# BSES Rajdhani Power Limited
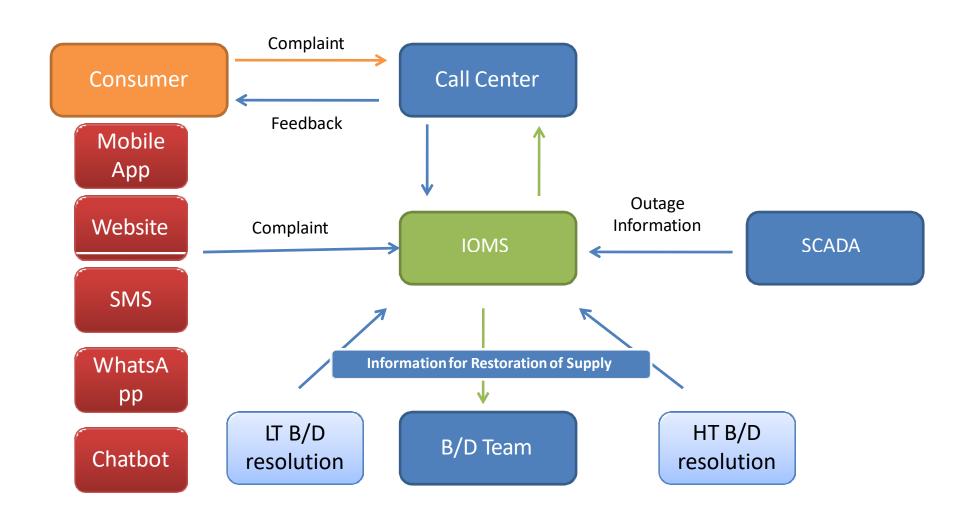
# Outage Management at BRPL

# Outage Management at BRPL



**Consumer** → Complaint → **Call Center**

**Call Center** → Feedback → **Consumer**

Mobile App · Website · SMS · WhatsApp · Chatbot

Website → Complaint → **IOMS**

**Call Center** ↔ **IOMS**

**SCADA** → Outage Information → **IOMS**

**Information for Restoration of Supply**

**LT B/D resolution** · **B/D Team** · **HT B/D resolution**

**BSES**

# SCADA at BRPL



**RTU**
Remote Terminal Unit

**Communication Interface**
Router, LAN Switch, N/w cable, Modem

**MCC**
Master Control Center

**SCADA** COMPONENTS

- ➤ Upgraded & Latest ABB Network Manager 6.5
- ➤ User Defined Control Sequence
- ➤ Flexible Operator Authority
- ➤ Instant and Historical Trending
- ➤ Inbuilt ICCP application for Data Exchange with DTL

**BSES**

# Benefits derived after SCADA implementation

➢ Remote operations of Circuit Breakers and Isolators

➢ Remote operations on load tap positions of transformers

➢ Automatic Capacitor Switching

➢ Maintain voltage profiles

➢ Improved Load Management in the event of Under Frequency

➢ Cable fault isolation and supply restoration

➢ Station information, Battery status

➢ Power transformer condition monitoring – WTI,OTI Tap change count, OLTC status

➢ Analysis of Feeder loadings, trends, and corrective measures

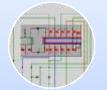➢ Event Analysis up to micro second resolution in case of contingencies

**BSES**

# Intelligent Outage Management System

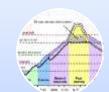# I-OMS – GIS based Intelligent Outage Management System at BRPL

**Collection of Applications Designed to Monitor & Manage the Entire Distribution Network of BRPL**

| Convergence of SCADA, GIS, SAP ISU and SAP R3 | Monitoring, analysis, optimization | Reports on Reliability & Review Mechanism | Incident Management and Prediction | Fault & crew management |
|---|---|---|---|---|

**Integration of all**

**Integrates coordinates and displays data from many sources.**

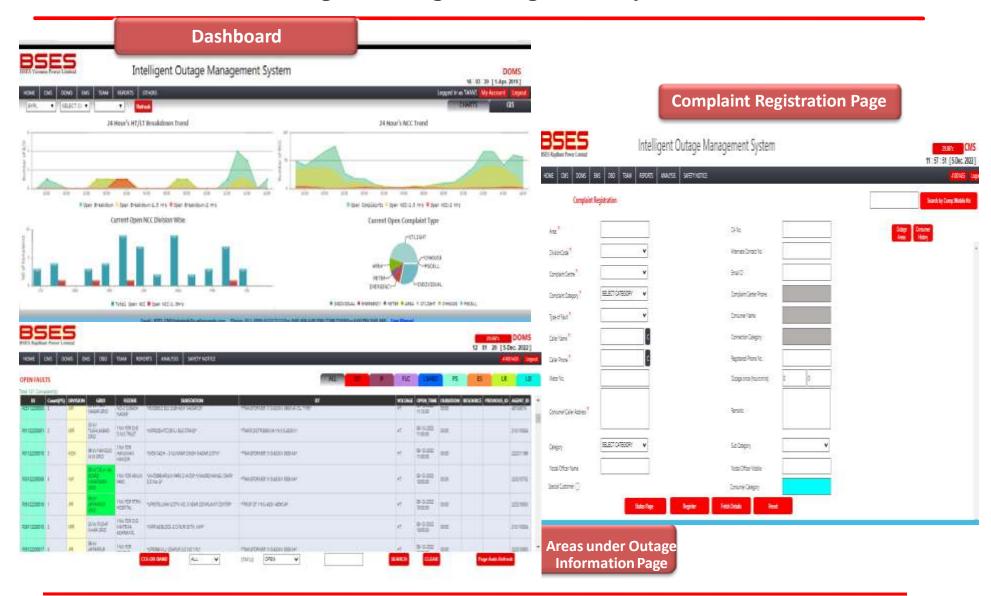**Prediction Engine for intelligent grouping of complaints**

**One step on the way to the "smart grid."**

**Includes computer algorithms to aid the decision making**

- Helps in assessing where troubles exist and how extensive the outage is.
- Helps to identify which customers are affected.
- Helps prioritize restoration efforts.
- Helps in calculating restoration time.
- Helps manage crews and other resources.
- Keeps track of critical infrastructure such as emergency and fire departments so restoration can be prioritized.

**BSES**
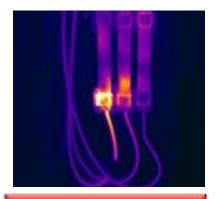
# I-OMS – GIS based Intelligent Outage Management System at BRPL



Dashboard

Complaint Registration Page

Areas under Outage Information Page

# Reliability Improvement Drivers

# Initiatives: Reliability Improvement… *24×7 Power for all*



**PD Measurement**

- ➤ Tests conducted are on 11kV / 33kV - End Boxes
- ➤ Partial Discharge is measured in is measured in decibels
- ➤ In case of PD in identified – house repairs are done.
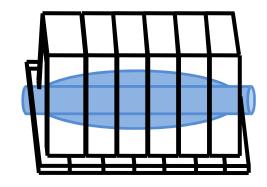


**Hot Spot Scanning**

- ➤ Temperature on LT side of DT measured using the Temperature Guns
- ➤ Manages High Temperature not visible through Naked Eye
- ➤ Proactive Maintenance undertaken



**Trfs Oil quality Testing**

- ➤ Predictive On-Site Measurement of Vital Parameters of Transformer Oil like BDV, Acidity etc.
- ➤ Maintenance is carried on affected DT's



**RMU & LT ACB Repair Workshop**

- ➤ Established RMU Workshop for In House repairing
- ➤ Faster repairing Cycle
- ➤ Approx. 200 RMU's repaired

**BSES**

# Initiatives: Reliability Improvement… *24×7 Power for all*



## Predictive Maintenance

➢ Movement from Preventive to Predictive Maintenance based on scheduled inspections
➢ Reduction in outage events and duration

## FPI Installation

➢ Activation of Fault Passage Indicators on installed RMU's
➢ Improvement in Fault location and Faster Resolution

## Coffins to Protect cable Joints

➢ RCC Protective covers being put up over the underground joints
➢ Provides safety against damages by other agencies digging

## Data Analytics

➢ Leading to prediction of overloaded and unbalanced transformers
➢ Feeders Repeated Failure Analysis
➢ RMU failure analysis

**BSES**

# Initiatives: Reliability Improvement… *24×7 Power for all*



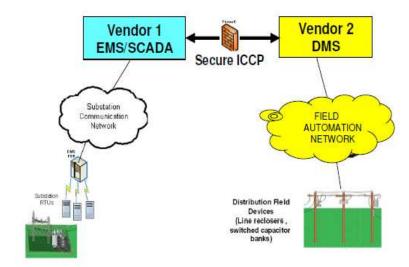| **Transformer overload protection** | **Shutdown Monitoring & online PTW system** | **Mobile Based Applications** | **Auto Load transfer** |
|---|---|---|---|
| ➢ Automated application to monitor and control overloading on power transformer.<br>➢ No outage of power transformer in recent two summer seasons. | ➢ Daily monitoring of planned shutdowns activity and follow up with division<br>➢ Online permit to work development for easy shutdown and clearance during outage. | ➢ SCADA LIVE application developed for instant access of BRPL network parameters for efficient control and monitoring. | ➢ Automated load transfer system in case of any outage at grid level at critical installations using advance technology instruments. |

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## Distribution Management System at 11 KV

➢ **RMU Automation at 11 KV S/Stn level**

➢ **Monitoring and Control of 11 KV Network from SCADA Center**

➢ **Fault isolation & remote restoration**
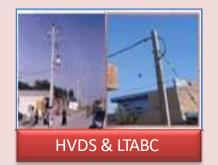
# Key Interventions for Loss drive
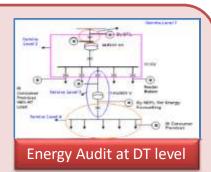
## DT Cleaning

- ➢ **Removal of Illegal Tapping**
- ➢ **Identification of unbilled Street Light points**
- ➢ **Relocation/replacement of meters in box to minimize tampering**
- ➢ **Use of armoured cable**

## Use of Analytics for Theft control



"Meter Relocation" program



Anti Theft derive



HVDS & LTABC



Energy Audit at DT level

# THANK YOU

www.bsesdelhi.com