

Host Utilities



BSES
BSES Rajdhani Power Limited

BSES
BSES Yamuna Power Limited

NPCL
NOIDA POWER COMPANY LIMITED

assetplus Consulting™
www.assetplusconsulting.com



ORGANIZER

ISGF
India Smart Grid Forum

Supporting Ministries



MINISTRY OF POWER
GOVERNMENT OF INDIA



MINISTRY OF NEW AND
RENEWABLE ENERGY
GOVERNMENT OF INDIA



DEPARTMENT OF
SCIENCE & TECHNOLOGY
GOVERNMENT OF INDIA



NITI Aayog



MINISTRY OF POWER
GOVERNMENT OF INDIA
CENTRAL ELECTRICITY AUTHORITY

India SMART UTILITY Week 2025

Session : Deep Dive Session on AI, ML and Robotics - Use Cases for Utilities

**Data Lake Project - Big Data Analysis Leading to
Loss Reduction for BYPL 3 Phase Consumers**

Presented By

SUMIT GUPTA, CEO, ATPUGPLUS CONSULTINGOPC PRIVATE LIMITED

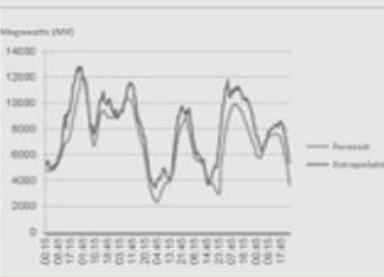


A STARTUP WITH A SOCIAL VISION

BY TEAM OF TECHNOCRATS & MANAGEMENT PROFESSIONALS



Grid Management



Forecasting couple with Optimized Procurement



Revenue Protection & Power Theft (NTL)



Revenue Assurance & Leakage Protection (UFG)



Un-Accounted for Water (UFW)



Solar & Wind Analytics Operation Management

**A GOVT OF INDIA ACREDITED AND RECOGNIZED START UP
A MINISTRY OF MSME RECOGNIZED START UP**



ADVISORY
Support utilities in economically identifying Value driven transformational opportunity

SOLUTIONS
Applying simpler technologies creating larger value for Utilities

CAPACITY BUILDING
Training utilities to understand Small change creating BIG Transformation In their own eco-system

#startupindia

First Data Lake Project in India in 2020 in Power Distribution sector



WORK ORDER

W.O.Number SER/DSA/23564616 Dt.27.10.2020
Page No: 1

No	SAC Code	Material/Work Description	Quantity	UOM	Price Details
1		Service of HADOOP Data Lake Pilot project	1	PU	Value of Work Central GST-ND State GST-ND

The item covers the following Work :

10	Studying of System Environment and Development of Integrated Architecture	1	NOS	- Numbers Net value of item
20	Development of Integration with BCS System	1	NOS	- Numbers Net value of item
30	Development of Integration with BCS System FLUME/SQOOP/REST API	1	NOS	- Numbers Net value of item
40	Installation and Configuration of HADDOP	1	NOS	- Numbers Net value of item
50	Installation and Configuration of HIVE	1	NOS	- Numbers Net value of item
60	Testing of Complete Environment	1	NOS	- Numbers Net value of item
70	POST GO Live Support	1	NOS	- Numbers Net value of item

BSES Yamuna Power Limited
Certificate of Completion

To whomsoever it may Concern,

This is to certify that M/s ATPUG Plus Consulting OPC PVT LTD has successfully completed the Hadoop Data Lake Pilot Project on 31/05/2021.

Title of the project: Hadoop Data Lake Pilot Project

Work order number: SER/DSA/23564616

Work period: 01/11/2020 to 31/05/2021

With Regards

Sanjay Makhija

GM, Data Analytics

Sanjay Makhija
HoG Data Analytics
Emp. No. 41004640
BSES Yamuna Power Ltd.

Project award 1/11/2020 and Completion 31-05-2021

BSES Yamuna Power Limited

AT&C loss reduction Revenue Protection and Revenue Assurance with experience working with



मध्यांतर विद्युत वितरण
निगम लिमिटेड



UPPCL
UTTAR PRADESH POWER CORPORATION
LIMITED

Consumer base ~7.2 Million

BSES
BSES Yamuna Power Limited

BSES
BSES Rajdhani Power Limited



Jaipur Vidyut Vitran Nigam Limited

Consumer base ~ 5million

Consumer base ~ 4 million



विद्युत मंत्रालय
MINISTRY OF
POWER



Certificate of Merit

This to certify that **M/s ATPUG Plus Consulting (OPC) Private Limited** has successfully completed the Pilot under **POWERTHON 2022**, for the problem statement **AT&C Loss Reduction in Jaipur Vidyut Vitran Nigam Limited.**

M/s ATPUG Plus Consulting (OPC) Private Limited was able to show improvement in the problem area after deployment of their solution to the satisfaction of DISCOM.

REC LIMITED

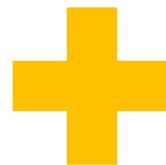


SINE IIT BOMBAY

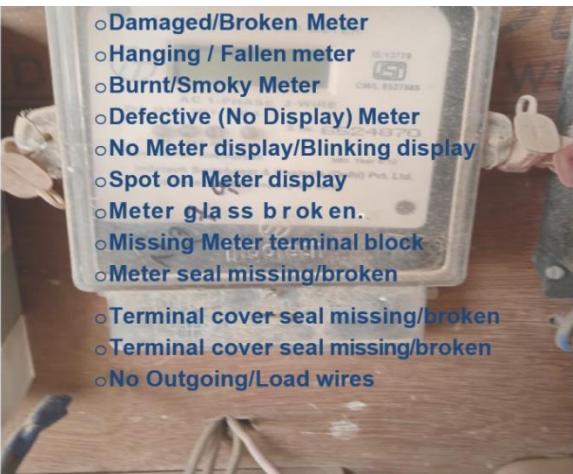


AI -At the Meter Billing Improvement

Poor meter
Reading, Billing
Inefficiency &
Deviation in
Energy



Poor Meter condition, Meter Reading Anomalies,

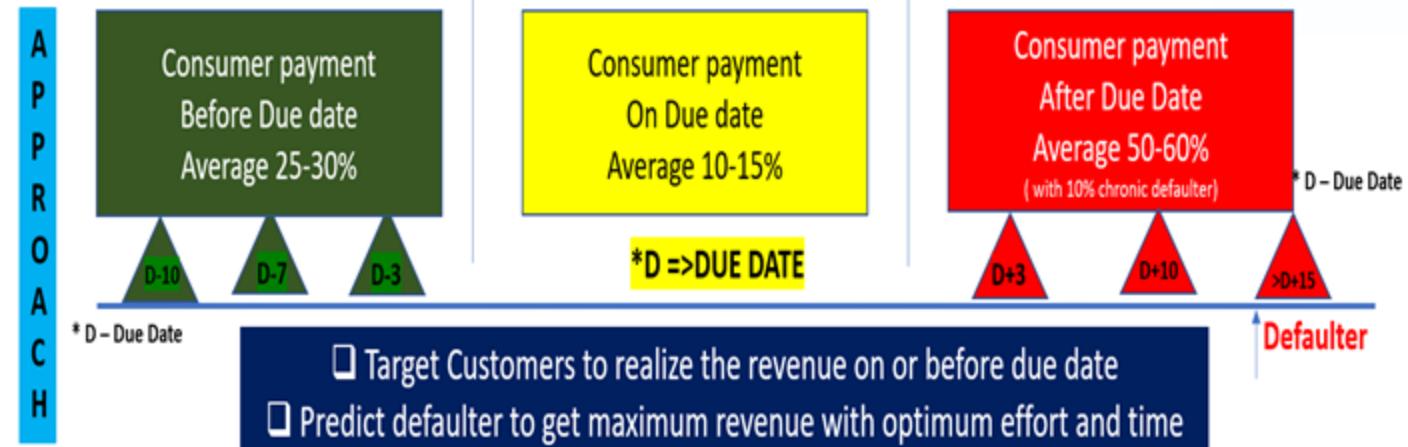


AI_After the Meter (Collection improvement)

Commercial
Losses Including
shortage due to
non-realization
of billed amount



AT&C Losses/
Revenue
protection &
Revenue
Assurance



Enabled by AI process

1. Enhancing the meter reading & Billing
2. Enabling larger collection

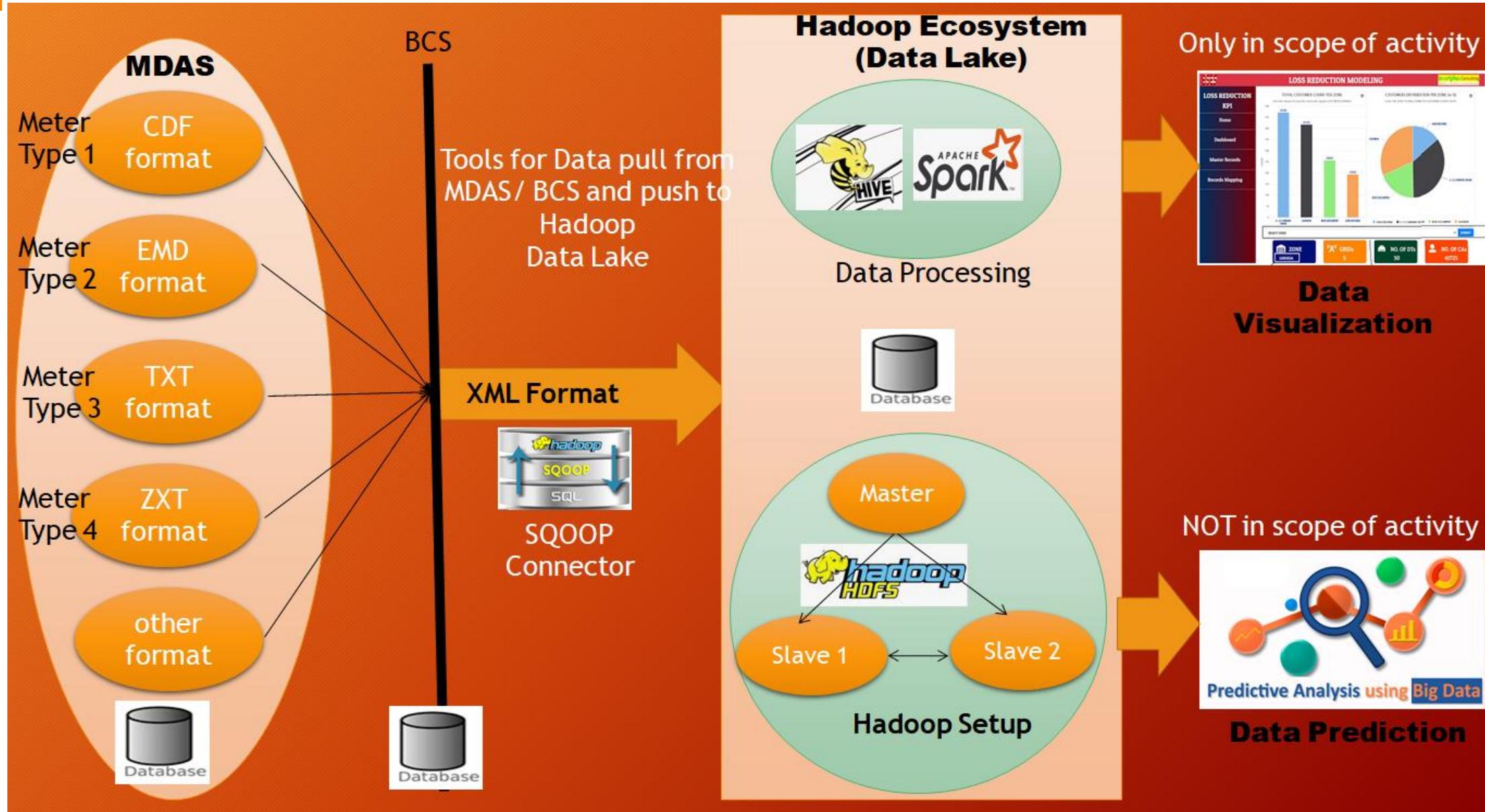
www.assetplusconsulting.com

CONTEXT – MRI Commercial & Industrial consumers

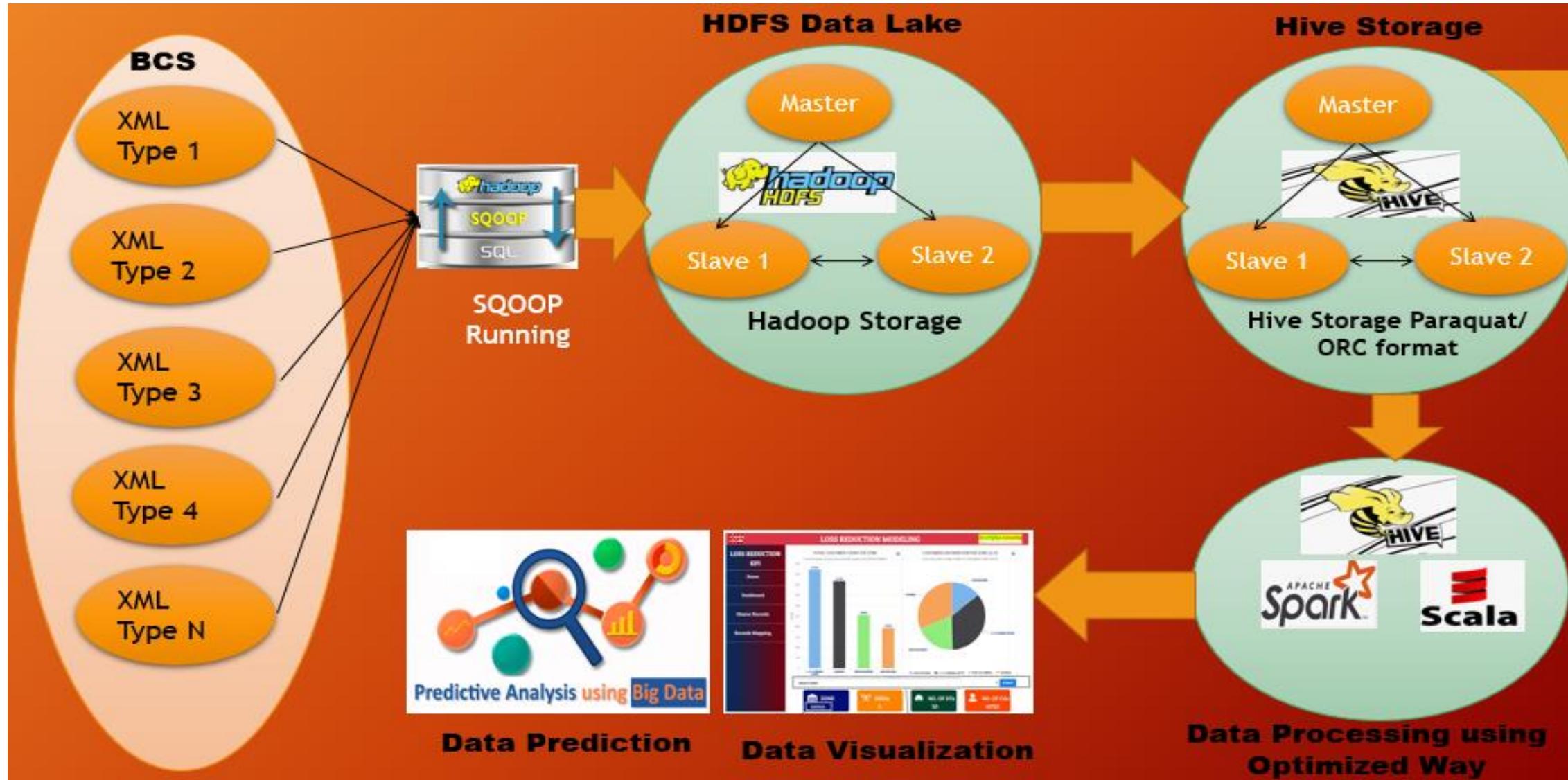


India
SMART UTILITY
Week 2025

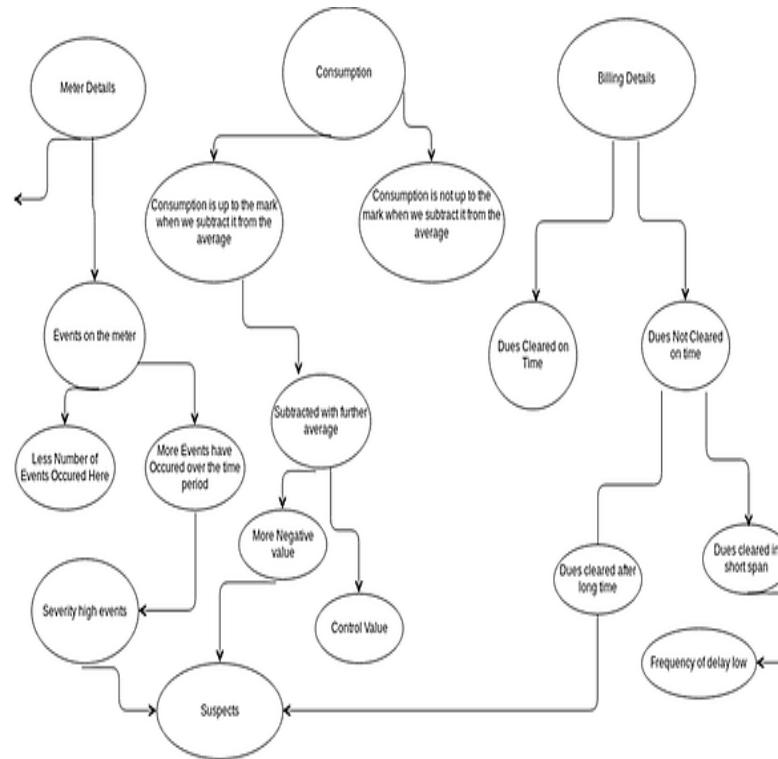
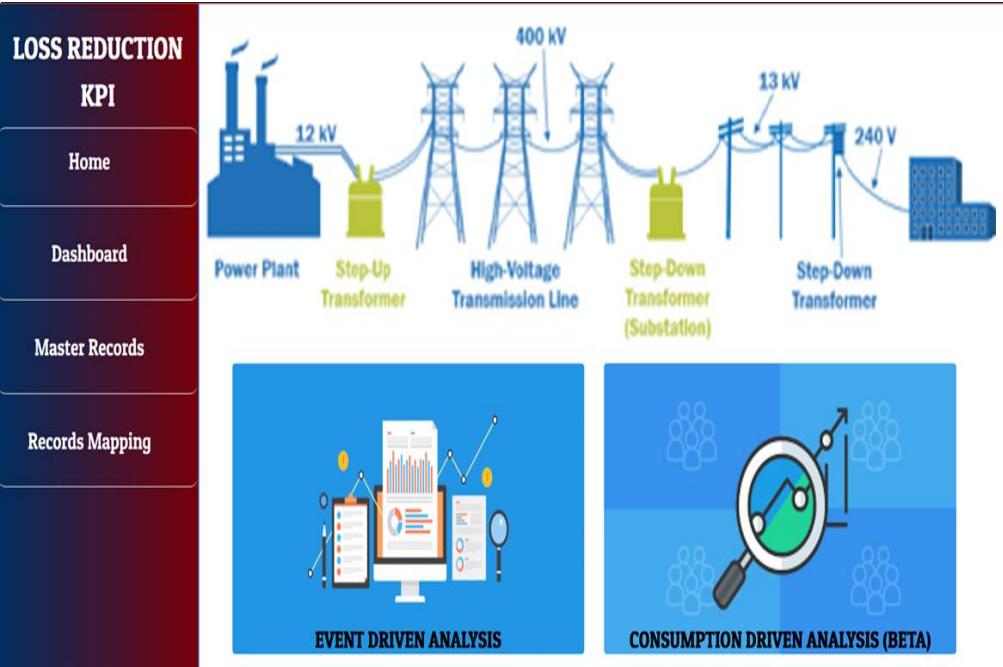
ISGF
India Smart Grid Forum



Data Transformation



USE CASE / CASE STUDY -BYPL



Measuring difference of Calculated current Tag value of Neutral current	Average value of 3 phase current greater than B phase current by 10%	Any of the 3 lines current greater than 100% of phase B current	Any linecurrent is less than 2% of Phase B current	Any linecurrent is greater than 5% of Phase B current
Neutral Current imbalance calculated/Tag value Occurred 19-03-2020 21:27	current imbalance	Over Current	CT Open	CT Short

```
[[ '666704', 1, '2', '1', 'October', 0],
['8919913', 1, '1', '1', 'October', 1],
['381801', 1, '2', '0', 'October', 1],
['110022374', 1, '1', '0', 'October', 1],
['12122229', 1, '0', '3', 'October', 0],
['12120663', 1, '2', '2', 'October', 1],
['12120663', 1, '2', '2', 'January', 1],
['12120663', 1, '1', '1', 'February', 1],
['12122230', 1, '2', '1', 'October', 0],
['12068257', 1, '1', '1', 'October', 1],
['12068257', 1, '1', '1', 'November', 1],
['12068257', 1, '2', '1', 'January', 1],
['12068257', 1, '1', '0', 'March', 0],
['4016322', 1, '1', '1', 'November', 1],
['4016322', 1, '1', '1', 'January', 1],
['104409', 1, '2', '1', 'October', 1],
['12083097', 1, '2', '1', 'October', 1],
['4014096', 1, '2', '1', 'October', 1],
['4014096', 1, '1', '0', 'January', 0],
['12121946', 1, '1', '2', 'October', 1],
['12121946', 1, '3', '1', 'November', 0],
['12121946', 1, '2', '2', 'January', 0],
['12084684', 1, '2', '0', 'November', 1],
['12084684', 1, '2', '0', 'January', 1],
['2292325', 1, '0', '3', 'November', 0],
['2292325', 1, '2', '1', 'January', 1],
['2292302', 1, '1', '1', 'November', 1],
['2292302', 1, '2', '0', 'January', 1],
['2134292', 1, '2', '1', 'November', 0],
['2134292', 1, '1', '0', 'January', 1],
```

Probable theft		
monitoring 4 current values of R, Y, B, Neutral		
High Neutral current	CT Open	CT Short



HOME

DASHBOARD

SUSPECTED BASED
BILLING DATA

SUSPECTED BASED
MRI DATA

SUSPECTED BASED
SMART METER DATA

SUSPECTED BASED
METER IMAGE
MODELLING

DOWNLOAD APK

LOG-OUT

assetplus Consulting™
an analytics organization
www.assetplusconsulting.com

AI & ML DRIVEN PLATFORM CONSUMER METER DATA DRIVEN LOSS REDUCTION

Billing Data Based Suspected Consumers Parameter Settings

Click below Behaviour to set Parameters

DIRECT THEFT - BYPASS CONSUMER

DIRECT THEFT - PARALLEL CONSUMER

INDIRECT THEFT - MISUSE OF TARIFF

[HOME](#)[DASHBOARD](#)[SUSPECTED BASED BILLING DATA](#)[SUSPECTED BASED MRI DATA](#)[• MRI Settings](#)[• MRI Excessive Load](#)[• Suspected Consumer](#)[• Field Verification](#)[SUSPECTED BASED SMART METER DATA](#)[SUSPECTED BASED METER IMAGE MODELLING](#)[DOWNLOAD APK](#)[LOG-OUT](#)

Exceeding Sanction Load Abnormality

SELECT LOAD*

ALL

FEEDER*

ALL

INTERVAL THRESHOLD*

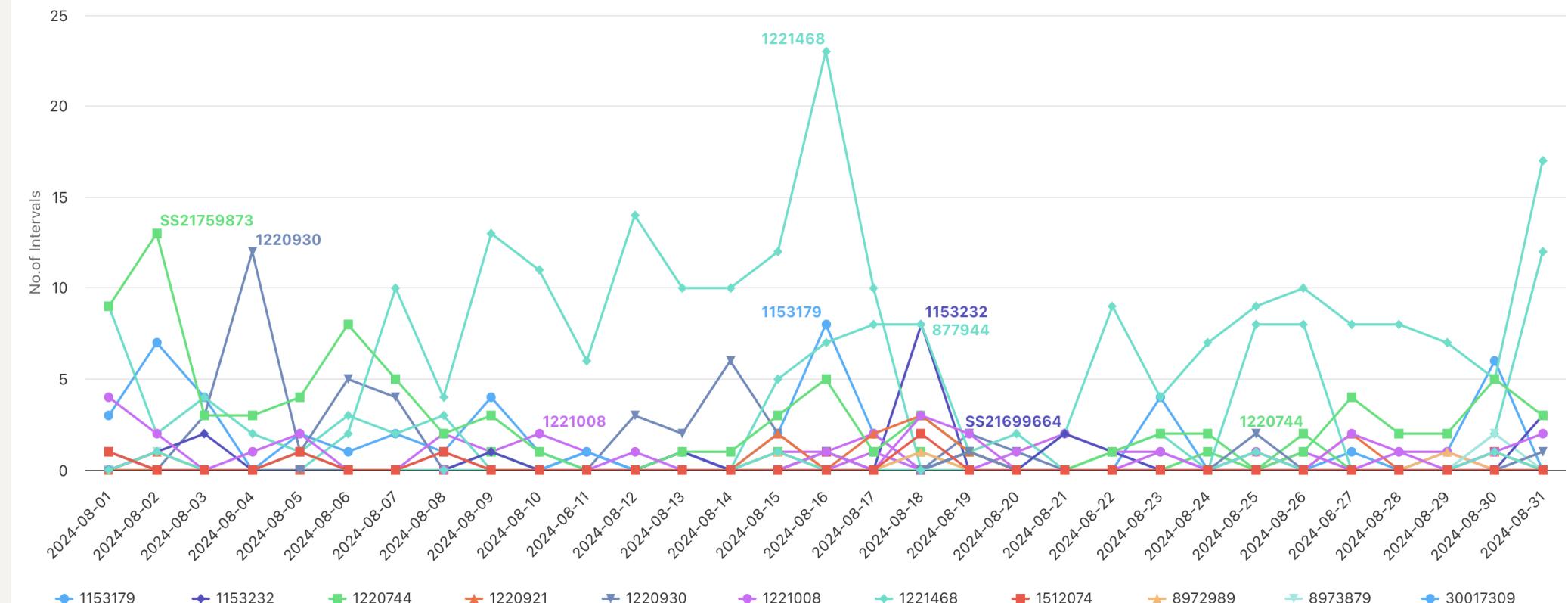
1

DAYS THRESHOLD*

1

SUBMIT

DATE WISE PLOT OF 28 CONSUMERS EXCEEDING THEIR SANCTION LOAD IN KAMTA SUB-STATION (No.of Times in a Day Plot)





HOME

DASHBOARD

SUSPECTED BASED BILLING DATA

SUSPECTED BASED MRI DATA

SUSPECTED BASED SMART METER DATA

SUSPECTED BASED METER IMAGE MODELLING

DOWNLOAD APK

LOG-OUT

Direct Theft - Bypass Consumer

NOTE:

Urban Area: Consumers are suspected due to their consistent behavior of having an average consumption of less than 10 units and an MDI value that exceeds 20% of the sanctioned load.

Rural Area: Consumers are suspected due to their consistent behavior of having an average consumption of less than 5 units and an MDI value that exceeds 10% of the sanctioned load.

Select the Threshold Values to change Parameters

DIVISION*

CONSUMPTION*

MDI VALUE*

ARREAR*



HOME

DASHBOARD

SUSPECTED BASED BILLING DATA

SUSPECTED BASED MRI DATA

SUSPECTED BASED SMART METER DATA

SUSPECTED BASED METER IMAGE MODELLING

DOWNLOAD APK

LOG-OUT

Meter Abnormality Suspected Consumer List for Field Verification

DIVISION*

SUBSTATION*

MONTH*

All

All

All

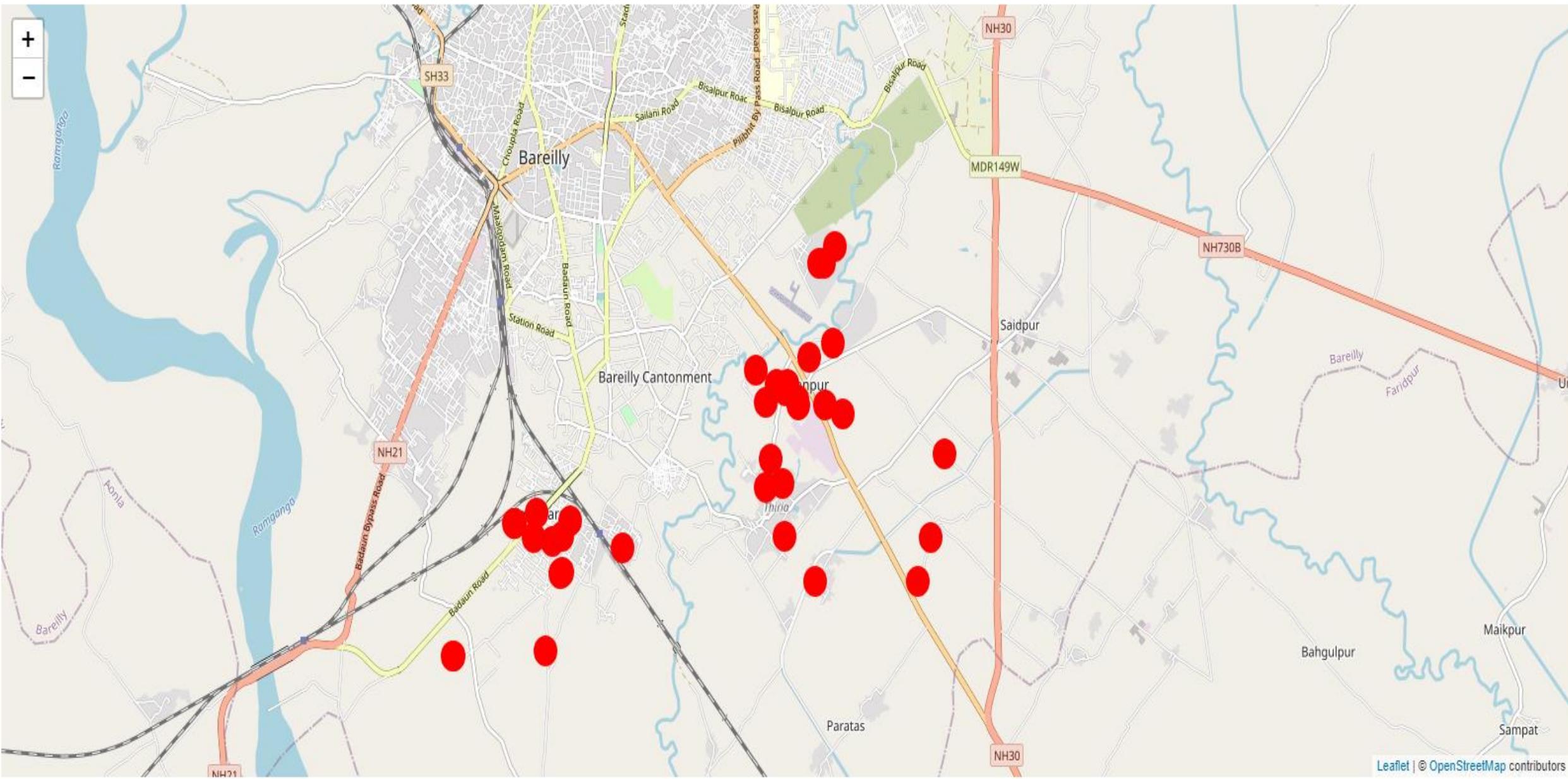
SUBMIT

[Export to Excel](#)[Export to PDF](#)

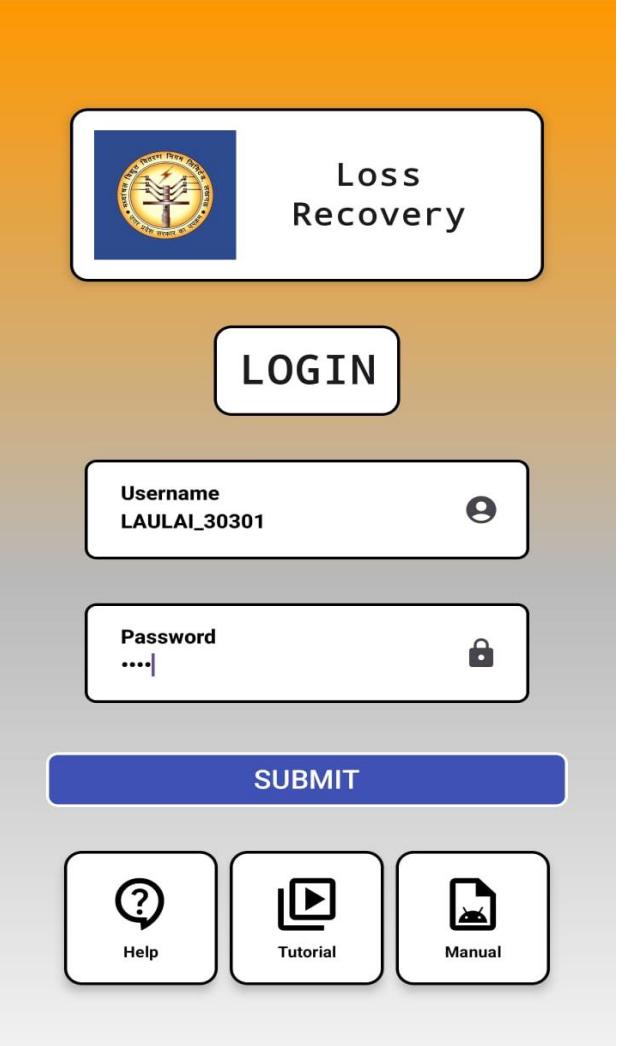
52 Suspected Consumers In December for Division

CONSUMER VERIFICATION	DIVISION	SDO	SUBSTATION	NAME	ADDRESS	ACCOUNT ID	IMAGE	THEFT FOUND
Consumer not verified	DIV362626	5894090000	SDO3626261	KAMTA_30242	SMT BADRUN	SRI JEETMAL 28 KRISHNA BIHAR COLO CHINHAT LKO LUCKNOW UP IND		
Consumer not verified	DIV362626	9644790000	SDO3626261	KAMTA_30242	Mrs RAJ DULARI	PLOT NO3 SHANKERPURI COLONY KAMTACHINHAT LUCKNOW LUCKNOW UP IND		
Consumer not verified	DIV362626	3318099545	SDO3626261	LAULAI_30301	BEENU DEVI	62/1 KASHIRAMJI SHAHRI GARIB AWASH YOJNA LAULAI CHINHAT		

Location Of Suspected Customers



Suspected Consumer -Field verification app



LOGIN

Suspected Consumers

Not Verified Verified

Approx. Distance : 952.97 km(s)

1.) SHRI RAM SAGAR
Acc. ID: 6913960000
SUBSTATION: LAULAI_30301

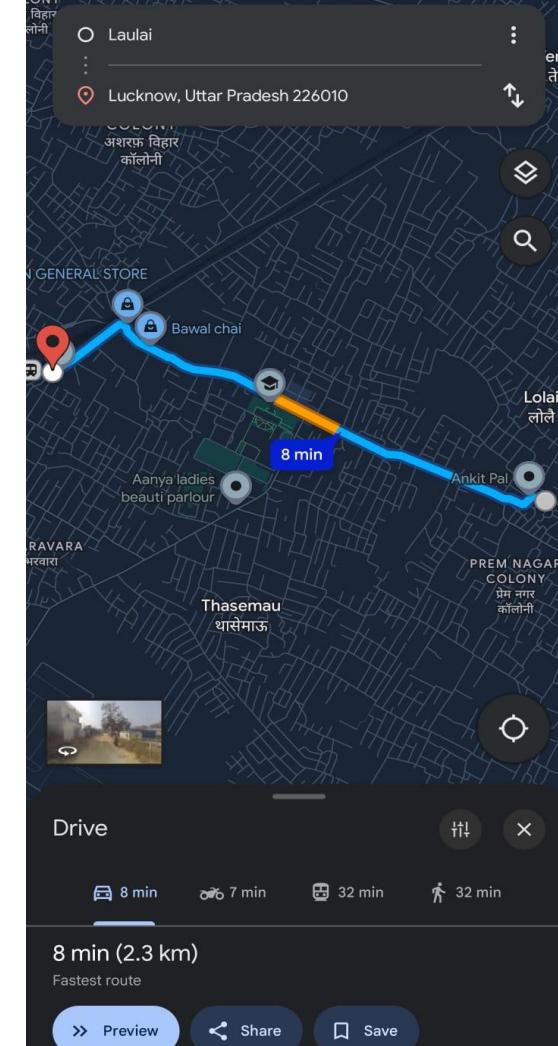
Approx. Distance : 953.22 km(s)

2.) PARAS NATH
Acc. ID: 8037128567
SUBSTATION: LAULAI_30301

Approx. Distance : 953.32 km(s)

3.) MEERA W/O VINOD (BPL)
Acc. ID: 6256762924
SUBSTATION: LAULAI_30301

SUSPECTED LIST



CONSUMER LOCATION

Consumer Details

Name: SHRI RAM SAGAR

Account ID: 6913960000

Address: MALLHAUR CHINHAT LKO LUCKNOW UP IND

Division Code: DIV362626

Location: [Click for location](#)

SDO Code: SDO3626261

Substation: LAULAI_30301

Status: In Service

NBR: E88164

Next

CONSUMER DETAILS

Suspected Consumer -Field verification app

← Field Verification Details

Theft Found Theft Not Found



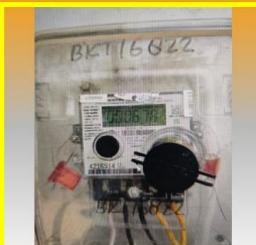
Upload Meter Image

Enter Field Remarks
Theft found 1.33 kw

SUBMIT

← Field Verification Details

Theft Found Theft Not Found



Re-upload Meter Image

Enter Field Remarks

SUBMIT

Suspected Consumers	
Not Verified	Verified
1.) SUDHIR KUMAR SRIVASTAVA S/O RCL SRIVASTAVA Acc. ID: 429548798 SUBSTATION: LAULAI_30301 *Theft found	
2.) DINESH CHANDRA VERMA S/O LATE KEDAR NATH VERMA Acc. ID: 2146679195 SUBSTATION: LAULAI_30301 *Theft not found	
3.) SHRI RAM SAGAR Acc. ID: 6913960000 SUBSTATION: LAULAI_30301 *Theft found	

FIELD VISIT DETAILS SUBMISSION

VERIFIED CONSUMERS LIST

[HOME](#)[DASHBOARD](#)[SUSPECTED BASED BILLING DATA](#)[• Billing Settings](#)[• Suspected Consumer](#)[• Field Verification](#)[• Suspected Consumer Report](#)[SUSPECTED BASED MRI DATA](#)[SUSPECTED BASED SMART METER DATA](#)[SUSPECTED BASED METER IMAGE MODELLING](#)[DOWNLOAD APK](#)[LOG-OUT](#)

Meter Abnormality Suspected Consumer List for Field Verification

DIVISION*

SUBSTATION*

MONTH*

All

All

All

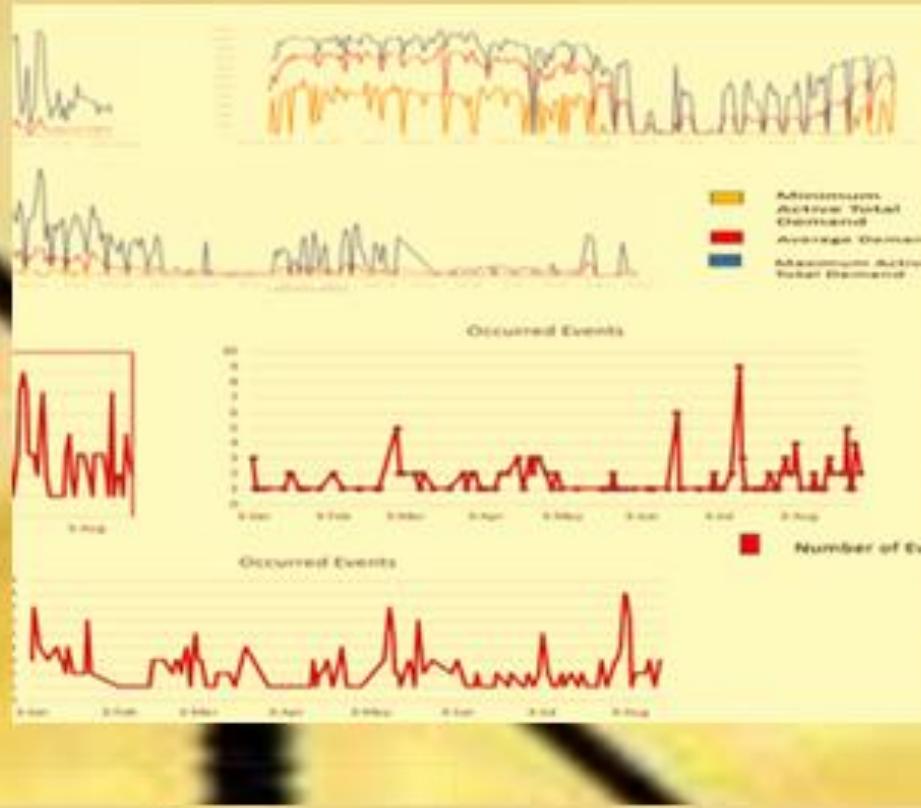
SUBMIT

[Export to Excel](#)[Export to PDF](#)

52 Suspected Consumers In December for Division

CONSUMER VERIFICATION	DIVISION	SDO	SUBSTATION	NAME	ADDRESS	ACCOUNT ID	IMAGE	THEFT FOUND	REMARKS	FILL VCR
Consumer verified	DIV362626	1266001000	SDO3626261	KAMTA_30242	Mr AJAY MAJOOMDAR	AJAY NAGAR KAMTA CHINHATLUCKNOW LUCKNOW UP IND		Theft found	1.33kw theft found	FILL ONLINE
Consumer not verified	DIV362626	2701380000	SDO3626261	KAMTA_30242	SHRI MOHD ZAMEEL	HNOB-10 GOVIND VIHAR KAMTA CHINHAT LKO LUCKNOW UP IND		Consumer not verified		FILL ONLINE
Consumer not verified	DIV362626	3813670000	SDO3626261	KAMTA_30242	Mrs SMT SITA DULARI SHUKLA W/O SRI	GHYAN VIHAR KAMTA CHINHAT LUCKNOW UP IND		Consumer not verified		FILL ONLINE

AI Project Benefits to Utility



- 1.Verification of Consumer Indexing
- 2.Identification of energy gap in the network (Feeder - DT - Consumer)
- 3.Real time tracking of deviation of energy
 - a)service parallel consumer
 - b)By-pass consumer
- 4.Enhancement in billing accuracies
- 5 Enhanced Revenue Recognition



Host Utilities



ORGANIZER



India SMART UTILITY Week 2025

THANK YOU

For discussions/suggestions/queries email: isuw@isuw.in

www.isuw.in

Links/References (If any)

Supporting Ministries



CENTRAL ELECTRICITY AUTHORITY