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## BSES Yamuna Power Limited

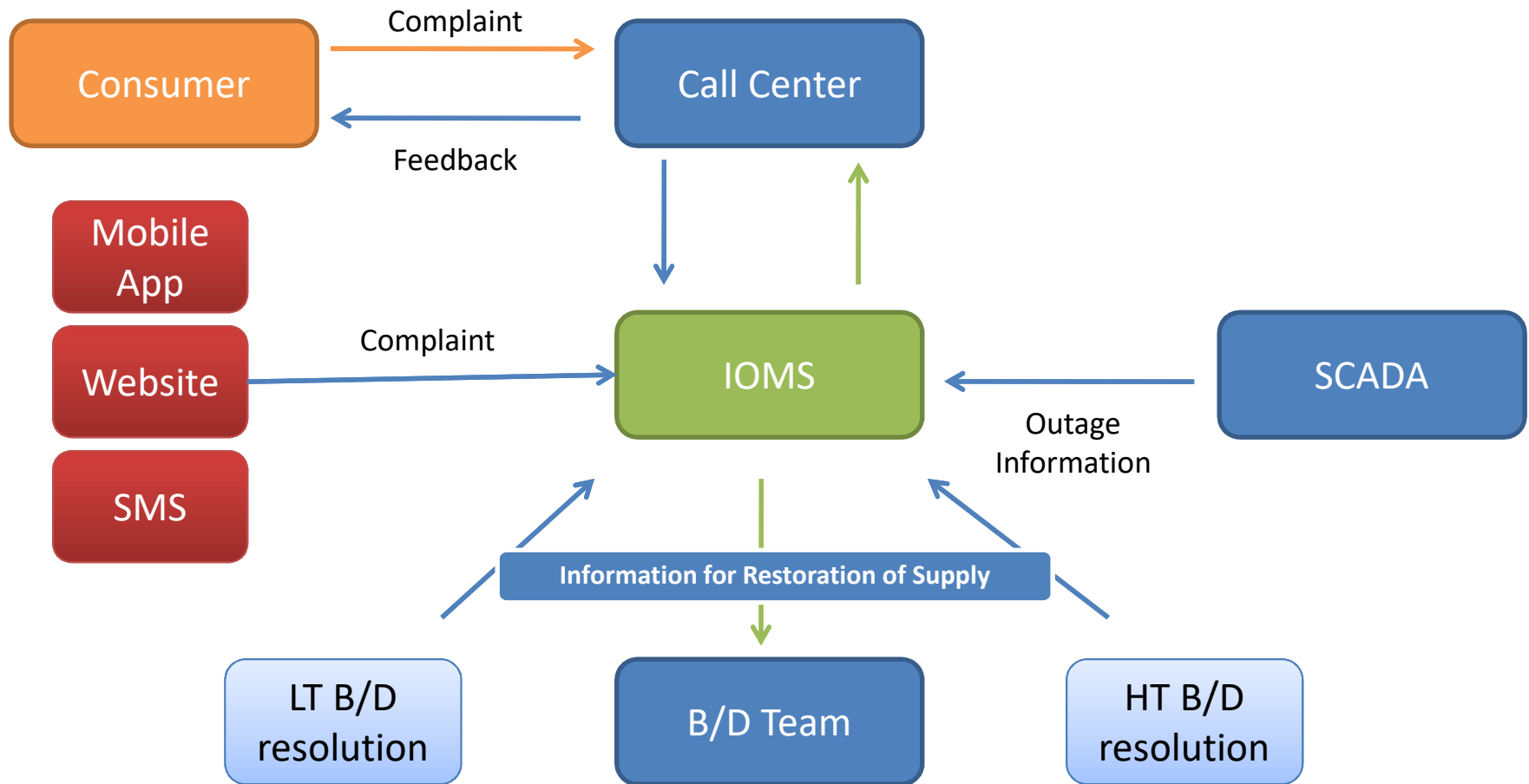


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## Outage Management at BYPL

# Outage Management at BYPL

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# SCADA at BYPL

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- User Defined Control Sequence
- Flexible Operator Authority
- Instant and Historical Trending
- Inbuilt ICCP application for Data Exchange with concern authorities

## **Benefits derived after SCADA implementation**

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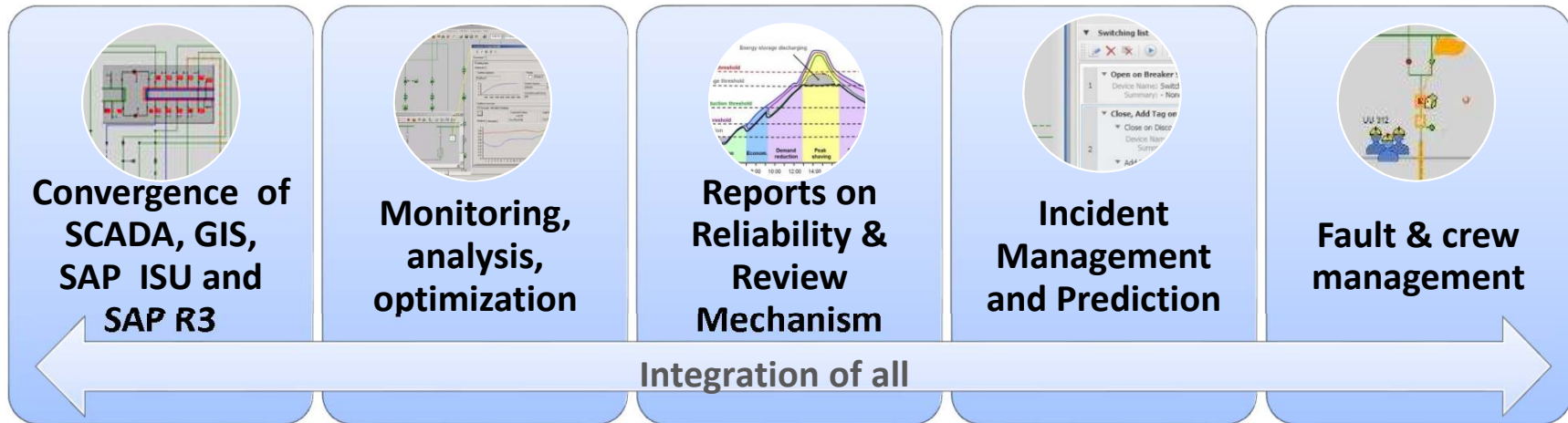
- Remote operations of Circuit Breakers and Isolators
- Remote operations on load tap positions of transformers
- Automatic Capacitor Switching
- Maintain voltage profiles
- Improved Load Management in the event of Under Frequency
- Cable fault isolation and supply restoration
- Station information, 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

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# Intelligent Outage Management System

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

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



Integrates coordinates and displays data from many sources.

Prediction Engine for intelligent grouping of complaints

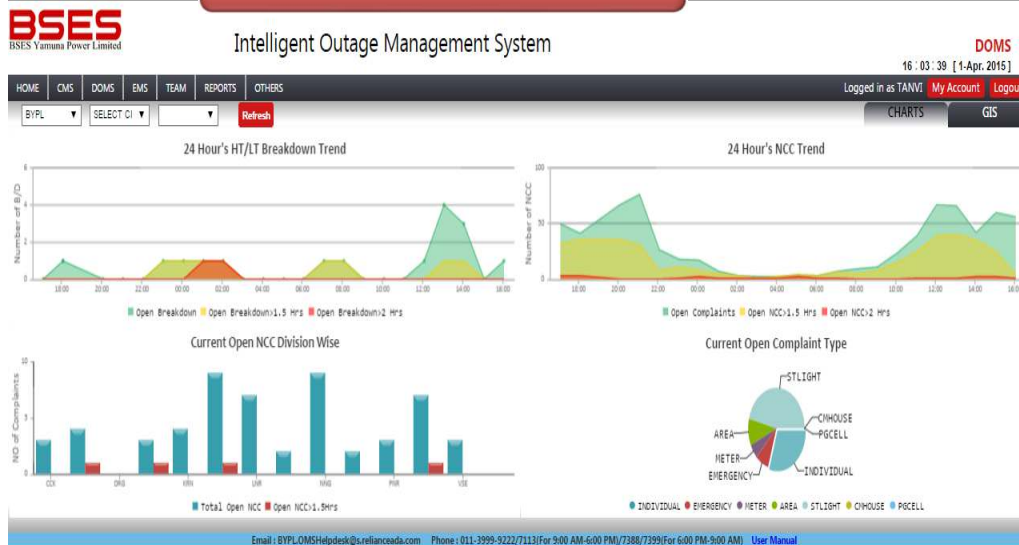
One step on the way to the “smart grid.”

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.

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

## Dashboard



## Complaint Registration Page

**BSES** Intelligent Outage Management System

CMS 09:35:27 [16-Jan-2015]

HOME CMS DOMS EMS TEAM REPORTS ADMIN

Logged in as 41015513 My Account Logout

Complaint Registration

Search by Comp./Mobile No

Area:  CA No:

Division:  Consumer Reference No:

Complaint Centre:  Email ID:

Complaint Category:  Complaint Center Phone:

Type of Fault:  Consumer Name:

Caller Name:  Connection Category:

Caller Number:  Consumer Mobile No:

Meter No:  Outage since (hours:mins):

Consumer/Caller Address:  Remarks:

Alternate Contact No:

Status Page Register Reset

Fields marked with \* are Mandatory

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## Areas under Outage Information Page

Current weather Sunny Temp: 28.2 (80.9%) Tomorrow's weather Sunny High: 31.2 (88.1%) Low: 17.6 (63.5%)

25°C 72°F CMS 15:44:47 [16-Feb-2017]

HOME CMS DOMS EMS PMS WMS TEAM REPORTS ANALYSIS MMS OTHERS

63109932 Logout

Areas under Outage

Search by Area Status Page Reset Export Total 97 Areas

DIVISION	AREA	CAUSE	START DATE	EXPECTED END DATE	TIME REMAINING	NO OF COMPLAINTS	REASON
LAXMI NAGAR	22ND FLOOR APPARTMENT ANCHITRE CHATE	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 15 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
LAXMI NAGAR	1ST FLOOR APARTMENT ANCHITRE CHATE	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 15 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
KRES N/A NAGAR	3RD FLOOR FLAT JAGADIS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
KRES N/A NAGAR	3RD FLOOR FLAT JAGADIS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
PAVAN N/A NAGAR	1ST FLOOR FLAT BHASKAR	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
GARHWAL NAGAR	STAGE A KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
GARHWAL NAGAR	STAGE B KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
GARHWAL NAGAR	STAGE C KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK A KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK B KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK C KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK D KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK E KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK F KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK G KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK H KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK I KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK J KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK K KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK L KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK M KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK N KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK O KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK P KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK Q KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK R KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK S KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK T KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK U KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK V KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK W KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK X KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK Y KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY
MAHARAJ NAGAR - B.I	BLOCK Z KHARJEE KHANS	PLANNED SHUTDOWN	16-02-2017 10:45:00	16-02-2017 16:00:00	00:00 hrs 00 mins	0	TRANSFORMER MAINTENANCE ACTIVITY





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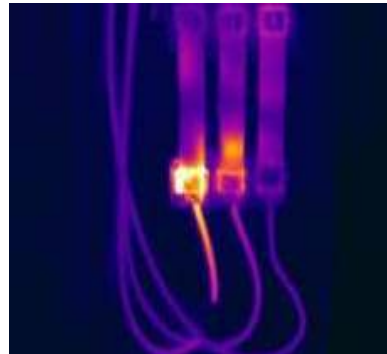
## Reliability Improvement Drivers

# Initiatives: Reliability Improvement... *24 x7 Power for all*



PD Measurement

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

# Initiatives: Reliability Improvement... *24 x7 Power for all*



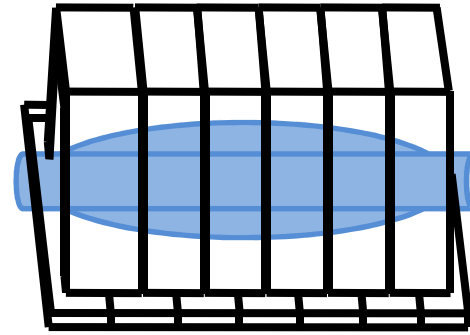
Predictive Maintenance

- 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

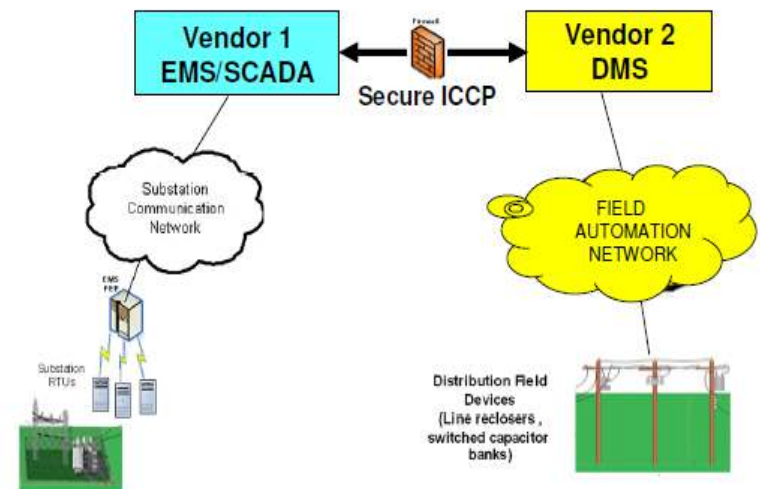
- Leading to prediction of overloaded and unbalanced transformers
- Feeders Repeated Failure Analysis
- RMU failure analysis

# Initiatives: Reliability Improvement... *24 x7 Power for all*

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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

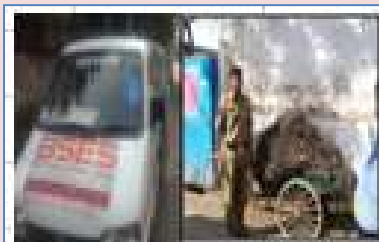
## DT Cleaning

- 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



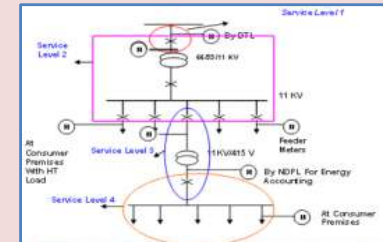
“Meter Relocation” program



Anti Theft drive



HVDS & LTABC



Energy Audit at DT level

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**THANK YOU**  
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