BSES Rajdhani Power Limited
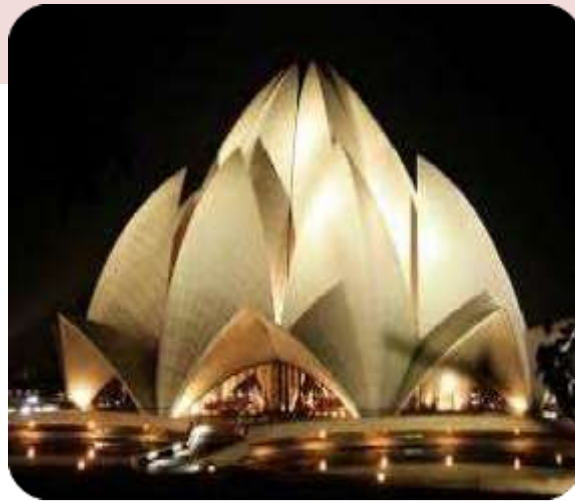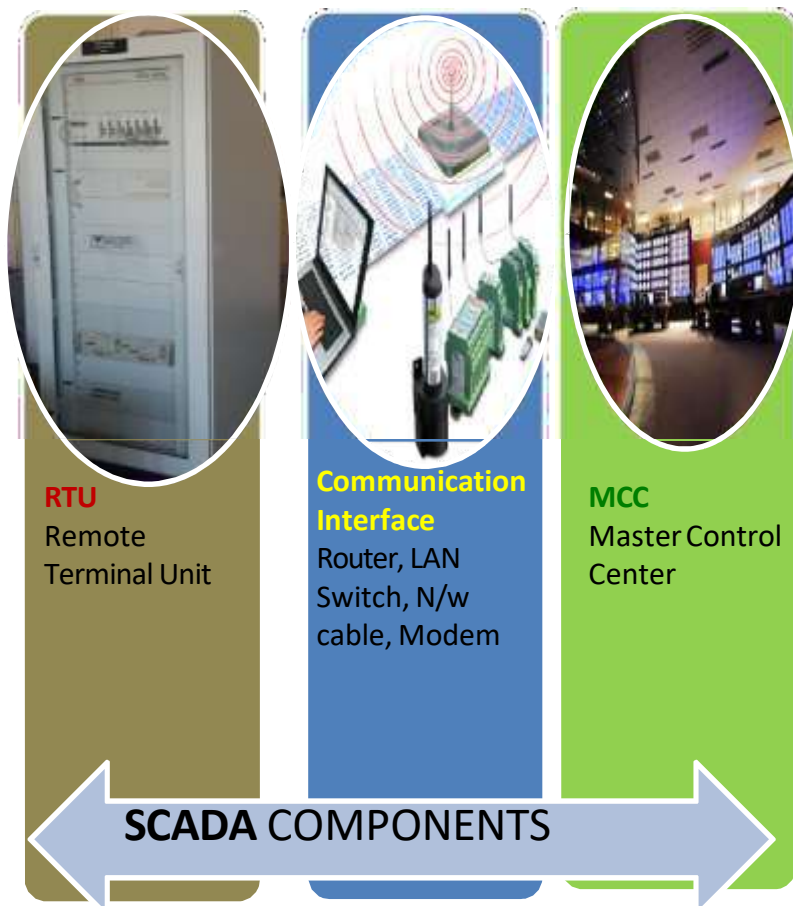
Outage Management at BRPL

Outage Management at BRPL

Consumer — Complaint → Call Center

Call Center → Feedback → Consumer

Mobile App

Website — Complaint → IOMS

WhatsApp

Chatbot

IOMS ← Outage Information ← SCADA

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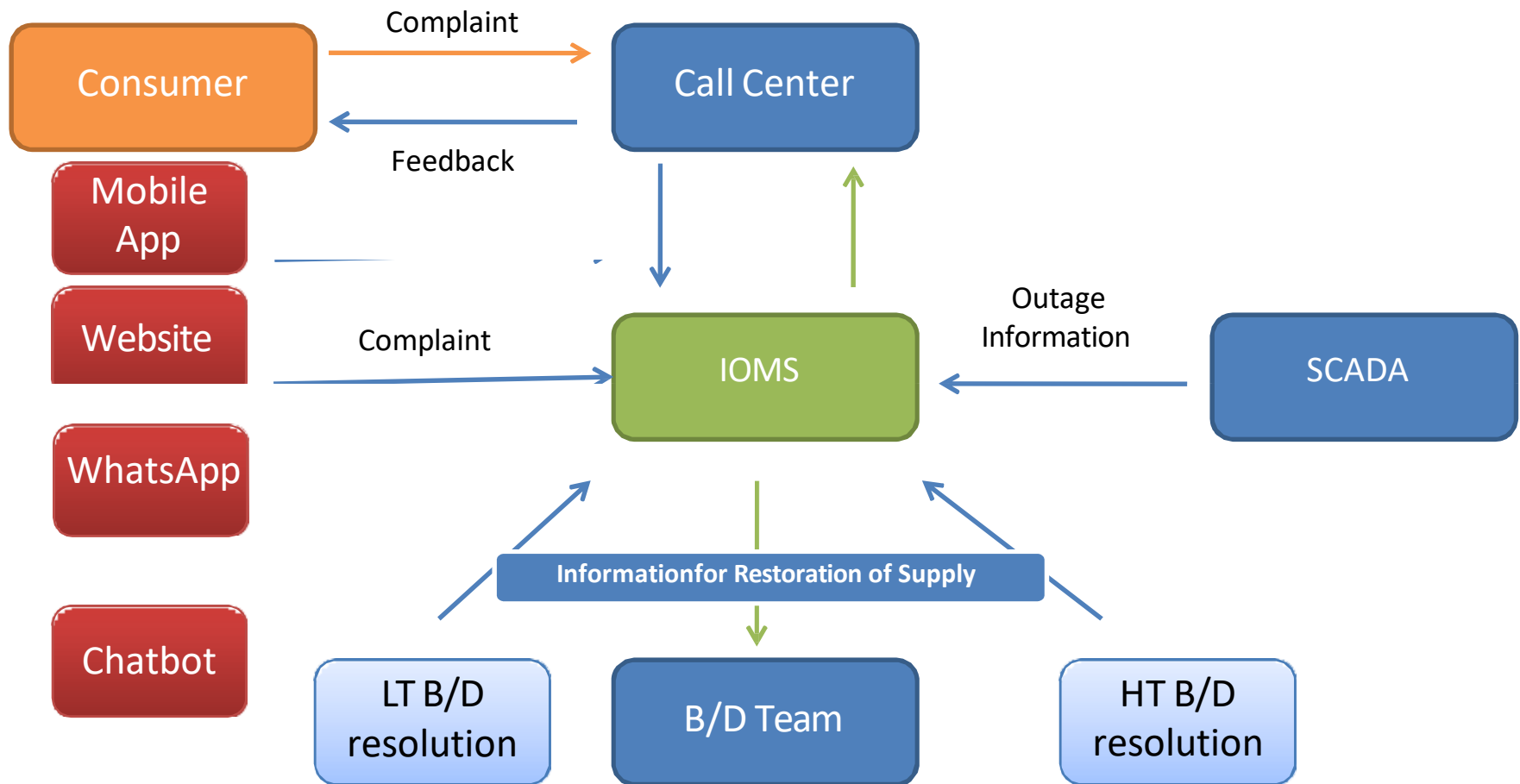
- Upgraded & Latest ABB Network Manager 6.5
- User Defined Control Sequence
- Flexible Operator Authority
- Instant and Historical Trending
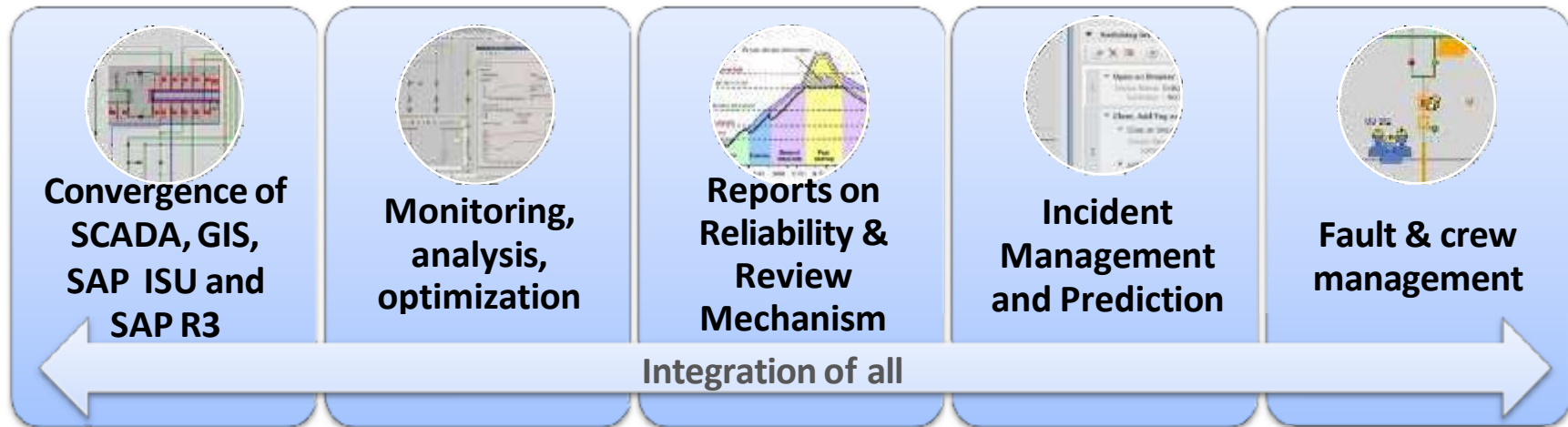- Inbuilt ICCP application for Data Exchange with DTL

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.

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

Dashboard

Complaint Registration Page

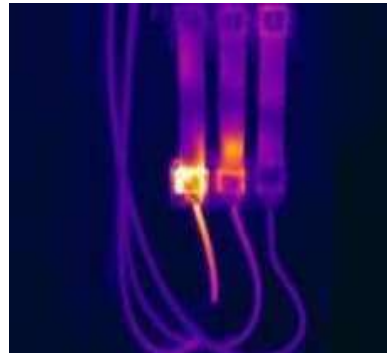**Areas under Outage Information Page**

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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

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

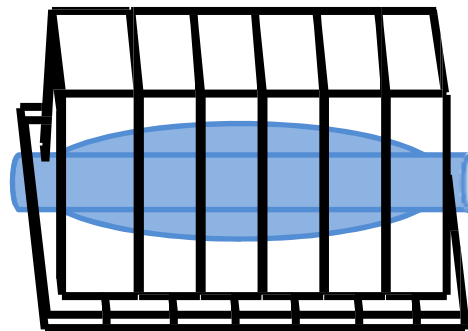| Predictive Maintenance	FPI Installation	Coffins to Protect cable Joints	Data Analytics
➤ Movement from Preventive to Predictive Maintenance based on scheduled inspections ➤ Reduction in outage events and duration	➤ Activation of Fault Passage Indicators on installed RMU's ➤ Improvement in Fault location and Faster Resolution	➤ RCC Protective covers being put up over the underground joints ➤ Provides safety against damages by other agencies digging	➤ Leading to prediction of overloaded and unbalanced transformers ➤ Feeders Repeated Failure Analysis ➤ RMU failure analysis

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

Transformer overload protection

- Automated application to monitor and control overloading on power transformer.
- No outage of power transformer in recent two summer seasons.

Shutdown Monitoring & online PTW system

- Daily monitoring of planned shutdowns activity and follow up with division
- Online permit to work development for easy shutdown and clearance during outage.

Mobile Based Applications

- SCADA LIVE application developed for instant access of BRPL network parameters for efficient control and monitoring.

Auto Load transfer

- Automated load transfer system in case of any outage at grid level at critical installations using advance technology instruments.

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

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
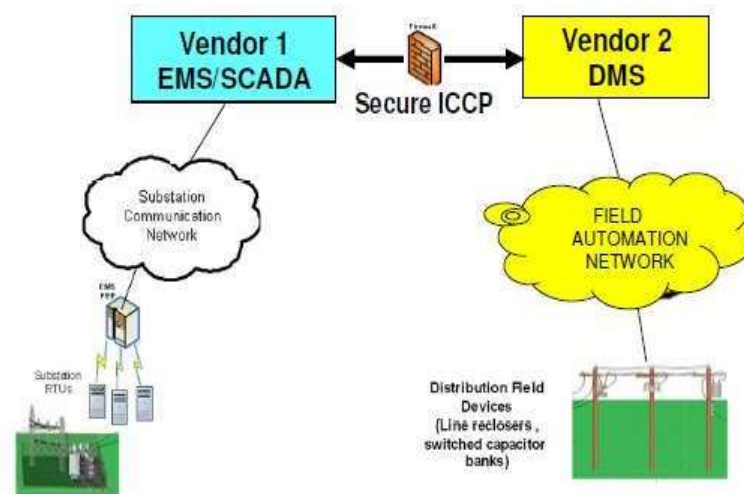
Key Interventions for Loss drive

DT Cleaning

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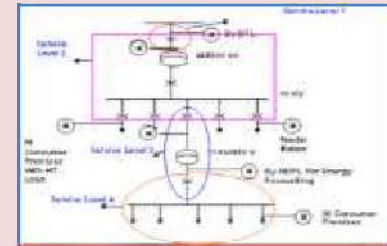- Use of armoured cable

Use of Analytics for Theft control

"Meter Relocation" program | Anti Theft derive | HVDS & LTABC | Energy Audit at DT level

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THANK YOU

www.bsesdelhi.com