***1. Introduction:***

The Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited (MPMKVVCL), a government-owned electricity distribution company, has issued an Expression of Interest (EOI) for the development of business analytics using Artificial Intelligence/Machine Learning (AI/ML).

***2. Objectives:***

**- Primary Objective**: Improve operational efficiency, reduce government dependency, and ensure quality service with fair tariffs.

**- AI/ML Focus Areas**:

- Consumer Indexing & Energy Accounting

- AT&C (Aggregate Technical & Commercial) Loss Reduction

- Consumer Experience Enhancement

- Demand Forecasting & Power Procurement

***3. Scope of Work:***

**The project involves**:

- Validation of Data Integrity: Ensuring accurate and consistent data capture.

- Use-Case Identification: Prioritizing AI/ML applications (e.g., theft detection, network management).

- Data Processing & Analytics: Implementing algorithms for anomaly detection, pattern recognition, and forecasting.

- Pilot Implementation: Testing in select urban and rural divisions.

- Integrated MIS Reporting: Consolidating data for actionable insights.

***4. The key Areas & Their AI/ML Solutions***:

**1 Area-I: Consumer Indexing & Energy Accounting**:

- Problems:

- Irregular payments, high-loss areas, low billing/collection efficiency.

- AI Solutions:

- AI-powered billing systems to detect fraud, analyze payment patterns, and optimize revenue collection.

**2. Area-II: AT&C Loss Reduction:**

**- Problems:**

- Electricity theft, manual inspection inefficiencies.

**- AI Solutions:**

- AI algorithms to detect anomalies (e.g., meter tampering, abnormal consumption).

- Severity assessment of combined meter events (e.g., voltage unbalance + low consumption).

**3. Area-III: Consumer Experience Enhancement:**

**- Problems:**

- Slow complaint resolution, incorrect complaint tagging, manual processes.

**- AI Solutions:**

- AI chatbots for 24/7 customer support.

- Automated complaint classification and escalation.

**4. Area-IV: Demand Forecasting & Power Procurement:**

**- Problems:**

- Inaccurate load forecasting due to seasonal variations and complex consumption patterns.

**- AI Solutions:**

- AI-based day-ahead load forecasting to optimize power procurement and reduce costs.

**5. Data Availability for AI Implementation:**

**MPMKVVCL has access to:**

- **MDMS (Meter Data Management System)**: for smart meter data.

- **SCADA & RT-DAS**: for real-time grid monitoring.

- **Power BI Dashboards**: 100+ reports on revenue, outages, etc.

**- Smart Meter Data**: for predictive analytics.

**6. Expected Outcomes:**

**- Reduced AT&C losses**: through theft detection.

**- Improved billing efficiency**: via AI-driven analytics.

**- Enhanced customer satisfaction**: with automated support.

**- Optimized power procurement**: using demand forecasting.