

BSES YAMUNA POWER LIMITED (BYPL)

Contracts & Materials Department

EXPRESSION OF INTEREST (EOI)

FOR

Selection of Advanced Distribution Management System (ADMS) Technology

for Next-Generation Smart Grid Operations and Network Modernization
in BYPL, Delhi

EOI Reference No.	CMC/BY/26-27/RB/SkS/SV/32
RFx Number	2000001193
Date of Issue	23 September 2026
EOI Pre-bid Meeting	01 October 2026, 11:30 Hrs (Physical Meeting at BYPL SCADA Centre, Shankar Road, New Delhi, Online meeting link: https://teams.microsoft.com/j/meetup-join)
Deadline for Pre-bid Queries Submission	09 October 2026, 18:00 Hrs
Last Date & Time for Submission of Complete Bid	22 October 2026, 15:00 Hrs (Online at https://srmpportal.bsesdelhi.com/irj/portal)
Submission Mode	BSES Delhi e-Procurement Portal (SRM); originals only if expressly requested by BYPL

**BSES YAMUNA POWER LIMITED (BYPL)
CONTRACTS & MATERIALS DEPT.,
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Expression of Interest (EOI) - SCADA/ADMS/OMS System with DERMS modelling capabilities

1. OBJECTIVE

BSES Yamuna Power Ltd. (hereinafter referred to as "BYPL") invites Expressions of Interest (EOI) from experienced, technically and financially sound organizations, including Original Equipment Manufacturers (OEMs), System Integrators (SIs), and eligible consortiums, for the implementation of an Advanced Distribution Management System (ADMS) on a turnkey basis through the BSES e-Procurement Portal. This EOI is intended solely for technology assessment only, and no price or financial offer is required to be submitted at this stage.

The objective of this EOI is to identify competent technology partners capable of designing, engineering, supplying, integrating, testing, commissioning, and supporting a comprehensive ADMS solution that aligns with BYPL's grid modernization strategy and future Smart Grid initiatives.

Through this EOI, BYPL intends to:

1. Assess the technical capabilities, domain expertise, and implementation experience of prospective interested parties in delivering utility-scale ADMS solutions.
2. Identify suitable technology solutions and implementation approaches for integrating SCADA, Distribution Management System (DMS), Outage Management System (OMS), and future applications such as Distributed Energy Resource Management System (DERMS).
3. Evaluate vendors' capability to integrate the proposed ADMS with BYPL existing Operational Technology (OT) and Information Technology (IT) systems, including SCADA, GIS, SAP, CIS/CRM, AMI/MDM, and other enterprise applications.
4. Obtain information on proven solution architectures, implementation methodologies, cybersecurity practices, scalability, interoperability, and support capabilities.
5. Gather industry best practices, innovative technologies, indicative implementation schedules, and budgetary inputs to assist in finalizing the technical specifications and procurement strategy.

The information received through this EOI will be used solely for technology evaluation, solution benchmarking, and preparation of the detailed RFP. Issuance of this EOI does not constitute a commitment by BYPL to award any contract or to proceed with procurement. BYPL reserves the right to modify, suspend, or cancel the EOI process, in whole or in part, at any stage without assigning any reason and without incurring any liability to the participating organizations.

2. INTRODUCTION

2.1 BSES Overview

BSES is one of India's largest private electricity distribution utilities, responsible for supplying electricity to the National Capital Territory (NCT) of Delhi through two distribution companies (DISCOMs).

BSES Rajdhani Power Limited (BRPL)

- Covers South and West Delhi
- Serves approximately **3.2 million consumers**
- Distribution area of around **750 sq. km**

BSES Yamuna Power Limited (BYPL)

- Covers East and Central Delhi
- Serves approximately **2 million consumers**

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- Distribution area of around **200 sq. km**

BYPL is progressively transforming its conventional distribution network into a **smart, automated distribution system** by implementing:

- Feeder automation
- RMU motorization
- Fault Passage Indicators (FPIs)
- FLISR (Fault Location, Isolation and Service Restoration)
- Distribution Network Modelling
- Volt/VAR Optimization (VVO)
- Network Reconfiguration
- Predictive Asset Management
- Advanced Analytics

Since privatization:

- AT&C losses have reduced dramatically from **over 50%** to **single-digit levels**.
- Power supply reliability has improved significantly.
- Customer services have been digitized through online portals, mobile apps, and self-service options.
- BYPL has become one of India's leading smart distribution utilities

2.2 BYPL Overview

BSES Yamuna Power Limited (BYPL) is a joint venture between the Government of Delhi and Reliance Infrastructure Limited, which holds a 51% majority stake in the venture.

The company's operations span an area of 200 km² (77 sq mi) with a recorded peak load of around 1,927 MW.

- **Company Name:** BSES Yamuna Power Limited (BYPL)
- **Business:** Electricity Distribution Utility (DISCOM)
- **Ownership:**
 - **51%** – Reliance Infrastructure Limited
 - **49%** – Government of NCT of Delhi

BYPL supplies electricity across three operational circles:

- I. Central Circle
- II. North-East Circle
- III. South-East Circle

These circles comprise **14 distribution divisions**, including:

1. Chandni Chowk
2. Darya Ganj
3. Dilshad Garden
4. Jhilmil
5. Karawal Nagar
6. Krishna Nagar
7. Laxmi Nagar

8. Mayur Vihar Phase I & II
9. Nand Nagri
10. Pahar Ganj
11. Patel Nagar
12. Shankar Road
13. Vasundhara Enclave
14. Yamuna Vihar

3. ADMS VISION & STRATEGIC OBJECTIVES

3.1 ADMS Vision

To build a digitally enabled, reliable, resilient, efficient, and customer-centric electricity distribution network through automation, intelligent grid management, and adoption of Smart Grid technologies.

3.2 Strategic Objectives

These eight pillars provide a clear strategic framework for an ADMS roadmap and align well with BYPL's digital transformation and grid modernization initiatives.

Strategic Objective	Detail
Modernize Grid Operations	Centralized monitoring & control, digital, and automated operation of the distribution network
Improve Network Reliability	Reduce SAIDI, SAIFI, and Outage restoration through faster fault detection, isolation, and restoration (FLISR)
Enhance Operational Efficiency	Reduce manual operations, optimize switching, improve field crew utilization, and streamline Permit-to-Work (PTW) processes
Optimize Network Performance	Improve voltage profile, reduce technical losses, perform State Estimation, Distribution Power Flow, Volt/VAR Optimization (VVO), and load balancing
Feeder Load Forecasting & Planning	Forecast feeder loading, identify future capacity constraints, support network planning, optimize asset utilization, and defer capital investments through data-driven planning
Build a Future-Ready Distribution System	Integrate Distributed Energy Resources (DER), EV charging infrastructure, Battery Energy Storage Systems (BESS), and future smart grid technologies
Improve Customer Experience	Fewer outages, quicker restoration, and improved service reliability
Strengthen Operational Decision Support	Provide real-time situational awareness, predictive analytics, alarm management, and operator decision support

4. EXISTING SCADA SYSTEM ARCHITECTURE

BYPL existing SCADA system is Hitachi NM 10.3. MCC will be the main control centre for BYPL. The Operators of BYPL will access the MCC servers for system operations. The RTUs and FRTUs of BYPL will communicate with the respective MCC & BCC front-end servers.

The data will be continuously synchronized between MCC and BCC through a 100 Mbps redundant connection provided by BYPL.

The existing SCADA system architecture consists of the following logical network segments and major components:

1. SCADA LAN

The **SCADA LAN** hosts the core SCADA infrastructure, including:

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- NAS Box
- DE Server
- Antivirus Server
- Backup Server
- SCADA Servers
- Historian Servers
- Access Servers
- Domain Controller Servers
- GPS Unit / Time Synchronization
- Operator Workstation

2. PCU LAN

The **PCU LAN** consists of:

- PCU LAN Switch
- PCU server

3. DMZ LAN

The **DMZ LAN** provides an intermediate/controlled network zone between the SCADA environment and external/other network interfaces.

The DMZ LAN consists of:

- DMZ LAN Switch
- Engineering Workstations
- Interface Server
- Secure ICCP Servers
- Thin Client Server

5. HIGH LEVEL SCOPE OF WORK

5.1 Introduction

The scope of this Expression of Interest (EOI) encompasses the existing system assessment, **Design, Engineering, Supply, Installation, Configuration, Integration, Testing, Commissioning, Training, Documentation, Warranty, and Post-Implementation Support** for a comprehensive **Advanced Distribution Management System (ADMS)** on a turnkey basis.

The proposed ADMS solution shall provide an integrated platform comprising **Supervisory Control and Data Acquisition (SCADA), Advanced Distribution Management System (ADMS), and Outage Management System (OMS)**, DERMS modelling capabilities, capability to integrate applications such as **Distributed Energy Resource Management System (DERMS), Advanced Distribution Applications (ADA), Volt/VAR Optimization (VVO), Fault Location, Isolation and Service Restoration (FLISR), Distribution Network Analysis (DNA), Switching order Management, work order management , crew management and other Smart Grid applications coming in the future** for the parallel operation.

The successful bidder, as identified through the subsequent procurement process, shall be responsible for carrying out all activities necessary for the successful implementation of the project, including but not limited to:

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- Detailed system study, site survey, and requirement analysis.
- Detailed engineering and preparation of system architecture, database, communication, cybersecurity, and integration designs.
- Supply of all required hardware, software, licenses, databases, operating systems, middleware, and associated components.
- Installation, configuration, customization, and commissioning of the complete ADMS solution.
- Integration with BYPL's existing operational and enterprise systems, including SCADA, GIS, OMS, SAP, CIS/CRM, AMI/MDM, Historian, Communication Systems, and other third-party applications using open standards and industry-standard protocols.
- Development of the complete network model, database configuration, graphics, displays, reports, alarms, events, and operational workflows.
- Implementation of advanced applications including network topology processing, load flow, contingency analysis, FLISR, switching management, outage management, restoration management, and other ADMS functions specified in the RFP.
- Integration with field devices including RTUs, FRTUs, RMUs, IEDs, protection relays, and communication equipment through standard protocols such as IEC 60870-5-104, IEC 61850, Secure ICCP/TASE.2, CIM, DNP3 (where applicable), REST APIs, and other approved interfaces.
- Supply and implementation of High Availability (HA), Disaster Recovery (DR), backup, cybersecurity, and system monitoring solutions.
- Factory Acceptance Testing (FAT), Site Acceptance Testing (SAT), Integrated System Testing (IST), performance testing, reliability testing, and final commissioning.
- Data migration, validation, synchronization, and cutover from the existing operational systems with minimum disruption to ongoing operations.
- Preparation of all engineering documents, design documents, user manuals, operating procedures, maintenance manuals, as-built drawings, configuration documents, and training materials.
- Training of BYPL personnel, including system administrators, operators, maintenance engineers, IT administrators, and field personnel.
- Provision of warranty, Annual Maintenance Services (AMS/AMC), technical support, software upgrades, security patches, and performance optimization during the contract period.

The project shall be executed on a **turnkey basis**, and the successful interested parties shall assume complete responsibility for delivering a fully integrated, tested, operational, secure, and reliable ADMS solution that meets the functional, technical, performance, interoperability, cybersecurity, and availability requirements specified by BYPL.

The interested parties shall ensure that the proposed solution is scalable, modular, interoperable, standards-based, and capable of supporting future expansion, including increased network automation, renewable energy integration, distributed energy resources, electric vehicle infrastructure, battery energy storage systems, and other Smart Grid initiatives.

5.2 ADMS parallel implementation & migration methodology

The proposed ADMS solution shall be implemented in parallel with the existing SCADA system without disrupting the ongoing EHV operation of the control centre or field devices. The existing SCADA system shall remain fully operational throughout the design, engineering, installation, integration, testing, and commissioning phases of the project.

The interested parties shall adopt a phased implementation and migration approach that enables the ADMS to be developed, configured, integrated, and validated alongside the existing SCADA environment. The implementation strategy shall ensure uninterrupted monitoring and control of the distribution network during all stages of the project.

The interested parties shall be responsible for:

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- Designing the ADMS architecture to coexist with the existing SCADA system during the implementation period.
- Integrating the ADMS with the SCADA to receive real-time operational data while maintaining normal SCADA operations.
- Performing database development, network modelling, application configuration, and system integration in a parallel environment.
- Conducting Factory Acceptance Testing (FAT), Site Acceptance Testing (SAT), Integrated System Testing (IST), and performance testing without affecting live system operations.
- Planning and executing a phased cutover to the ADMS after successful completion of all testing and acceptance activities.
- Ensuring that rollback procedures and contingency plans are available to restore the existing operational environment in the event of any unforeseen issues during migration.
- Minimizing planned outages and operational disruptions during commissioning and final cutover.

The interested parties shall submit a comprehensive **Migration and Cutover Plan** detailing the implementation phases, coexistence strategy, data synchronization approach, testing methodology, cutover activities, rollback procedures, risk mitigation measures, and the expected impact on existing operations.

The successful implementation shall ensure a smooth transition from the existing SCADA environment to the integrated ADMS platform with minimal operational risk, no loss of real-time data, and no degradation of system performance or network reliability.

5.3 Existing Field Infrastructure

- BYPL wan to leverage existing infrastructure & Maximize utilization of the existing SCADA, communication network, RTUs/FRTUs, RMUs, and field devices.
- Vendors should assess existing field infrastructure
 - RMU Automation
 - FRTU Deployment
 - RTU Availability
 - Feeder Automation
 - Communication Readiness
 - Metering Infrastructure
 - GIS Data Quality
 - Network Connectivity
- Existing field assets shall communicate with the ADMS through standard communication protocols to enable centralized real-time monitoring, supervisory control, data acquisition, and advanced distribution management applications.

5.4 Existing Field Infrastructure network addressing

- The existing IP addressing scheme of field devices shall be retained throughout the project. The proposed ADMS solution shall integrate with the existing communication infrastructure without requiring changes to the configured IP addresses of operational field equipment.
- The interested parties shall ensure that the proposed solution supports seamless integration with the existing field devices, including but not limited to:
 - Remote Terminal Units (RTUs)
 - Feeder Remote Terminal Units (FRTUs)
 - Intelligent Electronic Devices (IEDs)
 - Protection Relays
 - Communication Gateways
 - Other substation and field automation devices

5.5 Leverage existing SCADA system

- BYPL want to leverage existing system field devices & Maximize utilization of the SCADA system till the end of system life.
- BYPL currently operates an established Supervisory Control and Data Acquisition (SCADA) system that provides centralized monitoring and supervisory control of the distribution network.
- The existing SCADA system serves as the primary source of real-time operational data from Grid Substations, field Remote Terminal Units (RTUs), Feeder Remote Terminal Units (FRTUs), Ring Main Units (RMUs), Intelligent Electronic Devices (IEDs), and other connected field equipment.
- The existing SCADA infrastructure is deployed using a secure, multi-tier architecture designed to ensure high availability, reliability, and cybersecurity. The architecture is logically segregated into dedicated network zones to facilitate secure communication between operational technology (OT) and enterprise systems while minimizing cybersecurity risks.

The existing architecture comprises the following network segments:

- **SCADA LAN:** Hosts the core SCADA application servers, database servers, historian, application services, and other critical operational components responsible for real-time monitoring and control of the distribution network.
- **Front-End Processor (FEP) LAN:** Hosts the Front-End Processors (FEPs) that interface with remote field devices, including RTUs, FRTUs, IEDs, and communication gateways. This network facilitates data acquisition and control using standard communication protocols such as IEC 60870-5-104, IEC 61850, and other supported interfaces.
- **Operator LAN:** Provides connectivity for operator workstations, engineering workstations, large display systems, printers, and other control centre peripherals used for system operation, monitoring, engineering, and maintenance activities.
- **Demilitarized Zone (DMZ) LAN:** Acts as a secure intermediary network between the Operational Technology (OT) network and the Corporate IT network. The DMZ hosts integration servers, data exchange services, application gateways, Secure ICCP servers, API gateways, and other interfaces used for secure communication with external enterprise applications such as GIS, OMS, SAP, CIS, AMI/MDM, and third-party systems.

5.6 ADMS system architecture

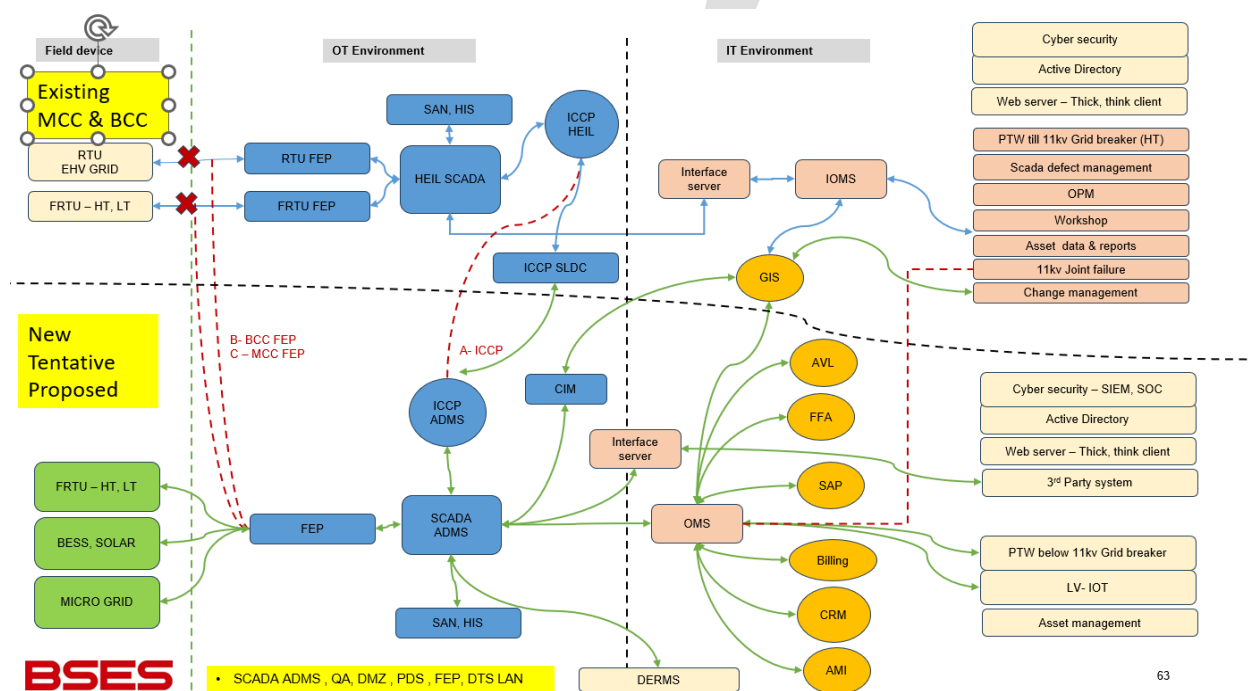
The proposed solution shall adhere to the following architectural principles:

1. **BYPL intends to retain its existing** field infrastructure till the end-of-life cycle, while implementing ADMS as the central operational platform for advanced monitoring, control, optimization, and future smart grid applications.
2. The **ADMS solution shall be scalable, modular, and future-ready**, enabling phased expansion without requiring major architectural changes.
3. The system architecture shall support **seamless integration** with the existing & future field infrastructure, including SCADA systems, RTUs, FRTUs, RMUs, IEDs, protection relays, smart meters, FPIs, and other intelligent field devices.
4. The architecture shall also support the **integration of future field devices**, substations, feeders, DERs, and enterprise systems without affecting ongoing operations or system performance.
5. **High Availability & Disaster Recovery (DR):** Ensure the architecture supports redundancy, failover, and high system availability while maintaining operational continuity.
6. **Real-Time Monitoring & Control:** Enable centralized monitoring, remote control, alarm management, and event processing for all integrated field assets.

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7. **Standards-Based Integration:** Support IEC 60870-5-104,103, IEC 61850, DNP3, Secure ICCP, CIM, OPC UA, SNMP, MODBUS TCP/IP, MODBUS RTU, REST APIs, and other industry-standard interfaces.
8. **Future Readiness:** Facilitate seamless integration of DERs, EV charging infrastructure, AMI, OMS, GIS, CRM/CIS and additional automation devices as the distribution network evolves.
9. **Cybersecure architecture** with network segmentation.
10. **Parallel coexistence** with the existing SCADA system.
11. **Open architecture** based on international standards.
12. **Modular, Interoperable and service-oriented architecture.**
13. **Log retention capability for 180 days**

The existing architecture & tentative proposed ADMS architecture comprises the following segments:



Module	Requirement
SCADA ADMS LAN	The architecture shall include, at a minimum, the following network LAN • SCADA ADMS LAN • FEP LAN • QA & PDS LAN • OPERATOR LAN • DMZ LAN • DISPATCHER TRAINING SIMULATOR LAN
Parallel Deployment and Data Acquisition Strategy	The proposed architecture shall support parallel deployment of the new SCADA/ADMS system alongside the existing SCADA infrastructure without impacting ongoing operations. Existing RTUs, FRTUs, IEDs, and other field devices shall continue to use their existing IP addresses and communication configurations. Where simultaneous data acquisition by the existing SCADA and the new SCADA/ADMS is required, the interested parties shall provide an appropriate solution, such as protocol gateways, communication splitters, redundant Front-

Module	Requirement
	End Processors (FEPs), or equivalent mechanisms, without requiring modifications to field device configurations. To facilitate parallel operation and phased migration, the interested parties shall propose a suitable data acquisition and migration strategy. The proposed solution may utilize one or a combination of the following approaches: • Secure & Non-Secure ICCP/TASE.2 Integration: Real-time operational data shall be exchanged between the existing SCADA system and the new SCADA/ADMS through secure ICCP/TASE.2 or an equivalent standard interface. • BCC Control Centre LAN Extension: Existing communication links of RTU FEP, FRTU FEP or LAN connections from the control centre (e.g., BCC communication network) may be extended to the new SCADA/ADMS Front-End Processor (FEP) to enable direct acquisition of field data, where technically feasible. • FRTU/FEP Migration: Communication links currently terminating at the existing SCADA FEP may be migrated or extended to the new SCADA/ADMS FEP as part of a planned migration strategy. & RTU data from the BCC RTU FEP • Dual Data Acquisition: Where supported by the communication infrastructure and field devices, both the existing SCADA system and the new SCADA/ADMS may acquire data simultaneously through redundant communication paths, protocol gateways, communication splitters, or equivalent mechanisms. • Alternative Architecture: The interested parties may propose any other technically sound architecture that achieves seamless parallel operation, phased migration, and uninterrupted utility operations.
Network modelling Scope	The scope of network modelling shall include, but not be limited to, the following electrical assets and network elements: • Extra High Voltage (EHV) Grid Network • 66 kV and 33 kV Networks • High Voltage (HT) 11kv Distribution Network • Distribution Transformer Network • Low Voltage (LT) Network • LTACB • Pole network • Service delivery point – Consumer • Smart Meter and AMI Mapping (where available) • DER modelling • BESS • Solar plants • The network model shall accurately represent: • Source-to-load connectivity. • Parent-child relationships. • Upstream and downstream connectivity. • Phase connectivity. • Normally Open Points (NOPs). • Normally Closed Points (NCPs). • Radial network topology. • Alternate supply paths. • Electrical islands. • Protection zones. • The interested parties shall create the operational network model using BYPL's GIS as the primary source of network asset and connectivity information. The solution shall support continuous synchronization of

Module	Requirement
	network changes between GIS and the ADMS operational model while maintaining electrical connectivity and model integrity.
LT Network modelling	The interested parties shall develop and maintain a comprehensive Low Voltage (LT) network model as part of the overall ADMS operational network model. The LT network shall be created and maintained as a separate logical layer within the Network Modelling and GIS environment while remaining electrically connected to the upstream Distribution Transformer (DT) and High Voltage (HT) network. This layered approach shall enable independent visualization, analysis, editing, and maintenance of the LT network without affecting the HT and EHV network models.
Consumer modelling	1. The interested parties shall establish and maintain end-to-end electrical connectivity from the Grid Substation to the individual consumer. Each consumer shall be mapped through the complete electrical hierarchy comprising Grid Substation → HT Feeder → RMU → Distribution Transformer (DT) → LT ACB/Pillar → Pole → Service Connection → Consumer. Consumers shall not be mapped directly to the Distribution Transformer unless the LT network has not yet been modelled. The solution shall support detailed consumer connectivity at the pole and service connection level to enable accurate outage prediction, consumer tracing, switching impact analysis, phase connectivity, load estimation, and advanced OMS and ADMS applications. 2. The solution shall also support phased implementation, allowing temporary DT-to-consumer mapping during the initial stages and seamless migration to detailed pole- and service-level connectivity as the LT network model is progressively developed. Stage 1 – Temporary DT-to-Consumer Mapping Initially, if BYPL may only know which Distribution Transformer (DT) supplies each consumer. In this phase: • Consumers are directly mapped to the DT. • The system does not know the exact LT feeder, pole, or service line supplying each consumer. • This allows functions like: ○ Outage prediction ○ Customer impact analysis ○ DT loading ○ Basic OMS Stage 2 – Detailed LT Network Model As GIS data is improved, the LT network is progressively added. Now the ADMS knows: • LT feeders • Poles • Service connections • Exact consumer connectivity This enables: • Precise outage prediction When the detailed LT model becomes available:

Module	Requirement
	- Existing DT-to-consumer mappings should remain valid until replaced. - There should be no need to recreate the entire network model. - The ADMS should automatically transition from coarse connectivity (DT → Consumer) to detailed connectivity (DT → LT Feeder → Pole → Service → Consumer).
Existing RTU, RMU Sizing	- Existing RTU database sizing RTU Node (Existing) – 71 - Indications (DI/DO) Points per node: 1200 - Measurand (Analog) Points Per node: 1800 - Total Count of Data Points: $71 \times (1200 + 1800) = \mathbf{213000}$ - Existing FRTU/FPI/PSS/CSS database sizing FRTU/FPI/PSS/CSS Node (Existing) – 700 - Indications (DI/DO) Points per node: 117 - Measurand (Analog) Points Per node: 4 - Total Count of Data Points: $700 \times (121) = \mathbf{84700}$ Existing Licenced points = $213000 + 84700 = 2,97700$
Expected Growth in next 10 years – To be considered for the System sizing	- Future RTU database sizing - RTU Node (Future) – 30 - Indications (DI/DO) Points per node: 1200 - Measurand (Analog) Points Per node: 1800 - Total Count of Data Points: $30 \times (1200 + 1800) = \mathbf{90000}$ - Future FRTU/FPI/PSS/CSS database sizing - FRTU Node (Future) – 1500 - Indications (DI/DO) Points per node: 117 - Measurand (Analog) Points Per node: 4 - Total Count of Data Points: $1500 \times (121) = \mathbf{181500}$ - Future Communicable FPI - FPI Node (Future) – 3744 - Indications (DI/DO) Points per node: 3 - Total Count of Data Points: $3744 \times (3) = \mathbf{11232}$ - Future LV Automation - LV Node (Future) – 104 - Indications (DI/DO) Points per node: 144 - Total Count of Data Points: $104 \times (144) = \mathbf{14976}$ Future Licenced points = $90000 + 181500 + 11232 + 14976 = 2,97708$ - EV charging points to be enabled by FY33 – 4128 in number - BESS Deployment by FY35 - 420 MWh - Rooftop solar to be integrated by FY35 - 133 MWp - Smart Meter Rollout – 7 Lakh in number Note: Within 7 Lakh point system, Node support can be unlimited
Total System Sizing	Existing licenced points + Future Licenced points $297700 + 297708 = \mathbf{5,95408} \times 1.2 = \mathbf{7,14489}$

5.7 SCADA Module

The proposed ADMS solution shall include a fully integrated Supervisory Control and Data Acquisition (SCADA) system to provide secure, reliable, and real-time monitoring and control of BYPL's electricity distribution network. The SCADA system shall support continuous operation, high availability, scalability, and seamless integration with existing and future utility applications.

The SCADA platform shall be modular and scalable to support future expansion of the distribution network, additional substations, feeders, field devices, communication interfaces, and advanced Smart Grid applications without requiring major architectural changes.

The minimum SCADA functionalities shall include, but not be limited to, the following:

1. Real-Time Data Acquisition

- Acquire real-time data from Existing RTUs, FRTUs, IEDs, protection relays, energy meters, and other intelligent field devices.
- Support periodic, spontaneous, event-driven, and exception-based data acquisition.
- Time synchronization of all acquired data using a common time source.

2. Supervisory Monitoring

- Real-time monitoring of substations, feeders, RMUs, distribution transformers, and field equipment.
- Display equipment status, analog measurements, alarms, events, and communication health.
- Support customizable single-line diagrams, geographic displays, dashboards, and mimic screens.

3. Supervisory Control

- Remote operation of circuit breakers, RMUs, isolators, switches, capacitor banks, reactors, and other controllable field devices.
- Support Select-Before-Operate (SBO), Direct Operate, and configurable interlocks.
- Confirmation and audit of all control operations.

4. Alarm and Event Management

- Real-time alarm generation and prioritization.
- Alarm acknowledgement, shelving, suppression, filtering, and escalation.
- Sequence of Events (SOE) recording with millisecond time resolution.
- Operator notifications through configurable alarm views.

5. Data Processing

- Validation of incoming telemetry.
- Analog scaling and limit checking.
- Status processing and quality indication.
- Derived calculations and user-defined expressions.

6. Network Visualization

- Dynamic single-line diagrams with real-time equipment status.
- Geographic network visualization integrated with GIS.
- Colour coding based on equipment status, voltage levels, and alarms.
- Operator-configurable displays and navigation.

7. Historical Data Management

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- Collection and storage of historical analog and status data.
- Historical trends, reports, and event retrieval.
- Long-term historian integration for operational analysis and reporting.

8. Reporting

- Standard operational reports.
- Alarm and event reports.
- Communication performance reports.
- Equipment operation statistics.
- User activity and audit reports

9. Cybersecurity

- Role-based user authentication and authorization.
- Secure communication channels.
- Comprehensive audit logging of operator and system activities.
- Compliance with applicable cybersecurity standards and utility security policies.

10. System Integration

The SCADA system shall support seamless integration with:

- Outage Management System (OMS)
- Advanced Distribution Management System (ADMS) applications
- Geographic Information System (GIS)
- Enterprise Resource Planning (SAP)
- Customer Information System (CIS)
- Advanced Metering Infrastructure (AMI)
- Meter Data Management (MDM)
- Distributed Energy Resource Management System (DERMS)
- Third-party applications through open APIs and industry-standard interfaces.

11. User Management

User management of

- SCADA user
- ADMS User
- OMS user
- Testing User
- Modelling
- Administrator
- Viewing

12. Display the live status of FRTU/FPI operable and inoperable count

The SCADA/ADMS shall continuously monitor the operational health and communication status of all **Feeder Remote Terminal Units (FRTUs)**, **Fault Passage Indicators (FPIs)**, and **Remote Terminal Units (RTUs)** deployed across the distribution network.

The system shall provide real-time visibility of the availability and operability of these field devices through configurable dashboards, reports, and graphical display.

Display the live count of:

- Total FRTUs, FPIs, and RTUs configured in the system.
- Operable (Healthy/Online/offline) devices.

Provide summary and drill-down views at multiple organizational levels, including:

- BYPL
- Circle
- Division
- Grid Substation
- Distribution Substation
- Feeder
- Geographic area

13. Feeder De-energized

The SCADA/ADMS shall provide an automatic mechanism to detect and identify de-energized feeders, including scenarios where breaker status alone does not accurately represent the electrical state of the feeder.

For example, when the **Delhi Transco Limited (DTL)** incoming breaker is **OPEN**, power import to BYPL becomes zero. However, the corresponding BYPL feeder breaker may continue to indicate **CLOSED** status, resulting in an energized indication based solely on breaker position. In such cases, the system shall correctly identify the feeder as **de-energized**.

The SCADA/ADMS shall implement a configurable cyclic detection algorithm that periodically evaluates the electrical status of each feeder using real-time measurements and predefined logic.

14. Load reduction:

The SCADA/ADMS shall automatically detect and identify significant load reduction events on feeders and generate appropriate alarms and events to assist operators in identifying abnormal operating conditions.

A **Load Reduction Event** shall be declared when all of the following conditions are satisfied:

- The feeder circuit breaker status is **CLOSED (ON)**.
- The feeder load current was previously greater than **15 A**.
- The feeder current subsequently decreases by **30% or more**, reaching **5 A or lower**.
- The reduced load condition persists continuously for a configurable duration of **15 minutes**.

The threshold values and persistence time shall be user-configurable to accommodate BYPL's operational requirements.

Upon detection of a Load Reduction Event, the SCADA/ADMS shall:

- Generate a high-priority alarm and corresponding event notification.
- Record the event with an accurate time stamp in the event and alarm logs.
- Display the affected feeder and load reduction status on all relevant single-line diagrams, dashboards, and operator displays.
- Provide audible and visual indications to the control room operator.
- Maintain an audit trail of the event, including pre-event and post-event current values, breaker status, event duration, and operator acknowledgement.
- Make the detected event available to other ADMS applications, including Outage Management System (OMS), Distribution Network Analysis (DNA), analytics, and reporting modules.

15. Load disappear:

The SCADA/ADMS shall automatically detect **Load Disappear** conditions on feeders and generate alarms and events to assist operators in identifying abnormal network conditions, loss of load, or possible measurement and field equipment issues.

A **Load Disappear Event** shall be declared when all of the following conditions are satisfied:

- The feeder circuit breaker status is **CLOSED (ON)**.
- The previous feeder load current was **greater than or equal to 5 A**.
- The present feeder load current reduces to **0 A**.

- The feeder voltage or associated capacitor bank voltage remains **greater than 0 V**, indicating that the feeder is energized.
- The above condition persists continuously for a configurable duration of **15 minutes**.
The current thresholds, voltage thresholds, and persistence time shall be user-configurable to meet BYPL's operational requirements.
Upon detection of a Load Disappear Event, the SCADA/ADMS shall:
 - Generate a high-priority alarm and corresponding event notification.
 - Record the event with an accurate time stamp in the alarm and event logs.
 - Display the affected feeder and load status on the single-line diagrams, dashboards, and operator displays.
 - Provide configurable audible and visual alarm indications to the control room operator.
 - Maintain a complete audit trail, including previous load, current load, voltage, breaker status, event duration, and operator acknowledgement.
 - Make the event available to downstream applications, including Outage Management System (OMS), Distribution Network Analysis (DNA), FLISR, analytics, and reporting modules for further operational analysis.

16. Load shedding

The SCADA/ADMS shall provide comprehensive **Load Shedding Management** functionality to support planned, emergency, and automatic load shedding operations while ensuring safe, reliable, and optimized operation of the distribution network.

The Load Shedding application shall include, but not be limited to, the following capabilities:

1. Monitor feeder loading, transformer loading, voltage levels, frequency (where available), and system operating conditions in real time.
2. Support both **manual** and **automatic** load shedding based on predefined operational criteria and configurable system conditions.
3. Allow operators to define and maintain configurable load shedding schemes based on:
 - Feeder priority
 - Consumer category (e.g., residential, commercial, industrial, essential services)
 - Grid substation
 - Distribution substation
 - Geographic area
 - Load block
 - Contract demand
 - Critical infrastructure
4. Enable creation of multiple load shedding groups and rotational load shedding schedules to ensure equitable distribution of outages during system constraints.
5. Automatically recommend or execute load shedding actions based on configurable thresholds such as:
 - System overload
 - Transformer overload
 - Feeder overload
 - Low voltage conditions
 - Grid contingency
 - Emergency operating conditions
 - Instructions from the State Load Dispatch Centre (SLDC) or Transmission Utility
6. Display the estimated load to be shed, affected feeders, number of consumers impacted, and expected restoration sequence before execution.

7. Continuously monitor the effectiveness of the load shedding action and update system loading after each operation.
8. Generate real-time alarms, events, operator notifications, and audit logs for all load shedding activities, including command execution, operator actions, and restoration events.
9. Maintain complete historical records of all load shedding operations, including:
 - Date and time
 - Initiating event
 - Affected feeders
 - Estimated and actual load shed
 - Duration
 - Restoration time
 - Operator details
10. Integrate with OMS, GIS, AMI, CIS, and other enterprise systems to estimate consumer impact, prioritize critical loads, and support restoration planning.
11. Provide configurable reports and dashboards for load shedding events, energy not served, restoration performance, and regulatory reporting.

17. Frequency based load shedding

The SCADA/ADMS shall provide a **Frequency-Based Load Shedding (FBLs)** application to assist operators in maintaining grid stability during system frequency disturbances and grid contingencies.

The application shall continuously monitor system frequency and calculate the total connected system load using real-time feeder measurements. Where multiple measurements are available, the application shall use a configurable priority hierarchy to determine the most appropriate data source for load calculation.

The Frequency-Based Load Shedding application shall provide the following minimum functionality:

1. Continuously monitor system frequency from one or more designated frequency measurement points.
2. Calculate the total system load using real-time feeder active power measurements. Where feeder power measurements are unavailable, configurable alternative measurements (current, estimated load, or other approved sources) may be utilized.
3. Support configurable measurement priorities to ensure reliable system load estimation using the best available real-time data.
4. Continuously compare measured system frequency against configurable under-frequency thresholds and associated time delays.
5. When the measured frequency remains below the configured threshold for a predefined duration, automatically calculate the estimated **overdraw/load deficit** based on the prevailing system load and operator-defined load shedding criteria.
6. Display the calculated overdraw, recommended load to be shed, available feeder load blocks, and the estimated post-shedding system load on the operator workstation.
7. Support both **advisory mode**, where recommended feeders are presented to the operator for approval, and **automatic mode**, where load shedding is executed automatically based on configurable operational policies and authorization levels.
8. Allow operators to define feeder priorities, critical loads, exempt feeders, rotational load shedding groups, and restoration priorities.
9. Generate alarms, events, and operator notifications whenever:
 - System frequency crosses configured thresholds.
 - Frequency remains below the configured time delay.

- Load shedding recommendations are generated.
 - Load shedding commands are executed.
 - System frequency returns to normal operating limits.
10. Maintain a complete audit trail of all frequency events, calculated overdrawal values, recommended and executed load shedding actions, operator interventions, and restoration activities.
 11. Integrate with the Outage Management System (OMS), Distribution Network Analysis (DNA), and other ADMS applications to assess customer impact, network constraints, and restoration strategies.

18. Automatic demand management system

The SCADA/ADMS shall provide an **Automatic Demand Management System (ADMS)** application to assist BYPL in managing power demand, controlling overdraw (OD), optimizing underdrawal (UD), and ensuring compliance with grid operating regulations.

The application shall continuously monitor system frequency and Overdrawal (OD)/Underdrawal (UD) information received from the State/Regional Load Dispatch Centre through the **Inter-Control Centre Communications Protocol (Secure ICCP/TASE.2)** or other approved interfaces.

The Automatic Demand Management System shall provide, at a minimum, the following functionality:

1. Continuously acquire and process real-time system frequency and OD/UD data through ICCP or equivalent communication interfaces.
2. Calculate the demand reduction required based on configurable OD/UD thresholds, frequency limits, utility operating policies, and grid operator directives.
3. Automatically identify feeders eligible for load shedding based on configurable parameters, including:
 - Feeder priority
 - Load availability
 - Consumer category
 - Critical and essential loads
 - Geographic location
 - Operational constraints
 - Operator-defined exclusion lists
4. Support both Automatic and Manual modes of operation:
 - **Automatic Mode:** Execute load shedding automatically based on predefined rules and authorization settings.
 - **Manual Mode:** Generate operator recommendations and await confirmation before executing load shedding commands.
5. Allow the configuration of multiple Load Shedding Lists (Load Blocks) with different priorities, enabling operators to review, modify, enable, disable, and select the appropriate load shedding scheme based on prevailing system conditions.
6. Display, in real time:
 - System frequency
 - Overdraw/Underdrawal values
 - Total system demand
 - Required demand reduction
 - Recommended feeders for load shedding
 - Estimated load to be shed
 - Remaining system demand after load shedding

7. Generate alarms and event notifications whenever:
 - Frequency or OD/UD thresholds are exceeded.
 - Automatic or manual load shedding is initiated.
 - Load shedding is completed.
 - System conditions return to normal.
 - Load restoration is initiated or completed.
8. Maintain a comprehensive audit trail of all demand management activities, including frequency and OD/UD values, feeder selection, executed commands, operator interventions, load restored, and time-stamped event records.
9. Integrate with OMS, GIS, AMI, and Distribution Network Analysis applications to assess consumer impact, verify feeder availability, and optimize restoration sequences.
10. Support configurable engineering parameters, including frequency thresholds, OD/UD limits, persistence timers, feeder priorities, load block definitions, automatic/manual operating modes, alarm priorities, and restoration strategies without requiring software modifications.

19. Existing SCADA Applications and Functionalities

1. The EOI include the details of the **existing SCADA applications, modules, functionalities, interfaces, and associated systems** that are currently available at BYPL, based on the information presently available.
2. The list provided in this EOI shall be considered **indicative and non-exhaustive**. Any existing SCADA application, functionality, interface, feature, configuration, field integration, or associated system that is not specifically listed in this EOI shall not be considered excluded from the scope.
3. During the detailed **Existing SCADA System Assessment**, the interested parties shall assess and document the complete existing SCADA environment, including all applications, functionalities, interfaces, databases, communication protocols, field devices, operational workflows, reports, alarms, historical data, and other relevant components.
4. Standard reports of existing SCADA system

5.8 ADMS Core Module

The core ADMS platform shall include:

Module	Requirement
SCADA Module	The SCADA functionalities as per section 5.7 must be included
Network modelling tool	• Graphical tool • CIM compliant • The tool shall integrate with BYPL's GIS and support Import of the GIS network model with Incremental, Full model synchronization • Connectivity validation • Support Automatic update of network changes • Support Asset, Geographic coordinate synchronization • Attribute synchronization • Conflict detection and resolution • GIS shall remain the System of Record for network assets and connectivity. • Common network modelling tool for MCC & BCC
Network model management tool	• Network model Online procedure - Full, incremental • Network model change management across MCC, BCC

Module	Requirement
Network view creation tool	- Automatic creation of Real-time geographic & schematic view of the distribution network as per the naming convention & symbology - Generation of dynamic schematics/SLD for selected feeders.
User Interface	- Network, SLD, Tabular, display navigation. - Device search option - Device operations (for example, opening and closing switches) - Temporary network modifications (jumpers, cuts, grounds) - Advanced Network Visualization – GIS-integrated real-time maps. - Indicate phases of Devices
SCADA alarm & event processing	The SCADA/ADMS shall provide a comprehensive Alarm and Event Processing application to monitor, process, prioritize, record, and display alarms and events generated from substations, feeders, RMUs, FRTUs, RTUs, IEDs, communication systems, applications, and integrated third-party systems. The application shall enable operators to quickly identify abnormal operating conditions, respond effectively to network events, and maintain a complete audit trail of all operational activities. The system shall support configurable alarm priorities, such as: Critical High Medium Low Information The solution shall provide centralized alarm and event management for BYPL's transmission interface, grid substations, distribution substations, feeders, RMUs, FRTUs, RTUs, and other field devices. The system shall support configurable alarm priorities, alarm filtering, and operator-specific views to enable efficient handling of high alarm volumes during fault conditions or major network disturbances.
Network connectivity analysis	Advanced Distribution Management System (ADMS) shall provide a Network Connectivity Analysis (NCA) application to automatically determine the real-time electrical connectivity and topology of the distribution network based on the status of circuit breakers, switches, RMUs, and other switching device
Topology Processing & analysis	- DNC – dynamic network colouring, - Colouring by voltage, load (Typical loading colour scheme), Voltage drop - Colour the network according to Grid, substation connectivity, transformer area - Tracing - Island detection, - Phase connectivity, Phase swap, Phase imbalance - Network error detection: Ensures the network model is usable for power flow.
State Estimation/ Load estimation	- The State Estimation application shall serve as the foundation for advanced analytical functions such as Distribution Power Flow, Volt/VAR Optimization (VVO), Automatic Feeder Reconfiguration (AFR), Contingency Analysis (RTCA/STCA), FLISR, and other ADMS applications. - The interested parties shall describe the proposed State Estimation methodology, estimation algorithms, observability analysis, accuracy, convergence criteria, and performance under varying levels of field automation
Distribution Load Flow	Support single phase & 3 phase power flow

Module	Requirement
	- Monitors network parameters against predefined operational limits (voltage, current, loading, power factor, etc.) and generates alarms or warnings - Low/high voltage alarms - The DPF application shall utilize the real-time network topology, State Estimation results, SCADA measurements, and the validated electrical network model to provide an accurate representation of the operating condition of the distribution system. - The interested parties shall describe the proposed Distribution Power Flow solution, including the algorithms used, convergence methodology, treatment of unbalanced distribution systems, support for radial and meshed networks, and expected computational performance.
Power Quality Index Analysis (PQI)	The proposed ADMS shall provide a Power Quality Index (PQI) Analysis application to continuously monitor, assess, and report the quality of electrical supply across the distribution network. The application shall support analysis of available power quality parameters, including: - Voltage magnitude and deviation. - Voltage unbalance. - Frequency deviation. - Harmonics / THD, where measurement is available. - Voltage sag and swell. where measurement is available. - Interruptions. - Flicker, where measurement is available. - Power factor. - Current unbalance.
Loss analysis	The ADMS shall provide a Loss Analysis application to calculate and monitor electrical losses at different levels of the distribution network. The application shall calculate: - Feeder-wise losses. - Distribution Transformer-wise losses. - DT-to-LT feeder losses. - LT feeder losses. - Network-level technical losses. - Energy input and energy delivered. - Percentage technical losses. - Active and reactive power losses. - Loss trends over configurable time periods
Optimal Power Flow	The proposed ADMS shall provide an Optimal Power Flow (OPF) application to determine the most efficient operating condition of the distribution network while satisfying electrical and operational constraints.
Switching Management	The proposed ADMS shall provide an integrated Switching Management application for planning, validating, executing, and monitoring switching operations across the distribution network. The application shall support: - Planned switching. - Emergency switching. - Remote switching. - Manual switching. - Switching sequence preparation. - Switching order management.

Module	Requirement
	- Isolation and restoration. - Feeder transfer. - Network reconfiguration. - Lockout/tagout and Permit-to-Work (PTW) integration, where applicable.
Reporting	The proposed SCADA/ADMS/OMS/DERMS solution shall provide a comprehensive and configurable Reporting and Analytics framework. System shall support: - Operational Reports - ADMS Reports - OMS Reports - Real Time Dashboard - Trending - Historical Reports - BYPL specific reports
User Management	- Scada user management - ADMS user management - OMS user management - Administration management - Report user management
Cybersecurity Services	The proposed SCADA, ADMS, OMS, DERMS, and associated IT/OT infrastructure shall be designed, implemented, and maintained with a defence-in-depth cybersecurity architecture to protect the confidentiality, integrity, and availability of operational technology (OT) systems and associated information technology (IT) systems. The solution shall comply with applicable Indian regulatory requirements, BYPL cybersecurity policies, and recognized international standards and guidelines, including IEC 62443, IEC 62351, ISO/IEC 27001, NIST Cybersecurity Framework, CERT-In, NCIIPC, CEA and MoP guidelines and other applicable standards. The Interested parties shall clearly identify the cybersecurity standards supported by the proposed solution and provide a compliance matrix.
Operator Consoles	Separately for SCADA, ADMS, OMS operators
Web server	The proposed SCADA/ADMS/OMS/DERMS solution shall provide a secure, scalable, and highly available Web Server / Web Application Server architecture for browser-based access to authorized applications, dashboards, reports, and operational information. The Web Server shall provide controlled access to the required applications without exposing the core SCADA/ADMS application servers or field communication infrastructure directly to users or external networks. The bidder shall clearly identify whether the proposed Web Server is a standard component of the product or requires additional hardware, software, licenses, or third-party components. Direct access from user networks to critical SCADA/ADMS database servers or FEPs shall not be permitted. The Interested parties shall provide the proposed network architecture and communication flows for review and approval by BYPL.

5.9 ADMS Advance Applications

The ADMS platform shall include advance applications:

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Module	Requirement
FLISR	The interested parties shall provide a detailed description of the proposed FLISR solution, including its architecture, operational philosophy, trigger logic, decision-making process, restoration strategy, and system limitations. The interested parties shall clearly explain the following: • FLISR Trigger Logic: The interested parties shall describe the conditions under which the FLISR application is initiated, • Fault Location Methodology • The interested parties shall describe the methodology used to identify and isolate the faulted section, including • The interested parties shall describe the restoration algorithm • FLISR operating modes • FLISR use case from previous implementation The interested parties shall clearly explain how the proposed FLISR solution will operate under varying levels of field automation, including partially automated feeders where some RMUs are equipped with FRTUs while others require manual switching. The solution shall identify automated and manual switching actions, estimate restoration time, and indicate the impact of non-communicating devices on restoration performance. This approach is particularly important for BYPL because field automation is phased. Vendors should explain how FLISR performs with: • 100% automated feeders • Partially automated feeders (e.g., only some RMUs have FRTUs) • No FPI or missing communication • Mixed manual and automated switching The solution shall support: • Advisory Mode • Semi-Automatic Mode • Fully Automatic Mode
Automatic Feeder Reconfiguration	The Automatic Feeder Reconfiguration application shall provide, at a minimum, the following capabilities: The application shall continuously monitor the real-time operating condition of the distribution network and identify opportunities for feeder reconfiguration based on: Feeder loading, Transformer loading, Voltage profile, Network topology, Switch status Real-time demand, Distributed Energy Resource (DER) output (where applicable) Equipment availability, Network constraints The interested parties shall describe the trigger logic used to initiate feeder reconfiguration. Application shall determine the optimum switching sequence Validation Prior to Switching execution The solution shall support: • Advisory Mode (recommended switching sequence for operator approval) • Semi-Automatic Mode • Fully Automatic Mode
VVO	The proposed Advanced Distribution Management System (ADMS) shall include a Volt/VAR Optimization (VVO) application to optimize voltage profiles and reactive power flow across the distribution network. The application shall improve power quality, reduce technical losses, optimize energy consumption, enhance

Module	Requirement
	asset utilization, and support energy efficiency objectives while maintaining compliance with statutory voltage limits and operational constraints. The interested parties shall provide a detailed description of the proposed VVO solution, including its optimization algorithms, control philosophy, operating modes, field device requirements, and expected operational benefits.
Load Forecasting - Same-Day and Day-Ahead Feeder wise Load Scheduling	The SCADA/ADMS shall provide a Same-Day and Day-Ahead Load Scheduling application to support efficient demand planning, load management, and grid operations. The application shall assist BYPL in forecasting demand, preparing operational schedules, optimizing resource utilization, and complying with scheduling requirements. The Same-Day and Day-Ahead Load Scheduling application shall be fully configurable and scalable to support future market operations, demand response programs, distributed energy resources (DERs), Battery Energy Storage Systems (BESS), renewable energy integration, and evolving regulatory requirements. - Support preparation, review, modification, approval, and submission of Day-Ahead and Same-Day load schedules. - Import scheduled demand, generation schedules (where applicable), and operational constraints from external systems through standard interfaces, including Secure ICCP, web services, APIs, or file-based exchanges. - Import scheduled demand, generation schedules (where applicable), and operational constraints from external systems through standard interfaces, including secure ICCP, web services, APIs, or file-based exchanges. - Forecast feeder-wise, substation-wise, circle-wise, and system-wide load using historical demand, weather information, seasonal variations, holidays, and operator-defined parameters. - Compare scheduled demand with actual demand in real time and continuously calculate demand deviations. - Display scheduled load, actual load, forecasted load, and demand deviation through configurable dashboards and graphical trends. - Provide configurable alerts and alarms whenever actual demand deviates from the approved schedule beyond user-defined thresholds. - Enable operators to revise and publish updated Same-Day schedules based on changes in: - System demand - Weather conditions - Network outages - Equipment availability - Grid operator instructions - Emergency operating conditions - Generate configurable reports for: - Day-Ahead Load Schedule - Same-Day Revised Schedule - Scheduled vs. Actual Demand - Demand Forecast Accuracy - Demand Deviation Analysis - Overdrawal/Underdrawal Performance - Schedule Compliance Reports
Contingency analysis - RTCA, STCA	The proposed Advanced Distribution Management System (ADMS) shall provide comprehensive Contingency Analysis capabilities to evaluate the impact of potential or actual network contingencies and assist operators in maintaining a secure, reliable, and resilient distribution system.

Module	Requirement
	The solution shall support both: • Real-Time Contingency Analysis (RTCA) for online operational decision support. • Study-Time Contingency Analysis (STCA) for planning, engineering studies, operational preparedness, and "what-if" analysis. The interested parties shall describe the proposed contingency analysis algorithms, execution methodology, performance, assumptions, limitations, and supported use cases

5.10 OMS

The proposed OMS shall provide an integrated, real-time Outage Management System for detection, prediction, management, restoration, and analysis of planned and unplanned outages across the EHV, HT, and LT distribution network.

The OMS shall be fully integrated with SCADA, ADMS, GIS, AMI/MDM, CRM/CIS, and other relevant enterprise systems.

The OMS shall automatically detect outages based on information received from:

- SCADA System
- ADMS – FLISR system
- AMI System
- Customer outage calls/complaints.
- Manual operator inputs
- Field force automation app

OMS module is capable of Outage prediction. The outage prediction shall be based on the end-to-end connectivity:

EHV → HT Feeder → RMU → DT → LT ACB/Pillar → Pole → Service Connection → Consumer

The OMS shall provide consumer-level outage visibility.

The system shall identify:

- Total affected consumers.
- Consumer category, location.
- Consumer-to-DT mapping.
- Consumer-to-LT feeder mapping.
- Consumer-to-pole/service connection mapping, where available.
- Critical consumers.
- Consumers restored.
- Consumers still without supply.

The system shall dynamically update the affected consumer list following every switching operation and restoration activity.

The OMS platform shall include Incident Management system for Planned & Unplanned outages, Emergency shutdowns, Momentary faults, Load shedding.

OMS shall correlate information from multiple sources to create a single outage incident

The OMS shall support planning and management of planned outages for:

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- Maintenance.
- Construction.
- Network modification.
- Equipment replacement.
- Preventive maintenance.
- Emergency shutdowns.

For unplanned outages, the OMS shall support the complete work flow till Outage report generation

- Detect the outage.
- Identify the probable fault location.
- Determine the outage boundary.
- Identify affected consumers.
- Generate outage incidents.
- Prioritize restoration.
- Recommend switching/restoration actions.
- Track field crew activities.
- Monitor restoration.
- Confirm restoration.
- Close the outage.
- Generate an outage report.

The OMS platform shall include applications: Switching order management (SOM) & Work order management (WOM)

OMS shall integrate with ADMS Switching Management to support:

- Isolation.
- Fault clearance.
- Feeder transfer.
- Network reconfiguration.
- Restoration.
- Back-feeding.
- Return-to-normal operation.

OMS system shall provide a recommended restoration sequence based on: Network topology, Available alternate supply, feeder loading, DT loading, Voltage limits, switching constraints, Safety, Consumer priority & category, OMS shall identify and prioritize critical consumers & Critical consumers shall be prominently displayed during an outage and considered in restoration prioritization.

The OMS shall be capable of automatically generating and sending **outage and restoration notifications** to relevant stakeholders based on real-time outage events and predefined configurable rules.

The system shall support notification to:

- Affected consumers.
- Control room operators.
- Field maintenance teams.
- Customer service/CRM teams.

- O&M personnel.
- Management and other authorized stakeholders.

OMS shall calculate and display **Estimated Time of Restoration (ETR)** based on all factor related to faults, crew, switching requirements, repair availability

OMS shall provide GIS visualization of Faults, feeders, consumer, restoration & other relevant scenarios.

OMS shall support field crew management, Automatic vehicle management system.

System shall support integration with the BYPL existing workforce management system & AVL system.

The bidder shall, during the requirement analysis and detailed design phase, assess the Utility's existing FFA app / system and demonstrate its capability to support the required ADMS/OMS integration.

Where the bidder demonstrates that integration with the Utility's existing FFA system is **technically not feasible or cannot satisfy the functional and integration requirements**, the bidder shall propose an alternative **FFA with integrated Automated Vehicle Location (AVL) capability** as part of the solution.

OMS shall provide configurable reports including Outages, Crew, FLISR restoration, SOM, WOM, Incidents, AVL, ETR, other BYPLS specifics reports

OMS shall maintain a complete audit trail of Outages, Crew, consumer, switching. All critical actions shall be time-stamped and associated with the responsible user.

OMS shall provide

- Outage management dashboard
- Management Dashboard
- Storm management
- Trouble call management

OMS shall calculate and report applicable reliability indices, SAIDI, SAIFI, CAIDI, MAIFI. OMS system shall support calculation at:

- Utility level.
- Circle level.
- Division level.
- Substation level.
- Feeder level.
- DT level.
- Consumer category level.

OMS shall confirm restoration through available sources like

- SCADA status.
- FRTU/RTU status.
- Feeder voltage/current.
- AMI restoration notification.
- Consumer confirmation.
- Field crew confirmation.

OMS system shall support Outage prediction

1. Predictive engine for potential outage devices based on customer calls
2. OMS module is capable of Outage prediction. The outage prediction shall be based on the end-to-end connectivity:

EHV → HT Feeder → RMU → DT → LT ACB/Pillar → Pole → SDP → Consumer

3. Outage Prediction shall be based on
 - Call Based
 - Meter Based
 - Incident based

OMS system shall support integration with **CRM/CIS- SAP & Customer communication system for trouble call integration – IVR calling, AI voice bot, WhatsApp, SMS gateway, email server, mobile application, AI chat bot, social media integration, business messaging platform, or other approved communication channels**, subject to BYPL's available infrastructure and applicable security requirements.

The bidder shall clearly specify the standard notification capabilities available in the proposed OMS and identify any third-party gateway, license, API, or infrastructure required for implementation.

5.11 ADMS Enterprise Integration – IEC /CIM

The ADMS shall integrate with existing enterprise applications including:

- SCADA
- OMS
- GIS
- SAP
- CIS / CRM
- AMI / MDM
- Asset Management
- Mobile Workforce Management / Field force automation
- Automatic Vehicle Location
- Any 3rd party system
- Historian
- Reporting Systems
- Cybersecurity Monitoring Systems

Integration	Requirement
GIS	The proposed Advanced Distribution Management System (ADMS) shall provide seamless, secure, and bidirectional integration with BYPL's existing Geographic Information System (GIS) to maintain a synchronized and accurate electrical network model for real-time grid operations. The GIS shall serve as the authoritative source (System of Record) for the electrical network assets and connectivity model, while the ADMS shall utilize the GIS network model for real-time monitoring, analysis, visualization, and operational decision-making. Changes approved in the GIS database shall be synchronized with the ADMS through configurable workflows, including: • New assets • Asset retirement • Feeder modifications • Switching changes

Integration	Requirement
	• Network extensions • Equipment replacement The system shall support automatic transfer of approved GIS network changes to the ADMS Network Model without requiring manual recreation of the affected network elements in ADMS. The proposed ADMS shall support CIM-compliant extraction and exchange of the electrical network model from GIS and/or ADMS using the applicable IEC 61968/61970 Common Information Model (CIM) standards. The bidder shall provide a CIM-based mechanism for extraction, transformation, validation, and exchange of network model data between GIS and ADMS. Interested party shall provide a detailed high-level architecture showing required data exchange with work flow
GIS integration with OMS, Mobile Workforce Management / Filed force automation Automatic Vehicle Location	The proposed OMS shall be fully integrated with the existing/proposed GIS platform to provide accurate network-based outage detection, outage prediction, affected consumer identification, restoration management, and outage visualization. Interested party shall provide a detailed high-level architecture showing required data exchange with work flow
AMI/MDM	The proposed ADMS shall provide secure and standards-based integration with the Advanced Metering Infrastructure (AMI)/Meter Data Management System (MDMS) to utilize smart-meter data for real-time and near-real-time network monitoring, outage management, load estimation, network analysis, demand management, and restoration validation. • ADMS shall be capable of receiving relevant AMI/MDMS information • ADMS/OMS shall utilize AMI information to improve outage detection and outage boundary determination. • ADMS/OMS shall use AMI and GIS connectivity information to determine affected consumers • Support processing of AMI last-gasp outage notifications. • AMI restoration notifications shall be used to validate restoration of supply. • AMI data shall be utilized by ADMS for improving load estimation. • Where technically feasible, AMI measurements shall be available as inputs to ADMS • AMI data shall support analysis of DT loading and utilization. Interested party shall provide a detailed high-level architecture showing required data exchange with work flow
SAP	Proposed OMS shall provide secure, reliable, and standards-based integration with the existing/proposed SAP system to enable seamless exchange of outage, asset, work order, maintenance, and restoration-related information. The integration shall establish an end-to-end workflow between OMS, SAP, ADMS, GIS, and field operations without requiring duplicate data entry. Interested party shall provide a detailed high-level architecture showing required data exchange with work flow
CIS/ CRM	Proposed system shall provide secure, reliable, and standards-based integration with the existing/proposed Customer Information System (CIS)/ CRM to

Integration	Requirement
	enable seamless exchange of customer, complaint, outage, restoration, and service-related information. The integration shall enable OMS to correlate customer complaints with network outages, identify affected consumers, provide accurate outage information, and support automated customer notification. Interested party shall provide a detailed high-level architecture showing required data exchange with work flow
Integration with Existing SIEM/SOC & EDR solution	The proposed solution shall be compatible with BYPL's existing endpoint security/EDR solution and shall support integration with the existing SIEM/SOC infrastructure. The bidder shall identify all endpoints requiring endpoint security controls and shall provide details of supported security agents, compatibility limitations and compensating controls, where applicable.
Interface server	The proposed SCADA/ADMS/OMS/DERMS solution shall include a dedicated Integration Server / Interface server for secure, scalable, and controlled integration with third-party and enterprise systems. The Integration Server shall act as an intermediate integration layer between the SCADA/ADMS/OMS/DERMS platform and external systems and shall minimize direct point-to-point interfaces. Integration Platform shall provide API management capabilities, including: • API creation. • API publication. • API authentication. • API authorization. • API versioning. • API throttling. • API monitoring. • API logging. • API lifecycle management. • API access control. APIs shall be exposed only through approved network zones and security controls.

5.12 Procurement of IT Hardware – Server, Networking Equipment & OS licence for SCADA/ADMS/OMS/DERMS

The procurement of the IT infrastructure required for the SCADA, ADMS, OMS, and DERMS solution shall be considered under the following two procurement options. The interested parties shall provide separate technical proposals for both options.

Option 1: BYPL-Supplied IT Hardware & Operating system licence

BYPL scope

Under this option, BYPL shall procure the required IT infrastructure (IT Hardware, IT networking hardware, Operating system licence for the required server, Required UPS to run this IT infrastructure, AMC of these IT infrastructure) proposed by the Vendor.

The interested parties shall:

- Assess and determine the complete IT infrastructure requirements for the proposed solution.
- Assess & determine the UPS sizing to run this IT infrastructure for the proposed solution
- Submit detailed technical specifications and Bill of Materials (BoM) for all required hardware, including servers, storage systems, network equipment, workstations, virtualization platforms, backup systems, cybersecurity appliances, and all associated software prerequisites.

- Ensure that the proposed hardware specifications are adequately sized to support the complete SCADA, ADMS, OMS, DERMS, Historian, integration platforms, databases, High Availability (HA), Disaster Recovery (DR), and future system expansion.
- Validate the supplied hardware with Operating system licence before deployment and notify BYPL of any deficiencies or incompatibilities.

The BYPL shall:

- Be responsible for procurement of Hardware – server, networking equipment & required Operating system suggested by the vendor.
- Be responsible for the placement of Hardware – server & networking equipment suggested by the vendor in the designated space inside BYPL control centre
- Be responsible for the installation of Operating system suggested by the vendor.
- Be responsible for the networking of the ADMS system
- Be responsible for AMC of hardware & networking equipment
- Be responsible for the installation of the UPS in the BYPL data centre

Option 2: Vendor-Supplied IT Hardware, Operating system licence System Software

Under this option, the interested parties shall provide a complete turnkey solution, including all IT hardware, system software, application software, licenses, and associated infrastructure required for successful implementation.

The interested parties shall be responsible for:

- Design, engineering, supply, installation, configuration, integration, testing, commissioning, and acceptance of the complete IT infrastructure.
- Design, engineering, supply, installation, configuration, integration, testing, commissioning of UPS to run this IT infrastructure for the proposed solution.
- Supply of all servers, storage systems, network equipment, operating systems, virtualization software, databases, backup solutions, cybersecurity components, racks, power distribution units (PDUs), and all other hardware and software required for successful project execution.
- Supply of all perpetual or subscription-based software licenses required for the proposed solution.
- End-to-end warranty, maintenance, and support for all supplied hardware and software during the warranty period.
- Ensuring compatibility, performance, scalability, High Availability (HA), Disaster Recovery (DR), and cybersecurity compliance of the complete solution.

BYPL reserves the right to adopt either procurement option, in whole or in part, based on technical evaluation, commercial considerations, project requirements, and procurement strategy. The interested parties shall not impose any technical limitations or functional restrictions based on the procurement option selected by BYPL.

5.13 Training

The interested parties shall provide a comprehensive Training and Knowledge Transfer Program to ensure that BYPL personnel are fully capable of operating, administering, maintaining, configuring, and supporting the SCADA, ADMS, OMS, and DERMS solution independently.

The training shall be conducted by qualified and experienced instructors and shall include theoretical sessions, hands-on practical exercises, simulation-based training, and operational scenarios using the implemented system.

The interested parties shall submit a detailed Training Plan for BYPL's review and approval prior to commencement of the training.

Training categories – Operator, Administrator, Field team, Database modelling, Network graphic, IT, Cybersecurity, SCADA, ADMS, OMS, Integration, DERMS, Reports, Dashboard, Parameter configuration.

Interested parties shall provide practical training using the actual project environment or a dedicated training environment.

The interested parties shall provide comprehensive training material including: Training manuals

The interested parties shall conduct a Train-the-Trainer program to enable BYPL personnel to independently train future users and administrators.

The interested parties shall conduct training during the following project phases:

- Design Phase (Awareness Sessions)
- Pre-FAT Training
- Factory Acceptance Test (FAT) Training
- Pre-SAT Training
- Site Acceptance Test (SAT) Training
- Go-Live Training
- Post-Go-Live Refresher Training

The interested party shall describe the proposed training methodology, scope, duration, training environment and deliverables. No price information shall be submitted at EOI stage.

5.14 AMC/ Support services

The interested parties shall provide a comprehensive **Annual Maintenance Contract (AMC)** for a period of **five (5) years** basis commencing after the successful completion of warranty period & system handover, and issuance of the **Final Acceptance Certificate (FAC)**

In addition to the five (5) year AMC, the bidder shall guarantee the availability of **technical support, software support, hardware maintenance services (where applicable), and spare parts for a minimum period of ten (10) years** from the date of issuance of the Final Acceptance Certificate (FAC). At least twelve (12) months' prior notice shall be given to BYPL before declaration of End of Life (EOL) support for the supplied product or technology.

The AMC shall cover preventive maintenance, corrective maintenance, software updates, security patches, bug fixes, technical support, remote diagnostics, onsite support, database maintenance, operating system support, application support, hardware support (where supplied by the bidder), cybersecurity updates, performance optimization, and all activities necessary to ensure the continuous, reliable, and secure operation of the SCADA, ADMS, OMS, DERMS, Historian, and all associated software and system components.

The interested parties shall maintain an adequately staffed support organization with relevant qualified personnel to meet the agreed Service Level Agreements (SLAs) throughout the AMC period. Preventive

maintenance schedules, response times, restoration times, escalation procedures, and reporting requirements shall be clearly defined in the proposal.

The AMC shall include comprehensive maintenance and support for all hardware (where supplied), software, licenses, databases, operating systems, middleware, communication interfaces, and all components of the **SCADA, ADMS, OMS, and DERMS** solution.

The scope of the AMC shall include, but not be limited to, the following:

1. Preventive, corrective, and emergency maintenance of the complete system.
2. Technical support through a centralized helpdesk, including remote and on-site support.
3. Supply and replacement of defective hardware components (where supplied under the contract).
4. Software maintenance, including patches, bug fixes, security updates, service packs, and version upgrades.
5. Performance monitoring, health checks, system tuning, and optimization.
6. Database maintenance, backup verification, and restoration support.
7. Cybersecurity updates, vulnerability remediation, and compliance support.
8. Maintenance of all integrations with external systems, including GIS, SAP, CIS/CRM, AMI/MDM, Secure ICCP, IEC 60870-5-104, IEC 61850, REST APIs, and other interfaces implemented under the project.
9. Support for Disaster Recovery (DR), High Availability (HA), failover testing, and periodic health assessments.
10. Resolution of software defects and configuration issues identified during the AMC period.
11. Periodic preventive maintenance visits and submission of maintenance reports.
12. Provision of technical assistance for system expansion, configuration changes, and performance optimization, where applicable.

The interested parties shall propose a comprehensive **Service Level Agreement (SLA)** covering response times, resolution times, system availability, escalation procedures, and penalties for non-compliance. The target system availability during the AMC period shall be **not less than 99.9%**, excluding scheduled maintenance approved by BYPL.

The interested parties shall ensure the continued availability of skilled technical resources, software support, spare parts (where applicable), and OEM support throughout the five-year AMC period.

The quoted AMC shall include all costs associated with manpower, travel, logistics, software support, upgrades, replacement of supplied hardware components (where applicable), and any other services necessary to maintain the system in a fully operational condition.

6. GIS Data Assessment, Validation & GIS data extract format

The interested parties shall carry out a detailed assessment of the GIS data provided by BYPL for **four (4) representative 11 kV feeders** to assess its suitability for development and integration of the ADMS Network Model.

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Objective of the assessment shall be to determine the **completeness, correctness, accuracy, connectivity, topology, attribute quality, spatial accuracy, and ADMS readiness** of the GIS data.

Assessment shall cover the complete electrical network associated with the selected feeders, including, as applicable:

Grid Substation → 11 kV Feeder → RMU → DT → LT ACB/Pillar → LT Feeder → Pole → SDP → Consumer

Interested Parties shall analyze the GIS data for the four selected feeders and submit a detailed **GIS Data Assessment Report**, classify identified GIS issues at minimum as

Critical: Issues that prevent creation or operation of the ADMS network model

Major: Issues that may affect ADMS applications or network analysis

Minor: Issues that do not prevent model creation but should be corrected for improved data quality, reporting, or visualization.

Proposed solution shall support automated or semi-automated updating of the ADMS network model from GIS using CIM-compliant data exchange.

The bidder shall explain how the system will handle:

New Asset

Modified Asset

Deleted Asset

Connectivity Change

Attribute Change

ADMS Model Update

The Interested parties shall provide a CIM-compliant mechanism for extraction and exchange of the electrical network model from GIS to ADMS based on applicable IEC 61968/61970 Common Information Model standards. The bidder shall clearly specify the CIM version, profiles, supported classes, attributes, connectivity representation, data exchange format, validation mechanism, and GIS-to-CIM/ADMS mapping methodology.

The bidder may propose an alternative open, documented, and industry-proven data exchange mechanism where CIM-based exchange is not supported, subject to BYPL's approval.

7. RMU MOTORIZATION / FIELD AUTOMATION PLAN

7.1 Philosophy

To optimize the gain from the RMU replacement drive, the following selection criteria shall be considered:

1. MU Loss and HVDS

A trip in the 11 kV network invariably results in an outage across a large area. Until back-feeding of the affected area is completed, the utility incurs an unwarranted loss of MUs (energy units) sold. Accordingly, 11 kV feeders with the highest annual MU loss on account of outages shall be targeted for priority replacement.

2. Critical Loads

Essential and key installations such as Hospitals, public utility establishments such as fire stations, Sewage Treatment Plants (STPs) and Water Treatment Plants (WTPs), Stadiums, Government offices, Railways, Data centres, Metro stations and DTC depots, where power reliability must be maintained at all times. These locations shall accordingly be prioritized under the replacement drive given their strategic importance and reliability requirements.

3. First Switching Stations (FSS)

BYPL operates 1,011 nos. 11 kV feeders, each of which further energizes downstream distribution transformers. The first 11 kV distribution substation located downstream of a Grid Substation is termed the First Switching Station (FSS).

Automation-ready RMUs at First Switching Stations enable faster isolation of the faulty section immediately downstream of the grid substation, allowing the grid substation breaker to be restored in minimum time. Unlike the categories above, this category does not extend automation along the ring only the first substation of the feeder (the FSS itself) shall be automated (refer Section 3.1).

7.2 Ring-Level Selection Rule and Suitability Criteria

1. Ring/Loop Automation Rule

For feeders selected under the MU Loss and HVDS, Critical Loads (Essential Establishments), and Critical Loads (Key Installations) categories, the complete ring/loop up to the isolation point shall be brought under the automation scheme. However, replacing every RMU within the ring is neither cost-optimum nor necessary to achieve the automation objective. Accordingly, automation-ready RMUs shall be targeted only at the following strategic points along the ring:

- RMUs of first substation of the ring;
- RMU(s) of the ring, located at the substation(s) forming the Normally Open Point (NO) and substation after NO (in back feeding feeder);
- Every 3rd/ 4th substation along the ring, counted sequentially from the first substation; and
- Where a switching substation falls within this sequence i.e., between two selected 3rd/ 4th-count points it shall be prioritized for automation ahead of the corresponding 3rd/ 4th-count substation, so as to preserve operational switching flexibility.

Since automation drive is limited to selected points and not every substation in the ring, isolating the faulty section under this approach also requires isolating the adjoining healthy sections up to the nearest automated points on either side. Even so, this graded, selected-point approach allows roughly 60-70% of the ring to be restored in minimum time, while limiting capex to roughly 25-30% of the total RMUs in the ring, instead of 100%. Non-automated RMUs within the ring shall continue to be operated manually and taken up in a subsequent replacement cycle.

8. EXPECTED OUTCOME & KEY PERFORMANCE INDICATOR

The project shall be considered successful when the proposed solution demonstrates:

- Reliable real-time monitoring and supervisory control of the complete electrical network.
- Successful implementation and operational use of SCADA, ADMS, OMS, and DERMS applications.
- Accurate network modelling from the EHV grid to the consumer level.
- Measurable improvement in distribution reliability indices (SAIDI, SAIFI, CAIDI, MAIFI, ASAI).
- Significant reduction in outage detection and restoration times through automation and decision support.
- Increased operational efficiency through remote monitoring, remote switching, and optimized network operation.

- Reduced technical losses and improved voltage profile through advanced network optimization functions.
- Successful integration with OMS, GIS, AMI/MDM, CRM/CIS, Historian, and other enterprise systems.
- Secure, resilient, highly available, and scalable architecture with High Availability (HA) and Disaster Recovery (DR).
- A future-ready platform capable of supporting Distributed Energy Resources (DERs), Battery Energy Storage Systems (BESS), Electric Vehicle (EV) infrastructure, and Low Voltage (LV) network management.
- Comprehensive training, knowledge transfer, documentation, and successful handover to BYPL operations and maintenance teams.

9. ELIGIBILITY CRITERIA

Interested parties, shall satisfy the following minimum eligibility requirements. Documentary evidence shall be submitted along with the EOI response. Failure to meet the eligibility criteria or submit the required supporting documents may result in rejection of the EOI. For consortiums, the qualifying experience may be demonstrated by Lead Member or collectively by consortium members. This eligibility criterion is appropriate for an EOI. In the subsequent RFP, these requirements can be converted into mandatory qualifying criteria.

9.1 Relevant technical experience in SCADA/ADMS/OMS

The interested parties shall have demonstrated experience in the design, engineering, implementation, integration, testing, and commissioning of utility-scale SCADA/ADMS/OMS solutions.

The interested parties shall have successfully implemented and commissioned at least one (1) ADMS/SCADA/OMS project for an electric distribution utility having an operational database of not less than 800,000 (8 lakh) SCADA points anywhere in the world. The qualifying project shall have been in successful commercial operation for at least one (1) year Involving of the following:

- SCADA/ADMS
- Outage Management System (OMS)
- Smart Grid projects
- Utility control centre solutions

The interested parties shall clearly provide the following information for each reference project:

- Utility name and project location.
- Scope of work performed.
- SCADA/ADMS/OMS/DERMS modules implemented.
- Total number of operational SCADA points (minimum **800,000 points** for the qualifying project).
- Number of Grid Substations, Distribution Substations, feeders, RTUs, FRTUs, IEDs, and other integrated field devices.
- Project implementation period and commissioning date.
- Current operational status of the system.
- Details of integration with GIS, OMS, AMI/MDM, DERMS, or other enterprise systems (where applicable).
- Details of Annual Maintenance Contract (AMC) or ongoing support services, if any.

The referenced project shall have been successfully commissioned and be in satisfactory commercial operation. The bidder shall submit documentary evidence from the utility or client confirming the operational SCADA point count

Supporting Documents:

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- Project reference list
- Completion certificates or client references
- Purchase Orders/Contracts
- Project summary sheets

9.2 Relevant technical experience in Integration

The interested parties should have experience working with electricity distribution utilities and should demonstrate successful implementation of integrated operational technology solutions.

Experience in the following areas will be considered advantageous:

- Integration with GIS
- Integration with SCADA
- Integration with AMI/MDM
- SAP integration
- IEC 61850
- IEC 60870-5-104
- Secure ICCP/TASE.2
- CIM (IEC 61968/61970)

9.3 Team Experience

The interested parties shall demonstrate the availability of suitably qualified, relevant experienced, and dedicated personnel for the successful execution, commissioning, and support of the SCADA, ADMS, OMS, and DERMS project. The proposed team shall have proven experience in utility-scale transmission and distribution automation projects and shall remain available throughout the project lifecycle.

- Project Manager
- Solution Architect
- SCADA Engineers
- ADMS/DMS Specialists
- OMS Specialists
- Network Modelling Engineers
- GIS Integration Specialists
- Communication Engineers
- Cybersecurity Specialists
- Database Administrators
- Testing and Commissioning Engineers
- Training and Support Engineers

The bidder shall submit the following details for all key personnel:

- Curriculum Vitae (CV) indicating qualifications and relevant experience.
- Educational qualifications and professional certifications.
- Total years of experience.
- Years of experience in SCADA, ADMS, OMS, and DERMS projects.
- Role and responsibilities in the proposed project.
- Details of similar utility projects executed.
- Availability and deployment schedule for the proposed project.

9.4 Local Presence in India

The bidder shall ensure that **qualified and experienced resources are based in India** and are available throughout the project lifecycle to provide timely support for project execution, testing, commissioning, training, warranty services, AMC, system upgrades, cybersecurity support, and emergency response.

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9.5 Product Road Map

The proposed SCADA, ADMS, OMS, and DERMS platform shall be a commercially proven, mature, and production-ready solution. The proposed solution shall not be a prototype, beta version, pilot release, technology demonstration, or an experimental product.

The bidder shall provide complete details of the proposed solution, including:

- Product name and version.
- Current software release version.
- Product release history and major feature enhancements.
- Number of successful deployments worldwide and in India.
- Utility references using the proposed product version.
- Product architecture and technology stack.
- Product roadmap for future enhancements.
- Product support lifecycle, including End-of-Support (EOS) and End-of-Life (EOL) policy.
- Software upgrade policy and release frequency.
- Long-term product maintenance and support strategy.

9.6 Compliance with Technical Scope of work

- The interested parties shall confirm that the proposed **SCADA, ADMS OMS, and DERMS (only modelling)** solution complies with all technical, functional, performance, interoperability, cybersecurity, and integration requirements specified in this Expression of Interest (EOI).
- The interested parties shall submit a detailed **Compliance Matrix** against each technical requirement, clearly indicating the level of compliance using one of the following classifications:
 - **Complied (C):** The requirement is fully supported by the proposed standard solution without modification.
 - **Complied with Configuration (CC):** The requirement is supported through standard product configuration without custom software development.
 - **Partially Complied (PC):** The requirement is partially supported. The interested parties shall clearly identify the limitations and proposed approach to achieve full compliance.
 - **Not Complied (NC):** The requirement is not supported. The interested parties shall provide detailed justification and any proposed alternative solution.
- For every requirement classified as **CC, PC, or NC**, the interested parties shall provide:
 - A detailed technical explanation.
 - The proposed implementation approach.
 - Any product limitations or dependencies.
 - Any third-party products or custom development required.
 - The impact on project cost, implementation schedule, and future maintenance, if applicable.

9.7 Standard Compliance

The proposed solution should comply with internationally recognized standards, including, where applicable:

- IEC 61968
- IEC 61970 (CIM)
- IEC 61850

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- IEC 60870-5-104
- Secure ICCP/TASE.2
- IEC 62443 (Cybersecurity), CEA Cyber Security Guidelines / Regulations, NIST Cybersecurity Framework (CSF 2.0)
- ISO/IEC 27001, ISO/IEC 27002
- IEEE standards applicable to utility automation

The proposed solution should comply with Indian regulatory requirements for the Indian discoms, the following should be mandatory:

- Central Electricity Authority (CEA) Regulations
- CEA Technical Standards for Connectivity to the Grid
- CEA Regulations on Communication Systems for Power System Operation
- CEA Cyber Security Guidelines / Regulations (latest applicable version)
- CERT-In Directions for cybersecurity incident reporting
- Indian Electricity Grid Code (IEGC) (where applicable)
- Applicable State Electricity Regulatory Commission (SERC) guidelines
- Applicable CEA Technical Standards for substations and distribution systems

9.8 Legal & Financial Experience

In addition to the technical eligibility criteria set out above, the interested parties (including, in the case of a consortium, each consortium member) shall satisfy the following legal and financial eligibility requirements. Documentary evidence in support of each requirement shall be submitted along with the EOI response. These criteria are indicative for the EOI stage; BYPL reserves the right to prescribe more specific, quantified legal, financial and eligibility thresholds (including minimum average annual turnover, net worth, Earnest Money Deposit/Bid Security, and Performance Bank Guarantee requirements) in the subsequent RFP.

Legal Eligibility

- **Constitution and registration:** The interested party shall be a company, LLP, partnership firm, or other legal entity duly incorporated/registered under applicable Indian law (or the law of its home jurisdiction, in the case of a foreign OEM), and shall submit its Certificate of Incorporation/Registration and Memorandum and Articles of Association (or equivalent constitutional documents), as applicable.
- **Tax registrations:** Valid Permanent Account Number (PAN) and Goods and Services Tax (GST) registration certificate(s) issued under applicable Indian tax laws (or equivalent tax registration in the home jurisdiction for foreign entities).
- **No blacklisting/debarment:** The interested party shall not be under a declaration of ineligibility, blacklisting, or debarment for corrupt, fraudulent, or other prohibited practices by any Central or State Government department, public sector undertaking, DISCOM, multilateral funding agency, or regulatory authority in India or abroad, and shall furnish a self-declaration/undertaking to this effect.
- **Solvency and insolvency status:** The interested party shall not be insolvent, under liquidation or winding-up, or subject to Corporate Insolvency Resolution Process (CIRP) under the Insolvency and Bankruptcy Code, 2016, or any analogous proceeding, that could impair its ability to perform the contemplated contract.
- **Litigation disclosure:** The interested party shall disclose full particulars of any material litigation, arbitration, or regulatory proceeding (pending or concluded within the preceding three years) that could materially and adversely affect its ability to execute the project.
- **Authority to bind the entity:** A Power of Attorney or Board Resolution authorizing the signatory to submit the EOI response and to bind the interested party shall be furnished.

- **Consortium/Joint Venture arrangements:** Where the EOI response is submitted by a consortium of OEMs/System Integrators, the consortium shall furnish a duly executed Memorandum of Understanding (MoU) or Consortium Agreement (or an undertaking to execute one), identifying the Lead Member, the basis of liability among members (joint and several, unless otherwise specified), and the scope of work, roles, and responsibilities of each member. A definitive, legally binding Consortium/Joint Venture Agreement, in a form acceptable to BYPL, shall be a mandatory precondition to participation in the subsequent RFP and contract award.
- **Conflict of interest:** The interested party shall declare any existing or potential conflict of interest with BYPL, its promoters, directors, or employees, including any consultancy, advisory, secondment, or employment relationship that could compromise the integrity or fairness of the EOI/RFP process. BYPL reserves the right to disqualify any interested party where such a conflict is not disclosed or cannot be adequately mitigated.

Financial Eligibility

- **Turnover and net worth:** The interested party shall demonstrate a minimum average annual turnover over the preceding three financial years, and a positive net worth as per its latest audited balance sheet, in each case supported by audited financial statements or a Chartered Accountant-certified statement. Specific quantified thresholds shall be prescribed in the RFP.
- **Certification:** A certificate from a Chartered Accountant/Statutory Auditor, or a solvency certificate from a scheduled bank, confirming the financial standing of the interested party, may be required to be submitted along with, or subsequent to, the EOI response.
- **Credit rating (if available):** Interested parties are encouraged, though not mandatorily required at the EOI stage, to disclose any external credit rating assigned by a recognized credit rating agency.

Illustrative List of Documents to be Submitted

- Certificate of Incorporation/Registration and constitutional documents (MoA/AoA, LLP Agreement, Partnership Deed, as applicable).
- PAN and GST registration certificate(s).
- Audited financial statements/annual reports for the preceding three financial years.
- Self-declaration of no blacklisting/debarment and no conflict of interest.
- Power of Attorney/Board Resolution authorizing the signatory.
- Consortium MoU/Agreement (where applicable).
- Details of any pending or concluded material litigation, arbitration, or regulatory proceedings.

10.SUBMISSION REQUIREMENT

Interested parties shall submit a comprehensive response demonstrating their capability, experience, and readiness to undertake the **Design, Engineering, Supply, Installation, Configuration, Integration, Testing, Commissioning, Training, Documentation, Warranty, and Post-Implementation Support** for a comprehensive **SCADA, ADMS, OMS, and DERMS-integration-capable solution** on a turnkey basis. The response shall be complete, accurate, and supported by relevant documentary evidence, wherever applicable. **The key areas to be covered in the EOI response are outlined below:**

S.No	Submission	Detail	Compliance/Remarks
1	Company Profile and Organization Details	• Legal name of the company. • Registered office address. • Indian office address. • Year of incorporation. • Ownership/organization structure. • Parent/group company details, if applicable. • Business areas and core competencies. • Number of employees globally and in India.	

S.No	Submission	Detail	Compliance/ Remarks
		- Number of SCADA/ADMS/OMS/DERMS technical resources. - Details of manufacturing/product development facilities, if applicable. - Details of Indian technical support organization. - Details of partnerships, consortium members, OEMs, and technology partners.	
2	Company Financial details	Financial strength	
3	BYPL existing SCADA system Assessment plan & methodology	- Analysis based on the information given in the EOI, Queries, Meeting - Detailed system study, site survey, and requirement gathering (If required). Interested parties may undertake a site visit to BYPL facilities, including the Control Centre, relevant substations and other identified locations, subject to prior approval from BYPL. - Understanding on the ADMS EOI scope of work based on the assessment.	
4	Migration and Cutover plan - parallel migration methodology for building ADMS system.	- Assessment of proposed tentative architecture & migration methodology - Interested parties may propose any other technically sound plan or methodology that achieves seamless parallel operation, phased migration, and uninterrupted utility operations.	
5	Plan, Roadmap & methodology for the utilization of existing field infra, Scada system, field device networking & addressing	- Existing field infrastructure - Existing field device network addressing & components - SCADA system - The interested parties may propose any other technically sound methodology for the utilization on the existing field infra, architecture, RMU, FRTU, sensors.	
6	ADMS System Architecture with Bill of material	- Assessment of proposed tentative architecture & migration methodology in EOI - The interested parties may propose any other technically sound architecture that achieves seamless parallel operation, phased migration, and uninterrupted utility operations.	
7	ADMS networking architecture for real time data / Data acquisition strategy	- Assessment of proposed tentative architecture & migration methodology in EOI - The interested parties may propose any other technically sound architecture that achieves seamless parallel operation, phased migration, and uninterrupted utility operations.	

S.No	Submission	Detail	Compliance/Remarks
8	Project Documentation Schedule	Provide the list of project documentation with time line	
9	ADMS Network modelling scope for EHV, HT, LT network including the consumers	- Assessment of proposed tentative Scope - The interested parties may propose any other technically sound scope that achieves seamless parallel operation, phased migration, and uninterrupted utility operations.	
10	Database sizing	- Assessment of proposed sizing - The interested parties may propose any other sizing plan that achieves seamless parallel operation, phased migration, and uninterrupted utility operations. - Data base sizing impact on the system cost. example Up to 7 Lakh, up to 10 lakhs	
11	ADMS network modelling approach & methodology & database management	- CIM Complaint, Graphical modelling tool - Model management approach - HT and LT distribution network model maintained in the Utility's GIS shall be automatically synchronized with the ADMS network model. - GIS shall be the primary source of network topology, connectivity, geographical information and network asset attributes for both HT and LT networks. - Changes made in GIS shall be identified and propagated to the ADMS without requiring manual recreation of the complete network model.	
12	SCADA module compliance	- Compliance Statement - Provide capability description - Product detail - Installed References - Limitations - New features - Differentiators from competition - Road map - Content for RFP	
13	ADMS core module & advance application compliance & functionalities	- Compliance Statement - Provide capability description - Product detail - Installed References - Limitations - New features - Differentiators from competition - Road map	
14	Functionality demonstration	The Bidder shall demonstrate the FLISR (Fault Location, Isolation and Service Restoration) and AFR (Automatic Feeder Reconfiguration) functionalities using either:	

S.No	Submission	Detail	Compliance/Remarks
		1. a representative demo/test kit capable of demonstrating the complete functional logic and switching sequence or 2. a live/operational ADMS/DMS system implemented in another utility, subject to the Purchaser's acceptance. • Reports generated – DPF, FLISR, AFR • ADMS system capabilities • Network modelling tool	
15	OMS	• Compliance Statement • Provide capability description • Product detail • Installed References • Limitations • New features • Differentiators from competition • Road map	
16	Integration architecture ADMS - GIS OMS - CRM OMS – AVL OMS – Trouble call management OMS – FFA ADMS – AMI ADMS – SIEM/SOC	• Assessment of proposed tentative architecture & migration methodology in EOI • The interested parties may propose any other technically sound architecture that achieves seamless parallel operation, phased migration, and uninterrupted utility operations. • Provide a detailed high-level architecture showing required data exchange with work flow • Compliance Statement • Provide capability description • Product detail • Installed References • Limitations • New features • Differentiators from competition • Road map	
17	Procurement methodology	• High light the advantages & disadvantages of both options. • Impact of options listed out in section 5.12 on time line	
18	System Hardware & networking Installation methodology	• System Hardware & networking Installation methodology for option 1 & option 2 listed out in the section 5.12	
19	System software Configuration methodology	• System software Configuration methodology for option 1 & option 2 listed out in the section 5.12	
20	Testing methodology, plan, time line, venue,	• Testing will be planned in interested party premises or BYPL premises • Impact of options listed out in section 5.12 on the testing approach, premises	

S.No	Submission	Detail	Compliance/Remarks
		Boarding, lodging and other incidental expenses of the bidder's personnel deployed for testing, commissioning, FAT, SAT and related activities shall be borne by the interested parties and shall be included in the quoted price.	
21	Training plan, methodology, course content	Differentiators from competition	
22	Warranty Methodology	Warranty methodology of the ADMS system	
23	AMC support compliance & methodology	- Compliance Statement - Provide capability description - Product detail - Installed References - Limitations - New features - Differentiators from competition - Road map - AMC Year on Year basis	
24	Highlight the benefits driven by the level of field automation	- It's impossible to do the motorization in a single shot. Propose a high level RMU automation methodology to retrieve the maximum benefit from the ADMS software - Assessment of proposed methodology in EOI	
25	Relevant experience	- List of Similar Utility References in India and Globally - Integration - Team experience, Team structure, - Product Road map - Product Version, Technology Roadmap and Lifecycle - Proposed Project Organization and Key Personnel - Escalation matrix	
26	Compliance	- Legal terms - Financial terms - General terms	
27	Detailed implementation schedule covering all project activities from the Effective Date of the Contract.	- Milestone based with timelines - Break those milestones in activities - Map those Milestone with payment plan - Map Activities in which inputs are required from BYPL	
28	Scope responsibility matrix for the ADMS system implementation –	Interested party & BYPL responsibility matrix	

S.No	Submission	Detail	Compliance/ Remarks
29	Spare methodology / Requirements		
30	Cybersecurity Approach and Applicable Standards	Integration with the existing SIEM/ SOC system	
31	UPS sizing for the required ADMS architecture	UPS sizing for the required ADMS architecture for the backup of 4 hrs	
32	Any additional recommendations or suggestions considered relevant to successful implementation of the proposed ADMS solution.	Recommendations based on the assessment, OEM experience, use case delivered in the past, other utility experience	
33	GIS data Assessment of 4 feeders	- Interested Parties shall analyse the GIS data for the four selected feeders and submit a detailed GIS Data Assessment Report. classify identified GIS issues at minimum as Critical: Issues that prevent creation or operation of the ADMS network model Major: Issues that may affect ADMS applications or network analysis Minor: Issues that do not prevent model creation but should be corrected for improved data quality, reporting, or visualization. Share the format in which GIS extracted data is required, its methodology, types & benefits	
34	Provide the methodology for extracting network data from GIS in a CIM-compliant format suitable for import into ADMS.	- As part of the initial GIS assessment, the bidder shall convert/extract the GIS data for the four selected feeders into the proposed CIM-compliant format and demonstrate successful loading/translation into the ADMS network model. - proposed solution shall support automated or semi-automated updating of the ADMS network model from GIS using CIM-compliant data exchange. - The bidder shall explain how the system will handle: - New Asset - Modified Asset - Deleted Asset - Connectivity Change - Attribute Change - ADMS Model Update	

S.No	Submission	Detail	Compliance/ Remarks
		- The Interested parties shall provide a CIM-compliant mechanism for extraction and exchange of the electrical network model from GIS to ADMS based on applicable IEC 61968/61970 Common Information Model standards. The bidder shall clearly specify the CIM version, profiles, supported classes, attributes, connectivity representation, data exchange format, validation mechanism, and GIS-to-CIM/ADMS mapping methodology GIS data extraction adapters, interfaces, connectors, tools and associated licenses required for extraction and synchronization of HT and LT network data from the Utility's existing GIS system to the ADMS. - The cost of all such GIS data extraction adapters/interfaces, licenses, development, configuration, integration, testing, commissioning and associated services shall be included in the Bidder's quoted price	

11.INDICATIVE PROJECT PHASING

The interested parties shall complete the entire scope of work, including design, engineering, procurement, supply, installation, integration, testing, commissioning, training, Go-Live, stabilization, and final acceptance of the ADMS solution within **18 (Eighteen) months** from the Effective Date of the Contract.

The interested parties shall submit, as part of the EOI response, a **detailed implementation schedule** covering all project activities. The schedule shall clearly identify the project phases, milestones, task dependencies, resource deployment, critical path, and deliverables.

At a minimum, the implementation schedule shall include the following phases:

1. Project Mobilization and Kick-off
2. Requirement Validation and Detailed Engineering
3. Field Infrastructure Assessment and Network Planning
4. Procurement and Manufacturing
5. Field Infrastructure Modernization (RMU Motorization, FRTU Installation, Communication Infrastructure, etc.)
6. IT Infrastructure Deployment
7. ADMS Software Installation and Configuration
8. Network Model Development and GIS Data Validation
9. Integration with SCADA, GIS, SAP, AMI, CRM/CIS, and other enterprise systems
10. Factory Acceptance Test (FAT)
11. Site Installation and Commissioning
12. Site Acceptance Test (SAT)
13. Performance, Availability, and Cybersecurity Testing
14. User Acceptance Test (UAT)
15. Training and Knowledge Transfer

16. Go-Live and Stabilization
17. Final Acceptance and Project Closure
18. Escalation record, matrix during execution period

Respondents shall propose a detailed, risk-managed implementation roadmap. The following stages are indicative and may be refined by BYPL in the subsequent RFP:

Phase	Indicative activities and deliverables
1. Mobilisation and discovery	Project governance, site survey, current-state assessment, requirements validation, data and interface inventory.
2. Detailed design	Target architecture, cybersecurity design, integration design, network model strategy, HA/DR, migration and cutover plans.
3. Build and configuration	IT Infrastructure readiness , application configuration, interfaces, network model, displays, reports and workflows.
4. Integration and testing	FAT, integration testing, SAT, performance, security, failover and disaster-recovery testing.
5. Parallel operation and cutover	Phased migration, data validation, operator readiness, controlled cutover, rollback readiness and hypercare.
6. Support and optimisation	Warranty, AMC/support, upgrades, knowledge transfer, preventive maintenance and performance optimisation.

12.INDICATIVE SCHEDULE / TIMELINE

S. No	Activity	Indicative Timeline (Working Days)	Objective
1	EOI Published	Day 0, 23 Sep 2026	Invitation
2	EOI - Prebid Meeting The Pre-Bid Physical Meeting is scheduled to be held at the BYPL SCADA Centre, Shankar Road, New Delhi – 110060.	Day 9, 1 Oct 2026, 11:30 hrs	BYPL will explain the project objective, scope, requirements. This meeting will be face to face/ Remotely Online Meeting Link: https://teams.microsoft.com/l/meetup-join
3	Site assessment (If required)	Day 0-15, Till 7 Oct 2026	Interested parties take prior appointment for assessment
4	Submission of EOI Pre-Bid Queries	Day 0-17, By 9 Oct 2026, 18:00 hrs	Interested parties submit the queries under 2 buckets - Technical, and Legal & Commercials as per Annexure VIII
5	Issue of Responses to EOI queries	Day 22, By 14 Oct 2026	BYPL publish the clarifications/ response on the queries
6	EOI response submission	Day 30, By 22 Oct 2026, 15:00 hr	Interested parties submit EOI responses
7	Technical Presentations/ Product Demonstrations/ one to one technical discussion	After 22 Oct 2026, As scheduled	Present ADMS solution, architecture, and implementation approach as submitted by interested parties. The schedule for the presentation/demo of the EOI bidders will be communicated separately by BYPL.
8	EOI Closure	As per BYPL Schedule	-

13.SUBMISSION INSTRUCTIONS AND SCHEDULE

Responses must be uploaded on SRM no later than due date of bid submission. Late, incomplete, wrongly uploaded, or non-SRM submissions may be rejected at BYPL's sole discretion. Respondents shall submit their respective documents in SRM. If BYPL requires any original document, it shall be delivered in a sealed envelope marked 'EOI - BYPL ADMS - RFx 2200000208 - [Name of Respondent]' to the address specified below on or before the deadline.

13.1 SRM registration and portal access

Non-registered respondents shall request SRM user credentials from Sumit.Ra.Verma@reliancegroupindia.com and Rakesh.Ku.Sharma@reliancegroupindia.com, using Annexure X and attaching the power of attorney/authorisation for the nominated portal contact. Respondents shall allow adequate time to obtain credentials and familiarise themselves with the SRM user manual.

13.2 Physical submission address

Contracts & Materials Department, 3rd Floor, A-Block, BSES Yamuna Power Limited, Shakti Kiran Building, Karkardooma, Delhi - 110032.

14.INDICATIVE COMMERCIAL TERMS & CONDITIONS INFORMATION

The Respondents shall provide broad, non-binding and indicative commercial terms and conditions applicable to the proposed solution. No price, rate, or financial bid is required to be submitted at the EOI stage. The information provided shall assist BYPL in understanding the key commercial considerations, cost drivers, contractual assumptions and lifecycle requirements associated with the proposed solution, and in formulating the subsequent RFP.

Respondents shall clearly identify all material commercial assumptions, qualifications, exclusions, dependencies and contractual conditions relevant to their proposed solution. The indicative information shall not constitute a commercial offer or create any price commitment or contractual obligation on either party.

The Respondents shall, as applicable, provide their views/proposals on the following broad commercial aspects:

1. Currency and Price Basis: Respondents shall indicate the proposed currency and general pricing basis that they envisage for the subsequent procurement. Any anticipated foreign-currency exposure, exchange-rate assumptions, price-escalation mechanism or other factors that may have a commercial impact shall be separately identified. **No actual prices or rates are required at the EOI stage.**

2. All-Inclusive Scope: Respondents shall confirm the scope of obligations that, in their view, should be considered essential for delivering the proposed solution on a turnkey and fully operational basis, including activities, resources, services, licences, interfaces and dependencies that may be reasonably necessary but are not explicitly stated in the EOI.

3. Indicative Cost Drivers / Cost Components: Respondents shall identify the major cost components and cost drivers associated with the proposed solution, including, as applicable, design and engineering, survey, hardware, software/database licences, operating systems and middleware, integrations, data migration, network modelling, testing, cybersecurity, HA/DR, training, documentation, project management, installation, commissioning, cutover, warranty, AMC/support, upgrades, patches, spares, subscriptions and third-party charges. **No price breakup is required.**

4. Payment Terms and Milestones: Respondents shall indicate their proposed payment terms and milestone structure that they consider appropriate for a project of this nature.

EOI - ADMS NIT NO: CMC/BY/26-27/RB/SkS/SV/32 [RFx Number: 2000001193]	Page 49 of 63	Bidders seal & Signature
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5. Performance Guarantee: Respondents shall indicate the generally applicable Performance Guarantee requirements, including the proposed form, amount/percentage, validity and other relevant conditions.

6. Defects Liability / Warranty / Guarantee: Respondents shall indicate the proposed Defects Liability Period, Warranty/Guarantee period and associated terms and conditions applicable to the proposed solution.

7. Liquidated Damages: Respondents shall indicate the generally applicable Liquidated Damages provisions, including the proposed rate, maximum limit and conditions for applicability.

8. Taxes and Statutory Levies: Respondents shall identify the applicable categories of taxes, duties, cess, levies and other statutory charges that may be relevant to the subsequent procurement and indicate any specific taxation assumptions requiring consideration. **No tax amount or price quotation is required at the EOI stage.**

9. Delivered-Cost Considerations: For hardware and other physical items, Respondents shall identify the cost elements that would ordinarily be considered for delivery at BYPL site(s), including packing, forwarding, freight, insurance, transportation, unloading, installation and other associated costs. Any material exclusions shall be clearly identified.

10. Infrastructure Options: Respondents shall provide their proposed commercial/contractual considerations for the following alternatives:

- (i) **BYPL-supplied IT infrastructure; and**
- (ii) **Turnkey vendor-supplied IT infrastructure.**

For each option, Respondents shall identify the relevant interfaces, dependencies, infrastructure ownership, support obligations, lifecycle responsibilities and material exclusions. **No price information is required.**

11. Recurring / Lifecycle Cost Considerations: Respondents shall identify the major recurring and lifecycle cost elements, including licences/subscriptions, cloud or hosting, if applicable, warranty, AMC/support, cybersecurity updates, upgrades, spares and third-party maintenance. Respondents shall also indicate applicable renewal, escalation/inflation and contract-extension assumptions.

12. Exclusions and Additional Commercial Considerations: Any item, service, licence, third-party product, resource, travel requirement or dependency that may be necessary for implementation or continued operation of the proposed solution but is not included within the stated scope shall be specifically identified. BYPL may use this information to assess lifecycle cost drivers and formulate appropriate provisions in the subsequent RFP.

13. Future RFP: The commercial terms and conditions obtained through this EOI may be considered for formulation of the subsequent RFP. The subsequent RFP may prescribe firm prices, payment terms, performance security, liquidated damages, warranty/support obligations and other contractual conditions.

This EOI does not constitute a request for price quotation, does not create any price commitment, and does not create any contractual or financial liability on BYPL or the Respondent.

15. GENERAL TERMS & CONDITIONS

1. **Nature of EOI.** This EOI is intended solely as a market-sounding exercise. It does not constitute a tender, offer, promise, or commitment by BYPL to procure, award, negotiate, or enter into any contract with any Respondent
2. **Rights of BYPL.** BYPL reserves the right, at its sole discretion, to accept or reject any or all responses; seek clarifications or additional information; verify the information submitted; modify the scope, schedule, process, or evaluation methodology; shortlist or not shortlist any Respondent; or suspend, withdraw, amend, or cancel this EOI at any stage, without assigning any reason and without incurring any liability.
3. **Language.** This EOI, all responses submitted thereto, and all related communications shall be in the English language.
4. **Governing Law and Jurisdiction.** This EOI shall be governed by and construed in accordance with the laws of India. The courts at Delhi shall have exclusive jurisdiction over any dispute arising out of or in connection with this EOI.
5. **Costs.** Each Respondent shall bear all costs and expenses associated with the preparation and submission of its response, including presentations, demonstrations, meetings, clarifications, and any other activities related to this EOI. BYPL shall not be liable for or reimburse any such costs or expenses.
6. **Accuracy and Verification.** All information, certifications, declarations, and documents submitted by the Respondent shall be true, complete, accurate, and current. BYPL reserves the right to independently verify any information submitted. BYPL may reject a response if any information is found to be inaccurate, incomplete, misleading, forged, or unverifiable.
7. **Clarifications.** BYPL may seek written clarifications, explanations, or supporting documents from any Respondent. Any clarification shall not materially alter or change the substance of the EOI response, except where specifically permitted or requested by BYPL.
8. **Amendments and Corrigenda.** Any amendment, corrigendum, clarification, extension, modification, or cancellation issued by BYPL through its SRM platform or official website shall form an integral part of this EOI and shall be binding on all Respondents. Respondents shall be responsible for regularly monitoring the designated communication channels until the submission deadline.
9. **Confidentiality.** Respondents shall maintain strict confidentiality of all information, documents, data, and materials received from BYPL in connection with this EOI and shall use such information solely for the purpose of preparing and submitting their response. BYPL shall treat the submissions as confidential, subject to applicable laws, regulatory requirements, and its internal governance requirements. BYPL may require execution of a detailed Non-Disclosure Agreement at the RFP stage.
10. **Intellectual Property and Data.** Each Respondent shall retain ownership of its pre-existing intellectual property. All data, drawings, network information, credentials, documents, and other information provided by BYPL shall remain the property of BYPL and shall not be copied, disclosed, transferred, or used for any purpose other than this EOI without the prior written approval of BYPL.

11. **Conflict of Interest.** Respondents shall disclose any actual, potential, or perceived conflict of interest, including any relationship with BYPL personnel, consultants, advisers, or other parties associated with this EOI. Failure to disclose any such conflict may result in rejection or disqualification of the response.
12. **Anti-Bribery and Anti-Corruption.** The Respondent and, in case of a consortium, each consortium member, warrants that it has not engaged and undertakes that it shall not engage, directly or indirectly, in any corrupt, fraudulent, coercive, collusive, or obstructive practice in connection with this EOI or any subsequent RFP or contract. Any breach of this undertaking may result in rejection or disqualification, blacklisting, and/or such other action as BYPL may deem appropriate.
13. **Consortiums and OEM Authorisation.** A consortium response shall clearly identify the lead member, the scope of work, roles, and responsibilities of each consortium member, along with the proposed governance and accountability structure. Where the Respondent is not the OEM of a proposed product or solution, valid OEM authorisation shall be submitted, wherever applicable.
14. **Compliance with Applicable Laws.** Respondents shall comply with all applicable laws, rules, regulations, and statutory requirements of India, including, but not limited to, the Companies Act, 2013; Information Technology Act, 2000; Digital Personal Data Protection Act, 2023; Electricity Act, 2003 and regulations issued thereunder; applicable labour laws; competition laws; and, where applicable, export control and foreign exchange regulations.
15. **Data Protection and Cybersecurity.** Any personal, operational, technical, network, or other data shared by BYPL for the purposes of this EOI shall be used solely for evaluation of the response and shall be protected and handled in accordance with applicable laws and requirements. Detailed requirements relating to data protection, data localisation, cybersecurity, information security, and incident reporting shall be specified in the RFP and definitive contract, as applicable.
16. **No Reliance and No Price Commitment.** Any information, data, specifications, estimates, or other material provided by BYPL as part of this EOI shall be considered indicative unless expressly stated otherwise. Respondents shall independently satisfy themselves regarding the requirements and conditions applicable to the proposed project. Any indicative commercial information submitted by a Respondent shall be non-binding and shall not constitute a financial or price bid.
17. **One Response and Completeness.** Each Respondent may submit only one EOI response, either independently or as the identified lead member of one consortium. The response shall be complete, duly authorised, and substantially responsive to the requirements of this EOI. BYPL reserves the right to reject any incomplete, materially deficient, or non-responsive response.
18. **Confidentiality of Evaluation Process.** Information relating to the examination, clarification, evaluation, and shortlisting of EOI responses shall remain confidential and shall not be disclosed to persons not officially involved in the process. Any attempt by a Respondent or its representatives to improperly influence the evaluation or decision-making process may result in rejection or disqualification.
19. **Ethics and Compliance.** Respondents and their personnel shall comply with all applicable laws and ethical standards, including requirements relating to anti-bribery and anti-corruption,

fair labour practices, environmental protection, cybersecurity, information security, and BYPL's applicable Supplier Code of Conduct specified in Annexure IX.

20. **Force Majeure.** Neither BYPL nor any Respondent shall be liable for any delay or failure in performing its obligations in connection with the EOI process to the extent such delay or failure arises from an event beyond the reasonable control of the affected party. Detailed force majeure provisions applicable to the ADMS implementation and support contract shall be incorporated in the RFP and definitive contract.
21. **Indemnity and Limitation of Liability.** Detailed provisions relating to indemnity, warranties, and limitation of liability applicable to the ADMS implementation and support contract shall be specified in the RFP and definitive contract. Such provisions shall be commensurate with the scope, value, complexity, and risk profile of the project.
22. **Assignment.** No Respondent shall assign, transfer, or subcontract any of its rights or obligations arising from or in connection with this EOI without the prior written consent of BYPL.
23. **Severability.** If any provision of this EOI is held to be invalid, illegal, or unenforceable by a competent authority, such provision shall, to the extent required, be severed or modified, and the remaining provisions shall continue to remain valid and enforceable.

16. CONTACT INFORMATION

Queries shall be submitted in writing before the stated deadline. BYPL may issue consolidated responses to all respondents without identifying the source of a query.

Category	Contact Person	Email
Technical	Ravinder Saharan, GM (IT)	Ravinder.Saharan@reliancegroupindia.com
Technical	Anil Vashy, VP (PCC)	Anil.Vashy@reliancegroupindia.com
Technical	Lalit Kumar, AVP (IT)	Lalit.V.Kumar@reliancegroupindia.com
Technical	Nitin Galande, VP (HOD-IT)	Nitin.Galande@reliancegroupindia.com
Legal	Rohit Sharma, Asst. VP (Legal)	Rohit.J.Sharma@reliancegroupindia.com
Commercial	Sumit Verma, Asst. VP (C&M)	Sumit.Ra.Verma@reliancegroupindia.com
Commercial	Santosh Singh, Addl. VP (Head-Procurement)	Santosh.Kum.Singh@reliancegroupindia.com
Commercial	Rakesh Bansal, VP (HOD-C&M)	Rakesh.Bansal@reliancegroupindia.com

ANNEXURE I - EOI RESPONSE COVERING LETTER

[To be submitted on the Respondent's letterhead]

Date: _____

To: BSES Yamuna Power Limited, Contracts & Materials Department, Shakti Kiran Building,
Karkardooma, Delhi - 110032

Subject: Response to EOI for Selection of ADMS Technology - RFx 2200000208

Dear Sir/Madam,

We, [Respondent legal name], having examined the EOI document, submit our Expression of Interest for the above requirement. We confirm that the information furnished is true and complete; we accept the EOI terms and conditions; and we authorize BYPL to verify the information provided. We understand that this EOI does not create any obligation on BYPL to issue an RFP or award a contract.

Authorised Signatory: _____

Name and designation: _____

Company seal: _____

ANNEXURE II - RESPONDENT INFORMATION

Field	Response
Legal name of respondent	
Registered address	
Country and year of incorporation	
Legal status / constitution	
PAN	
GSTIN	
CIN / registration number	
Website	
OEM / System Integrator / Consortium	
Consortium lead and member roles, if applicable	
Authorised signatory and contact details	
Primary contact for this EOI	

ANNEXURE III - ELIGIBILITY AND DOCUMENT COMPLIANCE INDEX

No.	Eligibility / document requirement	Evidence enclosed	Page no(s).
1	Corporate registration, PAN and GST registration		
2	Authorisation / power of attorney of signatory		
3	ADMS / SCADA / DMS / OMS / DERMS project experience		
4	Utility integration experience and standards capability		
5	Key personnel and India support capability		
6	Product release history, deployments and roadmap		
7	Technical compliance matrix		
8	Financial soundness declaration and supporting documents		
9	Declarations and code of conduct acknowledgement		

ANNEXURE IV - PROJECT REFERENCE DETAILS

Provide one sheet for each relevant project. Attach supporting purchase order/contract extracts, completion certificates, and client references where available.

Field	Response
Customer / utility name and country	
Project title and scope	
Modules delivered (SCADA / ADMS / DMS / OMS / DERMS)	
Network size and operating voltage levels	
Key integrations / protocols / CIM implementation	
Project value and execution period	
Go-live / completion date and current status	
Respondent's role (OEM / SI / consortium member)	
Customer reference contact details	
Evidence enclosed and page no(s).	

ANNEXURE V - KEY PERSONNEL AND INDIA SUPPORT CAPABILITY

No.	Role	Name	Relevant experience	Location / availability
1	Project Manager			
2	Solution Architect			
3	SCADA / ADMS Specialist			
4	OMS Specialist			
5	Network Modelling / GIS Specialist			
6	Cybersecurity Specialist			
7	Integration / Communications Specialist			
8	Support / AMC Lead			

Describe the respondent's local support model, helpdesk arrangement, escalation structure, OEM back-to-back support, and availability of spares/services in India.

ANNEXURE VI - TECHNICAL AND SCOPE COMPLIANCE MATRIX

Use C = Complied; CC = Complied with Configuration; PC = Partially Complied; NC = Not Complied.
For every CC, PC or NC response, explain the approach, dependency, limitation, third-party product/custom development, and impact on cost, schedule and maintenance.

EOI clause / requirement	Response (C/CC/PC/NC)	Solution / remarks	Reference / page no.

ANNEXURE VII – DECLARATION

[To be submitted on the Respondent's letterhead]

- We confirm that all information and documents submitted in this EOI response are genuine, true and correct.
- We have disclosed all actual, potential or perceived conflicts of interest relevant to this EOI.
- We have not offered and will not offer any improper payment, inducement or advantage in connection with this EOI.
- We will protect BYPL confidential information and use it only for this EOI response.
- We accept the General Terms and Conditions of this EOI and understand that participation does not create any entitlement to an RFP or contract.

Authorised Signatory: _____

Name and designation: _____

Date and Company seal: _____

ANNEXURE VIII - CLARIFICATION / DEVIATION SCHEDULE

Respondents should avoid deviations. If any clarification or deviation is essential, it shall be stated clause-by-clause below. Silence will be construed as acceptance of the relevant EOI requirement.

No.	EOI Pdf Page No.	EOI Clause No.	EOI Clause Descriptions	Clarification / deviation and Justification
1				
2				
3				
4				

ANNEXURE IX - SUPPLIER CODE OF CONDUCT ACKNOWLEDGEMENT

The respondent confirms that it and its personnel, agents and subcontractors shall, at all times, comply with applicable laws and uphold the following principles:

- ethical business conduct, fair competition and zero tolerance for bribery, fraud, collusion and conflicts of interest;
- safe, fair and lawful working conditions, including prohibition of child labour, forced labour and discriminatory practices;
- protection of human rights, health, safety and the environment;
- protection of BYPL assets, data, intellectual property and confidential information; and
- accurate books, records, disclosures and cooperation with legitimate audit or verification requests.

We acknowledge and accept the above Supplier Code of Conduct principles.

Authorised Signatory: _____

Name and designation: _____

Date and Company seal: _____

ANNEXURE X - SRM REGISTRATION / PORTAL ACCESS REQUEST

To be completed by non-registered respondents seeking SRM user credentials. Attach a valid power of attorney or authorisation in favour of the nominated portal contact.

Field	Response
Existing vendor code with BYPL or group/associate companies, if available	
Legal / trade name	
Principal place of business	
Nominated portal contact - name	
Nominated portal contact - designation	
Nominated portal contact - mobile number	
Nominated portal contact - email address	
Power of attorney / authorisation attached	Yes / No