing ST, MT and LT PPA contracts, URS and their costs (MERIT Order)
 - g) Existing generation availability (schedule outages, forced outages)
 - h) Short-term Demand forecasts
 - i) RE intermittency
- iv. The model would be automated to readily take input data to generate optimized schedules along-with every RTM session (minimum 48 times in a day)
- v. The model would produce the following reports:
 - a) Intra-day/Real-time surplus/deficit positions
 - b) Intra-day/Real-time buy/sell positions in RTM
 - c) Intra-day/Real-time optimal generation dispatch after incorporating RTM market schedules
 - d) Power-cut reports

The module would have the ability to generate Intraday position map(s) considering forecasted demand & power availability from all tied-up sources like Long Term, Medium Term, Short Term

OTC (Bilateral and Banking), URS and Exchange traded DAM/Spot market.

3. Unit Commitment and scheduling

Under this module consultant would prepare the week long unit commitment reports for taking decision on Reserve Shut Down (RSD), taking the unit from RSD to on bar. Provision to add new resources/scenario for analysis purpose for taking decisions regarding these new resources.

F. Price Forecasting

1. 1. Consultant would provide the MCP & MCV for Day Ahead Market (DAM)/Real time Market (RTM) separately with a capability to store 365 days information and if required increase storage further. The forecasted MCP & MCV for DAM/RTM shall be provided based upon variables like:
 - i. Historical MCP & MCV data:
 - ii. Day Ahead, Real time and Term Ahead availability of transmission lines
 - iii. Shortage and surplus of power region wise.
 - iv. Generation data region wise.
2. These forecasted MCP shall be further used to prepare the merit order dispatch having said that system compares the forecasted MCP with the variable cost of generators (SGS & ISGS) considering the must run status of generators and bilateral prices.
3. A dashboard shall be provided for comparing Variable Cost of ISGS generator with forecasted Exchange price (Day Ahead/Real time).
4. Forecasted MCP would be provided with an upper band and lower band for each block.
5. The forecast generated by the Consultant for DAM/RTM shall be used in bidding strategy and shall be disclosed with MPPMCL.
6. Model would be developed to generate the market price forecast for each RTM session going forward (Software shall provide the exception report, wherever variation is more than +/- 10%)
7. A total of 48 RTM price forecasts would be generated during a day

G. Energy accounting/Scheduling

1. Energy calculations of all the contracts would be done to cater to the different needs of the MPPMCL like knowing their total energy consumption on a particular date, verification for compensation applicability while downward revision of their schedule, etc.
2. Accounting of GNA/T-GNA charges for users, generators, etc. in accordance with MPERC and CERC Regulations and subsequent amendments thereof shall also be taken care.
3. Verify the respective REA/SEAs considering the MPPMCL's energy account as reference.

H. Network Management

This module is operationalized subject to availability of necessary data, integration etc.

1. Network Monitoring

- i. All the online feeder data including data of energy meters through SCADA/SAMAST will be integrated with consultant for Madhya Pradesh. Subsequently as and when

- additional line feeders gets online, the provision for the upload of the same will also be integrated into the system.
- ii. Consultant shall endeavour to integrate the data communication of SLDC and WRLDC.
 - iii. In the interim period until such time these data are available online, a separate provision should be made to upload the data. The mechanism for the same, is to be devised in consultation with MPPMCL.

2. Wide Area Monitoring

- i. Consultant shall intimate message (email and SMS based) to all GSS regarding feeder wise load control as and when required, depending upon availability and likely load. The mechanism for the same, is to be devised in consultation with SLDC.
- ii. Feeder wise monitoring to ensure discipline in the network.

3. Database Management

- i. Consultant will develop a database to store all relevant information pertaining to Generators, OA consumers, Traders etc. Proper integration shall be ascertained w.r.t. IT system of MPPMCL.
- ii. The database will store all the static and dynamic parameters of Generators (ISGS, SGS, captives, IPPs and any other category).
- iii. The maintaining of outages information based on inputs from SLDC/Discom on the level of 11 kV, 33 kV and 132/220/400 kV shall also be included in the database.

4. Transmission Corridor Availability

- i. Consultant's solution will provide the following key information related to transmission corridor
 - a) Capture each revision from GRID operator.
 - b) Capture import and export capacity of each region.
 - c) Capture ATC, TTC and TRM of each Inter-State corridors.
 - d) Capture short term margin available for each Inter-State corridors.
- ii. Consultant would also endeavour to take into consideration the availability of the corridor under short, medium and long term sale/purchase or power.

I. Deviation and settlement Mechanism (DSM)

Module should have support services to hedge against demand and supply risks in the Deviation and settlement Mechanism (DSM).

J. Management Dashboard

1. User interface

- i. A comprehensive and scalable reporting dashboard (along with Android based Mobile Applications) will be made available to end users from various departments of MPPMCL/Discom/GOMP/SLDC, which covers all key parameters of EPM



- operation/modules. This would be a dynamic and integrated part monitoring tool pertaining operational/performance parameters of EPM.
- ii. Reports will be dynamically configurable based on the User Access.
 - iii. The system would provide web based reporting tool which can be used for creating custom reports as required by different types of users.
 - iv. Reports would be exportable to various formats like xls, csv, pdf and xml.
 - v. Reports would be graphical or tabular or both with images and logos of customer.
 - vi. The authenticated users in the web should be able to generate reports based on date range, utility etc. Reports should be both in graphical and tabular formats.
 - vii. The daily report should mainly consist (but not limited to) the following:
 - a) Highlights of the Day Morning/Evening peak demand/Unrestricted demand of State/Discom.
 - b) Details of energy supply of State/Discom with source wise availability. The data for last year should also be displayed.
 - c) Station wise daily/monthly/yearly generation and PLF/PAF of each station of the thermal unit of CGS, SGS, CPPs and IPPs with last year comparison and from Renewable Energy Sources.
 - d) Details of station wise daily/monthly/yearly generation of hydel/ISGS/IPPs units with comparison to last year.
 - e) 15 minute time block wise station wise generation of all SGS/IPP/ISGS/RES (Renewable Energy Source) generators.
 - f) Details of 15 minute time block wise comparison of Entitlement and Schedule Drawl of Madhya Pradesh.
 - g) Details of energy purchased/banking/sale by MPPMCL through bilateral/collective (GNA/T-GNA)
 - h) Details of District wise supply hours to various categories as per SLDC requirement.
 - i) The Outage, back down particulars (block wise MW, MU) in Unit wise/Station wise.
 - j) Reports related to Deviation Settlement Mechanism to be published based on SCADA (for daily use) and SEM.
 - k) System should be able to capture each revision from NLDC and/or any RLDCs as per the case may be.
 - l) System should capture import and export capacity of each region
 - m) System should capture ATC, TTC and TRM of each Inter-State corridors.
 - n) System should also be able to capture short term margins available for each Inter-State corridors.
 - o) System should be able capture the availability of the corridor under short, medium and long term sale/purchase of power.
 - p) System shall be able to capture short term contract from RLDC website.
 - q) User Interface should be created to enter the GNA/T-GNA contract from PPA provided by MPPMCL.



- r) System shall be able to capture all parameters (including volume and price) mentioned in the PPA.
- s) The system shall have the facility to capture the Renewable contracts
- t) Daily/Weekly/Monthly Gain from sale of power and report on cost optimization from power purchased/URS availed.

2. Market Integrator Dashboard:

- i. This will be an integrated dashboard combining the real-time supply availability assessment with demand forecasting and RTM market statistics including:
 - Intra-day availability
 - Demand forecast
 - Surplus deficit positions and deviations
 - RTM volumes and prices cleared in previous delivery period
 - Dispatch optimizer run results for advice on sales/ purchase of power
 - Cleared quantum and prices
- ii. Dispatch schedules for intra-state /inter-state generation after accommodating RTM Schedule
- iii. This would be a web-based and android/iOS mobile application hosted dashboard
- iv. All the reports would be archived to create historical database and would be downloadable in excel/pdf/csv formats

K. Power Exchanges Bid Process Management

1. The module would include the automated and integrated process management of all the bidding activities including the analysis, preparation of bids, approval and submission of bids.
2. This module would be directly integrated with Power Exchange Portals for automated submission of bids.
3. The module would maintain audit trail to ensure transparency in the bidding process and for record-keeping

L. IT integration and upgrade

1. IT work required to integrate RTM with other modules of Demand Forecasting, Supply Availabilities, Dispatch Optimization and DSM Analysis Dashboard and databases
2. APIs for communication with SCADA, SLDC/RLDC and RTM clearing platforms along with required safety precaution. MPPMCL shall facilitate to provide the APIs to the successful bidder.
3. Forecasted Day ahead Demand of Discom shall be made available to Discom for finalization through web application and finalized demand shall be available to SLDC/MPPMCL.
4. Day ahead requisition for scheduling of power shall be made as per SLDC/RLDC requirement through application/download format.
5. Revision in day ahead requisition during real time operation for scheduling of power shall be made as per SLDC/RLDC requirement through application/download format.



M. Following activities shall be covered under the 24x7 RTM/Trade Desk Operations:

1. Market Integrator Dashboard

Dashboard which will integrate all Markets (GDAM/GTAM, DAM, MBED, TAM, RTM, URS etc.) with all the relevant data on bid/traded volumes, prices at one place such that net schedules from markets can be communicated for Generation Dispatch.

2. Bid Process Management Dashboard

Automated and integrated process management of dashboard available through web based application for all the bidding activities including the analysis, preparation of bids, approval and submission of bids.

3. RTM Price Forecast

RTM session wise price forecast for the upcoming sessions in a day considering historical MCP, market demand and supply trends

4. Intra-day Dispatch Schedule

- i. Requisition of power surplus/surrender from all power portfolio for cost optimization
- ii. Dispatch schedule Generation based on economic merit order dispatch
- iii. Back down and surrender request based on forecast for blocks going forward on a rolling basis

5. Shift Report

RTM Details of power traded across the shift in respective delivery period in the form of quantum traded and unit price of each trading block.

N. Training and Capacity Building

1. Consultant shall provide requisite Training and Capacity Building Experience sharing to MPPMCL's Engineers/ staff posted in the Power Management Cell/ SLDC/ DISCOMs Engineers and such trainings shall be conducted once each year.
2. The training provided will be exhaustive and should include case studies and examples on systems and procedures relevant to the functions of various wings of EPM to be carried out by the Consultant as per "Scope of Work".

O. General

1. The overall scope shall incorporate assisting MPPMCL in setting up and the operations of 24x7 power trading desk/control room by providing qualified and experienced manpower to assist Power Management Cell, MPPMCL in undertaking the trades (sale/purchase) on Real Time Market (RTM) and Term Ahead Market (TAM) after assessment of demand and supply gap on a continuous basis.
2. The shift operations shall be conducted on a continuous basis across three (3) shifts in a day for all the days of the year including public holidays and festivals. The primary responsibilities of the shift operator shall include:
 - i. Monitoring of the demand-supply gap and DSM
 - ii. Monitoring of the Markets (DAM/TAM/RTM) volumes and price data

- iii. Preparation of RTM/TAM market bids
 - iv. Preparation of RTM/TAM shift reports
 - v. Coordinate with MPPMCL for bid approvals, uploads and finalization of schedules.
3. The dashboard for RTM trade operations must have the following features:
- i. Demand and Supply Gap Assessment Module – This module shall provide quantum for bidding in RTM.
 - ii. DSM Module - The DSM module shall keep track of the DSM in real time and shall assist in decision making for trading module.
 - iii. Trading module – This module shall analyse the quantum to be schedule under LTA, MTA, STA, DAM, TAM and RTM. It will be integrated with following sub modules.
 - a) Market Integrator – This module shall integrate DAM, TAM and RTM prices and volumes
 - b) Price Forecast - This module shall assist in price forecasting.
4. Exploring opportunities for taking units under Reserve Shut-Down (RSD) period based on Merit Order and replacing it with cheaper power from DAM/TAM/RTM/URS.
5. The software module/dashboard must reflect the schedule of RTM. TAM power after execution of each trade subjected to availability of API from power exchange(s).
6. The software solution shall also incorporate the automation of approval process for bids and maintaining of audit trail to ensure transparency in the bidding process.
7. The web and mobile based application shall be developed with full functionality.
8. Exploring tender opportunities through DEEP Portal for purchase/sale of power and exploring quantum of Banking of Power during lean time blocks/periods/months and analysis of viability of floated tenders that shall be optimizing MPPMCL's overall power procurement cost and minimizing revenue for MPPMCL.
9. Preparation of reports/information required by MoP/CERC/MPERC/MPPMCL etc. pertaining of scope of PMC.
10. Preparation of required presentation/petition for CERC/MPERC/MPPMCL etc. to purchase short term power through DEEP Portal.
11. The detailed list of deliverables under the current scope and under the new market scenario is presented herein and the details of software development upon it.

1.4. Deliverables:

Sl.	Name of report	Description	Nature	Frequency
1.	Day Ahead Load Forecasting	Load Forecast in MW for all 96 blocks on a day ahead basis	Daily (Before 06:30 am in the morning)	1
2.	Intra-Day Forecast	Load forecast in MW for all 96 blocks. To be updated every two hour.	Daily	< = 12



Sl.	Name of report	Description	Nature	Frequency
3.	Day ahead Availability estimates across all sources including interstate generation & available allocation from ISGS	In MW across all 96 blocks	Daily	1
4.	Intraday Availability mapping	In MW across all 96 blocks	Daily	<= 12 on a rolling basis for blocks Going forward
5.	Day Ahead Bid preparation	Optimal bid for all 96 blocks, based on deficit surplus estimated	Daily before 09:30 AM	1
6.	Day Ahead schedule report	A consolidated optimized schedule in MW across all 96 blocks	Daily before 7:30 AM	1
7.	Real Time Bid preparation	Optimal bid for all 96 blocks , based on deficit surplus estimated	Daily (10 min before gate closure of scheduling)	48 times
8.	Intra-day Dispatch Schedule <ul style="list-style-type: none"> • Requisition of power surplus/ surrender from all power portfolio for cost optimization • Despatch schedule Generation based on economic merit order dispatch 	Back down and surrender request based on forecast for blocks going forward on a rolling basis Rolling basis for DSM optimization Rolling basis Real time basis	Daily (10 min before gate closure of scheduling)	<= 12 on a rolling basis for blocks going forward
9.	Week Ahead Forecast	In MW across all 96 blocks	Daily (on a rolling basis for next 7 days, and one weekly forecast for next week)	1

Sl.	Name of report	Description	Nature	Frequency
10.	Monthly Load forecast (upto 1 year)	In MW across all 96 blocks	Monthly by 15 th of previous month	1
11.	Annual Load forecast	In MW across all blocks for 12 months	Monthly (Rolling basis for next 12 months)	1
12.	Seasonal Load duration curve/ Load Density forecast	Seasonal Load duration curve/Load Density forecast	Monthly (rolling basis) + season ahead	1
13.	Medium term portfolio optimization	Power procurement plan to match the load duration curve and power availability curve optimally considering both price and volumetric risk	Monthly (rolling basis) + season ahead	1
14.	Daily Report	<ul style="list-style-type: none"> • Morning/ evening peak demand/ unrestricted demand • Details of energy supply with source wise availability. • Details of 15 minutes time block wise comparison of entitlement and Schedule Drawl • Details of energy purchased/ banking/ sale through bilateral/ collective • (LTA/MTA/STA) 	Daily	1
15.	Generation Report	<ul style="list-style-type: none"> • 15 Minutes demand met/ unrestricted demand with source wise availability • Details of station wise daily/ monthly/ yearly scheduled generation of hydel/ISGS/IPPS units. • 15 minutes time block wise station wise scheduled generation of all SGS/IPP/ISGS/RES generators 	Daily	1
16.	Generation Outage Report	The Outage, back down particulars (block wise MW, MU) in Unit wise/Station wise	Daily	1
17.	Medium and long term Power Procurement Strategy Report	Strategy and Status Report to optimize medium to long-term power sale/purchase decisions and/or commissioning/ retirement of new/old units.	Quarterly	1

Sl.	Name of report	Description	Nature	Frequency
18.	Energy portfolio management Optimization Report	Strategy and Status Report for optimizing overall Energy portfolio	Daily	1
19.	Merit Order Dispatch Report	Stating the Merit Order of the Generation Stations to be Schedule in line with the Regulatory Provisions and Demand Forecast	Daily	1
20.	Market Integrator Dashboard	Dashboard which will integrate all Markets (DAM, TAM, RTM, URS etc.) with all the relevant data on bid/traded volumes, prices at one place such that net schedules from markets can be communicated for Generation Dispatch	Daily	<= 48 for each 30-minute delivery period for RTM
21.	Price Forecast	Report shall include tabular representation consisting of Upper and Lower bands of forecasted DAM MCP (Market Clearing Price) range for the region for each block (96) of the day-ahead	Daily	1
22.	DSM Dashboard	DSM dashboard shall include 15- minute block-wise (96) graphical representation of the following: Energy Scheduled by the State in MW Actual Drawl by State in MW (as per SCADA data)	Daily	<= 48 on a rolling basis
23.	Shift Report-RTM	Details of power traded across the shift in respective delivery period in the form of quantum traded and unit price of each trading block	Daily	3 reports, 1 for each shift
24.	Daily Markets Report	Daily trading information constituting all shift wise summary for the day.	Daily	1
25.	Weekly Markets Report	Summary of day wise weekly trading information	Weekly	1
26.	Monthly Markets Report	Monthly summary of each trading operations carried out in the month along with the financial implications as per the obligation report obtained from different markets	Monthly	1
27.	Deviation Settlement Analysis and Dashboard (DSM)	Making of DSM account as per new regulation and it's amendment time to time, analysis of DSM penalty and it's optimization for all 96 blocks	Daily	48 times

Sl.	Name of report	Description	Nature	Frequency
28.	Gain report from Sale of surplus power	Daily/weekly/monthly block-wise gain report from Sale of surplus power	Daily	1
29.	Cost optimization Report from purchase/URS availed	Daily/weekly/monthly block-wise cost optimization report from purchase/URS availed	Daily	1
30.	Report on power purchase cost as per applicable MoD Rate	Daily/weekly/monthly report on overall power purchase cost (fix & variable cost separately) as per rate indicated in applicable MoD	Daily	1
31.	Report on thermal generating station wise On-Bar, Off-Bar, TMM Scheduled (Quantum & Cost), over and above of TMM scheduled (Quantum and Cost), etc.	Generating station wise Block wise Daily/weekly/monthly report	Daily	1
32.	Cost benefit analysis report	The cost benefit out of trading, backing of generator, etc. decisions.	Monthly	Once
33.	Banking Analysis	The post-facto cost benefit analysis from Banking	As and when required	As and when required
34.	Other Report	As required by MPPMCL		

1.5. Technical and Functional Requirements of the Software Solution:

A. DATA MANAGEMENT

- i. The data management tool should provide a central Metadata Repository to manage the flow and traceability of data and structure.
- ii. System should have predefined schema and data model specifically designed considering data needs of utility industry to address problem statements like energy load forecasting.
- iii. The ETL tool should provide for Multiple-user design environment with a governance mechanism to prevent corruption of data integration related objects, and also supports collaboration on large, enterprise-wide projects.
- iv. The solution should generate code for ETL process flows created through the GUI which can be viewed / edited by the developers if required.



- v. The ETL tool should be rich in the set of in-built transformations and functions that should include predefined table and column-level transformations including slowly changing dimensions (SCD type1 and type2)
- vi. The solution should provide the ability to create User Written Code transformations, which allows leveraging custom code as part of the ETL process flow
- vii. The solution should provide the capability to create customized transformations which can be reused across ETL process flows
- viii. The solution should provide the capability to import native user-defined functions from databases such as Oracle, DB2, and Teradata and have them available for use in expressions in the ETL process flow
- ix. The solution should have the capability for ETL processing which facilitates execution of the process flow inside a database, providing enhanced execution and performance
- x. The solution should have the ability to perform the complete process of extracting and transforming the data and loading it into a datamart and generate reports as part of the same ETL process
- xi. The solution should provide an out-of-the-box transformation to support conditional processing within jobs, allowing distinct portions of a job to be defined to run conditionally
- xii. The solution should provide in-built analytical transformations for statistical functions such as correlations, distribution analysis, one-way frequencies, summary statistics etc. as part of the ETL process flow
- xiii. The solution should provide an in-built analytical transformation to perform forecasting on time-series or transactional data as part of the ETL process flow
- xiv. The solution should have the ability for Command-line job deployment options for deploying single and multiple jobs
- xv. The solution should provide the ability to execute external OS level commands such as call shell scripts as part of the ETL process
- xvi. The solution should provide a single metadata repository which provides the ability to track data lineage by performing impact and reverse impact analysis visually, through a graphical user interface
- xvii. The solution should have the ability to perform complex search (based on object name, type, date range etc.) of the metadata repository and should also be able to save search criteria.
- xviii. The solution should have the ability to import and export relational metadata in external formats to exchange metadata with third-party applications.
- xix. The solution should provide the ability to export metadata as a package for backup and archival and import the same through a wizard driven interface
- xx. The solution should provide metadata reports that provide an easy-to-understand view of the metadata for users to view the content.
- xxi. The solution should provide the capability to generate metadata reports which can provide the requisite information related to tables, process flows etc. used as part of the ETL process
- xxii. The solution should have the ability to easily capture and display performance information such as real time, CPU time, memory use, input/output, and record count data as a table / graph
- xxiii. The solution should provide enhanced visual de-bugging capabilities

- xxiv. To run a particular transformation
- xxv. To run an ETL flow from / up to a particular transformation
- xxvi. To run an ETL flow step-wise
- xxvii. The solution should provide the capability to assign checkpoints in the ETL process flow to ensure recovery and de-bugging in case of failure, interruptions or errors
- xxviii. The solution should provide enhanced logging capabilities accessible from a log tab which can help determine the point of failure of the ETL process and the corresponding error highlighted in the code
- xxix. The solution should provide the capability to display warnings of a job being changed since previous open, with a brief description of the change, to facilitate use in a collaborative user development environment
- xxx. The solution should provide pre-built transformations that can apply a transpose function on incoming data
- xxxi. The solution should provide pre-built transformations that can compare/validate data across 2 different data sets (say A and B), for every single row and every single column and generate an exception report of records present in A but missing in B, present in B but missing in A, present in both but having column(s) values different from each other
- xxxii. Should have the ability of Full Undo to reverse an action, and Redo to reverse the Undo operation
- xxxiii. Should provide an exhaustive list of function such as Date & time, character, financial, Arithmetic, Analytics along with function specific documentation which could be used for field level processing at each transformation level.
- xxxiv. Should provide graphical interface for creating jobs. There should be no need for writing code.
- xxxv. Should be able to run on any cloud which is MeitY empaneled CSP and STQC Audit Complaint.
- xxxvi. Should provide common metadata repository, administration and reporting.
- xxxvii. Should have an option to deploy the job created on development environment (less number of processors) to the production environment (more number of processors) without making any changes to the job.
- xxxviii. The solution should have the feature to drop and recreate indexes and constraints as part of the load job.
- xxxix. The solution should support for incremental loading of tables.
 - xl. Security layer built into the ETL tool, with authorization objects specific to ETL.
 - xli. Ability to define separate security rules for various environments (Dev, QA and Production).
 - xlii. Should support for integration with external user information such as authorization, authentication, roles and access privileges.
 - xliii. The solution should be able to encrypt data while moving from source to target.

B. DEMAND (LOAD) FORECASTING

1. Data Preparation

- i. Aggregates transactional data into time series format.
- ii. Identifies and accounts for missing values.
- iii. Accumulates time-stamped data into any time interval (hours, weeks, months, etc.) for forecasting, sophisticated modelling techniques
- iv. Automatic outlier detection outliers with provision for selecting number of outliers, percentage of outliers and sensitivity levels.
- v. Trend analysis.
- vi. BY-group processing for flexible forecasting hierarchies handles zero-padded data (leading or trailing zeros recorded in the data).
- vii. Seasonality and intermittent series tests.
- viii. Handles zero-padded data (leading or trailing zeros recorded in the data).
- ix. Extensible model repository.
- x. Automatic variable transformations (log, square root, logistic, Box-Cox).
- xi. Missing value imputation using various interpolation and extrapolation methods.

2. Forecasting

- i. All three forecasting capabilities such as Short / Medium and Long Term.
- ii. Hierarchical Load Forecasting and Temporal Load Forecasting.
- iii. Utilize comprehensive modelling techniques such as ARIMA, Neural Network, UCM, Generalized Linear Models, and GAMS etc.
- iv. The load forecasting should be able to handle two stage modelling for residuals. The forecasted residual should be able to be added back to the forecast load to generate the two-stage forecast load.
- v. Special days and effects Management:
- vi. Prebuilt Effects Management with diagnose process workflow to move from Naïve load forecasting model to add effects and see improvements in a step wise method with a hold out sample.
- vii. The effects that the solution should be configured to include -
 - a. Recency effect
 - b. Weekend effect
 - c. Holiday effect
- viii. Prebuilt two stage modeling for residuals with the following –
 - a. Generalized linear model and Unobserved component model
 - b. Generalized linear model and neural network
 - c. Generalized linear model and Exponential smoothing model
 - d. Generalized linear model and ARIMA

Statistics should include prebuild measurements such as -

- i. MAE, MAPE, and ME for annual energy, annual peak load, daily energy, daily peak load, monthly energy, monthly peak load and hourly load

- ii. Prebuild Modeling process for medium term and long-term load forecasting
 - iii. Should have a diagnose process for evaluating the naïve models and additions of explanatory variables.
 - iv. Ability to include macro-economic variables and also the cross effect of macro-economic variables.
 - v. Flexibility to choose and select the macro-economic variable/explanatory variable based on data availability.
 - vi. Simulate weather scenarios based on past years of weather history for extreme weather scenarios in the future.
 - vii. The system should be able to handle any number of scenarios including economic scenarios such as base, strong rebound, slower recovery, and double-dip recession) including the weather simulated data.
 - viii. Forecasts should be able to run under each economy scenario (example – based on the simulated 50-year weather data, the system should be able to project 30 years ahead using hourly data with weather normalization say by using median of the 50-year projections.
 - ix. Users of the load forecasting solution should be able to choose how many years of historical weather data they would like to use with a minimum selection period.

3. Automatic forecasting Model Selection

- i. Seasonal and non-seasonal exponential smoothing models.
 - ii. The tool should have Automatic generation of model selection lists and Choice of automation level for all three forecasting steps: model selection, model parameter estimation and forecast generation.
 - iii. The tool should have Hierarchical Load Forecasting and Temporal Load Forecasting. Exponential smoothing models, ARIMA, ARIMAX, Unobserved Component Models. Utilize comprehensive modelling techniques including ARIMA, ARIMAX, Neural Network, Unobserved Component Models, Generalized Linear Models
 - iv. The load forecasting should have pre-built two stage modelling techniques for residual forecasting that adds back to the forecast load to generate the two-stage forecast load using Generalized Linear Modelling, ARIMAX Modelling and Neural Network
 - v. The tool should support Automatic regression and event selection and model specification. Determines whether lagged and/or dynamic relationships are present.
 - vi. Model selection based on performance in a holdout sample region or on out-of-sample statistics of fit
 - vii. Special days and effects Management with Prebuilt Effects Management with diagnose process workflow to move from Naïve load forecasting model to add effects and see improvements in a step wise method with a holdout sample
 - viii. The effects that the solution should be configured to include Recency effect, Weekend Effect, Holiday Effect
 - ix. The system should have the provision of forecasting explanatory variables. The system should provide the flexibility to choose this functionality or use estimates provided directly through data management process or through the scenario creation process.
 - x. The tool should have several goodness-of-fit statistics and overall performance metrics.



- Statistics should include prebuild measurements such as MAE, MAPE, and ME for annual energy, annual peak load, daily energy, daily peak load, monthly energy, monthly peak load and hourly load
- xi. Prebuild Modelling process for medium term and long-term load forecasting should have a diagnose process for evaluating the naïve models and additions of explanatory variables, Ability to include macro-economic variables and also the cross effect of macro-economic variables, Flexibility to choose and select the macro-economic variable/explanatory variable based on data availability, simulate weather scenarios based on past history of weather history for extreme weather scenarios in the future.
 - xii. The system should be able to handle simulation through Markov Chain Monte Carlo simulation and long weather history data to create weather scenarios.
 - xiii. The tool should be able to handle any number of scenarios including economic scenarios such as base, strong rebound, slower recovery, and double-dip recession) including the weather simulated data.
 - xiv. Forecasts should be able to run under each economy scenario (example – based on the simulated historical weather data).
 - xv. Users of the load forecasting solution should be able to choose how many years of historical weather data they would like to use with a minimum selection period.
 - xvi. Further, an option for uploading a manual demand forecast shall also be provided by the successful bidder.

4. Customized Output and Reports

- i. Output produced in several popular formats: HTML, PDF, Microsoft Word, etc.
- ii. Several output data sets available, including forecasts, goodness-of-fit statistics, model parameters, seasonal and trend statistics, and more.
- iii. No limit on the amount of historical data or forecast horizon.
- iv. No limit on the number of events or regressors.

5. Optimization

- i. Mathematical Optimization
- ii. The tool should have the flexibility to provide mathematically optimized model parameters for all the models statistics of fit in addition to the best fit model.
- iii. The tool should have Flexible algebraic syntax for intuitive mathematical optimization model formulation on power purchase optimization.
- iv. The tool should have direct invocation of linear, nonlinear, quadratic and mixed integer solvers.
- v. The tool should support for the rapid prototyping of customized optimization algorithms, including named problems and sub problems.
- vi. The tool should have Aggressive pre-solvers to reduce effective problem size and should support Multithreading/grid enabled for improved optimization performance.
- vii. The tool should have Linear programming solvers, including primal simplex, dual simplex and network simplex; and interior-point with crossover.
- viii. The tool should have Branch-and-bound mixed integer programming solver with cutting



- planes and heuristics.
- ix. It should optimize a user-defined objective subject to nonlinear constraints.
 - x. It should decompose an overall problem into a set of component problems that can be solved quickly.
 - xi. Increases the likelihood of identifying a globally optimal solution using the multi-start feature.

6. Equation Solving Functionality

- i. Extensive set of mathematical and matrix operators

General Matrix Functions

- ii. Provides absolute values, exponentials, remainders and powers of matrix elements.
- iii. Finds elements in a matrix that satisfy given conditions.
- iv. Provides cumulative sums.
 - i. Can create block diagonal, identity, diagonal and transposed matrices.
 - ii. Finds set difference, set union or set intersection of matrices; removes duplicates from matrices.

7. Linear Algebraic and Statistical Functions

- i. Solve an ordinary differential equation.
- ii. Perform numerical integration.
- iii. Compute inverses, generalized inverses orthonormal factorization
- iv. Perform orthogonal decomposition. Solve linear programs, linear systems and systems of linear equations.
- v. Solve Bessel functions
- vi. Provides support for sampling and simulation.
- vii. Compute matrix and vector norms and distances matrices.

8. Regression

- i. The tool should support Regression with nine model selection techniques, including stepwise regression.
- ii. The tool should have Model Diagnostic measures, Robust regression; Loess regression;
- iii. The tool should have Non-linear regression.
- iv. The tool should have partial least square, correlation and regression techniques.

9. Multivariate Analysis

- i. The tool should have Factor analysis, principal components, canonical correlation, discriminant analysis and structural equation modelling capability.
- ii. The tool should support Hierarchical clustering of multivariate data or distance data, Disjoint clustering of large data sets., Nonparametric clustering with hypothesis tests for the number of clusters.



- iii. The tool should provide the multivariate sequence and association event analysis with one to one and many to one rule mappings
- iv. The tool should have advanced segmentation, clustering and classification methods including time-series segmentation, Support Vector Machines, Self-Organized Maps (such as Kohonen SOM)

C. ENTERPRISE VISUALIZATION

- i. A Comprehensive and scalable reporting dashboard will be made available to end users of MPPMCL, which covers all key parameters of EPM operation / modules. This would be a dynamic and integrated part monitoring tool pertaining to operational / performance parameters of EPM.
- ii. Demand forecast, Supply scheduled and Demand met on a daily basis
- iii. Total cost to meet demand on a given day
- iv. Market wise procurement cost
- v. Supply-Demand position map
- vi. Reports will be dynamically configurable based on the User Access
- vii. The system would provide web based reporting tool which can be used for creating custom reports as required by different types of users.
- viii. Reports would be exportable to various format like xls*, csv, pdf and xml. Standard report templates should be provided along with images and logos of customer.
- ix. The authenticated users in the web should be able to generate reports based on date range, utility etc. Reports should be both in graphical and tabular formats.
- x. The daily report should mainly consist (but not limited to) the following:
 - a) Highlights of the Day Morning / Evening peak demand / unrestricted demand of MPPMCL
 - b) Details of energy supply to MPPMCL with source wise availability.
 - c) Station wise daily / monthly / yearly generation and PLF / PAF of each station of the thermal unit of CGS, SGS, CPPs & IPPs with last year comparison and from renewable energy sources
 - d) Details of station wise daily / monthly / yearly generation of Hydel / ISGS / IPPs units with comparison to last year
 - e) 15-minute time block wise station wise generation of all SGS / IPP / ISGS / RES (Renewable Energy Source) generators
 - f) Details of 15 time block wise comparison of entitlement and schedule drawl of MPPMCL Discoms.
 - g) Details of energy purchased / banking / sale by MPPMCL through bilateral / collective (LTOA / MTOA / STOA)
 - h) Details of District wise supply hours to various categories as per SLDC requirement
 - i) The outage, back down particulars (block wise MW, MU) in Unit wise / station wise.
 - j) Reports related to Deviation Settlement Mechanism to be published based on SCADA (for daily use) and SEM
 - k) System should be able to capture each revision from SLDC and or any RLDCs as per the case may be



- i) System should capture import and export capacity of each region
- m) System should capture ATC, TTC & TRM of each interstate corridors

D. REAL TIME VISUAL ANALYTICS

- i. The tool should have the ability to use Real Time Visual analytics to quickly conduct exploration and analysis.
- ii. The tool should be able to analyze big data and generate visualizations on the fly, without any performance degradation
- iii. The tool should enable different types of users to conduct fast, thorough explorations on all available data
- iv. The offering should have integrated modules for Real Time Visual analytics comprising data preparation, exploration, visualization and administration
- v. The tool should be optimized for distributed computing environments to leverage the parallel processing capabilities of multiple nodes
- vi. The tool should have been designed from the ground up for integration with Hadoop for performance optimization and scalability.
- vii. The tool should have the ability to be configured on commodity hardware
- viii. The tool should visually prepare data for analysis, including joining tables, defining custom calculated columns and creating custom expressions
- ix. The tool should allow data to be accessed from any industry standard data source using native connectors
- x. The tool should provide the capability to RDBMS.
- xi. The tool should provide the capability to upload data from a spreadsheet for analysis
- xii. The tool should provide self-service to reduce dependency for end users
- xiii. The tool should allow data load jobs to be scheduled to automate the process of loading data
- xiv. The tool should be compatible with Windows operating system
- xv. It should provide capabilities to perform streaming data analytics to detect the real time trends processing, which analyzes data in motion by processing huge volumes at very high rates – with extremely low latency.
- xvi. It should be more agile
- xvii. Streaming analytics capability should include machine learning streaming capabilities such as regression, decision tree and naïve Bayesian with data cleansing, filtering live stream data.
- xviii. It should have visual monitoring of event streams, configure real time dashboards for analytical command center, interactive filters and query dynamic live-stream with support of notifications by SMS, Email and other alerts
- xix. The tool should provide enhanced forecasting capabilities with Scenario Analysis.
- xx. The tool should provide the capability to build interactive decision trees.



- xxi. The tool should provide Auto charting. Based on data items selected for analysis, the tool should automatically choose the chart best suited to display the type of data selected: The tool should provide Geographical map views to provide a quick understanding of geospatial data.
- xxii. The tool should allow users to change queries by selecting items to be displayed from a sidebar or dynamically filtering and grouping.
- xxiii. The tool should provide viewable descriptive statistics, such as min, max and mean, enabling users to gain an overall sense of a particular measure.
- xxiv. The tool should provide the capability to link to an external url from a visual object with relevant context.
- xxv. The tool should provide capabilities to Slice and dice multidimensional data by applying filters on any level of a hierarchy.
- xxvi. The tool should provide capabilities to Drill up and down through hierarchies, or expand and collapse entire levels.
- xxvii. The tool should provide a data acquisition wizard for previewing, filtering or sampling data prior to creating visualizations or reports.
- xxviii. The tool should provide innovative and easy to use modes for discovering relationships while exploring data
- xxix. The tool should provide the capability to export data to Excel, CSV/TSV, pdf document formats
- xxx. The tool should be capable of read and write of comments on reports to aid in collaboration
- xxxi. The tool is capable of emailing a report link with comments to others.
- xxxii. The tool should allow users to Capture screenshots and share comments with others.
- xxxiii. The tool should provide collaboration support with Annotation
- xxxiv. The tool should allow users to Receive alerts to updated reports on mobile devices.
- xxxv. The tool should provide a thumbnail view of recent and favorite items to select and open.
- xxxvi. The tool should provide precision layout capabilities provide flexibility in report layout and design.
- xxxvii. The tool should provide filtering and selection capabilities to reports with easy-to-integrate common action elements such as radio buttons, drop-down/combo boxes, check boxes and sliders.
- xxxviii. The tool should provide Percentage of Records as part of Filtering and Result Data set giving a purview of the amount of data being Analyzed
- xxxix. Capability to calculate new data items on the fly from existing data items using expression.
- xli. The tool should allow the analysis / explorations / reports to be pushed for offline viewing to mobile devices.
- xlii. The tool should have the ability for Interactive report viewing for information consumers

- using iPad and Android devices using a native application most popular gestures and capabilities, including zoom, swipe, etc., to optimize ease of use and user engagement.
- xlii. The tool should allow users to securely view reports on mobile devices while online or offline.

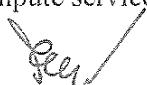
E. CLOUD INFRASTRUCTURE

1. General Requirement:

- i. Bidder Should have 24x7 Enterprise Support agreement with CSP (Cloud Service Provider)
- ii. Bidder should ensure that all cloud services such as compute, storage, network and other resources are hosted within India region only. Also, all MPPMCL data must reside within India region only.
- iii. All Cloud services should be provisioned in high availability and redundant manner to avoid single point of failure at any point of time.
- iv. Cloud services should provide the minimum 99.95% of monthly SLA.
- v. In case of disaster cloud services should provide RPO <=15 Minutes and RTO<= 2 Hours. Bidder shall develop appropriate policy, checklists for failover and fallback to DR site.
- vi. DR Drills need to be performed as and when required by MPPMCL to check disaster preparedness.
- vii. Bidder should provide appropriate compute, storage, network and security resources on cloud to run the solution efficiently during the contract period.

2. Compute:

- i. Compute service should support latest version of operating systems such as Red Hat Enterprise Linux, SuSE Enterprise Linux, and Windows Server etc.
- ii. Compute service should provide the instances where MPPMCL can get the option to leverage its Licenses to deploy. No other customer should share the same license and MPPMCL security & operations should not be compromised.
- iii. Compute service should be provisioned the instances in multi availability zones for high availability and redundancy, also support auto-scaling and dynamic computing capabilities.
- iv. Compute service should support different instance types as per application and database requirement such as compute optimized, memory optimized, storage optimized, IO optimized etc.
- v. Cloud service should capable to provision the instance through console or CLI within 15 minutes.
- vi. Compute service must allow resizing of resources such as vCPU, Memory, Storage, Network, IOPS, etc. at any point of time.
- vii. Bidder shall ensure that at any point if compute instance fails it should be automatically restart on healthy physical host.
- viii. Compute service should support consistent image backup or snapshot of the instance.



- ix. Compute service should provide the health status, event and notification of instances such as reboot, start, stop, terminate etc.
- x. Bidder shall ensure regular instance administration, OS patching, health checking, backup etc.
- xi. Proposed instances should have power and performance not less than existing vCPU power and performance allocated for application and database.

3. Storage:

- i. Storage service should support different types of storage such as block storage (HDD, SSD, SSD with high IOPS), file storage, backup storage, archival storage etc.
- ii. Storage service should support dynamic provision with on-demand IOPS and offer single digit millisecond latency.
- iii. Storage service should support the needs of I/O intensive workloads particularly database workloads that are sensitive to storage performance and consistency in random access I/O throughput. In case of performance issue, MPPMCL may ask to increase the IOPS as per requirement.
- iv. Storage service should support encryption of data on volumes as per industry standards.
- v. Storage service should support consistent point-in-time snapshots. These snapshots should be incremental in nature.
- vi. Storage service should support an extremely low-cost storage service that provides durable storage with security features for data archiving and backup.

4. Network:

- i. Network service should provide creation of one or more subnets within private network with a single Classless Inter-Domain Routing (CIDR). It should be robust, scalable and secured as per the enterprise industry standard.
- ii. Network service should provide separate subnets for application and database workloads also provide the public and private IP's.
- iii. Network service should provide the instance level firewall to allow and deny specific traffic to the application.
- iv. Network service should have low latency, low jitter. All protocol required to run the applications (TCP, UDP etc.), network access list and prevent IP spoofing.
- v. Bidder shall provide the public IP addresses as per requirement of MPPMCL Discoms.
- vi. Network service should provide the Network and Application load balancer enabled for traffic routing and high availability of application with sufficient number of transactions per seconds.
- vii. Network service should highly scalable and redundant.
- viii. Network service should have dashboard for network problem identification and monitoring the issues.
- ix. Bidder shall do all necessary network configurations to seamlessly connect with existing

MPPMCL infrastructure running on cloud.

5. Account and Access Management:

- i. Bidder should create separate cloud account for provisioning the infrastructure mentioned in RFP.
- ii. Ownership of root account of cloud management console and CLI is with MPPMCL only. Bidder will further configure the Role based access and policies required for operation and management.
- iii. Bidder should configure Multilevel Security for Root Account (Encrypted Connection, Multifactor Authentication, Security Key etc.)
- iv. It is responsibility of bidder to configure the network integration and cross account access with existing MPPMCL account to access the required resources and data.
- v. Bidder should also consider the cost required for network integration, data processing and data transfer charges (Both IN and OUT) from existing MPPMCL account for entire contract period.

6. Business Continuity Services (Disaster Recovery):

- i. Bidder shall design a DR framework for all the instances to maximize the application availability during planned and unplanned outages.
- ii. Bidder shall provide business continuity services from the secondary site with 100% of capacity in case the primary site becomes unavailable.
- iii. In case of disaster, bidder shall ensure the activation of services from the DR site with RPO <= 15 Minutes and RTO <= 2 Hours.
- iv. Bidder must provide a UAT (User Acceptance Test) for failover/failback scenarios after the deployment.
- v. Failover scenario: The proposed solution should allow pre-built of recovery plans for various servers which includes target server configuration, IP configurations, network configuration etc. Test DR Failover scenario should not affect the primary server at all.
- vi. DR Drills need to be performed as and when required by MPPMCL to check disaster preparedness.
- vii. Bidder should submit business continuity plan to MPPMCL.
- viii. Bidder should provide the portal or console to ensure the data replication/snapshot and monitoring the proposed cloud DR.

7. Backup Services:

- i. Backup service should support different backup types such as full, incremental, differential, transaction log backup etc.
- ii. Bidder should configure and schedule the backup as per requirement of MPPMCL.
- iii. Backup frequency will be daily, weekly, monthly etc.
- iv. Retention period of backup shall be minimum 90 days. For long term backup (retention more than 90 days) bidder has to provide archival/long term storage on cloud.

v. Bidder shall perform backup restoration activity as and when required by MPPMCL.

8. Monitoring Performance and Service Levels:

- i. Bidder shall provide and implement tools and processes for monitoring the availability of applications, measuring the service levels, application/severs/storage/network performance and utilization responding to system outages with troubleshooting activities designed to identify and mitigate operational issues.
- ii. Monitoring tool shall be capable of providing the real time utilization of servers and shall be able to generate per day, per month and per quarter utilization reports based on which the payments will be made to the bidder.
- iii. Bidder shall monitor the service levels, including availability, uptime, performance, application and database specific parameters, e.g. for triggering elasticity, request rates, number of users connected to a service.
- iv. MIS Reports: Bidder shall submit the reports on a regular basis in a mutually decided format. The Bidder shall workout the formats for the MIS reports and gets these approved by the MPPMCL after awarded the contract. The following is only an indicative list of MIS reports that may be submitted to MPPMCL:
 - a. Daily reports
 - Summary of resolved, unresolved and escalated issues / complaints
 - Log of backup and restoration undertaken
 - b. Weekly Reports
 - Summary of systems rebooted.
 - Summary of issues / complaints logged with the Bidder.
 - Summary of changes undertaken in the Data Centre including major changes like configuration changes, patch upgrades, etc. and minor changes like log truncation, volume expansion, user creation, user password reset, etc.
 - Hypervisor patch update status of all servers including the Virtual Machines running
 - c. Monthly Reports
 - Component wise server as well as Virtual machines availability and resource utilization.
 - Consolidated SLA / Non- conformance report.
 - Summary of component wise uptime.
 - Log of preventive / scheduled maintenance undertaken
 - Log of break-fix maintenance undertaken
 - All relevant reports required for calculation of SLAs
 - Quarterly Reports
 - Consolidated component-wise availability and resource utilization
 - All relevant reports required for calculation of SLAs
 - The MIS reports shall be in-line with the SLAs and the same shall be scrutinized by MPPMCL

9. Usage Reporting and Billing Management:

- i. Bidder should track resources usage on cloud and provide the usage reports accordingly.
- ii. Bidder should monitor and administrate the terms of SLA's and other billing related aspects.
- iii. Bidder should provide the reports including real time as well as past data /information /reports for MPPMCL to validate the billing and SLA related penalties.

10. Connectivity & Cloud Hosting

- i. Bidder can subcontract cloud hosting to a CSP (Cloud Service Provider).
- ii. The successful bidder may host the proposed solutions on MPPMCL existing Cloud or any other cloud which should be MeitY empaneled CSP and STQC Audit Compliant during the entire contract period. The recurring cloud infrastructure cost shall be borne by the Bidder.
- iii. The bidder will bear all the charges of connectivity (if any) to MPPMCL Cloud/GPX Locations such as rental, onetime cost, commissioning charges, N/w equipment rental charges and networking equipment. The Bidder will be responsible for all the configuration requirements & coordination with existing MPPMCL vendors to meet the scope of RFP. The cost of connectivity should be loaded on implementation cost. No separate payment will be given for connectivity.
- iv. The following conditions will apply for cloud deployment of bidder's solution.
 - a. All Services including data should be hosted in India.
 - b. The cloud instance should be specifically dedicated to MPPMCL and utilized by MPPMCL only.
 - c. Data transmission charges and all charges related to data connectivity etc. should be borne by the bidder.
 - d. The bidder need to ensure that the Cloud Service Provider's (CSP) facilities/services are compliant to various security standards and should be verified by third party auditors periodically at least once in a year.
 - e. CSP should suitably address all the potential risks and issues in cloud implementation including data security and privacy, increased complexity in integration with existing environments, vendor lock-in, application portability between different platforms, exit management / Transition-Out Services etc.
 - f. The bidder's solution deployed on cloud should be immune to cyber-attacks. Latest Cyber Security Guidelines issued by CERT-In specified at <http://www.cert-in.org.in/>, Ministry of Power or any other competent authority shall be followed. Bidder should ensure CERT-IN audit (VAPT) once in a year for implemented solution
 - g. MPPMCL shall be the sole custodian of the consumer data. The bidder and its contracted vendors will have limited need basis access to the data. In case of premature termination or at the end of contract, the bidder and the contracted vendors should relinquish all access to the data and transfer the same to MPPMCL.

A handwritten signature in black ink, appearing to read "S. Surya".

ANNEXURE –III: Supplementary Information to Bidder

1.6. Offers

Offers will be evaluated according to criteria given in the letter of invitation and should include the following information:

A. With Technical Offer (Envelope-B)

- i. Bid Covering Letter in the format given in Form F-1 and General Information in the format given in Form F-2 and letter of authentication in the format given in Form F-3.
- ii. Turnover from Audited Financial Statements for last 3 years as desired in the format Form F-4(a) and Form F-4(b).
- iii. A brief description of the firm and an outline of the relevant past experience on assignments/projects of similar nature executed during the last 7 years in the format given in Form F-5 (a), (b) & (c).
- iv. A brief description of the manpower to be deployed for project in the format given in Form F- 6.
- v. The copy of Company registration certificate, balance sheets for requisite periods, award of contract/experience certificates in support of project experience, and other relevant documents to substantiate the information filled in various forms and evaluation of eligibility criteria/bid should invariably be attached online.

B. With Financial/Price Offer (Envelope-C)

All payments pursuant to the cost of providing the consultancy services shall be made in Indian Rupees. Bidder may submit financial bid/price Offer (online as per Form F-8), which is considered as appropriate for successful completion of the assignment. The Price Offer shall be for the Scope of Work defined in Annexure-II and shall remain firm throughout the period of contract. Quoted Price will be in Indian Rupees.

1.7. In preparing the Offer, the consultants should give particular attention to the following:-

Members of the team should have the requisite experience in Technical aspects relate to the Company's business and preferably handled the similar assignment. A good working knowledge of English is essential for the personnel working on this assignment. Reports shall be in English. The personnel comprising the consultant's team should be drawn from the permanent full time staff members of the consultant firm. The proposed resources must currently be working with bidding firm for a period of at-least six month as on date of opening of bid.

1.8. Evaluation Methodology

- A. Open competition, which is the most effective public procurement methodology, will be adopted.
- B. Properly administered, national competitive bidding will be adopted.
- C. Alternate bids are not allowed.
- D. Only those who have paid appropriate bid security will be evaluated further.
- E. Only those bidders who qualify Eligibility Criteria will be evaluated further.
- F. Technical evaluation: Online Evaluation will thoroughly be reviewed of the Offers submitted by various bidders. The evaluation will be based on following parameters:



- ✓ Turnover
- ✓ Experience in Day-Ahead and Intra-Day Load Forecasting
- ✓ Experience in Energy Portfolio Management along with Power sale and purchase Support on 24x7 Shift-basis
- ✓ Proven experience in Artificial Intelligence / Machine Learning technology
- ✓ Team Structure profile

1.9. The Company in observance of best practices shall:

- A. Maintain the bid evaluation process strictly confidential.
- B. Reject any attempts or pressures to distort the outcome of the evaluation, including fraud and corruption.
- C. Strictly apply only and all of the evaluation and qualification criteria specified in the Bid document.

1.10. Audited Balance sheets/P&L account of the bidding firm shall be considered for verification of financial stability. Bidders are requested to submit the work order and project completion/satisfaction certificate from the authorized signatory of client for the projects being showcase by them as experience.

1.11. Tender Evaluation Methodology

Overview Bid Evaluation Process

The bidding process is designed to select the Consultant through a series of assessment of:

- A. Conformation/compliance to all the mandatory requirements, terms, conditions, and specifications of the Bidding Document without any deviation, reservation, or omission; and
- B. The price quoted by the Bidder.
- C. The Bid submitted by the Bidder shall consist of a Technical Bid and a Financial Bid.
- D. During the online Techno-Commercial Bid opening, the Envelope-A will be opened first. The Bid Security and receipt of payment of cost of Bid Document will be checked and after the verification of the uploaded documents of Bid Security, the offers will be shortlisted for techno-commercial Bid opening. Subject to fulfilment of conditions related to Tender cost and Bid Security, the Techno- Commercial Bids submitted online shall be opened and after evaluation of the same, the decision will be taken for selection of offers for the purpose of opening of price Bid.

1.12. First Stage of Evaluation – Technical Evaluation: The Technical Bids shall be opened online and be checked for ‘Clause by Clause’ compliance to the bid document and the Contract (with amendments, if any) as per the formats. The bidders who meet the Qualification Requirement, shall be evaluated further as per the technical evaluation criteria as mentioned below:



1.13. Marks Distribution for Technical Evaluation

Sl.	Particular			Mar ks	Maximum Marks
1	Financial Strength of the Bidder:				
	a	Minimum Average Annual Turnover (MAAT) of the Bidder from power sector consulting business for last three financial years (FY 2022-23, 2023-24 and 2024-25)	< ₹ 10.00 crores ₹ 10.00 crores <= MAAT < ₹ 15.00 crores ₹ 15.00 crores <= MAAT < ₹ 20.00 crores ₹ 20.00 crores <= MAAT < ₹ 25.00 crores ₹ 25.00 crores <= MAAT	0 2 4 8 10	10
2		Relevant Experience of Consulting firm			50
	a	Day-Ahead and Intra-Day Load Forecasting for any government power utility in India	< 2 years' experience 2 years <= Experience <4 years 4 years <= Experience < 5 years 5 years <= Experience <6 years Experience >= 6 years	No of assignments = 2 No of assignments = 3 No of assignments >=4 No of assignments = 2 No of assignments = 3 No of assignments >=4 No of assignments = 2 No of assignments = 3 No of assignments >=4 No of assignments = 2 No of assignments = 3 No of assignments >=4	0 1 3 6 3 6 9 6 9 12 9 12 15
		Energy Portfolio Management	< 2 years	0	15



Sl.	Particular			Mar ks	Maximum Marks
b	along with Power sale and purchase Support on 24x7 Shift-basis for any government power utility in India	2 years <= Experience <4 years	No of assignments = 2	1	15
			No of assignments = 3	3	
			No of assignments >=4	6	
		4 years <= Experience <5 years	No of assignments = 2	3	
			No of assignments = 3	6	
			No of assignments >=4	9	
		5 years <= Experience <6 years	No of assignments = 2	6	
			No of assignments = 3	9	
			No of assignments >=4	12	
		Experience >= 6 years	No of assignments = 2	9	
			No of assignments = 3	12	
			No of assignments >=4	15	
c	Experience of implementation of software based day ahead and intra-day demand Forecasting, trade optimization, energy portfolio management, scheduling optimization and load/demand management using Artificial Intelligence / Machine Learning technology, during last 7 years for government power utility in India with overall contract value more than 2 Crore.	Assignment having contract value more than ₹2 crore	No of assignments = 1	5	20
			No of assignments = 2	10	
			No of assignments = 3	15	
			No of assignments >= 4	20	



Sl.	Particular			Mar ks	Maximum Marks
	Documentary evidence such as LOA/PO/WO and work completion or UAT or performance certificates from clients is mandatory. Client Certificate clearly indicating the use of technology and relevant scope of work is mandatory.				
3	Qualification and Competency of Proposed Staff – Key Professionals			40	
a	Engagement Leader cum Power Market Expert (1 No.)		The resource would be required to assist MPPMCL in reducing the financial risks and optimizing the cost of power purchase portfolio. Minimum Qualification – B.E./B. Tech + MBA Experience in Power markets, Energy Trading Strategy design and Energy Portfolio Risk Management. Min. Experience: 5 years	>= 8 to 10 Years >10 years	7 10
b	Forecasting/Scheduling Analyst(1 No.)		The resource would be required to assist MPPMCL in energy demand forecasting, Intra-Day, Day Ahead and Long term forecasting, planning of purchase and sell through energy exchanges and scheduling optimization. Minimum Qualification – B.E./B. Tech. Experience in demand forecasting and scheduling. Min. Experience: 5 years	>= 3 to 5 years >5 years	5 8
c	Optimization Expert (1 No.)		Will be responsible for generation of most optimal schedule for power despatch to meet the demand at the least cost Minimum Qualification – B.E./B. Tech/MBA.	>= 3 to 5 years >5 years	5 8



Sl.	Particular			Mar ks	Maximum Marks
		Experience in Energy Planning and Optimization Min. Experience: 2 years			
d	Shift Operators (4 nos. on rotational shift basis)	The shift operators will be responsible for Purchase & Sale in Real Time Market (RTM). Such services have to be provided on all 365/366 days of the year including national holidays. Minimum Qualification – BE/B. Tech. Experience in Power Sector. Min. Experience 1 years	1 to 2 years (for individual resource) > 2 years (for individual resource)	2 2	14
Total					100

Note:-

- i. Pilot Projects/pro-bono projects (Non-Commercial)/Projects for associates or group companies shall not be considered for evaluation in the above criteria.
- ii. After scrutiny and evaluation of technical bids the bidders who have secured minimum 60 marks and above shall be qualified for opening price part.
- iii. The documentary evidence in the form of client certificates along with work orders satisfying above minimum qualification and evaluation criteria met by the bidder to be provided along with the bid.
- iv. Notwithstanding anything stated above, MPPMCL reserves the right to assess the Bidder's capability and capacity to perform the work should the circumstances warrant such an assessment in the overall interest of MPPMCL.
- v. The bidder is required submit copy of client certificate as documentary proof for the assignments claimed in the above evaluation criteria as per the S. No.2 (c), clearly mentioning the usage of Artificial intelligence/Machine learning technology.
- vi. Any Assignment having contract value less than ₹ 2 Crore will not be considered for the evaluation under Clause No. 2(a) and 2(b) in the above table.

Illustration for calculation of Number of years of experience:

Case I: If a bidder has relevant experience of carrying out assignment of 2 Years & 5 months during April 2019 to August 2021 and another assignment of 1 Year & 6 months during April 2017 to September 2018 in Day-Ahead and Intra-Day Load Forecasting, then evaluation will be done in following manner:

Evaluation: In this case total experience of the bidder in Day-Ahead and Intra-Day Load Forecasting will be of 3 Years & 11 months having 2 assignments and so as per Clause 9.7.2 (a), total marks given to the firm will be as under

3 Years <= Exp. < 4 Years



No. of assignments = 02
Marks obtained = 5 marks

Case II: If a bidder has relevant experience of carrying out assignment of 3 Years & 6 months during April 2018 to September 2021 and another assignment of 1 Year & 5 months during April 2021 to August 2022 in Day-Ahead and Intra-Day Load Forecasting.

Evaluation: In this case total experience of the bidder in Day-Ahead and Intra-Day Load Forecasting will be of 4 Years & 5 months only having 2 assignments and so as per Clause 9.7.2 (a), total marks given to the firm will be as under

4 Years <= Exp. < 5 Years

No. of assignments = 02.

Marks obtained = 7 marks

Similarly, for experience in Energy Portfolio Management along with Power Trading Support on 24x7 Shift-basis under Clause 9.7.2 (b) will be evaluated in the same manner.

1.14. Second Stage of Evaluation - Opening of Financial Bid: The financial bids of the Bidders who qualify in the technical evaluation shall be opened online.

1.15. Minimum Qualifying Score: After scrutiny and evaluation of technical bids the bidders who have secured minimum 60 marks and above shall be qualified for opening price bid.

1.16. Third & Final Stage of Evaluation – Selection of the Successful Bidder:

A. The selection of the bidder shall be done on the basis of Quality & Cost Based Selection (QCBS) method of evaluation.

B. Financial Evaluation: The financial Offers of the Bidders who qualify in the technical evaluation shall be opened online. The Offer with lowest quote shall be given a financial score of 100 and other Offers shall be given financial scores as per the formula provided below:

The lowest Financial Offer (F_m) shall be given the maximum financial score of 100. Financial scores (S_f) of all other Offers shall be calculated as:

$S_f = 100 \times F_m/F$, in which “ S_f ” is the financial score, “ F_m ” is the lowest price, and “ F ” the price of the Offer under consideration.

C. Evaluation of Final Bids: It shall entail selection of Bidder after adding scores of technical and financial Offers with their respective weightage as mentioned below:

The weights given to the Technical (T) and Financial (P) Offers are: T = [80%], and P = [20%]

D. Offers will be ranked according to their total score (S) i.e. combined technical (S_t) and financial (S_f) scores using the weights (T = the weight given to the Technical Offer; P = the weight given to the Financial Offer; T + P = 1) as following: $S = S_t \times T + S_f \times P$. The bidder with the highest total score shall be selected.

E. MPPMCL reserves the right to reject any offer which is non-responsive and no request for alteration, modification, substitution, or withdrawal shall be entertained by the MPPMCL in respect of such offers.

ANNEXURE-IV: Form F-1

Bid Covering Letter Form F-1

(To be submitted on the Consultant letterhead)

[Covering Letter shall be on the official letterhead of the Consultant] [Reference No.] From:
[Address of the Consultant] [Telephone No., Fax No., Email] [Date]

To

The Chief General Manager (PM),
Madhya Pradesh Power Management Company Limited Block no 15, GF, Shakti Bhawan, Vidyut
Nagar, Rampur, Jabalpur (M.P.) 482008

Sub: Submission of Offer in response to Bid document for “Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution”

Ref: NIT No. ____ /2025 dated ____ .2025 dated _____ (the “TENDER”).

Dear Sir,

We, the undersigned [Insert name of the Consultant] having read, examined and understood in detail the Tender for “Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution”

Hereby submit our Bid comprising of Technical and Financial Bids.

We give our unconditional acceptance to the tender including but not limited to all its instructions, terms and conditions, and formats attached thereto, issued by MPPMCL, as amended. In token of our acceptance to the Tender, the same have been initialed by us and enclosed to the Bid. We shall ensure that we shall execute such requirements as per the provisions of the tender and provisions of such tender shall be binding on us.

1. Fulfilment of Tender Eligibility.

We agree to abide by this Offer, consisting of this letter, the Qualification Criteria forms and the Technical Offer form, the duly notarized Board Reserve/Power of Attorney, and all attachments, for a period of 180 days from the date of opening of the Technical Offers, and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.

2. Bid Security

We have submitted a Bid Security of Rupees ____ Only (₹ ____/-) (online) on ___, 2025.

3. Acceptance

We hereby unconditionally and irrevocably agree and accept that the decision made by MPPMCL in respect of any matter regarding or arising out of the tender shall be binding on us. We hereby expressly waive any and all claims in respect of Bid process.

We confirm that there are no litigations or disputes against us, which materially affect our ability to fulfil our obligations with regard to fulfilling our obligations as per the tender.



4. Familiarity with Relevant Indian Laws and Regulations

We confirm that we have studied the provisions of the relevant Indian laws and regulations as required to enable us to submit this Bid and execute the tender Documents, in the event of our selection as Selected Consultant.

5. Contact Person

Details of the contact person representing our Consultant's Organization supported by the Power of Attorney are furnished as under:

Name :

Designation :

Company :

Address :

Mobile :

Phone :

Fax :

Email :

6. It is confirmed that our Bid is consistent with all the requirements of submission as stated in the tender and subsequent communications from MPPMCL.
7. The information submitted in our Bid is complete, strictly as per the requirements stipulated in the TENDER and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our Bid.
8. We confirm that all the terms and conditions of our Bid are valid for acceptance for a period of 180 days from the date of opening of the Financial Offers.
9. We confirm that no order/ruling has been passed by any Competent Court or Appropriate Commission against us or Associates in the preceding one (1) year from the Bid Submission Deadline for breach of any contract and that the Bid Security submitted by the Consultant has not been forfeited, either partly or wholly, in any bid process in the preceding one (1) year from the Bid Submission Deadline.

Dated the [Insert date of the month]

day of [Insert month, year]

at..... [Insert place].

Thanking you, Sincerely yours,

[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal]

ANNEXURE - IV: Form F-2

General Information - Form F-2

S. No.	Particulars	Details to be furnished
1.	Details of responding Consultant	
a)	Name of Person	
b)	Address	
c)	Website	
d)	Telephone no./Mobile no./Fax no.	
e)	Email ID	
2.	Detail of Contact Person	
a)	Name	
b)	Designation	
c)	Address	
d)	Telephone no./Mobile no./Fax no.	
e)	Email ID	
3.	Details of Authorized Signatory (Please attach Proof)	
a)	Name of Authorized Person	
b)	Designation	
c)	Address	
d)	Telephone no./Mobile no./Fax no.	
e)	Email ID	
4.	Information about responding Consultant	
a)	Status of Consultant (Public Ltd./Pvt. Ltd. etc.)	
b)	No. of Years of operation in India	
c)	Details of Registration (ref. e.g. ROC Ref#)	
d)	Details of PAN	
e)	Details of GST number	
f)	Bank details (Name, Account no., Type of Account, IFS code, address etc.)	
g)	Details of Chartered Accountants/Statutory auditors along with UIDN	
h)	No. of resources/staff in India	
i)	Locations and addresses of offices (In India and overseas)	

Note: The copy of the relevant documents for verification of above information is attached herewith.

Sincerely yours,

[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal]



ANNEXURE – IV: Proforma of Compliance Form F-3

Proforma of Compliance Form F-3 Letter/Authenticity of Information Provided

(To be submitted on the Consultant letterhead)

[Covering Letter shall be on the official letterhead of the Consultant] [Reference No.] From: [Address of the Consultant] [Telephone No., Fax No., Email] [Date]

To

The Chief General Manager (PM),
Madhya Pradesh Power Management Company
Limited Shakti Bhawan, Vidyut Nagar, Rampur,
Jabalpur (M.P.) 482008

Sub: Submission of Offer in response to RFP/Bid document for “Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution”

Ref: NIT No. /2025 dated . .2025 dated (the “TENDER”).

Dear Sir,

We, [Insert name of the Consultant] have read, examined and understood the TENDER “Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution”.

We hereby confirm our concurrence with the TENDER including in particular the Bid submitted by [Insert name of the Consultant], in response to the TENDER.

We confirm that the Bid has been reviewed and each element of the Bid is agreed to including but not limited to the commitment and obligations of our Company.

The details of contact person are furnished s under:

Name :

Designation : Company

:

Address:

Mobile : Date the day of

..... 2025

Yours faithfully,

.....

[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal]

Sect

ANNEXURE – IV: Technical Bid Form F-4

Format of Summary of Audited Financial Statements

Audited Financial Statement for [Insert name of Consultant]

Ref: NIT No. /2025 dated . .2025 dated (the “TENDER”).

Dear Sir,

This is to certify that [Insert name of Consultant] having its Registered Office at [Insert Registered Address of the Consultant]] with PAN No.[Insert PAN No.] are in the business of [Insert briefly the nature of the business], have recorded the following turnovers and profits from power sector consulting business:

Turn-Over from Power Sector Consulting Business

Sl.	Turn-Over	Turnover Amount (In Indian Rupees)			
		FY 2022-23	FY 2023-24	FY 2024-25	Average
1.					
2.					
3.					
4.					
Total for In					
Rs.....					

S. No.	Particulars	Amount(In Indian Rupees)		
		FY 2022-23	FY 2023-24	FY 2024-25
1.	Net-worth			

Note: The copy of the relevant documents for verification of above information is attached herewith. The above Turnovers and Net Profits are arrived from our Audit Reports duly submitted to the Income Tax Department along with our Audit Reports.

Hence we certify from there cords submitted to us.

Thanking you, Sincerely yours,

[official seal of the Chartered Accountant]

Date: [Date].....

[Insert Name of the Chartered Accountant]

[Insert address and contact information of the Chartered] [Insert UIDN]



ANNEXURE – IV: Technical Bid Form F-5(a)

Technical bid Form F-5(a)

DETAILS OF THE EXPERIENCE FOR DAY-AHEAD & INTRADAY LOAD FORECASTING

Dear Sir,

This is to certify that [Insert name of Consultant] having its Registered Office at [Insert Registered Address of the Consultant] have recorded the following experience in Day-ahead & Intra-day load forecasting consultancy:

Sr. No	Experience (Years)	No. of Assignments	Name of Utility/ State	Order reference no. & Date	Load Forecasting consultancy duration (Years & (From date to Date))	Assignment fully executed Yes/No	Status if assignment under execution (In operation (live), completed, or any other reason.)
1							
2							
3							
4							
5							
6							

Note: The copy of the relevant documents for verification of above information is attached herewith.

Thanking you, Sincerely yours,

[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal]



2

ANNEXURE – IV: Technical Bid Form F-5(b)

Technical Bid Form F-5(b)

**DETAILS OF THE EXPERIENCE IN ENERGY PORTFOLIO MANAGEMENT
ALONG WITH POWER SALE AND PURCHASE SUPPORT ON 24X7 SHIFT-
SUPPORT ON 24X7 SHIFT-BASIS**

Dear Sir,

This is to certify that.....[Insert name of Consultant] having its Registered Office at [Insert Registered Address of the Consultant] have recorded the following experience in Energy Portfolio Management along with Power sale and purchase Support on 24x7 Shift-basis:

Sl.	Experience (Years)	No. of EPM projects	Name of Utility/ State	Order reference no. & Date	EPM project duration (Years & (From date to Date))	Project fully executed Yes/No	Status if Project under execution (In operation (live), completed, or any other reason.)
1)							
2)							
3)							

Note: The copy of the relevant documents for verification of above information is attached herewith.

Thanking you,

Sincerely yours,
[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal]



ANNEXURE – IV: Technical Bid Form F-5 (c)

Technical bid Form F-5(c)

Consultant's Experience of implementation of Forecasting/optimization/portfolio management/trade desk operations using Artificial intelligence/Machine learning technology, during last 7 years for government power utility/company in India.

To be submitted for each Qualification & Evaluation Criteria

Dear Sir,

This is to certify that [Insert name of Consultant] having its Registered Office at..... [Insert Registered Address of the Consultant] have recorded the following experience in implementation of Forecasting/optimization/portfolio management/trade desk operations using Artificial intelligence/Machine learning technology, during last 7 years for government power utility/company in India.

Sl.No.	Title of Assignment	Name of the Client	Brief Description of the Services Undertaken	Start Date & End Date and Period of Contract	Contract Value	Type of Supporting Document Attached
1						
2						

Note: The copy of the relevant documents for verification of above information is attached herewith. The above table is to be submitted for Clause 9.9 (Sr. No. 1.c) Marking Criteria.

Thanking you, Sincerely yours,

[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal



ANNEXURE – IV: Format MAF Form F-5(d)

(To be furnished in case of OEM only)

Date: _____

Tender No.: _____

To, _____

WHEREAS _____

Who are the official manufacturer of _____

do hereby authorize _____ to submit a Bid in relation to the Invitation for Bids indicated above, the purpose of which is to provide the following components, manufactured by us _____ and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Terms and Conditions of Contract, with respect to the Goods offered by the above firm in reply to this Invitation for Bids. We also confirm that we are fully aware of the scope of work and have complete knowledge of the terms and conditions of the referred tender. As per tender terms & conditions we shall have back-end support agreement/arrangement with above bidder for Providing Consultancy Services to MPPMCL on Energy Portfolio Management support for the entire project period.

Name _____

In the capacity of: _____

Signed Duly authorized to sign the Authorization for and on behalf of _____

Date _____



ANNEXURE – IV: Details of Manpower (Form F-6)

Details of Manpower Form F-6

Dear Sir,

This is to certify that [Insert name of Consultant] having its Registered Office at [Insert Registered Address of the Consultant] that the consultant has adequate no. of resources on its payroll. Out of which following personnels would be deployed and will be retained during the project period:-

S. No	Name	Qualification	Certification if any	Area of expertise	Working in Organization since	Total Experience (Years)	Remarks
A	Engagement Leader cum Power Market Expert						
B	Forecasting/Scheduling Analyst						
C	Optimization Expert						
D	Shift Operators (on rotational shift basis)						

Note: The copy of the relevant documents for verification of above information is attached herewith. Detailed CVs of the above experts is also required in addition to the table above.

Thanking you, Sincerely yours,

[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal]



.1

ANNEXURE – IV: Financial Bid Form (Form-7)

Financial Bid Form F-7
[Reference No.]

Financial Bid for Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution

Ref: NIT No. ____/2025 dated _____.2025 dated _____ (the “TENDER”).

Dear Sir,

We the undersigned [Insert name of the Consultant, having read, examined and understood in detail the for **“Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution”** hereby submit our Financial Bid.

We hereby undertake and confirm that:

- A. We have submitted our Financial Bid strictly in accordance with the tender without any deviations or condition.
- B. Our Financial Bid is consistent with all the requirements of submission as stated in the tender.
- C. The details quoted herein shall stand valid at least 180 days from the date of opening of the Technical Offers and for implementation of Project, if awarded, as per the timeframe indicated in the tender.
- D. Our Quoted Prices are as per the Form F-8 attached herein.

Dated the [Insert date of the month] day of [Insert month, year] at [Insert place].

Sincerely yours,

[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal]



ANNEXURE-IV: Price Bid (Form F-8)

PRICE BID SCHEDULE (P1) Form F-8

Ref: NIT No. ____/2025 dated ___.____.2025 dated _____ (the "TENDER") for "Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution" (All Values to be put in INR)

Bid for Tender For Providing Consultancy Services for AI/ML based Advanced Load Forecasting and Integrated Energy Portfolio Management Solution

S. No.	Particular	Value (INR)
1.	Software cost towards Development & Implementation of the EPM Software Solution	
2.	Software maintenance cost towards EPM module (Including backend support, cloud services, weather data, etc.)	
3.	Manpower Cost (for the on- site team deployment of 7 nos. resources)	
4.	Training Cost	
5.	Total Contract Value excluding GST	
6.	Add: GST @ 18%	
7.	Total Contract Value including GST	

Dated the [Insert date of the month] day of [Insert month, year] at

[Insert place].

Sincerely yours,

[Signature, Name, Designation of Authorized Signatory of Company and Company's Seal]



ANNEXURE – V: Sample Form of Contract Agreement

CONTRACT AGREEMENT FOR CONSULTANT'S SERVICES

This agreement is made this _____ day of _____ 2025 between Shri/Ms _____ carrying on business in partnership/proprietorship/company in the name and style of _____ being a Firm/Company registered under the Indian Partnership Act, 1932/The Companies Act, 1956, having its registered office at _____ (hereinafter called the consultant which expression shall where the context so admits, be deemed to include the company (in case of company formed and registered under companies Act, be 1956) and all and each one of the partners as included in the deed of partnership jointly and separately in (in case of firm formed and registered under Indian Partnership Act, 1932 and their/his heirs, executors, administrators and representatives) of the one part, and the Madhya Pradesh Power Management company Ltd, Jabalpur being the Company constituted under Companies Act, 1956, (here-in-after called the MP PMCL which expression shall where the context so admits, be deemed to include its permitted assigns) of other part,

WHEREAS in accordance with a notice Bid specification no.

issued by the _____ of MPPMCL, the
Consultant submitted their/his tender and opened on

(tender specification no.

more particularly described, mentioned, enumerated or referred to in the general conditions, specification, schedules, drawing, form of tender covering letters, schedules of prices and further correspondence, a copy each of which is hereto annexed and it is for purposes of identification, signed by Shri

Son of Shri _____ on behalf of the consultants and Chief General Manager – PM on behalf of the MPPMCL and all of which shall be deemed to form part of this agreement as though separately set out herein and included in the expression “Contract” here in used (hereinafter referred to as the said works).

AND WHEREAS the company has accepted the tender of the Consultant vide order No. _____ dated _____ for execution of the said work for the sum of ₹ _____ (₹ _____ only) on the terms and subject to the conditions hereinafter mentioned.

NOW THEREFORE THIS agreement witnesses and it is hereby agreed as follows:-

The consultant shall execute the said work and do, perform and carryout all matters incidental and/or ancillary thereto within the time specified in and in accordance with the terms and conditions specified in the contract.

For the work done under scope of work, the MPPMCL shall pay to the Consultant ₹ _____ (₹ _____) only or such other sum as may become payable in accordance with the contract. In all matters arising out of or in relation to this agreement the terms and conditions of the contract shall apply and all such matters



shall determined accordingly.

This agreement shall be deemed to be entered into at Jabalpur and all disputes and claims, if any, of or in respect of this agreement are to be settled at Jabalpur or be triable only in any competent court situated at Jabalpur.

In witness where of the parties hereto have signed this agreement on the dates and year mentioned against their respective signature.

ON BEHALF OF CONSULTANCY FIRM

WITNESS

1. Signature

Signature of consultant

Address:

Address:

2. Signature Address:

ON BEHALF OF COMPANY

1 .Signature

Signature

Address:

Address:

2. Signature

Address:

A handwritten signature consisting of stylized initials and a surname, written in black ink.

ANNEXURE – VI: General and Other Terms and Conditions

1.17. Resource Requirement:

The following resource are minimum mandatory requirement for implementation of project at power management department at Jabalpur.

Sl.	Title	Deployment	Educational Qualification	Minimum work Experience
1.	Engagement Leader cum Power Market Expert (1 No.)	Full Time	BE/B.Tech MBA	+ Minimum 8 years' experience in power markets / energy trading strategy design and Energy Portfolio Risk Management
2.	Forecasting/ Scheduling Analyst (1 No.)	Full Time	BE/B.Tech/MBA	Minimum 3 years' experience in demand forecasting and scheduling
3.	Optimization Expert (1 No.)	Full Time	BE/ B.Tech/ MBA/ PG	Minimum 3 years' experience in Energy Planning and Optimization
4.	Shift Operators (4 nos. on rotational shift basis)	Full Time	BE/B.Tech	Minimum 1 years' experience in Power Sector
	Total = 7 Nos. resources			

The MPPMCL reserves the right to ask for replacement of any resource with a notice of 15 days in case the performance of the resource found to be unsatisfactory. If the actual deployment of the resources is less than above in such case it will be treated as breach of contract.

1.18. Logistic Support

MPPMCL shall provide the working space at Jabalpur, furniture, electricity to the consultant personnel at no cost basis, however other logistic support like computers, laptops, internet connections, papers etc. shall have to be arranged by the Consultant himself. Travel, stay and out of pocket expense will required to be borne by agency selected.

1.19. Conduct of Personnel Deployed by Consultant

The consultant shall ensure the good conduct, office decorum and orderly behaviour of its personnel deployed during the engagements. The personnel shall have to follow the official culture/practices of MPPMCL/DISCOMs. while they are working for this engagement.

1.20. Program Management and Monitoring Framework

A Nodal officer from MPPMCL shall be designated for all co-ordination activities among the entities and agency. The nodal officer will communicate with agency and convey the MPPMCL decision to the agency

1.21. Implementation Timelines:

The effective date of the contract (T) shall commence from the date of signing of the contract. Time period of contract is 5 years. The implementation timelines will be as follows:

Description	Time schedule
Signing of the Contract	T
Project Planning, Development and Go-live Phase	
Completion of UAT (User Accepting Testing) and Project Go-Live for Development & Implementation of the EPM Software Solution	T + 120 Days

1.22. DROP DEAD FEE

If due to any reason or decision of MPPMCL/the Govt./Regulator, the assignment is dropped or consultant is directed to discontinue work, the "Drop Dead Fee" would be the payments received by Consultant, and the claims already raised to MPPMCL. MPPMCL shall not be liable for any other claims made by consultant whatsoever may it be.

If the assignment is dropped due to defaults/decision made by consultant, MPPMCL shall not be liable for any claims made by consultant whatsoever may it be.

1.23. OTHER TERMS & CONDITIONS

- A. MPPMCL, shall provide consultant free of cost, available information/data, or arrange for such Information as may be required to provide the services for the subject assignment.
- B. In order to ensure smooth operations, MPPMCL would appoint a Nodal Officer and other officials for the assignment who will provide various inputs throughout the execution of the assignment.
- C. Consultant will not be obliged to hold or participate in any interaction with Unions, Associations etc. related to any aspect of this assignment or otherwise. All the interactions related to data will be done with the Nodal Officer.
- D. Consultant's services shall be purely advisory in nature including all documents and recommendations.
- E. Consultant, will not use the documents/information and other data received from MPPMCL for any other purpose and the same will not be disclosed to any other person and utmost secrecy will be maintained. Wherever relevant Data/input required for the



assignment, is not available from MPPMCL, suitable assumptions would be made by consultant under intimation to MPPMCL.

1.24. Software, Licenses and Associated Hardware

- A. Consultant shall provide the license to MPPMCL for the respective software during the contract period.
- B. Consultant shall at all times, within the contract period, also be responsible for all required software upgradation as per regulations and its integration with respective data sources.
- C. Adequate measures regarding for cyber security shall be ensured as per the guidelines issued by Govt. of India/CEA.

1.25. Cloud Services, Data, Software and Associated Hardware's Redundancy

- A. The bidder must provide all necessary cloud services, including storage, computing power, hosting, networking, databases, analytics, security, and disaster recovery solutions for this project
- B. Consultant shall maintain the redundancy of the software and its associated hardware along with all necessary data during the contract period with at least one redundancy.
- C. The hardware shall be suitable for data storage etc. for contract duration with one redundancy.
- D. The data shall be provided to the MPPMCL on Quarterly basis in a usable/compatible format and the data in no way shall be provided in encrypted format.
- E. The complete data shall also be provided to the MPPMCL at the end of the Contract period in a usable/compatible format and the data in no way shall be provided in encrypted format.

1.26. Coordination with RLDCS, SLDC, DCC

Consultant shall coordinate with respective RLDCs/SLDC/DCC for taking the consents/approvals/clearances for successfully implementing this project. However, MPPMCL shall provide necessary authorization and also extend its facilitation to the Consultant for taking such consents approvals/clearance.

1.27. Data Security

Consultant shall at all times be responsible for the security of data under following circumstances (but not limited to):

- a) Change in Power Scenario due to blackouts (pertaining to load shedding), environmental conditions, unscheduled outages. etc.
- b) Disaster management

1.28. GOVERNING LAWS AND JURISDICTION

The Contract shall be governed by and interpreted in accordance with the Indian laws for the time being in force and the Jabalpur Courts alone shall have exclusive jurisdiction in all matters arising under the Contract, including labour laws, insurance of its employees/resources etc.

1.29. DISPUTE RESOLUTION



using between the parties in connection with any matter or thing
eration or construction thereof or any matter or thing in any way
In the event Agreement, including any question regarding its existence,
herein by or termination, the Parties shall first endeavour to reach an amicable
conne~~n~~mutual consultations and negotiations by the senior officials of the Parties.
“interruption, the dispute shall be referred to sole arbitrator be appointed with mutual
In case the parties. In the event the parties are unable to mutually agree on the sole
co~~n~~the manner specified above, the dispute shall be referred to Arbitration by each
arbitrator so appointed shall mutually appoint the presiding arbitrator The Arbitration
ings shall be governed by the Arbitration and Conciliation Act. 1996 with head quarter
tration at Jabalpur. The language of Arbitration shall be English.

3. Relation between the Parties

Nothing contained herein shall be construed as establishing a relation of master and servant or
of agent and principal as between the Company and the Consultants. The Consultants, subject
to this Contract, have complete charge of personnel performing the Services and shall be fully
responsible for the Services performed by them or on their behalf hereunder.

1.31. Law Governing Agreement

This agreement, its meaning and interpretation, and the relation between the Parties shall be
governed by the Applicable law.

1.32. Language

This agreement has been executed in the English language, which shall be the binding and
controlling language for all matters relating to the meaning or interpretation of this Contract.

1.33. Headings

The headings shall not limit, alter or affect the meaning of this Contract.

1.34. Notices

- a. Any notice, request or consent required or permitted to be give or made
pursuant to this contract shall be in writing. Any such notice, request or
consent shall be deemed to have been given or made when delivered in
person to an authorized representative of the party to whom the
communication is addressed, or when sent by registered mail or e-mail to
such Party at the following address:

For the Company: _____

Attention: _____
E-mail: _____

For the Consultants: _____ Attention: _____ Cable Address:
E-mail : _____

b. Notice will be deemed to be effective as follows:

- i. In the case of personal delivery or registered mail, on delivery, delivered fax or through electronic mail on declared e-mail address;
- ii. In the case of E-mail, twenty four (24) hours following time of mail sent;
- c. A Party may change its address for notice hereunder by giving the other Party notice of such change pursuant to this Clause.

1.35. Location

The Services shall performed at Jabalpur in the State of Madhya Pradesh or at such location required/approved by Company.

1.36. Authority of Member in Charge of consultant

The Members hereby authorize _____ to act on their behalf in exercising the entire Consultants' rights and obligations towards the Company under this Contract, including without limitation the receiving of instructions and payments from the company.

1.37. Authorized Representatives

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:

- a) On behalf of the MP PMCL Company by _____ or his designated representative;
- b) On behalf of the Consultants by _____ or his designated representative.

1.38. Taxes and Duties

The Consultant and the personnel shall pay the taxes, duties; fees, levies and other impositions levied under the existing, amended or enacted laws during life of this contract and the Company shall perform such duties in regard to the deduction of such tax as may be lawfully imposed.

1.39. Commencement, Completion, Modification and Termination of Contract

A. Commencement of services

The consultants shall begin carrying out the services immediately after Effective date.

B. Expiration of Contract

Unless terminated earlier, this Contract shall expire when, pursuant to the provisions hereof, the Services have been completed, including handing over the document/models/software tools created in working condition and the payments remuneration have been made.

C. Entire Agreement

This Contract contains all covenants, stipulations and provisions agreed by the parties. No agent or representative of either Party has authority to make, and the parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

1.40. Force Majeure

D. Definition

For the purpose of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party, and which makes at Party's performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible in the circumstances, and includes, but is not limited to war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial action (except where such strikes, lockouts or other industrial action are within the power of the party invoking force Majeure to prevent), confiscation or any other action by government agencies.

E. Force Majeure shall not include:

Any event which is caused by the negligence or intentional action of a party its personnel, nor

Any event which a diligent Party could reasonably have been expected to both (i) take into account at the time of the conclusion of this Contract, and

(ii) avoid or overcome in the carrying out of its obligations hereunder.

1.41. No Breach of Contract

The failure of a Party to fulfil any of its obligations hereunder shall not be considered to be a breach of or default under, this Contract in so far as such inability arises from an event of Force Majeure, provided that the party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract.

1.42. Measures to be taken

A Party affected by an event of Force Majeure shall take all reasonable measures to remove such Party's inability to fulfil its obligations hereunder with a minimum of delay.

A Party affected by an event of Force Majeure shall notify the Party such event as soon as possible, and in any case not later than seven (7) 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.

The parties shall take all reasonable measures to minimize the consequences of any event of Force Majeure.

F. Extension of Time

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.

G. Consultation

Not later than seven (7) days after the Consultants, 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.

H. Suspension



The company may, by written notice of suspension to the consultants, suspend all payments to the consultants hereunder if the consultants fail to perform any of their obligations under this contract, including the carrying out of services, provided that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the Consultants to remedy such failure within a period not exceeding ten (10) days after receipt by the Consultants of such notice of suspension and shall forfeit contract performance guarantee.

1.43. Termination of Contract by the Company

In case of any deficiency or delay in the assignment the company shall issue seven (7) days' notice to the consultant to improve upon. The consultant shall respond to the notice and show improvement in the service.

In case, consultant not improving the service to the desired level even after expiry of 7 days notices, the company shall issue fifteen (15) days' notice for termination of contract. Even if, consultant not responding or not improving the services to desired level the Company shall terminate the contract after expiry to termination notice.

Under such condition the Contract Performance Guarantee available with the company shall be liable for forfeiture.

1.44. Obligations of the Consultants

I. General

i. Standard of Performance

The Consultants shall perform the Services and carry out their obligation 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, and technical and engineering practices, and employ appropriate advance technology and safe and effective equipment, machinery, materials and methods. The Consultants shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the Company.

ii. Law Governing Services

The Consultants shall perform the Services in accordance with the Applicable Law including labour laws, insurance of its employees/resources etc. and shall take all practicable steps to ensure that the Personnel of Consultants, comply with the Applicable Law.

J. Special Conditions

iii. Consultants Not to Benefit from Commissions Discounts etc.

The payment of the consultant shall constitute the Consultant's only payment in connection with this Contract or the Services, and the Consultant shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Consultant shall use their best efforts to ensure that the Personnel, shall not receive any such additional



payment.

iv. Confidentiality

The Consultants, and their personnel shall not disclose any proprietary or confidential information and any other information related to the Project or MPPMCL, the Services, this Contract or the Company's business or operations without the prior written consent of the Company.

K. Indemnification of the Company by the Consultants.

The Consultants shall keep the Company, both during and after the term of this Contract, fully and effectively indemnified against all losses, damage, injuries, deaths, expenses, actions, proceedings, demands, costs and claims, including, but not limited to, legal fees and expenses, suffered by the Company or any Third party, where such loss, damage, injury or death is the result of wrongful action, negligence or breach of Contract of the Consultants, or their Personnel including the use or violation of any copyright work or literary property or patented invention, article or appliance.

L. Consultants' Actions Requiring Company's Prior Approval

The Consultants shall obtain the Company's prior approval in writing before substituting Personnel to carry out any part of the Services. Any substituted personnel, if permitted by company, should have equivalent or higher qualification and experience.

M. Reporting Obligations

The Consultants shall submit to the Company the reports and documents specified in Bid Documents hereto, in the form, in the numbers and within the time periods set forth, including any supporting data required by the Company.

Document prepared by the Consultants to be the Property of the Company All reports and other document prepared by the consultants in performing the Services shall become and remain the property of the Company.

1.45. Consultant's Personnel

N. Removal and/or Replacement of Personnel

Except as the Company may otherwise agree no changes shall be made in the Personnel. If, for any reason beyond the reasonable control of the Consultants, it becomes necessary to replace any of the Personnel, the Consultants shall forthwith provide as a replacement person of equivalent or better qualification and relevant experience.

If any Company finds that any of the Personnel has committed serious misconduct or has been charged with having committed a criminal action, or has reasonable cause to be dissatisfied with the Performance of any of the Personnel, then the Consultants shall at the Company's written request specifying the grounds therefore, forthwith provide as a replacement a person with qualifications and experience acceptable to the Company.

1.46. OBLIGATIONS OF THE COMPANY

O. Payment



In consideration of the Services performed by the Consultants under this Contract, the Company shall make to the Consultants such payments within 45 days of production of bills in triplicate and other relevant document (if any) and in such manner as is provided in this Contract.

P. Changes in Applicable Law Related to Taxes and Duties

If, after the date of this Contract, there is any change in the Applicable Law respect to taxes and duties which increases or decreases the cost incurred by the Consultant in performing the Services, then the remuneration to the Consultant under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustment shall be made to the amounts, as the case may be.

1.47. Contract Performance Guarantee (CPG)

In the event of an award, the consultant shall be required to deposit an amount (in Indian Rupees) equivalent to 10% of the contract value towards the contract performance guarantee in the form of Demand Draft/Banker's Cheque from nationalized Bank in favour of MP Power Management Company Ltd. Payable at Jabalpur or in the form of the Bank Guarantee with 6 month more than the contract period validity in the prescribed format from any of the scheduled banks as performance guarantee.

1.48. Fairness and Good Faith

Q. Good Faith

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 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 Clause-15.13 hereof.

R. Conduct of personnel deployed by consultant

The consultant shall ensure the good conduct, office decorum and orderly behavior of its personnel deployed during the engagement. The personnel shall have to follow the official culture/practices of MPPMCL while they are working for this engagement.

1.49. Settlement of Disputes Amicable Settlement

The Parties shall use their best efforts to settle amicable all disputes arising out of or in connection with this Contract or the interpretation thereof. Any dispute between the Parties as to matters arising pursuant to this Contract which cannot be settled amicable shall be resolved as per the Indian Arbitration Act, 1996 as amended from time to time.

In Witness whereof, the Parties hereto have caused this Contract to be signed at their respective

names as of the day and year first above written.

On Behalf of Consultancy Firm

Witness

1. Name:

Signature:

Address:

2. Name:

Signature:

Address:

Signature of consultant Address

On Behalf of Company

Witness

1. Name:

Signature:

Address:

2. Name:

Signature:

Address:



Signature Address

Annexure VII: Special Conditions of Contract

The following Special conditions of contract (SCC) shall supplement the General Conditions of Contract (GCC). Whenever there is conflict the provisions herein prevail over those in the GCC.

1.1	The purchaser country is Indian
1.2	The COMPANY is: Madhya Pradesh Power Management Company Limited, Jabalpur-482008(M.P)
1.3	The language shall be: English
1.4	The Individuals or firms shall be severally liable
1.5	Sub-contractors are not allowed
1.6	For Notice, the address of the company shall be: Attention: Chief General Manager – PM Address: M.P. Power Management Company Limited, First Floor Block No. 15, Shakti Bhawan, Rampur, Jabalpur-482008(M.P) Telephone No.: 0761-2702488 e-mail :: praveen.jain@mppmcl.com
1.7	The governing law shall be: Laws application in jurisdiction of competent court in Jabalpur
1.8	If the parties fail to resolve any dispute or difference by mutual consultation within 28 days from the commencement of such dispute and difference, either party may require that the dispute be referred for resolution the formal mechanisms. The mechanism for resolution of disputes for Indian bidders shall in accordance with the laws of India. (India Arbitration and Conciliation Act, 1996) b. The place for arbitration shall be Jabalpur, which ever may be preferred by appointed panel of arbitrators both for Indian bidders.
1.9	The currencies for payment shall be: as per the currency of price bid. i.e. Indian Rupee.



Annexure – VIII: Bank Guarantee Format

Bank Guarantee Format

Bank Guarantees Format for Contract Performance (To be executed on Non judicial stamp paper worth 0.25% of contract performance guarantee amount (as per stamp duty as applicable in the state of MP) subject to maximum ₹. 25,000/- purchased in the name of issuing Bank)

Ref.

Bank Guarantee No.----- Date: -

To

The Chief General Manager (PM),
MP Power Management Co Ltd, , Shakti Bhawan, Block No. 15, 1st Floor,
Rampur, Jabalpur (MP), Pin 482 008.

Dear Sirs,

In consideration of the MP Power Management Company Limited (hereinafter referred to as the 'Owner' which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s.....with its Registered/Head office at (hereinafter referred to as the 'Consultant' which expressed in shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of Owner's Letter of Award No..... dated..... and the same having been unequivocally accepted & acknowledged by the Consultant, resulting into a Contract, bearing No..... dated valued at for ₹.....(scope of Contract) and the Consultant having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to ten (10) percent of the said value of the Contract to the Owner.

At the request of the Consultant, we..... (name of the Bank) having its head office at (herein after referred to as the 'Bank'. which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors, and assigns) do hereby guarantee and irrevocably undertake to pay you any sum or sums not exceeding in total an amount of (name of the currency and amount in figures) ₹ (amount in words) such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Consultant is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

Any such demand made by the Owner on the Bank shall be conclusive and binding notwithstanding any difference between the Owner and the Consultant or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Owner and further agrees that the guarantee herein contained shall continue to be enforceable till the Owner discharges this

guarantee.

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

In the event of any claim under this guarantee, payment shall be immediately effected **On Same Day** to your Bank through RTGS in the following account;

Account Name	RAO (CAU) MP POWER MANAGEMENT CO LTD JABALPUR
Bank Name	State Bank of India, Nayagaon Branch, Rampur, Jabalpur.
Account No.	10238006940
IFSC Code	SBIN0007934
Branch Code	0007934
MICR Code	482002017

In case of failure of RTGS or change in above details, the payment shall be made through Demand Draft immediately. Any change in the Bank account shall be informed to us.

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

Dated this day of2024 IN WITNESS WHEREOF The Bank has executed this deed in the presence of:

(Authorised Signatory of the Bank)

(Signature)

(Name)

(Designation with Bank stamp)

ANNEXURE – IX: Guidelines for E-Procurement System

Guidelines to Bidders for submitting bids in E-Procurement System

The bidders are required to submit soft copies of their bids electronically on the MP TENDER Portal (<https://mptenders.gov.in>), using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the MP TENDER Portal, prepare their bids in accordance with the requirements and submitting their bids online on the MP TENDER Portal (<https://mptenders.gov.in>).

More information useful for submitting online bids on the MP TENDER Portal may be obtained at: <https://mptenders.gov.in/nicgep/app>.

(A) REGISTRATION

- 1) Bidders are required to enroll on the E-procurement module of the MP TENDER Public Procurement Portal (URL: <https://mptenders.gov.in/nicgep/app>) by clicking on the link “**Online bidder Enrolment**” on the MP TENDER Portal which is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the MP TENDER Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify/nCode/eMudhra etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID/password and the password of the DSC/e-Token.

(B) SEARCHING FOR TENDER DOCUMENTS

- 1) There are various search options built in the MP TENDER Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the MP TENDER Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents/tender schedules. These tenders can be moved to the respective ‘My Tenders’ folder. This would enable the MP TENDER Portal to intimate the bidders through SMS/e-mail in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification/help from the Helpdesk.

(C) PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the tender document before



submitting their bids.

Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

- 2) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document/schedule and generally, they can be in PDF/XLS/RAR/DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 3) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. *Bidders can use "My Space" or "Other Important Documents" area available to them to upload such documents.* These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

(D) SUBMISSION OF BIDS

- 1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 3) Bidder has to select online Tender fee payment and pay Tender fee online. **PAYMENT OF TENDER FEE IS MANDATORY IN ANY CASE.**
- 4) Bidder should prepare the EMD as per the instructions specified in the tender document.
- 5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected)cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
- 6) The server time (which is displayed on the bidder's dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- 7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid opener's public keys. Overall,



the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

- 8) Upon the successful and timely submission of bids (i.e. after Clicking “Freeze Bid Submission” in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 9) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

(E) ASSISTANCE TO BIDDERS

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender. This should be as per timelines (about “seek clarification” start & end dates) given in Tender only.
- 2) Any queries relating to the process of online bid submission or queries relating to MP TENDER Portal in general may be directed to the 24x7 MP TENDER Portal Helpdesk.

A handwritten signature in black ink, appearing to be a stylized 'E' or similar character, followed by a horizontal line.

