



Role of Technology in Power Distribution

02nd Aug, 2019

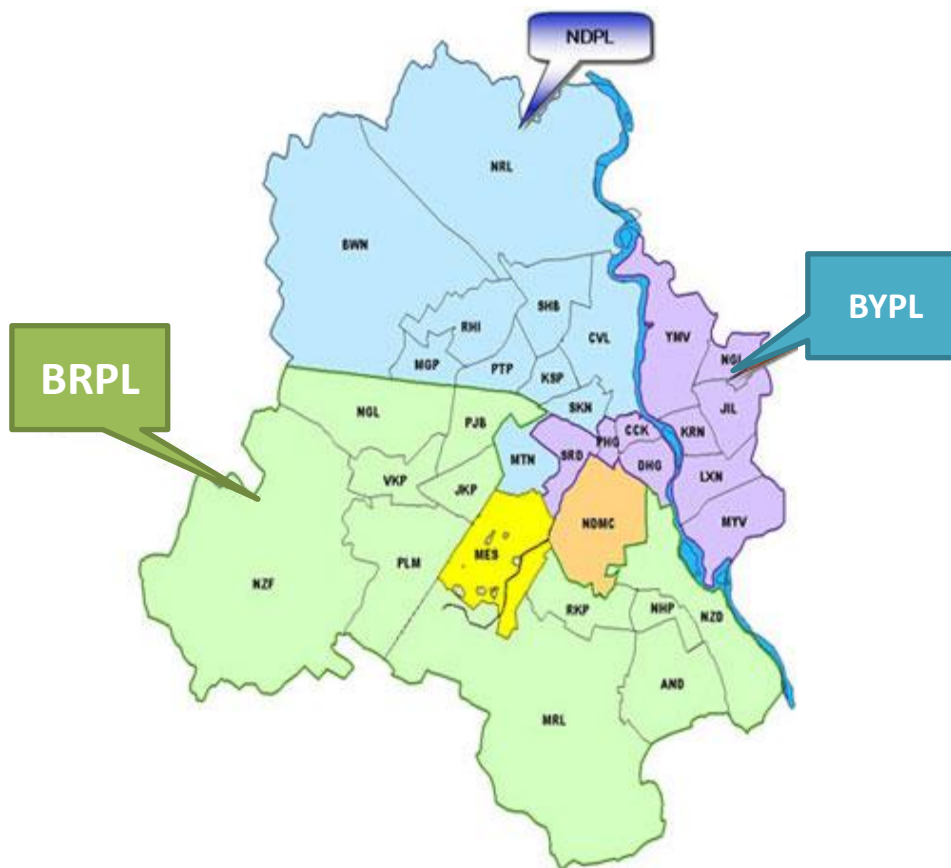
Abhishek Ranjan

AVP System Operation & Head – Renewable & DSM

BSES Rajdhani Power Ltd, New Delhi , India

BSES is a JV of Reliance Infrastructure (51%) and Govt. of Delhi (49%)

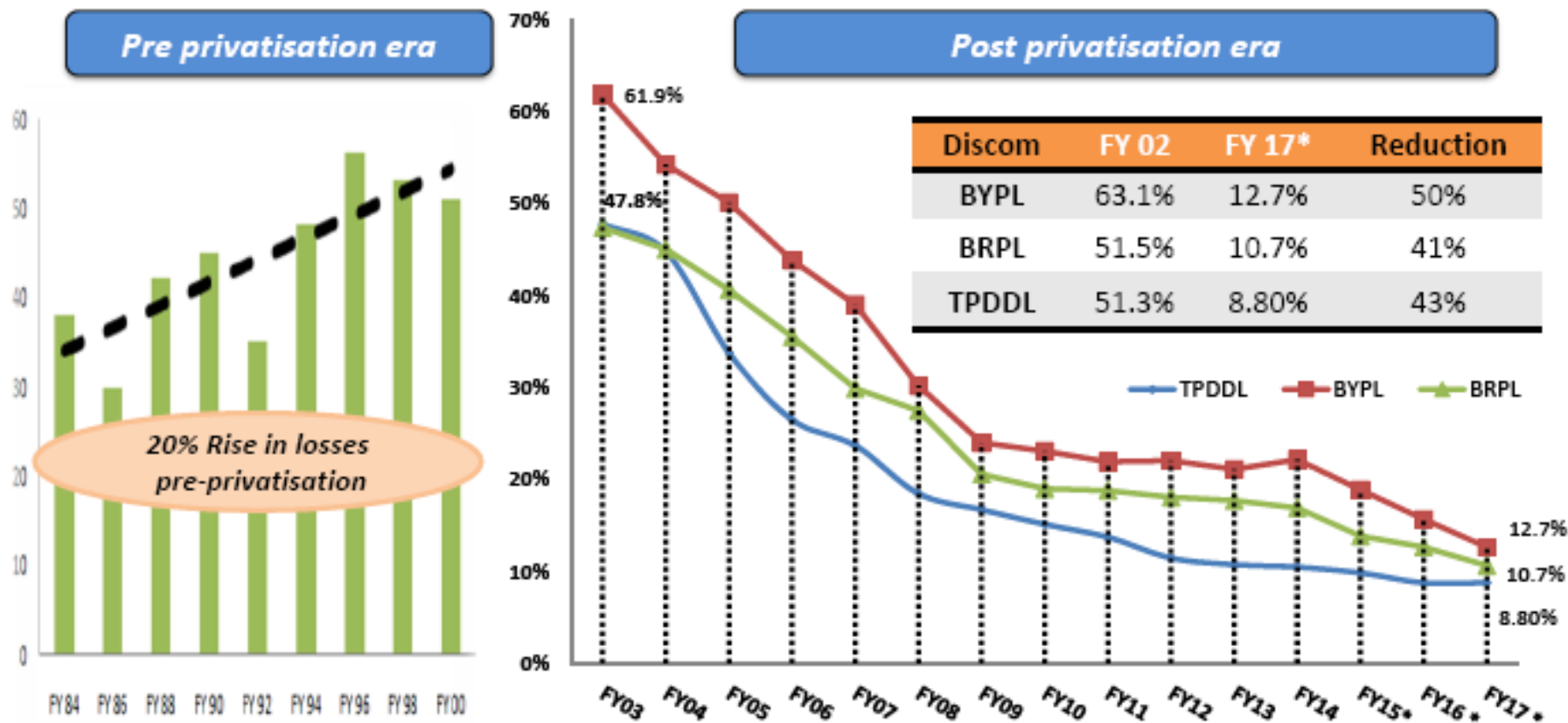
BRPL – An Overview



Parameters	Value
Distribution Area	750 sq. Km
No. of customers	2.55 Mn.
Customer Density	3400 /sq Km
Max Demand met (Till Date)	3081 MW
Annual Billed energy FY18	11,688 MU
AT&C Loss FY18	9.44 %

- BSES caters to 2/3rd of Delhi
- South & West Delhi by BRPL

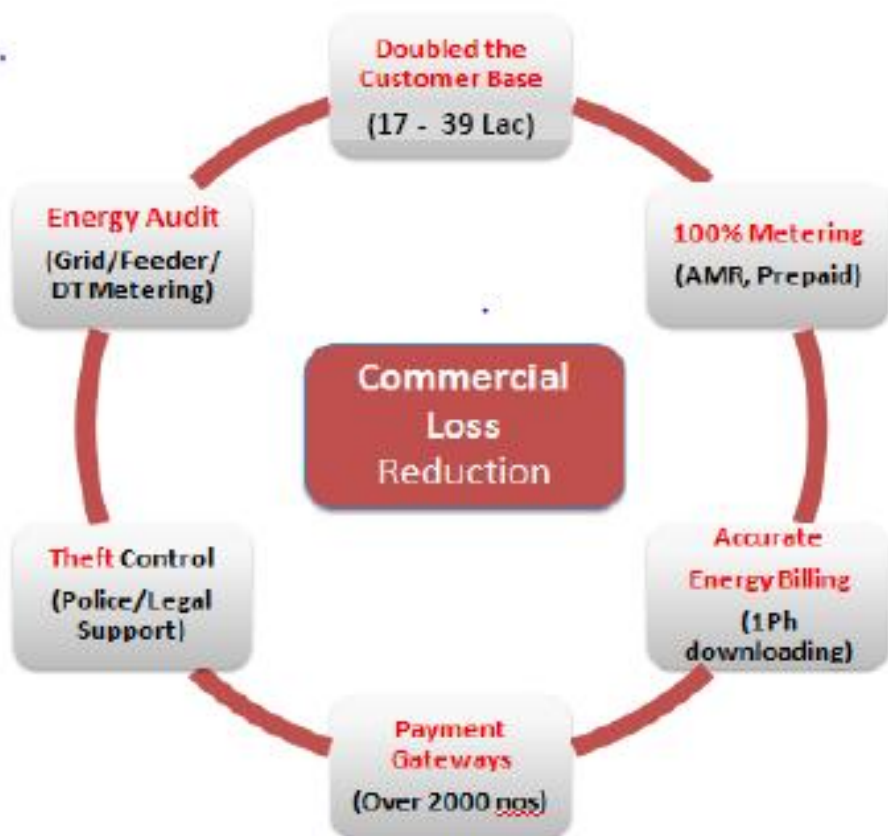
Steep Loss reduction post - privatization



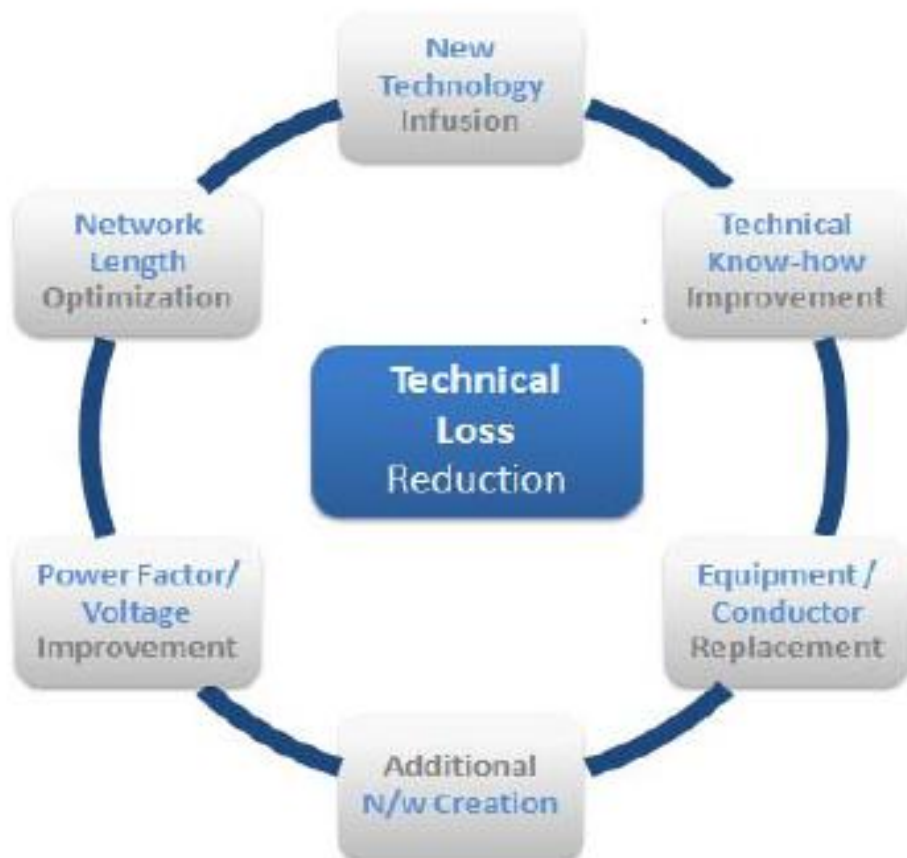
~42% reduction in losses post takeover as against 20% rise in a decade up-to privatization

Multi-Pronged approach taken for Loss Reduction

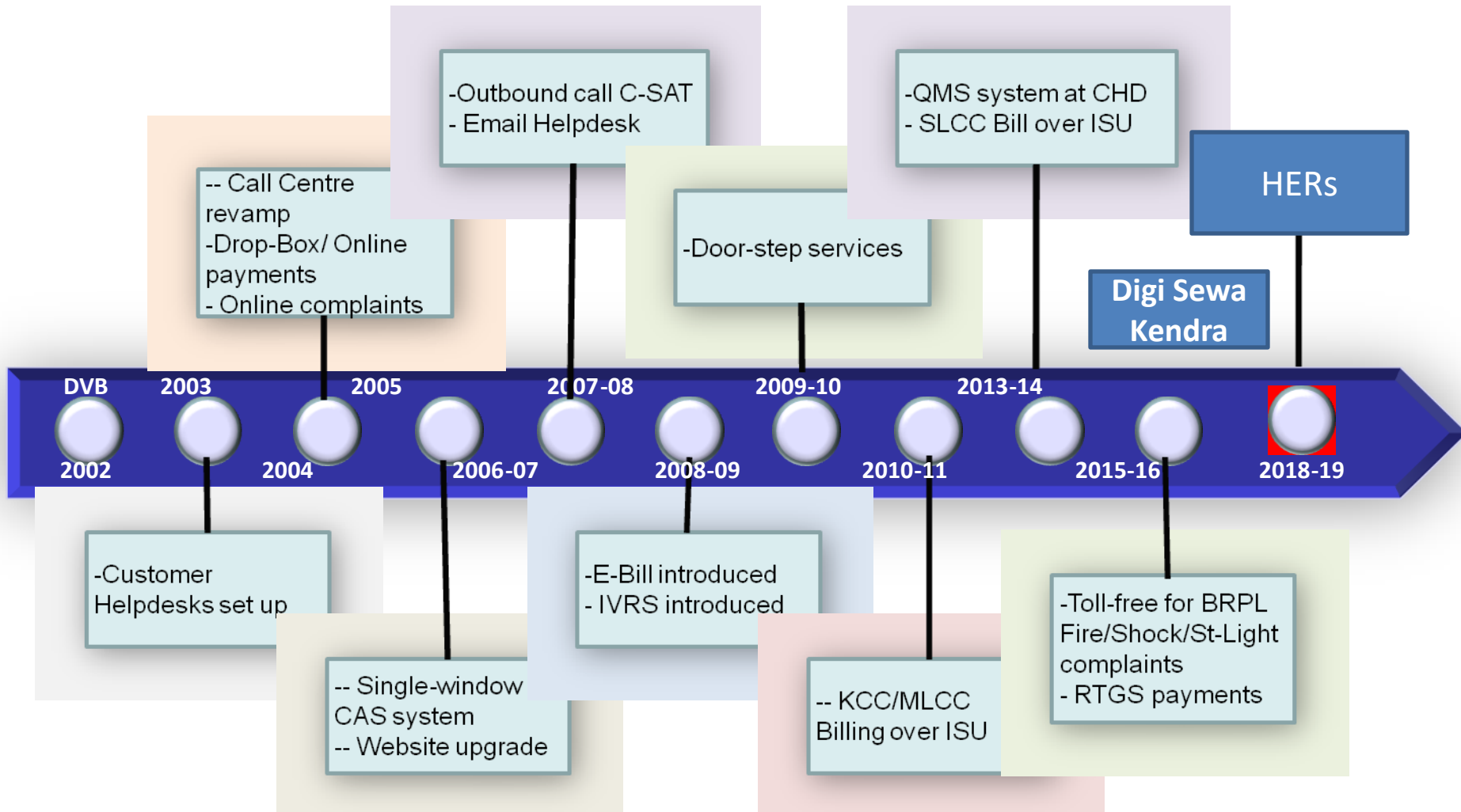
BSES	FY 03	FY 17*
Commercial Loss	35%	3%



BSES	FY 03	FY 17*
Technical Loss	22%	9%



Ever Improving Customer Services Journey...



A Progressive and Sustainable Journey towards Improving Customer Service

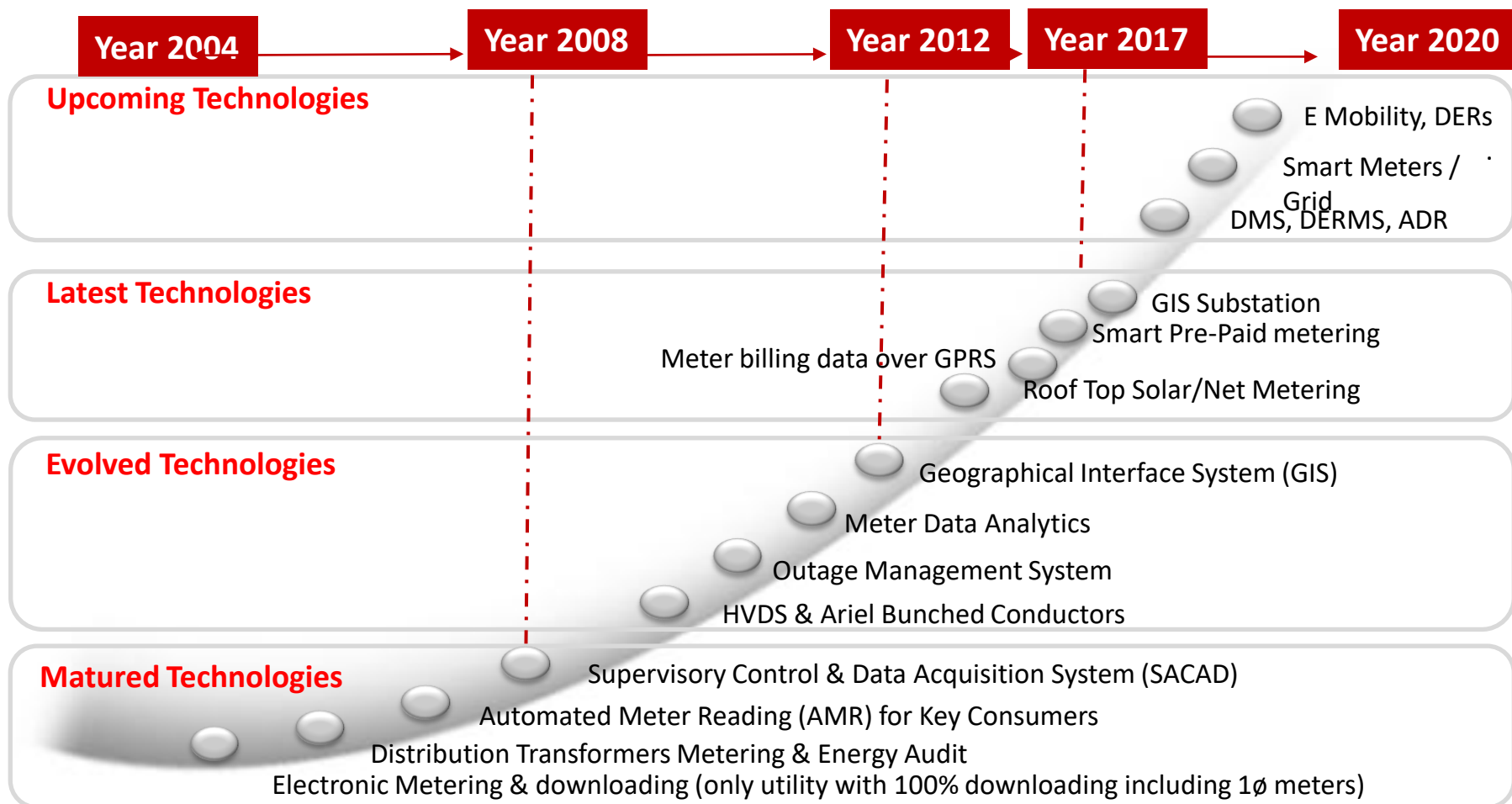


C-SAT : Customer Satisfaction
 QMS : Queue Management System
 CHD : Customer Helpdesk

SLCC : Small Load Consumer Category
 MLCC : Medium Load Consumer Category
 KCC : Key Consumer Category

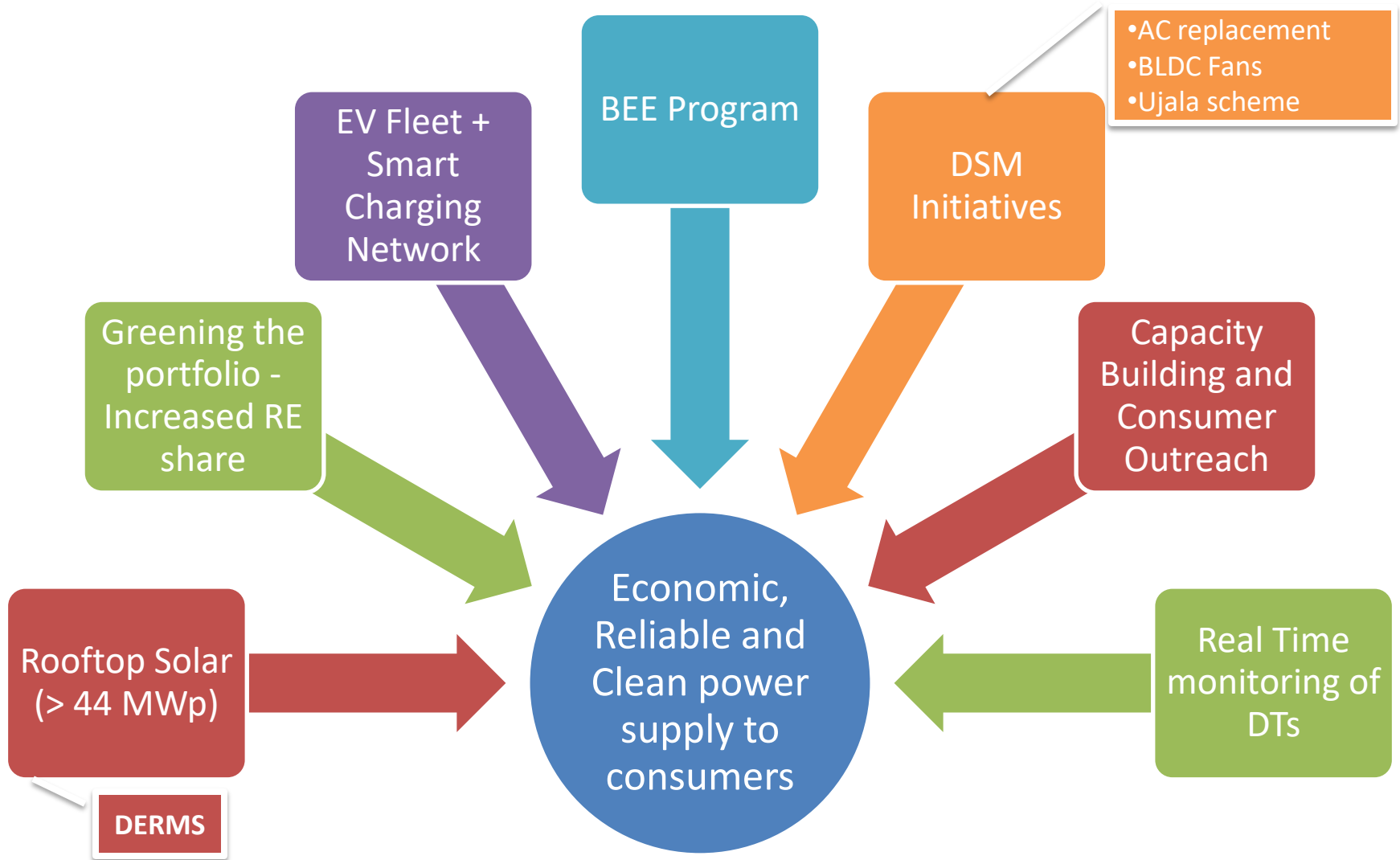
RTGS : Real Time Gross Settlement
 CAS : Consumer Application System
 IVRS : Interactive Voice Response System

Technology Journey



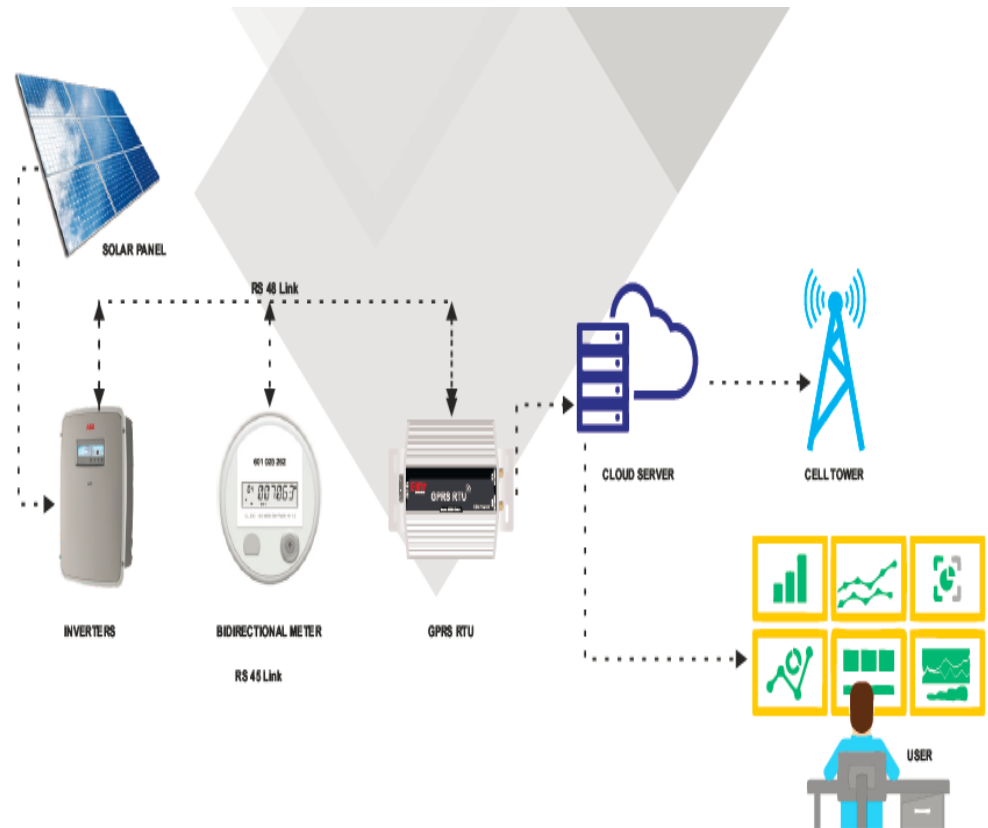
Technological innovation has been a regular feature

New Initiatives – Non-Wired Alternatives



DERMS (Solar Rooftop PV Installation)

- Centralized view of installations with key performance indicators
- Map-based dashboard to highlight demand-supply gap, sources of energy
- Drill-down to site level for alerts
- Real-time performance monitoring of installations
- Predict asset-condition based on analysis of actual versus expected energy output
- Automated alerts, notifications and task creation
- Analyzes plant performance metrics to estimate and project Soiling losses
- Also recommends cleaning days based on cost of cleaning vs cost of lost productivity
- Access to energy forecast
- Clear visibility on cause of low output and triggering of corrective action



BRP Solar Rooftop Dashboard

BSES
BSES Rajdhani Power Limited

Brpl Rooftop Dashboard

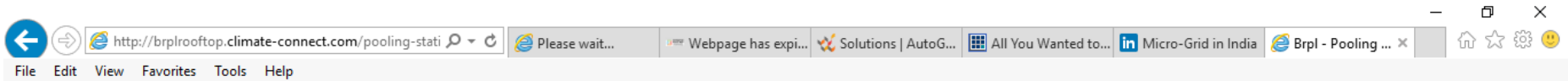
BRPL Rooftop PLANTS (8 KW)

Plant Table

S. No.	Plant Name	AC Capacity (KW)	CUF (%)	Last Updated	Status
1	DEMOSITE 8KW GK	8		2018-10-09 11:00:03	

11:04 AM
10/9/2018

BRP Solar Rooftop Dashboard



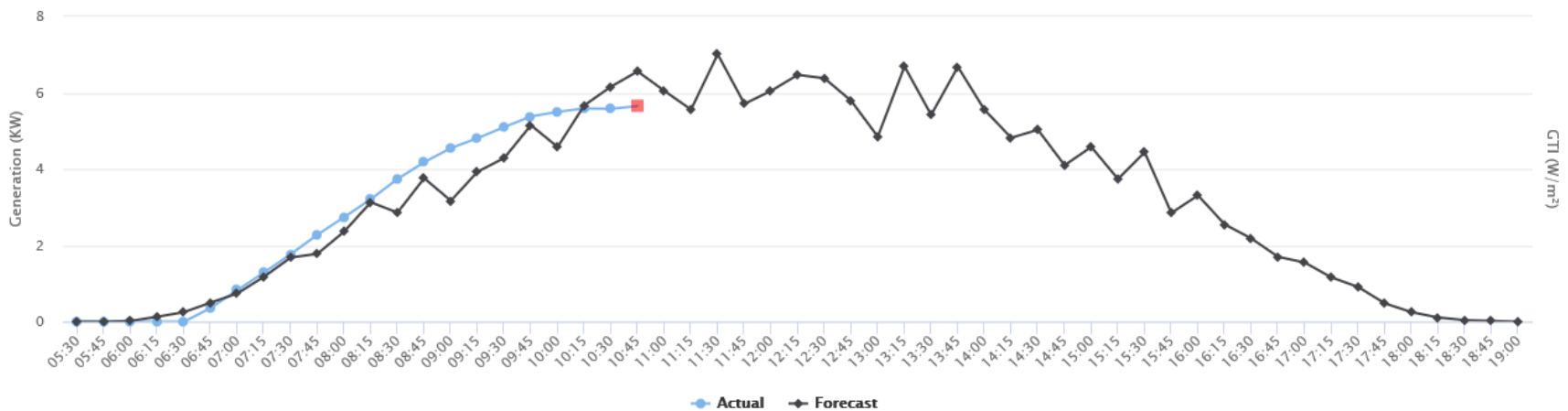
Brpl Rooftop Dashboard

brpl ▾

 Pooling Station DEMOSITE ▾	 Actual Power 5.65 KW	 Day Energy 15.64 kWh	 CUF (%) 8.15	 Date 2018-10-09	 Soil Loss 1.32%
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Live Generation (8 KW)

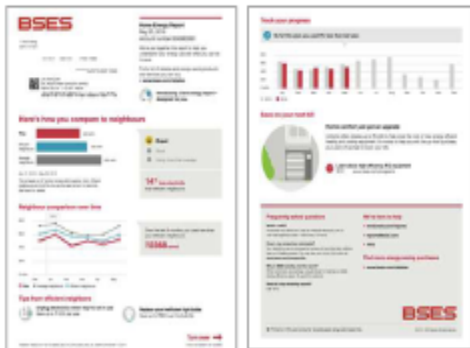
Generation vs Forecast:- 2018-10-09



Behavioral Energy Efficiency Pilot

BEE Pilot: Customer-facing products

Home Energy Report (HER)



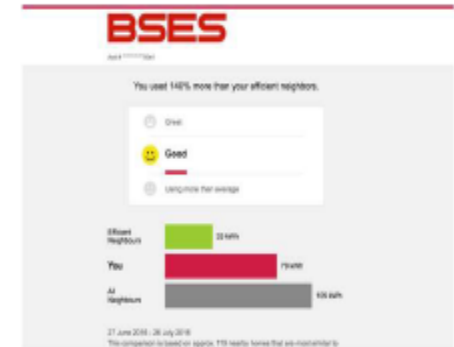
- Domestic customers only
- 2 Lakh customers, 3-4 slabwise tracks (TBC), e.g.:
 - Track 1: High-users (>800 units/month)
 - Track 2: Mid-users (400-800 units/month)
 - Track 3: Low-users (200-400 units/month)
 - Track 4: Lowest-users (150-200 units/month)
- Welcome Letter inserted with first Report
- BRPL's existing vendor to manage print & delivery of HERs
- Experimental design enables rigorous measurement of EE and customer sat impact

Web & Mobile



- Available to all HER customers
- Personalized insights, embeddable as "widgets" into BRPL web :
 - Bill comparison
 - Neighbor comparison
 - Data browser
 - Ways to save
 - Home Energy Analysis (audit tool)
- Entices customer to give more information about how they use energy
- Yields detailed interaction metrics

Email HER



- Available to all HER customers with email address on file
- Electronic version of HER, optimized email channel
- Drives customer traffic to website and mobile app
- Emailed every month
- Yields detailed engagement metrics

Sample Home Energy Report

BSES
BSES Rajdhani Power Limited

POWERING DELHI
EMPOWERING CONSUMERS

BSES Rajdhani Power Limited
BSES Bhawan, Nehru Place
New Delhi - 110 019

Mr DHARNI DHAR KUJAR
615 BLOCK 15 DELHI GOVT STAFF QUARTER
DWARKA SECTOR 03
NEAR DPS DWARKA
WALKING SEQUENCE: S034B0172A8AA
NEW DELHI 110078

Here's how you're doing in comparison



15 Jul, 2018 - 14 Aug, 2018

This is based on 90 homes like yours. Energy-efficient homes are the 20% who use the least amount of electricity. See back for details.

How are you using electricity?



See what uses the most energy in your home

Take a quick online Home Energy Analysis to understand more about how you consume electricity.

→ Log in to take the survey now at bseedelhi.com/group/brpl/hea

Home Energy Report

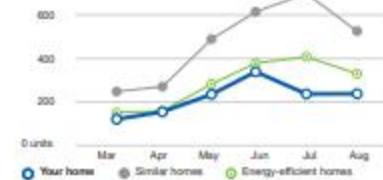
14 August, 2018

CA No. : ██████████

Welcome to your Home Energy Report. Discover how your home is using energy with these personalised reports and exclusive online tools.

Learn more about your use at
▶ www.bseedelhi.com

Electricity comparison over time



In the last 6 months, you used less than energy-efficient homes in your locality.

₹ 1,325 saved on energy charges

Save on your next bill



Replace your old light bulbs (incandescent lamps/CFL lamps/tube lights) with LEDs

The easiest way to substantially reduce the energy used by lighting is to choose LED light bulbs.

These bulbs last much longer, cost much less in the long term, and provide better quality light when compared to CFL or incandescent light bulbs.

Look for LED light bulbs that are BEE star labeled and come with a warranty.

Save up to ₹ 1,680 per year

Frequently Asked Questions

What is a unit?

A unit is a measure of electricity use. A 100-watt lightbulb uses 1 unit in 10 hours.

How is my comparison calculated?

We use similar area, dwelling type, and relevant records for identification of similar homes from our database, typically within a few kilometers of your home within the BSEFL service area.

How do I access the online tool to find more information or update my home's data?

Visit bseedelhi.com/web/brpl/home and log in using your account username and password in the **My Account** menu, or create an account by clicking on the **New User Sign up** link displayed below the **Login** button.

Can I opt out of this program?

Yes. Email us at brpl.homeenergy@relianceoda.com or call us at 19123 / 011-33666707 (Monday-Friday, 7:30 AM-8 PM) to opt out.

The calculation is based on consumption (units). The savings estimate is an indication and may vary from household to household depending on usage, age of appliances and other factors. BSES does not guarantee the amount of money or energy saved while implementing the recommended actions.

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Distributed Energy Storage – Value Stack

Renewable Integration

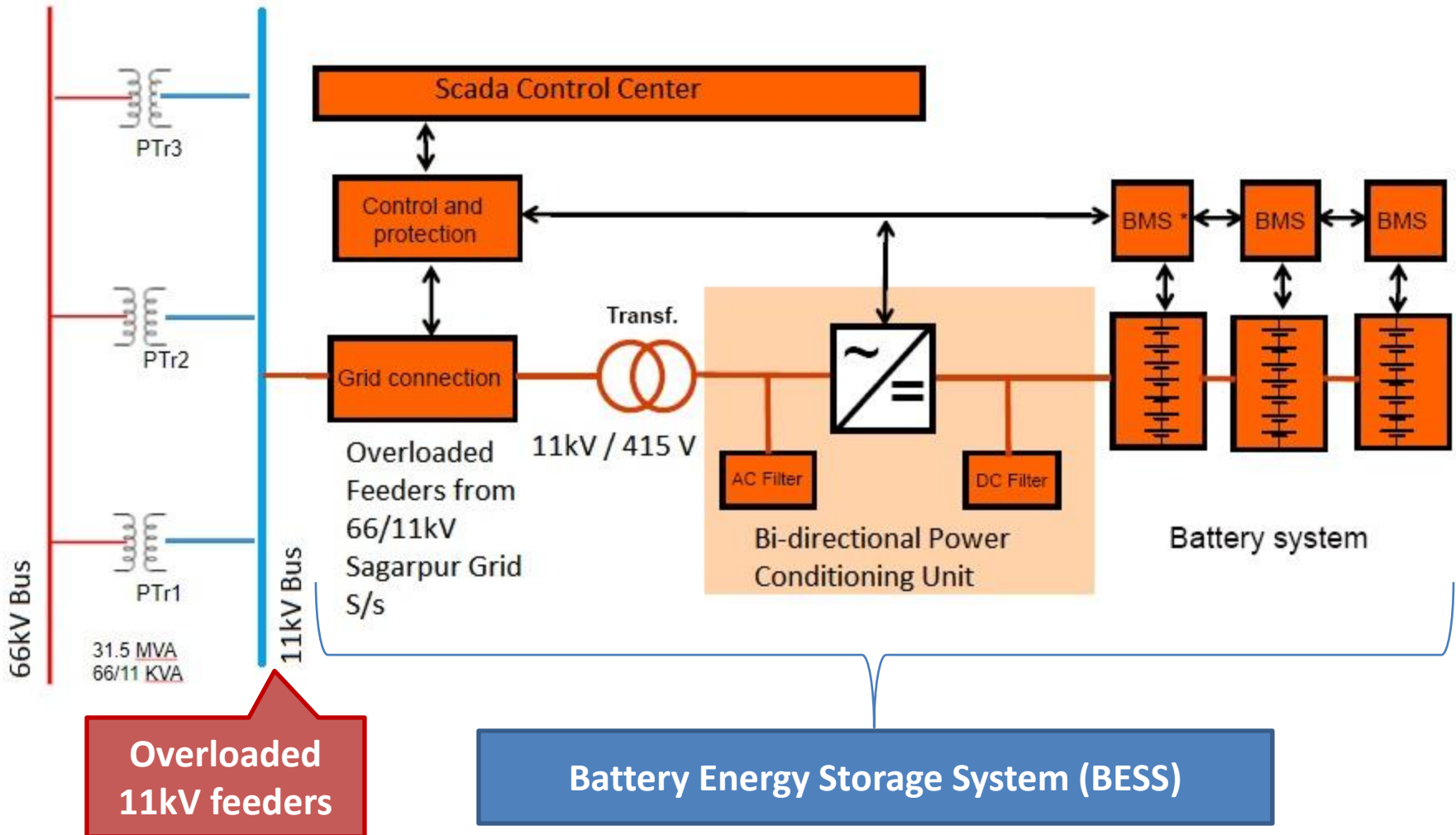
- Improves the integration of renewable energy resources
- Reduces greenhouse gas emissions (Less scheduling of coal resources)

Grid Benefits

- Can be placed strategically in locations on the circuit where they are needed most, with modular designs that address space and other constraints.
- Provides additional capacity to the grid in times of need ; Improve reliability
- Potentially defers capital upgrades
- Benefit from difference in Peak and Off-Peak wholesale energy rates
- Facilitate smoothening of sharp ramp up rate (Duck curve effect)

Can we design a Business Model (Energy as a service) with above benefits in the value stack ?

Schematic Diagram (Indicative)



1. BESS discharges at 11 kV level and relieves the 11kV feeders as well as PTRs
2. The charging of BESS is also achieved from 11 kV feeder

Thank You